

ANNEXES

ANNEXE 1

CALCULS ET ANALYSE

ANNEXE 1.1

CALCULS HYDRAULIQUES

ANNEXE 1.1.1

Calculs hydrauliques du réseau de distribution

T I T R E : BC2 (ARIGUIB) TN 330 M
 NB. DE CONDUITES : 13
 NB. DE NOEUDS : 14
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	27	271	679.00	62	120	0.50	0.17LO	0.90	0.6
2	27	28	623.00	135	120	7.50	0.52	3.05	1.9
3	28	281	278.00	62	120	0.50	0.17LO	0.90	0.2
4	28	29	553.00	135	120	7.00	0.49	2.69	1.4
5	29	30	290.00	76	120	2.50	0.55	6.57	1.9
6	30	31	329.00	62	120	0.50	0.17LO	0.90	0.3
7	29	32	873.00	122	120	4.50	0.38	1.94	1.7
8	32	321	382.00	62	120	0.50	0.17LO	0.90	0.3
9	32	33	268.00	105	120	4.00	0.46	3.25	0.8
10	33	331	196.00	62	120	1.00	0.33	3.25	0.6
11	331	332	795.00	62	120	0.50	0.17LO	0.90	0.7
12	33	34	2500.00	105	120	3.00	0.35	1.91	4.7
13	34	35	370.00	105	120	3.00	0.35	1.91	0.7

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
27 R	8.000	333.00	333.00	0.00
271	-0.500	261.00	332.39	71.39
28	0.000	297.00	331.10	34.10
281	-0.500	290.00	330.85	40.85
29	0.000	288.00	329.61	41.61
30	-2.000	267.00	327.71	60.71
31	-0.500	251.00	327.41	76.41
32	0.000	193.00	327.92	134.92
321	-0.500	237.00	327.57	90.57
33	0.000	219.00	327.05	108.05
331	-0.500	230.00	326.41	96.41
332	-0.500	289.00	325.69	36.69
34	0.000	233.00	322.28	89.28
35	-3.000	318.00	321.58	3.58

T I T R E : BC2 (ARIGUIB) TN 330 M
 NB. DE CONDUITES : 13
 NB. DE NOEUDS : 14
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	27	271	679.00	62	120	0.00	0.00LO	0.00	0.0
2	27	28	623.00	135	120	0.07	0.01LO	0.00	0.0
3	28	281	278.00	62	120	0.00	0.00LO	0.00	0.0
4	28	29	553.00	135	120	0.07	0.00LO	0.00	0.0
5	29	30	290.00	76	120	0.02	0.01LO	0.00	0.0
6	30	31	329.00	62	120	0.00	0.00LO	0.00	0.0
7	29	32	873.00	122	120	0.04	0.00LO	0.00	0.0
8	32	321	382.00	62	120	0.00	0.00LO	0.00	0.0
9	32	33	268.00	105	120	0.04	0.00LO	0.00	0.0
10	33	331	196.00	62	120	0.01	0.00LO	0.00	0.0
11	331	332	795.00	62	120	0.00	0.00LO	0.00	0.0
12	33	34	2500.00	105	120	0.03	0.00LO	0.00	0.0
13	34	35	370.00	105	120	0.03	0.00LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
27 R	0.080	333.00	333.00	0.00
271	-0.005	261.00	333.00	72.00
28	0.000	297.00	333.00	36.00
281	-0.005	290.00	333.00	43.00
29	0.000	288.00	333.00	45.00
30	-0.020	267.00	333.00	66.00
31	-0.005	251.00	333.00	82.00
32	0.000	193.00	333.00	140.00
321	-0.005	237.00	333.00	96.00
33	0.000	219.00	333.00	114.00
331	-0.005	230.00	333.00	103.00
332	-0.005	289.00	333.00	44.00
34	0.000	233.00	333.00	100.00
35	-0.030	318.00	333.00	15.00

T I T R E : R520 (BATTAHA JOUAOUA 1)
 NB. DE CONDUITES : 19
 NB. DE NOEUDS : 20
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	1	20	265.00	135	120	17.00	1.19	13.88HI	3.6
2	2	3	145.00	135	120	7.50	0.52	3.05	0.4
3	3	4	310.00	135	120	7.00	0.49	2.69	0.8
4	3	31	717.00	62	120	0.50	0.17LO	0.90	0.6
5	4	41	230.00	62	120	0.50	0.17LO	0.90	0.2
6	4	5	446.00	135	120	6.50	0.45	2.34	1.0
7	5	51	282.00	62	120	0.50	0.17LO	0.90	0.2
8	5	6	686.00	135	120	4.50	0.31	1.19	0.8
9	6	61	24.00	62	120	0.50	0.17LO	0.90	0.0
10	6	7	67.00	135	120	3.50	0.24LO	0.75	0.0
11	7	71	613.00	62	120	0.50	0.17LO	0.90	0.5
12	7	8	907.00	93	120	3.00	0.44	3.44	3.1
13	8	81	1326.00	62	120	0.50	0.17LO	0.90	1.1
14	8	9	831.00	93	120	2.00	0.29LO	1.63	1.3
16	9	10	274.00	76	120	1.50	0.33	2.55	0.7
17	10	11	81.00	62	120	1.00	0.33	3.25	0.2
18	11	12	411.00	62	120	0.50	0.17LO	0.90	0.3
19	10	13	274.00	62	120	0.50	0.17LO	0.90	0.2
20	20	2	1957.00	135	120	8.00	0.56	3.44	6.7

