

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 50 of 72***

TABLE 3.8 (continued)
SCENARIO 4: DECON WITH 200 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|-------|--------------------------|--------|--------|-------|--------|
| 2094 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2095 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2096 | 5,214 | 4,614 | 0 | 0 | 3,076 | 12,904 |
| 2097 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2098 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2099 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2100 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2101 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2102 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2103 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2104 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2105 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2106 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2107 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2108 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2109 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2110 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2111 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2112 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2113 | 8,280 | 13,841 | 0 | 0 | 3,067 | 25,189 |
| 2114 | 6,742 | 9,227 | 0 | 0 | 3,067 | 19,037 |
| 2115 | 5,536 | 5,609 | 0 | 0 | 3,067 | 14,213 |
| 2116 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2117 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2118 | 6,742 | 9,227 | 0 | 0 | 3,067 | 19,037 |
| 2119 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2120 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2121 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2122 | 7,511 | 11,534 | 0 | 0 | 3,067 | 22,113 |
| 2123 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 51 of 72***

TABLE 3.8 (continued)
SCENARIO 4: DECON WITH 200 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|-------|--------|
| 2124 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2125 | 7,511 | 11,534 | 0 | 0 | 3,067 | 22,113 |
| 2126 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2127 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2128 | 7,521 | 11,534 | 0 | 0 | 3,076 | 22,131 |
| 2129 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2130 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2131 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2132 | 7,521 | 11,534 | 0 | 0 | 3,076 | 22,131 |
| 2133 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2134 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2135 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2136 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2137 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2138 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2139 | 26,781 | 69,344 | 0 | 0 | 3,067 | 99,192 |
| 2140 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2141 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2142 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2143 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2144 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2145 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2146 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2147 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2148 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2149 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2150 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2151 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2152 | 5,983 | 6,921 | 0 | 0 | 3,076 | 15,980 |
| 2153 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 3, Page 52 of 72**

TABLE 3.8 (continued)
SCENARIO 4: DECON WITH 200 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|-------|--------------------------|--------|--------|-------|--------|
| 2154 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2155 | 6,305 | 7,916 | 0 | 0 | 3,067 | 17,288 |
| 2156 | 5,214 | 4,614 | 0 | 0 | 3,076 | 12,904 |
| 2157 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2158 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2159 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2160 | 5,214 | 4,614 | 0 | 0 | 3,076 | 12,904 |
| 2161 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2162 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2163 | 8,280 | 13,841 | 0 | 0 | 3,067 | 25,189 |
| 2164 | 6,752 | 9,227 | 0 | 0 | 3,076 | 19,055 |
| 2165 | 5,204 | 4,614 | 0 | 0 | 3,067 | 12,885 |
| 2166 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2167 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2168 | 6,752 | 9,227 | 0 | 0 | 3,076 | 19,055 |
| 2169 | 5,973 | 6,921 | 0 | 0 | 3,067 | 15,961 |
| 2170 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2171 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2172 | 7,521 | 11,534 | 0 | 0 | 3,076 | 22,131 |
| 2173 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2174 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2175 | 7,511 | 11,534 | 0 | 0 | 3,067 | 22,113 |
| 2176 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2177 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2178 | 7,511 | 11,534 | 0 | 0 | 3,067 | 22,113 |
| 2179 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2180 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2181 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2182 | 7,511 | 11,534 | 0 | 0 | 3,067 | 22,113 |
| 2183 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 3, Page 53 of 72**

TABLE 3.8 (continued)
SCENARIO 4: DECON WITH 200 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|-------|--------|
| 2184 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2185 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2186 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2187 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2188 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2189 | 26,781 | 69,344 | 0 | 0 | 3,067 | 99,192 |
| 2190 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2191 | 3,666 | 0 | 0 | 0 | 3,067 | 6,734 |
| 2192 | 3,676 | 0 | 0 | 0 | 3,076 | 6,752 |
| 2193 | 3,050 | 287 | 0 | 0 | 2,934 | 6,271 |
| 2194 | 3,146 | 574 | 0 | 0 | 2,934 | 6,653 |
| 2195 | 5,784 | 8,490 | 0 | 0 | 2,934 | 17,208 |
| 2196 | 4,740 | 5,331 | 0 | 0 | 2,942 | 13,013 |
| 2197 | 4,636 | 5,044 | 0 | 0 | 2,934 | 12,614 |
| 2198 | 3,241 | 861 | 0 | 0 | 2,934 | 7,036 |
| 2199 | 3,098 | 431 | 0 | 0 | 2,934 | 6,462 |
| 2200 | 5,357 | 7,208 | 0 | 0 | 2,934 | 15,498 |
| 2201 | 5,453 | 7,495 | 0 | 0 | 2,934 | 15,881 |
| 2202 | 5,453 | 7,495 | 0 | 0 | 2,934 | 15,881 |
| 2203 | 3,098 | 431 | 0 | 0 | 2,934 | 6,462 |
| 2204 | 3,154 | 574 | 0 | 0 | 2,942 | 6,670 |
| 2205 | 5,453 | 7,495 | 0 | 0 | 2,934 | 15,881 |
| 2206 | 4,636 | 5,044 | 0 | 0 | 2,934 | 12,614 |
| 2207 | 4,684 | 5,188 | 0 | 0 | 2,934 | 12,805 |
| 2208 | 3,154 | 574 | 0 | 0 | 2,942 | 6,670 |
| 2209 | 4,636 | 5,044 | 0 | 0 | 2,934 | 12,614 |
| 2210 | 4,677 | 5,166 | 0 | 0 | 2,934 | 12,776 |
| 2211 | 4,669 | 5,145 | 0 | 0 | 2,934 | 12,748 |
| 2212 | 3,140 | 531 | 0 | 0 | 2,942 | 6,612 |
| 2213 | 7,745 | 14,372 | 0 | 0 | 2,934 | 25,051 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 54 of 72***

TABLE 3.8 (continued)
SCENARIO 4: DECON WITH 200 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|--------------|------------------|--------------------------|--------------|---------------|----------------|------------------|
| 2214 | 6,207 | 9,759 | 0 | 0 | 2,934 | 18,899 |
| 2215 | 4,669 | 5,145 | 0 | 0 | 2,934 | 12,748 |
| 2216 | 3,140 | 2,195 | 0 | 0 | 12,934 | 18,268 |
| 2217 | 3,146 | 574 | 0 | 0 | 2,934 | 6,653 |
| 2218 | 1,058 | 724 | 15 | 0 | 1,545 | 3,342 |
| 2214 | 6,207 | 9,759 | 0 | 0 | 2,934 | 18,899 |
| 2215 | 4,669 | 5,145 | 0 | 0 | 2,934 | 12,748 |
| 2216 | 3,140 | 2,195 | 0 | 0 | 12,934 | 18,268 |
| 2217 | 3,146 | 574 | 0 | 0 | 2,934 | 6,653 |
| 2218 | 1,058 | 724 | 15 | 0 | 1,545 | 3,342 |
| | | | | | | |
| Total | 1,254,481 | 985,388 | 8,347 | 73,496 | 658,134 | 2,979,847 |

Note: Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 3, Page 55 of 72**

TABLE 3.9
SCENARIO 5: DECON WITH 60 YEAR DFS WITH RECASKING, UNIT 1
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2033 | 22,324 | 776 | 692 | 25 | 9,206 | 33,023 |
| 2034 | 63,582 | 8,741 | 2,434 | 4,050 | 18,997 | 97,804 |
| 2035 | 65,877 | 37,199 | 1,850 | 20,920 | 22,520 | 148,367 |
| 2036 | 57,759 | 22,286 | 1,465 | 22,493 | 20,601 | 124,604 |
| 2037 | 39,808 | 11,582 | 984 | 15,000 | 15,667 | 83,040 |
| 2038 | 13,208 | 8,859 | 348 | 38 | 10,999 | 33,453 |
| 2039 | 36,036 | 65,782 | 409 | 820 | 10,715 | 113,763 |
| 2040 | 31,920 | 3,668 | 559 | 2,729 | 7,660 | 46,535 |
| 2041 | 19,571 | 5,945 | 235 | 16 | 4,500 | 30,267 |
| 2042 | 14,782 | 8,522 | 174 | 0 | 4,223 | 27,701 |
| 2043 | 8,544 | 3,992 | 82 | 0 | 3,669 | 16,287 |
| 2044 | 3,055 | 0 | 0 | 0 | 3,189 | 6,244 |
| 2045 | 5,353 | 6,921 | 0 | 0 | 3,180 | 15,454 |
| 2046 | 4,584 | 4,614 | 0 | 0 | 3,180 | 12,378 |
| 2047 | 4,584 | 4,614 | 0 | 0 | 3,180 | 12,378 |
| 2048 | 3,055 | 0 | 0 | 0 | 3,189 | 6,244 |
| 2049 | 4,584 | 4,614 | 0 | 0 | 3,180 | 12,378 |
| 2050 | 5,353 | 6,921 | 0 | 0 | 3,180 | 15,454 |
| 2051 | 5,159 | 6,339 | 0 | 0 | 3,180 | 14,678 |
| 2052 | 5,362 | 6,921 | 0 | 0 | 3,189 | 15,471 |
| 2053 | 3,142 | 287 | 0 | 0 | 3,180 | 6,609 |
| 2054 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2055 | 5,545 | 7,495 | 0 | 0 | 3,180 | 16,220 |
| 2056 | 4,832 | 5,331 | 0 | 0 | 3,189 | 13,352 |
| 2057 | 5,303 | 6,769 | 0 | 0 | 3,180 | 15,253 |
| 2058 | 3,334 | 861 | 0 | 0 | 3,180 | 7,375 |
| 2059 | 3,190 | 431 | 0 | 0 | 3,180 | 6,801 |
| 2060 | 3,150 | 287 | 0 | 0 | 3,189 | 6,627 |
| 2061 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2062 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 56 of 72***

TABLE 3.9 (continued)
SCENARIO 5: DECON WITH 60 YEAR DFS WITH RECASKING, UNIT 1
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|--------------|----------------|--------------------------|--------------|---------------|----------------|------------------|
| 2063 | 3,190 | 431 | 0 | 0 | 3,180 | 6,801 |
| 2064 | 3,246 | 574 | 0 | 0 | 3,189 | 7,009 |
| 2065 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2066 | 3,190 | 431 | 0 | 0 | 3,180 | 6,801 |
| 2067 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2068 | 3,246 | 574 | 0 | 0 | 3,189 | 7,009 |
| 2069 | 3,190 | 431 | 0 | 0 | 3,180 | 6,801 |
| 2070 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2071 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2072 | 3,246 | 574 | 0 | 0 | 3,189 | 7,009 |
| 2073 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2074 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2075 | 3,570 | 1,570 | 0 | 0 | 3,180 | 8,320 |
| 2076 | 3,246 | 574 | 0 | 0 | 3,189 | 7,009 |
| 2077 | 3,238 | 2,238 | 0 | 0 | 13,164 | 18,641 |
| 2078 | 983 | 594 | 15 | 2,862 | 1,678 | 6,132 |
| | | | | | | |
| Total | 502,484 | 252,913 | 9,246 | 68,953 | 248,627 | 1,082,223 |

Note: Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 57 of 72***

TABLE 3.10
SCENARIO 5: DECON WITH 60 YEAR DFS WITH RECASKING, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2034 | 7,760 | 336 | 305 | 10 | 5,078 | 13,490 |
| 2035 | 46,911 | 5,748 | 2,047 | 1,819 | 27,237 | 83,763 |
| 2036 | 67,514 | 40,656 | 2,261 | 23,855 | 20,777 | 155,063 |
| 2037 | 72,593 | 30,228 | 1,413 | 27,883 | 17,376 | 149,494 |
| 2038 | 46,604 | 15,462 | 847 | 13,940 | 13,784 | 90,636 |
| 2039 | 40,664 | 65,972 | 409 | 933 | 11,388 | 119,366 |
| 2040 | 37,417 | 4,345 | 559 | 3,106 | 7,433 | 52,861 |
| 2041 | 23,328 | 9,482 | 235 | 16 | 4,587 | 37,648 |
| 2042 | 16,657 | 13,784 | 174 | 0 | 4,471 | 35,086 |
| 2043 | 9,423 | 6,458 | 82 | 0 | 3,785 | 19,747 |
| 2044 | 3,055 | 0 | 0 | 0 | 3,189 | 6,244 |
| 2045 | 5,353 | 6,921 | 0 | 0 | 3,180 | 15,454 |
| 2046 | 4,584 | 4,614 | 0 | 0 | 3,180 | 12,378 |
| 2047 | 4,584 | 4,614 | 0 | 0 | 3,180 | 12,378 |
| 2048 | 3,055 | 0 | 0 | 0 | 3,189 | 6,244 |
| 2049 | 4,584 | 4,614 | 0 | 0 | 3,180 | 12,378 |
| 2050 | 5,353 | 6,921 | 0 | 0 | 3,180 | 15,454 |
| 2051 | 5,159 | 6,339 | 0 | 0 | 3,180 | 14,678 |
| 2052 | 5,362 | 6,921 | 0 | 0 | 3,189 | 15,471 |
| 2053 | 3,142 | 287 | 0 | 0 | 3,180 | 6,609 |
| 2054 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2055 | 5,545 | 7,495 | 0 | 0 | 3,180 | 16,220 |
| 2056 | 4,832 | 5,331 | 0 | 0 | 3,189 | 13,352 |
| 2057 | 5,303 | 6,769 | 0 | 0 | 3,180 | 15,253 |
| 2058 | 3,334 | 861 | 0 | 0 | 3,180 | 7,375 |
| 2059 | 3,190 | 431 | 0 | 0 | 3,180 | 6,801 |
| 2060 | 3,150 | 287 | 0 | 0 | 3,189 | 6,627 |
| 2061 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2062 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2063 | 3,190 | 431 | 0 | 0 | 3,180 | 6,801 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 58 of 72***

TABLE 3.10 (continued)
SCENARIO 5: DECON WITH 60 YEAR DFS WITH RECASKING, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|--------------|----------------|--------------------------|--------------|---------------|----------------|------------------|
| 2064 | 3,246 | 574 | 0 | 0 | 3,189 | 7,009 |
| 2065 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2066 | 3,190 | 431 | 0 | 0 | 3,180 | 6,801 |
| 2067 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2068 | 3,246 | 574 | 0 | 0 | 3,189 | 7,009 |
| 2069 | 3,190 | 431 | 0 | 0 | 3,180 | 6,801 |
| 2070 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2071 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2072 | 3,246 | 574 | 0 | 0 | 3,189 | 7,009 |
| 2073 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2074 | 3,238 | 574 | 0 | 0 | 3,180 | 6,992 |
| 2075 | 3,570 | 1,570 | 0 | 0 | 3,180 | 8,320 |
| 2076 | 3,246 | 574 | 0 | 0 | 3,189 | 7,009 |
| 2077 | 3,238 | 2,238 | 0 | 0 | 13,164 | 18,641 |
| 2078 | 983 | 594 | 15 | 2,862 | 1,678 | 6,132 |
| | | | | | | |
| Total | 497,942 | 268,032 | 8,347 | 74,423 | 235,787 | 1,084,531 |

Note: Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 59 of 72***

TABLE 3.11
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS, UNIT 1
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2033 | 18,447 | 579 | 692 | 25 | 4,145 | 23,888 |
| 2034 | 46,143 | 3,822 | 1,742 | 503 | 24,345 | 76,555 |
| 2035 | 16,590 | 2,662 | 497 | 150 | 14,007 | 33,906 |
| 2036 | 12,851 | 1,279 | 349 | 21 | 13,950 | 28,450 |
| 2037 | 12,769 | 1,134 | 348 | 21 | 13,912 | 28,184 |
| 2038 | 12,721 | 990 | 348 | 21 | 13,912 | 27,992 |
| 2039 | 32,557 | 64,654 | 318 | 19 | 12,377 | 109,925 |
| 2040 | 4,748 | 727 | 175 | 11 | 5,173 | 10,832 |
| 2041 | 4,783 | 870 | 174 | 11 | 5,159 | 10,996 |
| 2042 | 4,735 | 726 | 174 | 11 | 5,159 | 10,804 |
| 2043 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2044 | 4,700 | 583 | 175 | 11 | 5,173 | 10,641 |
| 2045 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2046 | 4,592 | 295 | 174 | 11 | 5,159 | 10,230 |
| 2047 | 4,592 | 295 | 174 | 11 | 5,159 | 10,230 |
| 2048 | 4,604 | 296 | 175 | 11 | 5,173 | 10,258 |
| 2049 | 4,592 | 295 | 174 | 11 | 5,159 | 10,230 |
| 2050 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2051 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2052 | 4,700 | 583 | 175 | 11 | 5,173 | 10,641 |
| 2053 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2054 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2055 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2056 | 4,700 | 583 | 175 | 11 | 5,173 | 10,641 |
| 2057 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2058 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2059 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2060 | 4,700 | 583 | 175 | 11 | 5,173 | 10,641 |
| 2061 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2062 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 3, Page 60 of 72**

TABLE 3.11 (continued)
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS, UNIT 1
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2063 | 4,687 | 582 | 174 | 11 | 5,159 | 10,613 |
| 2064 | 4,696 | 572 | 175 | 11 | 5,173 | 10,626 |
| 2065 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2066 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2067 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2068 | 3,953 | 295 | 175 | 10 | 3,256 | 7,689 |
| 2069 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2070 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2071 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2072 | 3,953 | 295 | 175 | 10 | 3,256 | 7,689 |
| 2073 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2074 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2075 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2076 | 3,953 | 295 | 175 | 10 | 3,256 | 7,689 |
| 2077 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2078 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2079 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2080 | 3,953 | 295 | 175 | 10 | 3,256 | 7,689 |
| 2081 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2082 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2083 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2084 | 3,953 | 295 | 175 | 10 | 3,256 | 7,689 |
| 2085 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2086 | 3,942 | 294 | 174 | 10 | 3,247 | 7,668 |
| 2087 | 18,999 | 2,111 | 758 | 729 | 3,199 | 25,796 |
| 2088 | 45,688 | 5,640 | 1,747 | 1,239 | 3,031 | 57,345 |
| 2089 | 52,326 | 36,394 | 1,665 | 20,208 | 15,137 | 125,731 |
| 2090 | 41,397 | 18,920 | 1,422 | 17,534 | 10,610 | 89,883 |
| 2091 | 35,648 | 8,162 | 1,306 | 14,802 | 7,509 | 67,427 |
| 2092 | 8,980 | 1,167 | 197 | 1,677 | 3,040 | 15,061 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 61 of 72***

TABLE 3.11 (continued)
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS, UNIT 1
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|--------------|----------------|--------------------------|---------------|---------------|----------------|------------------|
| 2093 | 18,089 | 3,901 | 279 | 27 | 2,021 | 24,317 |
| 2094 | 12,585 | 8,129 | 174 | 0 | 962 | 21,849 |
| 2095 | 9,102 | 5,880 | 126 | 0 | 695 | 15,803 |
| | | | | | | |
| Total | 598,752 | 185,878 | 20,162 | 57,466 | 343,387 | 1,205,645 |

Note: Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 62 of 72***

TABLE 3.12
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2034 | 7,249 | 254 | 305 | 11 | 3,507 | 11,325 |
| 2035 | 45,009 | 5,734 | 1,742 | 336 | 26,288 | 79,109 |
| 2036 | 23,213 | 3,341 | 807 | 447 | 17,173 | 44,981 |
| 2037 | 10,905 | 1,140 | 348 | 19 | 12,561 | 24,974 |
| 2038 | 10,857 | 996 | 348 | 19 | 12,561 | 24,782 |
| 2039 | 31,030 | 64,662 | 318 | 18 | 11,274 | 107,302 |
| 2040 | 4,803 | 745 | 175 | 11 | 5,235 | 10,969 |
| 2041 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2042 | 4,791 | 744 | 174 | 11 | 5,221 | 10,941 |
| 2043 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2044 | 4,756 | 602 | 175 | 11 | 5,235 | 10,778 |
| 2045 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2046 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2047 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2048 | 4,660 | 315 | 175 | 11 | 5,235 | 10,395 |
| 2049 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2050 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2051 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2052 | 4,756 | 602 | 175 | 11 | 5,235 | 10,778 |
| 2053 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2054 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2055 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2056 | 4,756 | 602 | 175 | 11 | 5,235 | 10,778 |
| 2057 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2058 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2059 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2060 | 4,756 | 602 | 175 | 11 | 5,235 | 10,778 |
| 2061 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2062 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |
| 2063 | 4,743 | 601 | 174 | 11 | 5,221 | 10,749 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 63 of 72***

TABLE 3.12 (continued)
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2064 | 4,752 | 590 | 175 | 11 | 5,235 | 10,762 |
| 2065 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2066 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2067 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2068 | 826 | 308 | 175 | 10 | 3,365 | 4,683 |
| 2069 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2070 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2071 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2072 | 826 | 308 | 175 | 10 | 3,365 | 4,683 |
| 2073 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2074 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2075 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2076 | 826 | 308 | 175 | 10 | 3,365 | 4,683 |
| 2077 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2078 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2079 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2080 | 826 | 308 | 175 | 10 | 3,365 | 4,683 |
| 2081 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2082 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2083 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2084 | 826 | 308 | 175 | 10 | 3,365 | 4,683 |
| 2085 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2086 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2087 | 823 | 308 | 174 | 10 | 3,355 | 4,670 |
| 2088 | 16,232 | 2,279 | 1,042 | 1,079 | 3,151 | 23,784 |
| 2089 | 30,943 | 7,318 | 1,737 | 2,199 | 3,588 | 45,784 |
| 2090 | 57,907 | 44,332 | 1,655 | 23,815 | 17,213 | 144,922 |
| 2091 | 55,239 | 13,374 | 1,333 | 18,095 | 8,227 | 96,268 |
| 2092 | 51,390 | 9,469 | 1,171 | 15,116 | 6,778 | 83,924 |
| 2093 | 23,224 | 6,185 | 279 | 27 | 1,746 | 31,462 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 64 of 72***

TABLE 3.12 (continued)
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|--------------|----------------|--------------------------|---------------|---------------|----------------|------------------|
| 2094 | 14,461 | 13,418 | 174 | 0 | 594 | 28,648 |
| 2095 | 10,459 | 9,705 | 126 | 0 | 430 | 20,720 |
| | | | | | | |
| Total | 525,529 | 203,731 | 19,753 | 61,668 | 332,940 | 1,143,621 |

Note: Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 65 of 72***

TABLE 3.13
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS, UNIT 1
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2033 | 18,447 | 579 | 692 | 25 | 4,145 | 23,888 |
| 2034 | 46,143 | 3,822 | 1,742 | 503 | 24,345 | 76,555 |
| 2035 | 16,399 | 2,087 | 497 | 150 | 14,007 | 33,141 |
| 2036 | 12,660 | 705 | 349 | 21 | 13,950 | 27,684 |
| 2037 | 12,625 | 704 | 348 | 21 | 13,912 | 27,610 |
| 2038 | 15,404 | 9,041 | 348 | 21 | 13,912 | 38,727 |
| 2039 | 32,688 | 65,048 | 318 | 19 | 12,390 | 110,463 |
| 2040 | 4,604 | 296 | 175 | 11 | 5,246 | 10,331 |
| 2041 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2042 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2043 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2044 | 4,604 | 296 | 175 | 11 | 5,246 | 10,331 |
| 2045 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2046 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2047 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2048 | 4,604 | 296 | 175 | 11 | 5,246 | 10,331 |
| 2049 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2050 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2051 | 4,592 | 295 | 174 | 11 | 5,231 | 10,303 |
| 2052 | 4,604 | 296 | 175 | 11 | 5,246 | 10,331 |
| 2053 | 4,687 | 582 | 174 | 11 | 5,231 | 10,686 |
| 2054 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2055 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2056 | 4,843 | 1,014 | 175 | 11 | 5,246 | 11,288 |
| 2057 | 4,735 | 726 | 174 | 11 | 5,231 | 10,877 |
| 2058 | 4,879 | 1,157 | 174 | 11 | 5,231 | 11,451 |
| 2059 | 4,735 | 726 | 174 | 11 | 5,231 | 10,877 |
| 2060 | 4,700 | 583 | 175 | 11 | 5,246 | 10,714 |
| 2061 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2062 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 66 of 72***

TABLE 3.13 (continued)
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS, UNIT 1
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2063 | 4,735 | 726 | 174 | 11 | 5,231 | 10,877 |
| 2064 | 4,796 | 870 | 175 | 11 | 5,246 | 11,097 |
| 2065 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2066 | 4,735 | 726 | 174 | 11 | 5,231 | 10,877 |
| 2067 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2068 | 4,796 | 870 | 175 | 11 | 5,246 | 11,097 |
| 2069 | 4,735 | 726 | 174 | 11 | 5,231 | 10,877 |
| 2070 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2071 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2072 | 4,796 | 870 | 175 | 11 | 5,246 | 11,097 |
| 2073 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2074 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2075 | 5,115 | 1,865 | 174 | 11 | 5,231 | 12,396 |
| 2076 | 4,796 | 870 | 175 | 11 | 5,246 | 11,097 |
| 2077 | 4,783 | 870 | 174 | 11 | 5,231 | 11,069 |
| 2078 | 3,942 | 294 | 174 | 10 | 2,778 | 7,199 |
| 2079 | 3,942 | 294 | 174 | 10 | 2,778 | 7,199 |
| 2080 | 3,953 | 295 | 175 | 10 | 2,786 | 7,219 |
| 2081 | 3,942 | 294 | 174 | 10 | 2,778 | 7,199 |
| 2082 | 3,942 | 294 | 174 | 10 | 2,778 | 7,199 |
| 2083 | 3,942 | 294 | 174 | 10 | 2,778 | 7,199 |
| 2084 | 3,953 | 295 | 175 | 10 | 2,786 | 7,219 |
| 2085 | 3,942 | 294 | 174 | 10 | 2,778 | 7,199 |
| 2086 | 3,942 | 294 | 174 | 10 | 2,778 | 7,199 |
| 2087 | 11,803 | 1,243 | 479 | 386 | 2,844 | 16,754 |
| 2088 | 45,111 | 5,423 | 1,747 | 1,574 | 3,061 | 56,916 |
| 2089 | 51,818 | 31,091 | 1,681 | 16,603 | 12,903 | 114,096 |
| 2090 | 44,188 | 24,104 | 1,471 | 19,038 | 12,141 | 100,943 |
| 2091 | 35,668 | 8,206 | 1,306 | 14,802 | 7,520 | 67,503 |
| 2092 | 13,716 | 2,324 | 383 | 3,784 | 3,768 | 23,975 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 67 of 72***

TABLE 3.13 (continued)
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS, UNIT 1
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|--------------|----------------|--------------------------|---------------|---------------|----------------|------------------|
| 2093 | 18,089 | 3,901 | 279 | 27 | 2,021 | 24,317 |
| 2094 | 12,585 | 8,129 | 174 | 0 | 962 | 21,849 |
| 2095 | 9,102 | 5,880 | 126 | 0 | 695 | 15,803 |
| | | | | | | |
| Total | 611,385 | 200,655 | 20,134 | 57,467 | 366,528 | 1,256,169 |

Note: Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 68 of 72***

TABLE 3.14
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2034 | 7,249 | 254 | 305 | 11 | 3,507 | 11,325 |
| 2035 | 44,818 | 5,160 | 1,742 | 336 | 26,288 | 78,343 |
| 2036 | 23,021 | 2,767 | 807 | 447 | 17,173 | 44,216 |
| 2037 | 10,761 | 710 | 348 | 19 | 12,561 | 24,400 |
| 2038 | 13,540 | 9,047 | 348 | 19 | 12,561 | 35,517 |
| 2039 | 31,161 | 65,056 | 318 | 18 | 11,274 | 107,827 |
| 2040 | 4,660 | 315 | 175 | 11 | 5,236 | 10,395 |
| 2041 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2042 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2043 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2044 | 4,660 | 315 | 175 | 11 | 5,236 | 10,395 |
| 2045 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2046 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2047 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2048 | 4,660 | 315 | 175 | 11 | 5,236 | 10,395 |
| 2049 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2050 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2051 | 4,647 | 314 | 174 | 11 | 5,221 | 10,367 |
| 2052 | 4,660 | 315 | 175 | 11 | 5,236 | 10,395 |
| 2053 | 4,743 | 601 | 174 | 11 | 5,221 | 10,750 |
| 2054 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2055 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2056 | 4,899 | 1,032 | 175 | 11 | 5,236 | 11,352 |
| 2057 | 4,791 | 744 | 174 | 11 | 5,221 | 10,941 |
| 2058 | 4,934 | 1,175 | 174 | 11 | 5,221 | 11,515 |
| 2059 | 4,791 | 744 | 174 | 11 | 5,221 | 10,941 |
| 2060 | 4,756 | 602 | 175 | 11 | 5,236 | 10,778 |
| 2061 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2062 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2063 | 4,791 | 744 | 174 | 11 | 5,221 | 10,941 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 69 of 72***

TABLE 3.14 (continued)
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|------|--------|--------------------------|--------|--------|--------|---------|
| 2064 | 4,851 | 889 | 175 | 11 | 5,236 | 11,161 |
| 2065 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2066 | 4,791 | 744 | 174 | 11 | 5,221 | 10,941 |
| 2067 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2068 | 4,851 | 889 | 175 | 11 | 5,236 | 11,161 |
| 2069 | 4,791 | 744 | 174 | 11 | 5,221 | 10,941 |
| 2070 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2071 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2072 | 4,851 | 889 | 175 | 11 | 5,236 | 11,161 |
| 2073 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2074 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2075 | 5,170 | 1,883 | 174 | 11 | 5,221 | 12,460 |
| 2076 | 4,851 | 889 | 175 | 11 | 5,236 | 11,161 |
| 2077 | 4,838 | 888 | 174 | 11 | 5,221 | 11,132 |
| 2078 | 823 | 308 | 174 | 10 | 2,781 | 4,096 |
| 2079 | 823 | 308 | 174 | 10 | 2,781 | 4,096 |
| 2080 | 826 | 308 | 175 | 10 | 2,789 | 4,107 |
| 2081 | 823 | 308 | 174 | 10 | 2,781 | 4,096 |
| 2082 | 823 | 308 | 174 | 10 | 2,781 | 4,096 |
| 2083 | 823 | 308 | 174 | 10 | 2,781 | 4,096 |
| 2084 | 826 | 308 | 175 | 10 | 2,789 | 4,107 |
| 2085 | 823 | 308 | 174 | 10 | 2,781 | 4,096 |
| 2086 | 823 | 308 | 174 | 10 | 2,781 | 4,096 |
| 2087 | 823 | 308 | 174 | 10 | 2,781 | 4,096 |
| 2088 | 11,275 | 1,645 | 763 | 735 | 2,844 | 17,262 |
| 2089 | 29,172 | 4,796 | 1,742 | 1,233 | 2,820 | 39,763 |
| 2090 | 57,665 | 46,374 | 1,665 | 24,775 | 17,714 | 148,193 |
| 2091 | 55,538 | 14,003 | 1,333 | 18,435 | 8,446 | 97,755 |
| 2092 | 51,408 | 9,507 | 1,171 | 15,116 | 6,795 | 83,997 |
| 2093 | 23,224 | 6,185 | 279 | 27 | 1,746 | 31,462 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 3, Page 70 of 72***

TABLE 3.14 (continued)
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS, UNIT 2
TOTAL ANNUAL EXPENDITURES
(thousands, 2017 dollars)

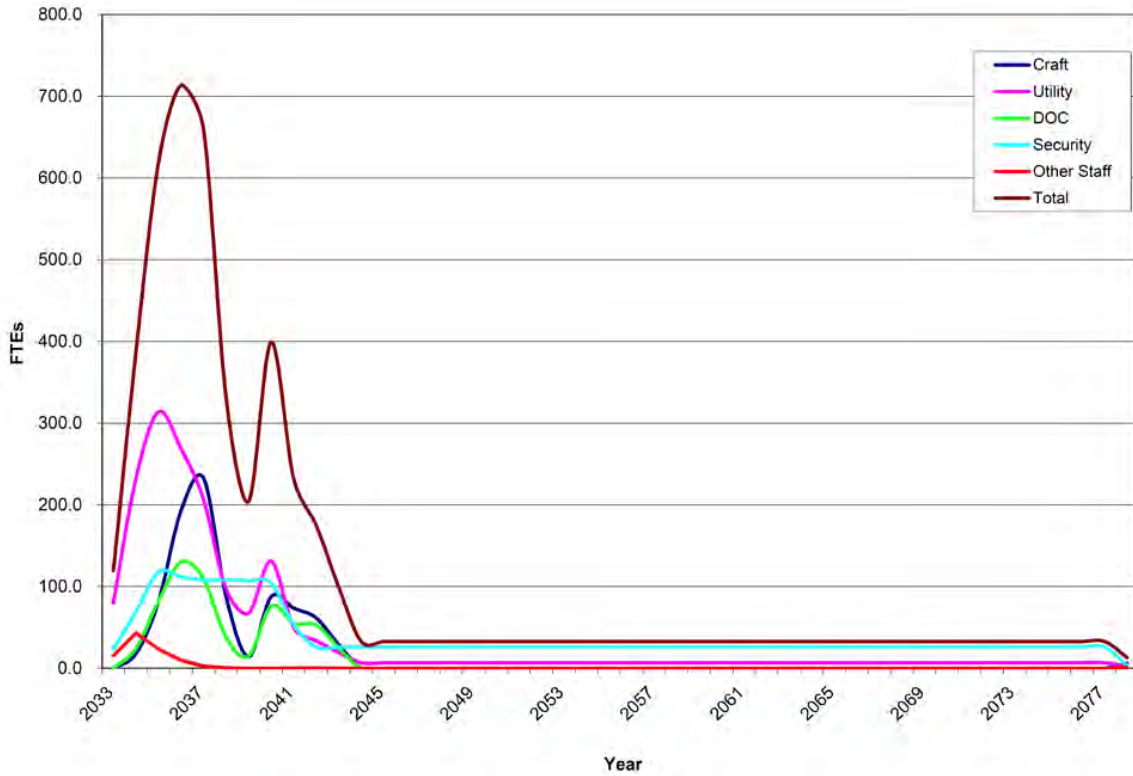
| Year | Labor | Equipment & Materials | Energy | Burial | Other | Total |
|--------------|----------------|--------------------------|---------------|---------------|----------------|------------------|
| 2094 | 14,461 | 13,418 | 174 | 0 | 594 | 28,648 |
| 2095 | 10,459 | 9,705 | 126 | 0 | 430 | 20,720 |
| | | | | | | |
| Total | 573,537 | 218,128 | 19,489 | 61,669 | 351,128 | 1,223,951 |

Note: Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 3, Page 71 of 72**

**FIGURE 3.1
SCENARIO 2: DECON WITH 60 YEAR DFS
PRAIRIE ISLAND NUCLEAR GENERATING PLANT
MANPOWER LEVELS**

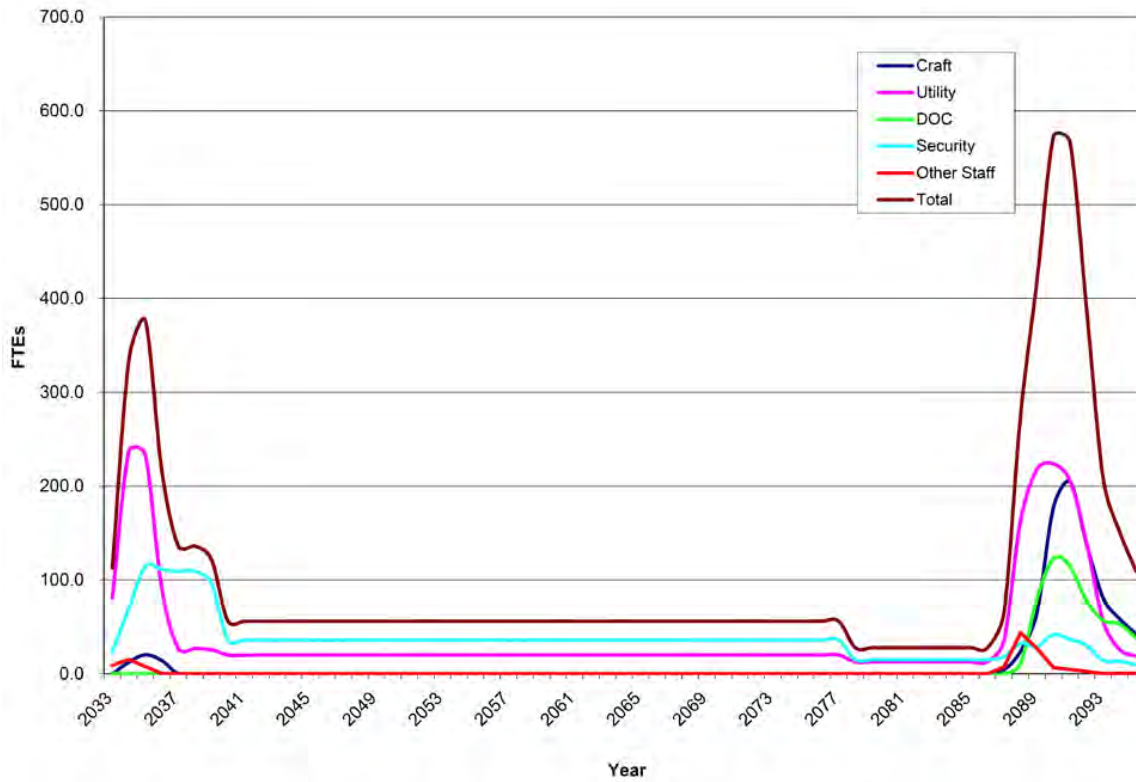


Note that the labor hour basis of this chart was taken from Appendix D; however not all line items in Appendix D have labor hour values available (e.g. spent fuel canister loading estimates from Xcel Energy)

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 3, Page 72 of 72**

**FIGURE 3.2
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS
PRAIRIE ISLAND NUCLEAR GENERATING PLANT
MANPOWER LEVELS**



Note that the labor hour basis of this chart was taken from Appendix I; however not all line items in Appendix I have labor hour values available (e.g. spent fuel canister loading estimates from Xcel Energy)

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 4, Page 1 of 12***

4. SCHEDULE ESTIMATE

The schedules for the decommissioning scenarios considered in this study follow the sequence presented in the AIF/NESP-036 study, with minor changes to reflect recent experience and site-specific constraints. In addition, the scheduling has been revised to reflect the spent fuel management plans described in Section 3.4.1.

A schedule or sequence of activities for the DECON alternative is presented in Figure 4.1. The schedule is also representative of the work activities identified in the delayed dismantling scenarios, absent any spent fuel constraints. The scheduling sequence is based on the fuel being removed from the spent fuel pool within the first five years after operations cease. The key activities listed in the schedule do not reflect a one-to-one correspondence with those activities in the cost tables, but reflect dividing some activities for clarity and combining others for convenience. The schedule was prepared using the "Microsoft Project Professional" computer software.^[40]

4.1 SCHEDULE ESTIMATE ASSUMPTIONS

The schedule reflects the results of a precedence network developed for the site decommissioning activities, i.e., a PERT (Program Evaluation and Review Technique) Software Package. The work activity durations used in the precedence network reflect the actual man-hour estimates from the cost table, adjusted by stretching certain activities over their slack range and shifting the start and end dates of others. The following assumptions were made in the development of the decommissioning schedule:

- The fuel handling area of the auxiliary building is isolated until such time that all spent fuel has been discharged from the storage pool to the DOE or to the ISFSI. Decontamination and dismantling of the spent fuel storage pool is initiated once the transfer of spent fuel is complete (DECON option).
- All work (except vessel and internals removal) is performed during an 8-hour workday, 5 days per week, with no overtime. There are eleven paid holidays per year.
- Reactor and internals removal activities are performed by using separate crews for different activities working on different shifts, with a corresponding backshift charge for the second shift.
- Multiple crews work parallel activities to the maximum extent possible, consistent with optimum efficiency, adequate access for cutting, removal and laydown space, and with the stringent safety measures necessary during demolition of heavy components and structures.

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 4, Page 2 of 12***

- For plant systems removal, the systems with the longest removal durations in areas on the critical path are considered to determine the duration of the activity.

4.2 PROJECT SCHEDULE

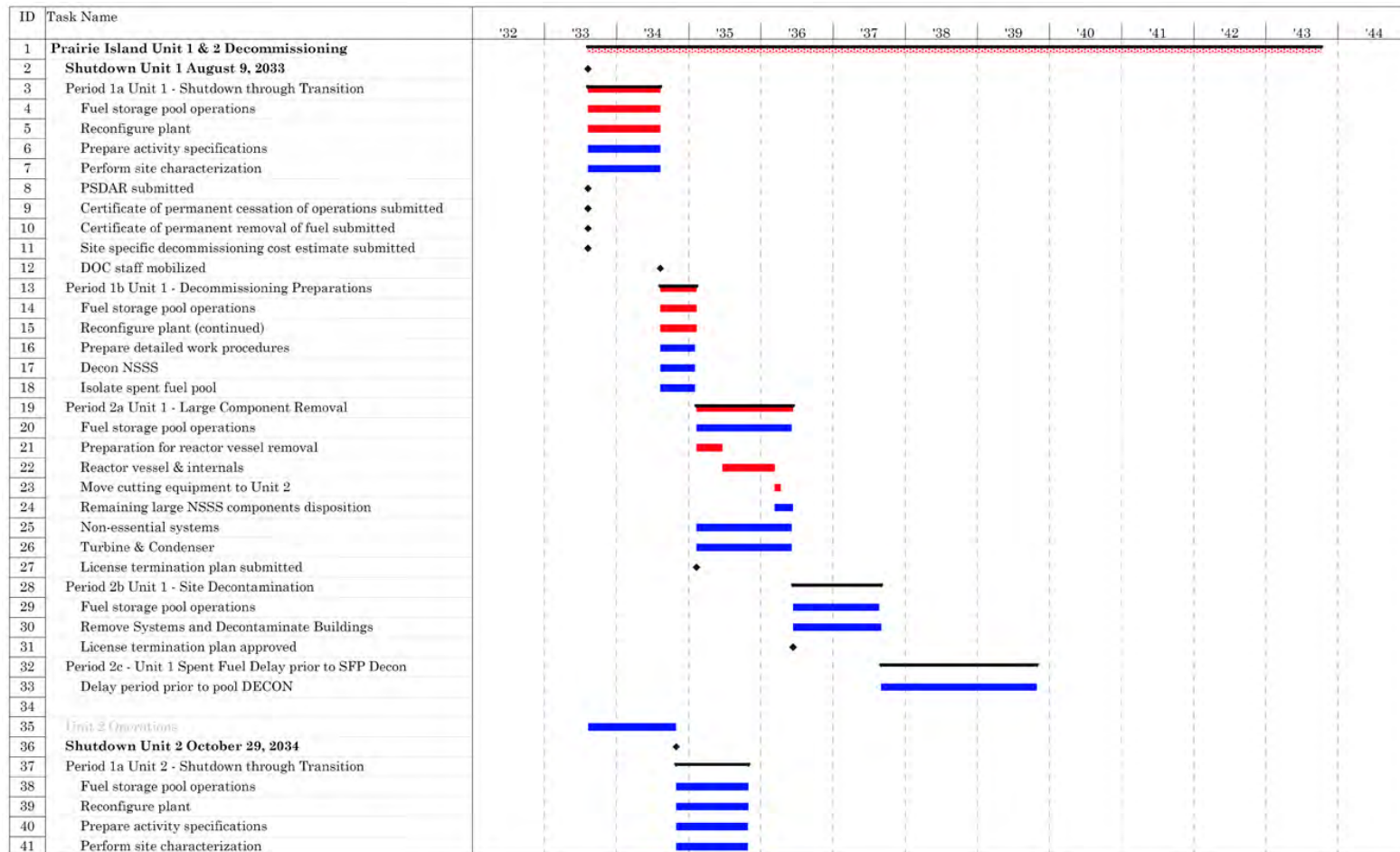
The period-dependent costs presented in the detailed cost tables are based upon the durations developed in the schedules for decommissioning Prairie Island. Durations are established between several milestones in each project period; these durations are used to establish a critical path for the entire project. In turn, the critical path duration for each period is used as the basis for determining the period-dependent costs. A second parallel path is also shown for the spent fuel cooling period, which determines the release of the auxiliary building for final decontamination.

Project timelines are provided in Figures 4.2 through 4.8, with milestone dates based on a 2033/2034 shutdown dates. The fuel pool is emptied approximately five years after shutdown, while ISFSI operations continue until the DOE completes the transfer of assemblies. Deferred decommissioning operations in the SAFSTOR scenarios are assumed to commence so that the operating licenses are terminated within a 60-year period from the cessation of operations

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 4, Page 3 of 12**

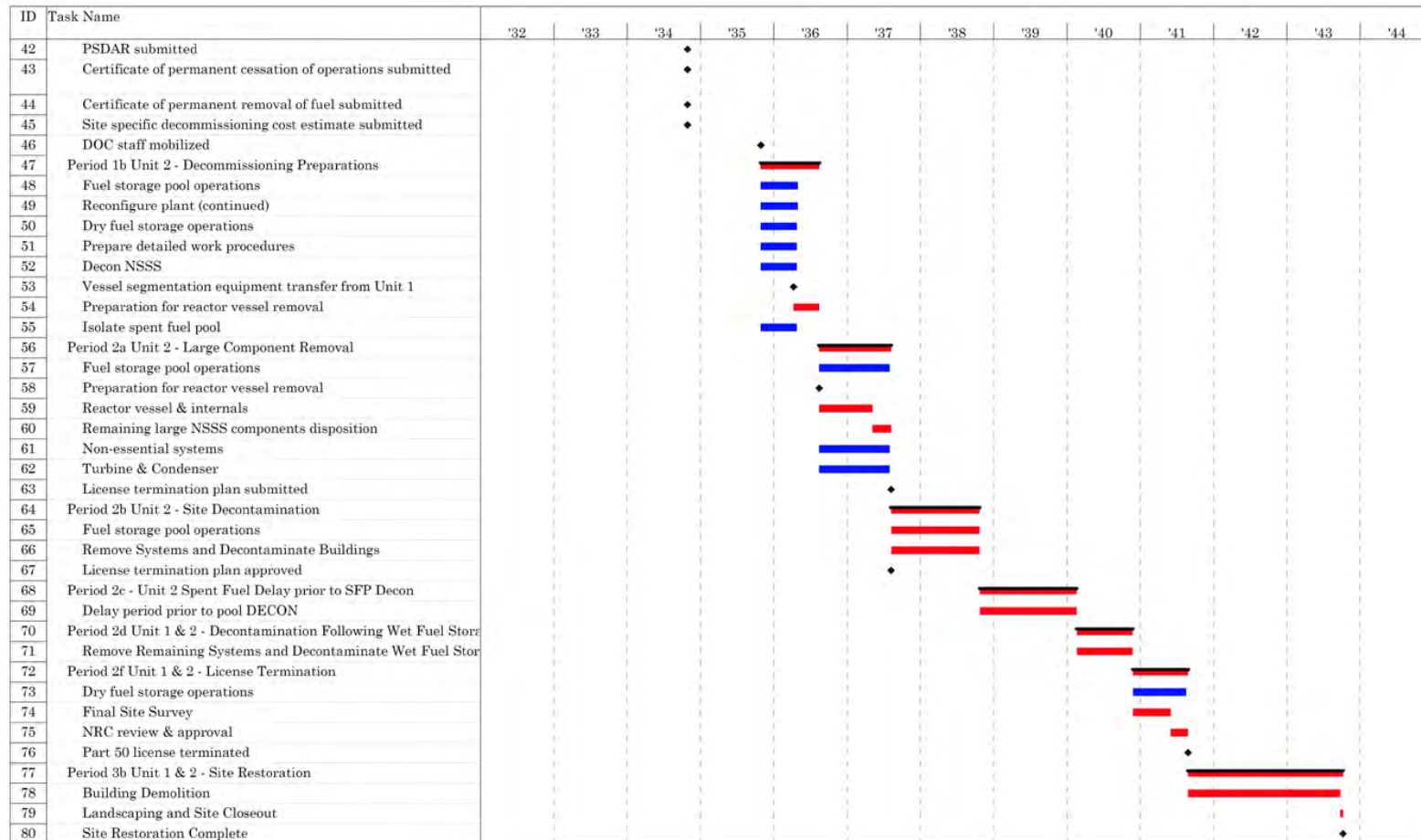
**FIGURE 4.1
DECON ACTIVITY SCHEDULE**



**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 4, Page 4 of 12**

**FIGURE 4.1 (continued)
DECON ACTIVITY SCHEDULE**



***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 4, Page 5 of 12***

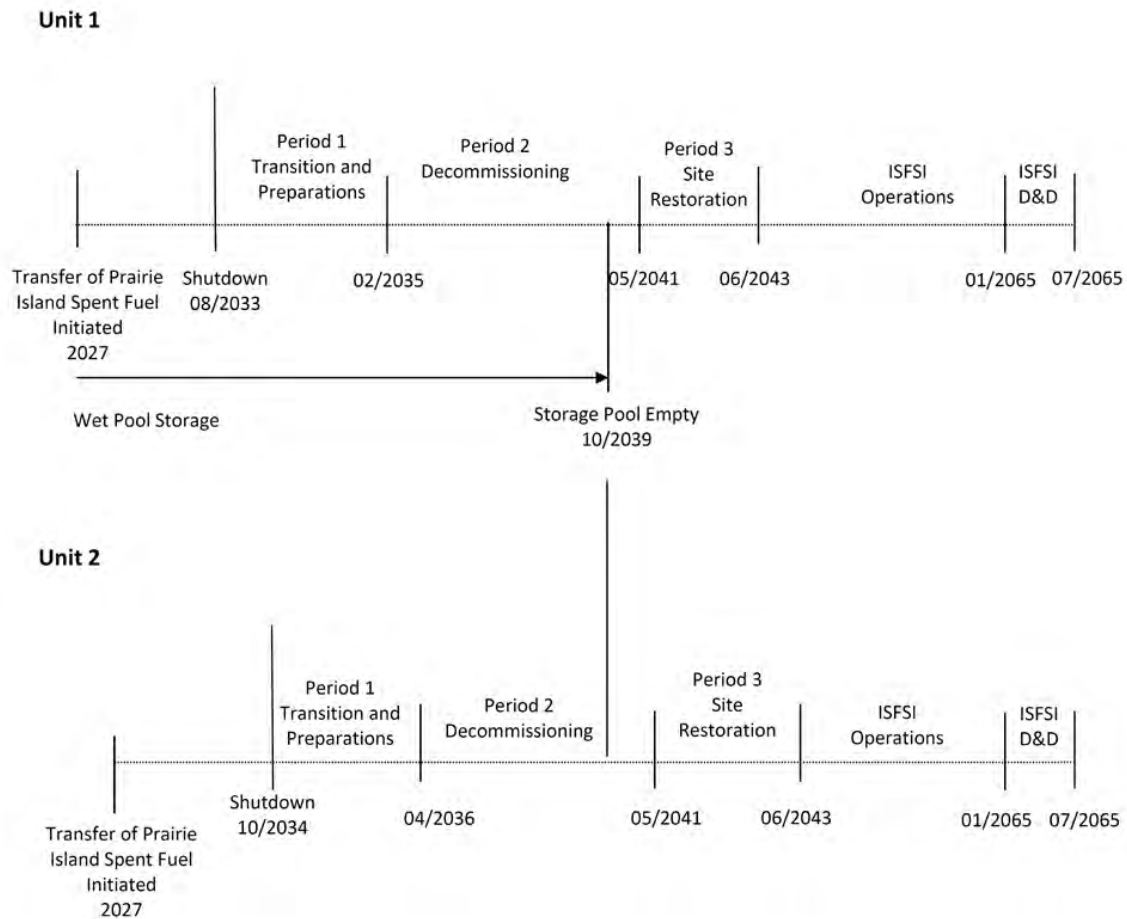
**FIGURE 4.1 (continued)
LEGEND**

1. Red scheduling bars indicate critical path activities
2. Blue scheduling bars associated with non-critical path activities
3. Diamond symbols indicate major milestones

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 4, Page 6 of 12**

**FIGURE 4.2
SCENARIO 1: DECON WITH 32 YEAR DFS
DECOMMISSIONING TIMELINE**
(not to scale)

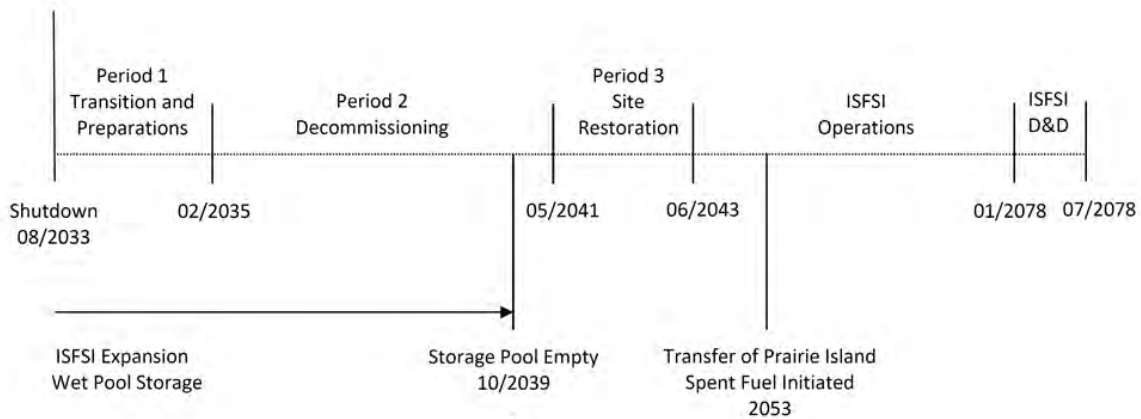


**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

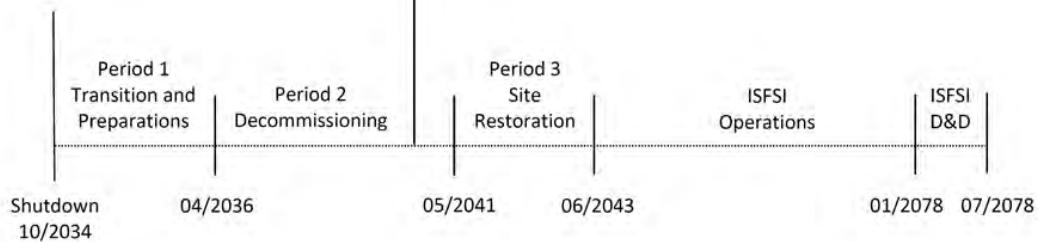
**Document X01-1725-001, Rev. 0
Section 4, Page 7 of 12**

**FIGURE 4.3
SCENARIO 2: DECON WITH 60 YEAR DFS
DECOMMISSIONING TIMELINE
(not to scale)**

Unit 1



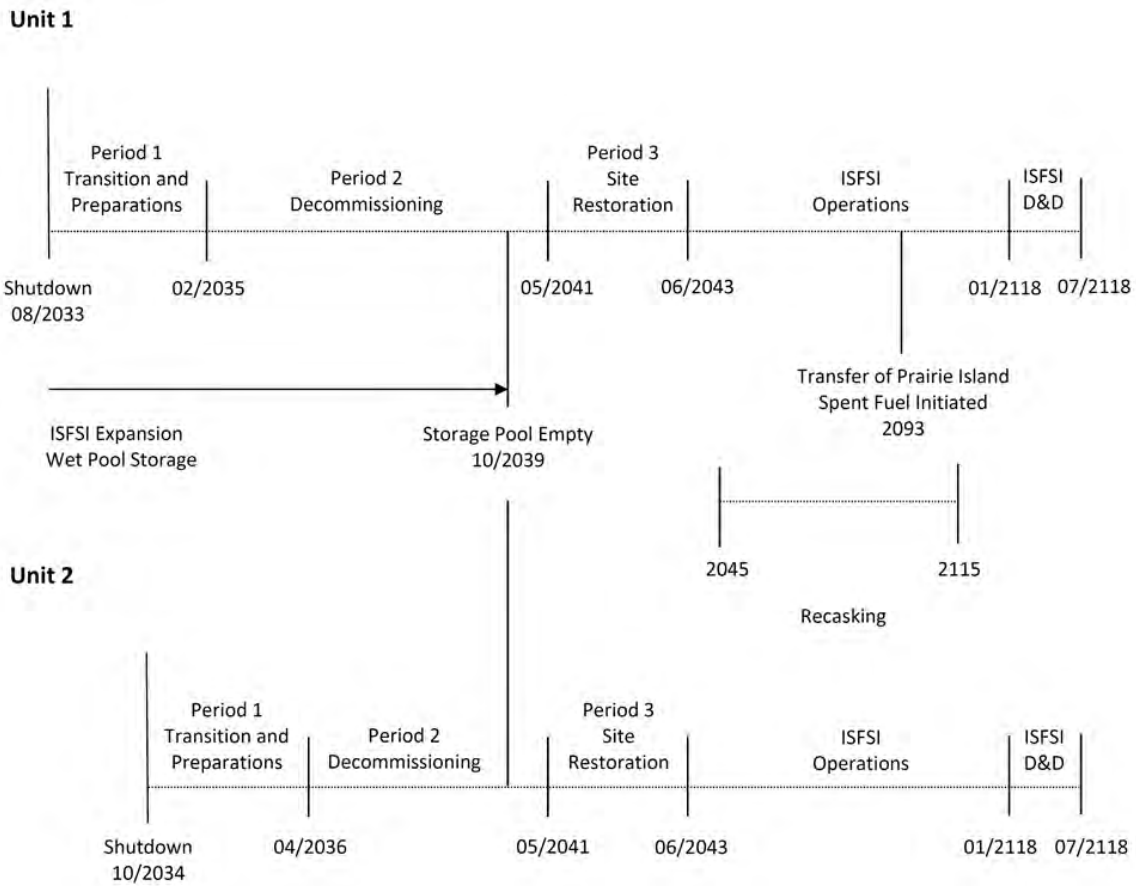
Unit 2



**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 4, Page 8 of 12**

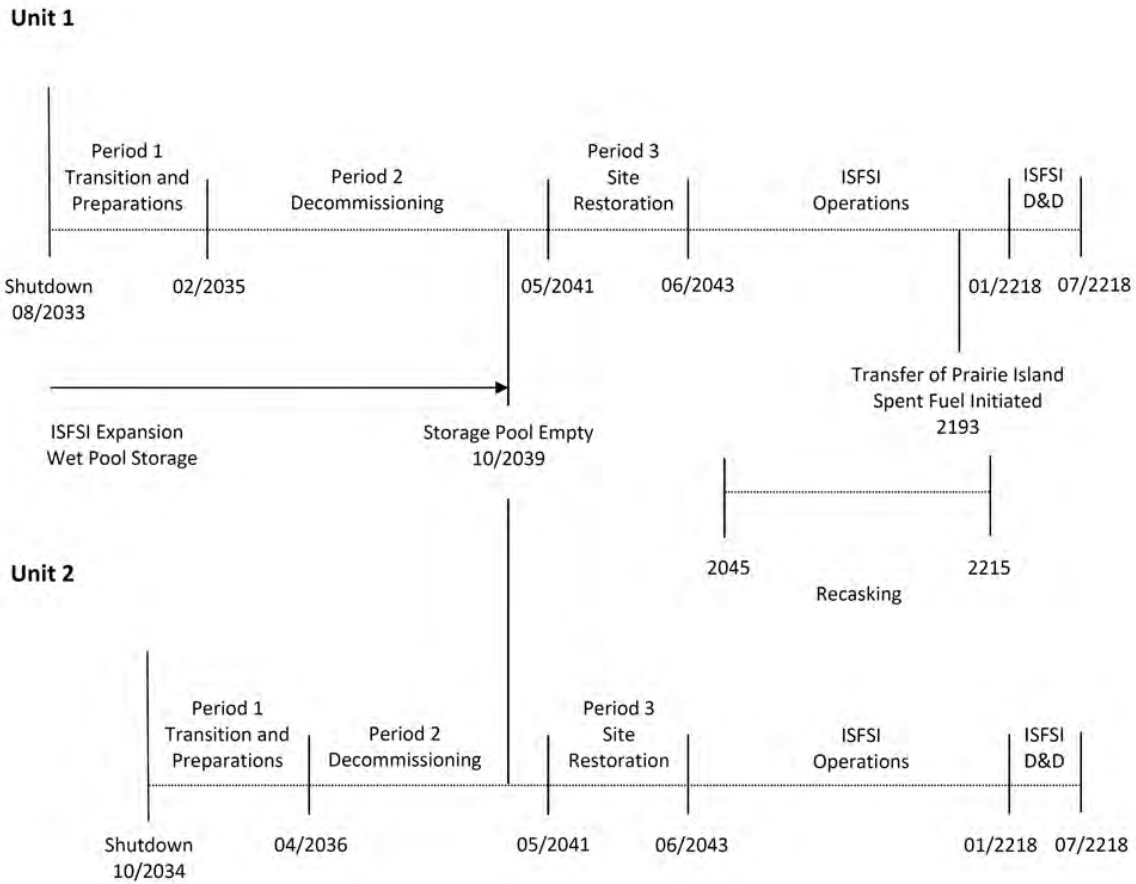
**FIGURE 4.4
SCENARIO 3: DECON WITH 100 YEAR DFS
DECOMMISSIONING TIMELINE**
(not to scale)



**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 4, Page 9 of 12**

**FIGURE 4.5
SCENARIO 4: DECON WITH 200 YEAR DFS
DECOMMISSIONING TIMELINE
(not to scale)**

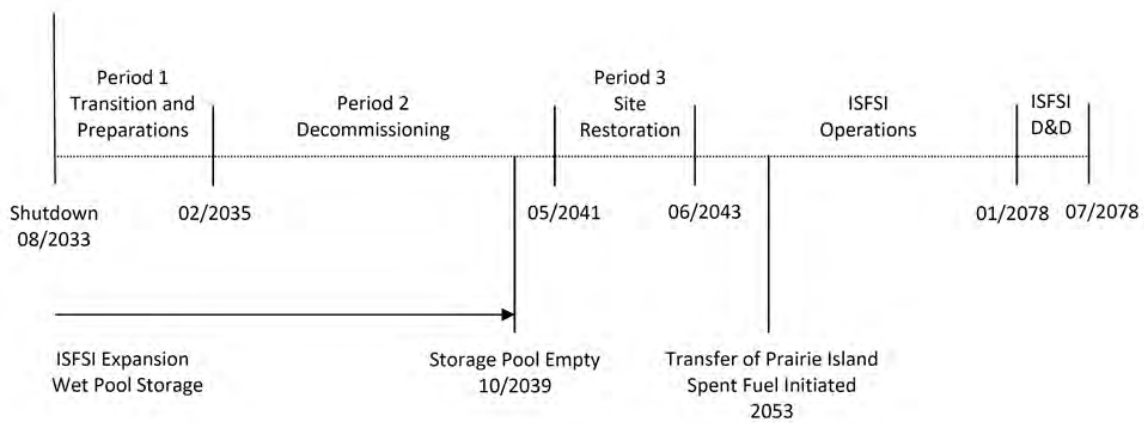


**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

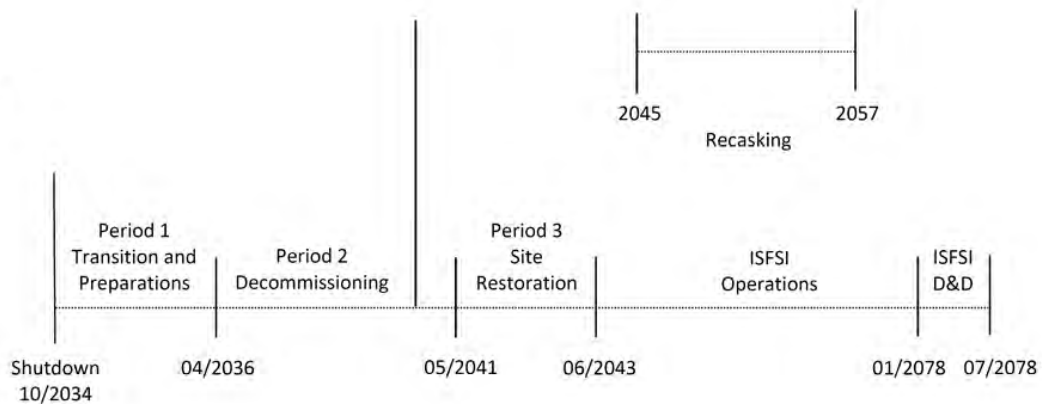
**Document X01-1725-001, Rev. 0
Section 4, Page 10 of 12**

**FIGURE 4.6
SCENARIO 5: DECON WITH 60 YEAR DFS WITH RECASKING
DECOMMISSIONING TIMELINE
(not to scale)**

Unit 1



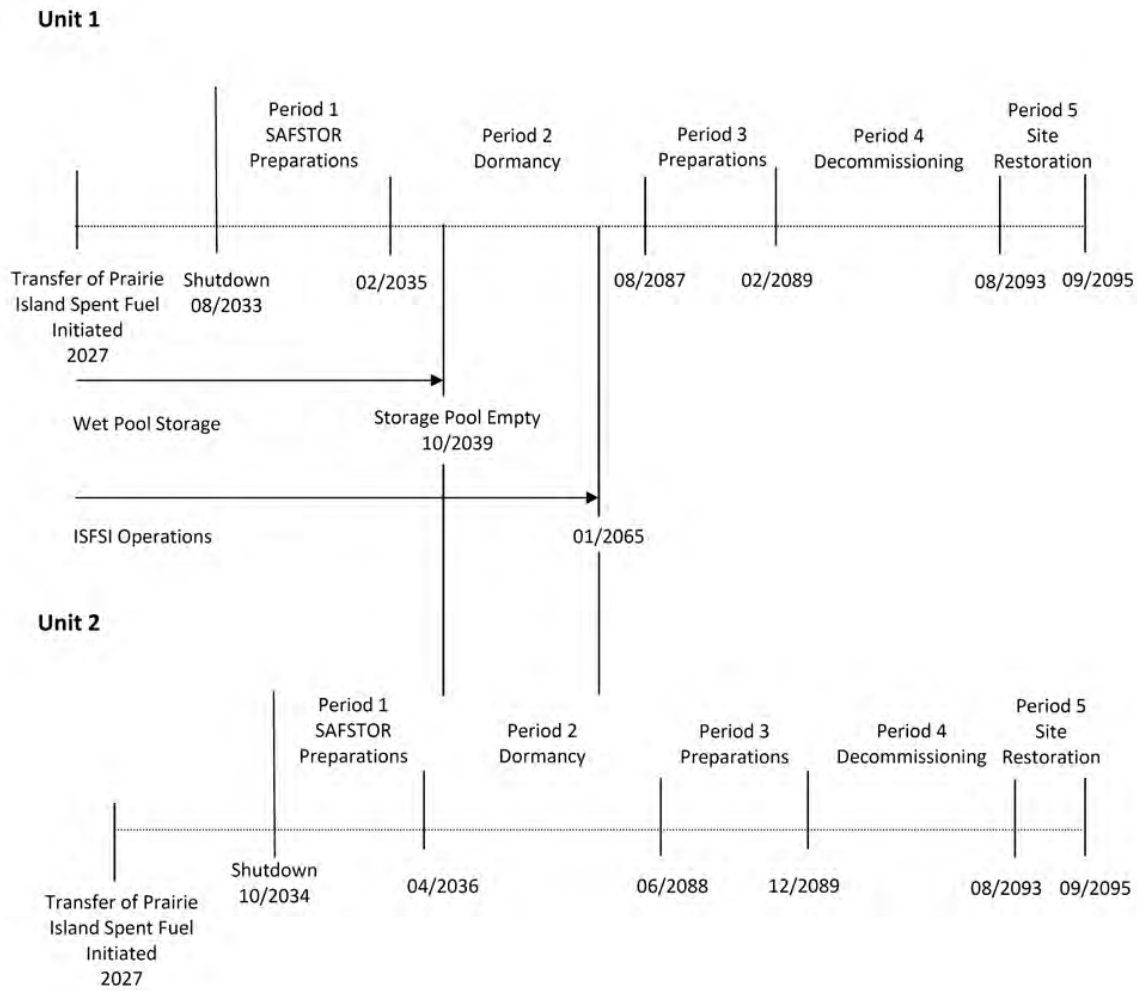
Unit 2



**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 4, Page 11 of 12**

**FIGURE 4.7
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS
DECOMMISSIONING TIMELINE**
(not to scale)

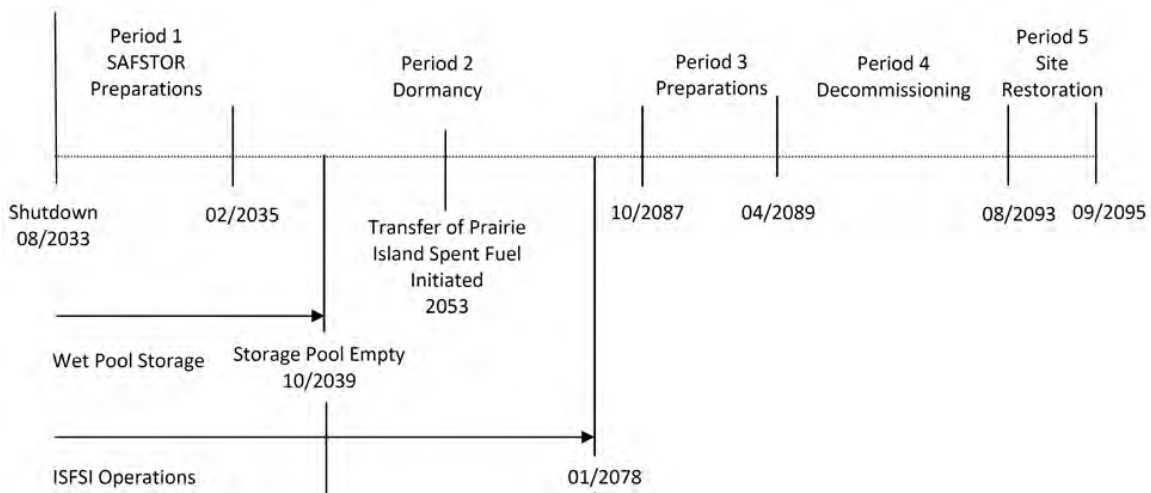


**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

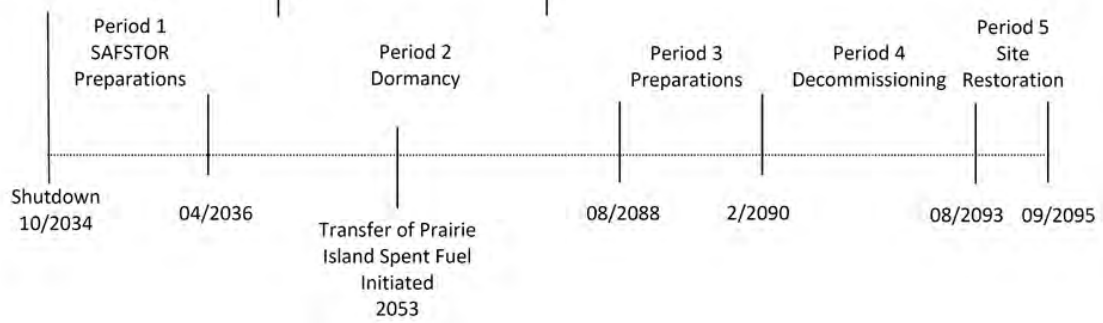
**Document X01-1725-001, Rev. 0
Section 4, Page 12 of 12**

**FIGURE 4.8
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS
DECOMMISSIONING TIMELINE**
(not to scale)

Unit 1



Unit 2



***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 5, Page 1 of 11***

5. RADIOACTIVE WASTES

The objectives of the decommissioning process are the removal of all radioactive material from the site that would restrict its future use and the termination of the NRC licenses. This currently requires the remediation of all radioactive material at the site in excess of applicable legal limits. Under the Atomic Energy Act,^[41] the NRC is responsible for protecting the public from sources of ionizing radiation. Title 10 of the Code of Federal Regulations delineates the production, utilization, and disposal of radioactive materials and processes. In particular, Part 71 defines radioactive material as it pertains to transportation and Part 61 specifies its disposition.

Most of the materials being transported for controlled burial are categorized as Low Specific Activity (LSA) or Surface Contaminated Object (SCO) materials containing Type A quantities, as defined in 49 CFR Parts 173-178. Shipping containers are required to be Industrial Packages (IP-1, IP-2 or IP-3, as defined in 10 CFR §173.411). For this study, commercially available steel containers are presumed to be used for the disposal of piping, small components, and concrete. Larger components can serve as their own containers, with proper closure of all openings, access ways, and penetrations.

The destinations for the various waste streams from decommissioning are identified in Figures 5.1 and 5.2. The volumes of radioactive waste generated during the various decommissioning activities at the site are shown on a line-item basis in Appendices C through J and summarized in Tables 5.1 through 5.7. The quantified waste volume summaries shown in these tables are consistent with §61 classifications. The volumes are calculated based on the exterior dimensions for containerized material and on the displaced volume of components serving as their own waste containers.

The reactor vessel and internals are categorized as large quantity shipments and, accordingly, will be shipped in reusable, shielded truck casks with disposable liners. In calculating disposal costs, the burial fees are applied against the liner volume, as well as the special handling requirements of the payload. Packaging efficiencies are lower for the highly activated materials (greater than Type A quantity waste), where high concentrations of gamma-emitting radionuclides limit the capacity of the shipping canisters.

No process system containing/handling radioactive substances at shutdown is presumed to meet material release criteria by decay alone, i.e., systems radioactive at shutdown will still be radioactive over the time period during which the decommissioning is accomplished, due to the presence of long-lived radionuclides.

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 5, Page 2 of 11***

While the dose rates decrease with time, radionuclides such as ^{137}Cs will still control the disposition requirements.

The waste material generated in the decontamination and dismantling of Prairie Island is primarily generated during Period 2 of the DECON alternatives and Period 4 of the SAFSTOR alternatives. Material that is considered potentially contaminated when removed from the radiologically controlled area is sent to processing facilities in Tennessee for conditioning and disposal. Heavily contaminated components and activated materials are routed for controlled disposal. The disposal volumes reported in the tables reflect the savings resulting from reprocessing and recycling.

Disposal fees are calculated using representative costs, with surcharges added for the highly activated components, for example, generated in the segmentation of the reactor vessels. The cost to dispose of the majority of the material generated from the decontamination and dismantling activities is based upon representative rates.

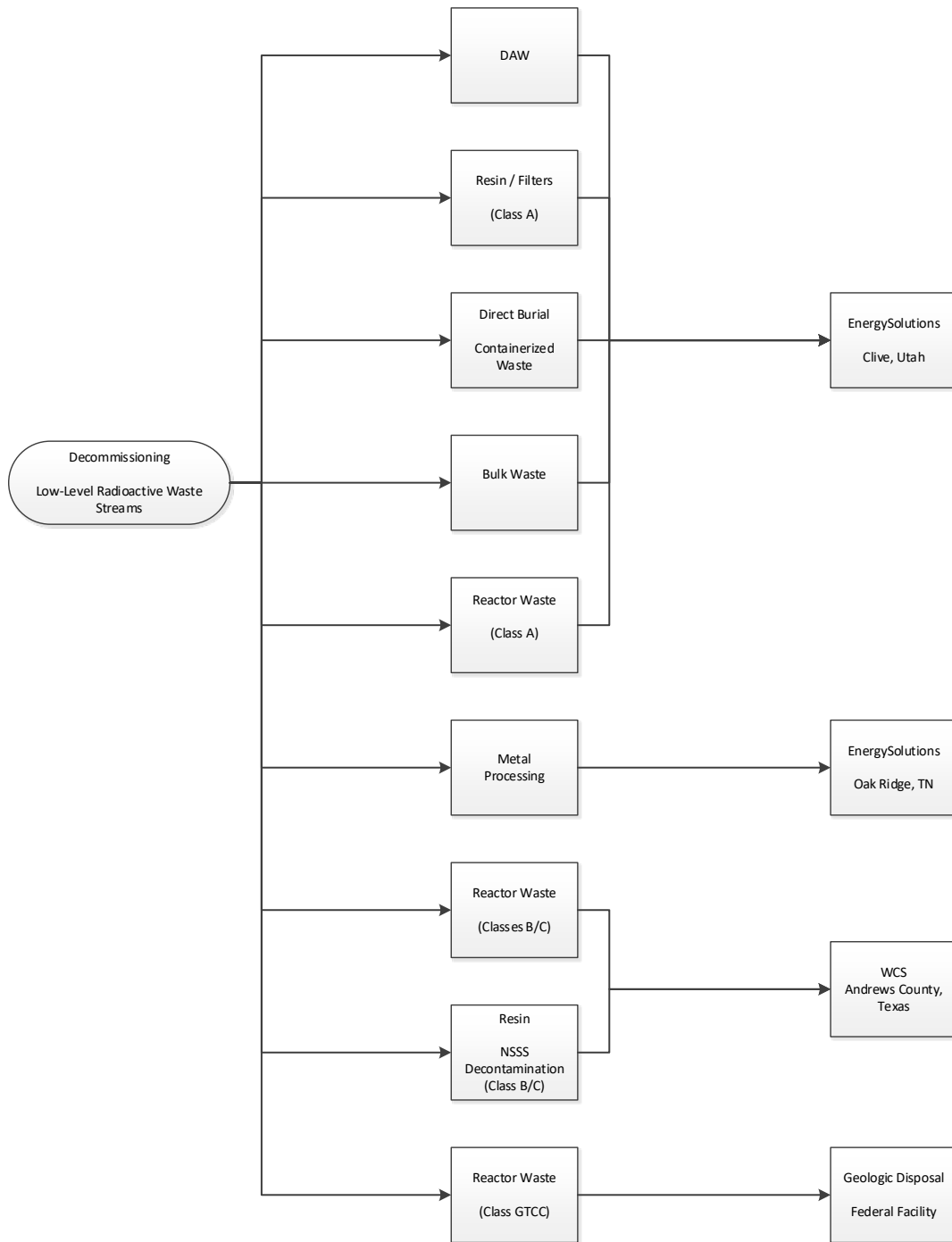
EnergySolutions is not able to accept the higher activity waste (Class B and C) generated in the decontamination of the NSSS and segmentation of the components closest to the core. Waste disposal costs for the higher activity waste (Class B and C) are based upon preliminary and indicative information on the cost for such from WCS.

A small quantity of material generated during the Prairie Island decommissioning will not be considered suitable for near-surface disposal, and is assumed to be disposed of in a geologic repository, in a manner similar to that envisioned for spent fuel disposal. Such material, known as Greater-Than-Class-C or GTCC material, is estimated to require eight spent fuel storage canisters (or the equivalent) to dispose of the most radioactive portions of the reactor vessel internals. The volume and weight reported in Tables 5.1 through 5.7 represent the packaged weight and volume of the spent fuel storage canisters.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 5, Page 3 of 11**

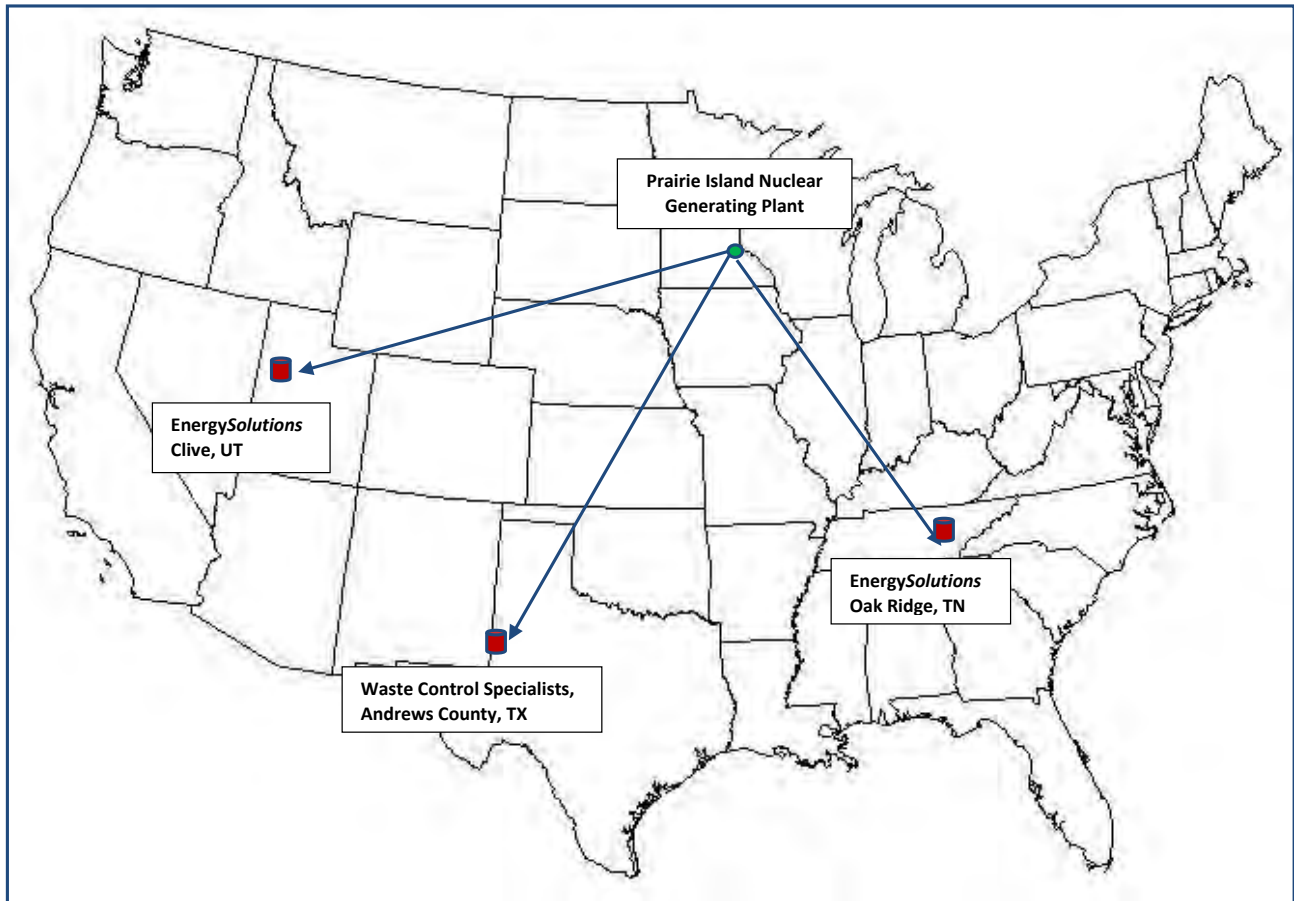
**FIGURE 5.1
RADIOACTIVE WASTE DISPOSITION**



**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 5, Page 4 of 11**

**FIGURE 5.2
DECOMMISSIONING WASTE DESTINATIONS
RADIOLOGICAL**



The figure indicates the destinations for the low-level radioactive waste designated for direct disposal (Clive, Utah) and processing/recovery (Oak Ridge, Tennessee).

