|  |
| --- |
|  **Annex 2.1****ANNEX- 3.1 -- OUTAGE DATA FOR THE YEAR 2004 ( F1)** |
|  S/N | Failure times in (Hrs.) | Outage Duration (Hrs) |  |  |
| 1 | 10 | 10 |  |  |
| 2 | 26 | 16 | λ1 = Mean X = 441/24 |
| 3 | 44 | 18 |  = 18.375/31 |
| 4 | 57 | 13 |  = 0.593 |  |
| 5 | 72 | 15 | MTBF1 = 1/λ1 = 1.7 |
| 6 | 83 | 11 | MTTR1 = Mean Y = 7204/24 |
| 7 | 99 | 16 |  = 300.16/31  |  |
| 8 | 120 | 21 | 9.7 |  |
| 9 | 132 | 12 |  |  |
| 10 | 148 | 16 | LEGEND |  |
| 11 | 165 | 17 |  F1 = Feeder One |  |
| 12 | 180 | 15 |  |  |
| 13 | 193 | 13 |  |  |
| 14 | 206 | 13 |  |  |
| 15 | 223 | 17 |  |  |
| 16 | 237 | 14 |  |  |
| 17 | 248 | 11 |  |  |
| 18 | 262 | 14 |  |  |
| 19 | 278 | 16 |  |  |
| 20 | 292 | 14 |  |  |
| 21 | 309 | 17 |  |  |
| 22 | 324 | 15 |  |  |
| 23 | 340 | 16 |  |  |
| 24 | 349 | 9 |  |  |
| 25 | 364 | 15 |  |  |
| 26 | 370 | 6 |  |  |
| 27 | 385 | 15 |  |  |
| 28 | 404 | 19 |  |  |
| 29 | 417 | 13 |  |  |
| 30 | 426 | 9 |  |  |
| 31 | 441 | 15 |  |  |
|  TOT | 7204 | 441 |  |  |
|   | **ANNEX 3.2 --OUTAGE DATA FOR THE YEAR 2004 (F2)** |
|  |  |  |  |
| S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |
| 1 | 13 | 13 |  |
| 2 | 29 | 16 |  |
| 3 | 41 | 12 |  |
| 4 | 56 | 15 |  |
| 5 | 72 | 16 |  |
| 6 | 84 | 12 |  |
| 7 | 103 | 19 |  |
| 8 | 119 | 16 |  |
| 9 | 133 | 14 |  |
| 10 | 146 | 13 |  |
| 11 | 161 | 15 |  |
| 12 | 177 | 16 |  |
| 13 | 188 | 11 |  |
| 14 | 199 | 11 |  |
| 15 | 217 | 18 |  |
| 16 | 229 | 12 |  |
| 17 | 243 | 14 |  |
| 18 | 256 | 13 |  |
| 19 | 272 | 16 |  |
| 20 | 287 | 15 |  |
| 21 | 301 | 14 |  |
| 22 | 317 | 16 |  |
| 23 | 333 | 16 |  |
| 24 | 340 | 7 |  |
| 25 | 357 | 17 |  |
| 26 | 365 | 8 |  |
| 27 | 377 | 12 |  |
| 28 | 393 | 16 |  |
| 29 | 408 | 15 |  |
| 30 | 423 | 15 |  |
| 31 | 439 | 16 |  |
| TOT | 7078 | 439 |  |
|   |  |  | UL = 4.5 |
|  | λ2 = 439/24 = 18.29/31 = 0.59 |  |
|  | MTBF2 = 1/λ2 = 1.69 |  |
|  | MTTR2 = 7078/24 = 294.9/31 = 9.51 |  |
|  |  |  |  |
| **ANNEX 3.3 --OUTAGE DATA FOR THE YEAR 2004 FOR FEEDER3 (F3)** |
|  |  |  |  |  |  |
|  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |  |
|  | 1 | 12 | 12 |  |  |
|  | 2 | 16 | 4 |  |  |
|  | 3 | 29 | 13 |  |  |
|  | 4 | 38 | 9 |  |  |
|  | 5 | 49 | 11 |  |  |
|  | 6 | 57 | 8 |  |  |
|  | 7 | 72 | 15 |  |  |
|  | 8 | 77 | 5 |  |  |
|  | 9 | 85 | 8 |  |  |
|  | 10 | 91 | 6 |  |  |
|  | 11 | 100 | 9 |  |  |
|  | 12 | 106 | 6 |  |  |
|  | 13 | 119 | 13 |  |  |
|  | 14 | 128 | 6 |  |  |
|  | 15 | 137 | 9 |  |  |
|  | 16 | 140 | 3 |  |  |
|  | 17 | 148 | 8 |  |  |
|  | 18 | 158 | 10 |  |  |
|  | 19 | 173 | 15 |  |  |
