

KAL	IK	QM	ICF	QT	HN	PI	EP	ES	FP	FEC	PG	INVERSION	FEC1	CESP	KESP	DUR
(-)	(-)	(M/S)	(-)	(M/S)	(M)	(MW)	(GWH)	(GWH)	(-)	(\$/MWH)	(MW)	(10 \$)	(-)	(\$/MWH)	(\$/KW)	(ANOS)
PROYECTO URUB280																
1	1	318.0	1.00	318.0	43.7	115.9	193.2	525.3	0.708	24.560	19.0	95.4	0.358	15.58	823.	4
2	1	318.0	1.00	318.0	83.2	220.6	717.5	701.1	0.734	19.326	71.2	176.0	0.338	14.55	798.	5
3	1	318.0	1.00	318.0	87.8	232.9	808.9	705.5	0.742	19.190	81.4	190.1	0.344	14.72	816.	5
4	1	318.0	1.00	318.0	122.2	324.0	1477.7	762.8	0.789	16.809	230.3	266.4	0.332	15.95	822.	6
5	1	318.0	1.00	318.0	140.9	373.6	2527.7	540.1	0.815	17.457	234.0	371.7	0.392	16.34	945.	7
6	1	318.0	1.00	318.0	147.8	392.0	2519.6	531.3	0.830	17.398	252.2	348.3	0.396	16.49	1016.	7
PROYECTO URUB290																
1	1	413.9	1.00	413.9	61.6	212.5	480.9	840.6	0.710	21.247	48.5	163.2	0.334	14.49	766.	5
2	1	413.9	1.00	413.9	101.1	348.9	1297.3	1000.4	0.752	19.437	130.5	297.9	0.356	15.21	854.	6
3	1	413.9	1.00	413.9	105.4	363.7	1452.6	989.6	0.760	19.240	143.2	316.1	0.360	15.31	869.	6
4	1	413.9	1.00	413.9	127.8	441.0	2244.3	882.0	0.809	16.405	225.8	421.3	0.379	15.81	955.	7
5	1	413.9	1.00	413.9	158.5	547.0	3486.9	472.1	0.826	16.604	349.2	590.5	0.422	17.49	1079.	7
6	1	413.9	1.00	413.9	165.4	570.9	3739.3	459.7	0.840	16.806	373.1	636.4	0.430	17.78	1115.	7
PROYECTO URUB310																
1	1	474.1	1.00	474.1	43.9	173.5	242.2	833.3	0.708	19.448	23.9	109.2	0.274	11.91	629.	4
2	1	474.1	1.00	474.1	88.2	348.6	995.7	1205.3	0.721	15.525	100.4	211.0	0.261	11.27	607.	5
3	1	474.1	1.00	474.1	127.8	505.4	2195.5	1255.0	0.780	15.346	220.9	389.4	0.298	12.56	751.	7
4	1	474.1	1.00	474.1	132.1	522.3	2388.4	1225.6	0.790	15.463	239.2	395.7	0.305	12.84	757.	7
5	1	474.1	1.00	474.1	154.2	609.9	3528.5	783.4	0.807	14.816	354.8	495.2	0.322	13.47	812.	7
PROYECTO URUB320																
1	1	624.2	1.00	624.2	52.9	275.2	473.7	1231.9	0.708	17.523	47.5	162.6	0.257	11.19	542.	5
2	1	624.2	1.00	624.2	79.3	412.8	1110.5	1477.6	0.716	14.744	111.3	233.2	0.244	10.57	563.	6
3	1	624.2	1.00	624.2	96.8	504.0	1724.3	1544.2	0.740	15.050	171.7	277.7	0.232	9.97	551.	6
4	1	624.2	1.00	624.2	141.1	734.7	4347.0	848.6	0.807	10.359	437.5	420.6	0.227	9.50	572.	7
5	1	624.2	1.00	624.2	180.8	941.2	6727.5	515.9	0.879	10.055	676.4	598.8	0.238	9.70	636.	7
6	1	624.2	1.00	624.2	185.1	963.6	7019.1	466.4	0.887	10.169	703.4	628.8	0.242	9.85	653.	7
7	1	624.2	1.00	624.2	182.3	944.2	6784.4	520.3	0.879	14.501	685.6	870.9	0.343	13.98	918.	7
8	1	624.2	1.00	624.2	186.7	971.8	7078.8	470.3	0.887	14.736	713.0	918.8	0.351	14.28	946.	7
PROYECTO PAUC260																
1	1	54.0	1.00	54.0	157.3	70.9	545.3	18.7	0.909	87.038	54.4	411.5	2.119	85.60	5806.	7
2	1	54.0	1.00	54.0	174.7	78.7	644.1	5.5	0.943	91.784	64.0	506.1	2.284	91.40	6433.	7
PROYECTO PAUC270																
1	1	61.0	1.00	61.0	65.6	33.4	123.1	96.3	0.751	39.849	12.3	58.2	0.729	31.10	1743.	3
2	1	61.0	1.00	61.0	157.4	80.1	648.5	7.6	0.935	53.476	64.7	297.4	1.326	53.17	3713.	7
3	1	61.0	1.00	61.0	174.8	88.9	743.0	2.6	0.957	57.508	73.9	364.9	1.440	57.41	4103.	7
PROYECTO PAUC280																
1	1	72.0	1.00	72.0	83.0	49.9	213.6	125.5	0.777	54.208	21.2	127.7	1.046	44.17	2562.	5
2	1	72.0	1.00	72.0	148.7	89.3	650.5	43.1	0.887	63.655	64.6	364.7	1.516	61.68	4085.	7
3	1	72.0	1.00	72.0	236.6	142.1	608.8	357.9	0.777	45.966	84.8	308.7	0.887	37.46	2172.	6
4	1	72.0	1.00	72.0	295.8	177.6	1294.0	85.8	0.887	47.076	168.3	536.5	1.122	45.61	3021.	7
5	1	72.0	1.00	72.0	191.7	115.1	493.1	289.9	0.777	48.063	66.2	261.4	0.927	39.17	2272.	6
6	1	72.0	1.00	72.0	250.8	150.6	1097.2	72.8	0.887	50.252	136.6	485.7	1.197	48.69	3223.	7
PROYECTO PAUC290																
1	1	73.0	1.00	73.0	157.6	95.9	633.6	75.1	0.844	56.386	63.2	322.7	1.295	53.40	3364.	7
PROYECTO PAUC300																
1	1	74.0	1.00	74.0	87.6	54.1	186.8	164.5	0.742	46.521	18.8	106.7	0.831	35.63	1973.	5

