

Dispersion Report

Workspace: 72438-3InvioGN-10R

Study: Invio GN a metanodotto

Equipment Item: 10R Linea di mandata gas

72438-3InvioGN-10R\Invio GN a metanodotto\10R Linea di mandata gas

Material	GAS NATURALE	
East	0	m
North	0	m

Scenario (Leak) : 81,3 mm

72438-3InvioGN-10R\Invio GN a metanodotto\10R Linea di mandata gas\81,3 mm

Material to track	GAS NATURALE
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Weather: Category 2/F

Wind speed [m/s]	2
Pasquill stability	F stable - night with moderate clouds and light/moderate wind
Atmospheric temperature [degC]	25
Relative humidity [fraction]	0,75
Solar radiation flux [kW/m2]	0,5
Mixing layer height [m]	100

Observer Release Data and Observer Mass Data

Observer number	Release type	Start time [s]	Start downwind distance [m]	Unit	Masses or mass rates		
					Release	Rainout	Final
1	Continuous	0	0	kg/s	67,986	0	67,986
2	Continuous	5,22501	0	kg/s	67,986	0	67,986

Time-varying Observer Dispersion Data (before along-wind-diffusion effects)

Dispersion data correspond to an averaging time of: 18,75 s

Observer number	Time [s]	Down wind distance [m]	C/Li ne height [m]	C/Lin e conc [ppm]	Effect ive width [m]	Effect ive depth [m]	C/Line vapour temperature [degC]	C/Li ne liquid fraction	Centr oid velocity [m/s]	C/Lin e cloud density [kg/m ³]
1	0	0	1	999.99 9,37	0,4696 48	0,2349 96	-56,7905	0	300	1,0266 8
1	0,01	2,09318	1,000 05	646.15 8,20	0,8613 45	0,4308 67	-20,9135	0	160,88 8	1,0636 8
1	0,02	3,48796	1,000 17	522.91 0,81	1,1227 5	0,5615 44	-9,39679	0	123,00 7	1,0779 2
1	0,03	4,61266	1,000 35	453.28 1,69	1,3384 2	0,6693 35	-3,67925	0	103,44	1,0882 2
1	0,04	5,58144	1,000 57	406.80 7,73	1,5299 8	0,7650 64	-0,23522	0	91,042	1,0961 5
1	0,05	6,44699	1,000 83	372.85 8,64	1,7059 1	0,8529 75	2,06657	0	82,284 3	1,1026 1
1	0,055 09	6,85663	1,000 98	358.84 2,70	1,7921 1	0,8960 51	3,03338	0	78,603 3	1,1051 6
1	0,055 09	6,85663	1,000 98	358.84 2,70	1,7921 1	0,8960 5	3,03338	0	78,603 3	1,1051 6
1	0,06	7,23433	1,001 13	347.01 2,22	1,8750 5	0,9374 9	3,83275	0	75,278	1,1073 6
1	0,07	7,95631	1,001 47	326.89 1,93	2,0403 7	1,0200 9	5,1577	0	69,309 6	1,1111 8
1	0,08	8,62406	1,001 83	310.67 3,15	2,1980 1	1,0988 4	6,19472	0	64,398 8	1,1143 4
1	0,09	9,24704	1,002 23	297.23 9,68	2,3475 6	1,1735 6	7,03318	0	60,331 6	1,117
1	0,1	9,83265	1,002 66	285.87 2,00	2,4894 7	1,2444 5	7,72853	0	56,915 7	1,1192 9
1	0,11	10,3867	1,003 12	276.07 7,31	2,6243 4	1,3118 3	8,31744	0	54,007 6	1,1212 9



