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Timelapse Film Logs From the Pu`u `O`o - Kupaianaha Eruption of Kilauea Volcano; January 1983 through September 1994

by

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Introduction

The Pu`u `O`o-Kupaianaha eruption of Kilauea began in January 1983 and continues as of this writing (December 1994). The two main vents of the eruption were Kupaianaha and Pu`u `O`o on Kilauea's east rift zone. These vents erupted most of the lava that now covers almost 90 km^2 (figure 1). Since fissures first opened in 1983, timelapse movie cameras have been used to record volcanic activity at the eruption site. By September 15, 1994, 1151 rolls of super 8 movie film had been developed and logged. These logs are compiled in Table 1 along with significant information on each developed roll of film. The film is currently archived at the Hawaiian Volcano Observatory in Hawaii Volcanoes National Park.

The 1983-1994 eruption of Kilauea Volcano

Kilauea's activity since 1983 is chronicled in a series of papers by Wolfe and others (1988), Heliker and Wright (1991), Clague and Heliker (1992), Mattox (1993), Mattox and others (1993), Mangan and others (1995), Heliker and others (in review), Kauahikaua and others (in review), and Ulrich and others (in review). The eruption began in the early morning of January 3, 1983. Lava fountains spewed from fissures extending nearly 9 km along Kilauea's east rift zone. By June 1983, activity was localized at the Pu`u `O`o vent, which erupted fountains up to 460 m high. These fountains built a 257-m-high cinder-and-spatter cone and fed `a`a flows that entered nearby subdivisions, destroying homes and covering property and roadways. Forty-four separate fountaining episodes took place at Pu`u `O`o before activity shifted to a new vent, Kupaianaha, in July 1986. At the same time, the eruptive style changed from that of episodic lava fountains to the continuous effusion into a lava pond. Kupaianaha erupted continuously until 1992, except for a week-long hiatus in 1988 and 12 brief pauses in 1990. The Kupaianaha era comprised the 48th episode of the eruption.

Pahoehoe lava flows fed from the Kupaianaha pond advanced down slope and formed a system of lava tubes that allowed lava to move great distances with minimal cooling. Lava from Kupaianaha reached the ocean in November 1986, a journey of over 11 km. This vent produced an estimated 300,000 m^3 (dense rock equivalent) of lava daily between 1986 and 1990, much of which was fed directly to the ocean through lava tubes. Enroute to the ocean, flows from Kupaianaha overran several communities on the southeastern coast of Hawai`i, including the town of Kalapana.

In 1991, the volume of lava erupted from Kupaianaha steadily declined. In November 1991, a three-week eruption occurred along en echelon fissures between Pu`u `O`o and Kupaianaha (episode 49). Shortly afterwards, on February 6, 1992, Kupaianaha shut down. Eleven days later, episode 50 began when a 150-m-long fissure opened on the uprift flank of Pu`u `O`o. Flows from this fissure covered ~1 km^2 and formed a perched lava pond with ~5 m high levees just north of the fissure system. Episode 50 ended abruptly on March 3, coincident with an intrusion in Kilauea's upper east rift zone.

Episode 51 started four days later from an extension of the episode 50 fissure slightly higher on the Pu`u `O`o edifice. The eruption at the 51 fissure was episodic; eruptive pauses lasting hours to days were common. Flows built a 60-m-high shield on the west flank of Pu`u `O`o. For the first four months of the episode, a perched lava pond was active at the summit of the new shield.

In October 1992, following a M 4.3 earthquake on Kilauea, a new fissure opened on the southwest flank of Pu`u `O`o. The episode 52 fissure was active only two weeks, after which activity resumed at the episode 51 vent.

Following a pause in activity at the 51 vent, in February 1993, lava began erupting from a new vent on the southwest flank of Pu`u `O`o. The episode 53 vent fed lava flows that entered the episode 51 tube system, where lava from the two vents joined. In September 1994, both vents fed into a tube that extended 10.7 km to the ocean in the Kamoamoa area.

The Timelapse film

Super 8 movie cameras were set up to shoot footage either in real time or at intervals of up to 4 minutes. Cameras were set up near the active vents and where lava entered the ocean (see figure 1). Table 1 is a compilation of all the timelapse film logs for each developed roll of film. The film is currently archived at the Hawaiian Volcano Observatory in Hawaii Volcanoes National Park. Gaps in the chronology of Table 1 may represent rolls of Super 8 movie film that were exposed but not developed. Table 2 is a list of undeveloped timelapse film archived at the Hawaiian Volcano Observatory. For each roll of film documented in Table 1, we have listed the episode of the eruption, the location and view of the camera, the date the film was put in the camera ("time in"), and the date the film was removed or ended ("time out"). The time interval between frames is listed under "rate".

Notes pertaining to specific observations for each roll of film are listed with a time and date. Most of these observations were made by the field geologists familiar with the eruption and there are many abbreviations in the text of Table 1. In an attempt to clarify the information presented, we have compiled the following list of frequently used abbreviations and their definitions:

1123 or 1123 vent: Pu`u Halulu (camp 7 located here)
b/f: Before
btwn: Between
C pond: Kupaianaha lava pond
Center pond: Refers to camera view of the center of the Kupaianaha lava pond
C shield: Kupaianaha shield
DR: Down rift
ftn, ftns, ftning: Fountain, fountains, fountaining, lava erupting vigorously from a vent.
KAL: Kalalua kipuka, KAL W refers to the west cone in the kipuka
KMM: Kamoamoa, refers to either Pu`u Kamoamoa, west of Pu`u `O`o or to the Kamoamoa site on the coast (figure 1).
N area: Refers to a camera location on the 1969 flow, 1.3 km NNE of Pu`u `O`o vent
NE pond: Refers to camera view of the NE side of the Kupaianaha lava pond
N splway: North spillway of Pu`u `O`o cone
Phh: Pahoehoe
pond: Lava pond
Pond 1: Location of camera site on NE rim of Kupaianaha lava pond
Pond 2: Location of camera site on NE rim of Kupaianaha lava pond
Pu`u `O`o zipline: camera view along the rift between 1123 and Pu`u `O`o
sp: Spatter
UR: Up rift

Many different camp sites were set up while monitoring this eruption, for the locations of camps used between January 1983 and June 1984, refer to Wolfe and others (1988). Camp 7 sat on the Pu`u Halulu cone between Pu`u `O`o and Kupaianaha (figure 1). Camp 8 was located on the Kalalua kipuka, east of Kupaianaha (figure 1).

Early in the eruption, there were several vents active. To find the location of these vents refer to figures and maps in Wolfe and others (1988).

Acknowledgments

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Captions

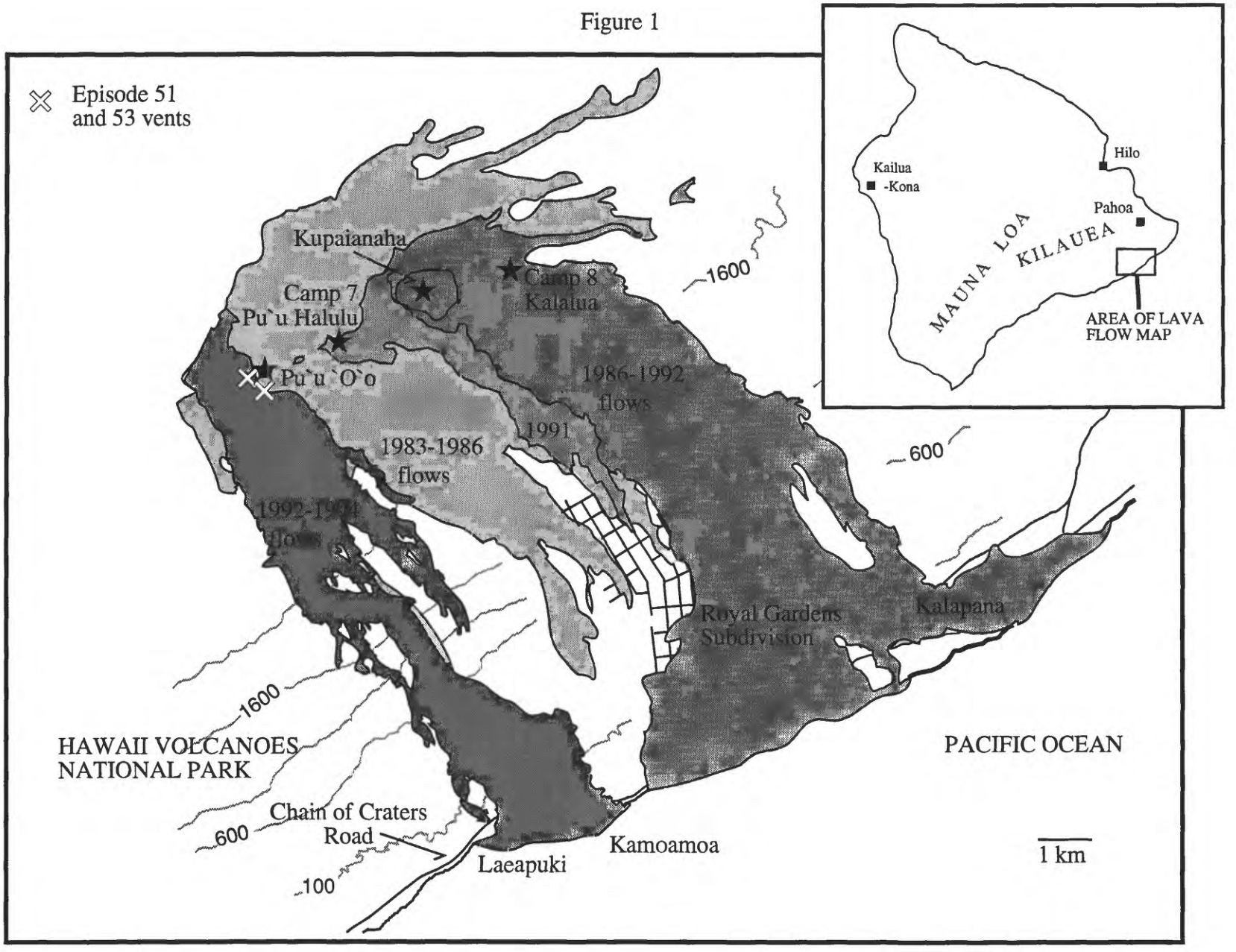
Figure 1. Sketch map of lava flows from the 1983-1994 eruption of Kilauea Volcano. Inset shows the island of Hawai`i.

Table 1. Observations of timelapse film from January 1983 through September 1994. Table includes the roll number for every roll of film developed, the dates the film was put in and then

removed from the camera, the episode of the eruption, the camera view, the interval between frames (rate), and finally, the frame number, time and date of each observation.

Table 2. Rolls of undeveloped Super 8 movie film. Table includes the dates the film was put in and then removed from the camera and the camera location (view).

Figure 1


Episode 51
and 53 vents
Kupaianaha
Camp 7
Pu`u Halulu
Pu`u `O`o
Camp 8
Kalalua
1986-1992
flows
1991
1983-1986
flows
1992-1994
flows
1600
600
100
Royal Gardens
Subdivision
Kalapana
HAWAII VOLCANOES
NATIONAL PARK
Chain of Craters
Road
Laeapuki
Kamoamoa
PACIFIC OCEAN
1 km
Hilo
Kailua
-Kona
Pahoa
MAUNA LOA
KILAUEA
AREA OF LAVA
FLOW MAP

A

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1	1/6/83	1/6/83	1	Camp 2 to eruption	Real time				
2	1/9/83	1/10/83		Camp 2 to Mckeeman	???	1	10:39:00	9/1/83	Blocked
						2	10:39:29		Blocked
						902	17:54:29		First see red from McKeeman vent,(it may have been obscured by fume)
						955	18:20:06		McKeeman vent may be ftning
						1072	19:16:39		First see lava flow from N from McKeeman
						1223	20:29:38		Ftns off
						1200	12:18:31		Well illuminated view of significant flow to S E from McKeeman.
									Individual frames where there is wide spread illumination of vents(~500m)
						1400	21:55:11		
						1478	22:32:53		
						1581	23:22:40		
						1639	23:50:42		
3	1/2/83	1/3/83		Camp 1 to Vent B	9.93sec	0	19:24:43	2/1/83	1st flashlight
						1	19:25:04		2nd flashlight
						2			Flashlight
						893			Begin to see flame
						2148	2:04:00		Flashlight
						2149			Flashlight
						2385	2:27:00		New position for camera(vent C)
						2401			Flashlight
						2402			Flashlight
						2403			Flashlight
						2484			Just about dead
						2543			Flashlight
						2534			Eruption evident in trees
									"Checked again"
						1	19:24:43		1st flashlight
						1896	0:40:21		1st look at illuminated fume(new vent or Napau)
						2149	1:21:53		Flashlight
						2150	1:22:03		Flashlight
						2387	2:02:00		Ftns visible(vent B)
						2402	2:04:00		Flashlight
						2403	2:04:00		Flashlight
						2404	2:04:00		Flashlight

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2462	2:14:37		Vent B dead?
						2535	2:26:47		Ftns? New location, Vent C
						2544	2:28:00		Flashlight
						2545	2:28:00		Flashlight
						2546	2:28:00		Flashlight
						2725	2:58:25		Vent C dead
						2730			Just about dead
						2797			Eruption alive(change in camera position?)
						2806			Flashlight
						2807			Flashlight
						2808			Flashlight
						2887			Dead again-remainder of film just one or two glows
						3071	3:56:13		Flashlight, looking at vent B
						3072	3:56:23		Flashlight, looking at vent B
						3073	3:56:33		Flashlight, looking at vent B
						2798	3:10:35		1st frame of ftning (camera moved)
						2807	3:11:00		Flashlight, Vent B
						2808	3:11:00		Flashlight, Vent B
						2809	3:11:00		Flashlight, Vent B
						2968	3:38:00		Last significant burst
						3034	3:49:00		Activity ended
						3072	3:56:13		Flashlight
						3073	3:56:22		Flashlight
						3074	3:56:33		Flashlight
8	1/6/83	1/6/83		????	Real time	1	6/1/83	2:13:00	
9									
10	1/5/83	1/6/83		Camp 2 to 0740 vents	11.31sec	1	22:11:28	5/1/83	1st flashlight
						484	23:42:00		Vent off (Mckeeman)
						324	0:09:00		Resume ftns at 0740
						325	0:10:00		2nd flashlight
						359	0:15:00		Switch to wider angle of same view.
						721	0:27:00		Ftns of W side almost off
						809	0:44:00		Very little(only small bits for next~200 frames)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1028	1:25:00		Ftns to W on again
						1049	1:28:28		3rd flashlight
						1054	1:29:24		4th flashlight
						1900	4:09:00		Sharp decrease in vent activity
						2056	4:39:00		Rusumption of activity
						2479	5:58:37		5th flashlight
						2483	5:59:22		6th flashlight
									NOTE: 0740? Vents in euption all night-(may be Mckeeman and 1123vent
									Frames0-633: view N of 0740, Mckeeman
									634-1047: repositioned E to EW 0740
									1048-end: new location uprift(east 0740 vent)
11	1/5/83	1/6/83		Camp 1 to East	9.78sec	1	16:43:22	5/1/83	
						7	16:44:21		E side of E vent
						~300			Beginning of eruption slightly left of center of frame
						866	19:05:00		E ftn off
						1778	21:35:00		On set of vent C or D activity(mostly off screen)
						1829	21:43:00		Vent C or D no longer visible
						1834	21:44:00		Visible again
						1993	22:10:00		Visible again
						~2356	23:09:00		Vent propogated farthest extent downrift
						2417	23:19:00		Vent D on
						2499	23:33:00		Vent below Kmm dead (all activity off)
						2517	23:36:00		Vent D on
						2631	23:54:00		Vent D off
						2678	0:02:00		Vent D on
						2702	0:06:00		E vent (Mckeeman)on again(just a small glow)
						2923	00;42:00		Glow is off
						2958	0:48:00		Vent D off
						3064	1:05:00		Vent D on
						30085	1:09:00		Vent D off for remainder of roll
						3120	1:15:00		E vent on thru remainder of film
14	1/5/83	1/5/83		N of 0740 Vent	11sec	0	16:37:45	5/1/83	
						3	16:38:18		
						6	16:38:51		
						1557	21:25:55		Flash

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1564	21:27:14		Flash
						1727	21:56:29		Flash, end of film
									NOTE: Early-shows eruption above trees.
									Nighttime-a few changes in telephoto setting and possible position of camera.
									Eruption footage through whole roll
23	2/1/83	2/4/83		Camp 2 to 0740Vent	82.14sec	0	16:22:22	1/2/83	Blocked
							16:23:44		Blocked
							16:25:06		Blocked
							16:26:28		Page
						239			Some spattering, interupts an almost blacknight 2 glows are only barely visible for the remainder of the night
									Each of the 3 night can see two red flames or glows on uprift side of vent
									Lots of steam and fume(could get times on changes if desired)
26	1/6/83	1/6/83		Camp 2 to 0740 vent	11.01sec	1	6:05:35	6/1/83	
						449			Activity off
									Camera turned off
						1	8:11:56		
						960	11:09:57		May be on
						1046	11:25:55		Defenitely on
						1441	12:39:14		0740 vent off
						1835	13:52		Vent activity on
						2277	15:14:25		Book
									NOTE: This role is very difficult to "read" since colors are indistinguishable Particularly in beginning when ftning is low-trees and ftns hard to tell apart
27	1/8/83	1/9/83		Camp 2 to Downrift	30.1sec			8/1/83	NOTE:Beginning-rain
									See flow from Mckeeman(East) at night
									Daytime-fuming
28	1/7/83	1/8/83					8:06	7/1/83	Downrift activity seen very far away
							9:00	8/1/83	No initial time marks; 1 mark at end off roll

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
29	1/3/83	1/3/83		Camp 1 to Kmm	9.90sec	0		3/1/83	Box # 3
						1			Box#3
						2	8:12:00		Page with this time
						3	8:12:00		
						314			Box#3
						315			Box#3
						316	9:04:00		Page with this time
						317			Page with this time
						996			Box #3
						997			Box#3
						998			Box#3
						999	10:55:00		Page
						1000			Page
						1822	13:12:24		Page
						1826	13:13:02		Page
						1829	13:13:32		Page
						228	8:49:00		Vent E shuts down(no red)
						605			Smoke darkened
						631			Smoke darkened
									NOTE:After~frame 300, the camera was aimed too high and gets mostly sky-not much Kamoamoa
31	1/2/83	1/3/83		Camp A to W(Napau)	10.06sec	0	19:15:46	2/1/83	
						1	19:15:56		
						2			Dark (To # 4)
						5	19:16:36		
						1912	0:36:22		First visible rd from Napau, very far and rather unclear
						2175	1:20:18		Light
						2179	1:21:08		Light
						2180	1:21:18		Light
						3075			Light
						3076	3:52:15		Light
						3080			Light
						3081	3:53:05		Light
						3084	3:53:35		Light
						3086	3:53:55		Light

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3440	4:53:00		Light
						3441	4:53:00		Light
						3442	4:53:00		Light
						2360	1:52:00		Can't see red
						2848	3:14:00		Visible again
						3089	3:54:00		No red for rest of film
32	1/16/83	1/17/83		Camp 2 to McKeemar	35.65sec	0	16:40:04	16/1/83	Blocked
						1	16:40:39		Blocked
						2	16:40:15		Blocked
						3			Page
						244			Gain glow appears at Mckeeman vent
						653			Glow gets brighter, spattering?
									Spattering dies back
									Flow front or tree burning is visible
33	1/3/83	1/3/83		Camp 1 to Vent F and Kamoamoa	9.0sec	0	2:19:21	3/1/83	First flashlight
						30			First glipse of two ftns (only frame here)
						114			Visible again(rt one) (very faint)
						125			Now see two agian(rt. stepping very close together)
						165			Begin to see fume on rt. side of screen
						189			Focal length changed- now only see ftns which are rt stepped(see # 125)
						359			Fent on rt dead
						537			Fume on or behind Kmm barely visible
						593			Vent on rt just about dead
						595			Kmm fume is definite
						598	3:59:18		Flash
						599	3:59:28		Flash
						1460			Fts on Kmm visible
34	1/3/83	1/3/83		Camp 1 to Vent B	9.69sec				
35	1/3/83	1/3/83		Camp 1 to W	9.96sec	0	5:10:00	3/1/83	First flashlight
						1424	9:08:00		
						1999	10:44:00		

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2622	12:28:07		
						2625	12:28:37		
									NOTE: fuming
38	1/3/83	1/3/83		Camp 1 to Vent D	9.5sec			3/1/83	Alot of fuming from Vent D
				Wide angle					Vent E is in eruption at beginig of film(too far away to get shut-off)
39	1/3/83	1/3/83		Camp 1 to Vent D	9.506sec	0	2:56:58	3/1/83	Light
						1			Light
						2			Light
						367	3:57:59		Light
						371			Light
						805	5:05:00		No vent activity
						1218	6:10:00		Renewed activity
						1809	7:58:00		End time
						1813	"		"
						1292			Focal lenght changed
						1434	6:44:00		Vent D died
									NOTE: Looks pretty good-night ftning throughout most of roll-close range-only problem is sometime out of frames's limit
41	1/2/83	1/2/83			10.02sec		11:02:00	2/1/83	Nothing-no fuming, etc.
							19:08:00		Nondescript
43	1/21/83	1/24/83		Camp 2 to 0740 Vent	81.73sec			21/1/83	Speck of red at night, disappears, then reappears.
									Heavy fuming during daytime, some rain
45	1/14/83	1/15/83		Camp 2 to 0740 Vent	32.05sec			14/1/83	One speck of red, flows from right hand side(Phh)
50	1/5/83	1/5/83		Camp 1 to Uprift	11.17sec	1	7:50:56	5/1/83	Blocked
						2			Open
						3	7:51:19		Blocked
				Camp 2 to 0740Vent		101			Camera moved to look at 0740 vent area

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						320	8:50:00		
						1440	12:18:45		Red
						1977	13:58:42		
						1980	13:59:15		Decrease in activity
						2018	14:06:00		Cessation of activity
						2379	15:13:31		Resumption of activity
						2772	16:26:39		Cessation of activity
									NOTE: Lots of camera positions and resettings in beginning, but it appears that the film caught the ononset of the 1/5 eruption of 0740
51	1/6/83	1/7/83		Camp 2 to uprift (Mckeeman). Kahauale'a to down-rift	29.43sec	2317	10:06:04	6/1/83	
						1	10:16:05		Good time marks here
						170	11:39:48		
						181	11:35:16		Red (3ES and 7SA)
						192	11:40:43		Red (E vent)
						221	12:05:04		Definite red
						464	14:05:26		Off (E vent)(all vents) on (W vent)"
					Off	483	14:04:54		Off
						493	14:09:51		On
									Remarks: fuming-daytime, specks of red at night. Rain blocks alot of the eruption view. May be useful though camera may have changed position at onset of eruption(~2317)
									NOTE: Times contradict because of two different viewings of this film
54	1/6/83	1/7/83		Kalalua to Uprift	28.98sec				Heavy fuming-small eruption within the fume. Visible at night-red cinder Eruption seen at great distance
55	1/5/83	1/5/83		Camp 1 to Kmm	9.82sec	1	8:06:28	5/1/83	First blocked
						2152	13:58:00		Onset of spatter at vent D?
						2696	15:27		Cessation of spatter at vent D, no red.
						3122	16:37:00		
									NOTE: #2152-2696, a short eruption in front of camp A. Which built a small spatter rampart. Also can see eruption in distance at 0740 vent.
									Ftns on Kmm are not seen on this roll.

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
56	1/10/83	1/11/83		Camp 2 to Mckeeman	29.6sec	1	16:35:00	10/1/83	4 specks
									4 specks
									4 specks
									4 specks
									Ftning
						1031	1:13:46		Red spot seen W of Mckeeman which persisits
						1063	1:29:53		Big increase in red spot(ftning)
						1134	2:02:23		Flash
						1312			Flash
						1313			Flash
						1601	6:02:21		Flashes
						2228	11:16:38		Ftn ended?
									No ending time marks
57	1/6/83	1/7/83		Camp 2 to 0740Vent	31.47sec	1	15:25:21	6/1/83	Book
						2	15:25:52		Book
						3	15:26:23		Book
						626	20:53:12		End of ftning at 0740 vents
						1341			Camera being moved
						1352	3:14:02		
						1358			Flashlight
						1426	3:52:52		Bursting off
						2700	15:01:10		Whole fissure opens(0740)
						2874	16:32:26		Book
60	1/14/83	1/15/83		Camp 2 to Mckeeman	30.7sec	1		14/1/83	
						2			First blocked
						625			On set(one spot at main Mckeeman "cone'
						671			Onset(spot to E)spreads to include whole vent(activity highter on this vent)
						1166			Almost off (all vents down)
						1172			Activity off(all vents)
62	1/6/83	1/7/83		Camp 1 to uprift	28.85sec			6/1/83	Heavy fuming
66	1/17/83	1/18/83		Camp 2 to Mckeeman	36.59sec			17/1/83	Little eruption at night, fuming- daytime

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
68	1/8/83	1/9/83		Camp 2 to 0740Vent	31.82sec	1	16:15:51	8/1/83	Book
						156	17:38:03		Dot of red seen from 1123 vent(or W most 0740)
						641	21:55:16		Phh flow comes into view (from Mckeemon?)
						880	0:02:02		Red from 0740 or 1123 gone
						972	20:50:49??		Flow stopped advancing
						999	0:05:08		New flow comes into view from same direction
						1166	2:33:42		Red from 0740 of 1123 present again
						~1200	2:51:44		Flow rate decreases, (no feed from source?)
						1349	4:10:46		Flow stopped advancing
						1656	6:53:35		Red from 0740 or 1123 gone again for rst of roll
						1909	9:07:45		
						1910	9:08:17		
									Comments: fuming; one dot of red. Phh flow from uprift-pretty impresive night time shots of this flow.
72	1/6/83	1/7/83		Camp 1 to downrift	30.18sec	1	8:22:35	6/1/83	Page
						1045	17:07:46		Onset of vent D activity
						1074	17:22:21		Vent D off
						1140	17:55:33		Vent D on
						1149	18:00:05		Vent D off
						1398	20:05:20		Vent D on
						1419	20:15:54		Vent D off
						1489	20:51:07		E vents off
						2813	7:57:07		Blocked
						2817	7:59:10		Blocked
80	1/7/83	1/8/83		Camp 2 to Downrift Jan 7 vents	30.05sec	1	16:21:12	7/1/83	
						138	17:29:48		1st red from "Jan. 7 vent" area.(Fume had been obscuring from W vent=75B)
						177	17:49:20		Starts at 75B
						226	18:14:00		10m high ftning
						296	18:48:56		extends whole length of fissure
						382	19:32:00		10m at 75B, 5m at 75A
						449	20:05:33		Ftns strongest at 75B
						475	20:10:00		15m ftns at 75B, 7m ftns at 75A
						513	20:37:36		Ftning dying Eside

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						536	20:49:07		E side up again 25m 75B, 7m 75A
						675	21:58:00		20m ftns at 75B, 7m high ftns at 75A
						780	22:51:00		25m high
						953	0:17:57		Evidence of fr stepping vent E of E vent
						1462	4:32:50		All ftns off
						2867	4:32:50		Book
81	1/7/83	1/8/83			31.65sec	1	16:38:37	7/1/83	Gas chugging, spattering in progress
						1134			Single completely dark frames
						1342	4:26:00		Ftning onset W end
						1351	4:30:45		Ftning onset E end
						1407	5:00:18		Onset of waning of activity
						1417	5:05:34		W side off
						1443	5:19:17		E side off, only little bursts
						1584	6:33:40		Bursting begins(little vent on W end)(~10m long)
						1629	6:57:24		Bursting off, not seen rest of day
						2674	16:08:39	8/1/83	
94	1/6/83	1/6/83		Camp 2 to Mckeeman	10.32sec	1	8:27:55	6/1/83	First Blocked
						~397	9:35:09		Activity diminished
						421	9:39:14		Mckeeman vent off completely
						1381			Smoke directly in front of camp
						2303	14:58:46		Book
									Focal length~15
									Eruption in beginning-died out
76	1/24/83	1/26/83	2	Camp 2 to 0740Vent	82.4sec			24/1/83	Small speck of red at night "otherwise not too interesting"
89	2/24/83	???		Camp 2 to E 0740 Vents	80.67sec	1	16:18:30	24/2/83	
						2	16:19:50		
						5			Page
						414	1:33:45		Onset of activity at W 0740 Vents
						752	9:08:11		Activity at W end dramatically increased(beginning of "firehose") and flow comes rapildy northward
									Channel head (moving E)off screen

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									Flow reached base of screen
									Channel overlfow banks and flow comes toward camp 2 again
									Channel re-established
						1024	15:13:52		Firehose stops
									Camera shifted slightly uprift to include 1123 vents
									Ftn hgts could be determined here if not available elsewhere
90	2/24/83	2/27/83		Camp 2 to Mckeeman Vents(uprift)	70sec	0	16:25:48	24/2/83	
						1	16:26:58		
						2	16:28:08		
						3	16:29:18		
						112?			Puff of blue smoke above 1123 (from 0740)
						1131	14:25:00		Opening of 1123 vent-blue(had been white)(2/25/83)
						1273	17:11:00		Vent uprift becomes active(becomes visible)(Dallas of PuuOo vent, tree?)
						2937	~1:32:00		
						3122	~1:32:00		Single red dot on screen. Grows to a small flame, then diminishes
									Camera was shifted during the night, time is unknown
									No ending time marks
91	2/27/83	3/1/83		Camp 2 to 1123 Vent	63.3sec			27/2/83	Film data not in book from 0452 eruption site)
92	2/24/83	2/?/83		Camp 2 to W of 0740 vents and 1123 vents Wide angle	63.3sec	0	16:10:45	24/2/83	Blocked
						1	16:11:48		Blocked
						2	16:12:52		Blocked
						3	16:13:55		Blocked
						4	16:14:58		Page
						532	1:32:00		Activity at 0740 W begins
						962	9:06:00		Dramatic increase beginning of firehose
						1036	10:24:00		Flow reaches bottom of screen
						1269	14:30:00		Breakout of 1123 vent
						1288	14:50:00		Shut off of 0740 vent
									No ending time marks
									These times were determined using norms prog.
97	1/26/83	???		Camp 2 to 0740Vent	80.9sec			26/1/83	2 specks of red visible at night. fuming

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
102	1/29/83	2/1/83		Camp 2 to 0740Vent				29/1/83	Fuming, 2 red specks of red at night
103	2/18/83	2/20/83		Camp 2 to 0740Vent				18/2/83	Red at night-small eruptions
106	2/12/83	2/14/83		Camp 2 to 0740Vent	80.45sec			12/2/83	Heavy fuming, specks of red at night, small eruption at night Phh flow at night with some eruption
107	2/12/83	2/14/83		Camp 2 to 1123	63.8sec			12/2/83	Heavy fuming, specks of red at night, eruption at night-cont. to morning
111	2/16/83	2/18/83		Camp 2 to W end of 0740 Vent	63.4sec			16/2/83	Heavy fuming, red at night and dusk(eruption??)
112	2/14/83	2/16/83		Camp 2 to 1123 Vent	63.2sec			14/2/83	Fuming, eruption at night
113	2/16/83	2/18/83		Camp 2 to 0740Vent	80.25sec			16/2/83	Red at night, fumes in day
114	2/14/83	2/16/83		Camp 2 to Mckeeman Vent	69.2sec			14/2/83	
115	2/14/83	2/16/83		Camp 2 to 0740Vent	79.15sec			14/2/83	Eruption
116	3/2/83	3/4/83						2/3/83	Heavy fuming, eruption at night or red glow
117	3/2/86	3/4/86		Camp 2 to 1123	61.3sec	2725	12:16:52	4/3/83	Lava obvious
						2750	12:42:25		Perhaps lava? Porbably so
						2772	13:04:55		No lava-eruption over Hevy fuming in eruption-big ftning

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									Ftn hgts possible except where blocked by these heavy fumes Eruption ended between 12:42:00 and 13:05:00 on 3/4/83. Impossible to get better time because of obscuring fume
120	3/4/83	3/5/83		400m SE to 1123 vent and overflow	variable	495		4/3/83	End of eruption-flow moving downwards, No satsfactory time control at all Last bit of lava in vent END OF PHASE 2
123	2/27/83	3/2/83		Camp 2 PuuOo Vent	70sec			27/2/83	Specks of red at night, Small eruption on 3rd night of vent down rift of PuuOo vent. It would be very difficult to get any information from this roll about PuuOo vent activity. The vent is almost indistinguisable
124	2/22/83	2/24/83		Camp 2 to E end of 0740 Vents	80.0sec			22/2/83	Ftning small, Visible especially at night
125	2/20/83	2/22/83		Camp 2 to W end of 0740 Vent	63.0sec			20/2/83	Specks of red at night, fuming
126	2/20/83	2/22/83		Camp 2 to E end of 0740 Vents	79.33sec			20/2/83	Red at night, small eruption at end of film
127	2/18/83	2/20/83		Camp 2 to W end of 0740 Vents	63.0sec			18/2/83	Fuming heavily, speck of red at night
128	2/22/83	2/24/83		Camp 2 to W end of 0740 Vents	63.33sec			22/2/83	Red speck at night
154	3/2/83	3/3/83		Camp 2 to PuuOo Vent and new flow W side of 1123	68.67sec			2/3/83	Speck of red at night, fuming

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
158	2/27/83	3/2/83		Camp 2 to E 0740 Vents	80.67sec			27/2/83	One vent erupting at night, others-specks of red at night
52	3/29/83	3/30/83	3	Camp 2 to 1123 thru Puu Kamoamoa	30.83sec	1	19:04:03	29/3/83	Blocked
						1150	4:54:23		Slight increase in PuuOo vent ftn hgt(nıay be)
						1151	4:54:54		Dramatic increase in 1123 ftn hgt
						2305	14:47:48	30/3/83	
									Eruption and flow, camera box falls-pictures sideways, ftning from both D vent and 1123 vent
53	3/28/83	3/29/83		Camp 2 to 0740Vent	31.0sec	0	13:13:20	28/3/83	
						3120	16:04:49	29/3/83	Onset of ftning from 1123 vent
						3173	16:32:12		This one shuts down
						32 5	17:04:14		Onset of 2nd ftning episode
						3329	17:52:48		2nd episode shuts down
						3356	18:06:45		Onset of high ftning which lasts thru end of roll
119	3/31/83	4/1/83		Camp 4 to 1123Vent	31.0sec			31/3/83	High ftning throughout the whole film, may be able to get sonıe ftn hgts Often out of field of view though. Camera seems to be at sonıe unknown telephoto setting
129	3/30/83	3/31/83		Camp 2 to 1123Vent	30.34sec	1	14:26:50	30/3/83	Book
						1051	23:17:49		Can clearly see beginning of a new ftn, seems to alnıost split the initial one.(this is the E ftn closest to camera)ftn hgt drops
						1705	4:48:33	31/3/83	Last frame of obviouly split ftning
						1705			Split and single ftns
						1730	5:01:12		Last possibly split ftn
						2677	13:00:06		Blocked
									NOTE:high ftning
130	3/28/93	3/29/83		Camp 2 to PuOoVent	31.03sec			28/3/83	Full telephoto to high ftn at PuuOo vent, Good roll for ftn hgts, ftn hgts dimınish with time

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
131	3/28/83	3/29/83		Camp 2 to 1123 thru Puu Kamoamoa Wide angle	31.00sec	189		28/3/83	Fuming from W 1123 vent
						232			Onset of dark fuming from 1123 vent
						346			End
						704	19:26:12		1st red speck from W 1123 vent area.(Lava "specks" visible through remainder of night, in 1123 vent area. 1123 vent is intermittent for all of next day untill
						3315	17:55:13		Onset of vigorous production to yield a flow from 1123 vent and lasts through rest of roll
132	3/29/83	3/30/83		Camp 2 to 1123 Royal Gardens	30.88sec	1	18:43:15	29/3/83	
						1189	4:53:40	30/3/83	Abrupt change in ftn hgt ~50%. Ftn high thru rest of film(even increase)
						2287	14:19:50		
133	3/30/83	3/31/83		Camp 2 to PuuOo	30.356sec	1	14:07:19	30/3/83	
						736	20:21:43		End of ftning from D Vent(first dark frame)
						741	20:19:43		Last shot of low ftn. Number is more inagreement with observed end time
						2652	12:28:33	31/3/83	Blocked
134	3/29/83	3/30/83		Camp 2 to PuuOo	30.05			29/3/83	Ftning from PuuOo Vent. Also spectacular footage of the buildup of material below camp 2. Lots of heat waves. Out of focus
135	3/30/83	3/31/83		Camp 2 to 1123 Vent and PuuOo	30.496sec	1	15:49:52	30/3/83	Blank
						536	20:21:47		Shut down of PuuOo . Ftn hgt at 1123 vent increased somewhat(tiny glow)
						886	23:19:41		New "shoot" at base of ftn. Ftn there splits and hgt decreases
						1564	5:04:17	31/3/83	Single ftn again ftn hgts increase
						2404	12:11:13		Blocked
136	4/5/83	4/6/83		Camp 4 to 1123Vent Telephoto:30	32.0sec			5/4/83	Top of ftn cut off-God time marks(beginning and end). My be useful for monitoring W vent activity
137	4/8/83	4/9/83		Camp 4 to 1123Vent Wide angle	32.70sec	1	18:30:33	8/4/83	Blocked
						914	2:48:15		Last bit of red seen above cone. ftning very low before this

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2001	12:40:48		Blocked "Off and o eruption", far away-fumes cover END OF PHASE 3
138	4/6/83	4/7/83		Camp 4 to 1123Vent Telephoto:30	32.0sec			6/4/83	Good initial timemarks, Weather extremely bad. Many frames show vapor
139	4/2/83	4/3/83		Camp 4 to 1123Vent Telephoto:30	31.0sec	1100	21:12:04	2/4/83	Ftn off
						1467	0:21:41		Ftn shut down
						1482	0:29:26		Ftn back on
						1807	3:14:46		Ftn off
						1812	3:19:56		Ftn back on
						1974	4;43:38		Off
						1982	4:47:46		On
						2062	5:29:06		Off
						2069	5:32:43		On
						2105	5:51:19		On
						2108	5:52:52		Off
						2282	7:23:17		On
						2286	7:24:50		Off
						2358	8:02:02		On
						2361	8:03:35		Off
						2402	8:24:46		On
						2408	8:27:52		Off
						2450	8:49:34		On
						2456	8:52:40		Off
						2496	9:13:20		On
						2500	9:15:24		Off
						2539	9:35:33		On
						2545	9:38:39		Off
						2609	10:11:43		On
						2621	10:17:55		Off
						2674	10:45:18		On
						2680	10:48:24		Off
						2718	11:08:02		On
						2719	11:08:33		Off
						2756	11:27:40		On
						2764	11:31:48		Off

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2814	11:57:38		On
						2825	12:03:19		Off
						2896	12:39:60		On
						2905	12:44:39		Off
						2989	13:28:03		On
						2999	13:33:13		Off
						3067	14:08:21		On
						3077	14:13:31		Off
									Smaller vent is also intermittent not following same patter, worth a look
141	4/7/83	4/8/83		Camp 4 to 1123 Vent Telephoto:30	33.0sec			7/4/83	Ftn gets very low in p.m. of 2nd day. 4/8/83, p.m. lots of vapor to block view of ftns too
142	4/3/83	4/4/83		Camp 4 to 1123Vent Wide angle: 7.5	32.0sec	1	15:50:27	3/4/83	Blank
						42	16:21:19		Ftn off
						595	21:07:15		End of intermittent activity
									From 16:12:17 to 21:07:15 there was intermittent activity similar to that noted on roll 150
143	4/6/83	4/7/83		Camp 4 to 1123Vent Wide angle	33.0sec			6/4/83	Ftning, day and night fumes cover eruption. Very good time control. Difficult to get ftn nights
144	4/8/83	4/9/83		Camp 4 to 1123Vent Telephoto:30	33.104sec	1	18:22:13	8/4/83	Blocked
						925	2:52:02		Last bits of red above cone
						956	2:52:35		Completely dark frame. Phase 3 over!!
						2015	12:53:26		Blocked
									Begins with eruption, during the day it dies. Very hazy during the day
145	4/2/83	4/3/83		Camp 4 to 1123Vent Wide angle	32.0sec			2/4/83	Good for ftn nights, non of ftn cut off, also can see on/off feature for both vents(see next card). Ftn very low during daytime
146	4/4/83	4/5/83		Camp 4 to 1123Vent Telephoto:30	31.0sec			4/4/83	No good time marks in beginning, (good marks at end). No intermittent activity, ftn. tops cut off

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
147	4/1/83	4/2/83		Camp 4 to 1123Vent Wide angle	31.0sec	1323	21:46:01	1/4/83	Onset of "southern?" ftn Good for ftn hgts
149	4/4/83	4/5/83		Camp 4 to 1123Vent Wide angle	32.0sec			4/4/83	Good for ftn hgts
150	4/3/83	4/4/83		Camp 4 to 1123Vent Telephoto:30	31.0sec	3		3/4/83	Book
						89	16:23:07		Off
						98	16:30:46		On
						237	17:42:35		Off
						244	17:46:12		On
						320	18;25:28		Off
						331	18:31:09		On
						177	19:46:35		Off
						175	19:50:43		On
						560	20:29:28		Off
						570	20:34:38		On
						642	21:11:50		Off
						651	21:16:29		On
						1464			Abrupt change in position of main ftn(To # 1465)
						1779			Onset of another"jet"on side of main ftn No ending time marks Interesting to watch the 2 vents, they seem to be operating independently Vent had been inactive since 3:30. Became active at 5:39
						1812			SW Vent becomes steadily active ~7:16
						1829			Flow starts to spill out of top of SW crater
						1970			S. Crater wall starts to collapse~8:38
						2310			End of visible rafting of S. crater wall~11:34 on roll 142(wide angle) Movement can be seen until ~16:00
151	4/1/83	4/2/83		Camp 4 to 1123Vent Telephoto	31.0sec			1/4/83	Tephra blanket forming good roll for change in cine morphology. Also good for ftn hgts and direction of ftn
152	4/5/83	4/6/83		Camp 4 to 1123Vent	32.0sec			5/4/83	Good for ftn hgts, good beginning timemarks

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle					
153	4/7/83	4/8/83		Camp 4 to 1123Vent	32.52sec	1		7/4/83	Blocked
				Wide angle		2638	16:01:20		Cone and ftn are socked in
						2865	18:04:22		Ftn visible again
						2907			Blocked
									Ftning very low on 4/8/83 afternoon
156	3/31/83	4/1/83		Camp 2 to1123Vent	30.23sec	1	13:06:18	31/3/83	
						1267	23:44:08		Ftn hgts decreses, "ftn. splits"
						1358	0:29:59		Ftn obviously split
						1609	2:36:46		Ftn may be umified again
						1957	5:31:46		Ftn hgts increase, lasts through out film
						2471	9:50:44		Blocked
157	3/31/83	4/1/83		Camp 2 to 1123Vent	30.50sec	1	12:20:13	31/3/83	
				and PuuOo Vent		1392	0:07:24	1/4/83	Split ftn very obvious
						2553	9:57:40		Blocked
182	6/13/83	6/15/83	4	Camp 4 to PuuOo	66sec			13/6/83	Good view of ftning
185	6/16/83	6/16/83		~100m downstream	1sec		15:43:00	16/6/83	Eruption! In very beginning of footage, level of lake in cone seemed to
				of PuuOo on NE			17:10:00		decrease
				side of the channel					
186	6/17/83	6/17/83		~100m downstream	9.478sec	0		17/6/83	Last frame before 4 blocked frames
				of PuuOo on NE		1	10:38:51		
				side of channel		1353	14:12:26		Last material out of vent, final shutdown
						2274	16:37:56		Blocked
									Film shows: PuuOo in eruption water fall-like cascade of lava, low ftns. Also the erosion of lip of spillway, shut down at ~13:40:00. The flow stopped and startd 3 times before shutting down finally.

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
187	6/15/83			Camp 4 to PuuOo	65sec			15/6/83	PuuOo vent in eruption, Good footage, see morphologic changes in cone
188	6/29/83	6/30/83	5	Camp 4 to 1123Vent and PuuOo	74sec	1424		29/6/83	Footage of PuuOo ftning in real time
189	6/29/83	6/30/83		Camp 4 to PuuOo	83.08sec	1	9:01:58	29/6/83	
						2	9:03:21		
						3	9:04:45		
						211	13:52:46		First lava visible above vent
						490	20:19:06		
						941			Change in rate from 83 to 38sec/frame
						1913			Begin real time footage of flow
									NOTE:83.08sec/frame until frame 941, then 38 sec/frame, at end is real time begins at frame # 1913
190	6/29/83	6/29/83		Camp4 to DallasVent Lava channel with PuuOo	67 angle	1	12:00:54	29/6/83	Blocked
						280	12:44:20		1st lava out of spillway
						897	14:20:11		Channel is filled
						2805	17:58:55		
									Features: Onset of overflow, channel filling up, Ed, tina, and george scrambling out of channel
191	6/30/83	7/1/83		Camp 5 to PuuOo	32sec			30/6/83	Eruption
192	7/1/83	7/2/83		Camp 5 to PuuOo	26sec			1/7/83	Eruption and rain
193	7/2/83	7/3/83		Camp 5 to PuuOo	26.53sec	1	18:15:08	2/7/83	
						1754	7:10:17		No lava above cone
						1799	7:30:11		End of intense vapor
						2218	10:35:27		
									Eruption of PuuOo, see its shut down. during P.M can see 2 seperate vents opening

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
202	7/25/83	7/26/83		Camp 5 to PuuOo	30.8sec	8305	16:24:58	25/7/83	Last spatter seen from cone
						9998	6:54:02		
						9999	6:54:32		
						10000	6:55:04		
									Spatter visible above cone
									No time marks in beginning of roll
197	7/22/83	7/22/83	6	Paul's Perch to lava pond in PuuOo	Real time			22/7/83	Pond activity
198	7/20/83	7/22/83		Camp 5 to PuuOo	66.7sec	1	13:51:41	20/7/83	Blocked
						2705	15:57:43	22/7/83	Onset of eruption on N side, first see lava above cone
						2825	18:11:07		
200	7/23/83	7/24/83		Camp 5 to PuuOo	~31sec			23/7/83	PuuOo erupting, phase 6, ftning higher at onset than other phases
201	7/24/83	7/25/83		Camp 5 to PuuOo	~31sec			24/7/83	
203	7/22/83	7/23/83		Camp 5 to PuuOo	13or18sec	3359			Punched frame
204	7/22/83	8/10/83		PuuOo, inside and out				22/7/83	First footage is taken from rim of PuuOo vnet and loking at lava pond
									2nd half is of the PuuOo vent starting to fume as seen from camp 5
205	8/10/83	8/10/83		E rim of PuuOo to W vent on floor	9.83sec	1	9:38:43	10/8/83	Blocked
						52	9:47:04		1st lava seen on film
						2482			Blocked
									Paul for scale. Great footage of lava intermittently reaching the surface, spilling over, then going back down pipe
208	8/14/83	8/16/83	7	Camp 5 to PuuOo	84.2sec	1	14:13:12	14/8/83	Blocked

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	14:13:50	15/8/83	
						3	14:14:27		
						746			Onset of ftning
						748			Onset of vigerous activity
						1025			Last frame at 84.21 sec/frame rate
						2495			Last frame digitized
						2496			Last frame on roll
209	8/16/83	8/17/83		Camp 5 to PuuOo	29.5sec	1	14:30:30	16/8/83	
						2	14:31:00		
						3	14:31:29		
						4	14:31:58		
						5			Page
						3117	15:53:53	17/8/83	No lava, shut down
									No end time marks, assume rate=29.333sec/frame
212	9/5/83	9/5/83	8	Rim of PuuOo to inside crater	Real time			5/9/83	Lava seems to be coming out of one hole and going into another. Beginning of phase 8? Started on 9/6/83 (Pre-phase stuff?) Can see spillway and outline of cone(variable lighting and color)
213	9/5/83	9/5/83		N rim of PuuOo to inside crater	7.324sec	2087	13:30:00	5/9/83	Lava starts coming out of central vent instead of flowing into it. Begining of overflow Really nice footage of lava coming out one hole then into another on floor of vent, occassional overflows, creating a pond
214	9/6/83			~200m NW of PuuOo	Real time			6/9/83	PuuOo vent, ftning, channel activity and tree burning, looks line good quality footage(light and color)
215	9/6/83	9/6/83		~200m NE of PuuOo to PuuOo	9.228sec			6/9/83	Impressive ftning, view of spilway being blocked, then overflow
216	9/2/83	9/5/83		Camp 6 to PuuOo		1	14:07:12	2/9/83	Blocked
						1575	2:11:27	4/9/83	1st glow from vent at night, obscured for a few frames
						2443	22:04:57		Glow again at night, observed for many frames throughout night, much

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									larger and brighter than the previous nights
						2565	0:52:42		Very large glow which continued for the remainder of the night. This time may be >1 hr off since sunrise appars to occur at 4:00:00. There are no end tiem marks to help clear things up
217	9/5/83	9/6/83		Camp 6 to PuuOo	85.63sec	643	5:11:09	6/9/83	Onset of ftning in phase 8
									Poor time marks
218	9/6/83	9/7/83		Camp 6 to PuuOo	27.89sec	1	15:52:39	6/9/83	Blocked
						1747	5:26:28		Last bit of spatter seen from top of cone.(end of phase 8)
						1753	5:26:56		1st black frame(no more spatter above vent)
						2577	11:52:28		
						2582	11:52:28		Last frame before page
									See binder for more times
221	9/13/83	9/15/83	9	N NE rim of PuuOo to inside	65.27sec	793	00;09:25	14/9/83	Few specks of red on crater floor(first acivity of conduit)
						1734	17:13:06		Spatter begins coming out of hole continuously(increases slowly)
						2684	10:26:34	15/9/83	Lava comes out of hole, making a lava lake (fill)
						2750	12:14:00		Filling
						2754	12:18:00		Draining begins
						2808	13:12:00		Gone(molten lava)
						2924	14:47:00		Reappears
						2943	15:39:00		Filling
						2945	15:40:00		Draining starts
						2953	15:49:00		Gone
						2955	15:50:00		Reappears
						2959	15:25:44		Lava lake fills up and stays filled
222	9/13/83	9/15/83		150m NNE of PuuOo	80.96sec	2191	11:32:19	15/9/83	First see lava overflowing ~20 m down spillway
						2207	11:53:54		Flow freezes
									Only see a small lava flow which lasts ~20min
									Phase 9 onset
223	9/13/83	9/16/83		Camp 6 to PuuOo	84.29sec	0	11:08:24	13/9/83	Blocked

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						553	0:08:04		Glow above cone(first glow seen)
						2300	17:11:08		First see spater above top of cone
						3126	12:35:42		End of roll
									Onset of phase 9
224	9/16/83	9/17/83		Camp 6 to PuuOo	30sec			16/9/83	Strong eruptive activity throughout (good ftn hgts)
225	9/15/83			1123 Vent to PuuOo	69sec	100	17:20:50	15/9/86	Onset of high ftning, probably a good time
						2635	17:56:05		Last little spatter from vent (9/17/83) time maybe too early, no ending time marks. Sun appears to set too early.
									Lots of eruption footage, camera not pointed high enough to view whole ftn
226	9/18/86		10	Camp 6 to PuuOo	~31sec	484	19:26:12	17/9/83	Last obvious piece of spatter above top of cone.(glowing later)
									Nice day, time ftning, can't shutdown of phase. cWollwing the eruption, the film is overexposed. Could get good ftn activity(hgts?)
230	10/5/83	10/5/83		~500m N to PuuOo	Real time			5/10/83	Spectacular ftning, lots of zoonis into pulsing vent
231	10/5/83	10/5/83		500m N to PuuOoftns	Real time			5/10/83	Spectacular real time ftning, pulsing is very obvious. No documentation on film
232	10/4/83	10/6/83		1123(camp7) to PuuOo	74sec	668	0:05:51	4/10/83	1st speck of red
						681	3:14:42		Obvious material coming down spillway
						785	1:06:50		1st material above edge of cone, onst of ftning
						1575	15:56:45		Blocked
									Onst of vigerous activity
233	10/4/83	10/6/83		Camp 6 to PuuOo	73.18sec	804	3:19:24	5/10/83	1st glowing fume
						805	3:20:37		1st lava visible(onst of phase 10)

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
234	10/6/83			N to PuuOo w/ ftns	Real time			6/10/83	Nikon 8mm from ~250m N of PuuOo. Good lighting and color. Nice ftning No documentation on film, loction recorded in book
235	10/6/83	10/9/83		1123 to PuuOo	73sec	1209	16:33:20	7/10/83	The last obvious lava seen. (the weather was really bad, lava could have been obscured. There are no ending time marks and only the two above noted time marks in the beginning
						1210			Very gray(To # 1218)
						1219	16:45:30		An obvious bit of red in crater, perhaps just a glow
236	10/6/83	10/12/83		Camp 6 to PuuOo	72.33sec	1210	16:14:57	7/10/83	Last very obvious bit of spatter
						1216	16:22:57		Some red, rather dubious
									Weather is very cloudy. These end times may not reflect the real time end time for phase 10 since ftning was below rim of cone near the end of the eruption
246	11/4/83	11/6/83	11	1123Vent to PuuOo	72.81sec	1	9:04:59	4/11/83	Blocked
						2	9:06:11		Blocked
						3	9:07:23		Book
						1918	23:51:07	5/11/83	Onset of phase 11, vigorous, fast start
						2748	16:38:17	6/11/83	
						2749	16:39:29		Blocked, close to ftn hgt
						2750	16:40:41		
247	11/4/83	11/6/83		Camp 5 to PuuOo	74.01sec	1	9:17:21	4/11/83	
				Camp 6 to PuuOo		2	9:18:35		
						3	9:19:49		
						1876	23:50:12	5/11/83	1st see lava in darkness, in foreground (w. of maincone)
						2267			Change i camera position from camp 6 to camp 5. Geod. sta.
						2644	15:37:35	6/11/83	Bright frame
						2645	15:38:48		
						2647	15:41:14		
									The above times are assumptions; frames 2644 to 2651 are totally bright. No picture of the page is recored