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
1 R	17.000	514.00	514.00	0.00
20	-9.000	456.00	510.32	54.32
3	0.000	475.00	503.15	28.15
4	0.000	457.00	502.31	45.31
31	-0.500	404.00	502.50	98.50
41	-0.500	459.00	502.11	43.11
5	-1.500	418.00	501.27	83.27
51	-0.500	401.00	501.01	100.01
6	-0.500	423.00	500.45	77.45
61	-0.500	426.00	500.43	74.43
7	0.000	427.00	500.41	73.40
71	-0.500	365.00	499.85	134.85
8	-0.500	491.00	497.28	6.28
81	-0.500	347.00	496.09	149.09
9	-0.500	429.00	495.93	66.93
10	0.000	417.00	495.23	78.23
11	-0.500	436.00	494.97	58.97

NOEUD N ^o	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
12	-0.500	485.00	494.60	9.60
13	-0.500	409.00	494.99	85.99
2	-0.500	485.00	503.59	18.59

T I T R E : R520 (BATTAHA JOUAOUA 1)
 NB. DE CONDUITES : 19
 NB. DE NOEUDS : 20
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	1	20	265.00	135	120	0.17	0.01LO	0.00	0.0
2	2	3	145.00	135	120	0.08	0.01LO	0.00	0.0
3	3	4	310.00	135	120	0.07	0.00LO	0.00	0.0
4	3	31	717.00	62	120	0.00	0.00LO	0.00	0.0
5	4	41	230.00	62	120	0.00	0.00LO	0.00	0.0
6	4	5	446.00	135	120	0.06	0.00LO	0.00	0.0
7	5	51	282.00	62	120	0.00	0.00LO	0.00	0.0
8	5	6	686.00	135	120	0.05	0.00LO	0.00	0.0
9	6	61	24.00	62	120	0.00	0.00LO	0.00	0.0
10	6	7	67.00	135	120	0.04	0.00LO	0.00	0.0
11	7	71	613.00	62	120	0.00	0.00LO	0.00	0.0
12	7	8	907.00	93	120	0.03	0.00LO	0.00	0.0
13	8	81	1326.00	62	120	0.00	0.00LO	0.00	0.0
14	8	9	831.00	93	120	0.02	0.00LO	0.00	0.0
16	9	10	274.00	76	120	0.01	0.00LO	0.00	0.0
17	10	11	81.00	62	120	0.01	0.00LO	0.00	0.0
18	11	12	411.00	62	120	0.00	0.00LO	0.00	0.0
19	10	13	274.00	62	120	0.00	0.00LO	0.00	0.0
20	20	2	1957.00	135	120	0.08	0.01LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
1 R	0.170	514.00	514.00	0.00
20	-0.090	456.00	514.00	58.00
3	0.000	475.00	514.00	39.00
4	0.000	457.00	514.00	57.00
31	-0.005	404.00	514.00	110.00
41	-0.005	459.00	514.00	55.00
5	-0.015	418.00	514.00	96.00
51	-0.005	401.00	514.00	113.00
6	-0.005	423.00	514.00	91.00
61	-0.005	426.00	514.00	88.00
7	0.000	427.00	514.00	87.00
71	-0.005	365.00	514.00	149.00
8	-0.005	491.00	514.00	23.00
81	-0.005	347.00	514.00	167.00
9	-0.005	429.00	514.00	85.00
10	0.000	417.00	514.00	97.00
11	-0.005	436.00	514.00	78.00

NOEUD N ^o	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
12	-0.005	485.00	514.00	29.00
13	-0.005	409.00	514.00	105.00
2	-0.005	485.00	514.00	29.00

T I T R E : BC1 AIN SRIIOUIA TN 420 M
 NB. DE CONDUITES : 2
 NB. DE NOEUDS : 3
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. N $\frac{1}{2}$	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
1	3	31	548.00	76	120	1.00	0.22LO	1.21	0.6
2	31	311	230.00	62	120	0.50	0.17LO	0.90	0.2

NOEUD N $\frac{1}{2}$	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
3 R	1.000	420.00	420.00	0.00
31	-0.500	412.00	419.34	7.34
311	-0.500	380.00	419.13	39.13

T I T R E : BC1 AIN SRIIOUIA TN 420 M
 NB. DE CONDUITES : 2
 NB. DE NOEUDS : 3
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	3	31	548.00	76	120	0.01	0.00LO	0.00	0.0
2	31	311	230.00	62	120	0.00	0.00LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
3 R	0.010	420.00	420.00	0.00
31	-0.005	412.00	420.00	8.00
311	-0.005	380.00	420.00	40.00

T I T R E : RESERVOIR 569

NB. DE CONDUITES : 13
 NB. DE NOEUDS : 14
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
1	1	2	278.00	135	120	13.00	0.91	8.45	2.3
2	2	3	997.00	135	120	12.00	0.84	7.28	7.2
3	3	4	1850.00	122	120	12.00	1.03	11.93HI	22.0
4	4	5	652.00	122	120	11.50	0.98	11.02HI	7.1
5	5	6	624.00	135	120	11.00	0.77	6.20	3.8
6	6	10	48.00	93	120	3.50	0.52	4.58	0.2
7	6	7	550.00	122	120	7.50	0.64	5.00	2.7
8	7	8	409.00	122	120	6.50	0.56	3.84	1.5
9	7	71	676.00	62	120	1.00	0.33	3.25	2.2
10	71	72	582.00	62	120	0.50	0.17LO	0.90	0.5
11	8	9	1629.00	150	120	6.50	0.37	1.40	2.2
12	9	91	469.00	122	120	6.50	0.56	3.84	1.8
13	91	92	248.00	135	120	6.50	0.45	2.34	0.5

