

TOT 5 Current Operating Condition Study Summer 2008



Studies Conducted By: Jared Griffiths
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I. Executive Summary

On March 8th, 2008 one of the parallel 150 MVA 230/138-kV transformers at Hayden experienced a catastrophic failure and was removed from service. After this event occurred it was determined that Western Area Power Administration (WAPA) should relocate a 100 MVA 230/138-kV transformer from Flaming Gorge to Hayden in order to increase the transfer capability of both TOTs 1A and 5. The Hayden transformers were seen to have significant impacts to both paths and new operating limits were determined for the interim period when both Hayden transformers were out of service.

On July 17th, 2008 the Flaming Gorge transformer was energized at Hayden ahead of schedule. At that time the TOT 1A transfer limit was returned to 614 MW which was approved prior to the beginning of the summer operating season and was re-verified with the change in size and impedance of the Hayden transformers. However, the TOT 5 transfer capability had not yet been determined.

As the outage of both transformers at Hayden was seen to significantly impact the transfer capability of TOT 5, it was requested that a new TOT 5 study be conducted to determine the impacts of operating the unmatched transformers (100 and 150 MVA) 230/138-kV transformers at Hayden. At this time it was determined that a rating of 1680 MW could not be achieved due to various lower line ratings in the base case. Several limiting elements were hit simultaneously which prompted WAPA to reduce the transfer capability of TOT 5 to 1610 MW in order to ensure that TOT 5 was not operated above a safe operating level.

Since the time of the 1610 MW TOT 5 transfer capability determination, the rating of the Skito-Gunnison Tap 115-kV transmission line was field inspected and its rating was increased from 109 to 133 MVA. This allowed the transfer capability of TOT 5 to be increased to 1628 MW.

II. Base Case

The 2008 HS WECC approved operating case was used to conduct these studies. WAPA, XCEL, Tri-State, and PRPA all had the chance to review this base case during the OTC process. The TOT 5 area has been reviewed for this analysis.

III. Criteria

Standard criteria were applied to this study. Transmission lines and transformers were allowed to load up to their thermal limit for system intact conditions or up to their approved emergency rating for single contingencies. Bus voltages were required to remain between 0.95 and 1.05 p.u. for system

intact conditions and were allowed to be between 0.90 and 1.10 p.u. for single contingency conditions.

IV. Findings

The spreadsheet in Appendix A illustrates the findings of this study. Several elements were either at or near their thermal limit. Contingencies and elements of concern follow:

| Limiting Elements | Limiting Contingencies |
|----------------------------------|---|
| Cabin Creek-Dillon 230-kV | Craig-Ault 345-kV / Malta-Tarryall 230-kV |
| Rifle-Hopkins-Malta 230-kV | Blue River-Gore Pass 230-kV |
| Cabin Creek-Idaho Springs 230-kV | Cabin Creek-Lookout 230-kV |

The limiting element in this case is the Rifle-Hopkins 230-kV transmission line. It loads up to its emergency rating for the loss of the Hayden-Gore Pass 230 and 138-kV transmission lines. All of the other limiting elements identified were loaded above their nominal rating but below their emergency rating for their respective contingencies.

The following list compares the line ratings of concern in the base case used to perform these studies with the line ratings used in the last TOT 5 study that verified a transfer capability of 1680 MW:

| Limiting Elements (MVA) | 08HS Operating Case | 2005 Study |
|----------------------------------|----------------------------|-------------------|
| Cabin Creek-Dillon 230-kV | 490/571 | 647.8 |
| Rifle-Hopkins-Malta 230-kV | 319/331 | 373.3 |
| Cabin Creek-Idaho Springs 230-kV | 435/517 | 492.0 |

Appendix B contains single line diagrams which illustrate the limiting elements and contingencies discovered.

Appendix C contains an overload spreadsheet which represents the same base case with a TOT 5 stress of 1675 MW. This spreadsheet illustrates that at a minimum the Rifle-Hopkins-Malta 230-kV and the Gunnison Tap-North Gunnison 115-kV transmission lines would have to be up-rated in order to return the transfer capability of TOT 5 to 1675 MW. It should also be noted that Cabin Creek-Dillon 230-kV transmission line is right at its emergency rating.

