

June 6, 1977

Mr. Charles B. Edwards,
Ferguson & Bosworth and Assoc.,
P.O. Bin 2427,
Bakersfield,
California.

Dear Chuck:

Have been spending the weekend sending out copies of the
two enclosures which I attach.

Thought that you might not have seen either. The informat-
ion is such that it should carry a message to the average American
who knows nothing about the oil and energy picture, and believes
everything he reads or hears.

This is not a chain-letter, but you must have as many liberal
friends as I do, so, make a few copies and send them along. It all
helps.

Best regards,

David LeCount Evans



western union

1977 MAY 2 04 00 PM
Telegram

REA019(1058)(2-021303EI22)PD 05/02/77 1057

ICS IPMRNCZ CSP

8053274811 TDRN BAKERSFIELD CA 51 05-02 1057A EST

PMS DAVID LECONT EVANS, RDM REPORT DELIVERY BY MAILGRAM, DLR

1700 ROYAL DR

RENO NV/89501

THIS WILL BE YOUR AUTHORITY TO REPRESENT FERGUSON AND BOSWORTH AND ASSOCIATES AT THE HEARING TO BE CONDUCTED BY THE STATE OF NEVADA IN CARSON CITY TO DETERMINE WELL SPACING IN THE TRAP SPRING FIELD NYE COUNTY UNLESS IRREFUTABLE EVIDENCE IS PRESENTED FOR WIDER SPACING WE FAVOR 40 ACRE SPACING

GLENN C FERGUSON, FERGUSON BOSWORTH AND ASSOCIATES
(1717 28 ST BAKERSFIELD CA 93301)

NNNN

BERRY OIL COMPANY
SURPRISE OIL COMPANY
BERRY & EWING

BIG TEN OIL COMPANY
ETHEL D. COMPANY
ETHEL D. SUPPLY COMPANY

BERRY HOLDING CO.

BIN X

TAFT, CALIFORNIA 93268

February 23, 1977

Mr. David LeCount Evans
1700 Royal Drive
Reno, Nevada 89503

Dear Dave:

Ben Charles via Pete Bennett suggested I contact you regarding any information or suggestions you may have regarding Berry Ventures' land leases in Nye County, Nevada.

Berry with a Bakersfield oil producer, as operator and partner, holds leases in Sec. 30, 20, 15, 10, 7, 3 and 2 all in T9N-R56E. We have a six months drilling commitment on some of these leases and presently plan to drill on Sec. 15, depending on the results of the Chadco well to be drilled on Section 22 in the near future.

I am aware of the leasing activity along the overthrust belt in Utah, Nevada, etc., and am interested in any suggestions you may have in regards to that area as well as other areas.

Berry Ventures, as an exploratory branch of Berry Holding Company, started in 1974. We have participated in ventures from Florida to Colorado with reasonable success in Louisiana and Texas. We are staffed with two people full time so there are limits to our ability to originate prospects. We have normally been participating as non-operator in prospects that are at the drilling stage. However, we have acquired the leases and promoted a few prospects with the help of consultant geologists, landmen, etc.

I would appreciate hearing from you.

Very truly yours,



S. D. Callison
Vice President
of Operations

SDC/bh

3/18/77.

Dear Tuffy -

Two copies of what I received from the B.H.M. - Should I keep the original or would you rather - ? -

Where do we go from here? Do we have the lease on the property or do we wait until they notify us? -

Your ideas on leasing and your plan let me know at your convenience -

Alta been busy getting a picket pulled & and sort of knocked her out - all went well and she should be O.K. in a day or so -

Let me know any oil news, in the vicinity, that is available -

Your letter of resignation was a work of art - also your letters to the Jerry Companies - Don't expect to quick an answer - they are not too alert - Peter doing a great job tho.

Our fond regards to Betty & to you -

Ben.

Anything new on Mayuba -
You have two hot deals going or they will be going soon -

April 12, 1977

Mr. C. B. Edwards,
Chief of Exploration,
Ferguson and Bosworth,
P.O. Bin 2427,
Bakersfield, California.

Dear Chuck:

Your two, recent, very helpful and thoughtful packets of information have been greatly appreciated.

My interest expressed in the Edson field and the detail which you sent on to me answers many questions. It would appear to be a perfectly normal occurrence for the most part, with an occasional suggestion of anomalous oil in the 'basement'; I intend to go into it in detail this week, as I rework maps.

What you provided me with in the last few days is so helpful, as well as 'tantalizing'; the word is used with reference to the activity in Baja; more power to Pemex; were it possible to invest in Mexican oil, this Pemex program would be well worth getting into. It hits exactly where it should (accepting if possible a trough continuing down the coast, and just off the land mass, south from Santa Barbara Channel's production, etc.); and two dry holes on the Peninsula, should be followed by exceptional possibilities, just off shore, and as you have been told from the 'scuttlebutt, and which is apparently being denied by our Mexican brothers.

The Xerox of Chinle-Shinarump production answers the questions I have had, but, since talking with you, I have been taken off the hook, since the Kansas Survey, came up with only hydro-carbon traces on the material recently submitted; to pacify the client, more material has been sent on to Core Lab, in Oklahoma City who will be making similar tests.

The Trap Springs completion list, and the position of the top of the volcanics, allows me, at long last, to correct original maps and get some idea as to just what is going on. Pennington was to get this information for me, but I have not heard from him in the last three weeks. Your 'tops' suggest an erratic sort of regularity, and it would appear that production should continue to the north and northeast; it's hard to see why the Pennington well failed to produce something.

The higher datum on Northwest's #2, and Chadco's Pennington #1, should pose no surprise; since on the one section I have carried the dip between the discovery well and Northwest's #2, would be about 15 degrees, which is a par for the course, along the west flank of the RR Valley graben(?). The four do suggest that the higher wells have less, if none oil, than the lower discovery well and the Number 4 North west well. If however, it is a matter of the amount of fracturing to produce permeability, datum would HAVE very little to do with it, unless down dip one gets into the water; in short, section 15 possibilities are anyone's guess. The current Texaco farmout test may clear the atmosphere.

Re: your list, the possibility exists that you may have transcribed in error. With reference to your NW #4, the datum at the top of the volcanics is exactly the same as the datum for NW's discovery, #1, as provided me at the time by the company, and the completion data (depth and "open hole completion") corresponds with info for the #1, provided by the same source. You might want to check this out.

Am still hard at work trying to make something out of the Plate Tectonic background, with the hope of using such patterns for both petroliferous and mineral (hard rock) exploration. Results are rather interesting and I am making a believer out of myself. Provided have been many questions regarding the reasoning in the overabundance of pedagogically inspired publications.

Sorry that these lines are so late, but am sure that you will be understanding. When you are back up this way, Kitty and I look forward to seeing more of you.

She joins me in the very best.

Sincerely,


David LeCount Evans

DAVID LE COUNT EVANS

CONSULTING GEOLOGIST

1700 ROYAL DRIVE

TELEPHONE (702) 747-4101

RENO, NEVADA 89503

February 27, 1977.

Mr. S. D. Callison,
Vice President,
Berry Holding Company,
Bin X,
Taft, California 93268.

Dear Mr. Callison:

Appreciated have been the efforts of Mr. Ben Charles and Pete Bennett to bring us together. The leases you hold in sections 15, 30, 20, 10, 7, 3 and 2, Township 9 North and Range 56 East could not be in a more interesting and active area.

The West margin of Nevada's Railroad Valley should have been tested long before late 1976. Stratigraphic-trap possibilities were a legitimate alternative interpretation on the East flank of Railroad Valley (the Eagle Springs field with 3,100,000 B.O.). Why not, therefore, consider a similar environment for the West margin?

Northwest's new production at the Trap Springs field is from the same volcanic ash unit with porosity provided by fracturing. Original ash porosity has been sealed off by silicification, ie: a welded tuff. Thickness of pay, as far as I know, exceeds 600 feet. In short, therefore, I feel that the background is a combination of "pinch-out" and intense fracturing of an hard, brittle unit.

The Trap Springs No. 1 has been evaluated at 1000 BOPD. The discovery well produced 17,000 B.O. in December and should double that for January or by February.

The No. 2 well ($\frac{1}{2}$ mile west in the SE of the SW of section 27 is) rated at 140 BOPD; which is misleading since it is my understanding that a poor completion job cemented-off a greater part of the porosity.

The No. 3 well, a diagonal offset to the discovery (NW NE of section 34), currently testing the Paleozoics, reputedly had an oil section in the ash just as good as in the No. 1.

Bill Pennington called me on Wednesday, last. He was enroute to Currant where Chadco was moving in on its first Pennington test of two; either the SE NE or SW NE of section 22.

To evaluate your position, certainly section 15 is the logical first test, since it should be close to the same pinch-out-fracture conditions. You will also be helped in your thinking by Chadco's results.

Anticipating the possibility of a general, marginal-like situation, trending north and northeast along Railroad Valley, then, sections 10, 2 and 3 would rank in that order.

Sections 20, 30, and 7, all removed considerably to the West and beyond a geophysically-indicated fault should have the same ash; but the existence of fracturing is anyone's guess.

The third paragraph of your letter is of int rest. I do have ideas and would be delighted to discuss them with you. The lessons to be gained from the Trap discovery provide food for thought in other Basin-Range valleys, throughout Nevada.

All of the above information has not been gained from my position on the State's Oil and Gas Conservation Commission. It has been acquired from individuals, active in that area, and one personally-financed trip to the field.

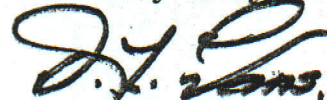
Nevada's Oil and Gas Commission receives no information, thanks to a regulation which stipulates that no operator has to release information until after the last hole drilled in a series of holes. Note the enclosure in which Northwest plans another 40 holes, to be drilled through 1978. This means that only by periodic and systematic 'scouting' will any of us be able to keep up with progress and new developments.

After six years with Marathon (formerly Ohio Oil) in Kansas and Oklahoma, and twelve years of oil consulting in Wichita, I vowed to forget the oil picture and concentrate on the mining, which I started out with in 1928. It is obvious that I am "slipping".

Reason suggests that I disassociate myself from the Commission and regain my freedom. This I am considering.

Thanking you for your interesting letter, trusting that the above will be helpful and hoping to get together with you to discuss Nevada, if and when you feel the urge, I am,

Yours very truly,



David LeCount Evans

Registered Geologist
State of California
No. 91

cc: Mr. Benj. C. Charles

BERRY 3

BERRY 2

X
BERRY

Berry

TEARD

ADD
17
250-30
BERRY
X

CHERO
PENNINGTON
22-2
22-1

22

4

27

ON

26-27
3.0

28-1

DUNCAN
FEDERAL

1

+16

33-1

3

TRAP
SPRING

33

34

7

+1000

SL

-1000

-2000

-3000

-4000

Nevada Sierra News

Oil Well Drill Pace Quickens

ELY (AP) — Production in Trap Springs No. 1, Northwest Exploration's oil strike in Railroad Valley 60 miles southwest of here, has been stepped up, company spokesmen said Monday.

A 4,850-foot-deep well was pumping about 700 barrels a day but has been reworked and is now producing about 1,000 barrels every 24 hours which is valued at \$12,000.

Trap Springs No. 2, just west of the original well, is not as productive as the Denver-based company had hoped. At about 4,200 feet, the well is producing 125 to 150 barrels a day, according to Northwest Drilling Supervisor Jim Madden.

Trap Springs No. 3 is going deeper than either of the first two wells and was down to about 6,000 feet on Saturday. While the first two wells are pumping oil out of a volcanic formation, No. 3 is going down to a much older paleozoic zone "to see what is there," Madden said.

Northwest has announced plans to drill 20 wells in Railroad Valley in 1977 and 20 more in 1978. The company has announced tentative plans to increase storage facilities and build domiciles for permanent employees.

Northwest's strike in the Trap Springs field last October has spurred considerable oil activity in Eastern Nevada. All of the public lands in this part of the state have been filed on and several oil companies are jockeying to secure private land leases. Private property owners throughout White Pine and Nye counties are being offered between \$1 and \$3 per acre per year for exploration rights on their land.

NW-Expl.

Comptrol - Statute - as of 1974. (O'Dell to NW) - 8 - feet
concludes - to corner of 1/4 Section with NW Expl.

1st Wilson - Skopelion Landman. to NW
- Therefore only the head feet + 100 acre spacing

Hordet ^{Dewey} Dewey - Gal. (Both State A.B. + M.A.) APB.
NW
- since 1974.

Kenneth Stacey - Reservoir Engineer. UCLA.
D.R. PROD. D.A. - EM.
NW Pipeline

Edward A. Haymaker - Colo ex. Minter 1941.
ex-USGS - But since 1977 a consultant
since 1980. Expert in spacing
Production

STATE OF NEVADA
OIL AND GAS CONSERVATION COMMISSION
201 South Fall Street
Carson City, Nevada 89710

In the matter of a Petition by)
the Northwest Exploration Company) Notice of Hearing
for a Hearing to Determine Well)
Spacing within the Trap Spring) Docket No. 5
Field, Nye County, Nevada)

THE STATE OF NEVADA TO ALL PERSONS, TAKERS OF PRODUCTION,
MINERAL AND ROYALTY OWNERS AND OTHER PERSONS IN THE STATE
OF NEVADA, AND PARTICULARLY ALL PERSONS INTERESTED IN THE
TRAP SPRING FIELD, NYE COUNTY, NEVADA:

Notice is hereby given that the Oil and Gas Conserva-
tion Commission of the State of Nevada will conduct a
hearing on Tuesday, May 3, 1977 at 9:00 A.M. in Room 220,
Capital Plaza, 1150 East William Street, Carson City,
Nevada upon the petition of Northwest Exploration Company,
in the above entitled docket, at which time all persons,
firms and corporations interested may, if they so desire,
appear and be heard. The lands which are the subject of
this petition are more particularly described on Exhibit A
attached.

Notice is further given that the purpose of said
hearing will be to determine whether said Commission
should enter an order establishing well spacing within
the Trap Spring field.

Dated this 12th day of April, 1977.

State of Nevada
Oil & Gas Conservation Commission

William J. Newman
William J. Newman, Secretary

July 29, 1977

ACCORDING TO NEVADA MINES

BOSWORTH - MASON
RANCH

FEDERAL 14-2 IN SW/NW 14.9N-56E

DRY - AS
RPTD BY D.C. CHARGES

FEDERAL 14-3 IN NW/NE 14.9N-56E

GOOD OIL
WELL.
RPTD BY D.C. CHARGES

AS FOR FEDERAL 14-1 IN SW/SE 14.9N-56E

- DIPPED - ON
5/31/77 -
A TIE HOLE
NOT
OTHER INFO

EXHIBIT A

Township 8 North, Range 55 East, MD Mer.
Sections 1, 2, 11, 12, 13, 14, and 24: all

Township 8 North, Range 56 East, MD Mer.
Sections 1 through 24, 26 through 30, 33
and 34: all

Township 8 North, Range 57 East, MD Mer.
Section 6: all

Township 9 North, Range 55 East, MD Mer.
Section 36: all

Township 9 North, Range 56 East, MD Mer.
Sections 10 through 16, 20 through 36: all

Township 9 North, Range 57 East, MD Mer.
Sections 7, 18, 19, 30 and 31: all

Suprise Oil Strike

ELY — Oil has been struck in an area of Eastern Nevada where some geologists didn't expect to find it.

The Ferguson and Bosworth firm of Bakersfield has brought in a well two miles north of Trap Springs, where other wells are producing.

The new well lies significantly north of a geological fault line. Some oilmen believed that oil would be found only south of the fault.

They are said to suspect that the new discovery opens up an entirely different field. The assessment is reinforced by the chemical makeup of the product which differs from Trap Springs crude.

Fri - Aug. 19 -

FERGUSON & BOSWORTH

INDEPENDENT OIL & GAS PRODUCERS
BAKERSFIELD, CALIFORNIA 93303

April 6, 1977

Mr. David LeCont Evans
1700 Royal Drive
Reno, Nevada 89501

Dear David:

The following elevations and log tops should help
some in your efforts to understand the Trap Springs area:

	<u>Elevation</u>	<u>Top Welded Tuff</u>
NW Expl. #1	44756' K.B.	4180'
#2	4749' K.B.	3140'
#3	4751' K.B.	3273'
#4	4761' K.B. Est.	+4000' Est. (7" cemented at 4013' for open hole completion)

Chadco-
Pennington #1 4785' K.B. 3405'

Contrary to Pennington's comments on the Chadco well,
there were oil shows in the well, but no oil was recovered
on the D.S.T.'s. I am enclosing a copy of the Chadco well
log and Summary, but it is strictly confidential and only
for your use.

Overland Petroleum spud 3/30/77 on the Texaco farm-
out in Sec. 31, 10N./57E. They were drilling at 2950' at
6:00 a.m., 4/5/77.

I am also enclosing an article on oil in Baja Cali-
fornia which will enlighten you as to the exploratory work
being done. I still believe I was told that production has
been established in an area that would be west of the one
indicated on the map in the article.

In our conversation, you mentioned that you wondered
about production from the Moenkopi. I have looked into this

Mr. David LeCont Evans

April 6, 1977

Page 2

only briefly. I am enclosing pages from Utah Geological and Mineralogical Survey Bulletin 54, January, 1963, that describes Moenkopi production.

Yours sincerely,

FERGUSON & BOSWORTH



C. B. Edwards

CBE/kmt

enclosures

"The Virgin field, first developed in 1907, is the oldest oil field in Utah. It is located about 1 1/2 miles northeast of the village of Virgin, immediately to the west of Zion National Park. The region is semi-arid and rich in stark desert beauty. Most of the oil production is from shallow wells located in the narrow valley of North Creek, which flows south and empties into the Virgin River. An imposing mesa, capped by the Triassic Shinarump conglomerate, rises to the north and northwest, while another mesa, capped by Quaternary basalt, rises to the east of the field. The Middle Red shale member of the Early Triassic Moenkopi formation forms most of the surface in the area of the Virgin Field, where the average elevation is around 3,625 feet. Oil seeps in the region prompted the first drilling (Figure 99).