CUENCA DEL RIO : SURUBAMBA

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*****
*   PROYECTO   ALTERN.   ALTERN.   *
*             TOTALES ELIMINADAS *
* ===== *
* SALCA 40           3           0   *
* VNOTA 60          2           1   *
* VNOTA 90          2           1   *
* VNOTA140          1           0   *
* VNOTA180          4           2   *
* VNOTA200          4           2   *
* VNOTA220          6           3   *
* VNOTA295B         4           0   *
* VNOTA295         15          0   *
* JRUB  10          12          0   *
* URUB  15           8           0   *
* URUB  16           1           0   *
* URUB  35           2           0   *
* URUB  88           4           0   *
* URUB  90           3           0   *
* URUB 100           2           0   *
* URUB 110           1           0   *
* URUB 130           6           0   *
* URUB 190           6           0   *
* JRUB 200           2           0   *
* URUB 210           2           0   *
* URUB 220           1           0   *
* URUB 230           2           0   *
* URUB 250           3           0   *
* URUB 260          15          0   *
* URUB 280           6           0   *
* URUB 290           6           0   *
* URUB 310           5           0   *
* URUB 320           6           2   *
* PAUC 260           2           0   *
* PAUC 270           3           0   *
* PAUC 280           4           0   *
* PAUC 290           1           0   *
* PAUC 300           1           0   *
*****

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SECUENCIAS OPTIMAS PARA LA CADENA URUBCAD

NUMERO TOTAL DE CADENAS ANALIZADAS = 3590055.

FECHA : 6/ 4/79

NODO FINAL 17 1 VURUB1

CADENA OPTIMA FORMADA POR:

N. PROYECTO	ALT	VINCULO EXTER	QM (M**3/S)	HM (M)	PI (MM)	EP (GWH)	ES (GWH)	ET (GWH)	FEC (\$/MWH)	PG (MW)	INVERSION (10**6 \$)	FEC1 (-)	CESP (\$/MWH)	KESP (\$/KW)		
1	SALC40	2	49.0	456.6	186.6	848.4	297.3	1145.7	22.841	126.8	194.6	0.457	19.90	1043.		
2	VNOTA60	2	91.1	97.6	74.1	489.0	49.4	538.4	59.101	40.9	258.8	1.361	56.40	3493.		
3	VNOTA90	2	94.4	165.5	130.3	538.1	238.4	776.5	62.090	59.5	347.9	1.193	52.60	2670.		
4	VNOTA140	1	104.0	108.4	94.0	654.2	52.5	706.7	25.355	62.6	147.1	0.595	24.40	1565.		
6	VNOTA200	1	109.0	53.5	48.6	120.3	171.5	241.8	31.585	8.9	55.4	0.507	22.30	1140.		
9	VNOTA295	14	131.0	778.0	850.0	7278.5	29.0	7307.5	17.660	849.9	1098.0	0.445	17.60	1292.		
14	URUB88	1	148.8	321.3	398.7	351.0	2034.9	2385.9	16.829	56.6	196.3	0.219	9.70	492.		
15	URUB90	3	149.8	319.3	398.9	154.7	2301.1	2455.8	29.560	24.9	328.9	0.360	15.70	825.		
19	URUB190	4	178.0	324.4	481.6	2478.6	942.6	3421.2	19.752	335.4	496.7	0.408	17.00	1031.		
24	URUB250	1	230.4	56.8	112.0	337.8	374.0	711.8	24.453	33.4	109.4	0.418	18.00	977.		
29	URUB320	5	1	VPADC3	624.2	160.8	941.2	6727.5	515.9	7243.4	10.055	676.4	598.8	0.238	9.70	636.
TOTAL PARA LA CADENA						3911.2	21119.7	7304.1	28423.8	20.792	2406.2	4390.7	0.444	16.86	1123.	

NUMERO DE CADENAS ANALIZADAS = 3590055.