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
1 R	13.000	569.00	569.00	0.00
2	-1.000	538.00	566.65	28.65
3	0.000	470.00	559.39	89.39
4	-0.500	463.00	537.32	74.32
5	-0.500	490.00	530.14	40.14
6	0.000	473.00	526.27	53.27
10	-3.500	470.00	526.05	56.05
7	0.000	457.00	523.52	66.52
8	0.000	408.00	521.95	113.95
71	-0.500	500.00	521.32	21.32
72	-0.500	505.00	520.80	15.80
9	0.000	408.00	519.66	111.66
91	0.000	469.00	517.86	48.86
92	-6.500	514.00	517.28	3.28

T I T R E : RESERVOIR 569

NB. DE CONDUITES : 13
 NB. DE NOEUDS : 14
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	1	2	278.00	135	120	0.13	0.01LO	0.00	0.0
2	2	3	997.00	135	120	0.12	0.01LO	0.00	0.0
3	3	4	1850.00	122	120	0.12	0.01LO	0.00	0.0
4	4	5	652.00	122	120	0.12	0.01LO	0.00	0.0
5	5	6	624.00	135	120	0.11	0.01LO	0.00	0.0
6	6	10	48.00	93	120	0.04	0.01LO	0.00	0.0
7	6	7	550.00	122	120	0.07	0.01LO	0.00	0.0
8	7	8	409.00	122	120	0.06	0.01LO	0.00	0.0
9	7	71	676.00	62	120	0.01	0.00LO	0.00	0.0
10	71	72	582.00	62	120	0.00	0.00LO	0.00	0.0
11	8	9	1629.00	150	120	0.06	0.00LO	0.00	0.0
12	9	91	469.00	122	120	0.06	0.01LO	0.00	0.0
13	91	92	248.00	135	120	0.06	0.00LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
1 R	0.130	569.00	569.00	0.00
2	-0.010	538.00	569.00	31.00
3	0.000	470.00	569.00	99.00
4	-0.005	463.00	568.99	105.99
5	-0.005	490.00	568.99	78.99
6	0.000	473.00	568.99	95.99
10	-0.035	470.00	568.99	98.99
7	0.000	457.00	568.99	111.99
8	0.000	408.00	568.99	160.99
71	-0.005	500.00	568.99	68.99
72	-0.005	505.00	568.99	63.99
9	0.000	408.00	568.99	160.99
91	0.000	469.00	568.99	99.99
92	-0.065	514.00	568.99	54.99

T I T R E : BC1(SAFSAFA ECOLE)
 NB. DE CONDUITES : 2
 NB. DE NOEUDS : 3
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	10	11	970.00	135	120	3.50	0.24	0.75	0.7
2	11	12	356.00	93	120	3.00	0.44	3.44	1.2

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
10 R	3.500	470.00	470.00	0.00
11	-0.500	432.00	469.28	37.28
12	-3.000	410.00	468.05	58.05

T I T R E : BC1(SAFSAFA ECOLE)
 NB. DE CONDUITES : 2
 NB. DE NOEUDS : 3
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	10	11	970.00	135	120	0.04	0.00LO	0.00	0.0
2	11	12	356.00	93	120	0.03	0.00LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
10 R	0.035	470.00	470.00	0.00
11	-0.005	432.00	470.00	38.00
12	-0.030	410.00	470.00	60.00

T I T R E : BC3 (FAJJA) TN 411 M
 NB. DE CONDUITES : 5
 NB. DE NOEUDS : 6
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	12	13	103.00	76	120	1.50	0.33	2.55	0.2
2	13	131	940.00	62	120	1.00	0.33	3.25	3.0
3	131	132	309.00	62	120	0.50	0.17LO	0.90	0.2
4	13	14	614.00	76	120	0.50	0.11LO	0.33	0.2
5	14	15	329.00	76	120	0.00	0.00LO	12.16HI	4.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
12 R	1.500	411.00	411.00	0.00
13	0.000	410.00	410.74	0.74
131	-0.500	307.00	407.68	100.68
132	-0.500	300.00	407.41	107.41
14	-0.500	362.00	410.53	48.53
15	0.000	327.00	406.53	79.53

T I T R E : BC3 (FAJJA) TN 411 M
 NB. DE CONDUITES : 5
 NB. DE NOEUDS : 6
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	12	13	103.00	76	120	0.01	0.00LO	0.00	0.0
2	13	131	940.00	62	120	0.01	0.00LO	0.00	0.0
3	131	132	309.00	62	120	0.00	0.00LO	0.00	0.0
4	13	14	614.00	76	120	0.00	0.00LO	0.00	0.0
5	14	15	329.00	76	120	0.00	0.00LO	12.16HI	4.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
12 R	0.015	411.00	411.00	0.00
13	0.000	410.00	411.00	1.00
131	-0.005	307.00	411.00	104.00
132	-0.005	300.00	411.00	111.00
14	-0.005	362.00	411.00	49.00
15	0.000	327.00	407.00	80.00

T I T R E : FAJJA BC 4 TN 327 M
 NB. DE CONDUITES : 3
 NB. DE NOEUDS : 4
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. N½	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	15	16	105.00	62	120	1.50	0.50	6.88	0.7
2	16	17	941.00	62	120	0.50	0.17LO	0.90	0.8
3	16	18	646.00	62	120	0.50	0.17LO	0.90	0.5

NOEUD N½	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
15 R	1.500	327.00	327.00	0.00
16	-0.500	299.00	326.28	27.28
17	-0.500	231.00	325.43	94.43
18	-0.500	234.00	325.70	91.70

