APPENDIX A

NEXT

SOURCE: MILO GULCH FLOOD HYDROLOGY + WATERQUALITY IMPROVEMENT PLAN (SPECTRUM ENGR., MAR 96)

Precipitation-Frequency Relationships
Point Precipitation Values

Guy Caves near Kellogg, Idaho

Elev. = 4200 Feet

Return Period (Yr)	Duration 5-min	15-min	30-min	1-hr	2-hr	3-hr	6-hr	12-hr	24-hr
2	0.12	0.24	0.33	0.42	0.56	0.69	1.00	1.50	2.00
5	0.17	0.33	0.45	0.57	0.73	0.87	1.20	1.80	2.40
10	0.20	0.39	0.55	0.69	0.87	1.02	1.40	2.10	2.80
25	0.25	0.48	0.67	0.85	1.04	1.20	1.60	2.40	3.20
50	0.28	0.55	0.76	0.97	1.18	1.36	1.80	2.65	3.50
100	0.31	0.62	0.86	1.09	1.31	1.51	2.00	2.90	3.80

Guy Caves near Kellogg, Idaho
Rainfall plus Snowmelt

Elev. = 4200 Feet

Snow Melt Add-on	0.01	0.02	0.04	0.09	0.17	0.26	0.52	0.94	1.69

Return Period (Yr)	Duration 5-min	15-min	30-min	1-hr	2-hr	3-hr	6-hr	12-hr	24-hr
2	0.13	0.26	0.37	0.50	0.74	0.95	1.52	2.44	3.69
5	0.17	0.35	0.50	0.66	0.90	1.13	1.72	2.74	4.09
10	0.21	0.42	0.59	0.78	1.04	1.28	1.92	3.04	4.49
25	0.25	0.51	0.71	0.93	1.21	1.46	2.12	3.34	4.89
50	0.29	0.57	0.81	1.05	1.35	1.62	2.32	3.59	5.19
100	0.32	0.64	0.90	1.17	1.49	1.77	2.52	3.84	5.49

Guy Cave South
Rainfall plus Snowmelt

Elev. = 4200 Feet

Snow Melt Add-on	0.01	0.02	0.05	0.09	0.19	0.28	0.56	1.02	1.84

Return Period (Yr)	Duration 5-min	15-min	30-min	1-hr	2-hr	3-hr	6-hr	12-hr	24-hr
2	0.13	0.26	0.38	0.51	0.75	0.97	1.56	2.52	3.84
5	0.17	0.35	0.50	0.67	0.92	1.15	1.76	2.82	4.24
10	0.21	0.42	0.59	0.78	1.06	1.30	1.96	3.12	4.64
25	0.25	0.51	0.72	0.94	1.22	1.48	2.16	3.42	5.04
50	0.29	0.57	0.81	1.06	1.36	1.64	2.36	3.67	5.34
100	0.32	0.64	0.90	1.18	1.50	1.79	2.56	3.92	5.64

NEXT

SOURCE: BUNKER CREEK AND GOVERNMENT GULCH FLOOD HYDROLOGY (SPECTRUM ENGR., MAR 1996)

Bunker Creek
Precipitation-Frequency Relationships
Point Precipitation Values

Upper Deadwood Gulch near Kellogg, Idaho

Elev. = 4200 Feet

Return Period (Yr)	Duration 5-min	15-min	30-min	1-hr	2-hr	3-hr	6-hr	12-hr	24-hr
2	0.12	0.24	0.33	0.42	0.56	0.69	1.00	1.50	2.00
5	0.17	0.33	0.45	0.57	0.73	0.87	1.20	1.80	2.40
10	0.20	0.39	0.55	0.69	0.87	1.02	1.40	2.10	2.80
25	0.25	0.48	0.67	0.85	1.04	1.20	1.60	2.40	3.20
50	0.28	0.55	0.76	0.97	1.18	1.36	1.80	2.65	3.50
100	0.31	0.62	0.86	1.09	1.31	1.51	2.00	2.90	3.80
Snow Melt Add-on	0.01	0.02	0.04	0.09	0.17	0.26	0.52	0.94	1.70

Upper Deadwood Gulch near Kellogg, Idaho
Rainfall plus Snowmelt

Elev. = 4200 Feet

Return Period (Yr)	Duration 5-min	15-min	30-min	1-hr	2-hr	3-hr	6-hr	12-hr	24-hr
50% 2	0.13	0.26	0.37	0.50	0.74	0.95	1.52	2.44	3.70
20% 5	0.17	0.35	0.50	0.66	0.90	1.13	1.72	2.74	4.10
10% 10	0.21	0.42	0.59	0.78	1.04	1.28	1.92	3.04	4.50
4% 25	0.25	0.51	0.71	0.93	1.21	1.46	2.12	3.34	4.90
2% 50	0.29	0.57	0.81	1.05	1.35	1.62	2.32	3.59	5.20
1% 100	0.32	0.64	0.90	1.17	1.49	1.77	2.52	3.84	5.50

Precipitation-Frequency Relationships
Point Precipitation Values

Kellogg, Idaho

Elev. = 3200 Feet

Return Period (Yr)	Duration 5-min	15-min	30-min	1-hr	2-hr	3-hr	6-hr	12-hr	24-hr
2	0.12	0.23	0.32	0.41	0.54	0.66	0.95	1.38	1.80
5	0.16	0.32	0.44	0.56	0.70	0.83	1.15	1.68	2.20
10	0.19	0.38	0.53	0.67	0.84	0.99	1.35	1.98	2.60
25	0.24	0.47	0.64	0.82	1.00	1.16	1.55	2.28	3.00
50	0.27	0.53	0.73	0.93	1.13	1.31	1.75	2.58	3.40
100	0.30	0.59	0.82	1.04	1.27	1.47	1.95	2.88	3.80

NEXT

SOURCE: MILO GULCH FLOOD HYDROLOGY + WATER QUALITY IMPROVEMENT PLAN [SPECTRUM ENGR., MAR 96]

Milo Gulch

CN Computatuon Tables

Area: Milo Upper

Soil Type Name	Slopes,%	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Ahrs-Pine Creek	35-75	107	B	Woods-Poor	74	36.73	2718.02
Latour	35-75	116	B	Woods-Good	55	245.05	13477.75
Latour	15-35	117	B	Woods-Good	55	22.82	1255.10
Latour -Rubble Land	35-75	118	B	Woods Poor: Ski Runs	74	196.63	14550.62
Honey Jones-Ahrs	35-75	127	B	Woods-Good	55	221.48	12181.40
Total/Average					61.1	722.71	44,182.89

Area: Milo Upper Trib

Soil Type Name	Slopes,%	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Ahrs-Pine Creek	35-75	107	B	Woods-Poor	74	8.26	611.24
Ahrs-Pine Creek	35-75	107	B	Woods-Good	55	33.80	1,859.00
Latour	35-75	116	B	Woods Poor: Ski Runs	74	31.04	2,296.96
Latour	35-75	116	B	Woods-Good	55	138.84	7,636.20
Honey Jones-Ahrs	35-75	127	B	Woods-Good	55	128.19	7,050.45
Pinecreek	35-65	171	B	Woods-Good	55	26.63	1,464.65
Total/Average					57.0	366.76	20,918.50

Area: Guy Cave South Drainage

Soil Type Name	Slopes,%	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Ahrs-Pine Creek	35-75	107	B	Woods-Poor	74	8.08	597.92
Ahrs-Pine Creek	35-75	107	B	Woods-Good	55	4.03	221.65
Honey Jones-Ahrs	35-75	127	B	Woods-Good	55	4.20	231.00
Honey Jones-Ahrs	35-75	178	B	Woods-Good	55	13.26	729.30
Total/Average					60.2	29.57	1,779.87

Area: Guy Caves

Soil Type Name	Slopes,%	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Latour	35-75	116	B	Woods-Good	55	37.10	2,040.50
Honey Jones-Ahrs	15-35	126	B	Woods-Good	55	13.59	747.45
Honey Jones-Ahrs	35-75	127	B	Woods-Good	55	70.71	3,889.05
Pinecreek	35-65	171	B	Woods-Good	55	20.02	1,101.10
Honey Jones-Ahrs	35-75	178	B	Woods-Impacted	60	37.28	2,236.80
Honey Jones-Ahrs	35-75	178	B	Woods-Good	55	31.41	1,727.55
Total/Average					55.9	210.11	11,742.45

Area: Upper Grizzly

Soil Type Name	Slopes,%	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Honey Jones-Ahrs	35-75	127	B	Woods-impacted	60	29.94	1,796.40
Honey Jones-Ahrs	35-75	127	B	Woods-Good	55	60.42	3,323.10
Total/Average					56.7	90.36	5,119.50

Area: Lower Grizzly

Soil Type Name	Slopes,%	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Honey Jones-Ahrs	35-75	127	B	Woods-Good	55	51.24	2,818.20
Honey Jones-Ahrs	35-75	178	B	Woods-impacted	60	75.11	4,506.60
Honey Jones-Ahrs	35-75	178	B	Woods-Good	55	76.22	4,192.10
Total/Average					56.9	202.57	11,516.90

NEXT

SOURCE : BUNKER CREEK AND GOVERNMENT GULCH FLOOD HYDROLOGY [SPECTRUM ENGR, MAR. 96]

Bunker Creek

Preliminary CN Computation Tables
(7½-minute Quads Used)

Area: Portal Gulch

Soil Type Name	Slopes %	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Fluv Arents	0-4	173	C	Range, Poor	86	11.75	1010.50
Hobo Silt Loam, Acidic	15-35	176	D	Range, Fr-Pr	86.5	40.21	3478.17
Hobo-Helmer Silt Loam	5-15	177	D	Range, Fr-Pr	86.5	5.88	508.62
Hugus gravelly Loam	30-65	180	B	Woods, Impacted	60	159.96	9597.60
Tigley ext. grav. Loam	60-80	185	B	Woods, Impacted	60	7.53	451.80
Total/Average					66.8	225.33	15,046.69

Area: Railroad Gulch

Soil Type Name	Slopes %	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Slickens		162	C	Range-Poor	86	1.47	126.42
Fluv Arents	0-4	173	C	Range-Poor	86	12.67	1,089.62
Hobo Silt Loam, Acidic	15-35	176	D	Range, Fr-Pr	86.5	30.30	2,620.95
Hobo-Helmer Silt Loam	5-15	177	D	Range, Fr-Pr	86.5	37.65	3,258.73
Hugus gravelly Loam	30-65	180	B	Woods, Impacted	60	26.81	1,608.60
Total/Average					79.9	108.90	8,702.32

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Area: Upper Deadwood Gulch

Soil Type Name	Slopes %	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Tigley ext. grav. Loam	60-80	185	B	Woods-Good	55	0.74	40.70
Tigley ext. grav. Loam	60-80	185	B	Woods, Impacted	60	5.59	335.40
Honey Jones-Ahrs	35-75	178	B	Woods-Good	55	79.87	4,392.85
Honey Jones-Ahrs	35-75	178	B	Woods, Impacted	60	10.05	603.00
Honey Jones-Ahrs	35-75	127	B	Woods-Good	55	181.15	9,963.25
Honey Jones-Ahrs	35-75	127	B	Woods, Impacted	60	1.87	112.20
Honey Jones-Ahrs	15-35	126	B	Woods-Good	55	22.53	1,239.15
Pinecreek	35-65	171	B	Woods-Good	55	10.42	573.10
Total/Average					55.3	312.22	17,259.65

CLOSE TO OUR BASIN AREA

Area: Lower Deadwood Gulch

Soil Type Name	Slopes %	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Slickens		162	C	Range-Poor	86	14.14	1,216.04
Fluv Arents	0-4	173	C	Range-Poor	86	37.47	3,222.42
Hobo Silt Loam, Acidic	15-35	176	D	Range, Fr-Pr	86.5	24.97	2,159.91
Hobo-Helmer Silt Loam	5-15	177	D	Range, Fr-Pr	86.5	14.33	1,239.55
Hugus gravelly Loam	30-65	180	B	Woods, Impacted	60	216.35	12,981.00
Hugus gravelly Loam	30-65	180	B	Range, Fr-Pr	74	31.77	2,350.98
Honey Jones-Ahrs	35-75	178	B	Woods, Impacted	60	100.90	6,054.00
Tigley ext. grav. Loam	60-80	185	B	Range, Fr-Pr	74	43.62	3,227.88
Tigley ext. grav. Loam	60-80	185	B	Woods, Impacted	60	4.41	264.60
Total/Average					67.0	487.96	32,716.37

Area: Magnet Gulch

Soil Type Name	Slopes %	Map Unit Number	Hydro Soil Type	Cover	CN	Area	CN X Area
Slickens		162	C	Range-Poor	86	3.49	300.14
Fluv Arents	0-4	173	C	Range-Poor	86	2.94	252.84
Hobo Silt Loam, Acidic	15-35	176	D	Wds-Fair	79	57.60	4,566.20
Hobo Silt Loam, Acidic	15-36	176	D	Range-Fr-Pr	86.5	57.72	4,992.78
Hobo-Helmer Silt Loam	5-15	177	D	Range-Fr-Pr	86.5	47.75	4,130.38
Hugus gravelly Loam	30-65	180	B	Range-Fr-Pr	74	117.35	8,683.90
Honey Jones-Ahrs	35-75	178	B	Woods-Fair	60	2.02	121.20
Total/Average					79.7	289.07	23,047.44

NEXT

Milo Creek
EXISTING CONDITIONS LAND USE INPUT DATA

Basin Name	Total Area (ac)	Land Use/ Hydrologic Soil Group	Area (ac)	CN*	Composite CN	Flow Type	Land Cover	Travel Length (ft)	Slope (ft/ft)	n or K	Velocity (fps)	Travel Time (min)	Time of Concentration (min)
A		Pervious:				Pervious							
	30.10	Soil Type B	30.10	58.0		Sheet	forested	300	0.1600	0.40		28.47	
						Shallow	forested	630	0.6200		12.70	0.83	
						Channel	meand. stream	1220	0.5500	20	14.83	1.37	30.7
												LAG	18.4
B		Pervious:				Pervious							
	10.60	Soil Type B	10.60	55.9		Sheet	forested	300	0.6600	0.40		16.15	
						Shallow	forested	720	0.6600		13.11	0.92	
						Channel	meand. stream	360.00	0.460	20	13.56	0.44	17.51
												LAG	10.5
C		Pervious:				Pervious							
	140.80	Soil Type B	140.80	55.9		Sheet	forested	300	0.2000	0.40		26.04	
						Shallow	forested	1950	0.4000		10.20	3.18	
						Channel	meand. stream	2280	0.3600	20	12.00	3.17	32.4
												LAG	19.4
D		Pervious:				Pervious							
	22.20	Soil Type B	22.20	66.0		Sheet	forested	300	0.3200	0.40		21.58	
						Shallow	forested	1350	0.5500		11.97	1.88	
						Channel	meand. stream	260	0.0460	20	4.29	1.01	24.5
												LAG	14.7
E		Pervious:				Pervious							
	309.50	Soil Type B	309.50	55.3		Sheet	forested	300	0.2000	0.40		26.04	
						Shallow	forested	1500	0.3300		9.27	2.70	
						Channel	meand. stream	4700	0.3000	20	10.95	7.15	35.9
												LAG	21.5

NOTES

2-year, 24-hour rainfall = 2.00 inches

Sheet Flow Tt = (0.42*(K##*I##)^0.8)/((D29^0.5)*(J##^0.4))

	BASIN NAME
A	Raise #1
B	Raise #2
C	West Milo Diversion
D	Surface Diversion
E	Inez Shaft

*CN: Curve number for basins A-D were taken from the Milo Gulch Flood Hydrology and Water Quality Improvement Plan (1996), Guy Caves CN computation table.
Curve number for basin E was taken from the Milo Gulch Flood Hydrology and Water Quality Improvement Plan (1996), Upper Deadwood Gulch CN computation table.

NEXT