

CUENCA HUALLAGA (RIO MAYO) PROYECTO MAYO 60 - 1 FECHA 18.04.78

| RESULTADOS | VERTEDERO | | | CANAL | | | DESAREN Librey Enterr | | | DESAREN Caverna | | | | | | | | | | |
|------------|------------------------|------------|------------------|---------------------|------------|------------|-----------------------|------------------|-----------------|-----------------|-------------|------------------|---------------|------------|-------------|---------------|----------------|---------------|------------|-------|
| | ESTABILIDAD EXCAVACION | MORFOLOGIA | AGUA SUBTERRANEA | RESULTADO VERTEDERO | MORFOLOGIA | EXCAVACION | ESTABILIDAD | AGUA SUBTERRANEA | CANAL RESULTADO | EXCAVACION | ESTABILIDAD | AGUA SUBTERRANEA | SEDIMENTACION | RESULTADOS | ESTABILIDAD | PERMEABILIDAD | DUREZA DE ROCA | SEDIMENTACION | RESULTADOS | |
| | 30 % | 30 % | 20 % | 20 % | 100 % | 20 % | 30 % | 30 % | 20 % | 100 % | 30 % | 20 % | 20 % | 30 % | 100 % | 40 % | 20 % | 10 % | 30 % | 100 % |
| | 3.0 | 2.3 | 1.0 | 1.0 | 2.0 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |

DESCRIPCION

VERTEDERO EN CANAL: En rocas de la formación chonta (Kms) areniscas de grano grueso de color claro con menor proporción de lutitas, alteración profunda.

MATERIALES DE CONSTRUCCION EN CANTERAS

CUENCA: HUALLAGA (RIO MAYO)

PROYECTO: MAYO 60-1

FECHA DEL TRABAJO: 18-04-78

COORDENADAS LAT. 6° 18' LONG 76° 40'

| | | DIFERENTES YACIMIENTOS | | | | | | | | | | | | | | | | | | EVALUACION | | | |
|---------------------|------------------------|----------------------------------|----------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|------------------|-----|------|-----|
| TIPO DE ESTRUCTURAS | TIPO DE LOS MATERIALES | I | | | II | | | III | | | IV | | | V | | | VI | | | PROMEDIO DE I-VI | | | |
| | | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | RES. PROM. | % | RES. | |
| PRESA DE TIERRA | PRESA ENROCADA | 1 Material Fluvial | | | | | | | | | | | | | | | | | | | | | |
| | | 2 Roca para Triturar | | | | | | | | | | | | | | | | | | | | | |
| | | 3 Roca P. Enrocamiento y Rip Rap | | | | | | | | | | | | | | | | | | | | | |
| | | 4 Material para Filtros | 2.0 | 1.0 | 1.6 | | | | | | | | | | | | | | | | 1.6 | 10 | 0.2 |
| | | 5 Material Semi-impermeable | 2.0 | 2.0 | 2.0 | 2.0 | 3.0 | 2.2 | | | | | | | | | | | | | 2.1 | 30 | 0.7 |
| | | 6 Tierra para el Cuerpo | 2.0 | 2.0 | 2.0 | | | | | | | | | | | | | | | | 2.0 | 60 | 1.2 |

NOTA:

RESULTADO FINAL:

PRESA DE CONCRETO :

PRESA DE ENROCAMIENTO :

PRESA DE TIERRA : 2.1

CUENCA HUALLAGA (RIO MAYO) PROYECTO MAYO 65 - 5 FECHA 16.04.78

| RESULTADOS | PRESA | | | EMBALSE | | | | OBRAS SUBTERRANEAS | | | | TUBERIA PRESION | | | | | | | | |
|-----------------|------------|-------------|---------------|------------|-----------|-------------|---------------|--------------------|-------------|-------------|---------------|------------------------|----------------|-----------|---------|-------------|------------|------------------------|------|-----|
| | EXCAVACION | ESTABILIDAD | PERMEABILIDAD | MORFOLOGIA | RESULTADO | ESTABILIDAD | PERMEABILIDAD | SEDIMENTACION | ESTABILIDAD | RESISTENCIA | PERMEABILIDAD | PELIGRO DE INCHAMIENTO | DUREZA DE ROCA | RESULTADO | EROSION | ESTABILIDAD | MORFOLOGIA | RESULTADOS TUB PRESION | | |
| | 50% | 20% | 20% | 10% | 100% | 10% | 20% | 50% | 20% | 100% | 20% | 20% | 30% | 20% | 10% | 100% | 20% | 60% | 100% | |
| | 1.5 | 2.5 | 2.0 | | 2.0 | 1.9 | 1.5 | 1.0 | 1.0 | 3.5 | 1.6 | 2.0 | 2.0 | 1.5 | 2.0 | 2.0 | 1.8 | 2.5 | 2.0 | 2.0 |
| Túnel de Desvío | | | | | | | | | | | | 2.0 | 2.0 | 1.5 | 2.0 | 2.0 | 1.8 | | | |

DESCRIPCION: PRESA DE TIERRA: Rocas del grupo Chiriaco, areniscas arcillosas, margas y lutitas, alteración profunda, buzam hacia el apo yo derecho con ángulo de 30°

ESTRIBO DERECHO: Con inclinación de 40° irregular, terrazas y conos de talud.

ESTRIBO IZQUIERDO: Con inclinación de 25° a 30°

FONDO DEL VALLE: Con ancho aproximado de 50 m. Regular cantidad de material aluvional gran cantidad de material suelto.

EMBALSE: Rocas del grupo Chiriaco, Contamana y Chonta, con areniscas lutitas y margas en mayor proporción, con rumbo general paralelo al río, semiestables, buzamiento de poco ángulo hacia la margen izquierda. Alteración profunda. Escombros de talud consolidados por vegetación, algunas terrazas de material fino.

TUNEL DE ADUCCION: Un único tramo en rocas del grupo Chiriaco (TS-c) ya descritas, alteración profunda, ligeramente plegado y fallado semiestable.

TUNEL DE DESVIO: En la margen izquierda, semiestable, rocas poco resistentes, permeables e inestables, alteración profunda.

TUBERIA DE PRESION: Flanco derecho, en la base areniscas arcillosas, lutitas y arenas de color rojo, del grupo Chiriaco, encima arenas grises a brunas, con lutitas y arcillas de la formación Iparuro (TS) alteración profunda, semiestable.

CASA DE MAQUINAS AL AIRE LIBRE: Flanco derecho, basamento en arenas y arcillas de la formación Iparuro (TS), abundante material aluvional y coluvial. Espacio adecuado.

CUENCA HUALLAGA (RIO MAYO) PROYECTO MAYO 65 - 5 FECHA 16.04.78

| RESULTADOS | VERTEDERO | | CANAL | | DESAREN Librey Enterr | | | | DESAREN Caverna | | | | | | | | | | | | |
|------------|------------|-------------|------------|-----------|-----------------------|-------------|-------|------------------|-----------------|-------------|---------------|------------|-------------|---------------|----------------|---------------|------------|-----|-----|------|--|
| | EXCAVACION | ESTABILIDAD | MORFOLOGIA | RESULTADO | EXCAVACION | ESTABILIDAD | CANAL | AGUA SUBTERRANEA | EXCAVACION | ESTABILIDAD | SEDIMENTACION | RESULTADOS | ESTABILIDAD | PERMEABILIDAD | DUREZA DE ROCA | SEDIMENTACION | RESULTADOS | | | | |
| | 30% | 30% | 20% | 20% | 100% | 20% | 30% | 30% | 20% | 100% | 30% | 20% | 20% | 30% | 100% | 40% | 20% | 10% | 30% | 100% | |
| | 2.5 | 2.0 | 1.5 | 2.0 | 2.1 | | | | | | | | | | | | | | | | |

DESCRIPCION

VERTEDERO EN CANAL: Rocas del grupo chiriaco (Ts - c) con areniscas, arcillas, margas y lutitas, alteración profunda, abundante cobertura aluvial, escombros de talud consolidados.