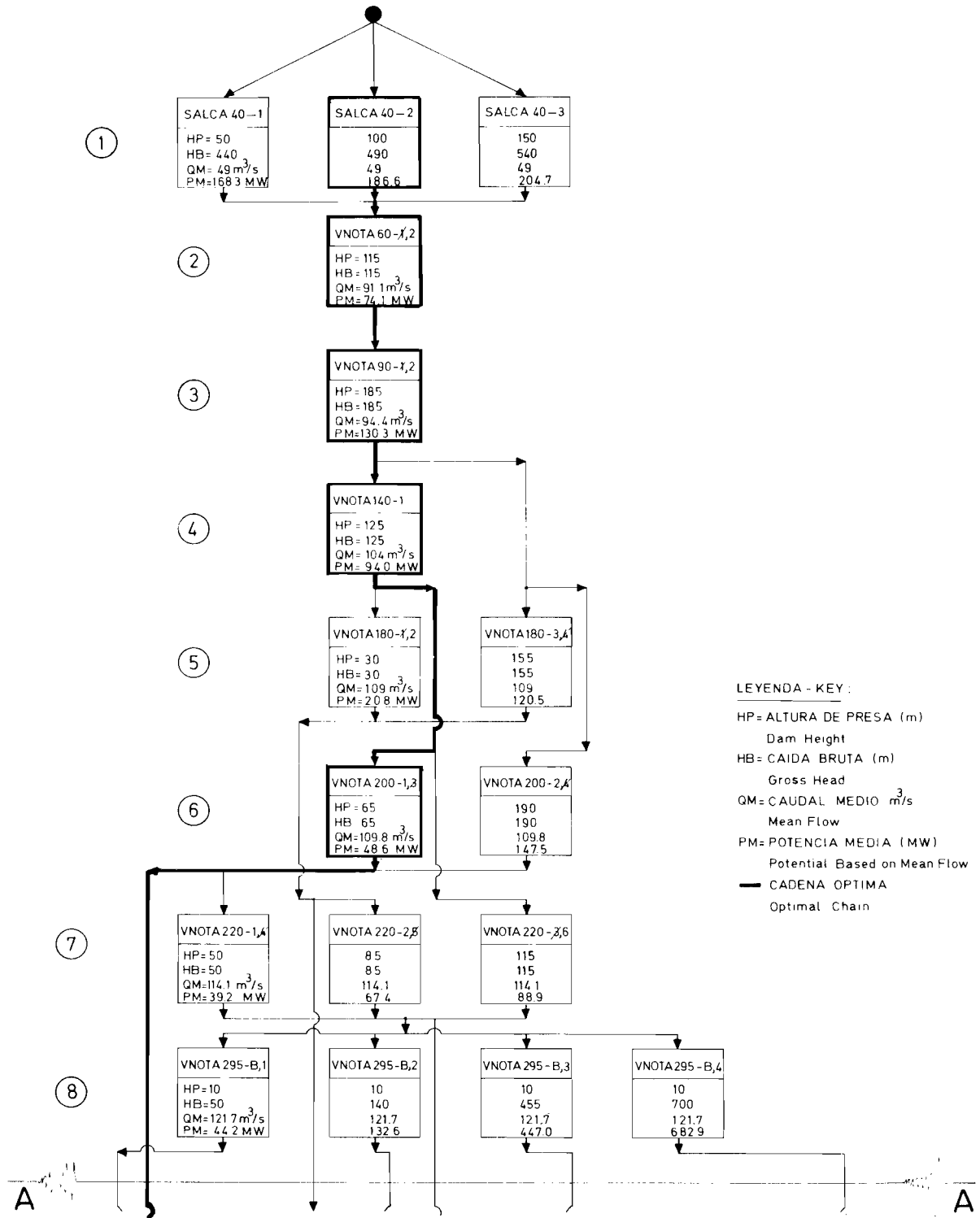
NODO FINAL 3/ 3 VPADC3

CADENA OPTIMA FORMADA POR:

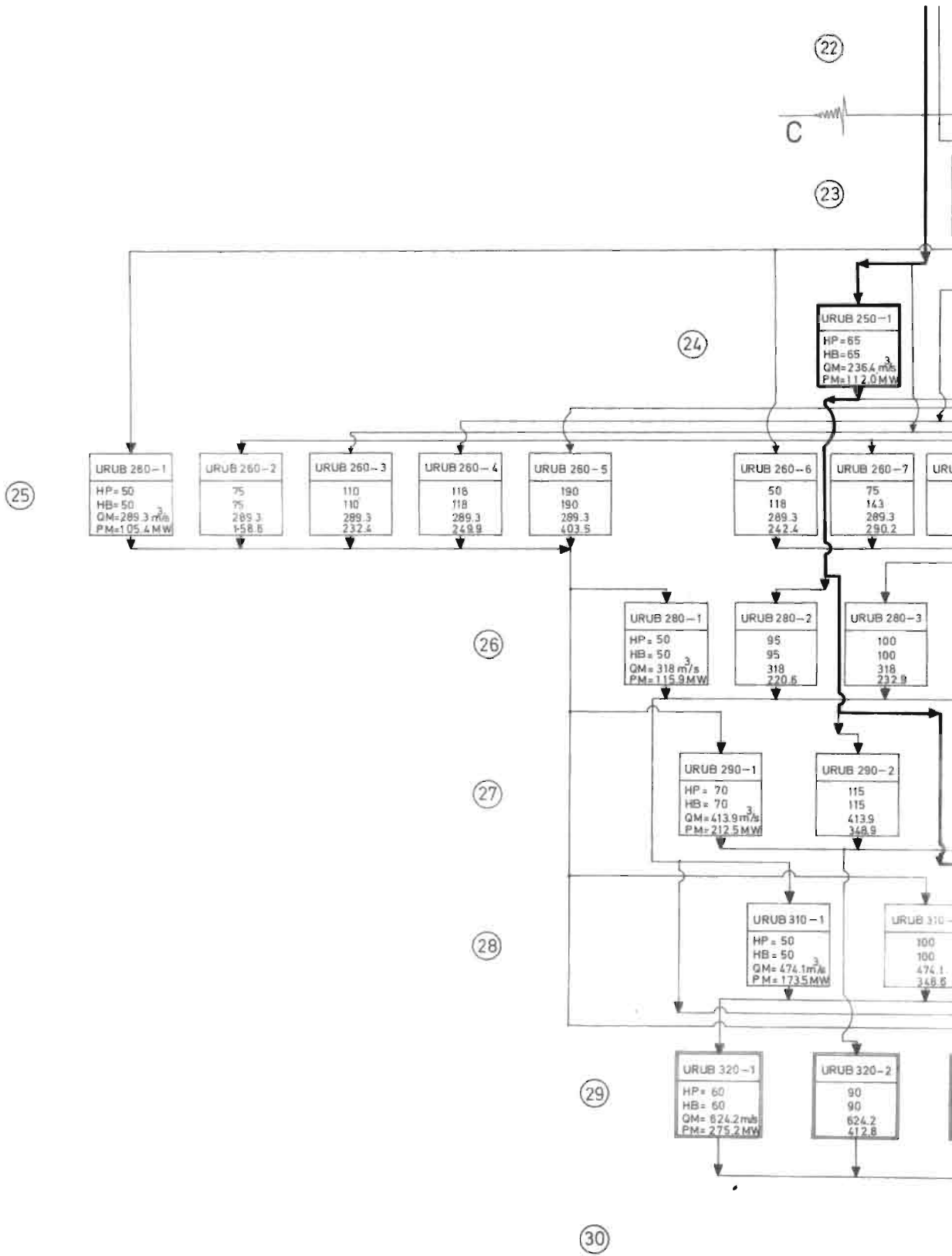
N. PROYECTO	ALT	VINCULO EXTER	QM (M**3/S)	HM (M)	PI (MM)	EP (GWH)	ES (GWH)	ET (GWH)	FEC (\$/MWH)	PG (MW)	INVERSION (10**6 \$)	FEC1 (-)	CESP (\$/MWH)	KESP (\$/KW)	
2	PAUC270	2	61.0	157.4	80.1	648.5	7.6	656.1	53.476	64.7	297.4	1.326	53.20	3713.	
3	PAUC280	5	72.0	191.7	115.1	493.1	289.9	783.0	48.063	66.2	261.4	0.927	39.20	2271.	
TOTAL PARA LA CADENA						195.2	1141.6	297.5	1439.1	50.799	130.9	558.8	1.129	48.66	2863.

