Even though you didn't request these I had duplicates so I included them

Matt

SUMMARY REPORT

OF

FIRELINE BURN AND INJURY REPORT

TO

CALIFORNIA DEPARTMENT OF FORESTRY

AND FIRE PROTECTION

AND

CALIFORNIA YOUTH AUTHORITY

FIRE CREW

VENTURA CAMP CREW # 2

"RAINBOW FIRE"

RRU INCIDENT # 42950

RIVERSIDE AND SAN DIEGO RANGER UNITS

REGION III

SEPTEMBER 29, 1992

DATE OF REPORT - OCTOBER 14, 1992

SUMMARY

At approximately 1250 hours, September 29, 1992, Ventura Fire Crew # 2 was overrun by fire during suppression activities about 1 mile south of the community of Temecula in Riverside County. The crew's specific task was to support a firing operation on the northwest corner along a dozer control line during the third burning period of the fire's history.

Erratic winds affected the firing operation. The crew was required to deploy their shelters after they were cut off from both of their escape routes by the multiple fire fronts. At least three large fire whirlwinds developed in the area of deployment within the safety zone. These conditions resulted in the crew becoming enveloped in a fire storm.

As a result of exposure to intense radiant heat and subsequent heavy concentrations of smoke, the CDF Fire Captain received moderate to major burns to his hands, arms, face, and neck. Two CYA wards suffered minor burns, another ward and a Riverside County Paid-Call Firefighter suffered smoke inhalation. The remaining crew members suffered lesser degrees of smoke inhalation.

FIRELINE CONDITIONS

FUEL:

TYPE:

The fuels were 60 year old mixed chaparral and chemise, with an intermix of live oaks.

LOADING:

Fuel loading at the site was approximately 40 tons per acre.

RATIO:

The percentage of live fuel in the total fuel was estimated at less than 40%.

TOPOGRAPHY:

TERRAIN:

The accident site is located on the north west slope of Nielson Mountain, approximately 500 yards south of the southern terminus of the golf course road. The elevation is about 1130 feet with an average slope of 30%.

ASPECT:

The site had a northwest exposure.

FEATURES:

The site is between Rainbow and Temecula Valleys. The north side of the mountain was covered with thick, dense stands of old chaparral, interspersed with live oaks. The overall height of the mature vegetation was estimated ranging from 15 to 30 feet. In addition, fuel continuity and density were continuous, offering minimal visual knowledge of the variations to topographic features, such as chimneys and drainages. The upper elevations of Nielson Mountain have large

formations of rock outcroppings, some extending upwards of 50-75 feet above ground level.

There was no major fire history at the site for at least 50 years.

WEATHER:

Weather observations were taken at various locations near the accident site. The following readings were taken at 1200 hours on September 29, 1992, by the incident field observers:

Wind Speed	10 Miles Per Hour
Wind Direction	West
Temperature	98 Degrees F
Humidity	15 %

FIRE BEHAVIOR:

Time Fire Started:	9/27/92	1535 Hours
Time of Injuries:	9/29/92	1250 Hours

The fire was reported to be burning along Old Highway 395 on the western slope of Nielson Mountain near the southern boundary of the City of Temecula. The slope in this area is about 60%. The fire burned uphill in heavy fuels with critical rates of spread. Flame lengths were reported in excess of 50 feet, consuming all vegetation in its path.

Throughout the first burning period, the fire was influenced by normal wind conditions. Between 1200 hours to 1400 hours every day the winds would shift from east to west with strong down slope winds between noon and sundown. This is attributed to the convergence of coastal and inland influences.

There was a localized, mild Santa Ana wind condition on the three days prior to the fire starting. This had a drying affect on both light and heavy fuels.

During the second burning period, critical fire spread was experienced through the heavier fuels in the upper elevations. The spotting and fire intensity reflected the increasing coastal influences, coupled with the drying affect of the easterly winds earlier in the week, dictated the need for indirect fire suppression methods.

During the afternoon of the second burning period, the fire, which was influenced by strong downhill winds, ran in a northeasterly direction with critical rates of spread and intensity. A fire storm drove the fire to the base of the north side of the mountain range where it dissipated on the valley floor. (SEE GRAPHIC #1)

SEQUENCE OF EVENTS:

The potential of the fire was recognized by Command Staff during the first burning period. It was generally known that the fire threatened thousands of acres and numerous structures if not held to the initial 3,000 acres that made up the Nielson

Mountain drainage. In addition, the fire was in an area of convergence for both coastal and inland weather influences. These factors were primary considerations in the Incident Action Plans for each operational period. They also affected strategy and tactics because of safety considerations for firefighters engaged in suppression activities.

During the evening of the first burning period on 9-27-92, bulldozers began constructing a secondary line on the northwestern portion of the fire at the base of Nielson Mountain. The dozers then proceeded eastward, attempting to utilitize the existing terrain features. The dozers followed an old road from the base of the mountain around a group of structures that would eventually become the control line. (SEE GRAPHIC #2)

During the second operational period, a fire storm developed in the upper elevations of the north slope of Nielson Mountain. Driven by down slope winds, it burned an area of about 400 acres. This occurred at about 1400 hours on 9-28-92.

The Command Staff recognized the potential threats to life safety and a decision was made to burnout to the secondary dozer lines. The planned burnout was to begin in the most critical area, the eastern portion of the fire in Branch II along a road known as the Turkey Trail, then westward along the base of the mountain. The second burn out operation was planned for Division A and B, Branch I in the northwest corner of the fire. All phases of the burning out operation were to be completed prior to 1200 hours on 9-29-92, since changes in wind direction and the erratic fire behavior were expected to occur in the afternoon. (SEE GRAPHIC #3)

On 9-28-92 at about 2000 hours, the night shift began their burnout on the eastern side of the fire. However, due to a rise in relative humidity they were unable to sustain sufficient fire. Operations were discontinued until more favorable conditions developed. At 0600 hours on 9-29-92, Command Staff stressed the operational need to complete the burnout. In addition, they stressed the importance of accomplishing the firing prior to 1200 hours. The briefing was concluded and the various members of the Command Staff then proceeded to advise their subordinates of the modified plans for the day.

Ventura Fire Crew # 2 was assigned to Branch I, Division B. They were aware of the plan and proceeded to strengthen the control lines. Other resources assigned to the east side of Division B with Ventura Fire Crew 2 were:

1. Los Angeles County Fire Crew Strike Team 1172 G
2. CDF Engine 3361

At about 1030 hours on 9-29-92, the crews and engines were advised by the Division Supervisor to hold any firing operations until further notice.

The firing operation in Branch II was completed at about 1100 hours. The Operations Chief assigned a technical specialist to assist Branch I in the firing operations in Divisions A/B.

When the technical specialist arrived and reviewed the elements of the planned firing operation, he discussed possible changes with both the Branch Director and the Division Supervisor. All agreed to modify the plan. A helicopter would place fire mid-

slope on the upper elevations of Nielson Mountain to draw the burnout from control lines upward. Once the helicopter initiated burn began to draw, a ground firing operation would begin near the boundary of Divisions A and B. The firing would then proceed southward along Division A and eastward along Division B. As this firing was allowed to draft into the upper (helicopter) fire, it was planned that firing by hand crews and engines from the safety islands would then begin. (SEE GRAPHIC #4)

As a precaution against spot fires both engines and hand crews would be spread out along the line to put out any spots in areas north of the dozer control lines. An additional task force of engines and another CDF engine strike team arrived to assist in the burnout.

At about 1230 hours, the firing operation began with the helicopter using the Spherical Incendiary Device System (SIDS) to start burning near the top of the ridge. The Incident Communications was advised that the firing operations had begun in Divisions A/B. The fire was allowed to grow for about 10 minutes. The lower firing operation began about 1240 hours by the ground forces when it appeared that there was sufficient draft to draw the burnout upslope. The burnout was done by engines under the supervision of the technical specialist on Division B while the Division Supervisor watched the operations on Division A.

Meanwhile, Ventura Fire Crew # 2 and the other resources staged at the top safety island were watching the helicopter with the SIDS machine ignite the fire near the top of the slope and midslope areas of the northwest face of the mountain. The main fire had been creeping along the upper elevations of the mountain just prior to the helicopter firing operations.

Upon seeing the smoke from the lower firing operations, the Ventura Fire Crew # 2 and CDF Engine 3161 proceeded downhill to spread out along the line and prepare to burnout their areas along the dozer line. The Los Angeles County Fire Crews also descended along the dozer line to another safety island below the staging area. (SEE GRAPHIC #5)

Burnout operations at the bottom of the hill began to spot outside the control lines at about 1245 hours. The individuals involved on Division B observed wind direction changes and wind velocities increase. Firing on Division B ceased after progressing about 300 feet. The firing on Division A was proceeding southward and the Division Supervisor began to speed up the forward rate of movement as the burnout induced by the helicopter began to increase downward at increasing rates of spread. (SEE GRAPHIC #6)

Ventura Fire Crew # 2 noticed a wall of fire approaching from the Southwest. Simultaneously, other line personnel saw large volumes of fire coming from three different directions. The fire began developing into a fire storm with numerous whirlwinds and downward movement of sheet flames around the crew.

Resources began returning to the upper safety island when the fire began its lateral spread across the face of the mountain and the downward movement of fire from the helicopter operations.

Ventura Fire Crew # 2 were told to gather at the lower safety island as fire had cut off escape routes both above and below them.

At about 1250 hours, Ventura Fire Crew # 2 deployed their fire shelters and entered them as the fire overran their position and injured the CDF Fire Captain, three CYA wards and one Riverside County Paid Call Firefighter.

Upon hearing the call for deployment, other resources near the crew immediately responded to the area. The engines in the vicinity attempted to enter the deployment site to assist the crew. However, they were unable to affect a rescue or render assistance due to the intense heat.

At about 1258, Branch I notified the Perris ECC of the burnover and requested ground ambulances and other resources to assist the firefighters that were injured.

The fire then abruptly stopped its erratic behavior allowing the engines to reach the burned over crew and provide medical assistance. The injured were immediately transported out of the deployment site to a medical staging area, where an advanced life support ambulance had been requested.

At about 1305 hours an additional ambulance was requested to assist with additional members of the crew. The most seriously injured was the CDF Fire Captain who was transported by helicopter to San Bernardino County Hospital Burn Center. Once stablized and evaluated, he was then transported by helicopter to Sherman Oaks Burn Center. Three CYA Wards and a Riverside County Paid Call Firefighter were transported by ground ambulance to the Inland Valley Medical Center where one ward was held overnight for observation. By 1500 hours, the remaining members of Ventura Fire Crew # 2 were taken by CYA vehicles to local hospitals to be checked as a precautionary measure.

CAUSE:

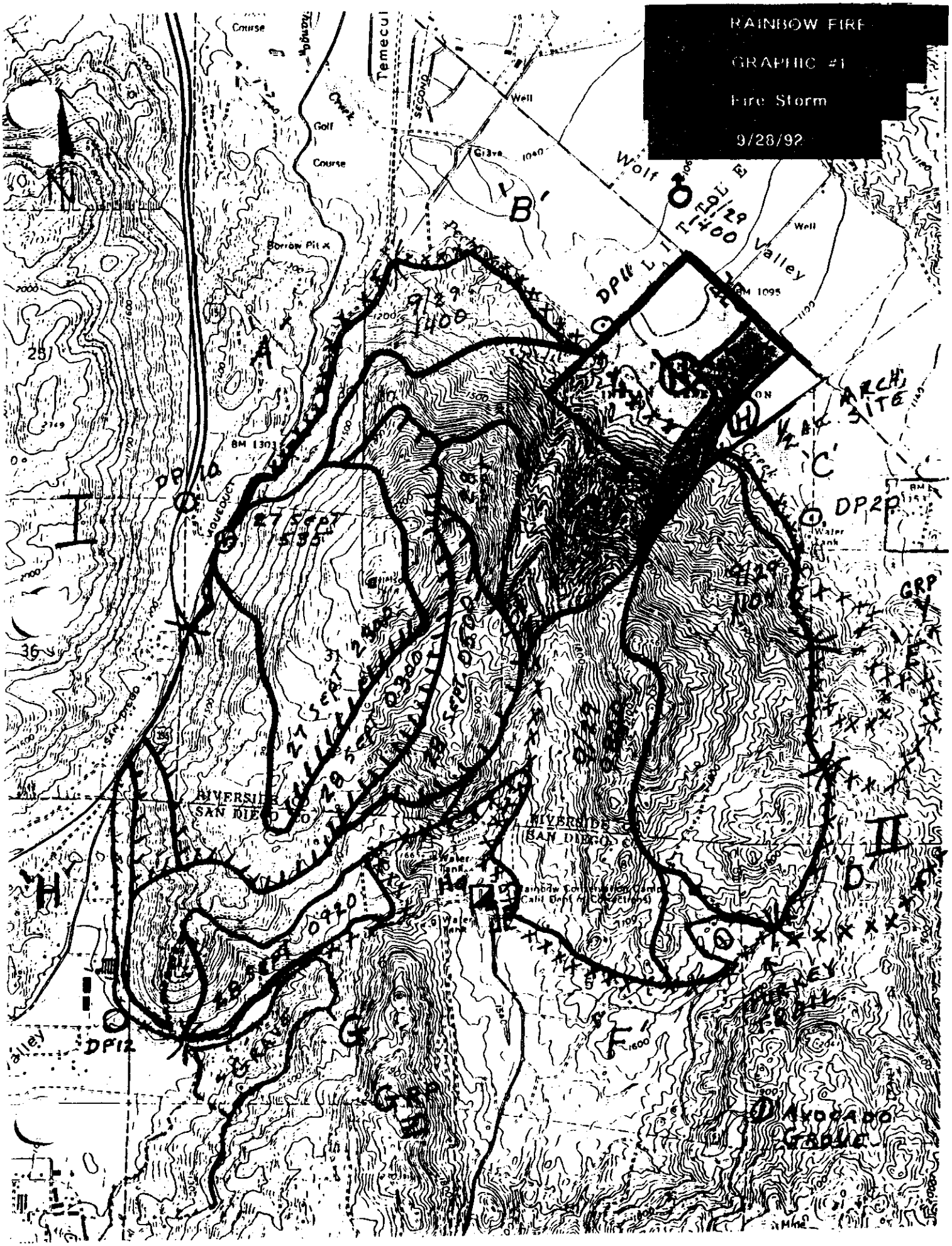
This injury incident occurred during a burnout operation. Once the firing operation had begun, unstable atmospheric conditions and critically dry, heavy fuels combined to create a microclimate that developed and sustained a fire storm. The fire area was relatively small at 200 acres, however, the burning took only about 15 minutes.

Contributing to the severity of the hand burn injury was the use of conventional gloves that offered little or no protection against thermal burns conducted through the leather by extreme exposure to radiant heat.

Preventing additional burn injuries to the remaining personnel was the use of cotton undergarments. This additional layer of protection against thermal burns was clearly illustrated by the number of ember burn holes examined on the clothing of all personnel who were required to deploy their fire shelters.

GRAPHICS:

Attached.


RAINBOW FIRE
GRAPHIC #1
Fire Storm
9/28/92
Golf Course
Temecula
Creek
Well
Wolf
T9L 29
T1400
Valley
BM 1095
Borrow Pit
BM 1303
DP11
DP10
DP2P
ARCHI SITE
GRP
DP12
RIVERSIDE
SAN DIEGO
Water Tank
AVOCADO GROVE
A
A'
B
B'
C
C'
D
E
F
F'
G
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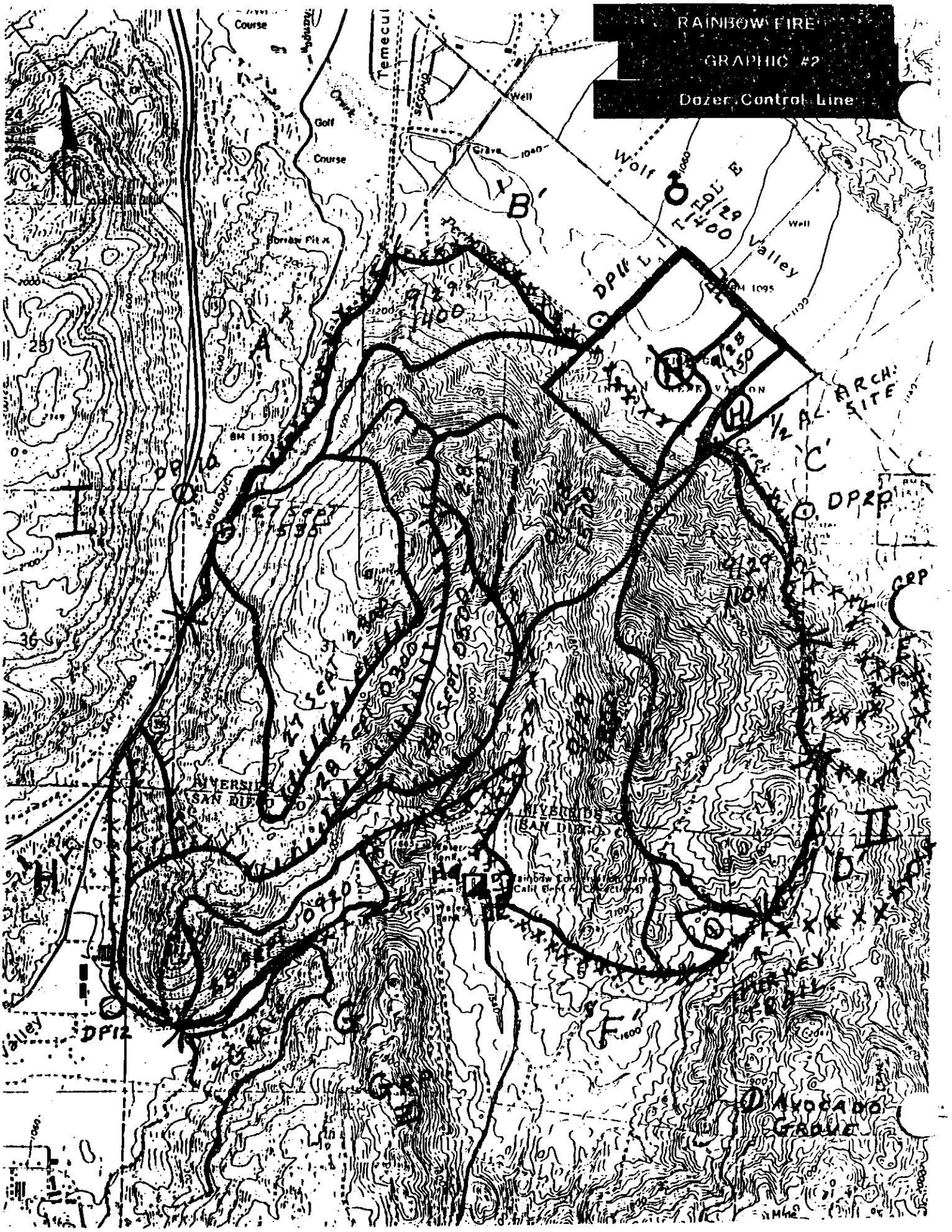
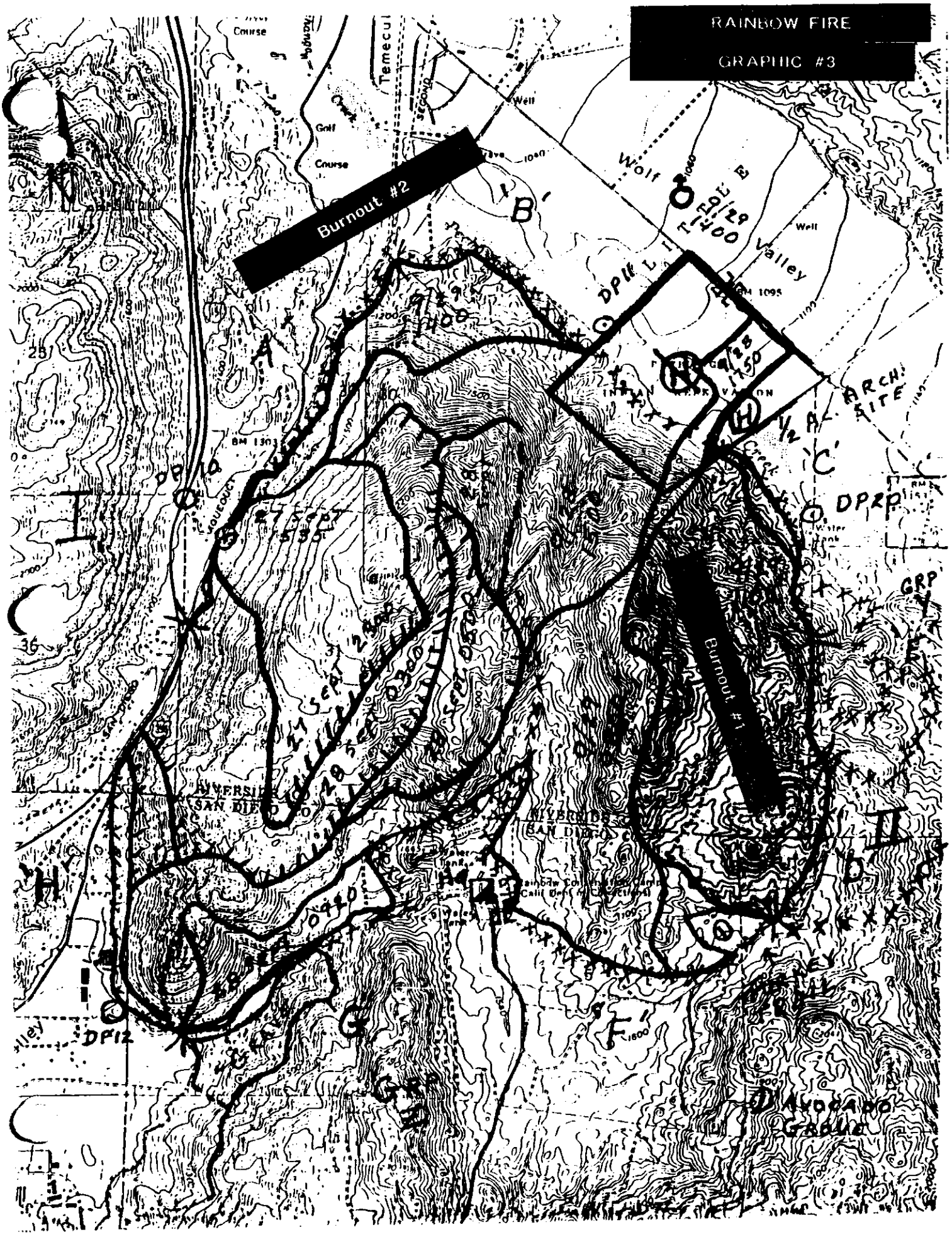
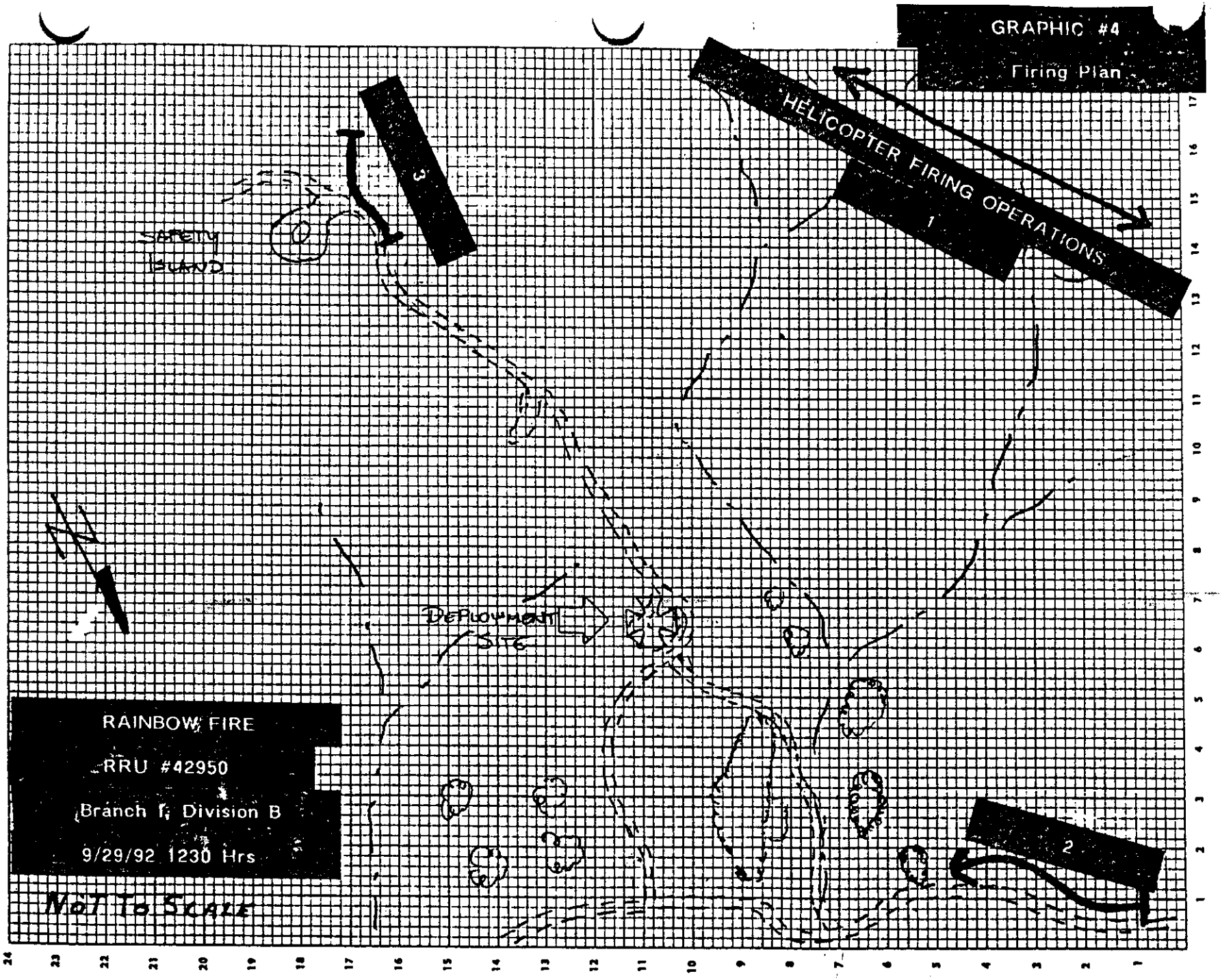
I
II

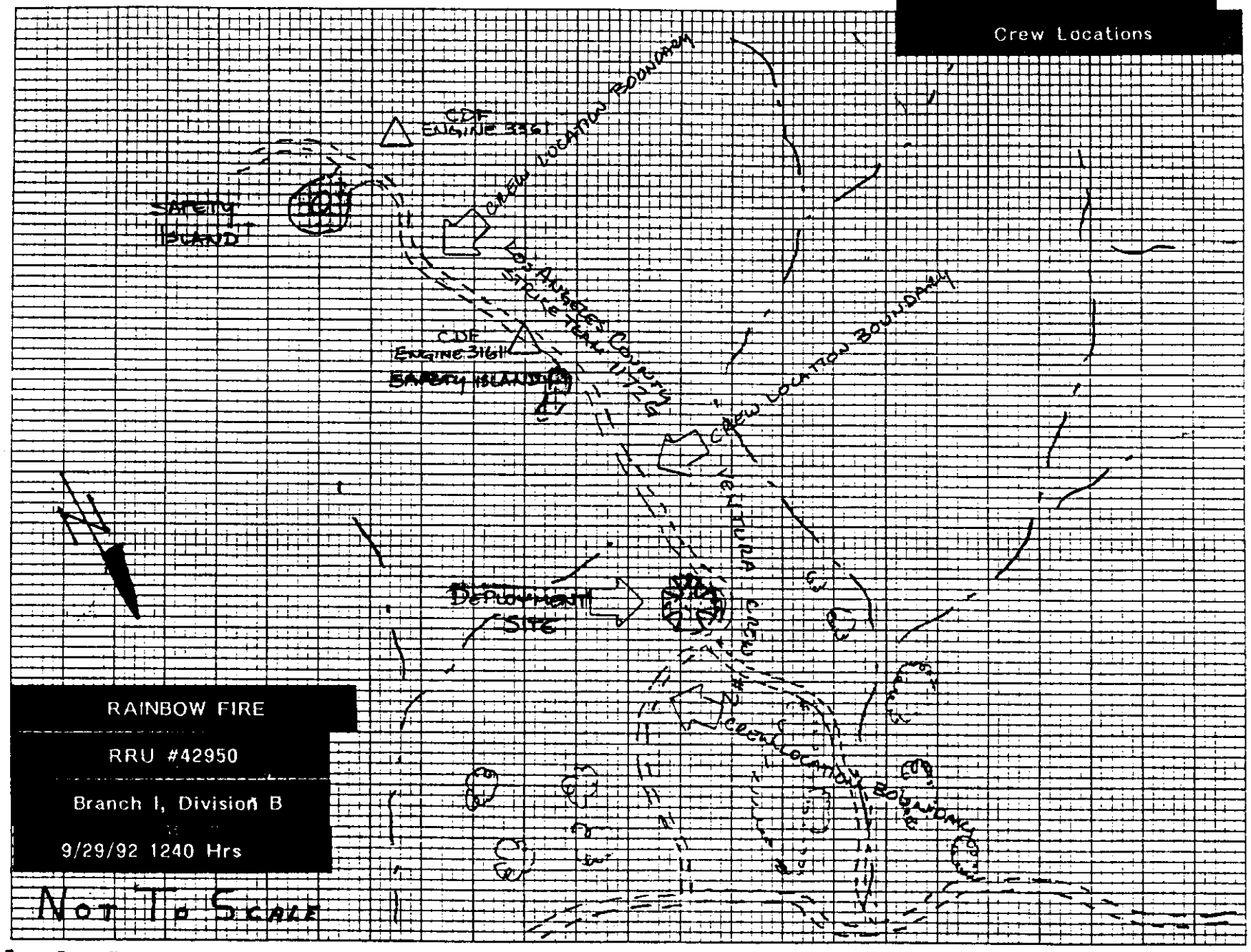

RAINBOW FIRE
GRAPHIC #2
Dozer Control Line
Course
Golf
Course
Temecul
Creek
Well
Wolf
Valley
Well
Borrow Pit
Aqueduct
Valley
DPIL
DPIZP
DPIZ
GRP
A
B
C
D
E
F
G
H
I
J
T7S R2W
T8S R2W
T8S R1W
T7S R1W
SEC 29
SEC 28
SEC 32
SEC 33
SEC 31
SEC 36
1/2 AL. ARCH. SITE
AVOCADO GROVE
SAN DIEGO CO.
RIVERSIDE CO.


RAINBOW FIRE
GRAPHIC #3
Burnout #2
Burnout #1
Temecul
Golf
Course
Well
Wolf
Valley
DP11
DP12
DP2P
GRP
A
B
B'
C
C'
D
E
F
G
H
I
½ AC. ARCHI SITE
SAN DIEGO
RIVERSIDE


GRAPHIC #4
Firing Plan
HELICOPTER FIRING OPERATIONS
1
2
3
SAFETY ZONE
DEPLOYMENT SITE
RAINBOW FIRE
RRU #42950
Branch I, Division B
9/29/92 1230 Hrs
NOT TO SCALE

GRAPHIC #5

Crew Locations



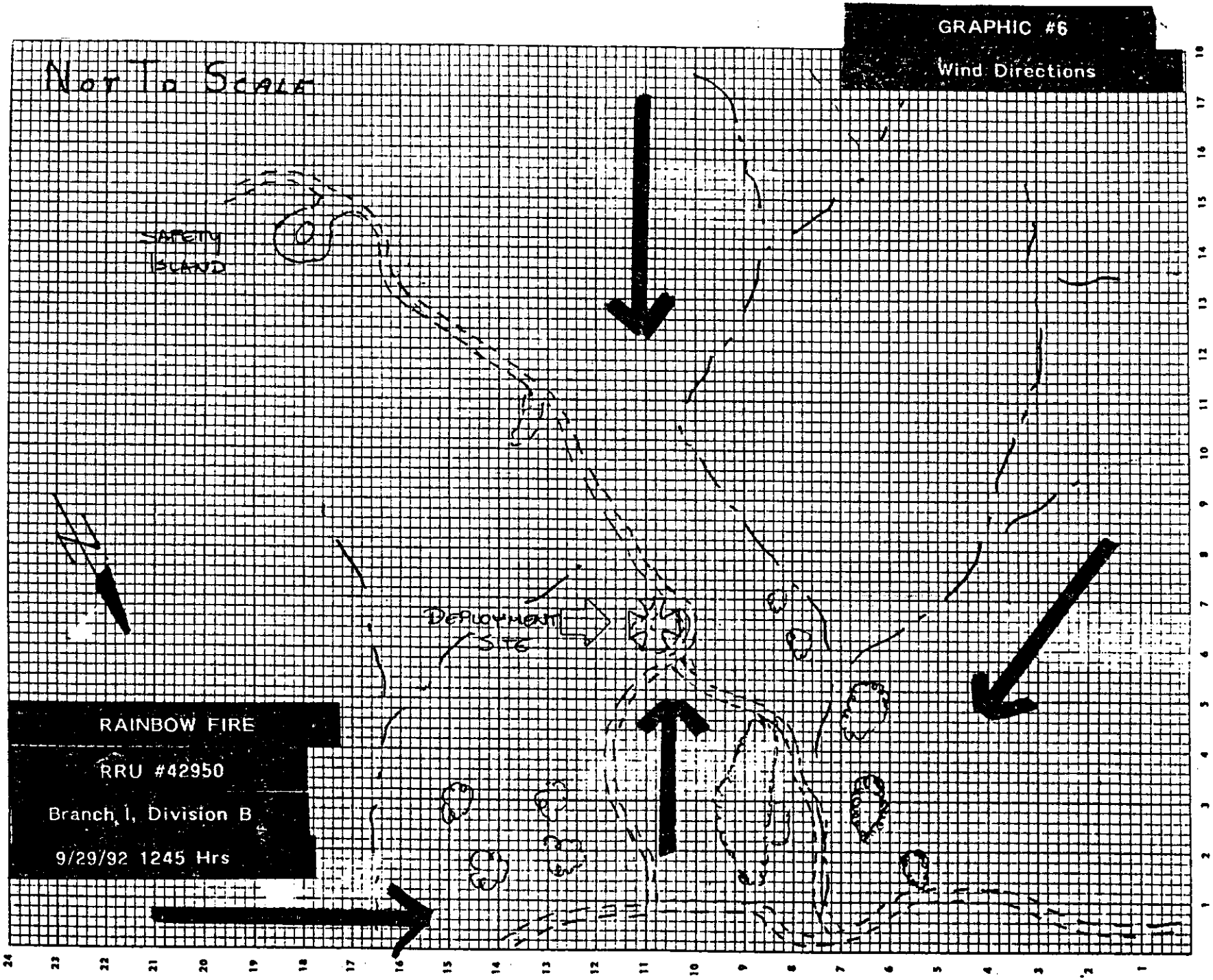
RAINBOW FIRE

RRU #42950

Branch I, Division B

9/29/92 1240 Hrs

NOT TO SCALE


GRAPHIC #6
Wind Directions
NOT TO SCALE
SAFETY ISLAND
DEPLOYMENT SITE
RAINBOW FIRE
RRU #42950
Branch I, Division B
9/29/92 1245 Hrs