V. Conclusions

The TOT 5 limit is 1628 MW due to the limiting elements listed in the previous section of this report. Efforts are being made to restore the rating of identified limiting elements. The 1628 MW limit will remain in effect until the thermal capabilities of the Rifle-Hopkins-Malta and Gunnison Tap-North Gunnison transmission lines are increased.

Appendix A
Overload Spreadsheet
TOT 5 = 1628 MW

TOT 5 = 1628 MW
ALL TRANSFORMERS ALLOWED 110% OVERLOAD

| ----- MONITORED BRANCH ----- | | | | CONTINGENCY RATING (MVA) | | FLOW (MW) | (MVA) % | | | |
|------------------------------|-----------|--------|----------------|--------------------------|----|------------|---------|-------|-------|--|
| 70072 | CABINCRK | 230.00 | 70156*DILLON | 230.00 | 1 | CRG_AULT | 490.0 | 544.0 | 115.8 | 571 MVA EMERGENCY RATING (116.5%) |
| 73074 | GREENMTN | 69.000 | 73316*GREENMT1 | 6.9000 | 1 | CRG_AULT | 12.0 | 12.1 | 100.7 | |
| 73074 | GREENMTN | 69.000 | 73317*GREENMT2 | 6.9000 | 1 | CRG_AULT | 12.0 | 12.2 | 101.7 | |
| 79013 | CRAIG | 230.00 | 79015*CRAIG 1 | 22.000 | 1 | CRG_AULT | 440.0 | 443.5 | 100.8 | |
| 79013 | CRAIG | 230.00 | 79016*CRAIG 2 | 22.000 | 1 | CRG_AULT | 440.0 | 443.5 | 100.8 | |
| 79039 | HAYDEN | 230.00 | 79041*HAYDEN2 | 22.000 | 1 | CRG_AULT | 306.9 | 310.5 | 101.2 | |
| 73072 | GOREPASS | 138.00 | 79038*HAYDEN | 138.00 | 1 | HDN_GOT | 135.0 | 177.5 | 127.2 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS |
| 70232 | *HOPKINS | 230.00 | 70274 MALTA | 230.00 | 1 | HDN_GOTRAS | 319.0 | 321.4 | 102.7 | 331 MVA EMERGENCY RATING (103.7%) |
| 70232 | *HOPKINS | 230.00 | 70358 RIFLE PS | 230.00 | 1 | HDN_GOTRAS | 319.0 | 326.3 | 104.3 | 331 MVA EMERGENCY RATING (103.7%) |
| 70232 | *HOPKINS | 230.00 | 70274 MALTA | 230.00 | 1 | BRU_GOT | 319.0 | 319.1 | 101.9 | 331 MVA EMERGENCY RATING (103.7%) |
| 70232 | *HOPKINS | 230.00 | 70358 RIFLE PS | 230.00 | 1 | BRU_GOT | 319.0 | 324.0 | 103.5 | 331 MVA EMERGENCY RATING (103.7%) |
| 79039 | HAYDEN | 230.00 | 79041*HAYDEN2 | 22.000 | 1 | RFL_MAL | 306.9 | 310.2 | 101.1 | |
| 70072 | CABINCRK | 230.00 | 70156*DILLON | 230.00 | 1 | MAL_TARR | 490.0 | 544.5 | 112.1 | 571 MVA EMERGENCY RATING (116.5%) |
| 70072 | CABINCRK | 230.00 | 70156*DILLON | 230.00 | 1 | TARR_DAN | 490.0 | 489.2 | 100.4 | 571 MVA EMERGENCY RATING (116.5%) |
| 70072 | *CABINCRK | 230.00 | 70237 IDAHOSPG | 230.00 | 1 | CABIN_LOOK | 435.0 | 420.4 | 101.7 | 479 MVA EMERGENCY RATING (110%) |
| 79039 | HAYDEN | 230.00 | 79041*HAYDEN2 | 22.000 | 1 | CABIN_LOOK | 306.9 | 309.7 | 100.9 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS |
| 70071 | CABINCRK | 115.00 | 70072*CABINCRK | 230.00 | T1 | BRU_DILLON | 60.5 | 68.5 | 113.3 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS |
| 70071 | CABINCRK | 115.00 | 70072*CABINCRK | 230.00 | T2 | BRU_DILLON | 60.0 | 69.5 | 115.8 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS |
| 70071 | CABINCRK | 115.00 | 70197*GEORGETN | 115.00 | 1 | BRU_DILLON | 135.0 | 130.5 | 101.9 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS |
| 70197 | GEORGETN | 115.00 | 70218*HENDERPS | 115.00 | 1 | BRU_DILLON | 135.0 | 132.2 | 104.3 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS |
| 70218 | HENDERPS | 115.00 | 70328*PORTAL | 115.00 | 1 | BRU_DILLON | 134.8 | 143.6 | 112.4 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS |
| 70287 | *MILL | 115.00 | 70328 PORTAL | 115.00 | 1 | BRU_DILLON | 134.8 | 147.4 | 114.5 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS |
| 79039 | HAYDEN | 230.00 | 79041*HAYDEN2 | 22.000 | 1 | CCI_PON | 306.9 | 308.5 | 100.5 | |