Disposition of the Class B and C low-level radioactive waste will be at the Waste Control Specialists site in Andrews County, Texas.

Disposal options (and destinations) for GTCC are still being evaluated.

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 5, Page 5 of 11***

**TABLE 5.1
SCENARIO 1: DECON WITH 32 YEAR DFS
DECOMMISSIONING WASTE SUMMARY**

| Waste | Cost Basis | Class ^[1] | Waste Volume (cubic feet) | Mass (pounds) |
|---|---|----------------------|------------------------------|-------------------|
| Low-Level Radioactive Waste (near-surface disposal) | EnergySolutions Containerized | A | 183,939 | 12,318,693 |
| | EnergySolutions Bulk | A | 105,585 | 6,473,765 |
| | Future LLRW Disposal Facility (Proxy) | B | 1,677 | 168,873 |
| | Future LLRW Disposal Facility (Proxy) | C | 1,346 | 199,444 |
| Greater than Class C (geologic repository) | Spent Fuel Equivalent | GTCC | 7,493 | 1,675,192 |
| Total ^[2] | | | 300,041 | 20,835,967 |
| Processed/Conditioned (off-site recycling center) | Recycling Vendors | A | 314,393 | 12,585,953 |
| Scrap Metal | | | | 148,880,000 |

^[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

^[2] Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 5, Page 6 of 11***

**TABLE 5.2
SCENARIO 2: DECON WITH 60 YEAR DFS
DECOMMISSIONING WASTE SUMMARY**

| Waste | Cost Basis | Class ^[1] | Waste Volume (cubic feet) | Mass (pounds) |
|---|---|----------------------|------------------------------|-------------------|
| Low-Level Radioactive Waste (near-surface disposal) | EnergySolutions Containerized | A | 183,940 | 12,318,700 |
| | EnergySolutions Bulk | A | 105,582 | 6,473,709 |
| | Future LLRW Disposal Facility (Proxy) | B | 1,677 | 168,873 |
| | Future LLRW Disposal Facility (Proxy) | C | 1,346 | 199,444 |
| Greater than Class C (geologic repository) | Spent Fuel Equivalent | GTCC | 7,493 | 1,675,192 |
| | | | | |
| Total ^[2] | | | 300,038 | 20,835,918 |
| | | | | |
| Processed/Conditioned (off-site recycling center) | Recycling Vendors | A | 314,393 | 12,585,953 |
| | | | | |
| Scrap Metal | | | | 148,880,000 |

^[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

^[2] Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis****Document X01-1725-001, Rev. 0
Section 5, Page 7 of 11**

**TABLE 5.3
SCENARIO 3: DECON WITH 100 YEAR DFS
DECOMMISSIONING WASTE SUMMARY**

| Waste | Cost Basis | Class ^[1] | Waste Volume (cubic feet) | Mass (pounds) |
|---|---|----------------------|------------------------------|------------------|
| Low-Level Radioactive Waste (near-surface disposal) | EnergySolutions Containerized | A | 191,080 | 13,155,878 |
| | EnergySolutions Bulk | A | 93,337 | 4,645,691 |
| | Future LLRW Disposal Facility (Proxy) | B | 1,677 | 168,873 |
| | Future LLRW Disposal Facility (Proxy) | C | 1,346 | 199,444 |
| Greater than Class C (geologic repository) | Spent Fuel Equivalent | GTCC | 7,493 | 1,675,192 |
| | | | | |
| Total ^[2] | | | 294,934 | 19,845,078 |
| | | | | |
| Processed/Conditioned (off-site recycling center) | Recycling Vendors | A | 314,393 | 12,585,953 |
| | | | | |
| Scrap Metal | | | | 148,880,000 |

^[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

^[2] Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 5, Page 8 of 11***

**TABLE 5.4
SCENARIO 4: DECON WITH 200 YEAR DFS
DECOMMISSIONING WASTE SUMMARY**

| Waste | Cost Basis | Class ^[1] | Waste Volume (cubic feet) | Mass (pounds) |
|---|---|----------------------|------------------------------|------------------|
| Low-Level Radioactive Waste (near-surface disposal) | EnergySolutions Containerized | A | 191,080 | 13,155,878 |
| | EnergySolutions Bulk | A | 93,337 | 4,645,691 |
| | Future LLRW Disposal Facility (Proxy) | B | 1,677 | 168,873 |
| | Future LLRW Disposal Facility (Proxy) | C | 1,346 | 199,444 |
| Greater than Class C (geologic repository) | Spent Fuel Equivalent | GTCC | 7,493 | 1,675,192 |
| | | | | |
| Total ^[2] | | | 294,934 | 19,845,078 |
| Processed/Conditioned (off-site recycling center) | Recycling Vendors | A | 314,393 | 12,585,953 |
| | | | | |
| Scrap Metal | | | | 148,880,000 |

^[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

^[2] Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis******Document X01-1725-001, Rev. 0
Section 5, Page 9 of 11***

**TABLE 5.5
SCENARIO 5: DECON WITH 60 YEAR DFS WITH RECASKING
DECOMMISSIONING WASTE SUMMARY**

| Waste | Cost Basis | Class ^[1] | Waste Volume (cubic feet) | Mass (pounds) |
|---|---------------------------------------|----------------------|------------------------------|------------------|
| Low-Level Radioactive Waste (near-surface disposal) | EnergySolutions Containerized | A | 185,223 | 12,395,738 |
| | EnergySolutions Bulk | A | 105,840 | 6,491,706 |
| | Future LLRW Disposal Facility (Proxy) | B | 1,677 | 168,873 |
| | Future LLRW Disposal Facility (Proxy) | C | 1,346 | 199,444 |
| Greater than Class C (geologic repository) | Spent Fuel Equivalent | GTCC | 7,493 | 1,675,192 |
| Total ^[2] | | | 301,580 | 20,930,953 |
| Processed/Conditioned (off-site recycling center) | Recycling Vendors | A | 314,393 | 12,585,953 |
| Scrap Metal | | | | 148,880,000 |

^[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

^[2] Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 5, Page 10 of 11***

**TABLE 5.6
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS
DECOMMISSIONING WASTE SUMMARY**

| Waste | Cost Basis | Class ^[1] | Waste Volume (cubic feet) | Mass (pounds) |
|---|---------------------------------------|----------------------|------------------------------|------------------|
| | | | | |
| Low-Level Radioactive Waste (near-surface disposal) | EnergySolutions Containerized | A | 93,221 | 7,572,368 |
| | EnergySolutions Bulk | A | 149,706 | 9,708,164 |
| | Future LLRW Disposal Facility (Proxy) | B | 250 | 22,188 |
| | Future LLRW Disposal Facility (Proxy) | C | 1,416 | 199,712 |
| | | | | |
| Greater than Class C (geologic repository) | Spent Fuel Equivalent | GTCC | 7,493 | 1,675,192 |
| | | | | |
| | Total ^[2] | | 252,086 | 19,177,624 |
| | | | | |
| Processed/Conditioned (off-site recycling center) | Recycling Vendors | A | 319,773 | 12,829,050 |
| | | | | |
| Scrap Metal | | | | 149,192,000 |

^[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

^[2] Columns may not add due to rounding

*Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis*

*Document X01-1725-001, Rev. 0
Section 5, Page 11 of 11*

**TABLE 5.7
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS
DECOMMISSIONING WASTE SUMMARY**

| Waste | Cost Basis | Class ^[1] | Waste Volume (cubic feet) | Mass (pounds) |
|---|---------------------------------------|----------------------|------------------------------|------------------|
| Low-Level Radioactive Waste (near-surface disposal) | EnergySolutions Containerized | A | 93,221 | 7,572,361 |
| | EnergySolutions Bulk | A | 149,713 | 9,708,310 |
| | Future LLRW Disposal Facility (Proxy) | B | 250 | 22,188 |
| | Future LLRW Disposal Facility (Proxy) | C | 1,416 | 199,712 |
| Greater than Class C (geologic repository) | Spent Fuel Equivalent | GTCC | 7,493 | 1,675,192 |
| | | | | |
| | | | 252,093 | 19,177,763 |
| | | | | |
| Processed/Conditioned (off-site recycling center) | Recycling Vendors | A | 319,773 | 12,829,050 |
| | | | | |
| Scrap Metal | | | | 149,192,000 |

^[1] Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

^[2] Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 6, Page 1 of 10***

6. RESULTS

This report presents estimates of the cost to decommission Prairie Island for the selected decommissioning scenarios following the cessation of plant operations. The estimates are based on numerous fundamental assumptions, including regulatory requirements, project contingencies, low-level radioactive waste disposal practices, high-level radioactive waste management options, and site restoration requirements. While not an engineering study, the estimates provide Xcel Energy with sufficient information to assess their financial obligations, as they pertain to the eventual decommissioning of the nuclear station.

The decommissioning scenarios assume continued operation of the station's spent fuel pool for a minimum of five years following the cessation of operations for continued cooling of the assemblies. The existing ISFSI is expanded to accommodate the spent fuel, once sufficiently cooled, until such time that the DOE can complete the transfer of the assemblies to its repository.

Using Scenario 2 as the base case, the cost projected to promptly decommission the station, restore the site, and manage the spent fuel is estimated to be \$1.996 billion (2017 dollars). The majority of this cost (approximately 56.8%) is associated with the physical decontamination and dismantling of the nuclear plant so that the operating licenses can be terminated. Another 37.2% is associated with the management, interim storage, and eventual transfer of the spent fuel. The remaining 5.9% is for the demolition of the designated structures and limited restoration of the site.

The primary cost contributors, identified in Tables 6.1 through 6.7, are either labor-related or associated with the management and disposition of the spent fuel or radioactive waste. Program management (including security) is the largest single contributor to the overall cost. The magnitude of the expense is a function of both the size of the organization required to manage the decommissioning, as well as the duration of the program. It is assumed, for purposes of this analysis, that Xcel Energy will hire a contractor to manage the decommissioning labor force. The size and composition of the management organizations varies with the decommissioning phase and associated site activities. However, once the operating licenses are amended or terminated, the staff is substantially reduced for the conventional demolition and restoration of the site, and the long-term care of the spent fuel (for the DECON alternative).

As described in this report, the spent fuel pool will remain operational for a minimum of five years following the cessation of operations. The pool will be isolated and an independent spent fuel island created. This will allow

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 6, Page 2 of 10***

decommissioning operations to proceed in and around the pool areas. Over the five-year period, the spent fuel will be packaged into transportable canisters for future loading into a DOE-provided transport cask or relocation to the ISFSI (DECON and both SAFSTOR alternatives). The canisters will be stored in horizontal storage casks at the ISFSI until the DOE is able to receive them. Dry storage of the fuel provides additional flexibility in the event the DOE is not able to meet the current timetable for completing the transfer of assemblies to an off-site facility and minimizes the associated caretaking expenses.

The cost for waste disposal includes only those costs associated with the controlled disposition of the low-level radioactive waste generated from decontamination and dismantling activities, including plant equipment and components, structural material, filters, resins and dry-active waste. As described in Section 5, disposition of the majority of the low-level radioactive material requiring controlled disposal is at the EnergySolutions facility, with higher-activity waste sent to the WCS facility. Highly activated components, requiring additional isolation from the environment (GTCC), are packaged for geologic disposal. The cost of geologic disposal is based upon a cost equivalent for spent fuel.

A significant portion of the metallic waste is designated for additional processing and treatment at an off-site facility. Processing reduces the volume of material requiring controlled disposal through such techniques and processes as survey and sorting, decontamination, and volume reduction. The material that cannot be unconditionally released is packaged for controlled disposal at one of the currently operating facilities. The cost identified in the summary tables for processing is all-inclusive, incorporating the ultimate disposition of the material.

Removal costs reflect the labor-intensive nature of the decommissioning process, as well as the management controls required to ensure a safe and successful program. Decontamination and packaging costs also have a large labor component that is based upon prevailing wages. Non-radiological demolition is a natural extension of the decommissioning process. The methods employed in decontamination and dismantling are generally destructive and indiscriminate in inflicting collateral damage. With a work force mobilized to support decommissioning operations, non-radiological demolition can be an integrated activity and a logical expansion of the work being performed in the process of terminating the operating licenses.

The reported cost for transport includes the tariffs and surcharges associated with moving large components and/or overweight shielded casks overland, as well as the general expense, e.g., labor and fuel, of transporting material to the destinations identified in this report. For purposes of this analysis, material is moved overland by truck.

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 6, Page 3 of 10***

Decontamination is used to reduce the plant's radiation fields and minimize worker exposure. Slightly contaminated material or material located within a contaminated area is sent to an off-site processing center, i.e., this analysis does not assume that contaminated plant components and equipment can be decontaminated for uncontrolled release in-situ. Centralized processing centers have proven to be a more economical means of handling the large volumes of material produced in the dismantling of a nuclear plant.

License termination survey costs are associated with the labor intensive and complex activity of verifying that contamination has been removed from the site to the levels specified by the regulating agency. This process involves a systematic survey of all remaining plant surface areas and surrounding environs, sampling, isotopic analysis, and documentation of the findings. The status of any plant components and materials not removed in the decommissioning process will also require confirmation and will add to the expense of surveying the facilities alone.

The remaining costs include allocations for heavy equipment and temporary services, as well as for other expenses such as regulatory fees and the premiums for nuclear insurance. While site operating costs are greatly reduced following the final cessation of plant operations, certain administrative functions do need to be maintained either at a basic functional or regulatory level.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 6, Page 4 of 10**

TABLE 6.1
SCENARIO 1: DECON WITH 32 YEAR DFS
DECOMMISSIONING COST ELEMENTS
(thousands of 2017 dollars)

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|---|----------------|----------------|------------------|---------------|
| Decontamination | 11,899 | 18,712 | 30,611 | 1.7% |
| Removal | 103,458 | 132,270 | 235,727 | 13.1% |
| Packaging | 37,613 | 37,981 | 75,594 | 4.2% |
| Transportation | 8,386 | 8,908 | 17,294 | 1.0% |
| Waste Disposal | 65,232 | 68,234 | 133,465 | 7.4% |
| Off-site Waste Processing | 13,548 | 16,016 | 29,565 | 1.6% |
| Program Management ^[1] | 224,195 | 206,995 | 431,191 | 24.0% |
| Security | 116,834 | 106,450 | 223,284 | 12.4% |
| Spent Fuel Pool Isolation | 13,445 | 8,963 | 22,409 | 1.2% |
| Spent Fuel Storage (Direct Costs) ^[2] | 120,903 | 118,936 | 239,839 | 13.3% |
| Insurance and Regulatory Fees | 17,840 | 15,425 | 33,266 | 1.9% |
| Energy | 9,248 | 8,349 | 17,597 | 1.0% |
| Characterization and Licensing Surveys | 17,216 | 19,157 | 36,374 | 2.0% |
| Property Taxes | 54,492 | 51,594 | 106,086 | 5.9% |
| Miscellaneous | 7,188 | 7,147 | 14,335 | 0.8% |
| Railroad Track Maintenance | 2,598 | 2,517 | 5,116 | 0.3% |
| Retention and Severance | 28,423 | 28,423 | 56,845 | 3.2% |
| Security Modifications | 5,000 | 5,000 | 10,000 | 0.6% |
| Prairie Island Indian Community Payments | 40,000 | 38,750 | 78,750 | 4.4% |
| Total [2] | 897,520 | 899,828 | 1,797,347 | 100.0% |

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|-----------------------------|----------------|----------------|------------------|---------------|
| NRC License Termination | 571,980 | 561,832 | 1,133,812 | 63.1% |
| Spent Fuel Management | 274,479 | 271,262 | 545,741 | 30.4% |
| Site Restoration | 51,061 | 66,733 | 117,795 | 6.6% |
| Total ^[3] | 897,520 | 899,828 | 1,797,347 | 100.0% |

^[1] Includes engineering

^[2] Includes costs for the dry storage system components, spent fuel loading and transfer, spent fuel pool O&M and EP fees, but excludes program management costs (staffing), security and other related costs

^[3] Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 6, Page 5 of 10**

TABLE 6.2
SCENARIO 2: DECON WITH 60 YEAR DFS
DECOMMISSIONING COST ELEMENTS
(thousands of 2017 dollars)

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|---|----------------|----------------|------------------|---------------|
| Decontamination | 11,899 | 18,711 | 30,610 | 1.5% |
| Removal | 103,561 | 132,372 | 235,933 | 11.8% |
| Packaging | 37,613 | 37,981 | 75,594 | 3.8% |
| Transportation | 8,386 | 8,908 | 17,294 | 0.9% |
| Waste Disposal | 65,232 | 68,234 | 133,465 | 6.7% |
| Off-site Waste Processing | 13,548 | 16,016 | 29,565 | 1.5% |
| Program Management ^[1] | 233,817 | 216,617 | 450,434 | 22.6% |
| Security | 146,769 | 136,385 | 283,153 | 14.2% |
| Spent Fuel Pool Isolation | 13,445 | 8,963 | 22,409 | 1.1% |
| Spent Fuel Storage (Direct Costs) ^[2] | 144,710 | 142,743 | 287,453 | 14.4% |
| Insurance and Regulatory Fees | 21,494 | 19,079 | 40,573 | 2.0% |
| Energy | 9,246 | 8,347 | 17,593 | 0.9% |
| Characterization and Licensing Surveys | 17,216 | 19,157 | 36,374 | 1.8% |
| Property Taxes | 69,785 | 66,180 | 135,965 | 6.8% |
| Miscellaneous | 7,187 | 7,145 | 14,332 | 0.7% |
| Railroad Track Maintenance | 3,461 | 3,380 | 6,841 | 0.3% |
| Retention and Severance | 28,423 | 28,423 | 56,845 | 2.8% |
| Security Modifications | 5,000 | 5,000 | 10,000 | 0.5% |
| Prairie Island Indian Community Payments | 56,250 | 55,000 | 111,250 | 5.6% |
| Total ^[3] | 997,041 | 998,643 | 1,995,684 | 100.0% |

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|-----------------------------|----------------|----------------|------------------|---------------|
| NRC License Termination | 572,618 | 561,764 | 1,134,382 | 56.8% |
| Spent Fuel Management | 373,251 | 370,034 | 743,284 | 37.2% |
| Site Restoration | 51,173 | 66,845 | 118,017 | 5.9% |
| Total ^[3] | 997,041 | 998,643 | 1,995,684 | 100.0% |

^[1] Includes engineering

^[2] Includes costs for the dry storage system components, spent fuel loading and transfer, spent fuel pool O&M and EP fees, but excludes program management costs (staffing), security and other related costs

^[3] Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 6, Page 6 of 10**

TABLE 6.3
SCENARIO 3: DECON WITH 100 YEAR DFS
DECOMMISSIONING COST ELEMENTS
(thousands of 2017 dollars)

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|---|------------------|------------------|------------------|---------------|
| Decontamination | 11,918 | 18,730 | 30,648 | 0.9% |
| Removal | 104,039 | 132,850 | 236,889 | 7.0% |
| Packaging | 37,611 | 37,979 | 75,590 | 2.2% |
| Transportation | 8,270 | 8,792 | 17,061 | 0.5% |
| Waste Disposal | 64,469 | 67,471 | 131,940 | 3.9% |
| Off-site Waste Processing | 13,548 | 16,016 | 29,565 | 0.9% |
| Program Management ^[1] | 294,495 | 277,295 | 571,790 | 16.8% |
| Security | 236,616 | 226,232 | 462,847 | 13.6% |
| Spent Fuel Pool Isolation | 13,445 | 8,963 | 22,409 | 0.7% |
| Spent Fuel Storage (Direct Costs) ^[2] | 592,003 | 590,037 | 1,182,040 | 34.7% |
| Insurance and Regulatory Fees | 32,742 | 30,327 | 63,069 | 1.9% |
| Energy | 9,246 | 8,347 | 17,593 | 0.5% |
| Characterization and Licensing Surveys | 17,216 | 19,157 | 36,374 | 1.1% |
| Property Taxes | 112,875 | 109,977 | 222,852 | 6.5% |
| Miscellaneous | 7,187 | 7,145 | 14,332 | 0.4% |
| Railroad Track Maintenance | 6,115 | 6,034 | 12,150 | 0.4% |
| Retention and Severance | 28,423 | 28,423 | 56,845 | 1.7% |
| Security Modifications | 5,000 | 5,000 | 10,000 | 0.3% |
| Prairie Island Indian Community Payments | 106,250 | 105,000 | 211,250 | 6.2% |
| Total ^[3] | 1,701,468 | 1,703,777 | 3,405,245 | 100.0% |

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|-----------------------------|------------------|------------------|------------------|---------------|
| NRC License Termination | 568,261 | 558,114 | 1,126,374 | 33.1% |
| Spent Fuel Management | 1,082,353 | 1,079,137 | 2,161,490 | 63.5% |
| Site Restoration | 50,855 | 66,527 | 117,381 | 3.4% |
| Total ^[3] | 1,701,468 | 1,703,777 | 3,405,245 | 100.0% |

^[1] Includes engineering

^[2] Includes costs for the dry storage system components, spent fuel loading and transfer, spent fuel pool O&M and EP fees, but excludes program management costs (staffing), security and other related costs

^[3] Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 6, Page 7 of 10**

TABLE 6.4
SCENARIO 4: DECON WITH 200 YEAR DFS
DECOMMISSIONING COST ELEMENTS
(thousands of 2017 dollars)

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|---|------------------|------------------|------------------|---------------|
| Decontamination | 11,918 | 18,730 | 30,648 | 0.5% |
| Removal | 104,037 | 132,849 | 236,887 | 4.0% |
| Packaging | 37,611 | 37,979 | 75,590 | 1.3% |
| Transportation | 8,270 | 8,792 | 17,061 | 0.3% |
| Waste Disposal | 64,469 | 67,471 | 131,940 | 2.2% |
| Off-site Waste Processing | 13,548 | 16,016 | 29,565 | 0.5% |
| Program Management ^[1] | 430,976 | 413,776 | 844,751 | 14.2% |
| Security | 466,998 | 456,614 | 923,613 | 15.5% |
| Spent Fuel Pool Isolation | 13,445 | 8,963 | 22,409 | 0.4% |
| Spent Fuel Storage (Direct Costs) ^[2] | 1,229,254 | 1,227,287 | 2,456,541 | 41.2% |
| Insurance and Regulatory Fees | 60,862 | 58,448 | 119,310 | 2.0% |
| Energy | 9,246 | 8,347 | 17,593 | 0.3% |
| Characterization and Licensing Surveys | 17,216 | 19,157 | 36,374 | 0.6% |
| Property Taxes | 225,076 | 222,177 | 447,253 | 7.5% |
| Miscellaneous | 7,187 | 7,145 | 14,332 | 0.2% |
| Railroad Track Maintenance | 12,752 | 12,671 | 25,422 | 0.4% |
| Retention and Severance | 28,423 | 28,423 | 56,845 | 1.0% |
| Security Modifications | 5,000 | 5,000 | 10,000 | 0.2% |
| Prairie Island Indian Community Payments | 231,250 | 230,000 | 461,250 | 7.7% |
| Total ^[3] | 2,977,539 | 2,979,847 | 5,957,385 | 100.0% |

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|-----------------------------|------------------|------------------|------------------|---------------|
| NRC License Termination | 568,259 | 558,112 | 1,126,371 | 18.9% |
| Spent Fuel Management | 2,358,425 | 2,355,208 | 4,713,633 | 79.1% |
| Site Restoration | 50,855 | 66,527 | 117,381 | 2.0% |
| Total ^[3] | 2,977,539 | 2,979,847 | 5,957,385 | 100.0% |

^[1] Includes engineering

^[2] Includes costs for the dry storage system components, spent fuel loading and transfer, spent fuel pool O&M and EP fees, but excludes program management costs (staffing), security and other related costs

^[3] Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 6, Page 8 of 10**

TABLE 6.5
SCENARIO 5: DECON WITH 60 YEAR DFS WITH RECASKING
DECOMMISSIONING COST ELEMENTS
(thousands of 2017 dollars)

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|---|------------------|------------------|------------------|---------------|
| Decontamination | 11,918 | 18,730 | 30,648 | 1.4% |
| Removal | 103,830 | 132,642 | 236,472 | 10.9% |
| Packaging | 37,614 | 37,982 | 75,596 | 3.5% |
| Transportation | 8,389 | 8,911 | 17,300 | 0.8% |
| Waste Disposal | 65,396 | 68,398 | 133,795 | 6.2% |
| Off-site Waste Processing | 13,548 | 16,016 | 29,565 | 1.4% |
| Program Management ^[1] | 233,817 | 216,617 | 450,434 | 20.8% |
| Security | 146,769 | 136,385 | 283,153 | 13.1% |
| Spent Fuel Pool Isolation | 13,445 | 8,963 | 22,409 | 1.0% |
| Spent Fuel Storage (Direct Costs) ^[2] | 230,141 | 228,174 | 458,315 | 21.2% |
| Insurance and Regulatory Fees | 21,494 | 19,079 | 40,573 | 1.9% |
| Energy | 9,246 | 8,347 | 17,593 | 0.8% |
| Characterization and Licensing Surveys | 17,216 | 19,157 | 36,374 | 1.7% |
| Property Taxes | 69,078 | 66,180 | 135,258 | 6.2% |
| Miscellaneous | 7,187 | 7,145 | 14,332 | 0.7% |
| Railroad Track Maintenance | 3,461 | 3,380 | 6,841 | 0.3% |
| Retention and Severance | 28,423 | 28,423 | 56,845 | 2.6% |
| Security Modifications | 5,000 | 5,000 | 10,000 | 0.5% |
| Prairie Island Indian Community Payments | 56,250 | 55,000 | 111,250 | 5.1% |
| Total ^[3] | 1,082,223 | 1,084,531 | 2,166,754 | 100.0% |

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|-----------------------------|------------------|------------------|------------------|---------------|
| NRC License Termination | 572,323 | 562,164 | 1,134,487 | 52.4% |
| Spent Fuel Management | 458,457 | 455,241 | 913,698 | 42.2% |
| Site Restoration | 51,443 | 67,126 | 118,569 | 5.5% |
| Total ^[3] | 1,082,223 | 1,084,531 | 2,166,754 | 100.0% |

^[1] Includes engineering

^[2] Includes costs for the dry storage system components, spent fuel loading and transfer, spent fuel pool O&M and EP fees, but excludes program management costs (staffing), security and other related costs

^[3] Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 6, Page 9 of 10**

TABLE 6.6
SCENARIO 6: SAFSTOR WITH 32 YEAR DFS
DECOMMISSIONING COST ELEMENTS
(thousands of 2017 dollars)

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|---|------------------|------------------|------------------|---------------|
| Decontamination | 7,828 | 16,467 | 24,295 | 1.0% |
| Removal | 108,449 | 137,038 | 245,487 | 10.4% |
| Packaging | 34,003 | 34,343 | 68,345 | 2.9% |
| Transportation | 6,683 | 7,171 | 13,854 | 0.6% |
| Waste Disposal | 53,612 | 55,346 | 108,959 | 4.6% |
| Off-site Waste Processing | 13,846 | 16,314 | 30,160 | 1.3% |
| Program Management ^[1] | 312,153 | 278,025 | 590,178 | 25.1% |
| Security | 194,238 | 129,474 | 323,713 | 13.8% |
| Spent Fuel Pool Isolation | 13,445 | 8,963 | 22,409 | 1.0% |
| Spent Fuel Storage (Direct Costs) ^[2] | 117,316 | 114,954 | 232,270 | 9.9% |
| Insurance and Regulatory Fees | 53,753 | 50,594 | 104,346 | 4.4% |
| Energy | 20,162 | 19,753 | 39,915 | 1.7% |
| Characterization and Licensing Surveys | 18,118 | 20,359 | 38,478 | 1.6% |
| Property Taxes | 156,602 | 156,387 | 312,989 | 13.3% |
| Miscellaneous | 17,651 | 21,979 | 39,630 | 1.7% |
| Railroad Track Maintenance | 4,362 | 4,281 | 8,644 | 0.4% |
| Retention and Severance | 28,423 | 28,423 | 56,845 | 2.4% |
| Security Modifications | 5,000 | 5,000 | 10,000 | 0.4% |
| Prairie Island Indian Community Payments | 40,000 | 38,750 | 78,750 | 3.4% |
| Total ^[3] | 1,205,645 | 1,143,621 | 2,349,266 | 100.0% |

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|-----------------------------|------------------|------------------|------------------|---------------|
| NRC License Termination | 908,226 | 841,160 | 1,749,386 | 74.5% |
| Spent Fuel Management | 242,850 | 233,483 | 476,333 | 20.3% |
| Site Restoration | 54,569 | 68,978 | 123,547 | 5.3% |
| Total ^[3] | 1,205,645 | 1,143,621 | 2,349,266 | 100.0% |

^[1] Includes engineering

^[2] Includes costs for the dry storage system components, spent fuel loading and transfer, spent fuel pool O&M and EP fees, but excludes program management costs (staffing), security and other related costs

^[3] Columns may not add due to rounding

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Section 6, Page 10 of 10**

TABLE 6.7
SCENARIO 7: SAFSTOR WITH 60 YEAR DFS
DECOMMISSIONING COST ELEMENTS
(thousands of 2017 dollars)

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|---|------------------|------------------|------------------|---------------|
| Decontamination | 7,825 | 16,452 | 24,276 | 1.0% |
| Removal | 108,474 | 136,691 | 245,165 | 9.9% |
| Packaging | 34,003 | 34,343 | 68,346 | 2.8% |
| Transportation | 6,683 | 7,171 | 13,854 | 0.6% |
| Waste Disposal | 53,613 | 55,347 | 108,960 | 4.4% |
| Off-site Waste Processing | 13,846 | 16,314 | 30,160 | 1.2% |
| Program Management ^[1] | 313,922 | 284,127 | 598,049 | 24.1% |
| Security | 200,143 | 166,411 | 366,553 | 14.8% |
| Spent Fuel Pool Isolation | 13,445 | 8,963 | 22,409 | 0.9% |
| Spent Fuel Storage (Direct Costs) ^[2] | 138,784 | 136,422 | 275,207 | 11.1% |
| Insurance and Regulatory Fees | 54,180 | 50,827 | 105,007 | 4.2% |
| Energy | 20,134 | 19,489 | 39,623 | 1.6% |
| Characterization and Licensing Surveys | 18,118 | 20,359 | 38,478 | 1.6% |
| Property Taxes | 161,296 | 156,387 | 317,682 | 12.8% |
| Miscellaneous | 17,668 | 21,945 | 39,613 | 1.6% |
| Railroad Track Maintenance | 4,362 | 4,281 | 8,644 | 0.3% |
| Retention and Severance | 28,423 | 28,423 | 56,845 | 2.3% |
| Security Modifications | 5,000 | 5,000 | 10,000 | 0.4% |
| Prairie Island Indian Community Payments | 56,250 | 55,000 | 111,250 | 4.5% |
| Total ^[3] | 1,256,169 | 1,223,951 | 2,480,120 | 100.0% |

| Cost Element | Unit 1 | Unit 2 | Total | Percentage |
|-----------------------------|------------------|------------------|------------------|---------------|
| NRC License Termination | 883,602 | 846,342 | 1,729,944 | 69.8% |
| Spent Fuel Management | 317,887 | 308,520 | 626,407 | 25.3% |
| Site Restoration | 54,680 | 69,089 | 123,769 | 5.0% |
| Total ^[3] | 1,256,169 | 1,223,951 | 2,480,120 | 100.0% |

^[1] Includes engineering costs

^[2] Includes costs for the dry storage system components, spent fuel loading and transfer, spent fuel pool O&M and EP fees, but excludes program management costs (staffing), security and other related costs

^[3] Columns may not add due to rounding

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 7, Page 1 of 4***

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***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 7, Page 2 of 4***

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***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 7, Page 3 of 4***

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***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Section 7, Page 4 of 4***

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***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix A, Page 1 of 4***

APPENDIX A

UNIT COST FACTOR DEVELOPMENT

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix A, Page 2 of 4***

APPENDIX A
UNIT COST FACTOR DEVELOPMENT

Example: Unit Factor for Removal of Contaminated Heat Exchanger < 3,000 lbs.

1. SCOPE

Heat exchangers weighing < 3,000 lbs. will be removed in one piece using a crane or small hoist. They will be disconnected from the inlet and outlet piping. The heat exchanger will be sent to the waste processing area.

2. CALCULATIONS

| Act ID | Activity Description | Activity Duration (minutes) | Critical Duration (minutes)* |
|----------------------------|---|-----------------------------|------------------------------|
| a | Remove insulation | 60 | (b) |
| b | Mount pipe cutters | 60 | 60 |
| c | Install contamination controls | 20 | (b) |
| d | Disconnect inlet and outlet lines | 60 | 60 |
| e | Cap openings | 20 | (d) |
| f | Rig for removal | 30 | 30 |
| g | Unbolt from mounts | 30 | 30 |
| h | Remove contamination controls | 15 | 15 |
| i | Remove, wrap, send to waste processing area | <u>60</u> | <u>60</u> |
| Totals (Activity/Critical) | | 355 | 255 |

Duration adjustment(s):

+ Respiratory protection adjustment (50 of critical duration) 128

+ Radiation/ALARA adjustment (37.1 of critical duration) 95

Adjusted work duration 478

+ Protective clothing adjustment (30 of adjusted duration) 143

Productive work duration 621

+ Work break adjustment (8.33 of productive duration) 52

Total work duration (minutes) 673

***** Total duration = 11.217 hr *****

* alpha designators indicate activities that can be performed in parallel

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix A, Page 3 of 4***

**APPENDIX A
(continued)**

3. LABOR REQUIRED

| Crew | Number | Duration (hours) | Rate (\$/hr) | Cost |
|---------------------------|--------|---------------------|-----------------|-----------------|
| Laborers | 3.00 | 11.217 | \$52.61 | \$1,770.38 |
| Craftsmen | 2.00 | 11.217 | \$68.16 | \$1,529.10 |
| Foreman | 1.00 | 11.217 | \$71.37 | \$800.56 |
| General Foreman | 0.25 | 11.217 | \$73.67 | \$206.59 |
| Fire Watch | 0.05 | 11.217 | \$52.61 | \$29.61 |
| Health Physics Technician | 1.00 | 11.217 | \$76.50 | <u>\$858.10</u> |
| Total Labor Cost | | | | \$5,194.24 |

4. EQUIPMENT & CONSUMABLES COSTS

Equipment Costs none

Consumables/Materials Costs

- Universal Sorbent 50 @ \$0.61 sq ft ^{1} \$30.50
- Tarpaulins (oil resistant/fire retardant) 50 @ \$0.46/sq ft ^{2} \$23.00
- Gas torch consumables 1 @ \$20.45/hr x 1 hr ^{3} \$20.45

Subtotal cost of equipment and materials \$73.95

Overhead & profit on equipment and materials @ 16.88% \$12.48

Total costs, equipment & material \$86.43

TOTAL COST:

Removal of contaminated heat exchanger <3000 pounds: \$5,280.67

Total labor cost: \$5,194.24

Total equipment/material costs: \$86.43

Total craft labor man-hours required per unit: 81.88

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix A, Page 4 of 4***

5. NOTES AND REFERENCES

- Work difficulty factors were developed in conjunction with the Atomic Industrial Forum's (now NEI) program to standardize nuclear decommissioning cost estimates and are delineated in Volume 1, Chapter 5 of the "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," AIF/NESP-036, May 1986.
- References for equipment & consumables costs:
 1. www.mcmaster.com online catalog, McMaster Carr Spill Control (7193T88)
 2. R.S. Means (2017) Division 01 56, Section 13.60-0600, page 23
 3. R.S. Means (2017) Division 01 54 33, Section 40-6360, page 718
- Material and consumable costs were adjusted using the regional indices for Minneapolis, Minnesota.

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix B, Page 1 of 7***

APPENDIX B

**UNIT COST FACTOR LISTING
(DECON: Power Block Structures Only)**

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix B, Page 2 of 7***

APPENDIX B

**UNIT COST FACTOR LISTING
(Power Block Structures Only)**

| Unit Cost Factor | Cost/Unit |
|---|------------------|
| Removal of clean instrument and sampling tubing, \$/linear foot | 0.58 |
| Removal of clean pipe 0.25 to 2 inches diameter, \$/linear foot | 6.16 |
| Removal of clean pipe >2 to 4 inches diameter, \$/linear foot | 8.78 |
| Removal of clean pipe >4 to 8 inches diameter, \$/linear foot | 17.10 |
| Removal of clean pipe >8 to 14 inches diameter, \$/linear foot | 33.02 |
| Removal of clean pipe >14 to 20 inches diameter, \$/linear foot | 42.99 |
| Removal of clean pipe >20 to 36 inches diameter, \$/linear foot | 63.24 |
| Removal of clean pipe >36 inches diameter, \$/linear foot | 75.11 |
| Removal of clean valve >2 to 4 inches | 113.25 |
| Removal of clean valve >4 to 8 inches | 171.03 |
| Removal of clean valve >8 to 14 inches | 330.21 |
| Removal of clean valve >14 to 20 inches | 429.92 |
| Removal of clean valve >20 to 36 inches | 632.40 |
| Removal of clean valve >36 inches | 751.10 |
| Removal of clean pipe hanger for small bore piping | 39.61 |
| Removal of clean pipe hanger for large bore piping | 140.05 |
| Removal of clean pump, <300 pound | 289.85 |
| Removal of clean pump, 300-1000 pound | 801.33 |
| Removal of clean pump, 1000-10,000 pound | 3,160.77 |
| Removal of clean pump, >10,000 pound | 6,117.66 |
| Removal of clean pump motor, 300-1000 pound | 334.27 |
| Removal of clean pump motor, 1000-10,000 pound | 1,312.24 |
| Removal of clean pump motor, >10,000 pound | 2,952.53 |
| Removal of clean heat exchanger <3000 pound | 1,698.90 |
| Removal of clean heat exchanger >3000 pound | 4,283.30 |
| Removal of clean feedwater heater/deaerator | 12,062.93 |
| Removal of clean moisture separator/reheater | 24,783.03 |
| Removal of clean tank, <300 gallons | 372.70 |
| Removal of clean tank, 300-3000 gallon | 1,172.60 |
| Removal of clean tank, >3000 gallons, \$/square foot surface area | 9.85 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix B, Page 3 of 7***

APPENDIX B

**UNIT COST FACTOR LISTING
(Power Block Structures Only)**

| Unit Cost Factor | Cost/Unit |
|--|------------------|
| Removal of clean electrical equipment, <300 pound | 156.50 |
| Removal of clean electrical equipment, 300-1000 pound | 544.23 |
| Removal of clean electrical equipment, 1000-10,000 pound | 1,088.45 |
| Removal of clean electrical equipment, >10,000 pound | 2,584.37 |
| Removal of clean electrical transformer < 30 tons | 1,794.81 |
| Removal of clean electrical transformer > 30 tons | 5,168.70 |
| Removal of clean standby diesel generator, <100 kW | 1,833.23 |
| Removal of clean standby diesel generator, 100 kW to 1 MW | 4,091.90 |
| Removal of clean standby diesel generator, >1 MW | 8,471.05 |
| Removal of clean electrical cable tray, \$/linear foot | 14.76 |
| Removal of clean electrical conduit, \$/linear foot | 6.45 |
| Removal of clean mechanical equipment, <300 pound | 156.50 |
| Removal of clean mechanical equipment, 300-1000 pound | 544.23 |
| Removal of clean mechanical equipment, 1000-10,000 pound | 1,088.45 |
| Removal of clean mechanical equipment, >10,000 pound | 2,584.37 |
| Removal of clean HVAC equipment, <300 pound | 189.24 |
| Removal of clean HVAC equipment, 300-1000 pound | 653.93 |
| Removal of clean HVAC equipment, 1000-10,000 pound | 1,303.28 |
| Removal of clean HVAC equipment, >10,000 pound | 2,584.37 |
| Removal of clean HVAC ductwork, \$/pound | 0.61 |
| Removal of contaminated instrument and sampling tubing, \$/linear foot | 1.95 |
| Removal of contaminated pipe 0.25 to 2 inches diameter, \$/linear foot | 26.56 |
| Removal of contaminated pipe >2 to 4 inches diameter, \$/linear foot | 45.20 |
| Removal of contaminated pipe >4 to 8 inches diameter, \$/linear foot | 72.68 |
| Removal of contaminated pipe >8 to 14 inches diameter, \$/linear foot | 141.06 |
| Removal of contaminated pipe >14 to 20 inches diameter, \$/linear foot | 169.46 |
| Removal of contaminated pipe >20 to 36 inches diameter, \$/linear foot | 234.41 |
| Removal of contaminated pipe >36 inches diameter, \$/linear foot | 276.97 |
| Removal of contaminated valve >2 to 4 inches | 553.32 |
| Removal of contaminated valve >4 to 8 inches | 662.47 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix B, Page 4 of 7***

APPENDIX B

**UNIT COST FACTOR LISTING
(Power Block Structures Only)**

| Unit Cost Factor | Cost/Unit |
|---|------------------|
| Removal of contaminated valve >8 to 14 inches | 1,348.03 |
| Removal of contaminated valve >14 to 20 inches | 1,713.56 |
| Removal of contaminated valve >20 to 36 inches | 2,281.53 |
| Removal of contaminated valve >36 inches | 2,707.15 |
| Removal of contaminated pipe hanger for small bore piping | 184.64 |
| Removal of contaminated pipe hanger for large bore piping | 596.64 |
| Removal of contaminated pump, <300 pound | 1,182.71 |
| Removal of contaminated pump, 300-1000 pound | 2,706.17 |
| Removal of contaminated pump, 1000-10,000 pound | 8,653.74 |
| Removal of contaminated pump, >10,000 pound | 21,079.34 |
| Removal of contaminated pump motor, 300-1000 pound | 1,153.25 |
| Removal of contaminated pump motor, 1000-10,000 pound | 3,525.11 |
| Removal of contaminated pump motor, >10,000 pound | 7,914.39 |
| Removal of contaminated heat exchanger <3000 pound | 5,280.67 |
| Removal of contaminated heat exchanger >3000 pound | 15,319.98 |
| Removal of contaminated tank, <300 gallons | 1,966.05 |
| Removal of contaminated tank, >300 gallons, \$/square foot | 37.92 |
| Removal of contaminated electrical equipment, <300 pound | 917.52 |
| Removal of contaminated electrical equipment, 300-1000 pound | 2,207.05 |
| Removal of contaminated electrical equipment, 1000-10,000 pound | 4,251.16 |
| Removal of contaminated electrical equipment, >10,000 pound | 8,289.57 |
| Removal of contaminated electrical cable tray, \$/linear foot | 44.36 |
| Removal of contaminated electrical conduit, \$/linear foot | 21.71 |
| Removal of contaminated mechanical equipment, <300 pound | 1,020.69 |
| Removal of contaminated mechanical equipment, 300-1000 pound | 2,437.14 |
| Removal of contaminated mechanical equipment, 1000-10,000 pound | 4,686.67 |
| Removal of contaminated mechanical equipment, >10,000 pound | 8,289.57 |
| Removal of contaminated HVAC equipment, <300 pound | 1,020.69 |
| Removal of contaminated HVAC equipment, 300-1000 pound | 2,437.14 |
| Removal of contaminated HVAC equipment, 1000-10,000 pound | 4,686.67 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix B, Page 5 of 7***

APPENDIX B

**UNIT COST FACTOR LISTING
(Power Block Structures Only)**

| Unit Cost Factor | Cost/Unit |
|---|------------------|
| Removal of contaminated HVAC equipment, >10,000 pound | 8,289.57 |
| Removal of contaminated HVAC ductwork, \$/pound | 2.66 |
| Removal/plasma arc cut of contaminated thin metal components, \$/linear in. | 4.78 |
| Additional decontamination of surface by washing, \$/square foot | 9.88 |
| Additional decontamination of surfaces by hydrolasing, \$/square foot | 42.77 |
| Decontamination rig hook up and flush, \$/ 250-foot length | 8,602.39 |
| Chemical flush of components/systems, \$/gallon | 20.62 |
| Removal of clean standard reinforced concrete, \$/cubic yard | 76.22 |
| Removal of grade slab concrete, \$/cubic yard | 86.70 |
| Removal of clean concrete floors, \$/cubic yard | 424.96 |
| Removal of sections of clean concrete floors, \$/cubic yard | 1,277.24 |
| Removal of clean heavily rein concrete w/#9 rebar, \$/cubic yard | 110.08 |
| Removal of contaminated heavily rein concrete w/#9 rebar, \$/cubic yard | 2,525.79 |
| Removal of clean heavily rein concrete w/#18 rebar, \$/cubic yard | 149.21 |
| Removal of contaminated heavily rein concrete w/#18 rebar, \$/cubic yard | 3,340.90 |
| Removal heavily rein concrete w/#18 rebar & steel embedments, \$/cubic yard | 518.41 |
| Removal of below-grade suspended floors, \$/cubic yard | 209.25 |
| Removal of clean monolithic concrete structures, \$/cubic yard | 1,049.70 |
| Removal of contaminated monolithic concrete structures, \$/cubic yard | 2,512.62 |
| Removal of clean foundation concrete, \$/cubic yard | 825.21 |
| Removal of contaminated foundation concrete, \$/cubic yard | 2,340.94 |
| Explosive demolition of bulk concrete, \$/cubic yard | 56.10 |
| Removal of clean hollow masonry block wall, \$/cubic yard | 26.77 |
| Removal of contaminated hollow masonry block wall, \$/cubic yard | 71.77 |
| Removal of clean solid masonry block wall, \$/cubic yard | 26.77 |
| Removal of contaminated solid masonry block wall, \$/cubic yard | 71.77 |
| Backfill of below-grade voids, \$/cubic yard | 32.20 |
| Removal of subterranean tunnels/voids, \$/linear foot | 131.51 |
| Placement of concrete for below-grade voids, \$/cubic yard | 150.52 |
| Excavation of clean material, \$/cubic yard | 3.35 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix B, Page 6 of 7***

APPENDIX B

**UNIT COST FACTOR LISTING
(Power Block Structures Only)**

| Unit Cost Factor | Cost/Unit |
|---|------------------|
| Excavation of contaminated material, \$/cubic yard | 48.54 |
| Removal of clean concrete rubble (tipping fee included), \$/cubic yard | 27.60 |
| Removal of contaminated concrete rubble, \$/cubic yard | 30.99 |
| Removal of building by volume, \$/cubic foot | 0.35 |
| Removal of clean building metal siding, \$/square foot | 1.58 |
| Removal of contaminated building metal siding, \$/square foot | 5.71 |
| Removal of standard asphalt roofing, \$/square foot | 2.70 |
| Removal of transite panels, \$/square foot | 2.45 |
| Scarifying contaminated concrete surfaces (drill & spall), \$/square foot | 14.89 |
| Scabbling contaminated concrete floors, \$/square foot | 9.21 |
| Scabbling contaminated concrete walls, \$/square foot | 24.59 |
| Scabbling contaminated ceilings, \$/square foot | 84.63 |
| Scabbling structural steel, \$/square foot | 7.64 |
| Removal of clean overhead crane/monorail < 10 ton capacity | 759.93 |
| Removal of contaminated overhead crane/monorail < 10 ton capacity | 2,265.36 |
| Removal of clean overhead crane/monorail >10-50 ton capacity | 1,823.83 |
| Removal of contaminated overhead crane/monorail >10-50 ton capacity | 5,435.94 |
| Removal of polar crane > 50 ton capacity | 7,608.99 |
| Removal of gantry crane > 50 ton capacity | 32,304.44 |
| Removal of structural steel, \$/pound | 0.23 |
| Removal of clean steel floor grating, \$/square foot | 5.53 |
| Removal of contaminated steel floor grating, \$/square foot | 16.69 |
| Removal of clean free-standing steel liner, \$/square foot | 14.77 |
| Removal of contaminated free-standing steel liner, \$/square foot | 44.38 |
| Removal of clean concrete-anchored steel liner, \$/square foot | 7.39 |
| Removal of contaminated concrete-anchored steel liner, \$/square foot | 51.73 |
| Placement of scaffolding in clean areas, \$/square foot | 17.11 |
| Placement of scaffolding in contaminated areas, \$/square foot | 30.30 |
| Landscaping with topsoil, \$/acre | 24,605.57 |
| Cost of CPC B-88 LSA box & preparation for use | 2,083.43 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix B, Page 7 of 7***

APPENDIX B

**UNIT COST FACTOR LISTING
(Power Block Structures Only)**

| Unit Cost Factor | Cost/Unit |
|--|------------------|
| Cost of CPC B-25 LSA box & preparation for use | 1,963.90 |
| Cost of CPC B-12V 12-gauge LSA box & preparation for use | 1,565.90 |
| Cost of CPC B-144 LSA box & preparation for use | 10,460.39 |
| Cost of LSA drum & preparation for use | 230.20 |
| Cost of cask liner for CNSI 8 120A cask (resins) | 12,394.60 |
| Cost of cask liner for CNSI 8 120A cask (filters) | 8,981.65 |
| Decontamination of surfaces with vacuuming, \$/square foot | 0.93 |

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix C, Page 1 of 20***

APPENDIX C

DETAILED COST ANALYSIS

SCENARIO 1: DECON with 32 Year DFS

| | <u>Page</u> |
|---|-------------|
| Prairie Island Nuclear Generating Plant, Unit 1 | C-2 |
| Prairie Island Nuclear Generating Plant, Unit 2 | C-11 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 2 of 20**

**Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|--|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 1a - Shutdown through Transition | | | | | | | | | | | | | | | | | | | | | |
| Period 1a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.1 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | 1,300 |
| 1a.1.2 | Notification of Cessation of Operations | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.3 | Remove fuel & source material | - | - | - | - | - | - | - | - | n/a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.4 | Notification of Permanent Defueling | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.5 | Deactivate plant systems & process waste | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.6 | Prepare and submit PSDAR | - | - | - | - | - | - | 235 | 35 | 270 | 270 | - | - | - | - | - | - | - | - | - | 2,000 |
| 1a.1.7 | Review plant dwgs & specs. | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |
| 1a.1.8 | Perform detailed rad survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.9 | Estimate by-product inventory | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1a.1.10 | End product description | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1a.1.11 | Detailed by-product inventory | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | 1,300 |
| 1a.1.12 | Define major work sequence | - | - | - | - | - | - | 880 | 132 | 1,012 | 1,012 | - | - | - | - | - | - | - | - | - | 7,500 |
| 1a.1.13 | Perform SER and EA | - | - | - | - | - | - | 364 | 55 | 418 | 418 | - | - | - | - | - | - | - | - | - | 3,100 |
| 1a.1.14 | Prepare/submit Defueled Technical Specifications | - | - | - | - | - | - | 880 | 132 | 1,012 | 1,012 | - | - | - | - | - | - | - | - | - | 7,500 |
| 1a.1.15 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 587 | 88 | 675 | 675 | - | - | - | - | - | - | - | - | - | 5,000 |
| 1a.1.16 | Prepare/submit Irradiated Fuel Management Plan | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.17.1 | Plant & temporary facilities | - | - | - | - | - | - | 578 | 87 | 664 | 598 | - | 66 | - | - | - | - | - | - | - | 4,920 |
| 1a.1.17.2 | Plant systems | - | - | - | - | - | - | 489 | 73 | 562 | 506 | - | 56 | - | - | - | - | - | - | - | 4,167 |
| 1a.1.17.3 | NSSS Decontamination Flush | - | - | - | - | - | - | 59 | 9 | 67 | 67 | - | - | - | - | - | - | - | - | - | 500 |
| 1a.1.17.4 | Reactor internals | - | - | - | - | - | - | 833 | 125 | 958 | 958 | - | - | - | - | - | - | - | - | - | 7,100 |
| 1a.1.17.5 | Reactor vessel | - | - | - | - | - | - | 763 | 114 | 877 | 877 | - | - | - | - | - | - | - | - | - | 6,500 |
| 1a.1.17.6 | Biological shield | - | - | - | - | - | - | 59 | 9 | 67 | 67 | - | - | - | - | - | - | - | - | - | 500 |
| 1a.1.17.7 | Steam generators | - | - | - | - | - | - | 366 | 55 | 421 | 421 | - | - | - | - | - | - | - | - | - | 3,120 |
| 1a.1.17.8 | Reinforced concrete | - | - | - | - | - | - | 188 | 28 | 216 | 108 | - | 108 | - | - | - | - | - | - | - | 1,600 |
| 1a.1.17.9 | Main Turbine | - | - | - | - | - | - | 47 | 7 | 54 | - | - | 54 | - | - | - | - | - | - | - | 400 |
| 1a.1.17.10 | Main Condensers | - | - | - | - | - | - | 47 | 7 | 54 | - | - | 54 | - | - | - | - | - | - | - | 400 |
| 1a.1.17.11 | Plant structures & buildings | - | - | - | - | - | - | 366 | 55 | 421 | 211 | - | 211 | - | - | - | - | - | - | - | 3,120 |
| 1a.1.17.12 | Waste management | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |
| 1a.1.17.13 | Facility & site closeout | - | - | - | - | - | - | 106 | 16 | 121 | 61 | - | 61 | - | - | - | - | - | - | - | 900 |
| 1a.1.17 | Total | - | - | - | - | - | - | 4,440 | 666 | 5,106 | 4,496 | - | 610 | - | - | - | - | - | - | - | 37,827 |
| Planning & Site Preparations | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.18 | Prepare dismantling sequence | - | - | - | - | - | - | 282 | 42 | 324 | 324 | - | - | - | - | - | - | - | - | - | 2,400 |
| 1a.1.19 | Plant prep. & temp. svces | - | - | - | - | - | - | 3,300 | 495 | 3,795 | 3,795 | - | - | - | - | - | - | - | - | - | - |
| 1a.1.20 | Design water clean-up system | - | - | - | - | - | - | 164 | 25 | 189 | 189 | - | - | - | - | - | - | - | - | - | 1,400 |
| 1a.1.21 | Rigging/Cont. Cntrl Envlps/tooling/etc. | - | - | - | - | - | - | 2,300 | 345 | 2,645 | 2,645 | - | - | - | - | - | - | - | - | - | - |
| 1a.1.22 | Procure casks/liners & containers | - | - | - | - | - | - | 144 | 22 | 166 | 166 | - | - | - | - | - | - | - | - | - | 1,230 |
| 1a.1 | Subtotal Period 1a Activity Costs | - | - | - | - | - | - | 14,774 | 2,216 | 16,990 | 16,380 | - | 610 | - | - | - | - | - | - | - | 78,157 |
| Period 1a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 1a.2.1 | Spent Fuel Pool Isolation | - | - | - | - | - | - | 11,691 | 1,754 | 13,445 | 13,445 | - | - | - | - | - | - | - | - | - | - |
| 1a.2 | Subtotal Period 1a Additional Costs | - | - | - | - | - | - | 11,691 | 1,754 | 13,445 | 13,445 | - | - | - | - | - | - | - | - | - | - |
| Period 1a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 1a.3.1 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,003 | - | 2,003 | - | 2,003 | - | - | - | - | - | - | - | - | - |
| 1a.3 | Subtotal Period 1a Collateral Costs | - | - | - | - | - | - | 2,003 | - | 2,003 | - | 2,003 | - | - | - | - | - | - | - | - | - |
| Period 1a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 1a.4.1 | Insurance | - | - | - | - | - | - | 1,730 | 173 | 1,903 | 1,903 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.2 | Property taxes | - | - | - | - | - | - | 2,040 | 204 | 2,244 | 2,244 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.3 | Health physics supplies | - | 515 | - | - | - | - | - | 129 | 644 | 644 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.5 | Disposal of DAW generated | - | - | 13 | 4 | - | 50 | - | 14 | 81 | 81 | - | - | - | 610 | - | - | - | - | 12,190 | 20 |
| 1a.4.6 | Plant energy budget | - | - | - | - | - | - | 1,515 | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.7 | NRC Fees | - | - | - | - | - | - | 1,110 | 111 | 1,221 | 1,221 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.8 | Emergency Planning Fees | - | - | - | - | - | - | 1,604 | 160 | 1,765 | - | 1,765 | - | - | - | - | - | - | - | - | - |
| 1a.4.9 | Fixed Overhead | - | - | - | - | - | - | 1,470 | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.10 | Spent Fuel Pool O&M | - | - | - | - | - | - | 401 | 60 | 461 | - | 461 | - | - | - | - | - | - | - | - | - |
| 1a.4.11 | ISFSI Operating Costs | - | - | - | - | - | - | 52 | 8 | 59 | - | 59 | - | - | - | - | - | - | - | - | - |
| 1a.4.12 | Railroad Track Maintenance | - | - | - | - | - | - | 58 | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.13 | Security Staff Cost | - | - | - | - | - | - | 7,390 | 1,108 | 8,498 | 8,498 | - | - | - | - | - | - | - | - | - | 122,720 |
| 1a.4.14 | Utility Staff Cost | - | - | - | - | - | - | 25,791 | 3,869 | 29,660 | 29,660 | - | - | - | - | - | - | - | - | - | 422,240 |
| 1a.4 | Subtotal Period 1a Period-Dependent Costs | - | 1,083 | 13 | 4 | - | 50 | 43,160 | 6,378 | 50,687 | 48,402 | 2,286 | - | - | 610 | - | - | - | 12,190 | 20 | 544,960 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 3 of 20**

**Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|--|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| 1a.0 | TOTAL PERIOD 1a COST | - | 1,083 | 13 | 4 | - | 50 | 71,629 | 10,348 | 83,126 | 78,227 | 4,289 | 610 | - | 610 | - | - | - | 12,190 | 20 | 623,117 |
| PERIOD 1b - Decommissioning Preparations | | | | | | | | | | | | | | | | | | | | | |
| Period 1b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | |
| 1b.1.1.1 | Plant systems | - | - | - | - | - | - | 556 | 83 | 639 | 575 | - | 64 | - | - | - | - | - | - | - | 4,733 |
| 1b.1.1.2 | NSSS Decontamination Flush | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1b.1.1.3 | Reactor internals | - | - | - | - | - | - | 293 | 44 | 337 | 337 | - | - | - | - | - | - | - | - | - | 2,500 |
| 1b.1.1.4 | Remaining buildings | - | - | - | - | - | - | 158 | 24 | 182 | 46 | - | 137 | - | - | - | - | - | - | - | 1,350 |
| 1b.1.1.5 | CRD cooling assembly | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1b.1.1.6 | CRD housings & ICI tubes | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1b.1.1.7 | Incore instrumentation | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1b.1.1.8 | Reactor vessel | - | - | - | - | - | - | 426 | 64 | 490 | 490 | - | - | - | - | - | - | - | - | - | 3,630 |
| 1b.1.1.9 | Facility closeout | - | - | - | - | - | - | 141 | 21 | 162 | 81 | - | 81 | - | - | - | - | - | - | - | 1,200 |
| 1b.1.1.10 | Missile shields | - | - | - | - | - | - | 53 | 8 | 61 | 61 | - | - | - | - | - | - | - | - | - | 450 |
| 1b.1.1.11 | Biological shield | - | - | - | - | - | - | 141 | 21 | 162 | 162 | - | - | - | - | - | - | - | - | - | 1,200 |
| 1b.1.1.12 | Steam generators | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |
| 1b.1.1.13 | Reinforced concrete | - | - | - | - | - | - | 117 | 18 | 135 | 67 | - | 67 | - | - | - | - | - | - | - | 1,000 |
| 1b.1.1.14 | Main Turbine | - | - | - | - | - | - | 183 | 27 | 211 | - | - | 211 | - | - | - | - | - | - | - | 1,560 |
| 1b.1.1.15 | Main Condensers | - | - | - | - | - | - | 183 | 27 | 211 | - | - | 211 | - | - | - | - | - | - | - | 1,560 |
| 1b.1.1.16 | Auxiliary building | - | - | - | - | - | - | 320 | 48 | 369 | 332 | - | 37 | - | - | - | - | - | - | - | 2,730 |
| 1b.1.1.17 | Reactor building | - | - | - | - | - | - | 320 | 48 | 369 | 332 | - | 37 | - | - | - | - | - | - | - | 2,730 |
| 1b.1.1 | Total | - | - | - | - | - | - | 3,902 | 585 | 4,487 | 3,643 | - | 844 | - | - | - | - | - | - | - | 33,243 |
| 1b.1.2 | Decon primary loop | 552 | - | - | - | - | - | - | 276 | 828 | 828 | - | - | - | - | - | - | - | - | 1,067 | - |
| 1b.1 | Subtotal Period 1b Activity Costs | 552 | - | - | - | - | - | 3,902 | 861 | 5,315 | 4,471 | - | 844 | - | - | - | - | - | - | 1,067 | 33,243 |
| Period 1b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.2.1 | Site Characterization | - | - | - | - | - | - | 3,700 | 1,110 | 4,810 | 4,810 | - | - | - | - | - | - | - | - | 21,020 | 8,332 |
| 1b.2.2 | Mixed/Hazardous Waste | - | - | 318 | 75 | 164 | - | - | 68 | 624 | 624 | - | - | 6,133 | - | - | - | - | 351,986 | 2,361 | - |
| 1b.2.3 | Asbestos Abatement | - | 2,364 | 2 | 110 | - | 1,359 | - | 947 | 4,782 | 4,782 | - | - | - | 12,843 | - | - | - | 166,959 | 20,907 | - |
| 1b.2 | Subtotal Period 1b Additional Costs | - | 2,364 | 320 | 185 | 164 | 1,359 | 3,700 | 2,125 | 10,216 | 10,216 | - | - | 6,133 | 12,843 | - | - | - | 518,945 | 44,288 | 8,332 |
| Period 1b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.2 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.3 | Process decommissioning water waste | 24 | - | 16 | 41 | - | 64 | - | 36 | 180 | 180 | - | - | 152 | - | - | - | - | 9,121 | 30 | - |
| 1b.3.4 | Process decommissioning chemical flush waste | 2 | - | 58 | 220 | - | 2,471 | - | 657 | 3,408 | 3,408 | - | - | - | - | 588 | - | - | 62,689 | 110 | - |
| 1b.3.5 | Small tool allowance | - | 34 | - | - | - | - | - | 5 | 39 | 39 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.6 | Pipe cutting equipment | - | 1,200 | - | - | - | - | - | 180 | 1,380 | 1,380 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.7 | Decon rig | 1,987 | - | - | - | - | - | - | 298 | 2,285 | 2,285 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.8 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 230 | 35 | 265 | - | 265 | - | - | - | - | - | - | - | - | - |
| 1b.3.9 | Retention and Severance | - | - | - | - | - | - | 1,088 | 163 | 1,251 | 1,251 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.10 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 630 | - | 630 | - | 630 | - | - | - | - | - | - | - | - | - |
| 1b.3 | Subtotal Period 1b Collateral Costs | 2,986 | 1,234 | 74 | 261 | - | 2,534 | 3,136 | 1,698 | 11,923 | 11,028 | 895 | - | 152 | 588 | - | - | - | 71,810 | 140 | - |
| Period 1b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.4.1 | Decon supplies | 35 | - | - | - | - | - | - | 9 | 44 | 44 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.2 | Insurance | - | - | - | - | - | - | 872 | 87 | 959 | 959 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.3 | Property taxes | - | - | - | - | - | - | 1,352 | 135 | 1,487 | 1,487 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.4 | Health physics supplies | - | 402 | - | - | - | - | - | 101 | 503 | 503 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.5 | Heavy equipment rental | - | 286 | - | - | - | - | - | 43 | 329 | 329 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.6 | Disposal of DAW generated | - | - | 8 | 2 | - | 29 | - | 8 | 48 | 48 | - | - | - | 360 | - | - | - | 7,197 | 12 | - |
| 1b.4.7 | Plant energy budget | - | - | - | - | - | - | 1,527 | 229 | 1,756 | 1,756 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.8 | NRC Fees | - | - | - | - | - | - | 323 | 32 | 355 | 355 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 809 | 81 | 890 | - | 890 | - | - | - | - | - | - | - | - | - |
| 1b.4.10 | Fixed Overhead | - | - | - | - | - | - | 741 | 111 | 852 | 852 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 202 | 30 | 233 | - | 233 | - | - | - | - | - | - | - | - | - |
| 1b.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 26 | 4 | 30 | - | 30 | - | - | - | - | - | - | - | - | - |
| 1b.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 29 | 4 | 33 | 33 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.14 | Security Staff Cost | - | - | - | - | - | - | 3,725 | 559 | 4,284 | 4,284 | - | - | - | - | - | - | - | - | - | 61,864 |
| 1b.4.15 | DOC Staff Cost | - | - | - | - | - | - | 5,656 | 848 | 6,504 | 6,504 | - | - | - | - | - | - | - | - | - | 63,961 |
| 1b.4.16 | Utility Staff Cost | - | - | - | - | - | - | 13,074 | 1,961 | 15,035 | 15,035 | - | - | - | - | - | - | - | - | - | 213,904 |
| 1b.4 | Subtotal Period 1b Period-Dependent Costs | 35 | 688 | 8 | 2 | - | 29 | 28,336 | 4,243 | 33,341 | 32,189 | 1,152 | - | 360 | - | - | - | - | 7,197 | 12 | 339,730 |
| 1b.0 | TOTAL PERIOD 1b COST | 3,573 | 4,286 | 402 | 447 | 164 | 3,923 | 39,074 | 8,927 | 60,795 | 57,904 | 2,047 | 844 | 6,133 | 13,355 | 588 | - | - | 597,952 | 45,506 | 381,305 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 4 of 20**

**Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 1 TOTALS | | 3,573 | 5,368 | 415 | 451 | 164 | 3,972 | 110,702 | 19,275 | 143,921 | 136,131 | 6,336 | 1,454 | 6,133 | 13,964 | 588 | - | - | 610,142 | 45,526 | 1,004,421 |
| PERIOD 2a - Large Component Removal | | | | | | | | | | | | | | | | | | | | | |
| Period 2a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 2a.1.1.1 | Reactor Coolant Piping | 51 | 45 | 6 | 8 | - | 150 | - | 76 | 336 | 336 | - | - | - | 305 | - | - | - | 34,809 | 1,414 | - |
| 2a.1.1.2 | Pressurizer Relief Tank | 22 | 20 | 4 | 5 | - | 100 | - | 42 | 193 | 193 | - | - | - | 203 | - | - | - | 23,193 | 625 | - |
| 2a.1.1.3 | Reactor Coolant Pumps & Motors | 54 | 63 | 101 | 83 | - | 736 | - | 249 | 1,287 | 1,287 | - | - | - | 2,332 | - | - | - | 295,800 | 2,049 | 100 |
| 2a.1.1.4 | Pressurizer | 48 | 68 | 467 | 88 | - | 693 | - | 274 | 1,639 | 1,639 | - | - | - | 2,196 | - | - | - | 185,015 | 2,355 | 938 |
| 2a.1.1.5 | Steam Generators | 225 | 2,943 | 2,093 | 1,638 | 1,246 | 3,570 | - | 2,383 | 14,097 | 14,097 | - | - | 18,672 | 11,316 | - | - | - | 1,668,341 | 14,819 | 2,875 |
| 2a.1.1.6 | CRDMs/CIs/Service Structure Removal | 286 | 277 | 211 | 48 | - | 763 | - | 431 | 2,016 | 2,016 | - | - | - | 4,797 | - | - | - | 177,400 | 8,104 | - |
| 2a.1.1.7 | Reactor Vessel Internals | 78 | 4,468 | 21,874 | 1,072 | - | 7,946 | 277 | 13,141 | 48,856 | 48,856 | - | - | - | 501 | 125 | 673 | - | 164,987 | 23,040 | 1,080 |
| 2a.1.1.8 | Reactor Vessel | 89 | 5,717 | 1,754 | 719 | - | 1,956 | 277 | 5,970 | 16,483 | 16,483 | - | - | - | 5,690 | - | - | - | 570,074 | 23,040 | 1,080 |
| 2a.1.1 | Totals | 855 | 13,600 | 26,512 | 3,662 | 1,246 | 15,913 | 553 | 22,568 | 84,908 | 84,908 | - | - | 18,672 | 27,341 | 125 | 673 | - | 3,119,620 | 75,446 | 6,073 |
| Removal of Major Equipment | | | | | | | | | | | | | | | | | | | | | |
| 2a.1.2 | Main Turbine/Generator | - | 305 | 189 | 55 | 272 | 306 | - | 221 | 1,348 | 1,348 | - | - | 2,131 | 1,187 | - | - | - | 206,316 | 4,667 | - |
| 2a.1.3 | Main Condensers | - | 2,532 | 121 | 49 | 364 | 451 | - | 820 | 4,336 | 4,336 | - | - | 3,800 | 1,587 | - | - | - | 275,903 | 39,151 | - |
| Cascading Costs from Clean Building Demolition | | | | | | | | | | | | | | | | | | | | | |
| 2a.1.4.1 | Reactor | - | 728 | - | - | - | - | - | 109 | 837 | 837 | - | - | - | - | - | - | - | - | 7,589 | - |
| 2a.1.4 | Totals | - | 728 | - | - | - | - | - | 109 | 837 | 837 | - | - | - | - | - | - | - | - | 7,589 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 2a.1.5.1 | Air Removal | - | 27 | - | - | - | - | - | 4 | 31 | - | - | 31 | - | - | - | - | - | - | 452 | - |
| 2a.1.5.2 | Auxiliary Feedwater | - | 40 | - | - | - | - | - | 6 | 46 | - | - | 46 | - | - | - | - | - | - | 670 | - |
| 2a.1.5.3 | Auxiliary Feedwater - RCA | - | 45 | 0 | 1 | 19 | - | - | 14 | 79 | 79 | - | - | 215 | - | - | - | - | 8,722 | 601 | - |
| 2a.1.5.4 | Bleed Steam | - | 78 | - | - | - | - | - | 12 | 90 | - | - | 90 | - | - | - | - | - | - | 1,335 | - |
| 2a.1.5.5 | Caustic Addition - RCA | - | 36 | 0 | 1 | 20 | - | - | 12 | 71 | 71 | - | - | 233 | - | - | - | - | 9,453 | 444 | - |
| 2a.1.5.6 | Chemical Feed | - | 17 | - | - | - | - | - | 3 | 20 | - | - | 20 | - | - | - | - | - | - | 304 | - |
| 2a.1.5.7 | Chemical Feed - RCA | - | 1 | 0 | 0 | 1 | - | - | 0 | 2 | 2 | - | - | 6 | - | - | - | - | 243 | 12 | - |
| 2a.1.5.8 | Circulating Water | - | 37 | - | - | - | - | - | 6 | 42 | - | - | 42 | - | - | - | - | - | - | 619 | - |
| 2a.1.5.9 | Condensate | - | 414 | - | - | - | - | - | 62 | 476 | - | - | 476 | - | - | - | - | - | - | 6,837 | - |
| 2a.1.5.10 | Condensate Polishing | - | 205 | - | - | - | - | - | 31 | 236 | - | - | 236 | - | - | - | - | - | - | 3,420 | - |
| 2a.1.5.11 | Condensate Polishing - RCA | - | 176 | 4 | 12 | 180 | - | - | 73 | 444 | 444 | - | - | 2,078 | - | - | - | - | 84,395 | 2,329 | - |
| 2a.1.5.12 | Electro-hydraulic | - | 8 | - | - | - | - | - | 1 | 9 | - | - | 9 | - | - | - | - | - | - | 127 | - |
| 2a.1.5.13 | Feedwater | - | 133 | - | - | - | - | - | 20 | 153 | - | - | 153 | - | - | - | - | - | - | 2,215 | - |
| 2a.1.5.14 | Feedwater - RCA | - | 186 | 6 | 19 | 278 | - | - | 91 | 579 | 579 | - | - | 3,208 | - | - | - | - | 130,294 | 2,651 | - |
| 2a.1.5.15 | Gland Seal | - | 29 | - | - | - | - | - | 4 | 34 | - | - | 34 | - | - | - | - | - | - | 505 | - |
| 2a.1.5.16 | Heater Drain | - | 349 | - | - | - | - | - | 52 | 401 | - | - | 401 | - | - | - | - | - | - | 5,881 | - |
| 2a.1.5.17 | Internal Circ Water & CDSR | - | 23 | - | - | - | - | - | 3 | 27 | - | - | 27 | - | - | - | - | - | - | 389 | - |
| 2a.1.5.18 | Main Gen/Exciter/Transformer | - | 0 | - | - | - | - | - | 0 | 0 | - | - | 0 | - | - | - | - | - | - | 5 | - |
| 2a.1.5.19 | Main Steam | - | 101 | - | - | - | - | - | 15 | 116 | - | - | 116 | - | - | - | - | - | - | 1,690 | - |
| 2a.1.5.20 | Main Steam - RCA | - | 350 | 9 | 29 | 436 | - | - | 158 | 983 | 983 | - | - | 5,044 | - | - | - | - | 204,825 | 4,956 | - |
| 2a.1.5.21 | Steam Generator Blowdown | - | 459 | 21 | 22 | 176 | 195 | - | 195 | 1,067 | 1,067 | - | - | 2,031 | 686 | - | - | - | 127,773 | 6,667 | - |
| 2a.1.5.22 | Steam Generators | - | 5 | - | - | - | - | - | 1 | 5 | - | - | 5 | - | - | - | - | - | - | 75 | - |
| 2a.1.5.23 | Turbine & Moisture Separators | - | 337 | - | - | - | - | - | 51 | 388 | - | - | 388 | - | - | - | - | - | - | 5,609 | - |
| 2a.1.5.24 | Turbine Oil Purification | - | 61 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | 1,003 | - |
| 2a.1.5 | Totals | - | 3,117 | 40 | 85 | 1,108 | 195 | - | 825 | 5,370 | 3,226 | - | 2,145 | 12,815 | 686 | - | - | - | 565,705 | 48,794 | - |
| 2a.1.6 | Scaffolding in support of decommissioning | - | 854 | 3 | 1 | 13 | 3 | - | 217 | 1,092 | 1,092 | - | - | 138 | 12 | - | - | - | 7,016 | 6,368 | - |
| 2a.1 | Subtotal Period 2a Activity Costs | 855 | 21,136 | 26,865 | 3,852 | 3,004 | 16,868 | 553 | 24,759 | 97,891 | 95,747 | - | 2,145 | 37,556 | 30,812 | 125 | 673 | - | 4,174,560 | 182,015 | 6,073 |
| Period 2a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.2.1 | Remedial Action Surveys | - | - | - | - | - | - | 2,126 | 638 | 2,764 | 2,764 | - | - | - | - | - | - | - | - | 27,791 | - |
| 2a.2.2 | Retired RPV upper internals package | 1 | 659 | 785 | 107 | - | 1,439 | - | 1,437 | 4,427 | 4,427 | - | - | - | 2,097 | 125 | - | - | 205,890 | 2,175 | 87 |
| 2a.2 | Subtotal Period 2a Additional Costs | 1 | 659 | 785 | 107 | - | 1,439 | 2,126 | 2,075 | 7,191 | 7,191 | - | - | - | 2,097 | 125 | - | - | 205,890 | 29,966 | 87 |
| Period 2a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.3.1 | Process decommissioning water waste | 47 | - | 31 | 81 | - | 126 | - | 70 | 356 | 356 | - | - | - | 302 | - | - | - | 18,119 | 59 | - |
| 2a.3.3 | Small tool allowance | - | 223 | - | - | - | - | - | 33 | 257 | 231 | - | 26 | - | - | - | - | - | - | - | - |
| 2a.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 2,365 | 355 | 2,720 | - | 2,720 | - | - | - | - | - | - | - | - | - |
| 2a.3.5 | Retention and Severance | - | - | - | - | - | - | 12,156 | 1,823 | 13,980 | 13,980 | - | - | - | - | - | - | - | - | - | - |
| 2a.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,670 | - | 1,670 | - | 1,670 | - | - | - | - | - | - | - | - | - |
| 2a.3 | Subtotal Period 2a Collateral Costs | 47 | 223 | 31 | 81 | - | 126 | 16,191 | 2,282 | 18,982 | 14,567 | 4,390 | 26 | - | 302 | - | - | - | 18,119 | 59 | - |

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 6 of 20**

**Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 2b.1.3.1 | Reactor | 1,150 | 2,623 | 139 | 852 | 193 | 11,079 | - | 4,171 | 20,208 | 20,208 | - | - | 2,230 | 57,414 | - | - | - | - | 3,559,624 | 50,842 | - |
| 2b.1.3.2 | Backwash Waste Receiving Tank | - | 27 | 1 | 11 | - | 87 | - | 30 | 158 | 158 | - | - | - | 507 | - | - | - | - | 43,896 | 299 | - |
| 2b.1.3 | Totals | 1,150 | 2,650 | 141 | 864 | 193 | 11,166 | - | 4,202 | 20,366 | 20,366 | - | - | 2,230 | 57,921 | - | - | - | - | 3,603,520 | 51,140 | - |
| 2b.1.4 | Prepare/submit License Termination Plan | - | - | - | - | - | - | 481 | 72 | 553 | 553 | - | - | - | - | - | - | - | - | - | - | 4,096 |
| 2b.1.5 | Receive NRC approval of termination plan | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2b.1 | Subtotal Period 2b Activity Costs | 2,874 | 16,530 | 547 | 1,479 | 6,919 | 14,215 | 481 | 10,275 | 53,320 | 50,616 | - | 2,704 | 79,974 | 68,664 | - | - | - | - | 7,470,455 | 264,930 | 4,096 |
| Period 2b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.2.1 | Remedial Action Surveys | - | - | - | - | - | - | 1,943 | 583 | 2,526 | 2,526 | - | - | - | - | - | - | - | - | - | 25,399 | - |
| 2b.2.2 | Operational Equipment | - | - | 9 | 29 | 312 | - | - | 52 | 402 | 402 | - | - | 5,855 | - | - | - | - | - | 146,375 | 16 | - |
| 2b.2 | Subtotal Period 2b Additional Costs | - | - | 9 | 29 | 312 | - | 1,943 | 635 | 2,928 | 2,928 | - | - | 5,855 | - | - | - | - | - | 146,375 | 25,415 | - |
| Period 2b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.1 | Process decommissioning water waste | 105 | - | 70 | 182 | - | 285 | - | 158 | 800 | 800 | - | - | - | 680 | - | - | - | - | 40,799 | 133 | - |
| 2b.3.2 | Process decommissioning chemical flush waste | 3 | - | 87 | 327 | - | 651 | - | 222 | 1,289 | 1,289 | - | - | - | 875 | - | - | - | - | 93,252 | 164 | - |
| 2b.3.3 | Small tool allowance | - | 289 | - | - | - | - | - | 43 | 332 | 332 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 1,109 | 166 | 1,275 | - | 1,275 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.5 | Retention and Severance | - | - | - | - | - | - | 6,994 | 1,049 | 8,043 | 8,043 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,525 | - | 1,525 | - | 1,525 | - | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | 107 | 289 | 157 | 509 | - | 936 | 9,628 | 1,638 | 13,264 | 10,463 | 2,801 | - | - | 1,555 | - | - | - | - | 134,051 | 296 | - |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Decon supplies | 482 | - | - | - | - | - | - | 121 | 603 | 603 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Insurance | - | - | - | - | - | - | 624 | 62 | 687 | 687 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Property taxes | - | - | - | - | - | - | 3,099 | 310 | 3,409 | 3,409 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Health physics supplies | - | 1,969 | - | - | - | - | - | 492 | 2,461 | 2,461 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.5 | Heavy equipment rental | - | 2,759 | - | - | - | - | - | 414 | 3,173 | 3,173 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | Disposal of DAW generated | - | - | 78 | 23 | - | 293 | - | 85 | 479 | 479 | - | - | - | 3,600 | - | - | - | - | 71,996 | 117 | - |
| 2b.4.7 | Plant energy budget | - | - | - | - | - | - | 1,388 | 208 | 1,596 | 1,596 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | NRC Fees | - | - | - | - | - | - | 707 | 71 | 778 | 778 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 1,569 | 157 | 1,726 | - | 1,726 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Fixed Overhead | - | - | - | - | - | - | 1,513 | 227 | 1,740 | 1,740 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 490 | 74 | 564 | - | 564 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.12 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 247 | 37 | 284 | 284 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.13 | ISFSI Operating Costs | - | - | - | - | - | - | 63 | 9 | 73 | - | 73 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.14 | Railroad Track Maintenance | - | - | - | - | - | - | 70 | 11 | 81 | 81 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.15 | Security Staff Cost | - | - | - | - | - | - | 8,299 | 1,245 | 9,544 | 9,544 | - | - | - | - | - | - | - | - | - | - | 137,246 |
| 2b.4.16 | DOC Staff Cost | - | - | - | - | - | - | 11,450 | 1,718 | 13,168 | 13,168 | - | - | - | - | - | - | - | - | - | - | 137,246 |
| 2b.4.17 | Utility Staff Cost | - | - | - | - | - | - | 15,293 | 2,294 | 17,586 | 17,586 | - | - | - | - | - | - | - | - | - | - | 255,430 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | 482 | 4,728 | 78 | 23 | - | 293 | 44,813 | 7,533 | 57,951 | 55,588 | 2,362 | - | - | 3,600 | - | - | - | - | 71,996 | 117 | 529,921 |
| 2b.0 | TOTAL PERIOD 2b COST | 3,464 | 21,546 | 792 | 2,040 | 7,231 | 15,444 | 56,865 | 20,081 | 127,463 | 119,596 | 5,163 | 2,704 | 85,829 | 73,819 | - | - | - | - | 7,822,876 | 290,758 | 534,017 |
| PERIOD 2c - Spent fuel delay prior to SFP decon | | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.2 | Subtotal Period 2c Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - | - |
| Period 2c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 62,386 | 9,358 | 71,744 | - | 71,744 | - | - | - | - | - | - | - | - | - | - |
| 2c.3.2 | Retention and Severance | - | - | - | - | - | - | 4,478 | 672 | 5,149 | 5,149 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,702 | - | 2,702 | - | 2,702 | - | - | - | - | - | - | - | - | - | - |
| 2c.3 | Subtotal Period 2c Collateral Costs | - | - | - | - | - | - | 69,565 | 10,030 | 79,595 | 5,149 | 74,446 | - | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 1,104 | 110 | 1,215 | 1,215 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 5,154 | 515 | 5,669 | 5,669 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 390 | - | - | - | - | - | 98 | 488 | 488 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 18 | 5 | - | 66 | - | 19 | 108 | 108 | - | - | - | 809 | - | - | - | - | 16,171 | 26 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 655 | 98 | 753 | 753 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 555 | 55 | 610 | 610 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 2,776 | 278 | 3,053 | - | 3,053 | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 7 of 20**

**Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 2c Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.8 | Fixed Overhead | - | - | - | - | - | - | 2,676 | 401 | 3,078 | 3,078 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.9 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 87 | 13 | 101 | 101 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 112 | 17 | 128 | - | 128 | - | - | - | - | - | - | - | - | - |
| 2c.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 125 | 19 | 143 | 143 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.12 | Security Staff Cost | - | - | - | - | - | - | 14,681 | 2,202 | 16,883 | 16,883 | - | - | - | - | - | - | - | - | - | 242,796 |
| 2c.4.13 | Utility Staff Cost | - | - | - | - | - | - | 2,064 | 310 | 2,374 | 2,374 | - | - | - | - | - | - | - | - | - | 33,722 |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 390 | 18 | 5 | - | 66 | 29,988 | 4,135 | 34,602 | 31,421 | 3,181 | - | - | 809 | - | - | - | 16,171 | 26 | 276,518 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 390 | 18 | 5 | - | 66 | 103,902 | 14,817 | 119,197 | 41,570 | 77,627 | - | - | 809 | - | - | - | 16,171 | 26 | 276,518 |
| PERIOD 2d - Decontamination Following Wet Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.1 | Remove spent fuel racks | 328 | 32 | 94 | 32 | - | 595 | - | 335 | 1,416 | 1,416 | - | - | - | 2,092 | - | - | - | 138,298 | 576 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.2.1 | Electrical - Contaminated - Fuel Pool | - | 147 | 2 | 4 | 53 | 7 | - | 47 | 259 | 259 | - | - | 615 | 23 | - | - | - | 26,508 | 2,077 | - |
| 2d.1.2.2 | Electrical - Decontaminated - Fuel Pool | - | 918 | 10 | 34 | 510 | - | - | 312 | 1,785 | 1,785 | - | - | 5,893 | - | - | - | - | 239,327 | 12,340 | - |
| 2d.1.2.3 | HVAC - Contaminated - Fuel Pool | - | 159 | 3 | 9 | 121 | 15 | - | 63 | 370 | 370 | - | - | 1,398 | 53 | - | - | - | 60,246 | 2,157 | - |
| 2d.1.2.4 | Safeguards Chilled Water - RCA | - | 82 | 1 | 3 | 43 | - | - | 27 | 155 | 155 | - | - | 495 | - | - | - | - | 20,100 | 1,019 | - |
| 2d.1.2.5 | Spent Fuel Pool Cooling | 293 | 342 | 34 | 25 | 70 | 377 | - | 344 | 1,484 | 1,484 | - | - | 806 | 1,325 | - | - | - | 120,439 | 7,613 | - |
| 2d.1.2.6 | Station & Instrument Air - RCA Fuel Pool | - | 20 | 0 | 0 | 7 | - | - | 6 | 34 | 34 | - | - | 83 | - | - | - | - | 3,374 | 263 | - |
| 2d.1.2 | Totals | 293 | 1,668 | 50 | 75 | 804 | 399 | - | 800 | 4,088 | 4,088 | - | - | 9,290 | 1,401 | - | - | - | 469,994 | 25,468 | - |
| 2d.1.4 | Scaffolding in support of decommissioning | - | 213 | 1 | 0 | 3 | 1 | - | 54 | 273 | 273 | - | - | 35 | 3 | - | - | - | 1,754 | 1,592 | - |
| 2d.1 | Subtotal Period 2d Activity Costs | 621 | 1,913 | 145 | 107 | 807 | 994 | - | 1,189 | 5,777 | 5,777 | - | - | 9,325 | 3,496 | - | - | - | 610,046 | 27,637 | - |
| Period 2d Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 |
| 2d.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 1,237 | 371 | 1,608 | 1,608 | - | - | - | - | - | - | - | - | 16,173 | - |
| 2d.2 | Subtotal Period 2d Additional Costs | - | - | - | - | - | - | 2,082 | 625 | 2,706 | 2,706 | - | - | - | - | - | - | - | - | 16,173 | 6,240 |
| Period 2d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.3.1 | Process decommissioning water waste | 27 | - | 18 | 48 | - | 75 | - | 41 | 209 | 209 | - | - | - | 179 | - | - | - | 10,721 | 35 | - |
| 2d.3.2 | Process decommissioning chemical flush waste | 1 | - | 32 | 121 | - | 241 | - | 82 | 478 | 478 | - | - | - | 324 | - | - | - | 34,576 | 61 | - |
| 2d.3.3 | Small tool allowance | - | 35 | - | - | - | - | - | 5 | 41 | 41 | - | - | - | - | - | - | - | - | - | - |
| 2d.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - |
| 2d.3.5 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 13,365 | 2,005 | 15,370 | - | 15,370 | - | - | - | - | - | - | - | - | - |
| 2d.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 974 | - | 974 | - | 974 | - | - | - | - | - | - | - | - | - |
| 2d.3 | Subtotal Period 2d Collateral Costs | 27 | 35 | 194 | 224 | 575 | 467 | 14,339 | 2,280 | 18,142 | 1,798 | 16,344 | - | 6,000 | 1,032 | - | - | - | 350,265 | 184 | - |
| Period 2d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.4.1 | Decon supplies | 54 | - | - | - | - | - | - | 14 | 68 | 68 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.2 | Insurance | - | - | - | - | - | - | 399 | 40 | 439 | 439 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.3 | Property taxes | - | - | - | - | - | - | 1,746 | 175 | 1,921 | 1,921 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.4 | Health physics supplies | - | 560 | - | - | - | - | - | 140 | 700 | 700 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.5 | Heavy equipment rental | - | 1,763 | - | - | - | - | - | 264 | 2,027 | 2,027 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.6 | Disposal of DAW generated | - | - | 18 | 5 | - | 68 | - | 20 | 111 | 111 | - | - | - | 830 | - | - | - | 16,609 | 27 | - |
| 2d.4.7 | Plant energy budget | - | - | - | - | - | - | 473 | 71 | 544 | 544 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.8 | NRC Fees | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 1,003 | 100 | 1,103 | - | 1,103 | - | - | - | - | - | - | - | - | - |
| 2d.4.10 | Fixed Overhead | - | - | - | - | - | - | 967 | 145 | 1,112 | 1,112 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.11 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 316 | 47 | 363 | 363 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 40 | 6 | 46 | - | 46 | - | - | - | - | - | - | - | - | - |
| 2d.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 45 | 7 | 52 | 52 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.14 | Security Staff Cost | - | - | - | - | - | - | 5,141 | 771 | 5,912 | 5,912 | - | - | - | - | - | - | - | - | - | 84,454 |
| 2d.4.15 | DOC Staff Cost | - | - | - | - | - | - | 6,087 | 913 | 7,000 | 7,000 | - | - | - | - | - | - | - | - | - | 70,243 |
| 2d.4.16 | Utility Staff Cost | - | - | - | - | - | - | 7,824 | 1,174 | 8,997 | 8,557 | 441 | - | - | - | - | - | - | - | - | 126,681 |
| 2d.4 | Subtotal Period 2d Period-Dependent Costs | 54 | 2,323 | 18 | 5 | - | 68 | 24,422 | 3,924 | 30,815 | 29,225 | 1,590 | - | - | 830 | - | - | - | 16,609 | 27 | 281,377 |
| 2d.0 | TOTAL PERIOD 2d COST | 703 | 4,272 | 357 | 337 | 1,382 | 1,528 | 40,843 | 8,018 | 57,440 | 39,507 | 17,934 | - | 15,325 | 5,359 | - | - | - | 976,920 | 44,021 | 287,617 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 2f - License Termination | | | | | | | | | | | | | | | | | | | | | |
| Period 2f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| 2f.1.2 | Terminate license | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2f.1 | Subtotal Period 2f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| Period 2f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.2.1 | License Termination Survey | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| 2f.2 | Subtotal Period 2f Additional Costs | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| Period 2f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 2f.3.2 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 431 | 65 | 496 | - | 496 | - | - | - | - | - | - | - | - | - |
| 2f.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 934 | - | 934 | - | 934 | - | - | - | - | - | - | - | - | - |
| 2f.3 | Subtotal Period 2f Collateral Costs | - | - | - | - | - | - | 2,553 | 243 | 2,796 | 1,367 | 1,429 | - | - | - | - | - | - | - | - | - |
| Period 2f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.2 | Property taxes | - | - | - | - | - | - | 1,626 | 163 | 1,789 | 1,789 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.3 | Health physics supplies | - | 420 | - | - | - | - | - | 105 | 524 | 524 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 334 | - | - | - | - | 6,685 | 11 |
| 2f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.6 | NRC Fees | - | - | - | - | - | - | 417 | 42 | 459 | 459 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 51 | 5 | 56 | - | 56 | - | - | - | - | - | - | - | - | - |
| 2f.4.8 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 39 | 6 | 44 | - | 44 | - | - | - | - | - | - | - | - | - |
| 2f.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | 50 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.11 | Security Staff Cost | - | - | - | - | - | - | 4,924 | 739 | 5,663 | 5,663 | - | - | - | - | - | - | - | - | - | 80,898 |
| 2f.4.12 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | 46,283 |
| 2f.4.13 | Utility Staff Cost | - | - | - | - | - | - | 3,854 | 578 | 4,433 | 4,007 | 426 | - | - | - | - | - | - | - | - | 59,507 |
| 2f.4 | Subtotal Period 2f Period-Dependent Costs | - | 420 | 7 | 2 | - | 27 | 16,590 | 2,477 | 19,524 | 18,998 | 526 | - | 334 | - | - | - | - | 6,685 | 11 | 186,687 |
| 2f.0 | TOTAL PERIOD 2f COST | - | 420 | 7 | 2 | - | 27 | 22,537 | 3,738 | 26,731 | 24,776 | 1,956 | - | 334 | - | - | - | - | 6,685 | 40,183 | 189,807 |
| PERIOD 2 TOTALS | | 5,162 | 53,298 | 28,935 | 6,446 | 11,617 | 35,794 | 306,671 | 85,960 | 533,881 | 419,353 | 109,654 | 4,875 | 138,709 | 117,154 | 250 | 673 | - | 13,293,670 | 587,146 | 2,060,653 |
| PERIOD 3b - Site Restoration | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Reactor | - | 4,255 | - | - | - | - | - | 638 | 4,894 | - | - | 4,894 | - | - | - | - | - | - | 44,669 | - |
| 3b.1.1.2 | Condensate Storage Tank Foundation | - | 3 | - | - | - | - | - | 0 | 4 | - | - | 4 | - | - | - | - | - | - | 16 | - |
| 3b.1.1.3 | Structures below 3' below grade | - | 1,581 | - | - | - | - | - | 237 | 1,818 | - | - | 1,818 | - | - | - | - | - | - | 8,411 | - |
| 3b.1.1.4 | Turbine | - | 1,983 | - | - | - | - | - | 297 | 2,280 | - | - | 2,280 | - | - | - | - | - | - | 22,040 | - |
| 3b.1.1.5 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | 1,857 | - |
| 3b.1.1 | Totals | - | 8,171 | - | - | - | - | - | 1,226 | 9,397 | - | - | 9,397 | - | - | - | - | - | - | 76,993 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.2 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | 921 | - |
| 3b.1.3 | Final report to NRC | - | - | - | - | - | - | 183 | 27 | 211 | 211 | - | - | - | - | - | - | - | - | - | 1,560 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | 8,602 | - | - | - | - | 183 | 1,318 | 10,102 | 211 | - | 9,892 | - | - | - | - | - | - | 77,914 | 1,560 |
| Period 3b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.2.1 | Clean Concrete Disposal | - | 2,213 | - | - | - | - | 3 | 332 | 2,549 | - | - | 2,549 | - | - | - | - | - | - | 8,386 | - |
| 3b.2.2 | Underground Services Excavations | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | 7,407 | - |
| 3b.2.3 | Intake Structure Cofferdam | - | 596 | - | - | - | - | - | 89 | 686 | - | - | 686 | - | - | - | - | - | - | 5,168 | - |
| 3b.2.4 | Construction Debris | - | - | - | - | - | - | 10 | 2 | 12 | - | - | 12 | - | - | - | - | - | - | - | - |
| 3b.2.5 | Backfill | - | 2,751 | - | - | - | - | - | 413 | 3,164 | - | - | 3,164 | - | - | - | - | - | - | 2,904 | - |
| 3b.2 | Subtotal Period 3b Additional Costs | - | 6,371 | - | - | - | - | 534 | 1,036 | 7,941 | - | - | 7,941 | - | - | - | - | - | - | 23,865 | - |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Small tool allowance | - | 110 | - | - | - | - | - | 16 | 126 | - | - | 126 | - | - | - | - | - | - | - | - |
| 3b.3.2 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 1,088 | 163 | 1,252 | - | 1,252 | - | - | - | - | - | - | - | - | - |
| 3b.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,651 | - | 2,651 | - | 2,651 | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | - | 110 | - | - | - | - | 3,739 | 180 | 4,028 | - | 3,902 | 126 | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 9 of 20**

**Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Insurance | - | - | - | - | - | - | 542 | 54 | 596 | - | 596 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Property taxes | - | - | - | - | - | - | 4,333 | 433 | 4,767 | - | 4,767 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - | - |
| 3b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - | - |
| 3b.4.5 | NRC ISFSI Fees | - | - | - | - | - | - | 236 | 24 | 259 | - | 259 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Emergency Planning Fees | - | - | - | - | - | - | 145 | 14 | 159 | - | 159 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.7 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - | - |
| 3b.4.8 | ISFSI Operating Costs | - | - | - | - | - | - | 109 | 16 | 126 | - | 126 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 331 | 50 | 380 | - | - | 380 | - | - | - | - | - | - | - | - | - |
| 3b.4.10 | Security Staff Cost | - | - | - | - | - | - | 4,245 | 637 | 4,882 | - | 4,882 | - | - | - | - | - | - | - | - | - | 57,340 |
| 3b.4.11 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | - | 116,885 |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,813 | 722 | 5,535 | (0) | 1,207 | 4,329 | - | - | - | - | - | - | - | - | 74,431 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,533 | 4,718 | 37,920 | (0) | 11,996 | 25,924 | - | - | - | - | - | - | - | - | 248,656 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 21,752 | - | - | - | - | 30,989 | 7,251 | 59,992 | 211 | 15,899 | 43,882 | - | - | - | - | - | - | - | 101,779 | 250,216 |
| PERIOD 3c - Fuel Storage Operations/Shipping | | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 5,808 | 871 | 6,679 | - | 6,679 | - | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 26,863 | - | 26,863 | - | 26,863 | - | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 32,671 | 871 | 33,543 | - | 33,543 | - | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 5,494 | 549 | 6,044 | - | 6,044 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 26,564 | 2,656 | 29,221 | - | 29,221 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 3,519 | 352 | 3,871 | - | 3,871 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 1,471 | 147 | 1,618 | - | 1,618 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 3,281 | 492 | 3,774 | - | 3,774 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,110 | 167 | 1,277 | - | 1,277 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,240 | 186 | 1,426 | - | 1,426 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 43,057 | 6,459 | 49,516 | - | 49,516 | - | - | - | - | - | - | - | - | - | 581,545 |
| 3c.4.10 | Utility Staff Cost | - | - | - | - | - | - | 10,635 | 1,595 | 12,230 | - | 12,230 | - | - | - | - | - | - | - | - | - | 150,978 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 96,373 | 12,603 | 108,976 | - | 108,976 | - | - | - | - | - | - | - | - | - | 732,523 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | - | - | - | 129,044 | 13,475 | 142,519 | - | 142,519 | - | - | - | - | - | - | - | - | - | 732,523 |
| PERIOD 3d - GTCC shipping | | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | 837,596 | - |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | 837,596 | - |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | 837,596 | - |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 12 | 2 | 14 | - | 14 | - | - | - | - | - | - | - | - | - | - |
| 3d.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 48 | - | 48 | - | 48 | - | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 60 | 2 | 62 | - | 62 | - | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 10 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 39 | 4 | 43 | 43 | - | - | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 4 | 0 | 5 | - | 5 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 3 | 0 | 3 | - | 3 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 6 | 1 | 7 | 7 | - | - | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 2 | 0 | 2 | - | 2 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 2 | 0 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | - |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 77 | 12 | 88 | 88 | - | - | - | - | - | - | - | - | - | - | 1,037 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 19 | 3 | 22 | 22 | - | - | - | - | - | - | - | - | - | - | 269 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 162 | 21 | 183 | 173 | 10 | - | - | - | - | - | - | - | - | - | 1,306 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | - | 8,689 | 222 | 11,901 | 11,829 | 72 | - | - | - | - | - | - | - | 3,746 | 837,596 | 1,306 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 10 of 20**

**Table C-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | - | 37 | 2 | 211 | - | 2,157 | 682 | 772 | 3,861 | 3,861 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,403 | 888 |
| 3e.2 | Subtotal Period 3e Additional Costs | - | 37 | 2 | 211 | - | 2,157 | 682 | 772 | 3,861 | 3,861 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,403 | 888 |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.2 | Property taxes | - | - | - | - | - | - | 26 | 6 | 32 | 32 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | 2,500 |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | 1,896 |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 476 | 119 | 595 | 595 | - | - | - | - | - | - | - | - | - | 4,396 |
| 3e.0 | TOTAL PERIOD 3e COST | - | 37 | 2 | 211 | - | 2,157 | 1,158 | 891 | 4,456 | 4,456 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,403 | 5,284 |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 399 | - | - | - | - | 87 | 73 | 558 | - | - | 558 | - | - | - | - | - | - | 1,900 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 399 | - | - | - | - | 87 | 73 | 558 | - | - | 558 | - | - | - | - | - | - | 1,900 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 3 | - | - | - | - | - | 0 | 3 | - | - | 3 | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 3 | - | - | - | - | - | 0 | 3 | - | - | 3 | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.2 | Property taxes | - | - | - | - | - | - | 13 | 1 | 14 | - | - | 14 | - | - | - | - | - | - | - | - |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | 1,260 |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | 782 |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 190 | 37 | 289 | - | - | 289 | - | - | - | - | - | - | - | 2,042 |
| 3f.0 | TOTAL PERIOD 3f COST | - | 463 | - | - | - | - | 277 | 110 | 851 | - | - | 851 | - | - | - | - | - | - | 1,900 | 2,202 |
| PERIOD 3 TOTALS | | - | 22,252 | 1,333 | 211 | - | 10,846 | 161,689 | 23,386 | 219,717 | 16,495 | 158,489 | 44,733 | - | 7,458 | - | - | 3,746 | 1,909,581 | 107,082 | 991,531 |
| TOTAL COST TO DECOMMISSION | | 8,734 | 80,918 | 30,683 | 7,109 | 11,781 | 50,612 | 579,062 | 128,621 | 897,520 | 571,980 | 274,479 | 51,061 | 144,842 | 138,577 | 839 | 673 | 3,746 | 15,813,390 | 739,753 | 4,056,605 |

| | | |
|--|------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 16.73% CONTINGENCY: | \$897,520 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 63.73% OR: | \$571,980 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 30.58% OR: | \$274,479 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 5.69% OR: | \$51,061 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 140,089 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 32,925 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 739,753 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

Prairie Island Nuclear Generating Plant Decommissioning Cost Analysis

Table C-2 Prairie Island Nuclear Generating Plant, Unit 2 DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025 (thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours. Rows include various decommissioning activities like Disposal of Plant Systems, Decontamination of Site Buildings, etc.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 16 of 20**

**Table C-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 2b Collateral Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.5 | Retention and Severance | - | - | - | - | - | - | 4,127 | 619 | 4,746 | 4,746 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,517 | - | 1,517 | - | 1,517 | - | - | - | - | - | - | - | - | - |
| 2b.3.7 | On-site survey and release of 0.437 tons clean metallic waste | - | - | - | - | - | - | 1 | 0 | 1 | 1 | - | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | 170 | 414 | 226 | 721 | - | 1,311 | 6,569 | 1,363 | 10,774 | 8,195 | 2,579 | - | - | 2,234 | - | - | - | 187,785 | 427 | - |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Decon supplies | 1,135 | - | - | - | - | - | - | 284 | 1,419 | 1,419 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Insurance | - | - | - | - | - | - | 620 | 62 | 682 | 682 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Property taxes | - | - | - | - | - | - | 2,983 | 298 | 3,281 | 3,281 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Health physics supplies | - | 2,580 | - | - | - | - | - | 645 | 3,225 | 3,225 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.5 | Heavy equipment rental | - | 2,740 | - | - | - | - | - | 411 | 3,151 | 3,151 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | Disposal of DAW generated | - | - | 115 | 34 | - | 431 | - | 124 | 704 | 704 | - | - | - | 5,291 | - | - | - | 105,826 | 173 | - |
| 2b.4.7 | Plant energy budget | - | - | - | - | - | - | 1,379 | 207 | 1,586 | 1,586 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | NRC Fees | - | - | - | - | - | - | 481 | 48 | 529 | 529 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 1,558 | 156 | 1,714 | - | 1,714 | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Fixed Overhead | - | - | - | - | - | - | 1,503 | 225 | 1,728 | 1,728 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 487 | 73 | 560 | - | 560 | - | - | - | - | - | - | - | - | - |
| 2b.4.12 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 246 | 37 | 282 | 282 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.13 | ISFSI Operating Costs | - | - | - | - | - | - | 63 | 9 | 72 | - | 72 | - | - | - | - | - | - | - | - | - |
| 2b.4.14 | Railroad Track Maintenance | - | - | - | - | - | - | 70 | 10 | 80 | 80 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.15 | Security Staff Cost | - | - | - | - | - | - | 8,243 | 1,236 | 9,479 | 9,479 | - | - | - | - | - | - | - | - | - | 136,323 |
| 2b.4.16 | DOC Staff Cost | - | - | - | - | - | - | 16,150 | 2,422 | 18,572 | 18,572 | - | - | - | - | - | - | - | - | - | 184,288 |
| 2b.4.17 | Utility Staff Cost | - | - | - | - | - | - | 21,222 | 3,183 | 24,405 | 24,405 | - | - | - | - | - | - | - | - | - | 342,069 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | 1,135 | 5,320 | 115 | 34 | - | 431 | 55,004 | 9,432 | 71,472 | 69,125 | 2,346 | - | - | 5,291 | - | - | - | 105,826 | 173 | 662,680 |
| 2b.0 | TOTAL PERIOD 2b COST | 7,270 | 28,099 | 1,095 | 2,520 | 8,602 | 18,050 | 63,708 | 25,425 | 154,768 | 146,833 | 4,926 | 3,010 | 101,555 | 85,217 | - | - | - | 9,235,236 | 408,286 | 664,431 |
| PERIOD 2c - Spent fuel delay prior to SFP decon | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| 2c.2 | Subtotal Period 2c Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| Period 2c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 61,759 | 9,264 | 71,023 | - | 71,023 | - | - | - | - | - | - | - | - | - |
| 2c.3.2 | Retention and Severance | - | - | - | - | - | - | 2,034 | 305 | 2,339 | 2,339 | - | - | - | - | - | - | - | - | - | - |
| 2c.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,630 | - | 1,630 | - | 1,630 | - | - | - | - | - | - | - | - | - |
| 2c.3 | Subtotal Period 2c Collateral Costs | - | - | - | - | - | - | 65,423 | 9,569 | 74,991 | 2,339 | 72,653 | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 666 | 67 | 733 | 733 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 3,060 | 306 | 3,366 | 3,366 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 270 | - | - | - | - | - | 67 | 337 | 337 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 12 | 3 | - | 44 | - | 13 | 72 | 72 | - | - | - | 538 | - | - | - | 10,761 | 18 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 395 | 59 | 454 | 454 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 305 | 31 | 336 | 336 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 1,674 | 167 | 1,842 | - | 1,842 | - | - | - | - | - | - | - | - | - |
| 2c.4.8 | Fixed Overhead | - | - | - | - | - | - | 1,615 | 242 | 1,857 | 1,857 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.9 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 53 | 8 | 61 | 61 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 67 | 10 | 77 | - | 77 | - | - | - | - | - | - | - | - | - |
| 2c.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 75 | 11 | 86 | 86 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.12 | Security Staff Cost | - | - | - | - | - | - | 8,857 | 1,329 | 10,185 | 10,185 | - | - | - | - | - | - | - | - | - | 146,478 |
| 2c.4.13 | Utility Staff Cost | - | - | - | - | - | - | 6,575 | 986 | 7,561 | 7,561 | - | - | - | - | - | - | - | - | - | 107,146 |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 270 | 12 | 3 | - | 44 | 23,343 | 3,296 | 26,968 | 25,049 | 1,919 | - | - | 538 | - | - | - | 10,761 | 18 | 253,623 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 270 | 12 | 3 | - | 44 | 93,114 | 13,517 | 106,959 | 32,387 | 74,572 | - | - | 538 | - | - | - | 10,761 | 18 | 253,623 |
| PERIOD 2d - Decontamination Following Wet Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.1 | Remove spent fuel racks | 328 | 32 | 94 | 32 | - | 595 | - | 335 | 1,416 | 1,416 | - | - | - | 2,092 | - | - | - | 138,298 | 576 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.2.1 | Electrical - Contaminated - Fuel Pool | - | 197 | 2 | 6 | 75 | 9 | - | 64 | 353 | 353 | - | - | 864 | 33 | - | - | - | 37,250 | 2,783 | - |
| 2d.1.2.2 | Electrical - Decontaminated - Fuel Pool | - | 1,230 | 14 | 47 | 698 | - | - | 421 | 2,410 | 2,410 | - | - | 8,069 | - | - | - | - | 327,668 | 16,495 | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 17 of 20**

**Table C-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Disposal of Plant Systems (continued) | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.2.3 | Fire Protection & Detection - RCA Fuel P | - | 36 | 1 | 2 | 25 | - | - | 13 | 76 | 76 | - | - | 286 | - | - | - | - | 11,622 | 476 | - |
| 2d.1.2.4 | HVAC - Contaminated - Fuel Pool | - | 549 | 12 | 31 | 418 | 52 | - | 219 | 1,280 | 1,280 | - | - | 4,828 | 182 | - | - | - | 208,080 | 7,448 | - |
| 2d.1.2.5 | Safeguards Chilled Water - RCA | - | 4 | 0 | 0 | 2 | - | - | 1 | 8 | 8 | - | - | 26 | - | - | - | - | 1,045 | 51 | - |
| 2d.1.2.6 | Spent Fuel Pool Cooling | 31 | 35 | 3 | 2 | 3 | 30 | - | 33 | 137 | 137 | - | - | 39 | 107 | - | - | - | 8,635 | 882 | - |
| 2d.1.2.7 | Spent Fuel Pool Normal Ventilation | - | 26 | 1 | 2 | 23 | 3 | - | 11 | 66 | 66 | - | - | 265 | 12 | - | - | - | 11,532 | 394 | - |
| 2d.1.2 | Totals | 31 | 2,077 | 32 | 89 | 1,244 | 95 | - | 761 | 4,328 | 4,328 | - | - | 14,376 | 333 | - | - | - | 605,832 | 28,530 | - |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.3.1 | Fuel Handling of Aux Building | 975 | 1,082 | 9 | 32 | 209 | 173 | - | 838 | 3,319 | 3,319 | - | - | 2,417 | 944 | - | - | - | 177,818 | 30,401 | - |
| 2d.1.3 | Totals | 975 | 1,082 | 9 | 32 | 209 | 173 | - | 838 | 3,319 | 3,319 | - | - | 2,417 | 944 | - | - | - | 177,818 | 30,401 | - |
| 2d.1.4 | Scaffolding in support of decommissioning | - | 708 | 6 | 2 | 24 | 6 | - | 183 | 930 | 930 | - | - | 253 | 22 | - | - | - | 12,861 | 6,567 | - |
| 2d.1 | Subtotal Period 2d Activity Costs | 1,334 | 3,900 | 142 | 155 | 1,477 | 868 | - | 2,118 | 9,994 | 9,994 | - | - | 17,046 | 3,391 | - | - | - | 934,809 | 66,074 | - |
| Period 2d Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 |
| 2d.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 1,237 | 371 | 1,608 | 1,608 | - | - | - | - | - | - | - | - | 16,173 | - |
| 2d.2 | Subtotal Period 2d Additional Costs | - | - | - | - | - | - | 2,082 | 625 | 2,706 | 2,706 | - | - | - | - | - | - | - | - | 16,173 | 6,240 |
| Period 2d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.3.1 | Process decommissioning water waste | 39 | - | 27 | 70 | - | 109 | - | 60 | 306 | 306 | - | - | - | 261 | - | - | - | 15,666 | 51 | - |
| 2d.3.2 | Process decommissioning chemical flush waste | 0 | - | 1 | 5 | - | 10 | - | 3 | 20 | 20 | - | - | - | 13 | - | - | - | 1,422 | 2 | - |
| 2d.3.3 | Small tool allowance | - | 79 | - | - | - | - | - | 12 | 91 | 91 | - | - | - | - | - | - | - | - | - | - |
| 2d.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - |
| 2d.3.5 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 13,365 | 2,005 | 15,370 | - | 15,370 | - | - | - | - | - | - | - | - | - |
| 2d.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 974 | - | 974 | - | 974 | - | - | - | - | - | - | - | - | - |
| 2d.3 | Subtotal Period 2d Collateral Costs | 39 | 79 | 172 | 130 | 575 | 270 | 14,339 | 2,227 | 17,831 | 1,488 | 16,344 | - | 6,000 | 803 | - | - | - | 322,056 | 142 | - |
| Period 2d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.4.1 | Decon supplies | 218 | - | - | - | - | - | - | 54 | 272 | 272 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.2 | Insurance | - | - | - | - | - | - | 399 | 40 | 439 | 439 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.3 | Property taxes | - | - | - | - | - | - | 1,746 | 175 | 1,921 | 1,921 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.4 | Health physics supplies | - | 743 | - | - | - | - | - | 186 | 929 | 929 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.5 | Heavy equipment rental | - | 1,763 | - | - | - | - | - | 264 | 2,027 | 2,027 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.6 | Disposal of DAW generated | - | - | 44 | 13 | - | 163 | - | 47 | 266 | 266 | - | - | - | 2,002 | - | - | - | 40,031 | 65 | - |
| 2d.4.7 | Plant energy budget | - | - | - | - | - | - | 473 | 71 | 544 | 544 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.8 | NRC Fees | - | - | - | - | - | - | 257 | 26 | 283 | 283 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 1,003 | 100 | 1,103 | - | 1,103 | - | - | - | - | - | - | - | - | - |
| 2d.4.10 | Fixed Overhead | - | - | - | - | - | - | 967 | 145 | 1,112 | 1,112 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.11 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 316 | 47 | 363 | 363 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 40 | 6 | 46 | - | 46 | - | - | - | - | - | - | - | - | - |
| 2d.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 45 | 7 | 52 | 52 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.14 | Security Staff Cost | - | - | - | - | - | - | 5,141 | 771 | 5,912 | 5,912 | - | - | - | - | - | - | - | - | - | 84,454 |
| 2d.4.15 | DOC Staff Cost | - | - | - | - | - | - | 6,087 | 913 | 7,000 | 7,000 | - | - | - | - | - | - | - | - | - | 70,243 |
| 2d.4.16 | Utility Staff Cost | - | - | - | - | - | - | 7,824 | 1,174 | 8,997 | 8,557 | 441 | - | - | - | - | - | - | - | - | 126,681 |
| 2d.4 | Subtotal Period 2d Period-Dependent Costs | 218 | 2,506 | 44 | 13 | - | 163 | 24,297 | 4,026 | 31,267 | 29,677 | 1,590 | - | - | 2,002 | - | - | - | 40,031 | 65 | 281,377 |
| 2d.0 | TOTAL PERIOD 2d COST | 1,591 | 6,486 | 357 | 298 | 2,052 | 1,301 | 40,718 | 8,995 | 61,799 | 43,865 | 17,934 | - | 23,046 | 6,196 | - | - | - | 1,296,896 | 82,455 | 287,617 |
| PERIOD 2f - License Termination | | | | | | | | | | | | | | | | | | | | | |
| Period 2f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| 2f.1.2 | Terminate license | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2f.1 | Subtotal Period 2f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| Period 2f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.2.1 | License Termination Survey | - | - | - | - | - | - | 7,406 | 2,222 | 9,628 | 9,628 | - | - | - | - | - | - | - | - | - | 102,642 |
| 2f.2 | Subtotal Period 2f Additional Costs | - | - | - | - | - | - | 7,406 | 2,222 | 9,628 | 9,628 | - | - | - | - | - | - | - | - | - | 102,642 |
| Period 2f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 2f.3.2 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 431 | 65 | 496 | - | 496 | - | - | - | - | - | - | - | - | - |
| 2f.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 934 | - | 934 | - | 934 | - | - | - | - | - | - | - | - | - |
| 2f.3 | Subtotal Period 2f Collateral Costs | - | - | - | - | - | - | 2,553 | 243 | 2,796 | 1,367 | 1,429 | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 18 of 20**

**Table C-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 2f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.2 | Property taxes | - | - | - | - | - | - | 1,626 | 163 | 1,789 | 1,789 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.3 | Health physics supplies | - | 602 | - | - | - | - | - | 150 | 752 | 752 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 334 | - | - | - | 6,685 | 11 | - |
| 2f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.6 | NRC Fees | - | - | - | - | - | - | 272 | 27 | 299 | 299 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 51 | 5 | 56 | - | 56 | - | - | - | - | - | - | - | - | - |
| 2f.4.8 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 39 | 6 | 44 | - | 44 | - | - | - | - | - | - | - | - | - |
| 2f.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | 50 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.11 | Security Staff Cost | - | - | - | - | - | - | 4,924 | 739 | 5,663 | 5,663 | - | - | - | - | - | - | - | - | - | 80,898 |
| 2f.4.12 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | 46,283 |
| 2f.4.13 | Utility Staff Cost | - | - | - | - | - | - | 3,854 | 578 | 4,433 | 4,007 | 426 | - | - | - | - | - | - | - | - | 59,507 |
| 2f.4 | Subtotal Period 2f Period-Dependent Costs | - | 602 | 7 | 2 | - | 27 | 16,445 | 2,508 | 19,592 | 19,065 | 526 | - | - | 334 | - | - | - | 6,685 | 11 | 186,687 |
| 2f.0 | TOTAL PERIOD 2f COST | - | 602 | 7 | 2 | - | 27 | 26,581 | 5,026 | 32,245 | 30,290 | 1,956 | - | - | 334 | - | - | - | 6,685 | 102,653 | 189,807 |
| PERIOD 2 TOTALS | | 9,835 | 63,795 | 29,263 | 6,901 | 13,758 | 38,202 | 280,514 | 88,898 | 531,166 | 421,995 | 103,573 | 5,598 | 163,227 | 129,603 | 250 | 673 | - | 15,079,420 | 824,945 | 1,955,528 |
| PERIOD 3b - Site Restoration | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Reactor | - | 4,256 | - | - | - | - | - | 638 | 4,895 | - | - | 4,895 | - | - | - | - | - | - | 44,679 | - |
| 3b.1.1.2 | Auxiliary | - | 1,897 | - | - | - | - | - | 285 | 2,182 | - | - | 2,182 | - | - | - | - | - | - | 11,902 | - |
| 3b.1.1.3 | Condensate Storage Tank Foundation | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | 33 | - |
| 3b.1.1.4 | Construction Warehouse & Fab Shop | - | 118 | - | - | - | - | - | 18 | 135 | - | - | 135 | - | - | - | - | - | - | 1,405 | - |
| 3b.1.1.5 | D3/D4 Emergency Generator | - | 13 | - | - | - | - | - | 2 | 15 | - | - | 15 | - | - | - | - | - | - | 84 | - |
| 3b.1.1.6 | Drum Transfer & Truck Loading Enclosure | - | 19 | - | - | - | - | - | 3 | 21 | - | - | 21 | - | - | - | - | - | - | 221 | - |
| 3b.1.1.7 | Hydrogen House | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | 47 | - |
| 3b.1.1.8 | LLRW Storage Enclosure | - | 121 | - | - | - | - | - | 18 | 139 | - | - | 139 | - | - | - | - | - | - | 853 | - |
| 3b.1.1.9 | Misc Structures 2017 | - | 1,391 | - | - | - | - | - | 209 | 1,599 | - | - | 1,599 | - | - | - | - | - | - | 12,939 | - |
| 3b.1.1.10 | Radwaste | - | 165 | - | - | - | - | - | 25 | 190 | - | - | 190 | - | - | - | - | - | - | 1,400 | - |
| 3b.1.1.11 | Resin Disposal | - | 13 | - | - | - | - | - | 2 | 15 | - | - | 15 | - | - | - | - | - | - | 120 | - |
| 3b.1.1.12 | Structures below 3' below grade | - | 1,713 | - | - | - | - | - | 257 | 1,969 | - | - | 1,969 | - | - | - | - | - | - | 9,238 | - |
| 3b.1.1.13 | Sulfuric Acid Tank Enclosure | - | 3 | - | - | - | - | - | 0 | 3 | - | - | 3 | - | - | - | - | - | - | 35 | - |
| 3b.1.1.14 | Turbine | - | 1,983 | - | - | - | - | - | 298 | 2,281 | - | - | 2,281 | - | - | - | - | - | - | 22,052 | - |
| 3b.1.1.15 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | 1,857 | - |
| 3b.1.1.16 | Warehouse #2 | - | 22 | - | - | - | - | - | 3 | 25 | - | - | 25 | - | - | - | - | - | - | 213 | - |
| 3b.1.1.17 | Waste Neutralizing Tank House | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | 56 | - |
| 3b.1.1.18 | Waste Oil Storage | - | 8 | - | - | - | - | - | 1 | 10 | - | - | 10 | - | - | - | - | - | - | 70 | - |
| 3b.1.1.19 | Water Treatment | - | 303 | - | - | - | - | - | 46 | 349 | - | - | 349 | - | - | - | - | - | - | 2,690 | - |
| 3b.1.1.20 | Fuel Handling of Aux Building | - | 1,032 | - | - | - | - | - | 155 | 1,186 | - | - | 1,186 | - | - | - | - | - | - | 8,240 | - |
| 3b.1.1 | Totals | - | 13,424 | - | - | - | - | - | 2,014 | 15,438 | - | - | 15,438 | - | - | - | - | - | - | 118,134 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.2 | Remove Rubble | - | 1,308 | - | - | - | - | - | 196 | 1,505 | - | - | 1,505 | - | - | - | - | - | - | 6,495 | - |
| 3b.1.3 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | 921 | - |
| 3b.1.4 | Final report to NRC | - | - | - | - | - | - | 78 | 12 | 90 | 90 | - | - | - | - | - | - | - | - | - | 667 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | 15,163 | - | - | - | - | 78 | 2,286 | 17,528 | 90 | - | 17,438 | - | - | - | - | - | - | 125,549 | 667 |
| Period 3b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.2.1 | Clean Concrete Disposal | - | 3,313 | - | - | - | - | 8 | 498 | 3,818 | - | - | 3,818 | - | - | - | - | - | - | 12,824 | - |
| 3b.2.2 | Underground Services Excavations | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | 7,407 | - |
| 3b.2.3 | Intake Structure Cofferdam | - | 423 | - | - | - | - | - | 63 | 486 | - | - | 486 | - | - | - | - | - | - | 3,552 | - |
| 3b.2.4 | Construction Debris | - | - | - | - | - | - | 463 | 69 | 532 | - | - | 532 | - | - | - | - | - | - | - | - |
| 3b.2.5 | Backfill | - | 8,465 | - | - | - | - | - | 1,270 | 9,735 | - | - | 9,735 | - | - | - | - | - | - | 9,327 | - |
| 3b.2 | Subtotal Period 3b Additional Costs | - | 13,012 | - | - | - | - | 991 | 2,100 | 16,103 | - | - | 16,103 | - | - | - | - | - | - | 33,110 | - |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Small tool allowance | - | 172 | - | - | - | - | - | 26 | 198 | - | - | 198 | - | - | - | - | - | - | - | - |
| 3b.3.2 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 1,088 | 163 | 1,252 | - | 1,252 | - | - | - | - | - | - | - | - | - |
| 3b.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,651 | - | 2,651 | - | 2,651 | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | - | 172 | - | - | - | - | 3,739 | 189 | 4,100 | - | 3,902 | 198 | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 19 of 20**

**Table C-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Insurance | - | - | - | - | - | - | 542 | 54 | 596 | - | 596 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Property taxes | - | - | - | - | - | - | 4,333 | 433 | 4,767 | - | 4,767 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - | - |
| 3b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - | - |
| 3b.4.5 | NRC ISFSI Fees | - | - | - | - | - | - | 236 | 24 | 259 | - | 259 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Emergency Planning Fees | - | - | - | - | - | - | 145 | 14 | 159 | - | 159 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.7 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - | - |
| 3b.4.8 | ISFSI Operating Costs | - | - | - | - | - | - | 109 | 16 | 126 | - | 126 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 331 | 50 | 380 | - | - | 380 | - | - | - | - | - | - | - | - | - |
| 3b.4.10 | Security Staff Cost | - | - | - | - | - | - | 4,245 | 637 | 4,882 | - | 4,882 | - | - | - | - | - | - | - | - | - | 57,340 |
| 3b.4.11 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | - | 116,885 |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,813 | 722 | 5,535 | (0) | 1,207 | 4,329 | - | - | - | - | - | - | - | - | 74,431 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,533 | 4,718 | 37,920 | (0) | 11,996 | 25,924 | - | - | - | - | - | - | - | - | 248,656 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 35,017 | - | - | - | - | 31,341 | 9,293 | 75,652 | 90 | 15,899 | 59,663 | - | - | - | - | - | - | 158,659 | 249,323 | |
| PERIOD 3c - Fuel Storage Operations/Shipping | | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 5,808 | 871 | 6,679 | - | 6,679 | - | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 26,863 | - | 26,863 | - | 26,863 | - | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 32,671 | 871 | 33,543 | - | 33,543 | - | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 5,494 | 549 | 6,044 | - | 6,044 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 26,564 | 2,656 | 29,221 | - | 29,221 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 3,519 | 352 | 3,871 | - | 3,871 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 1,471 | 147 | 1,618 | - | 1,618 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 3,281 | 492 | 3,774 | - | 3,774 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,110 | 167 | 1,277 | - | 1,277 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,240 | 186 | 1,426 | - | 1,426 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 43,057 | 6,459 | 49,516 | - | 49,516 | - | - | - | - | - | - | - | - | - | 581,545 |
| 3c.4.10 | Utility Staff Cost | - | - | - | - | - | - | 10,635 | 1,595 | 12,230 | - | 12,230 | - | - | - | - | - | - | - | - | - | 150,978 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 96,373 | 12,603 | 108,976 | - | 108,976 | - | - | - | - | - | - | - | - | - | 732,523 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | - | - | - | 129,044 | 13,475 | 142,519 | - | 142,519 | - | - | - | - | - | - | - | - | - | 732,523 |
| PERIOD 3d - GTCC shipping | | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 12 | 2 | 14 | - | 14 | - | - | - | - | - | - | - | - | - | - |
| 3d.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 48 | - | 48 | - | 48 | - | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 60 | 2 | 62 | - | 62 | - | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 10 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 39 | 4 | 43 | 43 | - | - | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 4 | 0 | 5 | - | 5 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 3 | 0 | 3 | - | 3 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 6 | 1 | 7 | 7 | - | - | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 2 | 0 | 2 | - | 2 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 2 | 0 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | - |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 77 | 12 | 88 | 88 | - | - | - | - | - | - | - | - | - | - | 1,037 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 19 | 3 | 22 | 22 | - | - | - | - | - | - | - | - | - | - | 269 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 162 | 21 | 183 | 173 | 10 | - | - | - | - | - | - | - | - | - | 1,306 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | - | 8,689 | 222 | 1,659 | 11,901 | 11,829 | 72 | - | - | - | - | - | 3,746 | 837,596 | - | 1,306 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix C, Page 20 of 20**

**Table C-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|---------------|----------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|------------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | - | 37 | 2 | 211 | - | 2,157 | 682 | 772 | 3,861 | 3,861 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,403 | 888 |
| 3e.2 | Subtotal Period 3e Additional Costs | - | 37 | 2 | 211 | - | 2,157 | 682 | 772 | 3,861 | 3,861 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,403 | 888 |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.2 | Property taxes | - | - | - | - | - | - | 26 | 6 | 32 | 32 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | 2,500 |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | 1,896 |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 476 | 119 | 595 | 595 | - | - | - | - | - | - | - | - | - | 4,396 |
| 3e.0 | TOTAL PERIOD 3e COST | - | 37 | 2 | 211 | - | 2,157 | 1,158 | 891 | 4,456 | 4,456 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,403 | 5,284 |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 399 | - | - | - | - | 87 | 73 | 558 | - | - | 558 | - | - | - | - | - | - | 1,900 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 399 | - | - | - | - | 87 | 73 | 558 | - | - | 558 | - | - | - | - | - | - | 1,900 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 3 | - | - | - | - | - | 0 | 3 | - | - | 3 | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 3 | - | - | - | - | - | 0 | 3 | - | - | 3 | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.2 | Property taxes | - | - | - | - | - | - | 13 | 1 | 14 | - | - | 14 | - | - | - | - | - | - | - | - |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | 1,260 |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | 782 |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 190 | 37 | 289 | - | - | 289 | - | - | - | - | - | - | - | 2,042 |
| 3f.0 | TOTAL PERIOD 3f COST | - | 463 | - | - | - | - | 277 | 110 | 851 | - | - | 851 | - | - | - | - | - | - | 1,900 | 2,202 |
| PERIOD 3 TOTALS | | - | 35,517 | 1,333 | 211 | - | 10,846 | 162,042 | 25,429 | 235,377 | 16,375 | 158,489 | 60,514 | - | 7,458 | - | - | 3,746 | 1,909,581 | 163,962 | 990,638 |
| TOTAL COST TO DECOMMISSION | | 13,408 | 104,627 | 31,018 | 7,562 | 13,927 | 53,014 | 544,382 | 131,890 | 899,828 | 561,832 | 271,262 | 66,733 | 169,551 | 150,948 | 839 | 673 | 3,746 | 17,608,520 | 1,022,448 | 3,748,471 |

| | | |
|--|------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 17.17% CONTINGENCY: | \$899,828 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 62.44% OR: | \$561,832 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 30.15% OR: | \$271,262 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 7.42% OR: | \$66,733 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 152,460 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 41,515 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 1,022,448 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix D, Page 1 of 20***

APPENDIX D

DETAILED COST ANALYSIS

SCENARIO 2: DECON with 60 Year DFS

| | <u>Page</u> |
|---|-------------|
| Prairie Island Nuclear Generating Plant, Unit 1 | D-2 |
| Prairie Island Nuclear Generating Plant, Unit 2 | D-10 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix D, Page 6 of 20**

**Table D-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 2b.1.3.1 | Reactor | 1,150 | 2,623 | 139 | 852 | 193 | 11,079 | - | 4,171 | 20,208 | 20,208 | - | - | 2,230 | 57,414 | - | - | - | - | 3,559,624 | 50,842 | - |
| 2b.1.3.2 | Backwash Waste Receiving Tank | - | 27 | 1 | 11 | - | 87 | - | 30 | 158 | 158 | - | - | - | 507 | - | - | - | - | 43,896 | 299 | - |
| 2b.1.3 | Totals | 1,150 | 2,650 | 141 | 864 | 193 | 11,166 | - | 4,202 | 20,366 | 20,366 | - | - | 2,230 | 57,921 | - | - | - | - | 3,603,520 | 51,140 | - |
| 2b.1.4 | Prepare/submit License Termination Plan | - | - | - | - | - | - | 481 | 72 | 553 | 553 | - | - | - | - | - | - | - | - | - | - | 4,096 |
| 2b.1.5 | Receive NRC approval of termination plan | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2b.1 | Subtotal Period 2b Activity Costs | 2,874 | 16,530 | 547 | 1,479 | 6,919 | 14,215 | 481 | 10,275 | 53,320 | 50,616 | - | 2,704 | 79,974 | 68,664 | - | - | - | - | 7,470,455 | 264,930 | 4,096 |
| Period 2b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.2.1 | Remedial Action Surveys | - | - | - | - | - | - | 1,943 | 583 | 2,526 | 2,526 | - | - | - | - | - | - | - | - | - | 25,399 | - |
| 2b.2.2 | Operational Equipment | - | - | 9 | 29 | 312 | - | - | 52 | 402 | 402 | - | - | 5,855 | - | - | - | - | - | 146,375 | 16 | - |
| 2b.2 | Subtotal Period 2b Additional Costs | - | - | 9 | 29 | 312 | - | 1,943 | 635 | 2,928 | 2,928 | - | - | 5,855 | - | - | - | - | - | 146,375 | 25,415 | - |
| Period 2b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.1 | Process decommissioning water waste | 105 | - | 70 | 182 | - | 285 | - | 158 | 800 | 800 | - | - | - | 680 | - | - | - | - | 40,799 | 133 | - |
| 2b.3.2 | Process decommissioning chemical flush waste | 3 | - | 87 | 327 | - | 651 | - | 222 | 1,289 | 1,289 | - | - | - | 875 | - | - | - | - | 93,252 | 164 | - |
| 2b.3.3 | Small tool allowance | - | 289 | - | - | - | - | - | 43 | 332 | 332 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 407 | 61 | 468 | - | 468 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.5 | Retention and Severance | - | - | - | - | - | - | 6,994 | 1,049 | 8,043 | 8,043 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,525 | - | 1,525 | - | 1,525 | - | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | 107 | 289 | 157 | 509 | - | 936 | 8,926 | 1,533 | 12,457 | 10,463 | 1,993 | - | - | 1,555 | - | - | - | - | 134,051 | 296 | - |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Decon supplies | 482 | - | - | - | - | - | - | 121 | 603 | 603 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Insurance | - | - | - | - | - | - | 624 | 62 | 687 | 687 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Property taxes | - | - | - | - | - | - | 3,099 | 310 | 3,409 | 3,409 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Health physics supplies | - | 1,969 | - | - | - | - | - | 492 | 2,461 | 2,461 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.5 | Heavy equipment rental | - | 2,759 | - | - | - | - | - | 414 | 3,173 | 3,173 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | Disposal of DAW generated | - | - | 78 | 23 | - | 293 | - | 85 | 479 | 479 | - | - | - | 3,600 | - | - | - | - | 71,996 | 117 | - |
| 2b.4.7 | Plant energy budget | - | - | - | - | - | - | 1,388 | 208 | 1,596 | 1,596 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | NRC Fees | - | - | - | - | - | - | 707 | 71 | 778 | 778 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 1,569 | 157 | 1,726 | - | 1,726 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Fixed Overhead | - | - | - | - | - | - | 1,513 | 227 | 1,740 | 1,740 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 490 | 74 | 564 | - | 564 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.12 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 247 | 37 | 284 | 284 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.13 | ISFSI Operating Costs | - | - | - | - | - | - | 63 | 9 | 73 | - | 73 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.14 | Railroad Track Maintenance | - | - | - | - | - | - | 70 | 11 | 81 | 81 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.15 | Security Staff Cost | - | - | - | - | - | - | 8,299 | 1,245 | 9,544 | 9,544 | - | - | - | - | - | - | - | - | - | - | 137,246 |
| 2b.4.16 | DOC Staff Cost | - | - | - | - | - | - | 11,450 | 1,718 | 13,168 | 13,168 | - | - | - | - | - | - | - | - | - | - | 137,246 |
| 2b.4.17 | Utility Staff Cost | - | - | - | - | - | - | 15,293 | 2,294 | 17,586 | 17,586 | - | - | - | - | - | - | - | - | - | - | 255,430 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | 482 | 4,728 | 78 | 23 | - | 293 | 44,813 | 7,533 | 57,951 | 55,588 | 2,362 | - | - | 3,600 | - | - | - | - | 71,996 | 117 | 529,921 |
| 2b.0 | TOTAL PERIOD 2b COST | 3,464 | 21,546 | 792 | 2,040 | 7,231 | 15,444 | 56,163 | 19,976 | 126,656 | 119,596 | 4,356 | 2,704 | 85,829 | 73,819 | - | - | - | - | 7,822,876 | 290,758 | 534,017 |
| PERIOD 2c - Spent fuel delay prior to SFP decon | | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.2 | Subtotal Period 2c Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - | - |
| Period 2c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 71,928 | 10,789 | 82,717 | - | 82,717 | - | - | - | - | - | - | - | - | - | - |
| 2c.3.2 | Retention and Severance | - | - | - | - | - | - | 4,478 | 672 | 5,149 | 5,149 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,702 | - | 2,702 | - | 2,702 | - | - | - | - | - | - | - | - | - | - |
| 2c.3 | Subtotal Period 2c Collateral Costs | - | - | - | - | - | - | 79,108 | 11,461 | 90,569 | 5,149 | 85,420 | - | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 1,104 | 110 | 1,215 | 1,215 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 5,154 | 515 | 5,669 | 5,669 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 390 | - | - | - | - | - | 98 | 488 | 488 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 18 | 5 | - | 66 | - | 19 | 108 | 108 | - | - | - | 809 | - | - | - | - | 16,171 | 26 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 655 | 98 | 753 | 753 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 555 | 55 | 610 | 610 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 2,776 | 278 | 3,053 | - | 3,053 | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix D, Page 7 of 20**

**Table D-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 2c Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.8 | Fixed Overhead | - | - | - | - | - | - | 2,676 | 401 | 3,078 | 3,078 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.9 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 87 | 13 | 101 | 101 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 112 | 17 | 128 | - | 128 | - | - | - | - | - | - | - | - | - | |
| 2c.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 125 | 19 | 143 | 143 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.12 | Security Staff Cost | - | - | - | - | - | - | 14,681 | 2,202 | 16,883 | 16,883 | - | - | - | - | - | - | - | - | - | 242,796 | |
| 2c.4.13 | Utility Staff Cost | - | - | - | - | - | - | 2,064 | 310 | 2,374 | 2,374 | - | - | - | - | - | - | - | - | - | 33,722 | |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 390 | 18 | 5 | - | 66 | 29,988 | 4,135 | 34,602 | 31,421 | 3,181 | - | - | - | 809 | - | - | - | 16,171 | 26 | 276,518 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 390 | 18 | 5 | - | 66 | 113,444 | 16,248 | 130,171 | 41,570 | 88,601 | - | - | - | 809 | - | - | - | 16,171 | 26 | 276,518 |
| PERIOD 2d - Decontamination Following Wet Fuel Storage | | | | | | | | | | | | | | | | | | | | | | |
| Period 2d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.1 | Remove spent fuel racks | 328 | 32 | 94 | 32 | - | 595 | - | 335 | 1,416 | 1,416 | - | - | - | 2,092 | - | - | - | 138,298 | 576 | - | |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.2.1 | Electrical - Contaminated - Fuel Pool | - | 147 | 2 | 4 | 53 | 7 | - | 47 | 259 | 259 | - | - | 615 | 23 | - | - | - | 26,508 | 2,077 | - | |
| 2d.1.2.2 | Electrical - Decontaminated - Fuel Pool | - | 918 | 10 | 34 | 510 | - | - | 312 | 1,785 | 1,785 | - | - | 5,893 | - | - | - | - | 239,327 | 12,340 | - | |
| 2d.1.2.3 | HVAC - Contaminated - Fuel Pool | - | 159 | 3 | 9 | 121 | 15 | - | 63 | 370 | 370 | - | - | 1,398 | 53 | - | - | - | 60,246 | 2,157 | - | |
| 2d.1.2.4 | Safeguards Chilled Water - RCA | - | 82 | 1 | 3 | 43 | - | - | 27 | 155 | 155 | - | - | 495 | - | - | - | - | 20,100 | 1,019 | - | |
| 2d.1.2.5 | Spent Fuel Pool Cooling | 293 | 342 | 34 | 25 | 70 | 377 | - | 344 | 1,484 | 1,484 | - | - | 806 | 1,325 | - | - | - | 120,439 | 7,613 | - | |
| 2d.1.2.6 | Station & Instrument Air - RCA Fuel Pool | - | 20 | 0 | 0 | 7 | - | - | 6 | 34 | 34 | - | - | 83 | - | - | - | - | 3,374 | 263 | - | |
| 2d.1.2 | Totals | 293 | 1,668 | 50 | 75 | 804 | 399 | - | 800 | 4,088 | 4,088 | - | - | 9,290 | 1,401 | - | - | - | 469,994 | 25,468 | - | |
| 2d.1.4 | Scaffolding in support of decommissioning | - | 213 | 1 | 0 | 3 | 1 | - | 54 | 273 | 273 | - | - | 35 | 3 | - | - | - | 1,754 | 1,592 | - | |
| 2d.1 | Subtotal Period 2d Activity Costs | 621 | 1,913 | 145 | 107 | 807 | 994 | - | 1,189 | 5,777 | 5,777 | - | - | 9,325 | 3,496 | - | - | - | 610,046 | 27,637 | - | |
| Period 2d Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2d.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 | |
| 2d.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 1,237 | 371 | 1,608 | 1,608 | - | - | - | - | - | - | - | - | 16,173 | - | |
| 2d.2 | Subtotal Period 2d Additional Costs | - | - | - | - | - | - | 2,082 | 625 | 2,706 | 2,706 | - | - | - | - | - | - | - | - | 16,173 | 6,240 | |
| Period 2d Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2d.3.1 | Process decommissioning water waste | 27 | - | 18 | 48 | - | 75 | - | 41 | 209 | 209 | - | - | - | 179 | - | - | - | 10,724 | 35 | - | |
| 2d.3.2 | Process decommissioning chemical flush waste | 1 | - | 32 | 121 | - | 241 | - | 82 | 478 | 478 | - | - | - | 324 | - | - | - | 34,576 | 61 | - | |
| 2d.3.3 | Small tool allowance | - | 35 | - | - | - | - | - | 5 | 41 | 41 | - | - | - | - | - | - | - | - | - | - | |
| 2d.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - | |
| 2d.3.5 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 13,144 | 1,972 | 15,115 | - | 15,115 | - | - | - | - | - | - | - | - | - | |
| 2d.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 971 | - | 971 | - | 971 | - | - | - | - | - | - | - | - | - | |
| 2d.3 | Subtotal Period 2d Collateral Costs | 27 | 35 | 194 | 224 | 575 | 467 | 14,114 | 2,247 | 17,884 | 1,798 | 16,086 | - | 6,000 | 1,032 | - | - | - | 350,268 | 184 | - | |
| Period 2d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2d.4.1 | Decon supplies | 54 | - | - | - | - | - | - | 14 | 68 | 68 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.2 | Insurance | - | - | - | - | - | - | 398 | 40 | 437 | 437 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.3 | Property taxes | - | - | - | - | - | - | 1,740 | 174 | 1,914 | 1,914 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.4 | Health physics supplies | - | 559 | - | - | - | - | - | 140 | 699 | 699 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.5 | Heavy equipment rental | - | 1,757 | - | - | - | - | - | 264 | 2,020 | 2,020 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.6 | Disposal of DAW generated | - | - | 18 | 5 | - | 67 | - | 19 | 110 | 110 | - | - | - | 829 | - | - | - | 16,581 | 27 | - | |
| 2d.4.7 | Plant energy budget | - | - | - | - | - | - | 471 | 71 | 542 | 542 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.8 | NRC Fees | - | - | - | - | - | - | 381 | 38 | 419 | 419 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 999 | 100 | 1,099 | - | 1,099 | - | - | - | - | - | - | - | - | - | |
| 2d.4.10 | Fixed Overhead | - | - | - | - | - | - | 963 | 144 | 1,108 | 1,108 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.11 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 315 | 47 | 362 | 362 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 40 | 6 | 46 | - | 46 | - | - | - | - | - | - | - | - | - | |
| 2d.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 45 | 7 | 52 | 52 | - | - | - | - | - | - | - | - | - | - | |
| 2d.4.14 | Security Staff Cost | - | - | - | - | - | - | 5,123 | 768 | 5,891 | 5,891 | - | - | - | - | - | - | - | - | - | 84,157 | |
| 2d.4.15 | DOC Staff Cost | - | - | - | - | - | - | 6,065 | 910 | 6,975 | 6,975 | - | - | - | - | - | - | - | - | - | 69,996 | |
| 2d.4.16 | Utility Staff Cost | - | - | - | - | - | - | 7,796 | 1,169 | 8,966 | 8,527 | 439 | - | - | - | - | - | - | - | - | 126,236 | |
| 2d.4 | Subtotal Period 2d Period-Dependent Costs | 54 | 2,316 | 18 | 5 | - | 67 | 24,337 | 3,911 | 30,708 | 29,123 | 1,584 | - | - | 829 | - | - | - | 16,581 | 27 | 280,390 | |
| 2d.0 | TOTAL PERIOD 2d COST | 703 | 4,264 | 357 | 337 | 1,382 | 1,528 | 40,533 | 7,971 | 57,075 | 39,405 | 17,670 | - | 15,325 | 5,357 | - | - | - | 976,895 | 44,021 | 286,630 | |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table D-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 2f - License Termination | | | | | | | | | | | | | | | | | | | | | |
| Period 2f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| 2f.1.2 | Terminate license | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2f.1 | Subtotal Period 2f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| Period 2f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.2.1 | License Termination Survey | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| 2f.2 | Subtotal Period 2f Additional Costs | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| Period 2f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 2f.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 934 | - | 934 | - | 934 | - | - | - | - | - | - | - | - | - |
| 2f.3 | Subtotal Period 2f Collateral Costs | - | - | - | - | - | - | 2,122 | 178 | 2,300 | 1,367 | 934 | - | - | - | - | - | - | - | - | - |
| Period 2f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.2 | Property taxes | - | - | - | - | - | - | 1,626 | 163 | 1,789 | 1,789 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.3 | Health physics supplies | - | 420 | - | - | - | - | - | 105 | 524 | 524 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 334 | - | - | - | 6,685 | 11 | - |
| 2f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.6 | NRC Fees | - | - | - | - | - | - | 417 | 42 | 459 | 459 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 51 | 5 | 56 | - | 56 | - | - | - | - | - | - | - | - | - |
| 2f.4.8 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 39 | 6 | 44 | - | 44 | - | - | - | - | - | - | - | - | - |
| 2f.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | 50 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.11 | Security Staff Cost | - | - | - | - | - | - | 4,924 | 739 | 5,663 | 5,663 | - | - | - | - | - | - | - | - | - | 80,898 |
| 2f.4.12 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | 46,283 |
| 2f.4.13 | Utility Staff Cost | - | - | - | - | - | - | 3,854 | 578 | 4,433 | 4,007 | 426 | - | - | - | - | - | - | - | - | 59,507 |
| 2f.4 | Subtotal Period 2f Period-Dependent Costs | - | 420 | 7 | 2 | - | 27 | 16,591 | 2,477 | 19,524 | 18,998 | 526 | - | - | 334 | - | - | - | 6,685 | 11 | 186,687 |
| 2f.0 | TOTAL PERIOD 2f COST | - | 420 | 7 | 2 | - | 27 | 22,106 | 3,674 | 26,236 | 24,776 | 1,460 | - | - | 334 | - | - | - | 6,685 | 40,183 | 189,807 |
| PERIOD 2 TOTALS | | 5,161 | 53,290 | 28,935 | 6,446 | 11,617 | 35,794 | 313,880 | 87,041 | 542,165 | 419,252 | 118,038 | 4,875 | 138,709 | 117,153 | 250 | 673 | - | 13,293,650 | 587,146 | 2,059,666 |
| PERIOD 3b - Site Restoration | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Reactor | - | 4,255 | - | - | - | - | - | 638 | 4,894 | - | - | 4,894 | - | - | - | - | - | - | 44,669 | - |
| 3b.1.1.2 | Condensate Storage Tank Foundation | - | 3 | - | - | - | - | - | 0 | 4 | - | - | 4 | - | - | - | - | - | - | 16 | - |
| 3b.1.1.3 | Structures below 3' below grade | - | 1,581 | - | - | - | - | - | 237 | 1,818 | - | - | 1,818 | - | - | - | - | - | - | 8,411 | - |
| 3b.1.1.4 | Turbine | - | 1,983 | - | - | - | - | - | 297 | 2,280 | - | - | 2,280 | - | - | - | - | - | - | 22,040 | - |
| 3b.1.1.5 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | 1,857 | - |
| 3b.1.1 | Totals | - | 8,171 | - | - | - | - | - | 1,226 | 9,397 | - | - | 9,397 | - | - | - | - | - | - | 76,993 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.2 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | 921 | - |
| 3b.1.3 | Final report to NRC | - | - | - | - | - | - | 183 | 27 | 211 | 211 | - | - | - | - | - | - | - | - | - | 1,560 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | 8,602 | - | - | - | - | 183 | 1,318 | 10,102 | 211 | - | 9,892 | - | - | - | - | - | - | 77,914 | 1,560 |
| Period 3b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.2.1 | Clean Concrete Disposal | - | 2,213 | - | - | - | - | 3 | 332 | 2,549 | - | - | 2,549 | - | - | - | - | - | - | 8,386 | - |
| 3b.2.2 | Underground Services Excavations | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | 7,407 | - |
| 3b.2.3 | Intake Structure Cofferdam | - | 596 | - | - | - | - | - | 89 | 686 | - | - | 686 | - | - | - | - | - | - | 5,168 | - |
| 3b.2.4 | Construction Debris | - | - | - | - | - | - | 10 | 2 | 12 | - | - | 12 | - | - | - | - | - | - | - | - |
| 3b.2.5 | Backfill | - | 2,751 | - | - | - | - | - | 413 | 3,164 | - | - | 3,164 | - | - | - | - | - | - | 2,904 | - |
| 3b.2 | Subtotal Period 3b Additional Costs | - | 6,371 | - | - | - | - | 534 | 1,036 | 7,941 | - | - | 7,941 | - | - | - | - | - | - | 23,865 | - |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Small tool allowance | - | 110 | - | - | - | - | - | 16 | 126 | - | - | 126 | - | - | - | - | - | - | - | - |
| 3b.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,651 | - | 2,651 | - | 2,651 | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | - | 110 | - | - | - | - | 2,651 | 16 | 2,777 | - | 2,651 | 126 | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix D, Page 9 of 20**

**Table D-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Insurance | - | - | - | - | - | - | 542 | 54 | 596 | - | 596 | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Property taxes | - | - | - | - | - | - | 4,334 | 433 | 4,767 | - | 4,767 | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - |
| 3b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - |
| 3b.4.5 | NRC ISFSI Fees | - | - | - | - | - | - | 236 | 24 | 259 | - | 259 | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Emergency Planning Fees | - | - | - | - | - | - | 145 | 14 | 159 | - | 159 | - | - | - | - | - | - | - | - | - |
| 3b.4.7 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - |
| 3b.4.8 | ISFSI Operating Costs | - | - | - | - | - | - | 109 | 16 | 126 | - | 126 | - | - | - | - | - | - | - | - | - |
| 3b.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 331 | 50 | 380 | - | - | 380 | - | - | - | - | - | - | - | - |
| 3b.4.10 | Security Staff Cost | - | - | - | - | - | - | 4,245 | 637 | 4,882 | - | 4,882 | - | - | - | - | - | - | - | - | 57,340 |
| 3b.4.11 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | 116,885 |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,813 | 722 | 5,535 | (0) | 1,207 | 4,329 | - | - | - | - | - | - | - | 74,431 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,534 | 4,718 | 37,921 | (0) | 11,997 | 25,924 | - | - | - | - | - | - | - | 248,656 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 21,752 | - | - | - | - | 29,901 | 7,088 | 58,741 | 211 | 14,648 | 43,882 | - | - | - | - | - | - | 101,779 | 250,216 |
| PERIOD 3c - Fuel Storage Operations/Shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 16,797 | 2,520 | 19,316 | - | 19,316 | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 43,116 | - | 43,116 | - | 43,116 | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 59,913 | 2,520 | 62,433 | - | 62,433 | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 8,818 | 882 | 9,700 | - | 9,700 | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 39,829 | 3,983 | 43,812 | - | 43,812 | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 5,648 | 565 | 6,213 | - | 6,213 | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 2,360 | 236 | 2,596 | - | 2,596 | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 5,267 | 790 | 6,057 | - | 6,057 | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,782 | 267 | 2,049 | - | 2,049 | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,991 | 299 | 2,289 | - | 2,289 | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 69,105 | 10,366 | 79,471 | - | 79,471 | - | - | - | - | - | - | - | - | 933,362 |
| 3c.4.10 | Utility Staff Cost | - | - | - | - | - | - | 17,069 | 2,560 | 19,629 | - | 19,629 | - | - | - | - | - | - | - | - | 242,315 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 151,870 | 19,948 | 171,817 | - | 171,817 | - | - | - | - | - | - | - | - | 1,175,677 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | - | - | - | 211,783 | 22,467 | 234,250 | - | 234,250 | - | - | - | - | - | - | - | - | 1,175,677 |
| PERIOD 3d - GTCC shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 48 | - | 48 | - | 48 | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 48 | - | 48 | - | 48 | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 10 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 39 | 4 | 43 | 43 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 4 | 0 | 5 | - | 5 | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 3 | 0 | 3 | - | 3 | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 6 | 1 | 7 | 7 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 2 | 0 | 2 | - | 2 | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 2 | 0 | 3 | - | 3 | - | - | - | - | - | - | - | - | - |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 77 | 12 | 88 | 88 | - | - | - | - | - | - | - | - | - | 1,037 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 19 | 3 | 22 | 22 | - | - | - | - | - | - | - | - | - | 269 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 162 | 21 | 183 | 171 | 12 | - | - | - | - | - | - | - | - | 1,306 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | - | 8,689 | 210 | 1,658 | 11,887 | 60 | - | - | - | - | - | 3,746 | 837,596 | - | 1,306 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix D, Page 10 of 20**

**Table D-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | - | 37 | 2 | 211 | - | 2,157 | 710 | 779 | 3,896 | 3,896 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,670 | 888 |
| 3e.2 | Subtotal Period 3e Additional Costs | - | 37 | 2 | 211 | - | 2,157 | 710 | 779 | 3,896 | 3,896 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,670 | 888 |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.2 | Property taxes | - | - | - | - | - | - | 26 | 6 | 32 | 32 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | 2,500 |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | 1,896 |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 476 | 119 | 595 | 595 | - | - | - | - | - | - | - | - | - | 4,396 |
| 3e.0 | TOTAL PERIOD 3e COST | - | 37 | 2 | 211 | - | 2,157 | 1,186 | 898 | 4,491 | 4,491 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,670 | 5,284 |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 495 | - | - | - | - | 87 | 87 | 669 | - | - | 669 | - | - | - | - | - | - | 2,308 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 495 | - | - | - | - | 87 | 87 | 669 | - | - | 669 | - | - | - | - | - | - | 2,308 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 4 | - | - | - | - | - | 1 | 4 | - | - | 4 | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 4 | - | - | - | - | - | 1 | 4 | - | - | 4 | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.2 | Property taxes | - | - | - | - | - | - | 13 | 1 | 14 | - | - | 14 | - | - | - | - | - | - | - | - |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | 1,260 |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | 782 |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 190 | 37 | 289 | - | - | 289 | - | - | - | - | - | - | - | 2,042 |
| 3f.0 | TOTAL PERIOD 3f COST | - | 560 | - | - | - | - | 277 | 125 | 962 | - | - | 962 | - | - | - | - | - | - | 2,308 | 2,202 |
| PERIOD 3 TOTALS | | - | 22,349 | 1,333 | 211 | - | 10,846 | 243,357 | 32,235 | 310,331 | 16,528 | 248,958 | 44,844 | - | 7,458 | - | - | 3,746 | 1,909,581 | 107,756 | 1,434,684 |
| TOTAL COST TO DECOMMISSION | | 8,734 | 81,007 | 30,683 | 7,109 | 11,781 | 50,612 | 668,511 | 138,605 | 997,041 | 572,618 | 373,251 | 51,173 | 144,842 | 138,575 | 839 | 673 | 3,746 | 15,813,370 | 740,428 | 4,498,771 |

| | | |
|--|------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 16.15% CONTINGENCY: | \$997,041 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 57.43% OR: | \$572,618 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 37.44% OR: | \$373,250 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 5.13% OR: | \$51,173 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 91,286 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 32,925 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 740,428 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0
Appendix D, Page 11 of 20

Table D-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours. Rows include Period 1a Shutdown through Transition, Direct Decommissioning Activities (1a.1.1-1a.1.16), Activity Specifications (1a.1.17.1-1a.1.17.13), Planning & Site Preparations (1a.1.18-1a.1.22), Period 1a Additional Costs (1a.2.1-1a.2), Period 1a Collateral Costs (1a.3.1-1a.3), Period 1a Period-Dependent Costs (1a.4.1-1a.4.13).

