APPENDIX 7-23

BLIND, CRANDALL, AND HORSE CREEK FLOW CALCULATIONS

STREAM FLOW AND TEMPERATURE MEASUREMENTS 1991

STATION	APR 15		MAY 28		JUN 12–13		JUL 1–3		JUL 14–16	
	FLOW (gpm)	TEMP (C)	FLOW (gpm)	TEMP (C)	FLOW (gpm)	TEMP (C)	FLOW (gpm)	TEMP (C)	FLOW (gpm)	TEMP (C)
CRANDALL CREEK										
CN–1	188	2	754	6	1997	6	4.7	14	592	11
CN–2	(s)	(s)	673	6	2370	4	4.7	15	250	11
CN–3	(s)	(s)	(s)	(s)	2985	4	–	–	–	–
CN–4	(s)	(s)	(s)	(s)	1683	4	–	–	167	11
CN–5	(s)	(s)	(s)	(s)	422	4	1.5	14	19	9
CN–6	(s)	(s)	(s)	(s)	148	4	1.5	14	8.5	10
CN–7	(s)	(s)	(s)	(s)	447	4	2	16	8	9
CS–1	241	2	467	5	3357	4	3590	10	1037	7
CS–2	(s)	(s)	337	5	2100	4	1234	12	215	6
CS–3	(s)	(s)	930	5	1961	4	185	7	262	5
CS–4	(s)	(s)	DRY	–	1010	3	202	10	DRY	–
CS–5	(s)	(s)	(s)	(s)	1041	3	195	10	34	8
CS–6	(s)	(s)	(s)	(s)	505	2	5	20	DRY	–
CS–7	(s)	(s)	(s)	(s)	107	1	1	13	DRY	–
CF–1	300	4	1400	6	3200	6	1200	12	1647	12
CF–2	300	4	1400	6	3200	6	1200	12	1378	12
BLIND CYN. CREEK										
B–1	(s)	(s)	673	7	1260	7	1005	16	399	18
B–2	(s)	(s)	673	7	1795	7	–	–	–	–
B–3	(s)	(s)	609	6	1000	7	447	12	281	18
B–4	(s)	(s)	448	6	1120	7	207	15	247	16
B–5	(s)	(s)	(s)	(s)	1120	6	419	16	228	19
B–6	(s)	(s)	(s)	(s)	673	4	495	15	–	–
B–7	(s)	(s)	(s)	(s)	337	4	600	15	117	16
B–8	(s)	(s)	(s)	(s)	107	4	280	13	1	320
BF	(s)	(s)	670	7	1000	7	218	18	220	16
HORSE CREEK										
H–1	(s)	(s)	2513	7	705	6	265	19	201	14
H–2	(s)	(s)	1997	7	2000	6	396	18	311	17
H–3	235	1	1387	7	2890	7	300	17	250	13
HN–1	(s)	(s)	590	7	673	4	–	–	3	10
HS–1	(s)	(s)	758	7	1293	3	–	–	20	14
HS–2	(s)	(s)	785	7	1515	3	–	–	31	14
HS–3	(s)	(s)	978	7	1680	4	–	–	100	14
HS–4	(s)	(s)	780	7	2423	6	496	18	167	14
HS–5	(s)	(s)	747	7	2356	6	319	17	131	14
HS–0	(s)	(s)	(s)	(s)	1185	2	97	14	50	14
HS–20	(s)	(s)	(s)	(s)	2015	2	186	16	150	13
HS–30	(s)	(s)	(s)	(s)	1777	1	80	13	71	13
HS–40	(s)	(s)	(s)	(s)	1777	1	65	12	10	13
HS–50	(s)	(s)	(s)	(s)	(s)	(s)	56	12	6	13

STREAM FLOW AND TEMPERATURE MEASUREMENTS 1991

STATION	AUG 9		AUG 20–21		SEP 5–6		SEP 25–26		OCT 10	
	FLOW (gpm)	TEMP (C)	FLOW (gpm)	TEMP (C)	FLOW (gpm)	TEMP (C)	FLOW (gpm)	TEMP (C)	FLOW (gpm)	TEMP (C)
CRANDALL CREEK										
CN–1	200	11	103	12	337	10	19	8	25	7
CN–2	112	10	84	12	154	9	25	7	11	6
CN–3	45	12	16	15	309	9	19	5	10	4
CN–4	58	12	55	13	238	9	15	6	5.6	5
CN–5	0.2	12	3	9	10	9	DRY	–	DRY	–
CN–6	1.6	9	DRY	–	66	8	DRY	–	DRY	–
CN–7	0.2	12	DRY	–	25	9	DRY	–	DRY	–
CS–1	337	8	300	8	583	6	210	5	105	7
CS–2	135	8	140	7	95	6	13	7	1.6	8
CS–3	140	6	100	7	75	5	19	6	37	5
CS–4	DRY	–	DRY	–	DRY	–	DRY	–	DRY	–
CS–5	14	10	6	9	17	7	2.7	7	30	5
CS–6	DRY	–	DRY	–	DRY	–	DRY	–	DRY	–
CS–7	DRY	–	DRY	–	DRY	–	DRY	–	DRY	–
CF–1	956	13	620	12	1054	7	406	7	619	8
CF–2	1328	13	620	12	1054	7	406	6	619	8
BLIND CYN. CREEK										
B–1	100	–	56	13	65	11	44	8	30	4
B–2	–	–	56	12	45	11	25	9	31	8
B–3	42	–	18	12	14	11	3.3	7	17	4
B–4	4.4	–	28	11	1.7	11	2	7	6	6
B–5	10.4	–	5	14	0.25	11	2.3	12	–	–
B–6	–	–	8	12	0.25	13	–	–	0.3	18
B–7	–	–	2	12	2	13	0.8	8	0.5	12
B–8	–	–	4	18	5.6	16	0.7	16	0.6	12
BF	229	–	146	14	73	11	146	8	109	5
HORSE CREEK										
H–1	50	17	28	14	14	14	28	7	50	7
H–2	21	17	–	–	12	14	28	8	22	7
H–3	42	18	42	15	12	14	42	10	35	7
HN–1	DRY	–	DRY	–	DRY	–	DRY	–	DRY	–
HS–1	3.5	18	5	13	6	14	6	6	5.6	6
HS–2	13	17	6	13	12	14	9	6	19	4
HS–3	18.7	16	17	13	8	14	13	6	9	5
HS–4	21	17	25	15	8	15	23	6	–	–
HS–5	21	17	16	14	6	14	33	6	72	7
HS–0	1.5	19	5	16	1.5	15	2.3	6	1.5	5
HS–20	0.5	21	0.2	16	0.7	18	2	8	1	6
HS–30	1.0	18	0.5	15	0.5	16	0.2	7	1.5	5
HS–40	0.2	18	DRY	–	DRY	–	0.15	8	DRY	–
HS–50	DRY	–	DRY	–	DRY	–	DRY	–	DRY	–

STREAM FLOW AND TEMPERATURE MEASUREMENTS 1991

STATION	NOV 6–13 FLOW (gpm)	NOV 6–13 TEMP (C)
CRANDALL CREEK		
CN–1	112	5
CN–2	112	1
CN–3	75	2
CN–4	19	1
CN–5	12	2
CN–6	0.5	1
CN–7	DRY	–
CS–1	337	5
CS–2	150	5
CS–3	93	4
CS–4	DRY	–
CS–5	2	1
CS–6	DRY	–
CS–7	DRY	–
CF–1	FRZN	–
CF–2	FRZN	–
BLIND CYN. CREEK		
B–1	168	4
B–2	125	4
B–3	40	4
B–4	18.7	3
B–5	62	3
B–6	–	–
B–7	15.6	2
B–8	15.6	2
BF	FRZN	–
HORSE CREEK		
H–1	701	2
H–2	96	2
H–3	344	1
HN–1	DRY	–
HS–1	37	4
HS–2	93	4
HS–3	84	4
HS–4	84	4
HS–5	122	2
HS–0	112	4
HS–20	9.3	5
HS–30	DRY	–
HS–40	DRY	–
HS–50	DRY	–

(s) Inaccessible due to snow lining stream and/or covering stream.

(–) No data.

(FRZN) Flume frozen.

* Heavy rains fell during Sept 5–6 and July 14–16 surveys. Snow covering and lining the stream was melting during Nov. 6–13 survey

ENVIRONMENTAL INDUSTRIAL SERVICES
P.O. Box 358 - Desert Lake Road - Elmo, Utah 84521 - Telephone (801) 653-2606

October 5, 1992

Mr. Larry Johnson
Genwal Coal Company Inc.
195 N. 100 W.
P.O. Box 1201
Huntington, Utah 84528

Re: Perennial Stream Determination
LBA #9

Dear Mr. Johnson:

As per your instruction, on September 28, 1992, personnel from E.I.S. walked from the confluence of Huntington Creek up No Name Canyon, Blind Canyon, Horse Canyon and Crandall Canyons. The purpose was to determine what portion of each of these drainages would be considered as perennial in as much as they had a static flow or standing water level.

The results of that survey are indicated on attached Plate 14-5 and in brief are described below:

Horse Canyon	Right fork - dry approximately 340 feet above the forks. Left fork - dry above forks
No Name Canyon	Dry
Blind Canyon	Dry
Crandall Canyon	Left fork - intermittent flow above forks to CS-5 Right fork - flow to CN-4 canyon top

Sincerely,

Melvin A. Coonrod
E.I.S.

BLIND CREEK FLOW CALCULATIONS

Watershed Characteristics

Area = 1148 acres (1.79 mi^2) - see watershed area map (Figure 14-11 of this appendix)
Average elevation = 8998 feet - see grid point map (Figure 14-12 of this appendix). Average elevation determined from 211 points on 500 foot centers across basin.

Return-Period/Peak-Flow Estimates

With an average elevation greater than 8000 feet, Blind Canyon lies in the High Plateaus Flood region of Thomas and Lindskov (1983). Flood peak flows in this region can be estimated from the equations:

$$Q_{10} = 680\ A^{0.706}\ E^{-1.3}$$

$$Q_{25} = 10{,}000\ A^{0.672}\ E^{-2.33}$$

$$Q_{50} = 64{,}200\ A^{0.651}\ E^{-3.03}$$

$$Q_{100} = 347{,}000\ A^{0.631}\ E^{-3.68}$$

Q_N = peak flow (cfs) with a return period of N years
A = drainage area (mi^2)
E = average basin elevation (thousands of feet)

For the Blind Canyon watershed:

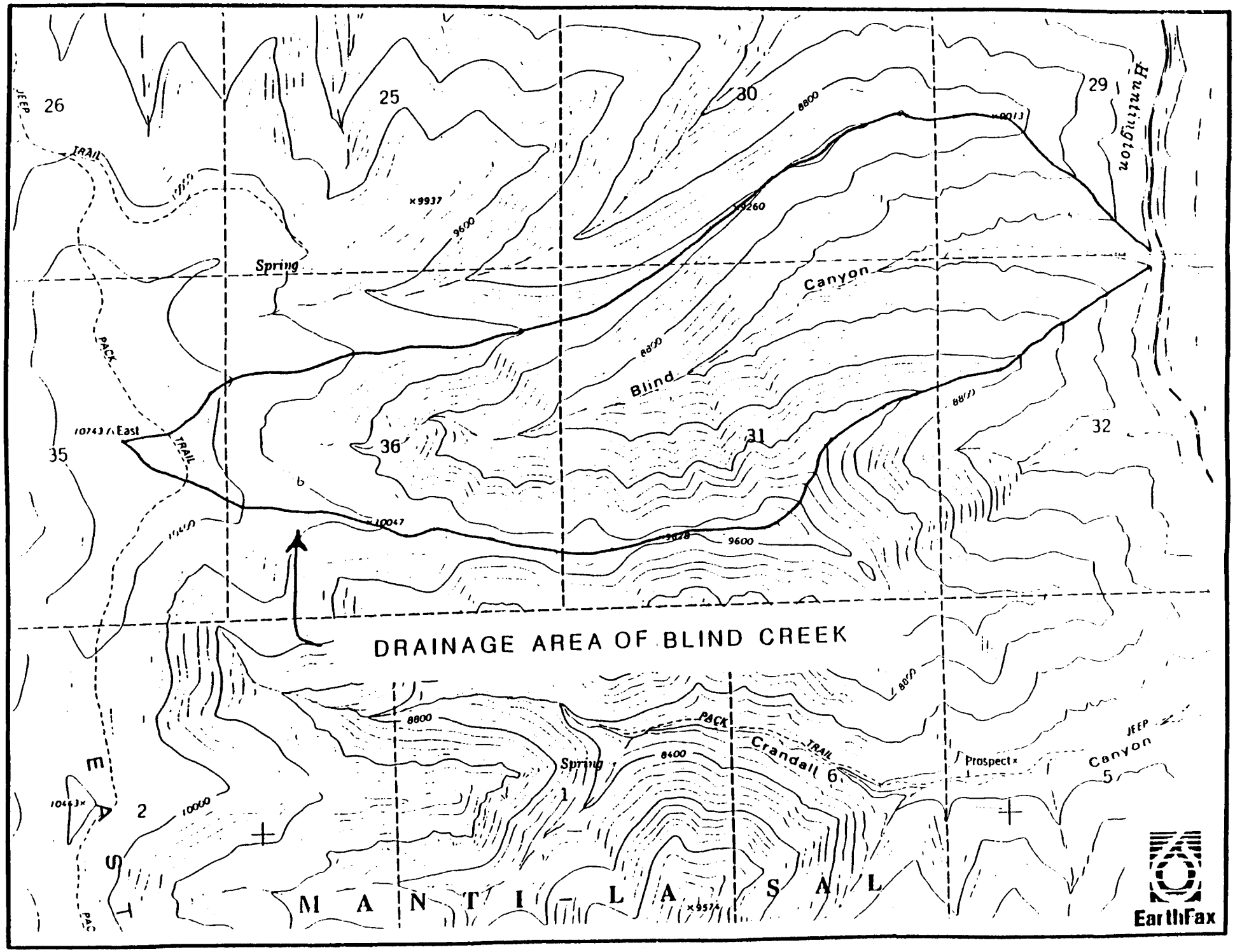
Q_{10} = 59 cfs

Q_{25} = 88 cfs

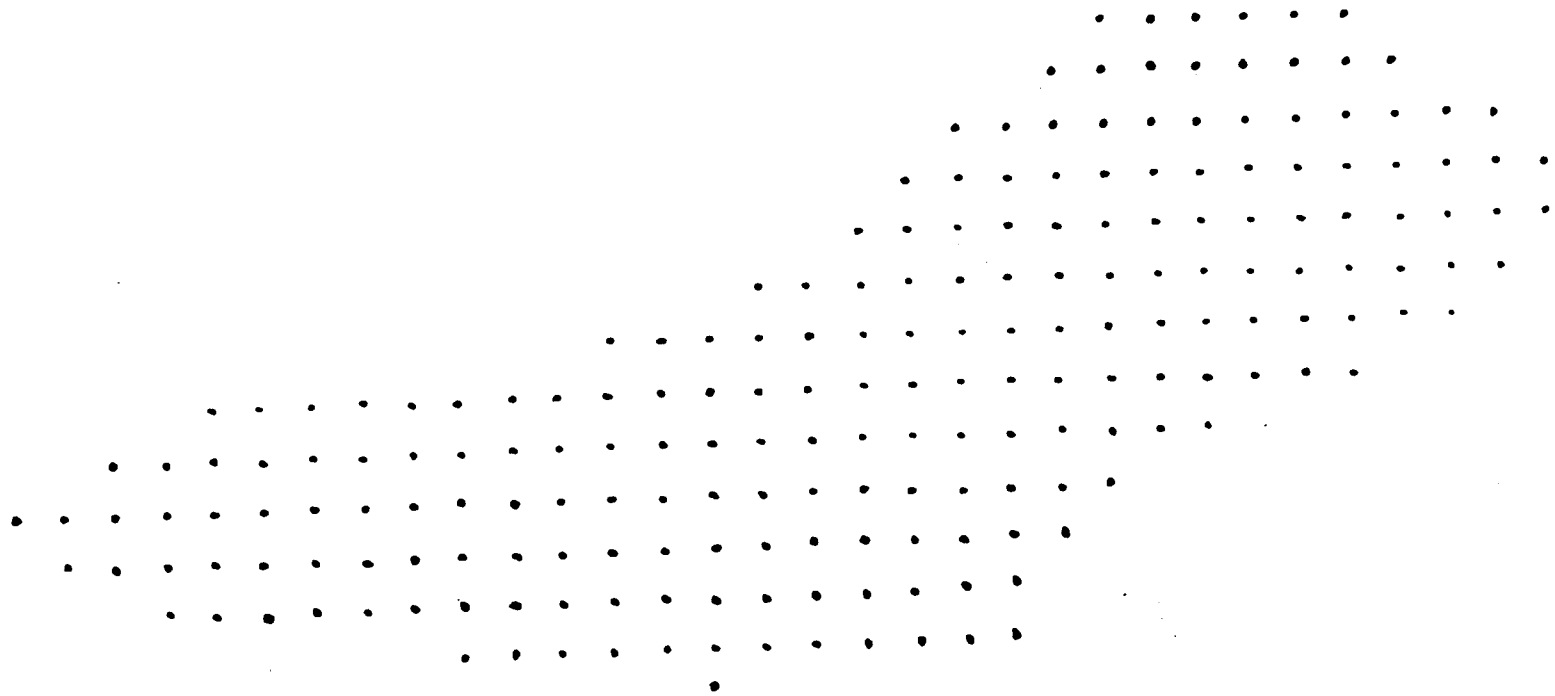
Q_{50} = 121 cfs

Q_{100} = 154 cfs

Reference: Thomas, B. E., Lindskov, K. L., 1983, Methods for Estimating Peak Discharge and Flood Boundaries of Streams in Utah, U.S. Geological Survey, Water-Resources Investigations Report 83-4129, 77 p.



DRAINAGE AREA OF BLIND CREEK
26
25
30
29
35
36
31
32
2
1
6
5
JEEP TRAIL
PACK TRAIL
Spring
Blind Canyon
Huntington
East
Crandall
Prospect
Canyon
JEEP
8800
9600
8400
10000
10743
10047
9937
9260
9013
9574
M A N T I - L A S A L
E A S T
EarthFax



211 POINTS: MEAN ELEVATION 8997 FEET

EarthFax

FIGURE 14.12. BLIND CREEK WATERSHED GRID POINT MAP.

STATE OF UTAH

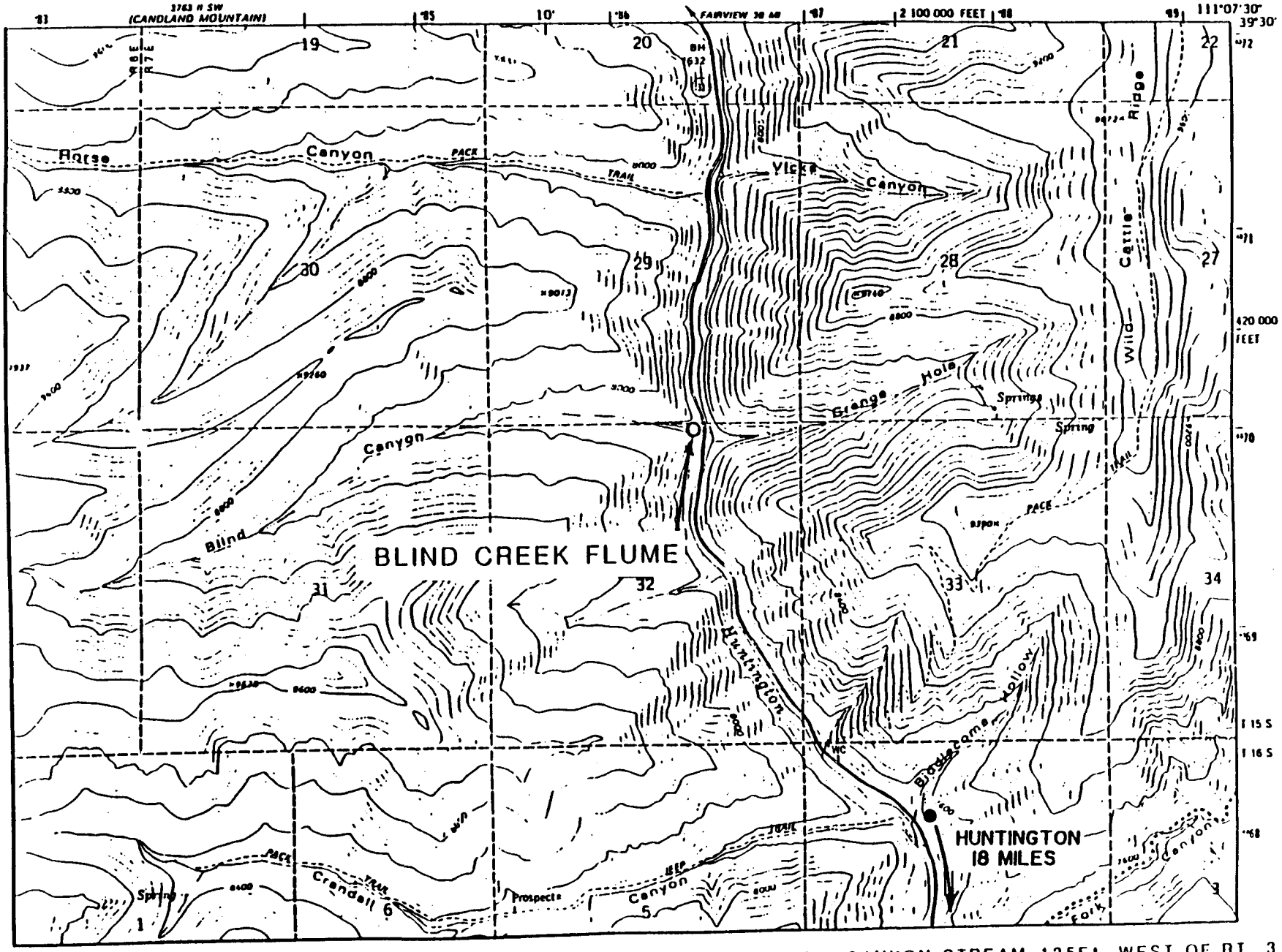
UTAH GEOLOGICAL AND MINERAL SURVEY

RILDA CANYON QUADRANGLE

UTAH

7.5 MINUTE SERIES (TOPOGRAPHIC)

NW/4 HIAWATHA 15' QUADRANGLE



PARSHALL FLUME ON THE BLIND CANYON STREAM 125Ft. WEST OF RT. 31

T15S-R7E-Sec-32.