1	0,12	10,9138	1,003 6	267.50 9,81	2,7528 7	1,3760 3	8,82495	0	51,499 4	1,1230 5
1	0,13	11,4173	1,004 11	259.92 6,55	2,8756 3	1,4373 6	9,2683	0	49,311 1	1,1246 3
1	0,14	11,9003	1,004 65	253.14 4,04	2,9932 1	1,4960 9	9,66026	0	47,381 9	1,1260 5
1	0,15	12,3653	1,005 21	247.01 8,68	3,1061 7	1,5525 2	10,0106	0	45,664 5	1,1273 4
1	0,16	12,8142	1,005 8	241.44 6,25	3,2149 4	1,6068 5	10,3263	0	44,123 9	1,1285 2
1	0,17	13,2488	1,006 41	236.34 1,16	3,3199 2	1,6592 9	10,613	0	42,731 5	1,1296 1
1	0,18	13,6702	1,007 04	231.64 0,67	3,4213 8	1,7099 7	10,875	0	41,466	1,1306 1
1	0,19	14,0794	1,007 7	227.29 4,62	3,5195 4	1,759	11,1154	0	40,309 9	1,1315 5
1	0,2	14,4778	1,008 38	223.25 3,95	3,6147 7	1,8065 7	11,3375	0	39,247 5	1,1324 2
1	0,212	14,9423	1,009 22	218.76 4,25	3,7252 6	1,8617 6	11,5826	0	38,081 9	1,1333 9
1	0,226 4	15,4821	1,010 27	213.82 0,66	3,8529 6	1,9255 5	11,8504	0	36,816 9	1,1344 7
1	0,243 68	16,1077	1,011 59	208.42 3,71	4,0001 2	1,9990 6	12,1404	0	35,457 8	1,1356 5
1	0,264 416	16,8299	1,013 25	202.59 3,94	4,1688 2	2,0833 3	12,4509	0	34,015 9	1,1369 3
1	0,289 299	17,6595	1,015 35	196.37 2,42	4,3608 4	2,1792 4	12,7791	0	32,508 7	1,1383
1	0,319 159	18,6089	1,018 02	189.80 3,57	4,5781 8	2,2878 1	13,1222	0	30,953 7	1,1397 6
1	0,354 991	19,6909	1,021 43	182.94 1,54	4,8227 2	2,4099 6	13,4769	0	29,37	1,1412 9
1	0,397 989	20,9183	1,025 82	175.85 5,83	5,0957 3	2,5463 3	13,8392	0	27,780 7	1,1428 8
1	0,449 587	22,3077	1,031 46	168.59 3,89	5,3996 2	2,6981 3	14,2064	0	26,199 5	1,1445 1
1	0,511 504	23,88	1,038 75	161.18 3,96	5,7384	2,8673 7	14,5769	0	24,631 3	1,1461 9



1	0,585 805	25,6556	1,048 19	153.68 0,51	6,1149 8	3,0554 8	14,9479	0	23,088 8	1,1479
1	0,674 966	27,6508	1,060 45	146.17 2,11	6,5293 3	3,2624 7	15,315	0	21,596 1	1,1496 2
1	0,781 959	29,886	1,076 38	138.72 1,02	6,9819 6	3,4886	15,6753	0	20,168 1	1,1513 3
1	0,910 351	32,3923	1,097 1	131.34 0,53	7,4776 1	3,7362 2	16,0284	0	18,801 6	1,1530 3
1	1,064 42	35,1955	1,124 06	124.08 1,23	8,0173 6	4,0058 8	16,372	0	17,504 9	1,1547 1
1	1,249 31	38,3215	1,159 15	116.99 1,81	8,6010 4	4,2975	16,7044	0	16,285 7	1,1563 5
1	1,471 17	41,8022	1,204 77	110.10 0,55	9,2291 5	4,6113 3	17,0245	0	15,146 3	1,1579 6
1	1,737 4	45,6814	1,263 94	103.40 8,84	9,9049 6	4,949	17,3327	0	14,081 6	1,1595 2
1	2,056 88	50,0194	1,340 34	96.896, 53	10,636 4	5,3145	17,6302	0	13,079 9	1,1610 3
1	2,440 26	54,8591	1,438 58	90.598, 65	11,422 3	5,7070	17,916	0	12,146 4	1,1625
1	2,900 31	60,2483	1,564 24	84.539, 89	12,258 4	6,1250 1	18,1892	0	11,284 9	1,1639 1
1	3,452 37	66,2639	1,723 78	78.702, 90	13,151 7	6,5714 1	18,4511	0	10,486 7	1,1652 6
1	4,114 84	72,9768	1,924 78	73.094, 16	14,102 7	7,0466 9	18,7016	0	9,7498 5	1,1665 5
1	4,909 81	80,4583	2,175 72	67.723, 66	15,110 3	7,5502 6	18,9407	0	9,0734 4	1,1677 7
1	5,863 77	88,7965	2,485 12	62.591, 44	16,175 7	8,0827 7	19,1684	0	8,4549 8	1,1689 4
1	7,008 53	98,1253	2,859 42	57.677, 96	17,311 2	8,6502 5	19,3859	0	7,8878 2	1,1700 4
1	8,382 23	108,592	3,302 98	52.978, 66	18,534	9,2614 7	19,765	0	7,3683 8	1,1704 7
1	10,03 07	120,334	3,825 14	48.501, 33	19,845 7	9,9170 8	20,224	0	6,8963 1	1,1705 2
1	12,00 88	133,554	4,441 01	44.233, 08	21,252 5	10,620 3	20,6639	0	6,4680 8	1,1705 4



1	14,38 26	148,44	5,169 28	40.173, 58	22,757 5	11,372 6	21,0844	0	6,0828 9	1,1705 3
1	17,23 11	165,244	6,033 25	36.311, 34	24,370 4	12,178 8	21,4866	0	5,7387 1	1,1704 9
1	20,64 93	184,268	7,061 17	32.632, 34	26,106 3	13,046 6	21,8719	0	5,4337 4	1,1704 1
1	24,75 12	205,905	8,286 67	29.118, 82	27,991 8	13,989 1	22,2419	0	5,1662 3	1,1703
1	29,67 34	230,627	9,748 5	25.757, 27	30,064 1	15,025 1	22,598	0	4,9354 8	1,1701 4
1	35,14 36	256,997	11,36 19	22.750, 14	32,215 2	16,100 5	22,9184	0	4,7529 1	1,1699 5
1	35,58 01	259,064	11,49 01	22.535, 18	32,382 3	16,184	22,9413	0	4,7408 3	1,1699 3
1	42,66 81	291,882	13,55 17	19.432, 85	35,049 3	17,517 3	23,2739	0	4,5824	1,1696 7
1	51,17 37	330,239	15,98 06	16.503, 77	38,110 5	19,047 7	23,5903	0	4,4647 9	1,1693 5
1	61,38 05	375,351	18,80 83	13.749, 15	41,721	20,852 7	23,8904	0	4,3889 2	1,1689 7
1	73,62 86	428,845	22,05 36	11.207, 48	46,031 9	23,008	24,1702	0	4,3578 2	1,1685 1
1	88,32 63	492,894	25,71 79	8.929,5 9	51,200 2	25,592	24,4246	0	4,3738 3	1,1679 8
1	105,9 64	570,399	29,78 32	6.961,2 7	57,373 8	28,678 6	24,6488	0	4,4379 5	1,1673 9
1	125,4 19	657,619	33,87 07	5.437,1 6	64,099 2	32,041 1	24,8273	0	4,5383 4	1,1667 8
2	5,225 01	0	1	999.99 9,37	0,4696 48	0,2349 96	-56,7905	0	300	1,0266 8
2	5,235 01	2,09318	1,000 05	646.15 8,20	0,8613 45	0,4308 67	-20,9135	0	160,88 8	1,0636 8
2	5,245 01	3,48796	1,000 17	522.91 0,81	1,1227 5	0,5615 44	-9,39679	0	123,00 7	1,0779 2
2	5,255 01	4,61266	1,000 35	453.28 1,69	1,3384 2	0,6693 35	-3,67925	0	103,44	1,0882 2
2	5,265	5,58144	1,000	406.80	1,5299	0,7650	-0,23522	0	91,042	1,0961

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	01		57	7,73	8	64				5
2	5,275 01	6,44699	1,000 83	372.85 8,64	1,7059 1	0,8529 75	2,06657	0	82,284 3	1,1026 1
2	5,280 1	6,85663	1,000 98	358.84 2,70	1,7921 1	0,8960 51	3,03338	0	78,603 3	1,1051 6
2	5,280 1	6,85663	1,000 98	358.84 2,70	1,7921 1	0,8960 5	3,03338	0	78,603 3	1,1051 6
2	5,285 01	7,23433	1,001 13	347.01 2,22	1,8750 5	0,9374 9	3,83275	0	75,278	1,1073 6
2	5,295 01	7,95631	1,001 47	326.89 1,93	2,0403 7	1,0200 9	5,1577	0	69,309 6	1,1111 8
2	5,305 01	8,62406	1,001 83	310.67 3,15	2,1980 1	1,0988 4	6,19472	0	64,398 8	1,1143 4
2	5,315 01	9,24704	1,002 23	297.23 9,68	2,3475 6	1,1735 6	7,03318	0	60,331 6	1,117
2	5,325 01	9,83265	1,002 66	285.87 2,00	2,4894 7	1,2444 5	7,72853	0	56,915 7	1,1192 9
2	5,335 01	10,3867	1,003 12	276.07 7,31	2,6243 4	1,3118 3	8,31744	0	54,007 6	1,1212 9
2	5,345 01	10,9138	1,003 6	267.50 9,81	2,7528 7	1,3760 3	8,82495	0	51,499 4	1,1230 5
2	5,355 01	11,4173	1,004 11	259.92 6,55	2,8756 3	1,4373 6	9,2683	0	49,311 1	1,1246 3
2	5,365 01	11,9003	1,004 65	253.14 4,04	2,9932 1	1,4960 9	9,66026	0	47,381 9	1,1260 5
2	5,375 01	12,3653	1,005 21	247.01 8,68	3,1061 7	1,5525 2	10,0106	0	45,664 5	1,1273 4
2	5,385 01	12,8142	1,005 8	241.44 6,25	3,2149 4	1,6068 5	10,3263	0	44,123 9	1,1285 2
2	5,395 01	13,2488	1,006 41	236.34 1,16	3,3199 2	1,6592 9	10,613	0	42,731 5	1,1296 1
2	5,405 01	13,6702	1,007 04	231.64 0,67	3,4213 8	1,7099 7	10,875	0	41,466	1,1306 1
2	5,415 01	14,0794	1,007 7	227.29 4,62	3,5195 4	1,759	11,1154	0	40,309 9	1,1315 5
2	5,425 01	14,4778	1,008 38	223.25 3,95	3,6147 7	1,8065 7	11,3375	0	39,247 5	1,1324 2
2	5,437	14,9423	1,009	218.76	3,7252	1,8617	11,5826	0	38,081	1,1333