MONITORED VOLTAGE REPORT:

| SYSTEM | CONTINGENCY | ----- B U S ----- | | V-CONT | V-INIT | V-MAX | V-MIN |
|--------|------------------|-------------------|----------|--------|---------|---------|-----------------|
| 'TOTS | RANGE CABIN_LOOK | 70196 | GEORGETN | 25.000 | 0.89509 | 0.96237 | 1.10000 0.90000 |

CONTINGENCY LEGEND:

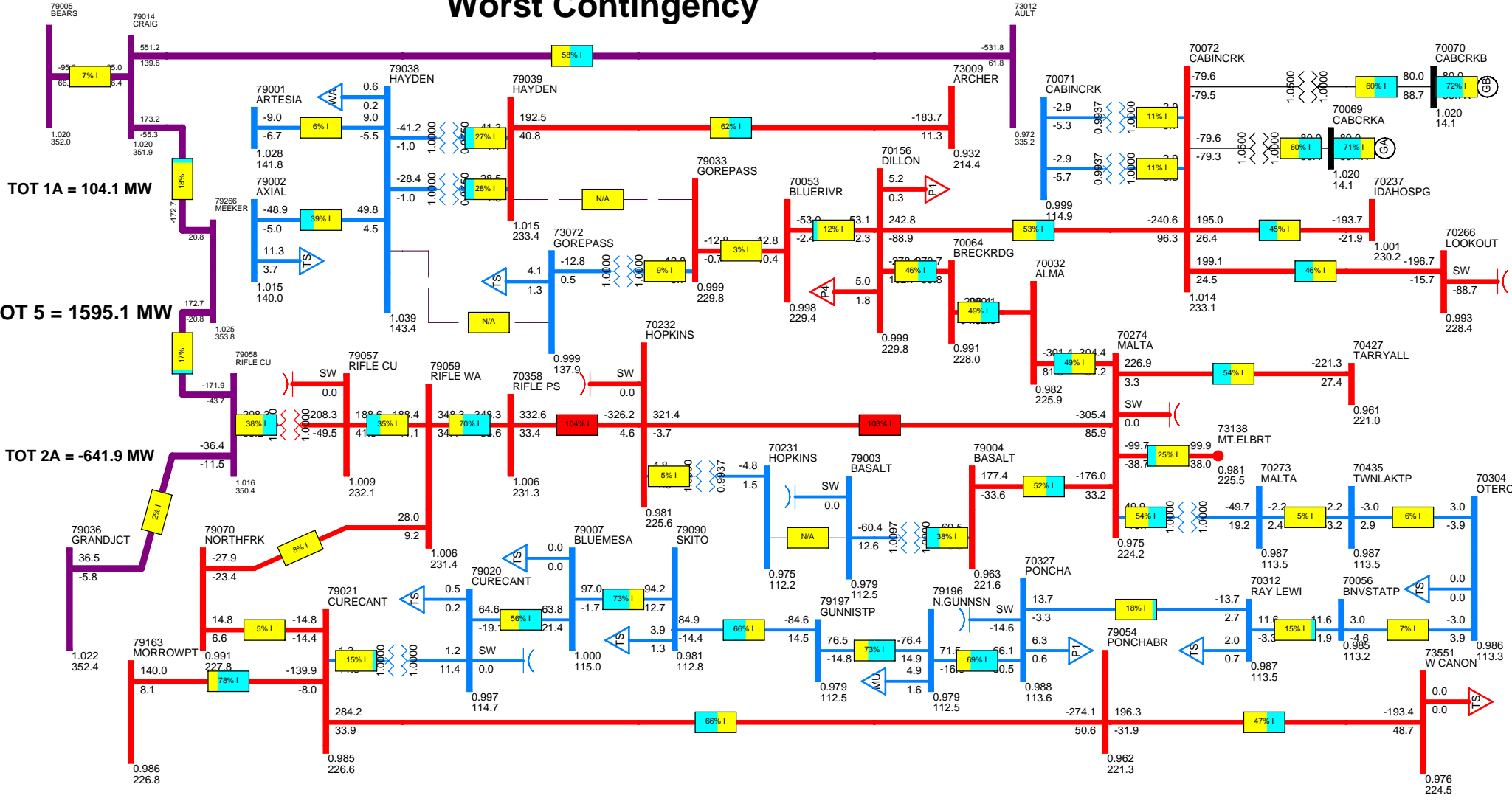
| LABEL | EVENTS |
|--------------|---|
| BEARS_BOZ | : TRIP LINE FROM BUS 79005 [BEARS 345.00] TO BUS 65193 [BONANZA 345.00] |
| CRG_HDN | : TRIP LINE FROM BUS 79013 [CRAIG 230.00] TO BUS 79039 [HAYDEN 230.00] |
| CRG_AULT | : TRIP LINE FROM BUS 79014 [CRAIG 345.00] TO BUS 73012 [AULT 345.00] |
| GOT_XFMR | : TRIP LINE FROM BUS 79033 [GOREPASS 230.00] TO BUS 73072 [GOREPASS 138.00] |
| HDN_GOT | : TRIP LINE FROM BUS 79039 [HAYDEN 230.00] TO BUS 79033 [GOREPASS 230.00] |
| HDN_GOTRAS | : TRIP LINE FROM BUS 79039 [HAYDEN 230.00] TO BUS 79033 [GOREPASS 230.00] |
| | : TRIP LINE FROM BUS 79038 [HAYDEN 138.00] TO BUS 73072 [GOREPASS 138.00] |
| WGP_XFMR | : TRIP LINE FROM BUS 73220 [WINDYGAP 138.00] TO BUS 73219 [WINDYGAP 69.000] |
| BRU_GOT | : TRIP LINE FROM BUS 70053 [BLUERIVR 230.00] TO BUS 79033 [GOREPASS 230.00] |
| | : TRIP LINE FROM BUS 70287 [MILL 115.00] TO BUS 73296 [METTLER 115.00] |
| MAL_BASA | : TRIP LINE FROM BUS 70274 [MALTA 230.00] TO BUS 79004 [BASALT 230.00] |
| RFL_MAL | : OPEN LINE FROM BUS 70232 [HOPKINS 230.00] TO BUS 70274 [MALTA 230.00] CKT 1 |
| | : OPEN LINE FROM BUS 70232 [HOPKINS 230.00] TO BUS 70358 [RIFLE PS 230.00] CKT 1 |
| | : OPEN LINE FROM BUS 70232 [HOPKINS 230.00] TO BUS 70231 [HOPKINS 115.00] CKT T3 |
| MAL_TARR | : TRIP LINE FROM BUS 70274 [MALTA 230.00] TO BUS 70427 [TARRYALL 230.00] |
| TARR_DAN | : TRIP LINE FROM BUS 70427 [TARRYALL 230.00] TO BUS 70139 [DANIELPK 230.00] |
| CABIN_DILLON | : TRIP LINE FROM BUS 70072 [CABINCRK 230.00] TO BUS 70156 [DILLON 230.00] |
| | : TRIP LINE FROM BUS 70071 [CABINCRK 115.00] TO BUS 70197 [GEORGETN 115.00] |
| CABIN_LOOK | : TRIP LINE FROM BUS 70072 [CABINCRK 230.00] TO BUS 70266 [LOOKOUT 230.00] CKT 2 |
| | : TRIP LINE FROM BUS 70071 [CABINCRK 115.00] TO BUS 70197 [GEORGETN 115.00] |
| | : OPEN LINE FROM BUS 70069 [CABCRKA 13.800] TO BUS 70072 [CABINCRK 230.00] CKT UA |

| | | | | | |
|------------|--------------------------------------|---------|------------------------|---------|--------|
| | OPEN LINE FROM BUS 70070 [CABCRKB | 13.800] | TO BUS 70072 [CABINCRK | 230.00] | CKT UB |
| BRU_DILLON | : TRIP LINE FROM BUS 70053 [BLUERIVR | 230.00] | TO BUS 70156 [DILLON | 230.00] | |
| CCI_PON | : TRIP LINE FROM BUS 79021 [CURECANT | 230.00] | TO BUS 79054 [PONCHABR | 230.00] | |
| PON_CCW | : TRIP LINE FROM BUS 79054 [PONCHABR | 230.00] | TO BUS 73551 [W CANON | 230.00] | |
| WOL_HDN | : OPEN LINE FROM BUS 79091 [FOIDELCK | 230.00] | TO BUS 79039 [HAYDEN | 230.00] | CKT 1 |
| | OPEN LINE FROM BUS 79091 [FOIDELCK | 230.00] | TO BUS 79065 [STEAMBT | 230.00] | CKT 1 |
| | OPEN LINE FROM BUS 79091 [FOIDELCK | 230.00] | TO BUS 79065 [STEAMBT | 230.00] | CKT 2 |
| | OPEN LINE FROM BUS 79091 [FOIDELCK | 230.00] | TO BUS 79069 [WOLCOTT | 230.00] | CKT 1 |
| BMS_SKO | : TRIP LINE FROM BUS 79007 [BLUEMESA | 115.00] | TO BUS 79090 [SKITO | 115.00] | |
| GUN_PON | : TRIP LINE FROM BUS 79196 [N.GUNNSN | 115.00] | TO BUS 70327 [PONCHA | 115.00] | |

Appendix B

Single Line Diagrams

Worst Contingency



Appendix C
Overload Spreadsheet
TOT 5 = 1675 MW

TOT 5 = 1675 MW

| MONITORED BRANCH | CONTINGENCY RATING (MVA) | FLOW (MW) | (MVA) % |
|--|--|-----------|---------|
| 70072 CABINCRK 230.00 70156*DILLON 230.00 1 CRG_AULT 490.0 541.4 116.8 | 571 MVA EMERGENCY RATING (116.5%) | | |
| 70072*CABINCRK 230.00 70266 LOOKOUT 230.00 2 CRG_AULT 435.0 425.2 101.1 | 479 MVA EMERGENCY RATING (110%) | | |
| 70232*HOPKINS 230.00 70274 MALTA 230.00 1 CRG_AULT 319.0 309.5 100.1 | 331 MVA EMERGENCY RATING (103.7%) | | |
| 70232*HOPKINS 230.00 70358 RIFLE PS 230.00 1 CRG_AULT 319.0 315.3 102.0 | 331 MVA EMERGENCY RATING (103.7%) | | |
| 73074 GREENMTN 69.000 73316*GREENMT1 6.9000 1 CRG_AULT 12.0 12.1 100.7 | | | |
| 73074 GREENMTN 69.000 73317*GREENMT2 6.9000 1 CRG_AULT 12.0 12.8 106.5 | | | |
| 79013 CRAIG 230.00 79015*CRAIG 1 22.000 1 CRG_AULT 440.0 449.6 102.2 | | | |
| 79013 CRAIG 230.00 79016*CRAIG 2 22.000 1 CRG_AULT 440.0 449.6 102.2 | | | |
| 79039 HAYDEN 230.00 79041*HAYDEN2 22.000 1 CRG_AULT 306.9 310.5 101.2 | | | |
| 73072 GOREPASS 138.00 79038*HAYDEN 138.00 1 HDN_GOT 135.0 176.0 126.2 | | | |
| 70232*HOPKINS 230.00 70274 MALTA 230.00 1 HDN_GOTRAS 319.0 324.0 103.7 | 331 MVA EMERGENCY RATING (103.7%) | | |
| 70232*HOPKINS 230.00 70358 RIFLE PS 230.00 1 HDN_GOTRAS 319.0 328.7 105.2 | 331 MVA EMERGENCY RATING (103.7%) | | |
| 70232*HOPKINS 230.00 70274 MALTA 230.00 1 BRU_GOT 319.0 321.6 102.9 | 331 MVA EMERGENCY RATING (103.7%) | | |
| 70232*HOPKINS 230.00 70358 RIFLE PS 230.00 1 BRU_GOT 319.0 326.4 104.5 | 331 MVA EMERGENCY RATING (103.7%) | | |
| 79039 HAYDEN 230.00 79041*HAYDEN2 22.000 1 RFL_MAL 306.9 310.5 101.2 | | | |
| 70072 CABINCRK 230.00 70156*DILLON 230.00 1 MAL_TARR 490.0 537.5 111.0 | 571 MVA EMERGENCY RATING (116.5%) | | |
| 70072*CABINCRK 230.00 70237 IDAHOSPG 230.00 1 CABIN_LOOK 435.0 443.4 108.6 | 479 MVA EMERGENCY RATING (110%) | | |
| 70237*IDAHOSPG 230.00 70266 LOOKOUT 230.00 1 CABIN_LOOK 435.0 432.0 104.7 | 479 MVA EMERGENCY RATING (110%) | | |
| 79039 HAYDEN 230.00 79041*HAYDEN2 22.000 1 CABIN_LOOK 306.9 310.5 101.2 | | | |
| 70071 CABINCRK 115.00 70072*CABINCRK 230.00 T1 BRU_DILLON 60.5 67.4 111.5 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS | | |
| 70071 CABINCRK 115.00 70072*CABINCRK 230.00 T2 BRU_DILLON 60.0 68.4 114.0 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS | | |
| 70071 CABINCRK 115.00 70197*GEORGETN 115.00 1 BRU_DILLON 135.0 128.5 100.5 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS | | |
| 70197 GEORGETN 115.00 70218*HENDERPS 115.00 1 BRU_DILLON 135.0 130.4 102.9 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS | | |
| 70218 HENDERPS 115.00 70328*PORTAL 115.00 1 BRU_DILLON 134.8 141.8 111.1 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS | | |
| 70287*MILL 115.00 70328 PORTAL 115.00 1 BRU_DILLON 134.8 145.5 113.1 | OPERATING PRACTICE VERIFIED TO ELIMINATE OVERLOADS | | |
| 79039 HAYDEN 230.00 79041*HAYDEN2 22.000 1 CCI_PON 306.9 309.9 101.0 | | | |
| 79196 N.GUNNSN 115.00 79197*GUNNISTP 115.00 1 CCI_PON 109.0 107.4 103.1 | NO EMERGENCY RATING | | |
| 79039 HAYDEN 230.00 79041*HAYDEN2 22.000 1 WOL_HDN 306.9 307.1 100.1 | | | |

MONITORED VOLTAGE REPORT:

| SYSTEM | CONTINGENCY | <----- B U S -----> | V-CONT | V-INIT | V-MAX | V-MIN |
|--------|------------------|---------------------|--------|---------|---------|---------|
| 'TOT5 | RANGE CABIN_LOOK | 70195 GEORG1&2 | 2.3000 | 0.88982 | 0.96808 | 1.10000 |
| 'TOT5 | RANGE CABIN_LOOK | 70196 GEORGETN | 25.000 | 0.88180 | 0.96070 | 1.10000 |
| 'TOT5 | RANGE CABIN_LOOK | 70197 GEORGETN | 115.00 | 0.89965 | 0.97701 | 1.10000 |

CONTINGENCY LEGEND:

| LABEL | EVENTS |
|--------------|--|
| BEARS_BOZ | : TRIP LINE FROM BUS 79005 [BEARS 345.00] TO BUS 65193 [BONANZA 345.00] |
| CRG_HDN | : TRIP LINE FROM BUS 79013 [CRAIG 230.00] TO BUS 79039 [HAYDEN 230.00] |
| CRG_AULT | : TRIP LINE FROM BUS 79014 [CRAIG 345.00] TO BUS 73012 [AULT 345.00] |
| GOT_XFMR | : TRIP LINE FROM BUS 79033 [GOREPASS 230.00] TO BUS 73072 [GOREPASS 138.00] |
| HDN_GOT | : TRIP LINE FROM BUS 79039 [HAYDEN 230.00] TO BUS 79033 [GOREPASS 230.00] |
| HDN_GOTRAS | : TRIP LINE FROM BUS 79039 [HAYDEN 230.00] TO BUS 79033 [GOREPASS 230.00] |
| | : TRIP LINE FROM BUS 79038 [HAYDEN 138.00] TO BUS 73072 [GOREPASS 138.00] |
| WGP_XFMR | : TRIP LINE FROM BUS 73220 [WINDYGAP 138.00] TO BUS 73219 [WINDYGAP 69.000] |
| BRU_GOT | : TRIP LINE FROM BUS 70053 [BLUERIVR 230.00] TO BUS 79033 [GOREPASS 230.00] |
| | : TRIP LINE FROM BUS 70287 [MILL 115.00] TO BUS 73296 [METTLER 115.00] |
| MAL_BASA | : TRIP LINE FROM BUS 70274 [MALTA 230.00] TO BUS 79004 [BASALT 230.00] |
| RFL_MAL | : OPEN LINE FROM BUS 70232 [HOPKINS 230.00] TO BUS 70274 [MALTA 230.00] CKT 1 |
| | : OPEN LINE FROM BUS 70232 [HOPKINS 230.00] TO BUS 70358 [RIFLE PS 230.00] CKT 1 |
| | : OPEN LINE FROM BUS 70232 [HOPKINS 230.00] TO BUS 70231 [HOPKINS 115.00] CKT T3 |
| MAL_TARR | : TRIP LINE FROM BUS 70274 [MALTA 230.00] TO BUS 70427 [TARRYALL 230.00] |
| TARR_DAN | : TRIP LINE FROM BUS 70427 [TARRYALL 230.00] TO BUS 70139 [DANIELPK 230.00] |
| CABIN_DILLON | : TRIP LINE FROM BUS 70072 [CABINCRK 230.00] TO BUS 70156 [DILLON 230.00] |

| | | | | | | | |
|------------|----------------------------|-----------|---------|--------------|-----------|---------|--------|
| | TRIP LINE FROM BUS 70071 | [CABINCRK | 115.00] | TO BUS 70197 | [GEORGETN | 115.00] | |
| CABIN_LOOK | : TRIP LINE FROM BUS 70072 | [CABINCRK | 230.00] | TO BUS 70266 | [LOOKOUT | 230.00] | CKT 2 |
| | TRIP LINE FROM BUS 70071 | [CABINCRK | 115.00] | TO BUS 70197 | [GEORGETN | 115.00] | |
| | OPEN LINE FROM BUS 70069 | [CABCRKA | 13.800] | TO BUS 70072 | [CABINCRK | 230.00] | CKT UA |
| | OPEN LINE FROM BUS 70070 | [CABCRKB | 13.800] | TO BUS 70072 | [CABINCRK | 230.00] | CKT UB |
| BRU_DILLON | : TRIP LINE FROM BUS 70053 | [BLUERIVR | 230.00] | TO BUS 70156 | [DILLON | 230.00] | |
| CCI_PON | : TRIP LINE FROM BUS 79021 | [CURECANT | 230.00] | TO BUS 79054 | [PONCHABR | 230.00] | |
| PON_CCW | : TRIP LINE FROM BUS 79054 | [PONCHABR | 230.00] | TO BUS 73551 | [W CANON | 230.00] | |
| WOL_HDN | : OPEN LINE FROM BUS 79091 | [FOIDELCK | 230.00] | TO BUS 79039 | [HAYDEN | 230.00] | CKT 1 |
| | OPEN LINE FROM BUS 79091 | [FOIDELCK | 230.00] | TO BUS 79065 | [STEAMBT | 230.00] | CKT 1 |
| | OPEN LINE FROM BUS 79091 | [FOIDELCK | 230.00] | TO BUS 79065 | [STEAMBT | 230.00] | CKT 2 |
| | OPEN LINE FROM BUS 79091 | [FOIDELCK | 230.00] | TO BUS 79069 | [WOLCOTT | 230.00] | CKT 1 |
| BMS_SKO | : TRIP LINE FROM BUS 79007 | [BLUEMESA | 115.00] | TO BUS 79090 | [SKITO | 115.00] | |
| GUN_PON | : TRIP LINE FROM BUS 79196 | [N.GUNNSN | 115.00] | TO BUS 70327 | [PONCHA | 115.00] | |