42A06SW0104 2.4237 THORNELOE

Assessment Report

of

Geochemical Survey

East Thorneloe Property

Thorneloe Township, Porcupine Mining Division, Ontario

October, 1981

Toronto, Ontario

D.R. Pyke, Ph.D.

D R Pyke

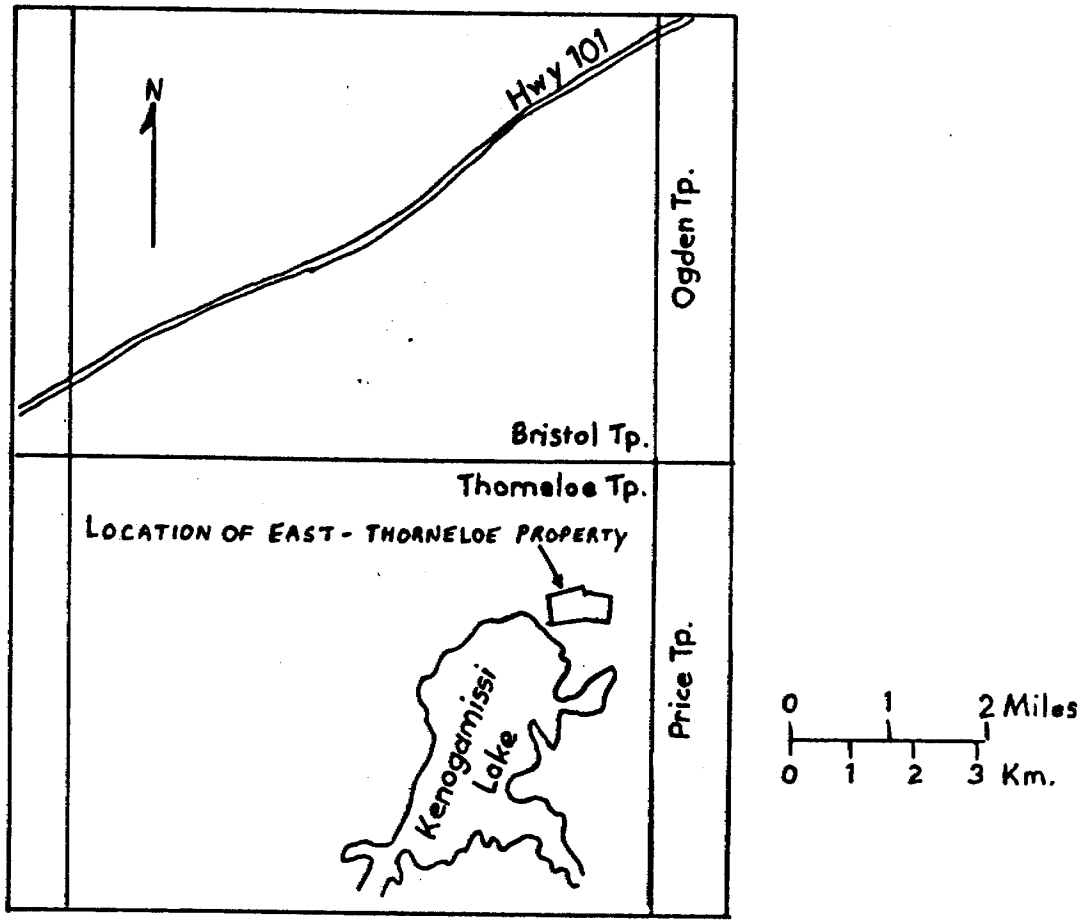


Figure 1 - LOCATION OF EAST - THORNELOE PROPERTY

Introduction

This report covers a geochemical survey conducted on three claims in northeast Thorneloe Township, near the north end of Kenogamissi Lake (Figure 1), about 12 miles southwest of Timmins. The claim numbers are listed below:

Claim Numbers

P 568445	Thorneloe Township
P 568444	Thorneloe Township
P 596000	Thorneloe Township

D.R. Pyke, of 157 Burbank Drive, Willowdale, Ontario is the current holder of the claim group.

Access

An all-weather gravel road from the City of Timmins to the north end of Kenogamissi Lake provides easy access to the property. The property lies immediately east of the Wawiatin power installation on the Mattagami River.