	01		22	4,25	6	6			9	9
2	5,451 41	15,4821	1,010 27	213.82 0,66	3,8529 6	1,9255 5	11,8504	0	36,816 9	1,1344 7
2	5,468 69	16,1077	1,011 59	208.42 3,71	4,0001 2	1,9990 6	12,1404	0	35,457 8	1,1356 5
2	5,489 42	16,8299	1,013 25	202.59 3,94	4,1688 2	2,0833 3	12,4509	0	34,015 9	1,1369 3
2	5,514 3	17,6595	1,015 35	196.37 2,42	4,3608 4	2,1792 4	12,7791	0	32,508 7	1,1383
2	5,544 16	18,6089	1,018 02	189.80 3,57	4,5781 8	2,2878 1	13,1222	0	30,953 7	1,1397 6
2	5,58	19,6909	1,021 43	182.94 1,54	4,8227 2	2,4099 6	13,4769	0	29,37	1,1412 9
2	5,622 99	20,9183	1,025 82	175.85 5,83	5,0957 3	2,5463 3	13,8392	0	27,780 7	1,1428 8
2	5,674 59	22,3077	1,031 46	168.59 3,89	5,3996 2	2,6981 3	14,2064	0	26,199 5	1,1445 1
2	5,736 51	23,88	1,038 75	161.18 3,96	5,7384	2,8673 7	14,5769	0	24,631 3	1,1461 9
2	5,810 81	25,6556	1,048 19	153.68 0,51	6,1149 8	3,0554 8	14,9479	0	23,088 8	1,1479
2	5,899 97	27,6508	1,060 45	146.17 2,11	6,5293 3	3,2624 7	15,315	0	21,596 1	1,1496 2
2	6,006 96	29,886	1,076 38	138.72 1,02	6,9819 6	3,4886	15,6753	0	20,168 1	1,1513 3
2	6,135 36	32,3923	1,097 1	131.34 0,53	7,4776 1	3,7362 2	16,0284	0	18,801 6	1,1530 3
2	6,289 43	35,1955	1,124 06	124.08 1,23	8,0173 6	4,0058 8	16,372	0	17,504 9	1,1547 1
2	6,474 31	38,3215	1,159 15	116.99 1,81	8,6010 4	4,2975	16,7044	0	16,285 7	1,1563 5
2	6,696 17	41,8022	1,204 77	110.10 0,55	9,2291 5	4,6113 3	17,0245	0	15,146 3	1,1579 6
2	6,962 41	45,6814	1,263 94	103.40 8,84	9,9049 6	4,949	17,3327	0	14,081 6	1,1595 2
2	7,281 89	50,0194	1,340 34	96.896, 53	10,636 4	5,3145	17,6302	0	13,079 9	1,1610 3
2	7,665	54,8591	1,438	90.598,	11,422	5,7070	17,916	0	12,146	1,1625



	26		58	65		3			4	
2	8,125 31	60,2483	1,564 24	84.539, 89	12,258 4	6,1250 1	18,1892	0	11,284 9	1,1639 1
2	8,677 37	66,2639	1,723 78	78.702, 90	13,151 7	6,5714 1	18,4511	0	10,486 7	1,1652 6
2	9,339 85	72,9768	1,924 78	73.094, 16	14,102 7	7,0466 9	18,7016	0	9,7498 5	1,1665 5
2	10,13 48	80,4583	2,175 72	67.723, 66	15,110 3	7,5502 6	18,9407	0	9,0734 4	1,1677 7
2	11,08 88	88,7965	2,485 12	62.591, 44	16,175 7	8,0827 7	19,1684	0	8,4549 8	1,1689 4
2	12,23 35	98,1253	2,859 42	57.677, 96	17,311 2	8,6502 5	19,3859	0	7,8878 2	1,1700 4
2	13,60 72	108,592	3,302 98	52.978, 66	18,534	9,2614 7	19,765	0	7,3683 8	1,1704 7
2	15,25 57	120,334	3,825 14	48.501, 33	19,845 7	9,9170 8	20,224	0	6,8963 1	1,1705 2
2	17,23 38	133,554	4,441 01	44.233, 08	21,252 5	10,620 3	20,6639	0	6,4680 8	1,1705 4
2	19,60 76	148,44	5,169 28	40.173, 58	22,757 5	11,372 6	21,0844	0	6,0828 9	1,1705 3
2	22,45 61	165,244	6,033 25	36.311, 34	24,370 4	12,178 8	21,4866	0	5,7387 1	1,1704 9
2	25,87 43	184,268	7,061 17	32.632, 34	26,106 3	13,046 6	21,8719	0	5,4337 4	1,1704 1
2	29,97 62	205,905	8,286 67	29.118, 82	27,991 8	13,989 1	22,2419	0	5,1662 3	1,1703
2	34,89 84	230,627	9,748 5	25.757, 27	30,064 1	15,025 1	22,598	0	4,9354 8	1,1701 4
2	40,36 86	256,997	11,36 19	22.750, 14	32,215 2	16,100 5	22,9184	0	4,7529 1	1,1699 5
2	40,80 51	259,064	11,49 01	22.535, 18	32,382 3	16,184	22,9413	0	4,7408 3	1,1699 3
2	47,89 31	291,882	13,55 17	19.432, 85	35,049 3	17,517 3	23,2739	0	4,5824	1,1696 7
2	56,39 87	330,239	15,98 06	16.503, 77	38,110 5	19,047 7	23,5903	0	4,4647 9	1,1693 5
2	66,60	375,351	18,80	13.749,	41,721	20,852	23,8904	0	4,3889	1,1689