|  | 20 | 188 | 15 |  |  |
|  | 21 | 196 | 8 |  |  |
|  | 22 | 206 | 10 |  |  |
|  | 23 | 214 | 8 |  |  |
|  | 24 | 218 | 4 |  |  |
|  | 25 | 227 | 9 |  |  |
|  | 26 | 230 | 3 |  |  |
|  | 27 | 244 | 14 |  |  |
|  | 28 | 250 | 6 |  |  |
|  | 29 | 260 | 10 |  |  |
|  | 30 | 268 | 8 |  |  |
|  | 31 | 283 | 15 |  |  |
|  | TOT | 4519 | 283 |  |  |
|  |  |  |  |  |  |
|  |  | λ3 = 283/24 = 11.79/31 = 0.3803, UL = 3.4, MTT = 0.3803 |  |  |
|  |   |  |  |  |
|  | MTBF3 = 1/λ3 = 2.63, MTTR3 = 4519/24 = 6.07 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |
|  |  |  |  |  |  |
| **ANNEX 3.4 --0UTAGE DATA FOR THE YEAR 2004 FOR FEEDER4 (F4)** |
|  |  |  |  |  |  |
|  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |  |
|  | 1 | 12 | 12 |  |  |
|  | 2 | 33 | 21 |  |  |
|  | 3 | 46 | 13 |  |  |
|  | 4 | 62 | 16 |  |  |
|  | 5 | 76 | 14 |  |  |
|  | 6 | 90 | 14 |  |  |
|  | 7 | 108 | 18 |  |  |
|  | 8 | 124 | 16 |  |  |
|  | 9 | 137 | 13 |  |  |
|  | 10 | 151 | 14 |  |  |
|  | 11 | 166 | 15 |  |  |
|  | 12 | 178 | 12 |  |  |
|  | 13 | 189 | 11 |  |  |
|  | 14 | 206 | 17 |  |  |
|  | 15 | 222 | 16 |  |  |
|  | 16 | 235 | 13 |  |  |
|  | 17 | 249 | 14 |  |  |
|  | 18 | 263 | 14 |  |  |
|  | 19 | 280 | 17 |  |  |
|  | 20 | 295 | 15 |  |  |
|  | 21 | 308 | 13 |  |  |
|  | 22 | 326 | 18 |  |  |
|  | 23 | 342 | 16 |  |  |
|  | 24 | 348 | 6 |  |  |
|  | 25 | 365 | 17 |  |  |
|  | 26 | 371 | 6 |  |  |
|  | 27 | 386 | 15 |  |  |
|  | 28 | 404 | 18 |  |  |
|  | 29 | 421 | 17 |  |  |
|  | 30 | 434 | 13 |  |  |
|  | 31 | 451 | 17 |  |  |
|  | TOT | 8429 | 451 |  |  |
|  |  |  |  | UL = 3.4 |  |
|  |  | λ4 = 451/24 = 18.79/31 |  |  |
|  |  |  = 0.606 |  |  |  |
|  |  | MTBF4 = 1/ λ4  |  |  |  |
|  |  |  = 1.65 |  |  |  |
|  |  | MTTR = 8429/24 = 351.2/31 = 11.3 |  |  |
|  |  |   |  |  |
|  |  |  |  |  |  |
| **ANNEX 3.5 --OUTAGE DATA FOR THE YEAR 2005 FOR FEEDER1 (F1)** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  | S/N | Failures times in (Hrs) | Outage times (Hrs.) |  |  |  |
|  | 1 | 14 | 14 |  |  |  |
|  | 2 | 30 | 16 |  |  |  |
|  | 3 | 46 | 16 |  |  |  |
|  | 4 | 59 | 13 |  |  |  |
|  | 5 | 60 | 1 |  |  |  |
|  | 6 | 62 | 2 |  |  |  |
|  | 7 | 66 | 4 |  |  |  |
|  | 8 | 72 | 6 |  |  |  |
|  | 9 | 78 | 6 |  |  |  |
|  | 10 | 93 | 15 |  |  |  |
|  | 11 | 109 | 16 |  |  |  |
|  | 12 | 123 | 14 |  |  |  |
|  | 13 | 138 | 15 |  |  |  |
|  | 14 | 153 | 15 |  |  |  |
|  | 15 | 167 | 14 |  |  |  |
|  | 16 | 177 | 10 |  |  |  |
|  | TOT | 1447 | 177 |  |  |  |
|  |  |  |  |  |  |  |
|  |  | λ1 = 177/24 |  | UL = 2.3 |  |  |
|  |  |  = 7.375/16 |  |  |  |  |
