
 HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
 ERROR CORR - 01
 MODIFICATION - 50,51,52

C
 I1 LANDIS-ROWAN CO. BASIN A-E STREAM 5-3L TOWN CREEK
 I2 FLOODPLAIN STUDY AT ROWAN & DAVIDSON COUNTIES M-G JOB NO. 6918
 I3 10 YEAR FLOOD WATER SURFACE PROFILE

J1	ICHECK	INC	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FR
	-10.	2.	0.	0.	0.018000	0.0	0.0	0.	661.500	0.0
J2	NPROF	IPLT	PRFS	XSECV	XSECH	FN	ALLDC	IBW	CHN1M	ITRACE
	0.0	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38.000	39.000	40.000	41.000	43.000	42.000	1.000	2.000	26.000	53.000
	54.000	25.000	50.000	0.0	201.000	0.0	0.0	0.0	0.0	0.0
J5	LPRNT	NUMSEC	*****REQUESTED SECTION NUMBERS*****							
	-10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MADE IN U.S.A.

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T1 LANDIS-ROWAN CO. BASIN A-E STREAM 5-3L TOWN CREEK
 T2 FLOODPLAIN STUDY AT ROWAN & DAVIDSON COUNTIES M-G JOB NO. 6918
 T3 100 YEAR FLOOD WATER SURFACE PROFILE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	WSEL	FQ
	-10.	4.	0.	0.	0.018000	0.0	0.0	664.500	0.0

J2	NPROF	IPLOT	PREVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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 ERROR CORR - 01
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NOTE - ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

10 YEAR FLOOD WATER SURF

SUMMARY PRINTOUT

SECNO	XLCH	ELTRD	ELLC	Q	ELMIN	CHSEL	CRWS	VCH	SSIA	ENDST	AREA	OIFWSP
* A 625.000	625.00	0.0	0.0	500.00	656.50	659.53	659.53	8.54	1076.16	1106.11	60.83	0.0
* 625.000	625.00	0.0	0.0	1260.00	656.50	661.50	661.50	10.77	1070.23	1118.03	134.18	1.97
* B 2040.000	1415.00	0.0	0.0	490.00	678.90	682.23	682.23	8.97	1255.53	1277.69	54.63	0.0
* 2040.000	1415.00	0.0	0.0	1130.00	678.90	684.31	684.31	8.62	1176.76	1304.36	204.83	2.08
* 2140.000	100.00	0.0	0.0	490.00	680.20	683.53	683.53	8.96	1255.52	1277.69	54.68	0.0
* 2140.000	100.00	0.0	0.0	1130.00	680.20	685.61	685.61	8.59	1176.54	1304.42	205.92	2.08
* 2190.000	50.00	0.0	0.0	490.00	680.90	684.70	0.0	6.55	1338.00	1367.00	74.80	0.0
* 2190.000	50.00	0.0	0.0	1130.00	680.90	685.71	685.71	10.83	1338.00	1367.00	104.35	1.01
2210.000	20.00	690.20	688.30	490.00	680.90	684.70	0.0	6.53	1338.00	1367.00	75.01	0.0
2210.000	20.00	690.20	688.30	1130.00	680.90	685.71	0.0	10.82	1338.00	1367.00	104.48	1.02
* 2260.000	50.00	0.0	0.0	490.00	681.60	684.92	684.92	9.00	1255.54	1277.68	54.44	0.0
2260.000	50.00	0.0	0.0	1130.00	681.60	687.30	687.02	7.57	1169.29	1306.46	243.41	2.38
* C 2360.000	100.00	0.0	0.0	490.00	682.90	686.23	686.23	8.96	1255.52	1277.70	54.68	0.0
* 2360.000	100.00	0.0	0.0	1130.00	682.90	688.30	688.30	8.66	1177.01	1304.29	203.58	2.07
* D 5864.000	3504.00	0.0	0.0	470.00	717.50	721.20	721.18	9.05	1390.76	1415.14	57.85	0.0
* 5864.000	3504.00	0.0	0.0	1070.00	717.50	723.02	723.02	11.58	1388.62	1417.19	105.94	1.82
5914.000	50.00	0.0	0.0	470.00	717.70	722.02	0.0	7.26	1390.04	1415.83	73.20	0.0
5914.000	50.00	0.0	0.0	1070.00	717.70	724.09	0.0	9.37	1387.60	1418.17	131.56	2.07
5964.000	50.00	0.0	0.0	470.00	717.90	722.63	0.0	5.19	1360.00	1385.00	90.57	0.0
5964.000	50.00	0.0	0.0	1070.00	717.90	724.75	0.0	7.45	1360.00	1385.00	143.57	2.12
5990.000	26.00	728.40	726.90	470.00	717.90	722.63	0.0	5.19	1360.00	1385.00	90.47	0.0
5990.000	26.00	728.40	726.90	1070.00	717.90	724.75	0.0	7.46	1360.00	1385.00	143.46	2.12
6040.000	50.00	0.0	0.0	470.00	718.10	722.69	0.0	6.65	1389.72	1416.14	80.34	0.0
6040.000	50.00	0.0	0.0	1070.00	718.10	724.85	0.0	8.57	1387.12	1418.64	144.21	2.21
E 6090.000	50.00	0.0	0.0	470.00	718.30	722.87	0.0	6.68	1389.74	1416.12	79.87	0.0
6090.000	50.00	0.0	0.0	1070.00	718.30	725.10	0.0	8.56	1387.12	1418.64	144.27	2.22