T I T R E : FAJJA BC 4 TN 327 M
 NB. DE CONDUITES : 3
 NB. DE NOEUDS : 4
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. N $\frac{1}{2}$	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
1	15	16	105.00	62	120	0.01	0.00LO	0.00	0.0
2	16	17	941.00	62	120	0.00	0.00LO	0.00	0.0
3	16	18	646.00	62	120	0.00	0.00LO	0.00	0.0

NOEUD N $\frac{1}{2}$	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
15 R	0.015	327.00	327.00	0.00
16	-0.005	299.00	327.00	28.00
17	-0.005	231.00	327.00	96.00
18	-0.005	234.00	327.00	93.00

T I T R E : Ouled Dhifallah BC2 cote 235 m

NB. DE CONDUITES : 9
 NB. DE NOEUDS : 10
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	7	8	801.00	105	120	5.50	0.64	5.85	4.6
2	8	81	455.00	62	120	0.50	0.17LO	0.90	0.4
3	8	9	507.00	105	120	5.00	0.58	4.90	2.4
4	9	91	249.00	62	120	0.50	0.17LO	0.90	0.2
5	9	10	137.00	93	120	3.50	0.52	4.58	0.6
6	10	12	434.00	76	120	1.50	0.33	2.55	1.1
7	12	121	319.00	62	120	0.50	0.17LO	0.90	0.2
8	12	13	379.00	62	120	1.00	0.33	3.25	1.2
9	13	14	279.00	62	120	0.50	0.17LO	0.90	0.2

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
7 R	5.500	235.00	235.00	0.00
8	0.000	208.00	230.31	22.31
81	-0.500	176.00	229.90	53.90
9	-1.000	194.00	227.83	33.83
91	-0.500	167.00	227.60	60.60
10	-2.000	193.00	227.20	34.20
12	0.000	167.00	226.09	59.09
121	-0.500	214.00	225.81	11.81
13	-0.500	179.00	224.86	45.86
14	-0.500	207.00	224.61	17.61

T I T R E : Ouled Dhifallah BC2 cote 235 m

NB. DE CONDUITES : 9
 NB. DE NOEUDS : 10
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	7	8	801.00	105	120	0.06	0.01LO	0.00	0.0
2	8	81	455.00	62	120	0.00	0.00LO	0.00	0.0
3	8	9	507.00	105	120	0.05	0.01LO	0.00	0.0
4	9	91	249.00	62	120	0.00	0.00LO	0.00	0.0
5	9	10	137.00	93	120	0.04	0.01LO	0.00	0.0
6	10	12	434.00	76	120	0.01	0.00LO	0.00	0.0
7	12	121	319.00	62	120	0.00	0.00LO	0.00	0.0
8	12	13	379.00	62	120	0.01	0.00LO	0.00	0.0
9	13	14	279.00	62	120	0.00	0.00LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
7 R	0.055	235.00	235.00	0.00
8	0.000	208.00	235.00	27.00
81	-0.005	176.00	235.00	59.00
9	-0.010	194.00	235.00	41.00
91	-0.005	167.00	235.00	68.00
10	-0.020	193.00	235.00	42.00
12	0.000	167.00	235.00	68.00
121	-0.005	214.00	235.00	21.00
13	-0.005	179.00	235.00	56.00
14	-0.005	207.00	235.00	28.00

T I T R E : OULED DHIFALLAH BC3 TN 180

NB. DE CONDUITES : 5
 NB. DE NOEUDS : 6
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. N½	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	10	15	747.00	76	120	2.00	0.44	4.34	3.2
6	15	16	87.00	76	120	1.50	0.33	2.55	0.2
7	16	17	1190.00	62	120	1.00	0.33	3.25	3.8
8	17	171	247.00	62	120	0.50	0.17LO	0.90	0.2
9	17	18	718.00	62	120	0.50	0.17LO	0.90	0.6

NOEUD N½	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
10 R	2.000	180.00	180.00	0.00
15	-0.500	169.00	176.75	7.75
16	-0.500	166.00	176.53	10.53
17	0.000	117.00	172.67	55.67
171	-0.500	162.00	172.44	10.44
18	-0.500	119.00	172.02	53.02

T I T R E : OULED DHIFALLAH BC3 TN 180

NB. DE CONDUITES : 5
 NB. DE NOEUDS : 6
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. N½	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	10	15	747.00	76	120	0.02	0.00LO	0.00	0.0
6	15	16	87.00	76	120	0.01	0.00LO	0.00	0.0
7	16	17	1190.00	62	120	0.01	0.00LO	0.00	0.0
8	17	171	247.00	62	120	0.00	0.00LO	0.00	0.0
9	17	18	718.00	62	120	0.00	0.00LO	0.00	0.0

NOEUD N½	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
10 R	0.020	180.00	180.00	0.00
15	-0.005	169.00	180.00	11.00
16	-0.005	166.00	180.00	14.00
17	0.000	117.00	180.00	63.00
171	-0.005	162.00	180.00	18.00
18	-0.005	119.00	180.00	61.00

T I T R E : Ouled Dhifallah (BC1 COTE 295)

NB. DE CONDUITES : 9
 NB. DE NOEUDS : 10
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	4	5	267.00	105	120	9.50	1.10	16.08HI	4.2
2	5	51	497.00	76	120	3.50	0.77	12.23HI	6.0
3	51	52	179.00	76	120	2.50	0.55	6.57	1.1
4	52	53	396.00	76	120	1.00	0.22LO	1.21	0.4
5	53	54	542.00	76	120	0.50	0.11LO	0.33	0.1
6	5	6	570.00	105	120	6.00	0.69	6.87	3.9
7	6	7	362.00	105	120	5.00	0.58	4.90	1.7
8	51	511	337.00	62	120	0.50	0.17LO	0.90	0.3
9	53	531	222.00	62	120	0.50	0.17LO	0.90	0.2