NUMERO DE CADENAS ANALIZADAS =

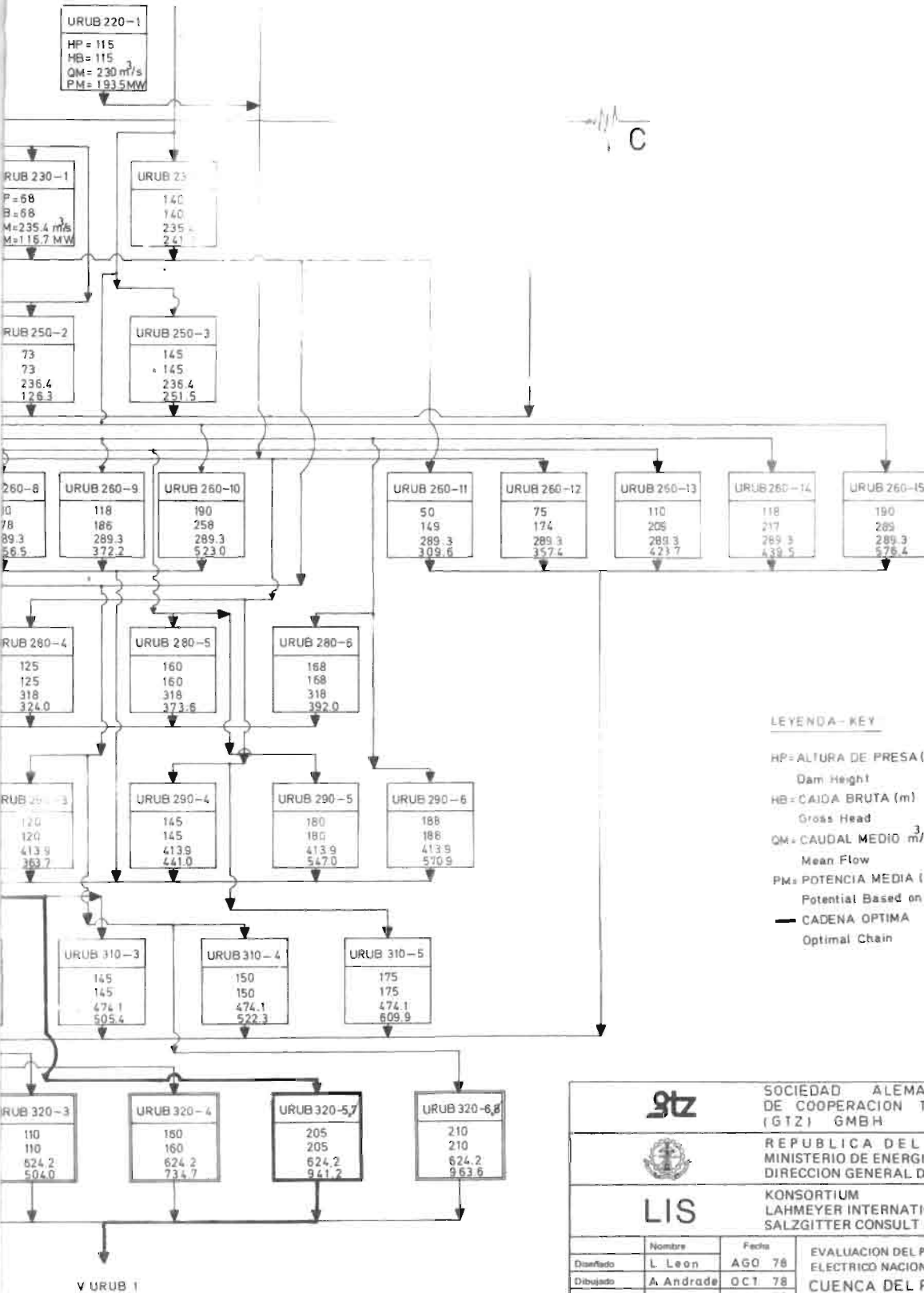
2202 VILCANOTA



EVALUACION DEL POTENCIAL HIDROELECTRICO NACIONAL	DIAGRAMA DE CADENAS Chains Diagram	Reg N°
	CUENCA DEL RIO: Basin of River :	2202-3
	2202-VILCANOTA	



