

2001 AAPG ANNUAL CONVENTION

Interactive EPoster: Outcrop to Subsurface, Business through Technology

# Crossroads Prospect, Railroad Valley, Nevada: A Powerful Desktop Presentation

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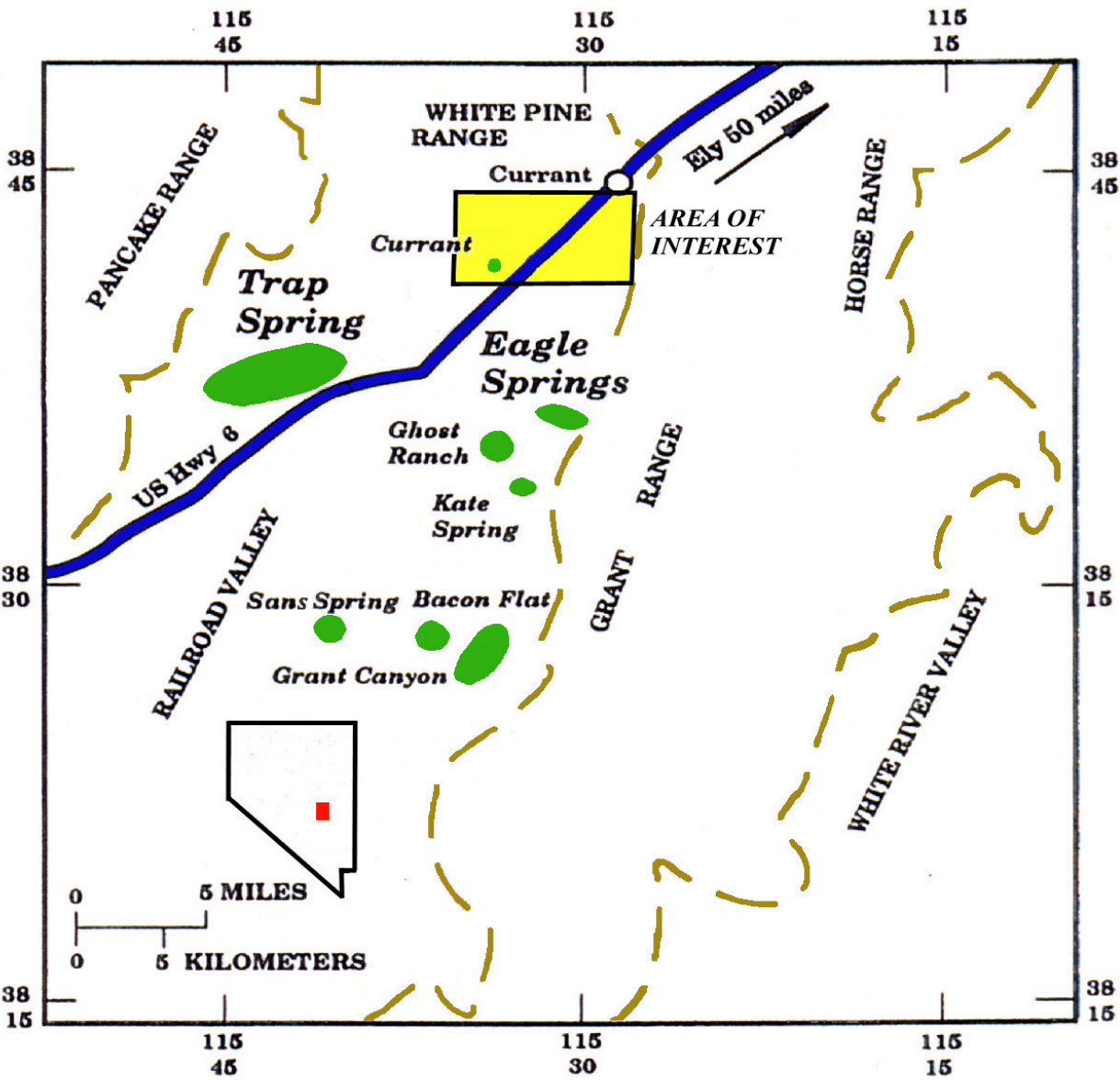
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## Objective

To use a computer based presentation  
to demonstrate the development of a prospect  
(Outcrop to Subsurface, Business through Technology)

## Methodology

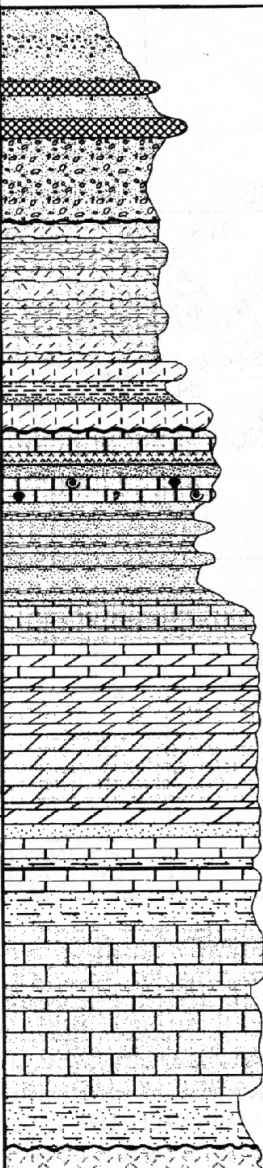
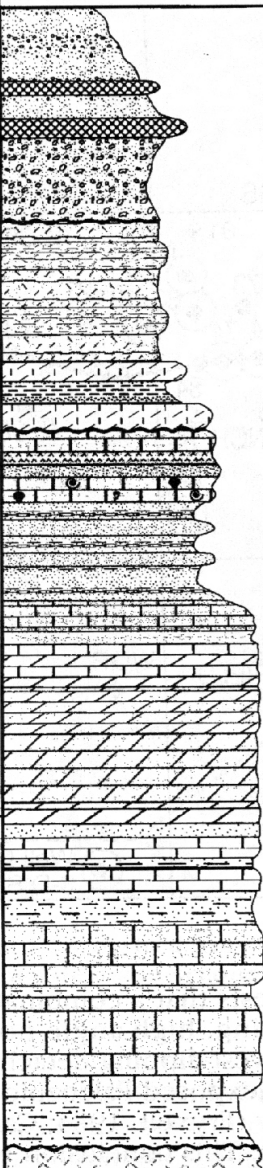
Simple scanning techniques and creation of computer generated  
graphics to clearly show the relationships among the various  
data sets to make the presentation of the prospect  
efficient and effective



Railroad Valley Index

## Prospect Location

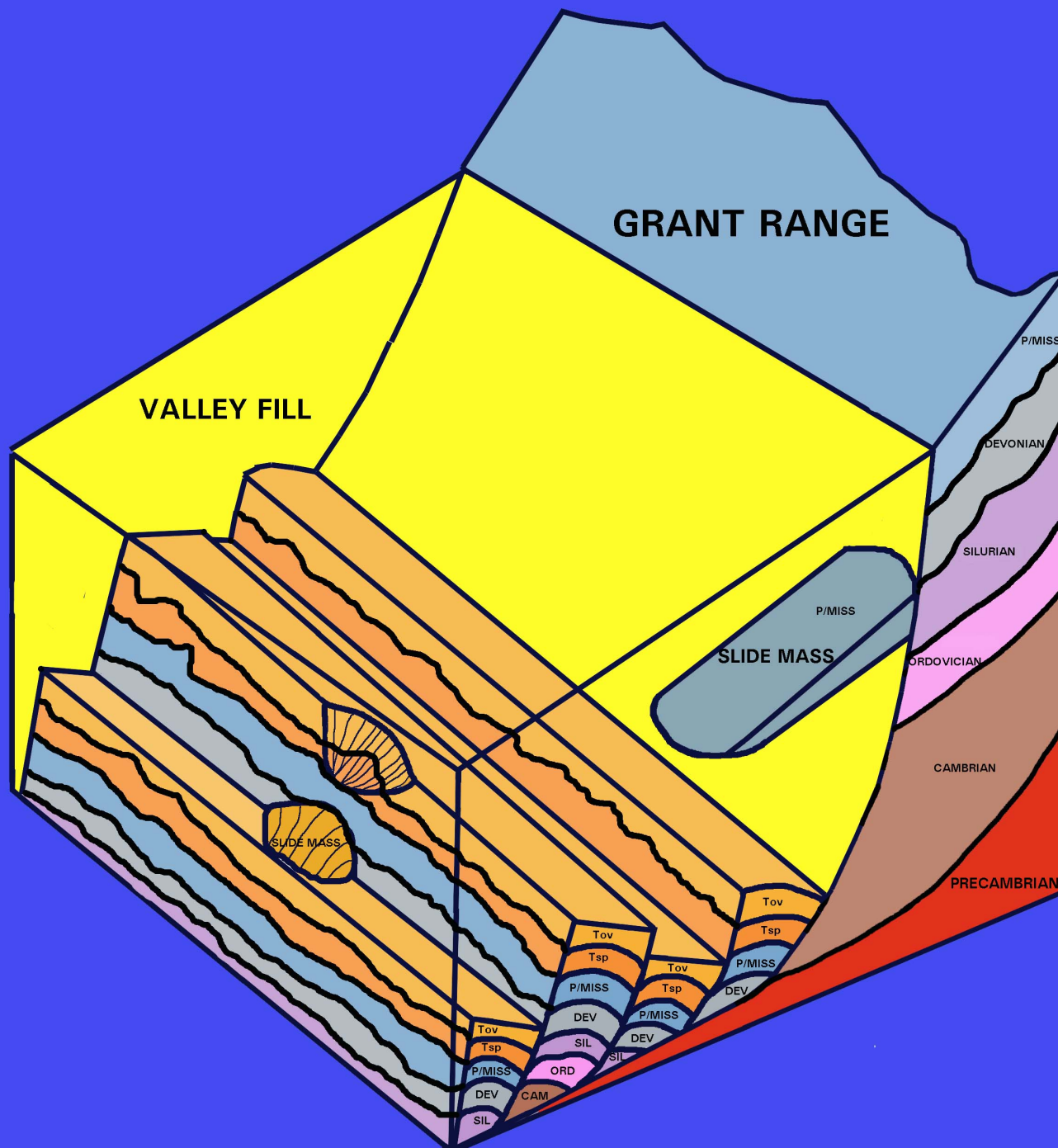
The Crossroads Prospect is located in the northern portion of Railroad Valley, Nevada. As of last year (2000 AD), over 41 million barrels of oil have been produced from Railroad Valley.

Era	Epoch	Thickness (feet)	Stratigraphic Column	Description of Lithology, Production, and Significant Shows/DST's	R=Reservoir S=Source X=Seal
TERTIARY-QUATERNARY	MIO-HOLOCENE	30,000'		<b>Valley Fill</b> - clay, tuff, limestone, siltstone sandstone and conglomerate; contains landslide debris masses of Paleozoic carbonates which can be excellent reservoirs; <i>Ghost Ranch-193MBO, Kate Spring-1.8MMBO, Eagle Springs</i>	R
	OLIG			<b>Garrett Ranch</b> - welded tuffs, non-welded tuffs, lavas; <i>Eagle Spring-2.33MMBO, Trap Spring-12.45MMBO, Duckwater Creek-15MBO, Sans Spring-214MBO</i>	X
	EOC			<b>Sheep Pass Fm.</b> - interbedded dolomite, limestone, and black shale; <i>Eagle Springs-2.33MMBO, Currant-minor</i>	R,X
PALEOZOIC	P	20,000'		<b>Ely Limestone</b> - fossiliferous grey limestone with chert; <i>Eagle Springs-15MBO, Sand Dune-6.4MBO</i>	R,S
	MISS.			<b>Chainman/Scotty Wash</b> - black shale, sandstone and siltstone; <i>White River, Cave</i>	R
	DEV.			<b>Joana Limestone</b> - medium-dark grey crinoidal limestone; <i>Buckstation</i>	R,S
	SIL			<b>Pilot Shale</b> - yellowish argillaceous platy ls. & dolo. sltst.	R
	ORD			<b>Guilmette</b> - dark grey limestone and dolomite; <i>Grant Canyon-10.1MMBO, Bacon Flat-900MBO</i>	R
	CAMBRIAN	10,000'		<b>Simonson/Sevy</b> - light and dark grey dolomite; <i>Grant Canyon-10.1MMBO</i>	R
				<b>Laketown</b> - light grey-dark grey dolomite	
				<b>Fish Haven</b> - dark grey dolomite	
				<b>Eureka Quartzite</b> - white hard quartzite	
				<b>Pogonip Group</b> - limestone with some shale	
				<b>Cambrian Undivided</b> - dominantly limestone and shale; <i>Soda Springs</i>	
				<b>Precambrian</b> - granite, gneiss, schist	

(From Montgomery, et al., 1999)

**In Railroad Valley, the primary reservoirs are Paleozoic slide blocks in the Valley Fill, the Garrett Ranch Fm., the Sheep Pass Fm., and the Devonian limestones & dolomites. The welded tuffs and unconformities act as seals and the shales of the Sheep Pass Fm. and Chainman are the primary source rocks.**



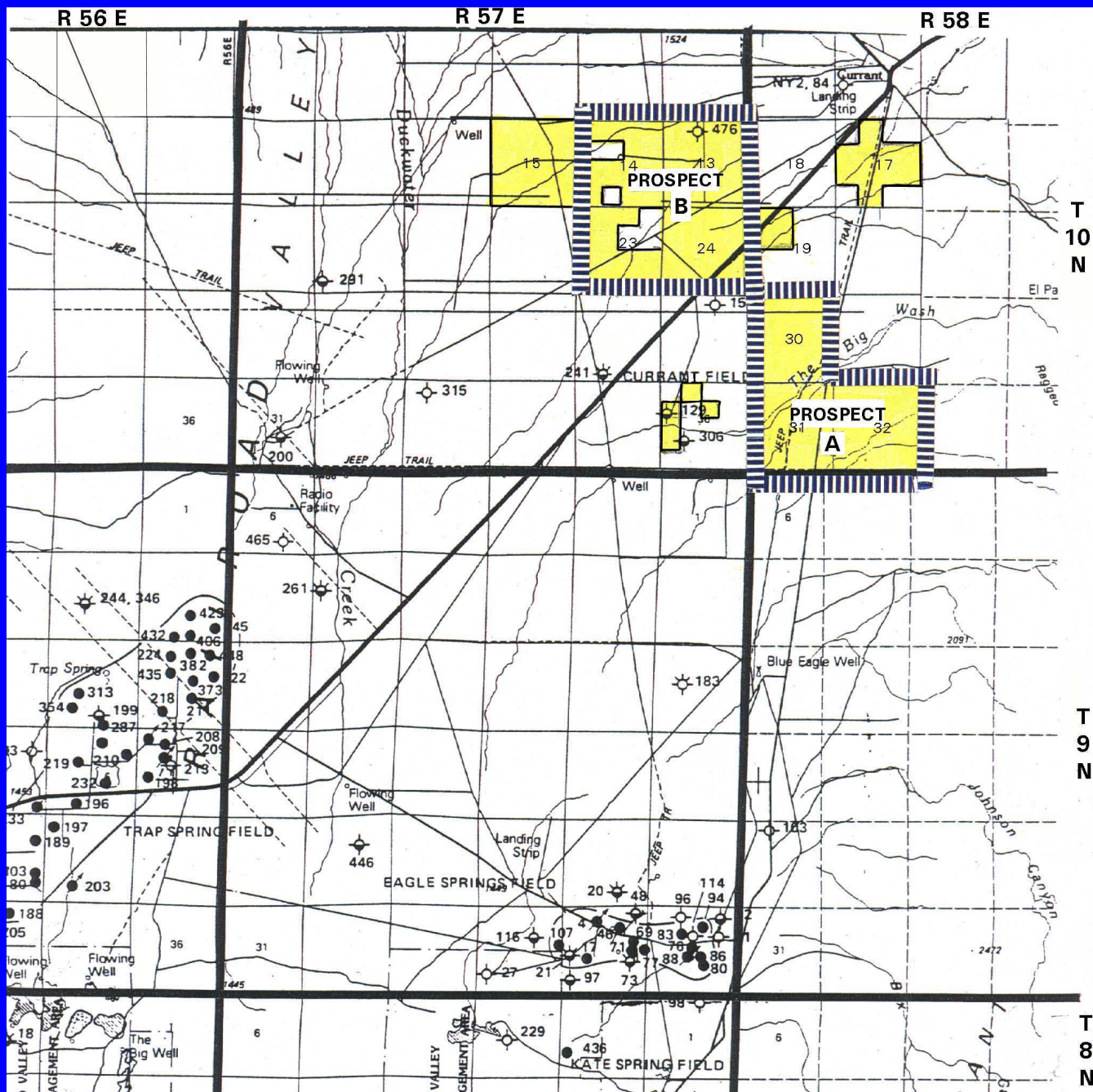


## PLAYS:

- 1) Paleozoic & Younger Slide Masses
- 2) Folded & Fractured Guilmette, Sheep Pass, & Garrett Ranch
- 3) Intermediate Fault Blocks

## LEGEND

VALLEY FILL	Miocene to Holocene clay, tuff, siltstone, sandstone and conglomerate containing slide masses of Paleozoic carbonates.
Tov	GARRETT RANCH: Oligocene welded and non-welded tuffs and lavas
Tsp	SHEEP PASS: Eocene interbedded dolomite, limestone, & black shale
P/MISS	ELY LIMESTONE, CHAINMAN, and JOANA LIMESTONE: Mississippian/Permian limestone, chert, shale, sandstone, & siltstone
DEV	GUILMETTE and SIMONSON/SEVY: Devonian limestone & dolomite
SIL	LAKETOWN: Silurian dolomite
ORD	FISH HAVEN, EUREKA QUARTZITE, & POGONIP GROUP: Ordovician dolomite, quartzite, and limestone
CAM	CAMBRIAN UNDIVIDED: limestone, & shale
PreC	PRECAMBRIAN: granite, gneiss, schist



The  
Crossroads  
Prospects:

Prospect B  
R57E, T10N  
Sec. 13, 14, 23,  
& 24

and

Prospect A  
R58E, T10N  
Sec. 30, 31,  
& 32





Areas of  
stunted sage  
(*Artemisia*  
*tridentata*)  
and saltbush  
(*Atriplex*  
*canescens*)  
first attracted  
Willis to the  
area in 1990