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
4 R	9.500	295.00	295.00	0.00
5	0.000	275.00	290.71	15.71
51	-0.500	269.00	284.63	15.63
52	-1.500	267.00	283.45	16.45
53	0.000	258.00	282.97	24.97
54	-0.500	249.00	282.79	33.79
6	-1.000	251.00	286.79	35.79
7	-5.000	235.00	285.02	50.02
511	-0.500	227.00	284.32	57.32
531	-0.500	241.00	282.77	41.77

T I T R E : Ouled Dhifallah (BC1 COTE 295)

NB. DE CONDUITES : 9
 NB. DE NOEUDS : 10
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	4	5	267.00	105	120	0.09	0.01LO	0.00	0.0
2	5	51	497.00	76	120	0.03	0.01LO	0.00	0.0
3	51	52	179.00	76	120	0.02	0.01LO	0.00	0.0
4	52	53	396.00	76	120	0.01	0.00LO	0.00	0.0
5	53	54	542.00	76	120	0.00	0.00LO	0.00	0.0
6	5	6	570.00	105	120	0.06	0.01LO	0.00	0.0
7	6	7	362.00	105	120	0.05	0.01LO	0.00	0.0
8	51	511	337.00	62	120	0.00	0.00LO	0.00	0.0
9	53	531	222.00	62	120	0.00	0.00LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
4 R	0.095	295.00	295.00	0.00
5	0.000	275.00	295.00	20.00
51	-0.005	269.00	295.00	26.00
52	-0.015	267.00	295.00	28.00
53	0.000	258.00	295.00	37.00
54	-0.005	249.00	295.00	46.00
6	-0.010	251.00	295.00	44.00
7	-0.050	235.00	295.00	60.00
511	-0.005	227.00	295.00	68.00
531	-0.005	241.00	295.00	54.00

T I T R E : Ouled Dhifallah (SP2 COTE 340)

NB. DE CONDUITES : 4
 NB. DE NOEUDS : 5
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. N ^o	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
1	1	2	408.00	105	120	10.50	1.21	19.35HI	7.8
2	2	3	135.00	105	120	10.00	1.15	17.68HI	2.3
3	3	4	118.00	105	120	9.50	1.10	16.08HI	1.9
4	3	31	236.00	62	120	0.50	0.17LO	0.90	0.2

NOEUD N ^o	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
1 R	10.500	340.00	340.00	0.00
2	-0.500	316.00	332.11	16.11
3	0.000	308.00	329.72	21.72
4	-9.500	295.00	327.82	32.82
31	-0.500	324.00	329.51	5.51

T I T R E : Ouled Dhifallah (SP2 COTE 340)

NB. DE CONDUITES : 4
 NB. DE NOEUDS : 5
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
1	1	2	408.00	105	120	0.11	0.01LO	0.00	0.0
2	2	3	135.00	105	120	0.10	0.01LO	0.00	0.0
3	3	4	118.00	105	120	0.09	0.01LO	0.00	0.0
4	3	31	236.00	62	120	0.00	0.00LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
1 R	0.105	340.00	340.00	0.00
2	-0.005	316.00	340.00	24.00
3	0.000	308.00	340.00	32.00
4	-0.095	295.00	340.00	45.00
31	-0.005	324.00	340.00	16.00

T I T R E : Maalim SP5 TN 409
 NB. DE CONDUITES : 4
 NB. DE NOEUDS : 5
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. N½	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
2	15	151	257.00	62	120	1.50	0.50	6.88	1.7
3	151	152	71.00	62	120	0.50	0.17LO	0.90	0.0
4	151	153	141.00	62	120	0.50	0.17LO	0.90	0.1
5	15	16	760.00	62	120	1.00	0.33	3.25	2.4

NOEUD N½	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
15 R	2.500	409.00	409.00	0.00
151	-0.500	371.00	407.23	36.23
152	-0.500	378.00	407.17	29.17
153	-0.500	355.00	407.11	52.11
16	-1.000	350.00	406.53	56.53

T I T R E : Maalim SP5 TN 409
 NB. DE CONDUITES : 4
 NB. DE NOEUDS : 5
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. N½	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
2	15	151	257.00	62	120	0.01	0.00LO	0.00	0.0
3	151	152	71.00	62	120	0.00	0.00LO	0.00	0.0
4	151	153	141.00	62	120	0.00	0.00LO	0.00	0.0
5	15	16	760.00	62	120	0.01	0.00LO	0.00	0.0

NOEUD N½	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
15 R	0.025	409.00	409.00	0.00
151	-0.005	371.00	409.00	38.00
152	-0.005	378.00	409.00	31.00
153	-0.005	355.00	409.00	54.00
16	-0.010	350.00	409.00	59.00

T I T R E : Maalim SP6 TN 490
 NB. DE CONDUITES : 9
 NB. DE NOEUDS : 10
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
1	7	8	343.00	105	120	3.50	0.40	2.53	0.8
2	9	91	667.00	76	120	1.00	0.22LO	1.21	0.8
4	8	9	194.00	105	120	2.50	0.29LO	1.36	0.2
5	9	10	659.00	76	120	1.50	0.33	2.55	1.6
6	10	11	375.00	62	120	0.50	0.17LO	0.90	0.3
7	10	12	667.00	76	120	1.00	0.22LO	1.21	0.8
8	12	13	185.00	62	120	0.50	0.17LO	0.90	0.1
9	8	81	230.00	62	120	1.00	0.33	3.25	0.7
10	81	82	359.00	62	120	0.50	0.17LO	0.90	0.3