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
248	11/6/83	11/8/83		1123 Vent to PuuOo	73.04sec	1	16:44:28	6/11/83	
						1279	18:40:18	7/11/83	End of phase 11, first dark frame after high activity
						2086	11:02:44	8/11/83	Book
249	11/6/83	11/8/83		Camp 5 Geodimeter station to PuuOo	73.86sec	1	15:47:29	6/11/83	
						2	15:48:42		
						3	15:49:55		
						1312	18:41:22	7/11/83	First completely dark frame, end of phase 11
						2113		8/11/83	Blocked
						2114			Blocked
						2115			Blocked
						2116	11:11:07		Book
258	11/30/83	12/1/83	12	1123 to PuuOo Telephoto	37sec	1	9:12:34	30/11/83	
						2	9:13:11		
						3	9:13:48		
						2294	8:41:44	1/12/83	
						2295	8:42:21		
						2296	8:42:58		
						2297	8:43:35		
259	12/1/83	12/1/83		1123 Vent to PuuOo	36.21sec	1	8:49:45	1/12/83	
						2	8:50:22		
							8:50:59		
						691	15:46:14		No lava, end of eruption. (very difficult to see)
						812	16:59:16		
									End of phase 12
261	11/30/83	12/1/83		Camp 6 to PuuOo	29sec			30/11/83	Low ftn throughout
262	12/1/83	12/1/83		Camp 6 to PuuOo	28sec			1/12/83	Overexposure problems on many frames Eruptive activity is barely visible, just seems to be overflowing from cone throughout film

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
285	1/20/84	1/22/84	13	1123 Vent to PuuOo	73.02sec	1	11:49	20/1/84	Blocked
						280	17:30:00		First see lava inside vent. (single frame)
						287	17:38:00		Lava visible again
						291	17:43:00		Lava gone
						293	17:45:00		First see lake in vent(this continues)
						299	17:52:00		First see lava in spillway
						305	18:00:00		More lava in spillway(this continurs and grows).
									For the next few hrs there was jusst a gradual buildup of ftns.
									shut-down of part A
						1796	0:14:23	21/1/84	Only a very small amount of lava seen.
						1797			Variable amounts of lava
						1803	0:22:55	22/1/84	Ftn off(only small speck of lava)
						2002	4:25:00		Small amount of red inside vent
						2008	4:32:00		No longer present
						2015	4:41:00		Present(al little more this time)
						2026	4:54:00		Off again
						2030	4:59:00		On
						2033	5:02:00		Off
						2054	5:28:00		On
						2065	5:42:00		Ftn down spillway
						2070	5:48:00		Probably above top of cone
286	1/20/84	1/22/84		Camp 6 to PuuOo	83sec		12:08:00	20/1/84	All of phase 13, phase 13 turn on, moon rise over vent, midnight shut down, sun rise turn on, end of phase
							15:37:37	22/1/84	
287	1/20/84	1/22/84		1123 Vent to PuuOo	54sec	2474	4:32:00	22/1/84	On
						24481	4:38:00		Off
						2489	4:45:00		On
						2505	4:59:00		Off
						2507	5:01:00		On
						2508	5:02:00		Off
						2546	5:36:00		On for the duration
						2556	5:45:00		Lava in the spillway/channel
						2932			Off
						3241	15:57:25	22/1/84	Book

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									For more times see binder
288	1/20/84	1/20/84		NE rim of PuuOo to inside vent	Real time			20/1/84	Start of phase 13, excellent dome ftns, Stronbolian bursts, lava flow production. Brave scientists
289	1/21/84	1/21/84		PuuOo Channel	Real time			21/1/84	Channel
290	1/21/84	1/21/84		PuuOo Channel/flow	Real time			21/1/84	Channel and Flow
291	1/21/84	1/21/84		PuuOo Channel/Flow	Real time			21/1/84	Lava flow/channel
292	1/21/84	1/21/84		PuuOo	Real time			21/1/84	Close ups of spillway/lava
293	1/21/84	1/21/84		PuuOo ftns and flow	Real time			21/1/84	
298	1/20/84	1/20/84		PuuOo lava pond	Real time			20/1/84	Pond activity
294	1/22/84	1/25/84	14	1123 Vent to PuuOo Telephoto	73sec	251 275 289 305 341 352		22/1/84	Glow from vent Glow from vent Glow from vent Glow from vent Glow from vent Glow from vent Throughout the first night(1/22 to 1/23) there were flashes of gow seen from inside the vent. This was not seen the 2nd or 3rd nights.(the weather was very bad)(between phases13-14)
295	1/22/84	1/25/84		1123 Vent to PuuOo	54sec		16:00:00	22/1/84	Throughout the first night there were flashes of glow seen from inside the vent, not seen the second night.(between phases 13 and 14)

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
297	1/25/84	1/25/84		Inside PuuOo looking N across conduit	Real time		13:56:20 13:59:27	25/1/84	Spatter coming out of "hole" on floor of vent, a crusted surface a few meters down "pipe" out of which spatter was emitted. Activity seemed to increase through roll. Lava column rising? Lava wants to pond? We just don't know!
299	1/26/84	1/26/84		Looking NW across PuuOo	1sec		9:35:00 10:35:00	26/1/84	Magnificent footage of lava rising and falling in pipe particularly a short telephoto segment
300	1/26/84	1/26/84		Looking NW across PuuOo	Real time		10:40:00 10:57:00	26/1/84	Looking into vent at moth of "pipe"
301	1/26/84	1/26/84		Looking NW across PuuOo	1sec		11:00:00 12:00:00	26/1/84	Footage of lava column going up and down in pipe into floor of vent, then draining. Heavy fume. Not quite as good as # 299 but similar
303	1/25/84	1/27/84		1123 to PuuOo	72sec	788 2204	6:13:36 11:10:15	25/1/84	One speck of red at base of vent, This time seems very late. Blocked
305	1/26/84	1/27/84		Looking NW to PuuOo from SE rim	~28sec			26/1/84	Magma going up and down in pipe, No beginning time marks, there are ending ones though
307	1/27/84	???		From SE rim of Puuoo looking NW into the vent	67sec			27/1/84	Lava in pipe and on floor of vent
308	1/27/84	1/30/84		1123 to PuuOo	73.67sec	1 3340 3371	11:15:07 7:34:40 8:12:44	27/1/84 30/1/84	Blocked Lava in vent(low activity) at level of spillway No red NOTE: From 07:34-8:12 1/30/83 low level activity was visible in vent

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
309	1/30/84	1/31/84		1123 to PuuOo	73sec	1	12:35:01	30/1/84	
				Telephoto		251	17:38:50		First lava at height of spillway
						293	18:29:53		Big increase, ftns begin
						308	18:48:06		Ftns at top of cone
						1218	13:14:01	31/1/84	Lava down to spillway level
						1219	13:15:14		Ftns high
						1220	13:16:26		Ftns down (to top of cone)
						1221	13:17:39		Ftns off (abruptly)
						1286	14:36:39		Book
310	1/30/84	1/31/84		Camp 6 to PuuOo	77.15sec	1	12;04:02	30/1/84	
						2	12:05:16		
						3	12:06:33		
						4	12:07:49		Book
						319	18:52:54		First frame showing red above top of cone(looks like lava, not just glow)
						320			Totally dark
						322	18:56:46		Lava well above top of cone
						1176	23:14:48		Ftn off
						1177	13:16:05	31/1/84	Ftn on(~60m)
						1178	13:17:22		Ftn off again
						1229	14:21:22		
						1230	14:22:59		
						1231	14:24:15		
						1232	14:26:48		
						1233	14:28:05		
									NOTE: For more times, see binder
311	1/30/84	2/7/84		1123 to PuuOo	208sec	1	12:14:50	30/1/84	Blocked
						96	17:44:48		First see red at level of spillway
						433	13:15:19	31/1/84	No more red
									Good for ftn hgts; great view of flow coming toward 1123 vent at night. good for flow front progress???
321	2/13/84	2/15/84	15	1123 to PuuOo	73.21sec	1	12:00:00	13/2/84	Blocked
						551	23:11:05		First see of red in vent, intermittent glow; low ftn
						664	1:28:57	14/2/84	Big glow

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						936	7:00:50		Sustained lava in vent(short lived lava flow seen by TN)
						944	7:10:36		Lava no longer seen
									Onset of low activity
						1558	19:39:46		Lava at spillway level
						1559	19:40:59		No red
						1560	19:42:12		No red
						1561	19:43:25		Lava at spillway level
						1566			No red(To # 1567)
						1568	19:51:58		Lava at spillway which persists(small dome ftns-?) and gradually grows
						1575	20:00:30		Lava flow in spillway
						1576	20:01:44		Fts at level of top of vent
						1583	20:10:16		Top of ftn off screen
						2508	14:58:54	15/2/84	Low(~3m above spillway), well below top of cone
						2509	15:00:07		Low(~3m above spillway), well below top of cone
						2510	15:01:20		Spatter only
						2511	15:02:34		Low(~5m)
						2512	15:03:47		No red;phase 13 over; intermittent spatter afterward
						2513			Occassional frames with spatter
						2561	16:03:34		Book
322	2/13/84	2/17/84		1123 to PuuOo	211.3sec	1	11:55:33	13/2/84	
						544	19:47:35		First red(onset of phase15
						874	15:09	15/2/84	Pau
						1638	11:59:50	17/2/84	Blocked
									For more times, see binder
335	3/1/84	3/2/84	16	Camp 6 to PuuOo	73sec			1/3/84	Moved from S interior of PuuOo to PuuOo
					2sec			2/3/84	In date:3/2/83
									Out date:3/2/83
									View of glowing hole. Also scientists romping down to get a better look
337	3/3/84	3/3/84		Camp 6 to PuuOo	Real time		21:24:00	3/3/84	Ftns, Pulsing
338	3/1/84	3/5/84		1123 Vent to PuuOo	~3.5sec	1	9:39:39	3/3/84	Blocked
						897	14:17:49		First sight of red in vent at to of spillway

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						917	15:28:18		Ftns above top of vent
						1448	22:39:56	4/3/84	Ftn off (no red in vent)
						1674	11:56:31	5/3/84	Blocked
									High ftns
339	3/2/84	3/5/84		Camp 6 to PuuOo	76.40sec	1	10:29:34	2/3/84	Blocked
						1361	15:21:19	3/3/84	First lava above top of cone
						1362	15:22:35		No lava present
						1363	15:23:52		Lava present
						2734	20:29:37		Spatter?
						2735			Dark
						2739	20:35:59		Last bit of spatter
						3440	11:28:36	5/3/84	Blocked
									Ftns very obscured by vapors at end of eruption, difficult to call an end time
									Time off by two hrs; true time of end ~22:30:00
340	3/2/84	3/5/84		1123 to PuuOo	73.67sec	1	10:43:08	2/3/84	Hand
						1333	13:58:32	3/3/84	First red (pond surface)
						1350	14;19:24		No red
						1357	14:28:00		Red on pond again
						1376	14:51:20		First see lava flow
						1415	15:39:13		Increase in activity inside vent(ftn at about top of cone)
						2953	23:07:32	4/3/84	Eruption pau, no more impt amount of lava seen(some spatter frag. thrown)
						2961	23:17:21		Completely off
366	3/29/84		17	Camp 6 to PuuOo	76.625sec	1	13:59:26	29/3/84	
						5	14:04:32		Book
						730	5:30:25	30/3/84	First see small glow from vent
						730			Sporadic small glow or smallspatter seen above top of cone(To # 827)
						827			No lava
						228	7:35:00		Dramatic increase (ftn hgt over 100m), In general, low ftning throughout phase 17, seem to diminish with time
						1750	3:13:03	31/3/84	Last frame with definite ftns
						1751	3:14:20		Small spatter activity
						1753	3:16:53		No more activity(almost completely dark frame)
									No ending time marks

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
367	3/30/84	4/20/84		1123 to PuuOo	71.2/3sec	1	11:35:39	30/3/84	Blocked
						2	11:36:51		Blocked
						3	11:38:04		Blocked
						4	11:39:14		Book
						774	2:58:57	31/3/84	Last bit of spatter coming out of the vent
						775	3:00:09		N more spatter
						2727	17:51;42	1/4/84	Last frame before end(around sunset)
									No ending time marks
368	3/27/84	4/2/84		1123 to PuuOo	3'33"	1	16:16:07	27/3/84	Blocked
						2	16:19:38		Blocked
						3	16:23:09		Blocked
						1004	3:44:01	30/3/84	First red
						1004			Intermittent red(in vent or spillway or chanber)(To # 1021)
						1022	4:48:03		Persisitent red
						1035			Ftn in vent approx. to top of cone (To# 1071)
						1071	7:42:21		Dramatic increase in ftn hgt
						1135	11:30:01		Blocked
						1136	11:33:32		Book
						1403	3:21:39	31/3/84	Only asmall bit of red spatter remains
						1405	3:28:45		Eruption finished(21/2 frame rate)
							3:18:56		Overall frame rate
							3:26:02		Overall frame rate
						2275	6:58:00		Blocked
						2278	7:08:45		Book
370	3/27/84	3/30/84		1123 to PuuOo	~73sec	1	16:07:02	27/3/84	Blocked
							16:08:15		Blocked
							16:09:28		Blocked
							16:10:41		Book
						2887	3:26:18	30/3/84	First glow inside vent
						2887			Intermittent glow and /or lava in either spillway of vent(To # 2953)
						2954	4:48:46		Lava now consistently visible and building in ght and volume
						3023	5:14:02		Ftn above top of cone
						3023			Ftn hgts are about at level of top of cone(To # 3093)

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3094	7:41:35		Dramatic increase i ftn hgt
						3271	11:19:53		Book
371	3/30/84			1123 to PuuOo Telephoto	Real time		11:25:30	30/3/84	
413	4/20/84	4/21/84	18	1123 to PuuOo	3'32sec	1	9:22:58	20/4/84	Blocked
						2	9:26:30		Blocked
						3	9:30:03		Book
						343	5:32:49	21/4/84	Last frame withmajor ftning
						344	5:36:21		Lava at spillway level
						...353	..6:08:12		
						354	6:11:44		No red; eruption ended between 6:08:12 and 6:11:44
						406	9:15:41		Book
414	4/20/84	4/21/84		1123 to PuuOo		1	9:20:53	20/4/84	Blocked
						2	9:22:11		Blocked
						3	9:23:28		Blocked
						4	9:24:45		Book
						949	5:32:36		Last frame of singificant ftning(>5m)
						950	5:33:53	21/9/84	Lava at spillway level, minor bursts
						992	6:27:34		Lava at spillway level, minor bursts
						993	6:28:51		No lava
						1115	9:04:47		Book
415	4/20/84	4/21/84		Camp 6 to PuuOo	69.68sec	1	9:36:10	20/4/84	Blocked
						2	9:37:20		Blocked
						3	9:38:31		Blocked
						4	9:39:41		Book
						1047	5:50:57	21/4/84	Last red
						1048	5:52:06		No red
						1240	9:35:06		Book
416	4/13/84	4/20/84		1123 to PuuOo	3'34sec	1	15:53:31	13/4/84	

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	15:57:03		
						3	16:00:34		
						733	11:27:46	15/4/84	Blocked
						2043	17:32:57	18/4/84	First red in vent
						2043			Only see red at spillway level(To # 2056)
						2057			Ftns increasing(To # 2060)
						2061	18:37:18		Ftn hgt at approx. top of cone; continues to grow
						2069			Extremely poor vis., obscurd many frames either partly or totally(To # 2214)
						2709	9:13:40	20/4/84	Book
417	4/17/84	4/20/84		1123 Vent to PuuOo	77.19sec	1	17:07:11	17/4/84	Blocked
						2	17:08:32		Blocked
						3	17:09		Blocked
						4	17:11:07		Book
						1154	17:50:43	18/4/84	First red at spillway level in vent
						1161	17:59:44		Lava in spillway
						1201	18:51:12		Completly dark
						1234	18:55:03		Ftns at top of cone
						1220	19:15:38		
						1239			Bad weather obscured view. Ftns seemed multidirectional(To# 1530)
						2989	9:11:40	20/4/84	
418	4/17/84	4/20/84		Camp 6 to PuuOo	69sec	1	17:09:29	17/4/84	
						2	17:10:38		
						3	17:11:47		
						1357	19:08:53	18/4/84	First lava above top of cone
						1501	21:54:29		Last frame before camera disrupted(buried?)
						2004	7:32:46	19/4/84	Camera working(for a while)
									Camera off for a while
						1	16:22:38		Hand
						3110	9:32:02	20/4/84	Book
424	5/11/84	5/16/84	19	Camp 6 to PuuOo	3.5sec	1	9:24:35	11/5/84	Blocked
						2	9:27:58		Blocked
						3	9:34:12		Blocked
						4	9:34:25		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2130	4:40:01		Glow above top of vent
						2236	10:24:19	16/5/84	Lava above top of vent
						2237			No lava visible(To # 2238)
						2239			Lava visible(To # 2248)
						2250			
						2266	12:01:48		Blocked
						2267	12:05:20		Blocked
						2268	12:08:16		Book
						2269			Begin real time
425	5/11/84	5/18/84		1123 Ventto PuuOo	3'33sec	4	9:29:30	11/5/84	Book
						1931	3:37:15	16/5/84	Lava
						1932			Dark(To # 1938)
						1939	4:05:40		Glow
						1940			Dark(To # 1945)
						1946	4:30:32		Lava
						1947			Dark(To # 1952)
						1953	4:55:24		Lava(To# 1956)
						1957			Dark(To # 1961)
						1962	5:27:22		Lava at spillway level
						1963	5:30:55		Lava in spillway and up channel
						1962			Intermittent frames w/lava at splwy level and/or top of channel(To # 2044)
						2031	9:32:26		On set of high ftnig episode
						2032			Intermittent(To # 2043)
						2044	10:18:36		Lava at top of vent
						2044			Lava above top of vent(To3 2057)
						2058	11:08:20		No lava
						2059			Lava above top of cone again
						2067			No lava
						2068			Lava above cone again(To# 2069)
						2070			No lava(To# 2071)
						2072	12:08:42		Lava above top of cone(To# 2075)
						2076	12:12:15		No lava
						2077			Small amount of lava at spillway
						2078	12:19:22		No lava (To # 2023)
						2122	14:55:38		Small amount of lava at spillway
						2126	16:17:20		Lava above top of cone(To # 2145)
						2146	16:20:53		No lava(To# 2178)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2179	18:18:05		Lava
						2180	18:21:59		Blocked
						2181			Lava in vent (Below top of cone)(To # 2186)
						2187	18:46:30		Lava above top of cone
						2209	20:04:38		Last frame with lava above top of cone
						2210			Only small amont of spatter(To # 2215)
						2216	20:29:30		No red inside vent
						2266	23:27:05		Red at spillway and upper channel(To# 2268)
						2269			No lava in vent(To# 2270)
						2271			Lava (To # 2272)
						2273			No lava
						2274			Lava
						2275	23:59:03		Lava above top of cone
						2295	1:01:05		Last frame with lava above top of cone
						2296	1:13:38		Small amount of spatter
						2301	1:31:24		Spillway dark
						2419	8:30:30	17/5/84	Blocked
						2673	23:32:38	18/5/84	Last obvious overflow
						2687	0:22:22		Small amount of lava at spillway level
						2695	0:50:47		Last red flow at spillway level
						2807	7:27:01		
						2808	7:30:35		Book
426	5/16/84	5/18/84		1123 Vent to PuuOo	1'12.6sec	87	20:13:35	16/5/84	Last frame lava present above top of cone
						99	20:28:07		Spatter no longer visible(end of first high ftning episode)
						100			No lava at spillway level
						146	21:25:03		Lava visible at spillway
						147	21:26:12		Lava in upper most channel
						158	21:39:35		No lava at spillway level
						188	22:15:56		Lava at spillway again
						247	23:27:24		Start of high ftning episode
						247	1:28:31	17/5/84	Last red at spillway(end of second hight ftning episode)
						1503	0:48:47	18/5/84	Last red (small fume at spillway)(Flow???)
						1869	8:12:07		Book
428	5/18/84	5/18/84		1123 Vent to PuuOo	Real time			18/5/84	Night time ftning, hgts up to ~100m. Neither wide angle nor telephoto.

Table 1

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
429	5/16/84	5/19/84		Camp to PuuOo	2'2"	1	12:17:13	16/5/84	Blocked
						2	12:19:15		Blocked
						3	12:21:17		Book
						87	15:13:18		Spatter visible above cone
						114	16:08:35		No spatter
						191	18:46:14		Spatter again
						236	20:18:22		No spatter
						343	23:57:27		Spatter again
						379	1:11:10	17/5/84	No more spatter above vent, but lava along slopes of PuuOo
						2067	10:47:18	19/5/84	Book
430	5/17/84	5/17/84		1123 Vent toPuuOo Telephoto	~8.5sec	406		17/5/84	Lava at spillway throughout roll there are intermittent spillovers. There is no real ftning. Bad weather obscures view much of the time
431	5/16/84??			Between 1123 Vent and PuuOo	~3sec			16/5/84	Onset of episode 4. Good footage of intermittent nature of phase 19. Dome ftning on pond and spillovers preceding episode 4

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
434	5/18/84	5/25/84		Camp 7 to Puu Oo	213.60	1	7:32:01	18/5/84	First blocked shot
				Wide angle		2	7:35:36		
						3	7:39:10		Book
						1738	14:34:08	22/5/84	Non-descript throughout
						2910	12:14:01	25/5/84	Out
435	5/19/84	5/22/84		Camp 7 to Puu Oo	74.00	1	10:43:05	19/5/84	Blocked
				Telephoto		2	10:44:12		Blocked
						3	10:45:33		
						4	10:46:47	22/5/84	Book
									Non-descript throughout
									Film ran out
436	5/22/84	5/28/84		Camp 6 to Puu Oo	196.90	1	10:45:50	22/5/84	Hand
				Wide <)		2	10:49:06		
						3	10:52:23		Book
									Non-descript throughout
						2615	9:49:18	28/5/84	Out
437	5/22/84	5/25/84		1123 to Puu Oo	74.25	1	13:28:05	22/5/84	
				Telephoto		2	13:29:18		
						3	13:30:32		
						4	13:31:45		Book
									Non-descript throughout
						3444	12:28:52	25/5/84	Out
438	5/25/84	5/28/84		1123 to Puu Oo	73.90	1	12:31:27	25/5/84	
				Telephoto		2	12:32:41		
						3	12:33:55		Book
									Non-descript throughout
						3377	9:53:05	28/5/84	Out
439	5/28/84	5/30/84		1123 to Puu Oo	68.10	1	9:58:26	28/5/84	Blocked
				Telephoto		2	9:59:39		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3	10:00:53		Blocked
						4	10:02:08		Book
						858	2:12:16	29/5/84	Visible spatter at night
						1620 to	8:39:08	29/5/84	Occasional, sporatic spatter and small ftns visible throughout night
						2100	5:45:04	30/5/84	
						2224	8:05:44	30/5/84	Out
440	5/28/84	6/2/84		Camp 6 to Puu Oo	158.48	0	9:58:10	28/5/84	
				Wide <)		1	10:01:27		
						2	10:04:44		
						3	10:08:02		Book
									Non-descript throughout
						2191	10:25:30	2/6/84	Book
441	5/25/84	6/1/84		1123 to Puu Oo	213.10	0	12:20:04	25/5/84	Blocked
				Wide <)		1	12:23:34		Book
						1180	10:07:44	28/5/84	Time mark
						1961	8:28:31	30/5/84	Time mark
						2420	11:41:38	31/5/84	Time mark
						2604	22:35:00	31/5/84	Small amount of spatter visible at night, no lava from NE spillway
						2864	13:55:01	1/6/84	Out
442	5/30/84	6/1/84		1123 to Puu Oo	74.25	0	8:15:19	30/5/84	
				Telephoto		1	8:16:34		
						2	8:17:49		
						3	8:19:04		
						4	8:20:19		Book
						966	4:10:40	31/5/84	Glowing spatter in night
						1671	18:43:20	31/5/84	Glowing spatter in early eve
						1708 to	19:29:07	31/5/84	Intermittent spattering and small ftning, never reaching spillway
						2170	4:00:53	1/6/84	
						2620	14:17:50		Out
443	6/3/84	6/5/84		1123 to Puu Oo	73.96	0	11:48:29	3/6/84	
				Telephoto		1	11:49:42		

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	11:50:56		
						3	11:52:09		Book
									Non-descript
						2351	12:06:39	5/6/84	Book
444	6/1/84	6/8/84	20	1123 to Puu Oo	214.11	0	14:04:50	1/6/84	Blocked, rate from 6/5 to 6/8
				Wide <)		1	14:08:20		Book
						427	15:12:04	2/6/84	Time mark
						428	15:15:33		Time mark
						713	8:05:15	3/6/84	Time mark
						1588	11:53:17	5/6/84	Time mark
									Non-descript to this point
						2267	4:16:21	7/6/84	First sign of increased activity, small-scale spatter confined to crater
						2518	19:12:04	7/6/84	Spattering confined to crater
						2546	20:51:59		Spatter becomes continuous in crater (to #2549)
						2550	21:06:15		Lava pours into NE spillway and begins to flow, ftn hgt ~10m above spillway, increasing intensity, hgt, and width with time (to #2565)
						2566	22:03:21	7/6/84	Ftn hgt increase dramatically to ~1200 ft, tails off slightly until #2706
						2707	6:26:31	8/6/84	Ftning has stopped but untensive fuming continues
						2746	8:45:44	8/6/84	Blocked
						2747	8:49:17		Blocked
						2748	8:52:51		Book
445	6/2/84	6/8/84	20	Camp 6 to Puu Oo	198.04	0	10:35:58	2/6/84	Blocked
				Wide <)		1	10:39:13		Book
						447	12:42:31	3/6/84	Time mark
									Non-descript
						2389	21:53:25		Incandescent fumes from glowing magma within crack (to #2391)
						2392	22:03:19		1st lava above N rim
						2393			Rapid increase in ftn hgt, highly variable hgts (to #2543)
						2544	6:25:01	8/6/84	Ftns disappear behind N rim
						2589	8:50:15		Time mark
446	6/5/84	6/8/84	20	1123 to Puu Oo	74.68	0	12:12:33	5/6/84	In
				Telephoto					Non-descript
						1700 to	23:28:29	6/6/84	Short-lived, intermittent spattering, increased activity confined to

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1957	4:48:22	7/6/84	crater at #'s 1700,1716,1771,1865,1878,1889,1914,1957
									Non-descript
						2513	16:20:24	7/6/84	Shirt-lived, intermittent spattering, increased activity is confined to crater at #'s 2513, 2526, 2535, 2561, 2571, 2572, 2598, 2610, 2616, 2617, 2633, 2640, 2641, 2645
						2650	19:10:55		Continuous, small-scale spattering in crater
						2686			Similar small-scale spattering in crater (to #2688)
						2702	20:15:37		Beginning of 20, continuous spatter in crater, increasing intensity, ftn hgt, width with time (to #2740)
						2741	21:04:09		Lava reaches NE breach and begins downhill flow
						2782	21:55:11		Crater is entirely filled with bubbling lava
						2783	21:56:26		Lava spills over N rim
						2787	22:01:24		Ftn hgt increases dramatically, continues vigorously
						3191	6:24:15	8/6/84	Ftn hgt decreases dramatically
						3193	6:26:44		Last ftning
						3194			Intense degassing (to #3298)
						3310	8:52:26	8/6/84	Out
447	6/8/84	6/11/84		1123 to Puu oo	74.50	0	9:01:09	8/6/84	Blocked
				Telephoto		1	9:02:24		Blocked
						2	9:03:38		Book
									Non-descript throughout
								11/6/84	Film ran out
448	6/11/84	6/14/84		Camp 6 to Puu Oo	198.40	0	15:06:59	11/6/84	Ed Wolfe
				Wide <)		1	15:10:18		Blocked
						2	15:13:37		Book
									Non-descript throughout
						1201	9:18:50	14/6/84	Book
449	6/8/84	6/14/84		1123 to Puu Oo	213.00	0	9:00:44	8/6/84	Blocked
				Wide <)		1	9:04:18		Blocked
						2	9:07:51		Blocked
						3	9:11:23		Book
									Non-descript throughout
						2435	9:15:56	14/6/84	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
450	6/11/84	6/14/84		1123 to Puu Oo	74.90	0	16:50:08	11/6/84	Blocked
				Telephoto		1	16:51:25		Blocked
						2	16:52:39		Blocked
						3	16:53:54		Book
						2085	9:04:57	14/6/84	Time mark
									Non-descript throughout
						3308	13:42:30	14/6/84	Hand
						3309	13:43:43		Hand
						3310	13:44:57		Hand
						3311	13:46:11		Book
451	6/14/84	6/18/84		1123 to Puu Oo	76.00	0	13:53:14	14/6/84	Hand
				Telephoto		1	13:54:30		Hand
						2	13:55:47		Book
						3	13:57:02		Book
									Non-descript except for much steaming on rift between 1123 and Puu Oo and within Puu Oo crater
								18/6/84	Film ran out
452	6/14/84	6/21/84		1123 to Puu Oo	214.30	0	9:22:42	14/6/84	Blocked
				Wide <)		1	9:26:15		Blocked
						2	9:29:48		Book
						1600	8:28:52	18/6/84	Time mark
									Non-descript throughout
						2823	9:27:40	21/6/84	Out
453	6/14/84	6/21/84		Camp 6 to Puu Oo	198.70	0	9:28:50	14/6/84	Hand
						1	9:32:07		Hand
						2	9:35:25		Book
						3	9:38:42		Book
									Non-descript throughout
						3032	8:49:57	21/6/84	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
454	6/18/84	6/21/84		1123 to Puu Oo	77.60	0	8:48:12	18/6/84	Blocked
				Telephoto		1	8:49:28		Blocked
						2	8:50:45		Blocked
						3	8:52:02		Book
									Non-descript throughout
						3340	8:49:38	21/6/84	Book
455	6/21/84	6/25/84		1123 to Puu Oo	77.50	0	8:56:14	21/6/84	Hand
				Telephoto		1	8:57:31		Hand
						2	8:58:49		Book
									Non-descript throughout
								25/6/84	Film ran out
456	6/25/84	6/28/84		1123 to Puu Oo	77.40	0	13:31:34	25/6/84	Blocked
				Telephoto		1	13:32:51		Blocked
						2	13:34:09		Blocked
						3	13:35:25		Book
									Non-descript throughout
						3175	9:42:03	28/6/94	Book
457	6/21/84	6/28/84		1123 to Puu Oo	212.50	0	9:35:34	21/6/84	Blocked
				Wide <)		1	9:39:06		Blocked
						2	9:42:39		Book
									Non-descript throughout
						2817		28/6/84	Last frame before film was exposed at ~10:00
458	6/21/84	6/28/84		Camp 6 to Puu Oo	199.15	0	9:02:39	21/6/84	Blocked
				Wide <)		1	9:05:44		Blocked
						2	9:09:01		Blcoked
						3	9:12:25		Book
						2299	16:14:25	26/6/84	Time mark hand
						2300	16:17:42		Time mark book
									Non-descript throughout except for crazy B.C. at the end
						3066	10:39:12	28/6/84	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
459	6/28/84	6/30/84	21	1123 to Puu Oo Telephoto	76.50	0	9:47:16	28/6/84	Blocked
						1	9:48:32		Blocked
						2	9:49:50		Blocked
						3	9:51:07		Book
									Non-descript except for periods of intensive fuming and obvious white alterations on rim walls
						2295	10:33:28	30/6/84	First visible spatter ~5m above NE spillway, lava not yet to spillway (to #2297)
						2298	10:37:07		Spatter begins flowing from NE spillway, ftns remain below level of S rim but increasing in intensity with time (to #2301)
						2302	10:42:23		Ftn hgts above S rim and lava can be seen in N spillway
						2303 to	10:43:40		Vigorous ftning filling entire crater, top of ftns cannot be seen as they
						2536	15:40:45		rise above frame (to #2536)
						2537 to	15:42:02		Ftn has decreased in hgt and top can be seen in frame with occassional
						2664	18:23:57		shooting above tope of frame (to #2664)
						2665			Dramatic decrease in ftn hgt, ftn top is below top of S rim (to #2667)
						2668	18:29:03		Only small amounts of spatter visible, ~end of 21
						2669			No more spattering or activity
						2674	18:36:42	30/6/84	Last blocked shot before real time
460	6/30/84	6/30/84	21	1123 to Puu Oo			10:50:00		In
									Hand-held real time footage of phase 21, neither telephoto or wide <)
							10:55:00		Out
461	6/30/84	6/30/84	21	1123 to Puu Oo Wide <) Fast interval	1.60	0	11:16:33	6/30/84	Blocked
						4			Vigorous vertical ftn ~1200' high, large dense gray column of fume and tephra above ftn, white fume near base of ftn (to #799)
						16	11:16:59		Book
						800	11:38:18		Vigorous ftn continues, gray column above ftn becomes lighter in color, gradual decrease in ftn hgt is noticed (to #1499)
						1500	11:57:17		Gradual decrease in ftn hgt, white column has thinned considerably (to #2515)
						2516	12:24:48	6/30/84	Book
462	6/30/84	6/30/84	21	1123 to Puu Oo	2.08	0	12:30:00	6/30/84	Blocked, poor time control

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide <)		13			Book
				Fast interval		4			Continuous vigorous fnting (to #3488)
						3489	14:30:46	6/30/84	Ftn hgt is quite consistant and approx a cone hgt high (500'), grad decrease in hgt towards end of film , almost imperceptible
							14:41:19		Out
463	6/30/84	6/30/84	21	1123 to Puu Oo	2.22	0	14:47:46	6/30/84	In
				Wide <)					Continuous vigorous ftn, consistant ftn hgts of approx one cone hgt (500') or less, very gradual decrease in ftn hgt with time, blue-gray cloud coming from ftn
				Fast interval					
						3165	16:45:03	6/30/84	Out
464	6/30/84	6/30/84	21	1123 to Puu Oo	2.11	0	16:50:20	6/30/84	Totally blocked
				Wide <)		1 to			Continuous vigorous ftn with highly variable ftn hgts, ~100' to 500' above NE spillway, blue-gray fumes continue (to #2671)
				Fast interval		2671	18:24:16		
						2672 to 2799	18:28:46		Highly variable ftn with ftns occassionally disappearances and high ftn bursts, ftns disappear by 2799
						2800			Eruption has ceased but vent continues to fume intensely with blue-gray fume (to #3340)
						3341	18:48:01	6/30/84	Book
465	6/30/84	3/7/84		1123 to Puu Oo	76.00	0	18:44:46	6/30/84	Blocked, poor time control
				Telephoto		1	18:46:03		Blocked
						2	18:47:18		Blocked
						3			Non-descript except for glowing cone on night of 6/30/84 (to #2280)
						2281	18:54:02	7/2/84	Glowing spatter is visible through NE break
						2282			Non-descript except for occassional periods of intense fume (to #2928)
								7/3/84	Film ran out
466	6/28/84	6/7/84	21	Camp 6 to Puu Oo	198.00	0	10:42:03	6/28/84	Blocked, poor time control
				Wide <)		1	10:45:21.5		Blocked
						2	10:48:39		Blocked
						3	10:51:57		Book
						4			Non-descript (to#873)
						874			Small scale ftn just reaching above N rim, thin blue-gray plume above

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						875			Dramatic increase in ftn hgt with large tephra column blocking view of most of ftn, ftn films almost entire frame (to #914)
						915			Ftn hgt has decreased slightly (see digitized material) and tephra column has thinned (to #938)
						939			Ftn hgt gradually decreasing (see digitized material) and tephra column is essentially gone, ftn hgts variable, ftns end at #1013
						1014			Glowing cone rims seen at night (to #1053)
								7/6/84	Film ran out
467	6/28/84	6/7/84	21	1123 to Puu Oo Wide <)	212.72	0	10:14:24	6/28/84	Blocked
						1	10:17:57		Blocked
						2	10:21:29		Blocked
						3	10:25:02		Book
						4			Non-descript (to #819)
						820	10:41:36	6/30/84	Visible spatter inside cone through NE breach
						821	10:45:09		Lava can be seen in NE breach and appears to be flowing
						822	10:48:41		Ftn is vigorous and ~100m high, white plume above ftn, NE breach full
						823 to 840	10:52:14 11:52:31		Ftn hgt drastically increases, large tephra column above ftn, ftn hgt ~1200' (to #869)
						841 to 869	11:57:03 13:35:20		Tephra column has decreased in intensity, ftn hgt is down to ~1000' above spillway (to #869)
						870 to 903	13:38:52 15:35:52		Ftn hgt is down to about 1/2 of initial size, thin blue-white fumes rise above, column slightly bent to N, ocassionally shooting up to 600' or 700' (to #903)
						904 to 952	15:39:25 18:29:36		Ftn hgt gradually decreasing, large puffs of blue-gray fumes above (to #952, last frame with ftns, end of phase 21)
						953			Non-descript, little fuming (to end of film)
						3231	9:09:30	7/6/84	Book
468	3/7/84	6/7/84		1123 to Puu Oo Telephoto	77.48	0	9:29:31	7/3/84	Blocked
						1	9:30:46		Blocked
						2	9:32:03		Blocked
						3	9:33:20		Book
									Non-descript except for periods of intense white fuming in vent, probably steam
						3348	9:55:55	7/6/84	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
469	6/7/84	9/7/84	22	1123 to Puu Oo	77.30	1		7/6/84	First frame on reel, no time marks, ~9:30 to 9:45, poor time control
				Telephoto		2			Non-descript due to poor viewing from weather, thin blue fumes apparent when cone is visible (to #2757)
						2758 to	~20:30	7/8/84	Orange glow in clouds from ftn (approx onset of 22), vigorous ftn and lava in NE breach seen when clouds pass, ftn appears to be quite
						3319	~8:32	7/9/84	sporatic in hgt and width (to #3319)
						3320			Camera is off tripod, ftn continues (to #3324)
						3325			Three blocked shots (to #3327)
						3328	8:44:40	7/9/84	Book
470	Missing								
471	6/7/84	12/7/84	22	Camp 6 to Puu Oo	198.92	0	12:52:40	7/6/84	Blocked
				Wide <)		1	12:55:58		Blocked
						2	12:59:17		Book
						4			Non-descript, little fuming (to #1007)
						1008 to	20:34:35		First sight of ftns from 22, sporatic hgt but continuous through night, occassionally obscured due to weather, abrupt end of ftn after frame
						1258	10:23:25		#1258
						2563	10:30:00	7/12/84	Book
472	6/7/84	12/7/84	22	1123 to Puu Oo	213.20	0	9:27:24	7/6/84	Book
				Wide <)		1			Non-descript with little fuming when visible through clouds (to #997)
						998	20:34:22	7/8/84	Faint glow can be seen through dense clouds, sporatic viewing of ftns which abruptly end after frame #1231
						1232	10:26:01	7/9/84	Intensive fuming of white with gray-tints (steam), not visible at night but probably continues through (to #2452)
						2455	10:52:39	7/12/84	Book
473	Missing								
474	12/7/84	7/16/84		1123 to Puu Oo	75.50	0	10:52:36	7/12/84	Blocked
				Wide <)		1	10:53:51		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	10:55:07		Book
									Non-descript except for intensive fuming and steaming
								7/16/84	Film ran out
475	12/7/84	7/19/84		Camp 6 to Puu Oo	199.60	0	10:36:32	7/12/84	Blocked
				Wide <)		1	10:39:45		Blocked
						2	10:43:03		Book
									Non-descript
						3014	8:41:38	7/19/84	Book
476	12/7/84	7/19/84		1123 to Puu Oo	205.40	0	10:57:25	7/12/84	Blocked
				Wide <)		1	11:00:57		Blocked
						2	11:04:28		Book
						1719	16:29:28	7/16/84	Time mark
									Non-descript except for some intense white fuming
						2911	9:01:19	7/19/84	Book
477	7/16/84	7/19/84		1123 to Puu Oo	76.70	0	16:31:18	7/16/84	Book
				Telephoto					N on-descript except for intense white fuming
						3010	8:39:41	7/19/84	Book
478	7/19/84	7/23/84		1123 to Puu Oo	76.50	0	8:45:21	7/19/84	Blocked
				Telephoto		1	8:46:37		Blocked
						2	8:47:54		Book
									Non-descript except for intense, very thick, white fuming
								7/23/84	Film ran out
479	7/19/84	7/26/84		Camp 6 to Puu Oo	198.30	0	8:46:25	7/19/84	Blocked
				Wide <)		1	8:49:29		Blocked
						2	8:52:48		Blocked
						3	8:56:04		Book
						2200	9:47:40	7/24/84	Time mark
									Non-descript
						3096	11:19:15	7/26/84	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
480	7/19/84	7/26/84		1123 to Puu Oo	213.30			7/19/84	No marked frames
				Wide <)		0	9:31:33	7/23/84	Blocked, time mark
						1	9:35:05		Book
						465	13:04:39	7/24/84	Time mark
									Non-descript
						1250	11:34:52	7/26/84	Book
481	7/23/84	7/26/84		1123 to Puu Oo	76.77	0	9:22:42	7/23/84	Fingers
				Telephoto		1	9:23:58		Fingers
						2	9:25:16		Fingers
						3	9:26:33		Book
							13:00:42	7/24/84	Time mark
									Non-descript
						3464	11:14:46	7/26/84	Out
482	7/28/84	7/28/84	23	1123 to Puu Oo	2.00	0 to	16:01:32	7/28/84	Five continuously blocked shots (to #4), poor time control
				Wide <)		4	16:01:40		
						5 to			Continuous vigorous ftn, ftn stays same hgt throughout, lava production cannot be estimated, time for frame #3566 is way off as the next roll
						3566	18:00:24		starts at 17:55
483	7/28/84	7/28/84	23	1123 to Puu Oo	1.40	0 to	13:36:13	7/28/84	Six continuously blocked shots (to #5), poor time control
				Wide <)		5	13:36:20		
						6			Continuous vigorous ftns ~1000' above spillway (to #643)
						644	13:51:14		Ftn maintains vigor, hgt shows gradual but apparent decrease of ~100' (to #2349)
						2350	14:31:03		Obvious continuous, gradual decrease in ftn hgt (to #3487)
						3487	14:57:35	7/28/84	Last frame on roll of film
484	7/26/84	7/29/84	23	1123 to Puu Oo	213.20	0			First frame, no time marks
				Wide <)		137		7/26/84	First sign of spatter, single glowing spot on cone, continues intermittently thru night
									Night of 7/27 obscured by clouds

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						811	11:58:33	7/28/84	Lava over NE spillway
						816			First ftn visible
						817			Continuous, full hgt ftns (to #842)
						843	13:52:17		Time mark
						844			Ftn continuous, constant hgt (to #1110)
						1111			Ftn dies abruptly (to #1113)
						1114			No lava visible, light fume from vent (to #1132)
						1135	7:09:56	7/29/84	Book
485	7/26/84	7/29/84	23	1123 to Puu Oo Telephoto	76.80	0	11:21:09	7/26/84	Blocked
						273	17:10:35		First spatter, contained within crater, just visible above NE breach
						368 to	19:12:11		Sporatic, small occurrences of spatter visible just above NE breach every 3 frames or so, occasional ~5m ftns confined to crater as in frames
						1003	8:44:59	7/27/84	531, 609, & 688 (to #1003)
						1235 to	13:41:57	7/28/84	Poor visibility obscures view of Puu Oo (to #1931)
						1931	4:32:50	7/28/84	
						1932	4:34:07		Small scale spattering confined within crater
						2262 to	11:36:31		Small scale ftn within crater as lava lake reaches spillway (to #2271)
						2271	11:48:02		
						2272	11:49:19		Lava in NE spillway and beginning to flow down-slope, ftn begins
						2300	12:25:09		Flow of lava in NE breach peaks
						2301 to	12:26:26		Ftn hgts increase dramatically and flow rates from NE spillway drop (to
						2363	13:46:44		#2363)
					77.10	2364	13:48:01	7/28/84	Time mark
						2365 to	13:49:18		Ftn continues with gradual decrease in ftn hgt and lava production from NE spillway, majority of flows unseen as they are flowing from N spillway and being spatter fed to the south, near end of phase NE
						3105	5:40:12	7/29/84	spillway is almost entirely frozen (to #3105)
						3107	5:42:26		Last frame with ftn
						3171	7:05:39	7/29/84	Book
486	7/26/84	7/29/84	23	Camp 6 to Puu Oo Wide <)	198.30	0	11:36:01	7/26/84	Book
						885	12:21:31	7/28/84	Ftn visible over rim
						886			Ftn hgt increasing, spatter-fed flow visible on SW rim, moving south (to #895)
						896			Ftn hgt at max, heavy fume from S moving flow (to #914)
						915			Ftn hgt decreases by 1/4 to 1/3 and remains fairly constant (to #1048)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1049			Ftn hgts increase (to #1060)
						1061			Ftn hgts decrease to former level (to #1097)
						1098			Ftn hgts decrease and increase sporadically (to #1199)
						1200			Ftn hgt dies to level just visible above crater rim
						1201			Pau
						1284	10:20:28	7/29/84	Blocked
						1285	10:23:46		Blocked
487	7/28/84	7/28/84	23	1123 to Puu Oo Wide <)	1.78	0	17:54:43	7/28/84	11 continuously blocked shots to start reel (to #10)
						11			Continuous near vertical ftn at close to same hgt for entire time frame, intense fuming, lava is flowing out NE breach as well as being spatter-fed to S (to #2778)
						2779	19:16:57	7/28/84	
488	7/28/84	7/28/84	23	1123 to Puu Oo Wide <)			19:31:00	7/28/84	In, real time footage
									Continuous ftn ~400' to 500' high, narrow flow from NE breach, glow to N can be seen, ftn seems to pulse
							19:35:00	7/28/84	Out
489	7/28/84	7/28/84	23	1123 to Puu Oo Wide <)			19:47:00	7/28/84	In, real time footage
									Continuous ftn with obvious pulsation, lava flowing over NE breach (as well as unseen to N and S)
							19:50:20	7/28/84	Out
490	7/28/84	7/28/84	23	1123 to Puu Oo Telephoto	2.60	0	21:33:36	7/28/84	Blocked, poor time control
						5			View of ftn only, appears to be continuous in hgt and width (to #2071)
						2071			Pau
491	7/28/84	7/29/84	23	1123 to Puu Oo Wide <)	2.66	0	22:53:55	7/28/84	Blocked, poor time control
						5			Continuous ftn at nearly constant hgt with few pulses (to #1580)
						1581	0:04:00	7/29/84	Ftn continues, much of lava begins to splash onto ESE rim (to #2414)
						2415	0:40:58		Ftn continues, flow to NE from NE spillway evident (to #3475)
						2913	1:03:42		Time mark

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3475	1:27:58	7/29/84	Film ran out
492	7/29/84	7/29/84	23	1123 to Puu Oo Wide <)			2:44:14	7/29/84	In, no time control but ~2.66 if similar to roll 491
									Continuous ftn, flow is visible to N, spattering on all sides of cone
							4:20:00	7/29/84	Out
493	7/29/84	7/29/84	23	1123 to Puu Oo Wide <)	2.65	0 to	4:29:40	7/29/84	First frame with ftns, no time marks
									Continuous ftn of nearly constnat hgt, ~150' above spillway, spattering
						1608	5:40:41		on all sides of cone and a weak flow out of the NE breach (to #1608)
						1609 to	5:40:44		Rapid decrease in ftn hgt, but still above S rim, flow still coming from NE
						1615	5:41:00		breach (to #1615)
						1616			Ftn below the S rim, occassionally higher, flow out of NE breach has
									stopped (to #1655)
						1656 to	5:42:48		Intermittent ftns below the S rim contained within the crater, end of ftns
						1697	5:44:37		at 1697
						1698			Non-descript, light fumes (to #3417)
						1992	5:57:37		Time mark
						3418	7:00:36	7/29/84	Out, blocked shot
494	7/29/84	6/8/84		1123 to Puu Oo Wide <)	213.99	0	7:43:19	7/29/84	Blocked
						1	7:46:51		Blocked
						2	7:50:24		Book
									Non-descript
						3263	9:30:30	8/6/84	Book
495	1/8/84	6/8/84		1123 to Puu Oo Telephoto	78	0	13:58:17	8/1/84	Blocked, poor time control
						1	13:59:34		Blocked
						2	14:00:53		Book
									Non-descript
								8/6/84	Filnı ran out
496	1/8/84	6/8/84		Camp 6 to Puu Oo	198.4	0	9:36:25	8/1/84	Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide <)		1	9:46:16		Blocked
						2	9:49:33		Book
									Non-descript
						2186	10:05:39	8/6/84	Book
497	6/8/84	9/8/84		1123 to Puu Oo	77.2	0	9:53:09	8/6/84	Blocked
				Telephoto		1	9:54:26		Blocked
						2	9:55:44		Book
						3			Non-descript except for very light fuming (to #3309)
						3312	8:58:40	8/9/84	Book
498	6/8/84	8/13/84		1123 to Puu Oo		0	9:35:49	8/6/84	Blocked
				Wide <)					Non-descript except for light fume
						2610	8:59:14	8/13/84	Book
499	6/8/84	8/13/84		Camp 6 to Puu Oo		0	10:10:24	8/6/84	Blocked
				1123 to Puu Oo					Non-descript
				Wide <)		3019	8:34:04	8/13/84	Book
500	9/8/84	8/13/84		1123 to Puu Oo		0	9:05:07	8/9/84	Blocked
				Telephoto		1	9:06:23		Blocked
						2	9:07:40		Book
									Non-descript, light fume
								8/13/84	No ending time marks
501	8/13/84	8/16/84		1123 to Puu Oo		0	8:19:53	8/13/84	Blocked
				Telephoto		1	8:21:10		Blocked
						2	8:22:27		Book
									Non-descript, light fume
						3351	9:10:13	8/16/84	Book
502	8/13/84	8/19/84		1123 Puu Oo		0	9:04:45	8/13/84	Blocked
				Wide <)					Non-descript, light fume

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2259	16:56:19	8/19/84	Book
503	8/13/84	8/19/84		Camp 6 to Puu Oo Wide <)		0	8:41:03	8/13/84	Blocked
									Non-descript
						2749	17:06:43	8/19/84	Blocked
504	8/16/84	8/19/84		1123 to Puu Oo Telephoto		0	9:17:48	8/16/84	Blocked
						1	9:19:06		Blocked
						2	9:20:25		Book
									Non-descript, light fume
								8/19/84	No ending time marks
505	8/19/84	8/20/84	24	1123 to Puu Oo	2.2	0	11:47:28	8/19/84	Blocked
						1			Blocked (to #22)
						23			High , ~600' ftns falling on N slope of cone, flow visible to north, NE spillway is active, ftn hgts are very constant (to #2139)
						2140 to	1:05:56	8/20/84	Ftn hgt increases by 200' to 300', ftns still falling onto N slope, NE
						3007	1:37:49		breach is almost entirely frozen and certainly not being fed (to #3007)
						3008	1:37:51	8/20/84	Blocked
506	8/20/84	8/20/84	24	1123 to Puu Oo	2.2	0	1:40:52	8/20/84	Blocked, half of ftn showing, assume rate of 2.2 if similar to roll 505
						1			Blocked (to #7)
						8			High, very constnat ftns, leaning slightly north, feeding flow northward, NE breach is dark, very gradual decrease in ftn hgt noticed (to #3522)
						3522	3:50:22	8/20/84	Last frame, no marked frames at end
507	8/19/84	8/24/84	24	1123 to Puu Oo Telephoto	77.95	0	16:57:00	8/19/84	Book
						87	18:50		First visible spatter, only one frame
						117			Spatter and/or tope of low ftns visible intermittently (to #206)
						207	21:25:26		Tip of low ftn, flow in NE spillway, no spatter falling on rim, is flow fed by overflow or is fissure opening along spillway? (to #222)
						223			Ftn hgts increasing steadily, spatter falling on top of NE spillway, size of flow increasing (to #240)
						241	22:10:06		Ftn hgt increases abruptly, now well above S rim

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						242			Ftn hgt steady (to #248)
						249	22:20:30		Another abrupt increase in ftn hgt
						250			Ftn beyond top of frame, flow over NE spillway is decreasing in size
						260			Spatter falling on S side of cone, width of NE flow continues to decrease
						380	25:10:41		NE flow pau, (time is wrong, should it be 1:10:41?)
						832			Puu Oo obscured by clouds, occassional glimpse for single frame, end of eruption obscured (to #1172)
						1205			Large glowing patch on S rim, probably from slumping (to #1208)
						1949	11:08:55	8/21/84	Time mark
508	8/19/84	8/24/84	24	Camp 6 to Puu Oo Wide <)		0	17:15:03	8/19/84	Blocked
						1	17:17:10		Blocked
						2	17:19:15		Blocked
						121			First glow visible over rim
						122			Intermittent glowing fume visible (to #138)
						139			Top of ftn visible
						148			Sudden increase in ftn hgt and width
						149			Steady increase in ftn hgt (to #154)
						155			Another sharp increase in ftn size
						156			Ftns increase to ~max hgt (to #202)
						203			Ftns less than max hgt (to #223)
						224			Ftns at max hgt (to #259)
						260			Ftns diminish to lower hgt and remain fairly constant (to #378)
						379			Ftns almost hidden by tephra column (to #484)
						533			Ftns obscured by clouds (to #635)
						639		8/20/84	After dark, ftns obscured by clouds
						1210	11:13:00	8/21/84	Time mark
						3360	14:23:01		Blocked
						3361	14:25:05	8/24/84	Book
509	8/19/84	8/24/84	24	1123 to Puu Oo Wide <)	129.1	0	17:23:32	8/19/84	Blocked
						1	17:25:41		Blocked
						2	17:27:50		Book
						3			Non-descript, light fuming, darkness (to #84)
						85	20:26:25		1st spatter above NE spillway, small scale ftn is contained within crater
						86			Non-descript (to #111)
						112	21:24:31		Spatter just above spillway but not yet overflowing

