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AN ELECTRICAL RESISTIVITY SURVEY OF THE COLADO HOT SPRINGS PROSPECT, PERSHING COUNTY, NEVADA

VOLUME I

SUBMITTED TO

GETTY OIL COMPANY

BY

ELECTRODYNE SURVEYS

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ABSTRACT

Electrical resistivity, gravity, and magnetic reconnaissance surveys followed by electrical resistivity detailing surveys were performed to find anomalous areas that may be coincident with geothermal zones or cells at depth in the Colado Hot Springs Prospect. The reconnaissance electrical resistivity methods used were scalar AMT-MT soundings, roving vector telluric soundings, and end-on-end telluric profiles. The detailing electrical resistivity methods used were dc electrical resistivity soundings and profiles and time domain electric field and magnetic field soundings. The areal extent surveyed in the prospect was approximately 100 square miles.

Six anomalous areas were found in the prospect that have the structural and resistivity parameter indications that link them to probable geothermal zones at depth. These areas are indicated on Plates V and VI. They vary in areal extent from 2 to 4 square miles.

Area 2 is a fault controlled feature. All other areas are out in the valley floor and the tops of the anomalous zones appear to be located between 4,000 feet and 6,000 feet of depth in the geologic section. The thickness of the zones is interpreted to range from 1,500 feet to 3,000 feet. The electrical resistivity survey data gives a strong indication that the anomalous areas are interconnected by a geothermal plumbing system at depth in the section.

A recommended temperature gradient test hole program is described starting with Areas 1 and 2, Plate VI. Continuation of the program into the other geothermal areas is dependent on the results of the tests in Areas 1 and 2.

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INTRODUCTION

An electrical resistivity survey was conducted in the Colado Hot Springs Prospect, Pershing County, Nevada, during the months of July, October, and November, 1977 for the Getty Oil Company of Bakersfield, California by Electrodyne Surveys of Sparks, Nevada. This survey and an associated gravity and magnetics survey covered approximately 100 square miles in an area centered about Colado, Nevada, which is located 7 miles northeast of Lovelock, Nevada. Plates I, II, and III show the areal coverage performed by the reconnaissance and detailed electrical resistivity surveys and by the gravity and magnetic survey of the prospect.

The prospect surveys were performed in two parts. One part was a reconnaissance survey which included the use of scalar magnetotelluric (MT) and audio magnetotelluric (AMT) measurements, roving vector telluric measurements, and telluric profiling (Plate I) and associated gravity and magnetic surveys (Plate III) to discover the following:

(1) The structural control in the prospect that could indicate the possible location of geothermal cells or zones at depth in the geologic section.

(2) Anomalous low apparent resistivity value zones that could indicate the possibility of geothermal reservoirs, especially those associated with the determined structural control. and

(3) Areas indicating large apparent resistivity value contrasts which might correspond with structural features and which might also delineate the lateral extent of the geothermal cells.

The electrical resistivity reconnaissance surveys included 31 MT-AMT soundings, 17 roving vector telluric soundings (associated with 4 vector telluric base stations) and a total of 231 end-on-end telluric measurements made along telluric profiles. Description of the field operation, data reduction and analysis of these reconnaissance techniques and the data for this survey are given in Volume II of this report. The composite results and interpretation for the 14 Hz Schumann Band frequency and the 0.03-0.05 Hz telluric frequency band are given on Plates VII and VIII respectively.

In conjunction with the reconnaissance electrical resistivity survey, Lanton Survey Company of Vallejo, California performed data acquisition of 423 locations along profiles in the gravity and magnetic measurements at locations along profiles in the prospect as shown in Plate III. Electrodyne Surveys performed second derivative reduction from these data, and the interpretation of the structural aspects of this prospect as shown by these data is given on Plate XIII. This interpretation is combined with the electrical resistivity interpretation on Plate V. The survey data acquired by the Lanton Survey Company have been forwarded to the Getty Oil company under separate cover.

The reconnaissance electrical resistivity survey was followed by detailed electrical resistivity surveys located as shown on Plate II. The detailing surveys were performed to give a better quantitative measure of the electrical resistivity distribution as a function of depth and similarly to give a better quantitative determination of lateral limits of anomalous areas than those presented by the reconnaissance surveys. The electrical resistivity detailing surveys included 11 (dc) galvanic electrical resistivity (ER) soundings, 156 dc electrical-field measurements along profiles parallel to dc sources, 7 time-domain electromagnetic (TDEM) electric field soundings, and 8 combined electric field and magnetic field TDEM soundings. (See Plate II). The interpretative results of the detailed surveys are given in Plates IX, X, and XI. These results are incorporated in the composite interpretations given in Plates IV and V. Description of the field operation, data reduction and analysis of the detailing techniques and the data for this survey are given in Volume II of this report.

GEOLOGY

To the best of our knowledge there has been no surface geologic mapping of the Colado Hot Springs Prospect area published. We highly recommend that such survey mapping be performed by Getty and others that have a continuing interest in the prospect area.

The western two-thirds of the prospect area is a valley covered by eolian deposits which probably thin out to reveal Lake Lahontan silt and sand deposits, which in turn thin out to reveal fanglomerates along the Humboldt Range foothills in the eastern one-third of the prospect. The approximate location of the valley-foothills contact is indicated on Plate VI.

There is evidence of extensive hydrothermal alteration and mineralization in the foothills in Sections 25, 26, 35, and 36 T28N,R32E and Sections 2, 11, and 12 T27N,R32E. There are probably other areas that are not as clearly visible as the above mentioned areas. There appears to be evidence of both basic and acidic intrusives, as well as almost every type of sedimentary deposit exposed in the foothills, at least in the part traversed by Electrodyne's field crews. Also, evidence of folding, faulting, and metamorphism was found throughout the foothills in the prospect.

Structurally, several northeast trending faults (the predominant structural trend) cut the Humboldt Range in the prospect. At almost 90 degrees to this predominant trend, there is evidence in the foothills of cross faults trending to the northwest. Tufa deposits found in the valley floor trend in these two predominant directions.

Aside from the tufa found in the valley and the alteration and mineralization seen in the foothills, the anomalous temperature gradients found in the Section 26, T 28N,R32E attest to the fact that anomalous heat exists in the upper crust section of the prospect area.

MAJOR FINDINGS OF THE SURVEYS

There are a number of subsurface geophysical findings that suggest many areas of the Colado Hot Springs Prospect show promise of geothermal possibilities. The major findings are as follows:

BS 1. The major northeast and northwest fault trends seen in the Humboldt Range are also evident in the subsurface geophysical measurements. (See Plate IV). Such a cross-faulted subsurface picture indicates a very positive suggestion that geothermal cells or zones may exist in the geologic section.

2. Many areas within the prospect indicate anomalously low apparent resistivity values (less than 3 ohm-meters) at depth within the geologic section. (See Plates X and XI).

BS 3. There is good correspondence between anomalous low apparent resistivity value areas and areas showing cross faults.

4. The thickness of the apparent low resistivity value zones is interpreted to vary between 1,500 and 2,500 feet in the valley west of the foothills.

5. The depth to the possible geothermal zones is interpreted to vary from 4,000 to 7,000 feet. (See Plate V).

6. The gravity high areas (Plate XIII) and the resistivity high areas (Plates VII and VIII) in the northern and northeastern parts of the prospect qualitatively coincide. These areas may be areas of anomalous heat sources.

7. The fault area (Area 2 on Plate V) in the Humboldt Range foothills shows considerable promise based upon the electrical resistivity measurements.

8. We have chosen six areas to be tested for confirmation as to good geothermal prospects by thermal gradient measurements. These areas are outlined on Plate V. There is a strong suggestion in the geophysical results that indicates that these six areas are interconnected in the subsurface.

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RECOMMENDED THERMAL GRADIENT TEST HOLE PROGRAM

Six areas are recommended for thermal gradient (T.G.) test holes to confirm or reject the geophysical survey findings. (See Plate V). We strongly urge that both Areas 1 and 2 be tested before a negative conclusion is reached. If a positive conclusion is reached for Area 1, we recommend continuation of testing to include tests in Areas 3, 4, 5, and 6. Finally, we recommend re-evaluation of the geophysical survey interpretation after the T.G. tests are complete and before deep drill tests are performed.

The recommended plan for T.G. holes for testing Areas 1 and 3-6 are as shown on Plate VI for Area 1. In Area 1, three initial holes are located near the expected conductive-resistive contact (at depth) on the conductive side (within the anomalous area) of the contact. The initial hole locations should give the maximum T.G. response without worry of drilling out of the anomalous area at depth (that is, into the resistive side of the contact).

Given positive results from one or more of these initial T.G. test holes, a step-out test hole to the A location from each successful initial hole should be done to better quantify the geothermal zone contact.

For initial T.G. test holes that prove unsuccessful or questionable, a step-out test-hole to the B location should be done to establish the validity, or lack thereof, of the geophysical anomaly.

Any additional T.G. holes should be added on the basis that preceding T.G. hole findings dictate.

Area 2 requires a different T.G. hole program than above. Three initial holes are located in sub-areas of Area 2 where we believe the maximum areal extent of the anomaly falls in Getty's proposed or possible land aquisition. We believe that the results of T.G. test holes in Section 36, T28N,R32E, Section 12, T27N,R32E, and Section 18, T27N,R33E will be positive. We believe there is a probability of positive results from T.G. test holes in Sections 2 and 14, T27N,R32E and Section 6, T27N,R33E if the initial test holes prove to have positive results.

Additional T.G. test holes after these should be added to establish the breadth of the geothermal anomaly. It is quite difficult to define the lateral limits of an electrical resistivity anomaly of this type. The "state of the art" in electrical geophysical methods today only locates fracture dominated systems; they do not necessarily give a quantitative outline of the feature causing the anomaly. ?

As we have discussed, the best T.G. program will evolve with a geologist on site at the time of the drilling and at the time of the T.G. measurements so that the decision as to the best plan to be followed evolves as the drilling and testing proceeds.

Further, as has been discussed, Getty's maximum test hole depth will be limited to 500 feet. A possible cap rock problem (that is, insufficient drilling depth for testing) might be expected in Areas 3 and 5. Also, one should investigate the shape of the temperature gradient logs as a function of depth to prevent overestimating geothermal possibilities from such shallow tests.

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DETAILED FINDINGS OF THE SURVEY

There are a number of subsurface geophysical findings which suggest that many areas of the Colado Hot Springs Prospect show promise of geothermal possibilities. These findings are as follows:

1. The two major fault trends, that is the northeast trends and northwest trends, are indicated to be predominant in the valley as well as seen exposed in the Humboldt Range foothills. (See Plate IV). These trends are evidenced by all geophysical surveys in areas of a high spatial density of measurements. (Compare Plates IV, VII, VIII, IX, and XIII).

2. The northeast trending apparent fault features (shown by closely spaced contour areas) appear to be normal fault features with dip toward the basin or graben center. (Compare Plates VII and VIII). Penetration into the geologic section is much deeper in measurements shown on Plate VIII than on Plate VII.

3. The northwest trending apparent fault features appear to be strike-slip and/or rotating block-type faulting. This is best shown on Plate IX. This type of faulting is expected in a spreading graben development.

4. There are areas showing coincidence of subsurface apparent density highs and subsurface apparent resistivity value highs. Compare Plate IV to Plates VII, VIII, and IX. The areas showing coincidence could indicate locations of buried intrusives, therefore possibly areas of anomalous heat.

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5. There are areas showing coincidence of subsurface apparent density lows and subsurface apparent resistivity value lows. Compare Plate IV to Plates VII, VIII, and IX. The areas showing coincidence indicate possible locations of geothermal zones at depth in the geologic section.

6. The simple Bouguer gravity map suggests that the maximum depth to dense basement is about 7,000 feet in the central part of the basin. (See Plate XII). Such a depth estimate forecasts reasonable depth of drilling to geothermal targets.

7. The electric field TDEM depth estimates to the top of the low resistivity zone at depth (Plate XI) are <u>increased</u> by a 50 percent factor and shown on Plate V for the anomalous areas. This is the overburden thickness. (The depth estimates from TDEM soundings are more correct than estimates from TDEM magnetic field measurements or from MT measurements; but they are always equal to or less than true depths). The overburden thickness is estimated to vary from 4,000 feet near the foothills to 7,000 feet near the valley center.

8. The dc electrical resistivity sounding estimates of depth to electrical basement varies from 5,500 feet near the foothills to 10,000 feet at the valley center. These estimates forecast an apparent geothermal zone that varies from 1,500 feet near the foothills to 3,000 feet in the valley center.

9. The apparent resistivity values at depths of the probable geothermal zones in the southern parts of the prospect are equal to or less than 3 ohm-meters. These are certainly very low apparent resistivity values for such depths. (See Plates V, IX, X, and XI).

10. The depths and lateral limits of possible geothermal

zones in the northern part of the prospect are more difficult to predict on the basis of the electrical resistivity surveys. One reason for this is that the upper section apparent resistivities are higher in this area. (See Plate X). (The uniform magnetic intensity values in this area, Plate XIV, may reflect extensive recent near-surface flows over the area). The surface expression of the Humboldt River and the gravity and electrical resistivity surveys in this area indicate a higher degree of complexity in the northern and western parts of the prospect than in the southern and western parts of the prospect. (Plate V).

11. The evidence of gravity, resistivity value, and magnetic field highs and lows to the north of the prospect indicate a very good probability of anomalous heat source in that area.

12. The promising anomalous Areas 4 and 6 (Plate V) in the southwestern part of the prospect are not closed to the south and west. Additional geophysical investigations should be considered if initial temperature gradient tests indicate a promising area.

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DISCUSSION OF THE PLATES

Because the interpretation of a number of electrical geophysical method surveys, Plates VII-XI, and the gravity and magnetic surveys, Plates XII-XIV, are integrated into two composite interpretation maps; one for interpretation of geologic structure and one for interpretation of geometric and resistivity parameter description of anomalous zones at depth; a brief description of each Plate is provided.

Plate I -- Scalar MT-AMT, Vector Telluric and Telluric Profile Location Map.

The most effective reconnaissance electrical resistivity surveys are obtained from continuous profile coverage across the prospect. The profiles are normally directed perpendicular to the regional trend of the geologic structure in the area. The interpretation objective of the reconnaissance surveys is qualitative delineation of areas that show large contrasts in resistivity value, both at depth below and laterally along and across the profiles. The areas showing very low resistivity values, about 1.0 to 3.0 ohm-meters, are the areas of primary interest. The areas showing large contrasts only, are also of interest. These are of interest because the depth of penetration of P_c magnetotelluric (and telluric) electromagnetic reconnaissance data may extend deep into the electrical basement and the apparent resistivity values determined will tend to reflect resistivity values of the basement rock rather than resistivity values of the conductive section above basement.

The cultural features (such as 60 Hz power lines) at and near the highway and Humboldt River; plus the limited access

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in the area (BLM and privately owned land) prevented the continuous profile approach to be utilized in the central part of the prospect. Similarly, land access (BLM lands) and the highly variable topography in the Humboldt Range foothills prevented the continuous profile approach in the eastern part of the prospect.

As shown on Plate I, continuous profiles were made across areas of unlimited access. Continuity of information across areas of limited access was provided by scalar MT-AMT and vector telluric measurements. Additional measurements of all types, chosen on the most applicable method basis as features of interest were detected during progress of the reconnaissance survey. The vector telluric and/or scalar MT-AMT measurements were also used to intertie telluric profiles.

Plate II -- DC Electrical Resistivity Sounding and Profiling Location and Time Domain Electromagnetic Sounding Location Map.

The areas of interest shown by the reconnaissance surveys (Plates VII, VIII, XIII, and XIV) were as follows:

a) One to two miles on either side of the Coal Canyon road, in the Humboldt Range foothills.
b) Several Sections south and southwest of Sections 26 and 27, T28N,R32E, in the area bounded by the foothills to the East and the Humboldt River to the West. The survey did not reach the southern boundary of anomalous areas.
c) The Sections bounded by the Humboldt River on the West and Sections 24, 25, and 26, T28N,R32E on the East.
d) The area about 4 miles NNE of Lovelock and west of the Humboldt River.

(See the preliminary Electrodyne Surveys report for detail of the reconnaissance survey indications).

The various detailing electrical geophysical methods are discussed in the Appendices, Volume II. The purpose of the

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detailing surveys are to quantify the geometric limits and the resistivity parameter definition of anomalous conductive zones in the prospect and to mute consideration of areas that were indicated promising by the reconnaissance, but found questionable by the detailing surveys.

Plate III -- Gravity and Magnetic Survey Station Location Map

The location of gravity and magnetic stations was faced by the same access problems that the location of electrical survey sites was faced with. Further, location of gravity and magnetic stations in many areas was limited because of access washout problems by heavy rain storms during much of this survey phase.

Plate IV -- Structural Interpretation Map

Reference in other parts of the text are made to the close correlation between apparent structural trends and possible faults as interpreted by the 2nd derivative gravity map, Plate XIII and the electrical resistivity maps, Plates VIII, IX, X, and XI. At first consideration of Plate IV, this may not be evident. Therefore, the statement is qualified as follows:

1) The depth of penetration by the various electrical resistivity methods, as well as any one method type survey over a prospect is highly variable. Therefore, coincidence of interpreted features should not necessarily be expected.

If interpretation is correct all techniques w/similar parameters agree

2) The resistivity parameter and density parameter definition are not necessarily expected to interpret coincidence of features. Most of the electrical resistivity surveys penetrate to depth above basement where large parameter contrasts are not well established or lateral changes detected may be related to lithofacie contrasts rather than structural contrasts. The gravity survey variations detected are thought to reflect variations in structure of the basement surface.

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The P_c scalar MT data reflects penetration well into the basement as well as indicating features above basement. Therefore, these measurements present a composite indication of the above survey indications.

3) Not all of the lines from the gravity map, Plate XIII, suggesting faults are expected to indicate fault locations. Many of these reflect anomalous character and trends of structure rather than giving conclusive evidence that structure exists at the locations or is as extensive as indicated.

why show misleading info?

In summary, Plate IV is interpreted to show that the very complex structural picture shown by the 2^{nd} derivative gravity map reduces to two major structural trends, NE and NW in direction. Further, we suggest that if drilling tests should find anomalous geothermal character in the geologic section, that one could assume (therefore continue testing) on the basis that extention of anomalies will be in the SW-NE and/or SE-NW directions.

2nd Der. approach not valid based upon present coverage

Plate V -- Anomalous Low Resistivity Value Areas Map

Self-Explanatory

Plate VI -- Proposed Temperature Gradient Drill Test Program Map

The drill location sites are chosen to test the interpreted boundaries of the anomalous low resistivity anomalies. If the drill tests indicate that the resistivity anomalies are associated with geothermal occurrences, the true lateral boundaries of the zones should provide the shallowest drilling locations for the highest water temperatures (steam?).

Plate VII -- 14 Hz Normalized Apparent Resistivity Reconnaissance Map

Plate VII & VIII have numerous contour errors, data plotted is different than results shown in table 4 vol II in many loc's data was omitted yet results are contoured & interpreted.

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This map is used to discover areas of large contrasts in resistivity alone. These contrasts would be located within the first 1,000 feet of the geologic sections in most of the prospect. The normalized values are meaningless other than on a relative basis.

The relative coincidence of locations of anomalous features (compare Plate VII and VIII) indicate that fairly shallow thermal gradient tests over conductive anomalies should be informative. This, though, is borne out by the follow-up detailed survey indications.

Plate VIII -- 0.03-0.05 Hz Apparent Resistivity Reconnaissance Map

The anomalous conductive areas indicated on this plate, in our judgment, led to productive detailing surveys. The north-south trending anomalies south of Colado and Coal Canyon are bifurcated into NE and/or NW trending anomalies by the detailed survey interpretations. OH ?

The apparent relatively high-resistivity value ridge trending SW from Colado, as interpreted from the detailed survey interpretation, is thought to be caused by a mistie in the telluric profile intertie information. Similarly the broad conductive area, Sections 20 and 21, T28N,R32E, is caused by a probable mistie in the telluric profile intertie information. Both of these misties are caused by interties based on vector telluric or MT-AMT data taken in areas of large lateral resistivity contrasts. This condition cannot always be forecast at the decision time to stop reconnaissance and to commence detailed surveys.

As a general statement, this reconnaissance map suggests that the low resistivity areas at depth are extensive and interconnected. This was borne out by the follow-up dc resistivity. Values much less than 1.0 ohm-meters do correlate with anomaly boundaries as expected in the final interpretation of anomalies (Plate V). remove errors - then what?

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Plate IX -- Parallel E-Field DC Electrical Resistivity Profile Map

These data show variable depth of penetration both along and between the various profiles. This can be seen by comparison of Profiles 9.3 and 10.3. Quite logically, some of the variation seen on these two profiles can be attributed to current flow away from different source locations.

In any case, these data are not contoured, but used to discover relationships between anomalous conductive and resistive areas. It was this data that led us to an interpretation of only two major fault or structural trends in the prospect.

After this decision, the interpretation of the complexity of the 2nd derivative map, Plate XIII, became considerably reduced and the composite interpretation of all geophysical surveys became more logical and manageable. This last capability map possibly be attributed to our need for simple solutions that we can understand and/or conceive as possible.

The profile indications showing extensive areas of resistivity values equal to or less than 6.0 ohm-meters are greater than 1.0 ohm-meter. At least those south and southwest of Colado and Coal Canyon, indicate broad, interconnected anomalous zones at depth. This is borne out by the dc sounding interpretations shown on Plate X.