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
7 R	3.500	490.00	490.00	0.00
8	0.000	455.00	489.13	34.13
91	-1.000	427.00	488.06	61.06
9	0.000	454.00	488.87	34.87
10	0.000	459.00	487.19	28.19
11	-0.500	415.00	486.85	71.85
12	-0.500	471.00	486.38	15.38
13	-0.500	468.00	486.21	18.21
81	-0.500	454.00	488.38	34.38
82	-0.500	428.00	488.06	60.06

T I T R E : Maalim SP6 TN 490
 NB. DE CONDUITES : 9
 NB. DE NOEUDS : 10
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. N½	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
1	7	8	343.00	105	120	0.03	0.00LO	0.00	0.0
2	9	91	667.00	76	120	0.01	0.00LO	0.00	0.0
4	8	9	194.00	105	120	0.02	0.00LO	0.00	0.0
5	9	10	659.00	76	120	0.01	0.00LO	0.00	0.0
6	10	11	375.00	62	120	0.00	0.00LO	0.00	0.0
7	10	12	667.00	76	120	0.01	0.00LO	0.00	0.0
8	12	13	185.00	62	120	0.00	0.00LO	0.00	0.0
9	8	81	230.00	62	120	0.01	0.00LO	0.00	0.0
10	81	82	359.00	62	120	0.00	0.00LO	0.00	0.0

NOEUD N½	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
7 R	0.035	490.00	490.00	0.00
8	0.000	455.00	490.00	35.00
91	-0.010	427.00	490.00	63.00
9	0.000	454.00	490.00	36.00
10	0.000	459.00	490.00	31.00
11	-0.005	415.00	490.00	75.00
12	-0.005	471.00	490.00	19.00
13	-0.005	468.00	490.00	22.00
81	-0.005	454.00	490.00	36.00
82	-0.005	428.00	490.00	62.00

T I T R E : BC480 MAALIM SUP

NB. DE CONDUITES : 2
 NB. DE NOEUDS : 3
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. N $\frac{1}{2}$	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	5	51	238.00	76	120	5.50	1.21	28.23HI	6.7
2	51	52	573.00	62	120	0.50	0.17LO	0.90	0.5

NOEUD N $\frac{1}{2}$	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
5 R	5.500	480.00	480.00	0.00
51	-5.000	465.00	473.28	8.28
52	-0.500	410.00	472.76	62.76

T I T R E : R600 MAALIM

NB. DE CONDUITES : 3
 NB. DE NOEUDS : 4
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARG (M/KM)	CHARG (M)
1	1	2	76.00	105	120	6.50	0.75	7.97	0.6
2	2	3	440.00	105	120	6.00	0.69	6.87	3.0
3	3	4	337.00	76	120	5.50	1.21	28.23HI	9.5

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
1 R	6.500	600.00	600.00	0.00
2	-0.500	582.00	599.39	17.39
3	-0.500	574.00	596.37	22.37
4	-5.500	539.00	586.86	47.86

T I T R E : BC350 EL GSSIR

NB. DE CONDUITES : 3
 NB. DE NOEUDS : 4
 COEF. DE POINTE : 1
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
2	16	17	504.00	62	120	2.00	0.66	11.71	HI 5.9
3	17	171	269.00	62	120	0.50	0.17	LO 0.90	0.2
4	17	18	498.00	62	120	0.50	0.17	LO 0.90	0.4

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
16 R	2.000	350.00	350.00	0.00
17	-1.000	317.00	344.10	27.10
171	-0.500	273.00	343.86	70.86
18	-0.500	267.00	343.65	76.65

T I T R E : BC350 EL GSSIR

NB. DE CONDUITES : 3
 NB. DE NOEUDS : 4
 COEF. DE POINTE : .01
 PERTE DE CHARGE MAX/Km : 10

COND. Nº	DU Noeud	AU Noeud	LONG. (M)	DIAM. (MM)	HWC	DEBIT (L/S)	VITESSE (M/S)	PERTE DE CHARGE (M/KM)	CHARGE (M)
2	16	17	504.00	62	120	0.02	0.01LO	0.00	0.0
3	17	171	269.00	62	120	0.00	0.00LO	0.00	0.0
4	17	18	498.00	62	120	0.00	0.00LO	0.00	0.0

NOEUD Nº	DEBIT (L/S)	COTE (M)	H G L (M)	PRESSION (M)
16 R	0.020	350.00	350.00	0.00
17	-0.010	317.00	350.00	33.00
171	-0.005	273.00	350.00	77.00
18	-0.005	267.00	350.00	83.00

ANNEXE 1.1.2

Calculs hydrauliques de la conduite de refoulement
en régime transitoire

ANNEXE 1.1.2.1

Au démarrage de la station de reprise

DESCRIPTION DE LA CONDUITE :
 fichier profil en long [.PRF] : spl
 longueur (m) : 3150.00
 clrit (m/s) : 1000.00
 diamtre (mm) : 150.0
 P.Max.Adm (m) : 250

Page

PARAMETRES DE LA SIMULATION
 nombre de tronons 16
 ==> pas de temps (s) 0.20
 dure de la simulation (s) 60.00

DESCRIPTION DU REGIME HYDRAULIQUE :

Pag

Noeud 1 cote pizo face aval (m) 376.00
 dbit de 1 vers 17 (l/s) 12.50
 Noeud 17 cote pizo face amont (m) 350.00