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix D, Page 16 of 20**

**Table D-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 2b Collateral Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.5 | Retention and Severance | - | - | - | - | - | - | 4,127 | 619 | 4,746 | 4,746 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,517 | - | 1,517 | - | 1,517 | - | - | - | - | - | - | - | - | - |
| 2b.3.7 | On-site survey and release of 0.437 tons clean metallic waste | - | - | - | - | - | - | 1 | 0 | 1 | 1 | - | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | 170 | 414 | 226 | 721 | - | 1,311 | 11,082 | 2,040 | 15,964 | 8,195 | 7,769 | - | - | 2,234 | - | - | - | 187,785 | 427 | - |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Decon supplies | 1,135 | - | - | - | - | - | - | 284 | 1,419 | 1,419 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Insurance | - | - | - | - | - | - | 620 | 62 | 682 | 682 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Property taxes | - | - | - | - | - | - | 2,983 | 298 | 3,281 | 3,281 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Health physics supplies | - | 2,580 | - | - | - | - | - | 645 | 3,225 | 3,225 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.5 | Heavy equipment rental | - | 2,740 | - | - | - | - | - | 411 | 3,151 | 3,151 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | Disposal of DAW generated | - | - | 115 | 34 | - | 431 | - | 124 | 704 | 704 | - | - | - | 5,291 | - | - | - | 105,826 | 173 | - |
| 2b.4.7 | Plant energy budget | - | - | - | - | - | - | 1,379 | 207 | 1,586 | 1,586 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | NRC Fees | - | - | - | - | - | - | 481 | 48 | 529 | 529 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 1,558 | 156 | 1,714 | - | 1,714 | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Fixed Overhead | - | - | - | - | - | - | 1,503 | 225 | 1,728 | 1,728 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 487 | 73 | 560 | - | 560 | - | - | - | - | - | - | - | - | - |
| 2b.4.12 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 246 | 37 | 282 | 282 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.13 | ISFSI Operating Costs | - | - | - | - | - | - | 63 | 9 | 72 | - | 72 | - | - | - | - | - | - | - | - | - |
| 2b.4.14 | Railroad Track Maintenance | - | - | - | - | - | - | 70 | 10 | 80 | 80 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.15 | Security Staff Cost | - | - | - | - | - | - | 8,243 | 1,236 | 9,479 | 9,479 | - | - | - | - | - | - | - | - | - | 136,323 |
| 2b.4.16 | DOC Staff Cost | - | - | - | - | - | - | 16,150 | 2,422 | 18,572 | 18,572 | - | - | - | - | - | - | - | - | - | 184,288 |
| 2b.4.17 | Utility Staff Cost | - | - | - | - | - | - | 21,222 | 3,183 | 24,405 | 24,405 | - | - | - | - | - | - | - | - | - | 342,069 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | 1,135 | 5,320 | 115 | 34 | - | 431 | 55,004 | 9,432 | 71,472 | 69,125 | 2,346 | - | - | 5,291 | - | - | - | 105,826 | 173 | 662,680 |
| 2b.0 | TOTAL PERIOD 2b COST | 7,270 | 28,099 | 1,095 | 2,520 | 8,602 | 18,050 | 68,221 | 26,102 | 159,958 | 146,833 | 10,115 | 3,010 | 101,555 | 85,217 | - | - | - | 9,235,236 | 408,286 | 664,431 |
| PERIOD 2c - Spent fuel delay prior to SFP decon | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| 2c.2 | Subtotal Period 2c Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| Period 2c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 66,610 | 9,992 | 76,602 | - | 76,602 | - | - | - | - | - | - | - | - | - |
| 2c.3.2 | Retention and Severance | - | - | - | - | - | - | 2,034 | 305 | 2,339 | 2,339 | - | - | - | - | - | - | - | - | - | - |
| 2c.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,630 | - | 1,630 | - | 1,630 | - | - | - | - | - | - | - | - | - |
| 2c.3 | Subtotal Period 2c Collateral Costs | - | - | - | - | - | - | 70,274 | 10,297 | 80,571 | 2,339 | 78,232 | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 666 | 67 | 733 | 733 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 3,060 | 306 | 3,366 | 3,366 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 270 | - | - | - | - | - | 67 | 337 | 337 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 12 | 3 | - | 44 | - | 13 | 72 | 72 | - | - | - | 538 | - | - | - | 10,761 | 18 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 395 | 59 | 454 | 454 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 305 | 31 | 336 | 336 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 1,674 | 167 | 1,842 | - | 1,842 | - | - | - | - | - | - | - | - | - |
| 2c.4.8 | Fixed Overhead | - | - | - | - | - | - | 1,615 | 242 | 1,857 | 1,857 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.9 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 53 | 8 | 61 | 61 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 67 | 10 | 77 | - | 77 | - | - | - | - | - | - | - | - | - |
| 2c.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 75 | 11 | 86 | 86 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.12 | Security Staff Cost | - | - | - | - | - | - | 8,857 | 1,329 | 10,185 | 10,185 | - | - | - | - | - | - | - | - | - | 146,478 |
| 2c.4.13 | Utility Staff Cost | - | - | - | - | - | - | 6,575 | 986 | 7,561 | 7,561 | - | - | - | - | - | - | - | - | - | 107,146 |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 270 | 12 | 3 | - | 44 | 23,343 | 3,296 | 26,968 | 25,049 | 1,919 | - | - | 538 | - | - | - | 10,761 | 18 | 253,623 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 270 | 12 | 3 | - | 44 | 97,965 | 14,245 | 112,539 | 32,387 | 80,151 | - | - | 538 | - | - | - | 10,761 | 18 | 253,623 |
| PERIOD 2d - Decontamination Following Wet Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.1 | Remove spent fuel racks | 328 | 32 | 94 | 32 | - | 595 | - | 335 | 1,416 | 1,416 | - | - | - | 2,092 | - | - | - | 138,298 | 576 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.2.1 | Electrical - Contaminated - Fuel Pool | - | 197 | 2 | 6 | 75 | 9 | - | 64 | 353 | 353 | - | - | 864 | 33 | - | - | - | 37,250 | 2,783 | - |
| 2d.1.2.2 | Electrical - Decontaminated - Fuel Pool | - | 1,230 | 14 | 47 | 698 | - | - | 421 | 2,410 | 2,410 | - | - | 8,069 | - | - | - | - | 327,668 | 16,495 | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix D, Page 17 of 20**

**Table D-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Disposal of Plant Systems (continued) | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.2.3 | Fire Protection & Detection - RCA Fuel P | - | 36 | 1 | 2 | 25 | - | - | 13 | 76 | 76 | - | - | 286 | - | - | - | - | 11,622 | 476 | - |
| 2d.1.2.4 | HVAC - Contaminated - Fuel Pool | - | 549 | 12 | 31 | 418 | 52 | - | 219 | 1,280 | 1,280 | - | - | 4,828 | 182 | - | - | - | 208,080 | 7,448 | - |
| 2d.1.2.5 | Safeguards Chilled Water - RCA | - | 4 | 0 | 0 | 2 | - | - | 1 | 8 | 8 | - | - | 26 | - | - | - | - | 1,045 | 51 | - |
| 2d.1.2.6 | Spent Fuel Pool Cooling | 31 | 35 | 3 | 2 | 3 | 30 | - | 33 | 137 | 137 | - | - | 39 | 107 | - | - | - | 8,635 | 882 | - |
| 2d.1.2.7 | Spent Fuel Pool Normal Ventilation | - | 26 | 1 | 2 | 23 | 3 | - | 11 | 66 | 66 | - | - | 265 | 12 | - | - | - | 11,532 | 394 | - |
| 2d.1.2 | Totals | 31 | 2,077 | 32 | 89 | 1,244 | 95 | - | 761 | 4,328 | 4,328 | - | - | 14,376 | 333 | - | - | - | 605,832 | 28,530 | - |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.3.1 | Fuel Handling of Aux Building | 975 | 1,082 | 9 | 32 | 209 | 173 | - | 838 | 3,319 | 3,319 | - | - | 2,417 | 944 | - | - | - | 177,818 | 30,401 | - |
| 2d.1.3 | Totals | 975 | 1,082 | 9 | 32 | 209 | 173 | - | 838 | 3,319 | 3,319 | - | - | 2,417 | 944 | - | - | - | 177,818 | 30,401 | - |
| 2d.1.4 | Scaffolding in support of decommissioning | - | 708 | 6 | 2 | 24 | 6 | - | 183 | 930 | 930 | - | - | 253 | 22 | - | - | - | 12,861 | 6,567 | - |
| 2d.1 | Subtotal Period 2d Activity Costs | 1,334 | 3,900 | 142 | 155 | 1,477 | 868 | - | 2,118 | 9,994 | 9,994 | - | - | 17,046 | 3,391 | - | - | - | 934,809 | 66,074 | - |
| Period 2d Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 |
| 2d.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 1,237 | 371 | 1,608 | 1,608 | - | - | - | - | - | - | - | - | 16,173 | - |
| 2d.2 | Subtotal Period 2d Additional Costs | - | - | - | - | - | - | 2,082 | 625 | 2,706 | 2,706 | - | - | - | - | - | - | - | - | 16,173 | 6,240 |
| Period 2d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.3.1 | Process decommissioning water waste | 39 | - | 27 | 70 | - | 109 | - | 60 | 306 | 306 | - | - | - | 261 | - | - | - | 15,670 | 51 | - |
| 2d.3.2 | Process decommissioning chemical flush waste | 0 | - | 1 | 5 | - | 10 | - | 3 | 20 | 20 | - | - | - | 13 | - | - | - | 1,422 | 2 | - |
| 2d.3.3 | Small tool allowance | - | 79 | - | - | - | - | - | 12 | 91 | 91 | - | - | - | - | - | - | - | - | - | - |
| 2d.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - |
| 2d.3.5 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 13,144 | 1,972 | 15,115 | - | 15,115 | - | - | - | - | - | - | - | - | - |
| 2d.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 971 | - | 971 | - | 971 | - | - | - | - | - | - | - | - | - |
| 2d.3 | Subtotal Period 2d Collateral Costs | 39 | 79 | 172 | 130 | 575 | 270 | 14,114 | 2,194 | 17,573 | 1,488 | 16,086 | - | 6,000 | 804 | - | - | - | 322,060 | 142 | - |
| Period 2d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.4.1 | Decon supplies | 218 | - | - | - | - | - | - | 54 | 272 | 272 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.2 | Insurance | - | - | - | - | - | - | 398 | 40 | 437 | 437 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.3 | Property taxes | - | - | - | - | - | - | 1,740 | 174 | 1,914 | 1,914 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.4 | Health physics supplies | - | 742 | - | - | - | - | - | 186 | 928 | 928 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.5 | Heavy equipment rental | - | 1,757 | - | - | - | - | - | 264 | 2,020 | 2,020 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.6 | Disposal of DAW generated | - | - | 44 | 13 | - | 163 | - | 47 | 266 | 266 | - | - | - | 2,000 | - | - | - | 40,003 | 65 | - |
| 2d.4.7 | Plant energy budget | - | - | - | - | - | - | 471 | 71 | 542 | 542 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.8 | NRC Fees | - | - | - | - | - | - | 256 | 26 | 282 | 282 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 999 | 100 | 1,099 | - | 1,099 | - | - | - | - | - | - | - | - | - |
| 2d.4.10 | Fixed Overhead | - | - | - | - | - | - | 963 | 144 | 1,108 | 1,108 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.11 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 315 | 47 | 362 | 362 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 40 | 6 | 46 | - | 46 | - | - | - | - | - | - | - | - | - |
| 2d.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 45 | 7 | 52 | 52 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.14 | Security Staff Cost | - | - | - | - | - | - | 5,123 | 768 | 5,891 | 5,891 | - | - | - | - | - | - | - | - | - | 84,157 |
| 2d.4.15 | DOC Staff Cost | - | - | - | - | - | - | 6,065 | 910 | 6,975 | 6,975 | - | - | - | - | - | - | - | - | - | 69,996 |
| 2d.4.16 | Utility Staff Cost | - | - | - | - | - | - | 7,796 | 1,169 | 8,966 | 8,966 | - | 439 | - | - | - | - | - | - | - | 126,236 |
| 2d.4 | Subtotal Period 2d Period-Dependent Costs | 218 | 2,499 | 44 | 13 | - | 163 | 24,212 | 4,013 | 31,160 | 29,576 | 1,584 | - | - | 2,000 | - | - | - | 40,003 | 65 | 280,390 |
| 2d.0 | TOTAL PERIOD 2d COST | 1,591 | 6,478 | 357 | 298 | 2,052 | 1,301 | 40,408 | 8,949 | 61,434 | 43,764 | 17,670 | - | 23,046 | 6,195 | - | - | - | 1,296,872 | 82,455 | 286,630 |
| PERIOD 2f - License Termination | | | | | | | | | | | | | | | | | | | | | |
| Period 2f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| 2f.1.2 | Terminate license | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2f.1 | Subtotal Period 2f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| Period 2f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.2.1 | License Termination Survey | - | - | - | - | - | - | 7,406 | 2,222 | 9,628 | 9,628 | - | - | - | - | - | - | - | - | - | 102,642 |
| 2f.2 | Subtotal Period 2f Additional Costs | - | - | - | - | - | - | 7,406 | 2,222 | 9,628 | 9,628 | - | - | - | - | - | - | - | - | - | 102,642 |
| Period 2f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 2f.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 934 | - | 934 | - | 934 | - | - | - | - | - | - | - | - | - |
| 2f.3 | Subtotal Period 2f Collateral Costs | - | - | - | - | - | - | 2,122 | 178 | 2,300 | 1,367 | 934 | - | - | - | - | - | - | - | - | - |

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0
Appendix D, Page 18 of 20

Table D-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)

Table with 18 columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours. Rows include Period 2f costs, Period 3b Site Restoration, and Period 3b Additional Costs.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix D, Page 19 of 20**

**Table D-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Insurance | - | - | - | - | - | - | 542 | 54 | 596 | - | 596 | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Property taxes | - | - | - | - | - | - | 4,334 | 433 | 4,767 | - | 4,767 | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - |
| 3b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - |
| 3b.4.5 | NRC ISFSI Fees | - | - | - | - | - | - | 236 | 24 | 259 | - | 259 | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Emergency Planning Fees | - | - | - | - | - | - | 145 | 14 | 159 | - | 159 | - | - | - | - | - | - | - | - | - |
| 3b.4.7 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - |
| 3b.4.8 | ISFSI Operating Costs | - | - | - | - | - | - | 109 | 16 | 126 | - | 126 | - | - | - | - | - | - | - | - | - |
| 3b.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 331 | 50 | 380 | - | - | 380 | - | - | - | - | - | - | - | - |
| 3b.4.10 | Security Staff Cost | - | - | - | - | - | - | 4,245 | 637 | 4,882 | - | 4,882 | - | - | - | - | - | - | - | - | 57,340 |
| 3b.4.11 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | 116,885 |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,813 | 722 | 5,535 | (0) | 1,207 | 4,329 | - | - | - | - | - | - | - | 74,431 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,534 | 4,718 | 37,921 | (0) | 11,997 | 25,924 | - | - | - | - | - | - | - | 248,656 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 35,017 | - | - | - | - | 30,253 | 9,130 | 74,401 | 90 | 14,648 | 59,663 | - | - | - | - | - | - | 158,659 | 249,323 |
| PERIOD 3c - Fuel Storage Operations/Shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 16,797 | 2,520 | 19,316 | - | 19,316 | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 43,116 | - | 43,116 | - | 43,116 | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 59,913 | 2,520 | 62,433 | - | 62,433 | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 8,818 | 882 | 9,700 | - | 9,700 | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 39,829 | 3,983 | 43,812 | - | 43,812 | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 5,648 | 565 | 6,213 | - | 6,213 | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 2,360 | 236 | 2,596 | - | 2,596 | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 5,267 | 790 | 6,057 | - | 6,057 | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,782 | 267 | 2,049 | - | 2,049 | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,991 | 299 | 2,289 | - | 2,289 | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 69,105 | 10,366 | 79,471 | - | 79,471 | - | - | - | - | - | - | - | - | 933,362 |
| 3c.4.10 | Utility Staff Cost | - | - | - | - | - | - | 17,069 | 2,560 | 19,629 | - | 19,629 | - | - | - | - | - | - | - | - | 242,315 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 151,870 | 19,948 | 171,817 | - | 171,817 | - | - | - | - | - | - | - | - | 1,175,677 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | - | - | - | 211,783 | 22,467 | 234,250 | - | 234,250 | - | - | - | - | - | - | - | - | 1,175,677 |
| PERIOD 3d - GTCC shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | 837,596 |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | 837,596 |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | 837,596 |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 48 | - | 48 | - | 48 | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 48 | - | 48 | - | 48 | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 10 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 39 | 4 | 43 | 43 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 4 | 0 | 5 | - | 5 | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 3 | 0 | 3 | - | 3 | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 6 | 1 | 7 | 7 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 2 | 0 | 2 | - | 2 | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 2 | 0 | 3 | - | 3 | - | - | - | - | - | - | - | - | - |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 77 | 12 | 88 | 88 | - | - | - | - | - | - | - | - | - | 1,037 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 19 | 3 | 22 | 22 | - | - | - | - | - | - | - | - | - | 269 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 162 | 21 | 183 | 171 | 12 | - | - | - | - | - | - | - | - | 1,306 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | - | 8,689 | 1,658 | 11,887 | 11,827 | 60 | - | - | - | - | - | - | - | 3,746 | 837,596 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix D, Page 20 of 20**

**Table D-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|---------------|----------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|------------------|---------------------------------|-------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | - | 37 | 2 | 211 | - | 2,157 | 710 | 779 | 3,896 | 3,896 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,670 | 888 | |
| 3e.2 | Subtotal Period 3e Additional Costs | - | 37 | 2 | 211 | - | 2,157 | 710 | 779 | 3,896 | 3,896 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,670 | 888 | |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.2 | Property taxes | - | - | - | - | - | - | 26 | 6 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | 2,500 | |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | 1,896 | |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 476 | 119 | 595 | 595 | - | - | - | - | - | - | - | - | - | 4,396 | |
| 3e.0 | TOTAL PERIOD 3e COST | - | 37 | 2 | 211 | - | 2,157 | 1,186 | 898 | 4,491 | 4,491 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,670 | 5,284 | |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 495 | - | - | - | - | 87 | 87 | 669 | - | - | 669 | - | - | - | - | - | - | - | 2,308 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 495 | - | - | - | - | 87 | 87 | 669 | - | - | 669 | - | - | - | - | - | - | - | 2,308 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 4 | - | - | - | - | - | 1 | 4 | - | - | 4 | - | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 4 | - | - | - | - | - | 1 | 4 | - | - | 4 | - | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.2 | Property taxes | - | - | - | - | - | - | 13 | 1 | 14 | - | - | 14 | - | - | - | - | - | - | - | - | - |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - | |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - | |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - | |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | 1,260 | |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | 782 | |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 190 | 37 | 289 | - | - | 289 | - | - | - | - | - | - | - | 2,042 | |
| 3f.0 | TOTAL PERIOD 3f COST | - | 560 | - | - | - | - | 277 | 125 | 962 | - | - | 962 | - | - | - | - | - | - | - | 2,308 | 2,202 |
| PERIOD 3 TOTALS | | - | 35,614 | 1,333 | 211 | - | 10,846 | 243,709 | 34,278 | 325,991 | 16,408 | 248,958 | 60,625 | - | 7,458 | - | - | 3,746 | 1,909,581 | 164,637 | 1,433,792 | |
| TOTAL COST TO DECOMMISSION | | 13,408 | 104,717 | 31,018 | 7,562 | 13,927 | 53,014 | 633,188 | 141,809 | 998,643 | 561,764 | 370,034 | 66,845 | 169,551 | 150,947 | 839 | 673 | 3,746 | 17,608,500 | 1,023,123 | 4,190,637 | |

| | | |
|--|------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 16.55% CONTINGENCY: | \$998,643 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 56.25% OR: | \$561,764 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 37.05% OR: | \$370,034 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 6.69% OR: | \$66,845 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 152,458 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 41,515 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 1,023,123 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix E, Page 1 of 20***

APPENDIX E

DETAILED COST ANALYSIS

SCENARIO 3: DECON with 100 Year DFS

| | <u>Page</u> |
|---|-------------|
| Prairie Island Nuclear Generating Plant, Unit 1 | E-2 |
| Prairie Island Nuclear Generating Plant, Unit 2 | E-10 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix E, Page 2 of 20**

**Table E-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|--|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 1a - Shutdown through Transition | | | | | | | | | | | | | | | | | | | | | |
| Period 1a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.1 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | 1,300 |
| 1a.1.2 | Notification of Cessation of Operations | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.3 | Remove fuel & source material | - | - | - | - | - | - | - | - | n/a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.4 | Notification of Permanent Defueling | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.5 | Deactivate plant systems & process waste | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.6 | Prepare and submit PSDAR | - | - | - | - | - | - | 235 | 35 | 270 | 270 | - | - | - | - | - | - | - | - | - | 2,000 |
| 1a.1.7 | Review plant dwgs & specs. | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |
| 1a.1.8 | Perform detailed rad survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.9 | Estimate by-product inventory | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1a.1.10 | End product description | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1a.1.11 | Detailed by-product inventory | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | 1,300 |
| 1a.1.12 | Define major work sequence | - | - | - | - | - | - | 880 | 132 | 1,012 | 1,012 | - | - | - | - | - | - | - | - | - | 7,500 |
| 1a.1.13 | Perform SER and EA | - | - | - | - | - | - | 364 | 55 | 418 | 418 | - | - | - | - | - | - | - | - | - | 3,100 |
| 1a.1.14 | Prepare/submit Defueled Technical Specifications | - | - | - | - | - | - | 880 | 132 | 1,012 | 1,012 | - | - | - | - | - | - | - | - | - | 7,500 |
| 1a.1.15 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 587 | 88 | 675 | 675 | - | - | - | - | - | - | - | - | - | 5,000 |
| 1a.1.16 | Prepare/submit Irradiated Fuel Management Plan | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.17.1 | Plant & temporary facilities | - | - | - | - | - | - | 578 | 87 | 664 | 598 | - | 66 | - | - | - | - | - | - | - | 4,920 |
| 1a.1.17.2 | Plant systems | - | - | - | - | - | - | 489 | 73 | 562 | 506 | - | 56 | - | - | - | - | - | - | - | 4,167 |
| 1a.1.17.3 | NSSS Decontamination Flush | - | - | - | - | - | - | 59 | 9 | 67 | 67 | - | - | - | - | - | - | - | - | - | 500 |
| 1a.1.17.4 | Reactor internals | - | - | - | - | - | - | 833 | 125 | 958 | 958 | - | - | - | - | - | - | - | - | - | 7,100 |
| 1a.1.17.5 | Reactor vessel | - | - | - | - | - | - | 763 | 114 | 877 | 877 | - | - | - | - | - | - | - | - | - | 6,500 |
| 1a.1.17.6 | Biological shield | - | - | - | - | - | - | 59 | 9 | 67 | 67 | - | - | - | - | - | - | - | - | - | 500 |
| 1a.1.17.7 | Steam generators | - | - | - | - | - | - | 366 | 55 | 421 | 421 | - | - | - | - | - | - | - | - | - | 3,120 |
| 1a.1.17.8 | Reinforced concrete | - | - | - | - | - | - | 188 | 28 | 216 | 108 | - | 108 | - | - | - | - | - | - | - | 1,600 |
| 1a.1.17.9 | Main Turbine | - | - | - | - | - | - | 47 | 7 | 54 | - | - | 54 | - | - | - | - | - | - | - | 400 |
| 1a.1.17.10 | Main Condensers | - | - | - | - | - | - | 47 | 7 | 54 | - | - | 54 | - | - | - | - | - | - | - | 400 |
| 1a.1.17.11 | Plant structures & buildings | - | - | - | - | - | - | 366 | 55 | 421 | 211 | - | 211 | - | - | - | - | - | - | - | 3,120 |
| 1a.1.17.12 | Waste management | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |
| 1a.1.17.13 | Facility & site closeout | - | - | - | - | - | - | 106 | 16 | 121 | 61 | - | 61 | - | - | - | - | - | - | - | 900 |
| 1a.1.17 | Total | - | - | - | - | - | - | 4,440 | 666 | 5,106 | 4,496 | - | 610 | - | - | - | - | - | - | - | 37,827 |
| Planning & Site Preparations | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.18 | Prepare dismantling sequence | - | - | - | - | - | - | 282 | 42 | 324 | 324 | - | - | - | - | - | - | - | - | - | 2,400 |
| 1a.1.19 | Plant prep. & temp. svces | - | - | - | - | - | - | 3,300 | 495 | 3,795 | 3,795 | - | - | - | - | - | - | - | - | - | - |
| 1a.1.20 | Design water clean-up system | - | - | - | - | - | - | 164 | 25 | 189 | 189 | - | - | - | - | - | - | - | - | - | 1,400 |
| 1a.1.21 | Rigging/Cont. Cntrl Envlps/tooling/etc. | - | - | - | - | - | - | 2,300 | 345 | 2,645 | 2,645 | - | - | - | - | - | - | - | - | - | - |
| 1a.1.22 | Procure casks/liners & containers | - | - | - | - | - | - | 144 | 22 | 166 | 166 | - | - | - | - | - | - | - | - | - | 1,230 |
| 1a.1 | Subtotal Period 1a Activity Costs | - | - | - | - | - | - | 14,774 | 2,216 | 16,990 | 16,380 | - | 610 | - | - | - | - | - | - | - | 78,157 |
| Period 1a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 1a.2.1 | Spent Fuel Pool Isolation | - | - | - | - | - | - | 11,691 | 1,754 | 13,445 | 13,445 | - | - | - | - | - | - | - | - | - | - |
| 1a.2 | Subtotal Period 1a Additional Costs | - | - | - | - | - | - | 11,691 | 1,754 | 13,445 | 13,445 | - | - | - | - | - | - | - | - | - | - |
| Period 1a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 1a.3.1 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,003 | - | 2,003 | - | 2,003 | - | - | - | - | - | - | - | - | - |
| 1a.3 | Subtotal Period 1a Collateral Costs | - | - | - | - | - | - | 2,003 | - | 2,003 | - | 2,003 | - | - | - | - | - | - | - | - | - |
| Period 1a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 1a.4.1 | Insurance | - | - | - | - | - | - | 1,730 | 173 | 1,903 | 1,903 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.2 | Property taxes | - | - | - | - | - | - | 2,040 | 204 | 2,244 | 2,244 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.3 | Health physics supplies | - | 515 | - | - | - | - | - | 129 | 644 | 644 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.5 | Disposal of DAW generated | - | - | 13 | 4 | - | 50 | - | 14 | 81 | 81 | - | - | - | 610 | - | - | - | - | 12,190 | 20 |
| 1a.4.6 | Plant energy budget | - | - | - | - | - | - | 1,515 | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.7 | NRC Fees | - | - | - | - | - | - | 1,110 | 111 | 1,221 | 1,221 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.8 | Emergency Planning Fees | - | - | - | - | - | - | 1,604 | 160 | 1,765 | - | 1,765 | - | - | - | - | - | - | - | - | - |
| 1a.4.9 | Fixed Overhead | - | - | - | - | - | - | 1,470 | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.10 | Spent Fuel Pool O&M | - | - | - | - | - | - | 401 | 60 | 461 | - | 461 | - | - | - | - | - | - | - | - | - |
| 1a.4.11 | ISFSI Operating Costs | - | - | - | - | - | - | 52 | 8 | 59 | - | 59 | - | - | - | - | - | - | - | - | - |
| 1a.4.12 | Railroad Track Maintenance | - | - | - | - | - | - | 58 | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.13 | Security Staff Cost | - | - | - | - | - | - | 7,390 | 1,108 | 8,498 | 8,498 | - | - | - | - | - | - | - | - | - | 122,720 |
| 1a.4.14 | Utility Staff Cost | - | - | - | - | - | - | 25,791 | 3,869 | 29,660 | 29,660 | - | - | - | - | - | - | - | - | - | 422,240 |
| 1a.4 | Subtotal Period 1a Period-Dependent Costs | - | 1,083 | 13 | 4 | - | 50 | 43,160 | 6,378 | 50,687 | 48,402 | 2,286 | - | 610 | - | - | - | - | 12,190 | 20 | 544,960 |

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0
Appendix E, Page 5 of 20

Table E-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix E, Page 6 of 20**

**Table E-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 2b.1.3.1 | Reactor | 1,150 | 2,623 | 139 | 852 | 193 | 11,079 | - | 4,171 | 20,208 | 20,208 | - | - | 2,230 | 57,414 | - | - | - | 3,559,624 | 50,842 | - |
| 2b.1.3.2 | Backwash Waste Receiving Tank | - | 27 | 1 | 11 | - | 87 | - | 30 | 158 | 158 | - | - | - | 507 | - | - | - | 43,896 | 299 | - |
| 2b.1.3 | Totals | 1,150 | 2,650 | 141 | 864 | 193 | 11,166 | - | 4,202 | 20,366 | 20,366 | - | - | 2,230 | 57,921 | - | - | - | 3,603,520 | 51,140 | - |
| 2b.1.4 | Prepare/submit License Termination Plan | - | - | - | - | - | - | 481 | 72 | 553 | 553 | - | - | - | - | - | - | - | - | - | 4,096 |
| 2b.1.5 | Receive NRC approval of termination plan | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2b.1 | Subtotal Period 2b Activity Costs | 2,874 | 16,530 | 547 | 1,479 | 6,919 | 14,215 | 481 | 10,275 | 53,320 | 50,616 | - | 2,704 | 79,974 | 68,664 | - | - | - | 7,470,455 | 264,930 | 4,096 |
| Period 2b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.2.1 | Remedial Action Surveys | - | - | - | - | - | - | 1,943 | 583 | 2,526 | 2,526 | - | - | - | - | - | - | - | - | 25,399 | - |
| 2b.2.2 | Operational Equipment | - | - | 9 | 29 | 312 | - | - | 52 | 402 | 402 | - | - | 5,855 | - | - | - | - | 146,375 | 16 | - |
| 2b.2 | Subtotal Period 2b Additional Costs | - | - | 9 | 29 | 312 | - | 1,943 | 635 | 2,928 | 2,928 | - | - | 5,855 | - | - | - | - | 146,375 | 25,415 | - |
| Period 2b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.1 | Process decommissioning water waste | 105 | - | 70 | 182 | - | 285 | - | 158 | 800 | 800 | - | - | - | 680 | - | - | - | 40,799 | 133 | - |
| 2b.3.2 | Process decommissioning chemical flush waste | 3 | - | 87 | 327 | - | 651 | - | 222 | 1,289 | 1,289 | - | - | - | 875 | - | - | - | 93,252 | 164 | - |
| 2b.3.3 | Small tool allowance | - | 289 | - | - | - | - | - | 43 | 332 | 332 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 4,321 | 648 | 4,969 | - | 4,969 | - | - | - | - | - | - | - | - | - |
| 2b.3.5 | Retention and Severance | - | - | - | - | - | - | 6,994 | 1,049 | 8,043 | 8,043 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,525 | - | 1,525 | - | 1,525 | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | 107 | 289 | 157 | 509 | - | 936 | 12,841 | 2,120 | 16,958 | 10,463 | 6,495 | - | - | 1,555 | - | - | - | 134,051 | 296 | - |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Decon supplies | 482 | - | - | - | - | - | - | 121 | 603 | 603 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Insurance | - | - | - | - | - | - | 624 | 62 | 687 | 687 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Property taxes | - | - | - | - | - | - | 3,099 | 310 | 3,409 | 3,409 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Health physics supplies | - | 1,969 | - | - | - | - | - | 492 | 2,461 | 2,461 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.5 | Heavy equipment rental | - | 2,759 | - | - | - | - | - | 414 | 3,173 | 3,173 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | Disposal of DAW generated | - | - | 78 | 23 | - | 293 | - | 85 | 479 | 479 | - | - | - | 3,600 | - | - | - | 71,996 | 117 | - |
| 2b.4.7 | Plant energy budget | - | - | - | - | - | - | 1,388 | 208 | 1,596 | 1,596 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | NRC Fees | - | - | - | - | - | - | 707 | 71 | 778 | 778 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 1,569 | 157 | 1,726 | - | 1,726 | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Fixed Overhead | - | - | - | - | - | - | 1,513 | 227 | 1,740 | 1,740 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 490 | 74 | 564 | - | 564 | - | - | - | - | - | - | - | - | - |
| 2b.4.12 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 247 | 37 | 284 | 284 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.13 | ISFSI Operating Costs | - | - | - | - | - | - | 63 | 9 | 73 | - | 73 | - | - | - | - | - | - | - | - | - |
| 2b.4.14 | Railroad Track Maintenance | - | - | - | - | - | - | 70 | 11 | 81 | 81 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.15 | Security Staff Cost | - | - | - | - | - | - | 8,299 | 1,245 | 9,544 | 9,544 | - | - | - | - | - | - | - | - | - | 137,246 |
| 2b.4.16 | DOC Staff Cost | - | - | - | - | - | - | 11,450 | 1,718 | 13,168 | 13,168 | - | - | - | - | - | - | - | - | - | 137,246 |
| 2b.4.17 | Utility Staff Cost | - | - | - | - | - | - | 15,293 | 2,294 | 17,586 | 17,586 | - | - | - | - | - | - | - | - | - | 255,430 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | 482 | 4,728 | 78 | 23 | - | 293 | 44,813 | 7,533 | 57,951 | 55,588 | 2,362 | - | - | 3,600 | - | - | - | 71,996 | 117 | 529,921 |
| 2b.0 | TOTAL PERIOD 2b COST | 3,464 | 21,546 | 792 | 2,040 | 7,231 | 15,444 | 60,078 | 20,563 | 131,157 | 119,596 | 8,857 | 2,704 | 85,829 | 73,819 | - | - | - | 7,822,876 | 290,758 | 534,017 |
| PERIOD 2c - Spent fuel delay prior to SFP decon | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| 2c.2 | Subtotal Period 2c Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| Period 2c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 72,993 | 10,949 | 83,941 | - | 83,941 | - | - | - | - | - | - | - | - | - |
| 2c.3.2 | Retention and Severance | - | - | - | - | - | - | 4,478 | 672 | 5,149 | 5,149 | - | - | - | - | - | - | - | - | - | - |
| 2c.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,702 | - | 2,702 | - | 2,702 | - | - | - | - | - | - | - | - | - |
| 2c.3 | Subtotal Period 2c Collateral Costs | - | - | - | - | - | - | 80,172 | 11,621 | 91,793 | 5,149 | 86,643 | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 1,104 | 110 | 1,215 | 1,215 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 5,154 | 515 | 5,669 | 5,669 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 390 | - | - | - | - | - | 98 | 488 | 488 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 18 | 5 | - | 66 | - | 19 | 108 | 108 | - | - | - | 809 | - | - | - | 16,171 | 26 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 655 | 98 | 753 | 753 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 555 | 55 | 610 | 610 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 2,776 | 278 | 3,053 | - | 3,053 | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix E, Page 7 of 20*

**Table E-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/ Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|-----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 2c Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.8 | Fixed Overhead | - | - | - | - | - | - | 2,676 | 401 | 3,078 | 3,078 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.9 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 87 | 13 | 101 | 101 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 112 | 17 | 128 | - | 128 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 125 | 19 | 143 | 143 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.12 | Security Staff Cost | - | - | - | - | - | - | 14,681 | 2,202 | 16,883 | 16,883 | - | - | - | - | - | - | - | - | - | - | 242,796 |
| 2c.4.13 | Utility Staff Cost | - | - | - | - | - | - | 2,064 | 310 | 2,374 | 2,374 | - | - | - | - | - | - | - | - | - | - | 33,722 |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 390 | 18 | 5 | - | 66 | 29,988 | 4,135 | 34,602 | 31,421 | 3,181 | - | - | 809 | - | - | - | - | 16,171 | 26 | 276,518 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 390 | 18 | 5 | - | 66 | 114,508 | 16,408 | 131,395 | 41,570 | 89,825 | - | - | 809 | - | - | - | - | 16,171 | 26 | 276,518 |
| PERIOD 2d - Decontamination Following Wet Fuel Storage | | | | | | | | | | | | | | | | | | | | | | |
| Period 2d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.1 | Remove spent fuel racks | 328 | 32 | 94 | 32 | - | 595 | - | 335 | 1,416 | 1,416 | - | - | - | 2,092 | - | - | - | 138,298 | 576 | - | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.2.1 | Electrical - Contaminated - Fuel Pool | - | 147 | 2 | 4 | 53 | 7 | - | 47 | 259 | 259 | - | - | 615 | 23 | - | - | - | 26,508 | 2,077 | - | - |
| 2d.1.2.2 | Electrical - Decontaminated - Fuel Pool | - | 918 | 10 | 34 | 510 | - | - | 312 | 1,785 | 1,785 | - | - | 5,893 | - | - | - | - | 239,327 | 12,340 | - | - |
| 2d.1.2.3 | HVAC - Contaminated - Fuel Pool | - | 159 | 3 | 9 | 121 | 15 | - | 63 | 370 | 370 | - | - | 1,398 | 53 | - | - | - | 60,246 | 2,157 | - | - |
| 2d.1.2.4 | Safeguards Chilled Water - RCA | - | 82 | 1 | 3 | 43 | - | - | 27 | 155 | 155 | - | - | 495 | - | - | - | - | 20,100 | 1,019 | - | - |
| 2d.1.2.5 | Spent Fuel Pool Cooling | 293 | 342 | 34 | 25 | 70 | 377 | - | 344 | 1,484 | 1,484 | - | - | 806 | 1,325 | - | - | - | 120,439 | 7,613 | - | - |
| 2d.1.2.6 | Station & Instrument Air - RCA Fuel Pool | - | 20 | 0 | 0 | 7 | - | - | 6 | 34 | 34 | - | - | 83 | - | - | - | - | 3,374 | 263 | - | - |
| 2d.1.2 | Totals | 293 | 1,668 | 50 | 75 | 804 | 399 | - | 800 | 4,088 | 4,088 | - | - | 9,290 | 1,401 | - | - | - | 469,994 | 25,468 | - | - |
| 2d.1.4 | Scaffolding in support of decommissioning | - | 213 | 1 | 0 | 3 | 1 | - | 54 | 273 | 273 | - | - | 35 | 3 | - | - | - | 1,754 | 1,592 | - | - |
| 2d.1 | Subtotal Period 2d Activity Costs | 621 | 1,913 | 145 | 107 | 807 | 994 | - | 1,189 | 5,777 | 5,777 | - | - | 9,325 | 3,496 | - | - | - | 610,046 | 27,637 | - | - |
| Period 2d Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2d.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | - | 6,240 |
| 2d.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 1,237 | 371 | 1,608 | 1,608 | - | - | - | - | - | - | - | - | - | 16,173 | - |
| 2d.2 | Subtotal Period 2d Additional Costs | - | - | - | - | - | - | 2,082 | 625 | 2,706 | 2,706 | - | - | - | - | - | - | - | - | - | 16,173 | 6,240 |
| Period 2d Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2d.3.1 | Process decommissioning water waste | 27 | - | 18 | 48 | - | 75 | - | 41 | 209 | 209 | - | - | - | 179 | - | - | - | 10,724 | 35 | - | - |
| 2d.3.2 | Process decommissioning chemical flush waste | 1 | - | 32 | 121 | - | 241 | - | 82 | 478 | 478 | - | - | - | 324 | - | - | - | 34,576 | 61 | - | - |
| 2d.3.3 | Small tool allowance | - | 35 | - | - | - | - | - | 5 | 41 | 41 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - | - |
| 2d.3.5 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 12,947 | 1,942 | 14,889 | - | 14,889 | - | - | - | - | - | - | - | - | - | - |
| 2d.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 971 | - | 971 | - | 971 | - | - | - | - | - | - | - | - | - | - |
| 2d.3 | Subtotal Period 2d Collateral Costs | 27 | 35 | 194 | 224 | 575 | 467 | 13,917 | 2,217 | 17,658 | 1,798 | 15,859 | - | 6,000 | 1,032 | - | - | - | 350,268 | 184 | - | - |
| Period 2d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2d.4.1 | Decon supplies | 54 | - | - | - | - | - | - | 14 | 68 | 68 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.2 | Insurance | - | - | - | - | - | - | 398 | 40 | 437 | 437 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.3 | Property taxes | - | - | - | - | - | - | 1,740 | 174 | 1,914 | 1,914 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.4 | Health physics supplies | - | 559 | - | - | - | - | - | 140 | 699 | 699 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.5 | Heavy equipment rental | - | 1,757 | - | - | - | - | - | 264 | 2,020 | 2,020 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.6 | Disposal of DAW generated | - | - | 18 | 5 | - | 67 | - | 19 | 110 | 110 | - | - | - | 829 | - | - | - | 16,581 | 27 | - | - |
| 2d.4.7 | Plant energy budget | - | - | - | - | - | - | 471 | 71 | 542 | 542 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.8 | NRC Fees | - | - | - | - | - | - | 381 | 38 | 419 | 419 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 999 | 100 | 1,099 | - | 1,099 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.10 | Fixed Overhead | - | - | - | - | - | - | 963 | 144 | 1,108 | 1,108 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.11 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 315 | 47 | 362 | 362 | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 40 | 6 | 46 | - | 46 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 45 | 7 | 52 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2d.4.14 | Security Staff Cost | - | - | - | - | - | - | 5,123 | 768 | 5,891 | 5,891 | - | - | - | - | - | - | - | - | - | - | 84,157 |
| 2d.4.15 | DOC Staff Cost | - | - | - | - | - | - | 6,065 | 910 | 6,975 | 6,975 | - | - | - | - | - | - | - | - | - | - | 69,996 |
| 2d.4.16 | Utility Staff Cost | - | - | - | - | - | - | 7,796 | 1,169 | 8,966 | 8,123 | 843 | - | - | - | - | - | - | - | - | - | 126,236 |
| 2d.4 | Subtotal Period 2d Period-Dependent Costs | 54 | 2,316 | 18 | 5 | - | 67 | 24,337 | 3,911 | 30,708 | 28,720 | 1,988 | - | - | 829 | - | - | - | 16,581 | 27 | 280,390 | - |
| 2d.0 | TOTAL PERIOD 2d COST | 703 | 4,264 | 357 | 337 | 1,382 | 1,528 | 40,336 | 7,942 | 56,849 | 39,002 | 17,847 | - | 15,325 | 5,357 | - | - | - | 976,895 | 44,021 | - | 286,630 |
| PERIOD 2f - License Termination | | | | | | | | | | | | | | | | | | | | | | |
| Period 2f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 2f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - | - |
| 2f.1.2 | Terminate license | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2f.1 | Subtotal Period 2f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table E-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 2f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2f.2.1 | License Termination Survey | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| 2f.2 | Subtotal Period 2f Additional Costs | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| Period 2f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - | - |
| 2f.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 934 | - | 934 | - | 934 | - | - | - | - | - | - | - | - | - | - |
| 2f.3 | Subtotal Period 2f Collateral Costs | - | - | - | - | - | - | 2,122 | 178 | 2,300 | 1,367 | 934 | - | - | - | - | - | - | - | - | - | - |
| Period 2f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - | - |
| 2f.4.2 | Property taxes | - | - | - | - | - | - | 1,626 | 163 | 1,789 | 1,789 | - | - | - | - | - | - | - | - | - | - | - |
| 2f.4.3 | Health physics supplies | - | 420 | - | - | - | - | - | 105 | 524 | 524 | - | - | - | - | - | - | - | - | - | - | - |
| 2f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 334 | - | - | - | - | 6,685 | 11 | - |
| 2f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - | - |
| 2f.4.6 | NRC Fees | - | - | - | - | - | - | 417 | 42 | 459 | 459 | - | - | - | - | - | - | - | - | - | - | - |
| 2f.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 51 | 5 | 56 | - | 56 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.8 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - | - |
| 2f.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 39 | 6 | 44 | - | 44 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2f.4.11 | Security Staff Cost | - | - | - | - | - | - | 4,924 | 739 | 5,663 | 5,663 | - | - | - | - | - | - | - | - | - | - | 80,898 |
| 2f.4.12 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | - | 46,283 |
| 2f.4.13 | Utility Staff Cost | - | - | - | - | - | - | 3,854 | 578 | 4,433 | 3,626 | 807 | - | - | - | - | - | - | - | - | - | 59,507 |
| 2f.4 | Subtotal Period 2f Period-Dependent Costs | - | 420 | 7 | 2 | - | 27 | 16,591 | 2,477 | 19,524 | 18,617 | 907 | - | - | 334 | - | - | - | - | 6,685 | 11 | 186,687 |
| 2f.0 | TOTAL PERIOD 2f COST | - | 420 | 7 | 2 | - | 27 | 22,106 | 3,674 | 26,236 | 24,395 | 1,841 | - | - | 334 | - | - | - | - | 6,685 | 40,183 | 189,807 |
| PERIOD 2 TOTALS | | 5,161 | 53,290 | 28,935 | 6,446 | 11,617 | 35,794 | 318,662 | 87,758 | 547,664 | 418,467 | 124,322 | 4,875 | 138,709 | 117,153 | 250 | 673 | - | 13,293,650 | 587,146 | 2,059,666 | |
| PERIOD 3b - Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Reactor | - | 4,255 | - | - | - | - | - | 638 | 4,894 | - | - | 4,894 | - | - | - | - | - | - | - | 44,669 | - |
| 3b.1.1.2 | Condensate Storage Tank Foundation | - | 3 | - | - | - | - | - | 0 | 4 | - | - | 4 | - | - | - | - | - | - | - | 16 | - |
| 3b.1.1.3 | Structures below 3' below grade | - | 1,581 | - | - | - | - | - | 237 | 1,818 | - | - | 1,818 | - | - | - | - | - | - | - | 8,411 | - |
| 3b.1.1.4 | Turbine | - | 1,983 | - | - | - | - | - | 297 | 2,280 | - | - | 2,280 | - | - | - | - | - | - | - | 22,040 | - |
| 3b.1.1.5 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | - | 1,857 | - |
| 3b.1.1 | Totals | - | 8,171 | - | - | - | - | - | 1,226 | 9,397 | - | - | 9,397 | - | - | - | - | - | - | - | 76,993 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.2 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | - | 921 | - |
| 3b.1.3 | Final report to NRC | - | - | - | - | - | - | 183 | 27 | 211 | 211 | - | - | - | - | - | - | - | - | - | - | 1,560 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | 8,602 | - | - | - | - | 183 | 1,318 | 10,102 | 211 | - | 9,892 | - | - | - | - | - | - | - | 77,914 | 1,560 |
| Period 3b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3b.2.1 | Clean Concrete Disposal | - | 2,213 | - | - | - | - | 3 | 332 | 2,549 | - | - | 2,549 | - | - | - | - | - | - | - | 8,386 | - |
| 3b.2.2 | Underground Services Excavations | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | - | 7,407 | - |
| 3b.2.3 | Intake Structure Cofferdam | - | 596 | - | - | - | - | - | 89 | 686 | - | - | 686 | - | - | - | - | - | - | - | 5,168 | - |
| 3b.2.4 | Construction Debris | - | - | - | - | - | - | 10 | 2 | 12 | - | - | 12 | - | - | - | - | - | - | - | - | - |
| 3b.2.5 | Backfill | - | 2,751 | - | - | - | - | - | 413 | 3,164 | - | - | 3,164 | - | - | - | - | - | - | - | 2,904 | - |
| 3b.2 | Subtotal Period 3b Additional Costs | - | 6,371 | - | - | - | - | 534 | 1,036 | 7,941 | - | - | 7,941 | - | - | - | - | - | - | - | 23,865 | - |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Small tool allowance | - | 110 | - | - | - | - | - | 16 | 126 | - | - | 126 | - | - | - | - | - | - | - | - | - |
| 3b.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,651 | - | 2,651 | - | 2,651 | - | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | - | 110 | - | - | - | - | 2,651 | 16 | 2,777 | - | 2,651 | 126 | - | - | - | - | - | - | - | - | - |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Insurance | - | - | - | - | - | - | 542 | 54 | 596 | - | 596 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Property taxes | - | - | - | - | - | - | 4,334 | 433 | 4,767 | - | 4,767 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - | - |
| 3b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - | - |
| 3b.4.5 | NRC ISFSI Fees | - | - | - | - | - | - | 236 | 24 | 259 | - | 259 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Emergency Planning Fees | - | - | - | - | - | - | 145 | 14 | 159 | - | 159 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.7 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - | - |
| 3b.4.8 | ISFSI Operating Costs | - | - | - | - | - | - | 109 | 16 | 126 | - | 126 | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix E, Page 9 of 20**

**Table E-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3b Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 331 | 50 | 380 | - | - | 380 | - | - | - | - | - | - | - | - |
| 3b.4.10 | Security Staff Cost | - | - | - | - | - | - | 4,245 | 637 | 4,882 | - | 4,882 | - | - | - | - | - | - | - | - | 57,340 |
| 3b.4.11 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | 116,885 |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,964 | 745 | 5,709 | (0) | 2,283 | 3,425 | - | - | - | - | - | - | - | 76,637 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,684 | 4,740 | 38,094 | (0) | 13,074 | 25,021 | - | - | - | - | - | - | - | 250,861 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 21,752 | - | - | - | - | 30,052 | 7,110 | 58,914 | 211 | 15,724 | 42,979 | - | - | - | - | - | - | 101,779 | 252,421 |
| PERIOD 3c - Fuel Storage Operations | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.2.1 | ISFSI Disposition of Original Casks | - | - | - | 128 | - | 1,548 | - | 406 | 2,082 | - | 2,082 | - | - | 4,906 | - | - | - | - | 576,566 | - |
| 3c.2 | Subtotal Period 3c Additional Costs | - | - | - | 128 | - | 1,548 | - | 406 | 2,082 | - | 2,082 | - | - | 4,906 | - | - | - | - | 576,566 | - |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 264,850 | 39,728 | 304,578 | - | 304,578 | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 61,914 | - | 61,914 | - | - | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 326,765 | 39,728 | 366,492 | - | 366,492 | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 12,663 | 1,266 | 13,929 | - | 13,929 | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 55,169 | 5,517 | 60,685 | - | 60,685 | - | - | - | - | - | - | - | - | - |
| 3c.4.3 | Plant energy budget | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 8,111 | 811 | 8,922 | - | 8,922 | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 3,389 | 339 | 3,728 | - | 3,728 | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 7,563 | 1,134 | 8,697 | - | 8,697 | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 2,559 | 384 | 2,942 | - | 2,942 | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 2,858 | 429 | 3,287 | - | 3,287 | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 99,234 | 14,885 | 114,119 | - | 114,119 | - | - | - | - | - | - | - | - | 1,340,295 |
| 3c.4.10 | DOC Staff Cost | - | - | - | - | - | - | 4,779 | 717 | 5,495 | - | 5,495 | - | - | - | - | - | - | - | - | 51,550 |
| 3c.4.11 | Utility Staff Cost | - | - | - | - | - | - | 46,446 | 6,967 | 53,413 | - | 53,413 | - | - | - | - | - | - | - | - | 683,035 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 242,770 | 32,449 | 275,219 | - | 275,219 | - | - | - | - | - | - | - | - | 2,074,880 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | 128 | - | 1,548 | 569,535 | 72,583 | 643,794 | - | 643,794 | - | - | 4,906 | - | - | - | - | 576,566 | 2,074,880 |
| PERIOD 3d - Spent Fuel/GTCC shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 126,070 | 18,910 | 144,980 | - | 144,980 | - | - | - | - | - | - | - | - | - |
| 3d.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 31,250 | - | 31,250 | - | 31,250 | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 157,320 | 18,910 | 176,230 | - | 176,230 | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 6,390 | 639 | 7,029 | - | 7,029 | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 24,558 | 2,456 | 27,013 | - | 27,013 | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 2,782 | 278 | 3,060 | - | 3,060 | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 1,710 | 171 | 1,881 | - | 1,881 | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 3,816 | 572 | 4,389 | - | 4,389 | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,291 | 194 | 1,485 | - | 1,485 | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,443 | 216 | 1,659 | - | 1,659 | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 48,076 | 7,211 | 55,287 | - | 55,287 | - | - | - | - | - | - | - | - | 676,370 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 12,369 | 1,855 | 14,225 | - | 14,225 | - | - | - | - | - | - | - | - | 175,596 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 102,435 | 13,593 | 116,029 | - | 116,029 | - | - | - | - | - | - | - | - | 851,967 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | 8,689 | 259,755 | 34,140 | 303,915 | 11,656 | 292,259 | - | - | - | - | - | 3,746 | 837,596 | - | 851,967 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix E, Page 10 of 20**

**Table E-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/ Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|-----------------------------|----------------|---------------------------------|-------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | 15 | 1 | - | - | - | - | 970 | 247 | 1,233 | 1,233 | - | - | - | - | - | - | - | - | - | 5,604 | 972 |
| 3e.2 | Subtotal Period 3e Additional Costs | 15 | 1 | - | - | - | - | 970 | 247 | 1,233 | 1,233 | - | - | - | - | - | - | - | - | - | 5,604 | 972 |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | - | 2,500 |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | - | 1,896 |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 450 | 113 | 563 | 563 | - | - | - | - | - | - | - | - | - | - | 4,396 |
| 3e.0 | TOTAL PERIOD 3e COST | 15 | 1 | - | - | - | - | 1,420 | 359 | 1,795 | 1,795 | - | - | - | - | - | - | - | - | - | 5,604 | 5,368 |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 946 | - | - | - | - | 154 | 165 | 1,265 | - | - | 1,265 | - | - | - | - | - | - | - | 4,922 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 946 | - | - | - | - | 154 | 165 | 1,265 | - | - | 1,265 | - | - | - | - | - | - | - | 4,922 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - | - |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - | - |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - | - |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | - | 1,260 |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | - | 782 |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 177 | 36 | 275 | - | - | 275 | - | - | - | - | - | - | - | - | 2,042 |
| 3f.0 | TOTAL PERIOD 3f COST | - | 1,014 | - | - | - | - | 331 | 202 | 1,547 | - | - | 1,547 | - | - | - | - | - | - | - | 4,922 | 2,202 |
| PERIOD 3 TOTALS | | 15 | 22,767 | 1,331 | 128 | - | 10,236 | 861,093 | 114,394 | 1,009,965 | 13,662 | 951,777 | 44,526 | - | 4,906 | - | - | 3,746 | 1,414,161 | 112,304 | 3,186,837 | |
| TOTAL COST TO DECOMMISSION | | 8,749 | 81,426 | 30,681 | 7,026 | 11,781 | 50,002 | 1,290,387 | 221,416 | 1,701,468 | 568,261 | 1,082,353 | 50,855 | 144,842 | 136,023 | 839 | 673 | 3,746 | 15,317,950 | 744,976 | 6,250,924 | |

| | | |
|--|--------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 14.96% CONTINGENCY: | \$1,701,468 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 33.4% OR: | \$568,261 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 63.61% OR: | \$1,082,353 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 2.99% OR: | \$50,855 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 137,535 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 32,925 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 744,976 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

Document X01-1725-001, Rev. 0
Appendix E, Page 12 of 20

**Table E-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|--|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| 1a.4 | Subtotal Period 1a Period-Dependent Costs | - | 1,052 | 12 | 4 | - | 46 | 38,340 | 5,631 | 45,085 | 42,800 | 2,286 | - | - | 565 | - | - | - | 11,299 | 18 | 468,000 |
| 1a.0 | TOTAL PERIOD 1a COST | - | 1,052 | 12 | 4 | - | 46 | 67,559 | 9,672 | 78,345 | 72,107 | 5,977 | 261 | - | 565 | - | - | - | 11,299 | 18 | 501,420 |
| PERIOD 1b - Decommissioning Preparations | | | | | | | | | | | | | | | | | | | | | |
| Period 1b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | |
| 1b.1.1.1 | Plant systems | - | - | - | - | - | - | 238 | 36 | 273 | 246 | - | 27 | - | - | - | - | - | - | - | 2,024 |
| 1b.1.1.2 | NSSS Decontamination Flush | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 |
| 1b.1.1.3 | Reactor internals | - | - | - | - | - | - | 125 | 19 | 144 | 144 | - | - | - | - | - | - | - | - | - | 1,069 |
| 1b.1.1.4 | Remaining buildings | - | - | - | - | - | - | 68 | 10 | 78 | 19 | - | 58 | - | - | - | - | - | - | - | 577 |
| 1b.1.1.5 | CRD cooling assembly | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 |
| 1b.1.1.6 | CRD housings & ICI tubes | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 |
| 1b.1.1.7 | Incore instrumentation | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 |
| 1b.1.1.8 | Reactor vessel | - | - | - | - | - | - | 182 | 27 | 210 | 210 | - | - | - | - | - | - | - | - | - | 1,552 |
| 1b.1.1.9 | Facility closeout | - | - | - | - | - | - | 60 | 9 | 69 | 35 | - | 35 | - | - | - | - | - | - | - | 513 |
| 1b.1.1.10 | Missile shields | - | - | - | - | - | - | 23 | 3 | 26 | 26 | - | - | - | - | - | - | - | - | - | 192 |
| 1b.1.1.11 | Biological shield | - | - | - | - | - | - | 60 | 9 | 69 | 69 | - | - | - | - | - | - | - | - | - | 513 |
| 1b.1.1.12 | Steam generators | - | - | - | - | - | - | 231 | 35 | 266 | 266 | - | - | - | - | - | - | - | - | - | 1,967 |
| 1b.1.1.13 | Reinforced concrete | - | - | - | - | - | - | 50 | 8 | 58 | 29 | - | 29 | - | - | - | - | - | - | - | 428 |
| 1b.1.1.14 | Main Turbine | - | - | - | - | - | - | 78 | 12 | 90 | - | - | 90 | - | - | - | - | - | - | - | 667 |
| 1b.1.1.15 | Main Condensers | - | - | - | - | - | - | 78 | 12 | 90 | - | - | 90 | - | - | - | - | - | - | - | 667 |
| 1b.1.1.16 | Auxiliary building | - | - | - | - | - | - | 137 | 21 | 158 | 142 | - | 16 | - | - | - | - | - | - | - | 1,167 |
| 1b.1.1.17 | Reactor building | - | - | - | - | - | - | 137 | 21 | 158 | 142 | - | 16 | - | - | - | - | - | - | - | 1,167 |
| 1b.1.1 | Total | - | - | - | - | - | - | 1,669 | 250 | 1,919 | 1,558 | - | 361 | - | - | - | - | - | - | - | 14,215 |
| 1b.1.2 | Decon primary loop | 552 | - | - | - | - | - | - | 276 | 828 | 828 | - | - | - | - | - | - | - | - | 1,067 | - |
| 1b.1 | Subtotal Period 1b Activity Costs | 552 | - | - | - | - | - | 1,669 | 526 | 2,747 | 2,386 | - | 361 | - | - | - | - | - | - | 1,067 | 14,215 |
| Period 1b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.2.1 | Site Characterization | - | - | - | - | - | - | 1,582 | 475 | 2,057 | 2,057 | - | - | - | - | - | - | - | - | - | 8,988 |
| 1b.2.2 | Mixed/Hazardous Waste | - | - | 326 | 75 | 169 | - | - | 69 | 639 | 639 | - | - | 6,324 | - | - | - | - | 362,914 | 2,410 | - |
| 1b.2.3 | Asbestos Abatement | - | 2,364 | 2 | 110 | - | 1,359 | - | 947 | 4,782 | 4,782 | - | - | - | 12,843 | - | - | - | 166,959 | 20,907 | - |
| 1b.2 | Subtotal Period 1b Additional Costs | - | 2,364 | 328 | 185 | 169 | 1,359 | 1,582 | 1,491 | 7,478 | 7,478 | - | - | 6,324 | 12,843 | - | - | - | 529,873 | 32,305 | 3,563 |
| Period 1b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.2 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.3 | Process decommissioning water waste | 24 | - | 16 | 41 | - | 64 | - | 36 | 180 | 180 | - | - | - | 152 | - | - | - | 9,121 | 30 | - |
| 1b.3.4 | Process decommissioning chemical flush waste | 2 | - | 58 | 220 | - | 2,471 | - | 657 | 3,408 | 3,408 | - | - | - | - | 588 | - | - | 62,689 | 110 | - |
| 1b.3.5 | Small tool allowance | - | 34 | - | - | - | - | - | 5 | 39 | 39 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.6 | Pipe cutting equipment | - | 1,200 | - | - | - | - | - | 180 | 1,380 | 1,380 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.7 | Decon rig | 1,987 | - | - | - | - | - | - | 298 | 2,285 | 2,285 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.8 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 370 | 56 | 426 | - | 426 | - | - | - | - | - | - | - | - | - |
| 1b.3.9 | Retention and Severance | - | - | - | - | - | - | 4,055 | 608 | 4,664 | 4,664 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.10 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 629 | - | 629 | - | 629 | - | - | - | - | - | - | - | - | - |
| 1b.3 | Subtotal Period 1b Collateral Costs | 2,986 | 1,234 | 74 | 261 | - | 2,534 | 6,243 | 2,164 | 15,495 | 14,441 | 1,055 | - | - | 152 | 588 | - | - | 71,810 | 140 | - |
| Period 1b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.4.1 | Decon supplies | 35 | - | - | - | - | - | - | 9 | 44 | 44 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.2 | Insurance | - | - | - | - | - | - | 872 | 87 | 959 | 959 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.3 | Property taxes | - | - | - | - | - | - | 1,319 | 132 | 1,451 | 1,451 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.4 | Health physics supplies | - | 380 | - | - | - | - | - | 95 | 475 | 475 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.5 | Heavy equipment rental | - | 286 | - | - | - | - | - | 43 | 329 | 329 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.6 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 327 | - | - | - | 6,541 | 11 | - |
| 1b.4.7 | Plant energy budget | - | - | - | - | - | - | 1,527 | 229 | 1,756 | 1,756 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.8 | NRC Fees | - | - | - | - | - | - | 214 | 21 | 236 | 236 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 809 | 81 | 890 | - | 890 | - | - | - | - | - | - | - | - | - |
| 1b.4.10 | Fixed Overhead | - | - | - | - | - | - | 741 | 111 | 852 | 852 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 202 | 30 | 233 | - | 233 | - | - | - | - | - | - | - | - | - |
| 1b.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 26 | 4 | 30 | - | 30 | - | - | - | - | - | - | - | - | - |
| 1b.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 29 | 4 | 33 | 33 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.14 | Security Staff Cost | - | - | - | - | - | - | 3,725 | 559 | 4,284 | 4,284 | - | - | - | - | - | - | - | - | - | 61,864 |
| 1b.4.15 | DOC Staff Cost | - | - | - | - | - | - | 4,009 | 601 | 4,610 | 4,610 | - | - | - | - | - | - | - | - | - | 47,185 |
| 1b.4.16 | Utility Staff Cost | - | - | - | - | - | - | 10,416 | 1,562 | 11,978 | 11,978 | - | - | - | - | - | - | - | - | - | 174,059 |
| 1b.4 | Subtotal Period 1b Period-Dependent Costs | 35 | 666 | 7 | 2 | - | 27 | 23,890 | 3,577 | 28,204 | 27,052 | 1,152 | - | - | 327 | - | - | - | 6,541 | 11 | 283,108 |

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0
Appendix E, Page 13 of 20

Table E-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)

Table with 22 columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Class A Cu. Feet, Class B Cu. Feet, Class C Cu. Feet, GTCC Cu. Feet, Burial / Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours. Rows include: 1b.0 TOTAL PERIOD 1b COST, PERIOD 1 TOTALS, PERIOD 2a - Large Component Removal, Nuclear Steam Supply System Removal (2a.1.1.1 to 2a.1.1.8), Removal of Major Equipment (2a.1.2, 2a.1.3), Cascading Costs from Clean Building Demolition (2a.1.4.1 to 2a.1.4), Disposal of Plant Systems (2a.1.5.1 to 2a.1.5.34), and 2a.1.6 Scaffolding in support of decommissioning.

Prairie Island Nuclear Generating Plant Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0 Appendix E, Page 14 of 20

Table E-2 Prairie Island Nuclear Generating Plant, Unit 2 DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage (thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, and Utility and Contractor Manhours. Rows include Period 2a Additional Costs, Collateral Costs, Period-Dependent Costs, and Period 2b - Site Decontamination.

Prairie Island Nuclear Generating Plant Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0 Appendix E, Page 17 of 20

Table E-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)

Table with 20 columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours. Includes subtotals for 2d and 2f periods.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix E, Page 19 of 20*

**Table E-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3b Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,964 | 745 | 5,709 | (0) | 2,283 | 3,425 | - | - | - | - | - | - | - | 76,637 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,684 | 4,740 | 38,094 | (0) | 13,074 | 25,021 | - | - | - | - | - | - | - | 250,861 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 35,017 | - | - | - | - | 30,404 | 9,153 | 74,574 | 90 | 15,724 | 58,760 | - | - | - | - | - | - | 158,659 | 251,528 |
| PERIOD 3c - Fuel Storage Operations | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.2.1 | ISFSI Disposition of Original Casks | - | - | - | 128 | - | 1,548 | - | 406 | 2,082 | - | 2,082 | - | - | - | - | - | - | 4,906 | 576,566 | - |
| 3c.2 | Subtotal Period 3c Additional Costs | - | - | - | 128 | - | 1,548 | - | 406 | 2,082 | - | 2,082 | - | - | - | - | - | - | 4,906 | 576,566 | - |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 264,850 | 39,728 | 304,578 | - | 304,578 | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 61,914 | - | 61,914 | - | 61,914 | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 326,765 | 39,728 | 366,492 | - | 366,492 | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 12,663 | 1,266 | 13,929 | - | 13,929 | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 55,169 | 5,517 | 60,685 | - | 60,685 | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 8,111 | 811 | 8,922 | - | 8,922 | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 3,389 | 339 | 3,728 | - | 3,728 | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 7,563 | 1,134 | 8,697 | - | 8,697 | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 2,559 | 384 | 2,942 | - | 2,942 | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 2,858 | 429 | 3,287 | - | 3,287 | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 99,234 | 14,885 | 114,119 | - | 114,119 | - | - | - | - | - | - | - | - | 1,340,295 |
| 3c.4.10 | DOC Staff Cost | - | - | - | - | - | - | 4,779 | 717 | 5,495 | - | 5,495 | - | - | - | - | - | - | - | - | 51,550 |
| 3c.4.11 | Utility Staff Cost | - | - | - | - | - | - | 46,446 | 6,967 | 53,413 | - | 53,413 | - | - | - | - | - | - | - | - | 683,035 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 242,770 | 32,449 | 275,219 | - | 275,219 | - | - | - | - | - | - | - | - | 2,074,880 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | 128 | - | 1,548 | 569,535 | 72,583 | 643,794 | - | 643,794 | - | - | 4,906 | - | - | - | 576,566 | - | 2,074,880 |
| PERIOD 3d - Spent Fuel/GTCC shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 126,070 | 18,910 | 144,980 | - | 144,980 | - | - | - | - | - | - | - | - | - |
| 3d.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 31,250 | - | 31,250 | - | 31,250 | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 157,320 | 18,910 | 176,230 | - | 176,230 | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 6,390 | 639 | 7,029 | - | 7,029 | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 24,558 | 2,456 | 27,013 | - | 27,013 | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 2,782 | 278 | 3,060 | - | 3,060 | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 1,710 | 171 | 1,881 | - | 1,881 | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 3,816 | 572 | 4,389 | - | 4,389 | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,291 | 194 | 1,485 | - | 1,485 | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,443 | 216 | 1,659 | - | 1,659 | - | - | - | - | - | - | - | - | - |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 48,076 | 7,211 | 55,287 | - | 55,287 | - | - | - | - | - | - | - | - | 676,370 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 12,369 | 1,855 | 14,225 | - | 14,225 | - | - | - | - | - | - | - | - | 175,596 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 102,435 | 13,593 | 116,029 | - | 116,029 | - | - | - | - | - | - | - | - | 851,967 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | 8,689 | 259,755 | 34,140 | 303,915 | 11,656 | 292,259 | - | - | - | - | - | - | 3,746 | 837,596 | 851,967 |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | 15 | 1 | - | - | - | - | 970 | 247 | 1,233 | 1,233 | - | - | - | - | - | - | - | - | 5,604 | 972 |
| 3e.2 | Subtotal Period 3e Additional Costs | 15 | 1 | - | - | - | - | 970 | 247 | 1,233 | 1,233 | - | - | - | - | - | - | - | - | 5,604 | 972 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix E, Page 20 of 20**

**Table E-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 100 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/ Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|-----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | 2,500 |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | 1,896 |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 450 | 113 | 563 | 563 | - | - | - | - | - | - | - | - | - | 4,396 |
| 3e.0 | TOTAL PERIOD 3e COST | 15 | 1 | - | - | - | - | 1,420 | 359 | 1,795 | 1,795 | - | - | - | - | - | - | - | - | 5,604 | 5,368 |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 946 | - | - | - | - | 154 | 165 | 1,265 | - | - | 1,265 | - | - | - | - | - | - | 4,922 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 946 | - | - | - | - | 154 | 165 | 1,265 | - | - | 1,265 | - | - | - | - | - | - | 4,922 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | 1,260 |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | 782 |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 177 | 36 | 275 | - | - | 275 | - | - | - | - | - | - | - | 2,042 |
| 3f.0 | TOTAL PERIOD 3f COST | - | 1,014 | - | - | - | - | 331 | 202 | 1,547 | - | - | 1,547 | - | - | - | - | - | - | 4,922 | 2,202 |
| PERIOD 3 TOTALS | | 15 | 36,032 | 1,331 | 128 | - | 10,236 | 861,445 | 116,436 | 1,025,625 | 13,541 | 951,777 | 60,307 | - | 4,906 | - | - | 3,746 | 1,414,161 | 169,184 | 3,185,944 |
| TOTAL COST TO DECOMMISSION | | 13,423 | 105,135 | 31,016 | 7,480 | 13,927 | 52,404 | 1,255,707 | 224,685 | 1,703,777 | 558,114 | 1,079,137 | 66,527 | 169,551 | 148,394 | 839 | 673 | 3,746 | 17,113,080 | 1,027,670 | 5,942,790 |

| | |
|--|--|
| TOTAL COST TO DECOMMISSION WITH 15.19% CONTINGENCY: | \$1,703,777 thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 32.76% OR: | \$558,114 thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 63.34% OR: | \$1,079,137 thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 3.9% OR: | \$66,527 thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 149,906 cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 cubic feet |
| TOTAL SCRAP METAL REMOVED: | 41,515 tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 1,027,670 man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix F, Page 1 of 20***

APPENDIX F

DETAILED COST ANALYSIS

SCENARIO 4: DECON with 200 Year DFS

| | <u>Page</u> |
|---|-------------|
| Prairie Island Nuclear Generating Plant, Unit 1 | F-2 |
| Prairie Island Nuclear Generating Plant, Unit 2 | F-10 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix F, Page 9 of 20**

**Table F-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3b Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 331 | 50 | 380 | - | - | 380 | - | - | - | - | - | - | - | - |
| 3b.4.10 | Security Staff Cost | - | - | - | - | - | - | 4,245 | 637 | 4,882 | - | 4,882 | - | - | - | - | - | - | - | - | 57,340 |
| 3b.4.11 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | 116,885 |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,964 | 745 | 5,709 | (0) | 2,283 | 3,425 | - | - | - | - | - | - | - | 76,637 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,684 | 4,740 | 38,094 | (0) | 13,074 | 25,021 | - | - | - | - | - | - | - | 250,861 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 21,752 | - | - | - | - | 30,052 | 7,110 | 58,914 | 211 | 15,724 | 42,979 | - | - | - | - | - | - | 101,779 | 252,421 |
| PERIOD 3c - Fuel Storage Operations | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.2.1 | ISFSI Disposition of Original Casks | - | - | - | 128 | - | 1,548 | - | 406 | 2,082 | - | 2,082 | - | - | 4,906 | - | - | - | - | 576,566 | - |
| 3c.2 | Subtotal Period 3c Additional Costs | - | - | - | 128 | - | 1,548 | - | 406 | 2,082 | - | 2,082 | - | - | 4,906 | - | - | - | - | 576,566 | - |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 791,546 | 118,732 | 910,278 | - | 910,278 | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 186,914 | - | 186,914 | - | 186,914 | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 978,460 | 118,732 | 1,097,192 | - | 1,097,192 | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 38,227 | 3,823 | 42,050 | - | 42,050 | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 157,169 | 15,717 | 172,886 | - | 172,886 | - | - | - | - | - | - | - | - | - |
| 3c.4.3 | Plant energy budget | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 24,486 | 2,449 | 26,934 | - | 26,934 | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 10,232 | 1,023 | 11,255 | - | 11,255 | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 22,830 | 3,425 | 26,255 | - | 26,255 | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 7,724 | 1,159 | 8,883 | - | 8,883 | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 8,629 | 1,294 | 9,924 | - | 9,924 | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 299,567 | 44,935 | 344,502 | - | 344,502 | - | - | - | - | - | - | - | - | 4,046,073 |
| 3c.4.10 | DOC Staff Cost | - | - | - | - | - | - | 14,425 | 2,164 | 16,589 | - | 16,589 | - | - | - | - | - | - | - | - | 155,618 |
| 3c.4.11 | Utility Staff Cost | - | - | - | - | - | - | 140,210 | 21,032 | 161,242 | - | 161,242 | - | - | - | - | - | - | - | - | 2,061,941 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 723,500 | 97,019 | 820,519 | - | 820,519 | - | - | - | - | - | - | - | - | 6,263,633 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | 128 | - | 1,548 | 1,701,960 | 216,157 | 1,919,793 | - | 1,919,793 | - | - | 4,906 | - | - | - | - | 576,566 | 6,263,633 |
| PERIOD 3d - Spent Fuel/GTCC shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 126,132 | 18,920 | 145,052 | - | 145,052 | - | - | - | - | - | - | - | - | - |
| 3d.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 31,250 | - | 31,250 | - | 31,250 | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 157,382 | 18,920 | 176,302 | - | 176,302 | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 6,390 | 639 | 7,029 | - | 7,029 | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 24,558 | 2,456 | 27,013 | - | 27,013 | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 2,782 | 278 | 3,060 | - | 3,060 | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 1,710 | 171 | 1,881 | - | 1,881 | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 3,816 | 572 | 4,389 | - | 4,389 | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,291 | 194 | 1,485 | - | 1,485 | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,443 | 216 | 1,659 | - | 1,659 | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 48,076 | 7,211 | 55,287 | - | 55,287 | - | - | - | - | - | - | - | - | 676,370 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 12,369 | 1,855 | 14,225 | - | 14,225 | - | - | - | - | - | - | - | - | 175,596 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 102,435 | 13,593 | 116,029 | - | 116,029 | - | - | - | - | - | - | - | - | 851,967 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | 8,689 | 259,817 | 34,149 | 303,987 | 11,656 | 292,330 | - | - | - | - | - | 3,746 | 837,596 | - | 851,967 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix F, Page 10 of 20**

**Table F-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/ Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|-----------------------------|----------------|---------------------------------|-------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | 15 | - | - | - | - | - | 970 | 246 | 1,232 | 1,232 | - | - | - | - | - | - | - | - | - | 5,604 | 972 |
| 3e.2 | Subtotal Period 3e Additional Costs | 15 | - | - | - | - | - | 970 | 246 | 1,232 | 1,232 | - | - | - | - | - | - | - | - | - | 5,604 | 972 |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | - | 2,500 |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | - | 1,896 |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 450 | 113 | 563 | 563 | - | - | - | - | - | - | - | - | - | - | 4,396 |
| 3e.0 | TOTAL PERIOD 3e COST | 15 | - | - | - | - | - | 1,420 | 359 | 1,794 | 1,794 | - | - | - | - | - | - | - | - | - | 5,604 | 5,368 |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 946 | - | - | - | - | 154 | 165 | 1,265 | - | - | 1,265 | - | - | - | - | - | - | - | 4,922 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 946 | - | - | - | - | 154 | 165 | 1,265 | - | - | 1,265 | - | - | - | - | - | - | - | 4,922 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - | - |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - | - |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - | - |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | - | 1,260 |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | - | 782 |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 177 | 36 | 275 | - | - | 275 | - | - | - | - | - | - | - | - | 2,042 |
| 3f.0 | TOTAL PERIOD 3f COST | - | 1,014 | - | - | - | - | 331 | 202 | 1,547 | - | - | 1,547 | - | - | - | - | - | - | - | 4,922 | 2,202 |
| PERIOD 3 TOTALS | | 15 | 22,766 | 1,331 | 128 | - | 10,236 | 1,993,580 | 257,977 | 2,286,035 | 13,661 | 2,227,848 | 44,526 | - | 4,906 | - | - | 3,746 | 1,414,161 | 112,304 | 7,375,590 | |
| TOTAL COST TO DECOMMISSION | | 8,749 | 81,425 | 30,681 | 7,026 | 11,781 | 50,002 | 2,422,874 | 365,000 | 2,977,539 | 568,259 | 2,358,425 | 50,855 | 144,842 | 136,023 | 839 | 673 | 3,746 | 15,317,950 | 744,976 | 10,439,680 | |

| | | |
|--|--------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 13.97% CONTINGENCY: | \$2,977,539 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 19.08% OR: | \$568,259 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 79.21% OR: | \$2,358,425 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 1.71% OR: | \$50,855 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 137,535 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 32,925 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 744,976 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

Prairie Island Nuclear Generating Plant Decommissioning Cost Analysis

Table F-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial / Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix F, Page 19 of 20*

**Table F-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|-----------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 3b Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,964 | 745 | 5,709 | (0) | 2,283 | 3,425 | - | - | - | - | - | - | - | - | 76,637 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,684 | 4,740 | 38,094 | (0) | 13,074 | 25,021 | - | - | - | - | - | - | - | - | 250,861 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 35,017 | - | - | - | - | 30,404 | 9,153 | 74,574 | 90 | 15,724 | 58,760 | - | - | - | - | - | - | - | 158,659 | 251,528 |
| PERIOD 3c - Fuel Storage Operations | | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.2.1 | ISFSI Disposition of Original Casks | - | - | - | 128 | - | 1,548 | - | 406 | 2,082 | - | 2,082 | - | - | - | - | - | - | - | 4,906 | - | 576,566 |
| 3c.2 | Subtotal Period 3c Additional Costs | - | - | - | 128 | - | 1,548 | - | 406 | 2,082 | - | 2,082 | - | - | - | - | - | - | - | 4,906 | - | 576,566 |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 791,546 | 118,732 | 910,278 | - | 910,278 | - | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 186,914 | - | 186,914 | - | 186,914 | - | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 978,460 | 118,732 | 1,097,192 | - | 1,097,192 | - | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 38,227 | 3,823 | 42,050 | - | 42,050 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 157,169 | 15,717 | 172,886 | - | 172,886 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 24,486 | 2,449 | 26,934 | - | 26,934 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 10,232 | 1,023 | 11,255 | - | 11,255 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 22,830 | 3,425 | 26,255 | - | 26,255 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 7,724 | 1,159 | 8,883 | - | 8,883 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 8,629 | 1,294 | 9,924 | - | 9,924 | - | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 299,567 | 44,935 | 344,502 | - | 344,502 | - | - | - | - | - | - | - | - | - | 4,046,073 |
| 3c.4.10 | DOC Staff Cost | - | - | - | - | - | - | 14,425 | 2,164 | 16,589 | - | 16,589 | - | - | - | - | - | - | - | - | - | 155,618 |
| 3c.4.11 | Utility Staff Cost | - | - | - | - | - | - | 140,210 | 21,032 | 161,242 | - | 161,242 | - | - | - | - | - | - | - | - | - | 2,061,941 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 723,500 | 97,019 | 820,519 | - | 820,519 | - | - | - | - | - | - | - | - | - | 6,263,633 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | 128 | - | 1,548 | 1,701,960 | 216,157 | 1,919,793 | - | 1,919,793 | - | - | 4,906 | - | - | - | - | - | 576,566 | 6,263,633 |
| PERIOD 3d - Spent Fuel/GTCC shipping | | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | - | 837,596 |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | - | 837,596 |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | 8,689 | - | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | - | 3,746 | - | 837,596 |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 126,132 | 18,920 | 145,052 | - | 145,052 | - | - | - | - | - | - | - | - | - | - |
| 3d.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 31,250 | - | 31,250 | - | 31,250 | - | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 157,382 | 18,920 | 176,302 | - | 176,302 | - | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 6,390 | 639 | 7,029 | - | 7,029 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 24,558 | 2,456 | 27,013 | - | 27,013 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 2,782 | 278 | 3,060 | - | 3,060 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 1,710 | 171 | 1,881 | - | 1,881 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 3,816 | 572 | 4,389 | - | 4,389 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,291 | 194 | 1,485 | - | 1,485 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,443 | 216 | 1,659 | - | 1,659 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 48,076 | 7,211 | 55,287 | - | 55,287 | - | - | - | - | - | - | - | - | - | 676,370 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 12,369 | 1,855 | 14,225 | - | 14,225 | - | - | - | - | - | - | - | - | - | 175,596 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 102,435 | 13,593 | 116,029 | - | 116,029 | - | - | - | - | - | - | - | - | - | 851,967 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | 8,689 | 259,817 | 34,149 | 303,987 | 11,656 | 292,330 | - | - | - | - | - | - | - | 3,746 | 837,596 | 851,967 |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | 15 | - | - | - | - | - | 970 | 246 | 1,232 | 1,232 | - | - | - | - | - | - | - | - | - | 5,604 | 972 |
| 3e.2 | Subtotal Period 3e Additional Costs | 15 | - | - | - | - | - | 970 | 246 | 1,232 | 1,232 | - | - | - | - | - | - | - | - | - | 5,604 | 972 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix F, Page 20 of 20**

**Table F-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 200 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|-------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | - |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | - | 2,500 |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | - | 1,896 |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 450 | 113 | 563 | 563 | - | - | - | - | - | - | - | - | - | - | 4,396 |
| 3e.0 | TOTAL PERIOD 3e COST | 15 | - | - | - | - | - | 1,420 | 359 | 1,794 | 1,794 | - | - | - | - | - | - | - | - | - | 5,604 | 5,368 |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 946 | - | - | - | - | 154 | 165 | 1,265 | - | - | 1,265 | - | - | - | - | - | - | - | 4,922 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 946 | - | - | - | - | 154 | 165 | 1,265 | - | - | 1,265 | - | - | - | - | - | - | - | 4,922 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - | - |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - | - |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - | - |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | - | 1,260 |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | - | 782 |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 177 | 36 | 275 | - | - | 275 | - | - | - | - | - | - | - | - | 2,042 |
| 3f.0 | TOTAL PERIOD 3f COST | - | 1,014 | - | - | - | - | 331 | 202 | 1,547 | - | - | 1,547 | - | - | - | - | - | - | - | 4,922 | 2,202 |
| PERIOD 3 TOTALS | | 15 | 36,032 | 1,331 | 128 | - | 10,236 | 1,993,933 | 260,020 | 2,301,695 | 13,540 | 2,227,848 | 60,307 | - | 4,906 | - | - | 3,746 | 1,414,161 | 169,184 | 7,374,698 | |
| TOTAL COST TO DECOMMISSION | | 13,423 | 105,134 | 31,016 | 7,480 | 13,927 | 52,404 | 2,388,194 | 368,269 | 2,979,847 | 558,112 | 2,355,208 | 66,527 | 169,551 | 148,394 | 839 | 673 | 3,746 | 17,113,080 | 1,027,670 | 10,131,540 | |

| | | |
|--|--------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 14.1% CONTINGENCY: | \$2,979,847 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 18.73% OR: | \$558,112 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 79.04% OR: | \$2,355,208 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 2.23% OR: | \$66,527 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 149,906 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 41,515 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 1,027,670 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix G, Page 1 of 20***

APPENDIX G

DETAILED COST ANALYSIS

SCENARIO 5: DECON with 60 Year DFS with Recasking

| | <u>Page</u> |
|---|-------------|
| Prairie Island Nuclear Generating Plant, Unit 1 | G-2 |
| Prairie Island Nuclear Generating Plant, Unit 2 | G-10 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix G, Page 6 of 20**

**Table G-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | GTCC Cu. Feet | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 2b.1.3.1 | Reactor | 1,150 | 2,623 | 139 | 852 | 193 | 11,079 | - | 4,171 | 20,208 | 20,208 | - | - | 2,230 | 57,414 | - | - | - | 3,559,624 | 50,842 | - |
| 2b.1.3.2 | Backwash Waste Receiving Tank | - | 27 | 1 | 11 | - | 87 | - | 30 | 158 | 158 | - | - | - | 507 | - | - | - | 43,896 | 299 | - |
| 2b.1.3 | Totals | 1,150 | 2,650 | 141 | 864 | 193 | 11,166 | - | 4,202 | 20,366 | 20,366 | - | - | 2,230 | 57,921 | - | - | - | 3,603,520 | 51,140 | - |
| 2b.1.4 | Prepare/submit License Termination Plan | - | - | - | - | - | - | 481 | 72 | 553 | 553 | - | - | - | - | - | - | - | - | - | 4,096 |
| 2b.1.5 | Receive NRC approval of termination plan | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 2b.1 | Subtotal Period 2b Activity Costs | 2,874 | 16,530 | 547 | 1,479 | 6,919 | 14,215 | 481 | 10,275 | 53,320 | 50,616 | - | 2,704 | 79,974 | 68,664 | - | - | - | 7,470,455 | 264,930 | 4,096 |
| Period 2b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.2.1 | Remedial Action Surveys | - | - | - | - | - | - | 1,943 | 583 | 2,526 | 2,526 | - | - | - | - | - | - | - | - | - | 25,399 |
| 2b.2.2 | Operational Equipment | - | - | 9 | 29 | 312 | - | - | 52 | 402 | 402 | - | - | 5,855 | - | - | - | - | 146,375 | 16 | - |
| 2b.2 | Subtotal Period 2b Additional Costs | - | - | 9 | 29 | 312 | - | 1,943 | 635 | 2,928 | 2,928 | - | - | 5,855 | - | - | - | - | 146,375 | 25,415 | - |
| Period 2b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.1 | Process decommissioning water waste | 105 | - | 70 | 182 | - | 285 | - | 158 | 800 | 800 | - | - | - | 680 | - | - | - | 40,799 | 133 | - |
| 2b.3.2 | Process decommissioning chemical flush waste | 3 | - | 87 | 327 | - | 651 | - | 222 | 1,289 | 1,289 | - | - | - | 875 | - | - | - | 93,252 | 164 | - |
| 2b.3.3 | Small tool allowance | - | 289 | - | - | - | - | - | 43 | 332 | 332 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 4,321 | 648 | 4,969 | - | 4,969 | - | - | - | - | - | - | - | - | - |
| 2b.3.5 | Retention and Severance | - | - | - | - | - | - | 6,994 | 1,049 | 8,043 | 8,043 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 1,525 | - | 1,525 | - | 1,525 | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | 107 | 289 | 157 | 509 | - | 936 | 12,841 | 2,120 | 16,958 | 10,463 | 6,495 | - | - | 1,555 | - | - | - | 134,051 | 296 | - |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Decon supplies | 482 | - | - | - | - | - | - | 121 | 603 | 603 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Insurance | - | - | - | - | - | - | 624 | 62 | 687 | 687 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Property taxes | - | - | - | - | - | - | 3,099 | 310 | 3,409 | 3,409 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Health physics supplies | - | 1,969 | - | - | - | - | - | 492 | 2,461 | 2,461 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.5 | Heavy equipment rental | - | 2,759 | - | - | - | - | - | 414 | 3,173 | 3,173 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | Disposal of DAW generated | - | - | 78 | 23 | - | 293 | - | 85 | 479 | 479 | - | - | - | 3,600 | - | - | - | 71,996 | 117 | - |
| 2b.4.7 | Plant energy budget | - | - | - | - | - | - | 1,388 | 208 | 1,596 | 1,596 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | NRC Fees | - | - | - | - | - | - | 707 | 71 | 778 | 778 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 1,569 | 157 | 1,726 | - | 1,726 | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Fixed Overhead | - | - | - | - | - | - | 1,513 | 227 | 1,740 | 1,740 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 490 | 74 | 564 | - | 564 | - | - | - | - | - | - | - | - | - |
| 2b.4.12 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 247 | 37 | 284 | 284 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.13 | ISFSI Operating Costs | - | - | - | - | - | - | 63 | 9 | 73 | - | 73 | - | - | - | - | - | - | - | - | - |
| 2b.4.14 | Railroad Track Maintenance | - | - | - | - | - | - | 70 | 11 | 81 | 81 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.15 | Security Staff Cost | - | - | - | - | - | - | 8,299 | 1,245 | 9,544 | 9,544 | - | - | - | - | - | - | - | - | - | 137,246 |
| 2b.4.16 | DOC Staff Cost | - | - | - | - | - | - | 11,450 | 1,718 | 13,168 | 13,168 | - | - | - | - | - | - | - | - | - | 137,246 |
| 2b.4.17 | Utility Staff Cost | - | - | - | - | - | - | 15,293 | 2,294 | 17,586 | 17,586 | - | - | - | - | - | - | - | - | - | 255,430 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | 482 | 4,728 | 78 | 23 | - | 293 | 44,813 | 7,533 | 57,951 | 55,588 | 2,362 | - | - | 3,600 | - | - | - | 71,996 | 117 | 529,921 |
| 2b.0 | TOTAL PERIOD 2b COST | 3,464 | 21,546 | 792 | 2,040 | 7,231 | 15,444 | 60,078 | 20,563 | 131,157 | 119,596 | 8,857 | 2,704 | 85,829 | 73,819 | - | - | - | 7,822,876 | 290,758 | 534,017 |
| PERIOD 2c - Spent fuel delay prior to SFP decon | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| 2c.2 | Subtotal Period 2c Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| Period 2c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 73,918 | 11,088 | 85,005 | - | 85,005 | - | - | - | - | - | - | - | - | - |
| 2c.3.2 | Retention and Severance | - | - | - | - | - | - | 4,478 | 672 | 5,149 | 5,149 | - | - | - | - | - | - | - | - | - | - |
| 2c.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,702 | - | 2,702 | - | 2,702 | - | - | - | - | - | - | - | - | - |
| 2c.3 | Subtotal Period 2c Collateral Costs | - | - | - | - | - | - | 81,097 | 11,759 | 92,857 | 5,149 | 87,707 | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 1,104 | 110 | 1,215 | 1,215 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 5,154 | 515 | 5,669 | 5,669 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 390 | - | - | - | - | - | 98 | 488 | 488 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 18 | 5 | - | 66 | - | 19 | 108 | 108 | - | - | - | 809 | - | - | - | 16,171 | 26 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 655 | 98 | 753 | 753 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 555 | 55 | 610 | 610 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 2,776 | 278 | 3,053 | - | 3,053 | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix G, Page 7 of 20**

