```
1*******************************************        **************************************
 *  HEC-2 WATER SURFACE PROFILES            *        *  U.S. ARMY CORPS OF ENGINEERS      *
 *                                          *        *  HYDROLOGIC ENGINEERING CENTER     *
 *  Version   4.6.2;  May 1991              *        *  609 SECOND STREET, SUITE D        *
 *                                          *        *  DAVIS, CALIFORNIA 95616-4687      *
 *  RUN DATE    15APR04    TIME   14:43:14  *        *          (916) 756-1104            *
 ********************************************        **************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X          XXXXX   XXXXX
X     X  X         X                 X
X     X  X         X     X           X
X     X  XXXXXXX   XXXXX             XXXXXXX
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15APR04   14:43:14   PAGE 1

THIS RUN EXECUTED 15APR04   14:43:14

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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T1 CALFSKIN CREEK BEGINNING 1/2 MI. NORTH OF PAWNEE
T2 EXTENDING SOUTH TO PAWNEE
T3 ASSUMED STARTING WATER SURFACE BASED ON
T4 UNIFORM FLOW DEPTH OF CROSS SECTION 25654
T5 100-YR FLOODPLAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	0	.001	0	0	0	1326.6	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1	0	-1							

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150

QT 2 4710 4710

ET			10.4						5200	5400
NC	.045	.045	.040	0.1	0.3					
X1	25654	34	5306	5337	0	0	0		1187.4	
GR	142.7	5000	142	5024	141	5066	140	5108	139	5145
GR	138	5179	137	5214	136	5249	135	5306	134	5312
GR	133	5317	133	5324	134	5329	135	5332	136	5337
GR	137	5352	138	5376	139	5400	140	5426	141	5524
GR	141	5577	140	5745	139	5807	138	5869	137	5971
GR	136	6107	136	6379	137	6420	138	6443	139	6467
GR	140	6496	141	6521	142	6555	143	6577		

ET			10.4						5150	5400
X1	25707	36	5305	5341	49	73	53		1187.4	
GR	143	5016	142	5053	141	5094	140	5131	139	5168
GR	138	5203	137	5243	136	5305	135	5308	134	5311
GR	133	5316	133	5326	134	5328	135	5333	136	5337
GR	137	5341	138	5358	139	5378	140	5397	141	5437
GR	142	5497	142	5608	141	5681	140	5758	139	5817
GR	138	5883	137	6000	136	6106	136	6361	137	6411
GR	138	6435	139	6457	140	6486	141	6513	142	6550
GR	143	6576								

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ET			10.4						5150	5400
X1	25757	41	5306	5349	44	78	50		1187.4	
GR	144	5010	143	5047	142	5085	141	5125	140	5162
GR	139	5212	138	5254	137	5306	136	5313	135	5318
GR	134	5320	133	5322	132	5325	132	5328	133	5336
GR	134	5337	135	5338	136	5339	137	5345	138	5349
GR	139	5366	140	5384	141	5407	142	5451	143	5510
GR	143	5596	142	5657	141	5706	140	5763	139	5822
GR	138	5898	137	6017	136	6145	136	6322	137	6402
GR	138	6421	139	6440	140	6465	141	6495	142	6534
GR	143	6567								

ET			10.4							
X1	25784	43	5307	5354	20	56	27		1187.4	
GR	144	5017	143	5057	142	5100	141	5142	140	5183
GR	139	5230	138	5262	137	5307	136	5314	135	5318
GR	134	5320	133	5322	133	5337	134	5338	135	5339
GR	136	5340	137	5343	138	5349	139	5354	140	5377
GR	141	5394	142	5436	143	5487	143	5608	142	5662
GR	141	5706	140	5751	139	5816	138	5905	137	6024
GR	137	6355	138	6395	139	6413	140	6432	141	6454
GR	142	6482	143	6510	144	6540	144	6566	144	6578
GR	145	6583	146	6587	146	6603				

ET			7.4							
X1	25963	34	5422	5465	158	300	180		1187.4	

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GR      143      5101      142      5148      141      5192      140      5258      139      5306
GR      138      5415      137      5422      136      5427      135      5430      134      5432
GR      133      5435      133      5446      134      5447      135      5448      136      5449
GR      137      5450      138      5454      139      5458      140      5461      141      5465
GR      141      5529      140      5645      139      5713      138      5873      138      6222
GR      139      6252      140      6277      141      6303      142      6329      143      6355
GR      144      6381      145      6410      146      6438      147      6472

ET                         9.1                                                    5500     5970
X1    26318        32      5772     5800      315       470      355              1187.4
GR      145      5000      144      5058      143      5095      142      5193      141      5249
GR      140      5303      139      5365      138      5707      138      5734      138      5772
GR      137      5774      136      5777      135      5779      134      5782      133      5784
GR      133      5791      134      5792      135      5793      136      5794      137      5795
GR      138      5800      139      5812      139      5825      138      5836      138      5847
GR      139      5862      140      5876      141      6136      142      6295      143      6338
GR      144      6380      145      6431

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ET                         9.1                                                    5425     5775
X1    26638        30      5628     5652      300       340      320              1187.4
GR      143      5008      142      5061      141      5134      140      5207      139      5274
GR      139      5413      139      5508      139      5528      139      5628      138      5631
GR      137      5634      136      5635      135      5636      134      5637      133      5638
GR      133      5646      134      5647      135      5648      136      5649      137      5650
GR      138      5652      139      5670      140      5855      141      5905      142      5930
GR      143      6008      144      6114      145      6151      146      6194      147      6245

ET                        10.4
X1    26849        38      5475     5524      211       211      211              1187.4
GR      144      5027      143      5059      142      5148      141      5203      140      5291