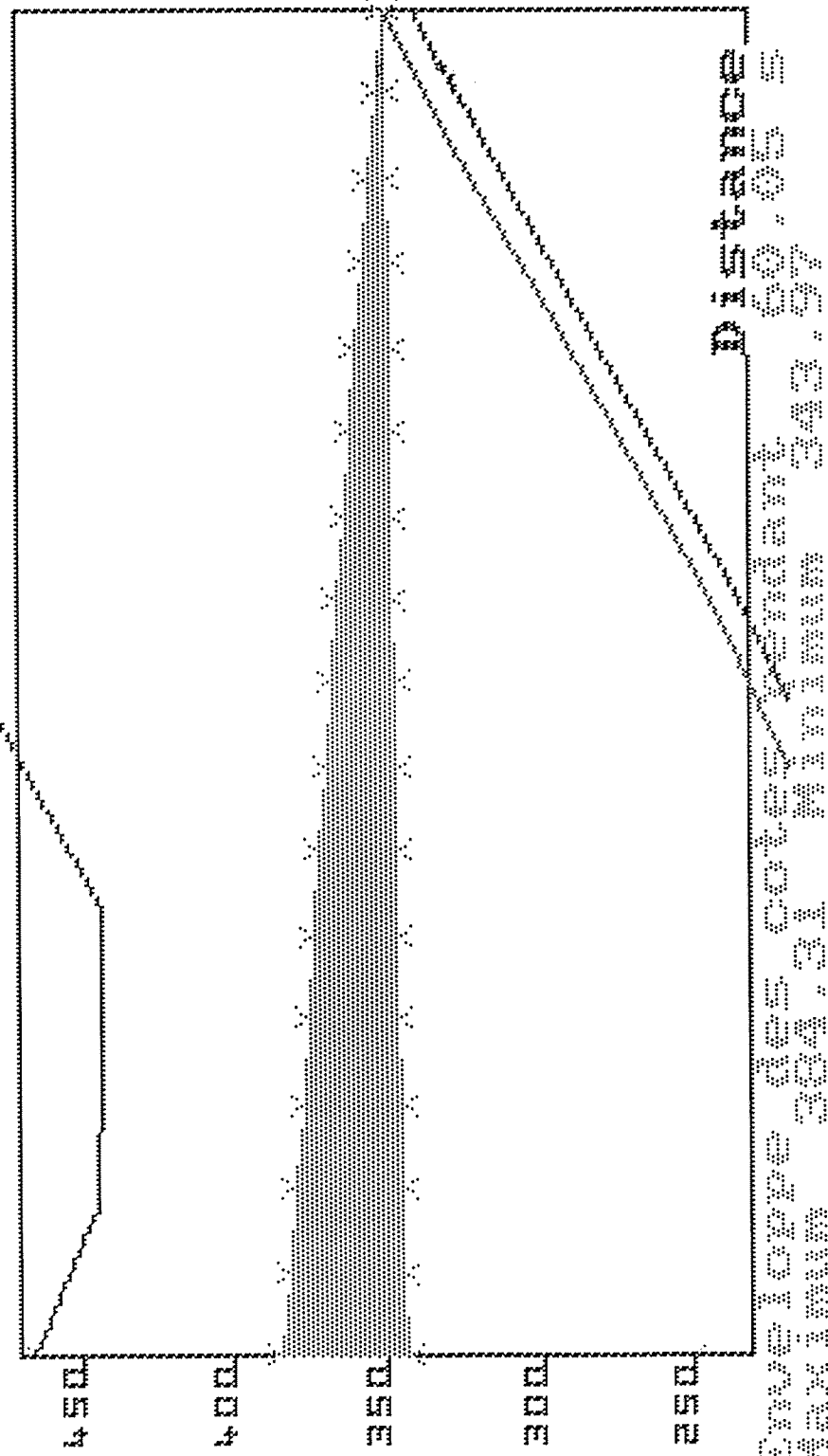
Perte de charge linaire 8.254 mm/m pour 12.50 l/s.

NOEUD	face : amont	appareil	aval	amont	appareil	aval
1	376.00	376.00	376.00	333.58	333.58	333.58
2	374.37	374.37	374.37	336.52	336.52	336.52
3	372.75	372.75	372.75	337.38	337.38	337.38
4	371.12	371.12	371.12	338.24	338.24	338.24
5	369.50	369.50	369.50	339.13	339.13	339.13
6	367.87	367.87	367.87	339.99	339.99	339.99
7	366.25	366.25	366.25	340.88	340.88	340.88
8	364.62	364.62	364.62	341.75	341.75	341.75
9	363.00	363.00	363.00	342.64	342.64	342.64
10	361.37	361.37	361.37	343.51	343.51	343.51
11	359.75	359.75	359.75	344.41	344.41	344.41
12	358.12	358.12	358.12	345.29	345.29	345.29
13	356.50	356.50	356.50	346.21	346.21	346.21
14	354.88	354.88	354.88	347.13	347.13	347.13
15	353.25	353.25	353.25	348.07	348.07	348.07
16	351.63	351.63	351.63	349.02	349.02	349.02
17	350.00	350.00	350.00	350.00	350.00	350.00

BALLON noeud 2
 pression absolue minimale (mCE) : 129.85
 volume d'air maximal (l) : 618.82

Autre passage ? (o/n)

conduite — ligne de cavitation —



... Enveloppe une couche

ANNEXE 1.1.2.2

A l'arrêt de la station de reprise

DESCRIPTION DE LA CONDUITE :

Pag.

fichier profil en long [.PRF] : sp1
 longueur (m) : 3150.00
 clrit (m/s) : 1000.00
 diamtre (mm) : 150.0
 P.Max.Adm (m) : 250

PARAMETRES DE LA SIMULATION

nombre de tronons 16
 ==> pas de temps (s) 0.20
 dure de la simulation (s) 60.00

DESCRIPTION DU REGIME HYDRAULIQUE :

Pag.