	55		83	15		7			2	7
2	78,85 36	428,845	22,05 36	11.207, 48	46,031 9	23,008	24,1702	0	4,3578 2	1,1685 1
2	93,55 13	492,894	25,71 79	8.929,5 9	51,200 2	25,592	24,4246	0	4,3738 3	1,1679 8
2	111,1 89	570,399	29,78 32	6.961,2 7	57,373 8	28,678 6	24,6488	0	4,4379 5	1,1673 9
2	130,6 44	657,619	33,87 07	5.437,1 6	64,099 2	32,041 1	24,8273	0	4,5383 4	1,1667 8

Weather: Category 5/D

Wind speed [m/s]	5
Pasquill stability	D neutral - little sun and high wind or overcast/windy night
Atmospheric temperature [degC]	25
Relative humidity [fraction]	0,75
Solar radiation flux [kW/m2]	0,5
Mixing layer height [m]	800

Observer Release Data and Observer Mass Data

Observer number	Release type	Start time [s]	Start downwind distance [m]	Unit	Masses or mass rates		
					Release	Rainout	Final
1	Continuous	0	0	kg/s	67,986	0	67,986
2	Continuous	5,22501	0	kg/s	67,986	0	67,986

Time-varying Observer Dispersion Data (before along-wind-diffusion effects)

Dispersion data correspond to an averaging time of: 18,75 s

Observer number	Time [s]	Down wind distance [m]	C/Li ne height [m]	C/Li ne conc [ppm]	Effect ive width [m]	Effect ive depth [m]	C/Line vapour temperature [degC]	C/Li ne liqui d fraction	Centr oid velocity [m/s]	C/Lin e cloud densi ty [kg/m3]
1	0	0	1	999.99 9,37	0,4698 2	0,2349 1	-56,7905	0	300	1,0266 8
1	0,01	2,09091	1,000 05	641.34 9,93	0,8672 08	0,4336 04	-20,5198	0	160,50 3	1,0645
1	0,02	3,48166	1,000 17	516.16 3,12	1,1382 1	0,5691 06	-8,90732	0	122,56 2	1,0792 3
1	0,03	4,60181	1,000	445.35	1,3650	0,6825	-3,16376	0	102,97	1,0899



			34	1,52	3	13				1
1	0,04	5,56557	1,000 56	397.98 7,54	1,5674 1	0,7837 03	0,182781	0	90,544 6	1,0985 7
1	0,05	6,42575	1,000 82	363.26 4,53	1,7547 1	0,8773 55	2,63545	0	81,761 7	1,1047 5
1	0,052 083	6,59452	1,000 88	357.19 2,59	1,7919 3	0,8959 64	3,05065	0	80,236 3	1,1058 6
1	0,052 083	6,59452	1,000 88	357.19 2,59	1,7919 3	0,8959 64	3,05065	0	80,236 3	1,1058 6
1	0,06	7,20879	1,001 11	337.40 5,62	1,9268 5	0,9634 26	4,37603	0	75,112 3	1,1095 7
1	0,07	7,93272	1,001 44	317.40 8,10	2,0857 6	1,0428 8	5,67324	0	69,869 9	1,1134 2
1	0,08	8,60941	1,001 79	301.18 2,78	2,2342 2	1,1171 1	6,69531	0	65,618 6	1,1166 1
1	0,09	9,24736	1,002 18	287.63 6,44	2,3739	1,1869 5	7,52826	0	62,087 7	1,1193 3
1	0,1	9,85277	1,002 59	276.11 1,29	2,5057 3	1,2528 7	8,22265	0	59,102 7	1,1216 8
1	0,11	10,4305	1,003 03	266.13 7,36	2,6307 5	1,3153 7	8,81321	0	56,537 6	1,1237 3
1	0,12	10,9844	1,003 49	257.38 2,71	2,7498 1	1,3749 1	9,32379	0	54,302 4	1,1255 6
1	0,13	11,5173	1,003 98	249.60 6,01	2,8636 7	1,4318 3	9,77132	0	52,331 2	1,1271 9
1	0,14	12,0318	1,004 5	242.62 9,04	2,9729	1,4864 5	10,1681	0	50,575 5	1,1286 6
1	0,15	12,5297	1,005 03	236.31 8,98	3,0779 7	1,5389 9	10,5231	0	48,998 5	1,1300 1
1	0,16	13,0126	1,005 59	230.57 3,33	3,1792 6	1,5896 3	10,8433	0	47,571 8	1,1312 4
1	0,17	13,4818	1,006 17	225.30 9,58	3,2771	1,6385 5	11,1341	0	46,273 1	1,1323 7
1	0,18	13,9386	1,006 77	220.46 1,03	3,3717 8	1,6858 9	11,3997	0	45,084 7	1,1334 2
1	0,19	14,3839	1,007 39	215.97 3,58	3,4635 7	1,7317 9	11,6438	0	43,99 7	1,1343 9
1	0,2	14,8189	1,008	211.80	3,5527	1,7763	11,8692	0	42,978	1,1353