GR      140      5315      140      5318      139      5415      137      5475      136      5476
GR      135      5477      135      5481      136      5482      137      5483      138      5484
GR      138      5495      137      5499      136      5500      135      5501      134      5502
GR      133      5504      133      5508      134      5510      135      5511      136      5512
GR      137      5513      138      5515      139      5524      140      5626      141      5686
GR      142      5745      143      5783      144      5819      145      5860      145      5933
GR      145      6089      146      6165      147      6259

ET                        10.4
X1    27090        42      5414     5441      257       228      241              1187.4
GR      145      5018      144      5053      144      5085      144      5106      143      5130
GR      142      5166      141      5202      140      5242      139      5304      138      5350
GR      137      5392      136      5393      135      5394      135      5395      136      5396
GR      137      5397      138      5399      138      5414      137      5414      136      5415
GR      135      5416      134      5417      134      5422      135      5424      136      5427
GR      137      5429      138      5431      139      5441      139      5462      139      5491
GR      140      5534      141      5582      142      5625      143      5664      144      5702
GR      145      5737      146      5776      147      5812      148      5848      148      5931
GR      147      6149      147      6190
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ET			9.4							
X1	27448	37	5409	5432	348	358	358		1187.4	
GR	145	5025	145	5030	145	5060	144	5082	143	5100
GR	142	5130	141	5179	140	5285	140	5406	140	5409
GR	139	5414	138	5417	137	5418	136	5419	135	5420
GR	134	5421	134	5425	135	5427	136	5428	137	5430
GR	138	5431	139	5432	139	5443	138	5447	138	5460
GR	139	5484	140	5509	141	5534	142	5560	143	5585
GR	144	5611	145	5637	146	5663	147	5704	148	5745
GR	149	5787	150	5892						

ET			8.4							
X1	27730	35	5622	5677	321	251	282		1187.4	
GR	145	5046	144	5099	143	5176	142	5265	141	5488
GR	140	5622	139	5641	138	5642	137	5643	136	5644
GR	135	5645	135	5652	136	5653	137	5655	138	5656
GR	139	5671	140	5677	140	5683	139	5692	138	5700

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GR	138	5709	139	5736	140	5765	141	5795	142	5824
GR	143	5854	144	5883	145	5912	146	5945	147	5983
GR	149	6059	150	6103	151	6150	151	6281	151	6349

ET			10.4							
X1	27977	33	5849	5879	261	234	247		1187.4	
GR	146	5029	145	5074	144	5196	143	5366	142	5479
GR	141	5692	140	5849	139	5851	138	5852	137	5853
GR	136	5854	135	5855	135	5859	136	5860	137	5862
GR	138	5864	139	5865	140	5879	140	5885	139	5902
GR	139	5943	140	5984	141	6026	142	6066	143	6103
GR	144	6134	145	6164	146	6193	147	6222	148	6252
GR	149	6283	150	6314	151	6335				

ET			10.4							
X1	28200	36	5925	5950	223	230	223		1187.4	
GR	146	5008	145	5046	144	5174	143	5455	142	5570
GR	141	5788	141	5901	141	5923	140	5925	139	5928
GR	138	5931	137	5933	136	5936	136	5941	137	5942
GR	138	5944	139	5945	140	5950	141	5963	141	5965
GR	140	5991	139	6017	139	6052	140	6088	141	6116
GR	142	6141	143	6167	144	6193	145	6219	146	6244
GR	147	6273	148	6304	149	6335	150	6361	151	6452
GR	152	6593								

ET			10.4							
X1	28473	32	5985	6005	265	275	273		1187.4	
GR	145	5036	145	5097	144	5400	143	5512	142	5643
GR	141	5881	140	5985	139	5987	138	5988	137	5990
GR	137	5996	138	5997	139	6003	140	6004	141	6005

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GR      141       6011       140       6042       139       6057       139       6060       140       6090
GR      141       6113       142       6151       143       6188       144       6237       145       6270
GR      146       6301       147       6325       148       6342       149       6358       150       6471
GR      151       6592       152       6714


ET                           9.1                                                              5690       6050
X1    28548         33      5987       6011        66         80         75                 1187.4
GR      145       5022       145       5031       146       5032       146       5058       145       5061
GR      144       5268       143       5430       142       5659       141       5789       140       5928
GR      140       5943       140       5987       139       5989       138       5991       137       5994
GR      137       6001       138       6006       139       6008       140       6011       140       6027
GR      140       6051       141       6097       142       6167       143       6212       144       6257
GR      145       6294       146       6351       147       6410       148       6488       149       6535
GR      150       6588       150       6590       150       6647

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ET                          10.4
X1    28571         11      5980       6050        23         23         23                 1187.4
GR      146       5088       145       5266       144       5443       143       5661       143       5710
GR      144       5848       145       5980       145       6050       146       6329       147       6410
GR      148       6470


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   15APR04      14:43:14                                                                      PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 25654.000

3265 DIVIDED FLOW

 25654.000      6.16   1326.56       .00   1326.60   1326.64       .08       .00       .00   1322.40
    4710.0     802.1     551.4    3356.5     382.8     160.0    1691.9        .0        .0   1323.40
       .00      2.10      3.45      1.98      .045      .040      .045      .000   1320.40   5139.07
   .000988        0.        0.        0.         0         0         4       .00    939.68   6471.65


*SECNO 25707.000

3265 DIVIDED FLOW
```