Noeud 1 cote pizo face aval (m) 350.01
 dbit de 1 vers 17 (l/s) 0.50
 Noeud 17 cote pizo face amont (m) 350.00

Perte de charge linaire 0.003 mm/m pour 0.50 l/s.

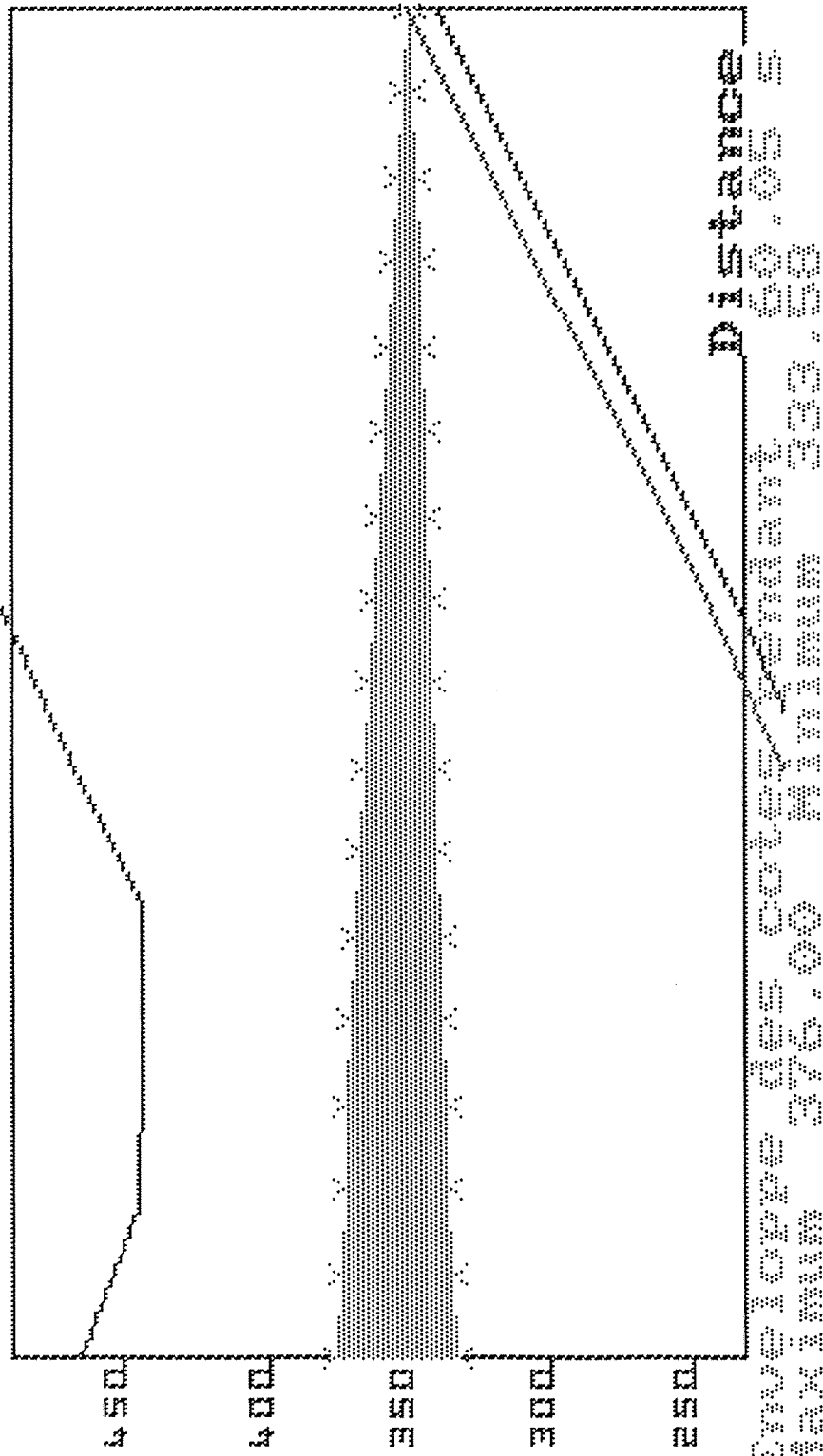
NOEUD	face : amont	appareil	aval	amont	appareil	aval
1	384.31	384.31	384.31	343.97	343.97	343.97
2	381.48	381.48	381.48	345.33	345.33	345.33
3	379.53	379.53	379.53	345.63	345.63	345.63
4	377.57	377.57	377.57	345.94	345.94	345.94
5	375.55	375.55	375.55	346.24	346.24	346.24
6	373.54	373.54	373.54	346.55	346.55	346.55
7	371.48	371.48	371.48	346.87	346.87	346.87
8	369.47	369.47	369.47	347.18	347.18	347.18
9	367.41	367.41	367.41	347.50	347.50	347.50
10	365.36	365.36	365.36	347.80	347.80	347.80
11	363.24	363.24	363.24	348.12	348.12	348.12
12	361.09	361.09	361.09	348.42	348.42	348.42
13	358.93	358.93	358.93	348.71	348.71	348.71
14	356.73	356.73	356.73	349.02	349.02	349.02
15	354.51	354.51	354.51	349.32	349.32	349.32
16	352.28	352.28	352.28	349.65	349.65	349.65
17	350.00	350.00	350.00	350.00	350.00	350.00

BALLON noeud 2

pression absolue minimale (mCE) : 138.66
 volume d'air maximal (l) : 514.04

Autre passage ? (o/n)

conduite — ligne de cavitation —



... Presser une touche