**Table G-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 2c Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.8 | Fixed Overhead | - | - | - | - | - | - | 2,676 | 401 | 3,078 | 3,078 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.9 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 87 | 13 | 101 | 101 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 112 | 17 | 128 | - | 128 | - | - | - | - | - | - | - | - | - |
| 2c.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 125 | 19 | 143 | 143 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.12 | Security Staff Cost | - | - | - | - | - | - | 14,681 | 2,202 | 16,883 | 16,883 | - | - | - | - | - | - | - | - | - | 242,796 |
| 2c.4.13 | Utility Staff Cost | - | - | - | - | - | - | 2,064 | 310 | 2,374 | 2,374 | - | - | - | - | - | - | - | - | - | 33,722 |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 390 | 18 | 5 | - | 66 | 29,988 | 4,135 | 34,602 | 31,421 | 3,181 | - | - | 809 | - | - | - | 16,171 | 26 | 276,518 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 390 | 18 | 5 | - | 66 | 115,434 | 16,547 | 132,459 | 41,570 | 90,889 | - | - | 809 | - | - | - | 16,171 | 26 | 276,518 |
| PERIOD 2d - Decontamination Following Wet Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.1 | Remove spent fuel racks | 328 | 32 | 94 | 32 | - | 595 | - | 335 | 1,416 | 1,416 | - | - | - | 2,092 | - | - | - | 138,298 | 576 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 2d.1.2.1 | Electrical - Contaminated - Fuel Pool | - | 147 | 2 | 4 | 53 | 7 | - | 47 | 259 | 259 | - | - | 615 | 23 | - | - | - | 26,508 | 2,077 | - |
| 2d.1.2.2 | Electrical - Decontaminated - Fuel Pool | - | 918 | 10 | 34 | 510 | - | - | 312 | 1,785 | 1,785 | - | - | 5,893 | - | - | - | - | 239,327 | 12,340 | - |
| 2d.1.2.3 | HVAC - Contaminated - Fuel Pool | - | 159 | 3 | 9 | 121 | 15 | - | 63 | 370 | 370 | - | - | 1,398 | 53 | - | - | - | 60,246 | 2,157 | - |
| 2d.1.2.4 | Safeguards Chilled Water - RCA | - | 82 | 1 | 3 | 43 | - | - | 27 | 155 | 155 | - | - | 495 | - | - | - | - | 20,100 | 1,019 | - |
| 2d.1.2.5 | Spent Fuel Pool Cooling | 293 | 342 | 34 | 25 | 70 | 377 | - | 344 | 1,484 | 1,484 | - | - | 806 | 1,325 | - | - | - | 120,439 | 7,613 | - |
| 2d.1.2.6 | Station & Instrument Air - RCA Fuel Pool | - | 20 | 0 | 0 | 7 | - | - | 6 | 34 | 34 | - | - | 83 | - | - | - | - | 3,374 | 263 | - |
| 2d.1.2 | Totals | 293 | 1,668 | 50 | 75 | 804 | 399 | - | 800 | 4,088 | 4,088 | - | - | 9,290 | 1,401 | - | - | - | 469,994 | 25,468 | - |
| 2d.1.4 | Scaffolding in support of decommissioning | - | 213 | 1 | 0 | 3 | 1 | - | 54 | 273 | 273 | - | - | 35 | 3 | - | - | - | 1,754 | 1,592 | - |
| 2d.1 | Subtotal Period 2d Activity Costs | 621 | 1,913 | 145 | 107 | 807 | 994 | - | 1,189 | 5,777 | 5,777 | - | - | 9,325 | 3,496 | - | - | - | 610,046 | 27,637 | - |
| Period 2d Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 |
| 2d.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 1,237 | 371 | 1,608 | 1,608 | - | - | - | - | - | - | - | - | 16,173 | - |
| 2d.2 | Subtotal Period 2d Additional Costs | - | - | - | - | - | - | 2,082 | 625 | 2,706 | 2,706 | - | - | - | - | - | - | - | - | 16,173 | 6,240 |
| Period 2d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.3.1 | Process decommissioning water waste | 27 | - | 18 | 48 | - | 75 | - | 41 | 209 | 209 | - | - | - | 179 | - | - | - | 10,724 | 35 | - |
| 2d.3.2 | Process decommissioning chemical flush waste | 1 | - | 32 | 121 | - | 241 | - | 82 | 478 | 478 | - | - | - | 324 | - | - | - | 34,576 | 61 | - |
| 2d.3.3 | Small tool allowance | - | 35 | - | - | - | - | - | 5 | 41 | 41 | - | - | - | - | - | - | - | - | - | - |
| 2d.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - |
| 2d.3.5 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 13,144 | 1,972 | 15,115 | - | 15,115 | - | - | - | - | - | - | - | - | - |
| 2d.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 971 | - | 971 | - | 971 | - | - | - | - | - | - | - | - | - |
| 2d.3 | Subtotal Period 2d Collateral Costs | 27 | 35 | 194 | 224 | 575 | 467 | 14,114 | 2,247 | 17,884 | 1,798 | 16,086 | - | 6,000 | 1,032 | - | - | - | 350,268 | 184 | - |
| Period 2d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2d.4.1 | Decon supplies | 54 | - | - | - | - | - | - | 14 | 68 | 68 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.2 | Insurance | - | - | - | - | - | - | 398 | 40 | 437 | 437 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.3 | Property taxes | - | - | - | - | - | - | 1,740 | 174 | 1,914 | 1,914 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.4 | Health physics supplies | - | 559 | - | - | - | - | - | 140 | 699 | 699 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.5 | Heavy equipment rental | - | 1,757 | - | - | - | - | - | 264 | 2,020 | 2,020 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.6 | Disposal of DAW generated | - | - | 18 | 5 | - | 67 | - | 19 | 110 | 110 | - | - | - | 829 | - | - | - | 16,581 | 27 | - |
| 2d.4.7 | Plant energy budget | - | - | - | - | - | - | 471 | 71 | 542 | 542 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.8 | NRC Fees | - | - | - | - | - | - | 381 | 38 | 419 | 419 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 999 | 100 | 1,099 | - | 1,099 | - | - | - | - | - | - | - | - | - |
| 2d.4.10 | Fixed Overhead | - | - | - | - | - | - | 963 | 144 | 1,108 | 1,108 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.11 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 315 | 47 | 362 | 362 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 40 | 6 | 46 | - | 46 | - | - | - | - | - | - | - | - | - |
| 2d.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 45 | 7 | 52 | 52 | - | - | - | - | - | - | - | - | - | - |
| 2d.4.14 | Security Staff Cost | - | - | - | - | - | - | 5,123 | 768 | 5,891 | 5,891 | - | - | - | - | - | - | - | - | - | 84,157 |
| 2d.4.15 | DOC Staff Cost | - | - | - | - | - | - | 6,065 | 910 | 6,975 | 6,975 | - | - | - | - | - | - | - | - | - | 69,996 |
| 2d.4.16 | Utility Staff Cost | - | - | - | - | - | - | 7,796 | 1,169 | 8,966 | 8,527 | 439 | - | - | - | - | - | - | - | - | 126,236 |
| 2d.4 | Subtotal Period 2d Period-Dependent Costs | 54 | 2,316 | 18 | 5 | - | 67 | 24,337 | 3,911 | 30,708 | 29,123 | 1,584 | - | - | 829 | - | - | - | 16,581 | 27 | 280,390 |
| 2d.0 | TOTAL PERIOD 2d COST | 703 | 4,264 | 357 | 337 | 1,382 | 1,528 | 40,533 | 7,971 | 57,075 | 39,405 | 17,670 | - | 15,325 | 5,357 | - | - | - | 976,895 | 44,021 | 286,630 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table G-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 2f - License Termination | | | | | | | | | | | | | | | | | | | | | |
| Period 2f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| 2f.1.2 | Terminate license | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2f.1 | Subtotal Period 2f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| Period 2f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.2.1 | License Termination Survey | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| 2f.2 | Subtotal Period 2f Additional Costs | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| Period 2f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 2f.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 934 | - | 934 | - | 934 | - | - | - | - | - | - | - | - | - |
| 2f.3 | Subtotal Period 2f Collateral Costs | - | - | - | - | - | - | 2,122 | 178 | 2,300 | 1,367 | 934 | - | - | - | - | - | - | - | - | - |
| Period 2f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.2 | Property taxes | - | - | - | - | - | - | 1,626 | 163 | 1,789 | 1,789 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.3 | Health physics supplies | - | 420 | - | - | - | - | - | 105 | 524 | 524 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 334 | - | - | - | 6,685 | 11 | - |
| 2f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.6 | NRC Fees | - | - | - | - | - | - | 417 | 42 | 459 | 459 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 51 | 5 | 56 | - | 56 | - | - | - | - | - | - | - | - | - |
| 2f.4.8 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 39 | 6 | 44 | - | 44 | - | - | - | - | - | - | - | - | - |
| 2f.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | 50 | - | - | - | - | - | - | - | - | - | - |
| 2f.4.11 | Security Staff Cost | - | - | - | - | - | - | 4,924 | 739 | 5,663 | 5,663 | - | - | - | - | - | - | - | - | - | 80,898 |
| 2f.4.12 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | 46,283 |
| 2f.4.13 | Utility Staff Cost | - | - | - | - | - | - | 3,854 | 578 | 4,433 | 4,007 | 426 | - | - | - | - | - | - | - | - | 59,507 |
| 2f.4 | Subtotal Period 2f Period-Dependent Costs | - | 420 | 7 | 2 | - | 27 | 16,591 | 2,477 | 19,524 | 18,998 | 526 | - | - | 334 | - | - | - | 6,685 | 11 | 186,687 |
| 2f.0 | TOTAL PERIOD 2f COST | - | 420 | 7 | 2 | - | 27 | 22,106 | 3,674 | 26,236 | 24,776 | 1,460 | - | - | 334 | - | - | - | 6,685 | 40,183 | 189,807 |
| PERIOD 2 TOTALS | | 5,161 | 53,290 | 28,935 | 6,446 | 11,617 | 35,794 | 319,784 | 87,926 | 548,954 | 419,252 | 124,828 | 4,875 | 138,709 | 117,153 | 250 | 673 | - | 13,293,650 | 587,146 | 2,059,666 |
| PERIOD 3b - Site Restoration | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Reactor | - | 4,255 | - | - | - | - | - | 638 | 4,894 | - | - | 4,894 | - | - | - | - | - | - | 44,669 | - |
| 3b.1.1.2 | Condensate Storage Tank Foundation | - | 3 | - | - | - | - | - | 0 | 4 | - | - | 4 | - | - | - | - | - | - | 16 | - |
| 3b.1.1.3 | Structures below 3' below grade | - | 1,581 | - | - | - | - | - | 237 | 1,818 | - | - | 1,818 | - | - | - | - | - | - | 8,411 | - |
| 3b.1.1.4 | Turbine | - | 1,983 | - | - | - | - | - | 297 | 2,280 | - | - | 2,280 | - | - | - | - | - | - | 22,040 | - |
| 3b.1.1.5 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | 1,857 | - |
| 3b.1.1 | Totals | - | 8,171 | - | - | - | - | - | 1,226 | 9,397 | - | - | 9,397 | - | - | - | - | - | - | 76,993 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.2 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | 921 | - |
| 3b.1.3 | Final report to NRC | - | - | - | - | - | - | 183 | 27 | 211 | 211 | - | - | - | - | - | - | - | - | - | 1,560 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | 8,602 | - | - | - | - | 183 | 1,318 | 10,102 | 211 | - | 9,892 | - | - | - | - | - | - | 77,914 | 1,560 |
| Period 3b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.2.1 | Clean Concrete Disposal | - | 2,213 | - | - | - | - | 3 | 332 | 2,549 | - | - | 2,549 | - | - | - | - | - | - | 8,386 | - |
| 3b.2.2 | Underground Services Excavations | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | 7,407 | - |
| 3b.2.3 | Intake Structure Cofferdam | - | 596 | - | - | - | - | - | 89 | 686 | - | - | 686 | - | - | - | - | - | - | 5,168 | - |
| 3b.2.4 | Construction Debris | - | - | - | - | - | - | 10 | 2 | 12 | 12 | - | - | - | - | - | - | - | - | - | - |
| 3b.2.5 | Backfill | - | 2,751 | - | - | - | - | - | 413 | 3,164 | - | - | 3,164 | - | - | - | - | - | - | 2,904 | - |
| 3b.2 | Subtotal Period 3b Additional Costs | - | 6,371 | - | - | - | - | 534 | 1,036 | 7,941 | 12 | - | 7,929 | - | - | - | - | - | - | 23,865 | - |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Small tool allowance | - | 110 | - | - | - | - | - | 16 | 126 | - | - | 126 | - | - | - | - | - | - | - | - |
| 3b.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,651 | - | 2,651 | - | 2,651 | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | - | 110 | - | - | - | - | 2,651 | 16 | 2,777 | - | 2,651 | 126 | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table G-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | GTCC Cu. Feet | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | | | | |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Insurance | - | - | - | - | - | - | 542 | 54 | 596 | - | 596 | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Property taxes | - | - | - | - | - | - | 4,334 | 433 | 4,767 | - | 4,767 | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - |
| 3b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - |
| 3b.4.5 | NRC ISFSI Fees | - | - | - | - | - | - | 236 | 24 | 259 | - | 259 | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Emergency Planning Fees | - | - | - | - | - | - | 145 | 14 | 159 | - | 159 | - | - | - | - | - | - | - | - | - |
| 3b.4.7 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - |
| 3b.4.8 | ISFSI Operating Costs | - | - | - | - | - | - | 109 | 16 | 126 | - | 126 | - | - | - | - | - | - | - | - | - |
| 3b.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 331 | 50 | 380 | - | - | 380 | - | - | - | - | - | - | - | - |
| 3b.4.10 | Security Staff Cost | - | - | - | - | - | - | 4,245 | 637 | 4,882 | - | 4,882 | - | - | - | - | - | - | - | - | 57,340 |
| 3b.4.11 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | 116,885 |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,813 | 722 | 5,535 | (0) | 1,207 | 4,329 | - | - | - | - | - | - | - | 74,431 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,534 | 4,718 | 37,921 | (0) | 11,997 | 25,924 | - | - | - | - | - | - | - | 248,656 |
| 3b.0 | TOTAL PERIOD 3b COST | - | 21,752 | - | - | - | - | 29,901 | 7,088 | 58,741 | 222 | 14,648 | 43,871 | - | - | - | - | - | - | 101,779 | 250,216 |
| PERIOD 3c - Fuel Storage Operations/Shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 84,962 | 12,744 | 97,707 | - | 97,707 | - | - | - | - | - | - | - | - | - |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 43,116 | - | 43,116 | - | 43,116 | - | - | - | - | - | - | - | - | - |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 128,079 | 12,744 | 140,823 | - | 140,823 | - | - | - | - | - | - | - | - | - |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 8,818 | 882 | 9,700 | - | 9,700 | - | - | - | - | - | - | - | - | - |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 39,829 | 3,983 | 43,812 | - | 43,812 | - | - | - | - | - | - | - | - | - |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 5,648 | 565 | 6,213 | - | 6,213 | - | - | - | - | - | - | - | - | - |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 2,360 | 236 | 2,596 | - | 2,596 | - | - | - | - | - | - | - | - | - |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 5,267 | 790 | 6,057 | - | 6,057 | - | - | - | - | - | - | - | - | - |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,782 | 267 | 2,049 | - | 2,049 | - | - | - | - | - | - | - | - | - |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,991 | 299 | 2,289 | - | 2,289 | - | - | - | - | - | - | - | - | - |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 69,105 | 10,366 | 79,471 | - | 79,471 | - | - | - | - | - | - | - | - | 933,362 |
| 3c.4.10 | Utility Staff Cost | - | - | - | - | - | - | 17,069 | 2,560 | 19,629 | - | 19,629 | - | - | - | - | - | - | - | - | 242,315 |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 151,870 | 19,948 | 171,817 | - | 171,817 | - | - | - | - | - | - | - | - | 1,175,677 |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | - | - | - | 279,948 | 32,692 | 312,640 | - | 312,640 | - | - | - | - | - | - | - | - | 1,175,677 |
| PERIOD 3d - GTCC shipping | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 26 | 4 | 29 | - | 29 | - | - | - | - | - | - | - | - | - |
| 3d.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 48 | - | 48 | - | 48 | - | - | - | - | - | - | - | - | - |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 73 | 4 | 77 | - | 77 | - | - | - | - | - | - | - | - | - |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 10 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 39 | 4 | 43 | 43 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 4 | 0 | 5 | - | 5 | - | - | - | - | - | - | - | - | - |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 3 | 0 | 3 | - | 3 | - | - | - | - | - | - | - | - | - |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 6 | 1 | 7 | 7 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 2 | 0 | 2 | - | 2 | - | - | - | - | - | - | - | - | - |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 2 | 0 | 3 | 3 | - | - | - | - | - | - | - | - | - | - |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 77 | 12 | 88 | 88 | - | - | - | - | - | - | - | - | - | 1,037 |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 19 | 3 | 22 | 22 | - | - | - | - | - | - | - | - | - | 269 |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 162 | 21 | 183 | 173 | 10 | - | - | - | - | - | - | - | - | 1,306 |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | - | 8,689 | 235 | 1,661 | 11,829 | 87 | - | - | - | - | - | 3,746 | 837,596 | - | 1,306 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix G, Page 10 of 20**

**Table G-1
Prairie Island Nuclear Generating Plant, Unit 1
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|------------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|-------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | 15 | 48 | 2 | 214 | - | 2,289 | 867 | 859 | 4,293 | 4,293 | - | - | - | 8,229 | - | - | - | 1,119,503 | 5,267 | 924 | |
| 3e.2 | Subtotal Period 3e Additional Costs | 15 | 48 | 2 | 214 | - | 2,289 | 867 | 859 | 4,293 | 4,293 | - | - | - | 8,229 | - | - | - | 1,119,503 | 5,267 | 924 | |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.2 | Property taxes | - | - | - | - | - | - | 26 | 6 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | 2,500 | |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | 1,896 | |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 476 | 119 | 595 | 595 | - | - | - | - | - | - | - | - | - | 4,396 | |
| 3e.0 | TOTAL PERIOD 3e COST | 15 | 48 | 2 | 214 | - | 2,289 | 1,343 | 978 | 4,888 | 4,888 | - | - | - | 8,229 | - | - | - | 1,119,503 | 5,267 | 5,320 | |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 715 | - | - | - | - | 109 | 124 | 948 | - | - | 948 | - | - | - | - | - | - | - | 3,748 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 715 | - | - | - | - | 109 | 124 | 948 | - | - | 948 | - | - | - | - | - | - | - | 3,748 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.2 | Property taxes | - | - | - | - | - | - | 13 | 1 | 14 | - | - | 14 | - | - | - | - | - | - | - | - | - |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - | |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - | |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - | |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | 1,260 | |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | 782 | |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 190 | 37 | 289 | - | - | 289 | - | - | - | - | - | - | - | 2,042 | |
| 3f.0 | TOTAL PERIOD 3f COST | - | 782 | - | - | - | - | 300 | 162 | 1,243 | - | - | 1,243 | - | - | - | - | - | - | - | 3,748 | 2,202 |
| PERIOD 3 TOTALS | | 15 | 22,582 | 1,333 | 214 | - | 10,978 | 311,727 | 42,580 | 389,429 | 16,940 | 327,375 | 45,114 | - | 8,229 | - | - | 3,746 | 1,957,099 | 110,795 | 1,434,720 | |
| TOTAL COST TO DECOMMISSION | | 8,749 | 81,241 | 30,683 | 7,111 | 11,781 | 50,744 | 742,143 | 149,771 | 1,082,223 | 572,323 | 458,457 | 51,443 | 144,842 | 139,346 | 839 | 673 | 3,746 | 15,860,890 | 743,467 | 4,498,807 | |

| | |
|--|--|
| TOTAL COST TO DECOMMISSION WITH 16.06% CONTINGENCY: | \$1,082,223 thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 52.88% OR: | \$572,323 thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 42.36% OR: | \$458,457 thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 4.75% OR: | \$51,443 thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 140,858 cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 cubic feet |
| TOTAL SCRAP METAL REMOVED: | 32,925 tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 743,467 man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

Prairie Island Nuclear Generating Plant Decommissioning Cost Analysis

Table G-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours.

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0
Appendix G, Page 12 of 20

Table G-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix G, Page 19 of 20**

**Table G-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|-----|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 3b Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 4,813 | 722 | 5,535 | (0) | 1,207 | 4,329 | - | - | - | - | - | - | - | 74,431 | |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | - | 6,670 | - | - | - | - | 26,534 | 4,718 | 37,921 | (0) | 11,997 | 25,924 | - | - | - | - | - | - | - | 248,656 | |
| 3b.0 | TOTAL PERIOD 3b COST | - | 35,017 | - | - | - | - | 30,253 | 9,130 | 74,401 | 90 | 14,648 | 59,663 | - | - | - | - | - | - | 158,659 | 249,323 | |
| PERIOD 3c - Fuel Storage Operations/Shipping | | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 84,962 | 12,744 | 97,707 | - | 97,707 | - | - | - | - | - | - | - | - | - | |
| 3c.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 43,116 | - | 43,116 | - | 43,116 | - | - | - | - | - | - | - | - | - | |
| 3c.3 | Subtotal Period 3c Collateral Costs | - | - | - | - | - | - | 128,079 | 12,744 | 140,823 | - | 140,823 | - | - | - | - | - | - | - | - | - | |
| Period 3c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3c.4.1 | Insurance | - | - | - | - | - | - | 8,818 | 882 | 9,700 | - | 9,700 | - | - | - | - | - | - | - | - | - | |
| 3c.4.2 | Property taxes | - | - | - | - | - | - | 39,829 | 3,983 | 43,812 | - | 43,812 | - | - | - | - | - | - | - | - | - | |
| 3c.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 5,648 | 565 | 6,213 | - | 6,213 | - | - | - | - | - | - | - | - | - | |
| 3c.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 2,360 | 236 | 2,596 | - | 2,596 | - | - | - | - | - | - | - | - | - | |
| 3c.4.6 | Fixed Overhead | - | - | - | - | - | - | 5,267 | 790 | 6,057 | - | 6,057 | - | - | - | - | - | - | - | - | - | |
| 3c.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 1,782 | 267 | 2,049 | - | 2,049 | - | - | - | - | - | - | - | - | - | |
| 3c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,991 | 299 | 2,289 | - | 2,289 | - | - | - | - | - | - | - | - | - | |
| 3c.4.9 | Security Staff Cost | - | - | - | - | - | - | 69,105 | 10,366 | 79,471 | - | 79,471 | - | - | - | - | - | - | - | - | 933,362 | |
| 3c.4.10 | Utility Staff Cost | - | - | - | - | - | - | 17,069 | 2,560 | 19,629 | - | 19,629 | - | - | - | - | - | - | - | - | 242,315 | |
| 3c.4 | Subtotal Period 3c Period-Dependent Costs | - | - | - | - | - | - | 151,870 | 19,948 | 171,817 | - | 171,817 | - | - | - | - | - | - | - | - | 1,175,677 | |
| 3c.0 | TOTAL PERIOD 3c COST | - | - | - | - | - | - | 279,948 | 32,692 | 312,640 | - | 312,640 | - | - | - | - | - | - | - | - | 1,175,677 | |
| PERIOD 3d - GTCC shipping | | | | | | | | | | | | | | | | | | | | | | |
| Period 3d Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | | |
| 3d.1.1.1 | Vessel & Internals GTCC Disposal | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - | |
| 3d.1.1 | Totals | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - | |
| 3d.1 | Subtotal Period 3d Activity Costs | - | - | 1,331 | - | - | - | 8,689 | 1,636 | 11,656 | 11,656 | - | - | - | - | - | - | - | 3,746 | 837,596 | - | |
| Period 3d Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3d.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 26 | 4 | 29 | - | 29 | - | - | - | - | - | - | - | - | - | |
| 3d.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 48 | - | 48 | - | 48 | - | - | - | - | - | - | - | - | - | |
| 3d.3 | Subtotal Period 3d Collateral Costs | - | - | - | - | - | - | 73 | 4 | 77 | - | 77 | - | - | - | - | - | - | - | - | - | |
| Period 3d Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3d.4.1 | Insurance | - | - | - | - | - | - | 10 | 1 | 11 | 11 | - | - | - | - | - | - | - | - | - | - | |
| 3d.4.2 | Property taxes | - | - | - | - | - | - | 39 | 4 | 43 | 43 | - | - | - | - | - | - | - | - | - | - | |
| 3d.4.4 | NRC ISFSI Fees | - | - | - | - | - | - | 4 | 0 | 5 | - | 5 | - | - | - | - | - | - | - | - | - | |
| 3d.4.5 | Emergency Planning Fees | - | - | - | - | - | - | 3 | 0 | 3 | - | 3 | - | - | - | - | - | - | - | - | - | |
| 3d.4.6 | Fixed Overhead | - | - | - | - | - | - | 6 | 1 | 7 | 7 | - | - | - | - | - | - | - | - | - | - | |
| 3d.4.7 | ISFSI Operating Costs | - | - | - | - | - | - | 2 | 0 | 2 | - | 2 | - | - | - | - | - | - | - | - | - | |
| 3d.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 2 | 0 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | |
| 3d.4.9 | Security Staff Cost | - | - | - | - | - | - | 77 | 12 | 88 | 88 | - | - | - | - | - | - | - | - | - | 1,037 | |
| 3d.4.10 | Utility Staff Cost | - | - | - | - | - | - | 19 | 3 | 22 | 22 | - | - | - | - | - | - | - | - | - | 269 | |
| 3d.4 | Subtotal Period 3d Period-Dependent Costs | - | - | - | - | - | - | 162 | 21 | 183 | 173 | 10 | - | - | - | - | - | - | - | - | 1,306 | |
| 3d.0 | TOTAL PERIOD 3d COST | - | - | 1,331 | - | - | - | 8,689 | 235 | 1,661 | 11,916 | 11,829 | 87 | - | - | - | - | - | 3,746 | 837,596 | - | |
| PERIOD 3e - ISFSI Decontamination | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3e Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.2.1 | License Termination ISFSI | 15 | 48 | 2 | 214 | - | - | 2,289 | 867 | 859 | 4,293 | 4,293 | - | - | - | 8,229 | - | - | - | 1,119,503 | 5,267 | 924 |
| 3e.2 | Subtotal Period 3e Additional Costs | 15 | 48 | 2 | 214 | - | - | 2,289 | 867 | 859 | 4,293 | 4,293 | - | - | - | 8,229 | - | - | - | 1,119,503 | 5,267 | 924 |
| Period 3e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.1 | Insurance | - | - | - | - | - | - | 96 | 24 | 121 | 121 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.2 | Property taxes | - | - | - | - | - | - | 26 | 6 | 32 | 32 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.4 | Fixed Overhead | - | - | - | - | - | - | 51 | 13 | 63 | 63 | - | - | - | - | - | - | - | - | - | - | |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix G, Page 20 of 20**

**Table G-2
Prairie Island Nuclear Generating Plant, Unit 2
DECON Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage and Periodic TN-40 Replacement
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|---------------|----------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|------------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|------------------|---------------------------------|-------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 3e Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 3e.4.5 | Railroad Track Maintenance | - | - | - | - | - | - | 19 | 5 | 24 | 24 | - | - | - | - | - | - | - | - | - | - | |
| 3e.4.6 | Security Staff Cost | - | - | - | - | - | - | 154 | 38 | 192 | 192 | - | - | - | - | - | - | - | - | - | 2,500 | |
| 3e.4.7 | Utility Staff Cost | - | - | - | - | - | - | 130 | 33 | 163 | 163 | - | - | - | - | - | - | - | - | - | 1,896 | |
| 3e.4 | Subtotal Period 3e Period-Dependent Costs | - | - | - | - | - | - | 476 | 119 | 595 | 595 | - | - | - | - | - | - | - | - | - | 4,396 | |
| 3e.0 | TOTAL PERIOD 3e COST | 15 | 48 | 2 | 214 | - | 2,289 | 1,343 | 978 | 4,888 | 4,888 | - | - | - | 8,229 | - | - | - | 1,119,503 | 5,267 | 5,320 | |
| PERIOD 3f - ISFSI Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 3f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.2.1 | Demolition and Site Restoration of ISFSI | - | 715 | - | - | - | - | 109 | 124 | 948 | - | - | 948 | - | - | - | - | - | - | - | 3,748 | 160 |
| 3f.2 | Subtotal Period 3f Additional Costs | - | 715 | - | - | - | - | 109 | 124 | 948 | - | - | 948 | - | - | - | - | - | - | - | 3,748 | 160 |
| Period 3f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.3.1 | Small tool allowance | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | - | - | - |
| 3f.3 | Subtotal Period 3f Collateral Costs | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | - | - | - |
| Period 3f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3f.4.2 | Property taxes | - | - | - | - | - | - | 13 | 1 | 14 | - | - | 14 | - | - | - | - | - | - | - | - | - |
| 3f.4.3 | Heavy equipment rental | - | 62 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | - | - | - |
| 3f.4.4 | Plant energy budget | - | - | - | - | - | - | 13 | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | - | - |
| 3f.4.5 | Fixed Overhead | - | - | - | - | - | - | 25 | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | - | - |
| 3f.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 10 | 1 | 11 | - | - | 11 | - | - | - | - | - | - | - | - | - |
| 3f.4.7 | Security Staff Cost | - | - | - | - | - | - | 78 | 12 | 89 | - | - | 89 | - | - | - | - | - | - | - | - | 1,260 |
| 3f.4.8 | Utility Staff Cost | - | - | - | - | - | - | 52 | 8 | 60 | - | - | 60 | - | - | - | - | - | - | - | - | 782 |
| 3f.4 | Subtotal Period 3f Period-Dependent Costs | - | 62 | - | - | - | - | 190 | 37 | 289 | - | - | 289 | - | - | - | - | - | - | - | - | 2,042 |
| 3f.0 | TOTAL PERIOD 3f COST | - | 782 | - | - | - | - | 300 | 162 | 1,243 | - | - | 1,243 | - | - | - | - | - | - | - | 3,748 | 2,202 |
| PERIOD 3 TOTALS | | 15 | 35,847 | 1,333 | 214 | - | 10,978 | 312,079 | 44,623 | 405,089 | 16,808 | 327,375 | 60,906 | - | 8,229 | - | - | 3,746 | 1,957,099 | 167,675 | 1,433,828 | |
| TOTAL COST TO DECOMMISSION | | 13,423 | 104,950 | 31,018 | 7,565 | 13,927 | 53,146 | 707,463 | 153,040 | 1,084,531 | 562,164 | 455,241 | 67,126 | 169,551 | 151,717 | 839 | 673 | 3,746 | 17,656,020 | 1,026,161 | 4,190,673 | |

| | | |
|--|--------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 16.43% CONTINGENCY: | \$1,084,531 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 51.83% OR: | \$562,164 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 41.98% OR: | \$455,241 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 6.19% OR: | \$67,126 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 153,229 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 41,515 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 1,026,161 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix H, Page 1 of 22***

APPENDIX H

DETAILED COST ANALYSIS

SCENARIO 6: SAFSTOR with 32 Year DFS

| | <u>Page</u> |
|---|-------------|
| Prairie Island Nuclear Generating Plant, Unit 1 | H-2 |
| Prairie Island Nuclear Generating Plant, Unit 2 | H-11 |

Prairie Island Nuclear Generating Plant Decommissioning Cost Analysis

Table H-1 Prairie Island Nuclear Generating Plant, Unit 1 SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025 (thousands of 2017 dollars)

Table with 21 columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, and Utility and Contractor Manhours. Rows include Period 1a activities such as site characterization, waste management, and fuel management.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 3 of 22**

**Table H-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 1b - SAFSTOR Limited DECON Activities | | | | | | | | | | | | | | | | | | | | | |
| Period 1b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 1b.1.1.1 | Reactor | 1,135 | - | - | - | - | - | - | 568 | 1,703 | 1,703 | - | - | - | - | - | - | - | - | 17,003 | - |
| 1b.1.1 | Totals | 1,135 | - | - | - | - | - | - | 568 | 1,703 | 1,703 | - | - | - | - | - | - | - | - | 17,003 | - |
| 1b.1 | Subtotal Period 1b Activity Costs | 1,135 | - | - | - | - | - | - | 568 | 1,703 | 1,703 | - | - | - | - | - | - | - | - | 17,003 | - |
| Period 1b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.2.1 | Spent fuel pool isolation | - | - | - | - | - | - | 11,691 | 1,754 | 13,445 | 13,445 | - | - | - | - | - | - | - | - | - | - |
| 1b.2 | Subtotal Period 1b Additional Costs | - | - | - | - | - | - | 11,691 | 1,754 | 13,445 | 13,445 | - | - | - | - | - | - | - | - | - | - |
| Period 1b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.2 | Process decommissioning water waste | 77 | - | 50 | 130 | - | 204 | - | 114 | 575 | 575 | - | - | - | 486 | - | - | - | - | 29,184 | 95 |
| 1b.3.4 | Small tool allowance | - | 19 | - | - | - | - | - | 3 | 22 | 22 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.5 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 315 | - | 315 | - | 315 | - | - | - | - | - | - | - | - | - |
| 1b.3 | Subtotal Period 1b Collateral Costs | 1,050 | 19 | 50 | 130 | - | 204 | 315 | 263 | 2,031 | 1,716 | 315 | - | - | 486 | - | - | - | - | 29,184 | 95 |
| Period 1b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 1b.4.1 | Decon supplies | 415 | - | - | - | - | - | - | 104 | 518 | 518 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.2 | Insurance | - | - | - | - | - | 436 | - | 44 | 480 | 480 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.3 | Property taxes | - | - | - | - | - | 676 | - | 68 | 744 | 744 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.4 | Health physics supplies | - | 212 | - | - | - | - | - | 53 | 264 | 264 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.5 | Heavy equipment rental | - | 143 | - | - | - | - | - | 21 | 164 | 164 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.6 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 43 | 43 | - | - | - | 326 | - | - | - | - | 6,519 | 11 |
| 1b.4.7 | Plant energy budget | - | - | - | - | - | - | 382 | 57 | 439 | 439 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.8 | NRC Fees | - | - | - | - | - | - | - | 161 | 178 | 178 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 404 | 40 | 445 | - | 445 | - | - | - | - | - | - | - | - | - |
| 1b.4.10 | Fixed Overhead | - | - | - | - | - | - | 370 | 56 | 426 | 426 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | 101 | - | 15 | 116 | - | 116 | - | - | - | - | - | - | - | - | - |
| 1b.4.12 | ISFSI Operating Costs | - | - | - | - | - | 13 | - | 2 | 15 | - | 15 | - | - | - | - | - | - | - | - | - |
| 1b.4.13 | Railroad Track Maintenance | - | - | - | - | - | 15 | - | 2 | 17 | 17 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.14 | Security Staff Cost | - | - | - | - | - | 1,863 | - | 279 | 2,142 | 2,142 | - | - | - | - | - | - | - | - | - | 30,932 |
| 1b.4.15 | Utility Staff Cost | - | - | - | - | - | 6,501 | - | 975 | 7,476 | 7,476 | - | - | - | - | - | - | - | - | - | 106,428 |
| 1b.4 | Subtotal Period 1b Period-Dependent Costs | 415 | 355 | 7 | 2 | - | 27 | 10,922 | 1,740 | 13,467 | 12,891 | 576 | - | - | 326 | - | - | - | - | 6,519 | 11 |
| 1b.0 | TOTAL PERIOD 1b COST | 2,600 | 373 | 57 | 132 | - | 230 | 22,929 | 4,324 | 30,645 | 29,754 | 891 | - | - | 812 | - | - | - | - | 35,703 | 17,108 |
| PERIOD 1c - Preparations for SAFSTOR Dormancy | | | | | | | | | | | | | | | | | | | | | |
| Period 1c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 1c.1.1 | Prepare support equipment for storage | - | 486 | - | - | - | - | - | 73 | 559 | 559 | - | - | - | - | - | - | - | - | - | 3,000 |
| 1c.1.2 | Install containment pressure equal. lines | - | 48 | - | - | - | - | - | 7 | 55 | 55 | - | - | - | - | - | - | - | - | - | 700 |
| 1c.1.3 | Interim survey prior to dormancy | - | - | - | - | - | - | 733 | 220 | 953 | 953 | - | - | - | - | - | - | - | - | - | 9,017 |
| 1c.1.4 | Secure building accesses | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1c.1.5 | Prepare & submit interim report | - | - | - | - | - | - | 68 | 10 | 79 | 79 | - | - | - | - | - | - | - | - | - | 583 |
| 1c.1 | Subtotal Period 1c Activity Costs | - | 534 | - | - | - | - | 801 | 310 | 1,646 | 1,646 | - | - | - | - | - | - | - | - | - | 12,717 |
| Period 1c Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 1c.3.1 | Process decommissioning water waste | 88 | - | 58 | 150 | - | 234 | - | 131 | 661 | 661 | - | - | - | 560 | - | - | - | - | 33,579 | 109 |
| 1c.3.3 | Small tool allowance | - | 4 | - | - | - | - | - | 1 | 5 | 5 | - | - | - | - | - | - | - | - | - | - |
| 1c.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 230 | 35 | 265 | - | 265 | - | - | - | - | - | - | - | - | - |
| 1c.3.5 | Retention and Severance | - | - | - | - | - | - | 1,088 | 163 | 1,251 | 1,251 | - | - | - | - | - | - | - | - | - | - |
| 1c.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 315 | - | 315 | - | 315 | - | - | - | - | - | - | - | - | - |
| 1c.3 | Subtotal Period 1c Collateral Costs | 88 | 4 | 58 | 150 | - | 234 | 1,633 | 329 | 2,497 | 1,917 | 580 | - | - | 560 | - | - | - | - | 33,579 | 109 |
| Period 1c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 1c.4.1 | Insurance | - | - | - | - | - | 436 | - | 44 | 480 | 480 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.2 | Property taxes | - | - | - | - | - | 676 | - | 68 | 744 | 744 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.3 | Health physics supplies | - | 191 | - | - | - | - | - | 48 | 239 | 239 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.4 | Heavy equipment rental | - | 143 | - | - | - | - | - | 21 | 164 | 164 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.5 | Disposal of DAW generated | - | - | 3 | 1 | - | 13 | - | 4 | 20 | 20 | - | - | - | 154 | - | - | - | - | 3,073 | 5 |
| 1c.4.6 | Plant energy budget | - | - | - | - | - | 382 | - | 57 | 439 | 439 | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table H-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|--------------|--------------|-----------------|-----------------|---------------------------|---------------------|---------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 1c Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 1c.4.7 | NRC Fees | - | - | - | - | - | - | 161 | 16 | 178 | 178 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.8 | Emergency Planning Fees | - | - | - | - | - | - | 404 | 40 | 445 | - | 445 | - | - | - | - | - | - | - | - | - |
| 1c.4.9 | Fixed Overhead | - | - | - | - | - | - | 370 | 56 | 426 | 426 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.10 | Spent Fuel Pool O&M | - | - | - | - | - | - | 101 | 15 | 116 | - | 116 | - | - | - | - | - | - | - | - | - |
| 1c.4.11 | ISFSI Operating Costs | - | - | - | - | - | - | 13 | 2 | 15 | - | 15 | - | - | - | - | - | - | - | - | - |
| 1c.4.12 | Railroad Track Maintenance | - | - | - | - | - | - | 15 | 2 | 17 | 17 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.13 | Security Staff Cost | - | - | - | - | - | - | 1,863 | 279 | 2,142 | 2,142 | - | - | - | - | - | - | - | - | - | 30,932 |
| 1c.4.14 | Utility Staff Cost | - | - | - | - | - | - | 6,501 | 975 | 7,476 | 7,476 | - | - | - | - | - | - | - | - | - | 106,428 |
| 1c.4 | Subtotal Period 1c Period-Dependent Costs | - | 334 | 3 | 1 | - | 13 | 10,922 | 1,627 | 12,900 | 12,324 | 576 | - | - | 154 | - | - | - | 3,073 | 5 | 137,360 |
| 1c.0 | TOTAL PERIOD 1c COST | 88 | 873 | 61 | 151 | - | 247 | 13,356 | 2,267 | 17,043 | 15,887 | 1,156 | - | - | 713 | - | - | - | 36,652 | 12,832 | 137,943 |
| PERIOD 1 TOTALS | | 2,688 | 2,329 | 132 | 287 | - | 527 | 87,872 | 13,986 | 107,820 | 101,484 | 6,336 | - | - | 2,135 | - | - | - | 84,545 | 29,960 | 864,653 |
| PERIOD 2a - SAFSTOR Dormancy with Wet Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2a.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2a.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2a.1.3 | Prepare reports | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2a.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 68 | 10 | 78 | - | - | - | - | - | - | - | - | - | - | - |
| 2a.1.5 | Maintenance supplies | - | - | - | - | - | - | 643 | 161 | 804 | 804 | - | - | - | - | - | - | - | - | - | - |
| 2a.1 | Subtotal Period 2a Activity Costs | - | - | - | - | - | - | 711 | 171 | 882 | 882 | - | - | - | - | - | - | - | - | - | - |
| Period 2a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| 2a.2 | Subtotal Period 2a Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| Period 2a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 65,860 | 9,879 | 75,739 | - | 75,739 | - | - | - | - | - | - | - | - | - |
| 2a.3.2 | Retention and Severance | - | - | - | - | - | - | 23,628 | 3,544 | 27,172 | 27,172 | - | - | - | - | - | - | - | - | - | - |
| 2a.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 5,897 | - | 5,897 | - | 5,897 | - | - | - | - | - | - | - | - | - |
| 2a.3 | Subtotal Period 2a Collateral Costs | - | - | - | - | - | - | 95,385 | 13,423 | 108,808 | 27,172 | 81,636 | - | - | - | - | - | - | - | - | - |
| Period 2a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.4.1 | Insurance | - | - | - | - | - | - | 2,412 | 241 | 2,653 | 2,653 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.2 | Property taxes | - | - | - | - | - | - | 12,654 | 1,265 | 13,919 | 13,919 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.3 | Health physics supplies | - | 898 | - | - | - | - | - | 224 | 1,122 | 1,122 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.4 | Disposal of DAW generated | - | - | 21 | 6 | - | 79 | - | 23 | 129 | 129 | - | - | - | 972 | - | - | - | 19,431 | 32 | - |
| 2a.4.5 | Plant energy budget | - | - | - | - | - | - | 1,430 | 214 | 1,644 | 1,644 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.6 | NRC Fees | - | - | - | - | - | - | 1,211 | 121 | 1,332 | 1,332 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 6,061 | 606 | 6,667 | - | 6,667 | - | - | - | - | - | - | - | - | - |
| 2a.4.8 | Fixed Overhead | - | - | - | - | - | - | 6,938 | 1,041 | 7,979 | 7,979 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.9 | Spent Fuel Pool O&M | - | - | - | - | - | - | 1,894 | 284 | 2,178 | - | 2,178 | - | - | - | - | - | - | - | - | - |
| 2a.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 244 | 37 | 280 | - | 280 | - | - | - | - | - | - | - | - | - |
| 2a.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 481 | 72 | 553 | 553 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.12 | Security Staff Cost | - | - | - | - | - | - | 32,791 | 4,919 | 37,709 | 26,849 | 10,860 | - | - | - | - | - | - | - | - | 542,920 |
| 2a.4.13 | Utility Staff Cost | - | - | - | - | - | - | 11,657 | 1,748 | 13,405 | 9,531 | 3,874 | - | - | - | - | - | - | - | - | 190,075 |
| 2a.4 | Subtotal Period 2a Period-Dependent Costs | - | 898 | 21 | 6 | - | 79 | 77,772 | 10,796 | 89,573 | 65,713 | 23,860 | - | - | 972 | - | - | - | 19,431 | 32 | 732,995 |
| 2a.0 | TOTAL PERIOD 2a COST | - | 898 | 21 | 6 | - | 79 | 178,216 | 25,043 | 204,263 | 98,767 | 105,496 | - | - | 972 | - | - | - | 19,431 | 32 | 732,995 |
| PERIOD 2b - SAFSTOR Dormancy with Dry Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2b.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2b.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2b.1.3 | Prepare reports | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2b.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 362 | 54 | 416 | 416 | - | - | - | - | - | - | - | - | - | - |
| 2b.1.5 | Maintenance supplies | - | - | - | - | - | - | 3,433 | 858 | 4,291 | 4,291 | - | - | - | - | - | - | - | - | - | - |
| 2b.1 | Subtotal Period 2b Activity Costs | - | - | - | - | - | - | 3,795 | 913 | 4,707 | 4,707 | - | - | - | - | - | - | - | - | - | - |
| Period 2b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 20,705 | 3,106 | 23,811 | - | 23,811 | - | - | - | - | - | - | - | - | - |
| 2b.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 31,469 | - | 31,469 | - | 31,469 | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | - | - | - | - | - | - | 52,174 | 3,106 | 55,280 | - | 55,280 | - | - | - | - | - | - | - | - | - |

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0
Appendix H, Page 5 of 22

Table H-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Insurance | - | - | - | - | - | - | 12,873 | 1,287 | 14,160 | 14,160 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Property taxes | - | - | - | - | - | - | 65,863 | 6,586 | 72,449 | 72,449 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Health physics supplies | - | 2,403 | - | - | - | - | - | 601 | 3,003 | 3,003 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Disposal of DAW generated | - | - | 57 | 17 | - | 212 | - | 61 | 346 | 346 | - | - | - | 2,602 | - | - | - | 52,049 | 85 | - |
| 2b.4.5 | Plant energy budget | - | - | - | - | - | - | 3,816 | 572 | 4,388 | 4,388 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | NRC Fees | - | - | - | - | - | - | 6,141 | 614 | 6,756 | 6,756 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 1,723 | 172 | 1,895 | - | 1,895 | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | Fixed Overhead | - | - | - | - | - | - | 3,844 | 577 | 4,421 | 4,421 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 1,301 | 195 | 1,496 | - | 1,496 | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 1,453 | 218 | 1,671 | 1,671 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Security Staff Cost | - | - | - | - | - | - | 63,533 | 9,530 | 73,063 | 15,051 | 58,012 | - | - | - | - | - | - | - | - | 943,283 |
| 2b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 32,977 | 4,946 | 37,923 | 23,588 | 14,335 | - | - | - | - | - | - | - | - | 524,046 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | - | 2,403 | 57 | 17 | - | 212 | 193,523 | 25,360 | 221,571 | 145,834 | 75,737 | - | - | 2,602 | - | - | - | 52,049 | 85 | 1,467,329 |
| 2b.0 | TOTAL PERIOD 2b COST | - | 2,403 | 57 | 17 | - | 212 | 249,492 | 29,379 | 281,559 | 150,541 | 131,017 | - | - | 2,602 | - | - | - | 52,049 | 85 | 1,467,329 |
| PERIOD 2c - SAFSTOR Dormancy without Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2c.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2c.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2c.1.3 | Prepare reports | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2c.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 325 | 49 | 374 | 374 | - | - | - | - | - | - | - | - | - | - |
| 2c.1.5 | Maintenance supplies | - | - | - | - | - | - | 3,085 | 771 | 3,857 | 3,857 | - | - | - | - | - | - | - | - | - | - |
| 2c.1 | Subtotal Period 2c Activity Costs | - | - | - | - | - | - | 3,410 | 820 | 4,230 | 4,230 | - | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 11,351 | 1,135 | 12,487 | 12,487 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 49,013 | 4,901 | 53,914 | 53,914 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 2,136 | - | - | - | - | - | 534 | 2,670 | 2,670 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 50 | 15 | - | 188 | - | 54 | 307 | 307 | - | - | - | 2,305 | - | - | - | 46,092 | 75 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 3,429 | 514 | 3,944 | 3,944 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 5,036 | 504 | 5,539 | 5,539 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Fixed Overhead | - | - | - | - | - | - | 3,454 | 518 | 3,973 | 3,973 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,306 | 196 | 1,502 | 1,502 | - | - | - | - | - | - | - | - | - | - |
| 2c.4.9 | Security Staff Cost | - | - | - | - | - | - | 48,790 | 7,318 | 56,108 | 56,108 | - | - | - | - | - | - | - | - | - | 706,402 |
| 2c.4.10 | Utility Staff Cost | - | - | - | - | - | - | 25,156 | 3,773 | 28,930 | 28,930 | - | - | - | - | - | - | - | - | - | 412,068 |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 2,136 | 50 | 15 | - | 188 | 147,535 | 19,448 | 169,372 | 169,372 | - | - | - | 2,305 | - | - | - | 46,092 | 75 | 1,118,470 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 2,136 | 50 | 15 | - | 188 | 150,946 | 20,268 | 173,602 | 173,602 | - | - | - | 2,305 | - | - | - | 46,092 | 75 | 1,118,470 |
| PERIOD 2 TOTALS | | - | 5,436 | 128 | 37 | - | 479 | 578,654 | 74,690 | 659,424 | 422,910 | 236,514 | - | - | 5,879 | - | - | - | 117,573 | 192 | 3,318,794 |
| PERIOD 3a - Reactivate Site Following SAFSTOR Dormancy | | | | | | | | | | | | | | | | | | | | | |
| Period 3a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.1 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | 1,300 |
| 3a.1.2 | Review plant dwgs & specs. | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |
| 3a.1.3 | Perform detailed rad survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 3a.1.4 | End product description | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 3a.1.5 | Detailed by-product inventory | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | 1,300 |
| 3a.1.6 | Define major work sequence | - | - | - | - | - | - | 880 | 132 | 1,012 | 1,012 | - | - | - | - | - | - | - | - | - | 7,500 |
| 3a.1.7 | Perform SER and EA | - | - | - | - | - | - | 364 | 55 | 418 | 418 | - | - | - | - | - | - | - | - | - | 3,100 |
| 3a.1.8 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 587 | 88 | 675 | 675 | - | - | - | - | - | - | - | - | - | 5,000 |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.9.1 | Re-activate plant & temporary facilities | - | - | - | - | - | - | 865 | 130 | 995 | 895 | - | 99 | - | - | - | - | - | - | - | 7,370 |
| 3a.1.9.2 | Plant systems | - | - | - | - | - | - | 489 | 73 | 562 | 506 | - | 56 | - | - | - | - | - | - | - | 4,167 |
| 3a.1.9.3 | Reactor internals | - | - | - | - | - | - | 833 | 125 | 958 | 958 | - | - | - | - | - | - | - | - | - | 7,100 |
| 3a.1.9.4 | Reactor vessel | - | - | - | - | - | - | 763 | 114 | 877 | 877 | - | - | - | - | - | - | - | - | - | 6,500 |
| 3a.1.9.5 | Biological shield | - | - | - | - | - | - | 59 | 9 | 67 | 67 | - | - | - | - | - | - | - | - | - | 500 |
| 3a.1.9.6 | Steam generators | - | - | - | - | - | - | 366 | 55 | 421 | 421 | - | - | - | - | - | - | - | - | - | 3,120 |
| 3a.1.9.7 | Reinforced concrete | - | - | - | - | - | - | 188 | 28 | 216 | 108 | - | 108 | - | - | - | - | - | - | - | 1,600 |
| 3a.1.9.8 | Main Turbine | - | - | - | - | - | - | 47 | 7 | 54 | - | - | 54 | - | - | - | - | - | - | - | 400 |
| 3a.1.9.9 | Main Condensers | - | - | - | - | - | - | 47 | 7 | 54 | - | - | 54 | - | - | - | - | - | - | - | 400 |
| 3a.1.9.10 | Plant structures & buildings | - | - | - | - | - | - | 366 | 55 | 421 | 211 | - | 211 | - | - | - | - | - | - | - | 3,120 |
| 3a.1.9.11 | Waste management | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 6 of 22**

**Table H-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Activity Specifications (continued) | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.9.12 | Facility & site closeout | - | - | - | - | - | - | 106 | 16 | 121 | 61 | - | 61 | - | - | - | - | - | - | - | 900 |
| 3a.1.9 | Total | - | - | - | - | - | - | 4,669 | 700 | 5,369 | 4,726 | - | 643 | - | - | - | - | - | - | - | 39,777 |
| Planning & Site Preparations | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.10 | Prepare dismantling sequence | - | - | - | - | - | - | 282 | 42 | 324 | 324 | - | - | - | - | - | - | - | - | - | 2,400 |
| 3a.1.11 | Plant prep. & temp. svces | - | - | - | - | - | - | 3,300 | 495 | 3,795 | 3,795 | - | - | - | - | - | - | - | - | - | - |
| 3a.1.12 | Design water clean-up system | - | - | - | - | - | - | 164 | 25 | 189 | 189 | - | - | - | - | - | - | - | - | - | 1,400 |
| 3a.1.13 | Rigging/Cont. Cntrl Envlp/tooling/etc. | - | - | - | - | - | - | 2,300 | 345 | 2,645 | 2,645 | - | - | - | - | - | - | - | - | - | - |
| 3a.1.14 | Procure casks/liners & containers | - | - | - | - | - | - | 144 | 22 | 166 | 166 | - | - | - | - | - | - | - | - | - | 1,230 |
| 3a.1 | Subtotal Period 3a Activity Costs | - | - | - | - | - | - | 13,653 | 2,048 | 15,701 | 15,058 | - | 643 | - | - | - | - | - | - | - | 68,607 |
| Period 3a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.2.1 | Site Characterization | - | - | - | - | - | - | 3,700 | 1,110 | 4,810 | 4,810 | - | - | - | - | - | - | - | - | - | 21,020 |
| 3a.2.2 | Mixed/Hazardous Waste | - | - | 318 | 75 | 164 | - | - | 68 | 624 | 624 | - | - | 6,133 | - | - | - | - | - | 351,986 | 2,361 |
| 3a.2.3 | Asbestos Abatement | - | 2,364 | 2 | 110 | - | 1,359 | - | 947 | 4,782 | 4,782 | - | - | - | 12,843 | - | - | - | - | 166,959 | 20,907 |
| 3a.2 | Subtotal Period 3a Additional Costs | - | 2,364 | 320 | 185 | 164 | 1,359 | 3,700 | 2,125 | 10,216 | 10,216 | - | - | 6,133 | 12,843 | - | - | - | - | 518,945 | 44,288 |
| Period 3a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.3.1 | Small tool allowance | - | 32 | - | - | - | - | - | 5 | 37 | 37 | - | - | - | - | - | - | - | - | - | - |
| 3a.3 | Subtotal Period 3a Collateral Costs | - | 32 | - | - | - | - | - | 5 | 37 | 37 | - | - | - | - | - | - | - | - | - | - |
| Period 3a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.4.1 | Insurance | - | - | - | - | - | - | 501 | 50 | 552 | 552 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.2 | Property taxes | - | - | - | - | - | - | 1,737 | 174 | 1,910 | 1,910 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.3 | Health physics supplies | - | 562 | - | - | - | - | - | 140 | 702 | 702 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.5 | Disposal of DAW generated | - | - | 11 | 3 | - | 42 | - | 12 | 68 | 68 | - | - | - | 514 | - | - | - | - | 10,287 | 17 |
| 3a.4.6 | Plant energy budget | - | - | - | - | - | - | 1,515 | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.7 | NRC Fees | - | - | - | - | - | - | 341 | 34 | 376 | 376 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.8 | Fixed Overhead | - | - | - | - | - | - | 1,470 | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 58 | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.10 | Security Staff Cost | - | - | - | - | - | - | 3,843 | 576 | 4,419 | 4,419 | - | - | - | - | - | - | - | - | - | 65,000 |
| 3a.4.11 | Utility Staff Cost | - | - | - | - | - | - | 15,819 | 2,373 | 18,191 | 18,191 | - | - | - | - | - | - | - | - | - | 257,920 |
| 3a.4 | Subtotal Period 3a Period-Dependent Costs | - | 1,129 | 11 | 3 | - | 42 | 25,283 | 3,901 | 30,369 | 30,369 | - | - | - | 514 | - | - | - | - | 10,287 | 17 |
| 3a.0 | TOTAL PERIOD 3a COST | - | 3,524 | 331 | 188 | 164 | 1,401 | 42,636 | 8,079 | 56,322 | 55,679 | - | 643 | 6,133 | 13,357 | - | - | - | - | 529,232 | 44,305 |
| PERIOD 3b - Decommissioning Preparations | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Plant systems | - | - | - | - | - | - | 556 | 83 | 639 | 575 | - | 64 | - | - | - | - | - | - | - | 4,733 |
| 3b.1.1.2 | Reactor internals | - | - | - | - | - | - | 293 | 44 | 337 | 337 | - | - | - | - | - | - | - | - | - | 2,500 |
| 3b.1.1.3 | Remaining buildings | - | - | - | - | - | - | 158 | 24 | 182 | 46 | - | 137 | - | - | - | - | - | - | - | 1,350 |
| 3b.1.1.4 | CRD cooling assembly | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 3b.1.1.5 | CRD housings & ICI tubes | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 3b.1.1.6 | Incore instrumentation | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 3b.1.1.7 | Reactor vessel | - | - | - | - | - | - | 426 | 64 | 490 | 490 | - | - | - | - | - | - | - | - | - | 3,630 |
| 3b.1.1.8 | Facility closeout | - | - | - | - | - | - | 141 | 21 | 162 | 81 | - | 81 | - | - | - | - | - | - | - | 1,200 |
| 3b.1.1.9 | Missile shields | - | - | - | - | - | - | 53 | 8 | 61 | 61 | - | - | - | - | - | - | - | - | - | 450 |
| 3b.1.1.10 | Biological shield | - | - | - | - | - | - | 141 | 21 | 162 | 162 | - | - | - | - | - | - | - | - | - | 1,200 |
| 3b.1.1.11 | Steam generators | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |
| 3b.1.1.12 | Reinforced concrete | - | - | - | - | - | - | 117 | 18 | 135 | 67 | - | 67 | - | - | - | - | - | - | - | 1,000 |
| 3b.1.1.13 | Main Turbine | - | - | - | - | - | - | 183 | 27 | 211 | - | - | 211 | - | - | - | - | - | - | - | 1,560 |
| 3b.1.1.14 | Main Condensers | - | - | - | - | - | - | 183 | 27 | 211 | - | - | 211 | - | - | - | - | - | - | - | 1,560 |
| 3b.1.1.15 | Auxiliary building | - | - | - | - | - | - | 320 | 48 | 369 | 332 | - | 37 | - | - | - | - | - | - | - | 2,730 |
| 3b.1.1.16 | Reactor building | - | - | - | - | - | - | 320 | 48 | 369 | 332 | - | 37 | - | - | - | - | - | - | - | 2,730 |
| 3b.1.1 | Total | - | - | - | - | - | - | 3,785 | 568 | 4,352 | 3,508 | - | 844 | - | - | - | - | - | - | - | 32,243 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | - | - | - | - | - | 3,785 | 568 | 4,352 | 3,508 | - | 844 | - | - | - | - | - | - | - | 32,243 |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - |
| 3b.3.2 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 3b.3.3 | Pipe cutting equipment | - | 1,200 | - | - | - | - | - | 180 | 1,380 | 1,380 | - | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | 973 | 1,200 | - | - | - | - | 1,189 | 504 | 3,866 | 3,866 | - | - | - | - | - | - | - | - | - | - |

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Table H-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)

Table with 22 columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC Cu. Feet), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours. Rows include Period-Dependent Costs (3b.4.1-3b.4.13), TOTAL PERIOD 3b COST, PERIOD 3 TOTALS, PERIOD 4a - Large Component Removal, Direct Decommissioning Activities (Nuclear Steam Supply System Removal, Removal of Major Equipment, Cascading Costs, Disposal of Plant Systems).

Prairie Island Nuclear Generating Plant Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0 Appendix H, Page 8 of 22

Table H-1 Prairie Island Nuclear Generating Plant, Unit 1 SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025 (thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, and Utility and Contractor Manhours. Rows include various deconstruction activities and cost summaries for Period 4a.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table H-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site | LLRW | Other Costs | Total Contingency | Total Costs | NRC | Spent Fuel | Site | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/ Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---------------------------------------|---|------------|--------------|-----------------|-----------------|------------------|----------------|-------------|-------------------|-------------|------------------|------------------|-------------------|---------------------------|------------------|------------------|------------------|---------------|-----------------------------|----------------|---------------------------------|---|
| | | | | | | Processing Costs | Disposal Costs | | | | Lic. Term. Costs | Management Costs | Restoration Costs | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Disposal of Plant Systems (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.2.26 | Incore Instrumentation | - | 24 | 1 | 1 | 5 | 16 | - | 11 | 59 | 59 | - | - | 60 | 57 | - | - | - | 6,177 | 382 | - | |
| 4b.1.2.27 | Misc Drains & Vents | - | 203 | 14 | 10 | 34 | 146 | - | 95 | 503 | 503 | - | - | 390 | 514 | - | - | - | 49,900 | 2,764 | - | |
| 4b.1.2.28 | Reactor Coolant | - | 271 | 21 | 14 | 30 | 221 | - | 132 | 689 | 689 | - | - | 344 | 777 | - | - | - | 65,413 | 3,865 | - | |
| 4b.1.2.29 | Reactor Hot Sampling | - | 120 | 11 | 6 | 6 | 98 | - | 57 | 297 | 297 | - | - | 66 | 342 | - | - | - | 25,347 | 1,611 | - | |
| 4b.1.2.30 | Reactor Makeup | - | 64 | - | - | - | - | - | 10 | 73 | - | - | 73 | - | - | - | - | - | - | - | 1,042 | - |
| 4b.1.2.31 | Reactor Vessel | - | 18 | 1 | 0 | 2 | 4 | - | 6 | 31 | 31 | - | - | 26 | 14 | - | - | - | 2,011 | 260 | - | |
| 4b.1.2.32 | Residual Heat Removal | - | 360 | 85 | 66 | 250 | 926 | - | 377 | 2,065 | 2,065 | - | - | 2,895 | 3,252 | - | - | - | 332,849 | 5,374 | - | |
| 4b.1.2.33 | Safeguards Chilled Water | - | 15 | - | - | - | - | - | 2 | 18 | - | - | 18 | - | - | - | - | - | - | 259 | - | |
| 4b.1.2.34 | Safeguards Chilled Water - RCA | - | 82 | 1 | 3 | 43 | - | - | 27 | 155 | 155 | - | - | 495 | - | - | - | - | 20,100 | 1,019 | - | |
| 4b.1.2.35 | Safety Injection | - | 774 | 40 | 57 | 587 | 327 | - | 376 | 2,161 | 2,161 | - | - | 6,788 | 1,156 | - | - | - | 351,793 | 11,276 | - | |
| 4b.1.2.36 | Sampling | - | 53 | 4 | 2 | 5 | 31 | - | 22 | 116 | 116 | - | - | 59 | 107 | - | - | - | 9,505 | 731 | - | |
| 4b.1.2.37 | Shield Bldg Ventilation | - | 120 | 14 | 20 | 186 | 139 | - | 97 | 576 | 576 | - | - | 2,152 | 491 | - | - | - | 119,838 | 1,811 | - | |
| 4b.1.2.38 | Spent Fuel Pool Cooling | - | 311 | 34 | 25 | 70 | 377 | - | 190 | 1,006 | 1,006 | - | - | 806 | 1,325 | - | - | - | 120,439 | 4,400 | - | |
| 4b.1.2.39 | Station & Instrument Air | - | 17 | - | - | - | - | - | 3 | 20 | - | - | 20 | - | - | - | - | - | - | 300 | - | |
| 4b.1.2.40 | Station & Instrument Air - RCA | - | 79 | 1 | 2 | 29 | - | - | 24 | 135 | 135 | - | - | 332 | - | - | - | - | 13,496 | 1,053 | - | |
| 4b.1.2.41 | Station & Instrument Air - RCA Fuel Pool | - | 20 | 0 | 0 | 7 | - | - | 6 | 34 | 34 | - | - | 83 | - | - | - | - | 3,374 | 263 | - | |
| 4b.1.2.42 | Turbine Bldg Traps & Drains | - | 44 | - | - | - | - | - | 7 | 50 | - | - | 50 | - | - | - | - | - | - | 767 | - | |
| 4b.1.2.43 | Unit Coolers | - | 37 | - | - | - | - | - | 6 | 42 | - | - | 42 | - | - | - | - | - | - | 611 | - | |
| 4b.1.2.44 | Unit Coolers - RCA | - | 53 | 0 | 1 | 20 | - | - | 16 | 91 | 91 | - | - | 230 | - | - | - | - | 9,348 | 683 | - | |
| 4b.1.2 | Totals | - | 13,970 | 453 | 689 | 7,514 | 3,443 | - | 5,394 | 31,463 | 28,759 | - | 2,704 | 86,861 | 12,129 | - | - | - | 4,328,159 | 198,796 | - | |
| 4b.1.3 | Scaffolding in support of decommissioning | - | 1,250 | 5 | 2 | 20 | 5 | - | 317 | 1,599 | 1,599 | - | - | 207 | 18 | - | - | - | 10,524 | 9,030 | - | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.4.1 | Reactor | 1,037 | 2,360 | 118 | 833 | 193 | 6,372 | - | 2,868 | 13,781 | 13,781 | - | - | 2,230 | 36,899 | - | - | - | 3,286,398 | 45,584 | - | |
| 4b.1.4.2 | Backwash Waste Receiving Tank | - | 24 | 1 | 11 | - | 87 | - | 30 | 154 | 154 | - | - | 507 | - | - | - | - | 43,896 | 264 | - | |
| 4b.1.4 | Totals | 1,037 | 2,385 | 119 | 845 | 193 | 6,460 | - | 2,897 | 13,936 | 13,936 | - | - | 2,230 | 37,406 | - | - | - | 3,330,294 | 45,848 | - | |
| 4b.1.5 | Prepare/submit License Termination Plan | - | - | - | - | - | - | 481 | 72 | 553 | 553 | - | - | - | - | - | - | - | - | - | 4,096 | |
| 4b.1.6 | Receive NRC approval of termination plan | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - | |
| 4b.1 | Subtotal Period 4b Activity Costs | 1,334 | 17,637 | 671 | 1,567 | 7,726 | 10,503 | 481 | 9,000 | 48,919 | 46,215 | - | 2,704 | 89,298 | 51,645 | - | - | - | 7,807,274 | 254,251 | 4,096 | |
| Period 4b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4b.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 | |
| 4b.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 2,832 | 849 | 3,681 | 3,681 | - | - | - | - | - | - | - | - | 37,017 | - | |
| 4b.2.3 | Excavation of Underground Services | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | 7,407 | - | |
| 4b.2.4 | Operational Equipment | - | - | 9 | 29 | 312 | - | - | 52 | 402 | 402 | - | - | 5,855 | - | - | - | - | 146,375 | 16 | - | |
| 4b.2.5 | License Termination ISFSI | - | 37 | 2 | 211 | - | 2,157 | 1,158 | 891 | 4,456 | 4,456 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,403 | 5,284 | |
| 4b.2.6 | Demolition and Site Restoration ISFSI | - | 399 | - | - | - | 87 | - | 73 | 558 | - | - | 558 | - | - | - | - | - | - | 1,900 | 160 | |
| 4b.2 | Subtotal Period 4b Additional Costs | - | 1,246 | 11 | 240 | 312 | 2,157 | 5,441 | 2,319 | 11,726 | 9,637 | - | 2,089 | 5,855 | 7,458 | - | - | - | 1,218,360 | 49,742 | 11,684 | |
| Period 4b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4b.3.1 | Process decommissioning water waste | 5 | - | 9 | 23 | - | 36 | - | 16 | 88 | 88 | - | - | - | 85 | - | - | - | 5,091 | 17 | - | |
| 4b.3.3 | Small tool allowance | - | 288 | - | - | - | - | - | 43 | 331 | 331 | - | - | - | - | - | - | - | - | - | - | |
| 4b.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - | |
| 4b.3 | Subtotal Period 4b Collateral Costs | 5 | 288 | 152 | 78 | 575 | 186 | - | 205 | 1,489 | 1,489 | - | - | 6,000 | 614 | - | - | - | 310,059 | 105 | - | |
| Period 4b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4b.4.1 | Decon supplies | 521 | - | - | - | - | - | - | 130 | 651 | 651 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.2 | Insurance | - | - | - | - | - | - | 910 | 91 | 1,001 | 1,001 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.3 | Property taxes | - | - | - | - | - | - | 2,625 | 262 | 2,887 | 2,887 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.4 | Health physics supplies | - | 2,245 | - | - | - | - | - | 561 | 2,806 | 2,806 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.5 | Heavy equipment rental | - | 4,021 | - | - | - | - | - | 603 | 4,624 | 4,624 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.6 | Disposal of DAW generated | - | - | 85 | 25 | - | 318 | - | 92 | 520 | 520 | - | - | 3,905 | - | - | - | - | 78,097 | 127 | - | |
| 4b.4.7 | Plant energy budget | - | - | - | - | - | - | 2,023 | 303 | 2,326 | 2,326 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.8 | NRC Fees | - | - | - | - | - | - | 992 | 99 | 1,092 | 1,092 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.9 | Fixed Overhead | - | - | - | - | - | - | 2,205 | 331 | 2,535 | 2,535 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.10 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 721 | 108 | 829 | 829 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 103 | 15 | 118 | 118 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.12 | Security Staff Cost | - | - | - | - | - | - | 1,017 | 153 | 1,170 | 1,170 | - | - | - | - | - | - | - | - | - | 20,373 | |
| 4b.4.13 | DOC Staff Cost | - | - | - | - | - | - | 14,220 | 2,133 | 16,353 | 16,353 | - | - | - | - | - | - | - | - | - | 174,093 | |
| 4b.4.14 | Utility Staff Cost | - | - | - | - | - | - | 18,286 | 2,743 | 21,029 | 21,029 | - | - | - | - | - | - | - | - | - | 311,145 | |
| 4b.4 | Subtotal Period 4b Period-Dependent Costs | 521 | 6,266 | 85 | 25 | - | 318 | 43,101 | 7,625 | 57,941 | 57,941 | - | - | - | 3,905 | - | - | - | 78,097 | 127 | 505,611 | |
| 4b.0 | TOTAL PERIOD 4b COST | 1,860 | 25,436 | 919 | 1,910 | 8,613 | 13,164 | 49,023 | 19,149 | 120,075 | 115,282 | - | 4,793 | 101,153 | 63,622 | - | - | - | 9,413,790 | 304,226 | 521,391 | |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 10 of 22**

**Table H-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 4e - Delay before License Termination | | | | | | | | | | | | | | | | | | | | | | |
| Period 4e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4e.4.1 | Insurance | - | - | - | - | - | - | 381 | 38 | 419 | 419 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.2 | Property taxes | - | - | - | - | - | - | 1,046 | 105 | 1,150 | 1,150 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.3 | Health physics supplies | - | 69 | - | - | - | - | - | 17 | 87 | 87 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.4 | Disposal of DAW generated | - | - | 2 | 0 | - | 6 | - | 2 | 10 | 10 | - | - | - | 74 | - | - | - | - | 1,486 | 2 | |
| 4e.4.6 | NRC Fees | - | - | - | - | - | - | 166 | 17 | 182 | 182 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.7 | Fixed Overhead | - | - | - | - | - | - | 923 | 138 | 1,061 | 1,061 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 49 | 49 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.9 | Utility Staff Cost | - | - | - | - | - | - | 662 | 99 | 761 | 761 | - | - | - | - | - | - | - | - | - | 10,850 | |
| 4e.4 | Subtotal Period 4e Period-Dependent Costs | - | 69 | 2 | 0 | - | 6 | 3,220 | 422 | 3,720 | 3,720 | - | - | - | 74 | - | - | - | - | 1,486 | 2 | 10,850 |
| 4e.0 | TOTAL PERIOD 4e COST | - | 69 | 2 | 0 | - | 6 | 3,220 | 422 | 3,720 | 3,720 | - | - | - | 74 | - | - | - | - | 1,486 | 2 | 10,850 |
| PERIOD 4f - License Termination | | | | | | | | | | | | | | | | | | | | | | |
| Period 4f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 4f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - | |
| 4f.1.2 | Terminate license | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 4f.1 | Subtotal Period 4f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - | |
| Period 4f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4f.2.1 | License Termination Survey | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| 4f.2 | Subtotal Period 4f Additional Costs | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| Period 4f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.3 | Subtotal Period 4f Collateral Costs | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - | - |
| Period 4f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.2 | Property taxes | - | - | - | - | - | - | 1,002 | 100 | 1,102 | 1,102 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.3 | Health physics supplies | - | 418 | - | - | - | - | - | 105 | 523 | 523 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 332 | - | - | - | - | 6,649 | 11 | |
| 4f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.6 | NRC Fees | - | - | - | - | - | - | 417 | 42 | 459 | 459 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.7 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | 50 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.9 | Security Staff Cost | - | - | - | - | - | - | 707 | 106 | 813 | 813 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.10 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.11 | Utility Staff Cost | - | - | - | - | - | - | 3,630 | 544 | 4,174 | 4,174 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4 | Subtotal Period 4f Period-Dependent Costs | - | 418 | 7 | 2 | - | 27 | 11,435 | 1,738 | 13,627 | 13,627 | - | - | - | 332 | - | - | - | - | 6,649 | 11 | 114,346 |
| 4f.0 | TOTAL PERIOD 4f COST | - | 418 | 7 | 2 | - | 27 | 16,016 | 2,934 | 19,405 | 19,405 | - | - | - | 332 | - | - | - | - | 6,649 | 40,183 | 117,466 |
| PERIOD 4 TOTALS | | 2,153 | 51,095 | 27,089 | 5,168 | 11,876 | 38,916 | 114,068 | 56,146 | 306,510 | 299,549 | - | 6,960 | 141,399 | 94,078 | 125 | 742 | 3,746 | 14,382,660 | 529,866 | 1,188,072 | |
| PERIOD 5b - Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 5b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 5b.1.1.1 | Reactor | - | 4,255 | - | - | - | - | - | 638 | 4,894 | - | - | 4,894 | - | - | - | - | - | - | - | 44,669 | - |
| 5b.1.1.2 | Condensate Storage Tank Foundation | - | 3 | - | - | - | - | - | 0 | 4 | - | - | 4 | - | - | - | - | - | - | - | 16 | - |
| 5b.1.1.3 | Structures below 3' below grade | - | 1,713 | - | - | - | - | - | 257 | 1,969 | - | - | 1,969 | - | - | - | - | - | - | - | 9,238 | - |
| 5b.1.1.4 | Turbine | - | 1,983 | - | - | - | - | - | 297 | 2,280 | - | - | 2,280 | - | - | - | - | - | - | - | 22,040 | - |
| 5b.1.1.5 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | - | 1,857 | - |
| 5b.1.1 | Totals | - | 8,303 | - | - | - | - | - | 1,245 | 9,548 | - | - | 9,548 | - | - | - | - | - | - | - | 77,820 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | | |
| 5b.1.2 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | - | 921 | - |
| 5b.1.3 | Final report to NRC | - | - | - | - | - | - | 183 | 27 | 211 | 211 | - | - | - | - | - | - | - | - | - | - | 1,560 |
| 5b.1 | Subtotal Period 5b Activity Costs | - | 8,733 | - | - | - | - | 183 | 1,337 | 10,254 | 211 | - | 10,044 | - | - | - | - | - | - | - | 78,740 | 1,560 |
| Period 5b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.2.1 | Clean Concrete Disposal | - | 2,213 | - | - | - | - | 3 | 332 | 2,549 | - | - | 2,549 | - | - | - | - | - | - | - | 8,386 | - |
| 5b.2.2 | Intake Structure Cofferdam | - | 596 | - | - | - | - | - | 89 | 686 | - | - | 686 | - | - | - | - | - | - | - | 5,168 | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 11 of 22**

**Table H-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|------------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 5b Additional Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 5b.2.3 | Construction Debris | - | - | - | - | - | - | 10 | 2 | 12 | - | - | 12 | - | - | - | - | - | - | - | - | - |
| 5b.2.4 | Backfill | - | 2,751 | - | - | - | - | - | 413 | 3,164 | - | - | 3,164 | - | - | - | - | - | - | - | 2,904 | - |
| 5b.2 | Subtotal Period 5b Additional Costs | - | 5,560 | - | - | - | - | 13 | 836 | 6,410 | - | - | 6,410 | - | - | - | - | - | - | - | 16,458 | - |
| Period 5b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.3.1 | Small tool allowance | - | 107 | - | - | - | - | - | 16 | 123 | - | - | 123 | - | - | - | - | - | - | - | - | - |
| 5b.3 | Subtotal Period 5b Collateral Costs | - | 107 | - | - | - | - | - | 16 | 123 | - | - | 123 | - | - | - | - | - | - | - | - | - |
| Period 5b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.4.2 | Property taxes | - | - | - | - | - | - | 1,712 | 171 | 1,883 | - | - | 1,883 | - | - | - | - | - | - | - | - | - |
| 5b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - | - |
| 5b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - | - |
| 5b.4.5 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - | - |
| 5b.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 122 | 18 | 141 | - | - | 141 | - | - | - | - | - | - | - | - | - |
| 5b.4.7 | Security Staff Cost | - | - | - | - | - | - | 1,812 | 272 | 2,084 | - | - | 2,084 | - | - | - | - | - | - | - | - | 29,221 |
| 5b.4.8 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | - | 116,885 |
| 5b.4.9 | Utility Staff Cost | - | - | - | - | - | - | 3,673 | 551 | 4,224 | - | - | 4,224 | - | - | - | - | - | - | - | - | 57,340 |
| 5b.4 | Subtotal Period 5b Period-Dependent Costs | - | 6,670 | - | - | - | - | 19,097 | 3,779 | 29,546 | - | - | 29,546 | - | - | - | - | - | - | - | - | 203,445 |
| 5b.0 | TOTAL PERIOD 5b COST | - | 21,070 | - | - | - | - | 19,294 | 5,969 | 46,333 | 211 | - | 46,122 | - | - | - | - | - | - | - | 95,198 | 205,005 |
| PERIOD 5 TOTALS | | - | 21,070 | - | - | - | - | 19,294 | 5,969 | 46,333 | 211 | - | 46,122 | - | - | - | - | - | - | - | 95,198 | 205,005 |
| TOTAL COST TO DECOMMISSION | | 5,848 | 85,184 | 27,686 | 5,682 | 12,040 | 41,346 | 865,206 | 162,654 | 1,205,645 | 908,226 | 242,850 | 54,569 | 147,532 | 115,740 | 125 | 742 | 3,746 | 15,119,820 | 699,530 | 6,227,724 | |

| | | |
|--|--------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 15.59% CONTINGENCY: | \$1,205,645 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 75.33% OR: | \$908,226 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 20.14% OR: | \$242,850 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 4.53% OR: | \$54,569 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 116,607 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 33,003 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 699,530 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix H, Page 12 of 22*

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|--|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 1a - Shutdown through Transition | | | | | | | | | | | | | | | | | | | | | | |
| Period 1a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.1 | SAFSTOR site characterization survey | - | - | - | - | - | - | 571 | 171 | 742 | 742 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.2 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | 556 | |
| 1a.1.3 | Notification of Cessation of Operations | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1.4 | Remove fuel & source material | - | - | - | - | - | - | - | - | n/a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1.5 | Notification of Permanent Defueling | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1.6 | Deactivate plant systems & process waste | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1.7 | Prepare and submit PSDAR | - | - | - | - | - | - | 100 | 15 | 115 | 115 | - | - | - | - | - | - | - | - | - | 855 | |
| 1a.1.8 | Review plant dwgs & specs. | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | 556 | |
| 1a.1.9 | Perform detailed rad survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1.10 | Estimate by-product inventory | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 | |
| 1a.1.11 | End product description | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 | |
| 1a.1.12 | Detailed by-product inventory | - | - | - | - | - | - | 75 | 11 | 87 | 87 | - | - | - | - | - | - | - | - | - | 641 | |
| 1a.1.13 | Define major work sequence | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 | |
| 1a.1.14 | Perform SER and EA | - | - | - | - | - | - | 156 | 23 | 179 | 179 | - | - | - | - | - | - | - | - | - | 1,326 | |
| 1a.1.15 | Prepare/submit Defueled Technical Specifications | - | - | - | - | - | - | 376 | 56 | 433 | 433 | - | - | - | - | - | - | - | - | - | 3,207 | |
| 1a.1.16 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 251 | 38 | 289 | 289 | - | - | - | - | - | - | - | - | - | 2,138 | |
| 1a.1.17 | Prepare/submit Irradiated Fuel Management Plan | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 | |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.18.1 | Prepare plant and facilities for SAFSTOR | - | - | - | - | - | - | 247 | 37 | 284 | 284 | - | - | - | - | - | - | - | - | - | 2,104 | |
| 1a.1.18.2 | Plant systems | - | - | - | - | - | - | 209 | 31 | 241 | 241 | - | - | - | - | - | - | - | - | - | 1,782 | |
| 1a.1.18.3 | Plant structures and buildings | - | - | - | - | - | - | 157 | 23 | 180 | 180 | - | - | - | - | - | - | - | - | - | 1,334 | |
| 1a.1.18.4 | Waste management | - | - | - | - | - | - | 100 | 15 | 115 | 115 | - | - | - | - | - | - | - | - | - | 855 | |
| 1a.1.18.5 | Facility and site dormancy | - | - | - | - | - | - | 100 | 15 | 115 | 115 | - | - | - | - | - | - | - | - | - | 855 | |
| 1a.1.18 | Total | - | - | - | - | - | - | 813 | 122 | 935 | 935 | - | - | - | - | - | - | - | - | - | 6,930 | |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.19.1 | Plant systems | - | - | - | - | - | - | 59 | 9 | 68 | 68 | - | - | - | - | - | - | - | - | - | 506 | |
| 1a.1.19.2 | Facility closeout & dormancy | - | - | - | - | - | - | 60 | 9 | 69 | 69 | - | - | - | - | - | - | - | - | - | 513 | |
| 1a.1.19 | Total | - | - | - | - | - | - | 120 | 18 | 138 | 138 | - | - | - | - | - | - | - | - | - | 1,019 | |
| 1a.1.20 | Procure vacuum drying system | - | - | - | - | - | - | 5 | 1 | 6 | 6 | - | - | - | - | - | - | - | - | - | 43 | |
| 1a.1.21 | Drain/de-energize non-cont. systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1.22 | Drain & dry NSSS | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1.23 | Drain/de-energize contaminated systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1.24 | Decon/secure contaminated systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | |
| 1a.1 | Subtotal Period 1a Activity Costs | - | - | - | - | - | - | 2,799 | 505 | 3,304 | 3,304 | - | - | - | - | - | - | - | - | - | 18,981 | |
| Period 1a Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1a.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 1,776 | 266 | 2,042 | - | 2,042 | - | - | - | - | - | - | - | - | - | |
| 1a.3.2 | Retention and Severance | - | - | - | - | - | - | 8,394 | 1,259 | 9,653 | 9,653 | - | - | - | - | - | - | - | - | - | - | |
| 1a.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,281 | - | 2,281 | - | 2,281 | - | - | - | - | - | - | - | - | - | |
| 1a.3 | Subtotal Period 1a Collateral Costs | - | - | - | - | - | - | 12,450 | 1,525 | 13,976 | 9,653 | 4,323 | - | - | - | - | - | - | - | - | - | |
| Period 1a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1a.4.1 | Insurance | - | - | - | - | - | - | 1,730 | 173 | 1,903 | 1,903 | - | - | - | - | - | - | - | - | - | - | |
| 1a.4.2 | Property taxes | - | - | - | - | - | - | 2,682 | 268 | 2,950 | 2,950 | - | - | - | - | - | - | - | - | - | - | |
| 1a.4.3 | Health physics supplies | - | 507 | - | - | - | - | - | 127 | 633 | 633 | - | - | - | - | - | - | - | - | - | - | |
| 1a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - | |
| 1a.4.5 | Disposal of DAW generated | - | - | 13 | 4 | - | 49 | - | 14 | 79 | 79 | - | - | - | 597 | - | - | - | - | 11,939 | 19 | |
| 1a.4.6 | Plant energy budget | - | - | - | - | - | - | 1,515 | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - | |
| 1a.4.7 | NRC Fees | - | - | - | - | - | - | 778 | 78 | 855 | 855 | - | - | - | - | - | - | - | - | - | - | |
| 1a.4.8 | Emergency Planning Fees | - | - | - | - | - | - | 1,604 | 160 | 1,765 | - | 1,765 | - | - | - | - | - | - | - | - | - | |
| 1a.4.9 | Fixed Overhead | - | - | - | - | - | - | 1,470 | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - | |
| 1a.4.10 | Spent Fuel Pool O&M | - | - | - | - | - | - | 401 | 60 | 461 | - | 461 | - | - | - | - | - | - | - | - | - | |
| 1a.4.11 | ISFSI Operating Costs | - | - | - | - | - | - | 52 | 8 | 59 | - | 59 | - | - | - | - | - | - | - | - | - | |
| 1a.4.12 | Railroad Track Maintenance | - | - | - | - | - | - | 58 | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - | |
| 1a.4.13 | Security Staff Cost | - | - | - | - | - | - | 7,390 | 1,108 | 8,498 | 8,498 | - | - | - | - | - | - | - | - | - | 122,720 | |
| 1a.4.14 | Utility Staff Cost | - | - | - | - | - | - | 24,344 | 3,652 | 27,995 | 27,995 | - | - | - | - | - | - | - | - | - | 400,523 | |
| 1a.4 | Subtotal Period 1a Period-Dependent Costs | - | 1,074 | 13 | 4 | - | 49 | 42,022 | 6,189 | 49,351 | 47,066 | 2,286 | - | - | 597 | - | - | - | 11,939 | 19 | 523,243 | |
| 1a.0 | TOTAL PERIOD 1a COST | - | 1,074 | 13 | 4 | - | 49 | 57,272 | 8,220 | 66,631 | 60,023 | 6,608 | - | - | 597 | - | - | - | 11,939 | 19 | 542,224 | |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix H, Page 13 of 22*

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 1b - SAFSTOR Limited DECON Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 1b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 1b.1.1.1 | Reactor | 1,135 | - | - | - | - | - | - | 568 | 1,703 | 1,703 | - | - | - | - | - | - | - | - | - | 17,003 | - |
| 1b.1.1.2 | Auxiliary | 1,177 | - | - | - | - | - | - | 589 | 1,766 | 1,766 | - | - | - | - | - | - | - | - | - | 17,950 | - |
| 1b.1.1.3 | Drum Transfer & Truck Loading Enclosure | 16 | - | - | - | - | - | - | 8 | 24 | 24 | - | - | - | - | - | - | - | - | - | 244 | - |
| 1b.1.1.4 | LLRW Storage Enclosure | 99 | - | - | - | - | - | - | 50 | 149 | 149 | - | - | - | - | - | - | - | - | - | 1,487 | - |
| 1b.1.1.5 | Radwaste | 44 | - | - | - | - | - | - | 22 | 66 | 66 | - | - | - | - | - | - | - | - | - | 669 | - |
| 1b.1.1.6 | Resin Disposal | 13 | - | - | - | - | - | - | 7 | 20 | 20 | - | - | - | - | - | - | - | - | - | 198 | - |
| 1b.1.1.7 | Fuel Handling of Aux Building | 863 | - | - | - | - | - | - | 431 | 1,294 | 1,294 | - | - | - | - | - | - | - | - | - | 12,414 | - |
| 1b.1.1 | Totals | 3,348 | - | - | - | - | - | - | 1,674 | 5,022 | 5,022 | - | - | - | - | - | - | - | - | - | 49,966 | - |
| 1b.1 | Subtotal Period 1b Activity Costs | 3,348 | - | - | - | - | - | - | 1,674 | 5,022 | 5,022 | - | - | - | - | - | - | - | - | - | 49,966 | - |
| Period 1b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.2.1 | Spent fuel pool isolation | - | - | - | - | - | - | 7,794 | 1,169 | 8,963 | 8,963 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.2 | Subtotal Period 1b Additional Costs | - | - | - | - | - | - | 7,794 | 1,169 | 8,963 | 8,963 | - | - | - | - | - | - | - | - | - | - | - |
| Period 1b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.3.2 | Process decommissioning water waste | 105 | - | 68 | 177 | - | 277 | - | 155 | 781 | 781 | - | - | - | 660 | - | - | - | - | 39,628 | 129 | - |
| 1b.3.4 | Small tool allowance | - | 56 | - | - | - | - | - | 8 | 64 | 64 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.3.5 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 454 | 68 | 522 | - | 522 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.6 | Retention and Severance | - | - | - | - | - | - | 2,315 | 347 | 2,662 | 2,662 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.3.7 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 315 | - | 315 | - | 315 | - | - | - | - | - | - | - | - | - | - |
| 1b.3 | Subtotal Period 1b Collateral Costs | 1,078 | 56 | 68 | 177 | - | 277 | 3,083 | 724 | 5,462 | 4,625 | 837 | - | - | 660 | - | - | - | - | 39,628 | 129 | - |
| Period 1b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.4.1 | Decon supplies | 1,232 | - | - | - | - | - | - | 308 | 1,540 | 1,540 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.2 | Insurance | - | - | - | - | - | - | 436 | 44 | 480 | 480 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.3 | Property taxes | - | - | - | - | - | - | 675 | 68 | 743 | 743 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.4 | Health physics supplies | - | 369 | - | - | - | - | - | 92 | 461 | 461 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.5 | Heavy equipment rental | - | 143 | - | - | - | - | - | 21 | 164 | 164 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.6 | Disposal of DAW generated | - | - | 14 | 4 | - | 52 | - | 15 | 85 | 85 | - | - | - | 636 | - | - | - | - | 12,711 | 21 | - |
| 1b.4.7 | Plant energy budget | - | - | - | - | - | - | 382 | 57 | 439 | 439 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.8 | NRC Fees | - | - | - | - | - | - | 107 | 11 | 118 | 118 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 404 | 40 | 445 | - | 445 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.10 | Fixed Overhead | - | - | - | - | - | - | 370 | 56 | 426 | 426 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 101 | 15 | 116 | - | 116 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 13 | 2 | 15 | - | 15 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 15 | 2 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.14 | Security Staff Cost | - | - | - | - | - | - | 1,863 | 279 | 2,142 | 2,142 | - | - | - | - | - | - | - | - | - | - | 30,932 |
| 1b.4.15 | Utility Staff Cost | - | - | - | - | - | - | 6,501 | 975 | 7,476 | 7,476 | - | - | - | - | - | - | - | - | - | - | 106,428 |
| 1b.4 | Subtotal Period 1b Period-Dependent Costs | 1,232 | 512 | 14 | 4 | - | 52 | 10,867 | 1,986 | 14,667 | 14,090 | 576 | - | - | 636 | - | - | - | - | 12,711 | 21 | 137,360 |
| 1b.0 | TOTAL PERIOD 1b COST | 5,657 | 568 | 82 | 181 | - | 328 | 21,745 | 5,553 | 34,114 | 32,701 | 1,413 | - | - | 1,296 | - | - | - | - | 52,338 | 50,116 | 137,360 |
| PERIOD 1c - Preparations for SAFSTOR Dormancy | | | | | | | | | | | | | | | | | | | | | | |
| Period 1c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 1c.1.1 | Prepare support equipment for storage | - | 486 | - | - | - | - | - | 73 | 559 | 559 | - | - | - | - | - | - | - | - | - | 3,000 | - |
| 1c.1.2 | Install containment pressure equal. lines | - | 48 | - | - | - | - | - | 7 | 55 | 55 | - | - | - | - | - | - | - | - | - | 700 | - |
| 1c.1.3 | Interim survey prior to dormancy | - | - | - | - | - | - | 733 | 220 | 953 | 953 | - | - | - | - | - | - | - | - | - | 9,017 | - |
| 1c.1.4 | Secure building accesses | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1c.1.5 | Prepare & submit interim report | - | - | - | - | - | - | 29 | 4 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | 249 |
| 1c.1 | Subtotal Period 1c Activity Costs | - | 534 | - | - | - | - | 762 | 304 | 1,601 | 1,601 | - | - | - | - | - | - | - | - | - | 12,717 | 249 |
| Period 1c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1c.3.1 | Process decommissioning water waste | 88 | - | 58 | 150 | - | 234 | - | 131 | 661 | 661 | - | - | - | 560 | - | - | - | - | 33,579 | 109 | - |
| 1c.3.3 | Small tool allowance | - | 4 | - | - | - | - | - | 1 | 5 | 5 | - | - | - | - | - | - | - | - | - | - | - |
| 1c.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 251 | 38 | 289 | - | 289 | - | - | - | - | - | - | - | - | - | - |
| 1c.3.5 | Retention and Severance | - | - | - | - | - | - | 1,741 | 261 | 2,002 | 2,002 | - | - | - | - | - | - | - | - | - | - | - |
| 1c.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 314 | - | 314 | - | 314 | - | - | - | - | - | - | - | - | - | - |
| 1c.3 | Subtotal Period 1c Collateral Costs | 88 | 4 | 58 | 150 | - | 234 | 2,306 | 430 | 3,271 | 2,668 | 603 | - | - | 560 | - | - | - | - | 33,579 | 109 | - |

Prairie Island Nuclear Generating Plant Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0 Appendix H, Page 14 of 22

Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, and Utility and Contractor Manhours.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 15 of 22**

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|-----------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 2b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 20,705 | 3,106 | 23,811 | - | 23,811 | - | - | - | - | - | - | - | - | - | - |
| 2b.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 31,469 | - | 31,469 | - | 31,469 | - | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | - | - | - | - | - | - | 52,174 | 3,106 | 55,280 | - | 55,280 | - | - | - | - | - | - | - | - | - | - |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Insurance | - | - | - | - | - | - | 12,873 | 1,287 | 14,160 | 14,160 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Property taxes | - | - | - | - | - | - | 67,525 | 6,753 | 74,278 | 74,278 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Health physics supplies | - | 2,403 | - | - | - | - | - | 601 | 3,003 | 3,003 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Disposal of DAW generated | - | - | 57 | 17 | - | 212 | - | 61 | 346 | 346 | - | - | - | 2,602 | - | - | - | - | 52,049 | 85 | - |
| 2b.4.5 | Plant energy budget | - | - | - | - | - | - | 3,816 | 572 | 4,388 | 4,388 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | NRC Fees | - | - | - | - | - | - | 5,654 | 565 | 6,219 | 6,219 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 1,723 | 172 | 1,895 | - | 1,895 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | Fixed Overhead | - | - | - | - | - | - | 3,844 | 577 | 4,421 | 4,421 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 1,301 | 195 | 1,496 | - | 1,496 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 1,453 | 218 | 1,671 | 1,671 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Security Staff Cost | - | - | - | - | - | - | 63,533 | 9,530 | 73,063 | 15,051 | 58,012 | - | - | - | - | - | - | - | - | - | 943,283 |
| 2b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 32,977 | 4,946 | 37,923 | 23,588 | 14,335 | - | - | - | - | - | - | - | - | - | 524,046 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | - | 2,403 | 57 | 17 | - | 212 | 194,698 | 25,478 | 222,863 | 147,126 | 75,737 | - | - | 2,602 | - | - | - | - | 52,049 | 85 | 1,467,329 |
| 2b.0 | TOTAL PERIOD 2b COST | - | 2,403 | 57 | 17 | - | 212 | 252,531 | 29,776 | 284,995 | 153,978 | 131,017 | - | - | 2,602 | - | - | - | - | 52,049 | 85 | 1,467,329 |
| PERIOD 2c - SAFSTOR Dormancy without Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 2c.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1.3 | Prepare reports | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 2,073 | 311 | 2,384 | 2,384 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1.5 | Maintenance supplies | - | - | - | - | - | - | 3,197 | 799 | 3,997 | 3,997 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1 | Subtotal Period 2c Activity Costs | - | - | - | - | - | - | 5,270 | 1,110 | 6,381 | 6,381 | - | - | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 11,764 | 1,176 | 12,940 | 12,940 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 53,045 | 5,305 | 58,350 | 58,350 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 2,122 | - | - | - | - | - | 530 | 2,652 | 2,652 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 49 | 14 | - | 183 | - | 53 | 300 | 300 | - | - | - | 2,254 | - | - | - | - | 45,081 | 74 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 3,554 | 533 | 4,087 | 4,087 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 5,051 | 505 | 5,556 | 5,556 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Fixed Overhead | - | - | - | - | - | - | 3,580 | 537 | 4,117 | 4,117 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 1,353 | 203 | 1,556 | 1,556 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.9 | Utility Staff Cost | - | - | - | - | - | - | 11,863 | 1,779 | 13,642 | 13,642 | - | - | - | - | - | - | - | - | - | - | 195,212 |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 2,122 | 49 | 14 | - | 183 | 90,209 | 10,622 | 103,200 | 103,200 | - | - | - | 2,254 | - | - | - | - | 45,081 | 74 | 195,212 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 2,122 | 49 | 14 | - | 183 | 95,480 | 11,732 | 109,580 | 109,580 | - | - | - | 2,254 | - | - | - | - | 45,081 | 74 | 195,212 |
| PERIOD 2 TOTALS | | | | | | | | | | | | | | | | | | | | | | |
| PERIOD 3a - Reactivate Site Following SAFSTOR Dormancy | | | | | | | | | | | | | | | | | | | | | | |
| Period 3a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.1 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | - | 556 |
| 3a.1.2 | Review plant dwgs & specs. | - | - | - | - | - | - | 231 | 35 | 266 | 266 | - | - | - | - | - | - | - | - | - | - | 1,967 |
| 3a.1.3 | Perform detailed rad survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 3a.1.4 | End product description | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | - | 428 |
| 3a.1.5 | Detailed by-product inventory | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | - | 556 |
| 3a.1.6 | Define major work sequence | - | - | - | - | - | - | 376 | 56 | 433 | 433 | - | - | - | - | - | - | - | - | - | - | 3,207 |
| 3a.1.7 | Perform SER and EA | - | - | - | - | - | - | 156 | 23 | 179 | 179 | - | - | - | - | - | - | - | - | - | - | 1,326 |
| 3a.1.8 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 251 | 38 | 289 | 289 | - | - | - | - | - | - | - | - | - | - | 2,138 |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.9.1 | Re-activate plant & temporary facilities | - | - | - | - | - | - | 370 | 55 | 425 | 383 | - | 43 | - | - | - | - | - | - | - | - | 3,151 |
| 3a.1.9.2 | Plant systems | - | - | - | - | - | - | 209 | 31 | 241 | 216 | - | 24 | - | - | - | - | - | - | - | - | 1,782 |
| 3a.1.9.3 | Reactor internals | - | - | - | - | - | - | 356 | 53 | 410 | 410 | - | - | - | - | - | - | - | - | - | - | 3,036 |
| 3a.1.9.4 | Reactor vessel | - | - | - | - | - | - | 326 | 49 | 375 | 375 | - | - | - | - | - | - | - | - | - | - | 2,779 |
| 3a.1.9.5 | Biological shield | - | - | - | - | - | - | 25 | 4 | 29 | 29 | - | - | - | - | - | - | - | - | - | - | 214 |
| 3a.1.9.6 | Steam generators | - | - | - | - | - | - | 157 | 23 | 180 | 180 | - | - | - | - | - | - | - | - | - | - | 1,334 |
| 3a.1.9.7 | Reinforced concrete | - | - | - | - | - | - | 80 | 12 | 92 | 46 | - | 46 | - | - | - | - | - | - | - | - | 684 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Activity Specifications (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.9.8 | Main Turbine | - | - | - | - | - | - | 20 | 3 | 23 | - | - | 23 | - | - | - | - | - | - | - | - | 171 |
| 3a.1.9.9 | Main Condensers | - | - | - | - | - | - | 20 | 3 | 23 | - | - | 23 | - | - | - | - | - | - | - | - | 171 |
| 3a.1.9.10 | Plant structures & buildings | - | - | - | - | - | - | 157 | 23 | 180 | 90 | - | 90 | - | - | - | - | - | - | - | - | 1,334 |
| 3a.1.9.11 | Waste management | - | - | - | - | - | - | 231 | 35 | 266 | 266 | - | - | - | - | - | - | - | - | - | - | 1,967 |
| 3a.1.9.12 | Facility & site closeout | - | - | - | - | - | - | 45 | 7 | 52 | 26 | - | 26 | - | - | - | - | - | - | - | - | 385 |
| 3a.1.9 | Total | - | - | - | - | - | - | 1,996 | 299 | 2,296 | 2,021 | - | 275 | - | - | - | - | - | - | - | - | 17,009 |
| Planning & Site Preparations | | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.10 | Prepare dismantling sequence | - | - | - | - | - | - | 120 | 18 | 139 | 139 | - | - | - | - | - | - | - | - | - | - | 1,026 |
| 3a.1.11 | Plant prep. & temp. svces | - | - | - | - | - | - | 3,300 | 495 | 3,795 | 3,795 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.1.12 | Design water clean-up system | - | - | - | - | - | - | 70 | 11 | 81 | 81 | - | - | - | - | - | - | - | - | - | - | 599 |
| 3a.1.13 | Rigging/Cont. Cntrl Envlp/cooling/etc. | - | - | - | - | - | - | 2,300 | 345 | 2,645 | 2,645 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.1.14 | Procure casks/liners & containers | - | - | - | - | - | - | 62 | 9 | 71 | 71 | - | - | - | - | - | - | - | - | - | - | 526 |
| 3a.1 | Subtotal Period 3a Activity Costs | - | - | - | - | - | - | 9,043 | 1,357 | 10,400 | 10,125 | - | 275 | - | - | - | - | - | - | - | - | 29,336 |
| Period 3a Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3a.2.1 | Site Characterization | - | - | - | - | - | - | 1,582 | 475 | 2,057 | 2,057 | - | - | - | - | - | - | - | - | - | 8,988 | 3,563 |
| 3a.2.2 | Mixed/Hazardous Waste | - | - | 326 | 75 | 169 | - | - | 69 | 639 | 639 | - | - | 6,324 | - | - | - | - | - | 362,914 | 2,410 | - |
| 3a.2.3 | Asbestos Abatement | - | 2,364 | 2 | 110 | - | 1,359 | - | 947 | 4,782 | 4,782 | - | - | - | 12,843 | - | - | - | - | 166,959 | 20,907 | - |
| 3a.2 | Subtotal Period 3a Additional Costs | - | 2,364 | 328 | 185 | 169 | 1,359 | 1,582 | 1,491 | 7,478 | 7,478 | - | - | 6,324 | 12,843 | - | - | - | - | 529,873 | 32,305 | 3,563 |
| Period 3a Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3a.3.1 | Small tool allowance | - | 32 | - | - | - | - | - | 5 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.3 | Subtotal Period 3a Collateral Costs | - | 32 | - | - | - | - | - | 5 | 37 | 37 | - | - | - | - | - | - | - | - | - | - | - |
| Period 3a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 3a.4.1 | Insurance | - | - | - | - | - | - | 501 | 50 | 552 | 552 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.4.2 | Property taxes | - | - | - | - | - | - | 1,644 | 164 | 1,809 | 1,809 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.4.3 | Health physics supplies | - | 539 | - | - | - | - | - | 135 | 673 | 673 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.4.5 | Disposal of DAW generated | - | - | 10 | 3 | - | 39 | - | 11 | 64 | 64 | - | - | 481 | - | - | - | - | - | 9,613 | 16 | - |
| 3a.4.6 | Plant energy budget | - | - | - | - | - | - | 1,515 | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.4.7 | NRC Fees | - | - | - | - | - | - | 298 | 30 | 327 | 327 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.4.8 | Fixed Overhead | - | - | - | - | - | - | 1,470 | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 58 | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - | - |
| 3a.4.10 | Security Staff Cost | - | - | - | - | - | - | 312 | 47 | 358 | 358 | - | - | - | - | - | - | - | - | - | - | 6,240 |
| 3a.4.11 | Utility Staff Cost | - | - | - | - | - | - | 11,597 | 1,740 | 13,336 | 13,336 | - | - | - | - | - | - | - | - | - | - | 199,680 |
| 3a.4 | Subtotal Period 3a Period-Dependent Costs | - | 1,106 | 10 | 3 | - | 39 | 17,394 | 2,718 | 21,270 | 21,270 | - | - | 481 | - | - | - | - | - | 9,613 | 16 | 205,920 |
| 3a.0 | TOTAL PERIOD 3a COST | - | 3,501 | 339 | 188 | 169 | 1,398 | 28,019 | 5,570 | 39,184 | 38,909 | - | 275 | 6,324 | 13,324 | - | - | - | - | 539,486 | 32,320 | 238,819 |
| PERIOD 3b - Decommissioning Preparations | | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Plant systems | - | - | - | - | - | - | 238 | 36 | 273 | 246 | - | 27 | - | - | - | - | - | - | - | - | 2,024 |
| 3b.1.1.2 | Reactor internals | - | - | - | - | - | - | 125 | 19 | 144 | 144 | - | - | - | - | - | - | - | - | - | - | 1,069 |
| 3b.1.1.3 | Remaining buildings | - | - | - | - | - | - | 68 | 10 | 78 | 19 | - | 58 | - | - | - | - | - | - | - | - | 577 |
| 3b.1.1.4 | CRD cooling assembly | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | - | 428 |
| 3b.1.1.5 | CRD housings & ICI tubes | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | - | 428 |
| 3b.1.1.6 | Incore instrumentation | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | - | 428 |
| 3b.1.1.7 | Reactor vessel | - | - | - | - | - | - | 182 | 27 | 210 | 210 | - | - | - | - | - | - | - | - | - | - | 1,552 |
| 3b.1.1.8 | Facility closeout | - | - | - | - | - | - | 60 | 9 | 69 | 35 | - | 35 | - | - | - | - | - | - | - | - | 513 |
| 3b.1.1.9 | Missile shields | - | - | - | - | - | - | 23 | 3 | 26 | 26 | - | - | - | - | - | - | - | - | - | - | 192 |
| 3b.1.1.10 | Biological shield | - | - | - | - | - | - | 60 | 9 | 69 | 69 | - | - | - | - | - | - | - | - | - | - | 513 |
| 3b.1.1.11 | Steam generators | - | - | - | - | - | - | 231 | 35 | 266 | 266 | - | - | - | - | - | - | - | - | - | - | 1,967 |
| 3b.1.1.12 | Reinforced concrete | - | - | - | - | - | - | 50 | 8 | 58 | 29 | - | 29 | - | - | - | - | - | - | - | - | 428 |
| 3b.1.1.13 | Main Turbine | - | - | - | - | - | - | 78 | 12 | 90 | - | - | 90 | - | - | - | - | - | - | - | - | 667 |
| 3b.1.1.14 | Main Condensers | - | - | - | - | - | - | 78 | 12 | 90 | - | - | 90 | - | - | - | - | - | - | - | - | 667 |
| 3b.1.1.15 | Auxiliary building | - | - | - | - | - | - | 137 | 21 | 158 | 142 | - | 16 | - | - | - | - | - | - | - | - | 1,167 |
| 3b.1.1.16 | Reactor building | - | - | - | - | - | - | 137 | 21 | 158 | 142 | - | 16 | - | - | - | - | - | - | - | - | 1,167 |
| 3b.1.1 | Total | - | - | - | - | - | - | 1,618 | 243 | 1,861 | 1,500 | - | 361 | - | - | - | - | - | - | - | - | 13,787 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | - | - | - | - | - | 1,618 | 243 | 1,861 | 1,500 | - | 361 | - | - | - | - | - | - | - | - | 13,787 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|--------------|--------------|-----------------|-----------------|---------------------------|---------------------|---------------|-------------------|---------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - |
| 3b.3.2 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 3b.3.3 | Pipe cutting equipment | - | 1,200 | - | - | - | - | - | 180 | 1,380 | 1,380 | - | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | 973 | 1,200 | - | - | - | - | 1,189 | 504 | 3,866 | 3,866 | - | - | - | - | - | - | - | - | - | - |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Decon supplies | 35 | - | - | - | - | - | - | 9 | 43 | 43 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Insurance | - | - | - | - | - | - | 255 | 25 | 280 | 280 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Property taxes | - | - | - | - | - | - | 764 | 76 | 840 | 840 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.4 | Health physics supplies | - | 230 | - | - | - | - | - | 57 | 287 | 287 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.5 | Heavy equipment rental | - | 283 | - | - | - | - | - | 42 | 325 | 325 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Disposal of DAW generated | - | - | 6 | 2 | - | 22 | - | 6 | 35 | 35 | - | - | - | 264 | - | - | - | 5,286 | 9 | - |
| 3b.4.7 | Plant energy budget | - | - | - | - | - | - | 755 | 113 | 869 | 869 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.8 | NRC Fees | - | - | - | - | - | - | 148 | 15 | 163 | 163 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.9 | Fixed Overhead | - | - | - | - | - | - | 733 | 110 | 843 | 843 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 29 | 4 | 33 | 33 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.11 | Security Staff Cost | - | - | - | - | - | - | 155 | 23 | 179 | 179 | - | - | - | - | - | - | - | - | - | 3,111 |
| 3b.4.12 | DOC Staff Cost | - | - | - | - | - | - | 3,539 | 531 | 4,070 | 4,070 | - | - | - | - | - | - | - | - | - | 42,523 |
| 3b.4.13 | Utility Staff Cost | - | - | - | - | - | - | 5,782 | 867 | 6,650 | 6,650 | - | - | - | - | - | - | - | - | - | 99,566 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | 35 | 513 | 6 | 2 | - | 22 | 12,161 | 1,881 | 14,618 | 14,618 | - | - | - | 264 | - | - | - | 5,286 | 9 | 145,201 |
| 3b.0 | TOTAL PERIOD 3b COST | 1,008 | 1,713 | 6 | 2 | - | 22 | 14,968 | 2,628 | 20,345 | 19,984 | - | 361 | - | 264 | - | - | - | 5,286 | 9 | 158,988 |
| PERIOD 3 TOTALS | | 1,008 | 5,214 | 345 | 189 | 169 | 1,420 | 42,987 | 8,198 | 59,529 | 58,893 | - | 636 | 6,324 | 13,588 | - | - | - | 544,771 | 32,329 | 397,807 |
| PERIOD 4a - Large Component Removal | | | | | | | | | | | | | | | | | | | | | |
| Period 4a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.1.1 | Reactor Coolant Piping | 11 | 40 | 6 | 5 | 34 | 75 | - | 41 | 212 | 212 | - | - | 144 | 152 | - | - | - | 33,380 | 771 | - |
| 4a.1.1.2 | Pressurizer Relief Tank | 5 | 18 | 4 | 3 | 23 | 50 | - | 24 | 126 | 126 | - | - | 96 | 101 | - | - | - | 22,241 | 347 | - |
| 4a.1.1.3 | Reactor Coolant Pumps & Motors | 13 | 56 | 43 | 76 | - | 736 | - | 220 | 1,143 | 1,143 | - | - | - | 2,332 | - | - | - | 295,800 | 1,226 | 80 |
| 4a.1.1.4 | Pressurizer | 10 | 68 | 359 | 82 | - | 693 | - | 244 | 1,456 | 1,456 | - | - | - | 2,196 | - | - | - | 158,199 | 1,499 | 750 |
| 4a.1.1.5 | Steam Generators | 47 | 2,943 | 1,576 | 1,614 | 1,246 | 3,467 | - | 2,212 | 13,104 | 13,104 | - | - | 18,672 | 10,990 | - | - | - | 1,560,086 | 10,964 | 2,250 |
| 4a.1.1.6 | CRDMs/ICIs/Service Structure Removal | 60 | 243 | 199 | 32 | 169 | 369 | - | 233 | 1,305 | 1,305 | - | - | 2,138 | 2,146 | - | - | - | 165,025 | 4,449 | - |
| 4a.1.1.7 | Reactor Vessel Internals | 59 | 4,189 | 21,552 | 1,011 | - | 7,239 | 239 | 12,467 | 46,756 | 46,756 | - | - | - | 757 | - | 673 | - | 166,167 | 19,373 | 933 |
| 4a.1.1.8 | Vessel & Internals GTCC Disposal | - | - | - | - | - | 8,689 | - | 1,303 | 9,992 | 9,992 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 4a.1.1.9 | Reactor Vessel | - | 5,439 | 1,328 | 198 | - | 1,804 | 239 | 5,398 | 14,406 | 14,406 | - | - | - | 5,719 | - | - | - | 569,974 | 19,373 | 933 |
| 4a.1.1 | Totals | 204 | 12,996 | 25,067 | 3,022 | 1,471 | 23,120 | 478 | 22,142 | 88,499 | 88,499 | - | - | 21,050 | 24,393 | - | 673 | 3,746 | 3,808,467 | 58,003 | 4,947 |
| Removal of Major Equipment | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.2 | Main Turbine/Generator | - | 269 | 128 | 27 | 287 | - | - | 127 | 838 | 838 | - | - | 2,243 | - | - | - | - | 134,601 | 4,116 | - |
| 4a.1.3 | Main Condensers | - | 2,269 | 87 | 26 | 383 | - | - | 637 | 3,403 | 3,403 | - | - | 4,000 | - | - | - | - | 180,000 | 34,978 | - |
| Cascading Costs from Clean Building Demolition | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.4.1 | Reactor | - | 728 | - | - | - | - | - | 109 | 837 | 837 | - | - | - | - | - | - | - | - | - | 7,589 |
| 4a.1.4.2 | Auxiliary | - | 210 | - | - | - | - | - | 32 | 242 | 242 | - | - | - | - | - | - | - | - | - | 1,309 |
| 4a.1.4.3 | Radwaste | - | 8 | - | - | - | - | - | 1 | 9 | 9 | - | - | - | - | - | - | - | - | - | 65 |
| 4a.1.4 | Totals | - | 946 | - | - | - | - | - | 142 | 1,088 | 1,088 | - | - | - | - | - | - | - | - | - | 8,963 |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.5.1 | Admin Bldg Ventilation | - | 6 | - | - | - | - | - | 1 | 6 | - | - | 6 | - | - | - | - | - | - | - | 90 |
| 4a.1.5.2 | Air Removal | - | 25 | - | - | - | - | - | 4 | 29 | - | - | 29 | - | - | - | - | - | - | - | 422 |
| 4a.1.5.3 | Auxiliary Feedwater | - | 40 | - | - | - | - | - | 6 | 46 | - | - | 46 | - | - | - | - | - | - | - | 676 |
| 4a.1.5.4 | Auxiliary Feedwater - RCA | - | 36 | 0 | 1 | 15 | - | - | 12 | 65 | 65 | - | - | 178 | - | - | - | - | 7,214 | 486 | - |
| 4a.1.5.5 | Bleed Steam | - | 78 | - | - | - | - | - | 12 | 90 | - | - | 90 | - | - | - | - | - | - | - | 1,331 |
| 4a.1.5.6 | Caustic Addition - RCA | - | 38 | 0 | 1 | 21 | - | - | 13 | 74 | 74 | - | - | 240 | - | - | - | - | 9,761 | 468 | - |
| 4a.1.5.7 | Chemical Feed | - | 15 | - | - | - | - | - | 2 | 17 | - | - | 17 | - | - | - | - | - | - | - | 261 |
| 4a.1.5.8 | Chemical Feed - RCA | - | 3 | 0 | 0 | 1 | - | - | 1 | 5 | 5 | - | - | 16 | - | - | - | - | 634 | 31 | - |
| 4a.1.5.9 | Circulating Water | - | 24 | - | - | - | - | - | 4 | 28 | - | - | 28 | - | - | - | - | - | - | - | 401 |
| 4a.1.5.10 | Condensate | - | 459 | - | - | - | - | - | 69 | 527 | - | - | 527 | - | - | - | - | - | - | - | 7,537 |
| 4a.1.5.11 | Condensate Polishing | - | 181 | - | - | - | - | - | 27 | 209 | - | - | 209 | - | - | - | - | - | - | - | 2,987 |
| 4a.1.5.12 | Condensate Polishing - RCA | - | 36 | 1 | 3 | 42 | - | - | 16 | 98 | 98 | - | - | 483 | - | - | - | - | 19,616 | 493 | - |
| 4a.1.5.13 | Electro-Hydraulic | - | 8 | - | - | - | - | - | 1 | 10 | - | - | 10 | - | - | - | - | - | - | - | 143 |
| 4a.1.5.14 | External Circulating Water | - | 23 | - | - | - | - | - | 3 | 26 | - | - | 26 | - | - | - | - | - | - | - | 385 |
| 4a.1.5.15 | External Circulating Water - RCA | - | 70 | 1 | 4 | 62 | - | - | 28 | 165 | 165 | - | - | 721 | - | - | - | - | 29,284 | 938 | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 18 of 22**

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Disposal of Plant Systems (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.5.16 | Feedwater | - | 111 | - | - | - | - | - | 17 | 128 | - | - | 128 | - | - | - | - | - | - | - | 1,840 | - |
| 4a.1.5.17 | Feedwater - RCA | - | 236 | 7 | 24 | 359 | - | - | 117 | 744 | 744 | - | - | 4,147 | - | - | - | - | - | 168,414 | 3,377 | - |
| 4a.1.5.18 | Gland Seal | - | 29 | - | - | - | - | - | 4 | 34 | - | - | 34 | - | - | - | - | - | - | - | 504 | - |
| 4a.1.5.19 | Heater Drain | - | 334 | - | - | - | - | - | 50 | 384 | - | - | 384 | - | - | - | - | - | - | - | 5,638 | - |
| 4a.1.5.20 | Hypobromous Acid Feed | - | 5 | - | - | - | - | - | 1 | 6 | - | - | 6 | - | - | - | - | - | - | - | 86 | - |
| 4a.1.5.21 | Hypobromous Acid Feed - RCA | - | 1 | 0 | 0 | 0 | - | - | 0 | 1 | 1 | - | - | 2 | - | - | - | - | - | 100 | 12 | - |
| 4a.1.5.22 | Internal Circ Water & CDSR | - | 22 | - | - | - | - | - | 3 | 25 | - | - | 25 | - | - | - | - | - | - | - | 366 | - |
| 4a.1.5.23 | Main Gen/Exciter/Transformer | - | 0 | - | - | - | - | - | 0 | 0 | - | - | 0 | - | - | - | - | - | - | - | 5 | - |
| 4a.1.5.24 | Main Steam | - | 88 | - | - | - | - | - | 13 | 101 | - | - | 101 | - | - | - | - | - | - | - | 1,482 | - |
| 4a.1.5.25 | Main Steam - RCA | - | 364 | 9 | 30 | 447 | - | - | 163 | 1,013 | 1,013 | - | - | 5,166 | - | - | - | - | - | 209,799 | 5,146 | - |
| 4a.1.5.26 | Repairable Spare Snubbers | - | 6 | 0 | 0 | 1 | - | - | 2 | 8 | 8 | - | - | 12 | - | - | - | - | - | 490 | 82 | - |
| 4a.1.5.27 | Steam Exclusion | - | 2 | - | - | - | - | - | 0 | 2 | - | - | 2 | - | - | - | - | - | - | - | 32 | - |
| 4a.1.5.28 | Steam Exclusion - RCA | - | 4 | 0 | 0 | 2 | - | - | 1 | 8 | 8 | - | - | 24 | - | - | - | - | - | 966 | 47 | - |
| 4a.1.5.29 | Steam Generator Blowdown | - | 362 | 20 | 21 | 165 | 179 | - | 165 | 911 | 911 | - | - | 1,906 | 631 | - | - | - | - | 119,126 | 5,179 | - |
| 4a.1.5.30 | Steam Generators | - | 5 | - | - | - | - | - | 1 | 5 | - | - | 5 | - | - | - | - | - | - | - | 75 | - |
| 4a.1.5.31 | Turbine & Moisture Separators | - | 329 | - | - | - | - | - | 49 | 379 | - | - | 379 | - | - | - | - | - | - | - | 5,472 | - |
| 4a.1.5.32 | Turbine Oil Purification | - | 46 | - | - | - | - | - | 7 | 53 | - | - | 53 | - | - | - | - | - | - | - | 757 | - |
| 4a.1.5.33 | Water Treatment | - | 394 | - | - | - | - | - | 59 | 453 | - | - | 453 | - | - | - | - | - | - | - | 6,677 | - |
| 4a.1.5.34 | Water Treatment - RCA | - | 19 | 0 | 1 | 10 | - | - | 6 | 37 | 37 | - | - | 115 | - | - | - | - | - | 4,652 | 252 | - |
| 4a.1.5 | Totals | - | 3,400 | 39 | 85 | 1,125 | 179 | - | 858 | 5,687 | 3,128 | - | 2,559 | 13,010 | 631 | - | - | - | - | 570,056 | 53,681 | - |
| 4a.1.6 | Scaffolding in support of decommissioning | - | 2,682 | 24 | 8 | 97 | 25 | - | 695 | 3,532 | 3,532 | - | - | 1,012 | 89 | - | - | - | - | 51,445 | 23,719 | - |
| 4a.1 | Subtotal Period 4a Activity Costs | 204 | 22,563 | 25,345 | 3,168 | 3,363 | 23,325 | 478 | 24,601 | 103,048 | 100,489 | - | 2,559 | 41,316 | 25,114 | - | 673 | 3,746 | 4,744,569 | 183,459 | 4,947 | - |
| Period 4a Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4a.2.1 | Remedial Action Surveys | - | - | - | - | - | - | 1,516 | 455 | 1,971 | 1,971 | - | - | - | - | - | - | - | - | - | 19,818 | - |
| 4a.2.2 | Retired RPV upper internals package | 1 | 659 | 785 | 107 | - | 1,439 | - | 1,437 | 4,427 | 4,427 | - | - | - | 2,097 | 125 | - | - | - | 205,890 | 2,175 | 87 |
| 4a.2 | Subtotal Period 4a Additional Costs | 1 | 659 | 785 | 107 | - | 1,439 | 1,516 | 1,892 | 6,398 | 6,398 | - | - | - | 2,097 | 125 | - | - | - | 205,890 | 21,993 | 87 |
| Period 4a Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4a.3.1 | Process decommissioning water waste | 2 | - | 4 | 11 | - | 17 | - | 7 | 42 | 42 | - | - | - | 40 | - | - | - | - | 2,403 | 8 | - |
| 4a.3.3 | Small tool allowance | - | 220 | - | - | - | - | - | 33 | 254 | 228 | - | 25 | - | - | - | - | - | - | - | - | - |
| 4a.3 | Subtotal Period 4a Collateral Costs | 2 | 220 | 4 | 11 | - | 17 | - | 41 | 295 | 270 | - | 25 | - | 40 | - | - | - | - | 2,403 | 8 | - |
| Period 4a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4a.4.1 | Decon supplies | 79 | - | - | - | - | - | - | 20 | 98 | 98 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.2 | Insurance | - | - | - | - | - | - | 578 | 58 | 636 | 636 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.3 | Property taxes | - | - | - | - | - | - | 1,698 | 170 | 1,868 | 1,868 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.4 | Health physics supplies | - | 1,556 | - | - | - | - | - | 389 | 1,945 | 1,945 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.5 | Heavy equipment rental | - | 2,484 | - | - | - | - | - | 373 | 2,857 | 2,857 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.6 | Disposal of DAW generated | - | - | 73 | 21 | - | 274 | - | 79 | 449 | 449 | - | - | - | 3,371 | - | - | - | - | 67,420 | 110 | - |
| 4a.4.7 | Plant energy budget | - | - | - | - | - | - | 1,628 | 244 | 1,872 | 1,872 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.8 | NRC Fees | - | - | - | - | - | - | 430 | 43 | 473 | 473 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.9 | Fixed Overhead | - | - | - | - | - | - | 1,401 | 210 | 1,611 | 1,611 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.10 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 458 | 69 | 527 | 527 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.12 | Security Staff Cost | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - | 73,548 |
| 4a.4.13 | DOC Staff Cost | - | - | - | - | - | - | 13,997 | 2,100 | 16,097 | 16,097 | - | - | - | - | - | - | - | - | - | - | 162,394 |
| 4a.4.14 | Utility Staff Cost | - | - | - | - | - | - | 18,027 | 2,704 | 20,731 | 20,731 | - | - | - | - | - | - | - | - | - | - | 294,192 |
| 4a.4 | Subtotal Period 4a Period-Dependent Costs | 79 | 4,040 | 73 | 21 | - | 274 | 42,631 | 7,120 | 54,239 | 54,239 | - | - | - | 3,371 | - | - | - | - | 67,420 | 110 | 530,134 |
| 4a.0 | TOTAL PERIOD 4a COST | 286 | 27,483 | 26,207 | 3,307 | 3,363 | 25,055 | 44,625 | 33,653 | 163,980 | 161,395 | - | 2,585 | 41,316 | 30,622 | 125 | 673 | 3,746 | 5,020,282 | 205,570 | 535,167 | - |
| PERIOD 4b - Site Decontamination | | | | | | | | | | | | | | | | | | | | | | |
| Period 4b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.1 | Remove spent fuel racks | 297 | 32 | 94 | 32 | - | 595 | - | 319 | 1,369 | 1,369 | - | - | - | 2,092 | - | - | - | - | 138,298 | 576 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.2.1 | ADT & Misc Ventilation | - | 21 | 0 | 1 | 13 | 3 | - | 8 | 47 | 47 | - | - | 153 | 9 | - | - | - | - | 6,814 | 325 | - |
| 4b.1.2.2 | Aux Bldg Normal Ventilation | - | 60 | 2 | 5 | 60 | 11 | - | 28 | 165 | 165 | - | - | 692 | 39 | - | - | - | - | 30,671 | 906 | - |
| 4b.1.2.3 | Aux Bldg Special Ventilation | - | 12 | 0 | 0 | 6 | 2 | - | 4 | 25 | 25 | - | - | 70 | 6 | - | - | - | - | 3,243 | 176 | - |
| 4b.1.2.4 | Battery Rm Special Ventilation | - | 1 | - | - | - | - | - | 0 | 2 | - | - | 2 | - | - | - | - | - | - | - | 24 | - |
| 4b.1.2.5 | Boron Recycle | - | 3 | 0 | 0 | 0 | 3 | - | 2 | 8 | 8 | - | - | 3 | 9 | - | - | - | - | 709 | 45 | - |
| 4b.1.2.6 | Chemical & Volume Control | - | 822 | 59 | 44 | 204 | 560 | - | 388 | 2,075 | 2,075 | - | - | 2,356 | 1,977 | - | - | - | - | 225,854 | 11,575 | - |
| 4b.1.2.7 | Cold Chemical Lab Ventilation | - | 1 | - | - | - | - | - | 0 | 1 | - | - | 1 | - | - | - | - | - | - | - | 9 | - |

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Document X01-1725-001, Rev. 0
Appendix H, Page 19 of 22

Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)

Table with columns: Activity Index, Activity Description, Decon Cost, Removal Cost, Packaging Costs, Transport Costs, Off-Site Processing Costs, LLRW Disposal Costs, Other Costs, Total Contingency, Total Costs, NRC Lic. Term. Costs, Spent Fuel Management Costs, Site Restoration Costs, Processed Volume Cu. Feet, Burial Volumes (Class A, B, C, GTCC), Burial/Processed Wt., Lbs., Craft Manhours, Utility and Contractor Manhours.

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 20 of 22**

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.4.1 | Reactor | 1,037 | 2,361 | 118 | 833 | 193 | 6,373 | - | 2,868 | 13,784 | 13,784 | - | - | 2,230 | 36,903 | - | - | - | 3,286,751 | 45,596 | - |
| 4b.1.4.2 | Auxiliary | 1,105 | 356 | 12 | 80 | 92 | 582 | - | 814 | 3,040 | 3,040 | - | - | 1,060 | 3,355 | - | - | - | 332,498 | 21,222 | - |
| 4b.1.4.3 | Backwash Waste Receiving Tank | - | 24 | 1 | 11 | - | 87 | - | 30 | 154 | 154 | - | - | - | 507 | - | - | - | 43,896 | 264 | - |
| 4b.1.4.4 | Drum Transfer & Truck Loading Enclosure | 15 | 7 | 0 | 2 | 2 | 13 | - | 13 | 52 | 52 | - | - | 19 | 74 | - | - | - | 7,118 | 328 | - |
| 4b.1.4.5 | LLRW Storage Enclosure | 105 | 45 | 1 | 11 | 3 | 87 | - | 88 | 341 | 341 | - | - | 38 | 502 | - | - | - | 44,971 | 2,149 | - |
| 4b.1.4.6 | Radwaste | 47 | 20 | 1 | 5 | 4 | 39 | - | 40 | 155 | 155 | - | - | 42 | 225 | - | - | - | 21,136 | 963 | - |
| 4b.1.4.7 | Resin Disposal | 14 | 10 | 0 | 2 | 7 | 12 | - | 14 | 60 | 60 | - | - | 83 | 69 | - | - | - | 9,271 | 340 | - |
| 4b.1.4.8 | Fuel Handling of Aux Building | 875 | 966 | 9 | 32 | 209 | 173 | - | 759 | 3,024 | 3,024 | - | - | 2,417 | 944 | - | - | - | 177,818 | 27,141 | - |
| 4b.1.4 | Totals | 3,199 | 3,791 | 143 | 977 | 509 | 7,366 | - | 4,626 | 20,611 | 20,611 | - | - | 5,889 | 42,580 | - | - | - | 3,923,460 | 98,004 | - |
| 4b.1.5 | Prepare/submit License Termination Plan | - | - | - | - | - | - | 206 | 31 | 236 | 236 | - | - | - | - | - | - | - | - | - | 1,751 |
| 4b.1.6 | Receive NRC approval of termination plan | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 4b.1 | Subtotal Period 4b Activity Costs | 3,496 | 24,833 | 864 | 1,872 | 9,767 | 12,471 | 206 | 12,675 | 66,184 | 63,174 | - | 3,010 | 112,746 | 60,568 | - | - | - | 9,456,834 | 374,192 | 1,751 |
| Period 4b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 4b.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 |
| 4b.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 2,832 | 849 | 3,681 | 3,681 | - | - | - | - | - | - | - | - | 37,017 | - |
| 4b.2.3 | Excavation of Underground Services | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | 7,407 | - |
| 4b.2.4 | Operational Equipment | - | - | 9 | 29 | 312 | - | - | 52 | 402 | 402 | - | - | 5,855 | - | - | - | - | 146,375 | 16 | - |
| 4b.2.5 | License Termination ISFSI | - | 37 | 2 | 211 | - | 2,157 | 1,158 | 891 | 4,456 | 4,456 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,403 | 5,284 |
| 4b.2.6 | Demolition and Site Restoration ISFSI | - | 399 | - | - | - | - | 87 | 73 | 558 | - | - | 558 | - | - | - | - | - | - | 1,900 | 160 |
| 4b.2 | Subtotal Period 4b Additional Costs | - | 1,246 | 11 | 240 | 312 | 2,157 | 5,441 | 2,319 | 11,726 | 9,637 | - | 2,089 | 5,855 | 7,458 | - | - | - | 1,218,360 | 49,742 | 11,684 |
| Period 4b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 4b.3.1 | Process decommissioning water waste | 7 | - | 11 | 29 | - | 46 | - | 20 | 113 | 113 | - | - | - | 109 | - | - | - | 6,546 | 21 | - |
| 4b.3.3 | Small tool allowance | - | 417 | - | - | - | - | - | 63 | 480 | 480 | - | - | - | - | - | - | - | - | - | - |
| 4b.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - |
| 4b.3.5 | On-site survey and release of 0.437 tons clean metallic waste | - | - | - | - | - | - | 1 | 0 | 1 | 1 | - | - | - | - | - | - | - | - | - | - |
| 4b.3 | Subtotal Period 4b Collateral Costs | 7 | 417 | 155 | 84 | 575 | 196 | 1 | 229 | 1,664 | 1,664 | - | - | 6,000 | 638 | - | - | - | 311,514 | 109 | - |
| Period 4b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 4b.4.1 | Decon supplies | 1,338 | - | - | - | - | - | - | 335 | 1,673 | 1,673 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.2 | Insurance | - | - | - | - | - | - | 910 | 91 | 1,001 | 1,001 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.3 | Property taxes | - | - | - | - | - | - | 2,554 | 255 | 2,809 | 2,809 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.4 | Health physics supplies | - | 2,897 | - | - | - | - | - | 724 | 3,621 | 3,621 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.5 | Heavy equipment rental | - | 4,021 | - | - | - | - | - | 603 | 4,624 | 4,624 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.6 | Disposal of DAW generated | - | - | 128 | 37 | - | 476 | - | 137 | 778 | 778 | - | - | - | 5,849 | - | - | - | 116,984 | 191 | - |
| 4b.4.7 | Plant energy budget | - | - | - | - | - | - | 2,023 | 303 | 2,326 | 2,326 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.8 | NRC Fees | - | - | - | - | - | - | 677 | 68 | 745 | 745 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.9 | Fixed Overhead | - | - | - | - | - | - | 2,205 | 331 | 2,535 | 2,535 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.10 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 721 | 108 | 829 | 829 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 103 | 15 | 118 | 118 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.12 | Security Staff Cost | - | - | - | - | - | - | 6,843 | 1,026 | 7,870 | 7,870 | - | - | - | - | - | - | - | - | - | 115,753 |
| 4b.4.13 | DOC Staff Cost | - | - | - | - | - | - | 21,571 | 3,236 | 24,806 | 24,806 | - | - | - | - | - | - | - | - | - | 248,175 |
| 4b.4.14 | Utility Staff Cost | - | - | - | - | - | - | 26,893 | 4,034 | 30,927 | 30,927 | - | - | - | - | - | - | - | - | - | 437,085 |
| 4b.4 | Subtotal Period 4b Period-Dependent Costs | 1,338 | 6,917 | 128 | 37 | - | 476 | 64,499 | 11,267 | 84,662 | 84,662 | - | - | - | 5,849 | - | - | - | 116,984 | 191 | 801,014 |
| 4b.0 | TOTAL PERIOD 4b COST | 4,841 | 33,414 | 1,158 | 2,234 | 10,654 | 15,300 | 70,147 | 26,490 | 164,237 | 159,138 | - | 5,099 | 124,601 | 74,513 | - | - | - | 11,103,690 | 424,234 | 814,449 |
| PERIOD 4f - License Termination | | | | | | | | | | | | | | | | | | | | | |
| Period 4f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 4f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| 4f.1.2 | Terminate license | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 4f.1 | Subtotal Period 4f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| Period 4f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 4f.2.1 | License Termination Survey | - | - | - | - | - | - | 7,406 | 2,222 | 9,628 | 9,628 | - | - | - | - | - | - | - | - | 102,642 | 3,120 |
| 4f.2 | Subtotal Period 4f Additional Costs | - | - | - | - | - | - | 7,406 | 2,222 | 9,628 | 9,628 | - | - | - | - | - | - | - | - | 102,642 | 3,120 |
| Period 4f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 4f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 4f.3 | Subtotal Period 4f Collateral Costs | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 21 of 22**

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 4f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.2 | Property taxes | - | - | - | - | - | - | 1,002 | 100 | 1,102 | 1,102 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.3 | Health physics supplies | - | 600 | - | - | - | - | - | 150 | 750 | 750 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 332 | - | - | - | - | 6,649 | 11 | |
| 4f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.6 | NRC Fees | - | - | - | - | - | - | 272 | 27 | 299 | 299 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.7 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | 50 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.9 | Security Staff Cost | - | - | - | - | - | - | 707 | 106 | 813 | 813 | - | - | - | - | - | - | - | - | - | 11,668 | |
| 4f.4.10 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | 46,283 | |
| 4f.4.11 | Utility Staff Cost | - | - | - | - | - | - | 3,630 | 544 | 4,174 | 4,174 | - | - | - | - | - | - | - | - | - | 56,395 | |
| 4f.4 | Subtotal Period 4f Period-Dependent Costs | - | 600 | 7 | 2 | - | 27 | 11,289 | 1,768 | 13,695 | 13,695 | - | - | - | 332 | - | - | - | - | 6,649 | 11 | 114,346 |
| 4f.0 | TOTAL PERIOD 4f COST | - | 600 | 7 | 2 | - | 27 | 20,061 | 4,222 | 24,919 | 24,919 | - | - | - | 332 | - | - | - | - | 6,649 | 102,652 | 117,466 |
| PERIOD 4 TOTALS | | 5,126 | 61,497 | 27,372 | 5,543 | 14,017 | 40,383 | 134,832 | 64,365 | 353,136 | 345,452 | - | 7,684 | 165,917 | 105,467 | 125 | 673 | 3,746 | 16,130,620 | 732,456 | 1,467,082 | |
| PERIOD 5b - Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 5b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 5b.1.1.1 | Reactor | - | 4,256 | - | - | - | - | - | 638 | 4,895 | - | - | 4,895 | - | - | - | - | - | - | - | 44,679 | - |
| 5b.1.1.2 | Auxiliary | - | 1,897 | - | - | - | - | - | 285 | 2,182 | - | - | 2,182 | - | - | - | - | - | - | - | 11,902 | - |
| 5b.1.1.3 | Condensate Storage Tank Foundation | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | - | 33 | - |
| 5b.1.1.4 | Construction Warehouse & Fab Shop | - | 118 | - | - | - | - | - | 18 | 135 | - | - | 135 | - | - | - | - | - | - | - | 1,405 | - |
| 5b.1.1.5 | D3/D4 Emergency Generator | - | 13 | - | - | - | - | - | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | 84 | - |
| 5b.1.1.6 | Drum Transfer & Truck Loading Enclosure | - | 19 | - | - | - | - | - | 3 | 21 | - | - | 21 | - | - | - | - | - | - | - | 221 | - |
| 5b.1.1.7 | Hydrogen House | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | - | 47 | - |
| 5b.1.1.8 | LLRW Storage Enclosure | - | 121 | - | - | - | - | - | 18 | 139 | - | - | 139 | - | - | - | - | - | - | - | 853 | - |
| 5b.1.1.9 | Misc Structures 2017 | - | 1,391 | - | - | - | - | - | 209 | 1,599 | - | - | 1,599 | - | - | - | - | - | - | - | 12,939 | - |
| 5b.1.1.10 | Radwaste | - | 165 | - | - | - | - | - | 25 | 190 | - | - | 190 | - | - | - | - | - | - | - | 1,400 | - |
| 5b.1.1.11 | Resin Disposal | - | 13 | - | - | - | - | - | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | 120 | - |
| 5b.1.1.12 | Structures below 3' below grade | - | 1,713 | - | - | - | - | - | 257 | 1,969 | - | - | 1,969 | - | - | - | - | - | - | - | 9,238 | - |
| 5b.1.1.13 | Sulfuric Acid Tank Enclosure | - | 3 | - | - | - | - | - | 0 | 3 | - | - | 3 | - | - | - | - | - | - | - | 35 | - |
| 5b.1.1.14 | Turbine | - | 1,983 | - | - | - | - | - | 298 | 2,281 | - | - | 2,281 | - | - | - | - | - | - | - | 22,052 | - |
| 5b.1.1.15 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | - | 1,857 | - |
| 5b.1.1.16 | Warehouse #2 | - | 22 | - | - | - | - | - | 3 | 25 | - | - | 25 | - | - | - | - | - | - | - | 213 | - |
| 5b.1.1.17 | Waste Neutralizing Tank House | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | 56 | - |
| 5b.1.1.18 | Waste Oil Storage | - | 8 | - | - | - | - | - | 1 | 10 | - | - | 10 | - | - | - | - | - | - | - | 70 | - |
| 5b.1.1.19 | Water Treatment | - | 303 | - | - | - | - | - | 46 | 349 | - | - | 349 | - | - | - | - | - | - | - | 2,690 | - |
| 5b.1.1.20 | Fuel Handling of Aux Building | - | 1,032 | - | - | - | - | - | 155 | 1,186 | - | - | 1,186 | - | - | - | - | - | - | - | 8,240 | - |
| 5b.1.1 | Totals | - | 13,424 | - | - | - | - | - | 2,014 | 15,438 | - | - | 15,438 | - | - | - | - | - | - | - | 118,134 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | | |
| 5b.1.2 | Remove Rubble | - | 1,492 | - | - | - | - | - | 224 | 1,716 | - | - | 1,716 | - | - | - | - | - | - | - | 7,408 | - |
| 5b.1.3 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | - | 921 | - |
| 5b.1.4 | Final report to NRC | - | - | - | - | - | - | 78 | 12 | 90 | 90 | - | - | - | - | - | - | - | - | - | - | 667 |
| 5b.1 | Subtotal Period 5b Activity Costs | - | 15,347 | - | - | - | - | 78 | 2,314 | 17,740 | 90 | - | 17,650 | - | - | - | - | - | - | - | 126,463 | 667 |
| Period 5b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.2.1 | Clean Concrete Disposal | - | 3,313 | - | - | - | - | 8 | 498 | 3,818 | - | - | 3,818 | - | - | - | - | - | - | - | 12,824 | - |
| 5b.2.2 | Intake Structure Cofferdam | - | 423 | - | - | - | - | - | 63 | 486 | - | - | 486 | - | - | - | - | - | - | - | 3,552 | - |
| 5b.2.3 | Construction Debris | - | - | - | - | - | - | 463 | 69 | 532 | - | - | 532 | - | - | - | - | - | - | - | - | - |
| 5b.2.4 | Backfill | - | 8,465 | - | - | - | - | - | 1,270 | 9,735 | - | - | 9,735 | - | - | - | - | - | - | - | 9,327 | - |
| 5b.2 | Subtotal Period 5b Additional Costs | - | 12,201 | - | - | - | - | 471 | 1,901 | 14,572 | - | - | 14,572 | - | - | - | - | - | - | - | 25,703 | - |
| Period 5b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.3.1 | Small tool allowance | - | 169 | - | - | - | - | - | 25 | 194 | - | - | 194 | - | - | - | - | - | - | - | - | - |
| 5b.3 | Subtotal Period 5b Collateral Costs | - | 169 | - | - | - | - | - | 25 | 194 | - | - | 194 | - | - | - | - | - | - | - | - | - |
| Period 5b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.4.2 | Property taxes | - | - | - | - | - | - | 526 | 53 | 579 | - | - | 579 | - | - | - | - | - | - | - | - | - |
| 5b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - | - |
| 5b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - | - |
| 5b.4.5 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - | - |
| 5b.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 122 | 18 | 141 | - | - | 141 | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix H, Page 22 of 22**

**Table H-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with DOE Pickup of Industry Spent Fuel Starting in 2025
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial / Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|---------------|----------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|------------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|------------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 5b Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 5b.4.7 | Security Staff Cost | - | - | - | - | - | - | 1,812 | 272 | 2,084 | - | - | 2,084 | - | - | - | - | - | - | - | - | 29,221 |
| 5b.4.8 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | - | 116,885 |
| 5b.4.9 | Utility Staff Cost | - | - | - | - | - | - | 3,673 | 551 | 4,224 | - | - | 4,224 | - | - | - | - | - | - | - | - | 57,340 |
| 5b.4 | Subtotal Period 5b Period-Dependent Costs | - | 6,670 | - | - | - | - | 17,912 | 3,661 | 28,242 | - | - | 28,242 | - | - | - | - | - | - | - | - | 203,445 |
| 5b.0 | TOTAL PERIOD 5b COST | - | 34,387 | - | - | - | - | 18,461 | 7,901 | 60,748 | 90 | - | 60,658 | - | - | - | - | - | - | 152,166 | 204,112 | |
| PERIOD 5 TOTALS | | - | 34,387 | - | - | - | - | 18,461 | 7,901 | 60,748 | 90 | - | 60,658 | - | - | - | - | - | - | 152,166 | 204,112 | |
| TOTAL COST TO DECOMMISSION | | 11,879 | 108,769 | 27,994 | 6,103 | 14,186 | 42,876 | 774,398 | 157,417 | 1,143,621 | 841,160 | 233,483 | 68,978 | 172,241 | 127,188 | 125 | 673 | 3,746 | 16,886,860 | 980,098 | 4,996,280 | |

| | | |
|--|--------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 15.96% CONTINGENCY: | \$1,143,621 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 73.55% OR: | \$841,160 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 20.42% OR: | \$233,483 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 6.03% OR: | \$68,978 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 127,986 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 41,593 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 980,098 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix I, Page 1 of 22***

APPENDIX I

DETAILED COST ANALYSIS

SCENARIO 7: SAFSTOR with 60 Year DFS

| | <u>Page</u> |
|---|-------------|
| Prairie Island Nuclear Generating Plant, Unit 1 | I-2 |
| Prairie Island Nuclear Generating Plant, Unit 2 | I-11 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 2 of 22**

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|--|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| PERIOD 1a - Shutdown through Transition | | | | | | | | | | | | | | | | | | | | | |
| Period 1a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.1 | SAFSTOR site characterization survey | - | - | - | - | - | - | 571 | 171 | 742 | 742 | - | - | - | - | - | - | - | - | - | - |
| 1a.1.2 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | 1,300 |
| 1a.1.3 | Notification of Cessation of Operations | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.4 | Remove fuel & source material | - | - | - | - | - | - | - | - | n/a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.5 | Notification of Permanent Defueling | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.6 | Deactivate plant systems & process waste | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.7 | Prepare and submit PSDAR | - | - | - | - | - | - | 235 | 35 | 270 | 270 | - | - | - | - | - | - | - | - | - | 2,000 |
| 1a.1.8 | Review plant dwgs & specs. | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | 1,300 |
| 1a.1.9 | Perform detailed rad survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.10 | Estimate by-product inventory | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1a.1.11 | End product description | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1a.1.12 | Detailed by-product inventory | - | - | - | - | - | - | 176 | 26 | 202 | 202 | - | - | - | - | - | - | - | - | - | 1,500 |
| 1a.1.13 | Define major work sequence | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 1a.1.14 | Perform SER and EA | - | - | - | - | - | - | 364 | 55 | 418 | 418 | - | - | - | - | - | - | - | - | - | 3,100 |
| 1a.1.15 | Prepare/submit Defueled Technical Specifications | - | - | - | - | - | - | 880 | 132 | 1,012 | 1,012 | - | - | - | - | - | - | - | - | - | 7,500 |
| 1a.1.16 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 587 | 88 | 675 | 675 | - | - | - | - | - | - | - | - | - | 5,000 |
| 1a.1.17 | Prepare/submit Irradiated Fuel Management Plan | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.18.1 | Prepare plant and facilities for SAFSTOR | - | - | - | - | - | - | 578 | 87 | 664 | 664 | - | - | - | - | - | - | - | - | - | 4,920 |
| 1a.1.18.2 | Plant systems | - | - | - | - | - | - | 489 | 73 | 562 | 562 | - | - | - | - | - | - | - | - | - | 4,167 |
| 1a.1.18.3 | Plant structures and buildings | - | - | - | - | - | - | 366 | 55 | 421 | 421 | - | - | - | - | - | - | - | - | - | 3,120 |
| 1a.1.18.4 | Waste management | - | - | - | - | - | - | 235 | 35 | 270 | 270 | - | - | - | - | - | - | - | - | - | 2,000 |
| 1a.1.18.5 | Facility and site dormancy | - | - | - | - | - | - | 235 | 35 | 270 | 270 | - | - | - | - | - | - | - | - | - | 2,000 |
| 1a.1.18 | Total | - | - | - | - | - | - | 1,902 | 285 | 2,188 | 2,188 | - | - | - | - | - | - | - | - | - | 16,207 |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.19.1 | Plant systems | - | - | - | - | - | - | 139 | 21 | 160 | 160 | - | - | - | - | - | - | - | - | - | 1,183 |
| 1a.1.19.2 | Facility closeout & dormancy | - | - | - | - | - | - | 141 | 21 | 162 | 162 | - | - | - | - | - | - | - | - | - | 1,200 |
| 1a.1.19 | Total | - | - | - | - | - | - | 280 | 42 | 322 | 322 | - | - | - | - | - | - | - | - | - | 2,383 |
| 1a.1.20 | Procure vacuum drying system | - | - | - | - | - | - | 12 | 2 | 13 | 13 | - | - | - | - | - | - | - | - | - | 100 |
| 1a.1.21 | Drain/de-energize non-cont. systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.22 | Drain & dry NSSS | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.23 | Drain/de-energize contaminated systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.24 | Decon/secure contaminated systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1 | Subtotal Period 1a Activity Costs | - | - | - | - | - | - | 5,781 | 953 | 6,734 | 6,734 | - | - | - | - | - | - | - | - | - | 44,390 |
| Period 1a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 1a.3.1 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,003 | - | 2,003 | - | 2,003 | - | - | - | - | - | - | - | - | - |
| 1a.3 | Subtotal Period 1a Collateral Costs | - | - | - | - | - | - | 2,003 | - | 2,003 | - | 2,003 | - | - | - | - | - | - | - | - | - |
| Period 1a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 1a.4.1 | Insurance | - | - | - | - | - | - | 1,730 | 173 | 1,903 | 1,903 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.2 | Property taxes | - | - | - | - | - | - | 2,682 | 268 | 2,950 | 2,950 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.3 | Health physics supplies | - | 515 | - | - | - | - | - | 129 | 644 | 644 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.5 | Disposal of DAW generated | - | - | 13 | 4 | - | 50 | - | 14 | 81 | 81 | - | - | - | 610 | - | - | - | 12,190 | 20 | - |
| 1a.4.6 | Plant energy budget | - | - | - | - | - | 1,515 | - | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.7 | NRC Fees | - | - | - | - | - | - | - | 111 | 1,221 | 1,221 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.8 | Emergency Planning Fees | - | - | - | - | - | 1,604 | - | 160 | 1,765 | - | 1,765 | - | - | - | - | - | - | - | - | - |
| 1a.4.9 | Fixed Overhead | - | - | - | - | - | 1,470 | - | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.10 | Spent Fuel Pool O&M | - | - | - | - | - | 401 | - | 60 | 461 | - | 461 | - | - | - | - | - | - | - | - | - |
| 1a.4.11 | ISFSI Operating Costs | - | - | - | - | - | 52 | - | 8 | 59 | - | 59 | - | - | - | - | - | - | - | - | - |
| 1a.4.12 | Railroad Track Maintenance | - | - | - | - | - | 58 | - | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.13 | Security Staff Cost | - | - | - | - | - | 7,390 | - | 1,108 | 8,498 | 8,498 | - | - | - | - | - | - | - | - | - | 122,720 |
| 1a.4.14 | Utility Staff Cost | - | - | - | - | - | 25,791 | - | 3,869 | 29,660 | 29,660 | - | - | - | - | - | - | - | - | - | 422,240 |
| 1a.4 | Subtotal Period 1a Period-Dependent Costs | - | 1,083 | 13 | 4 | - | 50 | 43,802 | 6,442 | 51,394 | 49,108 | 2,286 | - | - | 610 | - | - | - | 12,190 | 20 | 544,960 |
| 1a.0 | TOTAL PERIOD 1a COST | - | 1,083 | 13 | 4 | - | 50 | 51,587 | 7,395 | 60,131 | 55,842 | 4,289 | - | - | 610 | - | - | - | 12,190 | 20 | 589,350 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix I, Page 3 of 22*

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 1b - SAFSTOR Limited DECON Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 1b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 1b.1.1.1 | Reactor | 1,135 | - | - | - | - | - | - | 568 | 1,703 | 1,703 | - | - | - | - | - | - | - | - | 17,003 | - | |
| 1b.1.1 | Totals | 1,135 | - | - | - | - | - | - | 568 | 1,703 | 1,703 | - | - | - | - | - | - | - | - | 17,003 | - | |
| 1b.1 | Subtotal Period 1b Activity Costs | 1,135 | - | - | - | - | - | - | 568 | 1,703 | 1,703 | - | - | - | - | - | - | - | - | 17,003 | - | |
| Period 1b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.2.1 | Spent fuel pool isolation | - | - | - | - | - | - | 11,691 | 1,754 | 13,445 | 13,445 | - | - | - | - | - | - | - | - | - | - | |
| 1b.2 | Subtotal Period 1b Additional Costs | - | - | - | - | - | - | 11,691 | 1,754 | 13,445 | 13,445 | - | - | - | - | - | - | - | - | - | - | |
| Period 1b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - | |
| 1b.3.2 | Process decommissioning water waste | 77 | - | 50 | 130 | - | 204 | - | 114 | 575 | 575 | - | - | - | 486 | - | - | - | - | 29,184 | 95 | |
| 1b.3.4 | Small tool allowance | - | 19 | - | - | - | - | - | 3 | 22 | 22 | - | - | - | - | - | - | - | - | - | - | |
| 1b.3.5 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 315 | - | 315 | - | 315 | - | - | - | - | - | - | - | - | - | |
| 1b.3 | Subtotal Period 1b Collateral Costs | 1,050 | 19 | 50 | 130 | - | 204 | 315 | 263 | 2,031 | 1,716 | 315 | - | - | 486 | - | - | - | - | 29,184 | 95 | |
| Period 1b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.4.1 | Decon supplies | 415 | - | - | - | - | - | - | 104 | 518 | 518 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.2 | Insurance | - | - | - | - | - | - | 436 | 44 | 480 | 480 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.3 | Property taxes | - | - | - | - | - | - | 676 | 68 | 744 | 744 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.4 | Health physics supplies | - | 212 | - | - | - | - | - | 53 | 264 | 264 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.5 | Heavy equipment rental | - | 143 | - | - | - | - | - | 21 | 164 | 164 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.6 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 43 | 43 | - | - | - | 326 | - | - | - | - | 6,519 | 11 | |
| 1b.4.7 | Plant energy budget | - | - | - | - | - | - | 382 | 57 | 439 | 439 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.8 | NRC Fees | - | - | - | - | - | - | 161 | 16 | 178 | 178 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 404 | 40 | 445 | - | 445 | - | - | - | - | - | - | - | - | - | |
| 1b.4.10 | Fixed Overhead | - | - | - | - | - | - | 370 | 56 | 426 | 426 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 101 | 15 | 116 | - | 116 | - | - | - | - | - | - | - | - | - | |
| 1b.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 13 | 2 | 15 | - | 15 | - | - | - | - | - | - | - | - | - | |
| 1b.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 15 | 2 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | |
| 1b.4.14 | Security Staff Cost | - | - | - | - | - | - | 1,863 | 279 | 2,142 | 2,142 | - | - | - | - | - | - | - | - | - | 30,932 | |
| 1b.4.15 | Utility Staff Cost | - | - | - | - | - | - | 6,501 | 975 | 7,476 | 7,476 | - | - | - | - | - | - | - | - | - | 106,428 | |
| 1b.4 | Subtotal Period 1b Period-Dependent Costs | 415 | 355 | 7 | 2 | - | 27 | 10,922 | 1,740 | 13,467 | 12,891 | 576 | - | - | 326 | - | - | - | - | 6,519 | 11 | 137,360 |
| 1b.0 | TOTAL PERIOD 1b COST | 2,600 | 373 | 57 | 132 | - | 230 | 22,929 | 4,324 | 30,645 | 29,754 | 891 | - | - | 812 | - | - | - | - | 35,703 | 17,108 | 137,360 |
| PERIOD 1c - Preparations for SAFSTOR Dormancy | | | | | | | | | | | | | | | | | | | | | | |
| Period 1c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 1c.1.1 | Prepare support equipment for storage | - | 486 | - | - | - | - | - | 73 | 559 | 559 | - | - | - | - | - | - | - | - | - | 3,000 | |
| 1c.1.2 | Install containment pressure equal. lines | - | 48 | - | - | - | - | - | 7 | 55 | 55 | - | - | - | - | - | - | - | - | - | 700 | |
| 1c.1.3 | Interim survey prior to dormancy | - | - | - | - | - | - | 733 | 220 | 953 | 953 | - | - | - | - | - | - | - | - | - | 9,017 | |
| 1c.1.4 | Secure building accesses | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 1c.1.5 | Prepare & submit interim report | - | - | - | - | - | - | 68 | 10 | 79 | 79 | - | - | - | - | - | - | - | - | - | 583 | |
| 1c.1 | Subtotal Period 1c Activity Costs | - | 534 | - | - | - | - | 801 | 310 | 1,646 | 1,646 | - | - | - | - | - | - | - | - | - | 12,717 | 583 |
| Period 1c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1c.3.1 | Process decommissioning water waste | 88 | - | 58 | 150 | - | 234 | - | 131 | 661 | 661 | - | - | - | 560 | - | - | - | - | 33,579 | 109 | |
| 1c.3.3 | Small tool allowance | - | 4 | - | - | - | - | - | 1 | 5 | 5 | - | - | - | - | - | - | - | - | - | - | |
| 1c.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 159 | 24 | 183 | - | 183 | - | - | - | - | - | - | - | - | - | |
| 1c.3.5 | Retention and Severance | - | - | - | - | - | - | 1,088 | 163 | 1,251 | 1,251 | - | - | - | - | - | - | - | - | - | - | |
| 1c.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 315 | - | 315 | - | 315 | - | - | - | - | - | - | - | - | - | |
| 1c.3 | Subtotal Period 1c Collateral Costs | 88 | 4 | 58 | 150 | - | 234 | 1,562 | 319 | 2,415 | 1,917 | 498 | - | - | 560 | - | - | - | - | 33,579 | 109 | |
| Period 1c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1c.4.1 | Insurance | - | - | - | - | - | - | 436 | 44 | 480 | 480 | - | - | - | - | - | - | - | - | - | - | |
| 1c.4.2 | Property taxes | - | - | - | - | - | - | 676 | 68 | 744 | 744 | - | - | - | - | - | - | - | - | - | - | |
| 1c.4.3 | Health physics supplies | - | 191 | - | - | - | - | - | 48 | 239 | 239 | - | - | - | - | - | - | - | - | - | - | |
| 1c.4.4 | Heavy equipment rental | - | 143 | - | - | - | - | - | 21 | 164 | 164 | - | - | - | - | - | - | - | - | - | - | |
| 1c.4.5 | Disposal of DAW generated | - | - | 3 | 1 | - | 13 | - | 4 | 20 | 20 | - | - | - | 154 | - | - | - | - | 3,073 | 5 | |
| 1c.4.6 | Plant energy budget | - | - | - | - | - | - | 382 | 57 | 439 | 439 | - | - | - | - | - | - | - | - | - | - | |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 4 of 22**