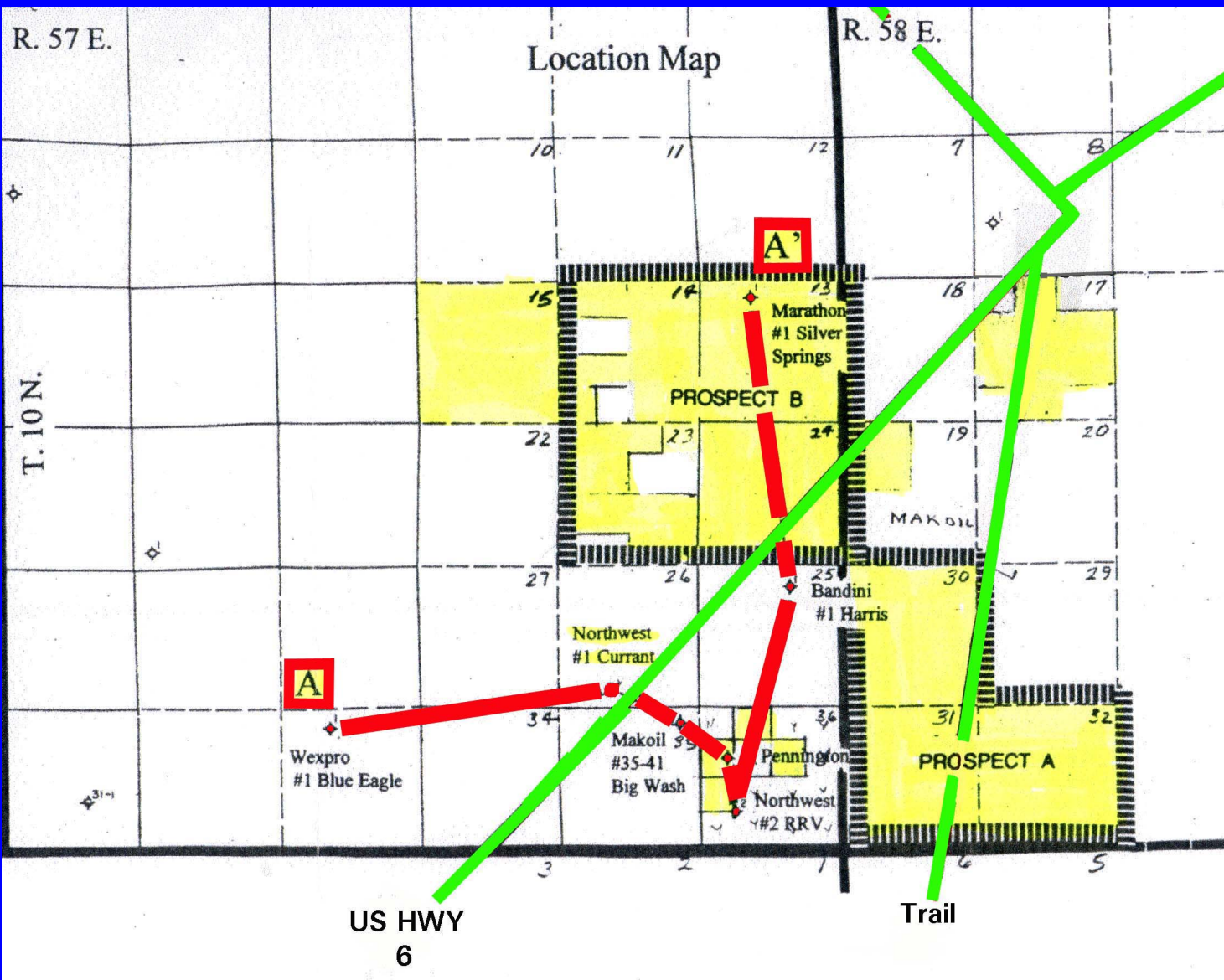




Another interesting phenomenon, noticed by Willis in the stunted sage and saltbush areas, was the absence of the numerous anthills that dotted other portions of the valley







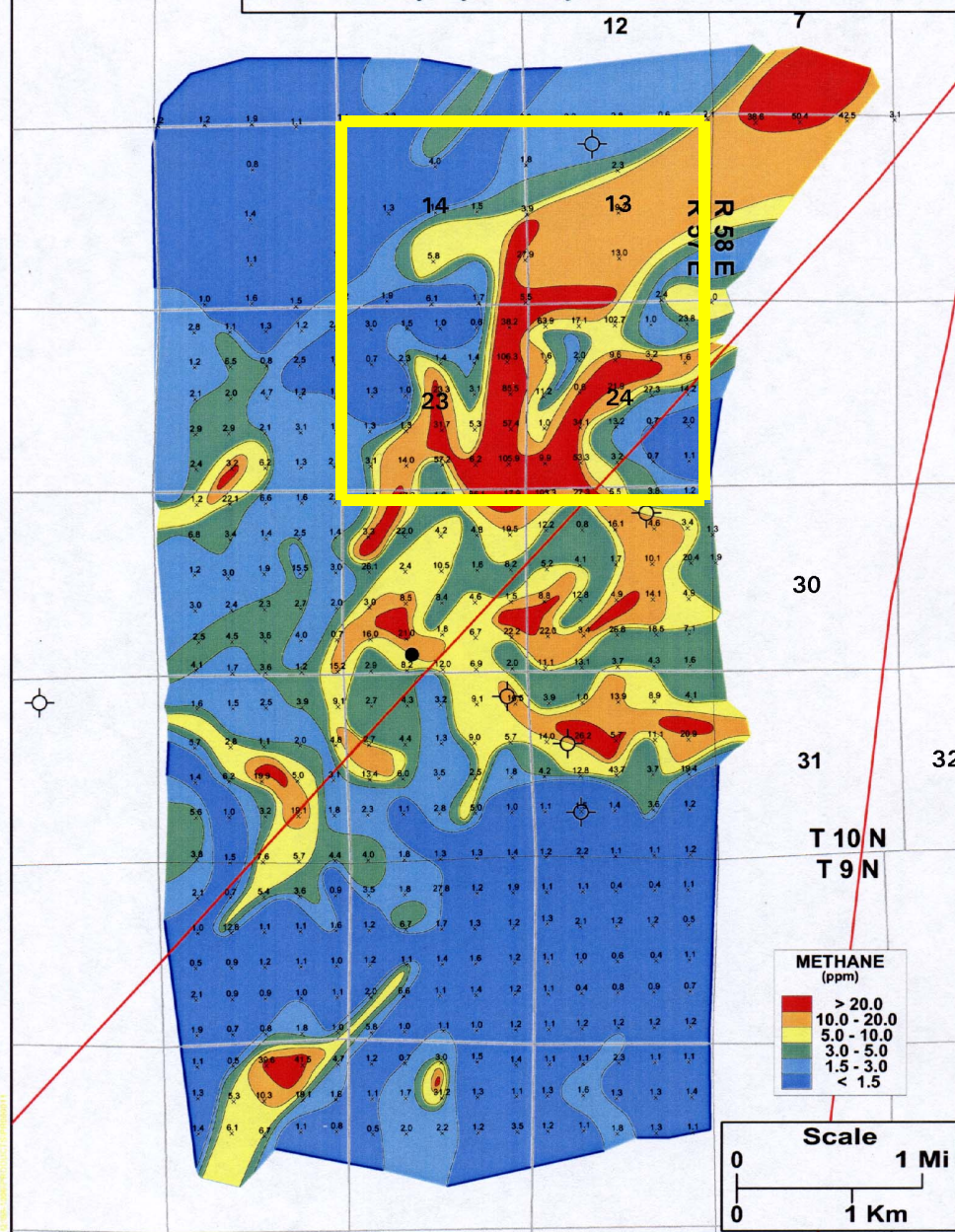
Our first step  
was to study  
the logs from  
nearby wells  
and draw a  
cross-section







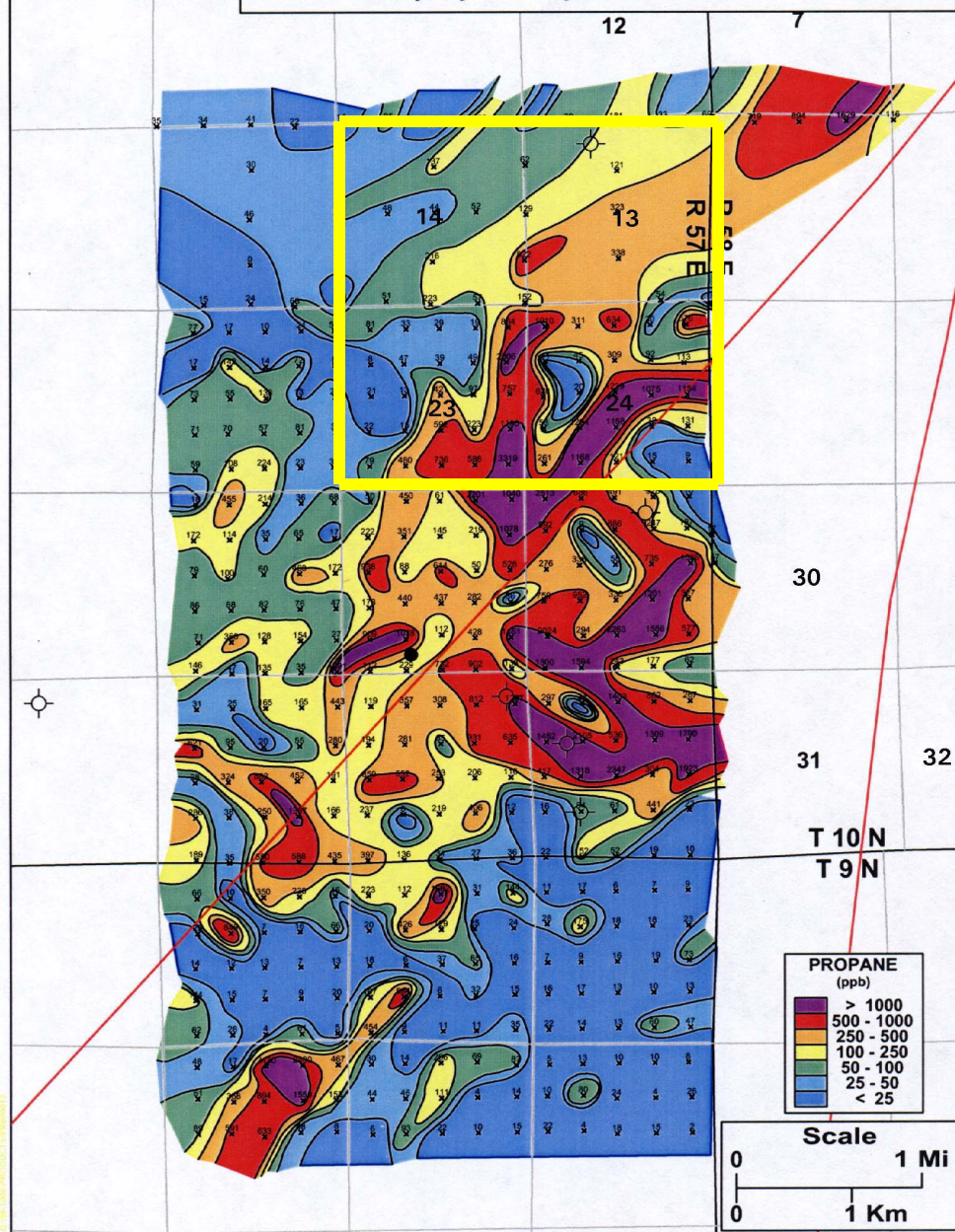
Methane Contour Map of 1985 Curreant Detail, Soil Gas Data,  
Railroad Valley, Nye County, Nevada



A soil gas  
geochemical study  
performed by Exploration  
Technologies, Inc. showed  
a methane anomaly high  
over Prospect B

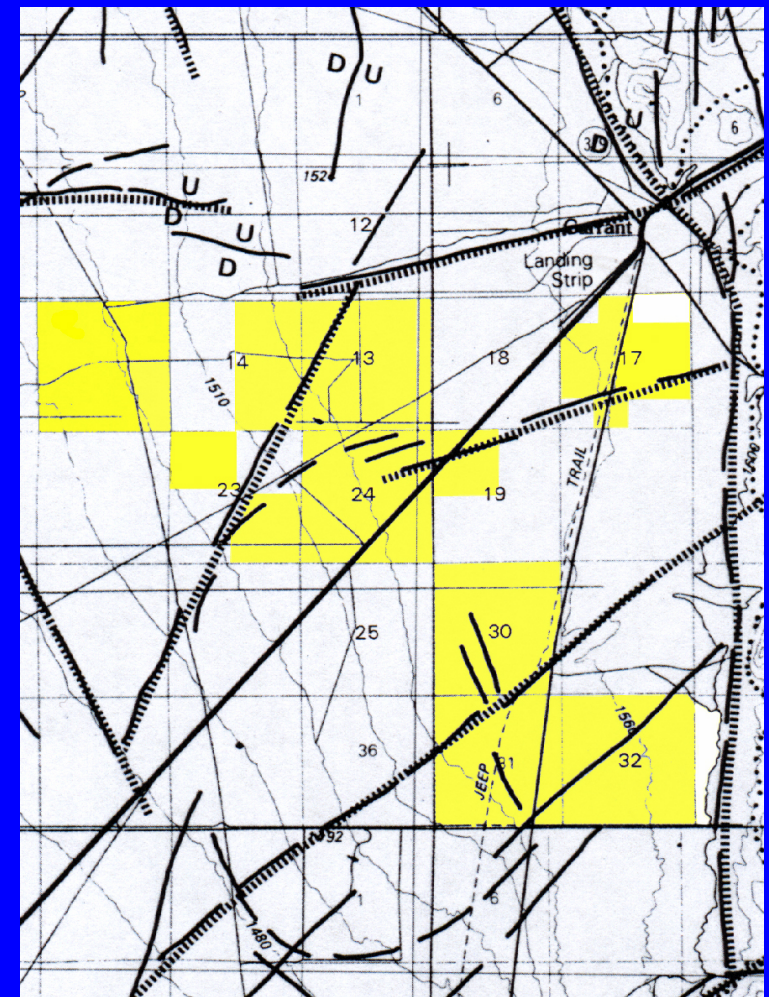
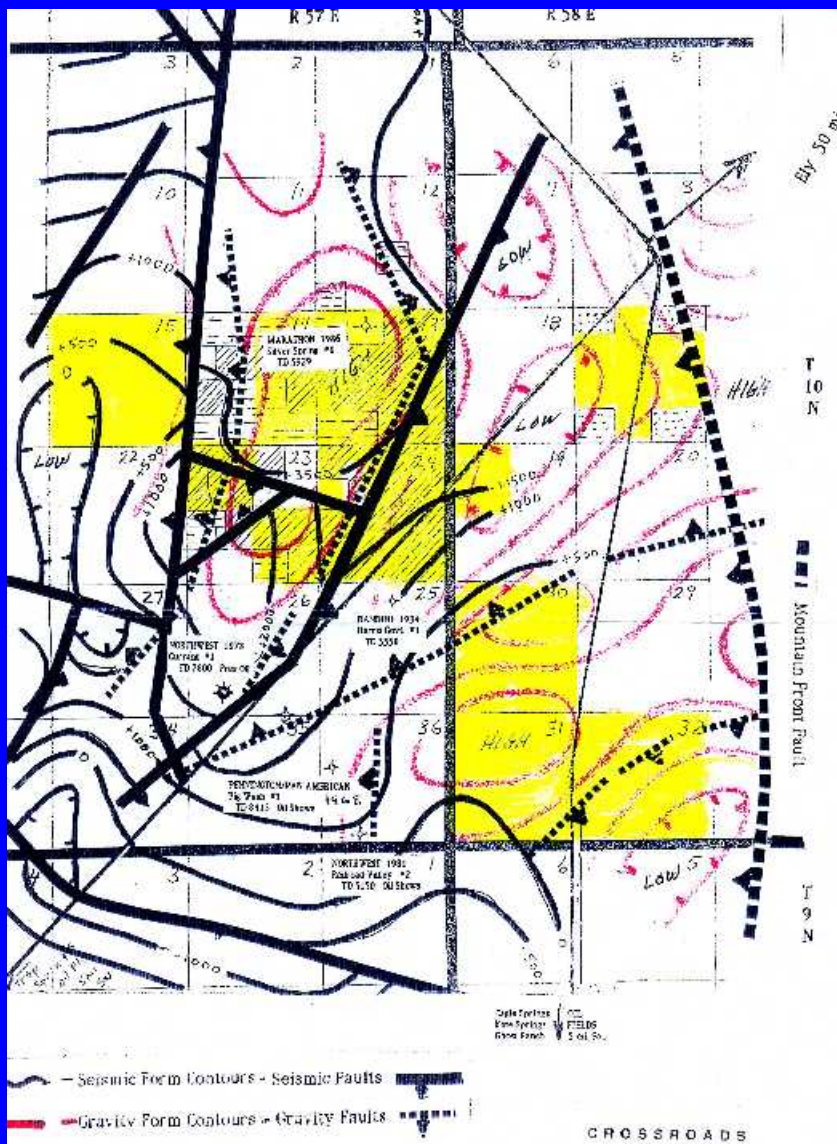


Propane Contour Map of 1985 Curren Detail, Soil Gas Data,  
Railroad Valley, Nye County, Nevada

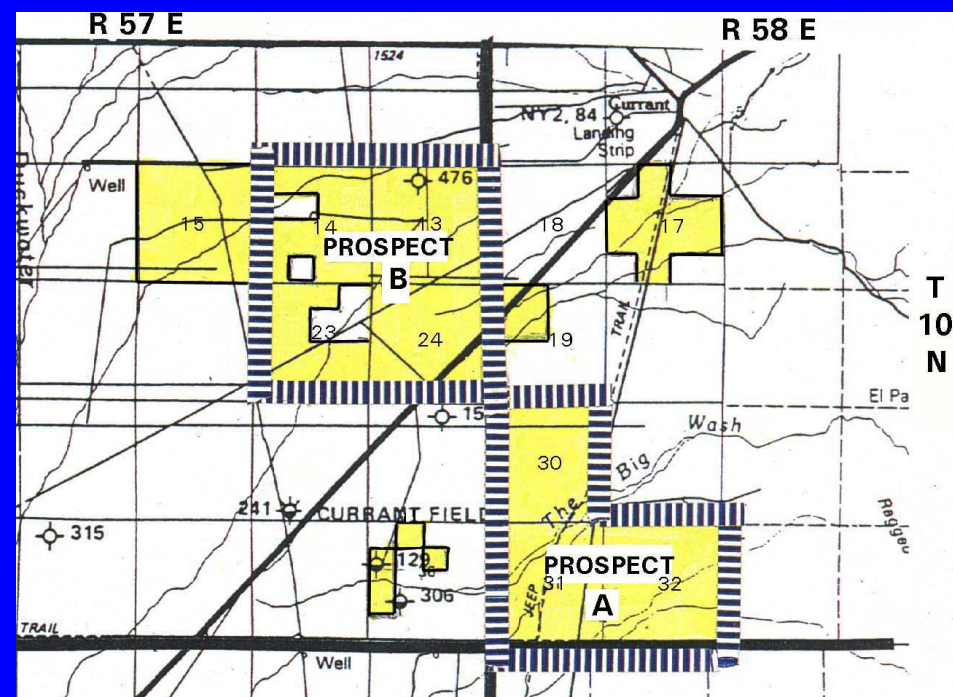


A propane anomaly high was  
also noted over this  
prospect





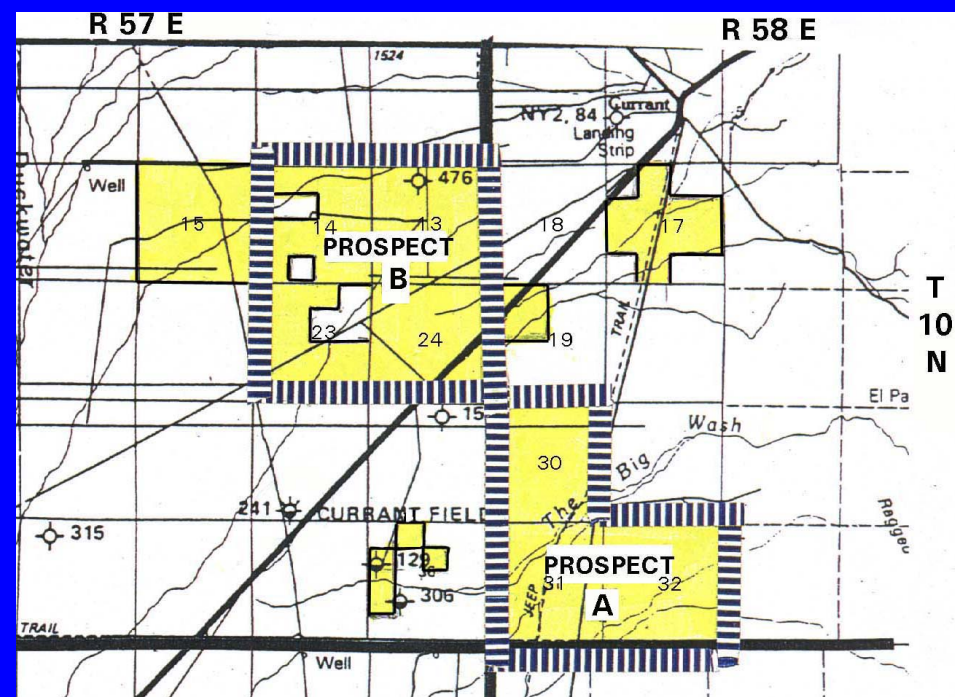
There was an excellent correlation between the seismic and gravity data and EarthSat's structural interpretation



In the Crossroads Prospect B:

- 1) The area is up-dip from a known generating source
- 2) Gravity, seismic, and Landsat structures are mutually supportive
- 3) The area is located between the Curren and Marathon Silver Spring wells which both had oil and had good source, reservoir, and seal rocks
- 4) The Curren well was a producer and had mechanical problems
- 5) The Marathon well may have been a producer with today's techniques