URUBAMBA

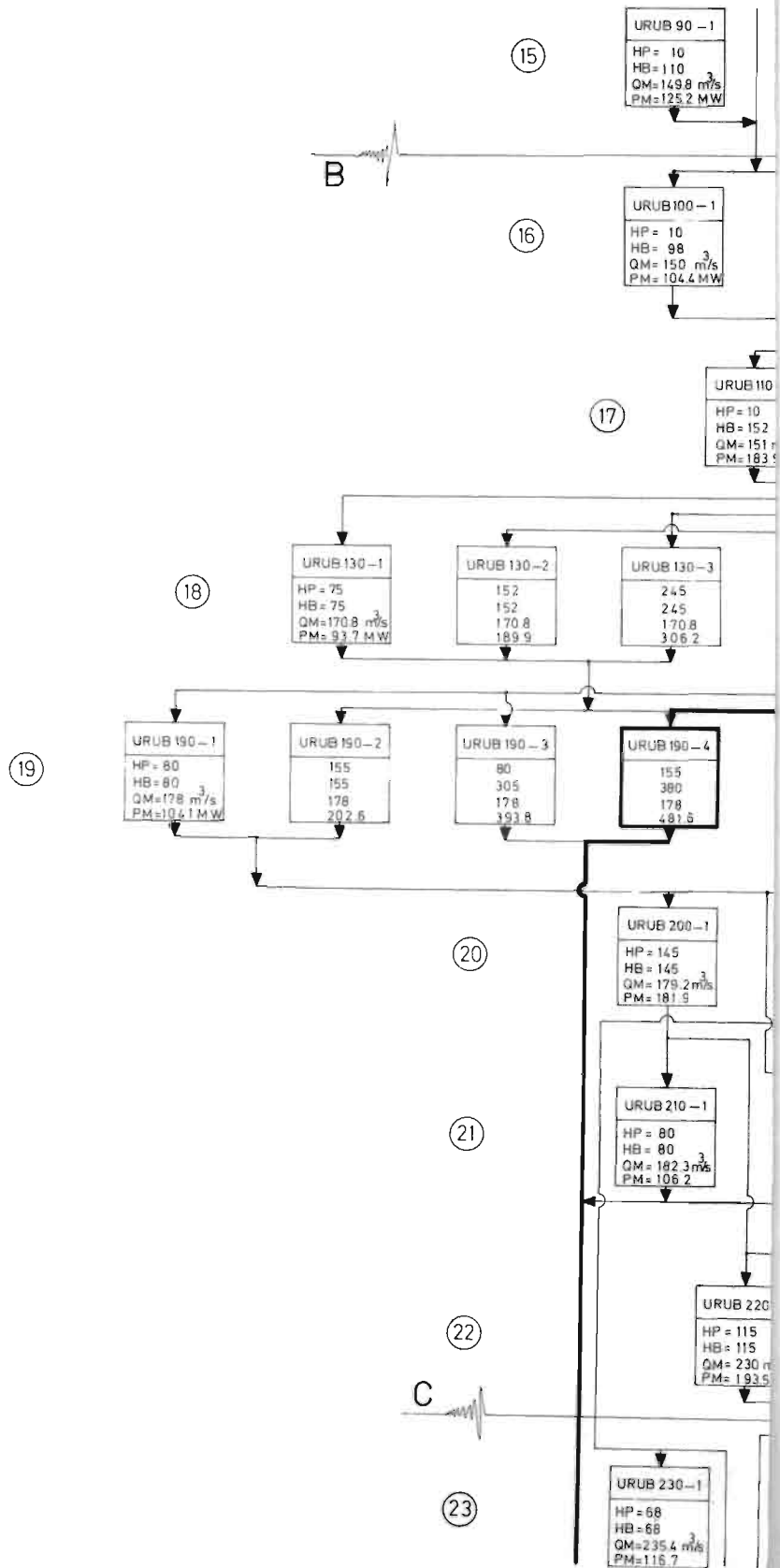


LEYENDA - KEY

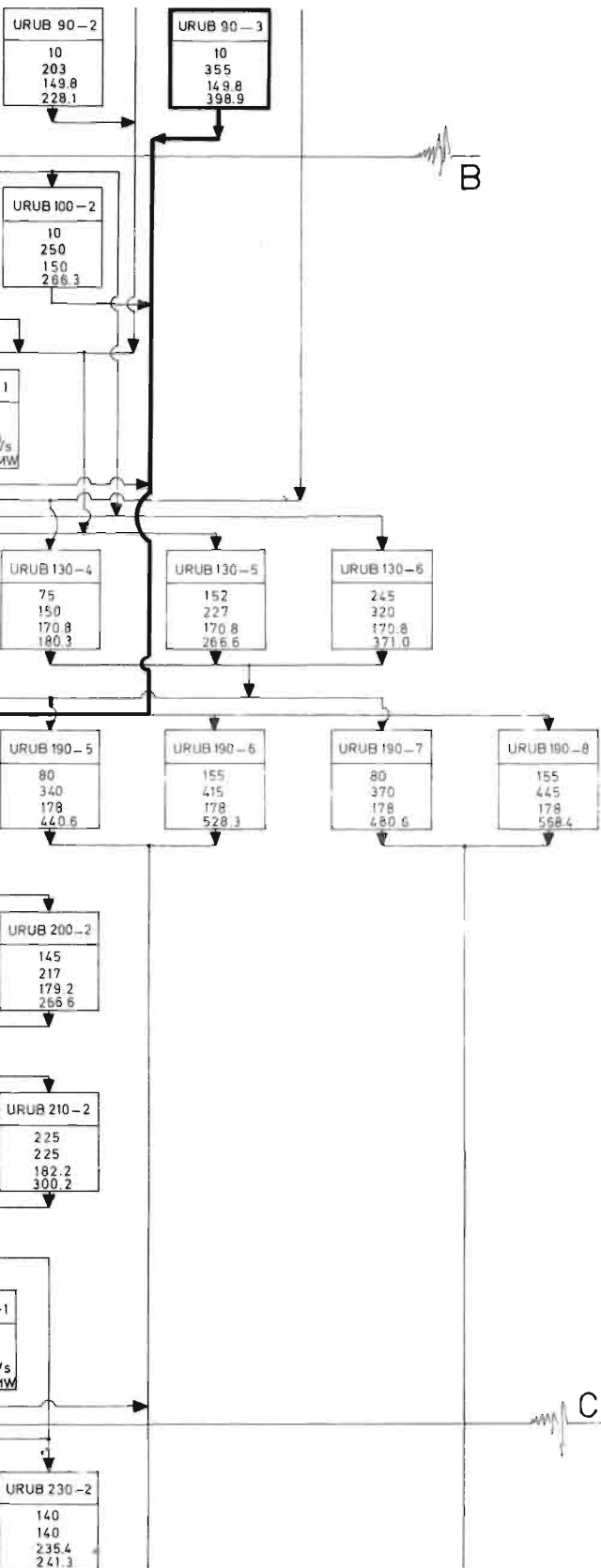
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Dam Height
- HB = CAIDA BRUTA (m)
Gross Head
- QM = CAUDAL MEDIO m/s
Mean Flow
- PM = POTENCIA MEDIA (MW)
Potential Based on Mean Flow
- CADENA OPTIMA
Optimal Chain