|  |  |  = 0.461 |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  | MTBF1 = 1/ λ1 |  |  |  |  |
|  |  |  = 2.17 |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  | MTTR1 = 1447/24  |  |  |  |  |
|  |  |  =60.29/16 |  |  |  |  |
|  |  |  = 3.77 |  |  |  |  |

|  |  |
| --- | --- |
|  | **ANNEX 3.6 -- OUTAGE DATA FOR THE YEAR 2005 FOR FEEDER2 (F2)** |
|  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs) |  |  |
|  |  | 1 | 16 | 16 |  |  |
|  |  | 2 | 31 | 15 |  |  |
|  |  | 3 | 42 | 11 |  |  |
|  |  | 4 | 58 | 16 |  |  |
|  |  | 5 | 60 | 2 |  |  |
|  |  | 6 | 64 | 4 |  |  |
|  |  | 7 | 70 | 6 |  |  |
|  |  | 8 | 77 | 7 |  |  |
|  |  | 9 | 85 | 8 |  |  |
|  |  | 10 | 100 | 15 |  |  |
|  |  | 11 | 113 | 13 |  |  |
|  |  | 12 | 130 | 17 |  |  |
|  |  | 13 | 142 | 12 |  |  |
|  |  | 14 | 152 | 10 |  |  |
|  |  | 15 | 167 | 15 |  |  |
|  |  | 16 | 179 | 12 |  |  |
|  |  | TOT | 1486 | 179 |  |  |
|  |  |  |  |  | UL = 1.8 |  |
|  |  |  |  |  |  |  |
|  |  |  | λ2 = 179 / 24 |  |  |  |
|  |  |  |  = 7.458/16 |  |  |  |
|  |  |  |  = 0.466 |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  | MTBF = 1/ λ2 |  |  |  |
|  |  |  |  = 2.17 |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  | MTTR = 1447/24 |  |  |  |
|  |  |  |  = 60.29/16 |  |  |  |
|  |  |  |  = 3.77 |  |  |  |
|  |  |  |  |  |  |  |
|

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| --- |
| **ANNEX 3.7 --OUTAGE DATA FOR THE YEAR 2005 FOR FEEDER 3 (F3)** |
|  |  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage duration (Hr) |  |  |  |
|  |  | 1 | 9 | 9 |  |  |  |
|  |  | 2 | 18 | 9 |  |  |  |
|  |  | 3 | 29 | 11 |  |  |  |
|  |  | 4 | 39 | 10 |  |  |  |
|  |  | 5 | 43 | 4 |  |  |  |
|  |  | 6 | 45 | 2 |  |  |  |
|  |  | 7 | 56 | 11 |  |  |  |
|  |  | 8 | 65 | 9 |  |  |  |
|  |  | 9 | 69 | 4 |  |  |  |
|  |  | 10 | 80 | 11 |  |  |  |
|  |  | 11 | 89 | 9 |  |  |  |
|  |  | 12 | 99 | 10 |  |  |  |
|  |  | 13 | 103 | 4 |  |  |  |
|  |  | 14 | 108 | 5 |  |  |  |
|  |  | 15 | 119 | 11 |  |  |  |
|  |  | 16 | 125 | 6 |  |  |  |
|  |  | TOT | 1096 | 125 |  |  |  |
|  |  |  |  |  | ul = 2.6 |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | λ3 = 125/24 |  |  |  |  |
|  |  |  |  = 5.208/16 |  |  |  |  |
|  |  |  |  = 0.326 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTBF3 = 1/λ3 |  |  |  |  |
|  |  |  |  = 3.072 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTTR3 = 1096/24 |  |  |  |  |
|  |  |  |  = 45.666/16 |  |  |  |  |
|  |  |  |  = 2.85 |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
|  | **ANNEX 3.8 -- OUTAGE DATA FOR THE YEAR 2005 FOR FEEDER 4 (F4)** |  |