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|--------------|--------------|-----------------|-----------------|---------------------------|---------------------|---------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 1c Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | |
| 1c.4.7 | NRC Fees | - | - | - | - | - | - | 161 | 16 | 178 | 178 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.8 | Emergency Planning Fees | - | - | - | - | - | - | 404 | 40 | 445 | - | 445 | - | - | - | - | - | - | - | - | - |
| 1c.4.9 | Fixed Overhead | - | - | - | - | - | - | 370 | 56 | 426 | 426 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.10 | Spent Fuel Pool O&M | - | - | - | - | - | - | 101 | 15 | 116 | - | 116 | - | - | - | - | - | - | - | - | - |
| 1c.4.11 | ISFSI Operating Costs | - | - | - | - | - | - | 13 | 2 | 15 | - | 15 | - | - | - | - | - | - | - | - | - |
| 1c.4.12 | Railroad Track Maintenance | - | - | - | - | - | - | 15 | 2 | 17 | 17 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.13 | Security Staff Cost | - | - | - | - | - | - | 1,863 | 279 | 2,142 | 2,142 | - | - | - | - | - | - | - | - | - | 30,932 |
| 1c.4.14 | Utility Staff Cost | - | - | - | - | - | - | 6,501 | 975 | 7,476 | 7,476 | - | - | - | - | - | - | - | - | - | 106,428 |
| 1c.4 | Subtotal Period 1c Period-Dependent Costs | - | 334 | 3 | 1 | - | 13 | 10,922 | 1,627 | 12,900 | 12,324 | 576 | - | - | 154 | - | - | - | 3,073 | 5 | 137,360 |
| 1c.0 | TOTAL PERIOD 1c COST | 88 | 873 | 61 | 151 | - | 247 | 13,285 | 2,256 | 16,961 | 15,887 | 1,074 | - | - | 713 | - | - | - | 36,652 | 12,832 | 137,943 |
| PERIOD 1 TOTALS | | 2,688 | 2,329 | 132 | 287 | - | 527 | 87,801 | 13,975 | 107,738 | 101,484 | 6,254 | - | - | 2,135 | - | - | - | 84,545 | 29,960 | 864,653 |
| PERIOD 2a - SAFSTOR Dormancy with Wet Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2a.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2a.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2a.1.3 | Prepare reports | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2a.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 68 | 10 | 78 | 78 | - | - | - | - | - | - | - | - | - | - |
| 2a.1.5 | Maintenance supplies | - | - | - | - | - | - | 643 | 161 | 804 | 804 | - | - | - | - | - | - | - | - | - | - |
| 2a.1 | Subtotal Period 2a Activity Costs | - | - | - | - | - | - | 711 | 171 | 882 | 882 | - | - | - | - | - | - | - | - | - | - |
| Period 2a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| 2a.2 | Subtotal Period 2a Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| Period 2a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 73,811 | 11,072 | 84,883 | - | 84,883 | - | - | - | - | - | - | - | - | - |
| 2a.3.2 | Retention and Severance | - | - | - | - | - | - | 23,628 | 3,544 | 27,172 | 27,172 | - | - | - | - | - | - | - | - | - | - |
| 2a.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 5,897 | - | 5,897 | - | 5,897 | - | - | - | - | - | - | - | - | - |
| 2a.3 | Subtotal Period 2a Collateral Costs | - | - | - | - | - | - | 103,336 | 14,616 | 117,952 | 27,172 | 90,780 | - | - | - | - | - | - | - | - | - |
| Period 2a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.4.1 | Insurance | - | - | - | - | - | - | 2,412 | 241 | 2,653 | 2,653 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.2 | Property taxes | - | - | - | - | - | - | 12,654 | 1,265 | 13,919 | 13,919 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.3 | Health physics supplies | - | 898 | - | - | - | - | - | 224 | 1,122 | 1,122 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.4 | Disposal of DAW generated | - | - | 21 | 6 | - | 79 | - | 23 | 129 | 129 | - | - | 972 | - | - | - | - | 19,431 | 32 | - |
| 2a.4.5 | Plant energy budget | - | - | - | - | - | - | 1,430 | 214 | 1,644 | 1,644 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.6 | NRC Fees | - | - | - | - | - | - | 1,211 | 121 | 1,332 | 1,332 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 6,061 | 606 | 6,667 | - | 6,667 | - | - | - | - | - | - | - | - | - |
| 2a.4.8 | Fixed Overhead | - | - | - | - | - | - | 6,938 | 1,041 | 7,979 | 7,979 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.9 | Spent Fuel Pool O&M | - | - | - | - | - | - | 1,894 | 284 | 2,178 | - | 2,178 | - | - | - | - | - | - | - | - | - |
| 2a.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 244 | 37 | 280 | - | 280 | - | - | - | - | - | - | - | - | - |
| 2a.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 481 | 72 | 553 | 553 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.12 | Security Staff Cost | - | - | - | - | - | - | 32,791 | 4,919 | 37,709 | 26,849 | 10,860 | - | - | - | - | - | - | - | - | 542,920 |
| 2a.4.13 | Utility Staff Cost | - | - | - | - | - | - | 11,657 | 1,748 | 13,405 | 9,531 | 3,874 | - | - | - | - | - | - | - | - | 190,075 |
| 2a.4 | Subtotal Period 2a Period-Dependent Costs | - | 898 | 21 | 6 | - | 79 | 77,772 | 10,796 | 89,573 | 65,713 | 23,860 | - | - | 972 | - | - | - | 19,431 | 32 | 732,995 |
| 2a.0 | TOTAL PERIOD 2a COST | - | 898 | 21 | 6 | - | 79 | 186,168 | 26,235 | 213,407 | 98,767 | 114,640 | - | - | 972 | - | - | - | 19,431 | 32 | 732,995 |
| PERIOD 2b - SAFSTOR Dormancy with Dry Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2b.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2b.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2b.1.3 | Prepare reports | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2b.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 549 | 82 | 631 | 631 | - | - | - | - | - | - | - | - | - | - |
| 2b.1.5 | Maintenance supplies | - | - | - | - | - | - | 5,206 | 1,301 | 6,507 | 6,507 | - | - | - | - | - | - | - | - | - | - |
| 2b.1 | Subtotal Period 2b Activity Costs | - | - | - | - | - | - | 5,754 | 1,384 | 7,138 | 7,138 | - | - | - | - | - | - | - | - | - | - |
| Period 2b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 29,940 | 4,491 | 34,431 | - | 34,431 | - | - | - | - | - | - | - | - | - |
| 2b.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 47,719 | - | 47,719 | - | 47,719 | - | - | - | - | - | - | - | - | - |
| 2b.3 | Subtotal Period 2b Collateral Costs | - | - | - | - | - | - | 77,660 | 4,491 | 82,151 | - | 82,151 | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|-----------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Insurance | - | - | - | - | - | - | 19,520 | 1,952 | 21,472 | 21,472 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.2 | Property taxes | - | - | - | - | - | - | 102,394 | 10,239 | 112,633 | 112,633 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.3 | Health physics supplies | - | 3,643 | - | - | - | - | - | 911 | 4,554 | 4,554 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.4 | Disposal of DAW generated | - | - | 86 | 25 | - | 321 | - | 93 | 525 | 525 | - | - | - | 3,946 | - | - | - | - | 78,923 | 129 | - |
| 2b.4.5 | Plant energy budget | - | - | - | - | - | - | 5,786 | 868 | 6,654 | 6,654 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.6 | NRC Fees | - | - | - | - | - | - | 9,312 | 931 | 10,244 | 10,244 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 2,612 | 261 | 2,873 | - | 2,873 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.8 | Fixed Overhead | - | - | - | - | - | - | 5,829 | 874 | 6,703 | 6,703 | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 1,972 | 296 | 2,268 | - | 2,268 | - | - | - | - | - | - | - | - | - | - |
| 2b.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 2,203 | 330 | 2,534 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2b.4.11 | Security Staff Cost | - | - | - | - | - | - | 96,335 | 14,450 | 110,786 | 22,822 | 87,964 | - | - | - | - | - | - | - | - | - | 1,430,311 |
| 2b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 50,003 | 7,500 | 57,503 | 35,767 | 21,736 | - | - | - | - | - | - | - | - | - | 794,617 |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | - | 3,643 | 86 | 25 | - | 321 | 295,966 | 38,707 | 338,748 | 223,907 | 114,842 | - | - | 3,946 | - | - | - | - | 78,923 | 129 | 2,224,928 |
| 2b.0 | TOTAL PERIOD 2b COST | - | 3,643 | 86 | 25 | - | 321 | 379,380 | 44,581 | 428,037 | 231,045 | 196,992 | - | - | 3,946 | - | - | - | - | 78,923 | 129 | 2,224,928 |
| PERIOD 2c - SAFSTOR Dormancy without Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 2c.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1.3 | Prepare reports | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 141 | 21 | 162 | 162 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1.5 | Maintenance supplies | - | - | - | - | - | - | 1,337 | 334 | 1,671 | 1,671 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.1 | Subtotal Period 2c Activity Costs | - | - | - | - | - | - | 1,478 | 355 | 1,833 | 1,833 | - | - | - | - | - | - | - | - | - | - | - |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 4,919 | 492 | 5,411 | 5,411 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 17,059 | 1,706 | 18,764 | 18,764 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.3 | Health physics supplies | - | 925 | - | - | - | - | - | 231 | 1,157 | 1,157 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.4 | Disposal of DAW generated | - | - | 22 | 6 | - | 81 | - | 23 | 133 | 133 | - | - | - | 999 | - | - | - | - | 19,973 | 33 | - |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 1,486 | 223 | 1,709 | 1,709 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 2,182 | 218 | 2,400 | 2,400 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.7 | Fixed Overhead | - | - | - | - | - | - | 1,497 | 225 | 1,721 | 1,721 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 566 | 85 | 651 | 651 | - | - | - | - | - | - | - | - | - | - | - |
| 2c.4.9 | Security Staff Cost | - | - | - | - | - | - | 21,142 | 3,171 | 24,313 | 24,313 | - | - | - | - | - | - | - | - | - | - | 306,102 |
| 2c.4.10 | Utility Staff Cost | - | - | - | - | - | - | 10,901 | 1,635 | 12,536 | 12,536 | - | - | - | - | - | - | - | - | - | - | 178,560 |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 925 | 22 | 6 | - | 81 | 59,751 | 8,009 | 68,795 | 68,795 | - | - | - | 999 | - | - | - | - | 19,973 | 33 | 484,661 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 925 | 22 | 6 | - | 81 | 61,229 | 8,365 | 70,628 | 70,628 | - | - | - | 999 | - | - | - | - | 19,973 | 33 | 484,661 |
| PERIOD 2 TOTALS | | | | | | | | | | | | | | | | | | | | | | |
| | | - | 5,466 | 129 | 38 | - | 482 | 626,776 | 79,181 | 712,072 | 400,440 | 311,632 | - | - | 5,916 | - | - | - | - | 118,328 | 193 | 3,442,584 |
| PERIOD 3a - Reactivate Site Following SAFSTOR Dormancy | | | | | | | | | | | | | | | | | | | | | | |
| Period 3a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.1 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | - | 1,300 |
| 3a.1.2 | Review plant dwgs & specs. | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | - | 4,600 |
| 3a.1.3 | Perform detailed rad survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 3a.1.4 | End product description | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | - | 1,000 |
| 3a.1.5 | Detailed by-product inventory | - | - | - | - | - | - | 153 | 23 | 175 | 175 | - | - | - | - | - | - | - | - | - | - | 1,300 |
| 3a.1.6 | Define major work sequence | - | - | - | - | - | - | 880 | 132 | 1,012 | 1,012 | - | - | - | - | - | - | - | - | - | - | 7,500 |
| 3a.1.7 | Perform SER and EA | - | - | - | - | - | - | 364 | 55 | 418 | 418 | - | - | - | - | - | - | - | - | - | - | 3,100 |
| 3a.1.8 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 587 | 88 | 675 | 675 | - | - | - | - | - | - | - | - | - | - | 5,000 |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.9.1 | Re-activate plant & temporary facilities | - | - | - | - | - | - | 865 | 130 | 995 | 895 | - | 99 | - | - | - | - | - | - | - | - | 7,370 |
| 3a.1.9.2 | Plant systems | - | - | - | - | - | - | 489 | 73 | 562 | 506 | - | 56 | - | - | - | - | - | - | - | - | 4,167 |
| 3a.1.9.3 | Reactor internals | - | - | - | - | - | - | 833 | 125 | 958 | 958 | - | - | - | - | - | - | - | - | - | - | 7,100 |
| 3a.1.9.4 | Reactor vessel | - | - | - | - | - | - | 763 | 114 | 877 | 877 | - | - | - | - | - | - | - | - | - | - | 6,500 |
| 3a.1.9.5 | Biological shield | - | - | - | - | - | - | 59 | 9 | 67 | 67 | - | - | - | - | - | - | - | - | - | - | 500 |
| 3a.1.9.6 | Steam generators | - | - | - | - | - | - | 366 | 55 | 421 | 421 | - | - | - | - | - | - | - | - | - | - | 3,120 |
| 3a.1.9.7 | Reinforced concrete | - | - | - | - | - | - | 188 | 28 | 216 | 108 | - | 108 | - | - | - | - | - | - | - | - | 1,600 |
| 3a.1.9.8 | Main Turbine | - | - | - | - | - | - | 47 | 7 | 54 | - | - | 54 | - | - | - | - | - | - | - | - | 400 |
| 3a.1.9.9 | Main Condensers | - | - | - | - | - | - | 47 | 7 | 54 | - | - | 54 | - | - | - | - | - | - | - | - | 400 |
| 3a.1.9.10 | Plant structures & buildings | - | - | - | - | - | - | 366 | 55 | 421 | 211 | - | 211 | - | - | - | - | - | - | - | - | 3,120 |
| 3a.1.9.11 | Waste management | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | - | 4,600 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 6 of 22**

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Activity Specifications (continued) | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.9.12 | Facility & site closeout | - | - | - | - | - | - | 106 | 16 | 121 | 61 | - | 61 | - | - | - | - | - | - | - | 900 |
| 3a.1.9 | Total | - | - | - | - | - | - | 4,669 | 700 | 5,369 | 4,726 | - | 643 | - | - | - | - | - | - | - | 39,777 |
| Planning & Site Preparations | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.10 | Prepare dismantling sequence | - | - | - | - | - | - | 282 | 42 | 324 | 324 | - | - | - | - | - | - | - | - | - | 2,400 |
| 3a.1.11 | Plant prep. & temp. svces | - | - | - | - | - | - | 3,300 | 495 | 3,795 | 3,795 | - | - | - | - | - | - | - | - | - | - |
| 3a.1.12 | Design water clean-up system | - | - | - | - | - | - | 164 | 25 | 189 | 189 | - | - | - | - | - | - | - | - | - | 1,400 |
| 3a.1.13 | Rigging/Cont. Cntrl Envlps/tooling/etc. | - | - | - | - | - | - | 2,300 | 345 | 2,645 | 2,645 | - | - | - | - | - | - | - | - | - | - |
| 3a.1.14 | Procure casks/liners & containers | - | - | - | - | - | - | 144 | 22 | 166 | 166 | - | - | - | - | - | - | - | - | - | 1,230 |
| 3a.1 | Subtotal Period 3a Activity Costs | - | - | - | - | - | - | 13,653 | 2,048 | 15,701 | 15,058 | - | 643 | - | - | - | - | - | - | - | 68,607 |
| Period 3a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.2.1 | Site Characterization | - | - | - | - | - | - | 3,700 | 1,110 | 4,810 | 4,810 | - | - | - | - | - | - | - | - | - | 21,020 |
| 3a.2.2 | Mixed/Hazardous Waste | - | - | 318 | 75 | 164 | - | - | 68 | 624 | 624 | - | - | 6,133 | - | - | - | - | - | 351,986 | 2,361 |
| 3a.2.3 | Asbestos Abatement | - | 2,364 | 2 | 110 | - | 1,359 | - | 947 | 4,782 | 4,782 | - | - | - | 12,843 | - | - | - | - | 166,959 | 20,907 |
| 3a.2 | Subtotal Period 3a Additional Costs | - | 2,364 | 320 | 185 | 164 | 1,359 | 3,700 | 2,125 | 10,216 | 10,216 | - | - | 6,133 | 12,843 | - | - | - | - | 518,945 | 44,288 |
| Period 3a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.3.1 | Small tool allowance | - | 32 | - | - | - | - | - | 5 | 37 | 37 | - | - | - | - | - | - | - | - | - | - |
| 3a.3 | Subtotal Period 3a Collateral Costs | - | 32 | - | - | - | - | - | 5 | 37 | 37 | - | - | - | - | - | - | - | - | - | - |
| Period 3a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.4.1 | Insurance | - | - | - | - | - | - | 501 | 50 | 552 | 552 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.2 | Property taxes | - | - | - | - | - | - | 1,736 | 174 | 1,909 | 1,909 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.3 | Health physics supplies | - | 562 | - | - | - | - | - | 140 | 702 | 702 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.5 | Disposal of DAW generated | - | - | 11 | 3 | - | 42 | - | 12 | 68 | 68 | - | - | - | 514 | - | - | - | - | 10,287 | 17 |
| 3a.4.6 | Plant energy budget | - | - | - | - | - | - | 1,515 | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.7 | NRC Fees | - | - | - | - | - | - | 341 | 34 | 376 | 376 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.8 | Fixed Overhead | - | - | - | - | - | - | 1,470 | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 58 | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.10 | Security Staff Cost | - | - | - | - | - | - | 3,843 | 576 | 4,419 | 4,419 | - | - | - | - | - | - | - | - | - | 65,000 |
| 3a.4.11 | Utility Staff Cost | - | - | - | - | - | - | 15,819 | 2,373 | 18,191 | 18,191 | - | - | - | - | - | - | - | - | - | 257,920 |
| 3a.4 | Subtotal Period 3a Period-Dependent Costs | - | 1,129 | 11 | 3 | - | 42 | 25,282 | 3,901 | 30,368 | 30,368 | - | - | - | 514 | - | - | - | - | 10,287 | 17 |
| 3a.0 | TOTAL PERIOD 3a COST | - | 3,524 | 331 | 188 | 164 | 1,401 | 42,635 | 8,078 | 56,321 | 55,678 | - | 643 | 6,133 | 13,357 | - | - | - | - | 529,232 | 44,305 |
| PERIOD 3b - Decommissioning Preparations | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Plant systems | - | - | - | - | - | - | 556 | 83 | 639 | 575 | - | 64 | - | - | - | - | - | - | - | 4,733 |
| 3b.1.1.2 | Reactor internals | - | - | - | - | - | - | 293 | 44 | 337 | 337 | - | - | - | - | - | - | - | - | - | 2,500 |
| 3b.1.1.3 | Remaining buildings | - | - | - | - | - | - | 158 | 24 | 182 | 46 | - | 137 | - | - | - | - | - | - | - | 1,350 |
| 3b.1.1.4 | CRD cooling assembly | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 3b.1.1.5 | CRD housings & ICI tubes | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 3b.1.1.6 | Incore instrumentation | - | - | - | - | - | - | 117 | 18 | 135 | 135 | - | - | - | - | - | - | - | - | - | 1,000 |
| 3b.1.1.7 | Reactor vessel | - | - | - | - | - | - | 426 | 64 | 490 | 490 | - | - | - | - | - | - | - | - | - | 3,630 |
| 3b.1.1.8 | Facility closeout | - | - | - | - | - | - | 141 | 21 | 162 | 81 | - | 81 | - | - | - | - | - | - | - | 1,200 |
| 3b.1.1.9 | Missile shields | - | - | - | - | - | - | 53 | 8 | 61 | 61 | - | - | - | - | - | - | - | - | - | 450 |
| 3b.1.1.10 | Biological shield | - | - | - | - | - | - | 141 | 21 | 162 | 162 | - | - | - | - | - | - | - | - | - | 1,200 |
| 3b.1.1.11 | Steam generators | - | - | - | - | - | - | 540 | 81 | 621 | 621 | - | - | - | - | - | - | - | - | - | 4,600 |
| 3b.1.1.12 | Reinforced concrete | - | - | - | - | - | - | 117 | 18 | 135 | 67 | - | 67 | - | - | - | - | - | - | - | 1,000 |
| 3b.1.1.13 | Main Turbine | - | - | - | - | - | - | 183 | 27 | 211 | - | - | - | - | - | - | - | - | - | - | 1,560 |
| 3b.1.1.14 | Main Condensers | - | - | - | - | - | - | 183 | 27 | 211 | - | - | - | - | - | - | - | - | - | - | 1,560 |
| 3b.1.1.15 | Auxiliary building | - | - | - | - | - | - | 320 | 48 | 369 | 332 | - | 37 | - | - | - | - | - | - | - | 2,730 |
| 3b.1.1.16 | Reactor building | - | - | - | - | - | - | 320 | 48 | 369 | 332 | - | 37 | - | - | - | - | - | - | - | 2,730 |
| 3b.1.1 | Total | - | - | - | - | - | - | 3,785 | 568 | 4,352 | 3,508 | - | 844 | - | - | - | - | - | - | - | 32,243 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | - | - | - | - | - | 3,785 | 568 | 4,352 | 3,508 | - | 844 | - | - | - | - | - | - | - | 32,243 |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - |
| 3b.3.2 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 3b.3.3 | Pipe cutting equipment | - | 1,200 | - | - | - | - | - | 180 | 1,380 | 1,380 | - | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | 973 | 1,200 | - | - | - | - | 1,189 | 504 | 3,866 | 3,866 | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix I, Page 7 of 22*

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|--------------|--------------|-----------------|-----------------|---------------------------|---------------------|---------------|-------------------|---------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Decon supplies | 35 | - | - | - | - | - | - | 9 | 43 | 43 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Insurance | - | - | - | - | - | - | 255 | 25 | 280 | 280 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Property taxes | - | - | - | - | - | - | 804 | 80 | 884 | 884 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.4 | Health physics supplies | - | 248 | - | - | - | - | - | 62 | 309 | 309 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.5 | Heavy equipment rental | - | 283 | - | - | - | - | - | 42 | 325 | 325 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Disposal of DAW generated | - | - | 6 | 2 | - | 24 | - | 7 | 39 | 39 | - | - | - | 290 | - | - | - | 5,802 | 9 | - |
| 3b.4.7 | Plant energy budget | - | - | - | - | - | - | 755 | 113 | 869 | 869 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.8 | NRC Fees | - | - | - | - | - | - | 170 | 17 | 187 | 187 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.9 | Fixed Overhead | - | - | - | - | - | - | 733 | 110 | 843 | 843 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 29 | 4 | 33 | 33 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.11 | Security Staff Cost | - | - | - | - | - | - | 1,916 | 287 | 2,204 | 2,204 | - | - | - | - | - | - | - | - | - | 32,411 |
| 3b.4.12 | DOC Staff Cost | - | - | - | - | - | - | 5,123 | 769 | 5,892 | 5,892 | - | - | - | - | - | - | - | - | - | 58,080 |
| 3b.4.13 | Utility Staff Cost | - | - | - | - | - | - | 7,888 | 1,183 | 9,071 | 9,071 | - | - | - | - | - | - | - | - | - | 128,607 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | 35 | 530 | 6 | 2 | - | 24 | 17,673 | 2,709 | 20,979 | 20,979 | - | - | - | 290 | - | - | - | 5,802 | 9 | 219,098 |
| 3b.0 | TOTAL PERIOD 3b COST | 1,008 | 1,730 | 6 | 2 | - | 24 | 22,646 | 3,781 | 29,197 | 28,353 | - | 844 | - | 290 | - | - | - | 5,802 | 9 | 251,341 |
| PERIOD 3 TOTALS | | 1,008 | 5,254 | 338 | 190 | 164 | 1,425 | 65,281 | 11,860 | 85,519 | 84,032 | - | 1,487 | 6,133 | 13,647 | - | - | - | 535,034 | 44,314 | 651,200 |
| PERIOD 4a - Large Component Removal | | | | | | | | | | | | | | | | | | | | | |
| Period 4a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.1.1 | Reactor Coolant Piping | 11 | 40 | 6 | 5 | 34 | 75 | - | 41 | 212 | 212 | - | - | 144 | 152 | - | - | - | 33,380 | 771 | - |
| 4a.1.1.2 | Pressurizer Relief Tank | 5 | 18 | 4 | 3 | 23 | 50 | - | 24 | 126 | 126 | - | - | 96 | 101 | - | - | - | 22,241 | 347 | - |
| 4a.1.1.3 | Reactor Coolant Pumps & Motors | 13 | 56 | 43 | 76 | - | 736 | - | 220 | 1,143 | 1,143 | - | - | - | 2,332 | - | - | - | 295,800 | 1,226 | 80 |
| 4a.1.1.4 | Pressurizer | 10 | 68 | 359 | 82 | - | 693 | - | 244 | 1,456 | 1,456 | - | - | - | 2,196 | - | - | - | 158,199 | 1,499 | 750 |
| 4a.1.1.5 | Steam Generators | 47 | 2,943 | 1,576 | 1,614 | 1,246 | 3,467 | - | 2,212 | 13,104 | 13,104 | - | - | 18,672 | 10,990 | - | - | - | 1,560,086 | 10,964 | 2,250 |
| 4a.1.1.6 | CRDMs/CIs/Service Structure Removal | 60 | 243 | 199 | 32 | 169 | 369 | - | 233 | 1,305 | 1,305 | - | - | 2,138 | 2,146 | - | - | - | 165,025 | 4,449 | - |
| 4a.1.1.7 | Reactor Vessel Internals | 61 | 4,189 | 21,537 | 971 | - | 7,954 | 239 | 12,812 | 47,763 | 47,763 | - | - | - | 757 | - | 742 | - | 166,435 | 19,373 | 933 |
| 4a.1.1.8 | Vessel & Internals GTCC Disposal | - | - | - | - | - | 8,689 | - | 1,303 | 9,992 | 9,992 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 4a.1.1.9 | Reactor Vessel | - | 5,439 | 1,328 | 198 | - | 1,804 | 239 | 5,398 | 14,406 | 14,406 | - | - | - | 5,719 | - | - | - | 569,974 | 19,373 | 933 |
| 4a.1.1 | Totals | 206 | 12,996 | 25,052 | 2,982 | 1,471 | 23,836 | 478 | 22,487 | 89,506 | 89,506 | - | - | 21,050 | 24,393 | - | 742 | 3,746 | 3,808,735 | 58,003 | 4,947 |
| Removal of Major Equipment | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.2 | Main Turbine/Generator | - | 269 | 128 | 27 | 287 | - | - | 127 | 838 | 838 | - | - | 2,243 | - | - | - | - | 134,601 | 4,116 | - |
| 4a.1.3 | Main Condensers | - | 2,269 | 87 | 26 | 383 | - | - | 637 | 3,403 | 3,403 | - | - | 4,000 | - | - | - | - | 180,000 | 34,978 | - |
| Cascading Costs from Clean Building Demolition | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.4.1 | Reactor | - | 728 | - | - | - | - | - | 109 | 837 | 837 | - | - | - | - | - | - | - | - | 7,589 | - |
| 4a.1.4 | Totals | - | 728 | - | - | - | - | - | 109 | 837 | 837 | - | - | - | - | - | - | - | - | 7,589 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.5.1 | Air Removal | - | 27 | - | - | - | - | - | 4 | 31 | - | - | 31 | - | - | - | - | - | - | - | 452 |
| 4a.1.5.2 | Auxiliary Feedwater | - | 40 | - | - | - | - | - | 6 | 46 | - | - | 46 | - | - | - | - | - | - | - | 670 |
| 4a.1.5.3 | Auxiliary Feedwater - RCA | - | 45 | 0 | 1 | 19 | - | - | 14 | 79 | 79 | - | - | 215 | - | - | - | - | 8,722 | 601 | - |
| 4a.1.5.4 | Bleed Steam | - | 78 | - | - | - | - | - | 12 | 90 | - | - | 90 | - | - | - | - | - | - | - | 1,335 |
| 4a.1.5.5 | Caustic Addition - RCA | - | 36 | 0 | 1 | 20 | - | - | 12 | 71 | 71 | - | - | 233 | - | - | - | - | 9,453 | 444 | - |
| 4a.1.5.6 | Chemical Feed | - | 17 | - | - | - | - | - | 3 | 20 | - | - | 20 | - | - | - | - | - | - | - | 304 |
| 4a.1.5.7 | Chemical Feed - RCA | - | 1 | 0 | 0 | 1 | - | - | 0 | 2 | 2 | - | - | 6 | - | - | - | - | 243 | 12 | - |
| 4a.1.5.8 | Circulating Water | - | 37 | - | - | - | - | - | 6 | 42 | - | - | 42 | - | - | - | - | - | - | - | 619 |
| 4a.1.5.9 | Condensate | - | 414 | - | - | - | - | - | 62 | 476 | - | - | 476 | - | - | - | - | - | - | - | 6,837 |
| 4a.1.5.10 | Condensate Polishing | - | 205 | - | - | - | - | - | 31 | 236 | - | - | 236 | - | - | - | - | - | - | - | 3,420 |
| 4a.1.5.11 | Condensate Polishing - RCA | - | 176 | 4 | 12 | 180 | - | - | 73 | 444 | 444 | - | - | 2,078 | - | - | - | - | 84,395 | 2,329 | - |
| 4a.1.5.12 | Electro-hydraulic | - | 8 | - | - | - | - | - | 1 | 9 | - | - | 9 | - | - | - | - | - | - | - | 127 |
| 4a.1.5.13 | Feedwater | - | 133 | - | - | - | - | - | 20 | 153 | - | - | 153 | - | - | - | - | - | - | - | 2,215 |
| 4a.1.5.14 | Feedwater - RCA | - | 186 | 6 | 19 | 278 | - | - | 91 | 579 | 579 | - | - | 3,208 | - | - | - | - | 130,294 | 2,651 | - |
| 4a.1.5.15 | Gland Seal | - | 29 | - | - | - | - | - | 4 | 34 | - | - | 34 | - | - | - | - | - | - | - | 505 |
| 4a.1.5.16 | Heater Drain | - | 349 | - | - | - | - | - | 52 | 401 | - | - | 401 | - | - | - | - | - | - | - | 5,881 |
| 4a.1.5.17 | Internal Circ Water & CDSR | - | 23 | - | - | - | - | - | 3 | 27 | - | - | 27 | - | - | - | - | - | - | - | 389 |
| 4a.1.5.18 | Main Gen/Exciter/Transformer | - | 0 | - | - | - | - | - | 0 | 0 | - | - | 0 | - | - | - | - | - | - | - | 5 |
| 4a.1.5.19 | Main Steam | - | 101 | - | - | - | - | - | 15 | 116 | - | - | 116 | - | - | - | - | - | - | - | 1,690 |
| 4a.1.5.20 | Main Steam - RCA | - | 350 | 9 | 29 | 436 | - | - | 158 | 983 | 983 | - | - | 5,044 | - | - | - | - | 204,825 | 4,956 | - |
| 4a.1.5.21 | Steam Generator Blowdown | - | 416 | 21 | 22 | 176 | 195 | - | 185 | 1,014 | 1,014 | - | - | 2,031 | 686 | - | - | - | 127,773 | 5,974 | - |
| 4a.1.5.22 | Steam Generators | - | 5 | - | - | - | - | - | 1 | 5 | - | - | 5 | - | - | - | - | - | - | - | 75 |
| 4a.1.5.23 | Turbine & Moisture Separators | - | 337 | - | - | - | - | - | 51 | 388 | - | - | 388 | - | - | - | - | - | - | - | 5,609 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Disposal of Plant Systems (continued) | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.5.24 | Turbine Oil Purification | - | 61 | - | - | - | - | - | 9 | 71 | - | - | 71 | - | - | - | - | - | - | 1,003 | - |
| 4a.1.5 | Totals | - | 3,075 | 40 | 85 | 1,108 | 195 | - | 814 | 5,317 | 3,172 | - | 2,145 | 12,815 | 686 | - | - | - | 565,705 | 48,101 | - |
| 4a.1.6 | Scaffolding in support of decommissioning | - | 833 | 3 | 1 | 13 | 3 | - | 212 | 1,066 | 1,066 | - | - | 138 | 12 | - | - | - | 7,016 | 6,020 | - |
| 4a.1 | Subtotal Period 4a Activity Costs | 206 | 20,170 | 25,310 | 3,121 | 3,263 | 24,034 | 478 | 24,386 | 100,967 | 98,823 | - | 2,145 | 40,246 | 25,091 | - | 742 | 3,746 | 4,696,057 | 158,807 | 4,947 |
| Period 4a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 4a.2.1 | Remedial Action Surveys | - | - | - | - | - | - | 1,865 | 559 | 2,424 | 2,424 | - | - | - | - | - | - | - | - | 24,374 | - |
| 4a.2.2 | Retired RPV upper internals package | 1 | 659 | 785 | 107 | - | 1,439 | - | 1,437 | 4,427 | 4,427 | - | - | - | 2,097 | 125 | - | - | 205,890 | 2,175 | 87 |
| 4a.2 | Subtotal Period 4a Additional Costs | 1 | 659 | 785 | 107 | - | 1,439 | 1,865 | 1,996 | 6,851 | 6,851 | - | - | - | 2,097 | 125 | - | - | 205,890 | 26,549 | 87 |
| Period 4a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 4a.3.1 | Process decommissioning water waste | 2 | - | 4 | 10 | - | 16 | - | 7 | 40 | 40 | - | - | - | 39 | - | - | - | 2,329 | 8 | - |
| 4a.3.3 | Small tool allowance | - | 195 | - | - | - | - | - | 29 | 224 | 201 | - | 22 | - | - | - | - | - | - | - | - |
| 4a.3 | Subtotal Period 4a Collateral Costs | 2 | 195 | 4 | 10 | - | 16 | - | 36 | 264 | 242 | - | 22 | - | 39 | - | - | - | 2,329 | 8 | - |
| Period 4a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 4a.4.1 | Decon supplies | 82 | - | - | - | - | - | - | 20 | 102 | 102 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.2 | Insurance | - | - | - | - | - | - | 599 | 60 | 659 | 659 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.3 | Property taxes | - | - | - | - | - | - | 1,782 | 178 | 1,960 | 1,960 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.4 | Health physics supplies | - | 1,476 | - | - | - | - | - | 369 | 1,846 | 1,846 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.5 | Heavy equipment rental | - | 2,575 | - | - | - | - | - | 386 | 2,961 | 2,961 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.6 | Disposal of DAW generated | - | - | 61 | 18 | - | 228 | - | 66 | 373 | 373 | - | - | 2,802 | - | - | - | - | 56,048 | 91 | - |
| 4a.4.7 | Plant energy budget | - | - | - | - | - | - | 1,687 | 253 | 1,940 | 1,940 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.8 | NRC Fees | - | - | - | - | - | - | 653 | 65 | 719 | 719 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.9 | Fixed Overhead | - | - | - | - | - | - | 1,452 | 218 | 1,670 | 1,670 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.10 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 475 | 71 | 546 | 546 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 68 | 10 | 78 | 78 | - | - | - | - | - | - | - | - | - | - |
| 4a.4.12 | Security Staff Cost | - | - | - | - | - | - | 3,359 | 504 | 3,863 | 3,863 | - | - | - | - | - | - | - | - | - | 57,436 |
| 4a.4.13 | DOC Staff Cost | - | - | - | - | - | - | 14,349 | 2,152 | 16,501 | 16,501 | - | - | - | - | - | - | - | - | - | 166,833 |
| 4a.4.14 | Utility Staff Cost | - | - | - | - | - | - | 17,900 | 2,685 | 20,586 | 20,586 | - | - | - | - | - | - | - | - | - | 295,394 |
| 4a.4 | Subtotal Period 4a Period-Dependent Costs | 82 | 4,051 | 61 | 18 | - | 228 | 42,324 | 7,038 | 53,802 | 53,802 | - | - | - | 2,802 | - | - | - | 56,048 | 91 | 519,664 |
| 4a.0 | TOTAL PERIOD 4a COST | 290 | 25,075 | 26,160 | 3,256 | 3,263 | 25,717 | 44,667 | 33,457 | 161,884 | 159,717 | - | 2,167 | 40,246 | 30,029 | 125 | 742 | 3,746 | 4,960,324 | 185,455 | 524,697 |
| PERIOD 4b - Site Decontamination | | | | | | | | | | | | | | | | | | | | | |
| Period 4b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.1 | Remove spent fuel racks | 297 | 32 | 94 | 32 | - | 595 | - | 319 | 1,369 | 1,369 | - | - | - | 2,092 | - | - | - | 138,298 | 576 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.2.1 | Aux Bldg Normal Ventilation | - | 2 | 0 | 0 | 0 | - | - | 0 | 3 | 3 | - | - | 3 | - | - | - | - | 140 | 26 | - |
| 4b.1.2.2 | Battery Rm Special Ventilation | - | 0 | - | - | - | - | - | 0 | 0 | - | - | 0 | - | - | - | - | - | - | 6 | - |
| 4b.1.2.3 | Buildings Maintenance | - | 4 | - | - | - | - | - | 1 | 5 | - | - | 5 | - | - | - | - | - | - | 65 | - |
| 4b.1.2.4 | Chemical & Volume Control | - | 1,210 | 83 | 69 | 389 | 802 | - | 580 | 3,134 | 3,134 | - | - | 4,498 | 2,846 | - | - | - | 369,246 | 17,235 | - |
| 4b.1.2.5 | Component Cooling - RCA | - | 821 | 22 | 72 | 1,075 | - | - | 379 | 2,369 | 2,369 | - | - | 12,427 | - | - | - | - | 504,675 | 11,242 | - |
| 4b.1.2.6 | Containment Cooling | - | 65 | - | - | - | - | - | 10 | 74 | - | - | 74 | - | - | - | - | - | - | 1,086 | - |
| 4b.1.2.7 | Containment Cooling - RCA | - | 290 | 6 | 20 | 294 | - | - | 120 | 730 | 730 | - | - | 3,400 | - | - | - | - | 138,090 | 3,971 | - |
| 4b.1.2.8 | Containment Hydrogen Control - RCA | - | 29 | 0 | 1 | 9 | - | - | 9 | 48 | 48 | - | - | 105 | - | - | - | - | 4,278 | 401 | - |
| 4b.1.2.9 | Containment Spray - RCA | - | 90 | 2 | 5 | 75 | - | - | 35 | 206 | 206 | - | - | 868 | - | - | - | - | 35,249 | 1,217 | - |
| 4b.1.2.10 | Containment Ventilation | - | 219 | 24 | 40 | 428 | 209 | - | 180 | 1,100 | 1,100 | - | - | 4,951 | 737 | - | - | - | 249,786 | 3,278 | - |
| 4b.1.2.11 | Cooling Water | - | 142 | - | - | - | - | - | 21 | 163 | - | - | 163 | - | - | - | - | - | - | 2,396 | - |
| 4b.1.2.12 | Cooling Water - RCA | - | 629 | 14 | 45 | 668 | - | - | 266 | 1,622 | 1,622 | - | - | 7,728 | - | - | - | - | 313,832 | 8,594 | - |
| 4b.1.2.13 | D1 Emergency Diesel | - | 44 | - | - | - | - | - | 7 | 50 | - | - | 50 | - | - | - | - | - | - | 730 | - |
| 4b.1.2.14 | D2 Emergency Diesel | - | 31 | - | - | - | - | - | 5 | 36 | - | - | 36 | - | - | - | - | - | - | 522 | - |
| 4b.1.2.15 | Diesel Rooms Ventilation | - | 8 | - | - | - | - | - | 1 | 10 | - | - | 10 | - | - | - | - | - | - | 135 | - |
| 4b.1.2.16 | Electrical - Clean | - | 1,669 | - | - | - | - | - | 250 | 1,919 | - | - | 1,919 | - | - | - | - | - | - | 26,981 | - |
| 4b.1.2.17 | Electrical - Contaminated | - | 536 | 6 | 16 | 219 | 27 | - | 177 | 980 | 980 | - | - | 2,527 | 95 | - | - | - | 108,935 | 7,488 | - |
| 4b.1.2.18 | Electrical - Contaminated - Fuel Pool | - | 133 | 2 | 4 | 53 | 7 | - | 44 | 242 | 242 | - | - | 615 | 23 | - | - | - | 26,508 | 1,857 | - |
| 4b.1.2.19 | Electrical - Decontaminated | - | 3,674 | 41 | 137 | 2,037 | - | - | 1,249 | 7,138 | 7,138 | - | - | 23,551 | - | - | - | - | 956,401 | 49,378 | - |
| 4b.1.2.20 | Electrical - Decontaminated - Fuel Pool | - | 918 | 10 | 34 | 510 | - | - | 312 | 1,785 | 1,785 | - | - | 5,893 | - | - | - | - | 239,327 | 12,340 | - |
| 4b.1.2.21 | Fuel Handling | - | 104 | 6 | 9 | 79 | 62 | - | 55 | 314 | 314 | - | - | 908 | 218 | - | - | - | 51,280 | 1,595 | - |
| 4b.1.2.22 | Fuel Oil | - | 106 | - | - | - | - | - | 16 | 122 | - | - | 122 | - | - | - | - | - | - | 1,697 | - |
| 4b.1.2.23 | HVAC - Clean | - | 105 | - | - | - | - | - | 16 | 121 | - | - | 121 | - | - | - | - | - | - | 1,891 | - |
| 4b.1.2.24 | HVAC - Contaminated | - | 335 | 8 | 21 | 282 | 35 | - | 139 | 819 | 819 | - | - | 3,261 | 123 | - | - | - | 140,573 | 4,335 | - |
| 4b.1.2.25 | HVAC - Contaminated - Fuel Pool | - | 143 | 3 | 9 | 121 | 15 | - | 59 | 351 | 351 | - | - | 1,398 | 53 | - | - | - | 60,246 | 1,858 | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---------------------------------------|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Disposal of Plant Systems (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.2.26 | Incore Instrumentation | - | 24 | 1 | 1 | 5 | 16 | - | 11 | 59 | 59 | - | - | 60 | 57 | - | - | - | 6,177 | 382 | - | |
| 4b.1.2.27 | Misc Drains & Vents | - | 203 | 14 | 10 | 34 | 146 | - | 95 | 503 | 503 | - | - | 390 | 514 | - | - | - | 49,900 | 2,764 | - | |
| 4b.1.2.28 | Reactor Coolant | - | 271 | 21 | 14 | 30 | 221 | - | 132 | 689 | 689 | - | - | 344 | 777 | - | - | - | 65,413 | 3,865 | - | |
| 4b.1.2.29 | Reactor Hot Sampling | - | 120 | 11 | 6 | 6 | 98 | - | 57 | 297 | 297 | - | - | 66 | 342 | - | - | - | 25,347 | 1,611 | - | |
| 4b.1.2.30 | Reactor Makeup | - | 64 | - | - | - | - | - | 10 | 73 | - | - | 73 | - | - | - | - | - | - | - | 1,042 | - |
| 4b.1.2.31 | Reactor Vessel | - | 18 | 1 | 0 | 2 | 4 | - | 6 | 31 | 31 | - | - | 26 | 14 | - | - | - | 2,011 | 260 | - | |
| 4b.1.2.32 | Residual Heat Removal | - | 360 | 85 | 66 | 250 | 926 | - | 377 | 2,065 | 2,065 | - | - | 2,895 | 3,252 | - | - | - | 332,849 | 5,374 | - | |
| 4b.1.2.33 | Safeguards Chilled Water | - | 15 | - | - | - | - | - | 2 | 18 | - | - | 18 | - | - | - | - | - | - | 259 | - | |
| 4b.1.2.34 | Safeguards Chilled Water - RCA | - | 82 | 1 | 3 | 43 | - | - | 27 | 155 | 155 | - | - | 495 | - | - | - | - | 20,100 | 1,019 | - | |
| 4b.1.2.35 | Safety Injection | - | 774 | 40 | 57 | 587 | 327 | - | 376 | 2,161 | 2,161 | - | - | 6,788 | 1,156 | - | - | - | 351,793 | 11,276 | - | |
| 4b.1.2.36 | Sampling | - | 53 | 4 | 2 | 5 | 31 | - | 22 | 116 | 116 | - | - | 59 | 107 | - | - | - | 9,505 | 731 | - | |
| 4b.1.2.37 | Shield Bldg Ventilation | - | 120 | 14 | 20 | 186 | 139 | - | 97 | 576 | 576 | - | - | 2,152 | 491 | - | - | - | 119,838 | 1,811 | - | |
| 4b.1.2.38 | Spent Fuel Pool Cooling | - | 311 | 34 | 25 | 70 | 377 | - | 190 | 1,006 | 1,006 | - | - | 806 | 1,325 | - | - | - | 120,439 | 4,400 | - | |
| 4b.1.2.39 | Station & Instrument Air | - | 17 | - | - | - | - | - | 3 | 20 | - | - | 20 | - | - | - | - | - | - | 300 | - | |
| 4b.1.2.40 | Station & Instrument Air - RCA | - | 79 | 1 | 2 | 29 | - | - | 24 | 135 | 135 | - | - | 332 | - | - | - | - | 13,496 | 1,053 | - | |
| 4b.1.2.41 | Station & Instrument Air - RCA Fuel Pool | - | 20 | 0 | 0 | 7 | - | - | 6 | 34 | 34 | - | - | 83 | - | - | - | - | 3,374 | 263 | - | |
| 4b.1.2.42 | Turbine Bldg Traps & Drains | - | 44 | - | - | - | - | - | 7 | 50 | - | - | 50 | - | - | - | - | - | - | 767 | - | |
| 4b.1.2.43 | Unit Coolers | - | 37 | - | - | - | - | - | 6 | 42 | - | - | 42 | - | - | - | - | - | - | 611 | - | |
| 4b.1.2.44 | Unit Coolers - RCA | - | 53 | 0 | 1 | 20 | - | - | 16 | 91 | 91 | - | - | 230 | - | - | - | - | 9,348 | 683 | - | |
| 4b.1.2 | Totals | - | 13,970 | 453 | 689 | 7,514 | 3,443 | - | 5,394 | 31,463 | 28,759 | - | 2,704 | 86,861 | 12,129 | - | - | - | 4,328,159 | 198,796 | - | |
| 4b.1.3 | Scaffolding in support of decommissioning | - | 1,250 | 5 | 2 | 20 | 5 | - | 317 | 1,599 | 1,599 | - | - | 207 | 18 | - | - | - | 10,524 | 9,030 | - | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.4.1 | Reactor | 1,037 | 2,360 | 118 | 833 | 193 | 6,372 | - | 2,868 | 13,781 | 13,781 | - | - | 2,230 | 36,899 | - | - | - | 3,286,398 | 45,584 | - | |
| 4b.1.4.2 | Backwash Waste Receiving Tank | - | 24 | 1 | 11 | - | 87 | - | 30 | 154 | 154 | - | - | - | 507 | - | - | - | 43,896 | 264 | - | |
| 4b.1.4 | Totals | 1,037 | 2,385 | 119 | 845 | 193 | 6,460 | - | 2,897 | 13,936 | 13,936 | - | - | 2,230 | 37,406 | - | - | - | 3,330,294 | 45,848 | - | |
| 4b.1.5 | Prepare/submit License Termination Plan | - | - | - | - | - | - | 481 | 72 | 553 | 553 | - | - | - | - | - | - | - | - | - | 4,096 | |
| 4b.1.6 | Receive NRC approval of termination plan | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - | |
| 4b.1 | Subtotal Period 4b Activity Costs | 1,334 | 17,637 | 671 | 1,567 | 7,726 | 10,503 | 481 | 9,000 | 48,919 | 46,215 | - | 2,704 | 89,298 | 51,645 | - | - | - | 7,807,274 | 254,251 | 4,096 | |
| Period 4b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4b.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 | |
| 4b.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 2,832 | 849 | 3,681 | 3,681 | - | - | - | - | - | - | - | - | 37,017 | - | |
| 4b.2.3 | Excavation of Underground Services | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | 7,407 | - | |
| 4b.2.4 | Operational Equipment | - | - | 9 | 29 | 312 | - | - | 52 | 402 | 402 | - | - | 5,855 | - | - | - | - | 146,375 | 16 | - | |
| 4b.2.5 | License Termination ISFSI | - | 37 | 2 | 211 | - | 2,157 | 1,186 | 898 | 4,491 | 4,491 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,670 | 5,284 | |
| 4b.2.6 | Demolition and Site Restoration ISFSI | - | 495 | - | - | - | 87 | - | 87 | 669 | - | - | 669 | - | - | - | - | - | - | 2,308 | 160 | |
| 4b.2 | Subtotal Period 4b Additional Costs | - | 1,342 | 11 | 240 | 312 | 2,157 | 5,469 | 2,340 | 11,872 | 9,672 | - | 2,200 | 5,855 | 7,458 | - | - | - | 1,218,360 | 50,417 | 11,684 | |
| Period 4b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4b.3.1 | Process decommissioning water waste | 5 | - | 9 | 23 | - | 36 | - | 16 | 88 | 88 | - | - | - | 85 | - | - | - | 5,086 | 17 | - | |
| 4b.3.3 | Small tool allowance | - | 288 | - | - | - | - | - | 43 | 331 | 331 | - | - | - | - | - | - | - | - | - | - | |
| 4b.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - | |
| 4b.3 | Subtotal Period 4b Collateral Costs | 5 | 288 | 152 | 78 | 575 | 186 | - | 205 | 1,490 | 1,490 | - | - | 6,000 | 614 | - | - | - | 310,054 | 105 | - | |
| Period 4b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4b.4.1 | Decon supplies | 521 | - | - | - | - | - | - | 130 | 651 | 651 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.2 | Insurance | - | - | - | - | - | - | 910 | 91 | 1,001 | 1,001 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.3 | Property taxes | - | - | - | - | - | - | 2,610 | 261 | 2,872 | 2,872 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.4 | Health physics supplies | - | 2,248 | - | - | - | - | - | 562 | 2,810 | 2,810 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.5 | Heavy equipment rental | - | 4,021 | - | - | - | - | - | 603 | 4,624 | 4,624 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.6 | Disposal of DAW generated | - | - | 85 | 25 | - | 318 | - | 92 | 520 | 520 | - | - | 3,905 | - | - | - | - | 78,097 | 127 | - | |
| 4b.4.7 | Plant energy budget | - | - | - | - | - | - | 2,023 | 303 | 2,326 | 2,326 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.8 | NRC Fees | - | - | - | - | - | - | 992 | 99 | 1,092 | 1,092 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.9 | Fixed Overhead | - | - | - | - | - | - | 2,205 | 331 | 2,535 | 2,535 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.10 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 721 | 108 | 829 | 829 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 103 | 15 | 118 | 118 | - | - | - | - | - | - | - | - | - | - | |
| 4b.4.12 | Security Staff Cost | - | - | - | - | - | - | 1,017 | 153 | 1,170 | 1,170 | - | - | - | - | - | - | - | - | - | 20,373 | |
| 4b.4.13 | DOC Staff Cost | - | - | - | - | - | - | 14,220 | 2,133 | 16,353 | 16,353 | - | - | - | - | - | - | - | - | - | 174,093 | |
| 4b.4.14 | Utility Staff Cost | - | - | - | - | - | - | 18,286 | 2,743 | 21,029 | 21,029 | - | - | - | - | - | - | - | - | - | 311,145 | |
| 4b.4 | Subtotal Period 4b Period-Dependent Costs | 521 | 6,269 | 85 | 25 | - | 318 | 43,087 | 7,625 | 57,929 | 57,929 | - | - | - | 3,905 | - | - | - | 78,097 | 127 | 505,611 | |
| 4b.0 | TOTAL PERIOD 4b COST | 1,860 | 25,537 | 919 | 1,910 | 8,613 | 13,164 | 49,037 | 19,170 | 120,210 | 115,306 | - | 4,904 | 101,153 | 63,622 | - | - | - | 9,413,785 | 304,901 | 521,391 | |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 10 of 22**

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 4e - Delay before License Termination | | | | | | | | | | | | | | | | | | | | | | |
| Period 4e Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4e.4.1 | Insurance | - | - | - | - | - | - | 308 | 31 | 339 | 339 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.2 | Property taxes | - | - | - | - | - | - | 846 | 85 | 930 | 930 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.3 | Health physics supplies | - | 56 | - | - | - | - | - | 14 | 70 | 70 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.4 | Disposal of DAW generated | - | - | 1 | 0 | - | 5 | - | 1 | 8 | 8 | - | - | - | 60 | - | - | - | - | 1,202 | 2 | |
| 4e.4.6 | NRC Fees | - | - | - | - | - | - | 134 | 13 | 147 | 147 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.7 | Fixed Overhead | - | - | - | - | - | - | 746 | 112 | 858 | 858 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 35 | 5 | 40 | 40 | - | - | - | - | - | - | - | - | - | - | |
| 4e.4.9 | Utility Staff Cost | - | - | - | - | - | - | 536 | 80 | 616 | 616 | - | - | - | - | - | - | - | - | - | 8,776 | |
| 4e.4 | Subtotal Period 4e Period-Dependent Costs | - | 56 | 1 | 0 | - | 5 | 2,604 | 342 | 3,009 | 3,009 | - | - | - | 60 | - | - | - | - | 1,202 | 2 | 8,776 |
| 4e.0 | TOTAL PERIOD 4e COST | - | 56 | 1 | 0 | - | 5 | 2,604 | 342 | 3,009 | 3,009 | - | - | - | 60 | - | - | - | - | 1,202 | 2 | 8,776 |
| PERIOD 4f - License Termination | | | | | | | | | | | | | | | | | | | | | | |
| Period 4f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 4f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - | |
| 4f.1.2 | Terminate license | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 4f.1 | Subtotal Period 4f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - | |
| Period 4f Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4f.2.1 | License Termination Survey | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| 4f.2 | Subtotal Period 4f Additional Costs | - | - | - | - | - | - | 3,217 | 965 | 4,182 | 4,182 | - | - | - | - | - | - | - | - | - | 40,172 | 3,120 |
| Period 4f Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.3 | Subtotal Period 4f Collateral Costs | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - | - |
| Period 4f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.4.2 | Property taxes | - | - | - | - | - | - | 1,002 | 100 | 1,102 | 1,102 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.4.3 | Health physics supplies | - | 418 | - | - | - | - | - | 105 | 523 | 523 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 332 | - | - | - | - | 6,649 | 11 | - |
| 4f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.4.6 | NRC Fees | - | - | - | - | - | - | 417 | 42 | 459 | 459 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.4.7 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | 50 | - | - | - | - | - | - | - | - | - | - | - |
| 4f.4.9 | Security Staff Cost | - | - | - | - | - | - | 707 | 106 | 813 | 813 | - | - | - | - | - | - | - | - | - | - | 11,668 |
| 4f.4.10 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | - | 46,283 |
| 4f.4.11 | Utility Staff Cost | - | - | - | - | - | - | 3,630 | 544 | 4,174 | 4,174 | - | - | - | - | - | - | - | - | - | - | 56,395 |
| 4f.4 | Subtotal Period 4f Period-Dependent Costs | - | 418 | 7 | 2 | - | 27 | 11,435 | 1,738 | 13,627 | 13,627 | - | - | - | 332 | - | - | - | - | 6,649 | 11 | 114,346 |
| 4f.0 | TOTAL PERIOD 4f COST | - | 418 | 7 | 2 | - | 27 | 16,016 | 2,934 | 19,405 | 19,405 | - | - | - | 332 | - | - | - | - | 6,649 | 40,183 | 117,466 |
| PERIOD 4 TOTALS | | 2,150 | 51,086 | 27,088 | 5,168 | 11,876 | 38,913 | 112,324 | 55,902 | 304,508 | 297,436 | - | 7,071 | 141,399 | 94,043 | 125 | 742 | 3,746 | 14,381,960 | 530,540 | 1,172,330 | |
| PERIOD 5b - Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 5b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 5b.1.1.1 | Reactor | - | 4,255 | - | - | - | - | - | 638 | 4,894 | - | - | 4,894 | - | - | - | - | - | - | - | 44,669 | - |
| 5b.1.1.2 | Condensate Storage Tank Foundation | - | 3 | - | - | - | - | - | 0 | 4 | - | - | 4 | - | - | - | - | - | - | - | 16 | - |
| 5b.1.1.3 | Structures below 3' below grade | - | 1,713 | - | - | - | - | - | 257 | 1,969 | - | - | 1,969 | - | - | - | - | - | - | - | 9,238 | - |
| 5b.1.1.4 | Turbine | - | 1,983 | - | - | - | - | - | 297 | 2,280 | - | - | 2,280 | - | - | - | - | - | - | - | 22,040 | - |
| 5b.1.1.5 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | - | 1,857 | - |
| 5b.1.1 | Totals | - | 8,303 | - | - | - | - | - | 1,245 | 9,548 | - | - | 9,548 | - | - | - | - | - | - | - | 77,820 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | | |
| 5b.1.2 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | - | 921 | - |
| 5b.1.3 | Final report to NRC | - | - | - | - | - | - | 183 | 27 | 211 | 211 | - | - | - | - | - | - | - | - | - | - | 1,560 |
| 5b.1 | Subtotal Period 5b Activity Costs | - | 8,733 | - | - | - | - | 183 | 1,337 | 10,254 | 211 | - | 10,044 | - | - | - | - | - | - | - | 78,740 | 1,560 |
| Period 5b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.2.1 | Clean Concrete Disposal | - | 2,213 | - | - | - | - | 3 | 332 | 2,549 | - | - | 2,549 | - | - | - | - | - | - | - | 8,386 | - |
| 5b.2.2 | Intake Structure Cofferdam | - | 596 | - | - | - | - | - | 89 | 686 | - | - | 686 | - | - | - | - | - | - | - | 5,168 | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 11 of 22**

**Table I-1
Prairie Island Nuclear Generating Plant, Unit 1
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|--------------|---------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|------------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 5b Additional Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 5b.2.3 | Construction Debris | - | - | - | - | - | - | 10 | 2 | 12 | - | - | 12 | - | - | - | - | - | - | - | - | - |
| 5b.2.4 | Backfill | - | 2,751 | - | - | - | - | - | 413 | 3,164 | - | - | 3,164 | - | - | - | - | - | - | - | 2,904 | - |
| 5b.2 | Subtotal Period 5b Additional Costs | - | 5,560 | - | - | - | - | 13 | 836 | 6,410 | - | - | 6,410 | - | - | - | - | - | - | - | 16,458 | - |
| Period 5b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.3.1 | Small tool allowance | - | 107 | - | - | - | - | - | 16 | 123 | - | - | 123 | - | - | - | - | - | - | - | - | - |
| 5b.3 | Subtotal Period 5b Collateral Costs | - | 107 | - | - | - | - | - | 16 | 123 | - | - | 123 | - | - | - | - | - | - | - | - | - |
| Period 5b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.4.2 | Property taxes | - | - | - | - | - | - | 1,712 | 171 | 1,883 | - | - | 1,883 | - | - | - | - | - | - | - | - | - |
| 5b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - | - |
| 5b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - | - |
| 5b.4.5 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - | - |
| 5b.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 122 | 18 | 141 | - | - | 141 | - | - | - | - | - | - | - | - | - |
| 5b.4.7 | Security Staff Cost | - | - | - | - | - | - | 1,812 | 272 | 2,084 | - | - | 2,084 | - | - | - | - | - | - | - | - | 29,221 |
| 5b.4.8 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | - | 116,885 |
| 5b.4.9 | Utility Staff Cost | - | - | - | - | - | - | 3,673 | 551 | 4,224 | - | - | 4,224 | - | - | - | - | - | - | - | - | 57,340 |
| 5b.4 | Subtotal Period 5b Period-Dependent Costs | - | 6,670 | - | - | - | - | 19,097 | 3,779 | 29,546 | - | - | 29,546 | - | - | - | - | - | - | - | - | 203,445 |
| 5b.0 | TOTAL PERIOD 5b COST | - | 21,070 | - | - | - | - | 19,294 | 5,969 | 46,333 | 211 | - | 46,122 | - | - | - | - | - | - | - | 95,198 | 205,005 |
| PERIOD 5 TOTALS | | - | 21,070 | - | - | - | - | 19,294 | 5,969 | 46,333 | 211 | - | 46,122 | - | - | - | - | - | - | - | 95,198 | 205,005 |
| TOTAL COST TO DECOMMISSION | | 5,846 | 85,205 | 27,686 | 5,682 | 12,040 | 41,346 | 911,476 | 166,888 | 1,256,169 | 883,602 | 317,887 | 54,680 | 147,532 | 115,742 | 125 | 742 | 3,746 | 15,119,870 | 700,205 | 6,335,772 | |

| | | |
|--|--------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 15.32% CONTINGENCY: | \$1,256,169 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 70.34% OR: | \$883,602 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 25.31% OR: | \$317,887 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 4.35% OR: | \$54,680 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 116,610 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 33,003 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 700,205 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing "-" indicates a zero value

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 12 of 22**

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|--|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 1a - Shutdown through Transition | | | | | | | | | | | | | | | | | | | | | | |
| Period 1a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.1 | SAFSTOR site characterization survey | - | - | - | - | - | - | 571 | 171 | 742 | 742 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.2 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | - | 556 |
| 1a.1.3 | Notification of Cessation of Operations | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.4 | Remove fuel & source material | - | - | - | - | - | - | - | - | n/a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.5 | Notification of Permanent Defueling | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.6 | Deactivate plant systems & process waste | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.7 | Prepare and submit PSDAR | - | - | - | - | - | - | 100 | 15 | 115 | 115 | - | - | - | - | - | - | - | - | - | - | 855 |
| 1a.1.8 | Review plant dwgs & specs. | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | - | 556 |
| 1a.1.9 | Perform detailed rad survey | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.10 | Estimate by-product inventory | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | - | 428 |
| 1a.1.11 | End product description | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | - | 428 |
| 1a.1.12 | Detailed by-product inventory | - | - | - | - | - | - | 75 | 11 | 87 | 87 | - | - | - | - | - | - | - | - | - | - | 641 |
| 1a.1.13 | Define major work sequence | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | - | 428 |
| 1a.1.14 | Perform SER and EA | - | - | - | - | - | - | 156 | 23 | 179 | 179 | - | - | - | - | - | - | - | - | - | - | 1,326 |
| 1a.1.15 | Prepare/submit Defueled Technical Specifications | - | - | - | - | - | - | 376 | 56 | 433 | 433 | - | - | - | - | - | - | - | - | - | - | 3,207 |
| 1a.1.16 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 251 | 38 | 289 | 289 | - | - | - | - | - | - | - | - | - | - | 2,138 |
| 1a.1.17 | Prepare/submit Irradiated Fuel Management Plan | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | - | 428 |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.18.1 | Prepare plant and facilities for SAFSTOR | - | - | - | - | - | - | 247 | 37 | 284 | 284 | - | - | - | - | - | - | - | - | - | - | 2,104 |
| 1a.1.18.2 | Plant systems | - | - | - | - | - | - | 209 | 31 | 241 | 241 | - | - | - | - | - | - | - | - | - | - | 1,782 |
| 1a.1.18.3 | Plant structures and buildings | - | - | - | - | - | - | 157 | 23 | 180 | 180 | - | - | - | - | - | - | - | - | - | - | 1,334 |
| 1a.1.18.4 | Waste management | - | - | - | - | - | - | 100 | 15 | 115 | 115 | - | - | - | - | - | - | - | - | - | - | 855 |
| 1a.1.18.5 | Facility and site dormancy | - | - | - | - | - | - | 100 | 15 | 115 | 115 | - | - | - | - | - | - | - | - | - | - | 855 |
| 1a.1.18 | Total | - | - | - | - | - | - | 813 | 122 | 935 | 935 | - | - | - | - | - | - | - | - | - | - | 6,930 |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | | |
| 1a.1.19.1 | Plant systems | - | - | - | - | - | - | 59 | 9 | 68 | 68 | - | - | - | - | - | - | - | - | - | - | 506 |
| 1a.1.19.2 | Facility closeout & dormancy | - | - | - | - | - | - | 60 | 9 | 69 | 69 | - | - | - | - | - | - | - | - | - | - | 513 |
| 1a.1.19 | Total | - | - | - | - | - | - | 120 | 18 | 138 | 138 | - | - | - | - | - | - | - | - | - | - | 1,019 |
| 1a.1.20 | Procure vacuum drying system | - | - | - | - | - | - | 5 | 1 | 6 | 6 | - | - | - | - | - | - | - | - | - | - | 43 |
| 1a.1.21 | Drain/de-energize non-cont. systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.22 | Drain & dry NSSS | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.23 | Drain/de-energize contaminated systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1.24 | Decon/secure contaminated systems | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1a.1 | Subtotal Period 1a Activity Costs | - | - | - | - | - | - | 2,799 | 505 | 3,304 | 3,304 | - | - | - | - | - | - | - | - | - | - | 18,981 |
| Period 1a Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1a.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 1,227 | 184 | 1,411 | - | 1,411 | - | - | - | - | - | - | - | - | - | - |
| 1a.3.2 | Retention and Severance | - | - | - | - | - | - | 8,394 | 1,259 | 9,653 | 9,653 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 2,281 | - | 2,281 | - | 2,281 | - | - | - | - | - | - | - | - | - | - |
| 1a.3 | Subtotal Period 1a Collateral Costs | - | - | - | - | - | - | 11,902 | 1,443 | 13,345 | 9,653 | 3,692 | - | - | - | - | - | - | - | - | - | - |
| Period 1a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1a.4.1 | Insurance | - | - | - | - | - | - | 1,730 | 173 | 1,903 | 1,903 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.4.2 | Property taxes | - | - | - | - | - | - | 2,682 | 268 | 2,950 | 2,950 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.4.3 | Health physics supplies | - | 507 | - | - | - | - | - | 127 | 633 | 633 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.4.5 | Disposal of DAW generated | - | - | 13 | 4 | - | 49 | - | 14 | 79 | 79 | - | - | - | 597 | - | - | - | - | 11,939 | 19 | - |
| 1a.4.6 | Plant energy budget | - | - | - | - | - | - | 1,515 | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.4.7 | NRC Fees | - | - | - | - | - | - | 778 | 78 | 855 | 855 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.4.8 | Emergency Planning Fees | - | - | - | - | - | - | 1,604 | 160 | 1,765 | - | 1,765 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.9 | Fixed Overhead | - | - | - | - | - | - | 1,470 | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.4.10 | Spent Fuel Pool O&M | - | - | - | - | - | - | 401 | 60 | 461 | - | 461 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.11 | ISFSI Operating Costs | - | - | - | - | - | - | 52 | 8 | 59 | - | 59 | - | - | - | - | - | - | - | - | - | - |
| 1a.4.12 | Railroad Track Maintenance | - | - | - | - | - | - | 58 | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - | - |
| 1a.4.13 | Security Staff Cost | - | - | - | - | - | - | 7,390 | 1,108 | 8,498 | 8,498 | - | - | - | - | - | - | - | - | - | - | 122,720 |
| 1a.4.14 | Utility Staff Cost | - | - | - | - | - | - | 24,344 | 3,652 | 27,995 | 27,995 | - | - | - | - | - | - | - | - | - | - | 400,523 |
| 1a.4 | Subtotal Period 1a Period-Dependent Costs | - | 1,074 | 13 | 4 | - | 49 | 42,022 | 6,189 | 49,351 | 47,066 | 2,286 | - | - | 597 | - | - | - | - | 11,939 | 19 | 523,243 |
| 1a.0 | TOTAL PERIOD 1a COST | - | 1,074 | 13 | 4 | - | 49 | 56,723 | 8,138 | 66,000 | 60,023 | 5,977 | - | - | 597 | - | - | - | - | 11,939 | 19 | 542,224 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix I, Page 13 of 22*

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| PERIOD 1b - SAFSTOR Limited DECON Activities | | | | | | | | | | | | | | | | | | | | | | |
| Period 1b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 1b.1.1.1 | Reactor | 1,135 | - | - | - | - | - | - | 568 | 1,703 | 1,703 | - | - | - | - | - | - | - | - | - | 17,003 | - |
| 1b.1.1.2 | Auxiliary | 1,177 | - | - | - | - | - | - | 589 | 1,766 | 1,766 | - | - | - | - | - | - | - | - | - | 17,950 | - |
| 1b.1.1.3 | Drum Transfer & Truck Loading Enclosure | 16 | - | - | - | - | - | - | 8 | 24 | 24 | - | - | - | - | - | - | - | - | - | 244 | - |
| 1b.1.1.4 | LLRW Storage Enclosure | 99 | - | - | - | - | - | - | 50 | 149 | 149 | - | - | - | - | - | - | - | - | - | 1,487 | - |
| 1b.1.1.5 | Radwaste | 44 | - | - | - | - | - | - | 22 | 66 | 66 | - | - | - | - | - | - | - | - | - | 669 | - |
| 1b.1.1.6 | Resin Disposal | 13 | - | - | - | - | - | - | 7 | 20 | 20 | - | - | - | - | - | - | - | - | - | 198 | - |
| 1b.1.1.7 | Fuel Handling of Aux Building | 863 | - | - | - | - | - | - | 431 | 1,294 | 1,294 | - | - | - | - | - | - | - | - | - | 12,414 | - |
| 1b.1.1 | Totals | 3,348 | - | - | - | - | - | - | 1,674 | 5,022 | 5,022 | - | - | - | - | - | - | - | - | - | 49,966 | - |
| 1b.1 | Subtotal Period 1b Activity Costs | 3,348 | - | - | - | - | - | - | 1,674 | 5,022 | 5,022 | - | - | - | - | - | - | - | - | - | 49,966 | - |
| Period 1b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.2.1 | Spent fuel pool isolation | - | - | - | - | - | - | 7,794 | 1,169 | 8,963 | 8,963 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.2 | Subtotal Period 1b Additional Costs | - | - | - | - | - | - | 7,794 | 1,169 | 8,963 | 8,963 | - | - | - | - | - | - | - | - | - | - | - |
| Period 1b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.3.2 | Process decommissioning water waste | 105 | - | 68 | 177 | - | 277 | - | 155 | 781 | 781 | - | - | - | 660 | - | - | - | - | - | 39,628 | 129 |
| 1b.3.4 | Small tool allowance | - | 56 | - | - | - | - | - | 8 | 64 | 64 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.3.5 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 286 | 43 | 329 | - | 329 | - | - | - | - | - | - | - | - | - | - |
| 1b.3.6 | Retention and Severance | - | - | - | - | - | - | 2,315 | 347 | 2,662 | 2,662 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.3.7 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 315 | - | 315 | - | 315 | - | - | - | - | - | - | - | - | - | - |
| 1b.3 | Subtotal Period 1b Collateral Costs | 1,078 | 56 | 68 | 177 | - | 277 | 2,916 | 699 | 5,269 | 4,625 | 644 | - | - | 660 | - | - | - | - | - | 39,628 | 129 |
| Period 1b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1b.4.1 | Decon supplies | 1,232 | - | - | - | - | - | - | 308 | 1,540 | 1,540 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.2 | Insurance | - | - | - | - | - | - | 436 | 44 | 480 | 480 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.3 | Property taxes | - | - | - | - | - | - | 675 | 68 | 743 | 743 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.4 | Health physics supplies | - | 369 | - | - | - | - | - | 92 | 461 | 461 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.5 | Heavy equipment rental | - | 143 | - | - | - | - | - | 21 | 164 | 164 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.6 | Disposal of DAW generated | - | - | 14 | 4 | - | 52 | - | 15 | 85 | 85 | - | - | - | 636 | - | - | - | - | - | 12,711 | 21 |
| 1b.4.7 | Plant energy budget | - | - | - | - | - | - | 382 | 57 | 439 | 439 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.8 | NRC Fees | - | - | - | - | - | - | 107 | 11 | 118 | 118 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.9 | Emergency Planning Fees | - | - | - | - | - | - | 404 | 40 | 445 | - | 445 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.10 | Fixed Overhead | - | - | - | - | - | - | 370 | 56 | 426 | 426 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.11 | Spent Fuel Pool O&M | - | - | - | - | - | - | 101 | 15 | 116 | - | 116 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.12 | ISFSI Operating Costs | - | - | - | - | - | - | 13 | 2 | 15 | - | 15 | - | - | - | - | - | - | - | - | - | - |
| 1b.4.13 | Railroad Track Maintenance | - | - | - | - | - | - | 15 | 2 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - |
| 1b.4.14 | Security Staff Cost | - | - | - | - | - | - | 1,863 | 279 | 2,142 | 2,142 | - | - | - | - | - | - | - | - | - | - | 30,932 |
| 1b.4.15 | Utility Staff Cost | - | - | - | - | - | - | 6,501 | 975 | 7,476 | 7,476 | - | - | - | - | - | - | - | - | - | - | 106,428 |
| 1b.4 | Subtotal Period 1b Period-Dependent Costs | 1,232 | 512 | 14 | 4 | - | 52 | 10,867 | 1,986 | 14,667 | 14,090 | 576 | - | - | 636 | - | - | - | - | - | 12,711 | 21 |
| 1b.0 | TOTAL PERIOD 1b COST | 5,657 | 568 | 82 | 181 | - | 328 | 21,577 | 5,528 | 33,921 | 32,701 | 1,220 | - | - | 1,296 | - | - | - | - | - | 52,338 | 50,116 |
| PERIOD 1c - Preparations for SAFSTOR Dormancy | | | | | | | | | | | | | | | | | | | | | | |
| Period 1c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 1c.1.1 | Prepare support equipment for storage | - | 486 | - | - | - | - | - | 73 | 559 | 559 | - | - | - | - | - | - | - | - | - | 3,000 | - |
| 1c.1.2 | Install containment pressure equal. lines | - | 48 | - | - | - | - | - | 7 | 55 | 55 | - | - | - | - | - | - | - | - | - | 700 | - |
| 1c.1.3 | Interim survey prior to dormancy | - | - | - | - | - | - | 733 | 220 | 953 | 953 | - | - | - | - | - | - | - | - | - | 9,017 | - |
| 1c.1.4 | Secure building accesses | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - | - |
| 1c.1.5 | Prepare & submit interim report | - | - | - | - | - | - | 29 | 4 | 34 | 34 | - | - | - | - | - | - | - | - | - | - | 249 |
| 1c.1 | Subtotal Period 1c Activity Costs | - | 534 | - | - | - | - | 762 | 304 | 1,601 | 1,601 | - | - | - | - | - | - | - | - | - | 12,717 | 249 |
| Period 1c Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 1c.3.1 | Process decommissioning water waste | 88 | - | 58 | 150 | - | 234 | - | 131 | 661 | 661 | - | - | - | 560 | - | - | - | - | - | 33,579 | 109 |
| 1c.3.3 | Small tool allowance | - | 4 | - | - | - | - | - | 1 | 5 | 5 | - | - | - | - | - | - | - | - | - | - | - |
| 1c.3.4 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 84 | 13 | 96 | - | 96 | - | - | - | - | - | - | - | - | - | - |
| 1c.3.5 | Retention and Severance | - | - | - | - | - | - | 1,741 | 261 | 2,002 | 2,002 | - | - | - | - | - | - | - | - | - | - | - |
| 1c.3.6 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 314 | - | 314 | - | 314 | - | - | - | - | - | - | - | - | - | - |
| 1c.3 | Subtotal Period 1c Collateral Costs | 88 | 4 | 58 | 150 | - | 234 | 2,139 | 405 | 3,079 | 2,668 | 411 | - | - | 560 | - | - | - | - | - | 33,579 | 109 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|--------------|--------------|-----------------|-----------------|---------------------------|---------------------|---------------|-------------------|----------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 1c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 1c.4.1 | Insurance | - | - | - | - | - | - | 436 | 44 | 480 | 480 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.2 | Property taxes | - | - | - | - | - | - | 674 | 67 | 742 | 742 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.3 | Health physics supplies | - | 191 | - | - | - | - | - | 48 | 239 | 239 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.4 | Heavy equipment rental | - | 143 | - | - | - | - | - | 21 | 164 | 164 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.5 | Disposal of DAW generated | - | - | 3 | 1 | - | 13 | - | 4 | 20 | 20 | - | - | - | 154 | - | - | - | 3,073 | 5 | - |
| 1c.4.6 | Plant energy budget | - | - | - | - | - | - | 382 | 57 | 439 | 439 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.7 | NRC Fees | - | - | - | - | - | - | 107 | 11 | 118 | 118 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.8 | Emergency Planning Fees | - | - | - | - | - | - | 404 | 40 | 445 | - | 445 | - | - | - | - | - | - | - | - | - |
| 1c.4.9 | Fixed Overhead | - | - | - | - | - | - | 370 | 56 | 426 | 426 | - | - | - | - | - | - | - | - | - | - |
| 1c.4.10 | Spent Fuel Pool O&M | - | - | - | - | - | - | 101 | 15 | 116 | - | 116 | - | - | - | - | - | - | - | - | - |
| 1c.4.11 | ISFSI Operating Costs | - | - | - | - | - | - | 13 | 2 | 15 | - | 15 | - | - | - | - | - | - | - | - | - |
| 1c.4.12 | Railroad Track Maintenance | - | - | - | - | - | - | 15 | 2 | 17 | - | 17 | - | - | - | - | - | - | - | - | - |
| 1c.4.13 | Security Staff Cost | - | - | - | - | - | - | 1,863 | 279 | 2,142 | 2,142 | - | - | - | - | - | - | - | - | - | 30,932 |
| 1c.4.14 | Utility Staff Cost | - | - | - | - | - | - | 6,501 | 975 | 7,476 | 7,476 | - | - | - | - | - | - | - | - | - | 106,428 |
| 1c.4 | Subtotal Period 1c Period-Dependent Costs | - | 334 | 3 | 1 | - | 13 | 10,866 | 1,622 | 12,839 | 12,263 | 576 | - | - | 154 | - | - | - | 3,073 | 5 | 137,360 |
| 1c.0 | TOTAL PERIOD 1c COST | 88 | 873 | 61 | 151 | - | 247 | 13,767 | 2,331 | 17,518 | 16,532 | 987 | - | - | 713 | - | - | - | 36,652 | 12,832 | 137,609 |
| PERIOD 1 TOTALS | | 5,746 | 2,514 | 156 | 335 | - | 624 | 92,067 | 15,997 | 117,440 | 109,256 | 8,184 | - | - | 2,606 | - | - | - | 100,929 | 62,967 | 817,193 |
| PERIOD 2a - SAFSTOR Dormancy with Wet Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2a.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2a.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2a.1.3 | Prepare reports | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2a.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 309 | 46 | 356 | 356 | - | - | - | - | - | - | - | - | - | - |
| 2a.1.5 | Maintenance supplies | - | - | - | - | - | - | 477 | 119 | 596 | 596 | - | - | - | - | - | - | - | - | - | - |
| 2a.1 | Subtotal Period 2a Activity Costs | - | - | - | - | - | - | 786 | 166 | 951 | 951 | - | - | - | - | - | - | - | - | - | - |
| Period 2a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.2.1 | Security Modifications | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| 2a.2 | Subtotal Period 2a Additional Costs | - | - | - | - | - | - | 4,348 | 652 | 5,000 | 5,000 | - | - | - | - | - | - | - | - | - | - |
| Period 2a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 72,373 | 10,856 | 83,229 | - | 83,229 | - | - | - | - | - | - | - | - | - |
| 2a.3.2 | Retention and Severance | - | - | - | - | - | - | 12,266 | 1,840 | 14,106 | 14,106 | - | - | - | - | - | - | - | - | - | - |
| 2a.3.3 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 4,371 | - | 4,371 | - | 4,371 | - | - | - | - | - | - | - | - | - |
| 2a.3 | Subtotal Period 2a Collateral Costs | - | - | - | - | - | - | 89,010 | 12,696 | 101,706 | 14,106 | 87,600 | - | - | - | - | - | - | - | - | - |
| Period 2a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 2a.4.1 | Insurance | - | - | - | - | - | - | 1,788 | 179 | 1,966 | 1,966 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.2 | Property taxes | - | - | - | - | - | - | 9,379 | 938 | 10,317 | 10,317 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.3 | Health physics supplies | - | 631 | - | - | - | - | - | 158 | 789 | 789 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.4 | Disposal of DAW generated | - | - | 15 | 4 | - | 55 | - | 16 | 89 | 89 | - | - | - | 670 | - | - | - | 13,402 | 22 | - |
| 2a.4.5 | Plant energy budget | - | - | - | - | - | - | 1,060 | 159 | 1,219 | 1,219 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.6 | NRC Fees | - | - | - | - | - | - | 819 | 82 | 901 | 901 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 4,492 | 449 | 4,941 | - | 4,941 | - | - | - | - | - | - | - | - | - |
| 2a.4.8 | Fixed Overhead | - | - | - | - | - | - | 5,142 | 771 | 5,913 | 5,913 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.9 | Spent Fuel Pool O&M | - | - | - | - | - | - | 1,404 | 211 | 1,615 | - | 1,615 | - | - | - | - | - | - | - | - | - |
| 2a.4.10 | ISFSI Operating Costs | - | - | - | - | - | - | 181 | 27 | 208 | - | 208 | - | - | - | - | - | - | - | - | - |
| 2a.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 410 | 62 | 472 | 472 | - | - | - | - | - | - | - | - | - | - |
| 2a.4.12 | Security Staff Cost | - | - | - | - | - | - | 23,761 | 3,564 | 27,325 | 19,456 | 7,870 | - | - | - | - | - | - | - | - | 392,966 |
| 2a.4.13 | Utility Staff Cost | - | - | - | - | - | - | 3,341 | 501 | 3,842 | 2,732 | 1,110 | - | - | - | - | - | - | - | - | 54,579 |
| 2a.4 | Subtotal Period 2a Period-Dependent Costs | - | 631 | 15 | 4 | - | 55 | 51,776 | 7,116 | 59,597 | 43,854 | 15,744 | - | - | 670 | - | - | - | 13,402 | 22 | 447,545 |
| 2a.0 | TOTAL PERIOD 2a COST | - | 631 | 15 | 4 | - | 55 | 145,920 | 20,630 | 167,255 | 63,911 | 103,344 | - | - | 670 | - | - | - | 13,402 | 22 | 447,545 |
| PERIOD 2b - SAFSTOR Dormancy with Dry Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | |
| Period 2b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 2b.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2b.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2b.1.3 | Prepare reports | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - |
| 2b.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 3,376 | 506 | 3,882 | 3,882 | - | - | - | - | - | - | - | - | - | - |
| 2b.1.5 | Maintenance supplies | - | - | - | - | - | - | 5,206 | 1,301 | 6,507 | 6,507 | - | - | - | - | - | - | - | - | - | - |
| 2b.1 | Subtotal Period 2b Activity Costs | - | - | - | - | - | - | 8,581 | 1,808 | 10,389 | 10,389 | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