25707.000	6.22	1326.62	.00	.00	1326.72	.09	.07	.00	1323.40
4710.0	516.4	652.0	3541.6	263.2	176.8	1596.1	3.3	1.4	1324.40
.01	1.96	3.69	2.22	.045	.040	.045	.000	1320.40	5159.94
.001223	49.	53.	73.	0	0	0	.00	881.38	6463.32

*SECNO 25757.000

3265 DIVIDED FLOW

25757.000	7.30	1326.70	.00	.00	1326.82	.11	.10	.01	1324.40
4710.0	216.6	750.1	3743.3	128.9	194.7	1505.8	6.5	2.8	1325.40
.02	1.68	3.85	2.49	.045	.040	.045	.000	1319.40	5197.25
.001540	44.	50.	78.	1	0	0	.00	816.85	6447.38

*SECNO 25784.000

3265 DIVIDED FLOW

25784.000	6.36	1326.76	.00	.00	1326.94	.19	.10	.02	1324.40
4710.0	275.3	962.9	3471.8	113.5	190.5	1170.7	8.4	3.7	1326.40
.02	2.43	5.05	2.97	.045	.040	.045	.000	1320.40	5213.46
.003046	20.	27.	56.	0	0	0	.00	775.20	6419.69

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 25963.000

3265 DIVIDED FLOW

25963.000	7.15	1327.55	.00	.00	1327.74	.19	.80	.00	1324.40
4710.0	565.6	983.8	3160.6	231.0	182.1	1128.5	17.7	8.8	1328.40
.04	2.45	5.40	2.80	.045	.040	.045	.000	1320.40	5247.84
.003028	158.	180.	300.	2	0	0	.00	867.63	6281.00

*SECNO 26318.000

26318.000	8.10	1328.50	.00	.00	1328.65	.15	.91	.00	1325.40
4710.0	3247.8	824.6	637.6	1222.6	166.3	339.4	32.3	17.1	1325.40
.08	2.66	4.96	1.88	.045	.040	.045	.000	1320.40	5243.40
.001880	315.	355.	470.	2	0	0	.00	908.49	6151.90

*SECNO 26638.000

26638.000	8.67	1329.07	.00	.00	1329.19	.12	.54	.00	1326.40
4710.0	2860.9	708.4	1140.7	1192.0	153.1	522.4	45.2	23.4	1325.40
.11	2.40	4.63	2.18	.045	.040	.045	.000	1320.40	5085.14

.001602	300.	320.	340.	2	0	0	.00	836.59	5921.73

*SECNO 26849.000

26849.000	9.01	1329.41	.00	.00	1329.65	.24	.42	.04	1324.40
4710.0	2229.0	1461.6	1019.4	698.4	268.4	376.1	52.9	26.9	1326.40
.13	3.19	5.45	2.71	.045	.040	.045	.000	1320.40	5147.35
.002562	211.	211.	211.	2	0	0	.00	597.93	5745.28

*SECNO 27090.000

27090.000	8.58	1329.98	.00	.00	1330.16	.18	.50	.01	1325.40
4710.0	2708.2	772.7	1229.0	832.8	164.6	464.2	60.9	29.9	1326.40
.15	3.25	4.69	2.65	.045	.040	.045	.000	1321.40	5145.14
.001660	257.	241.	228.	2	0	0	.00	502.46	5647.60

*SECNO 27448.000

27448.000	9.21	1330.61	.00	.00	1330.80	.20	.64	.01	1327.40
4710.0	2293.3	762.8	1653.9	789.2	147.2	468.4	72.4	34.0	1326.40
.17	2.91	5.18	3.53	.045	.040	.045	.000	1321.40	5096.31
.001990	348.	358.	358.	2	0	0	.00	494.02	5590.33

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 27730.000

27730.000	8.71	1331.11	.00	.00	1331.21	.11	.40	.01	1327.40
4710.0	2013.0	1066.8	1630.2	1052.9	300.4	621.1	83.8	38.2	1327.40
.21	1.91	3.55	2.62	.045	.040	.045	.000	1322.40	5120.89
.001017	321.	282.	251.	1	0	0	.00	753.86	5874.76

*SECNO 27977.000

27977.000	8.97	1331.37	.00	.00	1331.44	.07	.22	.00	1327.40
4710.0	2314.8	569.5	1825.8	1314.9	177.0	799.6	96.1	43.1	1327.40
.24	1.76	3.22	2.28	.045	.040	.045	.000	1322.40	5201.64
.000806	261.	247.	234.	2	0	0	.00	931.33	6132.97

*SECNO 28200.000

28200.000	8.15	1331.55	.00	.00	1331.62	.07	.18	.00	1327.40
4710.0	2229.1	528.8	1952.1	1381.0	157.6	844.8	108.2	48.2	1327.40
.27	1.61	3.35	2.31	.045	.040	.045	.000	1323.40	5155.31
.000771	223.	223.	230.	2	0	0	.00	1041.48	6196.80

*SECNO 28473.000

28473.000	7.36	1331.76	.00	.00	1331.84	.08	.22	.00	1327.40

4710.0	2735.5	426.9	1547.6	1441.5	124.2	685.1	122.5	54.4	1328.40
.30	1.90	3.44	2.26	.045	.040	.045	.000	1324.40	5291.04
.000863	265.	273.	275.	0	0	0	.00	957.83	6248.87

*SECNO 28548.000

28548.000	7.44	1331.84	.00	.00	1331.89	.06	.05	.00	1327.40
4710.0	2991.1	480.7	1238.2	1800.7	155.8	695.3	126.4	56.0	1327.40
.31	1.66	3.08	1.78	.045	.040	.045	.000	1324.40	5178.88
.000605	66.	75.	80.	1	0	0	.00	1094.05	6272.93

*SECNO 28571.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

28571.000	2.00	1332.40	1332.40	.00	1332.96	.55	.04	.15	1332.40
4710.0	4710.0	.0	.0	788.4	.2	.0	127.4	56.5	1332.40
.31	5.97	.11	.05	.045	.040	.000	.000	1330.40	5265.52
.022262	23.	23.	23.	20	14	0	.00	785.23	6050.75

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THIS RUN EXECUTED 15APR04 14:43:14

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ASSUMED STARTING WATER S

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
25654.000	.00	.00	.00	1320.40	4710.00	1326.56	.00	1326.64	9.88	3.45	2234.63	1498.52
25707.000	53.00	.00	.00	1320.40	4710.00	1326.62	.00	1326.72	12.23	3.69	2036.13	1346.58
25757.000	50.00	.00	.00	1319.40	4710.00	1326.70	.00	1326.82	15.40	3.85	1829.39	1200.19
25784.000	27.00	.00	.00	1320.40	4710.00	1326.76	.00	1326.94	30.46	5.05	1474.78	853.36
25963.000	180.00	.00	.00	1320.40	4710.00	1327.55	.00	1327.74	30.28	5.40	1541.54	855.96
26318.000	355.00	.00	.00	1320.40	4710.00	1328.50	.00	1328.65	18.80	4.96	1728.25	1086.38

26638.000	320.00	.00	.00	1320.40	4710.00	1329.07	.00	1329.19	16.02	4.63	1867.49	1176.79
26849.000	211.00	.00	.00	1320.40	4710.00	1329.41	.00	1329.65	25.62	5.45	1342.88	930.58
27090.000	241.00	.00	.00	1321.40	4710.00	1329.98	.00	1330.16	16.60	4.69	1461.57	1155.86
27448.000	358.00	.00	.00	1321.40	4710.00	1330.61	.00	1330.80	19.90	5.18	1404.89	1055.78
27730.000	282.00	.00	.00	1322.40	4710.00	1331.11	.00	1331.21	10.17	3.55	1974.39	1477.11
27977.000	247.00	.00	.00	1322.40	4710.00	1331.37	.00	1331.44	8.06	3.22	2291.47	1658.96
28200.000	223.00	.00	.00	1323.40	4710.00	1331.55	.00	1331.62	7.71	3.35	2383.41	1696.39
28473.000	273.00	.00	.00	1324.40	4710.00	1331.76	.00	1331.84	8.63	3.44	2250.73	1603.70
28548.000	75.00	.00	.00	1324.40	4710.00	1331.84	.00	1331.89	6.05	3.08	2651.92	1914.67
* 28571.000	23.00	.00	.00	1330.40	4710.00	1332.40	1332.40	1332.96	222.62	.11	788.61	315.68

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ASSUMED STARTING WATER S

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	25654.000	4710.00	1326.56	.00	.00	-.04	939.68	.00
	25707.000	4710.00	1326.62	.00	.06	.00	881.38	53.00
	25757.000	4710.00	1326.70	.00	.08	.00	816.85	50.00
	25784.000	4710.00	1326.76	.00	.05	.00	775.20	27.00
	25963.000	4710.00	1327.55	.00	.80	.00	867.63	180.00
	26318.000	4710.00	1328.50	.00	.95	.00	908.49	355.00
	26638.000	4710.00	1329.07	.00	.57	.00	836.59	320.00
	26849.000	4710.00	1329.41	.00	.34	.00	597.93	211.00
	27090.000	4710.00	1329.98	.00	.57	.00	502.46	241.00
	27448.000	4710.00	1330.61	.00	.63	.00	494.02	358.00
	27730.000	4710.00	1331.11	.00	.50	.00	753.86	282.00
	27977.000	4710.00	1331.37	.00	.26	.00	931.33	247.00
	28200.000	4710.00	1331.55	.00	.18	.00	1041.48	223.00
	28473.000	4710.00	1331.76	.00	.22	.00	957.83	273.00
	28548.000	4710.00	1331.84	.00	.07	.00	1094.05	75.00
*	28571.000	4710.00	1332.40	.00	.57	.00	785.23	23.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 28571.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 28571.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 28571.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL