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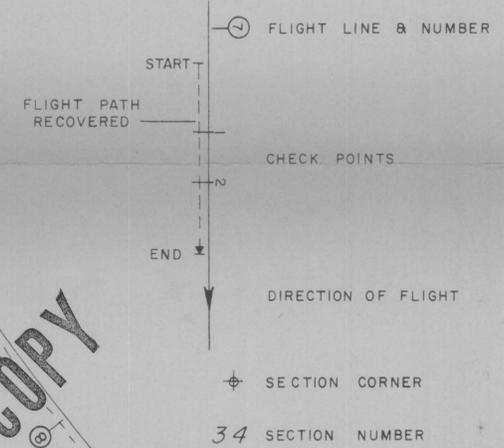
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NOTE: FOR TOTAL MAGNETIC FIELD STRENGTH ADD 50,000 GAMMAS TO EACH CONTOUR.

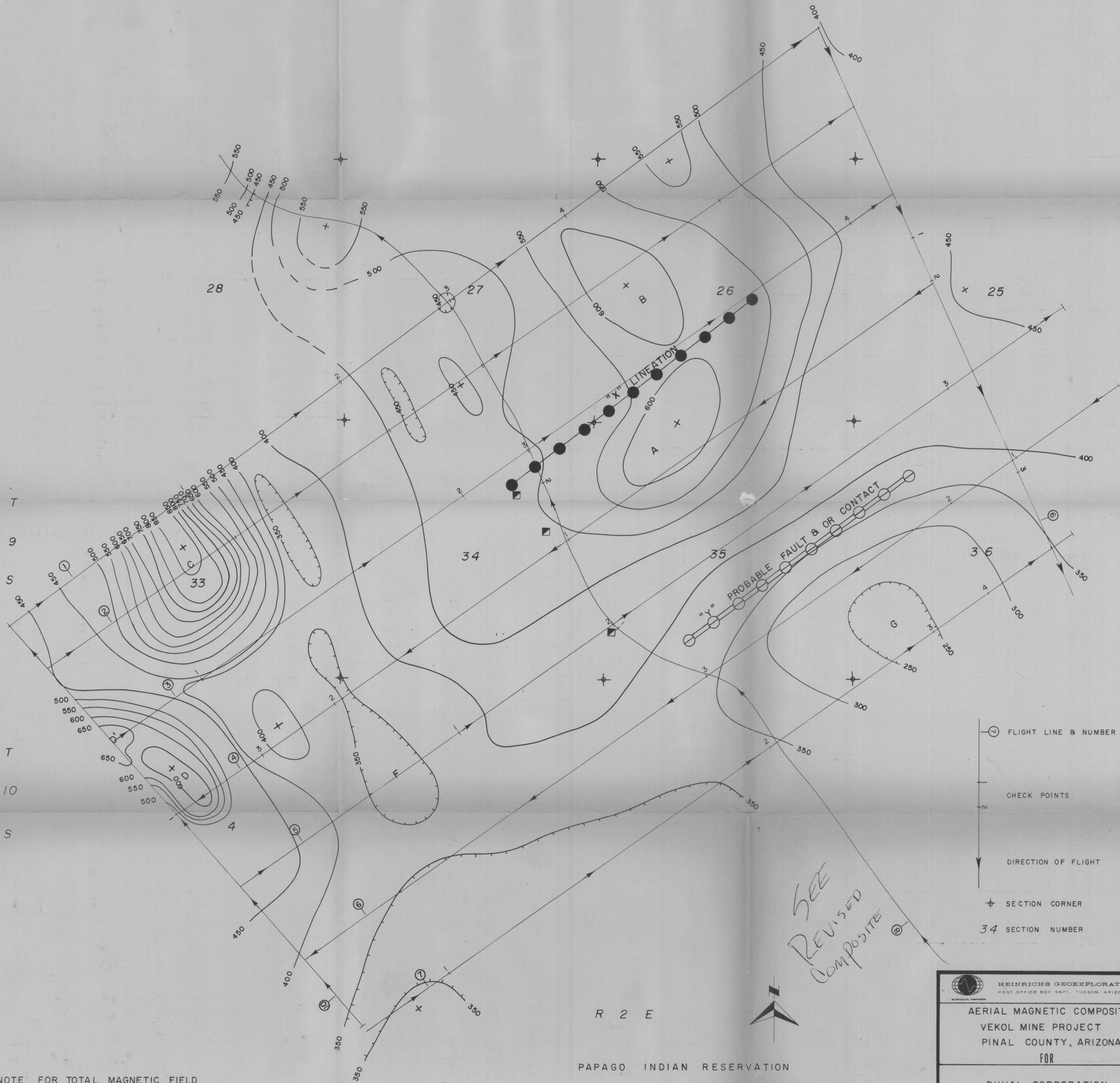
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R 2 E
PAPAGO INDIAN RESERVATION



	HEINRICHS GEOEXPLORATION CO. <small>POST OFFICE BOX 5671, TUCSON, ARIZONA, 85703</small>
	AERIAL MAGNETIC COMPOSITE VEKOL MINE PROJECT PINAL COUNTY, ARIZONA FOR DUVAL CORPORATION
REVISED COMPOSITE Scale 1" = 1000'	Date OCT. 1966



SEE
REVISED
COMPOSITE

- ① FLIGHT LINE & NUMBER
- CHECK POINTS
- DIRECTION OF FLIGHT
- ⊕ SECTION CORNER
- 34 SECTION NUMBER

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TO EACH CONTOUR.

R 2 E
PAPAGO INDIAN RESERVATION

 HEINRICHS GEOEXPLORATION CO. POST OFFICE BOX 9671, TUCSON, ARIZONA, 85703 <small>GEOPHYSICAL ENGINEERS</small>	
AERIAL MAGNETIC COMPOSITE VEKOL MINE PROJECT PINAL COUNTY, ARIZONA FOR	
DUVAL CORPORATION	
Scale 1" = 1000'	Date OCT. 1966

TOTAL INTENSITY AIRBORNE MAGNETIC SURVEY

VEKOL MINE PROJECT

PAPAGO INDIAN RESERVATION, ARIZONA

For

Duval Corporation

October 1966

By

Heinrichs Geoexploration Company
P. O. Box 5671 Tucson, Arizona
Phone: 623-0578 Area Code:602

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2. U.S.G.S. Topo Plan Scale 1"=1000'	

INTRODUCTION

At the request of Mr. C. W. Lorenz of the Duval Corporation, Heinrichs Geoexploration Company, Airborne Division conducted an airborne magnetic survey in the vicinity of the Vekol Mine, Section 34, T9S, R2E, Papago Indian Reservation, Arizona on October 14, 1966. Compilation of data was commenced on October 17, 1966 and copies of the records and the location of flight lines was handed to Mr. Lorenz the same day.

A preliminary letter report was completed October 21, 1966 and a verbal discussion of this interpretation was conducted October 24, 1966 between Mr. Lorenz of Duval Corporation and Mr. John Langs, Geox staff Geophysicist.

INTERPRETATION, CONCLUSIONS AND RECOMMENDATIONS

Anomaly A

Anomaly A is probably the southern extension of Anomaly B and could be associated with intrusive in contact with sediments at depth. Although slight, this possibility does offer some exploration potential. A preliminary geologic check including ground magnetics is essential in precisely locating the anomaly as well as being helpful to establish its vertical intensity, amplitude and character.

Anomaly B

Anomaly B is likely related to sub-alluvial basalt or pyroclastics. However, according to Robert Carpenter's 1947 dissertation, the basalt and pyroclastics to the north dip north or away from these anomalies, thus lessening the aforementioned probability.

Anomaly C, D, & D'

Because of excellent correlation with topography and known geology, Anomalies C, D, and D' are probably due to Basalt and/or pyroclastics.

Anomaly E

Omitted.

Anomaly F

Anomaly F is probably a basin effect.

Anomaly G

Probably due to a basin effect or thicker sections of sediments.

Lineations

Lination "x" is a poorly defined, apparently shallow magnetic low of 30 or 40 gamma intensity which may be due solely to contour phenomena (a particular combination of flight paths, elevation and contour interval which can show several minor distinctly separate features as continuous). The possibility of Lination "x" being artificial, is even greater because it runs parallel to, rather than cutting across magnetic profiles. Yet, it does show and does cross Vekol Mine mineralization and therefore should be checked.

Lination "y" is more definite but appears as a deep seated fault or contact possibly relating to ore control for the Great Eastern Mine.

Both "x" and "y" are apparently related to mineralization in the vicinity of the Vekol and Great Eastern Mines and should be checked for magnetic identity with ground magnetics. A suggested profile direction would be NW roughly paralleling topography. The final selection of grid and/or profile direction should, of course, be selected by a geologist on location.

Procedure

A Varian total intensity proton magnetometer using a Landers, Frary and Clark 10" rectilinear chart recorder with a sensitivity of +/- 1 gamma was used for the survey. The instruments were mounted in a Cessna 206 and the plane was flown at a speed of approximately 120 miles per hour at a controlled elevation of 500' above the terrain. A precise, radar altimeter with a sensitivity of +/- 1% at 500' was used to indicate terrain clearance.

Flight path recovery was performed by coordinating the pilot and navigator and using topo maps and photo mosaics for visual on ground recognition.

Three tie lines were flown in addition to the regular flight paths to permit more accurate contouring of the data.

Chart paper is specially designed for Geoex and is read from right to left with increasing values in gammas with the top of the record indicated by 10 on the vertical scale and is 1000 gamma across the chart. The vertical scale is printed each six inches across the record.

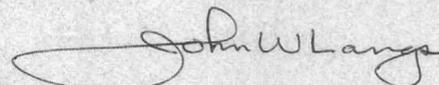
The horizontal scale is 6" per minute. Checkpoints are as indicated on the record in a brown ink. These points are called out on the intercom by the navigator and plotted in flight on the chart by the observer.

Magnetic data is presented in profile form and in contour plan form at a scale of 1"=1000'. The flight path recovery map is plotted also on an enlarged U.S.G.S. topographic map at a scale of 1"=1000'.

Interpretation was by John Langs, geophysicist of Geoex's staff and the following Geoex personnel also worked on the project. Richard Barrett, pilot, James Bush, instrument observer, and James Bauersachs, navigator.

Respectfully submitted,

HEINRICHS GEOEXPLORATION COMPANY



John W. Langs
Geophysicist

APPROVED: 

E. Grover Heinrichs
Vice President

October 31, 1966
P. O. Box 5671
Tucson, Arizona



HEINRICHS GEOEXPLORATION COMPANY

806 WEST GRANT ROAD, TUCSON, ARIZONA, 85703. P.O. BOX 5671. PHONE: (AREA CODE 602) 623-0578

October 11, 1966

Mr. C. W. Lorenz
Duval Corporation
4715 E. Fort Lowell
Tucson, Arizona 85716



Re: Air Mag
Vekol Mine Project
Papago Indian Reservation

Dear Mr. Lorenz:

Enclosed is a summation of our discussions of yesterday.

1. Line orientation and location will be as per the enclosed sketch map.
2. Total line miles approx. 32.8, this figure may vary somewhat at pilot and navigator's discretion based on recognisable features on the ground.
3. Charges will be as follows:

Mobilization	\$400.00
Profile mile magnetic recording	\$6.00/mi.
Profile mile interpretation and compilation	\$2.00/mi.

4. GEOEX crew and equipment is covered by liability and Arizona workmens compensation insurance, certificate of coverage is available on request.
5. The client assumes trespass liability when our crew is working in area designated by client
6. Interpretation and compilation will be based on correlation of known published geology on the area such as the ARIZONA COUNTY GEOLOGY SERIES.

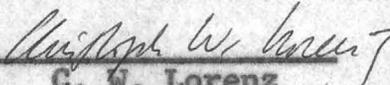
7. U.S.G.S. Vekol 15' Quad map enlarged to a scale of 1" = 1000' will be used as the base for presentation of data and interpretation.
8. The plane will fly at a constant height above terrain of 500'. The sensor is trailed 100' below the plane. Altimeter control is by radar and elevation is plotted on the record at all check points.
9. Record speed will be 6"/min.

We have a photo mosaic and will use this for horizontal control in addition to the topo maps.

Dependent on the weather we plan to fly early Wednesday morning, October 12, 1966, and the finished report should be in your hands by next Tuesday, October 18, 1966.

If you have any questions please let me know.

Please indicate your understanding and agreement to the foregoing by returning the enclosed copy appropriately signed and dated.


