## Upgraded System

Peak Seals - 3M Company 3-Hour Interam Fire Barrier
The qualified three-hour systems are contained in 3 separate test reports:
1. OPL Project 14540-99417
2. OPL Project 14540-99416
3. OPL Project 14540-99123

For ease of comparison, average and maximum allowable temperatures are shown individually.
(Shading shows temperatures that exceeded acceptance criteria of GL 86-10, Supplement 1)

| TEST SPECIMEN | THERMOCOUPLE LOCATIONS | AVERAGE (°F) | | MAXIMUM (°F) | | REMARKS |
|---|---|---|---|---|---|---|
| | | ACTUAL | ALLOWED | ACTUAL | ALLOWED | |
| 6" Cable tray[1] | Front side rail | **256** | *342* | **319** | *417* | Protected with six layers of Interam E54A with a standoff after the first layer **This design exhibited a minimum *safety margin* of 79°F (26°C) on average temperature and 85°F (29.4°C) on maximum.** |
| | Rear side rail | **264** | *343* | **333** | *418* | |
| | Copper conductor | **247** | *343* | **303** | *418* | |
| 24" Cable tray[1] | Front side rail | **271** | *342* | **325** | *417* | Protected with six layers of Interam E54A with a standoff after the first layer **This design exhibited a minimum *safety margin* of 71°F (21.6°C) on average temperature and 92°F (33.3°C) on maximum.** |
| | Rear side rail | **269** | *343* | **315** | *418* | |
| | Copper conductor | **231** | *342* | **287** | *417* | |
| 5" Conduit[2] | Conduit surface | **243** | *310* | **307** | *385* | Protected with five layers of Interam E54A with a standoff before the first layer and after the second layer. This **design exhibited a minimum *safety margin* of 67°F (19.4°C) on average temperature and 78°F (25.5°C) on maximum.** |
| | Copper conductor | **227** | *310* | **269** | *385* | |
| 3" Conduit[2] | Conduit surface | **237** | *310* | **307** | *385* | Protected with five layers of Interam E54A with a standoff before the first layer and after the second layer. This **design exhibited a minimum *safety margin* of 73°F (22.7°C) on average temperature and 78°F (25.5°C) on maximum.** |
| | Copper conductor | **220** | *310* | **270** | *385* | |
| 1" Conduit[2] | Conduit surface | **307** | *310* | **377** | *385* | Protected with five layers of Interam E54A with a standoff before the first layer and after the second layer. This design, from a review of the actual temperatures compared to the allowable indicates a fully qualified system. |
| | Copper conductor | **299** | *310* | **346** | *385* | |
| 2" Airdrop[3] | Copper conductor | **294** | *315* | **338** | *390* | Protected with five layers of Interam E54A without standoffs This design, from a review of the actual temperatures compared to the allowable indicates a fully qualified system. |
| Junction box[2] | Metal surface | **213** | *310* | **224** | *385* | Protected with six layers of Interam E54A with a standoff before the first layer and after the second layer. This **design exhibited a minimum *safety margin* of 97°F (36°C) on average temperature and 161°F (71.6°C) on maximum.** |

## IN-95-52 Summary

Peak Seals - 3M Company 3-Hour Interam Fire Barrier
Allowable single point unexposed-side temperature criterion = 407 °F
Allowable average unexposed-side temperature criterion = 332 °F
(Shading shows temperatures that exceeded acceptance criteria of GL 86-10, Supplement 1)

| TEST SPECIMEN | THERMOCOUPLE LOCATIONS | AVERAGE (°F) | MAXIMUM (°F) | REMARKS |
|---|---|---|---|---|
| 6" Cable tray | Front side rail | 361 | 436 | Protected with five layers of Interam E54A. Exceeded the maximum single point temperature criterion at 158 minutes and the Average temperature rise criterion at 166 minutes |
| | Rear side rail | 357 | 454 | |
| | Copper conductor | 301 | 343 | |
| 24" Cable tray | Front side rail | 357 | 417 | Protected with five layers of Interam E54A. Exceeded the maximum single point temperature criterion at 176 minutes and the Average temperature rise criterion at 167 minutes |
| | Rear side rail | 344 | 406 | |
| | Copper conductor | 243 | 334 | |
| 5" Conduit | Conduit surface | 336 | 451 | Protected with five layers of Interam E54A. Exceeded the maximum single point temperature criterion at 161 minutes and the average temperature rise criterion at 178 minutes |
| | Copper conductor | 310 | 411 | |
| 3" Conduit | Conduit surface | 399 | 485 | Protected with five layers of Interam E54A. Exceeded the maximum single point temperature Criterion at 148 minutes and the Average temperature rise criterion at 152 minutes |
| | Copper conductor | 344 | 462 | |
| 1" Conduit | Conduit surface | 366 | 530 | Protected with six layers of Interam E54A. Exceeded the maximum single point temperature Criterion at 126 minutes and the average temperature rise criterion at 167 minutes |
| | Copper conductor | 345 | 465 | |
| 2" Airdrop | Copper conductor | 349 | 426 | Protected with five layers of Interam E54A. Exceeded the maximum single point temperature criterion and the average temperature rise criterion at 152 minutes |
| Junction box | Metal surface | 370 | 391 | Protected with six layers of Interam E54A. Exceeded the average temperature rise criterion at 165 minutes |