MATERIALES DE CONSTRUCCION EN CANTERAS

CUENCA: HUALLAGA (RIO MAYO)

PROYECTO MAYO 65 - 5

FECHA DEL TRABAJO: 18.04.78

COORDENADAS LAT. 6° 18' LONG 76° 40'

| TIPO DE ESTRUCTURAS | | TIPO DE LOS MATERIALES | | DIFERENTES YACIMIENTOS | | | | | | | | | | | | | | | | | | EVALUACION | | | | |
|---------------------|------------------|------------------------|----------------------------------|------------------------|----------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|------------------|---|------|----|-----|
| | | | | I | | | II | | | III | | | IV | | | V | | | VI | | | PROMEDIO DE I-VI | | | | |
| | | | | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | RES. PROM. | % | RES. | | |
| PRESA DE TIERRA | PRESA ENROCADADA | PRESA DE CONCRETO | 1 Material Fluvial | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 2 Roca para Triturar | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 3 Roca P. Enrocamiento y Rip Rap | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 4 Material para Filtros | 1.0 | 4.0 | - | 2.0 | 2.0 | 2.0 | | | | | | | | | | | | | | | 2.0 | 10 | 0.2 |
| | | | 5 Material Semi-impermeable | 2.0 | 1.0 | 1.6 | | | | | | | | | | | | | | | | | | 1.6 | 30 | 0.5 |
| | | | 6 Tierra para el Cuerpo | 2.0 | 1.0 | 1.6 | | | | | | | | | | | | | | | | | | 1.6 | 60 | 1.0 |

NOTA:

RESULTADO FINAL:

PRESA DE CONCRETO:

PRESA DE ENROCAMIENTO:

PRESA DE TIERRA : 1.7

CUENCA HUALLAGA (RIO MAYO)

PROYECTO MAYO 70 - 1

FECHA 16.04.78

| RESULTADOS | PRESA | | | EMBALSE | | | OBRAS SUBTERRANEAS | | | TUBERIA PRESION | | | | | | | | | | | |
|------------|-------|-----|-----|---------|------|-----|--------------------|-----|-----|-----------------|-----|-----|-----|-----|-----|------|-----|-----|-----|------|-----|
| | 50% | 20% | 20% | 10% | 100% | 10% | 20% | 50% | 20% | 100% | 20% | 20% | 30% | 20% | 10% | 100% | 20% | 20% | 60% | 100% | |
| | 1.5 | 2.5 | 2.0 | | 1.5 | 1.8 | 3.0 | 1.5 | 2.0 | 3.5 | 2.3 | 2.0 | 2.0 | 1.5 | 2.0 | 2.0 | 1.8 | 3.0 | 1.0 | 2.0 | 2.0 |
| | | | | | | | | | | | | 3.0 | 2.5 | 2.0 | 2.0 | 2.0 | 2.3 | | | | |

DESCRIPCION: PRESA DE TIERRA: En rocas del grupo Iparuro (Ts) areniscas de regular compactación y lutitas, no hay afloramientos.

ESTRIBO IZQUIERDO: Con 50° de inclinación cubierto con material coluvial.

ESTRIBO DERECHO: Con 40° de inclinación cubierto con material coluvial.

FONDO DEL VALLE: Con 30 m. de ancho, muy poco material fluvial.

EMBALSE: Rocas sedimentarias clásticas del Terciario (TS-c, TS) de regular compactación con alteración profunda, rumbo de la estratificación paralelo al valle y buzamiento poco inclinado, carcavas hondas, terrazas de material fino en la parte baja y en general con poco material fluvial que aumenta hacia la parte superior.

TUNEL DE ADUCCION: Un tramo muy corto en rocas ya descritas pertenecientes al grupo Iparuro (TS), ligeramente plegado y fallado, alteración profunda.

TUNEL DE DESVIO: En rocas terciarias ya descritas (TS), flanco izquierdo, con inestabilidad y baja resistencia.

TUBERIA DE PRESION: Flanco derecho, con areniscas regularmente compactadas, alteración intensa, cobertura de material coluvial.

CASA DE MAQUINAS AL AIRE LIBRE: Flanco derecho, basamento en arenas y arcillas de la formación Iparuro (TS), abundante material aluvial y coluvial.

CUENCA HUALLAGA (RIO MAYO) PROYECTO MAYO 70 - 1 FECHA 16.04.78

| RESULTADOS | VERTEDERO | | | CANAL | | | DESAREN. Librey Enterr. | | | DESAREN. Caverna | | | | | | | | | | | |
|------------|------------|---------------------|------------|------------------|-----------|------------|-------------------------|-------------|------------------|------------------|------------|-------------|------------------|---------------|-----------|-------------|---------------|----------------|---------------|------------|------|
| | EXCAVACION | ESTABILIDAD FLANCOS | MORFOLOGIA | AGUA SUBTERRANEA | RESULTADO | MORFOLOGIA | EXCAVACION | ESTABILIDAD | AGUA SUBTERRANEA | CANAL RESULTADO | EXCAVACION | ESTABILIDAD | AGUA SUBTERRANEA | SEDIMENTACION | RESULTADO | ESTABILIDAD | PERMEABILIDAD | DUREZA DE ROCA | SEDIMENTACION | RESULTADOS | |
| | 30% | 30% | 20% | 20% | 100% | 20% | 30% | 20% | 100% | 30% | 20% | 20% | 30% | 100% | 30% | 100% | 40% | 20% | 10% | 30% | 100% |
| | 2.0 | 2.0 | 1.0 | 1.5 | 1.7 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |

DESCRIPCION

VERTEDERO EN CANAL: Rocas de la formación Iparuro (TS) areniscas grises intercaladas con lutitas, alteración profunda.

MATERIALES DE CONSTRUCCION EN CANTERAS

CUENCA: HUALLAGA (RIO MAYO) PROYECTO MAYO 70 - 1
 FECHA DEL TRABAJO 16.04.78 COORDENADAS LAT. 6° 36' LONG 76° 23'

| TIPO DE ESTRUCTURAS | TIPO DE LOS MATERIALES | DIFERENTES YACIMIENTOS | | | | | | | | | | | | | | | | | | EVALUACION | | | | | |
|---------------------|------------------------|------------------------|----------------------------------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|-----------|----------|------|------------------|---|------|-----|----|-----|
| | | I | | | II | | | III | | | IV | | | V | | | VI | | | PROMEDIO DE I-VI | | | | | |
| | | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | Dist. 60% | Vol. 40% | RES. | RES. PROM. | % | RES. | | | |
| PRESA DE TIERRA | PRESA ENROCADA | PRESA DE CONCRETO | 1 Material Fluvial | | | | | | | | | | | | | | | | | | | | | | |
| | | | 2 Roca para Triturar | | | | | | | | | | | | | | | | | | | | | | |
| | | | 3 Roca P. Enrocamiento y Rip Rap | | | | | | | | | | | | | | | | | | | | | | |
| | | | 4 Material para Filtros | 1.0 | 4.0 | - | 2.0 | 2.0 | 2.0 | | | | | | | | | | | | | | 2.0 | 10 | 0.2 |
| | | | 5 Material Semi-impermeable | 2.0 | 1.0 | 1.6 | | | | | | | | | | | | | | | | | 1.6 | 30 | 0.5 |
| | | | 6 Tierra para el Cuerpo | 2.0 | 1.0 | 1.6 | | | | | | | | | | | | | | | | | 1.6 | 60 | 1.0 |

NOTA:

RESULTADO FINAL:

PRESA DE CONCRETO:

PRESA DE ENROCAMIENTO:

PRESA DE TIERRA : 1.7

| KAL | IK | GM | ICF | UT | HI | PI | EP | ES | FP | FEC | PG | INVERSION | FEC1 | CESP | KESP | DUK |
|------------------|-----|-------|------|-------|-------|-------|-------|-------|-------|----------|-------|-----------|-------|----------|---------|--------|
| (-) | (-) | (M/S) | (-) | (M/S) | (M) | (Mw) | (GWh) | (GWh) | (-) | (\$/MWh) | (Mw) | (10 \$) | (-) | (\$/MWh) | (\$/KW) | (ANOS) |
| PROYECTO HUALL50 | | | | | | | | | | | | | | | | |
| 1 | 1 | 23.4 | 0.25 | 5.8 | 575.6 | 26.1 | 246.0 | 0.0 | 1.000 | 75.165 | 26.1 | 157.6 | 1.907 | 75.16 | 561.2 | 5 |
| 1 | 2 | 23.4 | 0.50 | 11.7 | 542.1 | 52.9 | 431.8 | 20.2 | 0.976 | 46.407 | 52.9 | 174.8 | 1.144 | 45.37 | 330.5 | 5 |
| 1 | 3 | 23.4 | 0.75 | 17.5 | 542.1 | 79.3 | 431.8 | 125.2 | 0.801 | 47.404 | 65.3 | 199.8 | 1.005 | 42.08 | 251.8 | 5 |
| 1 | 4 | 23.4 | 1.00 | 23.4 | 542.1 | 105.8 | 431.8 | 196.0 | 0.678 | 48.751 | 65.3 | 220.2 | 0.933 | 41.14 | 208.1 | 5 |
| 1 | 5 | 23.4 | 1.25 | 29.2 | 542.1 | 132.2 | 431.8 | 258.1 | 0.596 | 51.466 | 65.3 | 246.1 | 0.907 | 41.84 | 186.1 | 6 |
| 1 | 6 | 23.4 | 1.50 | 35.1 | 542.1 | 158.7 | 431.8 | 308.7 | 0.533 | 52.730 | 65.3 | 263.5 | 0.866 | 41.74 | 166.0 | 6 |
| 1 | 7 | 23.4 | 1.75 | 40.9 | 542.1 | 185.1 | 431.8 | 346.2 | 0.480 | 54.566 | 65.3 | 281.4 | 0.793 | 42.42 | 152.0 | 6 |
| 1 | 8 | 23.4 | 2.00 | 46.8 | 542.1 | 211.6 | 431.8 | 378.5 | 0.437 | 56.166 | 65.3 | 297.4 | 0.780 | 43.05 | 140.5 | 6 |
| 1 | 9 | 23.4 | 2.25 | 52.6 | 543.8 | 238.8 | 433.1 | 406.5 | 0.401 | 57.465 | 67.4 | 311.8 | 0.765 | 43.55 | 130.6 | 6 |
| 1 | 10 | 23.4 | 2.50 | 58.5 | 545.6 | 266.2 | 434.6 | 427.0 | 0.370 | 61.590 | 67.7 | 339.2 | 0.786 | 46.16 | 127.4 | 7 |
| 1 | 11 | 23.4 | 2.75 | 64.3 | 547.7 | 293.7 | 435.9 | 428.4 | 0.336 | 64.268 | 68.0 | 356.2 | 0.792 | 48.34 | 121.3 | 7 |
| 1 | 12 | 23.4 | 3.00 | 70.2 | 546.7 | 321.2 | 437.0 | 429.6 | 0.308 | 66.884 | 68.3 | 371.7 | 0.794 | 50.31 | 115.7 | 7 |
| 1 | 13 | 23.4 | 3.25 | 76.0 | 549.9 | 348.8 | 438.0 | 430.7 | 0.284 | 69.877 | 265.4 | 389.2 | 0.814 | 52.56 | 111.6 | 7 |
| 1 | 14 | 23.4 | 3.50 | 81.9 | 551.1 | 376.4 | 439.0 | 431.7 | 0.264 | 72.043 | 266.0 | 402.2 | 0.826 | 54.18 | 108.8 | 7 |
| 1 | 15 | 23.4 | 3.75 | 87.7 | 552.2 | 404.1 | 439.8 | 432.7 | 0.247 | 74.574 | 266.6 | 417.2 | 0.841 | 56.09 | 103.2 | 7 |

PROYECTO HUALL90

| | | | | | | | | | | | | | | | | |
|---|----|-------|------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|-------|--------|---|
| 9 | 1 | 149.5 | 0.25 | 37.4 | 626.5 | 195.2 | 1709.7 | 0.0 | 1.000 | 21.164 | 195.2 | 508.5 | 0.537 | 21.16 | 1580.0 | 6 |
| 9 | 2 | 149.5 | 0.50 | 74.7 | 655.5 | 390.1 | 3469.1 | 0.0 | 1.000 | 13.279 | 396.0 | 392.7 | 0.337 | 13.28 | 991.1 | 6 |
| 9 | 3 | 149.5 | 0.75 | 112.1 | 659.9 | 580.4 | 3969.4 | 996.5 | 0.948 | 12.262 | 561.7 | 467.0 | 0.276 | 11.03 | 781.6 | 6 |
| 9 | 4 | 149.5 | 1.00 | 149.5 | 642.6 | 801.4 | 3967.5 | 1609.4 | 0.806 | 13.352 | 584.6 | 548.9 | 0.272 | 11.38 | 685.7 | 7 |
| 9 | 5 | 149.5 | 1.25 | 186.9 | 644.6 | 1045.0 | 4000.5 | 2091.4 | 0.692 | 14.445 | 586.7 | 621.4 | 0.273 | 11.97 | 618.7 | 7 |
| 9 | 6 | 149.5 | 1.50 | 224.2 | 646.5 | 1209.0 | 4010.2 | 2536.7 | 0.599 | 15.606 | 588.5 | 689.0 | 0.277 | 12.73 | 570.7 | 7 |
| 9 | 7 | 149.5 | 1.75 | 261.6 | 647.7 | 1413.5 | 4018.2 | 2994.0 | 0.526 | 16.992 | 589.6 | 762.7 | 0.284 | 13.74 | 540.7 | 7 |
| 9 | 8 | 149.5 | 2.00 | 299.0 | 648.8 | 1617.9 | 4024.9 | 3414.2 | 0.469 | 18.258 | 587.6 | 829.0 | 0.292 | 14.65 | 512.7 | 7 |
| 9 | 9 | 149.5 | 2.25 | 336.4 | 649.7 | 1822.7 | 4030.6 | 3899.7 | 0.422 | 19.508 | 788.8 | 894.8 | 0.279 | 15.60 | 491.7 | 7 |
| 9 | 10 | 149.5 | 2.50 | 373.7 | 650.5 | 2027.7 | 4035.4 | 4375.7 | 0.383 | 20.951 | 789.8 | 968.5 | 0.288 | 16.68 | 476.7 | 7 |
| 9 | 11 | 149.5 | 2.75 | 411.1 | 651.2 | 2232.9 | 4039.8 | 4776.7 | 0.349 | 22.349 | 790.7 | 1034.2 | 0.296 | 17.80 | 463.7 | 7 |
| 9 | 12 | 149.5 | 3.00 | 448.5 | 651.6 | 2438.2 | 4043.6 | 4779.4 | 0.320 | 23.745 | 791.6 | 1117.3 | 0.318 | 20.22 | 445.7 | 7 |
| 9 | 13 | 149.5 | 3.25 | 485.9 | 652.4 | 2643.6 | 4047.0 | 4781.8 | 0.295 | 25.396 | 2376.9 | 1177.3 | 0.316 | 20.22 | 445.7 | 7 |
| 9 | 14 | 149.5 | 3.50 | 523.2 | 652.9 | 2849.1 | 4050.1 | 4784.0 | 0.274 | 26.754 | 2376.9 | 1241.3 | 0.327 | 21.50 | 436.7 | 7 |
| 9 | 15 | 149.5 | 3.75 | 560.6 | 653.5 | 3054.8 | 4052.9 | 4786.0 | 0.256 | 28.166 | 2380.8 | 1307.7 | 0.334 | 22.43 | 426.7 | 7 |