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						113 to	21:26:40		Lava within NE spillway, yet little or no ftn (to #122)
						122	21:46:02		
						123 to	21:48:11		Continuous dome shpaed ftns contained in crater, ftns do not reach above
						130	22:03:15		SW rim, lava flow from NE breach (to #130)
						131	22:05:24		A two-fold increase in ftn hgt
						132 to	22:07:31		Maintains above described hgt with some variations (to #138)
						138	22:20:28		
						139 to	22:22:37		Ftn increases to hgt above SW rim (to #141)
						141	22:26:55		
						142 to	22:30:04		Ftn generally narrow and hgt increase with some inconsistencies, flow
						214	1:03:59	8/20/84	from NE spillway decreasing over time and frozen by #217 (to #214)
						215 to	1:06:08		Sharp increase in ftn hgt and narrowing of ftn, ftn leans N ~1 to 5 degrees
						260	2:42:58		(to #260)
						261 to	2:45:07		General decrease in ftn hgt with time, ftn landing on N slope feeding
						474	10:23:25		spatter fed aa flow, tephra column straight up (to #474)
						475 to	10:25:34		Poor weather obscuring complete view of ftn, appears to maintain vigor up
						666	17:16:22		to frame #666
						667 to	17:18:31		Fogged in, no visibility until frame #701, when cone reappears ftn has
						701	18:31:40		ended
						702			Non-descript, night time (to #1022)
						1023			Day time, heavy white fume, probably steam (to #1161)
						1163	11:05:46	8/21/84	Time mark
						1164			Non-descript except for heavy white fume (to #3254)
						3256	14:11:04	8:24:84	Blocked
510	8/20/84	8/24/84	24	1123 to flow front			17:36:31	8/20/84	No time marks
									Records late phh overflows on aa flow
								8/24/84	Film ran out
511	8/24/84	8/27/84		1123 to Puu Oo		0	14:15:03	8/24/84	Time mark
				Telephoto		1	14:16:21		Time mark
						2	14:17:40		Book
									Non-descript with moderate fume, camera was turned off for unknown
									length of time before end time marks were made, rate will be affected
						3082	9:50:17		Time mark
						3083	9:51:37		Time mark
						3084	9:52:55	8/27/84	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
512	8/24/84	8/30/84		Camp 6 to Puu Oo		0	14:29:30	8/24/84	Blocked
				Wide <)		1	14:32:48		Blocked
						2	14:36:07		Book
									Non-descript
						2369	10:30:26		Blocked
						2370	10:33:43		Blocked
						2371	10:37:59	8/30/84	Book
513	8/24/84	8/30/84		1123 to Puu Oo		0	14:18:57	8/24/84	Blocked
				Wide <)		1	14:22:29		Blocked
						2	14:26:03		Book
									Non-descript with moderate fume
						2339	10:05:04	830/84	Book
514	8/27/84	8/30/84		1123 to Puu Oo		0	9:56:39	8/27/84	Blocked
				Telephoto		1	9:57:58		Blocked
						2	9:59:17		Book
									Non-descript with moderate fume
						3332	10:52:39		Blocked
						3333	10:53:57		Blocked
						3334	10:55:16		Blocked
						3335	10:56:35	8/30/84	Book
515	8/30/84	8/31/84		1123 to Puu Oo		0	11:00:13	8/30/84	Blocked
				Telephoto		1	11:01:30		Blocked
						2	11:02:48		Book
									Light to moderate fume
						1224	13:36:04		Blocked
						1225	13:37:22		Blocked
						1226	13:39:59	8/31/84	Book
516	8/30/84	8/31/84		North Spillway		0	11:08:35	8/30/84	Blocked
				Wide <)		3	11:10:35		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						4	11:11:51		Book
									Non-descript
						1280	13:38:40	8/31/84	Book
517	8/31/84	9/4/84		N Spillway to Puu Oo	74.50	0	13:48:21	8/31/84	Blocked
				Wide <)		1	13:49:36		Blocked
						2	13:50:50		Book
									Non-descript, moderate to heavy fuming, no ending time marks
518	8/31/84	9/4/84		1123 to Puu Oo		0	13:47:15	8/31/84	Blocked
				Telephoto		1	13:48:32		Blocked
						2	13:49:50		Book
									Moderate to heavy fume, no ending time marks
519	8/30/84	9/7/84		1123 to Puu Oo		0	10:08:22	8/30/84	Blocked
				Wide <)		1	10:11:54		Blocked
						2	10:15:26		Book
									Non-descript, light to heavy fume
						2009	9:39:03	4/9/84	Time mark
						3247	10:55:41	7/9/84	Book
520	8/30/84	9/7/84		Camp 6 to Puu Oo		0	10:43:29	8/30/84	Blocked
				Wide <)		1	10:46:43		Blocked
						2	10:49:58		Book
									Non-descript, faulty camera, over and under exposed frames throughout
						2266	10:30:01	7/9/84	Book
521	9/4/84	9/7/84		1123 to PuuOo		0	9:30:42	4/9/84	Blocked
				Telephoto		1	9:31:59		Blocked
									No ending time remarks. Light-moderate fume.
						2	9:33:17	7/9/84	Book
522	9/4/84	9/7/84		N Splway to PuuOo	71 sec.	0	9:31:36	4/9/84	Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle		1	9:32:47		Blocked
									No ending time remarks. Nondescript, light -moderate fuming.
						2	9:33:58	7/9/84	Book
523	9/9/84	9/10/84		N Area to N Splway	41 sec.	0	14:45:24	9/9/84	Blocked
				Wide angle		2	14:46:47		Book
						1722	10:51:08	10/9/84	Blocked before taking roll of film out.
						1724	10:51:49		Blocked
						1725	10:52:32		Blurred Book.
									Non descript light - moderate fuming.
524	9/7/84	9/10/84		N Area to PuuOo		0	11:26:59	7/9/84	Blocked
				Telephoto		1	11:28:15		Blocked
						2	11:29:31		Book
						2568		9/9/84	Faint glow reflected in fume above pipe (to #2613)
						3326	10:50:58		Blocked
						3327	10:52:17		Blocked
						3328	10:53:35	10/9/84	Book
									Light - moderate fume.
525	9/7/84	9/9/84		N Area to N Splway	71 sec	0	12:30:18	7/9/84	Blocked
				Wide angle		1	12:31:29		Blocked
						2	12:32:40		Book
						2551	14:36:10	9/9/84	Book
									Non descript, light - moderate fume, becoming heavier near end of roll.
526	9/7/84	9/13/84		1123 to PuuOo		0	11:02:02	7/9/84	Blocked
				Wide angle		1	11:05:33		Blocked
						2	11:09:44		Book
						790	9:31:43	9/9/84	TM
						1573	7:50:14	11/9/84	TM
						2419	9:36:52		Blocked
						2420	9:40:20		Blocked
						2421	9:43:49	13/9/84	Book
									Non descript, light fume.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
527	9/10/84	9/13/84		N Area to N Splway	71 sec.	0	11:00:54	10/9/84	Blocked
				Wide angle		1	11:02:05		Blocked
						2	11:03:16	13/9/84	Book
									No ending time marks. Non descript, moderate fume.
528	9/10/84	9/13/84		N Area to PuuOo		0	10:58:29	10/9/84	Blocked
				Telephoto		1	10:59:46		Blocked
						2	11:01:03		Book
						85			Bursts of heavy fume alternate with periods of very light fume (to #358)
						345			Glow from pipe reflected in fume - visible intermittently - perhaps coincides with gas bursts. (to #884 daylight)
						884		11/9/84	Gas bursts continue, but less pronounced than on 9/10. (to #1250)
						1250			Bursts stopped, light fume, no glow the night of 9/11. (to #1475)
						1988		12/9/84	Light fume. (to #2580) No glow night of 9/12.
						3123		13/9/84	Light fume
						3297	9:59:52		Blocked
						3298	10:01:08		Blocked
						3299	10:02:25		Book.
529	9/7/84	9/13/84		Camp 6 to PuuOo	198.97 s	0	10:40:01	7/9/84	Blocked
				Wide angle		1	10:43:15		Blocked
						2	10:46:31		Book
						972	16:23:14	9/9/84	TM
						1059	21:11:53		Orange glow above vent from the reflected light on the nearby fume.
						1992 to	0:45:52	12/9/84	Faint orange glow above vent
						1995	0:55:49		
						2171	9:35:56	13/9/84	Blocked
530	9/13/84	9/17/84		N.Area to N. Splway	70 sec	0	10:06:52	13/9/84	Blocked
				Telephoto		1	10:08:02		Blocked
						2	10:09:12	17/9/84	Book
									Non Descript, Light Fuming

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
531	9/18/84	9/18/84	25	NERim to Pipe		0	11:33:15	18/9/84	Blocked
				Wide angle					Several cycles of gas pistoning in the pipe. Low ftns and lava filling to top of pipe then draining back
						3084	12:40:10		Blocked (to#3096)
532	9/13/84	9/18/84		N.Area to PuuOo		0	9:51:27	13/9/84	Blocked
				Wide angle		1	9:54:42		Book
						188			Glow in crater, intermittent thru night (to#324)
						556		14/9/84	Glow in crater thru night(to#707)
						978		15/9/84	Glow in crater- early part of night (to#983)
						1494		16/9/84	Glow, intermittent (to#1552)
						1771		17/9/84	Glow, intermittent (to#1880)
						1991	15:17:32	18/9/84	Blocked
						1992	15:20:45		Book
533	9/13/84	9/20/84		1123 to PuuOo	212.1sec	0	9:49:20	13/9/84	Blurry fingers across frame
				Wide angle		1	9:52:47		
						2	9:56:16		Book
						3			Non Descript, light -moderate fume (to#1626)
						1627	9:49:47	17/9/84	TM
						1628			Non Descript, light-moderate fume (to#2548)
						2549	16:09:31	19/9/84	Low level fountain, just below the S. Rim. Large blue fume cloud above.
						2550	16:13:03		Fountain doubles in height and is aove the S.Rim. NE Splway looks empty
						2551	16:16:35		Vigorous fountain, beginning to lean slightly north
						2552	16:20:07		Fissure vents open down-rift from vnt, blue fume above the curtain of fire
						2553	16:23:39		Continuous vigorous fountaining, large tephra cloud, fissure vent fountains
						2593	18:45:05		A rapid increase in fountain heithts. See digitized fountain heights
						2594	18:48:37		Fissure has frozen up and stopped fountaining. The fountain from PuuOo crater vent is maintaining its vigor, slightly decreasing in height with time and leaning to the N 1-5°. Main flow is to the N. and cannot be
						2659	22:38:26		seen from this vantage pt.
						2660	22:41:58		Fountain is smaller and more sporatic in height. See digitized ftn hgt plot
						2775	5:29:33		
						2776	5:33:05	20/9/84	Small fountain below the level of the S Rim. Pau
						2777			Glowing vent
						2778			Non Descript, heavy fuming in the light (to#2785)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2786	6:07:27		Blocked
						2787	6:10:58		Book
534	9/17/84	9/20/84		N. Area to PuuOo		0	8:45:29	17/9/84	Blocked
				Telephoto		1	8:46:41		Blocked
						2	8:47:53		Book
						504	18:35:27		Intermittent glow/tops of low ftns (to#903)
						904	2:23:40		Ftn, with overflow in upper part of N. spillway (to#905)
						906	2:26:00		Ftn pau
						908			glow-prob. slumping spatter
						919			Low ftn
						920			nothing
						938			Low ftn
						940			glow visible in only afew scattered frames(to#1006)
						1007	4:24:14		Low ftn and overflow to north, not as large as frame #904 (to#1008)
						1009	4:27:44		Fountain Pau. Flow glowing (to#1010)
						1011			Nothing(to#1023)
						1024	4:44:08		Low ftn, overflow to north. smaller than #904, and #1007
						1025	4:45:18		Pau
						1026			glow in few frames only (to#1078)
						1078		18/9/84	low ftn, no overflow visible
						1143			Periodic fume-bursts from pipe
						1246			Ftns visible
						1277			Ftns visible
						1371			Human for scale on NE rim (to#1397)
						1720			Ftns visible
						1727			Intermittent glow/low ftns(to#2046)
						2047			Larger ftns, no overflow evident (to#2049)
						2050		19/9/84	Intermittent glow in only a few frames
						2835	16:04:00		First site of fountains-two ftns, smaller one to west. Last frame at this rate
						2836			E. ftn now above hgt of eat rim, smaller ftn 1/2 size
						2837			Overflow down N. splway. Flow almost to bottom of frame, ftns same hgt.
						2838			Flow beyound bottom of frame, ftns same.
						2839			Strong increase in ftn-coalesced to one broad ftn.
						2841			Ftn wider, spatter falling, but still contined within crater
						2842			Abrupt increase in ftn hgt width. ftn angled sharply to east and bulk of ftn is profected up and over the east rim. Size of flow to N. same in last three frames.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2843			Ftn back to vertical and 2-3 times broader-now fills most of crater, flow to north about 2.5 times wider at top of spillway. Now spatter over E.rim
						2844			Ftns increase by .25 times in hgt. spatter directed at inner west wall and out the north.
						2845			Ftns now off scale on top of frame-spatter fall-out shifted over east rim (to#2846)
						2847			E.Rim clear, dust cloud to NW beginning
						2851			Tephra-fallout cloud obscures ftn in many frames (to#2906)
						2907		20/9/84	Tephra and spatter have formed a smooth rampart across the north side of the crater-north rim much higher than at eruption beginning-old north spillway is filed in, and flow exits to east of old spillway.
535	9/19/84	9/19/84		1123 to PuuOo	1.25sec	0	16:40:30	19/9/84	Blocked(to#7)
				Wide angle		38	16:41:20	19/9/84	Book(to#45)
									Good record of tephra cloud. Fallout to the NW of the vent created a brown cloud that periodically surged out from the vent to the NW. The ftn was mainly to the N-NW in spite of opposing wind direction. No ending time marks
536	9/19/84	9/19/84		1123 to PuuOo	1.3sec	0	18:23:07	19/9/84	Nighttime. Ftn still sngled slightly to the north, and plume fallback
				Wide angle		9	18:24:10	19/9/84	almost all to north, feeding the flow. No ending time marks
537	9/19/84	9/19/84		1123 to PuuOo	1.35sec	0	20:51:23	19/9/84	Blocked(to#9)
				Wide angle					Ftn Hts diminish gradually
						2227	21:41:31	19/9/84	Time marks- not at end of film (to#2235)
538	9/19/84	9/20/84		1123 to PuuOo	1.25sec	0	22:54:32	19/9/84	Blocked(to#7)
				Wide angle		137		20/9/84	Sheets of spatter over NE-E Rim continues sporadiclly thru rest of film . No ending marks(to #420)
539	9/20/84	9/20/84		1123 to PuuOo	1.97sec	0	1:00:24	20/9/84	blocked (to#5)
				Wide angle		754	1:25:21		TM-blocked (to#759)
						2969	2:37:21	20/9/84	TM-blocked No ending marks (to#2974)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
540	9/20/84	9/20/84			1.57sec	0	3:03:16	20/9/84	Blocked(to#6)
						803			Ftn hgt dropping (to#810)
						813		20/9/84	Ftn at lowest point of film(to#814)
									Ending time marks undecipherable
541	9/20/84	9/20/84		1123 to PuuOo	1.95 sec	0	5:18:45	20/9/84	Blocked
				Wide angle					ftn hts up and down but overall decline (To#3)
						429			Ftn top below E. rim (to#435)
						436			Ftns die below rim several times(To#490)
						491			Top of ftn visible(barely)over rim for last time
						492			Pau.
									Ftns narrow and high during last few bursts. See frame 358
						1990	6:23:20		Blocked shots
						1993	6:23:30		
						2000		20/9/84	1123 Hilton Lowlife
542	9/17/84	9/20/84		N.Area to PuuOo		0	10:01:17	17/9/84	Blocked
						1	10:02:30		Blocked
						2	10:03:45		Book
						473			Glow in crater
						797			Intermittent glow-low ftns in a few frames (to#964)
						1599		18/9/84	Intermittent glow (To#1920)
						2625			Ftns first visible-top of ftn just below hgt. of NE rim
						2626			Two ftns visible
						2631			Ftn slops over NE rim
						2632			Ftn widens, straightens to vertical
									See roll 534(telephoto) for detailed description of ftn.
						2638			good record of basal tephra cloud development
						3280			Ftn dies to low level
						3282			Top of ftn no longer visible
						3301		20/9/84	Last gasp of spatter or slumping on S. wall behind vent.
									No ending time marks
543	9/20/84	9/27/84		1123 to Puu Oo		0	7:55:01	20/9/84	Blocked
				Wide angle		1	7:58:35		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	8:02:07		Book
						3			Frequent heavy fume all day (to#179)
						382			Moderate-heavy fume 9/21, gradually decreases over rest of film.(to#582)
						2890	10:47:53		Blocked
						2892	10:54:53		Blocked
						2893	10:58:22	27/9/84	Book
544	9/20/84	9/27/84		N. Area to Puu Oo		0	9:27:22	20/9/84	Blocked
				Wide angle		1	9:30:33		Blocked
						2	9:33:48		Book. Heavy-Moderate fume decreasing toward last few days on film
						3078	10:52:05		Blocked
						3079	10:55:22		Blocked
						3080	10:58:38		Book
545	9/27/84	10/4/84		N.Area to PuuOo		0	11:01:25	27/9/84	Blocked
				Wide angle		1	11:04:42		Blocked
						2	11:07:58		Book
						1752	11:30:02	1/10/84	TM , Book
									No ending time marks, Non descript
546	9/27/84	10/4/84		1123 to PuuOo		0	11:05:45	27/9/84	Blocked
				Wide angle		1	11:09:14		Blocked
						2805	9:00:37		Blocked
						2806	9:04:08		Blocked
						2807	9:07:40		Book
									Non descript
547	10/8/84	10/11/84		N.Area to PuuOo		0	9:41:13	8/10/84	Blocked
				Telephoto		1	9:42:24		Blocked
						2	9:43:35		Book
									No ending time marks. Heavy fume
548	10/4/84	10/11/84		N Area to Puu Oo		0	11:19:16	4/10/84	Blocked
				Wide angle		1	11:22:30		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	11:25:45		Book
						1722	9:31:21	8/10/84	Camera moved to new site further north. Time mark
						3067	11:13:37		Blocked
						3068	11:16:54		Blocked
						3069	11:20:11	11/10/84	Book
									Non descript
549	10/4/84	10/11/84		1123 to PuuOo		0	9:11:32	4/10/84	Blocked
				Wide angle		1	9:15:05		Blocked
						2899	11:45:00		Blocked
						2900	11:48:28		Book
									Non descript
550	10/11/84	10/16/84		N. Area to PuuOo		0	11:09:37	11/10/84	Blocked
				Telephoto		1	11:10:48		Blocked
						2	11:11:59		Book
									No ending time marks. Non descript
551	10/11/84	10/19/84		N. Area to Puu Oo		0	11:26:01	11/10/84	Blocked
				Wide angle		1	11:29:17		Blocked
						2	11:32:34		Book
						2210	12:46:33	16/10/84	TM
									No ending time marks. Non descript
552	10/11/84	10/19/84		1123 to PuuOo		0	11:51:01	11/10/84	Blocked
				Wide angle		1	11:54:35		Blocked
						2	11:58:05		Book
						2001	10:07:12	16/10/84	TM
						3246	11:59:44		Blocked
						3247	12:03:16		Blocked
						3248	12:06:47		Book
									Non descript
553	10/16/84	10/19/84		N. Area to PuuOo		0	12:49:29	16/10/84	Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Telephoto		1	12:50:41		Blocked
						2	12:51:53		Book
						3492	11:21:01		Blocked
						3493	11:22:13		Blocked
						3494	11:23:25		Book
									Light-moderate fume
554	10/19/84	10/23/84		N. Area to PuuOo		0	11:30:29	19/10/84	Blocked
				Telephoto		1	11:31:42		Blocked
						2	11:32:55		Book
						2475		21/10/84	Heavy gas bursts occur periodically all day. (to#2702)
						2703			Spatter visible
						2704			low ftn and overflow to N.
						2705			Pau
									No ending time marks.
555	10/21/84	10/22/84		NE RimPuuOo to pipe	33sec	0	9:50:19	21/10/84	Blocked
						1	9:50:52		Blocked
						2	9:51:25		Book
						422			Lava rising in pipe to just below rim (to#427)
						428			Lava out of view-rapid drain back
						429			Intervals of heavy fume(to#492)
						493			Lava rises and overflows to north(To#505)
						506			Drain back and strombolian burst
						703			Lava rises and barely overflows to N highest ftn yet(To #712)
						713			Drain back
						860			Mound of crusted lava rises(To #866)
						867			Overflows, still mostly crusted(To #871)
						872			Drain back
						1605			Spatter in pipe
						1606			Quiet, except for moderate-heavy fume.(To #3448)
									No ending time marks
556	10/22/84	10/23/84		NE Rim PuuOo to Vt		0	17:40:40	22/10/84	Blocked
				Wide angle		1	17:41:12		Blockde
						2	17:41:44		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1775	9:52:32		Blocked
						1776	9:53:04		Blocked
						1777	9:53:37		Book
									Fume and/or steam on lens obscured view through most of film. No visible lava.
557	10/19/84	10/25/84		N.Area to N.Splway Wide angle	199.48 s	0	11:09:48	19/10/84	Hand
						1	11:13:08		Hand
						2	11:16:25		Book
						3	11:19:43		Hand
						4			Heavy fumes and steam coming from vent (To # 126).
						126			Nighttime, no visibility (To # 341).
						342			Heavy steam and rain. Poor visibility (To#389).
						390			Fair weather, non descript (To # 521).
						522			Low ceiling and rain and darkness. Poor visibility (To # 776).
						776			Non descript, Good visibility (to # 905).
						906			Periods of heavy white fume rising from vent (To # 995).
						987	17:51:00	21/10/84	Spatter viewed through N spillway, confined to within the crater, a couple of meters high at most.
						996			Nighttime. No visibility (To # 1211).
						1212			Heavy fog. No to little visibility (To # 1782).
						1783			Good Visibility, non descript (To # 1858).
						1859			Nighttime. No visibility (To # 2072).
						2073			Steam and fog, little to no visibility (To# 2115).
						2116			Good visibility, non descript (To # 2292).
						2293			Nighttime. Non descript (To # 2503).
						2504			Fair to good visibility, non descript (To # 2556).
						2557	8:51:07	25/10/84	Hand
						2558	8:54:26		Hand
						2559	8:57:46		Book
558	10/23/84	10/25/84		N.Area to PuuOo Telephoto		0	11:16:47	23/10/84	Hand
						1	11:18:00		Hand outside box
						2			Fog and heavy steam, poor visibility. Runs into evening (To # 937).
						938			Heavy steam in daylight. Poor visibility (To # 1072).
						1073			Daylight, non descript (To # 1534).
						1535			Nighttime, non descript (To # 2124).

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2125			Heavy steam, poor visibility (To # 2200).
						2201			Good visibility , non descript (To # 2285).
						2286	9:11:44		Hand blocked
						2287	9:12:57		Hand blocked
						2288	9:14:09		Book
556	10/22/84	10/23/84		NE Rim PuuOo to Vnt		0	17:40:40	22/10/84	Blocked
				Wide angle		1	17:41:12		Blocked
						2	17:41:44		Book.
									Fume and steam on lens obscured view thru most of film. No Lava seen.
						1775	9:52:32		Blocked
						1776	9:53:04		Blocked
						1777	9:53:37	23/10/84	Book.
557	10/19/84	10/25/84		N.Area to N.Splway	199.48 s	0	11:09:48	19/10/84	Hand
				Wide angle		1	11:13:08		Hand
						2	11:16:25		Book
						3	11:19:43		Hand
						4			Heavy fumes and steam coming from the vent (To#126).
						126			Night. No visibility (To # 341).
						342			Heavy steam and rain, poor visibility (To #389).
						390			Fair weather, non descript (To # 521).
						522			Low ceiling, rain, darkness, poor visibility(To # 776).
						776			Non descript, good visibility (To # 905).
						906			Periods of heavy white fume rising from vent (To # 995).
						997	17:51:00	21/10/84	Spatter viewed through N. spillway. Confined to within the crater, a couple of meters high at most.
						998			Night, no visibility (To # 1211).
						1212			Heavy fog, little to no visibility (To # 1782).
						1783			Good visibility, non descript (To # 1858).
						1859			Night, No visibility (To # 2072).
						2073			Steam and fog, little to no visibility (To # 2115).
						2116			Good visibility, non descript (To # 2292).
						2293			Night, non descript (To # 2503).
						2504			Fair to good visibility, non descript (To # 2556).
						2557	8:51:07	25/10/84	Hand
						2558	8:54:26		Hand

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2559	8:57:46		Book.
558	10/23/84	10/25/84		N. Area to PuuOo		0	11:16:47	23/10/84	Hand
				Telephoto		1	11:18:00		Hand outside box.
						2			Fog and heavy steam, poor visibility. Runs into the evening, poor visibility probably (To # 937).
						938			Heavy steam in day light, poor visibility (To # 1072).
						1073			Day light, non descript (To # 1534).
						1535			Night, non descript (To # 2124).
						2125			Heavy steam, poor visibility (To # 2200
						2201			Good visibility, non descript (To # 2285).
						2286	9:11:44	25/10/84	Hand
						2287	9:12:57		Blocked
						2288	9:14:09		Book.
559	10/19/84	10/26/84		1123 to PuuOo		0	13:20:13	19/10/84	Hand in front of camera box.
				Wide angle		1	13:23:41		Hand in front of camera box.
						2	13:27:10		Hand in front of camera box.
						3			Heavy steam, poor visibility (To # 454).
						455	16:14:23	20/10/84	TM, Blocked.
						456			Heavy steam, poor visibility (To # 710).
						711			Non descript (To # 894).
						895			Night or heavy steam, poor visibility (To # 1202).
						1203	12:38:04	22/10/84	TM
						1204			Night or heavy steam, poor visibility (To # 1583).
						1584			Steamy and night, occassional good visibility (To # 1946).
						1947			Good weather, non descript (To # 2381).
						2382	10:48:53	25/10/84	TM
						2383			Good weather, non descript (To # 2802).
						2803	11:47:31	26/10/84	Blocked
						2804	11:51:02		Blocked
						2805	11:54:32		Book.
560	10/25/84	10/26/84		N. Area to N.splwy	69.32 sec	0	9:23:33	25/10/84	Blocked
				Telephoto		1	9:24:45		Blocked
						2	9:25:57		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3			Day time, good visibility, non descript, light fuming (To # 431).
						431			Night, non descript (To # 446).
						447			Small scale spattering confined to within crater about 2 m high. No lava production within the North spillway.
						448			Non descript, dark (To # 992).
						993			Orange glow from within crater, no obvious lava production.
						994			Non descript (To # 1008).
						1009			Small scale spattering confined within the crater, no lava production.
						1010			Non descript, night (To # 1025).
						1026			Non descript, some periods of heay white fuming from within the pipe.
						1284	10:06:59	26/10/84	Blocked
						1285	10:08:11		Blocked
						1286	10:09:23		Book.
561	10/25/84	10/26/84		1123 to PuuOo		0	18:16:36	25/10/84	Glowing hand
				Med.telephoto		1			Glow from flashlight.
						2			Glow from flashlight.
						3			Glow from flashlight.
						4			Darkness, non descript (To # 1280).
						1283			Day, good visibility, non descript, some periods of heavy fume (To#1966).
						1967	12:15:06	26/10/84	TM
						1968			Day, good visibility, non descript except for some periods of heavy fume from vent. Fuming has picked up from the morning (To # 2600).
						2601			Night, non descript (To # 2890).
						2896	20:38:04	26/10/84	Book.
562	10/26/84	10/27/84		1123 to PuuOo & Rft	32.9 sec.	0	20:48:33	26/10/84	Floor
				Med.telephoto		1	20:49:06		Blocked
						2	20:49:38		Book
						3			Night, non descript (To # 849).
						850	4:35:11	27/10/84	Spatter visible above NE rim about 10 m high, no lava production.
						887	4:55:29		Spatter visible above NE rim about 10 m high, no lava production.
						986	5:49:50		Very tiny amount of spatter only visible above NE rim no lava production.
						1009	6:02:28		Very tiny amount of spatter only visible above NE rim no lava production.
						1015	6:05:46		10-15 m high, narrow lava ftn. w/in crater.Above NE splway, below SW rim
						1016			Daybreak, non descript, light fume (To # 1021).
						1022	6:09:36		10-15 m high, narrow lava ftn. w/in crater.Above NE splway, below SW rim

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1023			Morning, good visibility, light fume. non descript (To # 1025).
						1026	6:11:48		A speck of spatter above NE spillway.
						1027			Morning, good visibility, light fume. non descript (To # 1030).
						1031	6:14:33		Similar to frame #1015.
						1032			Excellent visibility, periods of heavy fuming (To # 1250).
						1251	8:15:19		TM
						1252			Similar to #1032-1250 (To # 2309).
						2310	17:50:33		Orange glow within pipe, evening setting in.
						2311			Becoming dark and losing sight of vent (To # 2319)..
						2320	17:55:59		TM
						2321			Dark, non descript (To # 2552).
						2553	20:04:30		Book.
563	10/26/84	10/29/84		N. Area to N. Splwy	71.5sec	0	11:18:18	26/10/84	Blocked
				Telephoto		1	11:19:29		Blocked
						2	11:20:41		Book
						3			Good weather, visibility, some pds of medium to heavy fuming(to#337)
						325			Orange glow in center of crater, no obvious lava production
						338			Night-time, vent out of sight. occassional spatter, see below (To #956)
						339			two distinct specks of spatter in prev. glowing area. No lava production
						382			Trace of spatter in N. splwy. No lava production
						509			Same as above, slightly more spatter
						856	4:18:22	27/10/84	Continuous small-scale about 15-20m high ftn, no lava prod. (To # 867)
						875	4:41:01		Semi-continuous small-scale ftn. Lava prod out N splwy obvious(To#956)
						957			Day-break, foggy. fair visibility. some pds of heavy fuming(To#1048)
						1049			Good visibility, daylight, pds heavy fuming,occasional spatter (To#1525)
						1193			Small dome shaped ftn<5m high contained within vent
						1287			spattering within pipe area
						1315	13:25:21		spattering, lava production out of the N. splwy
						1341			Spattering
						1367	14:27:19		Lava production out of the N. splwy
						1389			Spattering in center of crater area.
						1398			Same as above
						1410			Same
						1432			Same
						1441			A speck of spatter
						1454			Same as 1441
						1465			Same (To#1466)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1476	16:37:12		Relatively large ftn about 10m high. lava prod. out N. splwy
						1483	15:45:30		Spattering above pipe within crater.no lava production
						1487			Same as above
						1494			Same as above
						1498			Same as above
						1515			Similar to above, but larger
						1519			Similar to 1483
						1522			Speck of spatter
						1523			Relatively wide, dome shaped ftn over pipe contained with crater
						1526			Speck of spatter
						1527			Night-time, vent not visibility, spatter and ftns are evident(To#2131)
						1530			Semi-continuous spattering and ftn most within the crater(To#1568)
						1569			Relatively less semi-continuous spattering contained in crater(To # 2131)
						2132			Daylight, fair visibility, pds heavy fuming fro pipe.spatter (To #2717)
						2510			Lava pond within crater
						2511			Spattering within lava pond
						2641	15:46:00	28/10/84	Lava ponding, dome ftn in center, small amounts of lava prod. (To#2642)
						2643			Spattering due to drain back
						2678	16:29:35		Lava ponding, dome ftn in center, some lava prod out N. splwy(To#2681)
						2694			Lava pond building-spill sequence similar to previous times(To#2698)
						2718			Night-time, PuuO not visible, frequent semi-cont. spatter and spillovers visible. spillovers are note below but spatter not(To#3313)
						2743	17:47:03		Lava pond building, small dome in center,spill over in N.splwy(To#2748)
						3314	5:07:29	29/10/84	Day-break, heavy steam, fair visibility, light-heavy fuming from vent
564	10/27/84	10/28/84		1123 to PuuOo, rift Med. Telephoto	32.7sec	0	20:26:12	27/10/84	Hand
						1	20:26:44		Hand
						2	20:27:17		Book
						3			Night-time, no visibility, yet spatter occassionally(To #1055)
						383			Spatter above NE Rim about 5m high
						778			Same as 383
						944			Same as 383
						960			Same as 383
						985			Same as 383
						1015			Same as 383
						1024			Speck of spatter above NE Rim
						1055			Same as 1024
						1056			Daytime good visibility,some pd heavy fume from crater,spatter(To#2371)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2301			Spattering above NE Rim about 5m high.
						2354			Same as above
						2364			Same as above
						2372			Nightime, infrequent spattering(To#2597)
						2396			Spatter about 5m above NE Rim
						2598	20:02:31	28/10/84	Book
565	10/28/84	10/29/84		1123 to PuuOozipline	32.9 sec	0	20:09:54	28/10/84	Book
				Med. Telephoto		1			Nighttime,can't see PuuO,spattering noted below(To#1082)
						208			Small-scale spattering above NE Rim about 5m high
						479			Infrequent small-scale spatter above NE Rim about 5m high (To#521)
						629			Same as above(To#663)
						1083			Day-break, very foggy, poor visibility(To#1152)
						1153	6:43:27		TM
						1154			Foggy, poor visibility(To#1285)
						1286			Steamy, fair visibility(To#1371)
						1372			Clearing good visibility some pds heavy fuming from the crater(To#2078)
						2079	15:06:00		Hand
						2080	15:06:32		Hand
						2081	15:07:05		Book
566	10/26/84	11/1/84		N.Area to N.Splwy	119.5sec	0	10:12:50	26/10/84	Blocked
				Wide angle		1	10:14:49		Blocked
						2	10:16:49		Book
						3			Daylight, good visibility, non-descript (To#223)
						224			Darkness, non-descript except for same pds of spattering (To#588)
						540			Continuous small-scale spattering from N. splwy.ftn5mhigh(To#545)
						552		27/10/84	Same as above
						570	5:08:05		Like above yet the ftning longer,lava prod 30mdownN.splwy(To#599)
						589	5:45:56		Daybreak,fair visi,spattering pds heavy degassing after spatter(To#700)
						700			Daytime, god visibility. Non-descript(To#938)
						939			Nighttime, no visibility,yet many pds spattering are evident(To#1292)
						940			Spatter contained within crater
						942			Same
						948			Same
						961			Same (& #978)
						1045			Same (& #1049)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1065			Same (&#1067)
						1155			Same (& # 1251)
						1270			Same (&# 1287)
						1289			Same (&#1290)
						1293	5:08:04	28/10/84	Daybreak, fair-good visibility (To#1300)
						1295			Spatter within crater
						1301	5:24:00		Daylight, fair-good visibility, pds of heavy fuming (To#1648)
						1623			Small amout of spatter confined within crater
						1640			Same
						1645			Same
						1649			Nighttime, no visibility. frequent spattering throughout night(To#2000)
						2001	4:38:10		Daybreak,fair-good visibility, non-descript (To#2009)
						2010			Non-Descript, occassional pds of heavy fuming(To#2355)
						2356			Small dome-shaped ftn confinded to within crater (To#2356
						2357			Night,PuuO not visible,spattering frequent in night,overflow(To#2714)
						2403	17:58:49	29/10/84	Spattering and overflow into N. Spillway (To#2412)
						2715	4:20:13		Daylight, good visibility, non-descript (To#2852)
						2853			Spattering inside crater
						2855			Same
						2860			Nighttime, frequent spattering
									No time marks at end
567	10/26/84	11/1/84		1123 to PuuOo		0	12:04:40	26/10/84	Blocked
				Wide angle		1	12:08:10		Blocked
						2	12:11:40		Bood
						504	17:54:11	27/10/84	TM
						1125	6:47:21	29/10/84	Blocked
						1529		30/10/84	Early am-low ftn visible over E Rim
						1857			Night-low ftn barely visible
						1928		31/10/84	Early am ftn barely visible
									No ending timemarks- camera mal-functioning-running for several sec
568	10/29/84	11/1/84		N.Area to PuuOo					No beginning time merks-first part of film exposed to light
				Telephoto		0	9:02:00	29/10/84	"zero" on counter set at about first frame-surveyor at 1123
									Camera aimed high-top of conduit barely in view-See roll 566 for wideang
						3581	8:53:15		Blocked
						3582	8:54:28		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3583	8:55:04		Book
569	10/29/84	11/1/84		1123 to PuuOo		0	15:13:53	29/10/84	Blocked
				Med. Telephoto		1	15:15:07		Blocked
						2	15:16:21		Book
						130			low ftns visible on a few frames (To#214)
						215			ftn and flow down N. splwy visible
						216			low ftn visible on a few frames (To#710)
						739		30/10/84	ftn
						740			heavy fume bursts at intervals thru the daylight hours of 10/30 (To#1278)
						1279			Night of 10/30-31 tops of low ftns visible in frames (To #1856)
						1856		31/10/84	day of 10/31 fume light-no heavy bursts (To#2414)
						2498			Tops of low ftns visible in a few frames(To#2985)
						2986		1/11/84	light fume (To# 3095)
						3098	8:24:58		Blocked
						3099	8:31:14		Blocked
						3100	8:32:29		Book
570	11/1/84	11/5/84	26	N. Ara to PuuOo	71.5sec	0	9:05:24	1/11/84	Blocked
				Telephoto		1	9:06:38		Bloced
						2	9:07:52		Book
						428	17:35:00		Intermittent spatter (To # 437)
						438	17:48:00		Low ftn and lava overflow onto crater floor (To# 439)
						440	18:12:00		Low ftns visible periodically, followed by heavy fume bursts (To# 459)
						460	18:15:00		Large overflow-can't see how N. it reaches (frame cut off) (To# 462)
						463	18:16:00		Low ftns and overflows that reach the bottom of the frame continue thru the night. At least 45 visible overflows/13hrs(To#1074)
						1075	6:55:00	2/11/84	Morning, ftns and overflows contiue-followed by heavy fume (To#1099)
						1100	7:00:00		Dome ftn feed large overflow (To# 1103)
						1103	9:46:00		More of same (To#1242)
						1243	9:50:00		Highest ftn yet-dome ftn higher than E rim feds large overflow (To# 1245)
						1261	10:08:00		Another high dome ftn (To # 1264)
						1285	10:37:00		Ftn starts out as dome, then bubble bursts-ends up as regular ftn(To#1288)
						1303	10:56:00		Another high dome ftn (To#1305)
						1327	11:26:00		Highest ftn yet (To#1333)
						1338	11:39:00		Start of o26
						1341			Dome ftn higher than summit PuuOo

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1342	11:45:00		Ftn loses dome shape (To#1342)
						1344	11:49:00		Base of ftn broadens at rapid rate, vertical rise less rapid (To #1346)
						1347	11:52:00		Rapid increase ftn ht (To # 1349)
						1350			Ftn reached beyond top of frame (weather foggy, resolution poor)
						1353			White-out (To# 1355)
						1394	12:46:00		Weather clears
						1395			Ftn direction shifts by several degres to east or weat for short intervals
						1581	16:29:00		Ftn hts diminish to top of frame
						1583	16:31:00		Ftn backup
						1584	16:33:00		Ftn abruptly dies to level of summit
						1585	16:35:00		Pau
						1586			Few strombolian bursts (To # 1588)
						1589			Moderate fume
						1633			Slump on NW side cone cause large glowing area. Faint glow vis intermit -tently from vent. (To# 1730)
						1731			Slump on NW side cone occurs intermit faint no glow over vent(To#2284)
						2284			Heavy fume thru 11/3/84
									No ending time marks
571	11/1/84	11/5/84		1123 to PuuOo	76.7sec	0	8:51:21	1/11/84	Blocked
				Med. Telephoto		1	8:52:37		Blocked
						2	8:53:53		Book
						421	17:42:00		Tops of low ftns barely visible in a few frames
						449	18:17:00		
						450	3:55:00		Overflows to north occur periodically (To#866)
						867	03:61:00		Overflow of E Rim, also overflow to N (To# 871)
						872	11:41:00		Freq overflows extend in a read fan to base of cone (To#1276)
						1276	11:41:00		Begin o26 Starts as dome ftn with overflow to E&W
						1296			Blocked
						1398	14:15:03		Blocked
						4504	16:30:00		Ftn dies back
						1508	16:35:00		Pau
						1509	16:36:18		Blocked
									No visible ftns during night of 11/2/84
									No ending time marks
572	11/1/84	11/9/84		N. Area to PuuOo		0	9:21:50	1/11/84	Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle		1			Blocked
						2			Book
						6			Periodic light fume bursts-overall light fume (To# 153)
						154			Low ftn visible (To# 155)
						160		2/11/84	Low ftns and sizeable splover to N,NE visible freq during night (To#383)
						389			Spillovers continue, light fume (To#448)
						449			Period of dome ftns and large spillovers (To#476)
						447			o26 begins-ftns equal in hgt to PuuOo summit
						479			Ftn widens to fill most of crater (To # 480)
						482			Ftn full hgt-tephra cloud and low cloud ceiling obscure top of ftns
						513			Weather clears ftn hgt width already diminished continue to decrease
						564			Ftn drops to hgt of summit
						565			o26 pau
						589			Glow on NW side cone from slumping tephra-no vent activity visible (To # 793)
									Rest of film moderate fume, No glow
									No ending time marks
573	11/2/84	11/9/84		1123 to PuuOo	192.0sec	0	11:32:51	2/11/84	Hand
				Wide angle		1	11:36:03		Book
						2			Non descript, in helicopter enroute to eruption (To#8)
						9			Extremely poor visibility. ftn cn be seen only occ. and never its entire length. When visible the ftn is good ftn hight(To # 31)
						32			Visibility improving ftn is very vigorous 800ft high, sporatic, leans N now and then wide base, size of crater (To #80)
						81			Ftn begins to thin and shortens ftn height is sporatic (To # 92)
						93			Ftn dies abruptly, o26 pau(To #94)
						95			Non descript
						96	16:40:04		TM
						97			Non descript
574	11/9/84	11/15/84		N to PuuOo	201.5sec	0	11:36:43	9/11/84	Blocked
				Wide angle		1	11:40:04		Book
						2			Non-descript, Poor weather and visibility (To#2655)
						2656	16:29:04		Hand
						2657	16:32:26		Hand
						2658	16:35:47		Hand

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
575	11/15/84	11/20/84	27	N. Area to N. splwy	74sec	0	16:52:58		Hand
				Telephoto		1	16:54:12		Hand
						2	16:55:26		Book
						3			Non descript (To # 23)
						24			Occassional spattering within the crater, No lava production (To # 668)
						670			Non descript, moderate visibility (To # 1285)
						1286	19:19:02	16/11/84	Continuous smll-scale spattering,confined to crater, producing two thin
						1310	..19:48:38		phh flows down the N flank almost to baseof cone
						1311			Non descript except short lived spatter incrater. no lava prod. (To # 1619)
						1620	2:10:58	17/11/84	Con tinuous small-scale fountaining 10-15m high producing two thin phh
						1643	..02:39:00		flows meeting near base forming one flow
						1640			N.D. except for small scale spatter not continuous not prod lava(To#1736)
						1737	4:35:00		Continuous small scale ftning producing one small lava flow down the N
						1756	..04:59:00		spillway
						1757			Nondescript except for occascional spatter never production lava(to#1915)
						1916			Nondescript, some heavy fuming, poor to fair visibility(To #2408)
						2410	18:25:18		Intermittent to continuous spatter, producing a small flow on N-NE Rim
						...2486	..19:59:00		on vent
						2487			N.D. (To # 2504)
						2505			Lava production in crater is obvious,no spatter spattering short (To#2507
						2508	20:26:10		Intermittent spatter small scale ftning occassionaly prod many small
						...2983	..06:12:00	18/11/84	phh flows down the N. flank
						2984			ND only occassional shortlived spatter,never cont or prod lava(To # 3371)
									No ending time marks. End at 14:10:00 on 11/18/84
576	11/15/84	11/20/84		1123 to PuuOo	211.6sec	0	15:49:47	15/11/84	Blocked
				Wide angle		1	15:53:18		Blocked
						9	16:21:08		Book
						10			Non-descript, moderate to poor visibility (To# 49)
						497	21:02:21	16/11/84	Speck of spatter within crater
						498			Non-descript (To # 582)
						583	2:05:37	17/11/84	Continuous small scale spattering confined to in crater (To #588)
						589			Non-descript (To # 622)
						623	4:26:40		Continuous small scale spattering confined to in crater (To # 626)
						627			Non descript (To # 632)
						633	5:01:56		Small scale spatering within crater (To # 634)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						635			Non descript, moderate to poor visibility(To # 885)
						886	19:54:04		Speck of spatter within crater
						887			Non descript (To #987)
						988	01:53:96	18/11/84	Spatter within crater, this may be feeding a small flow out of the N spill-way. flow still glowing in frame 989
						990			Periods of intermittent spattering all short-lived and confined to with crater. no apparent lava production out of the spillway(To # 1044)
						1045			Non descript, fair visibility (To # 1259)
						1260	17:52:56	19/11/84	Spatter, confined to within crater
						1261			Non descript but poor visibility (To #1718)
						1719	20:51:30		Occasional fain orange glow, poor visibility(To # 1748)
						1749	22:37:18		First sign of increased activity ftn about 10-15m high
						1750			Non descript por visibility (To # 1773)
						1774	0:05:27	20/11/84	Large orange glow o27(To # 1778)
						1779			Non descript poor visibility (To # 1791)
						1792	1:08:55		Glow reaches higher into the sky (To # 1803)
						1804	1:51:14		ftn visible about 1000 ft above spillway
						1805			Occasional view of ftn, mostly just a glow (To # 1904)
						1864	5:21:43		Clear view of ftn, down in height somewhat from frame 1804
						1905	7:46:44		TM
						1906			Continuous vig. ftning, fair visibility, ftns 800ft above splwy(To #1942)
						1942	9:57:12		Dramatic decrease in ftn hgt. Pau(To # 1943)
						1945	10:08:27		TM
						1946			Non descript, heavy fuming.
577	11/15/84	11/20/84		N. Area to N. splwy Wide angle	202.5sec	0	16:44:00	15/11/84	Blocked
						1	16:47:22		Hand
						2	16:50:44		Book
						3			Non descript (To # 469)
						470			Speck of spatter within crater
						471			ND(To # 472)
						474			Speck of spatter within crater
						475			(To # 476)
						477	19:34:10	16/11/84	Two thin flow N flankcone, not reach botton of cone(To# 478)
						479			ND (To # 500)
						501			Speck of spatter confined within crater
						502			ND (To# 542)
						543			Speck of spatter

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						544			ND (To # 589)
						590	1:55:37	17/11/84	Continuous small scale ftning spattering a couple of meters high. Small
						597	..02:19:15		lava production out of the N spillway
						598			ND (To # 631)
						632			Continuous small scale spatter/ftn couple m high no lava prod(To#637)
						638			ND
						642			Similar to 632-637 (To # 646)
						647			ND Poor visibility (To # 891)
						892			Speck of spatter confined within crater
						893			ND
						894			Speck of spatter (To # 895)
						896			ND (To # 906)
						907			Small scale spattering, No lava production
						908			ND (To # 952)
						953			Speck of spatter
						954			ND (To # 997)
						998			Small scale spattering no lava production
						999			ND (To # 1011)
						1012	1:40:08	18/11/84	Increasing spatter activity, small lava production out of N. spillwy ftns a
						1016	..01:53:38		couple of meters high max
						1017			ND (To # 1019)
						1020			Speck of spatter
						1021			ND (To # 1029)
						1030			Speck of spatter
						1031			ND (To # 1034)
						1035			Small scale spattering No lava production
						1036			ND (To # 1038)
						1039	3:11:16		Increasing spatter activity, small amounts of lava production out of the
						1040	..03:14:39		N. Spillway
						1041			ND
						1046			Small scale spattering No lava production(To # 1049)
						1050			ND except fo the following instances(To # 1090)
						1068			Small scale spattering, No lava production
						1072			Small scale spattering, No lava production
						1077			Small scale spattering, No lava production
						1090			ND (To # 1303)
						1304			Speck of spatter
						1305			ND (To # 1318)
						1319			Speck of spatter

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1320			ND (To # 1343)
						1344			Small scale spattering, confined in crater, no lava production
						1345			ND (To #1498)
						1499			Small scale spattering (To # 1501)
						1502			ND, Poor visibillity (To # 1776)
						1777	8:42:29	19/11/84	Increasing activity, lava production out of N. splwy, intermittent visi.
						1840	0:16:00	20/11/84	dome ftns about 5-10m high
						1841	0:18:31		Increase ftn hgt, beginning to lose its dome poor visibility(To # 1843)
						1844	0:28:39		High ftn, no longer a dome shape, poor visibility
						1863	1:32:47		Can see entire heightof fountain at least 1300 feet (Estimated)
						1865	1:40:00		
						1979	8:04:21		Book
						1980	8:05:29		TM
						1981	8:07:33		TM
						1982	8:09:36		Book
						1983			Poor visibility, ftn hgt from night time Pau at decrase at in frame 2038
						2038	10:04:23		
						2100	12:11:29		Book
578	11/20/84	11/20/84		N.Area to NE. splway	6.2 sec.	0	7:59:06	20/11/84	TM. Phase 27 in full force. Lava production out of N. Spillway. Fast
				Telephoto		2			interval; about 6 sec.
						3	7:59:24		Book.
						4			Vigorous ftning reaches above top of frame. Flow starts N. Spillway and bends east, then flows out of view. Heavy tephra fallout on KMM side. Poor to fair visibility (TO # 450)..
						450			Very poor visibility. Ftn only occasionally seen (To # 1190).
						1191	10:01:20		Poor visibility. Ftn spattering. Ftn height below top of picture frame.
						1192	10:01:26		Ftn is very sporatic in both height and width. Pau!! (To # 1247).
						1248			Poor visibility, non descript (To end).
						2349	12:00:10		Book.
579	11/20/84	11/28/84		1123 to PuuOo	213 sec.	0	10:39:19	20/11/84	Blocked
				Wide angle		1	10:42:52		Blocked
						2	10:46:24		Book
						3			Non-descript, moderate to poor weather conditions (To # 3225).
						3226	10:24:02	28/11/84	Blocked
						3227	10:27:36		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3228	10:31:09		Book.
580	11/20/84	11/28/84		N.Area to PuuOo Wide Angle	201 sec.	0	12:15:49	20/11/84	Blocked
						1	12:19:09		Blocked
						2	12:22:31		Book
						3		28/11/84	Non-descript, poor weather, no ending time marks.
581	11/28/84	12/4/84	28	N.Area to N.Splway Wide angle	203 sec.	0	15:12:20	28/11/84	View of PuuOo with chopper in foreground. Assume it is the first frame after shot with book (??).
						1			Non-descript, fair to poor visibility (To # 2175).
						2176	17:54:28		Small scale spattering within cone, no lava production
						2177			Non-descript (To # 2187).
						2188	18:35:04		Increasing activity and lava production. Ftns increase in height rapidly. Phase 28 begins. Good to poor visibility (To # 2192).
						2193	18:51:59		Ftning is vigorous, tephra is accompanied by ftns.
						2290			Decrease somewhat in ftn hgt, Sporatic ftning, Poor visibility (To # 2396).
						2397			Last good view of ftns. Poor weather has rolled in. Occassional viewing of parts of the Ftn.
						2398			Poor weather, little or no visibility. When PuuOo finally emerges from the clouds @ #2453 (9:31:39) the ftning is over (To # 2453).
						2565	16:13:01	4/12/84	Blocked
						2566	16:14:22		Blocked
						2567	16:19:44		Blocked.
582	11/28/84	12/4/84		1123 to PuuOo Wide angle	214.8 sec	0	10:33:19	28/11/84	Blocked
						1	10:36:52		Blocked
						2	10:40:26		Book
						3			Light fume, no visible spattering, visibility mostly poor, fog (To # 1556).
						1557			Moderate fume in bursts with no visible fume in betweeen (To # 1634).
						2030			Gas bursts as above (To # 2077).
						2078			Very light fume (To # 2141).
						2153	19:04:36	3/12/84	Start of phase 28; top of ftn just visible over rim.
						2154			Flow over N. spillway.
						2157	19:18:55		Fissure vent ftn visible btwn 1123 and PuuOo.
						2158			Multiple ftns active along fissure, feeding flow moving to south. PuuOo ftn still increasing in height.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2159			Spatter-fed flows down SE flank PuuOo extend beyond base of cone. Flows From fissure vents extend S and larger flow to NE appears to be from PuuOo and overtaking fissure vent-flow. O ftns still climbing
						2164			Dark cloud partially obscures ftn; likely fog, not tephra fallout (To # 2173).
						2166			Fissure ftns declining.
						2167			Ftn hgts reach maximum (To # 2169).
						2172			PuuOo ftns decreasing in hgt Ftns narrow at base; fan out at top (To #2203).
						2204			Ftn increase in hgt and width.
						2205			Striking increase in ftn width, or at least in width of the fall-back column. Ftn widths vary; mostly vertical, occasionally angle slightly to N.
						2220	23:04:28		Fissure ftns no longer visible; Possibly overrun by flow from PuuOo
						2364	7:39:47	4/12/84	TM
						2398			Ftns barely visible over rim.
						2399	9:45:17		Ftns pau, light fume.
						2428	11:29:29		Blocked
						2429	11:33:03		Blocked
						2430	11:36:38		Book.
583	12/4/84	12/11/84		1123 to PuuOo		0	11:40:44	4/11/84	Blocked
				Wide angle		1	11:44:18		Blocked
						2	11:47:52		Book
						5			Heavy fume-following o28 (To # 105)
						106			Moderate fume (To # 2766)
						2767			Blocked
						2768			Blocked
						2769			Book
584	12/4/84	12/11/84		N. Area to PuuOo		0	16:23:37	4/12/84	Blocked
				Wide angle		1	16:26:57		Blocked
						2	16:30:18		Book
						2848	8:53:31		Blocked
						2849	8:56:54		Blocked
						2850	9:00:17		Book
									Moderate fume
585	10/25/84	10/26/84		N. Area to PuuOo		0	9:06:06	25/10/84	Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle		1	9:07:22		Blocked
						2	9:08:38		Book
						1299			Blocked
						1300			Blocked
						1301			Book
									Light fume
586	12/11/84	12/20/84		1123 to PuuOo				11/12/84	TM at beginning and in middle
				Wide angle					Non descript (except for great sunsets)
587	12/11/84	12/20/84		N. Area to Puu Oo		0	9:01:35	11/12/84	Blocked
				Wide angle		1	9:04:59		Blocked
						2	9:08:22		Book
									Moderate-heavy fume
									Ran out of film-no ending timemarks
588	12/20/84	12/28/84		N. Area to Puu Oo	193sec	0	10:32:13	20/12/84	Blocked
				Wide angle		1	10:35:31		Blocked
						2	10:38:44		Book
						3	10:41:56		Book
									Ran out no ending timemarks
									Non descript Poor visibility
589	12/20/84	12/28/84		1123 to PuuOo	225sec	0	10:32:08	20/12/84	Blocked
				Wide angle		1	10:35:45		Blocked
						2	10:39:20		Book
									Ran out of film, no timemarks
									Non descript, poor visibility
590	12/28/84	1/3/85		1123 to PuuOo	216.8sec	0	9:32:19	28/12/84	Blocked
				Wide angle		1	9:35:57		Blocked
						2	9:39:34		Book
						3			Non-descript, Poor-good visibility (To#893)
						894	15:22:42	30/12/84	TM

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						895			Non-descript (To # 1427)
						1428	23:32:16	31/12/84	Infrequent spattering events, no spillovers
						...1541	06:20:35	1/1/84	
						1542			Non-descript (To # 1936)
						1937	6:11:29	2/1/84	Spatter-No spillovers
						1938			Non-descript (To # 2133)
						2134	6:03:20		Continuous small scale spattering production a phh overflow to the north
						...2164	19:52:44		
						2165			Non-descript (To # 2385)
						2386	9:13:54	3/1/84	Blocked
						2387	9:17:31		Blocked
						2388	9:21:08		Book
591	12/28/84	1/3/85		N. Area to PuuOo	192.4sec	0	9:08:58	28/12/84	Blocked
				Wide angle		1	9:12:10		Blocked
						2	9:15:22		Book
						3			Non-descript, enroute to N. Area (To # 190
						20			Non-descript, poor to good visibility(To # 1032)
						1033	16:25:06	30/12/84	TM
						1034			Non-descript, poor to good visibility (To # 1612)
						1613			Small-scale spattering , no lava production (to # 1619)
						1620			Non-descript (To # 1692)
						1963			Infrequent sptr events, no spillovers, otherwise non-descript (To # 2018).
						2019			Non-descript (To # 2402).
						2403	17:51:16		Small scale spattering, lava production over N. side immediately flowing to
						2438	19:43:50		near base of cone.
						2439			Non-descript (To # 2676).
						2678	8:35:46		Blocked
						2679	8:38:58		Blocked
						2680	8:42:09	3/1/84	Book.
592	12/28/84	12/31/84		N.Area to Puu Oo	78 sec.	0	9:19:51	28/12/84	Blocked
				Telephoto		1	9:21:10		Blocked
						2	9:22:27		Book
						3			Non-descript (To # 2539).
						2540	16:21:28	30/12/84	TM
						2541			Non-descript (To # 3351).