Previous Work

The north Thorneloe area was first mapped by A.G. Burrows (1911,1912), as part of a geological investigation of the general Porcupine gold area. In 1937, the area was remapped by Harding and Berry (1939) at a scale of 1 inch to 1 mile, as part of a reconnaissance survey of the Keefer-Eldorado area.

There are no extant records available to this writer concerning the nature and extent of any exploration work done on the ground currently held by D.R. Pyke.

Previous exploration work in the area has largely been confined to an area immediately west of the Mattagami River. Here, much of the work was concentrated on a gold showing (Thibeault property) where two shallow shafts were sunk in the 1920's and 1930's (Harding and Berry, 1939).

Topography and Drainage

The claims on which the work was performed are relatively flat lying, yet locally have relief of 40 to 50 feet caused by a deeply incised east to northeast trending stream channel. The area is wooded, predominantly with jack pine and white pine and lesser poplar and birch.

Drainage on the property is good, with no swampy areas occurring on the claims surveyed.

Glacial Geology.

The property is located in an ancient glacial river valley now occupied by the Mattagami River. The sediments consist largely of glaciofluvial sands lying directly on bedrock.

Property Geology

The claims are within an area of steeply dipping, north facing sedimentary rocks (predominantly interbedded greywackes and conglomerates). The sediments lie immediately north of a steeply dipping volcanic-sedimentary contact trending approximately N80°E (Figure 2).

The main zone of previous exploration in the area has been west of the Mattagami River and several hundred feet north of the