		SOCIEDAD ALEMANA DE COOPERACION TECNICA (GTZ) GMBH		
		REPUBLICA DEL PERU MINISTERIO DE ENERGIA Y MINAS DIRECCION GENERAL DE ELECTRICIDAD		
LIS		KONSORTIUM LAHMEYER INTERNATIONAL GMBH SALZGITTER CONSULT GMBH		
Nombre	Fecha	EVALUACION DEL POTENCIAL HIDRO-ELECTRICO NACIONAL CUENCA DEL RIO - Basin of River: DIAGRAMA DE CADENAS - Chains Diagram 2201-URUBAMBA		
Diseñado	L. Leon			AGO 78
Dibujado	A. Andrade			OCT. 78
Aprobado	M. Lom			DIC. 78
Reemplaza a:				
Reemplazado por:				
Reg. No.	2201-9	Escala	Dibujo No.	

2201 URU




BAMBA

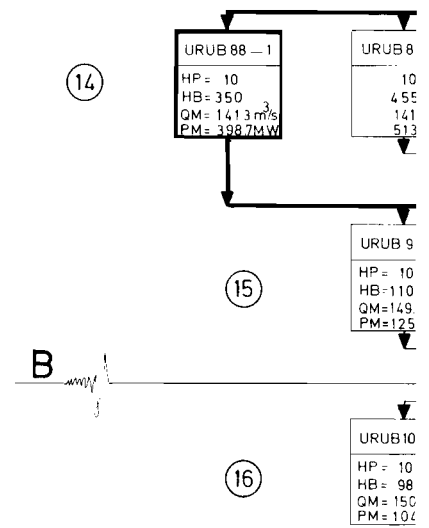
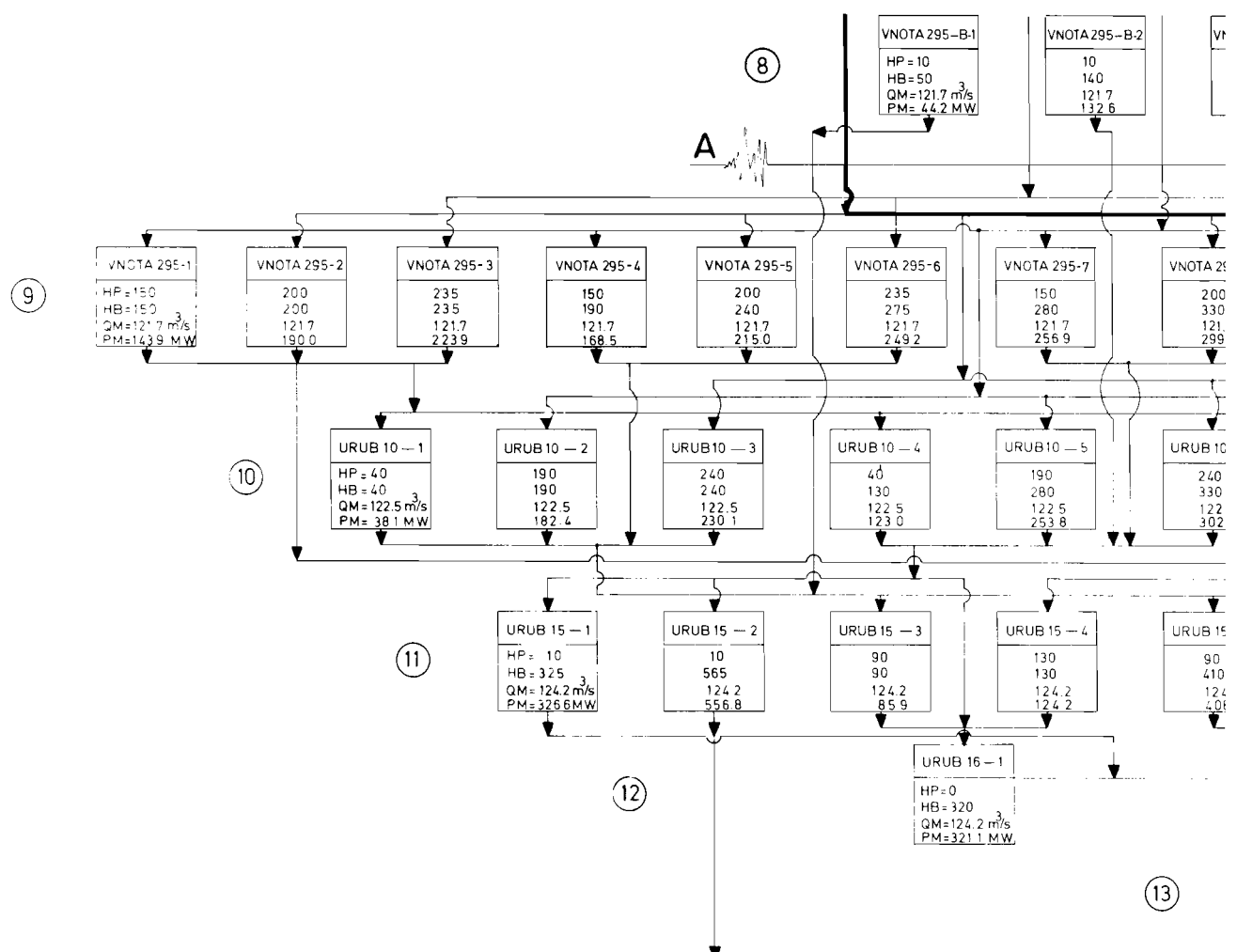