PROYECTO HUALL20

| | | | | | | | | | | | | | | | | |
|---|----|-------|------|-------|-------|--------|-------|--------|-------|--------|-------|-------|-------|-------|--------|---|
| 2 | 1 | 206.5 | 0.25 | 52.1 | 196.6 | 65.6 | 401.7 | 345.3 | 0.997 | 28.653 | 49.3 | 140.3 | 0.559 | 22.03 | 1640.0 | 5 |
| 2 | 2 | 206.5 | 0.50 | 104.2 | 199.1 | 131.1 | 406.4 | 994.3 | 0.924 | 22.936 | 50.0 | 176.7 | 0.566 | 14.80 | 1021.1 | 5 |
| 2 | 3 | 206.5 | 0.75 | 156.4 | 200.5 | 201.2 | 408.7 | 1431.3 | 0.804 | 21.842 | 50.4 | 209.4 | 0.519 | 13.35 | 802.5 | 5 |
| 2 | 4 | 206.5 | 1.00 | 208.5 | 201.0 | 349.5 | 410.2 | 1755.8 | 0.708 | 22.011 | 50.6 | 241.7 | 0.501 | 13.09 | 692.5 | 5 |
| 2 | 5 | 206.5 | 1.25 | 260.6 | 201.5 | 436.0 | 411.5 | 2005.9 | 0.630 | 23.572 | 50.8 | 284.2 | 0.505 | 13.79 | 649.6 | 6 |
| 2 | 6 | 206.5 | 1.50 | 312.7 | 201.9 | 526.7 | 412.1 | 2192.7 | 0.565 | 24.306 | 51.0 | 312.6 | 0.299 | 14.08 | 593.6 | 6 |
| 2 | 7 | 206.5 | 1.75 | 364.9 | 202.3 | 613.5 | 412.6 | 2332.4 | 0.509 | 25.271 | 51.1 | 340.2 | 0.297 | 14.54 | 553.6 | 6 |
| 2 | 8 | 206.5 | 2.00 | 417.0 | 202.5 | 704.3 | 413.5 | 2422.5 | 0.460 | 26.204 | 66.2 | 390.6 | 0.298 | 16.16 | 505.7 | 7 |
| 2 | 9 | 206.5 | 2.25 | 469.1 | 202.6 | 793.5 | 413.8 | 2479.9 | 0.416 | 29.765 | 66.3 | 419.6 | 0.303 | 17.01 | 529.7 | 7 |
| 2 | 10 | 206.5 | 2.50 | 521.2 | 203.0 | 882.5 | 414.2 | 2523.5 | 0.380 | 31.117 | 66.4 | 444.6 | 0.305 | 17.75 | 504.7 | 7 |
| 2 | 11 | 206.5 | 2.75 | 573.4 | 203.1 | 971.4 | 414.6 | 2525.7 | 0.346 | 33.071 | 66.5 | 472.9 | 0.315 | 18.87 | 487.7 | 7 |
| 2 | 12 | 206.5 | 3.00 | 625.5 | 203.5 | 1060.5 | 414.9 | 2527.6 | 0.317 | 35.567 | 66.5 | 509.0 | 0.324 | 20.29 | 480.7 | 7 |
| 2 | 13 | 206.5 | 3.25 | 677.6 | 203.4 | 1149.6 | 415.2 | 2529.4 | 0.292 | 37.546 | 205.8 | 537.7 | 0.334 | 21.42 | 466.7 | 7 |
| 2 | 14 | 206.5 | 3.50 | 729.7 | 202.5 | 1230.9 | 412.8 | 2514.8 | 0.272 | 43.663 | 204.3 | 621.7 | 0.382 | 24.91 | 505.7 | 7 |
| 2 | 15 | 206.5 | 3.75 | 781.9 | 202.4 | 1319.8 | 413.1 | 2516.6 | 0.253 | 45.393 | 204.4 | 646.8 | 0.391 | 25.90 | 490.7 | 7 |

PROYECTO HUALL30

| | | | | | | | | | | | | | | | | |
|---|----|-------|------|-------|-------|-------|-------|--------|-------|--------|-------|-------|-------|-------|--------|---|
| 2 | 1 | 224.0 | 0.25 | 56.0 | 102.5 | 47.8 | 307.9 | 110.0 | 0.998 | 39.409 | 31.2 | 121.9 | 0.866 | 34.22 | 2551.1 | 5 |
| 2 | 2 | 224.0 | 0.50 | 112.0 | 102.5 | 94.8 | 307.9 | 466.7 | 0.925 | 30.596 | 31.2 | 140.2 | 0.528 | 21.24 | 1467.5 | 5 |
| 2 | 3 | 224.0 | 0.75 | 168.0 | 102.5 | 143.4 | 307.9 | 702.8 | 0.805 | 28.282 | 31.2 | 159.0 | 0.441 | 18.45 | 1109.5 | 5 |
| 2 | 4 | 224.0 | 1.00 | 224.0 | 102.8 | 191.2 | 307.9 | 877.1 | 0.708 | 27.263 | 31.2 | 175.5 | 0.395 | 17.17 | 907.5 | 5 |
| 2 | 5 | 224.0 | 1.25 | 280.0 | 102.5 | 239.0 | 307.9 | 1010.9 | 0.630 | 27.277 | 31.2 | 189.1 | 0.372 | 16.82 | 791.5 | 5 |
| 2 | 6 | 224.0 | 1.50 | 336.0 | 102.5 | 286.8 | 307.9 | 1110.4 | 0.565 | 28.335 | 31.2 | 208.5 | 0.367 | 17.24 | 727.5 | 5 |
| 2 | 7 | 224.0 | 1.75 | 392.0 | 102.5 | 334.6 | 307.9 | 1184.4 | 0.509 | 30.155 | 31.2 | 231.4 | 0.372 | 18.19 | 692.5 | 6 |
| 2 | 8 | 224.0 | 2.00 | 448.0 | 102.5 | 382.4 | 307.9 | 1251.6 | 0.460 | 31.298 | 41.6 | 246.5 | 0.346 | 18.78 | 645.6 | 6 |
| 2 | 9 | 224.0 | 2.25 | 504.0 | 102.5 | 430.1 | 307.9 | 1261.2 | 0.416 | 31.669 | 41.6 | 253.4 | 0.337 | 18.94 | 589.6 | 6 |
| 2 | 10 | 224.0 | 2.50 | 560.0 | 102.5 | 477.9 | 307.9 | 1263.5 | 0.380 | 36.040 | 41.6 | 291.8 | 0.370 | 21.51 | 610.7 | 7 |
| 2 | 11 | 224.0 | 2.75 | 616.0 | 102.5 | 525.7 | 307.9 | 1263.5 | 0.346 | 36.610 | 41.6 | 296.4 | 0.362 | 21.85 | 564.7 | 7 |
| 2 | 12 | 224.0 | 3.00 | 672.0 | 102.5 | 573.5 | 307.9 | 1263.5 | 0.317 | 38.453 | 41.6 | 311.3 | 0.367 | 22.95 | 543.7 | 7 |
| 2 | 13 | 224.0 | 3.25 | 728.0 | 102.5 | 621.3 | 307.9 | 1283.5 | 0.292 | 40.368 | 124.8 | 326.8 | 0.375 | 24.09 | 526.7 | 7 |
| 2 | 14 | 224.0 | 3.50 | 784.0 | 102.5 | 669.1 | 307.9 | 1283.5 | 0.272 | 41.936 | 124.8 | 339.5 | 0.384 | 25.02 | 507.7 | 7 |
| 2 | 15 | 224.0 | 3.75 | 840.0 | 102.5 | 716.9 | 307.9 | 1283.6 | 0.253 | 44.702 | 124.8 | 361.9 | 0.403 | 26.68 | 505.7 | 7 |