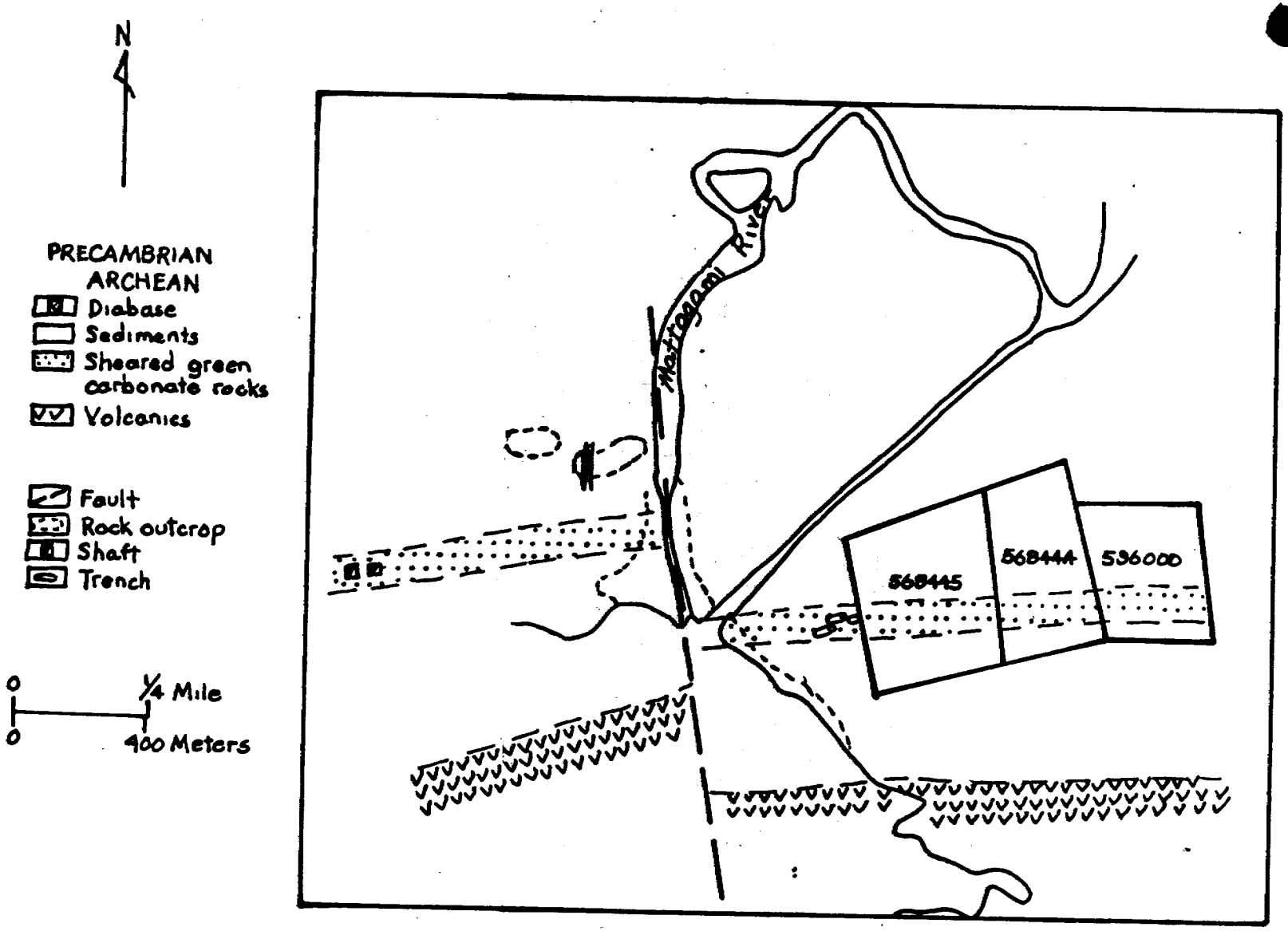


Figure 2 - General geology in vicinity of Thorneloe - east property.

volcanic-sedimentary contact, where the sediments have been extensively carbonatized and locally pyritized. Green, fuchsitic-bearing carbonate is common and some good, but erratic gold values have been reported from quartz stringers within this zone, particularly the former Thibeault showing. This carbonate-rich zone within the sediments extends eastward from the Thibeault showing through the claims in the Thorneloe-east property of this report.

Present Survey

The survey, completed by D.R. Pyke and Associates Inc., was carried out on August 11, 1980. The work was conducted by D.R. Pyke and N. Cozens (presently residing in Saskatoon, Saskatchewan).

The survey entailed sampling of the humus (A^o) horizon. This horizon was relatively thin over much of the property, generally being less than an inch in thickness, and locally consisting of only recently shed pine needles with little or no true humus development. At the base of some pine trees, up to 6 inches of humus is developed.

Sample location sites are plotted on Map A accompanying this report. Samples were collected at 100 foot intervals along northerly trending lines. A total of 71 samples were obtained from the property. The samples were subsequently hang-dried and submitted to X-Ray Assay Laboratories for geochemical analysis for gold (parts per billion) and arsenic (parts per million).

Survey Results

The survey results are plotted on Maps B and C accompanying this report and are also displayed in Appendix A. The survey method is described in Appendix B.

Gold Content in Humus - Map B

Background gold concentrations for humus generally appear to be less than 10 parts per billion in the general Timmins area. This level is based on a number of geochemical humus surveys conducted by D.R. Pyke and Associates in the Timmins area. Values of 10 parts per billion or greater are considered anomalous, but it is recognized that there is no one absolute concentration that can be chosen as a threshold value to anomalous conditions for any particular area, or property for this matter.

The survey outlines four (4) areas of very low, anomalous gold concentrations in the humus horizon:

Area 'A' - an isolated anomaly of 10 parts per billion, located at station 3S, line 2E.

Area 'B' - an anomaly of 10 parts per billion at 2 adjacent sample sites - 0S and 1S on line 14E

Area 'C' - an isolated anomaly of 12 parts per billion at station 3S, line 16E.

Area 'D' - a weak anomaly spanning three stations over 400 feet at the south end of lines 14E to 18E.

Arsenic Content in Humus - Map C

This survey did not indicate what could be considered an anomalous arsenic concentration in the humus horizon. Values obtained ranged from 1 to 6 parts per million.

Recommendations and Conclusions

In the area surveyed, the overburden is up to 40 to 50 feet thick as indicated by an incised stream, and is largely composed of sand, a very pervious material. Either the roots of the trees do not

tap such a deep source, or alternately, there is either little or no gold in the underlying bedrock of the area surveyed, or the sampling interval was too widely spaced to detect such.

It is recommended that the humus sampling be extended further south to include the carbonatized horizon within the sedimentary sequence, which is known to contain anomalous gold concentrations further to the west (Harding and Berry, 1939).

References

Burrows, A.G., 1911, The Porcupine Gold Area; Ontario Bur. Mines, Vol 20, pt. 2

Burrows, A.G., 1912, The Porcupine Gold Area, Second Report; Ontario Bur. Mines, Vol. 21, pt. 1, p. 205-249. Accompanied by Map 21A, scale 1 inch to 1 mile.

Curtin, G.C., Lakin, H.W., Neuerberg, G.J. and Hubert, A.E., 1968, Utilization of humus rich forest soil (mull) in geochemical exploration for gold; U.S. Geol. Survey Circ. 562, 11p

Gleeson, C.F., 1979, Consider Geochemistry when seeking gold.; The Northern Miner, Exploration Issue, March 8, 1979, 4 p.

Harding, W.D., and Berry, L.G., 1938, Geology of the Keefer-Eldorado Area; Ontario Dept. Mines, Vol. 47, pt. 4, p. 1-26. Accompanied by Map 47D, scale 1 inch to 1 mile

Lakin, H.W., Curtin, G.C., Hubert, A.E., Shacklette, H.T., and Doxtader, K.G., 1974, Geochemistry of Gold in the weathering cycle.; U.S.G.S. Bull. 1330, 80 p.

Appendix A

Humus Samole Analytical Results - East Thorneloe Claim Group

SAMPLE	AU PPB	AS PPM
T-0E-00S	4	3
T-0E-01S	<1	3
T-0E-02S	3	3
T-0E-03S	6	4
T-0E-04S	2	4
T-0E-05S	3	4
T-2E-00S	2	1
T-2E-01S	<1	2
T-2E-02S	5	2
T-2E-03S	10	3
T-2E-04S	8	3
T-2E-05S	7	5
T-4E-00S	<1	2
T-4E-01S	1	2
T-4E-02S	3	1
T-4E-03S	5	5
T-4E-04S	<1	2
T-4E-05S	4	3
T-6E-00S	3	2
T-6E-01S	2	1
T-6E-02S	2	2
T-6E-03S	3	2
T-6E-04S	1	3
T-6E-05S	8	4
T-8E-00S	2	3
T-8E-01S	3	3
T-8E-02S	3	2
T-8E-03S	3	4
T-8E-04S	5	4
T-8E-05S	3	5
T-10E-00S	<1	2
T-10E-01S	3	3
T-10E-02S	2	4
T-10E-03S	2	3
T-10E-04S	7	4
T-10E-05S	6	3
T-12E-00S	4	3
T-12E-01S	5	3
T-12E-02S	3	2
T-12E-03S	4	6
T-12E-04S	2	3
T-12E-05S	1	3
T-14E-00S	10	6
T-14E-01S	10	4
T-14E-02S	9	6
T-14E-03S	6	5

SAMPLE	AU PPB	AS PPM
T-14E-04S	4	4
T-14E-05S	11	4
T-16E-00S	3	3
T-16E-01S	4	6
T-16E-02S	3	2
T-16E-03S	12	3
T-16E-04S	7	6
T-16E-05S	10	6
T-18E-01S	6	6
T-18E-02S	4	3
T-18E-03S	8	6
T-18E-04S	9	5
T-18E-05S	13	5
T-20E-00S	6	6
T-20E-01S	6	5
T-20E-02S	4	4
T-20E-03S	6	4
T-20E-04S	6	6
T-20E-05S	1	3
T-22E-00S	8	6
T-22E-01S	4	4
T-22E-02S	3	2
T-22E-03S	5	3
T-22E-04S	5	6
T-22E-05S	4	5
T-0N-00N	<1	3

APPENDIX B Survey Method

Procedure

During the survey, humus samples were obtained either by hand or by exposing deeper levels of the humus layer with a grub hoe.

After hang-drying, the samples were shipped to X-Ray Assay Laboratories, 1885 Leslie Street, Don Mills, Ontario, for analysis. 71 samples were analyzed by neutron activation method for gold and arsenic.

Sample preparation entailed thoroughily blending each sample in a blender to homogenize the material, followed by hydrolic compression of a portion of the sample to form a pellet weighing eight grams, which was used in the neutron activation process.