LEYENDA - KEY

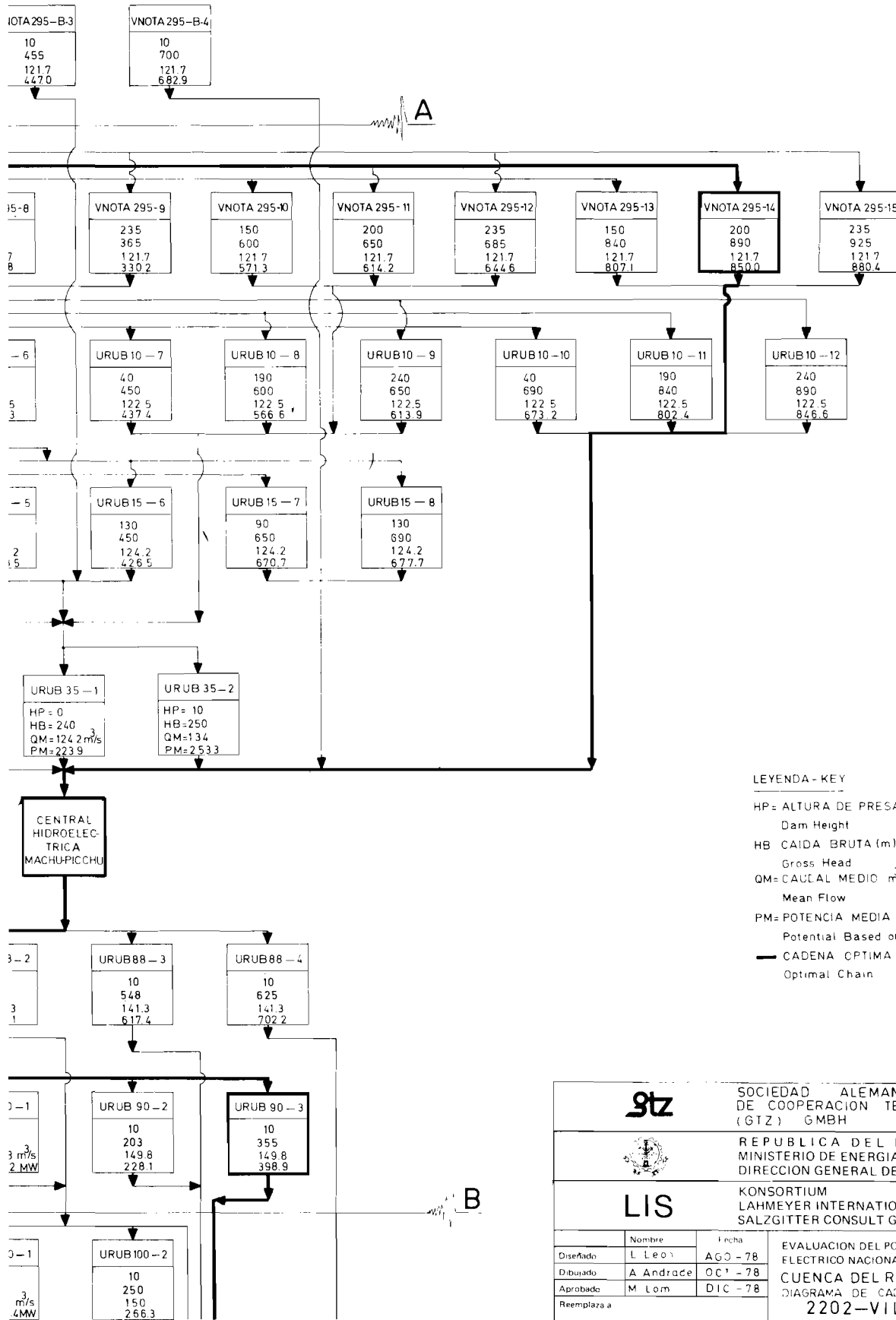
- HP= ALTURA DE PRESA (m)
Dam Height
- HB= CAIDA BRUTA (m)
Gross Head
- QM= CAUDAL MEDIO m^3/s
Mean Flow
- PM= POTENCIA MEDIA (MW)
Potential Based on Mean Flow
- CADENA OPTIMA
Optimal Chain

			SOCIEDAD ALEMANA DE COOPERACION TECNICA (GTZ) GMBH	
			REPUBLICA DEL PERU MINISTERIO DE ENERGIA Y MINAS DIRECCION GENERAL DE ELECTRICIDAD	
LIS			KONSORTIUM LAHMEYER INTERNATIONAL GMBH SALZGITTER CONSULT GMBH	
Diseñado	Nombre	Fecha	EVALUACION DEL POTENCIAL HIDRO-ELECTRICO NACIONAL CUENCA DEL RIO Basin of River: DIAGRAMA DE CADENAS - Chains Diagram 2201 - URUBAMBA	
Dibujado	A Andrade	OCT - 78		
Aprobado	M. L. G. m	DIC - 78		
Reemplaza a				
Reemplazado por				
Reg. No.	2201 - 8		Escala	Dibujo Nr.

2202 VILCANOTA-URUE



BAMBA 2201



LEYENDA - KEY

HP= ALTURA DE PRESA (m)
Dam Height

HB CAIDA BRUTA (m)
Gross Head

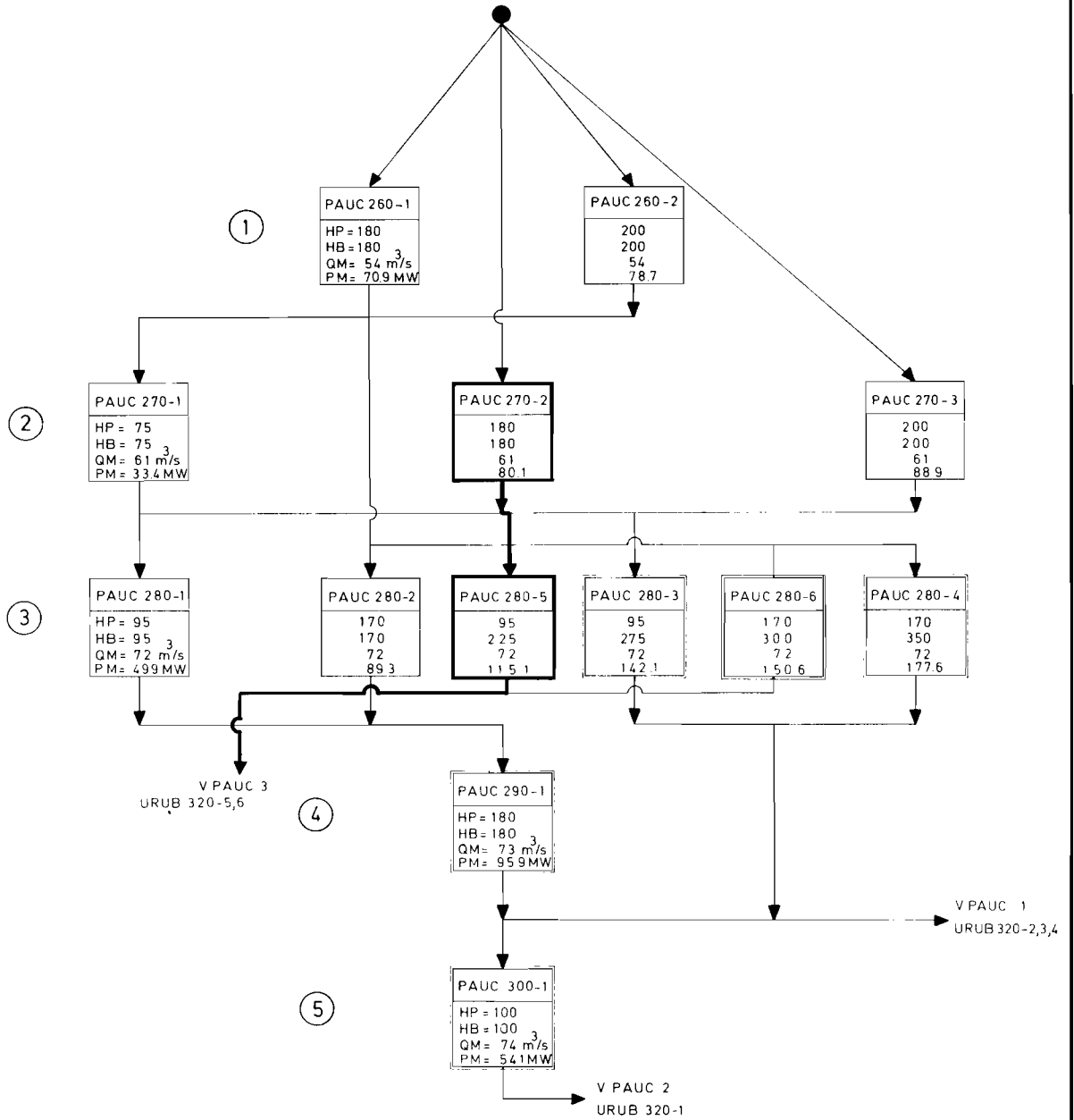
QM= CAUDAL MEDIO m³/s
Mean Flow

PM= POTENCIA MEDIA (MW)
Potential Based on Mean Flow

— CADENA OPTIMA
Optimal Chain

		SOCIEDAD ALEMANA DE COOPERACION TECNICA (GTZ) GMBH	
		REPUBLICA DEL PERU MINISTERIO DE ENERGIA Y MINAS DIRECCION GENERAL DE ELECTRICIDAD	
LIS		KONSORTIUM LAHMEYER INTERNATIONAL GMBH SALZGITTER CONSULT GMBH	
Evaluación del potencial hidroeléctrico nacional		CUENCA DEL RIO - Basin of River	
Diagrama de cadenas - Chains Diagram		2202 - VILCANOTA	
		2201 - URUBAMBA	
Reg. No	2202-4	Escala	Dibujo N°

2201 PAUCARTAMBO



LEYENDA - KEY

- HP = ALTURA DE PRESA
Dam Height
- HB = CAIDA BRUTA
Gross Head
- QM = CAUDAL MEDIO m³/s
Mean Flow
- PM = POTENCIA MEDIA (MW)
Potential Based on Mean Flow
- CADENA OPTIMA
Optimal Chain

EVALUACION DEL POTENCIAL HIDROELECTRICO NACIONAL	DIAGRAMA DE CADENAS Chains Diagram	Reg. Nº
	CUENCA DEL RIO: Basin of River: 2201-PAUCARTAMBO	2201-10