C. W. Lorenz

Date: 10-14-66

Very truly yours,

HEINRICHS GEOEXPLORATION COMPANY


E. Grover Heinrichs
Vice President

EGH/eb
encls.

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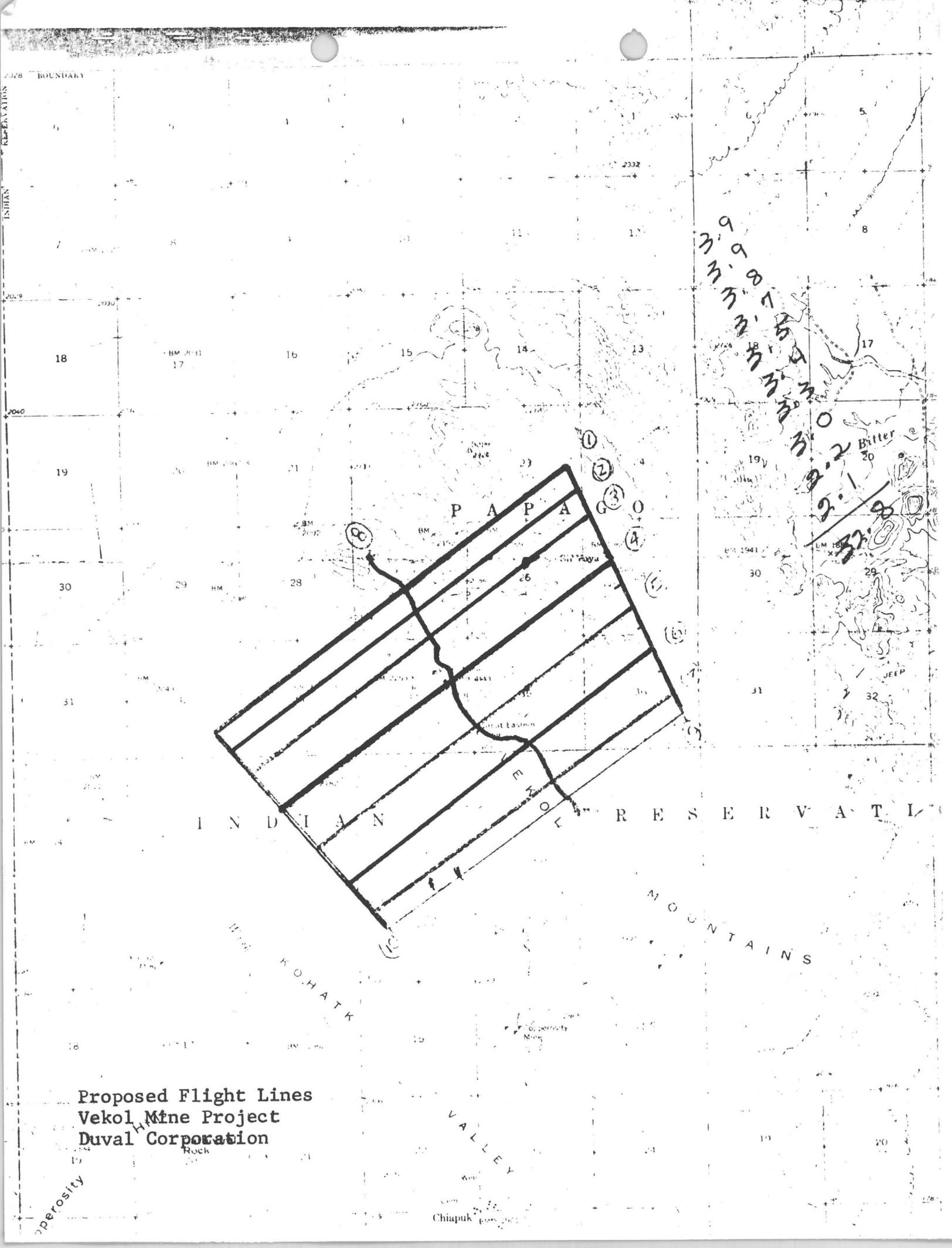
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HEINRICHS GEOEXPLORATION COMPANY

E. Grover Heinrichs
Vice President

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BOUNDARY
INDIAN RESERVATION



Proposed Flight Lines
Vekol Mine Project
Duval Corporation

Chiapuk