PROYECTO HUALL40

| | | | | | | | | | | | | | | | | |
|---|----|-------|------|-------|-------|-------|-------|--------|-------|--------|------|-------|-------|-------|--------|---|
| 1 | 1 | 231.5 | 0.25 | 57.9 | 105.2 | 50.0 | 444.9 | 0.0 | 1.000 | 25.723 | 44.4 | 97.6 | 0.655 | 25.72 | 1921.1 | 4 |
| 1 | 2 | 231.5 | 0.50 | 115.7 | 105.5 | 101.8 | 506.2 | 551.3 | 0.961 | 19.526 | 50.6 | 113.5 | 0.390 | 15.53 | 1115.4 | 4 |
| 1 | 3 | 231.5 | 0.75 | 173.6 | 105.6 | 153.0 | 506.8 | 589.9 | 0.819 | 19.248 | 50.7 | 131.6 | 0.338 | 14.07 | 860.4 | 4 |
| 1 | 4 | 231.5 | 1.00 | 231.5 | 105.7 | 204.1 | 507.2 | 766.2 | 0.712 | 19.491 | 50.8 | 147.4 | 0.314 | 13.63 | 725.4 | 4 |
| 1 | 5 | 231.5 | 1.25 | 289.4 | 105.8 | 255.3 | 507.5 | 906.2 | 0.632 | 20.583 | 50.9 | 166.6 | 0.310 | 13.99 | 660.5 | 5 |
| 1 | 6 | 231.5 | 1.50 | 347.2 | 105.6 | 306.5 | 507.7 | 1010.6 | 0.566 | 21.841 | 50.9 | 186.6 | 0.310 | 14.57 | 616.5 | 5 |
| 1 | 7 | 231.5 | 1.75 | 405.1 | 105.9 | 357.7 | 507.9 | 1088.8 | 0.510 | 22.654 | 50.9 | 204.9 | 0.308 | 15.05 | 573.5 | 5 |
| 1 | 8 | 231.5 | 2.00 | 463.0 | 105.9 | 408.9 | 508.1 | 1138.7 | 0.460 | 24.857 | 67.9 | 226.3 | 0.300 | 16.26 | 556.6 | 6 |
| 1 | 9 | 231.5 | 2.25 | 520.9 | 105.9 | 460.1 | 508.2 | 1170.8 | 0.417 | 25.321 | 68.0 | 236.1 | 0.294 | 16.49 | 513.6 | 6 |
| 1 | 10 | 231.5 | 2.50 | 578.7 | 105.9 | 511.3 | 508.5 | 1194.8 | 0.380 | 28.151 | 68.0 | 265.4 | 0.314 | 18.28 | 519.6 | 6 |
| 1 | 11 | 231.5 | 2.75 | 636.6 | 106.0 | 562.6 | 508.4 | 1195.0 | 0.346 | 28.995 | 68.0 | 273.4 | 0.312 | 18.62 | | |