*Document X01-1725-001, Rev. 0
Appendix I, Page 15 of 22*

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|-----------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 2b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.3.1 | Spent Fuel Capital and Transfer | - | - | - | - | - | - | 29,940 | 4,491 | 34,431 | - | 34,431 | - | - | - | - | - | - | - | - | - | |
| 2b.3.2 | Prairie Island Indian Community Payments | - | - | - | - | - | - | 47,719 | - | 47,719 | - | 47,719 | - | - | - | - | - | - | - | - | - | |
| 2b.3 | Subtotal Period 2b Collateral Costs | - | - | - | - | - | - | 77,660 | 4,491 | 82,151 | - | 82,151 | - | - | - | - | - | - | - | - | - | |
| Period 2b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2b.4.1 | Insurance | - | - | - | - | - | - | 19,520 | 1,952 | 21,472 | 21,472 | - | - | - | - | - | - | - | - | - | - | |
| 2b.4.2 | Property taxes | - | - | - | - | - | - | 102,394 | 10,239 | 112,633 | 112,633 | - | - | - | - | - | - | - | - | - | - | |
| 2b.4.3 | Health physics supplies | - | 3,643 | - | - | - | - | - | 911 | 4,554 | 4,554 | - | - | - | - | - | - | - | - | - | - | |
| 2b.4.4 | Disposal of DAW generated | - | - | 86 | 25 | - | 321 | - | 93 | 525 | 525 | - | - | - | 3,946 | - | - | - | - | 78,923 | 129 | |
| 2b.4.5 | Plant energy budget | - | - | - | - | - | - | 5,786 | 868 | 6,654 | 6,654 | - | - | - | - | - | - | - | - | - | - | |
| 2b.4.6 | NRC Fees | - | - | - | - | - | - | 8,573 | 857 | 9,430 | 9,430 | - | - | - | - | - | - | - | - | - | - | |
| 2b.4.7 | Emergency Planning Fees | - | - | - | - | - | - | 2,612 | 261 | 2,873 | - | 2,873 | - | - | - | - | - | - | - | - | - | |
| 2b.4.8 | Fixed Overhead | - | - | - | - | - | - | 5,829 | 874 | 6,703 | 6,703 | - | - | - | - | - | - | - | - | - | - | |
| 2b.4.9 | ISFSI Operating Costs | - | - | - | - | - | - | 1,972 | 296 | 2,268 | - | 2,268 | - | - | - | - | - | - | - | - | - | |
| 2b.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 2,203 | 330 | 2,534 | 2,534 | - | - | - | - | - | - | - | - | - | - | |
| 2b.4.11 | Security Staff Cost | - | - | - | - | - | - | 96,335 | 14,450 | 110,786 | 22,822 | 87,964 | - | - | - | - | - | - | - | - | 1,430,311 | |
| 2b.4.12 | Utility Staff Cost | - | - | - | - | - | - | 50,003 | 7,500 | 57,503 | 35,767 | 21,736 | - | - | - | - | - | - | - | - | 794,617 | |
| 2b.4 | Subtotal Period 2b Period-Dependent Costs | - | 3,643 | 86 | 25 | - | 321 | 295,227 | 38,633 | 337,935 | 223,094 | 114,842 | - | - | 3,946 | - | - | - | - | 78,923 | 129 | 2,224,928 |
| 2b.0 | TOTAL PERIOD 2b COST | - | 3,643 | 86 | 25 | - | 321 | 381,468 | 44,931 | 430,475 | 233,483 | 196,992 | - | - | 3,946 | - | - | - | - | 78,923 | 129 | 2,224,928 |
| PERIOD 2c - SAFSTOR Dormancy without Spent Fuel Storage | | | | | | | | | | | | | | | | | | | | | | |
| Period 2c Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 2c.1.1 | Quarterly Inspection | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | |
| 2c.1.2 | Semi-annual environmental survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | |
| 2c.1.3 | Prepare reports | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | |
| 2c.1.4 | Bituminous roof replacement | - | - | - | - | - | - | 940 | 141 | 1,080 | 1,080 | - | - | - | - | - | - | - | - | - | - | |
| 2c.1.5 | Maintenance supplies | - | - | - | - | - | - | 1,449 | 362 | 1,811 | 1,811 | - | - | - | - | - | - | - | - | - | - | |
| 2c.1 | Subtotal Period 2c Activity Costs | - | - | - | - | - | - | 2,388 | 503 | 2,892 | 2,892 | - | - | - | - | - | - | - | - | - | - | |
| Period 2c Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 2c.4.1 | Insurance | - | - | - | - | - | - | 5,331 | 533 | 5,864 | 5,864 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.2 | Property taxes | - | - | - | - | - | - | 18,485 | 1,849 | 20,334 | 20,334 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.3 | Health physics supplies | - | 962 | - | - | - | - | - | 240 | 1,202 | 1,202 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.4 | Disposal of DAW generated | - | - | 22 | 7 | - | 83 | - | 24 | 136 | 136 | - | - | 1,021 | - | - | - | - | - | 20,430 | 33 | |
| 2c.4.5 | Plant energy budget | - | - | - | - | - | - | 1,610 | 242 | 1,852 | 1,852 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.6 | NRC Fees | - | - | - | - | - | - | 2,289 | 229 | 2,518 | 2,518 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.7 | Fixed Overhead | - | - | - | - | - | - | 1,622 | 243 | 1,866 | 1,866 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 613 | 92 | 705 | 705 | - | - | - | - | - | - | - | - | - | - | |
| 2c.4.9 | Utility Staff Cost | - | - | - | - | - | - | 5,376 | 806 | 6,182 | 6,182 | - | - | - | - | - | - | - | - | - | 88,466 | |
| 2c.4 | Subtotal Period 2c Period-Dependent Costs | - | 962 | 22 | 7 | - | 83 | 35,327 | 4,258 | 40,659 | 40,659 | - | - | 1,021 | - | - | - | - | - | 20,430 | 33 | 88,466 |
| 2c.0 | TOTAL PERIOD 2c COST | - | 962 | 22 | 7 | - | 83 | 37,716 | 4,761 | 43,551 | 43,551 | - | - | 1,021 | - | - | - | - | - | 20,430 | 33 | 88,466 |
| PERIOD 2 TOTALS | | - | 5,236 | 123 | 36 | - | 459 | 565,104 | 70,323 | 641,280 | 340,944 | 300,336 | - | - | 5,638 | - | - | - | - | 112,755 | 184 | 2,760,938 |
| PERIOD 3a - Reactivate Site Following SAFSTOR Dormancy | | | | | | | | | | | | | | | | | | | | | | |
| Period 3a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.1 | Prepare preliminary decommissioning cost | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | 556 | |
| 3a.1.2 | Review plant dwgs & specs. | - | - | - | - | - | - | 231 | 35 | 266 | 266 | - | - | - | - | - | - | - | - | - | 1,967 | |
| 3a.1.3 | Perform detailed rad survey | - | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | |
| 3a.1.4 | End product description | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 | |
| 3a.1.5 | Detailed by-product inventory | - | - | - | - | - | - | 65 | 10 | 75 | 75 | - | - | - | - | - | - | - | - | - | 556 | |
| 3a.1.6 | Define major work sequence | - | - | - | - | - | - | 376 | 56 | 433 | 433 | - | - | - | - | - | - | - | - | - | 3,207 | |
| 3a.1.7 | Perform SER and EA | - | - | - | - | - | - | 156 | 23 | 179 | 179 | - | - | - | - | - | - | - | - | - | 1,326 | |
| 3a.1.8 | Perform Site-Specific Cost Study | - | - | - | - | - | - | 251 | 38 | 289 | 289 | - | - | - | - | - | - | - | - | - | 2,138 | |
| Activity Specifications | | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.9.1 | Re-activate plant & temporary facilities | - | - | - | - | - | - | 370 | 55 | 425 | 383 | - | 43 | - | - | - | - | - | - | - | - | 3,151 |
| 3a.1.9.2 | Plant systems | - | - | - | - | - | - | 209 | 31 | 241 | 216 | - | 24 | - | - | - | - | - | - | - | - | 1,782 |
| 3a.1.9.3 | Reactor internals | - | - | - | - | - | - | 356 | 53 | 410 | 410 | - | - | - | - | - | - | - | - | - | - | 3,036 |
| 3a.1.9.4 | Reactor vessel | - | - | - | - | - | - | 326 | 49 | 375 | 375 | - | - | - | - | - | - | - | - | - | - | 2,779 |
| 3a.1.9.5 | Biological shield | - | - | - | - | - | - | 25 | 4 | 29 | 29 | - | - | - | - | - | - | - | - | - | - | 214 |
| 3a.1.9.6 | Steam generators | - | - | - | - | - | - | 157 | 23 | 180 | 180 | - | - | - | - | - | - | - | - | - | - | 1,334 |
| 3a.1.9.7 | Reinforced concrete | - | - | - | - | - | - | 80 | 12 | 92 | 46 | - | 46 | - | - | - | - | - | - | - | - | 684 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 16 of 22**

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Activity Specifications (continued) | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.9.8 | Main Turbine | - | - | - | - | - | - | 20 | 3 | 23 | - | - | 23 | - | - | - | - | - | - | - | 171 |
| 3a.1.9.9 | Main Condensers | - | - | - | - | - | - | 20 | 3 | 23 | - | - | 23 | - | - | - | - | - | - | - | 171 |
| 3a.1.9.10 | Plant structures & buildings | - | - | - | - | - | - | 157 | 23 | 180 | 90 | - | 90 | - | - | - | - | - | - | - | 1,334 |
| 3a.1.9.11 | Waste management | - | - | - | - | - | - | 231 | 35 | 266 | 266 | - | - | - | - | - | - | - | - | - | 1,967 |
| 3a.1.9.12 | Facility & site closeout | - | - | - | - | - | - | 45 | 7 | 52 | 26 | - | 26 | - | - | - | - | - | - | - | 385 |
| 3a.1.9 | Total | - | - | - | - | - | - | 1,996 | 299 | 2,296 | 2,021 | - | 275 | - | - | - | - | - | - | - | 17,009 |
| Planning & Site Preparations | | | | | | | | | | | | | | | | | | | | | |
| 3a.1.10 | Prepare dismantling sequence | - | - | - | - | - | - | 120 | 18 | 139 | 139 | - | - | - | - | - | - | - | - | - | 1,026 |
| 3a.1.11 | Plant prep. & temp. svces | - | - | - | - | - | - | 3,300 | 495 | 3,795 | 3,795 | - | - | - | - | - | - | - | - | - | - |
| 3a.1.12 | Design water clean-up system | - | - | - | - | - | - | 70 | 11 | 81 | 81 | - | - | - | - | - | - | - | - | - | 599 |
| 3a.1.13 | Rigging/Cont. Cntrl Envlps/tooling/etc. | - | - | - | - | - | - | 2,300 | 345 | 2,645 | 2,645 | - | - | - | - | - | - | - | - | - | - |
| 3a.1.14 | Procure casks/liners & containers | - | - | - | - | - | - | 62 | 9 | 71 | 71 | - | - | - | - | - | - | - | - | - | 526 |
| 3a.1 | Subtotal Period 3a Activity Costs | - | - | - | - | - | - | 9,043 | 1,357 | 10,400 | 10,125 | - | 275 | - | - | - | - | - | - | - | 29,336 |
| Period 3a Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.2.1 | Site Characterization | - | - | - | - | - | - | 1,582 | 475 | 2,057 | 2,057 | - | - | - | - | - | - | - | - | 8,988 | 3,563 |
| 3a.2.2 | Mixed/Hazardous Waste | - | - | 326 | 75 | 169 | - | - | 69 | 639 | 639 | - | - | 6,324 | - | - | - | - | 362,914 | 2,410 | - |
| 3a.2.3 | Asbestos Abatement | - | 2,364 | 2 | 110 | - | 1,359 | - | 947 | 4,782 | 4,782 | - | - | - | 12,843 | - | - | - | 166,959 | 20,907 | - |
| 3a.2 | Subtotal Period 3a Additional Costs | - | 2,364 | 328 | 185 | 169 | 1,359 | 1,582 | 1,491 | 7,478 | 7,478 | - | - | 6,324 | 12,843 | - | - | - | 529,873 | 32,305 | 3,563 |
| Period 3a Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.3.1 | Small tool allowance | - | 32 | - | - | - | - | - | 5 | 37 | 37 | - | - | - | - | - | - | - | - | - | - |
| 3a.3 | Subtotal Period 3a Collateral Costs | - | 32 | - | - | - | - | - | 5 | 37 | 37 | - | - | - | - | - | - | - | - | - | - |
| Period 3a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3a.4.1 | Insurance | - | - | - | - | - | - | 501 | 50 | 552 | 552 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.2 | Property taxes | - | - | - | - | - | - | 1,608 | 161 | 1,769 | 1,769 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.3 | Health physics supplies | - | 539 | - | - | - | - | - | 135 | 673 | 673 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.4 | Heavy equipment rental | - | 567 | - | - | - | - | - | 85 | 652 | 652 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.5 | Disposal of DAW generated | - | - | 10 | 3 | - | 39 | - | 11 | 64 | 64 | - | - | 481 | - | - | - | - | 9,613 | 16 | - |
| 3a.4.6 | Plant energy budget | - | - | - | - | - | - | 1,515 | 227 | 1,742 | 1,742 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.7 | NRC Fees | - | - | - | - | - | - | 298 | 30 | 327 | 327 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.8 | Fixed Overhead | - | - | - | - | - | - | 1,470 | 220 | 1,690 | 1,690 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.9 | Railroad Track Maintenance | - | - | - | - | - | - | 58 | 9 | 66 | 66 | - | - | - | - | - | - | - | - | - | - |
| 3a.4.10 | Security Staff Cost | - | - | - | - | - | - | 312 | 47 | 358 | 358 | - | - | - | - | - | - | - | - | - | 6,240 |
| 3a.4.11 | Utility Staff Cost | - | - | - | - | - | - | 11,597 | 1,740 | 13,336 | 13,336 | - | - | - | - | - | - | - | - | - | 199,680 |
| 3a.4 | Subtotal Period 3a Period-Dependent Costs | - | 1,106 | 10 | 3 | - | 39 | 17,358 | 2,714 | 21,230 | 21,230 | - | - | 481 | - | - | - | - | 9,613 | 16 | 205,920 |
| 3a.0 | TOTAL PERIOD 3a COST | - | 3,501 | 339 | 188 | 169 | 1,398 | 27,983 | 5,567 | 39,145 | 38,870 | - | 275 | 6,324 | 13,324 | - | - | - | 539,486 | 32,320 | 238,819 |
| PERIOD 3b - Decommissioning Preparations | | | | | | | | | | | | | | | | | | | | | |
| Period 3b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Detailed Work Procedures | | | | | | | | | | | | | | | | | | | | | |
| 3b.1.1.1 | Plant systems | - | - | - | - | - | - | 238 | 36 | 273 | 246 | - | 27 | - | - | - | - | - | - | - | 2,024 |
| 3b.1.1.2 | Reactor internals | - | - | - | - | - | - | 125 | 19 | 144 | 144 | - | - | - | - | - | - | - | - | - | 1,069 |
| 3b.1.1.3 | Remaining buildings | - | - | - | - | - | - | 68 | 10 | 78 | 19 | - | 58 | - | - | - | - | - | - | - | 577 |
| 3b.1.1.4 | CRD cooling assembly | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 |
| 3b.1.1.5 | CRD housings & ICI tubes | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 |
| 3b.1.1.6 | Incore instrumentation | - | - | - | - | - | - | 50 | 8 | 58 | 58 | - | - | - | - | - | - | - | - | - | 428 |
| 3b.1.1.7 | Reactor vessel | - | - | - | - | - | - | 182 | 27 | 210 | 210 | - | - | - | - | - | - | - | - | - | 1,552 |
| 3b.1.1.8 | Facility closeout | - | - | - | - | - | - | 60 | 9 | 69 | 35 | - | 35 | - | - | - | - | - | - | - | 513 |
| 3b.1.1.9 | Missile shields | - | - | - | - | - | - | 23 | 3 | 26 | 26 | - | - | - | - | - | - | - | - | - | 192 |
| 3b.1.1.10 | Biological shield | - | - | - | - | - | - | 60 | 9 | 69 | 69 | - | - | - | - | - | - | - | - | - | 513 |
| 3b.1.1.11 | Steam generators | - | - | - | - | - | - | 231 | 35 | 266 | 266 | - | - | - | - | - | - | - | - | - | 1,967 |
| 3b.1.1.12 | Reinforced concrete | - | - | - | - | - | - | 50 | 8 | 58 | 29 | - | 29 | - | - | - | - | - | - | - | 428 |
| 3b.1.1.13 | Main Turbine | - | - | - | - | - | - | 78 | 12 | 90 | - | - | 90 | - | - | - | - | - | - | - | 667 |
| 3b.1.1.14 | Main Condensers | - | - | - | - | - | - | 78 | 12 | 90 | - | - | 90 | - | - | - | - | - | - | - | 667 |
| 3b.1.1.15 | Auxiliary building | - | - | - | - | - | - | 137 | 21 | 158 | 142 | - | 16 | - | - | - | - | - | - | - | 1,167 |
| 3b.1.1.16 | Reactor building | - | - | - | - | - | - | 137 | 21 | 158 | 142 | - | 16 | - | - | - | - | - | - | - | 1,167 |
| 3b.1.1 | Total | - | - | - | - | - | - | 1,618 | 243 | 1,861 | 1,500 | - | 361 | - | - | - | - | - | - | - | 13,787 |
| 3b.1 | Subtotal Period 3b Activity Costs | - | - | - | - | - | - | 1,618 | 243 | 1,861 | 1,500 | - | 361 | - | - | - | - | - | - | - | 13,787 |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|--|---|--------------|--------------|-----------------|-----------------|---------------------------|---------------------|---------------|-------------------|---------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Period 3b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.3.1 | Decon equipment | 973 | - | - | - | - | - | - | 146 | 1,119 | 1,119 | - | - | - | - | - | - | - | - | - | - |
| 3b.3.2 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 3b.3.3 | Pipe cutting equipment | - | 1,200 | - | - | - | - | - | 180 | 1,380 | 1,380 | - | - | - | - | - | - | - | - | - | - |
| 3b.3 | Subtotal Period 3b Collateral Costs | 973 | 1,200 | - | - | - | - | 1,189 | 504 | 3,866 | 3,866 | - | - | - | - | - | - | - | - | - | - |
| Period 3b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 3b.4.1 | Decon supplies | 35 | - | - | - | - | - | - | 9 | 43 | 43 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.2 | Insurance | - | - | - | - | - | - | 255 | 25 | 280 | 280 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.3 | Property taxes | - | - | - | - | - | - | 760 | 76 | 836 | 836 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.4 | Health physics supplies | - | 230 | - | - | - | - | - | 57 | 287 | 287 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.5 | Heavy equipment rental | - | 283 | - | - | - | - | - | 42 | 325 | 325 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.6 | Disposal of DAW generated | - | - | 6 | 2 | - | 22 | - | 6 | 35 | 35 | - | - | - | 264 | - | - | - | 5,286 | 9 | - |
| 3b.4.7 | Plant energy budget | - | - | - | - | - | - | 755 | 113 | 869 | 869 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.8 | NRC Fees | - | - | - | - | - | - | 148 | 15 | 163 | 163 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.9 | Fixed Overhead | - | - | - | - | - | - | 733 | 110 | 843 | 843 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.10 | Railroad Track Maintenance | - | - | - | - | - | - | 29 | 4 | 33 | 33 | - | - | - | - | - | - | - | - | - | - |
| 3b.4.11 | Security Staff Cost | - | - | - | - | - | - | 155 | 23 | 179 | 179 | - | - | - | - | - | - | - | - | - | 3,111 |
| 3b.4.12 | DOC Staff Cost | - | - | - | - | - | - | 3,539 | 531 | 4,070 | 4,070 | - | - | - | - | - | - | - | - | - | 42,523 |
| 3b.4.13 | Utility Staff Cost | - | - | - | - | - | - | 5,782 | 867 | 6,650 | 6,650 | - | - | - | - | - | - | - | - | - | 99,566 |
| 3b.4 | Subtotal Period 3b Period-Dependent Costs | 35 | 513 | 6 | 2 | - | 22 | 12,157 | 1,880 | 14,614 | 14,614 | - | - | - | 264 | - | - | - | 5,286 | 9 | 145,201 |
| 3b.0 | TOTAL PERIOD 3b COST | 1,008 | 1,713 | 6 | 2 | - | 22 | 14,964 | 2,627 | 20,341 | 19,980 | - | 361 | - | 264 | - | - | - | 5,286 | 9 | 158,988 |
| PERIOD 3 TOTALS | | 1,008 | 5,214 | 345 | 189 | 169 | 1,420 | 42,947 | 8,194 | 59,485 | 58,850 | - | 636 | 6,324 | 13,588 | - | - | - | 544,771 | 32,329 | 397,807 |
| PERIOD 4a - Large Component Removal | | | | | | | | | | | | | | | | | | | | | |
| Period 4a Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| Nuclear Steam Supply System Removal | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.1.1 | Reactor Coolant Piping | 11 | 40 | 6 | 5 | 34 | 75 | - | 41 | 212 | 212 | - | - | 144 | 152 | - | - | - | 33,380 | 771 | - |
| 4a.1.1.2 | Pressurizer Relief Tank | 5 | 18 | 4 | 3 | 23 | 50 | - | 24 | 126 | 126 | - | - | 96 | 101 | - | - | - | 22,241 | 347 | - |
| 4a.1.1.3 | Reactor Coolant Pumps & Motors | 13 | 56 | 43 | 76 | - | 736 | - | 220 | 1,143 | 1,143 | - | - | - | 2,332 | - | - | - | 295,800 | 1,226 | 80 |
| 4a.1.1.4 | Pressurizer | 10 | 68 | 359 | 82 | - | 693 | - | 244 | 1,456 | 1,456 | - | - | - | 2,196 | - | - | - | 158,199 | 1,499 | 750 |
| 4a.1.1.5 | Steam Generators | 47 | 2,943 | 1,576 | 1,614 | 1,246 | 3,467 | - | 2,212 | 13,104 | 13,104 | - | - | 18,672 | 10,990 | - | - | - | 1,560,086 | 10,964 | 2,250 |
| 4a.1.1.6 | CRDMs/ICIs/Service Structure Removal | 60 | 243 | 199 | 32 | 169 | 369 | - | 233 | 1,305 | 1,305 | - | - | 2,138 | 2,146 | - | - | - | 165,025 | 4,449 | - |
| 4a.1.1.7 | Reactor Vessel Internals | 59 | 4,189 | 21,552 | 1,011 | - | 7,239 | 239 | 12,467 | 46,756 | 46,756 | - | - | - | 757 | - | 673 | - | 166,167 | 19,373 | 933 |
| 4a.1.1.8 | Vessel & Internals GTCC Disposal | - | - | - | - | - | 8,689 | - | 1,303 | 9,992 | 9,992 | - | - | - | - | - | - | 3,746 | 837,596 | - | - |
| 4a.1.1.9 | Reactor Vessel | - | 5,439 | 1,328 | 198 | - | 1,804 | 239 | 5,398 | 14,406 | 14,406 | - | - | - | 5,719 | - | - | - | 569,974 | 19,373 | 933 |
| 4a.1.1 | Totals | 204 | 12,996 | 25,067 | 3,022 | 1,471 | 23,120 | 478 | 22,142 | 88,499 | 88,499 | - | - | 21,050 | 24,393 | - | 673 | 3,746 | 3,808,467 | 58,003 | 4,947 |
| Removal of Major Equipment | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.2 | Main Turbine/Generator | - | 269 | 128 | 27 | 287 | - | - | 127 | 838 | 838 | - | - | 2,243 | - | - | - | - | 134,601 | 4,116 | - |
| 4a.1.3 | Main Condensers | - | 2,269 | 87 | 26 | 383 | - | - | 637 | 3,403 | 3,403 | - | - | 4,000 | - | - | - | - | 180,000 | 34,978 | - |
| Cascading Costs from Clean Building Demolition | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.4.1 | Reactor | - | 728 | - | - | - | - | - | 109 | 837 | 837 | - | - | - | - | - | - | - | - | 7,589 | - |
| 4a.1.4.2 | Auxiliary | - | 210 | - | - | - | - | - | 32 | 242 | 242 | - | - | - | - | - | - | - | - | 1,309 | - |
| 4a.1.4.3 | Radwaste | - | 8 | - | - | - | - | - | 1 | 9 | 9 | - | - | - | - | - | - | - | - | 65 | - |
| 4a.1.4 | Totals | - | 946 | - | - | - | - | - | 142 | 1,088 | 1,088 | - | - | - | - | - | - | - | - | 8,963 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.5.1 | Admin Bldg Ventilation | - | 6 | - | - | - | - | - | 1 | 6 | - | - | 6 | - | - | - | - | - | - | 90 | - |
| 4a.1.5.2 | Air Removal | - | 25 | - | - | - | - | - | 4 | 29 | - | - | 29 | - | - | - | - | - | - | 422 | - |
| 4a.1.5.3 | Auxiliary Feedwater | - | 40 | - | - | - | - | - | 6 | 46 | - | - | 46 | - | - | - | - | - | - | 676 | - |
| 4a.1.5.4 | Auxiliary Feedwater - RCA | - | 36 | 0 | 1 | 15 | - | - | 12 | 65 | 65 | - | - | 178 | - | - | - | - | 7,214 | 486 | - |
| 4a.1.5.5 | Bleed Steam | - | 78 | - | - | - | - | - | 12 | 90 | - | - | 90 | - | - | - | - | - | - | 1,331 | - |
| 4a.1.5.6 | Caustic Addition - RCA | - | 38 | 0 | 1 | 21 | - | - | 13 | 74 | 74 | - | - | 240 | - | - | - | - | 9,761 | 468 | - |
| 4a.1.5.7 | Chemical Feed | - | 15 | - | - | - | - | - | 2 | 17 | - | - | 17 | - | - | - | - | - | - | 261 | - |
| 4a.1.5.8 | Chemical Feed - RCA | - | 3 | 0 | 0 | 1 | - | - | 1 | 5 | 5 | - | - | 16 | - | - | - | - | 634 | 31 | - |
| 4a.1.5.9 | Circulating Water | - | 24 | - | - | - | - | - | 4 | 28 | - | - | 28 | - | - | - | - | - | - | 401 | - |
| 4a.1.5.10 | Condensate | - | 459 | - | - | - | - | - | 69 | 527 | - | - | 527 | - | - | - | - | - | - | 7,537 | - |
| 4a.1.5.11 | Condensate Polishing | - | 181 | - | - | - | - | - | 27 | 209 | - | - | 209 | - | - | - | - | - | - | 2,987 | - |
| 4a.1.5.12 | Condensate Polishing - RCA | - | 36 | 1 | 3 | 42 | - | - | 16 | 98 | 98 | - | - | 483 | - | - | - | - | 19,616 | 493 | - |
| 4a.1.5.13 | Electro-Hydraulic | - | 8 | - | - | - | - | - | 1 | 10 | - | - | 10 | - | - | - | - | - | - | 143 | - |
| 4a.1.5.14 | External Circulating Water | - | 23 | - | - | - | - | - | 3 | 26 | - | - | 26 | - | - | - | - | - | - | 385 | - |
| 4a.1.5.15 | External Circulating Water - RCA | - | 70 | 1 | 4 | 62 | - | - | 28 | 165 | 165 | - | - | 721 | - | - | - | - | 29,284 | 938 | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 18 of 22**

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Disposal of Plant Systems (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 4a.1.5.16 | Feedwater | - | 111 | - | - | - | - | - | 17 | 128 | - | - | 128 | - | - | - | - | - | - | - | 1,840 | - |
| 4a.1.5.17 | Feedwater - RCA | - | 236 | 7 | 24 | 359 | - | - | 117 | 744 | 744 | - | - | 4,147 | - | - | - | - | - | 168,414 | 3,377 | - |
| 4a.1.5.18 | Gland Seal | - | 29 | - | - | - | - | - | 4 | 34 | - | - | 34 | - | - | - | - | - | - | - | 504 | - |
| 4a.1.5.19 | Heater Drain | - | 334 | - | - | - | - | - | 50 | 384 | - | - | 384 | - | - | - | - | - | - | - | 5,638 | - |
| 4a.1.5.20 | Hypobromous Acid Feed | - | 5 | - | - | - | - | - | 1 | 6 | - | - | 6 | - | - | - | - | - | - | - | 86 | - |
| 4a.1.5.21 | Hypobromous Acid Feed - RCA | - | 1 | 0 | 0 | 0 | - | - | 0 | 1 | 1 | - | - | 2 | - | - | - | - | - | 100 | 12 | - |
| 4a.1.5.22 | Internal Circ Water & CDSR | - | 22 | - | - | - | - | - | 3 | 25 | - | - | 25 | - | - | - | - | - | - | - | 366 | - |
| 4a.1.5.23 | Main Gen/Exciter/Transformer | - | 0 | - | - | - | - | - | 0 | 0 | - | - | 0 | - | - | - | - | - | - | - | 5 | - |
| 4a.1.5.24 | Main Steam | - | 88 | - | - | - | - | - | 13 | 101 | - | - | 101 | - | - | - | - | - | - | - | 1,482 | - |
| 4a.1.5.25 | Main Steam - RCA | - | 364 | 9 | 30 | 447 | - | - | 163 | 1,013 | 1,013 | - | - | 5,166 | - | - | - | - | - | 209,799 | 5,146 | - |
| 4a.1.5.26 | Repairable Spare Snubbers | - | 6 | 0 | 0 | 1 | - | - | 2 | 8 | 8 | - | - | 12 | - | - | - | - | - | 490 | 82 | - |
| 4a.1.5.27 | Steam Exclusion | - | 2 | - | - | - | - | - | 0 | 2 | - | - | 2 | - | - | - | - | - | - | - | 32 | - |
| 4a.1.5.28 | Steam Exclusion - RCA | - | 4 | 0 | 0 | 2 | - | - | 1 | 8 | 8 | - | - | 24 | - | - | - | - | - | 966 | 47 | - |
| 4a.1.5.29 | Steam Generator Blowdown | - | 362 | 20 | 21 | 165 | 179 | - | 165 | 911 | 911 | - | - | 1,906 | 631 | - | - | - | - | 119,126 | 5,179 | - |
| 4a.1.5.30 | Steam Generators | - | 5 | - | - | - | - | - | 1 | 5 | - | - | 5 | - | - | - | - | - | - | - | 75 | - |
| 4a.1.5.31 | Turbine & Moisture Separators | - | 329 | - | - | - | - | - | 49 | 379 | - | - | 379 | - | - | - | - | - | - | - | 5,472 | - |
| 4a.1.5.32 | Turbine Oil Purification | - | 46 | - | - | - | - | - | 7 | 53 | - | - | 53 | - | - | - | - | - | - | - | 757 | - |
| 4a.1.5.33 | Water Treatment | - | 394 | - | - | - | - | - | 59 | 453 | - | - | 453 | - | - | - | - | - | - | - | 6,677 | - |
| 4a.1.5.34 | Water Treatment - RCA | - | 19 | 0 | 1 | 10 | - | - | 6 | 37 | 37 | - | - | 115 | - | - | - | - | - | 4,652 | 252 | - |
| 4a.1.5 | Totals | - | 3,400 | 39 | 85 | 1,125 | 179 | - | 858 | 5,687 | 3,128 | - | 2,559 | 13,010 | 631 | - | - | - | - | 570,056 | 53,681 | - |
| 4a.1.6 | Scaffolding in support of decommissioning | - | 2,682 | 24 | 8 | 97 | 25 | - | 695 | 3,532 | 3,532 | - | - | 1,012 | 89 | - | - | - | - | 51,445 | 23,719 | - |
| 4a.1 | Subtotal Period 4a Activity Costs | 204 | 22,563 | 25,345 | 3,168 | 3,363 | 23,325 | 478 | 24,601 | 103,048 | 100,489 | - | 2,559 | 41,316 | 25,114 | - | 673 | 3,746 | 4,744,569 | 183,459 | 4,947 | - |
| Period 4a Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4a.2.1 | Remedial Action Surveys | - | - | - | - | - | - | 1,516 | 455 | 1,971 | 1,971 | - | - | - | - | - | - | - | - | - | 19,818 | - |
| 4a.2.2 | Retired RPV upper internals package | 1 | 659 | 785 | 107 | - | 1,439 | - | 1,437 | 4,427 | 4,427 | - | - | - | 2,097 | 125 | - | - | - | 205,890 | 2,175 | 87 |
| 4a.2 | Subtotal Period 4a Additional Costs | 1 | 659 | 785 | 107 | - | 1,439 | 1,516 | 1,892 | 6,398 | 6,398 | - | - | - | 2,097 | 125 | - | - | - | 205,890 | 21,993 | 87 |
| Period 4a Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4a.3.1 | Process decommissioning water waste | 2 | - | 4 | 11 | - | 17 | - | 7 | 42 | 42 | - | - | - | 40 | - | - | - | - | 2,403 | 8 | - |
| 4a.3.3 | Small tool allowance | - | 220 | - | - | - | - | - | 33 | 254 | 228 | - | 25 | - | - | - | - | - | - | - | - | - |
| 4a.3 | Subtotal Period 4a Collateral Costs | 2 | 220 | 4 | 11 | - | 17 | - | 41 | 295 | 270 | - | 25 | - | 40 | - | - | - | - | 2,403 | 8 | - |
| Period 4a Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4a.4.1 | Decon supplies | 66 | - | - | - | - | - | - | 17 | 83 | 83 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.2 | Insurance | - | - | - | - | - | - | 487 | 49 | 536 | 536 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.3 | Property taxes | - | - | - | - | - | - | 1,429 | 143 | 1,572 | 1,572 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.4 | Health physics supplies | - | 1,465 | - | - | - | - | - | 366 | 1,832 | 1,832 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.5 | Heavy equipment rental | - | 2,093 | - | - | - | - | - | 314 | 2,407 | 2,407 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.6 | Disposal of DAW generated | - | - | 71 | 21 | - | 266 | - | 77 | 434 | 434 | - | - | - | 3,264 | - | - | - | - | 65,288 | 106 | - |
| 4a.4.7 | Plant energy budget | - | - | - | - | - | - | 1,372 | 206 | 1,578 | 1,578 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.8 | NRC Fees | - | - | - | - | - | - | 363 | 36 | 399 | 399 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.9 | Fixed Overhead | - | - | - | - | - | - | 1,180 | 177 | 1,357 | 1,357 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.10 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 386 | 58 | 444 | 444 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 55 | 8 | 63 | 63 | - | - | - | - | - | - | - | - | - | - | - |
| 4a.4.12 | Security Staff Cost | - | - | - | - | - | - | 3,664 | 550 | 4,213 | 4,213 | - | - | - | - | - | - | - | - | - | - | 61,973 |
| 4a.4.13 | DOC Staff Cost | - | - | - | - | - | - | 11,794 | 1,769 | 13,563 | 13,563 | - | - | - | - | - | - | - | - | - | - | 136,836 |
| 4a.4.14 | Utility Staff Cost | - | - | - | - | - | - | 15,190 | 2,278 | 17,468 | 17,468 | - | - | - | - | - | - | - | - | - | - | 247,890 |
| 4a.4 | Subtotal Period 4a Period-Dependent Costs | 66 | 3,559 | 71 | 21 | - | 266 | 35,920 | 6,048 | 45,950 | 45,950 | - | - | - | 3,264 | - | - | - | - | 65,288 | 106 | 446,699 |
| 4a.0 | TOTAL PERIOD 4a COST | 273 | 27,002 | 26,205 | 3,306 | 3,363 | 25,047 | 37,914 | 32,581 | 155,691 | 153,106 | - | 2,585 | 41,316 | 30,515 | 125 | 673 | 3,746 | 5,018,150 | 205,566 | 451,732 | - |
| PERIOD 4b - Site Decontamination | | | | | | | | | | | | | | | | | | | | | | |
| Period 4b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.1 | Remove spent fuel racks | 297 | 32 | 94 | 32 | - | 595 | - | 319 | 1,369 | 1,369 | - | - | - | 2,092 | - | - | - | - | 138,298 | 576 | - |
| Disposal of Plant Systems | | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.2.1 | ADT & Misc Ventilation | - | 21 | 0 | 1 | 13 | 3 | - | 8 | 47 | 47 | - | - | 153 | 9 | - | - | - | - | 6,814 | 325 | - |
| 4b.1.2.2 | Aux Bldg Normal Ventilation | - | 60 | 2 | 5 | 60 | 11 | - | 28 | 165 | 165 | - | - | 692 | 39 | - | - | - | - | 30,671 | 906 | - |
| 4b.1.2.3 | Aux Bldg Special Ventilation | - | 12 | 0 | 0 | 6 | 2 | - | 4 | 25 | 25 | - | - | 70 | 6 | - | - | - | - | 3,243 | 176 | - |
| 4b.1.2.4 | Battery Rm Special Ventilation | - | 1 | - | - | - | - | - | 0 | 2 | - | - | 2 | - | - | - | - | - | - | - | 24 | - |
| 4b.1.2.5 | Boron Recycle | - | 3 | 0 | 0 | 0 | 3 | - | 2 | 8 | 8 | - | - | 3 | 9 | - | - | - | - | 709 | 45 | - |
| 4b.1.2.6 | Chemical & Volume Control | - | 822 | 59 | 44 | 204 | 560 | - | 388 | 2,075 | 2,075 | - | - | 2,356 | 1,977 | - | - | - | - | 225,854 | 11,575 | - |
| 4b.1.2.7 | Cold Chemical Lab Ventilation | - | 1 | - | - | - | - | - | 0 | 1 | - | - | 1 | - | - | - | - | - | - | - | 9 | - |

Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis

Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | GTCC Cu. Feet | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---------------------------------------|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | | | | |
| Disposal of Plant Systems (continued) | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.2.8 | Component Cooling - RCA | - | 617 | 21 | 70 | 1,038 | - | - | 322 | 2,068 | 2,068 | - | - | 11,996 | - | - | - | - | 487,169 | 8,583 | - |
| 4b.1.2.9 | Containment Cooling | - | 31 | - | - | - | - | - | 5 | 35 | - | - | 35 | - | - | - | - | - | - | 502 | - |
| 4b.1.2.10 | Containment Cooling - RCA | - | 288 | 5 | 16 | 237 | - | - | 110 | 656 | 656 | - | - | 2,743 | - | - | - | - | 111,390 | 3,949 | - |
| 4b.1.2.11 | Containment Hydrogen Control - RCA | - | 35 | 0 | 1 | 12 | - | - | 11 | 60 | 60 | - | - | 141 | - | - | - | - | 5,742 | 494 | - |
| 4b.1.2.12 | Containment Spray - RCA | - | 186 | 3 | 8 | 126 | - | - | 67 | 389 | 389 | - | - | 1,453 | - | - | - | - | 59,019 | 2,617 | - |
| 4b.1.2.13 | Containment Ventilation | - | 201 | 23 | 38 | 408 | 205 | - | 171 | 1,047 | 1,047 | - | - | 4,721 | 722 | - | - | - | 239,450 | 3,016 | - |
| 4b.1.2.14 | Control/Relay/Cmptr Rm Vent | - | 27 | 1 | 2 | 23 | 6 | - | 12 | 70 | 70 | - | - | 260 | 20 | - | - | - | 11,915 | 406 | - |
| 4b.1.2.15 | Cooling Water | - | 139 | - | - | - | - | - | 21 | 160 | - | - | 160 | - | - | - | - | - | - | 2,344 | - |
| 4b.1.2.16 | Cooling Water - RCA | - | 456 | 15 | 49 | 730 | - | - | 232 | 1,482 | 1,482 | - | - | 8,442 | - | - | - | - | 342,822 | 6,311 | - |
| 4b.1.2.17 | Cranes/Hoists/Elevators - RCA | - | 3 | 0 | 1 | 9 | - | - | 2 | 15 | 15 | - | - | 103 | - | - | - | - | 4,184 | 48 | - |
| 4b.1.2.18 | D3 Emergency Diesel | - | 9 | - | - | - | - | - | 1 | 10 | - | - | 10 | - | - | - | - | - | - | 141 | - |
| 4b.1.2.19 | D4 Emergency Diesel | - | 9 | - | - | - | - | - | 1 | 10 | - | - | 10 | - | - | - | - | - | - | 141 | - |
| 4b.1.2.20 | D5 Emergency Diesel | - | 0 | - | - | - | - | - | 0 | 0 | - | - | 0 | - | - | - | - | - | - | 5 | - |
| 4b.1.2.21 | Electrical - Clean | - | 1,502 | - | - | - | - | - | 225 | 1,727 | - | - | 1,727 | - | - | - | - | - | - | 24,276 | - |
| 4b.1.2.22 | Electrical - Contaminated | - | 417 | 5 | 13 | 173 | 21 | - | 138 | 767 | 767 | - | - | 1,997 | 75 | - | - | - | 86,080 | 5,813 | - |
| 4b.1.2.23 | Electrical - Contaminated - Fuel Pool | - | 178 | 2 | 6 | 75 | 9 | - | 59 | 329 | 329 | - | - | 864 | 33 | - | - | - | 37,250 | 2,488 | - |
| 4b.1.2.24 | Electrical - Decontaminated | - | 2,866 | 33 | 109 | 1,622 | - | - | 980 | 5,610 | 5,610 | - | - | 18,753 | - | - | - | - | 761,569 | 38,423 | - |
| 4b.1.2.25 | Electrical - Decontaminated - Fuel Pool | - | 1,230 | 14 | 47 | 698 | - | - | 421 | 2,410 | 2,410 | - | - | 8,069 | - | - | - | - | 327,668 | 16,495 | - |
| 4b.1.2.26 | Filter Rm Ventilation | - | 4 | 0 | 0 | 2 | 0 | - | 1 | 8 | 8 | - | - | 24 | 1 | - | - | - | 1,020 | 61 | - |
| 4b.1.2.27 | Fire Protection & Detection | - | 178 | - | - | - | - | - | 27 | 205 | - | - | 205 | - | - | - | - | - | - | 3,009 | - |
| 4b.1.2.28 | Fire Protection & Detection - RCA | - | 236 | 3 | 11 | 158 | - | - | 85 | 492 | 492 | - | - | 1,828 | - | - | - | - | 74,245 | 3,134 | - |
| 4b.1.2.29 | Fire Protection & Detection - RCA Fuel P | - | 36 | 1 | 2 | 25 | - | - | 13 | 76 | 76 | - | - | 286 | - | - | - | - | 11,622 | 476 | - |
| 4b.1.2.30 | Fuel Handling | - | 64 | 1 | 2 | 17 | 14 | - | 22 | 121 | 121 | - | - | 200 | 49 | - | - | - | 11,396 | 983 | - |
| 4b.1.2.31 | Fuel Oil | - | 1 | - | - | - | - | - | 0 | 1 | - | - | 1 | - | - | - | - | - | - | 9 | - |
| 4b.1.2.32 | HVAC - Clean | - | 132 | - | - | - | - | - | 20 | 151 | - | - | 151 | - | - | - | - | - | - | 2,373 | - |
| 4b.1.2.33 | HVAC - Contaminated | - | 1,102 | 26 | 69 | 929 | 115 | - | 457 | 2,699 | 2,699 | - | - | 10,745 | 405 | - | - | - | 463,144 | 14,282 | - |
| 4b.1.2.34 | HVAC - Contaminated - Fuel Pool | - | 495 | 12 | 31 | 418 | 52 | - | 205 | 1,212 | 1,212 | - | - | 4,828 | 182 | - | - | - | 208,080 | 6,417 | - |
| 4b.1.2.35 | Heating | - | 279 | - | - | - | - | - | 42 | 321 | - | - | 321 | - | - | - | - | - | - | 4,804 | - |
| 4b.1.2.36 | Heating - RCA | - | 323 | 3 | 11 | 165 | - | - | 107 | 609 | 609 | - | - | 1,907 | - | - | - | - | 77,458 | 4,086 | - |
| 4b.1.2.37 | Hot Lab & Sample Rm Ventilation | - | 17 | 0 | 1 | 9 | 1 | - | 6 | 34 | 34 | - | - | 107 | 4 | - | - | - | 4,632 | 255 | - |
| 4b.1.2.38 | Incore Instrumentation | - | 26 | 1 | 1 | 5 | 16 | - | 12 | 62 | 62 | - | - | 60 | 58 | - | - | - | 6,264 | 412 | - |
| 4b.1.2.39 | Misc Drains & Vents | - | 203 | 12 | 9 | 40 | 121 | - | 90 | 475 | 475 | - | - | 458 | 426 | - | - | - | 46,850 | 2,841 | - |
| 4b.1.2.40 | Misc Lab & Service Areas Vent | - | 113 | 8 | 6 | 32 | 70 | - | 52 | 280 | 280 | - | - | 370 | 244 | - | - | - | 31,186 | 1,537 | - |
| 4b.1.2.41 | Miscellaneous Gas | - | 63 | - | - | - | - | - | 9 | 72 | - | - | 72 | - | - | - | - | - | - | 1,073 | - |
| 4b.1.2.42 | Miscellaneous Gas - RCA | - | 129 | 1 | 3 | 52 | - | - | 41 | 226 | 226 | - | - | 600 | - | - | - | - | 24,378 | 1,636 | - |
| 4b.1.2.43 | Radiation Monitoring | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | 111 | - |
| 4b.1.2.44 | Radiation Monitoring - RCA | - | 62 | 1 | 2 | 27 | - | - | 20 | 112 | 112 | - | - | 316 | - | - | - | - | 12,826 | 782 | - |
| 4b.1.2.45 | Reactor Coolant | - | 207 | 20 | 12 | 20 | 208 | - | 110 | 577 | 577 | - | - | 229 | 730 | - | - | - | 57,672 | 2,891 | - |
| 4b.1.2.46 | Reactor Hot Sampling | - | 112 | 10 | 5 | 5 | 89 | - | 53 | 273 | 273 | - | - | 54 | 312 | - | - | - | 22,919 | 1,499 | - |
| 4b.1.2.47 | Reactor Makeup | - | 36 | - | - | - | - | - | 5 | 41 | - | - | 41 | - | - | - | - | - | - | 583 | - |
| 4b.1.2.48 | Reactor Makeup - RCA | - | 4 | 0 | 0 | 2 | - | - | 1 | 8 | 8 | - | - | 28 | - | - | - | - | 1,148 | 47 | - |
| 4b.1.2.49 | Reactor Vessel | - | 16 | 0 | 0 | 2 | 4 | - | 5 | 28 | 28 | - | - | 22 | 14 | - | - | - | 1,826 | 225 | - |
| 4b.1.2.50 | Residual Heat Removal | - | 338 | 84 | 66 | 247 | 924 | - | 371 | 2,029 | 2,029 | - | - | 2,853 | 3,244 | - | - | - | 330,651 | 5,039 | - |
| 4b.1.2.51 | Safeguards Chilled Water | - | 4 | - | - | - | - | - | 1 | 5 | - | - | 5 | - | - | - | - | - | - | 75 | - |
| 4b.1.2.52 | Safeguards Chilled Water - RCA | - | 4 | 0 | 0 | 2 | - | - | 1 | 8 | 8 | - | - | 26 | - | - | - | - | 1,045 | 51 | - |
| 4b.1.2.53 | Safety Injection | - | 758 | 40 | 56 | 577 | 329 | - | 371 | 2,131 | 2,131 | - | - | 6,676 | 1,161 | - | - | - | 347,600 | 11,029 | - |
| 4b.1.2.54 | Sampling | - | 46 | 3 | 2 | 3 | 27 | - | 19 | 100 | 100 | - | - | 37 | 93 | - | - | - | 7,697 | 645 | - |
| 4b.1.2.55 | Service Bldg & New Cmptr Vent | - | 0 | - | - | - | - | - | 0 | 0 | - | - | 0 | - | - | - | - | - | - | 6 | - |
| 4b.1.2.56 | Shield Bldg Ventilation | - | 103 | 13 | 19 | 175 | 138 | - | 91 | 539 | 539 | - | - | 2,028 | 484 | - | - | - | 114,378 | 1,555 | - |
| 4b.1.2.57 | Spent Fuel Pool Cooling | - | 32 | 3 | 2 | 3 | 30 | - | 17 | 87 | 87 | - | - | 39 | 107 | - | - | - | 8,635 | 427 | - |
| 4b.1.2.58 | Spent Fuel Pool Normal Ventilation | - | 23 | 1 | 2 | 23 | 3 | - | 10 | 62 | 62 | - | - | 265 | 12 | - | - | - | 11,532 | 352 | - |
| 4b.1.2.59 | Station & Instrument Air | - | 140 | - | - | - | - | - | 21 | 161 | - | - | 161 | - | - | - | - | - | - | 2,424 | - |
| 4b.1.2.60 | Station & Instrument Air - RCA | - | 288 | 3 | 9 | 141 | - | - | 95 | 535 | 535 | - | - | 1,625 | - | - | - | - | 65,986 | 3,638 | - |
| 4b.1.2.61 | Turbine Bldg Traps & Drains | - | 26 | - | - | - | - | - | 4 | 30 | - | - | 30 | - | - | - | - | - | - | 462 | - |
| 4b.1.2.62 | Turbine Bldg Traps & Drains - RCA | - | 28 | 0 | 1 | 16 | - | - | 10 | 55 | 55 | - | - | 180 | - | - | - | - | 7,321 | 344 | - |
| 4b.1.2.63 | Turbine Bldg Ventilation | - | 40 | - | - | - | - | - | 6 | 46 | - | - | 46 | - | - | - | - | - | - | 655 | - |
| 4b.1.2.64 | Unit Coolers | - | 20 | - | - | - | - | - | 3 | 23 | - | - | 23 | - | - | - | - | - | - | 332 | - |
| 4b.1.2.65 | Unit Coolers - RCA | - | 54 | 0 | 1 | 20 | - | - | 17 | 93 | 93 | - | - | 232 | - | - | - | - | 9,413 | 690 | - |
| 4b.1.2.66 | Waste Gas Disposal | - | 417 | 40 | 35 | 212 | 381 | - | 241 | 1,327 | 1,327 | - | - | 2,453 | 1,358 | - | - | - | 188,334 | 5,879 | - |
| 4b.1.2.67 | Waste Liquid Disposal | - | 1,581 | 108 | 76 | 316 | 1,019 | - | 720 | 3,819 | 3,819 | - | - | 3,655 | 3,594 | - | - | - | 385,370 | 22,011 | - |
| 4b.1.2.68 | Waste Solid Disposal | - | 127 | 11 | 8 | 34 | 112 | - | 67 | 358 | 358 | - | - | 389 | 393 | - | - | - | 41,732 | 1,781 | - |
| 4b.1.2 | Totals | - | 16,987 | 591 | 852 | 9,112 | 4,472 | - | 6,657 | 38,670 | 35,660 | - | 3,010 | 105,339 | 15,761 | - | - | - | 5,317,908 | 240,033 | - |
| 4b.1.3 | Scaffolding in support of decommissioning | - | 4,024 | 36 | 12 | 146 | 38 | - | 1,043 | 5,298 | 5,298 | - | - | 1,518 | 134 | - | - | - | 77,168 | 35,578 | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 20 of 22**

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | |
| Decontamination of Site Buildings | | | | | | | | | | | | | | | | | | | | | |
| 4b.1.4.1 | Reactor | 1,037 | 2,361 | 118 | 833 | 193 | 6,373 | - | 2,868 | 13,784 | 13,784 | - | - | 2,230 | 36,903 | - | - | - | 3,286,751 | 45,596 | - |
| 4b.1.4.2 | Auxiliary | 1,105 | 356 | 12 | 80 | 92 | 582 | - | 814 | 3,040 | 3,040 | - | - | 1,060 | 3,355 | - | - | - | 332,498 | 21,222 | - |
| 4b.1.4.3 | Backwash Waste Receiving Tank | - | 24 | 1 | 11 | - | 87 | - | 30 | 154 | 154 | - | - | - | 507 | - | - | - | 43,896 | 264 | - |
| 4b.1.4.4 | Drum Transfer & Truck Loading Enclosure | 15 | 7 | 0 | 2 | 2 | 13 | - | 13 | 52 | 52 | - | - | 19 | 74 | - | - | - | 7,118 | 328 | - |
| 4b.1.4.5 | LLRW Storage Enclosure | 105 | 45 | 1 | 11 | 3 | 87 | - | 88 | 341 | 341 | - | - | 38 | 502 | - | - | - | 44,971 | 2,149 | - |
| 4b.1.4.6 | Radwaste | 47 | 20 | 1 | 5 | 4 | 39 | - | 40 | 155 | 155 | - | - | 42 | 225 | - | - | - | 21,136 | 963 | - |
| 4b.1.4.7 | Resin Disposal | 14 | 10 | 0 | 2 | 7 | 12 | - | 14 | 60 | 60 | - | - | 83 | 69 | - | - | - | 9,271 | 340 | - |
| 4b.1.4.8 | Fuel Handling of Aux Building | 875 | 966 | 9 | 32 | 209 | 173 | - | 759 | 3,024 | 3,024 | - | - | 2,417 | 944 | - | - | - | 177,818 | 27,141 | - |
| 4b.1.4 | Totals | 3,199 | 3,791 | 143 | 977 | 509 | 7,366 | - | 4,626 | 20,611 | 20,611 | - | - | 5,889 | 42,580 | - | - | - | 3,923,460 | 98,004 | - |
| 4b.1.5 | Prepare/submit License Termination Plan | - | - | - | - | - | - | 206 | 31 | 236 | 236 | - | - | - | - | - | - | - | - | - | 1,751 |
| 4b.1.6 | Receive NRC approval of termination plan | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 4b.1 | Subtotal Period 4b Activity Costs | 3,496 | 24,833 | 864 | 1,872 | 9,767 | 12,471 | 206 | 12,675 | 66,184 | 63,174 | - | 3,010 | 112,746 | 60,568 | - | - | - | 9,456,834 | 374,192 | 1,751 |
| Period 4b Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 4b.2.1 | License Termination Survey Planning | - | - | - | - | - | - | 845 | 253 | 1,098 | 1,098 | - | - | - | - | - | - | - | - | - | 6,240 |
| 4b.2.2 | Remedial Action Surveys | - | - | - | - | - | - | 2,832 | 849 | 3,681 | 3,681 | - | - | - | - | - | - | - | - | 37,017 | - |
| 4b.2.3 | Excavation of Underground Services | - | 811 | - | - | - | - | 520 | 200 | 1,531 | - | - | 1,531 | - | - | - | - | - | - | 7,407 | - |
| 4b.2.4 | Operational Equipment | - | - | 9 | 29 | 312 | - | - | 52 | 402 | 402 | - | - | 5,855 | - | - | - | - | 146,375 | 16 | - |
| 4b.2.5 | License Termination ISFSI | - | 37 | 2 | 211 | - | 2,157 | 1,186 | 898 | 4,491 | 4,491 | - | - | - | 7,458 | - | - | - | 1,071,985 | 3,670 | 5,284 |
| 4b.2.6 | Demolition and Site Restoration ISFSI | - | 495 | - | - | - | - | 87 | 87 | 669 | - | - | 669 | - | - | - | - | - | - | 2,308 | 160 |
| 4b.2 | Subtotal Period 4b Additional Costs | - | 1,342 | 11 | 240 | 312 | 2,157 | 5,469 | 2,340 | 11,872 | 9,672 | - | 2,200 | 5,855 | 7,458 | - | - | - | 1,218,360 | 50,417 | 11,684 |
| Period 4b Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 4b.3.1 | Process decommissioning water waste | 7 | - | 11 | 29 | - | 46 | - | 20 | 113 | 113 | - | - | - | 109 | - | - | - | 6,546 | 21 | - |
| 4b.3.3 | Small tool allowance | - | 418 | - | - | - | - | - | 63 | 481 | 481 | - | - | - | - | - | - | - | - | - | - |
| 4b.3.4 | Decommissioning Equipment Disposition | - | - | 144 | 55 | 575 | 150 | - | 147 | 1,071 | 1,071 | - | - | 6,000 | 529 | - | - | - | 304,968 | 88 | - |
| 4b.3.5 | On-site survey and release of 0.437 tons clean metallic waste | - | - | - | - | - | - | 1 | 0 | 1 | 1 | - | - | - | - | - | - | - | - | - | - |
| 4b.3 | Subtotal Period 4b Collateral Costs | 7 | 418 | 155 | 84 | 575 | 196 | 1 | 229 | 1,665 | 1,665 | - | - | 6,000 | 638 | - | - | - | 311,514 | 109 | - |
| Period 4b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | |
| 4b.4.1 | Decon supplies | 1,338 | - | - | - | - | - | - | 335 | 1,673 | 1,673 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.2 | Insurance | - | - | - | - | - | - | 910 | 91 | 1,001 | 1,001 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.3 | Property taxes | - | - | - | - | - | - | 2,554 | 255 | 2,809 | 2,809 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.4 | Health physics supplies | - | 2,900 | - | - | - | - | - | 725 | 3,625 | 3,625 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.5 | Heavy equipment rental | - | 4,021 | - | - | - | - | - | 603 | 4,624 | 4,624 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.6 | Disposal of DAW generated | - | - | 128 | 37 | - | 476 | - | 137 | 778 | 778 | - | - | - | 5,849 | - | - | - | 116,984 | 191 | - |
| 4b.4.7 | Plant energy budget | - | - | - | - | - | - | 2,023 | 303 | 2,326 | 2,326 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.8 | NRC Fees | - | - | - | - | - | - | 677 | 68 | 745 | 745 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.9 | Fixed Overhead | - | - | - | - | - | - | 2,205 | 331 | 2,535 | 2,535 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.10 | Liquid Radwaste Processing Equipment/Services | - | - | - | - | - | - | 721 | 108 | 829 | 829 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.11 | Railroad Track Maintenance | - | - | - | - | - | - | 103 | 15 | 118 | 118 | - | - | - | - | - | - | - | - | - | - |
| 4b.4.12 | Security Staff Cost | - | - | - | - | - | - | 6,843 | 1,026 | 7,870 | 7,870 | - | - | - | - | - | - | - | - | - | 115,753 |
| 4b.4.13 | DOC Staff Cost | - | - | - | - | - | - | 21,571 | 3,236 | 24,806 | 24,806 | - | - | - | - | - | - | - | - | - | 248,175 |
| 4b.4.14 | Utility Staff Cost | - | - | - | - | - | - | 26,893 | 4,034 | 30,927 | 30,927 | - | - | - | - | - | - | - | - | - | 437,085 |
| 4b.4 | Subtotal Period 4b Period-Dependent Costs | 1,338 | 6,921 | 128 | 37 | - | 476 | 64,499 | 11,268 | 84,667 | 84,667 | - | - | - | 5,849 | - | - | - | 116,984 | 191 | 801,014 |
| 4b.0 | TOTAL PERIOD 4b COST | 4,841 | 33,514 | 1,158 | 2,234 | 10,654 | 15,300 | 70,175 | 26,513 | 164,387 | 159,178 | - | 5,210 | 124,601 | 74,513 | - | - | - | 11,103,690 | 424,909 | 814,449 |
| PERIOD 4f - License Termination | | | | | | | | | | | | | | | | | | | | | |
| Period 4f Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | |
| 4f.1.1 | ORISE confirmatory survey | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| 4f.1.2 | Terminate license | - | - | - | - | - | - | - | - | a | - | - | - | - | - | - | - | - | - | - | - |
| 4f.1 | Subtotal Period 4f Activity Costs | - | - | - | - | - | - | 176 | 53 | 229 | 229 | - | - | - | - | - | - | - | - | - | - |
| Period 4f Additional Costs | | | | | | | | | | | | | | | | | | | | | |
| 4f.2.1 | License Termination Survey | - | - | - | - | - | - | 7,406 | 2,222 | 9,628 | 9,628 | - | - | - | - | - | - | - | - | 102,642 | 3,120 |
| 4f.2 | Subtotal Period 4f Additional Costs | - | - | - | - | - | - | 7,406 | 2,222 | 9,628 | 9,628 | - | - | - | - | - | - | - | - | 102,642 | 3,120 |
| Period 4f Collateral Costs | | | | | | | | | | | | | | | | | | | | | |
| 4f.3.1 | DOC staff relocation expenses | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |
| 4f.3 | Subtotal Period 4f Collateral Costs | - | - | - | - | - | - | 1,189 | 178 | 1,367 | 1,367 | - | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|---|---|------------|--------------|-----------------|-----------------|---------------------------|---------------------|-------------|-------------------|-------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 4f Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 4f.4.1 | Insurance | - | - | - | - | - | - | 382 | 38 | 420 | 420 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.2 | Property taxes | - | - | - | - | - | - | 1,002 | 100 | 1,102 | 1,102 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.3 | Health physics supplies | - | 600 | - | - | - | - | - | 150 | 750 | 750 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.4 | Disposal of DAW generated | - | - | 7 | 2 | - | 27 | - | 8 | 44 | 44 | - | - | - | 332 | - | - | - | - | 6,649 | 11 | |
| 4f.4.5 | Plant energy budget | - | - | - | - | - | - | 227 | 34 | 261 | 261 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.6 | NRC Fees | - | - | - | - | - | - | 272 | 27 | 299 | 299 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.7 | Fixed Overhead | - | - | - | - | - | - | 926 | 139 | 1,065 | 1,065 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.8 | Railroad Track Maintenance | - | - | - | - | - | - | 43 | 6 | 50 | 50 | - | - | - | - | - | - | - | - | - | - | |
| 4f.4.9 | Security Staff Cost | - | - | - | - | - | - | 707 | 106 | 813 | 813 | - | - | - | - | - | - | - | - | - | 11,668 | |
| 4f.4.10 | DOC Staff Cost | - | - | - | - | - | - | 4,101 | 615 | 4,716 | 4,716 | - | - | - | - | - | - | - | - | - | 46,283 | |
| 4f.4.11 | Utility Staff Cost | - | - | - | - | - | - | 3,630 | 544 | 4,174 | 4,174 | - | - | - | - | - | - | - | - | - | 56,395 | |
| 4f.4 | Subtotal Period 4f Period-Dependent Costs | - | 600 | 7 | 2 | - | 27 | 11,289 | 1,768 | 13,695 | 13,695 | - | - | - | 332 | - | - | - | - | 6,649 | 11 | 114,346 |
| 4f.0 | TOTAL PERIOD 4f COST | - | 600 | 7 | 2 | - | 27 | 20,061 | 4,222 | 24,919 | 24,919 | - | - | - | 332 | - | - | - | - | 6,649 | 102,652 | 117,466 |
| PERIOD 4 TOTALS | | 5,114 | 61,116 | 27,370 | 5,542 | 14,017 | 40,374 | 128,149 | 63,315 | 344,997 | 337,203 | - | 7,794 | 165,917 | 105,360 | 125 | 673 | 3,746 | 16,128,490 | 733,128 | 1,383,647 | |
| PERIOD 5b - Site Restoration | | | | | | | | | | | | | | | | | | | | | | |
| Period 5b Direct Decommissioning Activities | | | | | | | | | | | | | | | | | | | | | | |
| Demolition of Remaining Site Buildings | | | | | | | | | | | | | | | | | | | | | | |
| 5b.1.1.1 | Reactor | - | 4,256 | - | - | - | - | - | 638 | 4,895 | - | - | 4,895 | - | - | - | - | - | - | - | 44,679 | - |
| 5b.1.1.2 | Auxiliary | - | 1,897 | - | - | - | - | - | 285 | 2,182 | - | - | 2,182 | - | - | - | - | - | - | - | 11,902 | - |
| 5b.1.1.3 | Condensate Storage Tank Foundation | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | - | 33 | - |
| 5b.1.1.4 | Construction Warehouse & Fab Shop | - | 118 | - | - | - | - | - | 18 | 135 | - | - | 135 | - | - | - | - | - | - | - | 1,405 | - |
| 5b.1.1.5 | D3/D4 Emergency Generator | - | 13 | - | - | - | - | - | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | 84 | - |
| 5b.1.1.6 | Drum Transfer & Truck Loading Enclosure | - | 19 | - | - | - | - | - | 3 | 21 | - | - | 21 | - | - | - | - | - | - | - | 221 | - |
| 5b.1.1.7 | Hydrogen House | - | 6 | - | - | - | - | - | 1 | 7 | - | - | 7 | - | - | - | - | - | - | - | 47 | - |
| 5b.1.1.8 | LLRW Storage Enclosure | - | 121 | - | - | - | - | - | 18 | 139 | - | - | 139 | - | - | - | - | - | - | - | 853 | - |
| 5b.1.1.9 | Misc Structures 2017 | - | 1,391 | - | - | - | - | - | 209 | 1,599 | - | - | 1,599 | - | - | - | - | - | - | - | 12,939 | - |
| 5b.1.1.10 | Radwaste | - | 165 | - | - | - | - | - | 25 | 190 | - | - | 190 | - | - | - | - | - | - | - | 1,400 | - |
| 5b.1.1.11 | Resin Disposal | - | 13 | - | - | - | - | - | 2 | 15 | - | - | 15 | - | - | - | - | - | - | - | 120 | - |
| 5b.1.1.12 | Structures below 3' below grade | - | 1,713 | - | - | - | - | - | 257 | 1,969 | - | - | 1,969 | - | - | - | - | - | - | - | 9,238 | - |
| 5b.1.1.13 | Sulfuric Acid Tank Enclosure | - | 3 | - | - | - | - | - | 0 | 3 | - | - | 3 | - | - | - | - | - | - | - | 35 | - |
| 5b.1.1.14 | Turbine | - | 1,983 | - | - | - | - | - | 298 | 2,281 | - | - | 2,281 | - | - | - | - | - | - | - | 22,052 | - |
| 5b.1.1.15 | Turbine Pedestal | - | 349 | - | - | - | - | - | 52 | 402 | - | - | 402 | - | - | - | - | - | - | - | 1,857 | - |
| 5b.1.1.16 | Warehouse #2 | - | 22 | - | - | - | - | - | 3 | 25 | - | - | 25 | - | - | - | - | - | - | - | 213 | - |
| 5b.1.1.17 | Waste Neutralizing Tank House | - | 7 | - | - | - | - | - | 1 | 8 | - | - | 8 | - | - | - | - | - | - | - | 56 | - |
| 5b.1.1.18 | Waste Oil Storage | - | 8 | - | - | - | - | - | 1 | 10 | - | - | 10 | - | - | - | - | - | - | - | 70 | - |
| 5b.1.1.19 | Water Treatment | - | 303 | - | - | - | - | - | 46 | 349 | - | - | 349 | - | - | - | - | - | - | - | 2,690 | - |
| 5b.1.1.20 | Fuel Handling of Aux Building | - | 1,032 | - | - | - | - | - | 155 | 1,186 | - | - | 1,186 | - | - | - | - | - | - | - | 8,240 | - |
| 5b.1.1 | Totals | - | 13,424 | - | - | - | - | - | 2,014 | 15,438 | - | - | 15,438 | - | - | - | - | - | - | - | 118,134 | - |
| Site Closeout Activities | | | | | | | | | | | | | | | | | | | | | | |
| 5b.1.2 | Remove Rubble | - | 1,492 | - | - | - | - | - | 224 | 1,716 | - | - | 1,716 | - | - | - | - | - | - | - | 7,408 | - |
| 5b.1.3 | Grade & landscape site | - | 431 | - | - | - | - | - | 65 | 495 | - | - | 495 | - | - | - | - | - | - | - | 921 | - |
| 5b.1.4 | Final report to NRC | - | - | - | - | - | - | 78 | 12 | 90 | 90 | - | - | - | - | - | - | - | - | - | - | 667 |
| 5b.1 | Subtotal Period 5b Activity Costs | - | 15,347 | - | - | - | - | 78 | 2,314 | 17,740 | 90 | - | 17,650 | - | - | - | - | - | - | - | 126,463 | 667 |
| Period 5b Additional Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.2.1 | Clean Concrete Disposal | - | 3,313 | - | - | - | - | 8 | 498 | 3,818 | - | - | 3,818 | - | - | - | - | - | - | - | 12,824 | - |
| 5b.2.2 | Intake Structure Cofferdam | - | 423 | - | - | - | - | - | 63 | 486 | - | - | 486 | - | - | - | - | - | - | - | 3,552 | - |
| 5b.2.3 | Construction Debris | - | - | - | - | - | - | 463 | 69 | 532 | - | - | 532 | - | - | - | - | - | - | - | - | - |
| 5b.2.4 | Backfill | - | 8,465 | - | - | - | - | - | 1,270 | 9,735 | - | - | 9,735 | - | - | - | - | - | - | - | 9,327 | - |
| 5b.2 | Subtotal Period 5b Additional Costs | - | 12,201 | - | - | - | - | 471 | 1,901 | 14,572 | - | - | 14,572 | - | - | - | - | - | - | - | 25,703 | - |
| Period 5b Collateral Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.3.1 | Small tool allowance | - | 169 | - | - | - | - | - | 25 | 194 | - | - | 194 | - | - | - | - | - | - | - | - | - |
| 5b.3 | Subtotal Period 5b Collateral Costs | - | 169 | - | - | - | - | - | 25 | 194 | - | - | 194 | - | - | - | - | - | - | - | - | - |
| Period 5b Period-Dependent Costs | | | | | | | | | | | | | | | | | | | | | | |
| 5b.4.2 | Property taxes | - | - | - | - | - | - | 526 | 53 | 579 | - | - | 579 | - | - | - | - | - | - | - | - | - |
| 5b.4.3 | Heavy equipment rental | - | 6,670 | - | - | - | - | - | 1,000 | 7,670 | - | - | 7,670 | - | - | - | - | - | - | - | - | - |
| 5b.4.4 | Plant energy budget | - | - | - | - | - | - | 321 | 48 | 369 | - | - | 369 | - | - | - | - | - | - | - | - | - |
| 5b.4.5 | Fixed Overhead | - | - | - | - | - | - | 990 | 148 | 1,138 | - | - | 1,138 | - | - | - | - | - | - | - | - | - |
| 5b.4.6 | Railroad Track Maintenance | - | - | - | - | - | - | 122 | 18 | 141 | - | - | 141 | - | - | - | - | - | - | - | - | - |

**Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis**

**Document X01-1725-001, Rev. 0
Appendix I, Page 22 of 22**

**Table I-2
Prairie Island Nuclear Generating Plant, Unit 2
SAFSTOR Decommissioning Cost Estimate with 60 Years of Spent Fuel Storage
(thousands of 2017 dollars)**

| Activity Index | Activity Description | Decon Cost | Removal Cost | Packaging Costs | Transport Costs | Off-Site Processing Costs | LLRW Disposal Costs | Other Costs | Total Contingency | Total Costs | NRC Lic. Term. Costs | Spent Fuel Management Costs | Site Restoration Costs | Processed Volume Cu. Feet | Burial Volumes | | | | Burial/ Processed Wt., Lbs. | Craft Manhours | Utility and Contractor Manhours | |
|--|---|---------------|----------------|-----------------|-----------------|---------------------------|---------------------|----------------|-------------------|------------------|----------------------|-----------------------------|------------------------|---------------------------|------------------|------------------|------------------|---------------|-----------------------------|----------------|---------------------------------|---------|
| | | | | | | | | | | | | | | | Class A Cu. Feet | Class B Cu. Feet | Class C Cu. Feet | GTCC Cu. Feet | | | | |
| Period 5b Period-Dependent Costs (continued) | | | | | | | | | | | | | | | | | | | | | | |
| 5b.4.7 | Security Staff Cost | - | - | - | - | - | - | 1,812 | 272 | 2,084 | - | - | 2,084 | - | - | - | - | - | - | - | - | 29,221 |
| 5b.4.8 | DOC Staff Cost | - | - | - | - | - | - | 10,467 | 1,570 | 12,038 | - | - | 12,038 | - | - | - | - | - | - | - | - | 116,885 |
| 5b.4.9 | Utility Staff Cost | - | - | - | - | - | - | 3,673 | 551 | 4,224 | - | - | 4,224 | - | - | - | - | - | - | - | - | 57,340 |
| 5b.4 | Subtotal Period 5b Period-Dependent Costs | - | 6,670 | - | - | - | - | 17,912 | 3,661 | 28,242 | - | - | 28,242 | - | - | - | - | - | - | - | - | 203,445 |
| 5b.0 | TOTAL PERIOD 5b COST | - | 34,387 | - | - | - | - | 18,461 | 7,901 | 60,748 | 90 | - | 60,658 | - | - | - | - | - | - | 152,166 | 204,112 | |
| PERIOD 5 TOTALS | | - | 34,387 | - | - | - | - | 18,461 | 7,901 | 60,748 | 90 | - | 60,658 | - | - | - | - | - | - | 152,166 | 204,112 | |
| TOTAL COST TO DECOMMISSION | | 11,867 | 108,467 | 27,994 | 6,103 | 14,186 | 42,876 | 846,728 | 165,730 | 1,223,951 | 846,342 | 308,520 | 69,089 | 172,241 | 127,192 | 125 | 673 | 3,746 | 16,886,950 | 980,773 | 5,563,697 | |

| | | |
|--|--------------------|----------------------------------|
| TOTAL COST TO DECOMMISSION WITH 15.66% CONTINGENCY: | \$1,223,951 | thousands of 2017 dollars |
| TOTAL NRC LICENSE TERMINATION COST IS 69.15% OR: | \$846,342 | thousands of 2017 dollars |
| SPENT FUEL MANAGEMENT COST IS 25.21% OR: | \$308,520 | thousands of 2017 dollars |
| NON-NUCLEAR DEMOLITION COST IS 5.64% OR: | \$69,089 | thousands of 2017 dollars |
| TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC): | 127,991 | cubic feet |
| TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED: | 3,746 | cubic feet |
| TOTAL SCRAP METAL REMOVED: | 41,593 | tons |
| TOTAL CRAFT LABOR REQUIREMENTS: | 980,773 | man-hours |

End Notes:
n/a - indicates that this activity not charged as decommissioning expense
a - indicates that this activity performed by decommissioning staff
0 - indicates that this value is less than 0.5 but is non-zero
A cell containing " - " indicates a zero value

***Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis***

***Document X01-1725-001, Rev. 0
Appendix J, Page 1 of 5***

APPENDIX J

ISFSI DECOMMISSIONING

| | <u>Page</u> |
|---|-------------|
| Prairie Island Nuclear Generating Plant – Scenarios 1 and 6 | J-2 |
| Prairie Island Nuclear Generating Plant – Scenarios 2 and 7 | J-3 |
| Prairie Island Nuclear Generating Plant – Scenarios 3 and 4 | J-4 |
| Prairie Island Nuclear Generating Plant – Scenario 5 | J-5 |

*Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis*

*Document X01-1725-001, Rev. 0
Appendix J, Page 2 of 5*

Table J-1
Prairie Island Nuclear Generating Plant
Scenarios 1 & 6
ISFSI Decommissioning Cost Estimate
(thousands of 2017 dollars)

| Activity Description | Removal Costs | Packaging Costs | Transport Costs | LLRW Disposal Costs | Other Costs | Total Costs | Burial Volume Class A (cubic feet) | Craft Manhours | Oversight and Contractor Manhours |
|---|---------------|-----------------|-----------------|---------------------|--------------|--------------|------------------------------------|----------------|-----------------------------------|
| Decommissioning Contractor | | | | | | | | | |
| Planning (characterization, specs and procedures) | - | - | - | - | 200 | 200 | - | - | 1,000 |
| Decontamination (activated disposition) | 73 | 3 | 422 | 4,315 | - | 4,813 | 14,916 | 526 | - |
| License Termination (radiological surveys) | - | - | - | - | 808 | 808 | - | 6,279 | - |
| Subtotal | 73 | 3 | 422 | 4,315 | 1,008 | 5,821 | 14,916 | 6,805 | 1,000 |
| Supporting Costs | | | | | | | | | |
| NRC and NRC Contractor Fees and Costs | | | | | 357 | 357 | - | - | 776 |
| Insurance | | | | | 193 | 193 | - | - | - |
| Property taxes | | | | | 51 | 51 | - | - | - |
| Site O&M Cost | | | | | 101 | 101 | - | - | - |
| Railroad Track Maintenance | | | | | 38 | 38 | - | - | - |
| Security Staff Cost | | | | | 308 | 308 | - | - | 4,999 |
| Oversight Staff Cost | | | | | 260 | 260 | - | - | 3,792 |
| Subtotal | - | - | - | - | 1,308 | 1,308 | - | - | 9,568 |
| Total (w/o contingency) | 73 | 3 | 422 | 4,315 | 2,316 | 7,129 | 14,916 | 6,805 | 10,568 |
| Total (w/25% contingency) | | | | | | 8,912 | | | |

The application of contingency (25%) is consistent with the evaluation criteria referenced by the NRC in NUREG-1757 ("Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. NRC's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Vol. 3, Rev. 1, February 2012)

*Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis*

*Document X01-1725-001, Rev. 0
Appendix J, Page 3 of 5*

Table J-2
Prairie Island Nuclear Generating Plant
Scenarios 2 & 7
ISFSI Decommissioning Cost Estimate
(thousands of 2017 dollars)

| Activity Description | Removal Costs | Packaging Costs | Transport Costs | LLRW Disposal Costs | Other Costs | Total Costs | Burial Volume Class A (cubic feet) | Craft Manhours | Oversight and Contractor Manhours |
|---|---------------|-----------------|-----------------|---------------------|--------------|--------------|------------------------------------|----------------|-----------------------------------|
| Decommissioning Contractor | | | | | | | | | |
| Planning (characterization, specs and procedures) | - | - | - | - | 200 | 200 | - | - | 1,000 |
| Decontamination (activated disposition) | 73 | 3 | 422 | 4,315 | - | 4,813 | 14,916 | 526 | - |
| License Termination (radiological surveys) | - | - | - | - | 865 | 865 | - | 6,813 | - |
| Subtotal | 73 | 3 | 422 | 4,315 | 1,065 | 5,878 | 14,916 | 7,339 | 1,000 |
| Supporting Costs | | | | | | | | | |
| NRC and NRC Contractor Fees and Costs | | | | | 356 | 356 | - | - | 776 |
| Insurance | | | | | 193 | 193 | - | - | - |
| Property taxes | | | | | 51 | 51 | - | - | - |
| Site O&M Cost | | | | | 101 | 101 | - | - | - |
| Railroad Track Maintenance | | | | | 38 | 38 | - | - | - |
| Security Staff Cost | | | | | 308 | 308 | - | - | 4,999 |
| Oversight Staff Cost | | | | | 260 | 260 | - | - | 3,792 |
| Subtotal | - | - | - | - | 1,307 | 1,307 | - | - | 9,568 |
| Total (w/o contingency) | 73 | 3 | 422 | 4,315 | 2,372 | 7,185 | 14,916 | 7,339 | 10,568 |
| Total (w/25% contingency) | | | | | | 8,982 | | | |

The application of contingency (25%) is consistent with the evaluation criteria referenced by the NRC in NUREG-1757 ("Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. NRC's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Vol. 3, Rev. 1, February 2012)

*Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis*

*Document X01-1725-001, Rev. 0
Appendix J, Page 4 of 5*

Table J-3
Prairie Island Nuclear Generating Plant
Scenario 3 & 4
ISFSI Decommissioning Cost Estimate
(thousands of 2017 dollars)

| Activity Description | Decon Costs | Removal Costs | Packaging Costs | Transport Costs | LLRW Disposal Costs | Other Costs | Total Costs | Burial Volume Class A (cubic feet) | Craft Manhours | Oversight and Contractor Manhours |
|---|-------------|---------------|-----------------|-----------------|---------------------|--------------|--------------|------------------------------------|----------------|-----------------------------------|
| Decommissioning Contractor | | | | | | | | | | |
| Planning (characterization, specs and procedures) | - | - | - | - | - | 296 | 296 | - | - | 1,168 |
| Decontamination (activated disposition) | 30 | 2 | 1 | 5 | 38 | - | 76 | 254 | 365 | - |
| License Termination (radiological surveys) | - | - | - | - | - | 1,288 | 1,288 | - | 10,842 | - |
| Subtotal | 30 | 2 | 1 | 5 | 38 | 1,584 | 1,660 | 254 | 11,207 | 1,168 |
| Supporting Costs | | | | | | | | | | |
| NRC and NRC Contractor Fees and Costs | | | | | | 357 | 357 | - | - | 776 |
| Insurance | | | | | | 193 | 193 | - | - | - |
| Property taxes | | | | | | 51 | 51 | - | - | - |
| Site O&M Cost | | | | | | 101 | 101 | - | - | - |
| Railroad Track Maintenance | | | | | | 38 | 38 | - | - | - |
| Security Staff Cost | | | | | | 308 | 308 | - | - | 4,999 |
| Oversight Staff Cost | | | | | | 260 | 260 | - | - | 3,792 |
| Subtotal | - | - | - | - | - | 1,308 | 1,308 | - | - | 4,396 |
| Total (w/o contingency) | 30 | 2 | 1 | 5 | 38 | 2,892 | 2,968 | 254 | 11,207 | 5,564 |
| Total (w/25% contingency) | | | | | | | 3,711 | | | |

The application of contingency (25%) is consistent with the evaluation criteria referenced by the NRC in NUREG-1757 ("Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. NRC's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Vol. 3, Rev. 1, February 2012)

*Prairie Island Nuclear Generating Plant
Decommissioning Cost Analysis*

*Document X01-1725-001, Rev. 0
Appendix J, Page 5 of 5*

Table J-4
Prairie Island Nuclear Generating Plant
Scenario 5
ISFSI Decommissioning Cost Estimate
(thousands of 2017 dollars)

| Activity Description | Decon Costs | Removal Costs | Packaging Costs | Transport Costs | LLRW Disposal Costs | Other Costs | Total Costs | Burial Volume Class A (cubic feet) | Craft Manhours | Oversight and Contractor Manhours |
|---|-------------|---------------|-----------------|-----------------|---------------------|--------------|--------------|------------------------------------|----------------|-----------------------------------|
| Decommissioning Contractor | | | | | | | | | | |
| Planning (characterization, specs and procedures) | - | - | - | - | - | 241 | 241 | - | - | 1,072 |
| Decontamination (activated disposition) | 30 | 96 | 4 | 427 | 4,579 | - | 5,136 | 16,457 | 1,123 | - |
| License Termination (radiological surveys) | - | - | - | - | - | 1,136 | 1,136 | - | 9,412 | - |
| Subtotal | 30 | 96 | 4 | 427 | 4,579 | 1,377 | 6,513 | 16,457 | 10,535 | 1,072 |
| Supporting Costs | | | | | | | | | | |
| NRC and NRC Contractor Fees and Costs | | | | | | 357 | 357 | - | - | 776 |
| Insurance | | | | | | 193 | 193 | - | - | - |
| Property taxes | | | | | | 51 | 51 | - | - | - |
| Fixed Overhead | | | | | | 101 | 101 | - | - | - |
| Railroad Track Maintenance | | | | | | 38 | 38 | - | - | - |
| Security Staff Cost | | | | | | 308 | 308 | - | - | 4,999 |
| Oversight Staff Cost | | | | | | 260 | 260 | - | - | 3,792 |
| Subtotal | - | - | - | - | - | 476 | 1,308 | - | - | 8,792 |
| Total (w/o contingency) | 30 | 96 | 4 | 427 | 4,579 | 1,853 | 7,821 | 16,457 | 10,535 | 9,864 |
| Total (w/25% contingency) | | | | | | | 9,777 | | | |

The application of contingency (25%) is consistent with the evaluation criteria referenced by the NRC in NUREG-1757 ("Consolidated Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness," U.S. NRC's Office of Nuclear Material Safety and Safeguards, NUREG-1757, Vol. 3, Rev. 1, February 2012)