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3352	9:53:18	31/12/84	Blocked
						3353	9:54:36		Blocked
						3354	9:55:55		Blurry Book.
593	12/31/84	1/3/85	29	N.Area to PuuOo Telephoto	77.34 s.	0	9:37:02	31/12/84	Blocked
						1	9:38:17		Blocked
						2	9:39:34		Book
						3			Non-descript. Shots from helicopter (To # 9).
						10			Non-descript (To # 651).
						652			Small scale spatter confined to w/in crater. No lava production (To # 663).
						664			Non-descript (To # 971).
						972			Spattering within crater no spillover or lava production (To # 973).
						974			Non-descript (To # 1510).
						1511			Infrequent sptr in to crater, no prod, othrewise non-descript (To # 1666).
						1667			Non-descript, poor to good visibility (To # 2618).
						2619	17:52:44	2/1/85	Small scale sptr from pipe, ftns only 2-3 m high by # 2620. Thin Phh sheet of lava splover N.side, travels 20-30 m downslope. Continuous
						...2710	19:50:02		until # 2708 when sptr violently bursts and lava column resides.
						2711			Non-descript (To #2727).
						2728			Very infrequent spattering, no lava production, non-descript (To # 2770).
						2771			Non-descript (To # 3285).
						3286	8:12:25		Blocked
						3287	8:13:43		Blocked
						3288	8:15:01	3/1/85	Book.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
594	1/3/85	1/4/85	29	1123 to PuuOo	215.3sec	0	9:33:06	1/3/85	Blocked
				Wide angle		1	9:36:37		Blocked
						2	9:40:12		Book
						3			Non-descript, light fuming (To #65)
						66	13:29:19		First sign of ftning. Lighting is too poor to note the opening of the fissure vents. By frame 68 ftn reached hgt of the top of the cone
						67			Ftns steadily rise to hgt of about 50 m above top of cone. Only one main ftn can be seen from this vantage (To # 72)
						73	13:54:02		TM
						74	13:57:57		Ftn increases rapidly. Increasing tephra cloud S.Fissure vents faintly visible (To # 80)
						81	14:22:56		Ftn fans out and increases in hgt (To # 84)
						85	14:38:14		Ftn returns to tall narrow shape, maintains its hgt and vigor. Occasionally fanout for brief periods. very large tephra cloud S. Ftns from fissure vents fizzle out by frame 86, (never very visible on film) (To # 124)
						125	17:01:06		TM
						126			Continuous vigorous ftning, (see digitized #'s for ftn hgts) decreasing
						...317	4:33:44		slightly with time
						140			Evening setting in and making it possible to see the glowing a'a front traveling NE and turning S. out of view. flow is being fed from one main splwy on the N-NE side. A'a flow stops moving towards camp 7 by frame 234-instead it travls directly to the SE from its N.splwy
						318	4:37:20		Ftn becomes very sporatic in hgt. Finally dies out by fm. 325 Lava
						...325	5:02:36		production out splwy continue at high rates until shut-off
						326	5:06:13		TM
						327			Non-descript, no signs of burning gases or stray spattering (To #372)
						373	7:56;24		Blocked
						374	8:00:02		Blocked
						375	8:03:39	1/4/85	Book
595	1/3/85	1/4/85		N. Area to PuuOo	77.5sec	0	8:24:39	1/3/85	Blocked
				Telephoto		1	8:25:55		Blocked
						2	8:27:12		Book, and sun shot
						3			Non-descript, good visibility (To # 233)
						233	13:25:37		First sign of spattering/continuous ftning.
						234			Ftn is comprised of two jets. One near vent the other to NE (To # 256)
						257	13:56:36		One single ftn rapidly growing (To # 262)
						263			Ftn out of frame;continuous vigorous ftning occastionsl splwy on N side

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									can be viewed. (To #959)
						960		1/4/85	Last ftns visible, low ftn, obstructed by clouds.
						...961	5:05:56		
						962			Non-descript, poor weather and visibility (To # 1315)
						1316	12:44:31		Blocked
						1317	12:45:48		Blocked
						1318	12:47:06		Book
596	1/3/85	1/4/85		1123 to Puu Oo Telephoto	13.63sec	0	20:27:22	1/3/85	Blocked
						1	20:27:35		Blocked
						2	20:27:49		Blocked
						3	20:28:03		Blocked
						4	20:28:17		Book
						5			High, vigorous, continuous ftning. See digitized rool for ftn hgts. Lava flow fed by main splwy to N-NE flow travels SE out of frame (To # 2257)
						2258			Decrease in ftn hgt, ftn becoming very sporatic. dies at 2273 (To # 2273)
						2274			Occasional burning of gas, little spatteing (To # 2310)
						2310			Non- descript (To # 2995)
						2996		1/4/85	Blocked and TM (To# 2998)
597	1/3/85	1/3/85		1123 to PuuOo Telephoto	5sec	0	14:26:50	1/3/85	Blocked
						1	14:26:55		Blocked
						2	14:27:01		Blocked
						3			Tripod and 35mm camera
						4			Non -descript, setting up camera (To # 33)
						33			Fair visibility; continuous high (top of ftn out of view) vigorous ftning fissure vents at bottom of frame are brely visible. Large tephra blanket
						...812	15:34:30		in all directions. fissures close up by fm # 812
						813			High continuous ftning-top of ftn out of view above frame.(To # 1770)
						1771			High continuous ftning-ftn is contained within the frame almost entirely. No ending time marks
598	1/3/85	1/4/85		N. Area to PuuOo Wide angle	191.4sec	0	8:46:47	1/3/85	Blocked
						1	8:49:57		Blocked
						2	8:53:07		Book
						3			Non-descript, poor visibility (To #87)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						88	13:27:29		First sign of ftning
						89			Ftn steadily increasing in hgt. two jwts of lava comprise the ftn. Main jet vertical, 2nd jet bends towards NE (To #97)
						98	13:59:14		One main ftn rising in hgt at a rapid pace (To # 107)
						108	14:31:18		Very high ftns with heavy tephra blanket to west. ftning is continuous.
						...381	5:05:10	1/4/85	No flows are visible from this vantage rapid shut off at frame 381
						382			Non-descript (To # 525)
						526	12:44:38		Hand
						527	12:47:49		Hand
						528	12:51:00		Book
599	1/4/85	1/10/85		1123 to PuuOo Wide angle	215 sec.	0	8:09:30	1/4/85	Blocked
						1	8:13:04		Blocked
						2	8:16:41		Book
						3			Non-descript, poor to good visibility, heavy fume(To # 2413).
						2414	9:44:18	1/10/85	Blocked
						2415	9:47:54		Blocked
						2416	9:51:29		Book.
600	1/5/85	1/10/85		N.Area to PuuOo Wide angle	192.5 s.	0	12:33:00	1/5/85	Blocked
						1	12:36:12		Blocked
						2	12:39:25		Book
						3			Non-descript, pds poor weather, poor visibility, heavy fume (To #2188).
						2189	9:22:53	1/10/85	Blocked
						2190	9:26:02		Blocked
						2191	9:29:13		Book.
601	1/10/85	1/17/85		1123 to PuuOo Wide angle	215.5 s.	0	9:53:29	1/10/85	Blocked
						1	9:57:04		Blocked
						2	10:00:38		Book
						3			Non-descript, periods of heavy fume (To # 7989).
						2790	9:32:53	1/17/84	Blocked
						2791	9:36:30		Blocked
						2792	9:40:06		Book.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
602	1/10/85	1/17/85		N.Area to PuuOo	200 sec.	0	9:33:25	1/10/85	Blocked
				Wide angle		1	9:36:44		Blocked
						2	9:40:03		Book
						3			Non-descript, generally good weather and heavy fume.
						2995	9:12:17	1/17/85	Blocked
						2996	9:15:38		Blocked
						2997	9:19:00		Book.
603	1/17/85	1/24/85		N.Area to PuuOo		0	9:22:33	1/17/85	Blocked
				Wide angle		1	9:25:55		Blocked
						2	9:29:16		Book
						3038	10:59:23	1/24/85	Blocked
						3039	11:02:43		Blocked
						3040	11:06:02		Book.
604	1/17/84	1/24/85		1123 to PuuOo		0	9:56:26	1/17/85	Blocked
				Wide angle		1	9:59:59		Blocked
						3	10:07:08		Book
						2810	10:57:44	1/24/85	Blocked
						2811	11:01:21		Blocked
						2812	11:04:26		Book
									Non-descript, moderate fume.
605	1/24/85	1/31/85		N.Area to PuuOo	200 sec.	0	11:13:44	1/24/85	Hand
				Wide angle		1	11:17:04		Hand
						2	11:20:24		Book
						3			Non-descript, periods of zero visibility (To # 3014).
						3015	12:02:59	1/31/85	Blocked
						3016	12:06:20		Blocked
						3017	12:09:42		Book.
606	1/24/85	1/31/85		1123 to PuuOo	217 sec.	0	11:11:01	1/24/85	Hfand
				Wide angle		1	11:14:40		Hand
						2	11:18:16		Book
						3			Non-descript, periods of zero visibility (To # 2795).

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2796	11:34:11	1/31/85	Blocked
						2797	11:37:47		Blocked
						2798	11:41:25		Book.
607	1/31/85	2/5/85	30	1123 to PuuOo	216.31 s.	0	11:45:22	1/31/85	Blocked
				Wide angle		1	11:49:01		Blocked
						2	11:52:33		Book
						163	21:32:08		Single spot of glow
						181	22:37:00	12/1/85	Overflow to N. does not reach base of cone.
						...188	23:02:00		Largest overflow seen
						190			Intermitent glow thru night of 1/31 (To # 286).
						319	6:53:42		Light fume in intermittent puffs (To # 510).
						416	12:47:29		TM
						609	0:18:00		Glow, small overflow
						...615	0:39:00		
						617	0:46:25		Single spot of glow visible intermittently (To # 718).
						719		2/2/85	Light fume, Puu Oo socked in at sunset (To # 907).
						1043	2:19:55		Single spot of glow visible in few frames (To # 1117).
						1118	6:49:54	2/3/85	Very light fume (To # 1300).
						1265	15:39:04		Glow
						1301	17:48:40		Continual glow, probably top of very low ftn (To # 1337).
						1497	5:46:00		Overflow, ftn barely visible episode 30 begins (To #1502)
						1503	6:04:00		Ftn flow intensify;flow beyong base of cone.
						1504	5:59:25	2/4/85	Ftn stays low;waxes and waves (To # 1511)
						1512	6:28:13		Ftn ht increases, but not as high as summit (To # 1520)
						1513	6:40:00		Flow has extended to N well past base of cone, and is turning E
						1519	6:53:25		Ftn rising gradually, about hish as summit of Puu Oo
						1514			Dawn,
						1516			View partly oscured by water on lense (To # 1531)
						1519			ftn continues to increase, but still low (To # 1530)
						1531	7:36:37		Ftn width increases, edge of phh near 1123 (To # 1532)
						1533	7:55:47		Abrupt increase in ftn output; width doubles
						1534			Tephra fall-out to N begins, ftn ht. climbing (To#1539)
						1540	8:21:02		Ftn hgt. abruptly increases to near maximum hgt. max ftn ht by digitizing was @ 08:38 (445m)
						1541			Heavy tephra fallout obscures ftn,base of cone on N-NE side.Intermittent rain on lense (To # 1591)
						1551	9:00:41		TM

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1592	11:25:00		Average ftn hgt lower
						1709	18:17:22		Low clouds obscure ftn intermittently
						1849	2:41:20	2/5/85	Episode 30 pau
						1926	7:29:19		Blocked
						1927	7:36:37		Blocked
						1928			Book
						1929	7:40:10		Book
608	2/4/85	2/5/85		1123 to PuuOo Wide angle	75.5 sec	0	9:16:15	2/4/85	Blocked
						1	9:17:31		Blocked
						2	9:18:46		Book
						3			High continuous ftning, heavy tephra cloud to north. ftns gradually decrease in hgt with time (To # 436)
						437			Continuous vigurous ftning-ftns obstructed from view by cloud most of time. Pau by frame 830
						830			Non-descript
						1055	7:34:30	2/5/85	
609				1123 to Puu Oo	Real time				End of phases 30 Poor visibility; burning gases, small ftn.
610	2/4/85	2/4/85		1123 to PuuOo Wide-med telephoto	Real time		21:20:00		Real time-starting @ 21:20. High vigorous ftning - strong flow in chanel. Some obvious occillations of the ftn hgt
611	1/31/85	2/5/85		N.Area to PuuOo Wide angle	201.06 s.	0	12:12:34	1/31/85	Blocked
						1	12:15:55		Blocked
						2	12:19:17		Book
						3			Non-descript (To # 645).
						646	0:17:00	2/2/85	Light glow from pipe, no production.
						647	0:27:00		Small overflow from pipe down N. slope (To # 649).
						650	0:28:44		Non-descript, some intermitent spattering. Shortly following the spillover noted above (To # 1601).
						1602	5:45:03	2/4/85	Beginning of phase 30; starts with a fluid spillover to N-NE. No real ftning yet (To # 1617).
						1618	6:35:00		Small dome shape ftn increase in hgt,Poor vis., no tephra cloud (To # 1633).

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1634	7:28:00		Ftn increases in intensity and hgt, tephra cloud becomes very heavy, blocks partial view of ftn (To # 1705).
						1706	11:30:00		TM
						1707			Continuous vigorous ftning, often obstructed by poor weather. Last
						...1978	2:24:34	2/5/85	glow seen @ frame#1978.
						1979			Non-descript (To # 2133).
						2134	11:23:47	2/5/85	Blocked
						2135	11:27:07		Blocked
						2136	11:30:27		Book.
612	1/31/85	2/3/85		N.Area to PuuOo Telephoto	97 sec.	0	12:34:16	1/31/85	Blocked
						1			Non-descript
						2	12:36:54		Blocked
						3	12:38:13		Book
						4			Non-descript (To # 464).
						465			Small spillover on N-NE side (To # 477).
						478			Intermittent spattering throughout the night (To # 822).
						823			Non-descript (To # 1638).
						1639			Small scale spattering, fluid Phh overflow (To # 1649).
						1650			Intermittent spattering throughout the night (To # 1931).
						1932			Non-descript (To # 2561).
						2561			Periods of intermittent spattering, no lava production evident (To # 3028).
						3029		1/3/85	Non-descript. No ending time marks.
613	2/1/85	2/4/85		1123 to PuuOo Telephoto	76sec	0	12:28:14	2/1/85	Hand
						1	12:29:28		Hand
						2	12:30:42		Book
						3			Non-descript, (To # 520)
						521	23:28:00		Spattering very lightly
						...572	0:13:00		
						573	0:34:00	2/2/85	Spattering continuous, incresing in intensity and producing a fluid phh
						...581	0:44:00		flow down N-NE slope, never reaching base of cone.
						582	0:45:26		Intermittent spatter at night. Never producing an overflow (To # 878)
						879	7:02:00		Infrequent sptr mod-poor visibility, not producing overflow(To # 1420)
						1421	18:28:00		Frequent spattering events ocurring every few frames or so. Producing
									many small spllovers @ frames 1683,1806-1808,1820-1822,1887-
						...1922	5:02:46	2/3/85	1888,and 1919-1922,All are relatively small, flowing few m from pipe

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1923	5:04:03		Non-descript, light fume (To # 3432)
						2433	15:50:00		Growth of top of small spatter cone within the pipe. A continuous glow from top of spatter cone increases in intensity and size with time producing a small spillover only meters long at frame 2606, then
						...2643	20:16:00		glow tapers off and finally fizzles out by # 2643
						2644			Non-descript (To # 3064)
						3065	5:10:35	2/4/85	First sign of sptr at phase 30-interupted by 27 frames of bad vis(To#3192)
						3092	5:44:47		Glow N-NE flank from large splovr small dome ftn grows ftn hgt of summit by # 3155. Flow travels NE, top of ftn out of fm # 3192 (To # 3192)
						3193	7:52:00		Ftns intensity increases, changes from a narrow, low energy ftn to a wide bases, high energy ftn, producing more lava and tephra (To # 3214)
						3215	8:21:00		Ftn's intensity reached high level producing heavy tephra falls (To # 3244)
						3245	8:58:35		TM upon our arrival, Out
614									Data sheet not found
615	2/8/85	2/15/85		1123 to PuuOo		0	11:11:10	2/8/85	Blocked
				Wide angle		1	11:14:43		Blocked
						2	11:18:18		Book: moderate-heavy fume
						2750	9:06:10		Blocked
						2751	9:09:48		Blocked
						2752	9:13:25	2/15/85	Book
616	2/8/85	2/15/85		N.Area to PuuOo		0	8:29:54	2/8/85	Blocked
				Wide angle		1	8:33:15		Blocked
						2	8:36:35		Book. Poor visibility due to water on camera box window
						3038	9:03:01	2/15/85	Blocked
						3039	9:06:22		Blocked
						3040	9:09:42		Blocked.
617	2/15/85	2/21/85		1123 to Puu Oo	208 sec.	0	9:28:03	2/15/85	Blocked
				Wide angle		1	9:31:43		Blocked
						2	9:35:21		Book
						3			Non-descript, moderate fume
						2362	8:17:02		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2363	8:20:40		Blocked
						2364	8:24:17	2/21/85	Book.
618	2/15/85	2/21/85		N.Area to PuuOo	200 sec.	0	9:17:33	2/15/85	Blocked
				Wide angle		1	9:20:54		Blocked
						2	9:24:14		Book.
						3			Non-descript, moderate fume.
						2570	8:06:23		Blocked
						2571	8:09:43		Blocked
						2572	8:13:03	2/21/85	Book.
619	2/21/85	3/4/85		1123 to Puu Oo		0	8:28:49	2/21/85	Blocked
				Wide angle		1	8:32:27		Blocked
						2	8:36:04	3/4/85	Book.
									Heavy fume,some days no vis due to weather. Film ran out,no ending TMs.
620	3/4/85	3/12/85		1123 to PuuOo		0	10:18:40	3/4/85	Blocked
				Wide angle		1	10:22:12		Blocked
						2	10:25:45		Book.
						3167	11:16:45		Blocked
						3168	11:20:23	3/12/85	Book.
									Light fume, poor weather.
621	3/4/85	3/12/85		N.Area to PuuOo		0	10:22:45	3/4/85	Blocked
				Wide angle		1	10:26:05		Blocked
						2	10:29:26	3/12/85	Book.
									Film ran out, no ending TMs. Light fume poor weather obscures view partly.
622	3/12/85	3/14/85	31	1123 to PuuOo	78.4 sec.	0	11:48:31	3/12/85	Blocked
				Telephoto		1	11:49:51		Blocked
						2	11:51:11		Book
						855	6:26:00	3/13/85	Dawn, all fog.
						864	6:24:00		Faint glow thru fog.
						...869			

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						870			Faint glow thru fog, very diffuse.
						870			Glow prob continuous, low ftns, but few totally obscured by clouds and condensation on lense (To # 897).
						898	7:22:00		First view w/ outline of PuuOo. Broad, low ftn not as high as cone.
						929	8:03:00		Clear view, ftns just above PuuOo summit.
1980	1980	1980	1980	1980	1980	929	8:16:00	1980	View intermittent (To # 939).
						940			PuuOo completely obscured (To # 996).
						997	9:32:00		Clear view, ftn above frame.
						1005	9:42:04		TM, View of ftn intermittent thru rest of film.
						1955		3/14/85	Dawn.
						1979	6:55:06		Blocked
						1980	6:56:25		Blocked
						1981	6:57:43		Book.
623	3/12/85	3/14/85		1123 to Puu Oo	219 sec	0	11:30:13	3/12/85	Blocked
				Wide angle		1	11:33:54		Blocked
						2	11:37:33		Book
						366	9:49:34	3/13/85	Blocked, nothing visibile earlier on 313 because of fog and condensation
						366			on the lens port hole. Weather bad, ftn visible intermittently,
						...455	15:09:55		TM, blocked weather better until dark
						506			Mostly obscured by clouds (To # 525)
						526			Clear view of ftn, end of eruption completely obscured (To # 535)
						717	7:07:15		Blocked
						718	7:10:54		Blocked
						719			Book
						721	7:21:52	3/14/85	Book
624	3/12/85	3/14/85		N. Area to PuuOo	200.9sec	0	11:36:45	3/12/85	Blocked
				Wide angle		1	11:40:07		Blocked
						2	11:43:28		Book. Cone obscured by clouds thru 3/13/85
						335	6:21:15		Dawn of 3/14/85, glow visible thru dense clouds
						335			Glow, partial views of low ftns vis intermittently thru clouds (To # 365)
						366	8:05:33		First clear view of ftn top, hgt of PuuOo summit
						369			View obscured by clouds. (To # 390)
						391	9:28:03		TM-blocked
						394			Ftns visible intermittently (To # 483)
						484			Clear stretches in late afternoon, and occasionally during night. End of

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									phase obscured by clouds (To # 738)
						929	15:37:32		Blocked
						930	15:40:52		Blocked
						931	15:44:13	3/14/85	Book
625	3/12/85	3/14/85		N. Area to PuuOo		0	12:04:06	3/12/85	Blocked
				Telephoto		1	12:05:04		Blocked
						2	12:06:42		Book
						911			Camera not aimed at cone, and por visibility due to fog. Faint glow on edge of frame probable due to low ftns.
						916			Glow intermittent probably due to weather (To # 921)
						922			Edge of high ftn visible
						1023	9:26:44		TM; camera reaimed,visibility continues to be poor
						2465			First clear view of ftn, above frame, visiblity is poor for rest of eruption
						2464	15:35:29		Blocked
						2465	15:36:44		Blocked
						2466	15:37:59	3/14/85	Book
626	3/14/85	3/21/85		1123 to PuuOo	219.6sec	0	7:25:09	3/14/85	Boot
				Wide angle		1	7:28:50		Blocked with hand
						2	7:32:27		Book
						3			Poor visibiligy, non-descript(To # 446)
						447			Good to medium visibility, non-descript some periods of poor visibility. Some periods of heavy white fuming (To #2780)
						2781	9:05:16		Blocked
						2782	9:08:56		Blocked
						2783	9:11:48	3/21/85	Book
627	3/21/85	3/28/85		1123 to Puu Oo		0	9:46:16	3/21/85	Blocked
				Wide angle		1	9:49:54		Blocked
						2	9:53:31		Book. Moderate-heavy fme
						2782	11:55:30		Blocked
						2783	10:59:09		Book
						2784	11:02:46	3/28/85	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
628	3/29/85	4/3/85		1123 to PuuOo	182.4sec	0	11:12:00	3/29/85	Blocked
				Wide angle		1	11:15:38		Blocked
						2	11:19:15		Book
						3			Poor to meium visibility, non-descript (To # 2354)
						2355	10:30:53		Blocked
						2356	10:34:32		Blocked
						2358	10:41:48	4/3/85	Book
629	4/3/85	4/10/85		1123 to PuuOo	219.1sec	0	10:45:49	4/3/85	Blocked
				Wide angle		1	10:49:28		Blocked
						2	10:53:07		Book
						3			Generally poor visibility non-descript (To # 2721)
						2722	8:24:52		Blocked
						2723	8:30:31		Blocked
						2724	8:34:10	4/10/85	Book
630	4/10/85	4/17/85		1123 to PuuOo		0	8:41:43	4/10/85	Blocked
				Wide angle		1	8:44:38		Blocked
						2	8:48:18		Book
						3			Generally poor visibility, Non-descript (To #2779)
						2780	9:53:06		Hand
						2781	9:56:42	4/17/85	Book
631	4/10/85	4/17/85		1123 to PuuOo	78sec	0	8:54:14	4/10/85	Blocked
				Telephoto		1	8:55:32		Blocked
						2			Book
						3		4/17/85	Non-descript, ran out before removal @ 4/17/85
632	4/10/85	4/17/85		N. Area to PuuOo		0	11:02:48	4/10/85	Blocked
				Wide angle		1	11:06:10		Blocked
						3	11:13:05		Book
						4			Non-descript, generally poor weather-visibility (To # 2966)
						2967			Hand
						2968	10:15:58		Hand
						2969	10:19:21	4/17/85	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
633	4/17/85	4/21/85		1123 to PuuOo	222.5sec	0	10:07:48	4/17/85	Hand
				Wide angle		1	10:11:33		Hand
						2	10:15:13		Book
						3			Non-descript, poor-medium visibility (To # 1659)
						1660	16:44:00	4/21/85	First sign of spatter-confined to within crater
						1660			Generally continuous spattering seen only within crater, no lava production resolvable (To # 1677)
						1678	16:12:00		Dead battery
634	4/17/08	4/22/85		N. Area to PuuOo		0	10:23:39	4/17/85	Blocked
				Wide angle		1	10:27:01		Blocked
						2	10:30:24		Book
						3			Non-descript, poor visibility (T # 1804)
						1805	16:11:00	4/21/85	Glimpse of spatter, dome shaped ftn. lava flow not visible
						1806	16:14:00		Generally continuous dome shaped ftn about 5-10m high, gradually growth with time (To # 1858)
						1859	19:14:00		Ftn hgt begins to increase at a fater rate. changes from doem shaped to vertically shaped (To # 1878)
						1879	20:21:00		Ftn begins to spray northward and growth {rate} of ftn increases again (To # 1888)
						1889	20:55:00		Poor-medium visibility, occassional view of ftn.(To # 1907)
						1908	21:59:00		Medium to good visibility; continuous vigorous ftning with a general decrease in ftn hgt with time (To # 2098)
						2099	8:45:00	4/22/85	Rapid decrease in ftn hgt, with large fluctuations in ftn style/hgt. Last ftn seen in from 2103
						...2103	...8:59:00		
						2104			Non-descript (To # 2207)
						2208	14:54:25		Blocked
						2209	14:57:48		Book
635	4/17/85	4/21/85		N. Area to PuuOo	46sec	0	10:36:51	4/17/85	Blocked
				Telephoto		1	10:38:07		Blocked
						2	10:39:23		Book
						3		4/21/85	Poor weather, poor visibility, camera aimed wrong can only see summit of PuuOo. Ran out-Non descript (To # 3396)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
636	4/17/85	4/20/85		1123 to PuuOo Telephoto	78.5sec	0	10:50:17	4/17/85	Blocked
						1	10:51:35		Blocked
						2	10:52:54		Book
						3			Poor to medium visibility (To # 1362)
						1363	16:34:00	4/18/85	Poor visibility, ftns are obscurred by steam, lava channel is not, it flows NE about 100 m and turns S out of frame. Channel is phh and about
						...1371	..16:44:00		20 m wide. stops flowing by frame 1371
						1372			Non-descript, poor visibility (To # 1547)
						1548	20:36:00		Orange glow from the vent area. Poor visibility
						1549		4/20/85	Non-descript, poor visibility. Ran out of film (To # 3488)
637	4/21/85	4/22/85	32	1123 to PuuOo Wide angle		0	17:06:50	4/21/85	Blocked
						1	17:10:00		Blocked
						2	17:14:00		Small (about 10m) dome ftn producing thin phh flow, travelling down NE
						...13	...17:54:00		flank of vent
						14	17:58:00		Temp.shut off of vent(To #15)
						16	18:05:00		Small dome ftn producing thin phh flows travelling down NE flank and turning S as it reaches the base of cone. Dome ftn gradually increase in hgt with time (see digitized ftn) (To # 43).
						44	19:47:00		Ftn turns into more-less a vertical one increasing in hgt rapidly, reaching a peak near frame 63 (see digitized) (To # 62).
						63	20:57:00		Moderate to poor visibility. Ftn appears to maintain its vigor (To # 82).
						83	22:10:00		Hight vigorous ftning continues, occasionally obstructed views, gradually decreasing in hgt (To # 212).
						213			Moderate to poor vibility, occasional full view of ftn (To # 241).
						242	7:49:30		Moderate visibility, large fluxs in ftn hgt and diameter (To # 260).
						261	8:59:00		Dramatic decrease in ftn hgt.
						262	9:02:27		Last visible ftn is very narrow and tall (300 ft).
						263	9:06:06		Eruption pau.
						266			Blocked
						267	9:20:42	4/22/85	Book.
638	4/21/85	4/22/85		1123 to Puu Oo Telephoto	68.8 sec.	0	17:42:52	4/12/85	Blocked
						1	17:44:00		Blocked
						2	17:45:09		Book
						3	17:46:00		Small dome ftns producing a small phh flow traveling N. down flank of

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						...11	17:55:00		vent and turing S at base.
						12	17:57:00		Shut down of ftns.
						...17	18:02:00		
						18	18:04:00		Dome ftning resumes, slowly increasing in hgt with time. Start phase 32.
						...75	19:09:00		
						76	19:10:00		Ftn reaches top of cone and rate of ftn growth increases until top is out of
						...129	20:11:00		frame @ frame 112.
						130	20:12:00	4/22/85	Width of ftn increases dramatically. Continuous increase ftning, often
						...779	8:59:30		obstructed by clouds, feeding lava river flowing S.
						800	9:01:00		Pulsating of ftn - ranging from 0 to 30m above spillway. A complete shut
						...805	9:06:00		off by frame # 805.
						806	9:07:00		Light to moderate fuming.
						...813	9:16:00		
						814	9:15:40		Blocked
						815	9:16:48		Blocked
						816			Missed
						817	9:20:10	4/22/85	Book.
639	4/21/85	4/22/85		N. Area to PuuOo	74.3sec	0	17:50:17	4/21/85	Blocked
				Telephoto		1	17:51:31		Blocked
						2	17:52:46		Book
						3			Non-descript, setting up, camp activities, some views of eruption(To # 51)
						52	18:55:00		(at N. area) Small dome ftns-flows not visible (To # 66)
						66	19:12:00		Ftn becomes more vertical-increases in hgt more rapidly (To # 109)
						109	20:05:00		Ftn continues to grow ftn top is out of frame some spraying to N(To # 181)
						132	20:34:00		Ftn changes from a narrow, spraying character to a broad-based; vertical
						...145			ftn-lava tukes up the entire frame. ftn vigor has peaked
						146			Poor visibility (To # 200)
						201	21:59:00		Similar to 132-145. Moderate visibility (To # 585)
						586			Poor visibility, occassional views (To # 717)
732	732	732	732	732	732	718	8:39:00	732	Good visibility, high vigorous ftning, ftn top is out of frame
						...731	..8:55:00		
						732	8:56:00		Pulsating ftn-varies in hgt and width, shot off by fm. 735, PAU !
						...735	..9:00:00		
						736	13:51:00		Moderate to heavy fuming (To # 970)
						971			Non-descript (To # 1022)
						1023	14:56:42		Blocked
						1024	14:57:56	4/22/85	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
641	4/22/85	4/29/85		1123 to PuuOo		0	11:07:17	4/22/85	Blocked
				Wide angle		1			
						2	11:13:42		Blocked
						3	11:16:53		Book
						4			Variable visibility(poor to good), moderate to heavy fuming otherwise non-descript. wet lens (To # 3109)
						3110	10:20:16		Blocked
						3111	10:23:28		Blocked
						3112	10:26:40	4/29/85	Book
642	4/29/85	5/3/85		Halulu to PuuOo		0	10:29:15	4/29/85	Blocked
				Wide angle		1	10:32:26		Blocked
						2	10:35:38		Book
						3			Variable visibility(poor to good), moderate fuming, wet lens in morning otherwise non-descript.
						1802	11:56:23		Blocked
						1803	11:59:37		Blocked
						1804	12:02:49	5/3/85	Book
643	5/9/85	5/20/85		1123 to PuuOo		0	11:20:33	5/9/85	Blocked
				Wide angle		1	11:23:49		Blocked
						2	11:27:05		Book
						3			Poor-good vis, mod fuming, wet lens in morning, non-descript(To # 3509)
						3510		5/20/85	Film ran out
644	5/3/85	5/9/85		1123 to PuuOo		0	12:20:14	5/3/85	Blocked
				Wide angle		1	12:23:25		Blocked
						2	12:26:37		Book
						3			Moderate fuming; poor to good visibility; wet lens in morning. Non-descript (To # 2630)
						2631	11:07:26		Blocked
						2632	11:10:42		Blocked
						2633	11:13:57	5/9/85	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
645	5/20/85	5/24/85		1123 to PuuOo		0	13:01:38	5/20/85	Blocked
				Wide angle		1			Miss
						2	13:08:06		Blocked
						3	13:11:19		Book
						4			Poor to good visibility; light to moderate fuming; wet lens in morning non-descript (To # 1679)
						1680	8:08:02		Blocked
						1681	8:11:18		Blocked
						1682	8:14:32	5/24/85	Book
646	5/24/85	5/30/85		1123 to PuuOo		0	8:23:57	5/24/85	Blocked
						1	8:27:12		Blocked
						2	8:30:27		Book
						3			Poor to good visibility; light to moderate furning; wet lens in morning otherwise non-descript (To # 2672)
						2673	8:58:50		Blocked
						2674	9:02:05		Blocked
						2675			Missed
						2676	9:08:33	5/30/85	Book
647	5/30/85	6/6/85		1123 to PuuOo	3.13sec	0	9:12:03	5/30/85	Blocked
				Wide angle		1	9:15:17		Blocked
						2	9:18:31		Book
						3			Non-descript. Good visibility, light to moderate fume
						3178	13:18:38		Blocked
						3179	13:21:50		Blocked
						3180	13:05:02	6/6/94	Book
648	6/6/85	6/9/85		1123 to PuuOo	71.5sec	0	13:24:18	6/6/85	Book
				Intermediate		1	13:25:30		Blocked
						2	13:26:41		Blocked
						3		6/7/85	Non-descript, fair visibility, light fume. Ran out of film at end (To # 3310)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
649	6/6/85	6/12/85		1123 to PuuOo	194.9sec	0	13:31:00	6/6/85	Blocked
				Wide angle		1	13:34:10		Blocked
						2	13:37:23		Book
						3			Non-descript, light to moderate fume (T o # 2578)
						2579	9:11:56		First sign of spatter
						2580			Semi-continuous low level dome ftns (To # 2595)
						2596	10:07:11	6/12/85	TM
						2597			Semi-continuous low-level spattering
						2673	15:50:01		Blocked , blocked shot and book shot missing-frame rate is suspect.
650	6/9/85	6/12/85		1123 to PuuOo		0		6/9/85	First frame PuuOo summit in it
				Telephoto		1			Non-descript, light fume (To # 1617)
						1618			Intermittent burning gases, glowing pipe, spatter. (To # 2149)
						2150			Non-descript (To # 3046)
						3047			Fain orange glow (intermittent) glow intensifies @ frank 3213, spillover by 3215. (To # 330)
						3324			Small-scale ftning with spillover on NE flank of vent (To # 3334)
						3335			Non-descript (to # 3337)
						3338			Similar to 3324-3334(To # 3345)
						3346			Glowing lava on NE flank of cone (To # 3360)
						3361			Non-descript (To # 3471)
						3472			Small scale dome ftns, producing thin phh spillover (T o # 3490)
						3491			Non-descript (To # 3517)
						3518	8:15:50		Blocked
						3519	8:17:03		Blocked
						3520	8:18:28	6/12/85	Book
651	6/12/85	6/13/85		1123 to PuuOo		0		6/12/85	First frame with PuuOo in it.
				Inter wide angle		1			Non-descript, light fume (To # 11)
						12			Dome ftning small scale producing small flow (To # 35)
						36			Non-descript (To # 54)
						55			Small scale dome ftning episode producing small flow (To # 82)
						83			Non-descript, light fume (To # 142)
						143			Small scale dome ftning episode producing small flow (To # 172)
						173			Non-descript, light fume (To # 190)
						191			Small scale dome ftning episode producing small flow (To # 225)
						226			Non-descript, light fume (To # 245)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						246	12:40:48	6/13/85	Blocked
						247			Non-descript, light fume (To # 252)
						253			Small scale, dome ftning episode producing small flow (To # 278)
						279			Non-descript (To # 327)
						328			Small scale dome ftning episode producing small flow (To # 349)
						350			Non-descript, some occasional spatter (To # 417)
						418			Small scale dome ftning episode producing small overflow(To # 429)
						430			Non-descript (To # 475)
						476			Small scale dome ftning episode (To # 489)
						490			Non-descript, some spattering episode, poor visibility (To # 572)
						573			Dome ftning episode obsurred mostly by clouds. Appears to be somewhat continuous (To # 629)
						630			Non-descript, poor visibility (To # 633)
						640			Dome ftning episode mostly obscurred by clouds. (To # 650)
						651			Non-descript, glow from vent area (To # 677)
						678			Dome ftning episode (To # 702)
						703			Non-descript (To # 710)
						711			Rapidly growing ftn, out of frame by frame 759. Eruption mostly obscurred by clouds (To # 1060)
						1007			Decrease in ftn height
						1008			High pulse of ftn
						1009			Low ftn
						1010			Gas and spatter burst
						1011			Burning gas (To # 1018)
						1019			Non-descript (To # 1097)
						1098			Camera off of tripod, no time marks.
652	6/12/85	6/13/85		1123 to PuuOo		0		6/12/85	Blocked
				Wide angle		3			Blocked, no book shot
						4			Non-descript (To # 23)
						24			doem ftning, small scale (To # 26)
						27			Non-descript (To # 47)
						48			Vigorous dome ftn producing a thin phh flow to E (To # 62)
						63			Non-descript (To # 64)
						65			Hi vigorous ftning, but frames are eratic, goes from middle of night to middle of morning (To # 91)
						92		6/13/85	Non-descript No time marks (To end)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
653	6/6/85	6/12/85	33	N. Area to PuuOo	187.1sec	0	13:39:41	6/6/85	Blocked
				Wide angle		1	13:42:49		Blocked
						2	13:45:58		Book
						3			Variable visibility, light to mod fume otherwise non-descript(To#2680)
						2681	9:00:50		First sign of small ftn (~5m) (To# 2687)
						2688			Non-descript (To # 2701)
						2702	10:06:20		Intermittent small scale ftning (To # 2839)
						2840	17:22:50	6/12/85	Blocked
						2841	17:25:57		Blocked
						2842	17:29:04		Book
654									
655									
656									
657	6/12/85	6/20/85		N. Area to PuuOo	187.5sec	0	17:32:13	6/12/85	Blocked preceeded by 18 blocked shots during "real time"
				Wide angle		1	17:35:20		Blocked
						2	17:38:28		Book
						3			Non-descript (To # 14)
						15	18:19:05		Small (~5-10m) dome ftns. no flow can be seen from this vantange point (To # 19)
						20			Non-descript (To # 50)
						51			Small speck of spatter
						52			Non-descript, medium to poor visibility (To # 70)
						71			Small dome ftn can be seen through the clouds.
						72			Glow from vent area
						73			Nothing, non-descript (To # 76)
						77			Glow from vent area (To # 78)
						79			Non-descript (To # 91)
						92	22:19:43		Small dome ftn gradually growing peaking in size by frame 96, then followed by the decay in size and dying by frame 101(To # 101)
						102			No ftning (To # 104)
						105	23:00:21		A rapid increase in ftn height, starting with a small dome ftn (To # 115)
						115			Ftn is less dome shaped and higher, increasin in hgt rapidly. view is often obstructed by clouds when ftn fimally reappears at frame 162 it is ~ 1000 ft high. (To #161)
						162			High continuous ftns (To #214)
						215			Rapid shut off of ftn

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						216			Last gasp
						217			Burning gases (To # 220)
						221		6/20/85	Non-descript , end of reel
658	6/13/85	6/20/85		1123 to PuuOo Wide angle					Camera did not advance properly; non-descript.
659	6/20/85	6/26/85		Camp 7 to PuuOo Wide angle	191sec	0	9:05:46	6/20/85	Blocked
						1	9:08:57		Blocked
						2	9:12:09		Book
						3			Fair visibility, non-descript, light to moderate fum (To # 2733)
						2735	11:43:09		Blocked
						2736	11:46:22		Blocked
						2737	11:49:32		Book
660	6/26/85	7/3/85		Camp 7 to PuuOo Wide angle	210sec	0	11:31:13	6/26/85	Blocked
						1	11:34:44		Blocked
						2	11:37:23		Book
						3	11:40:53		Book
						4			Non-descript (To # 382)
						383	10:16:40	6/27/85	TM
						384	10:20:10		TM
						385			Non-descript, good to fair visibility (To # 2697)
						2698	7:05:46		Blocked
						2699	7:09:21		Blocked
						2700	7:12:57		Book
						2701	7:16:33	7/3/85	Book
661	6/26/85	6/28/85		Camp 7 to PuuOo Telephoto	72sec	0	14:24:43	6/26/85	Blocked
						1	14:25:55		Blocked
						2	14:27:07		Book
						3	14:28:18		Book
						4			Camera is aimed too high, non-descript (To # 2552)
						2553	17:19:18		Blocked
						2554	17:20:26		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2545			Non-descript(To # 2778)
						2779	19:48:46		Book
						2780	19:49:57	6/28/85	Book
662	6/28/85	7/1/85		Camp 7 to PuuOo		0		6/28/85	
				Telephoto		All		7/1/85	Non-descript, poor visibility at times. no time marks at beginning
663	7/3/85	7/7/85	34	Camp 7 to PuuOo	216.4 sec	0	7:27:15	7/3/85	Blocked
				Wide angle		1	7:30:53		Blocked
						2	7:34:28		Book
						3	7:38:04		Book
						4			Non-descript, poor to fair visibility (To # 1101).
						1102	1:31:24		Intermittent, small scale spattering throughout the night, and into the
						...1166	5:32:14	7/6/85	morning.
						1167			Non-descript, fair to good visibility (To # 1281).
						1282	12:30:34	7/6/85	Small scale dome ftns, light blue fume
						...1288	12:52:12		
						1289			Non-descript, fair to poor visibility (To # 1427).
						1428	21:17:06		Intermittent glow from vent area (To # 1437).
						1438	21:53:10		Dome shaped ftn rapidly growing, but not always in clear view (To # 1462)
						1463	23:23:19		First clear sign of high vigorous ftning ~1000 ft high (see digitized mat'l)
						1464			Continuous high (~1000 ft) ftning, vis poor, ftn not in view (To # 1599)
						1600			Gradual decrease in ftn hight w/time (To # 1617).
						1618	8:42:16	7/7/85	TM
						1619			Last gasps of ftns, rapid shut off
						...1620	8:49:29		
						1667	11:37:05		Blocked
						1668	11:40:39		Blocked
						1669	11:44:12		Book
664	7/7/85	7/7/85		1123 to PuuOo		0	8:46:00	7/7/85	First frame w/PuuOo in it. Low,wide ftns reaching 300 ft (To # 25).
				Intermed. Telephoto		26			Vigor ftns cont, hgt ~ 500 ft. Bursts ~ 800 ft ftns thin (To # 169).
						170			Another distinct burst has reached the top of cone. ~600 ft (To # 225).
226						226			Bursts above peak (To # 316).
						317			Current burst is just at top of frame ~800 ft.
						318			Ftns diminish to about 400-500 ft tall (To # 380).

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						381			Small burst; reaches ~600 ft before cooling (To # 407).
						408			Start of new bursts just reaching top of cone. Rapid growth (To # 457).
						458			Top of ftn out of frame (To # 477).
						478			Ftn ghts diminished to about 500 ft (To # 523).
						524			New burst, reaches top of frame by # 588 (To # 617)
						618			Ftns diminish to ~300 ft (To # 632).
						633			Burst, peak hgt at about frame # 696 (just below top of frame) (To # 727).
						627			Ftns ~400-500 ft (To # 741).
						742			Burst, out of top of frame by frame # 798 (To # 815).
						816			Ftns ~ 400 ft increas to 700 ft by # 872 (To # 907).
						908			Ftns about 400 ft cools suddenly (To # 918).
						919			Ftns less than 100 ft tall.
						920			Ftn grew to about 700 ft (To # 1022).
						1022			Ftn sustained at 700 ft, cools to end (To # 1038).
						1039			Next burst seen about 500 ft above conduit.
						1040			Burst reaches ~ 700 ft before cooling (To # 1087).
						1087			Ftns between 100 and 300 ft tall (To # 1160).
						1161			Two large bursts: 700 ft at #1286 and 500 ft at#1310 (To # 1325)
						1326			Ftn less than 100 ft, bursts about 400, ftns sustained at 400 until 1489.
						1490			Ftns grow to ~600 ft (To # 1545).
						1546			Ftn bursting w/in 100 ft of top of cone (To # 1757).
						1758			No ftns, burning gas and incandescent around conduit (To # 1791).
						1792			Bursts ~300 ft (To # 1926).
						1927			No ftns, burning gas incandescent around conduit (To # 1969).
						1970			Occasional bursts < 500 ft burning gas, incandescent around conduit (To # 3595)
						3595	8:50:00	7/7/85	Last frame.
665	7/7/85	7/10/85		1123 to PuuOo Wide angle		0	11:47:59	7/7/85	Blocked
						1	11:51:35		Blocked
						2	11:55:09		Book
						3			Moderate to heavy fume, good visibility, non-descript (To # 1211).
						1212	12:14:53		Blocked
						1213			Missed
						1214	12:22:01		Blocked
						1215	12:24:16		Book
						1216	12:27:52	7/10/85	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
666	7/10/85	7/17/85		1123 to PuuOo		0	12:32:39	7/10/85	Blocked
				Wide angle		1	12:36:09		Blocked
						2	12:39:36		Book
						3			Light to moderate fume, generally good visibility, some due on lense in morning, otherwise non-descript except for a beautiful sunset in frame # 2516 (To # 2738).
						2739	8:35:52	7/17/85	Blocked
						2740	8:39:27		Blocked
						2741	8:43:04		Book
667	7/12/85	7/24/85		1123 to PuuOo		0	8:47:37	7/12/85	Blocked
				Wide angle		1	8:51:09		Blocked
						2	8:54:41		No Book
						2818	9:47:13		Blocked
						2819	9:50:48		Blocked
						2820	9:54:07		Blank
						2821	9:57:42	7/24/85	Blocked. Frequent fume puffs, otherwise non-descript.
668	7/24/85	7/26/85	35	1123 to PuuOo		0	10:01:39	7/24/85	Blocked
				Wide angle		1	10:05:14		Blocked
						2	10:08:50		Book
						3			Non-descript (To # 688)
						689	2:52:00		Bright broad gas bursts? On left side of frame (close to #1123?) And a small glow at conduit (camera probably malfunctioning).
						690	2:56:00		Ftn at conduit climbs rapidly. Start of phase 35.
						...703	3:42:00		
						720	4:42:00		Two phh flows heading SE.
						745	6:11:00		Intermittent fog and ftns, hgt decreasing.
						...801	9:30:00		
						805	9:44:39		TM
						808	9:55:00		Last burst. Pow!!
						836	11:34:57		Blocked
						837	11:38:30		Blocked
						838	11:42:03	7/26/85	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
669	7/24/85	7/26/85		1123 to PuuOo		0	10:29:29	7/25/85	Blocked
				Telephoto		1	10:30:49		Blocked
						2	10:32:08		Book
						1896	2:52:00		Glow . First ftn (small) start of phase 35 (@ 2:59:00).
						...1900	2:58:00		
						1901	2:59:00		Broad, strombolian ftn, growing rapidly.
						1912	3:13:00		Broad ftn @ top of frame, increasing.
						2127	7:47:44		TM? Fuzzy finger.
						2133	7:55:00		Weather socks in; occasional view (To # 2203).
						2204	9:25:00		Vigorous broad ftn (To # 2223).
						2224	9:50:00		Ftn decreasing.
						2238	10:08:00		Last spatter (in clouds) Pau before 22:44:00.
						2289			Fog - no visibility.
						2317	11:49:28		Blocked?
						2319		7/26/85	Out of focus camp 7 (no book!). Fog to end. No times at end of roll.
670	7/27/85	7/27/85		KMM fissure erupt.	Real time				Half of roll exposed.
									Pan (from base of KMM) of Atoc - vents. Poorly focused close-ups of phh toes. Short and not-too-clear sequence of phh toe picking up tephra.
671	7/26/85	7/29/85		KMM fissure uprift		0	17:54:37	7/26/85	Blurry book
				Wide angle		473	4:02:00		First glow on fussures @ D-vents , activity continuous at these vents
						478	4:09:00		First glow @ G-vent, discontinuous activity until daylight
						484	4:16:00		First glow @ C-vents, activity at 2-3 vents
						503	4:41:00		Separate glow definite at E-vents, may have started earlier. Eruption probably began at vents downrift and out of cameraview. Definitely confined to discrete vents in this camera view-not a curtain of fire
						679	8:27:00		All vents in camera view appear inactive, low effusions(To # 688)
						688	8:39:00		Some activity at C-vents
						834	11:46:18	7/27/85	TM
						1703	6:22:57	7/28/85	TM
						1720	6:45:00		Vents in camera view all inactive
						2275	18:38:00		C-vents possibly active
						2935	8:46:07		TM
						3329	17:12:17		Blocked
						3330	17:13:53		Blocked
						3331	17:14:57	7/29/85	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
672	7/27/85	7/31/85		KMM A&Bvents		0	11:33:01	7/27/85	Blocked
				Wide angle		1	11:35:00		Blocked
						2	11:37:00		Book
						3	11:39:01		Book
						1380	9:18:00	7/29/85	Moved camera
						1628	17:31:31		TM
						2308	16:04:11		TM
						2873	10:50:35		Moved camera
						2940	13:02:00	7/31/85	Blocked
						2941	13:03:29		TM
						2942	13:05:27		Book
									good sequence of pahoehoe flows piling up from A-vents and B-vents
673	8/1/85	8/1/85		Real time of phh flow				8/1/85	Exposure not quite light enoud
									Flows shot from KMM and other points
674	7/27/85	7/27/85		Real time, and short interval time-lapse				7/27/85	Time lapse sequence of phh rising and draining back at the F-vents. Good exposure
									Sonie real time of spattering at F-vents
									Real time fronı helicopter of flows-not clear exposure
675 and 676	7/26/85	7/26/85		1123 to PuuOo	Real time	0	9:01:37	7/26/85	For Accoustic Experiment
				Telephoto		3379	9:04:43		
						3398	9:04:44		
						3414	9:04:45		
						3451	9:04:47		
						3469	9:04:48		
						3487	9:04:49		
						3505	9:04:50		
677	7/26/85	8/2/85		1123 to PuuOo		0	11:50:50	7/26/85	Blocked
				Wide angle		1	11:54:21		Blocked
						2	11:57:52		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2867	14:06:28		Blocked
						2868	14:10:00		Blocked
						2869	14:13:33	8/2/85	Book
678	7/29/85	8/2/85		KMM C&E-vents	1st half	0	17:19:26	7/29/85	Blocked
				Wide angle	...of film	1	17:20:43		Blocked
				KMM B-vents	2nd half	3	17:23:16		Book
				Telephoto	...of film	75			Glow
						79			Glow
						81	19:41:43		Phh flow
						1046	16:04:04		TM
						1918			Moved camera, KMM upper B-vents
						1919	11:01:06	7/31/85	TM
						2063	5:43:06		Ftn starts
						2123	7:28:30		Ftn climbs rapidly, Phh flow starts
						2812	3:38:44		Ftn slows down
						2863	5:08:19		Ftn stops
						3094	11:54:04		TM
									Good footage of upper B-vents from 7/31 to 8/2/85
679	7/31/85	8/2/85		KMM A&B-vents\	117.8sec	0	13:51:40		Blocked
				Wide angle		1	13:53:37		Blocked
						3	13:57:34		Book
						16	14:23:00	7/31/85	Ftn starts
						37	15:04:00		Phh flow
						520	6:53:00		Ftn stops
						667	11:41:07	8/1/85	Blocked
						668	11:43:00		Blocked
						669	11:45:00		Book
						670	11:50:27		Book
						832	17:05:03		Phh flow
						878	18:35:21		Eruption increases rapidly
						1437	12:52:48		Blocked
						1438	12:54:45		Blocked
						1439	12:56:42		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
680	8/2/85	8/4/85		KMM B-vents	real time	0	12:47:07	8/2/85	Blocked
				PuuOo west,A-vents		1	12:48:19		Blocked
				Telephoto		2	12:49:32		Book, two of upper B-vents, almost continuously active, build large spatter
						1445	13:57:39		Cones by 8/3/85 nightfall
						1995	1:17:15	8/4/85	Two cones form nearly continuous rampart
						1996			Sequence of cone collapse, gowth, and more collapse (To # 2359)
						2390	14:33:26		Blocked
						2391	14:34:41		Blocked
						2392	13:35:56		Book
									Camera moved to PuuOo west. Real time of A-vent to end of film
681	8/4/85	8/4/85		A-vent and flows					Camera test. Badly underexposed.
682-686									
687	7/26/85	7/26/85			real time				Footage of aa flow front. Rest junk footage camp-7 to end of eruption
688	7/26/85	7/26/85			real time				Continuous close-up of aa flow front.Good exposure for most, no action.
689	8/9/85	8/9/85			real time				Phh flows, somewhat underexposed.
690-695									
696	8/22/85	8/28/85		1123 to PuuOo		0	11:43:01	8/22/85	Blocked
				Wide angle		1	11:46:37		Blocked
						2	11:50:12		Book
						3	11:53:47		Blocked
						301	5:55:17	8/23/85	Dawn
						698	5:55:54	8/24/85	Dawn
						1099	6:11:02	8/25/85	Dawn

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1499	6:22:33	8/26/85	Dawn
						1894	6:15:55	8/27/85	dawn
						2237	3:00:35	8/28/85	Light moves from top center to lower right
						2260	...4:24:03		
						2289	6:09:17		Dawn
						2337	9:03:29		Blocked
						2338	9:07:06		Blocked
						2339	9:18:43		Book
697-698									
699	8/28/85	9/3/85	36	1123 to PuuOo		0	9:12:37		Fingers
				Wide angle		1	9:16:17		Black
						2	9:19:54		Book
						345	6:01:00	8/29/85	Dawn
						743	6:00:00	8/30/85	Dawn
						1138	5:49:00		Small spatter/glow
						1140	5:56:00		Small spatter/glow
						1141	6:00:00	8/31/85	Dawn
						1144	6:11:00		Small spatter glow
						1150	6:32:17	9/1/85	Non-descript
						1589	9:00:00		Weird shape in top of frame
						1594			Non-descript
						1830	23:32:00		Glow
						1842	0:15:00		Glow
						1845	0:26:00		Glow
						1850	0:44:00		Larger glow
						1852	0:51:00		Larger glow
						1863	1:31:00		Glow
						1866	1:42:00		Glow
						1874	2:11:00		Glow
						1887	2:58:00		Glow
						1895	3:27:00		glow
						1898	3:38:00		glow
						1906	4:07:00		Glow
						1918	4:50:00		Glow
						1938	6:03:00	9/2/85	Dawn

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2027	11:24:00		Small ftn
						2054	13:02:00		Glow or small ftn
						2065	13:41:57		Fog
						2070	14:00:00		Smal ftn
						2071			Fog
						2076	14:22:00		Small ftn
						2083	14:47		TM
						2084	14:51:00		Slowly growing ftn
						...2118	16:52:00		Ftn almost at top of cone
						2120	16:59:00		
						2121	17:03:00		Ftn reaches hgt of cone
						2123	17:10:00		Broad high ftn
						2158	19:15:00		Ftn to top of screen. Flows to N and S
						2171	20:01:00		Ftn ght decreases to ~ 3/4 of screen
						2228	23:24:00		Ftn hgt decreases rapidly
						2231	23:35:00		Ffinal small burst PAU
						2247	0:32:00		Gas burst-glowing flows and cone
						2329	5:36:47		Dawn
						2353	7:37:09		Blocked
						2354	7:40:45		Book
700									
701	9/2/85	9/10/85		KMM A-vents		0	11:50:02	9/2/85	Blocked
				Wide angle		1	11:53:19		Blocked
						2	11:56:36		Book
						121	18:27:00		glow on top of vent
						122	18:31:00		Ftn on top of vent
						212	22:26:00		Glow o top of vent, and stoped
						3384	5:00:52		Ran out, no book or block
702	9/3/85	9/10/85		Camp 7 to PuuOo		0	7:50:07	9/3/85	Blocked
				Wide angle		1	7:53:43		Blocked
						2	7:57:19		Book
						2812	8:29:41		Blocked
						2814	8:33:14		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2815	8:36:49		Book
									Heavy fume first few days; non-descript
703	9/10/85	9/17/85		1123 to PuuOo		0		9/10/85	Blocked
				Wide angle		1			Blocked
						25			Blocked
						26			Blocked
						27			Blocked
						2998	9:27:27		Blocked
						2999	9:30:46		Blocked
						3000	9:34:04		Book
									Non-descript
704	9/17/85	9/24/85		1123 to PuuOo		0	9:46:37	9/17/85	Blocked
				Wide angle		1	9:49:57		Blocked
						2	9:53:16		Book
						2884	10:07:52		Blocked
						2885	10:11:08		Blocked
						2887	10:17:42		Book
									No glow visible
705	9/24/85	9/25/85	37	1123 to PuuOo		0	10:24:38	9/24/85	Blocked
						1	10:28:19		Blocked
						2	10:31:59		Book
						22	11:44:42		1st overflow-barely visible, film underexposed
						...24	11:51:59		
						27	12:02:54		2nd overflow-ftn not visible, only small flow, end time uncertain
						35	12:32:00		
						69			Fog obscures conduit totally for rest of daylight frames (To # 132)
						129	18:14:06		Flow front visible at E base of cone
						132			Dusk;ftn now partly visible tru fog
						133			Dark; nothing visible (To # 143)
						144	19:08:41		Small glow from flow at E base of cone
						145			Small ftn and spillover visible (To # 150)
						154	19:45:05		Ftn and spillover visible
						...170	20:43:18		

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						176	21:05:09		Spillover and low ftn visible intermittently, sstill foggy
						...199	22:58:51		
						200	22:32:29		Ftn hgt increasing, view thru fog intermittent
						...217	23:34:21		
						218	23:37:59		Jump in ftn width and hgt
						218			Ftn hgt continues to increase (To # 223)
						224	23:59:50		Another sudden jump in ftn wdth
						...225	0:03:28		
						225			Ftn hgt and width continues to increase (To # 232)
						234			Fog obscures view (To # 242)
						290	4:00:01		Ftn hgt begins to decrease
						329	6:21:57		Pau
						0:00:00	7:38:20		Blocked
						351	7:41:59		Blocked
						352	7:45:39		Book
706	9/24/85	9/25/85		1123 to PuuOo	18.33sec	0	22:35:49	9/24/85	Blocked
				Wide angle		1	22:36:07		Blocked
						2	22:36:26		Blocked
						3	22:36:43		Blocked
						4			Book
						5			Fog obscures ftn in most frames(To # 113)
						113	23:10:20		Ftn low and narrow, doesn't change nuch
						...166	23:26:32		
						167			Ftn mostly obscurred by fog(To # 222)
						180	23:30:48		ftn base widening
						..222	23:48:38		
						222	23:43:38		Ftn in the clear; about twice as wide but not much higher
						222	23:43:38		Ftn size increases very gradually
						...274	23:59:31		
						275	23:59:50		Ftn increases steadily without any sudden jumps in size
						...357	0:24:52		
						357	0:24:52		Ftn partially obscured by fog in many frames (To # 602)
						970	3:32:08		Ftn hgt begins to decline gradually
						1505	6:15:34		Ftn pulsating High, thin pulse; twice the hgt than frames before and after
						...1506	6:15:53		
						1508	6:16:29		2nd high, thin pulse
						1509			Ftn only slightly higher than top of cone\

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1510	6:17:06		3rd high pulse
						1514	6:18:19		Ftn dies back to just above conduit rim
						1520	6:20:09		Ftn pau
						1564	6:33:31		Blocked
						1565	6:33:49		Blocked
						1566	6:34:07		Blocked
						1567	6:34:26		Blocked
						1815	7:50:17		Blocked
						1816	7:50:35		Blocked
						1817	7:50:53	9/25/85	Book
707	9/25/85	10/10/85		1123 to PuuOo		0	8:04:39	9/25/85	Blocked
				Wide angle		1	8:08:17		Blocked
						2	8:12:56		Book
								10/10/85	Ran Out - no ending marks. Heavy fume first few days.
708	10/10/85	10/15/85		1123 to PuuOo		0	9:02:04	10/10/85	Blocked
				Wide angle		1	9:05:47		Blocked
						2	9:09:32		Book
						1922	9:15:35	10/15/85	Blocked
						1923	9:19:18		Blocked
						1924	9:23:01		Book. Non-descript.
709	10/15/85	10/18/85		1123 to PuuOo		0	9:08:12	10/15/85	Blocked
				Telephoto		1	9:09:33		Blocked
						2	9:10:53		Book. No glow at night.
								10/16/85	Heavy fume in morning, diminishes later in day - no glow at night.
								10/17/85	Obscured by clouds all day - no glow at night.
								10/18/85	Obscured by clouds most of day. Film runs out. No ending TM's.
710	10/20/85	10/21/85	38	1123 to PuuOo	79.77 sec	0	12:19:48	10/20/85	Blocked
				Telephoto		1	12:21:08		Blocked
						2	12:22:28		Blocked
						3	12:23:47		Book
						4			View partly - totally obscured by clouds

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						185	16:25:45		Low fountain and spillover visible in two frames only due to fog
						217	17:08:17		Spatter or low fountain
						218			Fogged in
						232	17:28:00		Spatter or low fountain
						237	17:34:53		Fountain and spillover-fountain very low
						...239	17:37:32		
						240	17:38:52		Low fountain
						...245	17:45:31		
						246	17:46:51		Fountain increases in height, width, spillover
						247	17:48:10		Fountain wide but low, spillover vigorous
						...255	17:58:49		
						256	18:00:08		Fountain dying
						277			Low fountain or spatter, no spillover (To #290)
						291			Spatter visible in a few frames (To #320)
						321	19:26:33		Low ftn and spillover-same size as earlier one. Fountain dies (To #329)
						...329	19:37:11		
						331			Intermittent spatter, low fountains in most frames, no spillovers (To #368)
						369	20:30:22		Fountain and spillover
						...370	20:31:42		
						372			Low fountain intermittent
						376	20:39:40		Low, wide fountain and vigorous spillover
						...382	20:47:39		
						386			Low fountain or spatter, intermittent, no spillover (To #405)
						406	21:19:33		Low, wide fountain, spillover
						...415	21:31:31		
						428	21:48:48		Low, wide fountain, spillover
						...438	22:02:06		
						439			Frequent spatter and low fountains, no spillover
						456	22:26:02		Low wide fountain, spillover
						...465	22:38:00		
						466			Frequent spatter or low fountains, no spillover
						476			Nothing - view probably obscured (To #559)
						560	0:44:18		Spillover in progress, low broad fountain dies in frame 570
						...570	0:57:35		
						571			Nothing (To #585)
						586	1:18:51		Low fountain builds by #592 in low, broad fountain with spillover
						...601	1:38:48		
						614	1:56:05		Same size fountain, spillover
						...618	2:01:24		

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						620	2:04:04		Same size fountain, spillover
						...628	2:14:40		
						629			Fountain gaining height
						631	2:18:41		Fountain diminishes but keeps going (To #634)
						635	2:24:00		Fountain back to standard size, vigorous spillover
						638			Ftn forms well-defined dome for the first time higher than previous ftn
						641	2:31:59		Fountain almost dead
						642			Begins building again
						644	2:35:58		Ftn low, broad; vigorous spillover. Dome shaped a few frames (To #647)
						648			Fountain height increases
						651	2:45:16		Almost pau
						652			Building again
						653	2:47:56		Low, broad fountain; spillover. Frame 662 fountain almost pau
						...662	2:59:54		
						663	3:01:14		Starts to build-vigorous spillover follows
						668			Dome fountain
						670			Fog
						678			Same sequence, fountain at new height
						686			Fog
						687	3:33:08		Ftn continues, size incrs slowly, fog obscures frames, splover broadens
						715	4:10:21		Fountain now about 3 times higher than earlier spillovers
						723	4:21:00		Sudden jump in fountain height and width
						727			Fountain size increases rapidly (To #729)
						741	4:44:55		Fountain extends to top of frame (above top of cone)
						804			Fountain socked in (To #865)
						1037			Fountain dying, but only partly visible through fog
						1039	11:21:06		High narrow pulse
						1044			Pau
						1053			Blocked
						1054	11:41:02		Blocked
						1055	11:42:22		Blocked
						1056	11:43:42	10/21/85	Book
711	10/15/85	10/21/85		1123 to PuuOo		0	9:30:45	10/15/85	Blocked
				Wide angle		1	9:34:30		Blocked
						2	9:38:14		Book
						2052			Low ftn; spillover, foggy
						2081			Low ftn;frequent splovers, see roll 710 for detailed account (To # 2185)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2200			Ftn becomes continuous
						2333			Pau
						2343	12:00:11		Blocked
						2344	12:03:56		Blocked
						2345	12:07:43	10/21/85	Book
712	10/21/85	11/6/85		1123 to PuuOo		0	12:13:33	10/21/85	Blocked
				Wide angle		1	12:17:17		Blocked
						2	12:21:02	11/6/85	Book
									No ending marks-film ran out; Non-descript
713	11/9/85	11/11/85		Rim of conduit to PuuOo		0	10:04:17	11/9/85	Storytime; Pedit Productions
						1	10:04:44		Storytime
				Wide angle		2	10:05:12		Storytime
						3	10:05:40		Book
						4	10:06:08	11/11/85	Book
									No ending marks- film ran out; Conduit 85-75 % crusted over with 1-2 active pukas spattering nearly constantly within conduit. Good footage of pukas crusting over and reopening
714	11/6/85	11/13/85		1123 to PuuOo		0	11:28:29	11/6/85	Blocked
				Wide angle		1	11:32:13		Blocked
						2	11:35:57		Book
						2269	8:43:19		TM
						2420		11/12/85	Sunset on 11/12/85; first visible glow from 1123. Glow visible intermittently through night-from spatter 5m or less above top of conduit
						2615	6:16:16		Blocked
						2616	6:20:01		Blocked
						2617	6:23:46	11/13/85	Book
715	11/11/85	11/12/85		1123 to PuuOo		0	6:21:26	11/11/85	Book
				Telephoto		2541		11/12/85	Glow visible in a few frames:night of 11/11/85. No ending marks, film ran out

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
716	11/11/85	11/12/85		70m N rim to PuuOo		0	10:07:18	11/11/85	Blocked
				Wide angle		1	10:07:46		Blocked
						2	10:08:13		Book
						3	10:08:41		Book
						1450			Weak glow in a few frames(To # 2135)
						2136			Spatter visible above conduit rim(To # 2145)
						2327			Spatter in a few frames (To # 3384)
						3387	12:16:57		Blocked
						3388	12:17:25		Blocked
						3389	12:17:52		Blocked
						3390			Book, missed
						3391	12:18:48	11/12/85	Book
717	11/13/85	11/14/85	39	1123 to PuuOo	223.4sec	0	6:25:52	11/13/85	Blocked
				Wide angle		1	6:29:39		Blocked
						2			Missed book
						3	6:37:11		Book
						148	15:37:00		Ftn and spillover begins; ftn continuous from now on
						155	16:03:04		Fog blockes ftn
						...163	16:32:51		
						305	1:21:38		Ftn pau; for detailed narative see # 718
						307	1:27:43		TM
						389	6:34:25		Blocked
						390	6:38:09		Blocked
						391	6:41:53	11/14/85	Book
718	11/13/84	11/14/85		N. conduit to PuuOo	27.97sec	0	12:06:03	11/13/85	Blocked
				Wide angle		1	12:06		Blocked
				1123 to PuuOo		2	12:06:59		Blocked
				Telephoto		3	12:07:26		Blocked
						4	12:07:54		Blocked
						5	12:08:22		Book
						88	12:47:05		Spatter burst above conduit rim(To # 92)
						95			Brief bursts of spatter occur intermittently(To # 267)
						273	14:13:20		Small slop over of spatter rampart onto crater floor. spatter nearly
						...448	..15:34:35		continuously visible; still not much higher than rampart. slopover freq
						449	15:35:23		Ftn sudden widens; large spillover begins

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						458	15:39:35		Ftn engulfs rampart, increases in size
						477	15:48:27		Camera moved to 1123
						502	16:00:06		Camera at camp 7, telephoto to PuuOo
						535			Fogged in (To # 574)
						578	16:35:32		Ftn and spillover continuous; ftn hgt stable
						611			Ftn hgt and width increase gradually(To # 644)
						648	17:08:10		Increase in ftn hgt
						720			Ftn with increasing hgt still below top of cone
						728	17:45:28		Sudden increase in width
						749			Hgt continues to increase gradually, now = to top of cone
						755	17:58:03		Jump in ftn with and hgt
						764	18:02:15		Ftn now beyond top of frame
						800	18:19:00	11/14/85	Tephra fll out to E obscures most of ftn
						1664	1:01:52		Ftn narrows
						...1680	..1:09:20		
						1681			Ftn tall and narrow
						...1685	..1:11:39		
						1686	1:12:00		Ftn dies
						1689			Ftn pulse
						1690	1:13:59		Ftn continues to spatter
						...1724	..1:29:50		
						1728	1:30:14		TM
						1784	1:56:00		Last of gas flaring at conduit
						2398	6:44:05		Blocked
						2399	6:44:34		Blocked
						2400	6:45:01		Book
719	11/13/85	11/13/85		1123 to Puu Oo Telephoto		0	13:13:44	11/13/85	Blocked
						1	13:15:05		Blocked
						2	13:16:27		Book
						43			First spillover around spatter rampart onto crater floor
						97			Film washed out (To #104)
						105			Spillover and low fountain in progress - phh spilling out of crater
						106			Fountain rapidly building (To #117)
						118	15:56:21		TM and reduced to wide angle
						128	16:10:20		Blocked
						129	16:11:43		Book
							18:30:00	11/13/85	Real time of dust-devil on flow - too dark to see much

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
720	11/12/85	11/14/85		1123 to Puu Oo	77.83	0	8:34:52	11/12/85	Blocked
				Telephoto and wide		1	8:36:12		Blocked
						2	8:37:33		Book
						3			1123 to Puu Oo, telephoto (To #1107)
						138			Spat vis few frames during 11/12 daylight; at dark, low spat visible freq
						1020	6:43:42		TM
						1128	8:58:00		Camera on shldr of Puu Oo pointed east at 3 vents, 2 are active wide angle
						1336	13:20:00		Main vent fountain height increasing
						1360	13:51:00		Main vent ftn ht higher yet; btwn frame 1128 and 1422 ftn incr 3x in size
						1422	15:20:00		Camera moved out; end of coverage
						2145	6:57:25		Blocked
						2146	6:58:42		Blocked
						2147	7:00:00	11/14/85	Book
721	11/12/85	11/13/85		N of conduit		0	12:24:16	11/12/85	Blocked
				to Puu Oo conduit		1	12:25:44		Blocked
				Wide angle		2	12:25:11		Blocked
						3	12:25:38		Blocked
						4	12:26:06		Book
						5			Camera north of conduit, underexposed
						291			Camera at edge of conduit, looking down - good footage of low fountains in pond (To #347)
						353			Camera back at original site; low spatter nearly continuous through night of 11/12
						3058	11:54:48		Blocked
						3059	11:55:16		Blocked
						3060	11:55:43		Blocked
						3061	11:56:11		Blocked
						3062	11:56:39		Blocked
						3063	11:57:07	11/13/85	Book
722	11/14/85	11/29/85		1123 to Puu Oo		0	6:47:58	11/14/85	Blocked
				Wide angle		1			Blocked, missed
						2	6:55:25		Blocked
						3	6:59:08	11/29/85	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									Heavy fume most of this period. Film ran out, no ending marks
723	11/29/85	12/7/85		S flank Puu Oo		0	10:34:42	11/29/85	Blocked
				to S vents		1	10:36:01		Blocked
				Wide angle		2	10:37:21	12/7/85	Book
									Ran out: no ending time lapse. Nothing
724	12/7/85	12/12/85		S flank Puu Oo to Phase 39 vents Wide angle					Nondescript
725	11/29/85	12/8/85		1123 to Puu Oo Wide angle					Nondescript
726	12/8/85	12/15/85		1123 to Puu Oo					Nondescript
727	12/12/85	12/20/85		S flank Puu Oo to Phase 39 vents Wide angle					Batteries died after first day
728	12/14/85	12/17/85		N side of conduit to Puu Oo conduit Wide angle					Mostly nondescript, some night footage of pukas forming and healing in crust on top of magma column
729	12/17/85	12/20/85		N side of Puu Oo con to conduit Wide angle		0	12:29:39	12/17/85	Blocked
						1	12:30:54		Blocked
						2	12:32:09		Blocked
						3	12:33:23		Blocked
									Good footage of magma column crust foundering and reforming
						1343	10:19:32		Blocked
						1344	10:20:47		Blocked
						1345	10:22:02		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1346	10:23:16	12/20/85	Book
730	12/18/85	12/20/85		1123 to Puu Oo Telephoto					Nondescript
731	12/15/85	12/24/85		1123 to Puu Oo Wide angle					Nondescript
732	12/20/85	12/23/85		Edge of Puu Oo con to conduit					Good footage of magma column crust foundering and reforming
733	12/20/85	12/23/85		1123 to Puu Oo Telephoto					Some glow visible on night of 12/22
734	12/20/85	12/26/85		S. flank Puu Oo to Phase 39 vents Wide angle					Nondescript
735	12/23/85	12/26/85		1123 to Puu Oo Telephoto					Nondescript
736	12/23/85	12/26/85		Edge of Puu Oo con to conduit Wide angle					Good night footage of crust on spatter cone growing and breaking
737	12/26/85	12/29/85		1123 to Puu Oo Telephoto					Nondescript
738	12/26/85	1/1/86		S. flank Puu Oo to Ph 39 vents/slump					Nondescript. Views of ground after falling twice

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle					
739A	12/26/85	1/1/86		Puu Oo conduit to	76.29 to	0	12:47:52	12/26/85	Hand
				pre Phase 40	76.61	1	12:49:07		Hand
				Wide angle		2	12:50:23		Book
						6	12:56	12/26/85	Spatter activity at conduit (To #893)
						...893	...7:43:00	12/27/85	
						917	8:13:45	12/27/85	Hand
						918	8:15:02		Hand
						919	8:16:19	1/1/86	Book
739B	12/26/85	1/1/86		Puu Oo conduit to	76.29 to	947	8:35:51	12/30/85	Hand
				pre Phase 40	76.61	948	8:37:09		Hand
				Wide angle		949	8:38:27		Hand
						950	8:39:44		Book
						952	8:42:00	12/30/85	Intermittent spatter, poor visibility (To #2203)
						...2203	11:20:00	12/31/85	
						2204	11:22:58	12/31/85	Hand
						2205	11:24:14		Hand
						2206	11:23:00	12/31/85	Fog, low intermittent spatter (To #2872)
						...2872	1:34:00	1/1/86	
						2873	1:35:00	1/1/86	Increased glow and spatter, no spillover (To #3132)
						...3132	7:06:00	1/1/86	
						3133			Fog, occasional view of dome fountain (To end)
						3343	11:35:06	1/1/86	Hand
						3344	11:36:22	1/1/86	Book
740	12/24/85	1/1/86	40	1123 to Puu Oo		0	16:46:18	12/24/85	Book (faint)
				Wide angle		223		12/25/85	Nondescript
						600		12/26/85	Nondescipt
						981		12/27/85	Nondescript
						1361		12/28/85	Nondescript
						1741		12/29/85	Nondescript
						2117		12/30/85	Nondescript
									Frame number restarted at 0
						0	9:40:42	12/30/85	Nondescript

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1	9:44:29		Nondescript
						2	9:48:16		Nondescript
						332	6:42:00	12/31/85	Nondescript
						713	6:49:00	1/1/86	Nondescript
						773	10:36:28		Low fountain between foggy weather
						816	13:19:47		First sure fountain, low
						824	13:50:00		Increasingly high dome fountain (less than half cone height) (To #842)
						...842	14:59:00		
						843	2:20:00	1/1/86	Hand, fog
							15:00:09		
						856	15:52:00		Broader fountain and flow to left (To #861)
						...861	16:11:00		
						862	16:12:00	1/1/86	Fog, nondescript (To #912)
						...912	19:27:00		
						913	19:28:00	1/1/86	High, broad fountain, mostly clear. Lower after first few frames (To #954)
						...954	22:04:00		
						956	22:11:27		Hand
						957	22:15:16		Hand
						958	22:19:05		Book
						959		1/1/86	Out of focus, telephoto of base of fountain (To end)
741	12/30/85	1/1/86		1123 to Puu Oo Telephoto with backlite	78.85	0	2:55:47	12/30/85	Hand
						1	2:57:06		Hand
						2	2:58:25		Hand
						3	2:59:44		Hand
						4	3:01:04		Book
						9	3:08:00		Glow/spatter (To #12)
						...12	3:12:00		
						29	3:34:00		Glow/spatter
						91	4:55:00		Glow/spatter
						102	5:10:00		Glow/spatter
						147	6:09:00		Glow/spatter
						166	6:34:00	12/30/85	First light of dawn
						2543	10:38:00	1/1/86	First view of vent (bad weather), apparent spillover (To #2553)
						...2553	10:51:00		
						2554			Fog (To #2659
						...2659	13:10:00		
						2660	13:11:34		Dome fountain (To #2722)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						...2722	14:33:00		
						2723			Fog, vent obscured (To #2940)
						..2940	19:20:00		
						2749	15:03:32		TM (Film is 5 min late)
						2941	19:21:00		Intermittent fountain on wide angle
						...2972	20:02:00		
						3100			Base of fountain on telephoto
							22:50:00		
						3101	22:51:05		Hand
						...3102	22:52:25		
						3103	22:53:45	1/1/86	Book
742	1/1/86	1/2/86	40	Ftn from below	71.85sec	0	11:43:16	1/1/85	Hand
				splwy		1	11:44:32		Hand
				Wide angle		2	11:45:48		Book
						3	11:47:00		Close up of fog and increasing dome ftn at conduit
						...99	13:42:00		
						102	13:45:00		Camera moved, top of cone in frame
						187	15:27:00		Fog and increasing dome ftn
						191	15:32:00		Moved;fog, ftn growing, spillover
						295	17:36:00		A'a flows toward camera
						...302	..17:44:00		
						330	18:18:00		Foggy view of base of ftn
						512	21:56:00		No picture
						514	22:28:41		Hand
						515	29:57:00		Hand
						516	1:13:00		Book
						552	22:34:00		Full speed of ftn from camp 7, wide angle
						...827	..22:34:15		
						875	22:38:15		Full speed of ftn from camp 7, telephoto
						...1147	..22:38:30		
							22:50:30		Faint red glow, wide angle
							...22:50:45		
						1487	2:34:45		Diminishing and pulsing ftn from camp 7, at end of activity , wide angle
						...3545	end	1/2/85	
743	1/1/86	1/2/86		1123 to PuuOo	228.16s	0	22:32:56	1/1/86	Hand

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle		1	22:36:45		Hand
						2	22:40:33		Book
						3	22:44:00		Vigorous ftn, uniform height
						...63	..2:32:00		
		Narrow, higher ftn				64	2:36:18		Narrow, higher ftn
						65	2:40:00		Broad ftn only meters high, end\
						66			Intermittent glow/low spatter?
						73	3:11:00		
						74			Non-descript
						146	7:48:06		Block
						147	7:51:55	1/2/86	Book
744	1/1/86	1/2/86		1123 to PuuOo	79.7sec	0	23:04:17	1/1/86	Hand
				Telephoto		1	23:05:36		Hand
						2	23:06:56		Book
						158	2:34:00		Base of broad ftn
						159	2:35:00		Narrow ftn, top out of frame
						160	2:37:00		Wider ftn, half-frame hgt
						161	2:38:00		Diffuse gas flame, irregular
						...166	2:45:00		
						167	2:46:00		Intermittent glow and gas flames
						...240	4:23:00		
						241			Non-descript
						409	8:07:34		Hand
						410	8:08:54	1/2/86	Book
745	1/2/86	1/22/86		1123 to PuuOo		0		1/2/86	Blocked
				Wide angle		1			Blocked
						2		1/22/86	Book
									Non-descript to end
746	1/2/86	1/22/86		1123 to PuuOo		0	9:54:13	1/2/86	Book
				Wide angle		1	9:57:59		Book
						2	10:01:44	1/22/86	Hand
									Non-descript to end

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
747	1/22/86	1/27/86	41	1123 to PuuOo		0	11:34:02	1/22/86	Book
				Wide angle		1	11:34:47		Book
						2	11:41:31		Book
									No activity vis on 1/26, poor vis much of day due to steam and fog
						1711			Glow at night, pinpt only
						1724			Pinpoint of glow
						1751			Pinpoint of glow
						1763			Pinpoint of glow
						1769			Pinpoint of glow
						1845			Dawn 1/27, solid fog
						1936	12:31:53		Blocked
						1937	12:35:39		Blocked
						1938	12:39:36	1/27/86	Book
									From 1845-end, most frames partly obscured by fog. No activity vis
748	1/27/86	1/28/86		1123 to PuuOo	205.52s	0	12:29:43	1/27/86	Blocked
				Telephoto		1	12:32:10		Blocked
						2	12:36:37		Book
						5	12:46:51		(To # 6)
						10			(To # 14)
						15			Fog,(To # 33)
						34	14:26:51		Low dome ftn visible,(To # 35)
						36			Fog(To # 42)
						43	14:57:00		Ftn visible
						44			Fog
						99			After dark. Either no activity or glow hidden by thick fog(To # 145)
						146	20:49:49		Low ftn visible, same size as above
						149			Dark
						150	21:03:31		Ftn visible intermittently thur fog
						...161	..21:41:13		
						172	22:18:53		Definitely fullsize ftn
						...180	..23:13:41		
						189	23:17:07		From base, ftn appears nearly full size
						203	0:05:04		Definitely fullsize ftn
						221	1:06:43		Whole ftn now visible, much higher than top of frame
						312	6:18:26		Ftn gradually narrowing
						...329	..7:16:39		

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						330		1/28/86	Dawn
						335	7:37:13		Ftn drops above top of frame to 1/2way btn conduit and PuuOo summit
						336			Brief burst-not as high as summit (To #337)
						338			Thin, wispy ftn
						339			Ftn lowest yet (To # 340)
						341	7:57:46		Ftn dies, a few sputters barely above conduit rim(Maybe burning gas)
						...351	..8:32:01		
						352	8:35:26		Pau
						422	12:35:15		Blocked
						423	12:38:40		Blocked
						424	12:42:04	1/28/86	Book
749	1/27/86	1/28/86		1123 to PuuOo	225.67s	0	12:52:42	1/27/86	Blocked
				Wide angle		1	12:56:28		Blocked
						2	13:00:13		Book
						leadin	before 0		Dome ftn, died by frame 3 (See roll 748)
						25	14:26:24		Low ftn visible thru fog
						101			After dark, glow vis base of ftn, many frames obscured by fog(To # 183)
						184	0:24:45		Full view of ftn, in most frames
						...299	7:37:15		
						299	7:52:19		Ftn dying (To #303)
						313	8:29:56		Completely pau
						385	13:00:46		Blocked
						386	13:04:30		Blocked
						387	13:08:15	1/28/86	Book
750	1/28/86	2/11/86		1123 to PuuOo		0	13:11:32	1/28/86	Blocked
				Wide angle w/back		1	13:15:15		Blocked
				light		2	13;18:58	2/11/86	Book
751	2/11/86	2/21/86		1123 to PuuOo		0	11:29:27	2/11/86	Blocked
				Wide angle		1	11:33:10		Blocked
						2	11:36:52		Book
						3210		2/19/86	Glow at vent, intermittent for a few frames
									No ending time marks, film ran out

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
752	2/11/86	2/21/86		1123 to PuuOo		0	12:11:01	2/11/86	Blocked
				Telephoto		1	12:14:29		Book
						3468		2/19/86	Glow visible over vent, and very low ftn in two frames
						3490		2/21/86	End of film , ran out
753	2/22/86	2/23/86	42	PuuOo splwy rim		0		2/22/86	No beginning time marks-didn't run in leader. 1st frame exposed
				Wide angle		0			4 spillovers recorded. good footage of low ftn
						68			Camera in shed at camp 7
						534	8:25:04		Blocked
						535	8:27:17		Blocked
						536	8:29:31	2/23/86	Book
754	2/21/86	2/23/86		1123 to PuuOo		0	15:07:05	2/21/86	Blocked
				Telephoto		1	11:08:15		Blocked
						2	15:09:25		Book
									Camera aimed too high-conduit off bottom edge of film
						158			Small glow visible in most frames(To # 722)
						723			Low ftn visible
						724			Small glow vis in frames(spillover ftns diff to see because only top vis) (To # 784)
						946	9:48		Low ftn
						...960	..10:05:33		
						978	10:26:54		Low ftn
						...991	..10:42:19		
						1013	11:08:24		Low ftn
						...1031	..11:29:45		
						1052	11:54:39		Low ftn
						...1072	..12:18:22		
						1093	12:43:16		Low ftn
						...1109	..13:02:15		
						1125	13:21:13		Low ftn
						...1150	..13:50:52		
						1160	14:02:44		Low ftn
						...1188	..14:35:56	2/23/86	
						1196	14:45:25		Low ftn
						...1212	..15:04:24		

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1216	15:09:08		Beginning of continuous ftn
						2096	8:32:44		Blocked
						2097			Missed
						2098	8:35:07		Blocked
						2099	8:36:17		Book
755	2/21/86	2/23/86		1123 to PuuOo		0	15:17:41	2/21/86	Blocked
				Wide angle		1	15:21:07		Blocked
						2	15:24:33		Book
									For description of low-level activity on 2/22/86, see roll 754
						478			Ftn height equal to top of cone
						652			Ftn pau
						725			Blocked
						726			Blocked
						727		2/23/86	Book
756	2/23/86	3/13/86		1123 to PuuOo		0	9:12:01	2/23/86	Blocked
				Wide angle		1			Unblocked
						2	9:18:58		Book
						4	9:22:24	3/1/86	Book
									Heavy fume during whole period
									Film ran out
757	3/13/86	3/20/86		1123 to PuuOo		0	10:50:13	3/13/86	Blocked
				Wide angle		1	10:53:43		Blocked
						2	10:57:10		Book
						3025	16:46:17		Blocked
						3026	16:49:44		Blocked
						3027	16:53:10	3/20/86	Book
									Bad weater, no visible activity
758	3/18/86	3/21/86		1123 to PuuOo		0	15:38:00	3/18/86	Blocked
				Telephoto		1	15:39:09		Blocked
						2	15:40:20		Book, No activity visible
						3383	10:34:15		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3384	10:35:27		Blocked
						3385	10:36:39		Blocked
						3386	10:37:50	3/21/86	Book
759	3/22/86	3/22/86	43	SE side of 1123 cone	real time		9:45:00	3/22/86	Good footage of rapidly, moving channel, most footage of one part of
							..10:10:00		the channel
760	3/20/86	3/22/86		1123 to PuuOo		0	17:02:30	3/20/86	Blocked
				Wide angle		1	5:54:00		Blocked
						2	9:19:00		Book
									No activity visible during day light hours of 3/21. Weater bad
						564	1:34:58		1st visible low ftn
						565			Spillover to SE(To # 566)
						570			Spillover still visible, weather still bad, visiblity intermittent(To # 571)
						595	3:22:17		Low ftn and spillover (To # 602)
						604	3:53:22		TM
						605	3:56:54		Ftn and spillover
						...619	4:45:22		
						620			Ftn obscured
						644	6:11:55		Ftn still low
						...658	7:00:22		
						659			Ftn obscured(To # 695)
						696	9:11:55		Ftn visible, higher than top of cone
						813	15:56:57		Ftn dies back below top of cone
						819	16:17:44		Blocked
						820	16:21:11		Blocked
						821	16:24:29	3/22/86	Book
761	3/21/86	3/22/86		1123 to Puu Oo		0	10:47:30	3/21/86	Blocked
				Telephoto		1	10:48:31		Blocked
						2	10:49:53		Book, weather bad
						691			Low ftn barely visible
						702			Low ftn barely visible
						729			Low ftn (To #755)
						783			Low ftn (To #807)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						815			Low ftn, at 858 ftn dies
						848	3:57:32		TM
						859			Spattering
						860			Ftn resumes (To #888)
						889			Ftn obscured by fog (To #973)
						974			Ftn about half ht of cone (To #996)
						997			Ftn obscured by fog (To #1104)
						1105			Ftn full size, extends outside of frame (To #1434)
						1435			Narrow pulse (To 1436)
						1437			Ftn dies back to less than half cone ht, sporadic burst (To #1451)
						1452			Ftn pau
						1455	16:16:03		Blocked
						1456	16:17:15		Blocked
						1457	16:18:28	3/22/86	Book
762				SE side of 1123 cone Real time of flows about 1330 Real time of ftn dying about 1555					Good footage of fast moving channel south of 1123, with standing waves. But resolution not too good. Ftn sequence incomplete, ran out of film
763	4/13/86	4/14/86	44	1123 to Puu Oo Telephoto		0	19:39:15	4/13/86	Blocked
						1	19:40:34		Blocked
						2	19:41:52		Book
									Weather bad, fog obscures vent
						212			First view of ftn
						216			Ftn just to top of frame
						251			Next clear view, ftn well above top of frame
						278			Weather clear, good view of base of ftn and some spatter fed flows to east (To #501)
						448			Ftn gradually narrowing (To #560)
						501			Dawn
						561			Ftn ht drops
						562			High thin pulse
						563			Ftn drops to half of cone ht
						564			Pulse slightly higher than cone
						565			Sporadic pulses, less than ht of cone (To #575)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						576			Pau
						607	8:49:26		Blocked
						608	8:50:41		Blocked
						609	8:51:56	4/14/86	Book
764	3/22/86	4/13/86		1123 to Puu Oo		0	16:26:20	3/22/86	Blocked
				Wide angle		1			Blocked
						2	16:33:15		Blocked
						3	16:36:42	4/13/86	Book
									Heavy fume and bad weather, film ran out
765	4/13/86	4/14/86		1123 to Puu Oo		0	19:12:29	4/13/86	Blocked, blurry by flashlight
				Wide angle		1	19:15:55		Blocked
						2	19:19:25		Book
						3			Black
						4	19:26:25		2nd book
						69			Glow of low ftn through fog
						85	0:08:59		Larger glow, top of low ftn visible and spillover to SE
						...88	..00:19:27		
						95			Glow (To #100)
						101	1:04:47		Top of ftn visible, higher than in frame 88
						106	1:22:14		Ftn visible intermittently
						...109	..1:32:42		
						110	1:36:11		Weather clears, ftn increasing in size
						...124	..2:25:01		
						137	3:10:22		Ftn decreases gradually
						...167	..4:55:00		
						168	4:58:30		Ftn considerably smaller
						...192	..6:22:13		
						193	6:25:42		Another step down in size
						...217	..7:49:25		
						218	7:52:54		High thin pulse
						219	7:56:23		Ftn dies
						236	8:55:41		Blocked
						237	8:59:12		Blocked
						238	9:02:40	4/14/86	Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
766	4/14/86	5/5/86		1123 to Puu Oo		0	9:09:09	4/14/86	Blocked
				Wide angle		1	9:12:33		Blocked
						2	9:16:00		Book
						3	9:19:27	5/5/86	Book
									Heavy fume, nondescript, film ran out
767	5/5/86	5/5/86	45	1123 to Puu Oo		0	9:08:45	5/5/86	Blocked
				Wide angle		1	9:12:11		Blocked
						2	9:15:39		Book
						973	17:31:13		First low ftn visible, foggy weather obscured earlier events
						..980	17:55:33		
						981			Fog (To #983)
						984	18:09:28		Low ftn (To #986)
						987			Ftn lower but still visible (To #990)
						991			Ftn slightly higher, brighter
						992	18:37:16		First vis spillover to SE, ftn about same ht as in frame #984-986 (To #998)
						999	19:01:36		Ftn appears to die or maybe fogged in
						1002	19:12:02		Ftn
						1003			Spillover visible
						1006	19:25:56		Ftn apparently dead
						1009	19:36:22		Ftn resumes, higher than previously, waxes and wanes, but always at least a glow vis. Either ftn start/stop on short interval or fog moving
						...1026	20:35:28		in and out
						1027			Nothing visible (To #1047)
						1048	21:51:57		Low ftn, spillover (To #1050)
						1051			Ftn pau
						1052	22:05:51		Low ftn, spillover (To #1055)
						1056			Spillover still visible but ftn dying (To #1057)
						1058	22:26:43		Ftn, spillover
						1059			Pau (To #1061)
						1062	22:40:37	5/7/86	Higher ftn, beginning of continuous ftning
						1063			Dies back but still moving (To #1067)
						1068			Building back up
						1069			Continuous, very gradually increasing in ht
						1124			Ht increasing steadily
						1131	2:40:29	5/8/86	Flow visible down NE spillway
						1141	3:15:15		Large increase in width of ftn, appears to be falling over to NE and great

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									increase in lava to the NE spillway. Ftn ht only slightly higher
						1143			Flow approaching 1123 from NE spillway
						1144	3:25:40		Appears to have reached base of 1123
						1150	3:46:32		Ftn ht increasing rapidly
						1156			Intermittent fog. #1188=dawn (To #1188)
						1246	9:20:16		Ftn jetting event, ftn obscured by plume and tephra
						1259	10:06:00		2nd jet
						1271	10:47:00		Final jet
						1272	10:50:39		Ftn pau. Exact time hard to see because of fog, dust devils at the jet, poor lighting, and the series of high jets that formed dense tephra clouds that hid the ftn from view
						1293	12:03:39		Blocked
						1294	12:07:09		Blocked
						1295	12:10:36		Book
768	5/8/86	5/22/86		1123 to Puu Oo		0	12:17:46	5/8/86	Blocked
				Wide angle		1	12:21:07		Blocked
						2	12:24:33	5/22/86	Book
									Film ran out, nondescript
769	5/22/86	6/1/86		1123 to Puu Oo		0	12:24:00	5/22/86	Book
				Wide angle					Ran out, nondescript
770	6/1/86	6/2/86	46	1123 to Puu Oo		0	18:11:31	6/1/86	Blocked
				Telephoto		1	18:13:41		Blocked
						2	18:15:57		Book
						3			First low ftn visible
						4			Growing ftn, lava flow moving to lower left corner of frame (To #9)
						10			Ftn diminishing, no visible lava flow (To #19)
						20			Growing ftn with lava flow to lower left (To #24)
						24	2:26:12		Intermittent low level ftning (To #220)
						221	2:28:27		Continuous ftning with gradually increasing ftn ht and volume
						288			Ftn is too high to be fully caught by camera
						296	5:17:05		1st visible lava flows move towards camera location
						320	6:11:03		Ftn seems to decrease a lot in width, visibility gets worse due to fog
						321			Ftn width changes on and off, ht variations can't be recognized (To #337)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						338			Ftn almost completely invisible due to fog
						339			Ftn continues to vary in width (To #348)
						349			Ftn again completely invisible due to fog (To #352)
						353			Ftn width variations recognizable, probably with decreasing ht (To #419)
						420			Ftn fully captured by camera
						421			Ftn ht again increasing, maybe trans period to gas jetting act (To #438)
						439	10:38:38		Very narrow first jetting
						440			Ftn almost dead
						441			Again continuous high ftning (To #462)
						463	11:32:36		2nd gas jetting
						464			Again ftning (To #482)
						483	12:17:34		3rd gas jetting
						484			Ftning activity (To #504)
						505	13:07:02		4th gas jetting
						506			Activity almost dead (To #508)
						509	13:16:02		Last high jetting
						510			Conduit gradually dies to zero (To #514)
						515	13:29:31		No visible activity besides gas emissions (To #517)
						518			Last visible low spattering occurs
						519	13:38:31		Pau
						536	14:16:44	6/2/86	Blocked
						537	14:19:02		Blocked
						538	14:21:14		Book
						539			Field geologist seriously doing her state of the art science
771	6/1/86	6/2/86		1123 to PuuOo Wide angle		0	18:13:35	6/1/86	Blocked
						1	18:15:45		Blocked
						2	18:17:57		Book
						3			PuuOo, no visible activity
						4			1st low level lava ftn, glowing red spot left of ftn mayby 1st flow (To # 9)
						10			Flow still visible, no ftn possible due to fog cover
						11			No visible signs of neither ftn nor flow (To # 13)
						14			Weak ftn visible (To # 15)
						16			Ftn and flow left of ftn (To # 19)
						20			Ftn growing, flow moved considerably far away from the vent (To # 25)
						26			Visibility next to nothing, possibly due to dense fog cover (To # 30)
						31			Weak ftn and flow to the left, again visibile
						32			Ftn and flow length approximately same as in frame # 20 (To # 38)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						39			Visiblity zero (To # 43)
						44			Low level ftn and flow to the left(To # 50)
						51			No visible activity (To # 69)
						70			Low level ftn and flow to the left (To # 71)
						72			No visible activity (To # 76)
						77			Ftn resumes, no visible flow
						78			Low ftn and flow to the left (To # 81)
						82			No visible activity (fog ??) (To # 86)
						87			Low ftn and flow almost completely hidden by dense fog (To # 90)
						90			Intermittent low level ftn and flow to the left with varying vis(To # 225)
						226	2:25:55		Eruption start. Flow to left seems to grow bigger, ftn hgt incr (To #243)
						244	3:05:08		First sign of lava flows towards 1123 and to the right of PuuOo
						245			Continuous ftn with incr hgt and growing lava flows (To # 274)
						275	4:12:40		Lava flow to the center has reached the bottom of PuuOo (To # 289)
						290	4:45:20		Ftn hgt has dbld, with a flow on the right flank reaching bottom of PuuOo
						291			Ftn increasing in hgt until it reaches a constant level (To # 310)
						311	5:31:05		Constant ftn, no visible flows, with decrease visibility due to fog, fumes and solidified fallout material (To # 408)
						409			First clear decrease in ftn hgt
						410			Ftn hgt has decreased and still varies 20-25 % (To # 434)
						435			Ftn decreases very sharply for the second time
						436	10:03:24		Ftn totally blacken by solidified material, possibly beginning of gas jetting phase (To # 437)
						438			Ftn activity resumes (To # 452)
						453	10:40:26		Second gas jetting phase
						454			Ftn almost dead
						455			Ftn resumes activity, constantly changing in hgt (To # 496)
						497	12:16:17		3rd gas jetting phase
						498			No visible activity
						499			Ftn resumes activity, almost completely blackened by solidified fallout material (To # 519)
						520	13:06:23		4th gas jetting, the highest so far visible
						521			No activity(To # 524)
						525			Small gas pulse visible
						526			No activity (To # 528)
						529			Last visible, very small gas pulse
						530	13:28:10		PAU
						553	14:18:17		Blocked
						554	14:20:29		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						555	14:22:38	6/2/86	Book
772	6/1/86	6/3/86		Kalalua to PuuOo		0	18:45:37	6/1/86	Blocked
				Telephoto		1	18:46:56		Blocked
						2	18:48:15		Book
						3			Intermittent low level ftns (To # 370)
						371	3:02:07		Begin of continuous ftning
						485	5:34:41		Ftn more than twice as high as the vent-summit difference (To # 708)
						709	10:34:28		First high gas jetting activity
						710			Resuming ftn activity (To # 748)
						749	11:27:59		Second high gas jet
						750			Resuming ftn activity (To # 779)
						780	12:09:29		3rd high gas jet
						781			Resuming ftn activity(To # 816)
						817	12:59:00		4th high gas jet
						818			Low ftns and spattering (To # 830)
						831	13:17:44		Pau
						1751	9:48:57		Blocked
						1753	9:51:36		Blocked
						1754	9:52:54	6/3/86	Book
773	6/2/86	6/11/86		1123 to PuuOo		0	14:30:22	6/2/86	Blocked
				Wide angle		1	14:33:43		Blocked
						2	14:37:08		Book
						3		6/11/86	Non-descript
775	6/23/86	6/27/86	47	Kalalua to PuuOo		0	18:12:57	6/23/86	Blocked
				Telephoto		1	18:14:18		Blocked
						2	18:15:39		Book
						2608	4:54:00	6/26/86	First sign of dome ftns
						2609			Ftn growing until reaching a constant (To # 2612)
						2613			Lava flowing down SE flank of PuuOo w/ continuous dome ftn (To # 2662)
						2663	6:08:00		First sign of lava flow down the NE flank of PuuOo
						2809	9:25:06		Ftn has reached the hgt of PuuOo summit
						2810			Ftn grows rapidly in hgt to a constant maximum level(To # 2820)
						3065	15:10:42		1st gas jetting

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						3104	16:03:21		2nd gas jetting
						3139	16:50:36		3rd gas jetting
						3147	17:01:24		4th gas jetting
						3148			Very low ftning (To # 3180)
						3181	17:47:00	6/27/86	PAU
776	6/24/86	6/26/86		1123 to PuuOo		0	8:19:03	6/24/86	Blocked
						1	8:23:03		Blocked
						2	8:26:33		Book
						550	16:16:34	6/25/86	Blocked
						786	6:08:24	6/26/86	Blocked
						787	6:11:55		Blocked
						789			Telephoto shots of continuous ftn (To # 813)
						814	7:40:00		1st wide angle shot of ftn
						823	8:12:00		Ftn reaches hgt of PuuOo summit
						824			Ftn grows rapidly in hgt until it reaches a constant level. The ftn leans towards ENE (To # 849)
						887	11:55:00		Ftn gets narrower and more vertical
						888			Ftn varies in width and in hgt (To # 931)
						932	14:32:00		1st gas jetting occurs
						933			Ftn lost considerably in hgt, but is still higher than PuuOo summit
						934			Ftn grows to "old" level (To # 938)
						947	15:24:00		2nd gas jetting occurs
						948			Same as frame #933
						949			Ftn grows back to "old" level (To # 953)
						961	16:13:00		3rd gas jetting occurs
						962			Ftn way below PuuOo summit
						973	16:55:00		Last shot of incandesent vent, with a very small ftn
						974	16:58:39		Hand
						975	17:02:05		Book
777	6/24/86	6/24/86		N20W of conduit to vent activity		0	10:28:00	6/24/86	Starts with camera test, blocked
									Full blocked lens. 1st frame at ? interval
				Wide angle		1			Vent fuming and degassing (To # 253)
						254			1st incandesent lava on NE flank of small cinder cone (To # 255)
						256			Lava spillover reaching base of cinder cone
						258			Vent open approximately to the east about 5-7 meters above base

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									of cinder cone
						259			Spattering 10m high above top of cone
							16:25:00		Change to min. interval
						260	16:30:00		Low level Strombolian activity with occasional spillovers reaching the base of the cone. The vent separates into two openings; one facing NE towards the camera and the other one facing PuuOo summit to the SW
									Off (Ran out?)
778	6/24/86	6/25/86		N20W of conduit to vent activity			11:30:10	6/25/86	(TM) Hand
							11;31:35		Hand
							11:32:58		Hand
779	6/25/86	6/25/86		NW to onset of dome ftn at vent					On 2216-full speed
780	6/26/86	6/26/86		1123 summit to lava channel and PuuOo ftn					
				Wide angle					
				1123 summit to PuuOo					1st jet phase at end of eruption Full speed onset at 1432
781	6/26/86	6/26/86		1123 summit to 2nd jet phase, PuuOo				6/26/86	1524 to 1528, full speed
782	6/26/86	6/26/86		NW Camp to 2nd jet phase, Puu Oo	full speed			6/26/86	1524 to 1528
783	6/26/86	6/26/86		1123 summit to 3rd jet phase, PuuOo	full speed				

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
784	6/26/86	6/26/86		1123 summit to	full speed	0		6/26/86	End of white strip at beginning of roll
				PuuOo,		1			Gas burst, 2x ht of elevation difference between vent and Puu Oo summit
				End of eruption		2			Low level ftns varying in hgt
						9			Ftn hgt varying occasionally above summit of Puu Oo (To #19)
						526			Wide angle shot
						527			Zoomed in to telephoto shot of vent, still incandesence visible
						528			Ftn still 5-10 meters high (To #712)
						713			Film ran out, no more pictures
785	6/26/86	6/27/86		1123 to Puu Oo					
				Telephoto					
786	7/14/86	7/19/86	48	1123 to Puu Oo	210.49 s	0	15:25:57	7/14/86	Blocked
				Wide angle		1	15:29:21		Blocked
						2	15:32:48		Book
						1598	12:51:54		First visible fume from rift about halfway between Puu Oo and 1123
						1598		7/18/86	Fume visible, no lava visible but light conditions bad (To #1602)
						1603	13:09:27		Flow visible, extending from fuming area to SE edge of frame. Next few
								7/19/86	frames to dim to determine if new vents open toward 1123.
						1665	16:46:57		Low ftns directly beneath camera, evening in lower light. A line of ftns
									are visible in front of camera and extending out of view toward the edge of
									1123. Two low ftns visible in background, probably about 1/3
						...1690	18:14:39		distance to Puu Oo
						1697			Glow visible from Puu Oo
						1690	18:14:39		Vigor of ftns in foreground increases, now linked with glowing spots to
						...1702	18:56:45		the 2 (B) ftns in the distance, probably more vents
						1703	19:00:16		Activity continues to increase, ftns near 1123 higher, more activity
									between these and the two vents farther away
						1705	19:07:17		Camera shifted to show more vents in foreground. Another vent (C) at
									base of 1123 is sporadically active
						1726	20:20:57		Ftns in foreground are lower, but continuous
						1757	22:09:42		Ftns (A) near 1123 no longer form continuous lava curtain, now split into
									4-5 separate ftns. Vent at base of 1123 still ftning intermittently (C)
						1821	1:54:13	7/19/86	Activity diminishing
						...1836	2:53:51		
						1839	2:57:22		Much less lava production
						1851	3:39:28		Only 2-3 (A) vents in foreground still active

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1876	5:07:00		All pau except for glow in lower corner in frame, possibly a vent at base
						...1888	5:49:16		of 1123 (C). Ftns shut down at 5:40:00.
						1889	5:52:46		Vent at base still glowing, and one of the two vents (B) farther out
						1895			C vent no longer visible
						1917	7:31:00		Last glow from B vent
						1963	10:12:27		Blocked
						1964	10:15:55		Blocked
						1965	10:19:23		Book
787	7/14/86	7/18/86		1123 to Puu Oo		0	15:07:28	7/14/86	Blocked
				Telephoto		1	15:08:51		Blocked
						2	15:10:13		Book
						3			Nondescript and poor visibility (To #1018)
						1019			First frame with good view of the vent. Gas release according to density of fumes seems to be low
						1019			Weak degassing (To #1095)
						1096			Visibility deteriorates to zero
						1685	9:56:56		First visible glow at the vent. Probably incandescent gases, no spattering of ftns
						1686			Same as #1685 (To #1694)
						1695			Dawn over Puu Oo. Glow still visible. No change in intensity or in size of glow.
						1699	10:18:17		Flame disappeared. Fume still reddish for the first couple of meters above the vent (To #1701)
						1702			Flame is back. Brightness increased. Hgt estimated to be 5-10 meters.
						1703			See 1699
						1715			Incandescence and reddish color of fumes totally disappeared.
						1716			Weak degassing (bluish transparent fumes) (To #1948)
						1949			Fumes increasing in density (changing to dense white) (To #2086)
						2087			Fumes are less dense and bluish again
						2355	2:58:41	7/17/86	At night glow visible. Is weaker and smaller compared to previous night.
						2356			Weak glow visible (To #2368)
						2369	3:20:00		Glow increasing in size and brightness. For the first time it looks like spattering. The flames point away from vent in a wide open V-shpae
						2370			Nothing visible (To #2383)
						2384			Glow again visible. Same phenomenon as in #2369
						2385			Low level Strombolian activity visible (To #2409)
						2410			Glow disappeared (To #2429)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2430			Glow back. It is very small and very weak (To #2437)
						2438			Glow disappeared (To #2448)
						2448			Glow back. Extremely small and weak (To #2480)
						2481	6:11:00		Big spatter "burst" about 20-30 meter high
						2491	6:26:00		2nd spatter "burst" maybe 10-15 meters high
						2492			Very small and weak glow. No more spattering (To #2597)
						2607			Weak glow visible again (To #2608)
						2609			No glow (To #2611)
						2612			Glow back (To #2625)
						2626			No glow (To #2656)
						2657			Glow back (To #2714)
						2715			No glow (To #2724)
						2725			Glow back
						2726			No glow (To #2871)
						2872			Relatively clear view of the vent area. Dense white fumes are released from puka (To #3319)
						3320	3:30:18	7/18/86	Glow again visible. It seems to originate from flanks or base of the vent not from the top
						3325	3:38:00		First small spillover reaching 20 meters away from vent
						3330	3:56:00		Low level Strombolian activity with hgt of about 5 meters
						3331			No visibility (To #3334)
						3335			Low level Strombolian activity
						3336			Nothing visible except heavy, dense fumes (To #3340)
						3341			Weak glow again visible
						3342			Nothing visible (To #3348)
						3349	4:15:00		Definitely increasing incandescence at the vent (To #3350)
						3351			No visibility (To #3365)
						3366	4:40:00		Small spillover going down on two sides of vent
						3367			Nothing visible (To #3372)
						3373			Weak glow
						3374			Nothing visible (To #3380)
						3381			Weak glow (To #3382)
						3383			Nothing visible (To #3438)
						3439			Weak glow (To #3478)
						3479	7:33:00		Nothing visible (to end)
									Film ran out
788	7/14/86	7/19/86		Kalalua to Puu Oo		0	9:28:46	7/14/86	Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Telephoto		1	9:32:30		Blocked
						2	9:36:15	7/19/86	Book
									Absolutely nondescript
789	7/16/86	7/17/86		North side Puu Oo		0	18:11:16	7/16/86	Blocked
				to conduit		1	18:11:45		Blocked
				Wide angle		2	18:12:15		Blocked
						3	18:12:45	7/17/86	Book
									All probably no good- looks like operator confused and switched real time after putting on TM and back again
									Intermittent spattering - good nighttime footage. No spillovers
									No ending TM
790	7/17/86	7/18/86		North side Puu Oo	29 sec	0	19:31:05	7/17/86	Blocked
				to conduit		1	19:31:35		Blocked
				Wide angle		2	19:32:04		Blocked
						3	19:32:32		Book
						4			Glowing vent (To #8)
						9	19:35:00		1st spattering
						10			Low level Strombolian activity (To #440)
						441	23:04:00		Bright spot about 20m E of the vent. Maybe incandescent flow front of small spillover on tubefed pahoehoe
						442		7/18/86	Low level Strombolian activity (To #719)
						720	1:19:00		Two separate glowing spots. Maybe 2 pukas next to each other (To #812)
						813	2:04:00		Three separate glowing spots. Three pukas?? (To #1241)
						1242	5:31:00		Relatively big spatter "burst"
						1247	5:34:00		Another burst, about 10-15 meters high
						1248			During the day, no spattering visible. The puka is glowing and not releasing any dense fumes (To #2029)
						2030	11:52:00		Huge burst of heavy, dense greyish-brownish fumes
						2031			Dense fumes are being released (To #2054)
						2055	12:04:00		2nd gas burst like in #2030
						2058	12:06:00		No more fumes visible. The puka seems to be wide open (a hole with a diameter of several meters)
						2926	19:05:00		At dusk a huge incandescent gas flame is visible. The hgt is several meters
						2927	23:22:00		No more spattering at all. The puka is brightly incandescent and releasing that big gas flame (To #3457)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									Film ran out
791	7/18/86	7/19/86		300m N of KMM to active fissure Wide angle	11 sec				Documentation on this roll of film, as in time in, interval between frames The movie shows the curtain of fire erupting from the fissure. The activity shows some fluctuation in hgt during daylight hours, but in the night either the activity is moving further down or the fissure is gradually shutting down, starting W and gradually closing in a downward direction
							15:22:15		Hand
							15:22:28		No hand
						0	15:22:38	7/18/86	Hand
						1	15:22:49		Hand
						2	15:23:00		Fist
						3			Low curtain of fire
						135	15:47:00		Increase in ftn hgt about 2-3 fold vacillating up and down at periods
						1195	19:02:00		Last daylight, curtain solid on E cone side, 2 gaps on W side
						1304	19:21:42		Gaps on W side begin to widen. Main curtain Kmm remains strong
						1305	19:22:00		Curtain fluctuates in hgt
						1694	20:33:00		Phh flow advancing toward camera
						1843	21:01:00		Phh flows reaching bottom of frame
						2054	21:39:00		Curtain shortens right side (about middle of frame toward left-coneside)
						2199	22:06:00		Slowly diminishing hgt begins
						2409	22:44:00		Fissure shutting down to 1022 vents on left edge of frame
						3025	0:37:00	7/19/86	Last hint of ftn on left edge, small glow (vent?) remains just uprfit (right of last ftn)
						3404	1:47:00		Last frame-mostly blocked
792	7/18/86	7/19/86		Camp 8 to Puu Oo Telephoto					The film shows a glowing vent at Puu Oo in addition to ftns coming out of the B fissure with flows moving in a southernly or SE direction
						0	20:24:43	7/18/86	First frame, B fissure and flow to left, four vent areas on line
						80	21:03:00		First view of Puu Oo incandescent conduit
						608	1:18:00	7/19/86	Last ftn from uprift-most vent
						683	1:55:00		Last ftn from 2nd uprift-most vent (dying out towards 1123)
						851	3:16:00		Fog obscures B fissure and Puu Oo conduit mostly til daylight
						1158	5:44:00		About dawn, flow and Puu Oo still visible but socked in
						1307	6:56:00		Last frame of Puu Oo cone
						2226	14:20:38		Hand
						2227	14:21:07		Hand

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2228	14:21:36		Book
793	7/19/86	7/25/86		1123 to Puu Oo and B fissures Wide angle		0	10:27:46	7/19/86	Blocked
						1	10:31:14		Blocked
						2	10:34:42		Book
						331	5:35:00	7/20/86	Dawn on 20th, no glow except from Puu Oo conduit (To #334)
						335	5:49:00		Glow not visible anymore. Dense white fumes are being released form the fissure, the degassing from the fissure is stronger than from the conduit
						530	17:05:00		The degassing from the fissure has increased. Puu Oo has almost completely hidden by a wall of very dense, white fumes
						563	19:00:00		At dusk, the glow originating from the conduit is visible
						749	5:44:00	7/21/86	Glow disappears at dawn
						1031	22:02:00		Glow disappearing again at night
						1043			Glow invisible, maybe due to fog cover
						1385	18:29:06		Puu Oo is totally covered by a dense yellowish-red cloud of fumes. No ftns visible (To #1386)
						1388	18:29		Total darkness
						1389		7/25/86	Nondescript, looks like camera had been opened before film ran out
794	7/20/86	7/25/86		Kalalua to C-fissure Telephoto		0	12:56:44	7/20/86	Hand
						1	12:58:55		Hand
						2	13:01:06		Hand
						3	13:03:19		Book
						5			Continuous ftning along the C-fissure at heights of several meters. (To # 112)
						113	17:08:00		Book-camera was moved.
						114			No ftn visible(To # 116)
						117			Ftns visible again (To # 118)
						119			No ftns visible (To # 123)
						124			Ftns visible again(To # 126)
						127			No ftns visble (To # 136)
						137			Ftns visible again
						148	18:26:00		Intensity of ftning is increased. There are still some "gaps" in the curtain up to maybe 50-70 m wide. One can clearly see the incandescent flowfront of tube fed phh a few 100m away from the fissure.
						215	20:55:00		At night the activity has decreased considerably, the ftns are almost dead.
						216	20:57:00		Ftns back to old level (To # 223)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						224			Ftn invisible or dead
						262	22:40:00		Again ftning visible
						263			No ftns (To # 291)
						292	23:46:00		Ftn again playing
						...415	4:20:00	7/21/86	
						416			No ftns
						421	4:33:00		Ftn back
						...519	8:11:00		
						520			Visibility deteriorated by thick fog or fumes
						527			Visibility down to zero(To # 691)
						713	15:23:00		Ftn again visible, but seems to be restricted to an area 100m or so wide along the fissure.
						722	15:43:00		Ftn is expanding uprift about 150 to 200 m
						747	16:39:00		No more ftn visible
						751	16:47:00		Ftn back
						779	17:50:00		Ftn increasing in intensity. Still there are wide gaps in the curtain
						1018	2:41:00	7/22/86	Ftn disappeared at night (To # 1023)
						1024	2:55:00		Ftn back (To # 1026)
						1027	3:02:00		Ftn disappeared (To # 1030)
						1031	3:10:00		Ftn back (To# 1053)
						1054	4:01:00		Ftn gone (To # 1061)
						1062	4:19:00		Ftn back (To # 1169)
						1170	8:20:00		Book
						1313	13:37:46		Hand
						1458	19:00:00		Ftns and flows heading S are again visible. The ftn is restricted to a very narrow area along the fissure uprift from Kalalua. It looks like the ftn is coming out from a spot and not from a longer fissure (To #1509)
						1510	20:56:00		No more action visible, not even glowing from flowfronts (To # 1539)
						1540	22:03:00		Again ftn from the single spot described above
						1541	22:05:00		Total darkness (To # 1654)
						1655	2:19:00		Intermittent from that single vent (To # 1720)
						...1720	4:43:00		
						1721	4:45:00		The ftns are coming from another vent, maybe 200 to 350 m farther down rift (To # 1730)
						1731			No action visible (To # 3177)
						3178	10:46:51		Hand
						3179	10:49:04		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
795	7/24/86	7/26/86		1123 to C-fissure		0	12:34:01	7/24/86	Blocked
				Telephoto		1	12:35:19		Blocked
						2	12:36:37		Book
						748	4:46:25		Incandescent lava visible. Looks more like a very slowly moving flow rather than ftns or spattering
						750			No action visible (To # 1392)
						1394	18:46:13		Again visible incandescence
						1732	2:06:00		Extremely bright incandescence and reddish glowing night sky. According to George sudden big overflows
						1734			Incandescence back to usual "Night glow". It is too dark to be considered as ftning or spattering
						1775	3:02:00		Same extreme brightness like in number 1732
						1802	3:37:00		Same extreme brightness like in number 1732
						...1803	..3:38:00		Same extreme brightness like in number 1732
						1806	3:42:00		Same extreme brightness like in number 1732
						1830	4:13:00		Same extreme brightness like in number 1732
						1839	4:25:00		Same extreme brightness like in number 1732
						1859	4:51:00		Same extreme brightness like in number 1732
						1868	5:02:00		Extremely bright incandescene and glow in sky
						1885	5:25:00		Extremely bright incandescene and glow in sky
						1887	5:27:00		Extremely bright incandescene and glow in sky
						2604	20:59:00	7/26/86	At night very dim red glowing flowfront
796	7/25/86	7/29/86		177 Vent to C-fissure		0	11:00:24	7/25/86	Blocked-begins with view from camp 8
				Wide angle		1	11:02:36		Blocked
						2			Book
						3	11:07:01		Book
						1412			TM; First incandescence visible. three seperate spots about 150 apart on top of the shield, otherwise no action at all
						2682	14:16:27		Blocked
						2683	14:18:39		Blocked
						2684	14:20:51	7/29/86	Book
									Pretty non-descript
797	6/27/86	7/14/86		1123 to PuuOo					Absolutely non-descript as in total darkness
				Wide angle					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
798	7/25/86	8/4/86		1123 to PuuOo +		0	11:55:51	7/25/86	Book
				B-fissure		1	11:59:19		Book
				Wide angle		2			Blocked
						3			Besides heavy fuming fissure non-descript (To # 1869)
						1870	28:58:31		First incandescence coming from the vent. It seems too bright to be just burning gas, more likely to be spattering or a small ftn (To # 1871)
						1872			Total darkness (To # 1893)
						1894	1:21:43		Bright red glow in the sky, although no incandescence is visible
						1958	5:03:35		Bright incandescence and red glow in the sky. Possibly low level spattering or ftn (To # 1959)
						1968	5:38:15		Same as above
						2314	1:37:43	8/4/86	Bright incandescence and glow above PuuOo conduit. A weak glow is also originating from B-fissure. (To # 2315)
									Film ran out
799	7/29/86	8/4/86		77 vent to C-fissure		0	14:29:44	7/29/86	Hand
				Wide angle		1	14:31:56		Hand
						2	14:34:08		Book
						121	18:55:56		First incandescence visible from top of the fissure. It has a horizontal red streak that might be the lateral limit of a flow or of a lava pond
						122			The red streak is migrating horizontally. Maybe the fissure is opening and closing on and off. No spattering, no ftning (To #437)
						769			Again incandescence from the fissure. This time it looks like a low level curtain of fire. It is too bright to be just a glow. There are gaps within the curtain 50 to 70 m. Activity migrates along fiss. at night (To #1014)
						1419	18:31:32		Ftns. originating from fissure are migrating up and down rift (To #1725)
						1720	5:33:44		Seems to peak at dawn before the ftns die down (To #1725)
						2081	18:47:56		Again incandescence, but much weaker than the night before. It might be just a glow originating from the fissure
						2082			The glow migrates up and down rift without getting any stronger (To #2357)
						2358			The activity has concentrated on one spot close to the left hand corner of view. It is bright and high enough to be a low ftn (To #2360)
						2361	5:03:56		A glow is visible all along the fissure
						2773	20:10:20	8/4/86	Incandescence visible from spots along fissure (To #2787)
									Film ran out

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
800	7/29/86	8/4/86		1123 to C-fissure		0	15:08:15	7/29/86	Hand
				Telephoto		1	15:09:31		Hand
						2	15:10:48		Book
						152	18:20:47		Incandescence visible from the center of the view towards the right hand border of the frame (To #166)
						167	18:39:47		Also incandescence visible maybe from a crack about 50 to 70 meters closer to the camera spot.
						168			Incandescence from both described locations without any significant change (To #358)
						359			Total darkness
						362	22:46:47		Again incandescence, weaker/more confined to smaller area along fissure
						384	23:14:39		Along the fissure that is closer to the camera, there is a "pulse" of lava moving pretty fast towards the right hand limit of the view. (To #385)
						473	1:07:23	7/30/86	In the center of the view there is a locally confined spatter vent active. Flows are predominantly moving to the right (To #704)
						757	7:07:07		Spatter vent active during the day. The hgt of the spatter or low ftns could be up to 3 meters (To #762)
						767	7:19:47		Again spattering from that vent (To #780)
						819	8:25:39		Again spattering from that vent (To #850)
						853	9:08:43		A brightly incandescent flowfront is visible about 100m to right of vent
						1230	17:06:15		An area around the vent is incandescent, possible caused by a small lava pond forming around vent (To #1231)
						1280	18:09:35		Incandescence from a fissure or a flow from the center of the view to the right hand border (To #1340)
						1341	19:26:51		Again fast moving "outbreak" of lava from the vent
						1619	1:18:59	7/31/86	Spatter vent resumes activity (To #1847)_
						2417	18:09:47		See #1280
						2431	18:27:31		Again "outbreak" closer to camera, almost parallel to most active fissure
						2929			Total darkness, no glow at all
						2946	5:19:51	8/1/86	At dusk the glow becomes visible again
									Film ran out
801	8/4/86	8/6/86		Camp 7 to C-fissure		0	11:49:36	8/4/86	Book
				Telephoto		1	11:50:53		Book
						324	18:44:46		Incandescence along the fissure. No spattering of ftning
						441			Nothing visible (To # 519)
						584	0:17:55	8/5/86	A flow is moving to the righthand side of the picture.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						710	2:59:22		In the center of the picture the spatter vent is active again maybe 2-3m high
						1453	18:51:25		Incandescence visible along the whole fissure
						2395	14:58:29	8/6/86	Blocked
						2396	14:59:45		Blocked
						2397	15:01:01		Blocked
802	8/4/86	8/6/86		Camp 7 to PuuOo		0	12:05:09	8/4/86	Booked
				Wide angle		1	12:08:38		Booked; Some glow from vent at night otherwise nothing
						868			Blocked
						869			Blocked
						870		8/6/86	Book
803	8/4/86	8/8/86		77 vent to C-fissure		0	10:33:00	8/4/86	Blocked
				Wide angle		1	10:35:13		Blocked
						2	10:37:26		Book
									Some flow and vent activity at night during days lighting is bad for viewing
						1318	11:12:10	8/6/86	Book
						1319	11:14:22		Book
						2590	10:11:14	8/8/86	Blocked
						2591	10:13:26		Blocked
						2592	10:15:38		Book
804	8/6/86	8/12/86		1123 to C-fissure		0	15:12:40	8/6/86	Blocked
				Telephoto		1	15:14:56		Blocked
						2	15:15:14	8/12/86	Book
									Activity visible at night, flows to S, N, and W of vent
									Not visible during day due to lighting
									Film ran out
805	8/8/86	8/11/86		77 vent to C-fissure		0	10:17:50	8/8/86	Blocked
				Wide angle		1	10:20:02		Blocked
						2	10:22:14		Book
									Plenty of night time flow activity in the ara of camera. Some dis activity during day but lighting is poor for making out detail.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2012	12:17:13		Blocked
						2013	12:19:23		Blocked
						2014	12:21:34		Book
									Rest of roll used to show landscape in real time
806	8/11/86	8/20/86		77 vent to C-fissure		0	12:35:38	8/11/86	Blocked
				Wide angle		1	12:37:48		Blocked
						2	12:39:58		Book
									Plenty of flow activity both day and night from vent to base of camera station. film seems to have been damaged by heat (discoloring of pictures throughtout). Film ran out though I think this happened before camera fell over(when roll was recovered camera and tripod were found fallen over on to fresh lava flow,.
807									Test roll/testing Box M camera.
808	8/20/86	8/30/86		Prehistoric cone to		0	11:34:29	8/20/86	Book
				C- fissure		1	11:37:51		Book
				Wide angle		2	11:41:13		Book
									Note that the first two blocked frames are being omitted as instructed from original time sheet
									Flow activity visible at night lightly not good for viewing detail during day-light hours
						951	17:24:02	8/22/86	Blocked/camera moved to Kal west
									Flow activity visible at night and some during days
									Film ran out
809	8/6/86	9/3/86		1123 to PuuOo		0	15:16:47	8/6/86	Blocked
				Wide angle		1	15:20:16		Book
						2	15:23:45		Book
									First blocked omitted frame #0 is second blocked
									Gas burning at vent visible at night
						2429	14:46:48		Blocked; TM
									Film ran out

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
810	8/12/86	9/3/86		1123 to C-fissure		0	14:36:37	8/12/86	Blocked
				Telephoto		1	14:37:55		Blocked
						2	14:39:12		Book
									Activity visible at night, lightly poor during day
									Film ran out
811	8/30/86	9/10/86		Kal west to C-fissure		0	9:37:49	8/30/86	Book
				Wide angle		1	4:41:12		Book
									During days flow and vent activity is not visible due to poor lighting . During nights flows are visible to N, S, and towards camera to E, first real surrounding of prehistoric cone
									Film ran out
812	9/3/86	9/10/86		1123 to Puu Oo		0	9:06:47	9/3/86	Blocked
				Wide angle		1	9:10:16		Blocked
						2	9:13:47		Book
									No activity other than burning gas at Puu Oo vent visible at night.
									Long stretches of fog
									Several frames only half-exposed or half is over-exposed (only half of the frame has visual information on it)
									Paper says times when film was removed from camera but I cannot blocked or booked frames
813	9/3/86	9/10/86		1123 to C fissure		0	8:07:35	9/3/86	Blocked
				Telephoto		1	8:11:08		Blocked
						2	8:14:40		Book
						3	8:18:12		Book
									Camera aimed too high, nothing on whole roll but sky
						2945	14:13:08		Blocked
						2946	14:16:40		Blocked
						2947	14:20:12		Booked
									This camera switched to Box G
814	9/10/86	9/17/86		Kalalua W to C fissure		0	11:38:40	9/10/86	Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle		1	11:42:06		Blocked
						2	11:45:31		Book
									Activity visible at night, daylight makes details hard to see clearly
									Camera is failing, seems shutter is staying opening longer than it should, though this makes for some good nighttime footage.
									Flows to SE, E and NE
									Couldn't find TM at end
815	9/10/86	9/17/86		1123 to Puu Oo		0	14:23:53	9/10/86	Blocked
				Wide angle		1	14:27:23		Blocked
						2	14:30:53		Blocked
						3	14:34:23		Book
									Burning gas at vent visible at night otherwise nondescript
									Occasionally camera does not record whole frame
						2840	13:04:38	9/17/86	Blocked
						2841	13:08:05		Blocked
						2842	13:11:32		Book
816	9/10/86	9/17/86		1123 to C-fissure		0	14:27:18	9/10/86	Blocked
				Telephoto		1	14:30:48		Blocked
						2	14:34:19		Book
									Activity visible at night, daylight makes details harder to see clearly
									Active flows to NW, W, and SW
						2738	12:38:24		Blocked
						2739	12:41:56		Blocked
						2740	12:45:26		Book
817									Box M Roll Z?? Found in stored camera. Labelled Box M Roll Z (Does not correspond with Box M records) Except for leader film is unexposed No dates.
818	9/17/86	9/25/86		1123 to C-fissure		0	12:53:23	9/17/86	Blocked
				Telephoto		1	12:56:57		Blocked
						2	13:00:29		Book
									Intermittent activity at pond, visible both day and night, telephoto only

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									allows view of pond and area between shield and camera
						3103	8:48:29	9/25/86	Blocked
							8:52:04		Blocked
							8:55:38		Book
819	9/17/86	9/25/86		1123 to Puu Oo		0	11:40:00	9/17/86	Blocked
				Wide angle		1	11:41:19		Blocked
						2	11:42:40		Blocked
						3	11:44:60		Book
									Very little gas burning up at vent, visible during nights
									Film ran out
820	9/17/86	9/25/86		Kalalua W to C-shield		0	13:15:24	9/17/86	These TM did not show up on film, however, there are TM on the end of
				Wide angle		1	13:18:56		the film.
						2	13:22:24		
						3	13:25:52		
									Intermittent flow activity around base of shield, visible during daylight
									and nighttime periods.
821	9/25/86	10/1/86		1123 to C-shield		0	9:12:05	9/25/86	Blocked
				Telephoto		1	9:15:39		Blocked
						2	9:19:13		Book
						147			Summit active all of 1st night (To #358)
						548			Summit active 2 1/2 hrs of 2nd night (To #593)
						964			Summit partialy active all of 3rd night (To #1155)
						1554			Summit momentary glow, 4th night
						1757			Summit active most of 5th night, some spatter (To #1962)
						2000		9/30/86	Visible activity by day
						2162			Summit continuously active all of 6th night, some spatter
						2410	8:53:31	10/1/86	Book
822	9/25/86	10/1/86		1123 to Puu Oo		0	9:43:15	9/25/86	Blocked, no TM at beginning of film
				Wide angle		1	9:46:56		Book, no TM at beginning of film
						2	9:50:33		Book, no TM at beginning of film
						199			Small glow at W = gas flame on vent 1st night

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									No visible activity all of 2nd night
									No visible activity all of 3rd night
									No visible activity all of 4th night
									No visible activity all of 5th night
									No visible activity all of 6th night
						2292	9:16:31		Blocked
						2293	9:20:17		Blocked
						2294	9:24:03	10/1/86	Book
823	9/25/86	10/1/86		Kalalua W to C-shield		0	10:33:02	9/25/86	Blocked
				Wide angle		1	10:36:33		Book
						2	10:40:40		Book
						129			Some activity in W, intermittent through 1st night
						173			Some activity on summit, intermittent through 1st night (To #337)
						534			Some activity all over shield, 2nd night (To #572)
						634			Bright red flashes and flow
						645			Bright red flashes and flow
						680			Bright red flashes and flow
						711			Bright red flashes and flow
						724			Bright red flashes and flow
						729			Bright red flashes and flow
						874			Flow form summit towards E and W all over shield, 3rd night (To #966)
						1060			Bright glow followed by overall activity, pyrotechnics, 4th night
						1214			Bright glow followed by overall activity, pyrotechnics, 5th night
						1440		10/1/86	Bright glow followed by overall activity, pyrotchnics, 6th night
									Camera exchanged for repair
									No ending TM
824	10/1/86	10/8/86		1123 to C-shield		0	8:59:26	10/1/86	Blocked
				Telephoto		1	9:03:59		Blocked
						2	9:07:33		Book
						132			Bright glow from shield summit
									Bright glow from shield summit almost all of 1st night
						550			Bright glow from shield summit almost all of 2nd night
						962			Bright glow from shield summit almost all of 3rd night
						1504			Bright glow from shield summit last hour before dawn 4th night (To #1525)
									No visible activity all of 5th night

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									No visible activity all of 6th night
						2641			Activity along all of summit 7th night (To #2770)
						2813	9:10:16		Blocked
						2814	9:13:52		Blocked
						2815	9:17:28	10/8/86	Book
825	10/1/86	10/8/86		1123 to Puu Oo		0	9:32:45	10/1/86	Blocked
				Wide angle		1	9:36:30		Blocked
						2	9:40:17		Book
						3	9:44:03		Book
									No visible activity all of 1st night
									No visible activity all of 2nd night
									No visible activity all of 3rd night
									No visible activity all of 4th night
									No visible activity all of 5th night
									No visible activity all of 6th night
									Faint glow at vent on 7th night
						2667	9:10:55		Blocked
						2668	9:14:42		Blocked
						2669	9:18:29	10/8/86	Book
826	10/1/86	10/8/86		Kalalua W to C fissure		0	11:20:20	10/1/86	Blocked
				Wide angle		1	11:23:36		Blocked
						2			Book
						136			Intermittent activity all over shield on 1st night
						586			Intermittent activity especially in W on 2nd night
						788			Continuing flow westward (To #805)
						1012			Activity all 3rd night especially flow near Kalalua W (To #1228)
						1667			Activity all 4th night mainly in W
									No visible activity all of 5th night
						2425			One glowing unmoving pinpoint 6th night (To #2464), skylight
						2757			(2975 several pinpoints) and ditto 7th night, skylight
						3230		10/8/86	No blocked
									Film ran out
827	10/8/86	10/16/86		1123 to C-shield		0	9:28:26	10/8/86	Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Telephoto		1	9:32:01		Blocked
						2	9:39:10	10/16/86	Book
									ENtire film unexposed
									No hand blocking evident at end
828	10/8/86	10/16/86		1123 to Puu Oo		0	9:29:06	10/8/86	Blocked
				Wide angle		1	9:32:53		Blocked
						2	9:36:39		Book
						186			Glimmer at Puu Oo vent, occasional during 1st night
									No visible activity during 2nd night
									No visible activity during 3rd night
						1401			Small glow at vent during 4th night (To #1441)
						1757			Small glow at vent during 5th night (To #1767)
						2139			Small glow at vent during 6th night (To #2170)
						2492			Small glow at vent during 7th night (To #2500)
						2943			Small glow at vent during 8th night (To #2973)
						3104	12:40:13		Blocked
						3105	12:43:57		Blocked
						3106	12:47:43	10/16/86	Book
829	10/8/86	10/16/86		Kalalua W to Cfissure					Camera moved from Box 1
				Wide angle		0	11:29:45	10/8/86	Blocked
						1	11:32:59		Blocked
						2	11:36:14		Book
						117			Flow developing towards E through 1st night (To #347)
						543			Flow active towards E
						641			Flow active towards W too, 2nd night (To #786)
						981			Flow active in E, all 3rd night (To #1272)
						1443			Flow active E and W, most of 4th night (To #1640)
						1869			Flow active in E, degassing towards morning, 5th night (To #2098)
						2319			Slight activity in E, all of 6th night (To #2540)
						2807			Very slight activity in E on 7th night (To #2932)
						3260			Slight activity
						2375			Not blocked, film ran out (the book claims otherwise)
							13:58:54		
							14:02:29		
							014:05:23		

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
830	10/16/86	10/23/86		1123 to C-shield		0	13:26:59	10/16/86	Blocked
				Telephoto		1	13:30:34		Blocked
						2	13:34:09		Book
						169			A few glows at W, 1st night
						615			A few glows at W and E, 2nd night (To #631)
						871			A few glows at W and E, 3rd night (To #1054)
						1373			A few glows at W, 4th night (To #1438)
						2180			A few glows at W and E, 5th night (To #2275)
									No visible activity on 6th night
						2711	9:15:57		Blocked
							9:19:33		Blocked
							9:23:08		Book
831	10/16/86	10/23/86		1123 to Puu Oo		0	12:57:56	10/16/86	Blocked
				Wide angle		1	13:01:41		Blocked
						2	13:05:26		Book
									No visible action on 1st night
						442			Thick smoke issued from base of cone (To #458)
									No visible action on 2nd night
						945			Glow on E side of Puu Oo, 3rd night (To #1037)
									No visible action on 4th night
						1720			Glow on E side of Puu Oo, 5th night (To #1771)
						1987			Glow on E side of Puu Oo, 6th night, faint and intermittent (To #2177)
						2474			Glow on E side of Puu Oo, 7th night, faint and intermittent (To #2559)
						2599			Blocked
						2600			Book
832	10/16/86	10/23/86		Kalalua W to Cfissure		0	14:10:44	10/16/86	Blocked
				Wide angle		1	14:13:39		Blocked
						2	14:16:54		Book
						78			Intermittent glows over shield, 1st night, including glow at #167 (To #297)
						497			Intermittent glow over shield, 2nd night (summit at #635) (To #714)
						951			Active mostly E from #967, some flow to E, 3rd night (To #1016)
						1071			Renewed activity, flow E from #1087 (To #1171)
						1429			Intermittent activity all of 4th night (To #1600)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1821			Activity all over shield through 5th night (To #2056)
						2267			Activity all over shield through 6th night (To #2487)
						2720			Lessened activity over shield, 7th night (To #2927)
						3004	10:20:38		Blocked
						3005	10:23:54		Blocked
						3006	10:27:10		Book
833	10/23/86	10/30/86		1123 to C-shield		0	9:35:43	10/23/86	Blocked
				Telephoto		1	9:39:17		Blocked
						2	9:42:51		Book
						64			Filming starts
						287			Minor activity starts in W, 1st night (To #343)
						517			Some flaring in cone in E, 1st night
						538			Developing activity all over shield, 2nd night
						928			Flow in W, 3rd night (To #1015)
						1059			Activity in W, 3rd night (To # 1100)
						1342			General activity all over shield, 4th night (To #1549)
						1739			Two flares in W, followed by occasional flashes, 5th night (To #1808)
						2179			General activity mostly in W. Bright flow #2272, 6th night (To #2316)
						2620			Some flashes, 7th night (To #2630)
						2781			Blocked
						2782			Blocked
						2783			Book
834	10/23/86	10/30/86		Kalalua W to C-shield		0	10:34:53	10/23/86	Blocked
				Wide angle		1	10:38:09		Blocked
						2	10:41:23		Book
						139			Several small glows towards E, 1st night (To #158)
						159			Flow on W
						177			Flow on E, intermittent activity all over shield (To #265)
						576			Minor activity all over shield through 2nd night
						1022			Pinpoint glows mainly in E, all 3rd night
						1379			Blocked
						1455			Two bright flashes on pond followed by pinpoint glows in E, 4th night
						1534			Apparent flow to E and #1582 to W too (To #1685)
						1879			Active flow to W, 5th night (To #2120)
						2336			Some activity all over shield, 6th night

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									No visible activity through 7th night
						3075	10:42:33		Blocked
						3076	10:45:49		Blocked
						3077	10:49:05		Book
835	10/23/86	10/30/86		1123 to Puu Oo		0	9:07:31	10/23/86	Blocked
				Wide angle		1	9:11:17		Blocked
						2	9:15:03		Book
						69			Film starts
									No visible activity 1st night
									No visible activity 2nd night
									No visible activity 3rd night
									No visible activity 4th night
									No visible activity 5th night
						2083			Intermittent bright flashes at vent, 6th night (To #2236)
						2453			Continuous faint glow all 7th night, with bright flash at #2514
						2678			Blocked
						2679			Blocked
						2680			Book
836	10/30/86	11/4/86		Kalalua W to C-shield		0	10:56:46	10/30/86	Blocked
				Wide angle		1	11:00:01		Blocked
						2	11:03:17		Book
						3	11:06:32		Book
						272			Glow on E and developing apparent flow on W 1st night (To #358)
						561			Glow on E and later intermittently, 2nd night (To #640)
						1122			Momentary glow
									No visible activity 3rd night
						1890			Isolated glows during 4th night (To #2003)
						2176	10:01:23		Blocked
						2177	4:40:00		Blocked
							7:57:00		Book
837	10/30/86	11/4/86		1123 to C-shield		0	9:55:19	10/30/86	Blocked
				Telephoto		1	9:58:54		Blocked
						2	10:02:28		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						142			Few isolated flashes, 1st night
						318			Several continuous glowing points, 1st night(To # 343)
						533			Almost continuous activity all of 2nd night(To # 669)
						938			Almost continuous activity all of 3rd night(To # 1097)
									No visible activity on 4th night
						1779			Two small glows on 5th night(To # 1790)
						2019	14:41:48		Blocked
						2020	14:48:56		Book
838	10/30/86	11/4/86		1123 to PuuOo		0	9:50:31	10/30/86	Blocked
				Wide angle		1	9:54:17		Blocked
						2	9:58:17		Book
						195			Small glow to the E all night and plume of steam in the day
									Night of 31st, no visible activity
									Night of 11/1, no visible activity
						1298			Small glow as above, one time. Plume by day
						1698			Small glow as above intermittent. Plume by day
						2266	14:19:03		Blocked
							14:22:46		Blocked
839	11/4/86	11/16/86		Kalalua W to C-shield		0	10:15:34	11/4/86	Blocked
				Wide angle		1	10:18:51		Blocked
						2	10:22:07		Book
						161			Intermittent glimmer on pond, especially on NE section
						323			Outbreak at SE
						332			Outbreak at E and spreading over shield
						389			Spillover activity at center of pond to E. shield flow continues
						423			Flow abates
									Night of 5th, no visible activity
									Night of 6th, no visible activity
									Night of 7th, no visible activity
									Night of 8th, no visible activity
									Night of 9th, no visible activity
									Night of 10th, no visible activity
									Night of 11th, no visible activity
									Film ran out the 11/12/86

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
840	11/16/86	11/18/86		Kalalua W to C-shield		0	12:53:30	11/16/86	Blocked
				Wide angle		1	12:56:47		Blocked
						2	13:00:06		Book
									Night of 16th, no visible activity
									Night of 17th, no visible activity
									Out
						874	13:18:50		Blocked
						875	13:22:07		Blocked
						876	13:25:25		Book
841	11/4/86	11/18/86		1123 to C-sheild		0	14:52:10	11/4/86	Blocked
				Telephoto		1	14:55:43		Blocked
						2	14:56:16		Book
						49			Flashing intermittently and again at dawn (To # 212)
									Night of 12th, no visible activity
									Night of 13th, no visible activity
									Night of 14th, no visible activity
									Night of 15th, no visible activity
									Night of 16th, no visible activity
									Night of 17th, no visible activity
842	11/4/86	11/18/86		1123 to PuuOo		0	14:31:49	11/4/86	Blocked
				Wide angle		1	14:35:32		Blocked
						2	14:39:15		Book
						42			Apparent actiity
									Night of the 11th, No visible activity
						395			Apparent flow on shield SEE
									Night of the 12th, no visible activity
									Night of the 13th, no visible activity
									Night of the 14th, no visible activity
									Night of the 15th, no visible activity
						2111			Flash of red glow
									Night of the 17th, nothing
									Ran out

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
843	11/18/86	11/25/86		Kalalua W to C-shield		0	12:02:10	11/18/86	Blocked
				Wide angle		1	12:05:37		Blocked
						2	12:09:05		Book
									Night of the 18th, no visible activity
						318			Glow at NE end of pond
									Night of the 19th, no visible activity
									Night of the 20th, no visible activity
									Night of the 21st, no visible activity
									Night of the 22nd, no visible activity
									Night of the 23rd, no visible activity
									Night of the 24th, no visible activity
									Out
						2890	12:06:05		Blocked
						2891	12:09:35		Blocked
						2892	12:13:04		Book
844	11/18/86	11/25/86		1123 to C-sheild		0	11:01:09	11/18/86	Blocked
				Telephoto		1	4:59:00		Blocked
						2	8:48:00		Book
									Night of the 18th, no visible activity
									Night of the 19th, no visible activity
									Night of the 20th, no visible activity
									Night of the 21st, no visible activity
									Night of the 22nd, no visible activity
									Night of the 23rd, no visible activity
									Night of the 24th, no visible activity
						2606	9:56:26		Blocked
						2607	9:00:16		Blocked
						2608	9:04:06		Book
845	12/1/86	12/1/86		Flow entering ocean viewed from E side of flow	real time			12/1/86	Some good footage of toes opening into the waves, but on the underexposed side
846	11/25/86	12/2/86		Kalalua W to C-sheild		0	12:19:46	11/25/86	Blocked
				Wide angle		1	12:23:15		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	26:44:00		Book
									Night of the 25th, no visible activity
									Night of the 26th, no visible activity
									Night of the 27th, no visible activity
									Night of the 28th, no visible activity
									Night of the 29th, no visible activity
						2275			Night of the 30th, few frames of spattering, and probable overflows from pond to ESE
									Night of the 1st, no visible acitivity
846						2880	13:50:15		Blocked
						2881	13:53:46		Blocked
						2882	13:57:18		Book
847	11/25/86	12/2/86		1123 to C-shield		0	9:13:18	11/25/86	Blocked
				Telephoto		1	9:17:07		Blocked
						2	9:21:56		Book
									Night of the 25th, no visible activity
									Night of the 26th, no visible activity
									Night of the 27th, no visible activity
									Night of the 28th, no visible activity
									Night of the 29th, no visible activity
									Night of the 30th, no visible activity
									Night of the 1st, no visible activity
						2724	15:09:16		Blocked
						2725	15:13:05		Blocked
						2726	15:16:54		Book
848	12/4/86	12/5/86		North Rim	full speed			12/4/86	Lava pond spillover and shannel tube development at SE end of pond
849	12/5/86	12/5/86		North Rim			14:30:00 ..14:45:00	12/5/86	Good exposure. Camera hand held, some sequences to shaky, Good short sequenced of pond crust overturning
850	12/2/86	12/9/86		Kalalua W to C-shield		0	14:03:20	12/2/86	Blocked
				Wide angle		1	14:06:52		Blocked
						2	14:10:22		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									Night of the 2nd, no visible activity
						469			Slight activity in north east (To # 532)
						532			Activity in SE with overflow to SE(To # 688)
						800			bloced
						880			Continuous glow in NE (To # 1106)
						1336			Continuous glow in NE (To # 1470)
						1901			Activity in NE and S. Ooze out ofNEE(To # 1915)
						2090			Apparent continuation of ooze out on NEE
						2010			Glow in NE end of pond and intermittantly in SE (To # 2060)
						2246			Glow in N E end of NEE ooze out and intermittantly in SE(To # 2320)
						2485			Apparent overflow NE of pond
						2504			Extnesion of overflow to SE and intensification at NE
						2801	11:15:47		Blocked
						2802	11:19:18		Blocked
						2803	11:22:48		Book
851	12/2/86	12/9/86		1123 to C-sheild		0	15:24:43	12/2/86	Blocked
				Telephoto		1	15:28:32		Blocked
						2	15:32:21		Book
									No visible activity, 1st and 2nd nights
						797			Big glow in W, nothing later on 3rd night
									No visible activity on the 4th night
						1735			Dawn activity at summit, 5th night (To # 1745)
						1923			Extensive activity all night. Big flash 1940
						2064			Beginning of flow from W to E, 6th night(To # 2118)
						2353			Glow in E(To # 2488)
						2527	9:02:16		Blocked
						2528	9:06:05		Blocked
						2529	9:09:00		Book
852	12/9/86	12/16/86		Kalalua W to C-sheild		0	11:30:34	12/9/86	Blocked
				Wide angle		1	11:34:03		Blocked
						2	11:37:33		Book
						92			Breakout in the W (To # 329)
						520			Flow in W continues all thru the 1st night and next day
						520			Activity lessens, 2nd night
									Novisible activity on the 3rd night

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									No visible activity on the 4th night
									No visible activity on the 5th night
									No visible activity on the 6th night
						2579			Glow at summit during the 7th night
						2850	10:47:46		Blocked
						2851	10:51:12		Blocked
						2852	10:54:44		Book
853	12/9/86	12/16/86		1123 to C-sheild		0	9:17:20	12/9/86	Blocked
				Telephoto		1	9:20:09		Blocked
						2	9:24:58		Book
						235			Lurid flahs over enrire front, 1st night
									Novisible activity on 2nd night
									No visible activity on the 3rd night
									No visible activity on the 4th night
									No visible activity on the 5th night
									No visible activity on the 6th night
						2582			Fair activity over entire of summit 7th night(To # 2595)
						2628	8:43:50		Blocked
						2629	8:47:40		Blocked
						2630	8:51:30		Book
854	12/18/86	12/18/86		Hwy 130 to lokelani		0		12/18/86	Blocked, no time record
				Med wide angle					Lava crosing hwy130 on dec 18 1986 (To # 10)
855	12/16/86	12/23/86		Kalalua W to C-shield		0	11:17:30	12/16/86	Blocked
				Wide angle		1	11:21:03		Blocked
						2	11:24:36		Hand
						107			Steady glow on summit all of the 1st night (To # 331)
						524			Developing flow towards W on the 2nd night(To # 741)
						934			Summit glow. Only slight activity later on 3rd night
						1337			summit activity (To # 1469)
						1472			developing flow towards W and then E, 4th night(To # 1552)
						176			Flow activity in W spreading E, 5th night into morning(To # 1966)
						2141			Flow activity in W towards E, 6th night into the morning (To # 2368)
						2561			Pinpoint glows all over shield all of 7th night

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									Out; hand missed lens. No time markers
856	12/16/86	12/23/86		1123 to C-shield		0	8:59:47	12/16/86	Blocked
						1	9:03:35		Blocked
						2	9:07:24		Book
						146			Intermittant activity an the 1st night (To # 342)
						535			Intermittant activity on the 2nd night into the morning (To # 718)
						993			Intermittant activity on part of the 3rd night (To # 1051)
						1267			Continuous activity on half of the 4th night (To # 1377)
									No visible activity on the 5th night
									No visible activity on the 6th night
									No visible activity on the 7th night
						2659	10:16:38		Blocked
						2660	10:20:27		Blocked
						2661	10:24:16		Book
857	12/23/86	12/30/86		Kalalua W to C-shield		0	11:56:20	12/23/86	Blocked
				Wide angle		1	11:59:50		Blocked
						2	12:03:27		Book
						61			Apparent overlfow at W. and lava river beginning towards E
						94			The above becomes clear with evening twilight (To # 153)
						153			flow branchs off to the W. too
						185			Activity lessens and ceases(To #227)
						286			Glow at W. 1st night
						505			Activity towards W. at summit and then towards E, 2nd night (To # 725)
						1019			Slight glow at summit, 3rd night
						1321			Slight glow at summit, 4th night (To # 1355)
						1506			Activity at summit (To # 1541)
						1722			5th night,summit glow lead to flow from W to E, later to E(To # 1951)
						2118			Flow from summit to E fluctuation all night, 6ht night (To # 2355)
						2530			All night activity lessening towards dawn, 7th nigt
						2861			Blocked by x-tinas face
									No time marks
858	12/23/86	12/30/86		1123 to C-sheild		0	10:32:36	12/23/86	Blocked
				Telephoto		1	10:36:25		Blocked

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	10:40:13		Book
									Novisible activity all of the 1st night
						500			Glow in E, some summit activity (To # 582)
						639			Glow in summit, 2nd night
						959			Glow in E, 3rd night(To # 1025)
						1248			Diminighing slow in E, 4th night
						1421			All over activity on summit line (To # 1460)
						1614			Great activity towards E diminishing to summit line only 5th night
						2000			Summit line active all of the 6th night
									No visible activity, 7th night
						2632			Blocked
						2634	9:30:17		Blocked
						2635	19:34:05		Blocked
						2636	19:37:53		Book
859	12/30/86	1/7/87		Kalalua W to C-fissure		0	12:56:30	12/30/86	Blocked
				Wide angle		1	13:00:00		Blocked
						2	13:03:31		Book
						3			Non-descript daytime (to # 91)
						92			Overflow to the N(To # 130)
						131			Overflow to the E (to # 144)
						145			Non-descript nightime (end first night)(To # 302)
						303			Non-descript daytime (To # 490)
						500			Breakouts (To # 654)
						655			Overflow to the N (To # 676)
						710			End second night
						771			Overflow continuing
						772			View obscured by steam (To # 776)
						856			Overflow to the E
						945			Overflow to the S
						1001			Overflow to the E
						1117			End of the 3rd night
						1118			Non-descript day (To # 1307)
						1308			Object in view
						1522			End of the 4th night
						1522			Non-dscript day (To # 1724)
						1930			end of the 5th night
						2057			Overflow to the N

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2209			2742
						2289			Overflow ends
						2315			Activity at base of Kalalua
						2333			End of the 6th night
						2742			End of the 7th night(Activity continues at the base of Kalalua)
						2813			Arm
						2814	10:53:20		Hand
						2815	10:56:52		Hand
						2816	11:00:28		Book
860	12/30/86	1/6/87		1123 to C-sheild		0	9:57:30	12/30/86	Blocked
				Telephoto		1	10:01:19		Blocked
						2	10:05:08		Blocked
						3	10:08:56		Book
						330			End of the 1st night
						669			Possible ftning (a few meters high)(To # 695)
						707			End of the 2nd night
						1083			End of the 3rd night
						1459			End of the 4th night
						1838			End of the 5th night
						2216			End of the 6th night
						2595			End of the 7th night
						2671	11:28:05		Blocked
						2872	11:31:52		Blocked
						2673	11:35:40		Blocked
						2674	11:39:29		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
861	1/6/87	1/13/87		Kalalua W to C-sheild		0	11:11:00	1/6/87	Blocked
				Wide angle		2	11:16:15		Blocked
						3	11:21:14		Book
						334			End of the 1st night
						742			End of the 2nd night
						1149			End of the 3rd night
						1561			End of the 4th night
						1966			End of the 5th night
						2370			End of the 6th night
						2459			Looking for Omar (M. Garcia)
						2774			End of the 7th night
						2847	11:00:53		Hand
						2848	11:04:25		Book
						2849	11:07:58		Book
862	1/6/87	1/13/87		1123 to C-shield		0	13:33:00	1/6/87	Hand
				Telephoto		1	13:36:50		Hand
						2	13:40:40		Book
						270			End of the 1st night
						640			End of the 2nd night
						1025			End of the 3rd night
						1406			End of the 4th night
						1777			End of the 5th night
						2159			End of the 6th night
						2533			End of the 7th night
						2577	9:31:45		Hand
						2578	9:35:34		Hand
						2579	9:39:23		Chair
863	1/13/87	1/20/87		Kalalua W to C-shield		0	11:16:06	1/13/87	Hand
				Wide angle		1	11:19:38		Book
						2	11:23:10		Book
						330			End of the 1st night
						733			End of the 2nd night
						931			Overflow to the N
						1141			End of the 3rd night (Overflow continues)
						1549			End of the 4th night

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1959			End of the 5th night
						2365			End of the 6th night
						2771			End of the 7th night
						2907	14:36:26		Hand
						2908			Hand
						2909	14:43:25		Book
864	1/13/87	1/20/87		1123 to C-sheild		0	9:48:21	1/13/87	Hand
				Telephoto		1	9:52:07		Hand
						2	9:56:53		Book
							10:03:24		Missed
						4	10:07:09		Book
						5			Book
						80			Active flow face of the shield
						331			End of the 1st night(activity in pond)
						705			End of the 2nd night (activity in pond)
						766			Overlfow to W
						1083			End of the 3rd night, overflow continues
						1313			Overflow ends
						1458			End of the 4th night(activity in pond)
						1842			End of the 5th night
						2216			End of the 6th night(Activity in pond)
						2593			End of the 7th night
						2729	15:17:09		Hand
						2731	15:24:40		Hand
						2732	15:28:25		Book
865	1/20/87	1/27/87		Kalalua W to C-shield		0	14:49:56	1/20/87	Hand
				Wide angle		1	14:56:46		Hand
						3			Book; no time due to wind
						270			End of the 1st night
						680			End of the 2nd night
						868			Activity on north side of shield
						1088			End of the 3rd night, activity continues
						1499			End of the 4th night
						1910			End of the 5th night
						22667			Activity N side of shield

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2321			End of the 6th night, activity continues
						2727			End of the 7th night, acivity continues
						2816	11:53:22		Hand
						2817	11:56:51		Book
866	1/20/87	1/27/87		1123 to C-shield Telephoto		0		1/20/87	Sombody goofing around with the timelapse (To # 370)
867	1/27/87	1/27/87		NE rim of pond on C-shield to spatter and convection in NE corner		0	13:30:00	1/27/87	Sideways camera(To # 22)
						23			Spattering at edge of pond (To # 1055)
						1056			Spreading center on pond surface (To # 1525)
						1526			Spattering at edge of pond (To # 1679)
						1680			Spattering at far edg of pond and large fold of pond skin (To # 2013)
						2014			Spattering at edge of pond(To # 2839)
						2840			Small bubbles breaking pond surface(To # 3076)
						3077			Close-up of spreading zone(To # 3351)
868	1/28/87	1/28/87		Slab-forming Phh flow front at the base of the C-shield		0		11/28/87	Small slabb-Phh flow(To # 19)
						20			Camera tilted (non-descript)(To# 100)
						101			Advancing Phh flow with slabby front (To # 581)
						582			Margin of slow-moving Phh flow (To # 1221)
						1222			Surface and side breakouts, Phh flow(To # 2006)
						2007			Active toes at front of the Phh flow (To # 2680)
						2081			Active flow front moving against A'A flow (To # 3551)
869	1/13/87	1/20/87		Rim of pond to pond surface Wide angle		0	9:21:17	1/13/87	Hand
						1	9:24:44		hand
						2	9:28:05		Book
						385			End of the 1st night(small, sporadic ftning)
						815			End of the 2nd night(small, sporadic ftning)
						887			Ftning near camera builds spatter moved
						1250			End of the 3rd night(camera no longer at pond)
						3166	17:15:21		Hand
						3167	17:18:39		Hand
						3168	17:21:58		Book

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
870	1/27/87	2/4/87		1123 to C-shield		0	12:18:27	1/27/87	Hand
				Telephoto		1	12:22:12		Hand
						2	12:25:57		Book
						291			End of the 1st night(Non-descript)
						672			End of the 2nd night(non-descript)
						1050			End of the 3rd night(non-descript)
						1424			End of the 4th night(non-descript)
						1805			End of the 5th night(non-descript)
						2185			End of the6th night(non-descript)
						2562			End of the 7th night (non-descript)
						2943			End of the 8th night(non-descript)(activity minor in N end of pond)
						3067	14:24:53		Hand
						3068	14:28:37		Book
871	1/29/87	2/3/87		Kalalua W to C-shield		0	7:22:24	1/29/87	Hand
				Wide angle		1	7:25:57		Hand
						2	7:29:28		Book
						398			End of the 1st night(non-descript)
						807			End of the 2nd night(non-descript)
						1217			End of the 3rd night(non-descript)
						1457			Setting moon(To # 1467)
						1626			End of the 4th night(non-descript)
						1826			Fume from pond visible in sunset(To # 1835)
						1898			End of the 5th night(non-descript)
						1938	10:29:57		Hand
						1939	10:33:26		Hand
						1940	10:36:56		Book
872	2/2/87	2/10/87		1977 A-vent to Feb					
				87 crack		0	16:20:34	2/2/87	Hand
				Wide angle		1	16:23:50		Hand
						2	16:27:07		Book
						257			End of the 1st night(water)
						695			End of the 2nd night, nondescript
						1131			End of the 3rd night, nondescript

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1566			End of the 4th night, nondescript
						2004			End of the 5th night,nondescript
						2440			End of the 6th night,nondescript
						2876			End of the 7th night,nondescript
						3309			End of the 8th night,nondescript
873	2/3/87	2/10/87		Kalalua W to C-shield		0	10:48:37	2/3/87	Hand
				Wide angle		1	10:58:12		Book
						2			End of the 1st night, minor activity, bad weather
						340			End of the 2nd night
						757			End of the 3rd night
						1170			End of the 4th night
						1583			End of the 5th night
						1997			End of the 6th night, minor activity, N end of the pond
						2409			End of the 7th night,minor activity
						2819			Hand
						2907	11:40:27		Hand
						2908	11:43:55		Book
						2909	11:47:22		
874	2/4/87	2/10/87		1123 to C-shield		0	14:38:34	2/4/87	Hand
				Telephoto		1	14:42:19		hand
						2	14:46:04		Book
						252			End of the 1st night, minor activity in pond
						630			End of the 2nd night, minor activity in pond
						1010			End of the 3rd night, "
						1390			End of the 3rd night, "
						1771			End of the 4th night, "
						2151			End of the 5th night, "
						2196	9:18:03		Hand
						2197	9:22:07		Hand
						2198	9:25:51		Book
875	2/10/87	2/11/87		Kalalua W to C-shield		0	11:58:37	2/10/87	Hand
				Wide angle		1	12:02:06		Hand
						2	12:05:33		Book
						318			End of the 1st night, minor activity, N. end of pond

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						517	18:08:48		Last frame?
876	2/10/87	2/18/87		1123 to C-shield		0	9:36:48	2/10/87	Hand
				Telephoto		1	9:40:30		Hand
						2	9:44:13		Hand
						3	9:47:56		Watch
						333			End of the 1st night, no visible activity
						721			End of the 2nd night, no visible activity
						1105			End of the 3rd night, no visible activity
						1492			End of the 4th night, no visible activity
						1871			End of the 5th night, no visible activity
						2251			End of the 6th night, no visible activity
						2630			End of the 7th night, no visible activity
						3007			End of the 8th night, no visible activity
						3156	15:51:47		Hand
						3157	15:55:33		Hand
						3158	15:59:22		Hand
877	2/18/87	2/26/87		Kalalua W to C-shield		0	10:38:36	2/18/87	Hand
				Wide angle		1	10:42:10		Hand
						2	10:45:43		Book
						337			End of the 1st night, constant skylight(N end of pond)
						747			End of the 2nd night, constant skylight(N end of pond)
						1159			End of the 3rd night, constant skylight(N end of pond)
						1569			End of the 4th night, constant skylight(N end of pond)
						1980			End of the 5th night, some glow in S end of pond
						2391			End of the 6th night,
						2393			Something on film?
						2801			End of the 7th night
						3210			End of the 8th night
						3316	12:36:45		Hand
						3317	12:40:14		Hand
						3318	12:43:44		Book
878	2/26/87	3/4/87		Kalalua W to C-shield		0	12:49:49	2/26/87	Hand
				Wide angle		1	12:53:18		Hand

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2	12:56:47		Book
						300			End of the 1st night
						712			End of the 2nd night
						1126			End of the 3rd night
						1537			End of the 4th night
						1902			Film turns green(To # 1916)
						1936			Overflows to NE and SE
						1949			End of the 5th night(SE overflow continuing)
						2146			Heavyfume, N side of pond
						2161			Film blank(To end)
879	3/4/87	3/11/87		Kalalua W to C-shield		0	12:17:01	3/4/87	Hand
				Wide angle		1	12:20:29		Hand
						2	12:23:56		Book
						309			End of the 1st night
						721			End of the 2nd night
						1133			End of the3rd night, heavy fume, N side of pond at sunrise
						1543			End of the 4th night,
						1948			End of the 5th night
						2356			End of the 6th night
						2767			End of the 7th night
						2852	11:16:02		Hand
						2853	11:19:30		Hand
						2854	11:22:59		Book
880	3/11/87	3/18/87		Kalalua W to C-shield		0	11:29:00	3/11/87	Hand
				Wide angle		1	11:32:08		Hand
						2	11:35:35		Book
						3	11:39:03		Book
						321			End of the 1st night
						734			End of the 2nd night, some activity and small overflows
						1146			End of the 3rd night
						1554			End of the 4th night, nice and moon set
						1962			End of the 5th night, overflows to Eand S
						2369			End of the 6th night, overflows continue
						2773			End of the 7th night
						2854	10:59:20		Hand

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2855	11:05:52		Hand
						2856	11:06:23		Book
881	3/31/87	3/31/87		Hwy 130 to W Wide angle					Pixilation of little clay figures, oops
882	3/18/87	3/25/87		Kalalua W to C-shield Wide angle		0	11:15:05	3/18/87	Hand
						1	11:18:34		Hand
						2	11:22:04		Book
						321			End of the 1st night, overflow to S visible at sunrise
						726			End of the 2nd night, bad weather
						1132			End of the 3rd night
						1536			End of the 4th night
						1940			End of the 5th night
						2348			End of the 6th night
						2751			End of the 7th night
						2848	11:51:25		Hand
						2849	11:54:59		Hand
						2850	11:58:33		Book
883	3/25/87	4/2/87		Kalalua W to C-fissure Wide angle		0	12:04:34	3/25/87	Hand
						1	12:08:06		Hand
						2	12:11:40		Book
									Camera not focused
884	4/7/87	4/7/87		Park boundary E of Waha'ula Wide angle		0	12:46:21	4/7/87	Hand
						1	12:46:25		Hand
						2	12:46:29		Book
									Too dark, no can see
885	4/2/87	4/8/87		Kalalua W to C-fissure Wide angle		0	13:52:00	4/2/87	Hand
						1	13:55:24		Hand
						2	13:58:51		Book
						273			End of the 1st night

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						679			End of the 2nd night
						1088			End of the 3rd night
						1496			End of the 4th night, heavy fume N end of pond at sunrise
						1903			End of the 5th night
						2311			End of the 6th night, glow at S end of pond
						2428	12:41:44		Hand
						2429	12:45:15		Hand
						2430	12:48:45		Book
886	3/31/87	3/31/87		Queens bath filling					No time blocks
									All film is is Phh toes moving, cannot see H2O
887	4/8/87	4/20/87		Kalalua W to C-shield		0	12:54:50	4/8/87	Hand
				Wide angle		1	12:57:43		Hand
						2	13:01:11		Book
						292			End of the 1st night
						698			End of the 2nd night
						1104			End of the 3rd night, glow at S end of pond
						1510			End of the 4th night, activity in pond and nice moon set
						1916			End of the 5th night
						2321			End of the 6th night
						2723			End of the7th night
						3127			End of the 8th night
									Film ran out
888	4/20/87	4/29/87		Kalalua W to C-shield		0	16:21:37	4/20/87	Hand
				Wide angle		1	16:25:11		Hand
						2	16:28:43		Book
						224			End of the 1st night
						629			End of the 2nd night, bad weather
						1032			End of the 3rd night
						1437			End of the 4th night
						1842			End of the 5th night
						2250			End of the 6th night
						1656			End of the 7th night, bad weather
						1057			End of the 8th night, bad weather

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									Film ran out
889	4/29/87	5/5/87		Kalalua W to C-shield		0	10:41:00	4/29/87	Hand
				Wide angle		1	10:43:53		Hand
						2	10:47:25		Book
						3	10:50:58		Book
						319			End of the 1st night, faint glow at S end of pond
						725			End of the 2nd night,
						1129			End of the 3rd night, some minor activity 1st half of the night
						1532			End of the 4th night, minor activity
						1938			End of the 5th night, bad weather
						2340			End of the 6th night
						2437	11:18:53		Hand
						2438			Treefern
						2439	11:25:58		Hand
						2440	11:29:30		Book
890	5/5/87	5/12/87		Kalalua W to C-shield		0	11:34:58	5/5/87	Hand
				Backlight		1	11:38:29		Hand
						2	11:42:01		Book
						303			End of the 1st night
						708			End of the 2nd night
						1107			End of the 3rd night
						1510			End of the 4th night, faint glow from skylight just below S rim of pond
						1910			End of the 5th night
						2306			End of the 6th night
						2707			End of the 7th night, faint glow from skylight just below S rim of pond
						2791	10:28:04		Hand
						2792	10:31:38		Hand
						2793			Book
						2794	10:38:44		Book
891	5/11/87	5/19/87		Kalalua W to C-shield		0	10:46:12	5/11/87	Hand
				Wide angle		1	10:49:44		Hand
						2	10:53:14		Book
						316			End of the 1st night

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						722			End of the 2nd night
						1125			End of the 3rd night, faint glow, S end of the pond at sunrise
						1532			End of the 4th night
						1938			End of the 5ht night, minor activity in pond
						2344			End of the 6th night, minor activity in pond
						2567			Film junk, Kodak error
						2841	10:44:22		Hand
						2842	10:47:51		Hand
						2843	10:51:21		Book
892	5/19/87	5/25/87		Kalalua W to C-shield Wide angle					
893	5/25/87	6/6/87		Kalalua W to C-shield Wide angle					Film ran out
894	6/6/87	6/11/87		Kalalua W to C-shield Wide angle					
895	6/11/87	6/17/87		Kalalua W to C-shield Wide angle					
896	6/17/87	6/27/87		Kalalua W to C-shield Wide angle					Film ran out
897	6/27/87	7/8/87		Kalalua W to C-shield Wide angle					Film ran out
898	7/8/87	7/15/87		Kalalua W to C-shield Wide angle			9:35:00 12:16:00		

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
899	7/10/87	7/15/87		Kalalua W to PuuOo Telephoto					
900	7/15/87	7/23/87		Kalalua W to C-shield Wide angle					
901	7/15/87	7/23/87		Kalalua W to PuuOo Telephoto					
902	7/23/87	7/29/87		Kalalua W to C-shield Wide angle					
903	7/23/87	7/29/87		Kalalua W to PuuOo Telephoto					
904	7/29/87	8/5/87		Kalalua W to C -shield Wide angle					
905	7/29/87	8/5/87		Kalalua W to PuuOo Telephoto					
906	8/5/87	8/13/87		Kalalua W to C-shield Wide angle					
907	8/5/87	8/13/87		Kalalua W to PuuOo Telephoto					
908	8/13/87	9/1/87		Kalalua W to C-shield Wide angle					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
909	8/13/87	9/1/87		Kalalua W to PuuOo Telephoto					
910	9/1/87	9/9/87		Kalalua W to C-shield Wide angle					
911	9/1/87	9/9/87		Kalalua W to PuuOo Telephoto					
912	9/9/87	9/14/87		Kalalua W to C-shield Wide angle					
913	9/9/87	9/14/87		Kalalua W to PuuOo Telephoto					
914	9/14/87	9/22/87		Kalalua W to C-shield Wide angle					
915	9/14/87	9/22/87		Kalalua W to PuuOo Telephoto					
916	9/22/87	10/8/87		Kalalua W to C-shield Wide angle					
917	9/22/87	10/8/87		Kalalua W to PuuOo Telephoto					
918	10/8/87	10/13/87		Kalalua W to C-shield Wide angle					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
919	10/8/87	10/13/87		Kalalua W to PuuOo Telephoto					
920	10/13/87	10/28/87		Kalalua W to C-shield Wide angle					
921	10/13/87	10/28/87		Kalalua W to PuuOo Telephoto					
922	10/28/87	11/10/87		Kalalua W to C-shield Wide angle					
923	10/28/87	11/10/87		Kalalua W to PuuOo Telephoto					
924	11/10/87	11/19/87		Kalalua W to C-shield Wide angle					
925	11/10/87	11/19/87		Kalalua W to PuuOo Telephoto					
926	11/19/87	11/24/87		Kalalua W to C-shield Wide angle					
927	11/19/87	11/24/87		Kalalua W to PuuOo Telephoto					
928	11/24/87	12/4/87		Kalalua W to C-shield					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle					
929	11/24/87	12/4/87		Kalalua W to PuuOo Telephoto					
930	12/4/87	12/17/87		Kalalua W to C-shield Wide angle					
931	12/4/87	12/17/87		Kalalua W to PuuOo Telephoto					
932	12/17/87	12/23/87		Kalalua W to C-shield Wide angle					
933	12/17/87	12/23/87		Kalalua W to PuuOo Telephoto					
934	12/23/87	12/30/87		Kalalua W to C-shield Wide angle					
935	12/23/87	12/30/87		Kalalua W to PuuOo Telephoto					
936	12/30/87	1/5/88		Kalalua W to C-shield Wide angle					
937	12/30/87	1/5/88		Kalalua W to PuuOo Telephoto					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
938	12/28/87	1/7/88		Camp 7 to PuuOo Wide angle					
939	1/5/88	1/14/88		Kalalua W to C-shield Wide angle					
940	1/5/88	1/14/88		Kalalua W to PuuOo Telephoto					
942	1/14/87	1/24/87		Kalalua W to C-shield Wide angle					
943	1/7/88	2/14/88		Camp 7 to PuuOo Wide angle					Film ran out
944	1/24/88	2/25/88		Kalalua W to PuuOo Telephoto					Film ran out
945	1/24/88	2/25/88		Kalalua W to C-shield Wide angle					Film ran out
946	2/25/88	3/2/88		Kalalua W to PuuOo Telephoto					
947	2/25/88	3/2/88		Kalalua W to C-shield Wide angle					
948	3/2/88	3/24/88		Kalalua W to PuuOo Telephoto					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
949	3/2/88	3/24/88		Kalalua W to C-shield Wide angle					
950	4/25/88	5/2/88		Pond NW to Pond Wide angle					
951	5/2/88	5/5/88		Pond NW to Pond Wide angle					
952	5/5/88	5/11/88		Pond NW to Pond Wide angle					
953	5/11/88	5/20/88		Pond E to Pond Wide angle					
954	5/11/88	5/20/88		Pond NW to Pond Wide angle					
955	5/20/88	5/26/88		Pond NE to Pond Wide angle					
956	5/20/88	5/26/88		Pond NW to Pond Wide angle					
957	4/25/88	5/26/88		1123 to PuuOo Wide angle					
958	5/26/88	6/1/88		Pond NW to Pond Wide angle					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
959	5/26/88	6/1/88		Pond NE to Pond Wide angle					
960	6/1/88	6/10/88		Pond rim to NE corner of pond Wide angle					
961	6/1/88	6/10/88		Pond 1 to center pond Wide angle					
962	6/10/88	6/16/88		Pond 1 to center pond Wide angle					
963	6/10/88	6/16/88		Pond 2 to NE pond Wide angle					
964	6/16/88	6/23/88		Pond 1 to center pond Wide angle					
965	6/16/88	6/23/88		Pond 2 to NE pond Wide angle					
966	6/23/88	6/30/88		Pond 1 to center pond Wide angle					
967	6/23/88	6/30/88		Pond 2 to NE pond Wide angle					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
968	6/30/88	7/7/88		Pond 1 to center pond Wide angle					
969	6/30/88	7/7/88		Pond 2 to NE pond Wide angle					
970	2/2/89	2/9/89		Pond 1 to center pond Wide angle					
971	2/2/89	2/9/89		Pond 2 to NE pond Wide angle					Film ran out
972	6/27/89	7/5/89		Pond 1 to center pond Wide angle					Film ran out
973	6/27/89	7/5/89		Pond 2 to NE pond Wide angle					Film ran out
974	7/5/89	7/13/89		Pond 1 to center pond Wide angle					
975	7/5/89	7/13/89		Pond 2 to NE pond Wide angle					Film ran out
976	7/13/89	7/27/89		Pond 1 to center pond Wide angle					Film ran out
977	7/13/89	7/27/89		Pond 2 to NE pond Wide angle					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
978	10/11/89	10/18/89		Pond 1 to center pond Wide angle					
979	10/11/89	10/18/89		Pond 2 to NE pond Wide angle					
980	10/18/89	11/2/89		Pond 1 to center pond Wide angle					Film ran out
981	10/18/89	11/2/89		Pond 2 to NE pond Wide angle					Film ran out

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
982	9/17/91	9/25/91	48	Puu Oo, N-side of		644		9/18/91	Collapse from spillway into pond, major distrubance on NE side of pond
				crater rim to pond		~1200		9/19/91	Sp. rampart collapses into pond gradual
				Wide angle		1565			Major activity under sp. rampart
983	9/25/91	10/1/95		Puu Oo, N-side of		0		9/25/91	
				crater rim to pond		962			Crater floor on uprift side of sp. rampart
				Wide angle		967			Crater floor "ripped open"(collapses?) W side of sp. rampart -becomes
						2526		10/1/91	part of pond. Closed up a little during darkness. Opens and closes off and in following day.
984	10/1/91	11/11/91		Puu Oo, N-side of		0		10/1/91	
				crater rim to pond				10/2/91	Flows warp around sp. rampart
				Wide angle		3311		10/8/91	
985	10/25/91	11/1/91		Puu Oo, N-side of		0		10/11/91	Pond remains confined
				crater rim to pond					
				Wide angle					No sp. rampart-pond remains confined
								10/12/91	
						2868		10/13/91	End of roll too
									Spliced at frame 3280 after only 3 eves, may be roll 985(but #985,986 are edited out of sequence)
986	10/11/91	10/25/91		Puu Oo, N-side of		0	10:23:51	10/11/91	Book
				crater rim to pond					Pond gas piston event, generally remains confined w/in its boundaries
				Wide angle				10/12/91	Darkness, gas pistons, pond drains low a couple of times
						2145			Last activity seen before pond drains out of site
								10/13/91	Pond not visible, except for occasional peeks of surface deep in crater
									Sp. rampart gone pond stays low
						3299		10/14/91	
987	11/1/91	11/8/91		Puu Oo, N-side of		0		11/1/91	Sp. rampart gone, one big pond
				crater rim to pond					Pond remains confine, level is extremely stable
				Wide angle		2882		11/4/91	

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
988	11/8/91	11/13/91		Puu Oo, N-side of crater rim to pond Wide angle					
989	11/13/91	11/21/91	49	Kupaianaha shield to episode 49 vent				11/13/91	CAN SEE VERY LITTLE: FUME FROM VENT, GLOWING SPOTS IN EVE.
990	11/21/91	12/5/91		Kupaianaha shield to episode 49 vent				11/21/91	SEE ONLY GLOWING SPOTS 1ST NIGHT, THEN PAU
991	12/7/91	12/15/91	48	Puu Oo, N-side of crater rim to pond Wide angle		0		12/7/91	
						423			Glowing spot appears deep in conduit
						1815			Glowing spot becomes a small dome ftn
									Pond level fluc dramatically for rest of darkness slowly rising over time
						2346			Pond gets bigger to NE (pond level doesn't appear to come up tho)
						2237		12/12/91	
992	12/15/91	12/18/91		W Vent		0		12/15/91	Aimed at W vent, appears to be daylight whole time(To # 630)
	12/18/91	12/22/91		E Vent				12/18/91	Time that camera turned, first frame we're looking uprift and the next we are looking downrift a t the E vent, TM
						0			River of lava pouring from were sp. rampat used to be wrapping around, counter clockwise before falling into inner conduit
									Big river (wide seems to fill up inner conduit)
						467		12/19/91	
						1421		12/20/91	
						1578			Sp. area is bigger now still feeding an impressive river
								12/21/91	River looks to be really falling into a deep conduit
						1899		12/22/91	
993	12/22/91	12/31/91		Puu Oo, N-side of crater rim to pond Wide angle					

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
994	12/31/91	1/10/92		Puu Oo, N side of crater rim to pond Wide angle					
995	1/10/92	1/17/92		Puu Oo, N side of crater rim to Wpond Wide angle					
996	1/17/92	1/24/92		Puu Oo, N side of crater rim to Wpond Wide angle					
997	1/24/92	1/31/92		Puu Oo, N side of crater rim to Wpond Wide angle					
998	1/31/92	2/7/92		Puu Oo, N side of crater rim to pond Wide angle					
999	2/7/92	2/16/92		Puu Oo, N side of crater rim to pond Wide angle					
1000	2/16/92	2/23/92		Puu Oo, N side of crater rim to pond Wide angle					
1001	2/23/92	2/28/92	50	Puu Oo, N-side of crater rim to pond Wide angle				2/23/92	1ST EVE. SPATTER ACTIVITY IN SW CORNER OF LAKE. FILM GOES BLACK FOR REST OF ROLL
1002	2/21/92	2/28/92		Puu Oo, W flank to ep. 50 fissure Wide angle		1184		2/21/92	VIEW OF MAIN CHANNEL FEEDING LAVA FROM FISSURE TO 50 LAVA POND Channel narrows, tube is over and then breaks apart nine times(To # 2209)
						2271			Several overflows, large one off N side of channel head merges with another and reenters main channel (To # 2433)
							Eve		Several tubing over attempts and large overflow
1003	2/28/92	3/4/92		Puu Oo, W flank to ep. 50 fissure Wide angle				2/28/92	VIEW OF 50 SPATTER CONE; LOOKING S
							Eve 1		Several tubing over events, and overflows
						2187			Spatter cone starts to grow more
							Eve 2		Very little tubing over; head of channel always open with vigorous activity. Spatter cone growing lots of activity, down hill/uprift

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									side sustained some collapse
						3247			Spatter cone begins to break apart on uprift side
						3295			Major break in spatter cone
1004	2/28/92	3/6/92		Puu Oo, N-side of crater rim to pond Wide angle				2/28/92	FILM ONLY RAN FOR ~1/3 OF ROLL-PROBLEM WITH BATTERIES OR DIRTY CONTACTS: FILM MOSTLY DARK
1005	3/6/92	3/13/92	51	Puu Oo, N-side of crater rim to pond Wide angle		231	6:14:44	3/7/92	LITTLE GLOWING SPOT
						347	12:10:09	3/7/92	FAINT GLOW THROUGH FUME
						351	12:22:24	3/7/92	ROUGH OUTLINE OF POND-UPWELLING IN NW SIDE
						395	14:31:05	3/7/92	POND ~1-2m BELOW INNER TERRACE. SP. ACT.: UPWELLING NW-SIDE (OFF POND WALL NOT ON WALL) &2 SP. PTS. ON SW SIDE OF POND
						1089	2:03:29	3/9/92	START OF GAS PISTON EVENTS
						1182	6:48:25	3/9/92	END OF GAS PISTON EVENTS (THERE WERE 12)
						1261	10:50:28	3/9/92	OVERFLOW ON TO TERRACE
						1411	18:30:02	3/9/92	SP. ACT. AT W-SIDE FOR 1st TIME GOES AWAY NEXT FRAME; VIGOROUS ACT AT UPWELLING PT; VIG. ACT. AT ALL PTS FOR EVENING
						1651	6:45:21	3/10/92	VENT AGAINST N-WALL ACTIVE (STARTS B/F DAWN)
						1885	18:42:17	3/10/92	VIGOROUS ACT.
						2353	18:36:09	3/11/92	HIGH FTN. (2xNORMAL) KEEPS UP THRU EVENING
						2588	6:36:08	3/12/92	SM. GAS PISTON
						2821	18:30:00	3/12/92	UPWELLING AREA NOW LONGER, PARALLEL TO RIFT N VENT BECOME MORE VIGOROUS & S (W) VENT LESS
						3033	5:19:32	3/13/92	SM. GASPISTON
						3056	6:30:00	3/13/92	END PT.
1006	3/9/92	3/17/92		Puu Oo, W flank to ep. 51 vent Wide angle	187.41	104	15:59:51	3/9/92	SP. CONE BEGINS TO BREAK UP
						1393	11:06:08	3/12/92	VIG. ACTIVITY AT FLOW FROM S UPRIFT BASE OF SP. CONE
						1474	15:19:09	3/12/92	DEAD/NO GLOWS
						2338	12:17:57	3/14/92	BREACH ON UPHILL/N-SIDE OF SP. CONE-SENDS RIVER DOWN N-SIDE OF CONE
						2395	15:15:57	3/14/92	VIGOROUS FTN AT BREACH. TRIES TO CLOSE

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									OVER BREACH; SEVERAL TIMES EVENTUALLY CLOSES OVER RIVER BUT NOT TOP OF SP. CONE
						2953	20:18:54	3/15/92	ERUPTION PAUSE
1007	3/13/92	3/21/92		Puu Oo, N-side of crater rim to pond Wide angle			18:29:00	3/13/92	CONTINUOUS SP. ACT. IN 4 LOCATIONS
						1946	18:46:12	3/15/92	OVERFLOWS ONTO LOWER TERRACE ALL EVE.
						1285	12:04:25	3/16/92	TERRACE FLOOR HIGHER THAN PREVIOUS ROLL
						1472	21:37:07	3/16/92	OVERFLOWS ONTO TERRACE FLOOR. LEVEL OF POND APPEARS TO RISE & FALL DURING EARLY AM & TERRACE FLOOR COVERED WITH OVERFLOWS
						1839	16:21:05	3/17/92	CAN SEE IN THIS FRAME THAT POND IS LEVEL WITH MAIN CRATER FLOOR (LESS THEN 1m FROM IT)
						1888	18:51:09	3/17/92	MASSIVE EVENT WITH VIGOROUS SP. AT SE CORNER-LOOKS LIKE FLOATING SLABS ON TERRACE AREA. V. ACTIVE, CONTINUOUS ACT. AT UPWELLING/MID POND
						1915	20:13:50	3/17/92	V. ACTVE AGAIN-VIGOROUS SP. ACT. AROUND RIM OF CONDUIT (ALL THO POND IS COVERING TERRACE)
						2335	12:33:51	3/18/92	POND STILL ABOVE TERRACE 1-2m B/L FLOOR
						2362	19:02:48	3/18/92	GAS PISTON ACT. & VIGOROUS SP. ACT. ON S-SIDE OF POND
						2734	14:02:05	3/19/92	LAVA POND APPEARS TO BE LEVEL WITH MAIN FLOOR
						2822	18:31:35	3/19/92	LOTS OF ACT. & GAS PISTON ACT.; TERRACE STILL COVERED
						3069	7:08:03	3/20/92	LOTS OF ACT. & GAS PISTON ACT.; TERRACE STILL COVERED
						3176	12:35:45	3/20/92	APPEARS TO BE SLIGHTLY BELOW RIM NOW
						3292	18:31:00	3/20/92	VIGOROUS SP. ACT., MIGRATES AROUND RIM OF INNER POND. V. ACTIVE ALONG MARGINS (SAME IN MIDDLE)
1008	3/17/92	3/21/92		Puu Oo, W flank to ep. 51 vent Wide angle	188.45	1	10:48:08	3/17/92	2 STREAMS POURING OUT OF SP. CONE
						23	11:57:14	3/17/92	OVERFLOWS COMING OUT TOP OF CONE SENDING RIVERS DOWN SP. CONE
						40	12:50:38	3/17/92	BIG RIVERS POURING OUT OF CONE (VOLUME UP)
						53	13:31:28	3/17/92	(BTWN 12:50 AND NOW) TOP PART OF CONE HAS GONE & LAVA POURING DOWN ALL SIDES OF CONE
						112	16:36:46	3/17/92	CONE CLOSES UP ON RIVER THEN WEST RIVER OPENS

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
									AGAIN-CONE BIGGER (1 N RIVER : 1 WEST)
						349	5:01:08	3/18/92	CONE CLOSES THEN OPENS ON RIVERS IN SP. CONE, BY THIS TIME THERE IS NO GLOWING ANYWHERE
						377	6:29:05	3/18/92	RIVER NOTED ON W FL OF CONE
						423	8:53:33	3/18/92	CAN NOW SEE MORE LAVA & SP. ACT. AT HEAD OF RIVER ON W FL OF CONE
						483	12:02:00	3/18/92	NO LAVA VISIBLE
						656	21:05:22	3/18/92	RIVER APPEARS ON FL AGAIN
						710	23:54:58	3/18/92	SMALL FLOW ON N SIDE OF VENT
						893	9:29:44	3/19/92	BIG FLOW ON N SIDE (DIFF FROM 3/18, 23:54:58)
						926	11:13:23	3/19/92	CAMERA MOVED TO INCLUDE TOP OF CONE
						1297	6:38:37	3/20/92	FLOWS TO N; CAN'T SEE A WHOLE LOT-SOME EVIDENCE OF OVERFLOWS AT BASE OF CONE
						1530	18:50:25	3/20/92	SM. FLOW FROM N SIDE OF CONE (UPHILL/N SIDE)
						1672	2:16:25	3/21/92	NO GLOW
1009	3/21/92	3/27/92		Puu Oo, W flank to ep. 51 vent Wide angle	189.84	0	18:31:00	3/21/92	RIVER OF LAVA POURING DOWN W SIDE OF SP. CONE (EVENTUALLY TUBES OVER)
						688	6:47:53	3/23/92	BREACH IN W SIDE OF SP. CONE. FTNS. OUT OF TOP & W SIDE OF SP. CONE REACHING CA. 2 m ABOVE SP. CONE IN FRAME 695
						695	7:10:02	3/23/92	SPATTER CONE BUILDS (W/SOME MINOR COLLAPSES) FOR REST OF DAY AND EVENING
						1376	19:04:45	3/24/92	TOP OF CONE BREACHED: SHORT LIVED OVERFLOWS, SPATTER ACTIVITY OUT OF TOP OF CONE UNTIL 3/24, 2330 HRS
						1460	23:30:32	3/24/92	SAME AS MENTIONED FOR TIME 19:04:45
						1558	4:40:37	3/25/92	BREACH ON UPHILL SIDE OF SP. CONE-SPATTER ACTIVITY FROM THERE UNTIL 0625
						1935	0:33:28	3/26/92	POND OVERFLOW, ACTIVE POND & S VENT THIS EVE
						2047	6:27:51	3/26/92	NEW SP. CONE (SMALL) FORMING UPHILL SIDE OF BIG ONE
						2081	8:15:25	3/26/92	NO MORE ACTIVITY NOTED
1010	3/21/92	3/27/92		Puu Oo, N-side of crater rim to pond Wide angle				3/21/92	BLANK EXCEPT FOR BEGINNING MARKINGS

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1011	3/27/92	4/3/92		Puu Oo, W flank to ep. 51 vent Wide angle	193.42	0	18:33:00	3/27/92	SUNSET
						849	16:09:54	3/29/92	STARTUP OF VENT-BREACH IN S CONE
						859	16:42:08	3/29/92	BREACH ON W SIDE OF CONE FEEDS LARGER FLOWS
								3/29/92	VERY ACTIVE ALL EVENING-FLOWS FED BY W BREACH IN SP. CONE
						1146	8:07:20	3/30/92	MAJOR BREACH ON N SIDE OF SP. CONE-FEEDS EXCEPTIONALLY LARGE RIVER POURING OUT N SIDE OF CONE
						1576	7:13:31	3/31/92	N BREACH FEEDS N FLOW-FINALLY TUBES OVER COMPLETELY BY THIS TIME
						1692	13:27:28	3/31/92	SURFACE FLOWS NOTED IN POND AREA (FED BY SM. PUKA AT N BASE OF CONE). CHANNELIZED FLOWS FROM THIS PUKA ACTIVE THROUGHOUT DAY & NEXT EVE
						2320	23:11:56	4/1/92	S VENT APPEARS ACTIVE
						2447	6:01:21	4/2/92	ACTIVITY AT S VENT PICKS UP
						2449	6:07:47	4/2/92	BREACH IN N SIDE OF SP. CONE FEEDS BIG FLOWS REST OF DAY AND NEXT EVE
						2897	6:12:00	4/3/92	QUIET
1012	3/27/92	4/3/92		Puu Oo, N-side of crater rim to pond Wide angle			10:09:48	3/27/92	VERY ACTIVE ALL AROUND RIM OF POND-POND LEVEL FLUCTUATES A LITTLE, BUT NOT DRAMATICALLY
1013	4/3/92	4/9/92		Puu Oo, N-side of crater rim to pond Wide angle		637		4/3/92	SUDDEN MASSIVE OVERFLOW-ALL CRATER FLOOR COVERED
						639		4/3/92	POND DRAINS BACK TO FORMER LEVEL
						2508			CAMERA TAKEN OFF TRIPOD-NO MARKINGS
1014	4/3/92	4/9/92		Puu Oo, W flank to ep. 51 vent Wide angle				4/3/92	EVE:SM. BREACH N BASE OF CONE & S VENT ACTIVE SAME-S VENT MOSTLY ACTIVE & POND BECOMES FED BY TUBED-OVER SOURCE (N VENT?)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1015	4/9/92	4/16/92		Puu Oo, N-side of crater rim to pond Wide angle				4/9/92	AIMED TOO HIGH. CAN ONLY SEE OCCASIONAL FTN & SOME OVERFLOWS
1016	4/9/92	4/16/92		Puu Oo, W flank to ep. 51 vent Wide angle				4/9/92	NOT MUCH CHANGE. CAN SEE 51 POND & OVERFLOWS
1017	4/16/92	4/24/92		Puu Oo, W flank to ep. 51 vent Wide angle		111	18:41:54	4/16/92	POND APPEARS TO BE FULL
						155	21:04:15	4/16/92	SM POND OVERFLOW TO N.
						263	2:53:40	4/17/92	VERY ACTIVE W. OF SP CONES
						547	18:12:29	4/17/92	SM OVERFLOW N.SIDE OF POND
						746	4:56:19	4/18/92	LARGE OVERFLOWS N.SIDE OF POND
						1152	2:49:50	4/19/92	BIG POND OVERFLOWS START
						1217	6:20:08	4/19/92	CHANNEL ON ONE OVERFLOW TRIES TO TUBE OVER
						1276	9:31:01	4/19/92	SEVERAL OVERFLOWS (MAJOR CHANNEL STILL ACTIVE)
						1555	0:33:39	4/20/92	LAST TIME THAT ANY GLOW THAT LOOKS LIKE A POND SURFACE IS SEEN. TWO SM GLOWS PERSIST FOR REST OF DARKNESS
								4/20/92	EVE:ONE SMALL GLOW SPOT IN POND AREA
						3135	13:45:25	4/23/92	BEGIN TO SEE POND SURFACE
						3193	16:53:04	4/23/92	POND APPEARS FULL, OVERFLOWING ON W. SIDE
						3278	21:28:04	4/23/92	SMALL SPATTER FOUNTAIN STARTS NEAR FISSURE, APPEARS TO FEED A FLOW OR A TUBE TO THE NORTH (FLOW ADVANCES DURING THE NIGHT)
						3414	4:48:04	4/24/92	MAJOR GLOW S. SIDE OF SPATTER CONES NEW FLOW BETWEEN POND AND PUUOO CONE (NOTED LAST NIGHT- FED BY SP. CONE FOUNTAIN)
1018	4/24/92	4/30/92		Puu Oo, W flank to ep. 51 vent Wide angle	192.23	65	14:00:00	4/24/92	BIG OVERFLOW, N. SIDE OF POND, REMAINS CHANNELIZED THROUGHOUT EVENING
						418	8:50:58	4/25/92	MORE OVERFLOWS IN ADDITION TO CHANNELIZED FLOW, FLOWS ACTIVE BTWN PUUOO CONE AND POND
								4/25/92	FLOWS TO NORTH CONTINUED ALL EVENING AND FOLLOWING DAY
						863	8:36:42	4/26/92	BREAKOUT FROM VENT HEADS N. ALONG CONE

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1798	10:32:20	4/28/92	LAST VIEW OF POND BEFORE FUME SETS IN. POND LEVEL SLIGHTLY BELOW RIM
						2227	9:26:48	4/29/92	FIRST VIEW OF 51 POND AGAIN, POND SURFACE NOT VISIBLE
1019	4/16/92	4/24/92		Puu Oo, N-side of crater rim to pond		5	11:54:06	4/16/92	POND FAIRLY ACTIVE SPATTER ACTIVITY ALL ALONG S. AND E. SIDE OF CRATER
				Wide angle		489	15:38:55	4/17/92	POND SURFACE QUIET BUT POND LEVEL STARTS TO RISE
						492	15:49:15	4/17/92	POND OVERFLOWING ONTO CRATER FLOOR. LOOKS LIKE ENTIRE CRATER FLOOR IS COVERED
						496	16:03:00	4/17/92	MASSIVE EVENT-ACTIVE LAVA STILL COVERING CRATER FLOOR BUT OUTLINE OF POND DEFINED BY INCADESENT CRACKS AND VIGOROUS SPATTER ACTIVITY ON SE. SIDE OF POND
						497	16:06:27	4/17/92	DRAINBACK (SM. CASCADE INTO POND FROM OVERFLOWS ON CRATER FLOOR). POND LEVEL ABOUT 2/3 DISTANCE FROM SPILLWAY TO CRATER FLOOR (S. SPILLWAY).
						498	16:09:53	4/17/92	POND LEVEL HAS REGAINED 1/2 OF WHAT IT LOST
						500	16:16:46	4/17/92	OVERFLOWING AGAIN, MASSIVE ACTIVITY JUST PRIOR TO DRAINBACK
						501	16:20:12	4/17/92	DRAINBACK-POND LEVEL STAYS DOWN
								4/18/92	POND LEVEL FAIRLY CONSTANT NOTE THAT SE. WALL OF POND IS WHERE VIGOROUS SPATTER ACTIVITY AND DEGASSING TAKES PLACE AND IS UNDERCUT
						1565	5:20:04	4/20/92	SPATTER ACTIVITY LOCALIZED ON W. WALL OF POND NOW... SPATTER ACTIVITY MIGRATES CLOCKWISE AROUND POND (W/NORMAL SPATTER AREAS ALMOST ALWAYS ACTIVE)
								4/21/92	AM:POND LEVEL SEEMS HIGHER NOW
								4/22/92	AM:POND LEVEL EVEN HIGHER THAN ON 4/21/92 AM
						2791	3:37:10	4/23/92	POND OVERFLOWS
								4/23/92	POND CONTINUES TO OVERFLOW ALL DAY
							16:51:45	4/23/92	POND SEEMS TO STOP OVERFLOWING
								4/23/92	EVE:POND REMAINS WITHIN ITS BOUNDARIES
								4/24/92	AM:POND IS DOWN AGAIN
1020	4/30/92	5/7/92		Puu Oo, W flank to ep. 51 vent		1656	5:39:14	5/4/92	FIRST GLOW-SEEN IN UPPERMOST (E. MOST) SP. CONE
						1675	6:40:12	5/4/92	SEE SURFACE OF POND

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle		1675	6:40:12	5/4/92	POND FILLS COMPLETELY TO RIM BY 0754
						3016	6:23:18	5/7/92	FLOW ADVANCES N. BETWEEN POND AND PUUOO CONE. FED BY VENT
1021	4/24/92	4/30/92		Puu Oo, N-side of crater rim to pond Wide angle		0	9:57:09	4/24/92	POND: 43m BELOW SPILLWAY
								4/24/92	NO DRAMATIC CHANGES-FAIRLY ACTIVE AROUND RIM OF POND, SAME THRU 4/26
								4/29/92	STEAMED OUT ALL DAY
						2434	5:38:32	4/30/92	FLOW BETWEEN SP. CONE AND POND UNTIL 0732
1022	5/7/92	5/14/92		Puu Oo, W flank to ep. 51 vent Wide angle		381	8:36:09	5/8/92	BREACH AND OVERFLOW ON NW. SIDE OF POND
						561	18:13:18	5/8/92	BREACH AND OVERFLOW ON NW SIDE OF POND
						947	14:50:58	5/9/92	BIG OVERFLOW ON N. SIDE OF POND
						949	14:57:23	5/9/92	LOOKS LIKE OVERFLOWS ALL AROUND
						1088	22:23:05	5/9/92	MORE OVERFLOWS
1023	4/30/92	5/7/92		Puu Oo, N-side of crater rim to pond Wide angle			13:00:00	4/30/92	POND: 37m BELOW RIM. SP. CONE ACTIVE
						55	15:30:38	4/30/92	SP. CONE ACTIVITY INCREASING
						61	15:51:14	4/30/92	SP. CONE RIPPED APART BY FOUNTAIN (SAME HEIGHT AS SP.CONE) AREA WHERE SP. CONE WAS: EXTREMELY VIGOROUS SPATTER ACTIVITY. THERE IS AN OPEN CHANNEL BETWEEN THIS AND POND UNTIL 5/1, 0619
						519	18:03:50	5/1/92	SPATTER ACTIVITY CONTINUES AT THIS SITE (WHERE SPATTER CONE USED TO BE) AS DOES OPEN CHANNEL
						542	19:22:48	5/1/92	VERY ACTIVE AT SP. CONE THRU 5/2, 0652
						743	6:52:57	5/2/92	ACTIVITY SAME- POND AND SP. CONE ACTIVE WITH CHANNEL BETWEEN THEM UNTIL 5/3, 1757
						1356	17:57:46	5/3/92	OVERFLOWS NOTED ON CRATER FLOOR
								5/6/92	AM:SP. CONE HAS BUILT UP QUITE A BIT
						2626	18:38:27	5/6/92	POND SEEMS LOWER NOW AND NO LONGER ACTIVE AT SPATTER CONE
1024	5/14/92	5/22/92		Puu Oo, W flank to ep. 51 vent				5/14/92	BAD WEATHER/FUME THRU 5/22
						1623	17:31:13	5/17/92	NO GLOW IN POND AREA

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle		1635	18:04:40	5/17/92	IN DAYLIGHT LOOKS LIKE POND DRAINED DOWN SUBSTANTIALLY
						1673	19:50:33	5/17/92	POND SURFACE APPEARS AGAIN
						1725	22:15:26	5/17/92	POND GONE AGAIN AND SOMETHING STRANGE HAPPENS HERE; EITHER THE CAMERA MOVED OR THE NW SIDE OF THE POND COLLAPSED AND OPENED UP MORE
						1835	3:21:57	5/18/92	POND FILLS AGAIN
						2621	15:52:04	5/19/92	POND APPEARS EMPTY AGAIN
						3047	11:39:05	5/20/92	POND IS DEEP (IF IT'S THERE)
1025	5/7/92	5/14/92		Puu Oo, N-side of crater rim to pond Wide angle				5/7/92	EVE:POND DEEP (60m) LOTS OF FUME
								5/7/92	NO DRAMATIC CHANGES. POND REMAINS DEEP WITHIN INNER CONDUIT ENTIRE TIME. NO ACTIVITY NOTED AT SPATTER CONE THRU 5/14
1026	5/22/92	5/29/92		Puu Oo, W flank to ep. 51 vent Wide angle				5/22/92	EVE:NO GLOWS
						2082	3:20:06	5/27/92	FIRST GLOW SEEN IN POND AREA
						2104	4:30:12	5/27/92	POND FULL
						2105	4:33:23	5/27/92	POND OVERFLOWING TO NW AND FLOWS TO N FROM VENT
								5/27/92	OVERFLOWS TO NW ALL DAY
						2423	21:26:44	5/27/92	VENT BEGINS TO FEED LARGE FLOWS TO N. (BETWEEN POND AND PUUOO CONE) OVERFLOWS AND FLOWS TO NORTH , GO ALL NIGHT
								5/28/92	LARGE CHANNELIZED FLOWS ACTIVE ALL DAY, FED BY VENTS AND MOVING N. BETWEEN POND AND PUUOO CONE.
						2854	20:20:09	5/28/92	ONLY FAINT GLOWS NOTED, ERUPTION STOPPED?
1027	5/14/92	5/22/92		Puu Oo, N-side of crater rim to pond Wide angle				5/14/92	BAD VISIBILITY. NO DRAMATIC CHANGES APPARENT. POND REMAINED ACTIVE, CONFINED WITHIN INNER CONDUIT THRU 5/22
1028	5/22/92	5/29/92		Puu Oo, N-side of crater rim to pond Wide angle	205.27		13:40:00	5/22/92	POND 70 M BELOW SPILLWAY (FIELD MEASUREMENT)
						1737	14:54:16	5/26/92	POND APPEARS TO HAVE COME UP A TAD
						1802	18:36:39	5/26/92	POND LEVEL HAS DEFINATELY COME UP SINCE 1340
						2040	8:10:53	5/27/92	POND LEVEL DROPPING

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
								5/28/92	EVE: POND LEVEL LOW AGAIN
1029	6/3/92	6/11/92		Puu Oo, W flank to ep. 51 vent Wide angle	192.23	0	11:11:14	6/3/92	FLOW ACTIVE BETWEEN CONE AND POND
						154	19:24:37	6/3/92	FLOW BTWN CONE AND POND, STAGNANT. OVERFLOWS ACTIVE
						578	18:03:00	6/4/92	SMALL BREACH ON N. SIDE OF SPATTER CONE
						597	19:03:53	6/4/92	A LOT OF SP. ACTIVITY ON S. SIDE OF SP. CONE
						799	5:51:02	6/5/92	POND LEVEL STARTS TO DROP
						825	7:14:20	6/5/92	POND SURFACE NOT VISIBLE
						920	12:18:41	6/5/92	POND SURFACE SEEMS LEVEL WITH RIM AGAIN, THEN STARTS TO DROP AGAIN
						993	16:12:34	6/5/92	POND SURFACE NOT VISIBLE
						1117	22:49:50	6/5/92	2 GLOWING SPOTS NOTED ON FLS OF POND AREA, NO GLOW FROM POND OR SPATTER CONES
						1324	9:53:00	6/6/92	POND SURFACE APPEARS AGAIN, STAYS SLIGHTLY BELOW RIM
						1385	13:08:26	6/6/92	POND LEVEL STILL BELOW RIM, LAVA POURING OUT OF POND FROM BREACH IN WEST WALL. GLOWING FROM POND AND SPATTER CONE NOTED ALL EVENING
						1744	8:18:35	6/7/92	WHEN FUME CLEARS, NO LAVA IS VISIBLE IN POND, NO GLOWS NOTED FOLLOWING EVENING
1030	6/3/92	6/11/92		Puu Oo, N-side of crater rim to pond Wide angle				6/3/92	WHITE-OUT. SOME SPATTER ACTIVITY NOTED IN POND, SAME FOR REST OF ROLL
1031	5/29/92	6/3/92		Puu Oo, W flank to ep. 51 vent Wide angle	192.79	1565	6:42:34	6/2/92	FUME APPEARS TO INCREASE
						1649	11:12:28	6/2/92	CHANNELIZED FLOW ADVANCES BTWN CONE AND POND
						1964	4:04:36	6/3/92	FIRST APPEARANCE OF GLOW FROM POND AREA, POND ACTIVE AFTER THIS
1032	5/29/92	6/3/92		Puu Oo, N-side of crater rim to pond Wide angle				5/29/92	NO DRAMATIC CHANGES THROUGHOUT ROLL
1033	6/11/92	6/18/92		Puu Oo, W flank to	192	8	14:18:56	6/11/92	POND SURFACE NOT VISIBLE BUT SPATTER IN POND IS

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				ep. 51 vent		141	21:24:33	6/11/92	SPATTER FROM POND AND SP.CONE, THROUGHOUT EVE.
				Wide angle		302	5:59:45	6/12/92	OVERFLOW FROM NW SIDE OF POND STARTS
						673	1:43:47	6/13/92	OVERFLOW CONTINUES
						1247	8:23:50	6/14/92	POND LEVEL SLIGHTLY BELOW RIM
						1857	16:55:52	6/15/92	POND LEVEL FLUCTUATES THROUGHOUT DAY, BARELY VISIBLE AT THIS TIME
						1912	19:51:53	6/15/92	LAST GLOW SEEN
						2149	8:30:18	6/16/92	NO POND SURFACE VISIBLE
1034	6/11/92	6/18/92		Puu Oo, N-side of crater rim to pond				6/11/92	NO DRAMATIC CHANGES THOUGHOUT ROLL, BAD VISIBILITY
				Wide angle					
1035	6/18/92	6/25/92		Puu Oo, W flank to ep. 51 vent	191.83	1116	23:14:37	6/20/92	BREACH IN N. SIDE OF UPPER SPATTER CONE, FEEDS LG FLOWS, FLOWS WRAP AROUND OLD POND
				Wide angle		1390	13:50:38	6/21/92	NEW FLOW ADVANCES N BTWN POND AND 'O'O, ATTEMPTS TO FORM TUBE SEVERAL TIMES
						1549	22:18:59	6/21/92	BREACH IN SP. CONE CLOSES OVER, FLOWS STILL ACTIVE
								6/22/92	ALL DAY: LG FLOWS ACTIVE BETWEEN POND AND 'O'O CONE
						2078	2:30:16	6/23/92	BREACH ON E SIDE OF SP. CONE (E CONE)
								6/23/92	ALL DAY:SAME AS 6/22/92
								6/24/92	ALL DAY:SAME AS 6/22/92
						3044	5:58:42	6/25/92	MAJOR FLOW HEADS N ALONG 'O'O CONE. LOOKS LIKE SP. CONE IS BREACHED, TRIES TO TUBE OVER
1036	6/18/92	6/26/92		Puu Oo, N-side of crater rim to pond	206.76	1009	21:21:07	6/20/92	PU'U 'O'O POND OVERFLOW ONTO CRATER FLOOR
						1017	21:48:42	6/20/92	OVERFLOW, HIGH SP. ACTIVITY ON DR SIDE OF POND
				Wide angle		1018	21:52:08	6/20/92	START OF "DRAINBACK", POND "RIM" APPEARS AS A RING OF SPATTER FOUNTAINS
						1022	22:05:55	6/20/92	POND OVERFLOWS AGAIN
						1023	22:09:22	6/20/92	SPATTER OUTLINES RIM OF POND, LAVA DRAINS BACK INTO INNER CONDUIT AFTER THIS
1037	6/27/92	7/2/92		Puu Oo, W flank to ep. 51 vent				6/27/92	NOT MUCH ACTIVITY VISIBLE

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				Wide angle					
1038	6/27/92	7/2/92		Puu Oo, N-side of crater rim to pond Wide angle				6/27/92	BAD WEATHER, POND APPEARS TO REMAIN WITHIN INNER CONDUIT
1039	7/2/92	7/10/92		Puu Oo, W flank to ep. 51 vent Wide angle				7/2/92	NO ACTIVITY VISIBLE,BAD WEATHER LIMITS VISIBILITY
1040	7/2/92	7/10/92		Puu Oo, N-side of crater rim to pond Wide angle				7/2/92	POND LEVEL DOES NOT CHANGE MUCH, BAD WEATHER
1041	7/13/92	7/21/92		Puu Oo, N-side of crater rim to pond Wide angle	208.96	5	12:23:48	7/13/92	INTERMITTENT VIEWS OF SPATTERING, MOSTLY ON DR END OF POND (CONTINUES UNTIL 15:28:23)
						59	15:31:51	7/13/92	INTERMITTENT VIEWS OF SPATTERING DISTRIBUTED ACROSS THE POND (CONTINUES UNTIL 17:26:47)
						93	17:30:16	7/13/92	BACK TO JUST DR END WITH OCCASIONAL FLARE-UPS ACROSS THE ENTIRE POND (UNTIL 7/14, 00:03:48)
						485	16:15:27	7/14/92	INTERMITTENT VIEWS OF POND, SPATTERING USUALLY ON BOTH ENDS (UNTIL 7/15, 06:32:11)
						845	13:09:12	7/15/92	INTERMITTENT VIEWS OF POND, SPATTERING USUALLY ON BOTH ENDS (UNTIL 18:40:03)
						941	18:43:32	7/15/92	ACTIVITY MOSTLY UPRIFT END OF POND UNTIL 7/16 00:03:56
						1048	0:56:10	7/16/92	MOSTLY DR END UNTIL 06:23:32
						1195	9:28:07	7/16/92	POND LEVEL HAS DROPPED DRAMATICALLY?? SPATTERING ON UPRIFT END ONLY
						1287	14:48:31	7/16/92	ACTIVITY ON DR END RESUMES
						1287	14:48:31	7/16/92	ACTIVITY DISTRIBUTED UNTIL 7/17, 03:24:15
						1513	3:55:36	7/17/92	ACTIVITY ON DR END ONLY (UNTIL 06:35:48)
						1601	9:02:04	7/17/92	ACTIVITY VISIBLE (INTERMITTENTLY) UNTIL 7/18, 09:42:11
						2120	15:09:33	7/18/92	ACTIVITY VISIBLE INTERMITTENTLY UNTIL 7/20, 08:22:13
						2960	15:54:57	7/20/92	ACTIVITY VISIBLE INTERMITTENTLY UNTIL 7/21, 09:54:34

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1042	7/13/92	7/21/92		Puu Oo, W flank to ep. 51 vent Wide angle				7/13/92	NOTHING SPECIAL. STEAM RISES FROM FLOWS AFTER RAINS
1043	7/21/92	7/29/92		Puu Oo, N-side of crater rim to pond Wide angle	208.69	0	10:33:48	7/21/92	CAN SEE POND ACTIVITY MOST OF THE TIME UNTIL 7/23, 06:40:43
						970	18:37:13	7/23/92	ACTIVITY VISIBLE ON DR END UNTIL 19:18:58
						982	19:18:58	7/23/92	ISOLATED GLIMPSES OF RED UNTIL 7/27, 13:55:24
						2545	13:55:24	7/27/92	ACTIVITY VISIBLE ON DR END UNTIL 16:35:23
						2793	4:17:59	7/28/92	INTERMITTENT VIEW OF RED UNTIL 18:23:11. GETS BETTER.
						3037	18:26:40	7/28/92	POND OVERFLOWS? (UNTIL 19:18:50)
						3115	22:57:58	7/28/92	"NORMAL" POND ACTIVITY VISIBLE EVERY NOW AND THEN UNTIL 7/29, 05:06:39
1044	7/21/92	7/29/92		Puu Oo, W flank to ep. 51 vent Wide angle				7/21/92	NOTHING UNUSUAL. NO ACTIVITY VISIBLE.
1045	7/29/92	8/18/92		Puu Oo, N-side of crater rim to pond Wide angle	182.4	2	11:34:02	7/29/92	POND HIGH, ACTIVITY VISIBLE (UNTIL 7/30, 04:29:22)
						364	5:54:29	7/30/92	VERY POOR VIEWING. ISOLATED FRAMES SHOW CLEAR VIEWS UNTIL 7/31, 03:38:37
						794	3:41:39	7/31/92	OK VIEW OF POND. QUITE ACTIVE (UNTIL 12:15:24)
						1013	14:47:24	7/31/92	OK VIEW OF POND. QUITE ACTIVE (UNTIL 16:21:38)
						1246	2:35:42	8/1/92	OK VIEW OF POND. LOOKS LOWER (UNTIL 16:28:38)
						1780	5:39:01	8/2/92	SPORADIC VIEWS OF POND UNTIL 15:28:46
						2185	2:10:12	8/3/92	OK VIEW UNTIL 03:29:14
						2496	17:55:37	8/3/92	CAMERA MOVED!!!
						2690	3:45:27	8/4/92	OK VIEW UNTIL 05:01:21
1046	7/29/92	8/18/92		Puu Oo, W flank to ep. 51 vent Wide angle	233.49	148	21:41:38	7/29/92	VENT HAS RED DOT (GLOW!)
						264	5:13:03	7/30/92	GLOW GONE
						2745	22:07:50	8/5/92	PEOPLE

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1047	8/18/92	8/27/92		Puu Oo, N-side of crater rim to pond Wide angle	237.77	43	16:13:28	8/18/92	SAW SOMETHING RED
						90	19:19:43	8/18/92	LIMITED VISIBILITY OF POND UNTIL 8/19, 07:48:41
						490	21:44:50	8/19/92	LIMITED VISIBILITY, OK AT END UNTIL 8/20, 12:04:46
						950	4:07:44	8/21/92	POOR VISIBILITY UNTIL 04:55:17
						1345	6:13:02	8/22/93	POOR VISIBILITY TO GOOD VISIBILITY AT 16:27:17
						2158	11:54:48	8/24/92	POOR VISIBILITY UNTIL 14:21:26
						2540	13:08:36	8/25/92	INTERMITTENT OK VISIBILITY UNTIL 8/26, 03:00:47
						2873	11:08:13	8/26/92	VERY POOR VISIBILITY UNTIL 11:55:46
						2913	13:46:43	8/26/92	INTERMITTENT OK VISIBILITY UNTIL 8/27, 04:58:10
1048	8/27/92	9/1/92		Puu Oo, W flank to ep. 51 vent Wide angle		1881	19:51:40	8/31/92	RED GLOW (DOT) EVERY 52 FRAMES. NOT NATURAL.
1049	8/27/92	9/1/92		Puu Oo, N-side of crater rim to pond Wide angle	210.66	60	15:13:24	8/27/92	INTERMITTENT POOR VISIBILITY OF POND ACTIVITY UNTIL 23:56:32
						577	21:28:34	8/28/92	ISOLATED OK VIEW OF POND. STILL THERE, ACTIVE.
						989	21:35:06	8/29/92	UNTIL 8/30, 04:39:56, SPORADIC VIEWS OF POND. SLIGHTLY LOWER THAN BEFORE?
						1389	20:59:30	8/30/92	INTERMITTENT OK VISIBILITY OF ACTIVE POND UNTIL 8/31, 06:07:13
						1755	18:24:32	8/31/92	INTERMITTENT VIEWS OF POND UNTIL 9/1, 06:17:15. GETS BETTER LATER INTO THE NIGHT.
1050	9/1/92	9/8/92		Puu Oo, W flank to ep. 51 vent Wide angle				9/1/92	NOTHING BUT RAIN, FUME, BLACK ROCK
1051	9/1/92	9/8/92		Puu Oo, N-side of crater rim to pond Wide angle		87	17:41:40	9/1/92	OK, INTERMITTENT VIEW OF LOW ACTIVITY IN POND TO 20:05
						374	10:28:44	9/2/92	OK VIEWS OF POND. VERY ACTIVE SURFACE VISIBLE IN SOME FRAMES.
						611	0:20:21	9/3/92	1 FOUNTAIN (MEDIUM) IN MIDDLE OF PICTURE TO 01:05:58
						642	2:09:08	9/3/92	CLEAR VIEW OF POND. ONLY HALF (DR) IS ACTIVE
						679	4:18:58	9/3/92	ACTIVE SPATTERING, POND LOOKS SMALL (TO 05:11:36)
						798	11:16:32	9/3/92	SPORADIC POOR VIEWS OF RED (TO 12:23:12)

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1026	0:36:34	9/4/92	SPATTERING ON UPRIFT END. NO OTHER RED. (TO 02:32:22)
						2221	22:29:46	9/6/92	FULL-SIZED POND INTERMITTENTLY VISIBLE. BECOMES VERY ACTIVE, THEN DIES OFF. (TO 23:53:59)
						2483	13:49:07	9/7/92	POND INTERMITTENTLY BARELY VISIBLE THROUGH FUME. ACTIVITY ONLY ON DR END. (TO 17:09:07)
						2670	0:45:17	9/8/92	POND VERY ACTIVE, FULL SIZE. (TO 06:25:39) LEVEL FLUCTUATING?
1052	9/8/92	9/24/92		Puu Oo, W flank to ep. 51 vent Wide angle				9/8/92	SEE ONLY LOTS OF FUME, STILL ROCKS.
1053	9/8/92	9/18/92		Puu Oo, N-side of crater rim to pond Wide angle		59	12:23:57	9/8/92	INTERMITTENT VIEW OF RED ON DR END. QUITE ACTIVE. UNTIL 17:41:38
						271	23:12:03	9/8/92	INTERMITTENT VIEW OF RED ON DR END. QUITE ACTIVE. UNTIL 9/9 01:14:26
						358	3:38:14	9/9/92	ONE FRAME WITH OK VIEW OF FULL SIZED LAKE RINGED WITH ACTIVE SPATTERING.
						506	11:11:02	9/9/92	INTERMITTENT VIEWS OF LAKE. MOST SPATTERING ON DR END. FRAMES 697-712 EXCEPTIONALLY CLEAR. POND SURFACE ACTIVE. UNTIL 9/10 01:46:02
						947	9:40:14	9/10/92	INTERMITTENT BUT GOOD VIEW OF ACTIVITY. FULL SIZED POND, QUITE HIGH UP. UNTIL 22:03:41
						1382	7:51:06	9/11/92	GOOD VIEWS OF POND. VERY ACTIVE ALL THE WAY AROUND. HIGHER THAN BEFORE??? UNTIL 18:27:28
						1654	21:43:16	9/11/92	POOR VISIBILITY OF ACTIVITY ON UPRIFT END. TO 22:01:37
						1862	8:19:38	9/12/92	POOR VISIBILITY OF ACTIVITY ON UPRIFT END. TO 08:50:13
						2242	3:42:13	9/13/92	OK VIEW OF LAKE. ACTIVE ACROSS WHOLE LENGTH. TO 04:58:42
						2549	19:21:28	9/13/92	INTERMITTENT POOR VIEWS BECOMING GREAT LATER. VERY ACTIVE FULL SIZED POND. TO 9/14 09:01:24
						2895	13:00:02	9/14/92	WINDOW IN FUME. ACTIVITY ON UPRIFT END. POND LOW??? TO 13:18:23
						2997	18:12:06	9/14/92	GOOD VIEW OF FULL-SIZED, ACTIVE POND. TO 05:09:52
1054	9/24/92	9/30/92		Puu Oo, W flank to				9/24/92	DARK NIGHTS, CLEAR DAYS...

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				ep. 51 vent Wide angle					
1055	9/18/92	9/24/92		Puu Oo, N-side of crater rim to pond Wide angle		223	0:40:52	9/19/92	ISOLATED FLASH OF RED ON UPRIFT END OF POND. NO SIGN OF POND
						237	1:30:00	9/19/92	POND MAKES A BRIEF APPEARANCE THROUGH FUME? UNTIL 02:12:07
						610	23:19:08	9/19/92	VIEWS OF ACTIVE, FULL-SIZED POND, until 9/20 07:09:27
						835	12:28:50	9/20/92	BRIEF GLIMPSES OF POND UNTIL 14:38:42
						958	19:40:32	9/20/92	GOOD SHOTS OF RELATIVELY QUIET POND, FULL SIZE UNTIL 9/21 00:45:53
						1336	17:47:13	9/21/92	1 OK FRAME OF ACTIVE POND
						1345	18:18:48	9/21/92	1 OK FRAME OF ACTIVE POND
						1445	0:09:46	9/22/92	OK SHOTS OF ACTIVE POND. MOST SPATTERING UPRIFT END. UNTIL 06:04:15.
						1844	23:30:09	9/22/92	OK SHOTS OF ACTIVE POND. MOST SPATTERING UPRIFT END. UNTIL 9/23 06:06:45.
						2017	9:37:21	9/23/92	OK SHOTS OF ACTIVE POND. MOST SPATTERING UPRIFT END. UNTIL 9/24 05:30:39.
1056	9/24/92	9/30/92		Puu Oo, N-side of crater rim to pond Wide angle		15	12:28:06	9/24/92	INTERMITTENT POOR VIEWS OF POND WITH LOW ACTIVITY ALL AROUND. POND QUITE HIGH. SAME UNTIL 19:53:55
						259	2:44:38	9/25/92	GOOD VIEW OF POND WITH LOW ACTIVITY ALL AROUND. POND QUITE HIGH. UNTIL 06:25:47
						1342	18:06:21	9/27/92	GLIMPSE OF POND, HIGH AND ACTIVE ON THE DR END. UNTIL 18:30:56
						1373	19:55:11	9/27/92	INTERMITTENT POOR-TO-OK VIEWS OF WHOLE POND. UNTIL 9/28 06:41:05
						1896	2:31:06	9/29/92	INTERMITTENT POOR-TO-OK VIEWS OF WHOLE POND. UNTIL 9/29 06:43:51
						2153	17:33:16	9/29/92	INTERMITTENT POOR-TO-OK VIEWS OF POND. MOST ACTIVE ON DR END. UNTIL 9/30 06:04:29.
1057	9/30/92	10/3/92		Puu Oo, W flank to		1341	14:30:00	10/3/92	FOUNTAINING-- CAMERA IS BEING PANNED AROUND MANUALLY

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				ep. 51 vent Wide angle					(AFTER LAST BOOK)
1058	9/30/92	10/3/92		Puu Oo, N-side of crater rim to pond Wide angle	210.03	134	17:56:35	9/30/92	INTERMITTENT POOR-TO-OK VIEWS OF SEMI-ACTIVE POND (TO 10/1, 06:57:10)
						402	9:34:42	10/1/92	1 FRAME OF FLOOR OF CRATER. NO POND IN THE HOLE??? (NOTE: GAS PISTON ACTIVITY)
						421	10:41:12	10/1/92	HINTS THAT POND IS REFILLING (TO 11:12:42) GAS PISTON
						492	14:49:44	10/1/92	GOOD VIEWS OF ACTIVE, FULL POND. (TO 10/2, 06:10:21)
						900	14:37:55	10/2/92	SIGNS OF ACTIVE POND AT SOMEWHAT LOW LEVEL? TO 1533:55
						1027	22:02:28	10/2/92	INTERMITTENT SPATTERING. POND QUITE LARGE (TO 10/3, 03:21:00)
1059	10/3/92	10/7/92	52	Puu Oo, S flank to ep. 52 vent Wide angle		4	15:03:14	10/3/92	CAMERA STOPS MOVING. ACTIVE FISSURE IN VIEW. MOST ACTIVE AT BASE. BUILDS UP A HORNITO WHICH COLLAPSES AT FRAME 149 (10/3, 23:06:16) 8 HRS.
						149	23:06:16	10/3/92	BUILDS UP STRONGER HIGHER RAMPARTS (TO 10/4, 09:32:34) 10 HRS
						338	9:35:54	10/4/92	COLLAPSED AGAIN.
						390	12:29:07	10/4/92	VENT LESS VIGOROUS.
						644	2:35:17	10/5/92	NEW HORNITO FORMING A BIT HIGHER ON THE FISSURE.
						1045	0:51:09	10/6/92	EVERYTHING RED IS CRUSTED OVER.
						1085	3:04:25	10/6/92	RED BLASTS THROUGH. EFFUSION RATE UP? THINGS SOON QUIET BACK DOWN.
						1538	4:13:31	10/7/92	LAST RED.
1060	10/3/92	10/7/92		Puu Oo, N-side of crater rim to pond Wide angle		481	18:04:17	10/4/92	BURST OF GLOW FROM DEEP IN THE HOLE
						875	17:00:03	10/5/92	POND APPEARS BACK UP 'TIL 17:48:56
						970	22:31:46	10/5/92	POND IS DEFINITELY THERE, SOME OK SHOTS, 'TIL 06:37:43.
						1173	10:20:36	10/6/92	HINTS OF ACTIVITY ON N SIDE OF POND, 'TIL 16:37:43.
						1448	2:20:51	10/7/92	HINTS OF ACTIVITY ON N SIDE OF POND, 'TIL 05:04:57.
1061	10/7/92	10/16/92		Puu Oo, N-side of crater rim to pond Wide angle		336	5:53:58	10/8/92	FUME GLOWS RED FOR A FEW FRAMES
						353	6:53:28	10/8/92	FUME GLOWS RED.
						546	18:08:58	10/8/92	FUME GLOWS RED FOR A FEW FRAMES

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1062	10/7/92	10/16/92		Puu Oo, S flank to ep. 52 vent Wide angle	201.82	485	21:15:24	10/8/92	GLOW IN BACKGROUND 'TIL 10/9 06:47:14
						988	1:27:21	10/10/92	GLOW IN BACKGROUND 'TIL 04:55:54
						1379	23:22:34	10/10/92	GLOW IN BACKGROUND 'TIL 10/11 06:56:40
						1715	18:12:47	10/11/92	GLOW IN BACKGROUND 'TIL 10/12 06:36:10
						2143	18:12:27	10/12/92	GLOW WEAKER THAN PREV.NIGHTS,'TIL10/13 06:29:07
						2574	18:22:13	10/13/92	GLOW INTERMITTENT, TWO SPOTS, 'TIL 10/14 06:28:47
1063	10/16/92	10/22/92		Puu Oo, N-side of crater rim to pond Wide angle				10/16/92	NOTHING, FUME GLOWS A LITTLE AT NIGHT
1064	10/16/92	10/22/92		Puu Oo, S flank to ep. 52 vent Wide angle				10/16/92	NOTHING CHANGES
1065	10/22/92	10/29/92		Puu Oo, N-side of crater rim to pond Wide angle				10/22/92	FUME IN DAY, BLACK AT NIGHT
1066	10/22/92	10/29/92		Puu Oo, S flank to ep. 52 vent Wide angle				10/22/92	NOTHING
1067	10/29/92	11/5/92		Puu Oo, N-side of crater rim to pond Wide angle				10/29/92	WHITE-OUT
1068	10/29/92	11/5/92		Puu Oo, S flank to ep. 52 vent Wide angle				10/29/92	NOTHING

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1069	11/5/92	11/12/92		Puu Oo, N-side of crater rim to pond Wide angle				11/5/92	NOTHING, NO MARKERS EITHER
1070	11/5/92	11/12/92		Puu Oo, S flank to ep. 52 vent Wide angle				11/5/92	MOSTLY FUME
1071	11/13/92	11/20/92		E of Kamoamoa looking W to ocean entries Wide angle	199.81	128	17:54:44	11/13/92	INTRMTNT RED BR-OUTS, 3-10 FRAMES,UNTIL 11/14,0:21:02
						310	4:00:50	11/14/92	BIG BR.OUT GOING INTO OCEAN
						356	6:34:01	11/14/92	SEE MORE STEAM @ W ENTRIES
						500	14:33:34	11/14/92	STEAM INCR. FR NEAR ENTRY (EASTERN ENTRY)
						695	1:22:58	11/15/92	SM. BR.OUTS, BIG ONE COMING FOR CAMERA UNTIL1:59:36
						787	6:29:20	11/15/92	DAWN, NEAR (EAST) ENTRY MOVED EAST
						1219	6:27:59	11/16/92	DAWN, FEW BR.OUTS MOSTLY ENTRY ACTIVITY
						1615	4:26:45	11/17/92	BR.OUT FAR TO WEST
						1655	6:39:58	11/17/92	DAWN, LOTS OF FUME, STEAM
						1743	11:33:01	11/17/92	WIDE SHEET OF PHH ADVANCING ON CAMERA
						1801	14:46:10	11/17/92	RANGER MATTOX! HELP! HELP! CAMERA IN NEW (SAFE) POSITIO
						1872	18:42:37	11/17/92	SHEET FLOW STILL ADVANCING
						1937	22:19:05	11/17/92	SHEET FLOW STOPPED
						2150	10:08:25	11/18/92	CAMERA REPOSITIONED
						2519	6:37:16	11/19/92	LITTORAL EXPLOSIONS AT NEAREST ENTRY UNTIL 7:03:54
1072	11/12/92	11/24/92		Puu Oo, N-side of crater rim to pond Wide angle				11/12/92	WHITE OUT
1073	11/20/92	11/27/92		E of Kamoamoa looking W to ocean entries Wide angle	199.2	255	0:51:48	11/21/92	LITTORAL EXPLOSION
						355	6:23:41	11/21/92	DAWN,ENTRIES HAVE MOVED CONSIDERABLY SEAWARD
						689	0:52:11	11/22/92	RED DOT, SMALL BR.OUT?
						792	6:34:02	11/22/92	DAWN,NEAREST ENTRY BEYOND FIELD OF VIEW
						1193	4:44:54	11/23/92	NEW, SMALL BR.OUT
						1421	17:21:37	11/23/92	MORE BR.OUTS ON BLACK SAND

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1628	4:48:37	11/24/92	SMALL LITTORAL EXPL. 'TIL 06:34:49
						1779	13:09:46	11/24/92	VERY VIGOROUS PLUME FORMS
						1862	17:45:14	11/24/92	NICE GLOWING EXPLOSION IN TWILIGHT
						2955	6:12:46	11/27/92	NICE GLOWING EXPLOSION IN DAWN
1074	11/27/92	12/4/92		E of Kamoamoa looking W to ocean entries Wide angle				11/27/92	PLUMES, NOT MUCH ELSE
1075	11/24/92	12/15/92		Puu Oo, N-side of crater rim to pond Wide angle				11/24/92	NOTHING ON FILM, CAMERA BAD?
1076	12/4/92	12/11/92		E of Kamoamoa looking W to ocean entries Wide angle				12/4/92	BIT OF RED AT ENTRIES, COUPLE OF FRAMES
1077	12/11/92	12/22/92		E of Kamoamoa looking W to ocean entries Wide angle				12/11/92	NOT MUCH TO SEE
1078	12/22/92	12/28/92		E of Kamoamoa looking W to ocean entries Wide angle				12/22/92	CAMERA TURNED OFF

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1079	12/28/92	1/7/93		E of Kamoamoa looking W to ocean entries Telephoto				12/28/92	Nothing unusual
1080	1/7/93	1/14/93		E of Kamoamoa looking W to entry Telephoto				1/7/93	Only see delta and pulmes, nothing unusual
1081	1/14/93	1/20/93		E of Kamoamoa looking W to entry Telephoto				1/14/93	Low-flying helicopter, not much else
1082	1/5/93	1/13/93		Puu Oo, N-side of crater rim to pond Wide angle				1/5/93	See a tiny pond, deep in crater, camera messed up for most of roll
1083	1/20/93	2/1/93		E of Kamoamoa looking W to entry Telephoto	196.29		14:09:58	1/25/93	Red @ entry, some low-flying helicopters earlier in roll
1084	2/1/93	2/9/93		E of Kamoamoa looking W to entry Telephoto	195			2/1/93	Not much, can see delta and plumes of ocean entry
1085	1/26/93	2/12/93		Puu Oo, N-side of crater rim to pond Wide angle					Camera broken
1086	2/9/93	2/21/93		E of Kamoamoa looking W to entry Wide angle					Film not developed

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1087	2/12/93	2/18/93		Puu Oo, N-side of crater rim to pond Wide angle					Camera broken
1088	2/18/93	2/21/93	53	Puu Oo, N-side of crater rim to pond Wide angle					Camera broken
1089	2/21/93	2/26/93		Puu Oo, S flank to ep. 53 vent Wide angle	199.24	1	15:07:59	2/21/93	Fountain high-Dome
						13	15:47:50	2/21/93	Fountain hight down, gradual decrease
						34	16:57:34	2/21/93	Fountain not visible until 17:04:13
						64	18:37:12	2/21/93	Fountain reappears and grows reaching former height @ 51
						206	2:28:44	2/22/93	Fountain height begins to wane.
						217	3:05:16	2/22/93	Fountain not visible
						446	15:45:43	2/22/93	Fountain reappears and grows v. slowly, high again, but not like b/f
						556	21:51:00	2/22/93	Fountain begins to drop again
						731	7:32:07	2/23/93	By this time can not see much of fountain
						731	7:32:07	2/23/93	appears and dissappears throughout day
						931	18:36:16	2/23/93	Fountain not visible, some steam around though
							18:00:00	2/23/93	Evening (dark): flows are visible, but no spattering
						1404	20:46:59	2/24/93	Overflow starts from top of spatter cone
						1408	21:00:16	2/24/93	Overflow crusts over, top of cone still glowing
						1431	22:16:38	2/24/93	Glowing stops
						1507	2:29:01	2/25/93	Short ov.flow(E-side) and intmtnt. glow @ top of cone thr.out eve.
						1602	7:44:29	2/25/93	Overflow(E-side)
						1626	9:04:11	2/25/93	Overflow done or obscured by steam
						1737	15:12:47	2/25/93	Overflow(E-side) Stops @ 16:42:26
						1806	19:01:55	2/25/93	Overflow starts on S-side, stops @ 21:11:25
						2025	7:09:09	2/26/93	Overflow (E-side), stops @ 11:51:25
1090	2/21/93	2/26/93		Puu Oo, N-side of crater rim to pond Wide angle					Camera broken

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1091	2/26/93	3/4/93		Puu Oo, S flank to		17	13:26:28	2/26/93	53 Cone stops overflowing from top
				ep. 53 vent		62	15:56:28	2/26/93	53 Cone starts overflowing from top
				Wide angle		88	17:23:08	2/26/93	53 Cone stops overflowing from top
						110	18:36:28	2/26/93	53 Cone starts overflowing from top
						140	20:16:28	2/26/93	53 Cone stops overflowing from top
						156	21:09:48	2/26/93	53 Cone starts overflowing from top
						178	22:23:08	2/26/93	53 Cone stops overflowing from top
						210	0:09:48	2/27/93	53 Cone starts overflowing from top
						237	1:39:48	2/27/93	53 Cone stops overflowing from top
						258	2:49:48	2/27/93	53 Cone starts overflowing from top
						294	4:49:48	2/27/93	Overflow begins, tubes over, then opens again
						344	7:36:28	2/27/93	Big overflow, until 07:43:08
						405	10:59:48	2/27/93	Small overflow starts, stops around 12:13
						624	23:09:48	2/27/93	Spatter out of top of cone, glows until 2/28 00:03:08
						841	11:13:08	2/28/93	overflow down N side of cone, until 12:13:08
						980	18:56:28	2/28/93	Glow @ top of cone
						990	19:29:48	2/28/93	Overflow, north side of cone
						1037	22:06:28	2/28/93	Glow at top stops
						1049	22:46:28	2/28/93	Overflow, north side, until 23:09:48
						1090	1:03:08	3/1/93	Glow @ top of cone, until 02:23:08
						1416	19:09:48	3/1/93	Overflow, E of previous ones, 'til 20:56:28, top glows 'til 22:46:28
						1838	18:36:28	3/2/93	Overflow, E side of cone, until 19:26:28
						1879	20:53:08	3/2/93	Big breach on E side of cone, until 21:03:08
						1901	22:06:28	3/2/93	Glow at top of cone, steam may obscure alot this evening
								3/4/93	Steamy day
						2564	10:56:28	3/4/93	Glimpse of big overflow on E side, may be active 'til 13:56:28
1092	3/4/93	3/12/93		Puu Oo, S flank to		1	15:08:12	3/4/93	Overflow,E side,some tubing over,'til 21:24:53;red glow 'til 23:49:30
				ep. 53 vent		156	23:49:30	3/4/93	Overflow, E side, until 3/5 00:39:57
				Wide angle		179	1:06:51	3/5/93	Trace of red visible on E side of cone, until 01:30:24
						230	3:58:23	3/5/93	Big overflow! E side, steam obscures flow after this view
						562	22:34:58	3/5/93	Steamy day, see red thru steam throughout evening
						1038	1:15:52	3/7/93	Overflow, E side, steam intermittent, obscured or pau by 01:46:08
						1086	3:57:18	3/7/93	Overflow w/sm dome ftn or rooster tail,cone seems shorter,pau 04:34:18
						1108	5:11:18	3/7/93	Overflow w/sm dome fountain or rooster tail, not visible @ 05:21:23
						1113	5:28:07	3/7/93	Similar overflow as before, not visible @ 05:58:23, same event?
						1124	6:05:06	3/7/93	Glow at top of cone, a lot of steam today

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						1259	13:39:09	3/7/93	Overflow similar to 3 am event, not visible at 14:32:57
						1294	15:36:51	3/7/93	Same overflow event? just obscured by steam?not visible at 17:00:56
						1314	16:44:07	3/7/93	Big dome appears at head to stream can see until 17:00:56
						1330	17:37:56	3/7/93	Cascading stream visible through steam again
						1382	20:32:49	3/7/93	Stream on E side visible through steam until 22:33:54
						1459	0:51:47	3/8/93	During dark hours get intermittent views of stream, through steam
						1848	22:40:05	3/8/93	Overflow,E side, big rooster tail at head of channel, pau 23:50:43
						1916	2:28:47	3/9/93	Glowing patches of flows
						1925	2:59:03	3/9/93	Another small overflow
						2525	12:37:00	3/10/93	Glimpses of overflow, N side of cone,obscured by steam 14:54:53
						3098	20:44:07	3/11/93	See overflow, N side of cone, through steam, not visible 21:00:56
						3110	21:24:29	3/11/93	Blow out of top of cone-spattering, glows until 22:48:34
1093	2/26/93	3/4/93		Puu Oo, N-side of crater rim to pond Wide angle				2/26/93	Film exposed
1094	3/12/93	3/18/93		Puu Oo, S flank to ep. 53 vent Wide angle		111	16:25:51	3/12/93	3 streams of lava overflow NW side of cone, pau 18:06:47
						160	19:10:43	3/12/93	Glow at top where flows came out
						207	21:48:52	3/12/93	Gas and a little spatter from top of cone, pau 22 :05:41
						222	22:39:20	3/12/93	Sm flow down W side of cone, tubes over at 00:53:55?
						276	1:41:01	3/13/93	Sm flow down W side of cone, tubes over at 02:04:35
						295	2:44:57	3/13/93	Stream,W side,tubed by 04:02:20, prob. tubes over then rips open
						323	4:19:10	3/13/93	Stream,W side,tubed by 04:49:27, prob. tubes over then rips open
						459	11:56:46	3/13/93	Overflow, WNW side, visible through steam until 12:27:03
						478	13:00:42	3/13/93	Overflow,W side, feeds streams N side of cone, dome fountain at top of cone. Flow is cascading into 52 pit, Steamed out @ 14:48:22
						510	14:48:22	3/13/93	Glimpses thru steam of big overflow, tubes over, obscured by 19:00:43
							18:00:00	3/13/93	Intermittent glimpses of glow and spatter from top of cone, all eve.
						1029	19:54:38	3/14/93	Glimpses of flow from west (upper skylight, 51 tube, poss. source)
						1225	6:54:07	3/15/93	Same flow gets long and channelized by dawn
						1434	18:37:21	3/15/93	West flow moving south and looks like it is cascading into 52 pit
						1537	0:23:54	3/16/93	Big flows coming from source west of view
								3/17/93	Steamy days
1095	3/12/93	3/18/93		Puu Oo, N-side of		6	11:35:20	3/12/93	Spattering off west wall of pond

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				crater rim to pond		280	3:32:15	3/13/93	Small gas piston event/bathtub ring and spattering off W & at E walls
				Wide angle		350	7:36:43	3/13/93	Spattering @ east wall and off west wall for much of day and evening
						633	0:05:04	3/14/93	Pond level begins fluctuating, cycles seem to be every 20-30 minutes
						662	1:46:21	3/14/93	A lot of spattering on E side of pond, pond level begins to drop
						668	2:07:18	3/14/93	Pond level has dropped beyond field of view (>80meters?) pond level begins to rise here, but never regains former level
						687	3:13:39	3/14/93	Dramatic spattering off W wall, quieter by 06:18:45
						1087	2:30:37	3/15/93	During darkness can see clearly that the pond level is always fluctuating this continues throughout roll
						1193	8:40:48	3/15/93	Camera tilted to left
						1994	7:18:13	3/17/93	Pond level drops out of sight (in ~45 min)level back up by 09:44:54
1096	3/18/93	3/25/93		Puu Oo, S flank to ep. 53 vent Wide angle				3/18/93	A lot of steam
1097	3/18/93	3/25/93		Puu Oo, N-side of crater rim to pond Wide angle			18:30:00	3/18/93	Pond continues to fluctuate and line of spatter just off west wall
1098	3/25/93	4/1/93		Puu Oo, S flank to ep. 53 vent Wide angle				3/25/93	Steam, darkness and no change obvious on flow field
1099	3/25/93	4/1/93		Puu Oo, N-side of crater rim to pond		0	18:32:00	3/25/93	Spattering at E edge of pond, off west wall and new spatter source at west wall. The latter two sources often merge together.
				Wide angle		859	0:41:15	3/28/93	The two western spatter source merge and become a long thin line
1100	4/1/93	4/9/93		Puu Oo, N-side of			18:30:00	4/1/93	Evening:line of spatter from west wall to middle of pond, level steady
				crater rim to pond		709	9:47:30	4/3/93	Day:more spatter activity on west wall, minor pond level fluctuations
				Wide angle		1402	4:31:37	4/5/93	Part of west wall collapses, right at site of spatter activity
						1618	17:50:50	4/5/93	Part of west wall collapses, right at site of spatter activity
						1881	10:03:56	4/6/93	Part of west wall collapses again, keeps building out, then collapsing

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1101	4/9/93	4/16/93		Puu Oo, N-side of crater rim to pond Wide angle			18:30:00	4/9/93	Evening:Pond level fluctuates quite a bit, continues for rest of roll
1102	4/20/93	4/23/93		W of Lae Apuki to Lae Apuki entry Wide angle				4/20/93	Not much - bench steaming - plumes
1103	4/16/93	4/27/93		Puu Oo, N-side of crater rim to pond Wide angle				4/16/93	Gas piston acitivity.Spatter activity on east and west walls, see 4/27 HI8
1104	4/23/93	4/29/93		W of Lae Apuki to Lae Apuki entry Wide angle				4/23/93	Not much-plumes, dots of red @ nite from Laeapuki or W KMM entry
1105	4/29/93	5/5/93		W of Lae Apuki to Lae Apuki entry Wide angle				4/29/93	Same as previous rolls
1106	5/5/93	5/7/93		W of Lae Apuki to Lae Apuki entry Wide angle				5/5/93	not much to see-steam plumes &glowing dots at WKMM entry at nite
1107	5/10/93	5/18/93		W of Lae Apuki to Lae Apuki entry Wide angle				5/10/93	Plumes, some red dots @ nite, not much else
1108	5/20/93	5/27/93		Puu Oo, N-side of crater rim to pond Wide angle				5/20/93	Spattering dominant at downrift end of pond - little spattering at uprift (entry) end and occasional migration of spatter activity along S wall (can't see N. wall in camera).

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1109	5/27/93	6/3/93		Puu Oo, N-side of crater rim to pond Wide angle				5/27/93	Pond: Dominant spatter activity @ downrift endas usual. circ. W to E
1110	6/2/93	6/8/93		E of Kamoamoa to E Kamoamoa entry Telephoto		2	10:23:24	6/2/93	Littoral explosion, spatter visible
						24	11:34:57	6/2/93	Littoral explosion, pulse
						43	12:36:44	6/2/93	Littoral explosion, pulse
						383	7:02:25	6/3/93	Littoral explosion, pulse
						388	7:18:40	6/3/93	Littoral explosion, pulse
						412	8:36:43	6/3/93	Littoral explosion, pulse
						419	8:59:29	6/3/93	Littoral explosion, pulse
						426	9:22:15	6/3/93	Littoral explosion, pulse
						433	9:45:00	6/3/93	Littoral explosion, pulse
						442	10:14:17	6/3/93	Littoral explosion, pulse
						446	10:27:17	6/3/93	Littoral explosion, pulse
						463	11:22:34	6/3/93	High spatter/tephra littoral explosion
						468	11:38:50	6/3/93	Littoral explosion, pulse
						475	12:01:35	6/3/93	Littoral explosion, pulse
						480	12:17:51	6/3/93	Littoral explosion, pulse
						500	13:22:53	6/3/93	Littoral explosion, pulse
						558	16:31:30	6/3/93	2 entries?
						855	8:37:21	6/4/93	Vigorous littoral explosions
						950	13:46:17	6/4/93	Littoral explosion, pulse
							9:07:14	6/5/93	Littoral explosion, pulse
						1347	11:17:19	6/5/93	Littoral explosion, pulse
						1353	11:36:50	6/5/93	Littoral explosion, spatter visible
						1373	12:41:52	6/5/93	Littoral explosion, pulse
						1378	12:58:08	6/5/93	Littoral explosion, pulse
						1383	13:14:23	6/5/93	Littoral explosion, pulse
						1757	9:30:38	6/6/93	Littoral explosion, spatter visible
						1763	9:50:09	6/6/93	Littoral explosion, pulse
						1765	9:56:39	6/6/93	Littoral explosion, pulse
						1773	10:22:40	6/6/93	Littoral explosion, spatter visible
1111	6/3/93	6/10/93		Puu Oo, N-side of				6/3/93	No dramatic changes in pond level, spatter activity dominan in down-

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				crater rim to pond Wide angle		2050	15:08:18	6/9/93	rift end of pond. A lot of steam and heavy plume Rock below rim of crater disappears
1112	6/15/93	6/24/93		E of Kamoamoa to E Kamoamoa entry Telephoto				6/15/93	Camera pointed too high, can only see plume
1113	6/10/93	6/24/93		Puu Oo, N-side of crater rim to pond Wide angle				6/10/93	No changes obvious in pond level, spatter activity dominant in down-rift end, a lot of steam and heavy fume obscuring view
1114	6/8/93	6/15/93		E of Kamoamoa to E Kamoamoa entry Telephoto				6/8/93	Camera pointed too high, can only see plume
1115	6/24/93	6/29/93		E of Kamoamoa to E Kamoamoa entry Telephoto				6/24/93	Camera pointed too high, can only see plume
1116	6/24/93	7/1/93		Puu Oo, N-side of crater rim to pond Wide angle				6/24/93	Pond level unchanged, Spatter activity dominant in downrift end some steam and heavy fume
1117	6/29/93	7/6/93		E of Kamoamoa to E Kamoamoa entry Telephoto	177.09	1937 1949	9:29:49 10:05:15	7/3/93 7/3/93	Huge littoral explosion, tephra laden jets in steam plume Another, less distinct littoral explosion
1118	7/1/93	7/8/93		Puu Oo, N-side of crater rim to pond Wide angle	266.1	483	23:03:10	7/2/93	Spattering @ downrift end as usual until this time when it spreads around rim to uprift side until 7/3, 5:33:27

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1119	7/6/93	7/13/93		E of Kamoamoa to E Kamoamoa entry Telephoto	175.62	17	13:07:08	7/6/93	Littoral explosion, pulse
						22	13:21:46	7/6/93	Littoral explosion, pulse
						23	13:24:41	7/6/93	Littoral explosion, pulse
						25	13:30:33	7/6/93	Littoral explosion, pulse
						27	13:36:24	7/6/93	Littoral explosion, pulse
						60	15:12:59	7/6/93	Littoral explosion, pulse
						72	15:48:07	7/6/93	Littoral explosion, pulse
						414	8:29:10	7/7/93	Littoral explosion, pulse
						415	8:32:06	7/7/93	Littoral explosion, pulse
						417	8:37:57	7/7/93	Littoral explosion, pulse
						418	8:40:53	7/7/93	Littoral explosion, pulse
						419	8:43:48	7/7/93	Littoral explosion, pulse
						432	9:21:52	7/7/93	Littoral explosion, pulse
						453	10:23:20	7/7/93	Littoral explosion, pulse
1120	7/13/93	7/21/93		E of Kamoamoa to E Kamoamoa entry Wide angle				7/13/93	Plumes, poor visibility, can't pick out explosive activity
1121	7/8/93	7/29/93		Puu Oo, N-side of crater rim to pond Wide angle				7/8/93	Pond: dominant spatter activity on downrift side. Minor pond level fluctuations
1122	7/21/93	7/27/93		E of Kamoamoa to E Kamoamoa entry Telephoto				7/21/93	Nothing much, steam and olderflows
1123	7/27/93	8/3/93		E of Kamoamoa to new E flow Wide angle	198.51	193	0:58:56	7/28/93	Small red dots (flow?)
						205	1:38:39	7/28/93	Small red dots (flow?)
								7/28/93	Dawn: steam of a new ocean entry
						404	12:37:02	7/28/93	Camera moved by Beth and Andrea
						524	19:14:03	7/28/93	Lots of steam from new entry, bits of red here and there
1124	7/29/93	8/5/93		Puu Oo, N-side of				7/29/93	No dramatic changes in spattering activity, location or pond level

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
				crater rim to pond Wide angle					
1125	8/3/93	8/9/93		E of Kamoamoa to new E flow Wide angle	197.25	2274	16:36:36	8/8/93	Steam at entries seems to die off
1126	8/9/93	8/12/93		E of Kamoamoa to new E flow/entry Wide angle				8/9/93	Camera pulled before flow hit it, W entry plume in background
1127	8/5/93	8/20/93		Puu Oo, N-side of crater rim to pond Wide angle				8/5/93	Spattering same-downrift side dominant, no dramatic pond level chnges
1128	8/20/93	8/27/93		Puu Oo, N-side of crater rim to pond Wide angle				8/20/93	Spattering same-downrift side dominant, no dramatic pond level chnges occasionaly see a small bathtub ring
1129	8/27/93	9/2/93		Puu Oo, N-side of crater rim to pond Wide angle				8/27/93	Spattering same-downrift side dominant, no dramatic pond level chnges steam and fume obscure view a lot.
1130	9/2/93	9/9/93		Puu Oo, N-side of crater rim to pond Wide angle	215.6			9/2/93	Spattering same-downrift side dominant, steam and fume obscure view.
						277	2:19:53	9/3/93	Small part of East rim of pond collapses
						668	1:44:54	9/4/93	Small collapse - East rim of pond
						1040	0:01:39	9/5/93	Small collapse - East rim of pond
						2154	18:44:41	9/7/93	Small collapse - East rim of pond
1131	9/9/93	9/21/93		Puu Oo, N-side of crater rim to pond Wide angle	214.5			9/9/93	Spattering same-downrift side dominant, steam and fume obscure view.
						1071	2:25:46	9/12/93	Small collapse - East rim of pond
						1414	22:51:59	9/12/93	Small collapse on pond

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2979	20:06:52	9/16/93	Small collapse on pond - East rim
1132	9/21/93	9/28/93		Puu Oo, N-side of crater rim to pond	214			9/21/93	Spattering same-downrift side of pond. Glow W side of pond, out of view. Steam and fumes obscure view a lot, particularly after frame 1109.
				Wide angle		246	1:35:18	9/22/93	Small collapse - East rim of pond
						559	20:11:40	9/22/93	Small collapse - East rim of pond
						1037	0:36:32	9/24/93	Small collapse - East rim of pond
						1099	4:17:40	9/24/93	Tiny collapse - East rim of pond
						1109	4:53:20	9/24/93	Visibility noticeably reduced.
						1898	3:47:26	9/26/93	Possible gas piston event.
						2330	5:28:14	9/27/93	Visibility has improved slightly.
						2626	23:03:58	9/27/93	Small collapse - East rim of pond
1133	9/28/93	10/7/93		Puu Oo, N-side of crater rim to pond	217			9/28/93	Spattering-downrift side of pond, occasional increase in vigor, occasional spattering on uprift side of pond followed by small gas piston events, spattering shifts to the SE of usual E pond edge area as film ran out, steam and fume obscure view.
				Wide angle		183	20:36:35	9/28/93	Slight vigor increase, spattering @ uprift and downrift edges of pond small gas pistoning?
						412	10:24:48	9/29/93	Sudden spatter increase - gas pistoning?
						491	15:10:31	9/29/93	Marked visibility decrease
						700	3:46:24	9/30/93	Small gas piston
						813	10:35:05	9/30/93	Improved visibility
						2922	17:42:38	10/5/93	Small increase in spatter activity.
						3305	16:47:49	10/6/93	Spattering moves to SE edge.
1134	10/7/93	10/14/93		Puu Oo, N-side of crater rim to pond	216.37			10/7/93	Spattering @ downrift edge constant for roll, Periodic spattering @ S of pond which migrates to E side in five or so frames.
				Wide angle		274	2:44:48	10/8/93	Sudden burst of spatter on E side of pond.
						734	6:23:36	10/9/93	Sudden burst of spatter on E side of pond.
						1066	2:20:50	10/10/93	Start of slight activity increase (lasts about 30 frames)
						1409	22:57:44	10/10/93	Slight spattering increase (lasts about 50 frames)
						1497	4:15:04	10/11/93	Small pond rim collapse - downrift side.
						1639	12:47:09	10/11/93	Small gas piston event.
						1805	22:45:46	10/11/93	Small pond rim collapse - East side.
						2143	19:04:38	10/12/93	Small pond rim collapse - East side.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
						2271	2:46:13	10/13/93	Spatter activity increase.
						2690	3:57:10	10/14/93	Very small E pond rim collapse
						2723	5:56:10	10/14/93	Sudden activity burst, possible small gas piston event.
1135	10/14/93	10/29/93		Puu Oo, N-side of crater rim to pond Wide angle	216.5			10/14/93	Spattering constant - E side of pond, ocassionally spreading along SE wall. East pond rim builds out then collapses.
						169	21:36:55	10/14/93	Small collapse - E pond rim.
						672	3:51:54	10/16/93	Small collapse - E pond rim.
						1773	22:04:41	10/18/93	Small collapse - E pond rim.
						1918	6:47:53	10/19/93	Small collapse - E pond rim.
1136	10/29/93	11/4/93		Puu Oo, N-side of crater rim to pond Wide angle	201.98			10/29/93	Spattering mainly along SE pond wall, glow seen from W edge. Activity spreads along S wall at times, Spattering sometimes on W side of pond.
1137	11/4/93	11/16/93		Puu Oo, N-side of crater rim to pond Wide angle	216			11/4/93	Spattering centered along S pond edge covering wide area up to the entire S half of pond. Pond vigerous through filming period. Three large gas piston events occured. This roll of film contains greatest activity since at least roll #1130.
						107	16:38:36	11/4/93	Activity @ S edge of pond nearly fills entire frame.
						624	23:39:48	11/5/93	Large gas piston event. #1
						630	0:01:24	11/6/93	Pond has refilled.
						631	0:05:00	11/6/93	Large gas piston event. #2
						643	0:48:12	11/6/93	Pond has refilled.
						801	10:17:00	11/6/93	Large gas piston event. #3
						811	10:53:00	11/6/93	Pond has refilled.
						1514	5:03:48	11/8/93	Beginning of small S pond wall collapse (lasts two frames).
1138	11/16/93	12/9/93		Puu Oo, N-side of crater rim to pond Wide angle				11/16/93	Spattering constant along S pond wall changing to downrift edge at times. Steam and fumes often obscure view.

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1139	12/9/93	12/18/93		Puu Oo, N-side of crater rim to pond				12/9/93	Spattering fairly constant along S and SE walls of pond. Steam and fumes obscure view often.
				Wide angle		576	22:19:30	12/10/93	Large glow from uprift side of pond - possible pond wall collapse?

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1140	12/27/93	1/5/94		Puu Oo, N-side of crater rim to pond				12/27/93	On roll, spattering @ SE-S pond wall, occasionally to SW side, heavy fume obscures view for most of film.
				Wide angle		1794	22:38:12	12/31/93	Large spatter on downrift side of pond - possible pond rim collapse. continues until 23:07:20
1141	3/10/94	3/16/94		Tumulus E of Ka-moamoa to west Kamoamoa entry	170.25	39		3/10/94	Set up at Hard Hat tumulus rain obscures view. Can't work out times.
						872		3/12/94	Sunrise-fume blowing to sea, good view of littoral cones. Some rain, small pieces of cone falling off, on roll.
				Wide angle					
1142	3/16/94	3/23/94		Tumulus E of Ka-moamoa to west Kamoamoa entry	170.5	633	17:23:04	3/17/94	Camera moved
						636	17:31:33	3/17/94	Lava flow in foreground first noticed.
						905	6:11:34	3/18/94	Camera becomes tilted, entire foreground is fresh lava.
				Wide angle		1079	14:23:10	3/18/94	Camera view changed
						2612	14:34:25	3/21/94	Camera view changed to S mid Entry, lots of plume, Occasional black sand explosions.
1143	4/7/94	4/19/94		Puu Oo, N-side of crater rim to pond	238.36			4/7/94	Pond barely visible above rim of crater, spatter activity predominately on downrift side. Sp. activity occasionally moves around S rim of pond
				Wide angle		157	22:05:29	4/7/94	Bigger glow from pond
						2203	13:33:43	4/13/94	Strong glow from pond
						3206	7:58:23	4/16/94	Pond level seems higher, stays high through evening
1144	4/19/94	4/28/94		Puu Oo, N-side of crater rim to pond	264.03			4/19/94	Spatter activity predominantly on downrift side of pond. Some small gas piston events
				Wide angle		1052	18:18:38	4/22/94	Bath-tub ring around rim of pond, small gas piston event
						1165	2:35:53	4/23/94	Gas piston event
						1520	4:38:02	4/24/94	Gas piston event
						1814	2:11:46	4/25/94	Gas piston event
						2374	19:16:00	4/26/94	Spatter activity on uprift and downrift sides of pond
1145	2/8/94	2/23/94		Puu Oo, N-side of crater rim to pond	261.5			2/8/94	Spatter activity predominately on S and E side of pond. Some small gas piston events noted
				Wide angle		311	8:41:29	2/9/94	Big glow uprift of pond on crater floor

ROLL	DATE IN	DATE OUT	EPI-SODE	VIEW	RATE	FRAME	TIME	DAY	COMMENTS
1146	2/23/94	3/4/94		Puu Oo, N-side of crater rim to pond Wide angle	264.21			2/23/94	Spatter activity predominately on downrift end of pond but pond is frequently active along entire south rim. Some gas piston activity
						1133	22:27:16	2/26/94	Gas piston event
						2187	3:48:30	3/2/94	Gas piston event
1147	3/4/94	3/9/94		Puu Oo, N-side of crater rim to pond Wide angle				3/4/94	Pond fairly active along entire S rim. Some gas pistoning and some gradual pond level fluctuations too (over several frames)
1148	3/9/94	3/29/94		Puu Oo, N-side of crater rim to pond Wide angle				3/9/94	Flim is black, moisture problem?
1149	8/31/94	9/5/94		Laeapuki to 7/27/94 littoral cone Wide angle				8/31/94	Ocean plume is constant throughout entire roll
1150	8/18/94	8/25/94		Puu Oo, N-side of crater rim to pond Wide angle	266.1			8/18/94	Day time views of pond obscured by fume and steam, not much glow at night except that noted below
						555	3:26:28	8/20/94	Glow of lava on N rim of pond, visible until daylight
1151	9/9/94	9/15/94		Laeapuki to 7/27/94 littoral cone Wide angle	169.54			9/9/94	Ocean plume constant throughout entire roll
						2665	17:01:36	9/14/94	Possible explosion, E side of 7/27/94 littoral cone

Table 2

DATE IN	DATE OUT	BOX	ROLL NUMBER	VIEW	DATE IN	DATE OUT	BOX	ROLL NUMBER	LOCATION
2/14/88		D	30	1123 to PuuOo	11/2/88	11/9/88	J	62	Pond 2 to NE Pond
3/2/88	3/24/88	M	87	KAL-W to C-shield	11/2/88	11/9/88	M	115	Pond 1 to Center Pond
4/2/88	4/11/88	J	35	KAL-W to PuuOo	11/9/88	11/17/88	J	63	Pond 2 to NE Pond
4/2/88	4/11/88	M	89	KAL-W to C-shield	11/9/88	11/17/88	M	116	Pond 1 to Center Pond
4/11/88	4/21/88	J	36	KAL-W to PuuOo	11/17/88	11/23/88	J	64	Pond 2 to NE Pond
4/11/88	4/21/88	M	90	KAL-W to C-shield	11/17/88	11/23/88	M	117	Pond 1 to Center Pond
4/21/88		J	37	KAL-W to PuuOo	11/23/88	12/2/88	J	65	Pond 2 to NE Pond
4/21/88	4/25/88	M	91	KAL-W to C-shield	11/23/88	12/2/88	M	118	Pond 1 to Center Pond
4/25/88	5/5/88	M	92	KAL-W to C-shield	12/2/88	12/15/88	J	66	Pond 2 to NE Pond
5/5/88		M	93	KAL-W to C-shield	12/2/88		M	119	Pond 1 to Center Pond
7/8/88	7/15/88	J	49	Pond 2 to NE Pond	12/15/88	12/21/88	H	1	Pond 1 to Center Pond
7/7/88	7/15/88	M	102	Pond 1 to Center Pond	12/21/88	12/29/88	J	67	Pond 2 to NE Pond
7/15/88	7/22/88	J	50	Pond 2 to NE Pond	12/21/88	12/29/88	H	2	Pond 1 to Center Pond
7/15/88	7/22/88	M	103	Pond 1 to Center Pond	12/29/88		J	68	Pond 2 to NE Pond
7/22/88	7/29/88	J	51	Pond 2 to NE Pond	12/29/88	1/4/89	H	3	Pond 1 to Center Pond
7/22/88	7/29/88	M	104	Pond 1 to Center Pond	1/4/89	1/13/89	J	69	Pond 2 to NE Pond
7/29/88	8/5/88	J	52	Pond 2 to NE Pond	1/4/89	1/13/89	H	4	Pond 1 to Center Pond
7/29/88	8/5/88	M	105	Pond 1 to Center Pond	1/13/89	1/19/89	J	70	Pond 2 to NE Pond
8/5/88	8/18/88	J	53	Pond 2 to NE Pond	1/13/89	1/19/89	H	5	Pond 1 to Center Pond
8/5/88	8/18/88	M	106	Pond 1 to Center Pond	1/19/89	1/26/89	J	71	Pond 2 to NE Pond
8/18/88		J	54	Pond 2 to NE Pond	1/19/89	1/26/89	H	6	Pond 1 to Center Pond
8/18/88	8/24/88	M	107	Pond 1 to Center Pond	1/26/89	2/2/89	J	72	Pond 2 to NE Pond
8/24/88	9/2/88	J	55	Pond 2 to NE Pond	1/26/89	2/2/89	H	7	Pond 1 to Center Pond
8/24/88	9/2/88	M	108	Pond 1 to Center Pond	2/9/89	2/17/89	J	74	Pond 2 to NE Pond
9/2/88	9/12/88	J	56	Pond 2 to NE Pond	2/9/89	2/17/89	H	9	Pond 1 to Center Pond
9/2/88	9/12/88	M	109	Pond 1 to Center Pond	2/17/89	2/21/89	J	75	Pond 2 to NE Pond
9/12/88	9/20/88	J	57	Pond 2 to NE Pond	2/17/89	2/21/89	H	11	Pond 1 to Center Pond
9/12/88		M	110	Pond 1 to Center Pond	2/21/89	3/2/89	H	11	Pond 1 to Center Pond
9/20/88	10/6/88	J	58	Pond 2 to NE Pond	3/2/89	3/9/89	J	76	Pond 2 to NE Pond
9/20/88	10/6/88	M	111	Pond 1 to Center Pond	3/2/89	3/9/89	H	12	Pond 1 to Center Pond
10/6/88	10/20/88	J	59	Pond 2 to NE Pond	3/9/89	3/14/89	J	77	Pond 2 to NE Pond
10/6/88	10/20/88	M	112	Pond 1 to Center Pond	3/9/89	3/14/89	H	13	Pond 1 to Center Pond
10/20/88	10/27/88	J	60	Pond 2 to NE Pond	3/14/89	3/22/89	J	78	Pond 2 to NE Pond
10/20/88	10/27/88	M	113	Pond 1 to Center Pond	3/14/89	3/22/89	H	14	Pond 1 to Center Pond
10/27/88	11/2/88	J	61	Pond 2 to NE Pond	3/22/89	3/31/89	J	79	Pond 2 to NE Pond
10/27/88	11/2/88	M	114	Pond 1 to Center Pond	3/22/89	3/31/89	H	15	Pond 1 to Center Pond

Table 2

DATE IN	DATE OUT	BOX	ROLL NUMBER	VIEW
3/31/89	4/6/89	J	80	Pond 2 to NE Pond
3/31/89		H	16	Pond 1 to Center Pond
4/6/89	4/18/89	J	81	Pond 2 to NE Pond
4/6/89	4/13/89	H	17	Pond 1 to Center Pond
4/13/89	4/27/89	J	82	Pond 2 to NE Pond
4/13/89	4/27/89	H	18	Pond 1 to Center Pond
4/27/89		J	83	Pond 2 to NE Pond
4/27/89		H	19	Pond 1 to Center Pond
5/5/89	5/11/89	J	84	Pond 2 to NE Pond
5/5/89	5/11/89	H	20	Pond 1 to Center Pond
5/11/89	5/19/89	J	85	Pond 2 to NE Pond
5/11/89	5/19/89	H	21	Pond 1 to Center Pond
5/19/89	5/24/89	J	86	Pond 2 to NE Pond
5/19/89	5/24/89	H	22	Pond 1 to Center Pond
5/24/89	6/1/89	J	87	Pond 2 to NE Pond
5/24/89	6/1/89	H	23	Pond 1 to Center Pond
6/1/89	6/10/89	J	88	Pond 2 to NE Pone
6/1/89	6/10/89	H	24	Pond 1 to Center Pond
6/10/89	6/13/89	J	89	Pond 2 to NE Pond
6/10/89	6/15/89	H	25	Pond 1 to Center Pond
6/15/89	6/27/89	J	90	Pond 2 to NE Pond
6/15/89	6/27/89	H	26	Pond 1 to Center Pond
7/27/89	8/2/89	H	30	Pond 1 to Center Pond
8/2/89	8/10/89	H	31	Pond 1 to Center Pond
8/2/89	8/10/89	J	94	Pond 2 to NE Pond
8/10/89	8/17/89	H	32	Pond 1 to Center Pond
8/10/89	8/17/89	J	95	Pond 2 to NE Pond
8/17/89	8/29/89	H	33	Pond 1 to Center Pond
8/17/89	8/29/89	J	96	Pond 2 to NE Pond
8/29/89	9/7/89	H	34	Pond 1 to Center Pond
8/29/89	9/7/89	J	97	Pond 2 to NE Pond
9/7/89	9/13/89	H	35	Pond 1 to Center Pond
9/7/89	9/13/89	J	98	Pond 2 to NE Pond
9/13/89	9/22/89	J	99	Pond 2 to NE Pond
9/13/89	9/22/89	H	36	Pond 1 to Center Pond
9/22/89	10/11/89	J	100	Pond 2 to NE Pond

DATE IN	DATE OUT	BOX	ROLL NUMBER	LOCATION
9/22/89	10/11/89	H	37	Pond 1 to Center Pond
11/2/89	11/22/89	H	40	Pond 1 to Center Pond
11/2/89	11/22/89	J	103	Pond 2 to NE Pond
11/22/89	11/29/89	H	41	Pond 1 to Center Pond
11/29/89	12/14/89	H	42	Pond 1 to Center Pond
12/14/89	12/21/89	H	43	Pond 1 to Center Pond
2/9/93		Z	46	KMM-E to E bench
1/6/94	1/25/94	X	92	Puu Oo rim to Pond
3/23/94	3/30/94	Z	71	W-KMM
3/30/94	4/5/94	Z	72	W-KMM
4/5/94		Z	73	W-KMM entries
4/28/94	5/6/94	X	99	PuuOo rim to Pond
5/6/94	5/11/94	X	100	Puu Oo rim to Pond
5/11/94	6/2/94	X	101	Puu Oo rim to Pond
6/2/94	6/16/94	X	102	Puu Oo rim to Pond
6/16/94	6/22/94	X	103	Puu Oo rim to Pond
6/22/94	6/30/94	X	104	Puu Oo rim to Pond
6/30/94	7/8/94	X	105	Puu Oo rim to Pond
7/8/94	7/19/94	X	106	Puu Oo rim to Pond
7/19/94	7/26/94	X	107	Puu Oo rim to Pond
7/26/94		X	108	Puu Oo rim to Pond
8/8/94		X	109	Puu Oo rim to Pond
8/25/94	9/13/94	X	111	Puu Oo rim to Pond
9/5/94	9/9/94	Z	75	W-KMM, Lae Apuki
9/13/94	9/22/94	X	112	Puu Oo rim to Pond
9/15/94	9/21/94	Z	77	W-KMM, Lae Apuki
9/22/94	10/6/94	X	113	Puu Oo rim to Pond