			04	0,69	3	6			5	
1	0,212	15,3281	1,008	207.15	3,6565	1,8282	12,1184	0	41,859	1,1363
			83	6,25	2	6			7	2
1	0,226	15,9225	1,009	202.03	3,7768	1,8884	12,3908	0	40,635	1,1374
	4		82	9,00	1	1			6	4
1	0,243	16,6135	1,011	196.46	3,9154	1,9577	12,685	0	39,312	1,1386
	68		05	5,52	4	2			8	7
1	0,264	17,4143	1,012	190.45	4,0745	2,0373	12,9994	0	37,898	1,1400
	416		61	3,47	9				9	1
1	0,289	18,3388	1,014	184.04	4,2562	2,1281	13,3314	0	36,407	1,1414
	299		56	5,52	2	1			2	3
1	0,319	19,4023	1,017	177.28	4,4624	2,2312	13,6778	0	34,852	1,1429
	159		04	9,09	7	4			1	5
1	0,354	20,6219	1,020	170.23	4,6955	2,3477	14,0355	0	33,249	1,1445
	991		19	9,44	7	9			8	3
1	0,397	22,0166	1,024	162.95	4,9579	2,4789	14,401	0	31,616	1,1461
	989		2	4,30	4	7			7	8
1	0,449	23,606	1,029	155.50	5,2515	2,6257	14,7705	0	29,972	1,1478
	587		34	6,72	7	9			1	7
1	0,511	25,4111	1,035	147.97	5,5782	2,7891	15,1401	0	28,335	1,1496
	504		94	2,83					6	
1	0,585	27,4555	1,044	140.42	5,9395	2,9697	15,5063	0	26,724	1,1513
	805		42	2,92	7	9			6	3
1	0,674	29,7661	1,055	132.91	6,3376	3,1688	15,8664	0	25,152	1,1530
	966		36	5,11	9	5			5	6
1	0,781	32,375	1,069	125.49	6,7751	3,3875	16,2185	0	23,628	1,1547
	959		45	2,07	8	9			3	8
1	0,910	35,3145	1,087	118.20	7,2535	3,6267	16,5604	0	22,163	1,1564
	351		63	6,41	5	8			3	7
1	1,064	38,6203	1,111	111.10	7,7738	3,8869	16,8901	0	20,767	1,1581
	42		07	4,90		1				3
1	1,249	42,3332	1,141	104.22	8,3369	4,1684	17,2066	0	19,445	1,1597
	31		24	1,26	5	8			4	4
1	1,471	46,5041	1,179	97.568,	8,9452	4,4726	17,5096	0	18,199	1,1613
	17		99	48	3	2			1	
1	1,737	51,191	1,229	91.155,	9,6009	4,8005	17,799	0	17,027	1,1628
	4		58	16	9	1			5	1
1	2,056	56,4531	1,292	84.999,	10,304	5,1522	18,0744	0	15,933	1,1642



	88		8	78	5	4				6
1	2,440 26	62,3595	1,372 92	79.111, 29	11,055 9	5,5279 5	18,3357	0	14,915 8	1,1656 5
1	2,900 31	68,9959	1,473 75	73.484, 30	11,857 1	5,9285 6	18,5835	0	13,972 6	1,1669 7
1	3,452 37	76,4639	1,599 44	68.109, 48	12,711 1	6,3555 5	18,8185	0	13,099 3	1,1682 4
1	4,114 84	84,8692	1,754 37	62.989, 46	13,618 3	6,8091 9	19,0408	0	12,294 7	1,1694 4
1	4,909 81	94,3373	1,942 47	58.122, 91	14,580 4	7,2902 1	19,2507	0	11,557	1,1705 8
1	5,863 77	105,023	2,167 24	53.501, 66	15,606 4	7,8032 1	19,6549	0	10,882 6	1,1709 3
1	7,008 53	117,108	2,434 6	49.112, 35	16,697 8	8,3489 1	20,105	0	10,267 3	1,1710 1
1	8,382 23	130,805	2,755 72	44.938, 44	17,855 7	8,9279	20,5342	0	9,7074 8	1,1710 8
1	10,03 07	146,358	3,144 8	40.961, 39	19,084 4	9,5422 6	20,9437	0	9,1997 7	1,1711 4
1	12,00 88	164,06	3,620 33	37.157, 62	20,392 2	10,196 1	21,3352	0	8,7407 8	1,1711 7
1	14,38 26	184,257	4,206 26	33.501, 46	21,792 8	10,896 4	21,7104	0	8,3276 8	1,1712
1	17,23 11	207,392	4,933 9	29.959, 91	23,314 4	11,657 2	22,0713	0	7,9568 8	1,1712 1
1	20,64 93	233,974	5,842 17	26.507, 08	24,998 4	12,499 2	22,4193	0	7,6271 3	1,1712 1
1	24,75 12	264,617	6,978 17	23.123, 17	26,911 9	13,456	22,7547	0	7,3383 4	1,1712 1
1	25,25 6	268,313	7,120 85	22.750, 14	27,143 3	13,571 7	22,7912	0	7,3087 4	1,1712
1	29,67 34	299,967	8,397 92	19.776, 48	29,181 2	14,590 7	23,0785	0	7,0913 2	1,1711 9
1	35,58 01	341,176	10,14 72	16.547, 22	31,914	15,957 1	23,3824	0	6,8906 7	1,1711 6
1	42,66 81	389,447	12,27 29	13.471, 92	35,321	17,660 6	23,6618	0	6,7393 7	1,1711 2
1	47,62	422,68	13,75	11.727, 37,795	37,795	18,898	23,8148	0	6,6741	1,1710