SECNO	XLCH	ELTRD	ELLC	Q	ELMIN	CWSEL	CRWS	VCH	SSTA	ENDST	AREA	DIFWSP
7893* 7963.000	1875.00	0.0	0.0	370.00	731.20	735.57	735.57	9.52	1477.40	1491.18	38.86	0.0
7955.000	1875.00	0.0	0.0	860.00	731.20	737.84	737.84	7.50	1345.00	1518.05	223.57	2.27
7953 8065.000	100.00	0.0	0.0	370.00	732.00	737.03	0.0	7.63	1476.70	1491.97	48.48	0.0
8065.000	100.00	0.0	0.0	860.00	732.00	738.59	738.5	7.72	1346.69	1516.89	215.45	1.57
* 7978 8090.000	25.00	0.0	0.0	370.00	732.20	738.17	738.17	6.10	1362.07	1494.61	105.58	0.0
8090.000	25.00	0.0	0.0	860.00	732.20	739.07	738.74	5.94	1329.49	1516.86	251.54	0.91
8022 8134.000	44.00	741.90	740.20	370.00	732.20	738.17	0.0	6.09	1362.05	1494.63	105.68	0.0
8134.000	44.00	741.90	740.20	860.00	732.20	739.07	0.0	5.95	1329.62	1516.77	250.83	0.91
8047 8159.000	25.00	0.0	0.0	370.00	732.40	738.21	746.75	5.44	1374.18	1492.91	102.71	0.0
8159.000	25.00	0.0	0.0	860.00	732.40	739.00	749.00	7.71	1346.55	1516.99	216.11	0.78
8147 8259.000	100.00	0.0	0.0	370.00	733.20	738.33	0.0	7.41	1399.11	1492.08	49.95	0.0
8259.000	100.00	0.0	0.0	860.00	733.20	739.72	749.72	8.08	1349.28	1515.12	203.26	1.39
* 8984.000	725.00	0.0	0.0	295.00	743.70	747.43	747.43	9.44	1195.80	1207.24	31.25	0.0
* 8984.000	725.00	0.0	0.0	700.00	743.70	750.40	750.40	8.45	1133.60	1213.52	121.16	2.97
* 9084.000	100.00	0.0	0.0	295.00	745.80	749.53	749.53	9.43	1195.80	1207.24	31.27	0.0
* 9084.000	100.00	0.0	0.0	700.00	745.80	752.52	752.52	8.35	1133.40	1213.83	123.32	2.99
* 9134.000	50.00	0.0	0.0	295.00	746.90	750.30	750.30	10.11	2044.39	2055.93	32.20	0.0
* 9134.000	50.00	0.0	0.0	700.00	746.90	753.70	753.70	8.60	1980.85	2062.74	135.21	3.40
* 9290.000	156.00	763.40	754.90	295.00	749.90	753.48	0.0	9.54	2044.29	2056.05	34.32	0.0
9290.000	156.00	763.40	754.90	700.00	749.90	760.81	0.0	1.83	1951.50	2111.40	631.96	7.33
* 9340.000	50.00	0.0	0.0	295.00	751.00	754.72	754.72	9.46	1195.81	1207.23	31.20	0.0
9340.000	50.00	0.0	0.0	700.00	751.00	760.79	0.0	2.73	1111.53	1250.10	458.66	6.06
* 9440.000	100.00	0.0	0.0	295.00	753.10	756.83	756.83	9.43	1195.80	1207.24	31.29	0.0
9440.000	100.00	0.0	0.0	700.00	753.10	760.61	0.0	5.93	1127.73	1223.24	193.22	3.78
* 11140.000	1700.00	0.0	0.0	223.00	771.70	775.90	0.0	7.41	1170.50	1190.91	38.91	0.0
* 11140.000	1700.00	0.0	0.0	540.00	771.70	777.16	777.16	10.54	1170.05	1192.52	65.86	1.26
* 11985.000	845.00	0.0	0.0	156.00	783.40	786.19	786.19	8.17	1072.97	1082.32	19.10	0.0
* 11985.000	845.00	0.0	0.0	385.00	783.40	787.94	787.94	10.14	1071.61	1083.87	37.96	1.75
* 12035.000	50.00	0.0	0.0	156.00	784.10	786.92	786.89	8.11	1072.96	1082.33	19.23	0.0
* 12035.000	50.00	0.0	0.0	385.00	784.10	788.67	788.67	10.06	1071.59	1083.90	38.29	1.75
* 12085.000	50.00	0.0	0.0	156.00	787.90	792.11	792.11	9.36	1110.04	1119.97	20.69	0.0
* 12085.000	50.00	0.0	0.0	385.00	787.90	794.29	794.29	9.56	1107.26	1140.61	58.18	2.18
* 12140.000	55.00	801.10	790.90	156.00	787.90	801.28	0.0	0.39	1078.36	1202.11	542.12	0.0
12140.000	55.00	801.10	790.90	385.00	787.90	802.15	0.0	0.78	1074.67	1212.16	656.31	0.87
12190.000	50.00	0.0	0.0	156.00	793.10	801.26	0.0	1.43	1063.32	1113.75	146.90	0.0
12190.000	50.00	0.0	0.0	385.00	793.10	802.09	0.0	2.86	1059.81	1116.53	191.77	0.82
* 12240.000	50.00	0.0	0.0	156.00	796.90	801.06	0.0	4.66	1071.90	1083.54	33.48	0.0
* 12240.000	50.00	0.0	0.0	385.00	796.90	801.48	801.48	10.02	1071.58	1083.91	38.42	0.41

MADE IN U.S.A.

SUMMARY OF ERRORS

CAUTION	SECNO= 625.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 625.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2040.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2040.000	PROFILE= 1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 2040.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2040.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 2040.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 2140.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2140.000	PROFILE= 1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 2140.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2140.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 2140.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 2190.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2190.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 2190.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 2260.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2260.000	PROFILE= 1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 2360.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2360.000	PROFILE= 1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 2360.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 2360.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 2360.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 5864.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 5864.000	PROFILE= 2	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 7965.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 7965.000	PROFILE= 1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 7965.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 7965.000	PROFILE= 2	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 8065.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 8065.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 8065.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 8090.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 8090.000	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 8090.000	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 8159.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 8159.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 8159.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 8259.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 8259.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 8259.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 8984.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 8984.000	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 8984.000	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 8984.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 8984.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 8984.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO= 9084.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO= 9084.000	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO= 9084.000	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 9084.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9084.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9084.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 9134.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9134.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9134.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 9134.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9134.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9134.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 9290.000 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 9290.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 9290.000 PROFILE= 1 HYDRAULIC JUMP D.S.

CAUTION SECNO= 9340.000 PROFILE= 1 CRITICAL DEPTH ASSUMED //
CAUTION SECNO= 9340.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9340.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 9440.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9440.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9440.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=11140.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO=11140.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=11140.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=11985.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO=11985.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO=11985.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO=11985.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO=12035.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO=12035.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO=12085.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO=12085.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=12085.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=12085.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO=12085.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=12085.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=12140.000 PROFILE= 1 HYDRAULIC JUMP D.S.

CAUTION SECNO=12240.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO=12240.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=12240.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOOD INSURANCE ZONE DATA FOR 10 YEAR FLOOD WATER SURF

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND		
		100	20	0.20
625.000	0.	659.5	661.5	0.0
2040.000	1415.	673.7	675.8	*****
2140.000	1515.	*****	*****	*****
2190.000	1565.	2.5	3.5	0.0
2210.000	1585.	684.7	685.7	*****
2260.000	1635.	194.9	197.3	190.2
2360.000	1735.	*****	*****	*****
5864.000	5239.	721.2	723.0	0.0
5914.000	5289.	715.5	717.5	*****
5964.000	5339.	*****	*****	*****
5990.000	5365.	37.9	40.1	*****
6040.000	5415.	722.7	724.9	0.0
6090.000	5465.	232.9	235.1	191.6
7065.000	7340.	*****	*****	*****
8065.000	7440.	737.0	738.6	0.0
8090.000	7465.	729.2	730.1	*****
8134.000	7509.	*****	*****	*****
8159.000	7534.	17.0	17.8	-0.0
8259.000	7634.	738.3	739.7	0.0
8984.000	8359.	277.4	280.4	247.7
9084.000	8459.	*****	*****	*****
9134.000	8509.	750.3	753.7	0.0
9290.000	8665.	748.3	755.6	*****
9340.000	8715.	*****	*****	*****
9440.000	8815.	34.2	38.0	*****
11140.000	10515.	775.9	777.2	0.0
11285.000	11360.	316.2	317.9	248.1
12035.000	11410.	*****	*****	*****
12085.000	11460.	792.1	794.3	0.0
12140.000	11515.	794.6	795.5	*****
12190.000	11565.	*****	*****	*****
12240.000	11615.	65.5	65.9	0.0
WEIGHTED AVG FOR REACH		****	****	****

FHF FOR THE REACH = 0.05 WITH 0.00 OF THE REACH WITHIN 0.5 FEET
 ZONE FOR THE REACH = A 1

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	AVG ELEVATION DATA			WTD. AVG.	PERCENT WITHIN
		100	10	DIFF.		

55	5500.	723.0	497.4	225.6	232.2	005	0.
1	100.	660.3	0.3	660.0	660.0	005	100.
2	200.	661.9	0.9	661.0	660.5	005	0.
3	300.	663.5	1.5	662.0	661.0	005	33.
4	400.	665.1	2.1	663.0	661.5	005	0.
5	500.	666.7	2.7	664.0	662.0	005	20.
6	600.	668.4	3.3	665.0	662.5	005	0.
7	700.	670.0	3.9	666.0	663.0	005	14.
8	800.	671.6	4.5	667.0	663.5	005	13.
9	900.	673.2	5.1	668.0	664.0	005	11.
10	1000.	674.8	5.7	669.0	664.5	005	10.
11	1100.	676.4	6.3	670.0	665.0	005	9.
12	1200.	678.0	6.9	671.0	665.5	005	8.
13	1300.	679.6	7.5	672.0	666.0	005	6.
14	1400.	681.2	8.1	673.0	666.5	005	7.
	1415.				SEC.	2040.000	
15	1500.	682.7	871.9	-189.2	609.5	005	0.
	1515.				SEC.	2140.000	
	1565.				SEC.	2190.000	
	1585.				SEC.	2210.000	
16	1600.	684.7	73.5	611.2	609.6	005	0.
	1635.				SEC.	2260.000	
17	1700.	685.3	574.5	110.8	580.2	005	0.
	1735.				SEC.	2360.000	
18	1800.	686.3	1128.0	-441.7	523.5	005	0.
19	1900.	687.4	1235.8	-548.4	467.1	005	0.
20	2000.	688.4	1199.3	-510.9	418.2	005	0.
21	2100.	689.4	1162.6	-473.5	375.7	005	0.
22	2200.	690.4	1126.4	-436.0	338.8	005	0.
23	2300.	691.4	1089.9	-398.5	306.8	005	0.
24	2400.	692.4	1053.4	-361.1	278.9	005	0.
25	2500.	693.4	1017.0	-323.6	254.8	005	0.
26	2600.	694.4	980.5	-286.2	234.0	005	0.
27	2700.	695.4	944.1	-248.7	216.1	005	0.
28	2800.	696.4	907.6	-211.2	200.9	005	0.
29	2900.	697.4	871.1	-173.8	188.0	005	0.
30	3000.	698.4	834.7	-136.3	177.1	005	0.
31	3100.	699.4	798.2	-98.8	168.2	005	0.
32	3200.	700.4	761.7	-61.4	161.1	005	0.
33	3300.	701.4	725.3	-23.9	155.5	005	0.
34	3400.	702.3	688.8	13.5	151.3	005	0.
35	3500.	703.3	652.3	51.0	148.4	005	0.
36	3600.	704.3	615.9	88.5	146.8	005	0.
37	3700.	705.3	579.4	125.9	146.2	005	0.
38	3800.	706.3	542.9	163.4	146.6	005	0.
39	3900.	707.3	506.5	200.9	148.0	005	0.
40	4000.	708.3	470.0	238.3	150.3	005	0.
41	4100.	709.3	433.6	275.8	153.4	005	0.
42	4200.	710.3	397.1	313.2	157.2	005	0.
43	4300.	711.3	360.6	350.7	161.7	005	0.
44	4400.	712.3	324.2	388.2	166.8	005	0.
45	4500.	713.3	287.7	425.6	172.6	005	0.
46	4600.	714.3	251.2	463.1	178.9	005	0.
47	4700.	715.3	214.8	500.6	185.7	005	0.
48	4800.	716.3	178.3	538.0	193.1	005	0.
49	4900.	717.3	141.8	575.5	200.9	005	2.
50	5000.	718.3	105.4	612.9	209.1	005	0.
51	5100.	719.3	68.9	650.4	217.8	005	0.
52	5200.	720.3	32.5	687.9	226.8	005	0.
	5239.				SEC.	5864.000	
	5289.				SEC.	5914.000	
53	5300.	722.1	248.9	473.2	231.4	005	0.
	5339.				SEC.	5964.000	
	5365.				SEC.	5990.000	
54	5400.	722.6	445.1	277.6	232.3	005	0.
	5415.				SEC.	6040.000	
	5465.				SEC.	6090.000	

55	5500.	723.0	497.4	225.6	232.2	005	0.
56	5600.	723.4	525.7	197.7	231.6	005	0.
57	5700.	724.1	567.7	156.4	230.2	005	0.
58	5800.	724.8	609.7	115.1	228.3	005	0.
59	5900.	725.5	651.7	73.7	225.6	005	2.
60	6000.	726.2	693.7	32.4	222.4	005	0.
61	6100.	726.8	735.8	-8.9	218.6	005	0.
62	6200.	727.5	777.8	-50.3	214.3	005	0.
63	6300.	728.2	819.8	-91.6	209.4	005	0.
64	6400.	728.9	861.8	-132.9	204.1	005	0.
65	6500.	729.5	903.8	-174.3	198.3	005	0.
66	6600.	730.2	945.8	-215.6	192.0	005	0.
67	6700.	730.9	987.8	-256.9	185.3	005	0.
68	6800.	731.6	1029.8	-298.2	178.2	005	0.
69	6900.	732.3	1071.8	-339.6	170.7	005	0.
70	7000.	732.9	1113.8	-380.9	162.8	005	0.
71	7100.	733.6	1155.9	-422.2	154.6	005	0.
72	7200.	734.3	1197.9	-463.6	146.0	005	0.
73	7300.	735.0	1239.9	-504.9	137.1	005	0.
	7340.				SEC.	7965.000	
74	7400.	735.9	886.0	-150.1	133.2	005	0.
	7440.				SEC.	8065.000	
	7465.				SEC.	8090.000	
75	7500.	738.2	2337.7	*****	110.1	005	0.
	7509.				SEC.	8134.000	
	7534.				SEC.	8159.000	
76	7600.	738.3	483.2	255.0	112.0	005	0.
	7634.				SEC.	8259.000	
77	7700.	738.7	144.0	594.7	118.3	005	0.
78	7800.	739.8	75.2	664.6	125.3	005	0.
79	7900.	741.0	140.0	601.0	131.3	005	0.
80	8000.	742.3	204.9	537.4	136.4	005	0.
81	8100.	743.5	269.7	473.9	140.5	005	0.
82	8200.	744.8	334.5	410.3	143.8	005	0.
83	8300.	746.1	399.3	346.7	146.3	005	0.
	8359.				SEC.	8984.000	
84	8400.	747.5	644.8	102.7	145.7	005	0.
	8459.				SEC.	9084.000	
85	8500.	749.2	556.3	192.9	146.3	005	0.
	8509.				SEC.	9134.000	
86	8600.	751.2	128.9	622.2	151.8	005	0.
	8665.				SEC.	9290.000	
87	8700.	753.3	2098.8	*****	134.6	005	0.
	8715.				SEC.	9340.000	
88	8800.	755.4	2853.6	*****	109.2	005	0.
	8815.				SEC.	9440.000	
89	8900.	757.2	1099.6	-342.5	104.2	005	0.
90	9000.	758.3	665.2	93.1	104.0	005	0.
91	9100.	759.5	622.7	136.7	104.4	005	0.
92	9200.	760.6	580.2	180.4	105.2	005	0.
93	9300.	761.7	537.7	224.0	106.5	005	0.
94	9400.	762.8	495.2	267.6	108.2	005	0.
95	9500.	764.0	452.7	311.3	110.4	005	1.
96	9600.	765.1	410.2	354.9	112.9	005	0.
97	9700.	766.2	367.7	398.5	115.9	005	0.
98	9800.	767.3	325.2	442.1	119.2	005	0.
99	9900.	768.4	282.7	485.8	122.9	005	0.
100	10000.	769.6	240.2	529.4	126.9	005	0.
101	10100.	770.7	197.7	573.0	131.4	005	0.
102	10200.	771.8	155.2	616.7	136.1	005	0.
103	10300.	772.9	112.6	660.3	141.2	005	0.
104	10400.	774.1	70.1	703.9	146.6	005	0.
105	10500.	775.2	27.6	747.5	152.3	005	0.
	10515.				SEC.	11140.000	
106	10600.	776.3	26.8	749.5	158.0	005	0.
107	10700.	777.5	75.1	702.5	163.1	005	1.

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108	10800.	778.8	130.7	648.1	167.6	005	0.
109	10900.	780.0	186.3	593.7	171.5	005	0.
110	11000.	781.2	242.0	539.2	174.8	005	0.
111	11100.	782.4	297.6	484.8	177.6	005	0.
112	11200.	783.6	353.2	430.4	179.9	005	0.
113	11300.	784.9	408.8	376.0	181.6	005	0.
	11360.					SEC.	11985.000
114	11400.	786.1	831.8	-45.7	179.6	005	0.
	11410.					SEC.	12035.000
	11460.					SEC.	12085.000
115	11500.	795.4	2.4	793.0	184.9	005	0.
	11515.					SEC.	12140.000
	11565.					SEC.	12190.000
116	11600.	801.2	5434.7	*****	143.4	005	0.
	11615.					SEC.	12240.000

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
 INPUT 20N WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
 OF EACH REACH BY INC NO. FOR EXAMPLEC 202 1 116
 A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52

EU

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