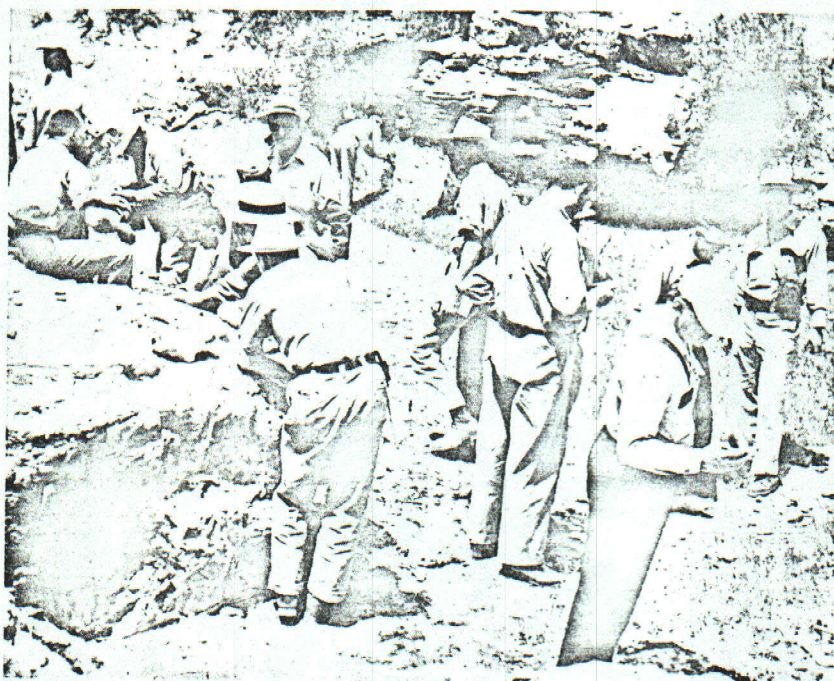


Figure 99. Oil seep in the Timpoweap formation.

"The producing zone is a sandy to pure limestone that ranges between 1 and 8 feet in thickness at the top of the Timpoweap, or Rock Canyon, limestone member of the Moenkopi. The Timpoweap member ranges from 120 to 160 feet in thickness in the area of the field and unconformably overlies the petroliferous Kaibab limestone of Permian age. Both the Timpoweap and the Kaibab are noted for their vuggy porosities. The depth of the producing zone ranges between 475 and 750 feet, depending upon structural position and topography.

"About 140 wells have been drilled at the Virgin field and in the immediate vicinity, mostly to depths of less than 1,000 feet. Only 8 wells are reported to have penetrated below the Timpoweap member into the Kaibab limestone. Numerous oil shows have been encountered in the Kaibab, but there has been no production from it. The deepest test to date is the E. R. Bardwell No. 1 Venton, located in the NW 1/4 SW 1/4 of section 13, T-41-S, R-12-W (Heylman, 1961). It went

to a total depth of 4,538 feet in of Mississippian age. Oil shows being in limestones and sands 3,495 feet. These excellent the testing did not offer any tion. The Bardwell test is the the Pakoon and Callville forma

"The cumulative production at 30 wells have been productive are currently 3 wells in the field. Two of the wells produced with a gravity of 31° A.P.I. No. 3-A, located in the NW 1/4 is capable of producing about with a gravity of 24° A.P.I. presence of two types of oil. It encountered a zone of sulfur vapor topping plant, located in the into fuel oil and diesel fuel, the field has been shut-in during

"A few wells reportedly initial most wells produced much less casing on top of the pay and been shot with nitroglycerine been employed.

"Structurally, the Virgin oil field of a broad, low-relief, anticline (Figure 100). Because of different member of the Moenkopi, the respond to the picture obtained

"There are a number of oil seeps Virgin field is a form of subsurface reservoir pressures have been into the structurally low "porosity and permeability changes local fracture patterns. Another development of porosity and permeability North Creek. Most of the oil to the creek.

"Synclinal oil production is United States and in California eastern Utah is located in a field. Additional shallow oil Utah, with similar structural major oil reserves exist at the possibilities, particularly in wall limestone, must not be

The Moenkopi formation consists principally of thin-bedded reddish siltstones, with a middle marine limestone unit (Sinbad) in the San Rafael Swell and westward. The marine unit wedges out and interfingers with red-bed siltstones along the east edge of the San Rafael Swell. A dolomitic zone, which may represent the Sinbad interval, has been detected in several wells as far east as the Salt Valley anticline. Thickness of the Moenkopi in the Farnham dome area is approximately 543 feet. The Cities Service No. 1 Government well at Grassy Trails (NW NW Sec. 1, T-16-S, R-12-E) and the El Paso No. 1 Pack Saddle well (SE NE Sec. 12, T-18-S, R-12-E), drilled southeast of Farnham dome, encountered the eastern wedge edge of the marine facies of the Moenkopi. Petroliferous beds of calcareous siltstone and limestone interfinger with reddish siltstones in these wells. Cities Service No. 1 Government was completed in September 1961 as an oil discovery (84.5 barrels of oil per day) in the Moenkopi.

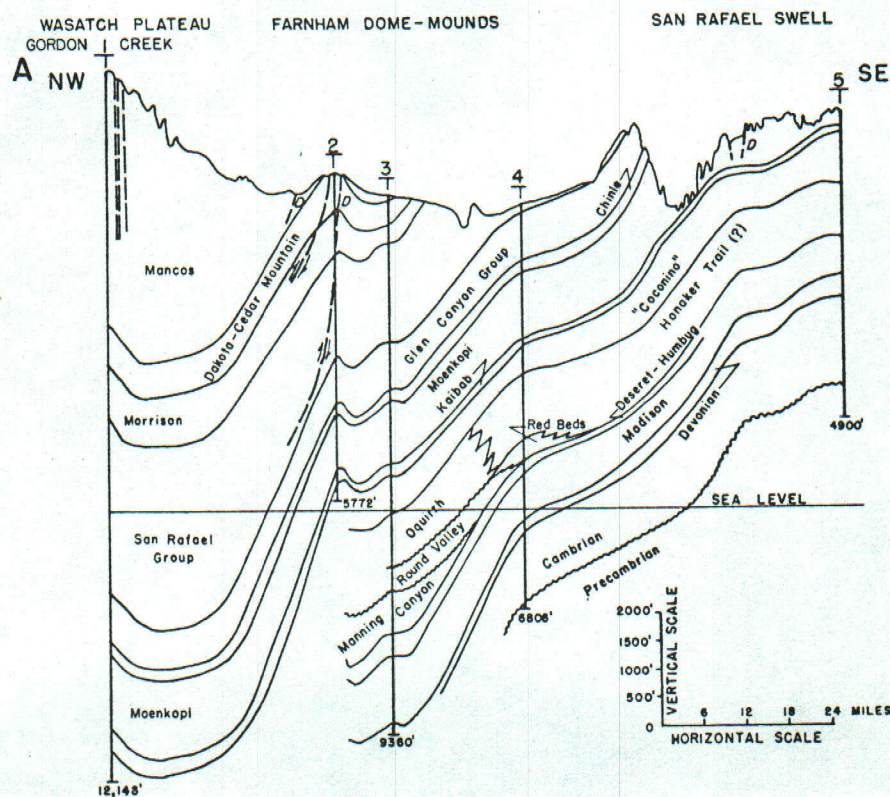


Figure 113. Cross Section A-A'

Rocks in the San Rafael Swell and are now generally mapped as the formation (Stewart and Smith, 1990) in a few localities, but is near the Colorado River and south

The Chinle formation consists of interbedded minor sandstones of fine-grained sandstone and siltstone, and other volcanic material of the Chinle formation are petro

Jurassic rocks include the Glen Rose formation (Stokes, 1962). sandstones of the Entrada and Morrison and the Colorado-Utah boundary, X, Seiber nose, and Cisco Town

Cretaceous rocks exhibit a striking the eastward transition from constantly marine rocks of eastern Cretaceous sediments were derived from western Utah. Thick conglomeratic shales, siltstones, and shales of the Mancos. Sandstone time boundaries upward and retreating eastward across the sea over the Wasatch Plateau have produced a complex assemblage of rocks. A final regression in the bearing sandstone units in the Colorado, and grade stratigraphic Latest Cretaceous and Tertiary of the geology of the Utah Cret

Stratigraphic traps formed by the of lenticular sands, and structural sandstone lenses have been exposed in the Wasatch Plateau of Colorado. Eastward wedging of verde in the Book Cliffs and east discovery of oil and gas.

Tertiary beds are present only in the cussion. They form the Roan Cliffs, and this escarpment Tertiary rocks discussion of the Tertiary rocks discovery of several oil and gas of the Uinta Basin.

Gas Transmission Company at Sorrel Butte in T-29-S, R-12-E late in 1958. Attempts to produce the oil commercially failed.

4. The marine calcareous Sinbad member of the Moenkopi formation in the San Rafael Swell and the Nequoa Arch is oil saturated in most wells. In August 1958 Superior Oil Company recovered live oil from the Moenkopi at Iron Wash in T-24-S, R-13-E, but failed to complete a commercial well because of low pressures and permeability. Cities Service recently completed several oil wells just north of the San Rafael Swell in the Grassy Trail unit. Equity Oil Company also has encountered good shows of oil in the Moenkopi. More favorable porosity and permeability may be present within this widespread petroliferous unit.

5. Petroliferous sandstone facies of the Chinle formation may contain oil, notably in the Nequoa Arch region and on the east flank of the San Rafael Swell. Shows of oil are common in these units when drilled and numerous saturated outcrops have been mapped.

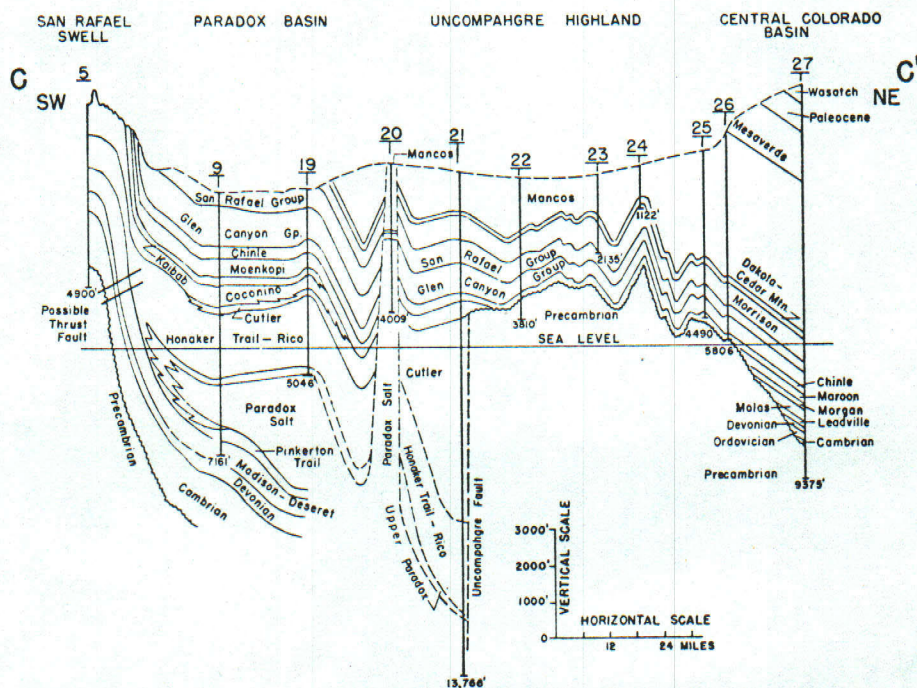


Figure 115. Cross Section C-C'

6. Gas accumulations are possible around the north end of the Uncompahgre, a few miles east of the Bar-X. Gas produced from this rock sequence is abundant.

7. Gas occurs in the Entrada sandstone in the Uncompahgre. Excellent porosity and gas discoveries on the Bar-X, West of the Bar-X, and in the vicinity are low in heat value because the gas is dry.

8. Lenticular sandstone beds within the Uncompahgre, and the Dakota sandstone beds in the Bar-X area.

9. Lenticular units of the Cretaceous in the Uncompahgre, Flat Canyon, and other fields in the Bar-X area, produce commercial gas in other areas, particularly in the San Rafael Swell.

10. Lenticular sandstone units in the Uncompahgre, and gas fields in the southeastern Uinta Basin.

11. Substantial production of oil and gas occurs in the Wasatch group and Glen Canyon in the Uinta and Piceance Creek fields. In the Sunnyside area, in T-13 and T-14, gas is produced from rock units. Many millions of barrels of gas have been produced.

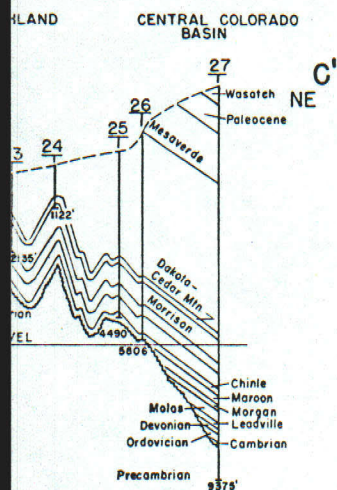
In summary, the following formations are considered to be gas-bearing:

- Tertiary
- Cretaceous
- Jurassic
- Triassic
- Permian
- Mississippian

9-S, R-12-E late in 1958.

Moenkopi formation in the San Rafael Swell. In August 1958 Moenkopi at Iron Wash in a well because of low pressure. Completed several oil wells in the unit. Equity Oil Company Moenkopi. More favorable is widespread petroliferous

tion may contain oil, notably the San Rafael Swell. Shows numerous saturated outcrops



HORIZONTAL SCALE
12 24 MILES

6. Gas accumulations are possible in sandstones of the Glen Canyon group around the north end of the Uncompahgre, as at Garmesa field in western Colorado, a few miles east of the Bar-X area. Nonflammable carbon dioxide gas is produced from this rock sequence at Farnham dome.

7. Gas occurs in the Entrada sandstone in the gentle folded belt around the Uncompahgre. Excellent porosity and permeability is characteristic. Entrada gas discoveries on the Bar-X, Westwater, and San Arroyo Wash structures and vicinity are low in heat value because of contained carbon dioxide, but volumes are large.

8. Lenticular sandstone beds within the Morrison, Burro Canyon-Cedar Mountain formations, and the Dakota sandstone produce gas and oil in numerous small fields in the Bar-X area.

9. Lenticular units of the Cretaceous Ferron sandstone produce gas at Clear Creek, Flat Canyon, and other fields of the Wasatch Plateau and may contain commercial gas in other areas, principally west of Farnham Dome and the San Rafael Swell.

10. Lenticular sandstone units in the Mesaverde group have yielded gas and oil in western Colorado, and gas north of the Book Cliffs in recently developed fields of the southeastern Uinta Basin.

11. Substantial production of oil and gas has been developed in the sandy facies in the Wasatch group and Green River formation north of the Book Cliffs, in the Uinta and Piceance Creek Basins. The bituminous sandstone deposits of the Sunnyside area, in T-13 and 14-S, R-13 and 14-E, are contained in these rock units. Many millions of barrels of oil residue are present.

In summary, the following formations produce oil or gas in east-central Utah:

Tertiary	Green River Wasatch
Cretaceous	Mesaverde Ferron Dakota Buckhorn Cedar Mountain
Jurassic	Morrison Entrada Navajo (carbon dioxide)
Triassic	Moenkopi (Sinbad member)
Permian	Coconino (carbon dioxide)
Mississippian	Undifferentiated

wells were drilled on the sub-thrust anticline. One is producing carbon dioxide and one is a dry Devonian test completed as a carbon dioxide well in the Moenkopi. Non-commercial shows of inflammable gas mixed with carbon dioxide and light oil were encountered in the marine Sinbad member of the Moenkopi formation in most of the wells. Carbon dioxide gas from Farnham dome is piped to a dry ice manufacturing plant in the nearby town of Wellington.

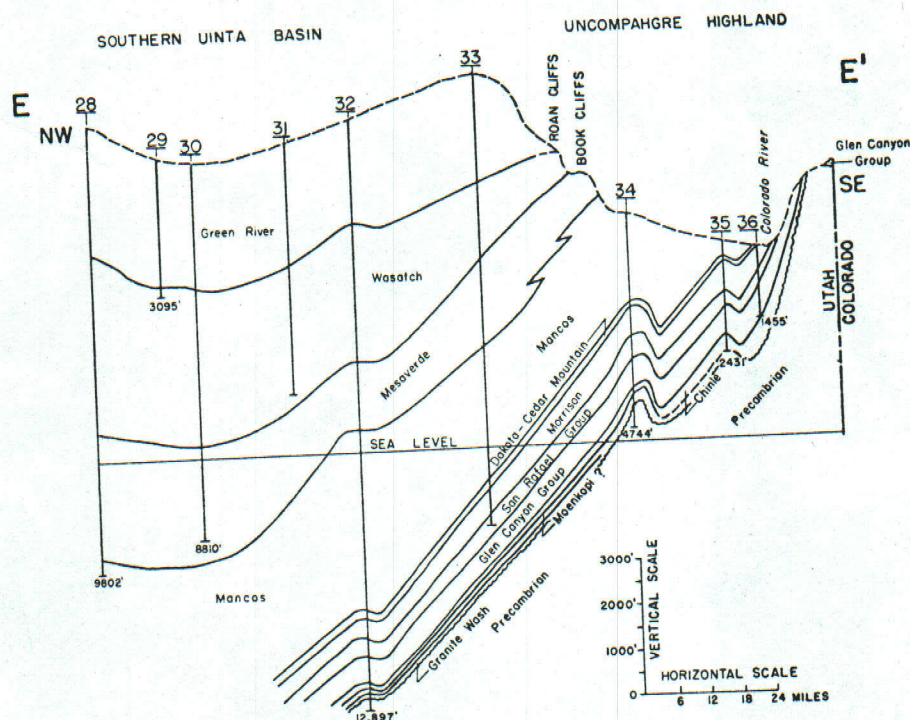


Figure 117. Cross Section E-E'

Mounds Structure: This structure, four miles southeast of Farnham dome, is a faulted anticline discovered by seismic surveys and subsurface well data. Folding occurs beneath an unconformity which appears to separate the Mississippian and Pennsylvanian. Three wells have been drilled. The Equity Oil Company No. 1 Mounds well was drilled to the Cambrian. No encouraging shows of oil or gas were found in the pre-Triassic beds, but the well was temporarily completed as a small gas producer from the marine section of the Triassic Moenkopi formation. The other two wells were drilled to the "Coconino". Encouraging shows of oil and flammable gas were found in the Moenkopi, but attempts to complete the wells as commercial producers failed because of low permeability. All of the wells were eventually plugged and abandoned. Recent successful completions of several oil wells in the Grassy Trail unit, two miles east of Mounds, has revived interest in the Mounds area.

The Farnham dome-Mounds area is a dilleran geosyncline, including the Colorado Plateau shelf on the east. It may have existed here between the part of Pennsylvanian time. Structural facies changes within the tract.

Nequioa Arch: The Nequioa Arch is a fold that extends from the Moenkopi surface folds, such as the Barlow and Little Flat top anticlines, are situated.

The Nequioa arch formed a saddle basin during deposition of the Permian from approximately 5,600 feet to 700 feet on the Nequioa Arch. The arch is thin rapidly toward the southwest wedgeout of individual miles of overlap on the shelf. The lithology of the Paradox formation is limestone, anhydrite, and the upper Paradox only. These anhydrite, and black shales south, and east in the Paradox formation at this locality suggest an environment is often favorable of oil and gas have been encountered in the Paradox formation. Although within the last seven years folded porous beds, stratigraphic unconformities, and up-dip in the Nequioa Arch region.

A thick section of porous anhydrite oil was encountered in the Permian Moonshine Wash No. 1 section was tested and yielded fluid. Several tests of the fluorescence, a few oil spots, Mississippian vuggy and staining, and a trace of live test of this interval yielded to shut off water. Attempts. It is possible that at a higher porosity encountered in this

The prospect for Moenkopi, appears favorable in the Nequioa Arch. The Paradox formation has been productive if areas of favorable structural position.

[illegible]

Ferron--The Ferron anticline, 6 1/2 miles in length, lies between the Wasatch Plateau and the San Rafael Swell. Gas has accumulated in lenticular Ferron sandstones beneath two distinct closures. The field was discovered in 1957 by American Petrofina and English Oil Company. Gas flowed at the rate of 4,700,000 cubic feet per day from 628 to 758 feet. Two additional gas wells have been completed. Development drilling is continuing.

Last Chance Anticline--In 1934 gas was discovered in several fine-grained lenticular sandstones in Sec. 17, T-26-S, R-7-E, in the lower part of the Moenkopi formation. Initial potential in the discovery well was 21,000,000 cubic feet per day of natural gas (840 B.T.U.). Of the seven additional wells drilled on the anticline, three are capable of producing gas. The field is shut in because of lack of market. Production is probably dependent upon the presence of porous sandstone in a favorable structural position. Two of the wells tested the Paleozoic section. The Paradox formation is missing, although more than 800 feet are present 17 miles south on the Caineville anticline. Stratigraphic traps may possibly be associated with the no thward wedgeout of Paradox strata in this vicinity.

Subsidiary Structures of the Uncompahgre Highland: The surface of Grand Valley, from the base of the Book Cliffs southward to the Canyon of the Colorado River is covered with Late Cretaceous marine Mancos shale. The Mancos is underlain by a sequence of dominantly continental strata comprising the Cretaceous Dakota sandstone, the Lower Cretaceous Cedar Mountain formation and Buckhorn conglomerate, and the Upper Jurassic Morrison formation and Entrada sandstone. With the exception of the blanket-type sandstones of the Entrada, these formations consist of porous, lenticular sandstones and conglomerates interbedded with, and often surrounded by, impervious shale. Most of the material is fluvial in origin. Lithology changes abruptly both laterally and vertically. Sand development appears to control oil or gas accumulation more than does structure. Sand lenses of these formations are oil saturated in numerous outcrops along the canyon of the Colorado River, and produce oil and gas in several fields. Studies aimed at delineating areas of maximum porous and permeable sand development should result in the discovery of additional oil and gas reserves. Production from the blanket-type sands of the Entrada is largely confined to structural traps. The typically porous and permeable massive sandstone units of the Glen Canyon group will usually require an anticlinal structure in order to form a trap.

The Triassic Chinle formation rests upon Precambrian crystalline rocks or granite wash over most of the area. Possibly well-sorted granite wash sediments noted in some wells might be potential reservoirs.

Subsidiary structures consist of numerous gentle anticlines and synclines superimposed on the northwestward-plunging anticlinal nose of the Uncompahgre Highland. A brief discussion of developments in some of the local areas of the Uncompahgre Highland follows:

Cisco Dome: Cisco dome is a local closure on a long anticline, which is located on the boundary between the Uncompahgre Highland and the Paradox Basin. Between 1925 and 1929, seventeen wells were drilled on Cisco dome and most produced natural gas from the Dakota and Cedar Mountain formations until about 1936. The gas contained appreciable amounts of distillate and was used for the production of carbon black in a local manufacturing plant. In the early 1930's the U.S. Government halted the exploitation of gas for carbon black. Initial flows

DAILY DRILLING STATUS REPORT

Chadco, Inc. - Brinkerhoff Drilling
Company, Inc., et al
Pennington #22-1
SE NE (1980' FNL, 660' FEL)
Section 22 - T9N-R56E
Nye County, Nevada

Operator: Brinkerhoff Drilling Company, Inc.
Bill Prince, Production Superintendent
Mobil Phone 307-265-4753
(Designation from Chadco, Inc.)
Contractor: Brinkerhoff Drilling Company, Inc.
Lamar Gracie, Toolpusher

2-21-77 Moving in rotary tools.

2-22-77 Rigging up. Waiting on mud pump.

2-23-77 Waiting on mud pump.

2-24-77 Waiting on mud pump. Expect to have pump on location Friday P.M. and to spud Saturday.

2-25-77 Waiting on mud pump.

2-26-77 Waiting on mud pump.

2-27-77 Rigged up. Ready to mix mud at 7:00 A.M.

2-28-77 Drlg. @ 295'. Spud 12:01 P.M. 2-27-77. Drlg 12 $\frac{1}{4}$ ' hole @ 265'. Deviations: 1 $^{\circ}$ @ 67', 3/4 $^{\circ}$ @ 130', 3/4 $^{\circ}$ @ 202', 1 $^{\circ}$ @ 260', 3/4 $^{\circ}$ @ 285'. P.B. No. 1 13 3/4" Hughes RR, 2/12 & 1/20, made 265' in 11 $\frac{1}{4}$ hrs., bit weight 1-2,000#, RPM 60-80, bottom hole assembly - nine 6" drill collars. Pump No. 1 D500, liner 5 $\frac{1}{2}$ x 16, SPM 60, pres. 200. Mud wt. 9.5, vis. 50, wtr. loss 4.8, fc. 1/32nds, ph 9.5, sd. 7%, p. 23, y. 11, sol. 12. 11 $\frac{1}{4}$ hrs. drilling, 2 $\frac{1}{2}$ hrs. surveys, 3 hrs. mixing spud mud, 2 hrs. unplugging kelly, 5 $\frac{1}{4}$ hrs. working on pump guard. Mud cost \$1,607.00.

3-01-77 Nippling up at 385'. Deviations: 1 $^{\circ}$ @ 342', 1 $^{\circ}$ @ 375'. D.B. No. 1 13 3/4" Hughes RR, out @ 385', made 355' in 12 $\frac{1}{2}$ hrs. Bottom hole assembly - same. Pump No. 1 - same. 2 $\frac{1}{2}$ hrs. drilling, 1 hour tripping, 1 hr. surveys, 7 hrs. WOC, 8 hrs. nipping up, 4 hrs. rigging up and running casing, $\frac{1}{2}$ hr. circulating before tripping out. Mud cost - same. Ran 10 jts. 9 5/8", 32.3# H-40 ST & C casing 400' set at 375' cemented with 365 sx Class 'G' cmt. containing 2% CACL & 1#/sack floccle - cemented with no returns. Put 40 sx outside from top. Plug down @ 3:00 P.M. 2-28-77. 500 psi.

3-02-77 Drlg. cmt. inside pipe @ 365'. Depth today - 385'. P.B. No. 2 8 3/4" Reed Y-12, 2/11 & 1/14, drilled plug and cmt. for 4 hrs. Bit weight 10,000#, RPM 50. Will change bottom hole assembly after drilling shoe. Pump No. 1 D500, liner 5 $\frac{1}{2}$ x 16, SPM 40, pres. 1000. Mud wt. 8.5, vis. 32, wtr. loss 16, fc. 1/32nds, ph 10.5, sd. trace, p. 4, y. 1, sol. 2. 9 $\frac{1}{2}$ hrs. nipping up, 1 $\frac{1}{2}$ hrs. pressure test with 1000#, 5 hrs. picking up bottom hole assembly, 8 hrs. working on mud pump.

3-03-77 Drlg. @ 1077'. Deviations: 3/4 $^{\circ}$ @ 563', 1 $^{\circ}$ @ 716', 1 $^{\circ}$ @ 860', 3/4 $^{\circ}$ @ 1008'. D.B. No. 2 8 3/4" Reed Y-12, 2/12 & 1/14, out @ 464', made 418' in 7 hrs. P.B. No. 3 8 3/4" Reed Y-13, 1/13 & 2/14, made 633' in 11 hrs. Bit weight 15,000#, RPM 100, hook load 44,000. Bottom hole assembly: bit, 6 point reamer, short drill collar, stabilizer, 1 drill collar, stabilizer, 11 drill collars. Pump No. 1 D500, liner 5 $\frac{1}{2}$ x 16, SPM 70, pres. 800. Mud wt. 9.0, vis. 34, wtr. loss 18, fc. 2/32nds, sd. 2%, p. 4%, sol. 6%. 11 3/4 hrs. drilling, 6 $\frac{1}{4}$ hrs. drilling cmt. & shoe & work iron, 3 $\frac{1}{2}$ hrs. tripping & change BHA, 2 $\frac{1}{2}$ hrs. survey.

3-04-77 Drlg. @ 1670', sand. Deviations: 1 $\frac{1}{2}$ $^{\circ}$ @ 1228', 2 $^{\circ}$ @ 1409', 2 $^{\circ}$ @ 1500'. D.B. No. 3 8 3/4" Reed Y-13, 2/14 & 1/12, out @ 1500', made 1036' in 21 3/4 hrs. P.B. No. 4 Hughes J22, 8 3/4", 2/14 & 1/12, made 170' in 3 3/4 hrs. Bottom hole assembly: same. Pump No. 1 D500, liner 5 $\frac{1}{2}$ x 16, SPM 70, pres. 800. Mud wt. 9.0, vis 32, wtr. loss 15, fc. 2, ph. 10, sd. trace, p. 5, y. 3, sol. 6. 14 $\frac{1}{2}$ hrs. drilling, 4 3/4 hrs. tripping, 1 hr. survey, $\frac{1}{2}$ hr. service rig, 3 $\frac{1}{4}$ hr. repack swivel.

3-05-77 Drlg. @ 2505'. Deviations: 2 $^{\circ}$ @ 1802', 2 $^{\circ}$ @ 2100', 1 3/4 $^{\circ}$ @ 2407'. P.B. No. 4 8 3/4" Hughes J-22, 2/14 & 1/12, made 1005' in 27 hrs. Bit weight 5 to 10,000, RPM 50, hook load 60,000. Bottom hole assembly: same. Pump No. 1 D500, liner 5 $\frac{1}{2}$ x 16, SPM 70, pres. 900. Mud wt. 9.0, vis. 32, wtr. loss 14.4, fc. 2/32, ph. 9.5, sd. $\frac{1}{2}$, p. 6, y. 4, sol. 6. 22 $\frac{1}{4}$ hrs. drilling, 1 $\frac{1}{2}$ hrs. survey, $\frac{1}{4}$ hr. rig service.

DAILY DRILLING STATUS REPORT

Page 2

Chadco, Inc. - Brinkerhoff Drilling Company, Inc., et al
 Pennington #22-1
 SE NE of Section 22 - T9N-R56E
 Nye County, Nevada

- 3-06-77 Drlg. @ 3069', sand. Deviations: $1\frac{1}{2}^{\circ}$ @ 2709', $1\frac{1}{2}^{\circ}$ @ 3000'. P.B. No. 4, 8 3/4" Hughes J-22, 2/14 & 1/12, made 1569' in 48 3/4 hrs. Bit wt. 25,000#, RPM 50. Bottom hole assembly: same. Pump No. 1 D500, liner 5 1/2 x 16, SPM 70, pres. 900. Mud wt. 9.0, vis. 31, wtr loss 14, fc. 2/32nds, ph. 9.5%, sd. trace, p. 6%, y. 2%, sol. 6%. 21 3/4 hrs. drlg., 1 1/4 hrs. surveys, 1/4 hr. rig service, 3/4 hr. pump repair.
- 3-07-77 Drlg. @ 3515', sand. Deviations: $1\frac{1}{2}^{\circ}$ @ 3343', 1° @ 3460'. P.B. No. 4, 8 3/4" Hughes J-22, 2/14 & 1/12, made 2015' in 70 hrs. Bit wt. 25,000#, RPM 45. Bottom hole assembly: same. Pump - same. SPM 70, pres. 950. Mud wt. 9.0, vis 34, wtr. loss 8.8, fc. 2/32nds, ph. 9%, sd. trace, p. 7%, y. 3%, sol. 6%. 21 1/4 hrs. drlg., 1 1/4 hrs. repairs, 1/2 hr. rig service, 1 hr. circulating for samples @ 3411' (had change in formation - no shows).
- 3-08-77 @ 3562' picking up testtools to run DST #1 from 3450' to 3562'. Deviation: $1\frac{1}{2}^{\circ}$ @ 3562'. D.B. No. 4, 8 3/4" Hughes J-22, 2/14 & 1/12, out @ 3562', made 2062' in 74 3/4 hrs. Bit wt. 25,000#, RPM 45. Bottom hole assembly: same. Pump: same. SPM 70, pres. 950. Mud wt. 9.0, vis. 42, wtr. loss 8.0, fc. 2/32nds, ph. 9%, sd. .25%, p. 16%, y. 14%, sol. 6%. 4 3/4 hrs. drilling, 3 hrs. tripping, 1/4 hr. rig service, 15 hrs. circulating and waiting on tester, 1 hr. picking up tester. Had two or three 1 foot interval drilling breaks between 3450' and 3562'.
- 3-09-77 Drlg. @ 3633', sand. P.B. No. 5, 8 3/4" Hughes J-33, 3/14, made 71' in 6 3/4 hrs. Bit weight 30 to 35,000, RPM 45 to 50, hook load 85,000. Bottom hole assembly: bit, 6 point reamer, short drill collar, 1 stabilizer, 30' drill collar, 1 stabilizer, 16 drill collars. Pump No. 1 D500, liner 5 1/2 x 16, SPM 70, pres. 900. Mud wt. 9.0, vis. 33, wtr. loss 10.0, fc. 2/32nds, ph. 9%, sd. trace, p. 10%, y. 4%, sol. 6%. 6 3/4 hrs. drilling, 4 1/2 hrs. picking up tools and tripping in hole with test, 3 hrs. testing, 5 1/2 hrs. tripping out and loading out tools, 2 1/2 hrs. picking up 5 drill collars, 2 1/2 hrs. tripping in with bit, 1/4 hr. circulating prior to drilling. DST #1: 3450' to 3562'. Open 15 min. - had a fair blow - blew for 12 min. and died. Shut in 75 min. Reopened for 30 min. - no blow. Shut in for 30 min. and pulled tool. Recovered 70' drlg. mud. Later Report: DST #1 (corrected interval from 3447' to 3562'.) IFP 47#, FFP 47#, ISIP 304#, FSIP 351#, IHP 1668#, FHP 1668#.
- 3-10-77 Drlg. @ 3822', sand. Deviation: $1\frac{1}{4}^{\circ}$ @ 3765'. P.B. No. 5, 8 3/4" Hughes J-33, 3/14 made 260' in 23 hrs. Bit wt. 35,000, RPM 60. Bottom hole assembly: same. Pump No.: same. SPM 70, pres. 950. Mud wt. 9.0, vis. 32, wtr. loss 9.0, fc. 2/32nds, ph. 9%, sd. trace, p. 7%, y. 4%, sol. 6%. 16 1/4 hrs. drlg., 3/4 hr. survey, 1/4 hr. rig service, 6 3/4 hrs. working on mud pump. Later Report: Circulating @ 3860' and waiting on tester. Don't expect tester on location until tomorrow A.M. Will then attempt DST #2 from 3750' to 3860'. Had better shows than previously encountered between 3770' and 3830'. Geologist believes we are in second zone of volcanics.
- 3-11-77 @ 3945' tripping out for DST #2 (3765' to 3945'). D.B. No. 5, 8 3/4" Hughes J-33, 3/14, out @ 3945', made 383' in 33 1/2 hrs. Bit wt. 35,000, RPM 60, hook load 86,000. Bottom hole assembly: same. Pump No.: same. SPM 70, pres. 950. Mud wt. 9.0, vis. 40, wtr. loss 7.4, fc. 2/32nds, ph. 8%, sd. trace, p. 10%, y. 5%, sol. 6%. 10 1/2 hrs. drilling, 3 hrs. tripping, 1 hr. survey, 4 hrs. repairs, 1/4 hr. rig service, 5 1/4 hrs. circulating for samples.
- 3-12-77 Drlg. @ 3990'. Deviation: $3/4^{\circ}$ @ 3945'. P.B. No. 5, 8 3/4" Hughes rerun J-33, 3/14, made 428' in 37 1/2 hrs. Bit wt. 30 to 35,000, RPM 50 to 60, hook load 88,000. Bottom hole assembly: same. Pump: same. SPM 70, pres. 950. Mud wt. 9.0, vis. 33, wtr. loss 10.0, fc. 2/32nds, ph. 8.5%, sd. trace, p. 11%, y. 4%, sol. 6%. 4 hrs. drlg., 8 hrs. picking up tools for DST #2, 1/2 hr. circulating, 6 hrs. tripping out, breaking down tools & loading out, 1 hr. adjusting brakes, 3 hrs. tripping in, 1/2 hr. reaming 29' to bottom. DST #2: 3770' to 3945'. Open 15 min., had weak steady blow decreasing to end of period, SI 23 min., open 1 hr., had weak steady blow decreasing to end of period, SI 1 hr. Recovered 150' mud. First chart: IFP 128#, FFP 140#, IFP 128#, FFP 140#, ISIP 1020#, FSIP 1682#, IHP 1912#, FHP 1907#. Second chart: IFP 138#, FFP 157#, IFP 138#, FFP 157#, ISIP 1012#, FSIP 1676#, IHP 1899#, FHP 1893#. Bottom hole temperature: 104°. Had 2200 cc. of drlg. fluid in sample chamber.

DAILY DRILLING STATUS REPORT

Page 3

Chadco, Inc. - Brinkerhoff Drilling Company, Inc., et al
Pennington #22-1
SE NE of Section 22 - T9N-R56E
Nye County, Nevada

- 3-13-77 Drlg. @ 4143', sand. P.B. No. 5, 8 3/4" Hughes J-33, 3/14, made 581' in 49 1/4 hrs. Bit wt. 30 to 35,000, RPM 60. Bottom hole assembly: same. Pump: same. SPM 60, pres. 1000. Mud wt. 9.0, vis. 34, wtr. loss 10.4, fc. 2/32nds, ph. 8.5%, sd. trace, p. 11%, y. 3%, sol. 6%. 11 3/4 hrs. drilling, 1 hr. tripping, 1/4 hr. rig service, 11 hrs. repairing pump.
- 3-14-77 Drlg. @ 4440'. D.B. No. 5, 8 3/4" Hughes J-33, 3/14, out @ 4412', made 850' in 63 hrs. P.B. No. 6, 8 3/4" Security S-86, 3/14, made 28' 2 1/2 hrs. Bit wt. 35,000, RPM 75. Bottom hole assembly: same. Pump: same. SPM 52, pres. 500. Mud wt. 9.3, vis. 34, wtr. loss 10.0, fc. 2/32nds, ph. 9%, sd. 1/4%, p. 13%, y. 3%, sol. 8%. 16 1/4 hrs. drilling, 6 1/2 hrs. tripping, 3/4 hrs. surveys, 1/4 hr. rig service, 1/4 hr. washing and reaming 15' to bottom. Deviation: 3/4° @ 4412'.
- 3-15-77 Circulating for logs @ 4838'. D.B. No. 6, 8 3/4" Security S-86, 3/14, out @ 4838', made 426' in 23 1/4 hrs. Bit wt. 35,000, RPM 80. Bottom hole assembly: same. Pump: same. SPM 52, pres. 500. Mud wt. 9.2, vis. 40, wtr. loss 8.8, fc. 2/32nds, ph. 8.5%, sd. 1/4%, p. 12%, y. 4%, sol. 7%. 21 hrs. drilling, 1/4 hr. rig service, 1 3/4 hrs. cleaning mud tanks and mixing new mud, 1 hr. circulating for logs.
- 3-16-77 TD 4840'. Plugging and laying down pipe. Deviation: 1/2° @ 4840'. 7 3/4 hrs. tripping, 1/4 hr. rig service, 6 hrs. logging, 2 hrs. laying down collars and bottom hole assembly, 2 1/2 hrs. circulating and waiting on cementers, 5 1/2 hrs. plugging and laying down pipe.
- 3-17-77 Plugged as follows per U.S.G.S.:
50 sx from 3400' to 3450'
50 sx from 1900' to 2000'
50 sx from 335' to 435'
15 sx at top of surface
(Received permission from Dan Russel, U.S.G.S. in Los Angeles, California, at 1:00 A.M. 3-16-77 to P & A as stated above). Disassembled BOP equipment, cut off well head, put 15 sx plug in top of surface casing, cleaned mud tanks, and released rig at 9:00 P.M. 3-16-77. FINAL REPORT.

DAVID LE COUNT EVANS
CONSULTING GEOLOGIST
1700 ROYAL DRIVE
TELEPHONE (702) 747-4101
RENO, NEVADA 89503

May 28, 1977

Mr. Charles B. Edwards,
Exploration Department,
Ferguson, Bosworth and Assoc.,
P.O. Bin 2427,
Bakersfield, California 93303.

Dear Chuck:

Under separate cover I am mailing, today, the Reporter's Transcript of the May 3d hearing, held in Carson City to consider Northwest Exploration's petition to develop the Trap Springs field on 160-acre spacing.

Yesterday afternoon was spent in reviewing the many pages. Be assured that I was somewhat appalled at the clumsiness of the writer. Of course, none of this represented a Prepared Statement. All was "off the cuff" and, as for D.L. Evans, he expresses regret. Would that such a document could be proof-read for purposes of editing the English.

Throughout my several appearances my main intents were to:

- (1) point out the misconceptions which come from projections of mixed data to a single line of section;
- (2) suggest that fracturing was the important control and that an understanding of its regional distribution could not be had from 160 acre locations;
- (3) Eagle Springs indicated that 40 acre locations did not jeopardize off-set production, while at the same time providing detail for new locations;
- (4) wells should be carefully completed above the zone of water saturation;
- (5) question their use of an 8% recovery factor as too low; a low factor was the backbone of Northwest's calculations to show that it would lose money on 40 acre locations;
- (6) get Northwest to provide a recovery figure in barrels per acre, which they estimated at 1853, and then point out that in Eagle Springs, 12,813 barrels per acre were recovered in the NW/4 of 35.

- 7) express disbelief that the field could be delineated with ease (the proposed policy and hope of all Federal agencies) before filling-in with any sort of spacing;
- 8) criticize the stipulations in the 1954 Rules and Regulations, allowing the retention of all information until six months after completion of the last well in a series of tests.

The Transcript is bulky but well worth the effort of reading. My feeling is that this hearing, as well as the USGS earlier expression, favoring 40 acres, will have its effect.

The opportunity of being of help has been greatly appreciated.

With best regards and very truly,

David LeCount Evans

March 25, 1977

Dear Ben:

The enclosures are self explanatory; under separate cover, too, please anticipate the recent release on Majuba Hill.

We got back here Wednesday noon; both of us were worn out and did not start our recovery until yesterday; now, at this later date, both of us appear to be back in shape. I have reached that age where conventions are a pleasant curse. I can't stand too many of them. Feelings have not been helped, since yesterday I attended an afternoon meeting of some 200 souls, discussing with the Bureau of Land Management its regulations which are to be applied to mining on Federal lands. It is a disconcerting and frightening picture.

The receipts, of which you sent on the two copies are only an acknowledgement that you have paid for the two lease blocks. The payments are advance payments for the first year's lease, and will be dated from the time such leases are approved. In view of the amount of leases that have been applied for, the chances are that we will not know where we stand for about two months. In view of the fact that our oil 'offers to lease', over lie, geothermal leases, already approved, BLM and the USGS will have to approve the dual picture. From what I gathered from Bob Webb, BLM's Chief Geologist, the chances are good that they will. I'll put these copies in my safe, you keep the original, and in case of any disaster we will end up with the proof.

As of March 15, I am free of the the Commission, and can do as I please; note from the enclosure that I have solicited Brother Edwards for what information he might have. Too, I have immediately contacted Bill Pennington; he needs some help and perhaps I can make an arrangement of some sort. Bill is a typical Mid*Continent oil man; his father for years was in charge of Alf Langdon's oil program; we speak the same language and get along well.

Chuck Edward's has an hard decision to make; Ferguson and Bosworth's first test was to offset Pennington's test. The location in section 15 now appears dubious; they have a six month commitment or lose the lease. However, with Texaco moving right along, Texaco results might help in the decision, before the expiration date.

As for future plans on Dixie Valley, I have a list of some ten possibilities that might be interested, but will hold back until I can get the details I have asked him for, so that exploration 'guesses' can be adjusted. The ten cover parties in Kansas, Tulsa, Houston, San Francisco and Nevada.

As for Majuba, tried to reach Charles Oxnam last night but he was not available; He will call me sometime today.