|  |  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |  |  |
|  |  | 1 | 15 | 15 |  |  |  |
|  |  | 2 | 31 | 16 |  |  |  |
|  |  | 3 | 44 | 13 |  |  |  |
|  |  | 4 | 59 | 15 |  |  |  |
|  |  | 5 | 63 | 4 |  |  |  |
|  |  | 6 | 68 | 5 |  |  |  |
|  |  | 7 | 75 | 7 |  |  |  |
|  |  | 8 | 79 | 4 |  |  |  |
|  |  | 9 | 83 | 4 |  |  |  |
|  |  | 10 | 95 | 12 |  |  |  |
|  |  | 11 | 104 | 9 |  |  |  |
|  |  | 12 | 119 | 15 |  |  |  |
|  |  | 13 | 132 | 13 |  |  |  |
|  |  | 14 | 144 | 12 |  |  |  |
|  |  | 15 | 155 | 11 |  |  |  |
|  |  | 16 | 166 | 11 |  |  |  |
|  |  | TOT | 1432 | 166 |  |  |  |
|  |  |  |  |  | UL =1.7 |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | λ4 = 166/24 |  |  |  |  |
|  |  |  |  = 6.9166/16 |  |  |  |  |
|  |  |  |  = 0.432 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTBF4 = I/ λ4 |  |  |  |  |
|  |  |  |  = 2.31 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTTR = 1432/ 24 |  |  |  |  |
|  |  |  |  = 59.667/16 |  |  |  |  |
|  |  |  |  = 3.73 |  |  |  |  |

|  |
| --- |
| **ANNEX 3.9 --OUTAGE DATA FOR THE YEAR 2006 FOR FEEDER 1 (F1)** |
|  |  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |  |  |
|  |  | 1 | 14 | 14 |  |  |  |
|  |  | 2 | 24 | 10 |  |  |  |
|  |  | 3 | 37 | 13 |  |  |  |
|  |  | 4 | 52 | 15 |  |  |  |
|  |  | 5 | 70 | 18 |  |  |  |
|  |  | 6 | 83 | 13 |  |  |  |
|  |  | 7 | 98 | 15 |  |  |  |
|  |  | 8 | 113 | 15 |  |  |  |
|  |  | 9 | 130 | 17 |  |  |  |
|  |  | 10 | 148 | 18 |  |  |  |
|  |  | 11 | 162 | 14 |  |  |  |
|  |  | 12 | 177 | 15 |  |  |  |
|  |  | 13 | 198 | 21 |  |  |  |
|  |  | 14 | 216 | 18 |  |  |  |
|  |  | 15 | 228 | 12 |  |  |  |
|  |  | 16 | 244 | 16 |  |  |  |
|  |  | 17 | 259 | 15 |  |  |  |
|  |  | 18 | 273 | 14 |  |  |  |
|  |  | 19 | 288 | 15 |  |  |  |
|  |  | TOT | 2814 | 288 |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  | UL 3.03 |  |  |
|  |  |  | λ1 = 288/24 |  |  |  |  |
|  |  |  |  = 12/19 |  |  |  |  |
|  |  |  |  = 0.63 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTBF1 = 1/λ1 |  |  |  |  |
|  |  |  |  = 1.6 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTTR1 = 2814/24  |  |  |  |  |
|  |  |  |  = 117.25/19 |  |  |  |  |
|  |  |  |  = 6.2 |  |  |  |  |

**ANNEX 3.10 --OUTAGE DATA FOR THE YEAR 2006 FOR FEEDWE 2 (F2)** |
|
|  |  |  |  |  |  |  |  |
|  |  | **S/N** | **Failures times in (Hrs.)** | **Outage Duration (Hrs.)** |  |  |  |
|  |  | 1 | 13 | 13 |  |  |  |
|  |  | 2 | 26 | 13 |  |  |  |
|  |  | 3 | 41 | 15 |  |  |  |
|  |  | 4 | 53 | 12 |  |  |  |
|  |  | 5 | 71 | 18 |  |  |  |