	38		63	72	8				6	7
2	5,225 01	0	1	999.99 9,37	0,4698 2	0,2349 1	-56,7905	0	300	1,0266 8
2	5,235 01	2,09091	1,000 05	641.34 9,93	0,8672 08	0,4336 04	-20,5198	0	160,50 3	1,0645
2	5,245 01	3,48166	1,000 17	516.16 3,12	1,1382 1	0,5691 06	-8,90732	0	122,56 2	1,0792 3
2	5,255 01	4,60181	1,000 34	445.35 1,52	1,3650 3	0,6825 13	-3,16376	0	102,97	1,0899 1
2	5,265 01	5,56557	1,000 56	397.98 7,54	1,5674 1	0,7837 03	0,182781	0	90,544 6	1,0985 7
2	5,275 01	6,42575	1,000 82	363.26 4,53	1,7547 1	0,8773 55	2,63545	0	81,761 7	1,1047 5
2	5,277 09	6,59452	1,000 88	357.19 2,59	1,7919 3	0,8959 64	3,05065	0	80,236 3	1,1058 6
2	5,277 09	6,59452	1,000 88	357.19 2,59	1,7919 3	0,8959 64	3,05065	0	80,236 3	1,1058 6
2	5,285 01	7,20879	1,001 11	337.40 5,62	1,9268 5	0,9634 26	4,37603	0	75,112 3	1,1095 7
2	5,295 01	7,93272	1,001 44	317.40 8,10	2,0857 6	1,0428 8	5,67324	0	69,869 9	1,1134 2
2	5,305 01	8,60941	1,001 79	301.18 2,78	2,2342 2	1,1171 1	6,69531	0	65,618 6	1,1166 1
2	5,315 01	9,24736	1,002 18	287.63 6,44	2,3739	1,1869 5	7,52826	0	62,087 7	1,1193 3
2	5,325 01	9,85277	1,002 59	276.11 1,29	2,5057 3	1,2528 7	8,22265	0	59,102 7	1,1216 8
2	5,335 01	10,4305	1,003 03	266.13 7,36	2,6307 5	1,3153 7	8,81321	0	56,537 6	1,1237 3
2	5,345 01	10,9844	1,003 49	257.38 2,71	2,7498 1	1,3749 1	9,32379	0	54,302 4	1,1255 6
2	5,355 01	11,5173	1,003 98	249.60 6,01	2,8636 7	1,4318 3	9,77132	0	52,331 2	1,1271 9
2	5,365 01	12,0318	1,004 5	242.62 9,04	2,9729	1,4864 5	10,1681	0	50,575 5	1,1286 6
2	5,375 01	12,5297	1,005 03	236.31 8,98	3,0779 7	1,5389 9	10,5231	0	48,998 5	1,1300 1