Plate X -- DC Electrical Resistivity Sounding Map

The dc soundings performed south and southwest of Colado and Coal Canyon do not show much expression of "geological noise" for intermediate-to-great depths of penetration. This indicates that anomalous conductive sections at depth are interconnected.

The lateral resistivity control shown on interpretations of sounding array expansions to the East into the Humboldt Range foothills and Coal Canyon indicate that the anomalous areas are fault-fracture controlled. This was expected.

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The soundings to the north of Colado indicate a more complicated geologic Section in this direction. The higher resistivity values in this direction (also shown on Plate IX) indicate that deeper thermal gradient test holes will be required to test for geothermal occurrences. Further, the anomalous features are expected to be smaller in lateral extent and probably are not interconnected.

The unit thickness and/or depth to basement estimates from these soundings are expected to be somewhat greater than the true thickness or depth because of probable vertical anisotropy in the geoelectric section. Similarly, the thickness of the overburden (combined First and Second Layer interpretations) are probably underestimated because of interconnection at depth of anomalous areas. True depths lie between the maxima and minima shown by interpretations on Plates X and XI.

Plate XI -- Time Domain EM Soundings Map

All EM soundings in the foothills of the Humboldt Range are indicated to be fault and/or fracture controlled. The resistivity values as interpreted by a vertical sounding approach are much less than the true resistivity values. Therefore, the depth of penetration estimates are meaningless in true value. However, areas of minimum resistivity and depth should locate the areas where the shallowest depth of drilling will be required to test for geothermal occurrences in the general areas.

no — depths are meaningless remember!

As a note of caution, all temperature gradient drill samples and deep drill test samples should be observed for sulphide mineralization. Such occurrences may indicate a part of the cause for conductive anomalies; may lead to a means for subsurface mapping of fracture and/or fault systems; and could possibly provide discovery of a viable mineral deposit. Such has occurred in the past. The high 60 Hz noise experienced in the foothills (which prevented the H_z sounding to be made at these locations)

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is often an expression of such mineralization. BS you clowns! Tiny Power Lines etc.

Many sounding locations out in the valley have interpretations that indicate fault-like control on the soundings. Such control suggests that the geoelectric section is not so simple as indicated by the dc soundings and profiles. Those locations showing a large residual coductance, S_R , (greater than 300 mhos) could be considered promising, either on a basis of a more conductive area extending to depth or localized concentrations of geothermal fluids at depth at or near these locations.

When one removes the apparent vertical anisotropy from the interpreted resistivity values at good vertical sounding locations, one finds that the resistivity values at depth are most promising.

Discussions as to the reliability of depth to basement and overburden thickness in the valley from the EM sounding interpretations is covered in the discussion of Plate IX given above. (no they're not. Do you mean XI?)

Plate XII -- Simple Bouguer Gravity Map

The regional interpretation of this map is as follows:

1) The interpretation suggests a graben valley with maximum depth to basement about one mile west of the Humboldt River. The interpretation suggests enechelon normal faults along the graben flanks which dip basinward.

2) The regional trend appears NE-SW.

3) A density high to the north of the prospect area appears promising for a possible heat source at depth because the magnetic data in the same area do not show anomalous character. There are many other interpretations possible. (Huh?)

Plate XIII -- Second Derivative Gravity Map

(all due to contouring errors & incomplete data reduction.)

As can be seen, this plate shows a hodge podge of secondary anomalies. As in the discussion on Plate IV above, this very complex secondary look is interpreted as being anomalous signatures

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of two basic trends. These are considered to be normal fault trends which strike NE-SW and strike slip and/or rotating block fault trends which strike NW-SE. Some of the density highs may reflect intrusives above basement floor along the fault features.

Plate XIV -- Magnetic Field Variation Map

The main interpretation features of this map are:

1) Most of the valley area is relatively featureless.

2) The magnetic field amplitudes in the valley are of a larger amplitude than the magnetic field amplitudes over exposed basement areas in the foothills in the east part of the prospect.

Our conclusion of the meaning of the interpretation features is that the valley is probably extensively covered by basic type flows and/or deposits at shallow-to-intermediate depth in the geologic section.

We are unsure as to whether or not the anomalous character shown in the southwestern part of the prospect is due to features in the geologic section or due to features related to cultural noise.

most definitely

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