| KAL | IK | UM | ICF | GT | HN | PI | EP | ES | FP | FEC | PG | INVERSIUN | FECI | CESP | KESP | DUR |
|------------------|-----|--------|------|--------|-------|--------|--------|--------|-------|----------|--------|-----------|-------|----------|---------|--------|
| (-) | (-) | (M/S) | (-) | (M/S) | (M) | (MW) | (GWH) | (GWH) | (-) | (\$/MWH) | (MW) | (10 \$) | (-) | (\$/MWH) | (\$/KW) | (ANOS) |
| PROYECTO HUAL150 | | | | | | | | | | | | | | | | |
| 3 | 1 | 236.0 | 0.25 | 59.0 | 26.7 | 13.1 | 27.9 | 86.5 | 0.996 | 41.791 | 2.8 | 25.4 | 0.659 | 26.00 | 1933. | 2 |
| 3 | 2 | 236.0 | 0.50 | 118.0 | 26.7 | 26.2 | 27.9 | 184.4 | 0.924 | 35.040 | 2.8 | 35.9 | 0.493 | 19.83 | 1368. | 3 |
| 3 | 3 | 236.0 | 0.75 | 177.0 | 26.7 | 39.4 | 27.9 | 249.4 | 0.804 | 33.761 | 2.8 | 43.9 | 0.444 | 18.58 | 1116. | 3 |
| 3 | 4 | 236.0 | 1.00 | 236.0 | 26.7 | 52.5 | 27.9 | 297.3 | 0.708 | 32.747 | 2.8 | 49.3 | 0.409 | 17.78 | 939. | 3 |
| 3 | 5 | 236.0 | 1.25 | 295.0 | 26.7 | 65.6 | 27.9 | 334.1 | 0.630 | 34.826 | 2.8 | 57.9 | 0.415 | 16.76 | 863. | 4 |
| 3 | 6 | 236.0 | 1.50 | 354.0 | 26.7 | 78.7 | 27.9 | 361.4 | 0.565 | 38.267 | 2.8 | 68.1 | 0.436 | 20.51 | 865. | 4 |
| 3 | 7 | 236.0 | 1.75 | 413.0 | 26.7 | 91.9 | 27.9 | 381.7 | 0.509 | 39.890 | 2.8 | 74.4 | 0.435 | 21.31 | 810. | 4 |
| 3 | 8 | 236.0 | 2.00 | 472.0 | 26.7 | 105.0 | 27.9 | 394.7 | 0.460 | 42.358 | 3.8 | 81.4 | 0.416 | 22.58 | 775. | 4 |
| 3 | 9 | 236.0 | 2.25 | 531.0 | 26.7 | 118.1 | 27.9 | 402.8 | 0.416 | 44.827 | 3.8 | 87.7 | 0.425 | 23.87 | 742. | 4 |
| 3 | 10 | 236.0 | 2.50 | 590.0 | 26.7 | 131.2 | 27.9 | 409.0 | 0.380 | 49.193 | 3.8 | 97.5 | 0.450 | 26.17 | 743. | 5 |
| 3 | 11 | 236.0 | 2.75 | 649.0 | 26.7 | 144.3 | 27.9 | 409.0 | 0.346 | 55.367 | 3.8 | 109.7 | 0.488 | 29.46 | 760. | 5 |
| 3 | 12 | 236.0 | 3.00 | 708.0 | 26.7 | 157.5 | 27.9 | 409.0 | 0.317 | 59.116 | 3.8 | 117.1 | 0.502 | 31.45 | 744. | 5 |
| 3 | 13 | 236.0 | 3.25 | 767.0 | 26.7 | 170.6 | 27.9 | 409.0 | 0.292 | 62.479 | 11.3 | 123.8 | 0.518 | 33.24 | 720. | 5 |
| 3 | 14 | 236.0 | 3.50 | 826.0 | 26.7 | 183.7 | 27.9 | 409.0 | 0.272 | 65.875 | 11.3 | 130.5 | 0.537 | 35.04 | 711. | 5 |
| 3 | 15 | 236.0 | 3.75 | 885.0 | 26.7 | 196.8 | 27.9 | 409.0 | 0.253 | 71.815 | 11.3 | 142.3 | 0.577 | 38.20 | 723. | 6 |
| PROYECTO HUAL170 | | | | | | | | | | | | | | | | |
| 6 | 1 | 765.0 | 0.25 | 191.2 | 131.4 | 209.6 | 1835.5 | 0.0 | 1.000 | 24.091 | 183.2 | 377.0 | 0.611 | 24.09 | 1799. | 7 |
| 6 | 2 | 765.0 | 0.50 | 382.5 | 131.7 | 420.3 | 3681.0 | 0.0 | 1.000 | 14.264 | 368.1 | 448.2 | 0.362 | 14.28 | 1067. | 7 |
| 6 | 3 | 765.0 | 0.75 | 573.7 | 131.9 | 631.3 | 5528.9 | 0.0 | 1.000 | 11.052 | 553.3 | 521.0 | 0.280 | 11.05 | 825. | 7 |
| 6 | 4 | 765.0 | 1.00 | 765.0 | 131.7 | 840.6 | 6996.9 | 26.3 | 0.954 | 9.855 | 699.7 | 589.0 | 0.247 | 9.84 | 701. | 7 |
| 6 | 5 | 765.0 | 1.25 | 956.2 | 131.8 | 1051.5 | 7006.2 | 103.8 | 0.772 | 10.991 | 700.5 | 661.0 | 0.258 | 10.91 | 629. | 7 |
| 6 | 6 | 765.0 | 1.50 | 1147.5 | 131.9 | 1262.5 | 7006.4 | 155.7 | 0.648 | 12.500 | 701.2 | 742.9 | 0.272 | 12.17 | 588. | 7 |
| 6 | 7 | 765.0 | 1.75 | 1338.7 | 132.0 | 1473.7 | 7009.7 | 200.4 | 0.559 | 13.535 | 701.7 | 820.4 | 0.283 | 13.35 | 557. | 7 |
| 6 | 8 | 765.0 | 2.00 | 1530.0 | 131.9 | 1682.8 | 7003.7 | 239.7 | 0.491 | 15.191 | 934.4 | 922.5 | 0.281 | 14.94 | 548. | 7 |
| 6 | 9 | 765.0 | 2.25 | 1721.2 | 131.9 | 1893.8 | 7006.4 | 272.7 | 0.439 | 16.436 | 934.9 | 1000.8 | 0.292 | 16.13 | 526. | 7 |
| 6 | 10 | 765.0 | 2.50 | 1912.5 | 132.0 | 2104.9 | 7008.6 | 306.5 | 0.397 | 17.983 | 935.4 | 1096.0 | 0.306 | 17.61 | 522. | 7 |
| 6 | 11 | 765.0 | 2.75 | 2103.7 | 131.9 | 2314.0 | 7004.4 | 306.3 | 0.361 | 19.810 | 934.5 | 1208.8 | 0.327 | 19.39 | 522. | 7 |
| 6 | 12 | 765.0 | 3.00 | 2295.0 | 131.9 | 2525.1 | 7006.4 | 306.4 | 0.331 | 21.173 | 934.9 | 1292.3 | 0.337 | 20.75 | 512. | 7 |
| 6 | 13 | 765.0 | 3.25 | 2486.2 | 132.0 | 2736.2 | 7008.1 | 306.4 | 0.305 | 22.906 | 935.5 | 1398.5 | 0.353 | 22.43 | 511. | 7 |
| 6 | 14 | 765.0 | 3.50 | 2677.5 | 132.0 | 2947.3 | 7009.7 | 306.5 | 0.283 | 24.350 | 2806.9 | 1487.0 | 0.369 | 23.84 | 505. | 7 |
| 6 | 15 | 765.0 | 3.75 | 2868.7 | 131.4 | 3156.4 | 7006.4 | 306.4 | 0.265 | 26.359 | 2804.8 | 1608.9 | 0.393 | 25.81 | 510. | 7 |
| PROYECTO HUAL190 | | | | | | | | | | | | | | | | |
| 2 | 1 | 1630.0 | 0.25 | 407.5 | 62.0 | 210.6 | 1844.5 | 0.0 | 1.000 | 18.002 | 182.1 | 283.1 | 0.457 | 18.00 | 1544. | 5 |
| 2 | 2 | 1630.0 | 0.50 | 815.0 | 62.0 | 421.2 | 3688.7 | 0.0 | 1.000 | 12.338 | 364.2 | 388.0 | 0.313 | 12.34 | 921. | 6 |
| 2 | 3 | 1630.0 | 0.75 | 1222.5 | 62.1 | 632.9 | 5213.4 | 145.2 | 0.967 | 11.142 | 515.4 | 502.1 | 0.276 | 10.99 | 793. | 7 |
| 2 | 4 | 1630.0 | 1.00 | 1630.0 | 62.0 | 843.5 | 5210.7 | 782.6 | 0.811 | 15.256 | 514.9 | 633.1 | 0.297 | 12.39 | 751. | 7 |
| 2 | 5 | 1630.0 | 1.25 | 2037.5 | 62.1 | 1055.4 | 5215.7 | 1207.2 | 0.695 | 15.173 | 515.7 | 752.7 | 0.314 | 13.75 | 713. | 7 |
| 2 | 6 | 1630.0 | 1.50 | 2445.0 | 62.1 | 1265.9 | 5213.4 | 1448.8 | 0.601 | 17.556 | 515.4 | 888.7 | 0.340 | 15.65 | 702. | 7 |
| 2 | 7 | 1630.0 | 1.75 | 2852.5 | 62.1 | 1476.4 | 5211.8 | 1609.3 | 0.528 | 20.018 | 515.1 | 1026.7 | 0.366 | 17.66 | 697. | 7 |
| 2 | 8 | 1630.0 | 2.00 | 3260.0 | 62.1 | 1688.3 | 5214.8 | 1726.8 | 0.470 | 22.796 | 687.5 | 1181.5 | 0.370 | 19.46 | 700. | 7 |
| 2 | 9 | 1630.0 | 2.25 | 3667.5 | 62.1 | 1898.8 | 5213.4 | 1818.3 | 0.423 | 25.506 | 687.2 | 1331.3 | 0.397 | 22.21 | 701. | 7 |
| 2 | 10 | 1630.0 | 2.50 | 4075.0 | 62.1 | 2110.7 | 5215.7 | 1895.0 | 0.385 | 28.117 | 687.7 | 1477.4 | 0.421 | 24.37 | 700. | 7 |
| 2 | 11 | 1630.0 | 2.75 | 4482.5 | 62.1 | 2321.2 | 5214.4 | 1894.6 | 0.350 | 31.167 | 687.4 | 1637.2 | 0.450 | 27.01 | 705. | 7 |
| 2 | 12 | 1630.0 | 3.00 | 4890.0 | 62.1 | 2531.7 | 5213.4 | 1894.2 | 0.321 | 34.750 | 687.2 | 1825.1 | 0.484 | 30.12 | 721. | 7 |
| 2 | 13 | 1630.0 | 3.25 | 5297.5 | 62.1 | 2743.6 | 5215.2 | 1894.8 | 0.296 | 37.881 | 2062.6 | 1990.2 | 0.513 | 32.85 | 725. | 7 |
| 2 | 14 | 1630.0 | 3.50 | 5705.0 | 62.1 | 2954.1 | 5214.2 | 1894.5 | 0.275 | 41.256 | 2062.0 | 2167.1 | 0.550 | 35.76 | 734. | 7 |
| 2 | 15 | 1630.0 | 3.75 | 6112.5 | 62.1 | 3166.1 | 5215.7 | 1895.1 | 0.256 | 44.632 | 2063.0 | 2345.1 | 0.586 | 38.68 | 741. | 7 |
| PROYECTO HUAL210 | | | | | | | | | | | | | | | | |
| 2 | 1 | 2125.0 | 0.25 | 531.2 | 61.8 | 273.8 | 2398.0 | 0.0 | 1.000 | 11.222 | 242.6 | 229.4 | 0.285 | 11.22 | 858. | 5 |
| 2 | 2 | 2125.0 | 0.50 | 1062.5 | 61.8 | 547.6 | 2419.0 | 2105.7 | 0.943 | 12.587 | 244.6 | 372.6 | 0.241 | 9.66 | 880. | 7 |
| 2 | 3 | 2125.0 | 0.75 | 1593.7 | 61.8 | 821.4 | 2419.0 | 3409.5 | 0.810 | 14.923 | 244.8 | 524.6 | 0.253 | 10.56 | 859. | 7 |
| 2 | 4 | 2125.0 | 1.00 | 2125.0 | 61.8 | 1095.2 | 2419.0 | 4385.6 | 0.709 | 17.498 | 244.8 | 688.0 | 0.273 | 11.66 | 828. | 7 |
| 2 | 5 | 2125.0 | 1.25 | 2656.2 | 61.8 | 1369.7 | 2420.4 | 5148.3 | 0.631 | 20.177 | 245.0 | 859.1 | 0.295 | 13.31 | 827. | 7 |
| 2 | 6 | 2125.0 | 1.50 | 3187.5 | 61.8 | 1643.5 | 2420.1 | 5712.5 | 0.565 | 23.199 | 244.9 | 1043.5 | 0.320 | 15.05 | 853. | 7 |
| 2 | 7 | 2125.0 | 1.75 | 3718.7 | 61.8 | 1917.3 | 2420.0 | 6134.0 | 0.509 | 26.455 | 244.9 | 1237.5 | 0.347 | 16.97 | 845. | 7 |
| 2 | 8 | 2125.0 | 2.00 | 4250.0 | 61.8 | 2191.1 | 2419.8 | 6403.1 | 0.460 | 30.057 | 326.5 | 1440.5 | 0.353 | 19.15 | 867. | 7 |
| 2 | 9 | 2125.0 | 2.25 | 4781.2 | 61.8 | 2465.7 | 2420.5 | 6574.8 | 0.417 | 33.920 | 326.7 | 1650.6 | 0.365 | 21.52 | 859. | 7 |
| 2 | 10 | 2125.0 | 2.50 | 5312.5 | 61.8 | 2739.4 | 2420.4 | 6702.0 | 0.380 | 38.114 | 326.8 | 1875.3 | 0.415 | 24.11 | 885. | 7 |
| 2 | 11 | 2125.0 | 2.75 | 5843.7 | 61.8 | 3013.2 | 2420.2 | 6701.6 | 0.346 | 42.939 | 326.8 | 2112.6 | 0.450 | 27.17 | 901. | 7 |
| 2 | 12 | 2125.0 | 3.00 | 6375.0 | 61.8 | 3287.0 | 2420.1 | 6701.4 | 0.317 | 48.056 | 326.8 | 2364.2 | 0.486 | 30.40 | 919. | 7 |
| 2 | 13 | 2125.0 | 3.25 | 6906.2 | 61.8 | 3561.6 | 2420.6 | 6702.6 | 0.292 | 53.474 | 960.6 | 2631.3 | 0.527 | 33.83 | 939. | 7 |
| 2 | 14 | 2125.0 | 3.50 | 7437.5 | 61.8 | 3835.4 | 2420.5 | 6702.3 | 0.272 | 59.458 | 979.9 | 2925.6 | 0.577 | 37.62 | 953. | 7 |
| 2 | 15 | 2125.0 | 3.75 | 7968.7 | 61.8 | 4109.2 | 2420.4 | 6702.0 | 0.253 | 66.069 | 974.9 | 3250.7 | 0.631 | 41.80 | 991. | 7 |
| PROYECTO HUABA20 | | | | | | | | | | | | | | | | |
| 1 | 1 | 141.4 | 0.25 | 35.3 | 65.7 | 19.4 | 169.6 | 0.0 | 1.000 | 86.750 | 16.9 | 125.4 | 2.201 | 86.75 | 6477. | 5 |
| 1 | 2 | 141.4 | 0.50 | 70.7 | 65.7 | 38.7 | 189.9 | 135.4 | 0.959 | 60.666 | 19.0 | 133.2 | 1.206 | 48.04 | 5441. | 5 |
| 1 | 3 | 141.4 | 0.75 | 106.0 | 65.7 | 58.1 | 189.9 | 226.0 | 0.818 | 54.093 | 19.0 | 139.7 | 0.947 | 39.40 | 2405. | 5 |
| 1 | 4 | 141.4 | 1.00 | 141.4 | 65.7 | 77.4 | 189.9 | 293.0 | 0.712 | 50.897 | 19.0 | 146.0 | 0.817 | 35.46 | 1885. | 5 |
| 1 | 5 | 141.4 | 1.25 | 176.7 | 65.7 | 96.8 | 189.9 | 346.0 | 0.632 | 49.191 | 19.0 | 152.2 | 0.738 | 33.31 | | |