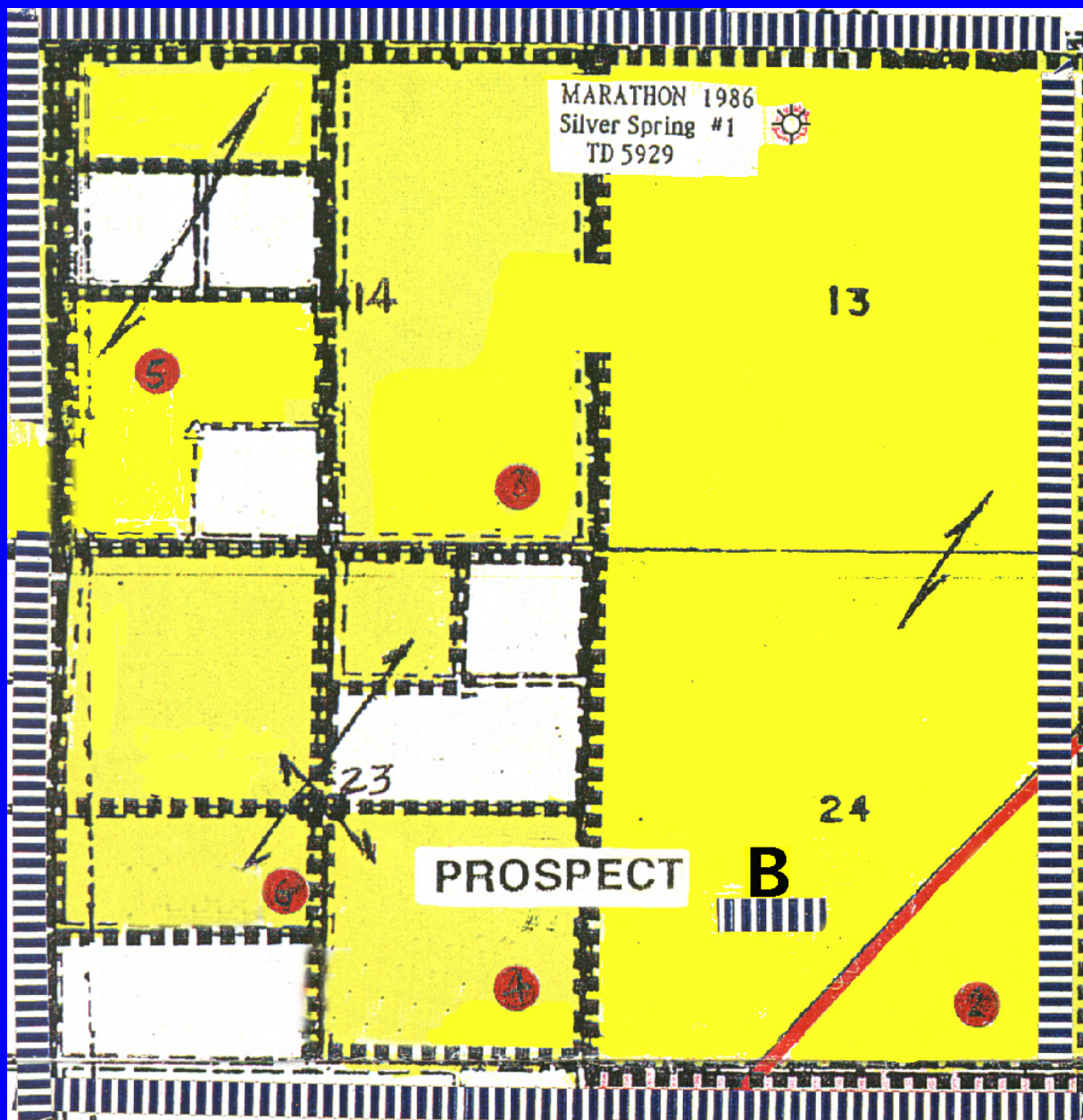




In the Crossroads Prospect A:

- 1) The area is up-dip from the Pennington Pan-Am and Northwest Pipe #2 wells which both had good shows and appear to have the requisite section
- 2) Gravity and Landsat structures are mutually supportive
- 3) The area is located over and adjacent to a gravity high so a slide block play may be very applicable

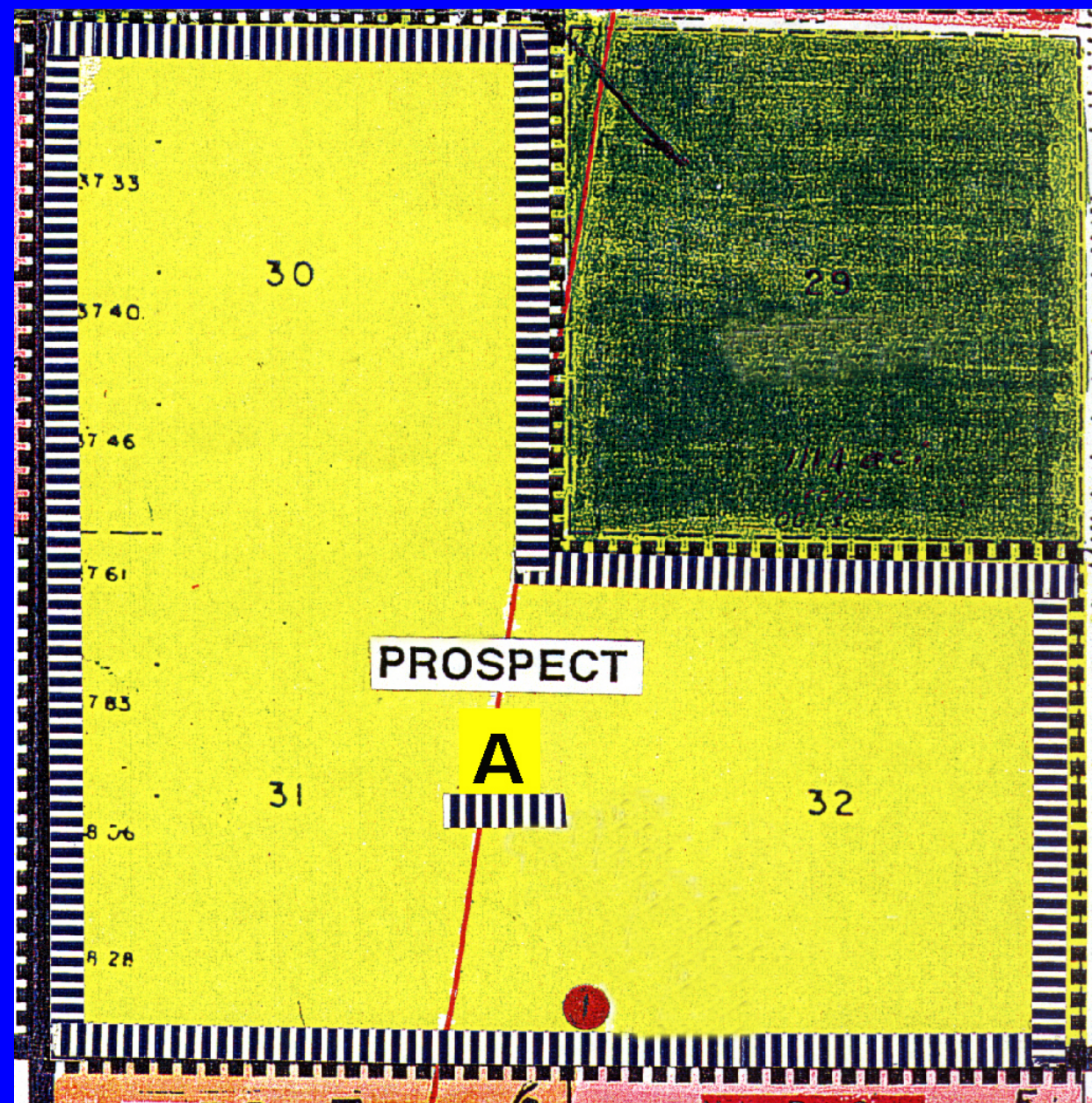




These findings have led to the selection of five potential drill sites in Prospect B



And one potential  
drill site in Prospect  
A





## Conclusion

The Crossroads Prospect has many attributes that make it an attractive exploration prospect including:

- 1) Location in a productive basin
- 2) Adequate source, seal, & reservoir rocks
- 3) Sage, saltbush, and ant hill anomalies
- 4) Good correlation between surface & subsurface features
- 5) Anomalous soil gas concentrations

**Have a great day and  
Thank-you for your  
attention**