2	5,385 01	13,0126	1,005 59	230.57 3,33	3,1792 6	1,5896 3	10,8433	0	47,571 8	1,1312 4
2	5,395 01	13,4818	1,006 17	225.30 9,58	3,2771	1,6385 5	11,1341	0	46,273 1	1,1323 7
2	5,405 01	13,9386	1,006 77	220.46 1,03	3,3717 8	1,6858 9	11,3997	0	45,084	1,1334 2
2	5,415 01	14,3839	1,007 39	215.97 3,58	3,4635 7	1,7317 9	11,6438	0	43,99	1,1343 9
2	5,425 01	14,8189	1,008 04	211.80 0,69	3,5527 3	1,7763 6	11,8692	0	42,978 5	1,1353
2	5,437 01	15,3281	1,008 83	207.15 6,25	3,6565 2	1,8282 6	12,1184	0	41,859 7	1,1363 2
2	5,451 41	15,9225	1,009 82	202.03 9,00	3,7768 1	1,8884 1	12,3908	0	40,635 6	1,1374 4
2	5,468 69	16,6135	1,011 05	196.46 5,52	3,9154 4	1,9577 2	12,685	0	39,312 8	1,1386 7
2	5,489 42	17,4143	1,012 61	190.45 3,47	4,0745 9	2,0373	12,9994	0	37,898 9	1,1400 1
2	5,514 3	18,3388	1,014 56	184.04 5,52	4,2562 2	2,1281 1	13,3314	0	36,407 2	1,1414 3
2	5,544 16	19,4023	1,017 04	177.28 9,09	4,4624 7	2,2312 4	13,6778	0	34,852 1	1,1429 5
2	5,58	20,6219	1,020 19	170.23 9,44	4,6955 7	2,3477 9	14,0355	0	33,249 8	1,1445 3
2	5,622 99	22,0166	1,024 2	162.95 4,30	4,9579 4	2,4789 7	14,401	0	31,616 7	1,1461 8
2	5,674 59	23,606	1,029 34	155.50 6,72	5,2515 7	2,6257 9	14,7705	0	29,972 1	1,1478 7
2	5,736 51	25,4111	1,035 94	147.97 2,83	5,5782	2,7891	15,1401	0	28,335 6	1,1496
2	5,810 81	27,4555	1,044 42	140.42 2,92	5,9395 7	2,9697 9	15,5063	0	26,724 6	1,1513 3
2	5,899 97	29,7661	1,055 36	132.91 5,11	6,3376 9	3,1688 5	15,8664	0	25,152 5	1,1530 6
2	6,006 96	32,375	1,069 45	125.49 2,07	6,7751 8	3,3875 9	16,2185	0	23,628 3	1,1547 8
2	6,135 36	35,3145	1,087 63	118.20 6,41	7,2535 5	3,6267 8	16,5604	0	22,163 3	1,1564 7



2	6,289 43	38,6203	1,111 07	111.10 4,90	7,7738	3,8869 1	16,8901	0	20,767	1,1581 3
2	6,474 31	42,3332	1,141 24	104.22 1,26	8,3369	4,1684 8	17,2066	0	19,445 4	1,1597 4
2	6,696 17	46,5041	1,179 99	97.568, 48	8,9452 3	4,4726 2	17,5096	0	18,199 1	1,1613
2	6,962 41	51,191	1,229 58	91.155, 16	9,6009 9	4,8005 1	17,799	0	17,027 5	1,1628 1
2	7,281 89	56,4531	1,292 8	84.999, 78	10,304 5	5,1522 4	18,0744	0	15,933	1,1642 6
2	7,665 26	62,3595	1,372 92	79.111, 29	11,055 9	5,5279 5	18,3357	0	14,915 8	1,1656 5
2	8,125 31	68,9959	1,473 75	73.484, 30	11,857 1	5,9285 6	18,5835	0	13,972 6	1,1669 7
2	8,677 37	76,4639	1,599 44	68.109, 48	12,711 1	6,3555 5	18,8185	0	13,099 3	1,1682 4
2	9,339 85	84,8692	1,754 37	62.989, 46	13,618 3	6,8091 9	19,0408	0	12,294 7	1,1694 4
2	10,13 48	94,3373	1,942 47	58.122, 91	14,580 4	7,2902 1	19,2507	0	11,557	1,1705 8
2	11,08 88	105,023	2,167 24	53.501, 66	15,606 4	7,8032 1	19,6549	0	10,882 6	1,1709 3
2	12,23 35	117,108	2,434 6	49.112, 35	16,697 8	8,3489 1	20,105	0	10,267 3	1,1710 1
2	13,60 72	130,805	2,755 72	44.938, 44	17,855 7	8,9279	20,5342	0	9,7074 8	1,1710 8
2	15,25 57	146,358	3,144 8	40.961, 39	19,084 4	9,5422 6	20,9437	0	9,1997 7	1,1711 4
2	17,23 38	164,06	3,620 33	37.157, 62	20,392 2	10,196 1	21,3352	0	8,7407 8	1,1711 7
2	19,60 76	184,257	4,206 26	33.501, 46	21,792 8	10,896 4	21,7104	0	8,3276 8	1,1712
2	22,45 61	207,392	4,933 9	29.959, 91	23,314 4	11,657 2	22,0713	0	7,9568 8	1,1712 1
2	25,87 43	233,974	5,842 17	26.507, 08	24,998 4	12,499 2	22,4193	0	7,6271 3	1,1712 1
2	29,97 62	264,617	6,978	23.123, 17	26,911 9	13,456	22,7547	0	7,3383 4	1,1712 1



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2	30,481	268,313	7,12085	22.750,14	27,1433	13,5717	22,7912	0	7,30874	1,1712
2	34,8984	299,967	8,39792	19.776,48	29,1812	14,5907	23,0785	0	7,09132	1,17119
2	40,8051	341,176	10,1472	16.547,22	31,914	15,9571	23,3824	0	6,89067	1,17116
2	47,8931	389,447	12,2729	13.471,92	35,321	17,6606	23,6618	0	6,73937	1,17112
2	52,8488	422,68	13,7563	11.727,72	37,7958	18,898	23,8148	0	6,67416	1,17107