In the same connection, at the Tahoe meeting we had many delightful sessions with our old friend Vincent Gianella, now 91+, who is still as active as a young man of 70. Vince, back in 1940 co-authored the USGS study of Majuba with Ward Smith; Ward did not give it the time of day, but Vince did. He continues to look well on Majuba, and we will be going out there together sometime in April, to look it over together.

The new Bulletin by Bruce MacKenzie is a work of art. The maps are beautiful, and the report does not condemn the property at all. Our viewpoints continue to differ slightly; Bruce still looks at it as a large low grade possibilities, and the stress is placed on the petrography and the intrusive sequences (some of which are metal bearing and others of which are not) I go along with that but also believe that the structure is the guide to the 'goodies', and feel that there is too little thought given to structure in the report.

In the years we have been after the elusive subject of Geology, this Majuba is the one property that no one has been able to kill; the same might be said for the copper in Dixie Valley, which still sits there.

The categoric statement above might be modified. Years ago, in 1930 we struggled all summer with a new shaft and shallow workings on a prospect called Sonora Hill; it was tantalizing, one of those up a ain down again prospects; it was shelved for awhile, but today is the center of Cananea's ore future with enough low grade developed to assure some 100 years of future life.

Will keep in touch with you and once we have the desk cleaned off, start putting together the Dixie Valley picture and some format for future approach.

Hope that Alta is now back in shape. Tell her that we feel for her. I have had an upper plate now for a year, and never did enjoy the experience but it has done wonders healthwise.

Kitty joins me in the very best.

Taffy.

March 25, 1977

Mr. Charles B. Edwards,
Exploration Department,
Ferguson, Bosworth and Assoc.,
P.O. Bin 2427,
Bakersfield, California 93303.

Dear Chuck:

We returned from the Pacific Southwest Minerals Conference at Tahoe in fair shape and now turn to things left undone, ie: many letters.

Your visit with us on the 17th has not been forgotten. I can't say that I helped you too much, but perhaps in the meantime you have assembled other information that might take some of the pain out of Bill Pennington's recent dry hole in section 22.

I talked with Bill this morning and summarize his comments as follows:

- 1- the hole had absolutely nothing in it; no noticeable fracturing and no oil at all; after Northwest's #4 (north of the discovery well), he now thinks that it all adds up; their #4 had oil in only one zone (10 to 12 feet of fracturing) and is a disappointing completion.
- 2- the Pennington well seems to have had an abnormal thickness of volcanics; he talked in terms of about 1100 feet.
- 3- Northwest's discovery well is making more water; currently about 8%.
- 4- Texaco is moving in on the Chadco farmout in section 31, and will be drilling 4 tests in that area to the north.
- 5- Northwest has been geophysically concentrating on the east side of the valley, north and south of the old field. NW approached Bill for purposes of acquiring his interests in the Texaco area to the north. He did not rise to the fly.
- 6- Bill reports that when Texaco assembled its large block it was reported to be structurally high. A year ago he agreed with me that Stratigraphic trapping might also been another reason for Texaco interest.

As you are probably aware, Northwest will be discussing spacing with the Commission and the USGS in the near future. NW will be presenting the usual request for 160 acre spacing; something, in view of the developing uncertainties, which appears unreasonable.

My resignation from the Commission has been accepted by the Governor. Because of my interest in Nevada oil exploration my position was delicate; had an understanding letter from the Governor, and now feel much better about the situation.

Without any details re: Northwests burgeoning results, it has become impossible to add to maps and try and outguess Mother Nature. I do feel that there must be a system to the field; either a pure and simple fracture trend, an indicated stratigraphic trap control or a combination of the two.

If you have anything from your recent efforts in the nature of formational tops, collar elevations, drill stem results, or just pure 'scuttle but' and if it can be shared (if not forgive the suggestion) I would like to put it all together.

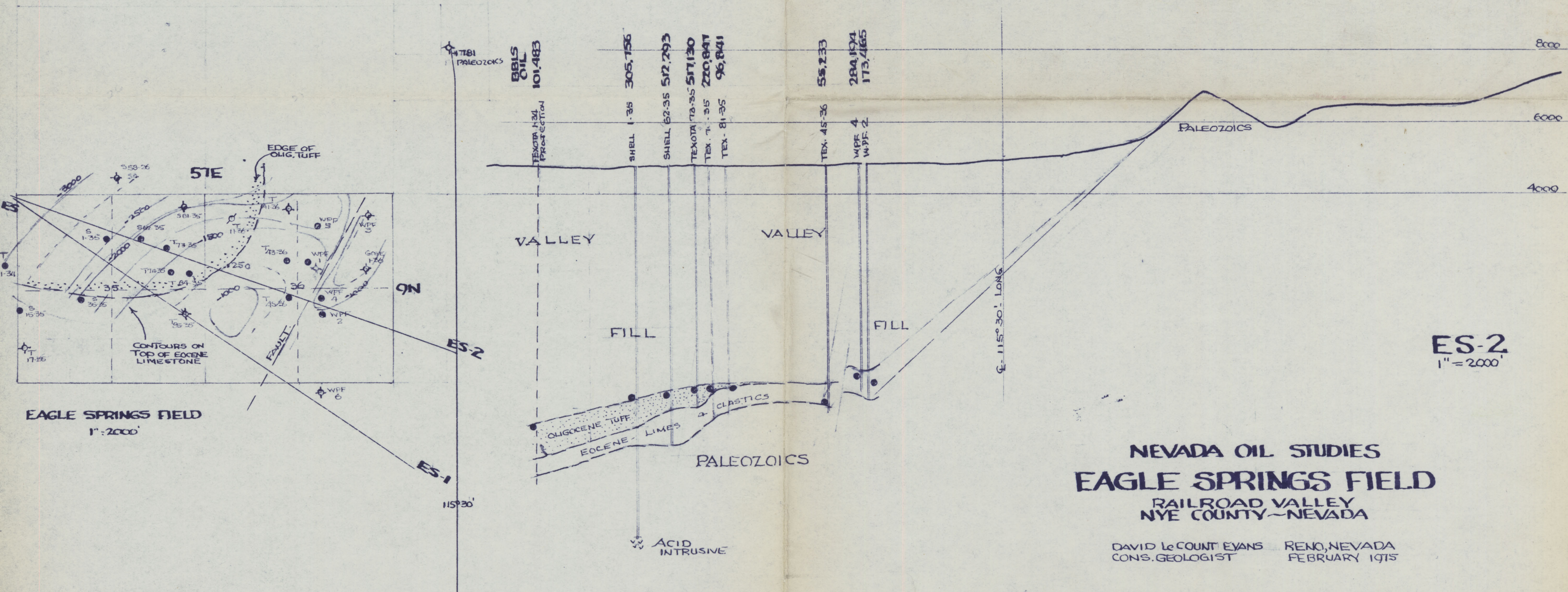
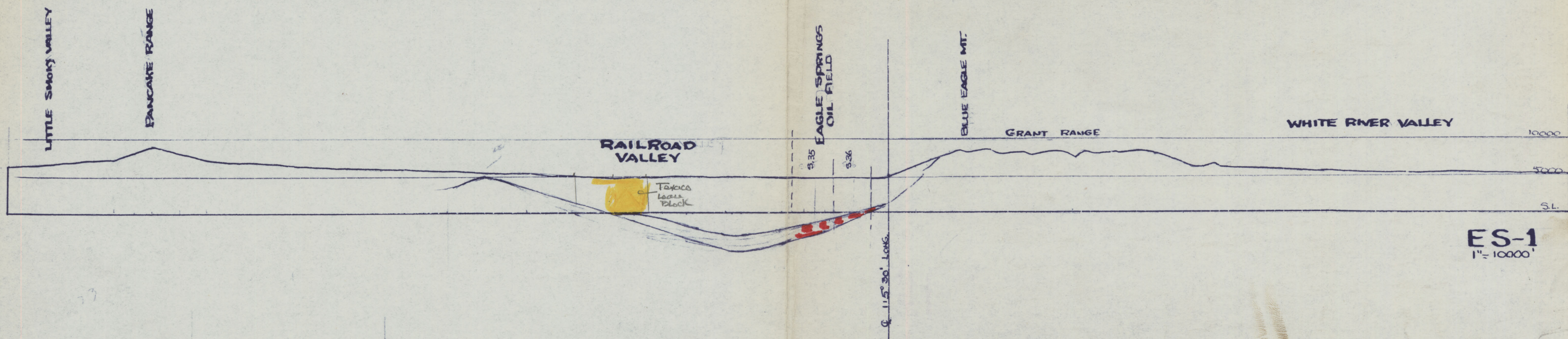
That, with Texaco's pending results, might provide the answers.

Kitty and I enjoyed your visit so very much. She joins me in the best of regards;

Sincerely,

David LeCount Evans

cc: Mr. Benj. C. Charles



NEVADA OIL STUDIES EAGLE SPRINGS FIELD RAILROAD VALLEY NYE COUNTY-NEVADA

DAVID LeCOURT EVANS RENO, NEVADA
CONS. GEOLOGIST FEBRUARY 1915

0130 0126