|  |  | 6 | 85 | 14 |  |  |  |
|  |  | 7 | 100 | 15 |  |  |  |
|  |  | 8 | 116 | 16 |  |  |  |
|  |  | 9 | 135 | 19 |  |  |  |
|  |  | 10 | 151 | 16 |  |  |  |
|  |  | 11 | 165 | 14 |  |  |  |
|  |  | 12 | 182 | 17 |  |  |  |
|  |  | 13 | 200 | 18 |  |  |  |
|  |  | 14 | 217 | 17 |  |  |  |
|  |  | 15 | 236 | 19 |  |  |  |
|  |  | 16 | 250 | 14 |  |  |  |
|  |  | 17 | 264 | 14 |  |  |  |
|  |  | 18 | 280 | 16 |  |  |  |
|  |  | 19 | 296 | 16 |  |  |  |
|  |  | TOT | 2881 | 296 |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  | UL 4.6 |  |  |
|  |  |  | λ2 = 296/24 |  |  |  |  |
|  |  |  |  = 12.3/19 |  |  |  |  |
|  |  |  |  = 0.65  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTBF2 = 1/λ2 |  |  |  |  |
|  |  |  |  = 1.5 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTTR2 = 2881/24 |  |  |  |  |
|  |  |  |  = 120/19 |  |  |  |  |
|  |  |  |  = 6.3 |  |  |  |  |
| **ANNEX 3.11 --OUTAGE DATA FOR THE YEAR 2006 FOR FEEDER 3 (F3)** |
|  |  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |  |  |
|  |  | 1 | 7 | 7 |  |  |  |
|  |  | 2 | 17 | 10 |  |  |  |
|  |  | 3 | 23 | 6 |  |  |  |
|  |  | 4 | 37 | 14 |  |  |  |
|  |  | 5 | 46 | 9 |  |  |  |
|  |  | 6 | 58 | 12 |  |  |  |
|  |  | 7 | 71 | 13 |  |  |  |
|  |  | 8 | 76 | 5 |  |  |  |
|  |  | 9 | 87 | 11 |  |  |  |
|  |  | 10 | 98 | 11 |  |  |  |
|  |  | 11 | 112 | 14 |  |  |  |
|  |  | 12 | 118 | 6 |  |  |  |
|  |  | 13 | 130 | 12 |  |  |  |
|  |  | 14 | 138 | 8 |  |  |  |
|  |  | 15 | 146 | 8 |  |  |  |
|  |  | 16 | 156 | 10 |  |  |  |
|  |  | 17 | 164 | 8 |  |  |  |
|  |  | 18 | 170 | 6 |  |  |  |
|  |  | 19 | 179 | 9 |  |  |  |
|  |  | 20 | 188 | 9 |  |  |  |
|  |  | TOT | 2021 | 188 |  |  |  |
|  |  |  |  |  | UL = 2.3 |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | λ3 = 188/24  |  |  |  |  |
|  |  |  |  = 7.83/20 |  |  |  |  |
|  |  |  |  = 0.392 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTBF = 1/λ3 |  |  |  |  |
|  |  |  |  = 2.6 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTTR3 = 2021/24 |  |  |  |  |
|  |  |  |  = 84.21/20 |  |  |  |  |
|  |  |  |  = 4.2 |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| A**NNEX 3.12 -- OUTAGE DATA FOR THE YEAR 2006 FOR FEEDER 4 (F4)** |
|  |  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs) |  |  |  |
|  |  | 1 | 14 | 14 |  |  |  |
|  |  | 2 | 27 | 13 |  |  |  |
|  |  | 3 | 44 | 17 |  |  |  |
|  |  | 4 | 60 | 16 |  |  |  |
|  |  | 5 | 75 | 15 |  |  |  |
|  |  | 6 | 90 | 15 |  |  |  |
|  |  | 7 | 104 | 14 |  |  |  |
|  |  | 8 | 121 | 17 |  |  |  |
|  |  | 9 | 139 | 18 |  |  |  |
|  |  | 10 | 155 | 16 |  |  |  |
|  |  | 11 | 167 | 12 |  |  |  |
|  |  | 12 | 184 | 17 |  |  |  |
|  |  | 13 | 201 | 17 |  |  |  |
|  |  | 14 | 217 | 16 |  |   |  |
|  |  | 15 | 235 | 18 |  |  |  |
|  |  | 16 | 247 | 12 |  |  |  |
|  |  | 17 | 260 | 13 |  |  |  |
|  |  | 18 | 277 | 17 |  |  |  |
|  |  | 19 | 293 | 16 |  |  |  |
|  |  | 20 | 307 | 14 |  |  |  |
|  |  | TOT | 3217 | 307 |  |  |  |
|  |  |  | UL = 5.2 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | λ4 = 307/24 |  |  |  |  |
|  |  |  |  = 12.79/20 |  |  |  |  |
|  |  |  |  = 0.64 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTBF4 = 1/ λ4 |  |  |  |  |
|  |  |  |  = 1.6 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | MTTR4 = 3217/24 |  |  |  |  |
|  |  |  |  = 6.7 |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|

|  |
| --- |
| **ANNEX 3.13 -- OUTAGE DATA FOR THE YEAR 2007 FOR FEEDER 2 (F2)** |
|  |  |  |  |  |  |  |  |
|  |  | **S/N** | **Failures times in (Hrs.)** | **Outage Duration (Hrs.)** |  |  |  |
|  |  | **1** | **14** | **14** |  |  |  |
|  |  | **2** | **24** | **10** |  |  |  |
|  |  | **3** | **30** | **6** |  |  |  |
|  |  | **4** | **40** | **10** |  |  |  |
|  |  | **5** | **55** | **15** |  |  |  |
|  |  | **6** | **65** | **10** |  |  |  |
|  |  | **7** | **81** | **16** |  |  |  |
|  |  | **8** | **93** | **12** |  |  |  |
|  |  | **9** | **105** | **12** |  |  |  |
|  |  | **10** | **114** | **9** |  |  |  |
|  |  | **11** | **122** | **8** |  |  |  |
|  |  | **12** | **129** | **7** |  |  |  |
|  |  | **13** | **134** | **5** |  |  |  |
|  |  | **14** | **150** | **16** |  |  |  |
|  |  | **15** | **162** | **12** |  |  |  |
|  |  | **16** | **178** | **16** |  |  |  |
|  |  | **17** | **193** | **15** |  |  |  |
|  |  | **18** | **209** | **16** |  |  |  |
|  |  | **19** | **222** | **13** |  |  |  |
|  |  | **20** | **237** | **15** |  |  |  |
|  |  | **21** | **244** | **7** |  |  |  |
|  |  | **22** | **261** | **17** |  |  |  |
|  |  | **23** | **275** | **14** |  |  |  |
|  |  | **24** | **279** | **4** |  |  |  |
|  |  | **25** | **293** | **14** |  |  |  |
|  |  | **26** | **299** | **6** |  |  |  |
|  |  | **27** | **314** | **15** |  |  |  |
|  |  | **TOT** | **4322** | **314** |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  | **UL = 3.8** |  |  |  |
|  |  |  | **λ2 = 314/24** | **MTBF2 = 1/λ2** |  |  |  |
|  |  |  |  **= 13.08/27** |  **= 2.06** |  |  |  |
|  |  |  |  **= 0.485 MTTR2 = 4322/24 = 6.67** |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**ANNEX 3.14 -- OUTAGE DATA FOR THE YEAR 2007 FOR FEEDER 4 (F4)** |
|  |  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |  |  |
|  |  | 1 | 14 | 14 |  |  |  |
|  |  | 2 | 24 | 10 |  |  |  |
|  |  | 3 | 30 | 6 |  |  |  |
|  |  | 4 | 40 | 10 |  |  |  |
|  |  | 5 | 54 | 14 |  |  |  |
|  |  | 6 | 67 | 13 |  |  |  |
|  |  | 7 | 84 | 17 |  |  |  |
|  |  | 8 | 108 | 24 |  |  |  |
|  |  | 9 | 123 | 15 |  |  |  |
|  |  | 10 | 131 | 8 |  |  |  |
|  |  | 11 | 142 | 11 |  |  |  |
|  |  | 12 | 154 | 12 |  |  |  |
|  |  | 13 | 168 | 14 |  |  |  |
|  |  | 14 | 177 | 9 |  |  |  |
|  |  | 15 | 184 | 7 |  |  |  |
|  |  | 16 | 208 | 24 |  |  |  |
|  |  | 17 | 225 | 17 |  |  |  |
|  |  | 18 | 245 | 20 |  |  |  |
|  |  | 19 | 263 | 18 |  |  |  |
|  |  | 20 | 277 | 14 |  |  |  |
|  |  | 21 | 296 | 19 |  |  |  |
|  |  | 22 | 312 | 16 |  |  |  |
|  |  | 23 | 321 | 9 |  |  |  |
|  |  | 24 | 339 | 18 |  |  |  |
|  |  | 25 | 350 | 11 |  |  |  |
|  |  | 26 | 364 | 14 |  |  |  |
|  |  | 27 | 377 | 13 |  |  |  |
|  |  | TOT | 5077 | 377 |  |  |  |
|  |  |  |  |  | UL = 1.2 |  |  |
|  |  |  | λ4 = 377/24 | MTBF4 = 1/λ4 |  |  |  |
|  |  |  |  = 15.708 |  = 1.72 |  |  |  |
|  |  |  |  = 0.5818 |  |  |  |  |
|  |  |  |  | MTTR4 = 5077/24 |  |  |  |
|  |  |  |  |  = 211.54/27 |  |  |  |
|  |  |  |  |  = 7.84 |  |  |  |
| **ANNEX 3.15 -- OUTAGE DATA FOR THE YEAR 2008 FOR FEEDER 1 (F1)** |
|  |  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |  |  |
|  |  | 1 | 4 | 4 |  |  |  |
|  |  | 2 | 9 | 5 |  |  |  |
|  |  | 3 | 12 | 3 |  |  |  |
|  |  | 4 | 18 | 6 |  |  |  |
|  |  | 5 | 30 | 12 |  |  |  |
|  |  | 6 | 40 | 10 |  |  |  |
|  |  | 7 | 52 | 12 |  |  |  |
|  |  | 8 | 64 | 12 |  |  |  |
|  |  | 9 | 73 | 9 |  |  |  |
|  |  | 10 | 82 | 9 |  |  |  |
|  |  | 11 | 88 | 6 |  |  |  |
|  |  | 12 | 99 | 11 |  |  |  |
|  |  | 13 | 104 | 5 |  |  |  |
|  |  | 14 | 111 | 7 |  |  |  |
|  |  | 15 | 115 | 4 |  |  |  |
|  |  | 16 | 125 | 10 |  |  |  |
|  |  | 17 | 135 | 10 |  |  |  |
|  |  | 18 | 142 | 7 |  |  |  |
|  |  | 19 | 147 | 5 |  |  |  |
|  |  | 20 | 155 | 8 |  |  |  |
|  |  | 21 | 161 | 6 |  |  |  |
|  |  | 22 | 171 | 10 |  |  |  |
|  |  | 23 | 176 | 5 |  |  |  |
|  |  | 24 | 179 | 3 |  |  |  |
|  |  | 25 | 184 | 5 |  |  |  |
|  |  | 26 | 188 | 4 |  |  |  |
|  |  | 27 | 191 | 3 |  |  |  |
|  |  | 28 | 197 | 6 |  |  |  |
|  |  | 29 | 207 | 10 |  |  |  |
|  |  | 30 | 219 | 12 |  |  |  |
|  |  | 31 | 226 | 7 |  |  |  |
|  |  | TOT | 3704 | 226 |  |  |  |
|  |  |  |  |  | UL = 1.8 |  |  |
|  |  |  | λ1 = 0.32, MTBF1= 3.3, | MTTR1 = 5.0 |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  | **ANNEX 3.16 --OUTAGE DATA FOR THE YEAR 2008 FOR FEEDER 2 (F2)** |  |
|  |  |  |  |  |  |  |  |
|  |  | **S/N** | **Failures times in (Hrs)** | **Outage Duration (Hrs.)** |  |  |  |
|  |  | 1 | 6 | 6 |  |  |  |
|  |  | 2 | 10 | 4 |  |  |  |
|  |  | 3 | 27 | 17 |  |  |  |
|  |  | 4 | 36 | 9 |  |  |  |
|  |  | 5 | 45 | 9 |  |  |  |
|  |  | 6 | 54 | 9 |  |  |  |
|  |  | 7 | 63 | 9 |  |  |  |
|  |  | 8 | 74 | 11 |  |  |  |
|  |  | 9 | 85 | 11 |  |  |  |
|  |  | 10 | 95 | 10 |  |  |  |
|  |  | 11 | 103 | 8 |  |  |  |
|  |  | 12 | 109 | 6 |  |  |  |
|  |  | 13 | 118 | 9 |  |  |  |
|  |  | 14 | 126 | 8 |  |  |  |
|  |  | 15 | 132 | 6 |  |  |  |
|  |  | 16 | 140 | 8 |  |  |  |
|  |  | 17 | 149 | 9 |  |  |  |
|  |  | 18 | 156 | 7 |  |  |  |
|  |  | 19 | 162 | 6 |  |  |  |
|  |  | 20 | 170 | 8 |  |  |  |
|  |  | 21 | 176 | 6 |  |  |  |
|  |  | 22 | 185 | 9 |  |  |  |
|  |  | 23 | 188 | 3 |  |  |  |
|  |  | 24 | 194 | 6 |  |  |  |
|  |  | 25 | 199 | 5 |  |  |  |
|  |  | 26 | 204 | 5 |  |  |  |
|  |  | 27 | 207 | 3 |  |  |  |
|  |  | 28 | 214 | 7 |  |  |  |
|  |  | 29 | 220 | 6 |  |  |  |
|  |  | 30 | 231 | 11 |  |  |  |
|  |  | 31 | 237 | 6 |  |  |  |
|  |  | TOT | 4319 | 237 |  |  |  |
|  |  |  |  | UL = -1.34 |  |  |
|  |  |  | λ2 = 0.32, MTBF2 = 3.14 | MTTR2 = 5.8 |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **ANNEX 3.17 OUTAGE DATA FOR THE YEAR 2008 FOR FEEDER 3 (F3)** |
|  |  |  |  |  |  |  |  |
|  |  | S/N | Failures times in (Hrs.) | Outage Duration (Hrs.) |  |  |  |
|  |  | 1 | 5 | 5 |  |  |  |
|  |  | 2 | 10 | 5 |  |  |  |
|  |  | 3 | 17 | 7 |  |  |  |
|  |  | 4 | 24 | 7 |  |  |  |
|  |  | 5 | 32 | 8 |  |  |  |
|  |  | 6 | 41 | 9 |  |  |  |
|  |  | 7 | 50 | 9 |  |  |  |
|  |  | 8 | 59 | 9 |  |  |  |
|  |  | 9 | 68 | 9 |  |  |  |
|  |  | 10 | 79 | 11 |  |  |  |
|  |  | 11 | 87 | 8 |  |  |  |
|  |  | 12 | 98 | 11 |  |  |  |
|  |  | 13 | 110 | 12 |  |  |  |
|  |  | 14 | 113 | 3 |  |  |  |
|  |  | 15 | 119 | 6 |  |  |  |
|  |  | 16 | 129 | 10 |  |  |  |
|  |  | 17 | 137 | 8 |  |  |  |
|  |  | 18 | 142 | 5 |  |  |  |
|  |  | 19 | 151 | 9 |  |  |  |
|  |  | 20 | 157 | 6 |  |  |  |
|  |  | 21 | 166 | 9 |  |  |  |
|  |  | 22 | 175 | 9 |  |  |  |
|  |  | 23 | 183 | 8 |  |  |  |
|  |  | 24 | 187 | 4 |  |  |  |
|  |  | 25 | 191 | 4 |  |  |  |
|  |  | 26 | 194 | 3 |  |  |  |
|  |  | 27 | 200 | 6 |  |  |  |
|  |  | 28 | 206 | 3 |  |  |  |
|  |  | 29 | 213 | 7 |  |  |  |
|  |  | 30 | 225 | 12 |  |  |  |
|  |  | 31 | 230 | 5 |  |  |  |
|  |  | TOT | 3798 | 230 |  |  |  |
|  |  |  |  |  | UL = 2.0 |  |  |
|  |  |  | λ3 = (230 / 24 )/31 = 0.309 | MTBF3 = 1/λ3 = 3.23, MTTR3 = 5.1 |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |