USGS-OFR-91-105

U.S. DEPARTMENT OF THE INTERIOR

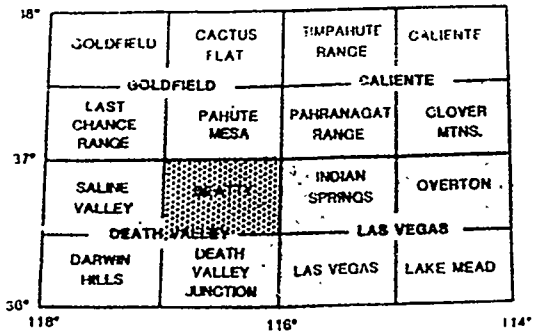
GEOLOGICAL SURVEY

AEROMAGNETIC MAP OF THE BEATTY QUADRANGLE, NEVADA–CALIFORNIA

By

J.M. Glen and D.A. Ponce

1991



INDEX MAP SHOWING AREA OF STUDY

Open-File Report 91-105

Prepared in cooperation with the Nevada Operations Office U.S. Department of Energy (Interagency Agreement DE-AI08-78ET44802)

(OCRWM Records Management number NNA.920123.0089)

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Menlo Park, California
1991

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USGS-OFR--91-105

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U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

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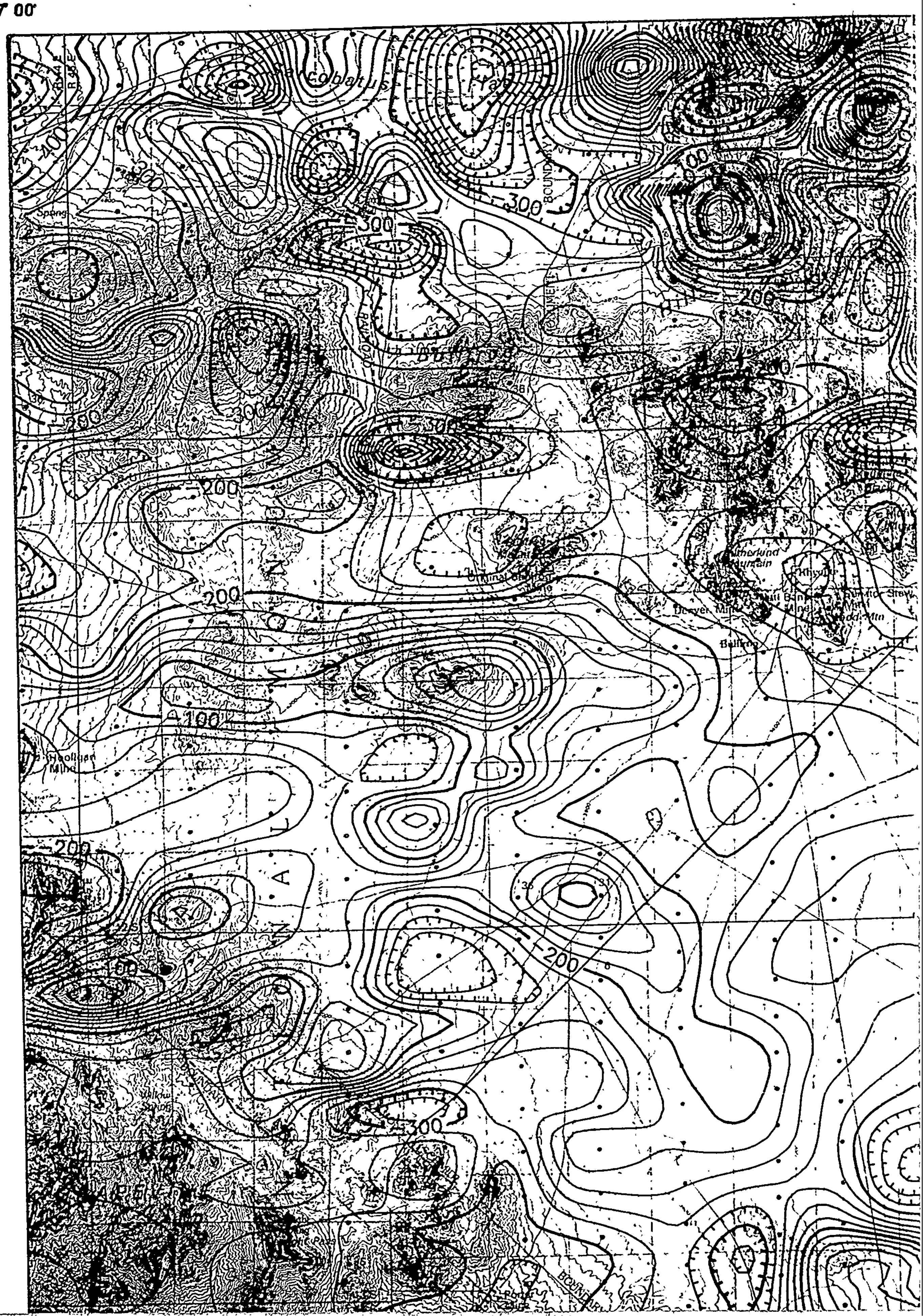

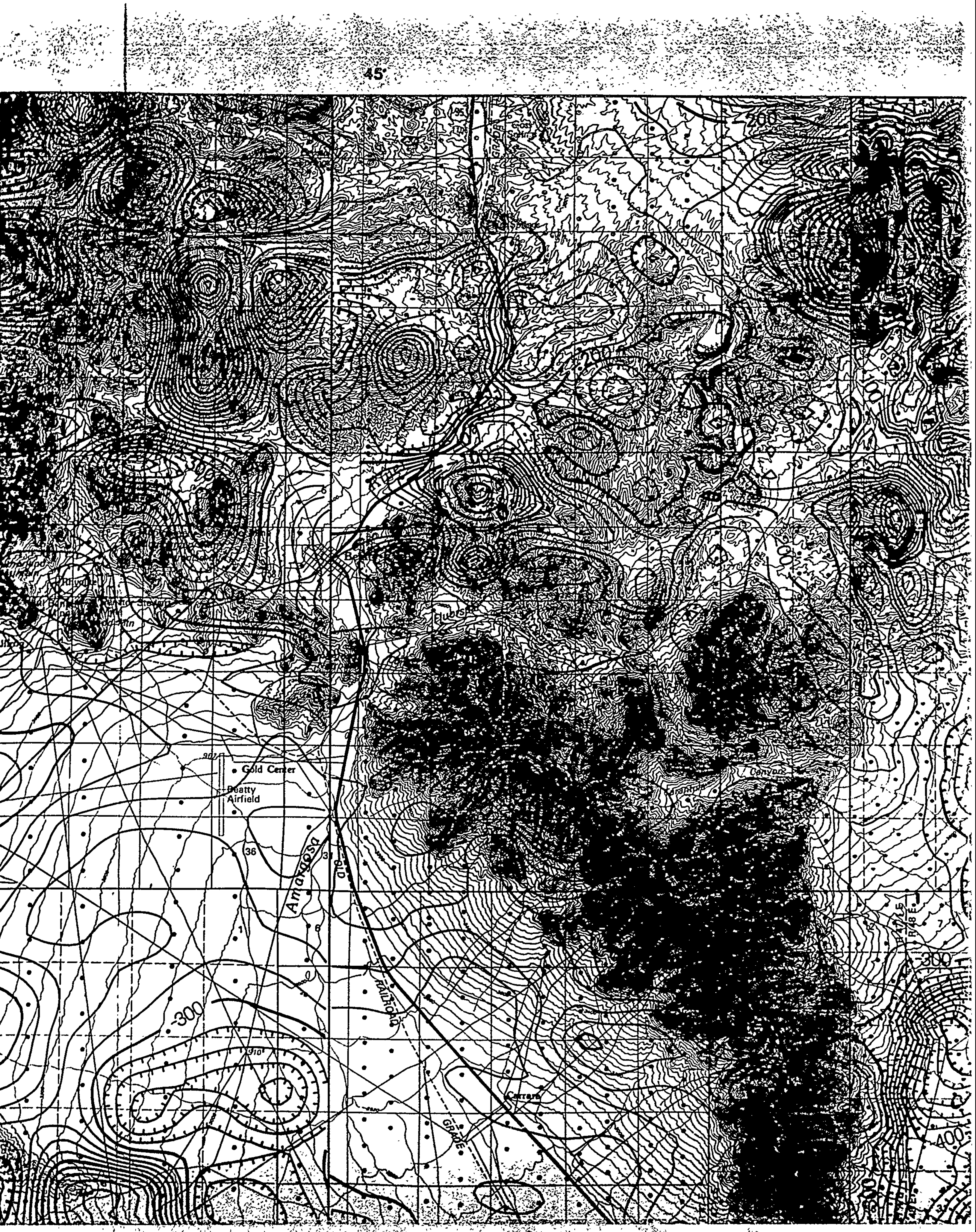
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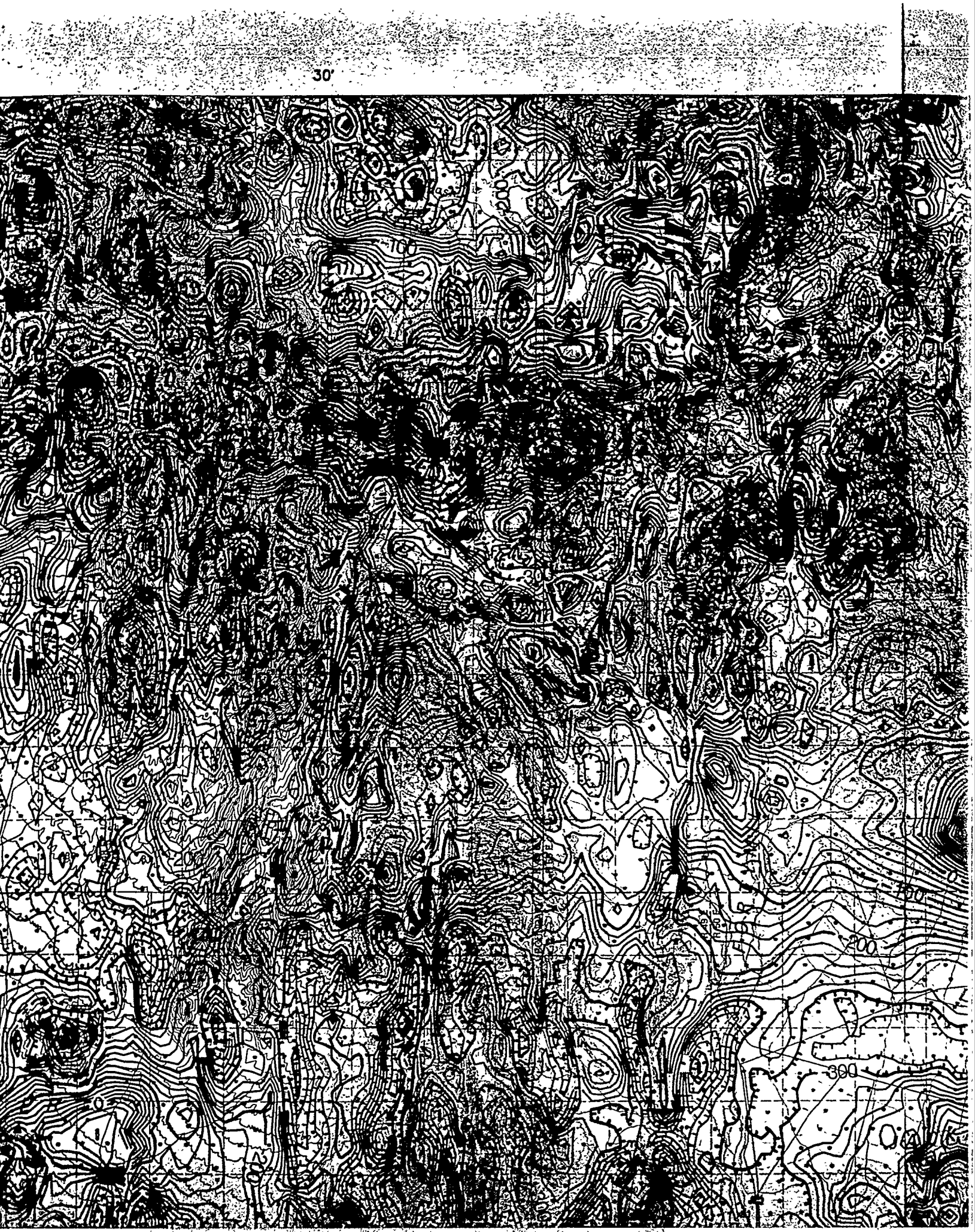
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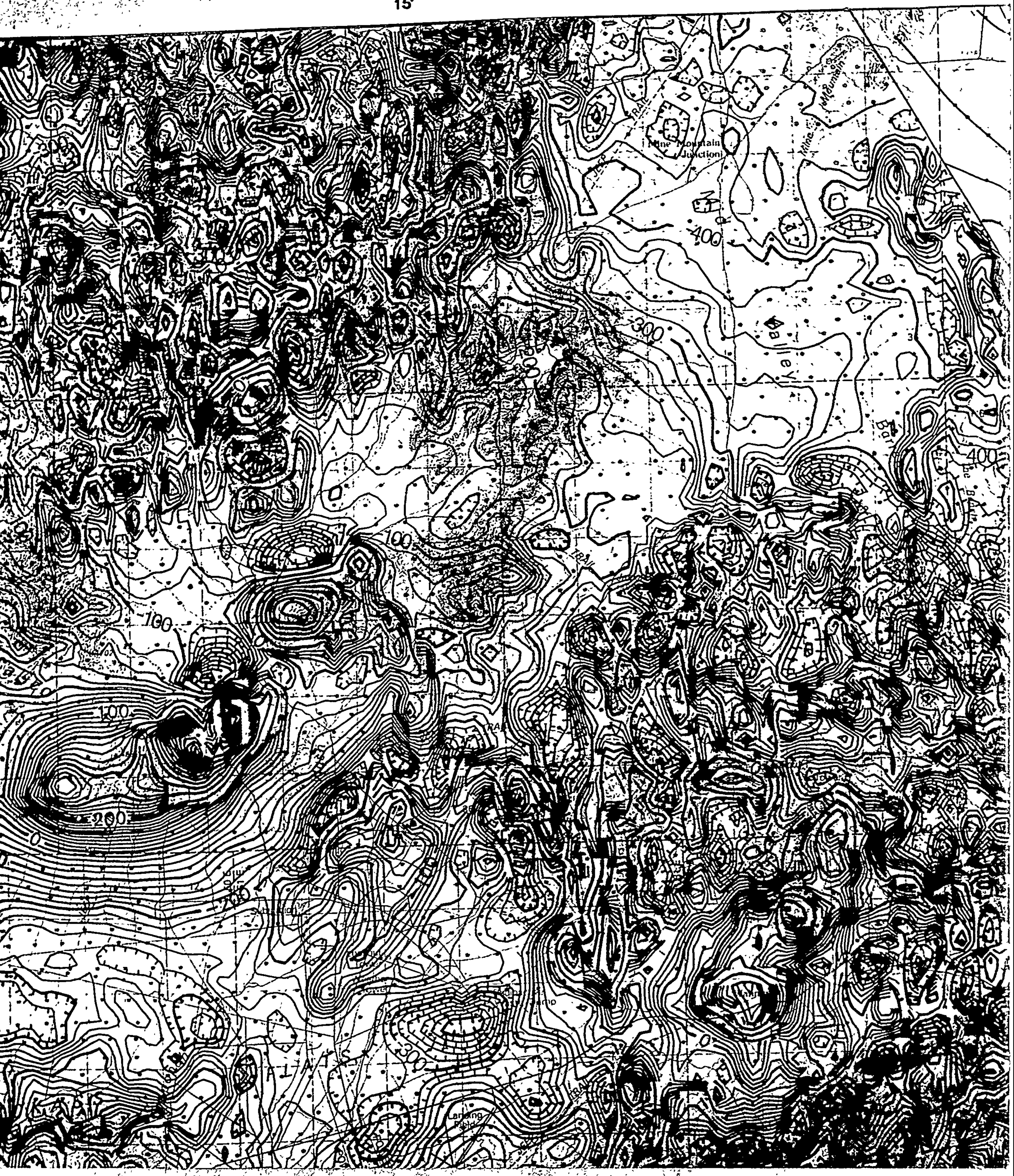
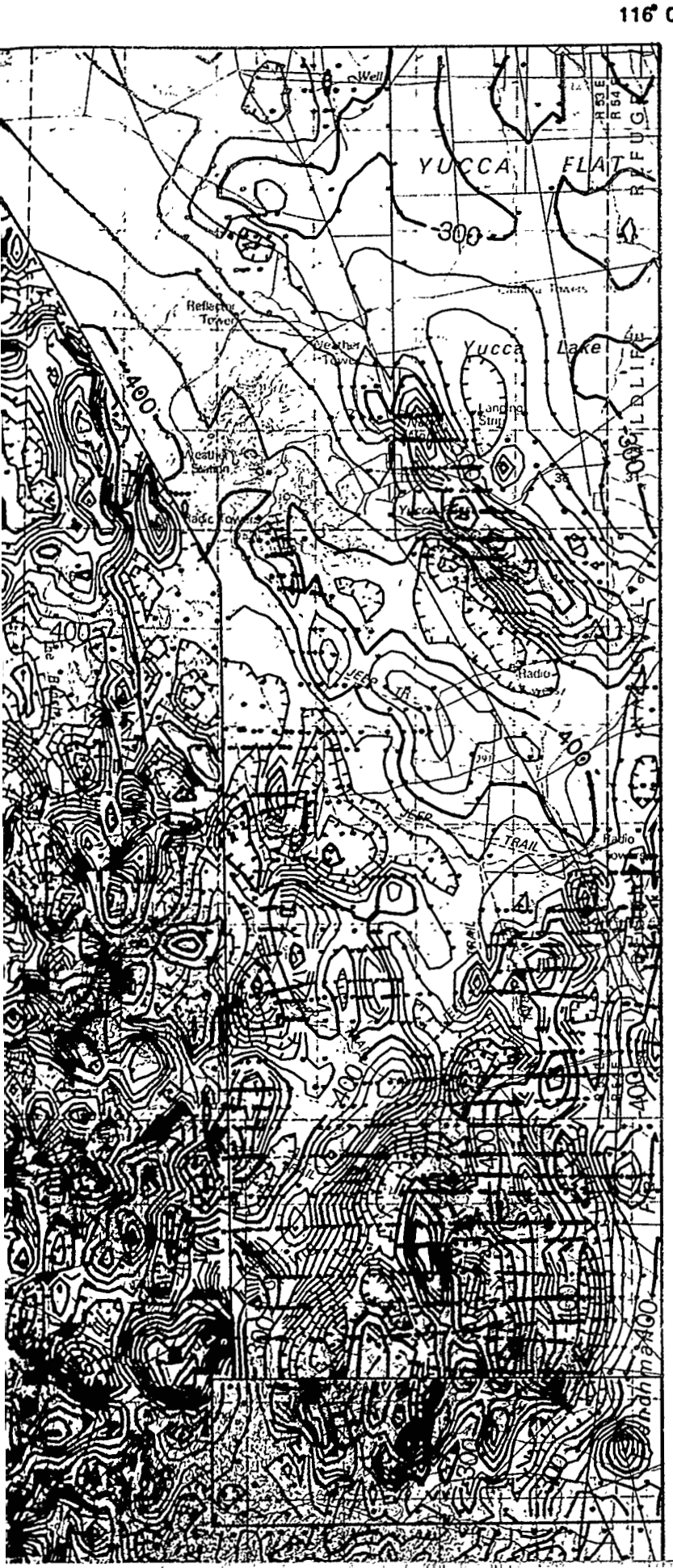


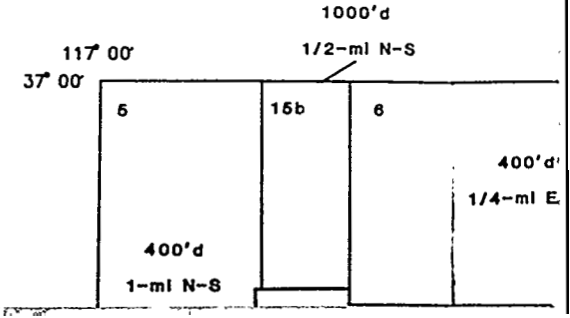


DISCUSSION

An aeromagnetic map of the Beatty qua from six separate aeromagnetic surveys (4 fig. 1 and table 1). All available aeromag completely or partly within the Beatty qu figure 2. The map is a mosaic of the most cover the quadrangle. Data sets were chosen the aeromagnetic data and the spacing and a (table 1). Each data set was compiled from except for the Yucca Flat survey (4, fig. was digitized from an unpublished map (U unpub. data, 1971). In addition, a revised Wells survey was used because of positioniz data found in the original data set (Langenh (15, fig. 1 and table 1).

A regional magnetic gradient, calculat tional Geomagnetic Reference Field (Peddie from each survey except the Yucca Flat sur 1). The data were gridded at intervals of spacing in approximately the direction of th flightline spacing in the perpendicular direct a grid interval of 800 x 1600 m for the Las and table 1) and 200 x 400 m for all other s algorithm is based on minimum total curvatu least curvature consistent with the data (Bri datum, referenced to the Timber Mountain table 1) was achieved by adding a constant t

The aeromagnetic map is useful for ide ologic interest and for qualitative or quanti Although the mosaic map is difficult to qu across survey boundaries, it preserves the orig survey and allows quantitative assessments of within survey borders. In addition to the sirable to have a merged map in which sur continued to a common level, datum adjust mosaic and merged aeromagnetic maps are tary and together they enable a more compre of magnetic anomalies. The merged map facil of anomalies that cross survey boundaries an ture of the magnetic field. Such a merged m the state of Nevada by Hildenbrand and Kuck contains less detailed data than the Yucca Fl surveys shown here (4, 15; respectively; fig. tional work is required to produce a similar m the most detailed data.

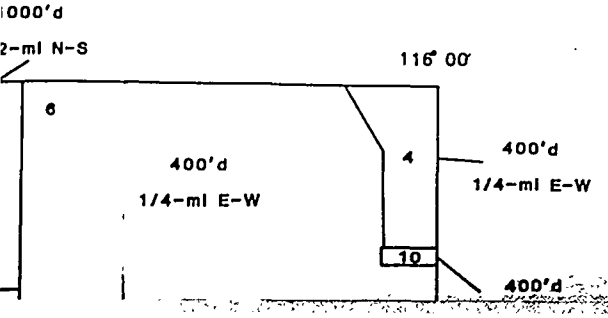


DISCUSSION

ap of the Beatty quadrangle was prepared
ragnetic surveys (4, 5, 6, 9, 10, and 15;
l available aeromagnetic surveys that are
thin the Beatty quadrangle are shown in
mosaic of the most detailed surveys that
ata sets were chosen based on the quality of
id the spacing and altitudes of the surveys
was compiled from original contract data,
at survey (4, fig. 1 and table 1) which
npublished map (U.S. Geological Survey,
addition, a revised version of the Lathrop
because of positioning errors and missing
al data set (Langenheim and others, 1991)

c gradient, calculated from the Interna-
erence Field (Peddie, 1982) was removed
the Yucca Flat survey (fig. 1 and table
ded at intervals of one-half the flightline
the direction of the flight path, and one
perpendicular direction. This resulted in
600 m for the Las Vegas survey (9, fig. 1
100 m for all other surveys. The gridding
nimum total curvature which provides the
with the data (Briggs, 1974). A uniform
Timber Mountain survey (6, fig. 1 and
adding a constant to each survey.

nap is useful for identifying areas of ge-
ualitative or quantitative interpretation.
ap is difficult to quantitatively interpret
, it preserves the original character of each
tative assessments of individual anomalies
In addition to the mosaic map, it is de-
l map in which surveys are analytically
level, datum adjusted, and merged. The
nagnetic maps are mutually complemen-
able a more comprehensive interpretation
he merged map facilitates interpretations
urvey boundaries and yields a clearer pic-
l. Such a merged map was compiled for
ldenbrand and Kucks (1988). However, it
a than the Yucca Flat and Lathrop Wells
5; respectively; fig. 1 and table 1). Addi-
produce a similar merged map containing



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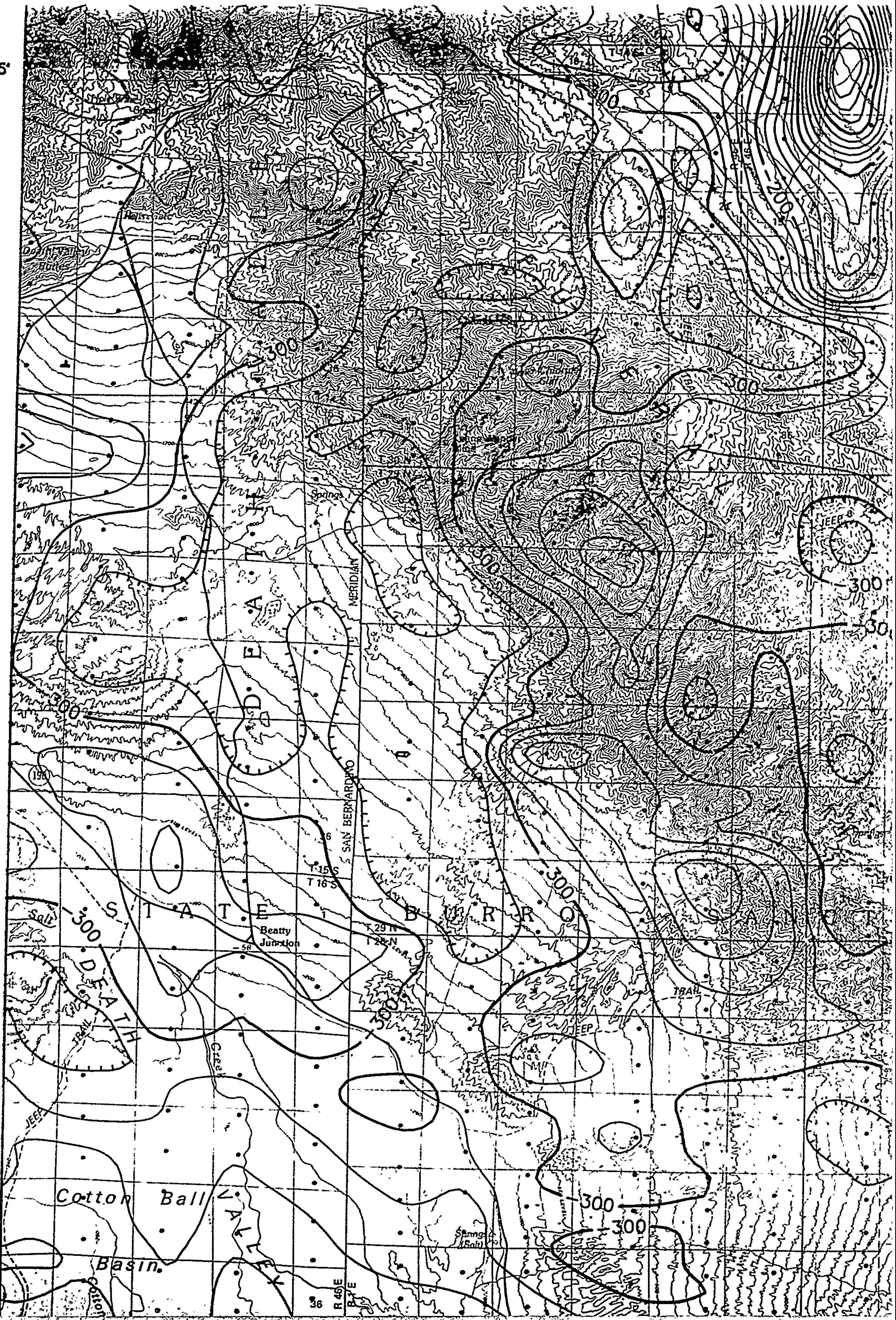

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Basin
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JEEP
TRAIL
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Creek
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R 46 E
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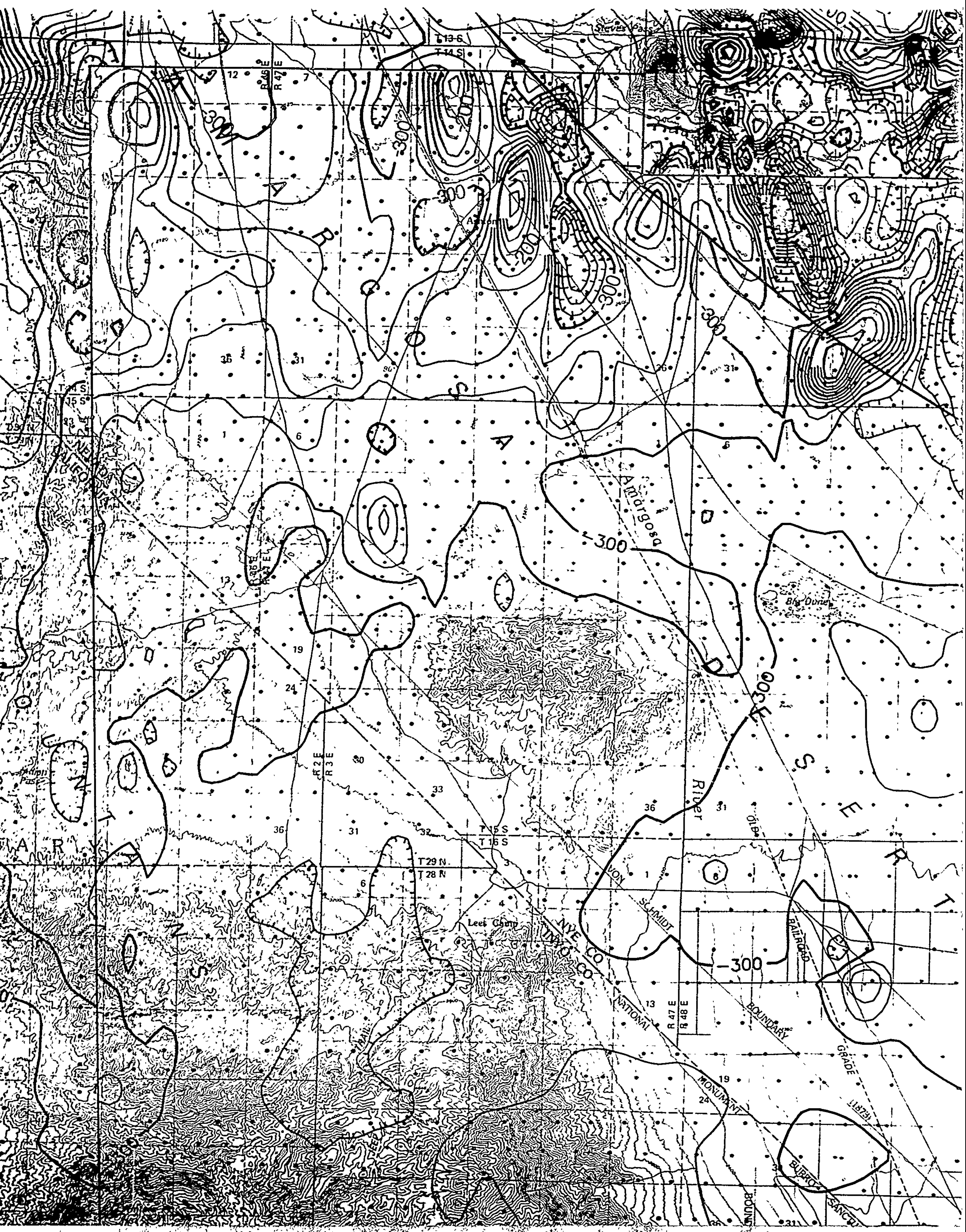

Amargosa
River
Big Dune
Lees Camp
NYE CO
INYO CO
VON SCHMIDT
NATIONAL
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BOUNDARY
RAILROAD
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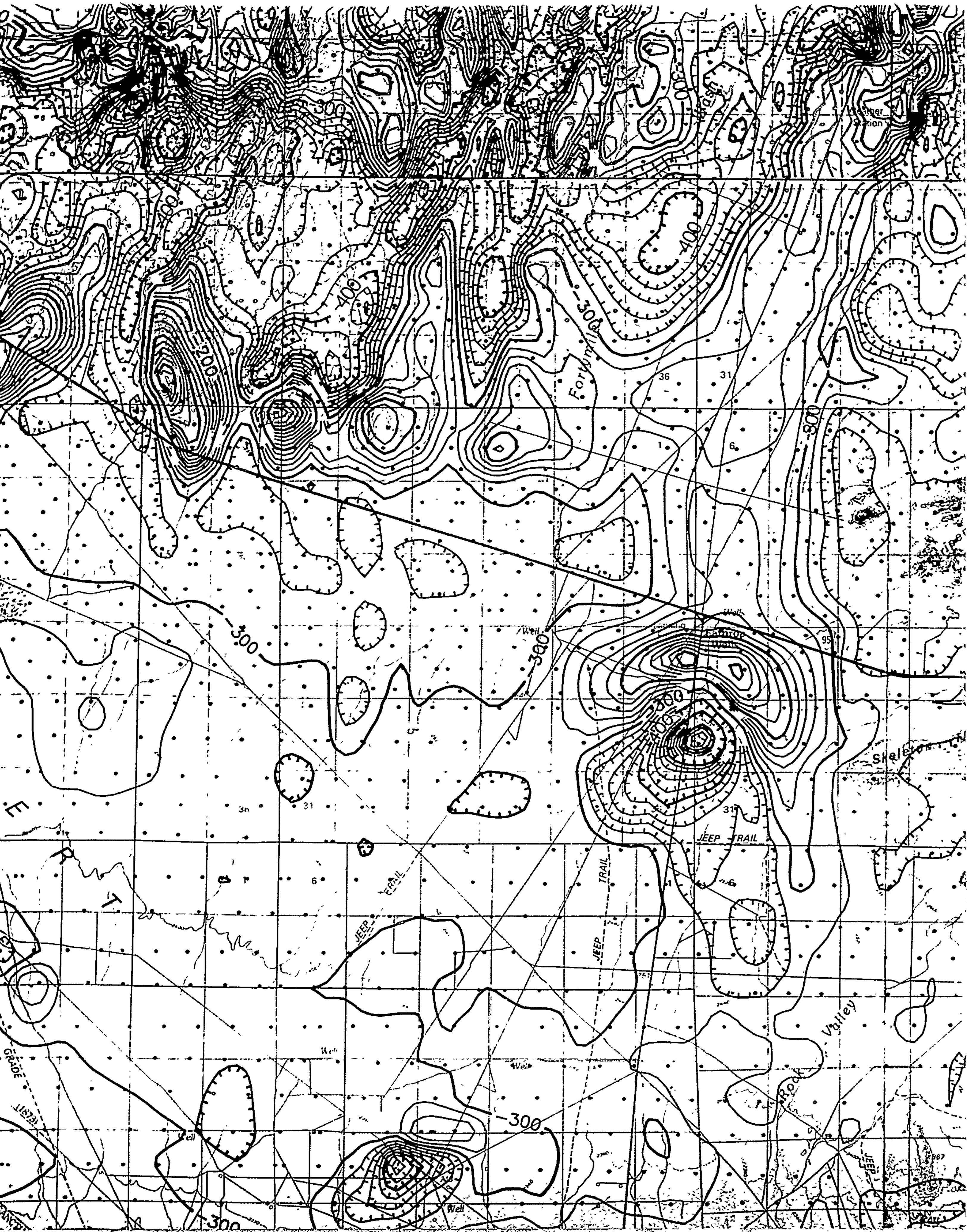
R 48 E



300
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Well
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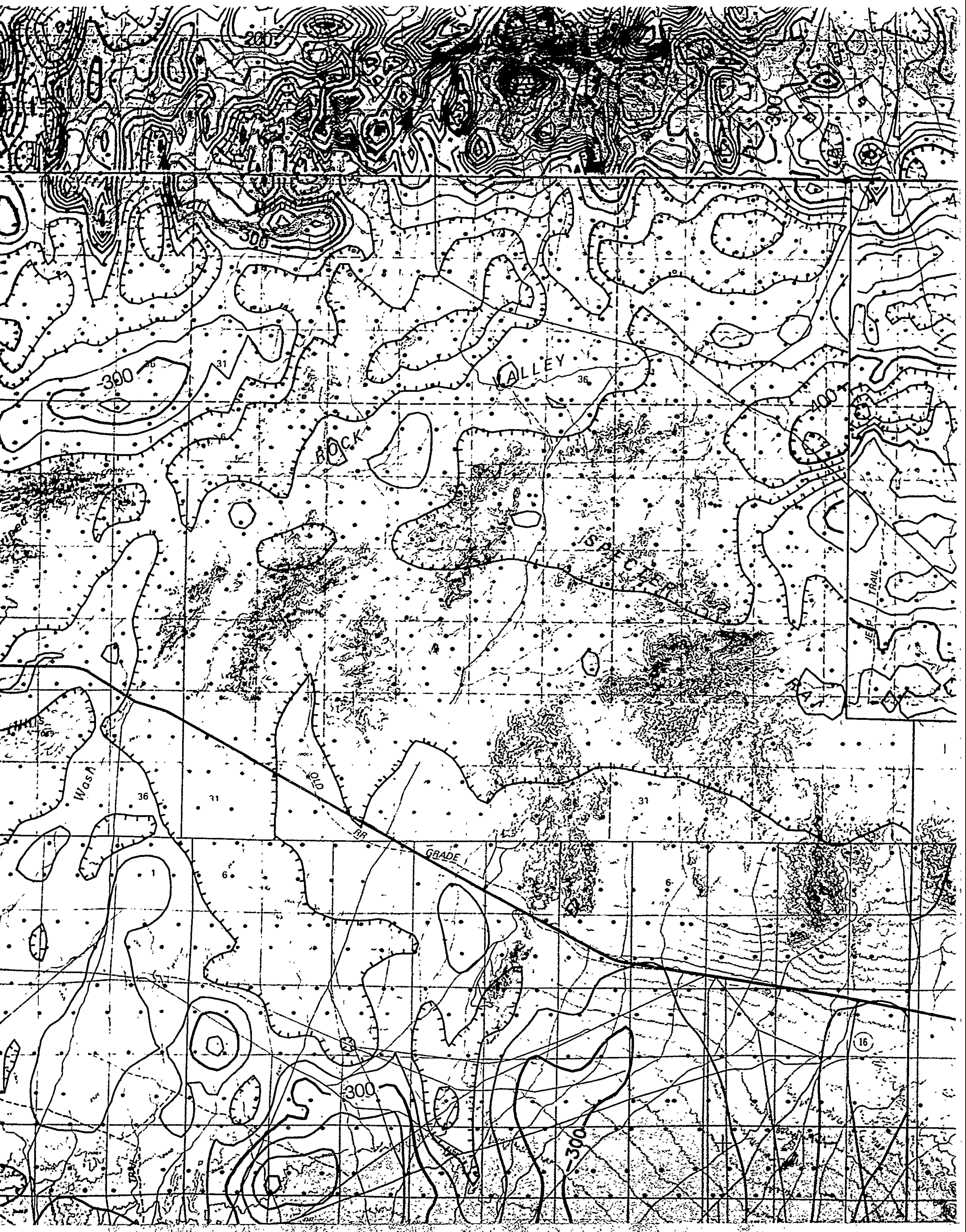
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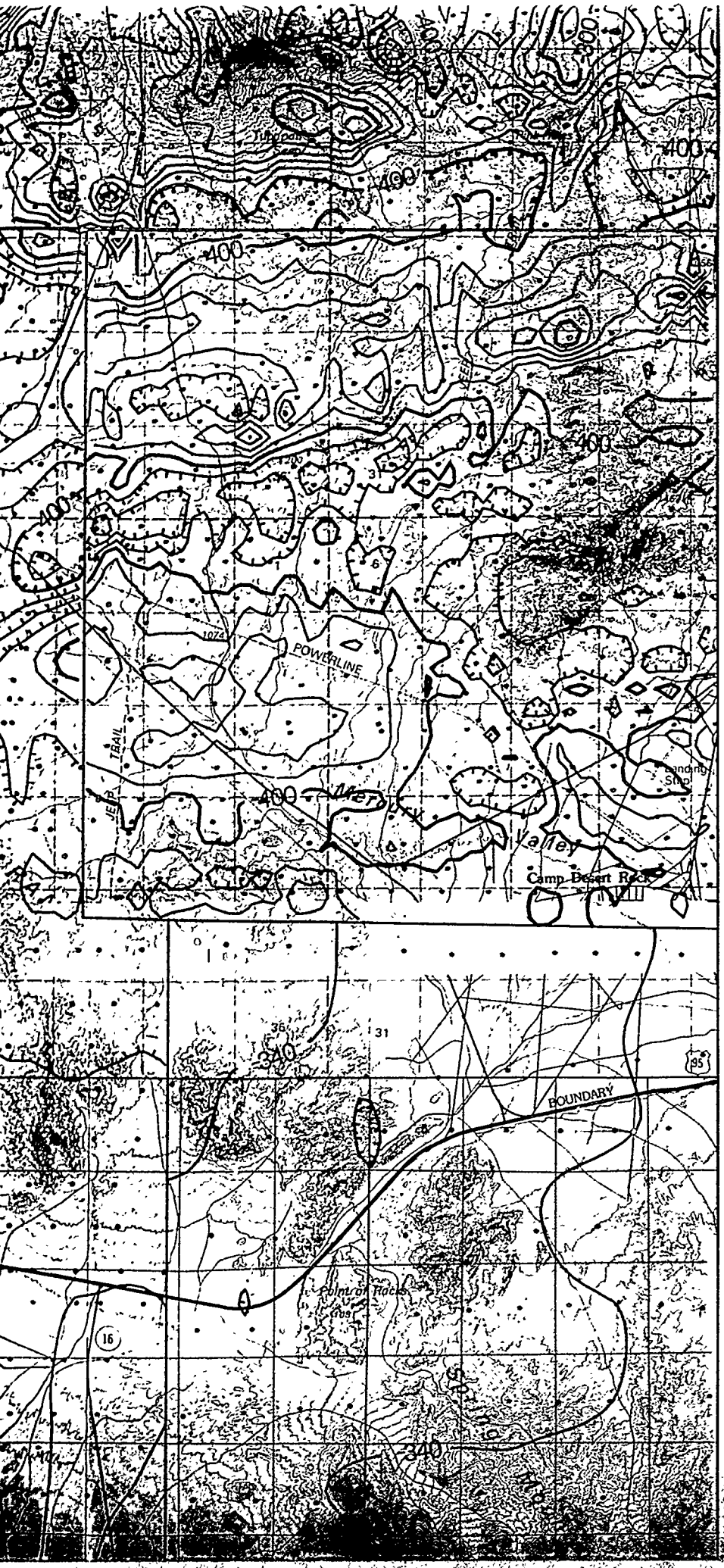

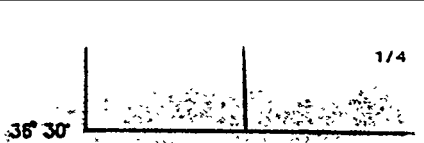

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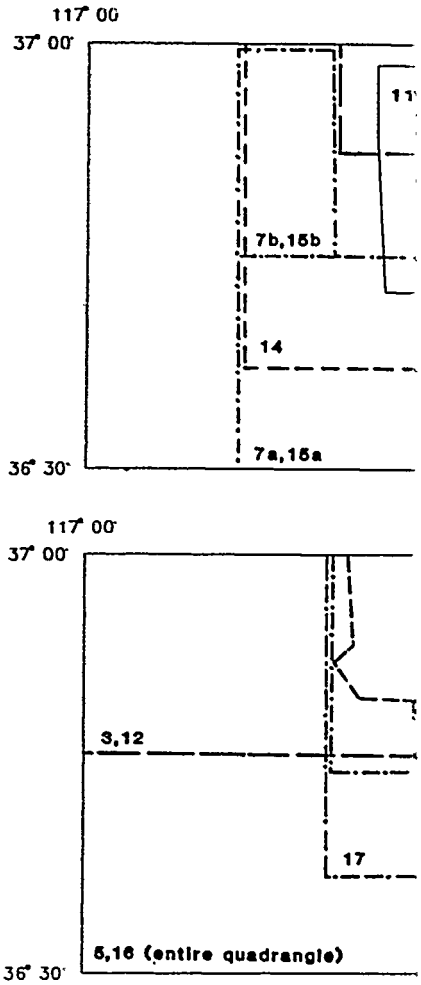
FIGURES 1.–Index map showing boundaries for surveys used in th map of the Beatty quadrangle.



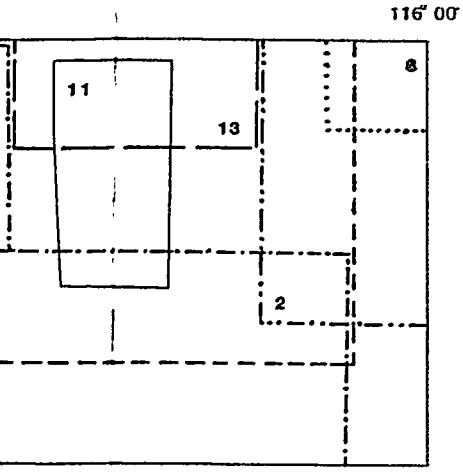
FIGURES 2A AND 2B.–Index map netic survey boundaries for survey Beatty quadrangle.

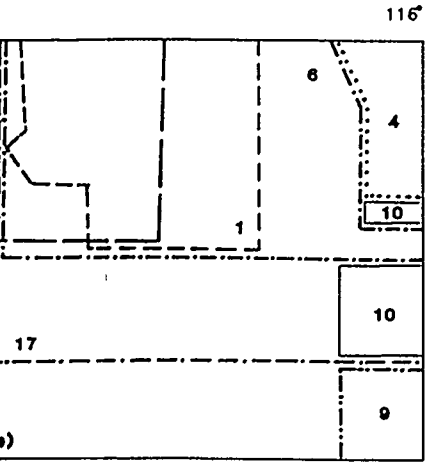
TABL

Geodata, C

Area	Name
1	Topopah Sprin
2	Cane Spring
3	Bullfrog
4	Yucca Flat
5	Death Valley

howing approximate aeromagnetic survey
ed in the compilation of the aeromagnetic
angle.





ex maps showing approximate aeromag-
r surveys completely or partly within the

Nevada-California: U.S. Geological Survey Geophysical Investigations Map GP-753, scale 1:250,000. (NNA.910506.0177)

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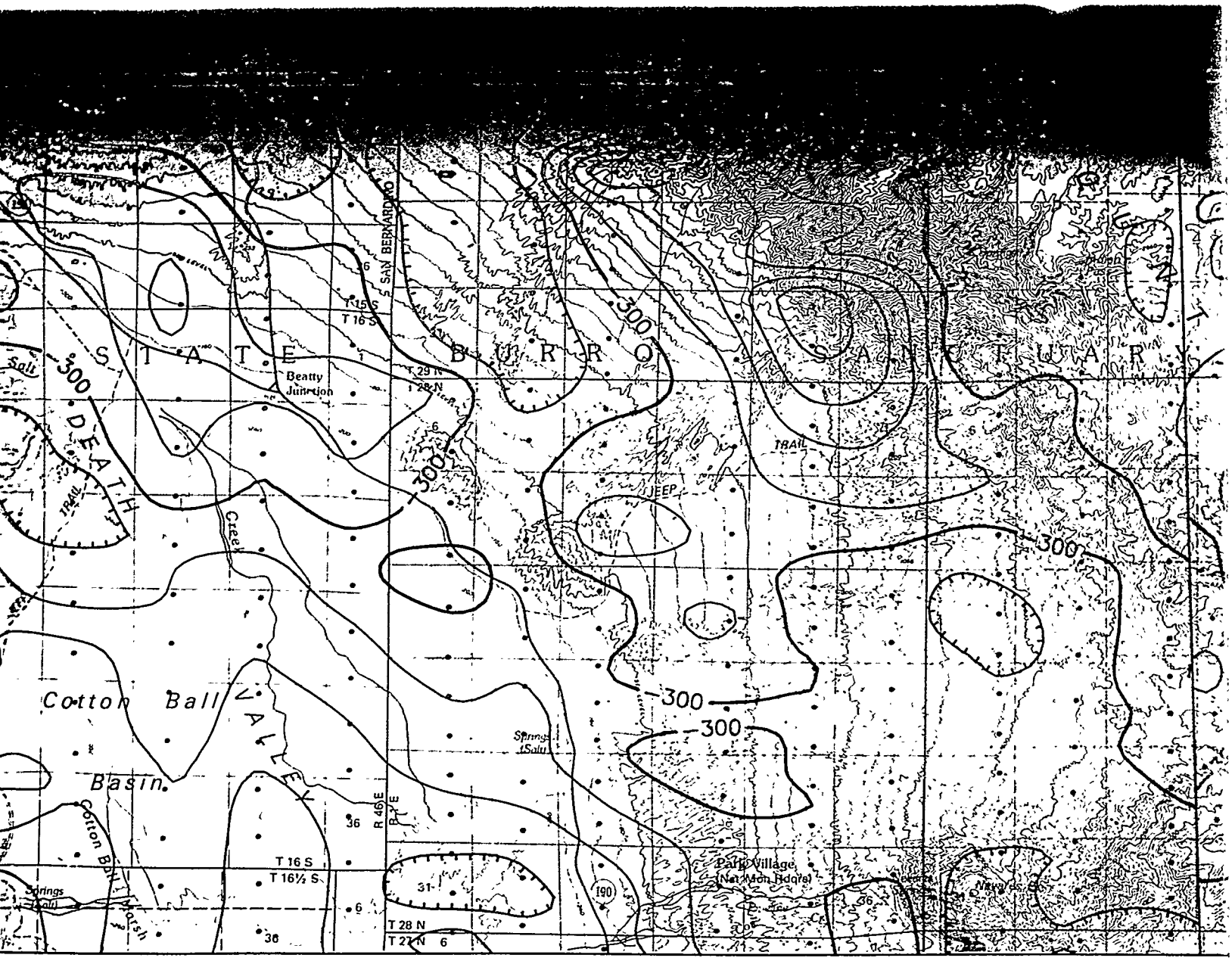
U.S. Geological Survey, 1984b, Aeromagnetic map of the Yucca Mountain area, Nevada: U.S. Geological Survey Open-File Report 84-206, scale 1:62,500. (NNA.910306.0173)

TABLE 1.–*Aeromagnetic surveys all or partly within the Beatty 1 x 1/2 degree quadrangle*

[Aero, Aero Service; AS, Aerial Surveys; AG, Applied Geophysics Inc.; b, barometric; d, drape; codata, Geodata International, Inc.; HLQEB, High-Life QEB; IGRF, International Geomagnetic Reference Field; LKB, Lockwood, Kesseler, and Bartlett, Inc.; USNOO, US Naval Oceanographic Office; USGS, U.S. Geological Survey; var, variable]

	Year flown	Contractor	Elevation (feet)	Spacing (mi)	Direction	Scale	Gradient Removed	Reference
				ORIGINAL SURVEYS				
ah Spring	1961	USGS	8000b	1/2	E-W	1:62,500	no	Boynton and Vargo (1963b)
Spring	1961	USGS	8000b	1/2	E-W	1:62,500	no	Boynton and Vargo (1963a)
og	1967	LKB	9000b	1	E-W	1:62,000	no	USGS (1967)
Flat	1971	USGS	400d	1/4	E-W	1:24,000	-	USGS (unpub. data, 1971)
Valley	1977	Geodata	400d	1	N-S	1:500,000	IGRF	Geodata (1979)



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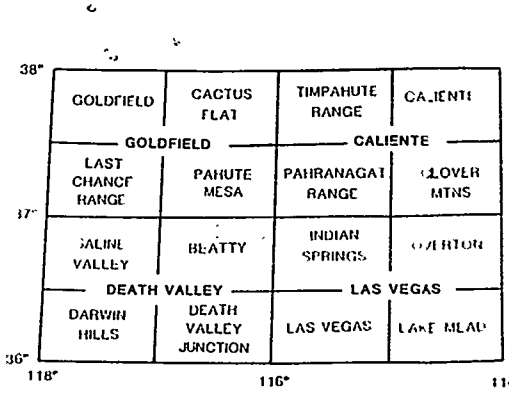

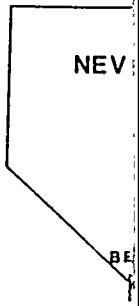

INDEX MAPS SHOWING AREA OF STUDY

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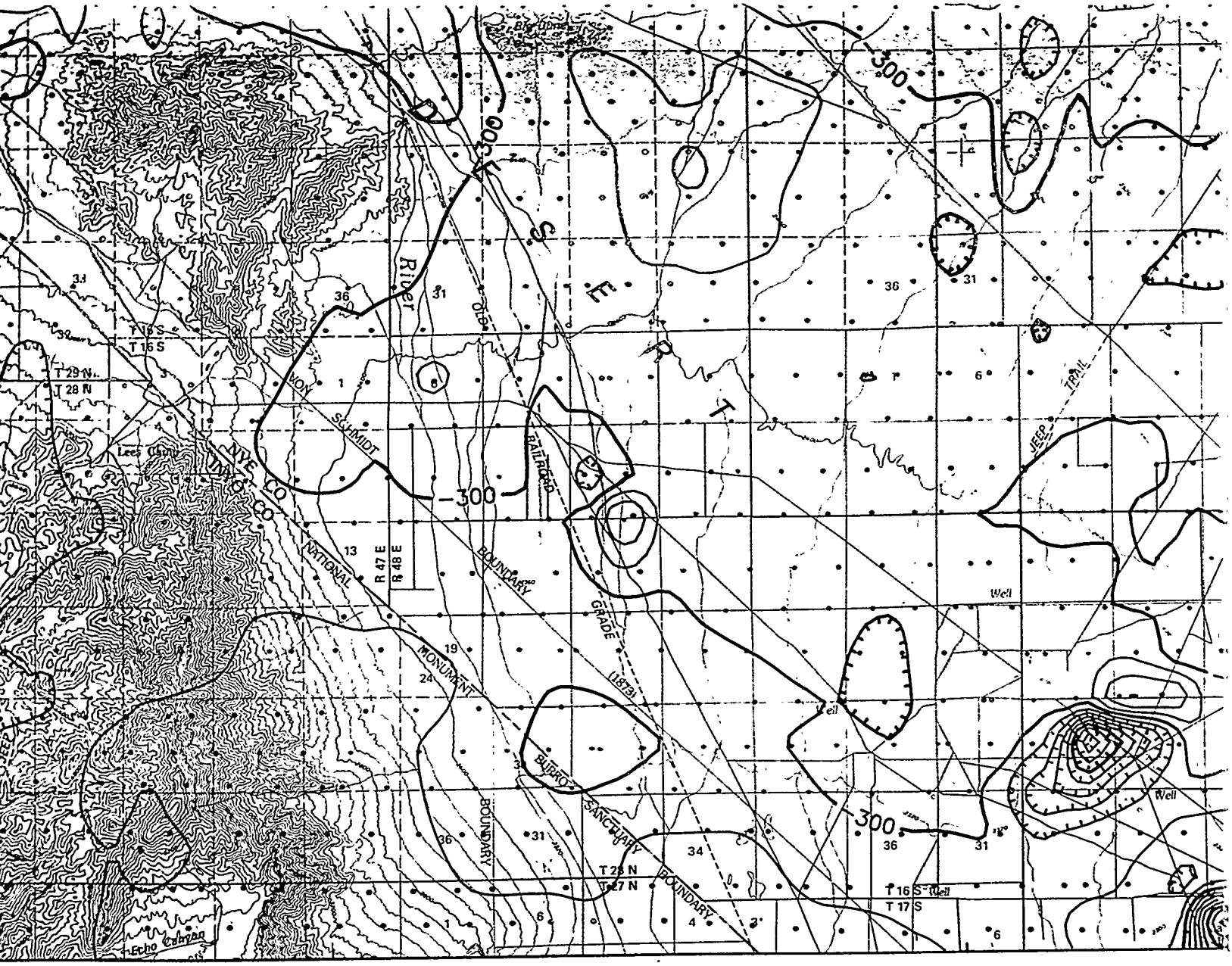

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TRUE NORTH
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APPROXIMATE MEAN
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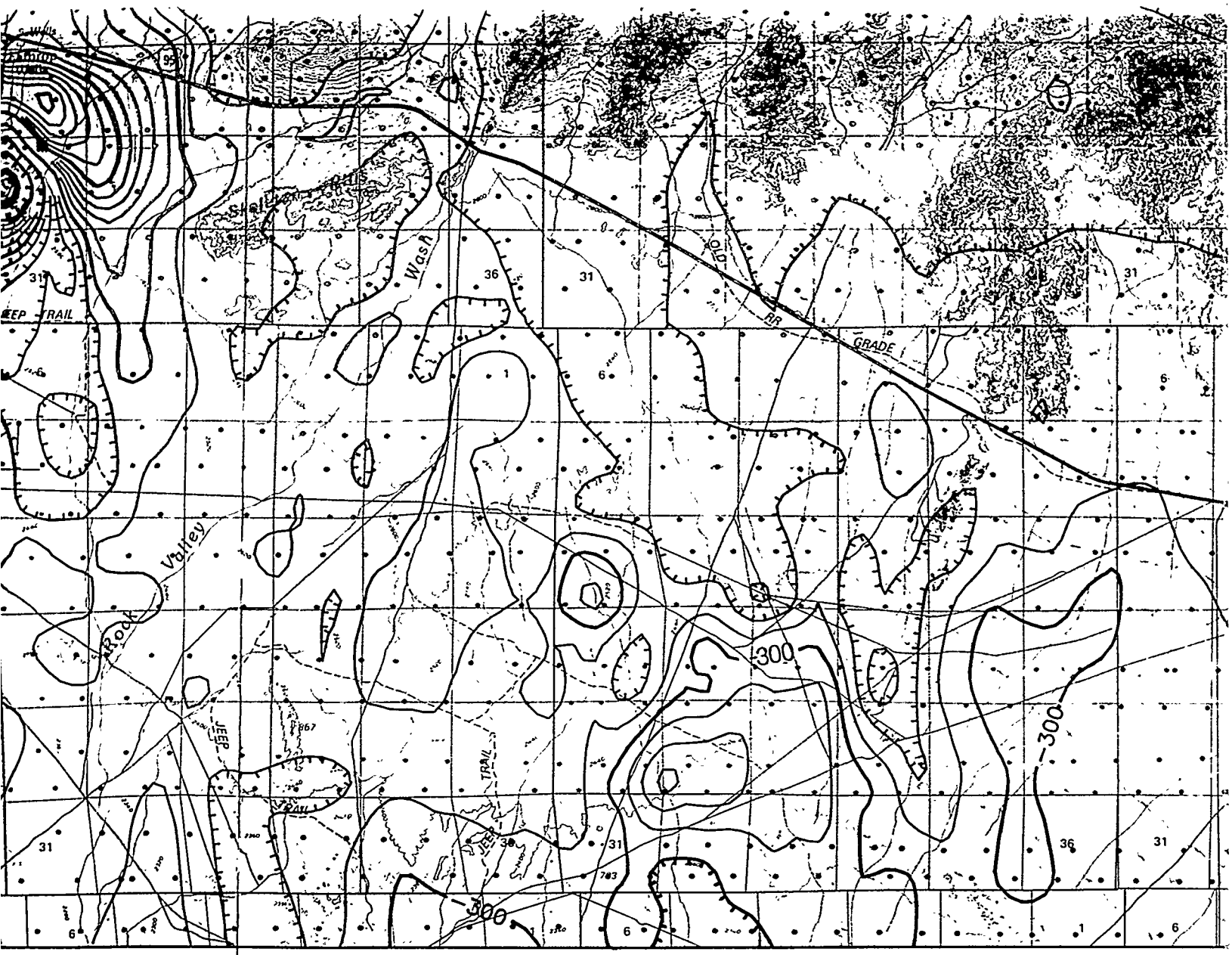
MAGNETIC ANOMALY CONTOUR INTERVALS 20 AND 10

ROMAGNETIC MAP OF THE BEATTY QUADRA

By

J. M. Glen and D. A. Ponce



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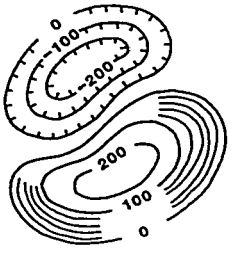

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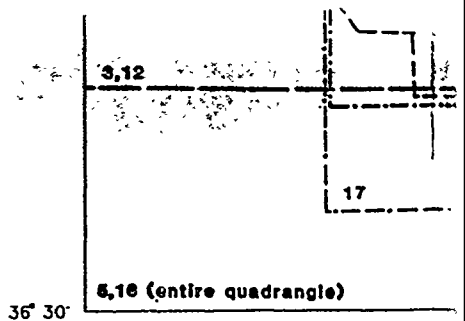

FIGURES 2A AND 2B.–Index maps sh
netic survey boundaries for surveys c
Beatty quadrangle.

TABLE
[Aer
Geodata, Geo
I

Area	Name
1	Topopah Spring
2	Cane Spring
3	Bullfrog
4 *	Yucca Flat
5 •	Death Valley
6 •	Timber Mtn
7a	Lathrop Wells
b	
8	Climax Stock
9 •	Las Vegas
10 *	Mercury
11	Yucca Mtn
12	Goldfield
13	Timber Mtn
14	Yucca Mtn
15a*	Lathrop Wells
b*	
16	Nevada
17	NTS

*Surveys used in the co

Partly funded by the U.S. Department of Energy–Yucca Mountain Project. Interagency agreement DE-AI08-78ET44802

LANATION

residual total-intensity magnetic field
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ed map, dots represent flightline and
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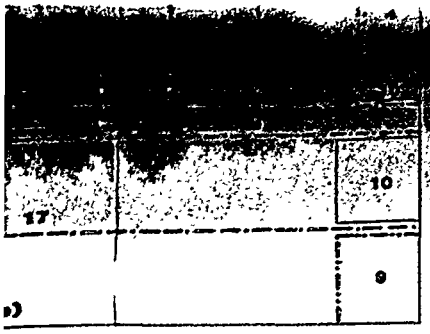

lex maps showing approximate aeromag-
r surveys completely or partly within the

TABLE 1.–*Aeromagnetic surveys all or partly within the Beatty 1 x 1/2 degree quadrangle*

[Aero, Aero Service; AS, Aerial Surveys; AG, Applied Geophysics Inc.; b, barometric; d, drape; eodata, Geodata International, Inc.; HLQEB, High-Life QEB; IGRF, International Geomagnetic Reference Field; LKB, Lockwood, Kesseler, and Bartlett, Inc.; USNOO, US Naval Oceanographic Office; USGS, U.S. Geological Survey; var, variable]

	Year flown	Contractor	Elevation (feet)	Spacing (mi)	Direction	Scale	Gradient Removed	Reference
				ORIGINAL SURVEYS				
ɔah Spring	1961	USGS	8000b	1/2	E-W	1:62,500	no	Boynton and Vargo (1963b)
Spring	1961	USGS	8000b	1/2	E-W	1:62,500	no	Boynton and Vargo (1963a)
og	1967	LKB	9000b	1	E-W	1:62,000	no	USGS (1967)
Flat	1971	USGS	400d	1/4	E-W	1:24,000	-	USGS (unpub. data,1971)
Valley	1977	Geodata	400d	1	N-S	1:500,000	IGRF	Geodata (1979)
:r Mtn	1977	AG	400d	1/4	E-W	1:62,500	IGRF	USGS (1979)
op Wells	1978	Aero	400d	1/4-1/2	E-W	1:62,500	IGRF	USGS (1978)
	1978	Aero	1000d	1/2	N-S	1:62,500	IGRF	USGS (1978)
x Stock	1980	USNOO	7500b	1	E-W	1:250,000	IGRF	Bath and others (1983)
egas	1982	HLQEB	1000d	1	E-W	1:250,000	IGRF	USGS (1983)
ıry	1982	HLQEB	400d	1/4	E-W	1:62,500	IGRF	USGS (1984a)
Mtn	1982	HLQEB	400d	1/4	N-S	1:62,500	IGRF	USGS (1984b)
				ADDITIONAL MAPS – DERIVED FROM SURVEYS ABOVE				
ield	1967	LKB	9000b	1	E-W	1:250,000	no	USGS (1971)
:r Mtn	1977	AG	400d	1/4	E-W	1:48,000	IGRF	Kane and others (1981)
Mtn	1977	AS	400d	1/4	E-W	1:48,000	IGRF	Kane and Bracken (1983)
	1978	AG	1000d	1/2	N-S	1:48,000	IGRF	Kane and Bracken (1983)
op Wells	1978	Aero	400d	1/4-1/2	E-W	1:62,500	IGRF	Langenheim and others (1991)
	1978	Aero	1000d	1/2	N-S	1:62,500	IGRF	Langenheim and others (1991)
la	var	var	1000d	var	var	1:750,000	IGRF	Hildenbrand and Kucks (1988)
	var	var	400d	var	var	1:100,000	IGRF	Kirchoff and others (1989)

l in the compilation of the aeromagnetic map of the Beatty quadrangle

MASTER

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