SALIDA DE RESULTADOS PARA EL CATALOGO HUALLABAMBA - MAYO

Table with columns: CAL, IK, QM, ICF, UT, HH, PI, EP, ES, FP, FEC, PG, INVERSIÓN, FEC1, CESP, KESP, DUR. Rows include project data for HUALLABAMBA.

PROYECTO JEPLEU

Table with columns: CAL, IK, QM, ICF, UT, HH, PI, EP, ES, FP, FEC, PG, INVERSIÓN, FEC1, CESP, KESP, DUR. Rows include project data for JEPLEU.

PROYECTO MAYOSO

Table with columns: CAL, IK, QM, ICF, UT, HH, PI, EP, ES, FP, FEC, PG, INVERSIÓN, FEC1, CESP, KESP, DUR. Rows include project data for MAYOSO.

PROYECTO MAYOSO

Table with columns: CAL, IK, QM, ICF, UT, HH, PI, EP, ES, FP, FEC, PG, INVERSIÓN, FEC1, CESP, KESP, DUR. Rows include project data for MAYOSO.

PROYECTO MAYOSO

Table with columns: CAL, IK, QM, ICF, UT, HH, PI, EP, ES, FP, FEC, PG, INVERSIÓN, FEC1, CESP, KESP, DUR. Rows include project data for MAYOSO.

| KAL | IK | QM 3 | ICF | QT 3 | HN | PI | EP | ES | FP | FEC | PG | INVERSION 6 | FEC1 | CESP | KESP | DUR |
|-----------------|-----|---------|------|---------|-------|--------|-------|--------|-------|----------|-------|----------------|-------|----------|---------|--------|
| (-) | (-) | (M/S) | (-) | (M/S) | (M) | (MW) | (GWH) | (GWH) | (-) | (\$/MWH) | (M) | (10 \$) | (-) | (\$/MWH) | (\$/KW) | (ANOS) |
| PROYECTO MAY070 | | | | | | | | | | | | | | | | |
| 2 | 1 | 405.0 | 0.25 | 101.2 | 104.7 | 88.4 | 774.3 | 0.0 | 1.000 | 37.818 | 77.1 | 249.6 | 0.960 | 37.82 | 2824. | 7 |
| 2 | 2 | 405.0 | 0.50 | 202.5 | 105.1 | 177.4 | 826.6 | 651.6 | 0.951 | 28.676 | 82.5 | 281.7 | 0.560 | 22.36 | 1586. | 7 |
| 2 | 3 | 405.0 | 0.75 | 303.7 | 105.2 | 266.6 | 828.0 | 1072.3 | 0.814 | 26.848 | 82.7 | 312.2 | 0.463 | 19.27 | 1171. | 7 |
| 2 | 4 | 405.0 | 1.00 | 405.0 | 105.4 | 355.8 | 828.9 | 1386.0 | 0.711 | 26.583 | 82.9 | 344.9 | 0.421 | 18.27 | 969. | 7 |
| 2 | 5 | 405.0 | 1.25 | 506.2 | 105.4 | 445.2 | 829.6 | 1632.6 | 0.632 | 26.127 | 83.0 | 366.6 | 0.387 | 17.47 | 824. | 7 |
| 2 | 6 | 405.0 | 1.50 | 607.5 | 105.5 | 534.5 | 830.1 | 1816.3 | 0.565 | 27.010 | 83.1 | 400.3 | 0.377 | 17.74 | 749. | 7 |
| 2 | 7 | 405.0 | 1.75 | 708.7 | 105.3 | 622.4 | 828.5 | 1949.1 | 0.510 | 28.147 | 82.8 | 432.7 | 0.374 | 18.27 | 693. | 7 |
| 2 | 8 | 405.0 | 2.00 | 810.0 | 105.4 | 711.7 | 828.9 | 2037.1 | 0.460 | 29.196 | 110.5 | 459.8 | 0.347 | 18.82 | 646. | 7 |
| 2 | 9 | 405.0 | 2.25 | 911.2 | 105.4 | 801.0 | 829.3 | 2093.2 | 0.417 | 30.915 | 110.6 | 494.4 | 0.353 | 19.84 | 617. | 7 |
| 2 | 10 | 405.0 | 2.50 | 1012.5 | 105.4 | 890.3 | 829.6 | 2135.4 | 0.380 | 32.847 | 110.6 | 531.4 | 0.362 | 21.02 | 597. | 7 |
| 2 | 11 | 405.0 | 2.75 | 1113.7 | 105.5 | 979.7 | 829.9 | 2136.1 | 0.346 | 35.248 | 110.7 | 570.3 | 0.374 | 22.55 | 562. | 7 |
| 2 | 12 | 405.0 | 3.00 | 1215.0 | 105.5 | 1069.0 | 830.1 | 2136.7 | 0.317 | 36.972 | 110.7 | 598.4 | 0.378 | 23.66 | 560. | 7 |
| 2 | 13 | 405.0 | 3.25 | 1316.2 | 105.5 | 1158.4 | 830.3 | 2137.3 | 0.292 | 39.162 | 332.4 | 634.3 | 0.391 | 25.07 | 540. | 7 |
| 2 | 14 | 405.0 | 3.50 | 1417.5 | 105.4 | 1246.1 | 829.4 | 2134.9 | 0.272 | 42.218 | 331.6 | 682.7 | 0.414 | 27.01 | 546. | 7 |
| 2 | 15 | 405.0 | 3.75 | 1518.7 | 105.4 | 1335.5 | 829.6 | 2135.5 | 0.253 | 44.744 | 331.9 | 723.7 | 0.432 | 28.63 | 542. | 7 |

2. CUENCA DEL RIO PACHITEA

2.1 GENERALIDADES

El Río Pachitea pertenece a la Vertiente del Atlántico y es afluente del Río Ucayali por su margen izquierda cerca a la localidad de Pucallpa. Se forma de la confluencia de los Ríos Pozuzo y Lorencillo.

El curso del Río Pachitea discurre en zona de Selva Baja por lo que no presenta ningún lugar de interés para aprovechamiento hidroeléctrico. Lo mismo ocurre con el Río Lorencillo; en cambio el mayor interés de recurso hidroeléctrico lo presenta el Río Pozuzo. Este nace sobre los 3,000 m.s.n.m., cruza la ciudad de Oxapampa, pero es solamente a partir de la confluencia con el Río Huancabamba donde se hace posible la definición de esquemas.

Otro afluente de importancia del Río Pozuzo, es el Río Santa Cruz que confluye por la margen izquierda, más abajo de la localidad de Pozuzo. El caudal medio del Río Pozuzo en la confluencia con el Río Pachitea es 247.5 m³/s.

Las características más importantes de la cuenca del Río Pachitea se detalla a continuación:

| | |
|---|------------------------|
| Area | 26 980 Km ² |
| Altitud promedio | 857 m.s.n.m |
| Precipitación anual | 2303 mm/año |
| Longitud acumulada de la red hidrográfica | 1353 Km |
| Número de estaciones de aforo | 0 |
| Potencial teórico | 6146 MW |
| Potencial específico | 4.54 MW/Km |

En el Río Pozuzo no existe ningún estudio para hidroeléctricas de gran capacidad, y la única central hidráulica en funcionamiento se ubica en la localidad de Oxapampa, sirviendo sólo para uso local.

El total de proyectos analizados en esta cuenca se indican a continuación:

| | <u>Proyectos</u> | <u>Alternativas</u> |
|------------------|------------------|---------------------|
| En el Río Pozuzo | 7 | 47 |

No se ha tenido en consideración ningún tipo de beneficio secundario para la cuenca analizada.

Al Río Pozuzo se puede llegar desde Lima vía La Oroya-San Ramón-Oxapampa-Pozuzo, siendo este pueblo el final de carretera.

2.2 GEOLOGIA

Los esquemas hidroeléctricos de la cuenca del Río Pachitea se hallan ubicados en su totalidad en el Río Pozuzo, afluente de la cuenca. Las unidades geomorfológicas de esta región son la Cordillera Oriental, la Cordillera Sub-Andina y la depresión Amazónica. Estas unidades se hallan en rocas principalmente sedimentarias de edad paleozóica y mesozóica. Las estructuras principales son las fallas que han controlado el curso de los ríos de la cuenca, así como sobre escurrimientos y plegamientos.

Cordillera Oriental

Caracterizada por estructuras plegadas durante el paleozóico superior, sufrieron rejuvenecimiento producido por las erogenias del mesozóico tardío y cenozoico; el núcleo de estas estructuras es un anticlinal estrecho con formaciones del precámbrico y paleozóico inferior; asociadas a intrusiones más jóvenes de tipo granítico, limitado por fallas regionales a ambos lados. No existen esquemas hidroeléctricos en la Cordillera Oriental, pero forma las cabeceras de la cuenca del Pachitea-Pozuzo.

Cordillera Sub-Andina

Al Este de la Cordillera Oriental se hallan grandes estructuras plegadas formadas por rocas sedimentarias mesozóicas y cenozoicas; ancho variable que va aumentando de Sur a Norte. Es la última estructura plegada en el sistema montañoso peruano. La base de las rocas mesozóicas está constituido por rocas del grupo Sarayaquí llo y Pucará del Trias-Jurásico. En el cretáceo tenemos el grupo Oriente, la formación Chonta y la formación Areniscas de Azúcar. Las características geotécnicas más importantes son la profunda alteración, poca cobertura aluvial y las cárcavas profundas en el grupo Pucará.

Depresión Amazónica

Es una llanura amplia, constituye una gigantesca hoya formada por un espesor potente de depósitos sedimentarios, separada de la Cordillera Sub-Andina por una serie de fallas jóvenes activas. No existen esquemas hidroeléctricos en esta zona.

| CUENCA: PACHITEA | | | TABLA: No. | |
|---------------------|------------|----------------------------------|--|--|
| EDAD | SIMBOLOGIA | FORMACION | LITOLOGIA | CARACTERISTICAS GEOTECNICAS |
| CUATERNARIO | QC | Depósitos Aluviales | Acumulaciones de cauce, terrazas bajas inundables modernas terrazas altas antiguas, colinas corrugadas aluviónicas. Conglomerados de Arena y cantos, Arcillas amarillentas, Areniscas. | Inestable Muy permeable Requiere excavaciones en sitio de presa. Buena cantera. Poco volumen en valles |
| | TS - C | Grupo Contamaná III (F. Iparuro) | Arenas de grano medio a grueso intercaladas con limonitas y arcillas, yacen horizontales o ligeramente plegadas. | Medianamente estable Poca erosión Cobertura vegetal |
| TERCIARIO | TS - CI | Grupo Contamaná I (F. Chambira) | Lutitas, areniscas, lodolitas, esquistos arcillosos, arcillas margas y calizas en la parte superior | Fuertemente plegado y fallado, semiestable. Capas muy paradas. Cobertura vegetal alta. Forma de rumbes y conos de talud. |
| CRETACEO | KS - C | Formación Areniscas de Azúcar | Areniscas blancas o blanco amarillentas de grano grueso a fino, encima capas de lutitas, limolitas rojas, margas grises y conglomerados. | Fuertemente fracturado. Erosión mediana. Estabilidad reducida. Capas muy inclinadas |
| | Kms. | Formación Chonta | Calizas arenosas, calizas con intercalaciones de lutitas y lodolitas negras azuladas y pardas. | Estable. Impermeable. Deslizamiento en Arcillas. Erosión mediana. No es buen material de cantera. |
| | Ki | Grupo Oriente | Areniscas blancas de grano grueso con menores proporciones de conglomerados finos, areniscas cuarzosas, limolitas y lutitas | Fuertemente Fracturado. Erosión Mediana. Estabilidad reducida. |
| JURASICO TRIASICO | Jms - C | Grupo Sarayaquillo | Areniscas de color rojizo con algunas intercalaciones de lutitas y margas | Inestable Fuertemente fracturado. Alteración mediana |
| | Tr - jim | Grupo Pucará | Calizas dolomíticas con intercalaciones menores de margas, lutitas y areniscas | Estable. Posibilidad de Karst Plegado y fallado. Poca erosión. |
| PERMICO | Pms - C | Grupo Mitu | Conglomerado, areniscas, limolitas, lutitas, con algunas intercalaciones de rocas volcánicas | Inestable. Junturado y Fallado. Poco compactado. Forma conos de talud. |
| PALEOZOICO INFERIOR | Pali - gr | Intrusivos Paleozoicos | Pequeños cuerpos de composición granítica o grano diorítica en el anticlinario de la Cordillera Oriental | Estable. Erosión mediana. Buen material de cantera. |
| | | | | |