Humus as a sample medium

Gleeson (1979), Lakin et al (1974), Gurtin et al (1968) and others have documented the successful use of humus (mull) as a sample medium for detection of auriferous bedrock zones in areas covered by 3 to 120 feet of glacial material. Gleeson (1979) has found that anomalies in the humus generally occur directly over the subcrop of the auriferous zones, and thier dispersion patterns are little effected by glacial transport.

The humus layer sampled consists of the partly decomposed plant debree found under trees and/or shrubs, and usually occurs as dark brown or black, humus-rich pads mixed with varying amounts of mineral matter.

A summary of the geochemical processess involved in

the accumulation of gold in the humus horizon is presented by Lakin et al (1974):

> "....ample hydrogen cyanide is formed in the soil by hydrolysis of cyanogenic plants, animals and fungi to result in solution of gold in an oxygenated environment. The gold cyanide thus formed is absorbed by plants, but they do not use it as a nutrient. I_t is therefore found accumulating as a reject in the woody parts of a plant. The decomposition of plant debree results in the reduction of gold in the plant material and gold accumulation in the humus horizon of the soil."

Boyle and Dass (1967), through their work in the Cobalt area, hoave demonstrated that concentration of such elements as arsenic, zinc, copper and lead also occur in the humus layers over known veins containing these elements.

Certificate

I, D.R. Pyke, submit this document to certify that the following statements are, to the best of my knowledge, true and correct.

1. That I supervised the geochemical survey conducted on the East Thorneloe Property in Thorneloe Township, conducted on August 11, 1980.

2. That I am the author of the corresponding assessment report entitled "Assessment Report of Geochemical Survey, East Thorneloe Property, Thorneloe Township, Porcupine Mining Division, Ontario".

3. That I have received the following university degrees:

B.Sc.	University of Saskatchewan	1959
M.Sc.	University of Saskatchewan	1961
Ph.D.	McGill University, Quebec	1967

4. That I have been working as a geologist in the general Timmins area for 13 years, and I am familiar with the geology of the area under consideration.

Respectfully,

D.R. Pyke

Ontario

Ministry of I

GEOPHYSICAL – GEO
TECHNICAL

File

42A06SW0104 2.4237 THORNELOE

900

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geochemical (Humus Sampling)

Township or Area Thorneloe Township

Claim Holder(s) D.R. Pyke
157 Burbank Dr. Willowdale, Ont.

Survey Company -------

Author of Report D.R. Pyke

Address of Author 157 Burbank Drive, Willowdale, Ont

Covering Dates of Survey August 11, 1981 - October 10, 1981
(linecutting to office)

Total Miles of Line Cut --------

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
P	568444
P	568445
P	596000

TOTAL CLAIMS 3

If space insufficient, attach list

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

DAYS per claim

Geophysical
–Electromagnetic
–Magnetometer
–Radiometric
–Other
Geological
Geochemical

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer Electromagnetic Radiometric
(enter days per claim)

DATE: Oct 28/81 SIGNATURE: D R Pyke
Author of Report or Agent

Res. Geol. Qualifications 2.3899

Previous Surveys

File No.	Type	Date	Claim Holder
			L.D

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

_____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

_____

Base station value and location _____

_____

Elevation accuracy _____

INDUCED POLARIZATION RESISTIVITY

Instrument _____

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time _____ Frequency _____

– Off time _____ Range _____

– Delay time _____

– Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken P 568444, P 568445

Total Number of Samples 71

Type of Sample soil sample (humus)
(Nature of Material)

Average Sample Weight 8 grams

Method of Collection sampled by hand/grub hoe

Soil Horizon Sampled humus - A^o

Horizon Development Generally 1 inch or less

Sample Depth Generally 1 inch

Terrain Flat lying, property wooded, jack pine, white pine, poplar

Drainage Development Generally good.

Estimated Range of Overburden Thickness ~~40-50 feet~~

ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☒ p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, (As) (circle)

Others Gold (Au) - p.p.b.

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (71 samples tested for Au and As tests)

Name of Laboratory X-Ray Assay Laborato

Extraction Method ----

Analytical Method neutron activation

Reagents Used ----

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis Not applicable

General Samples were blended in a blending machine for homogeneity of material. All samples were thoroughly dried before blending.

General 71 samples were tested, each for gold and arsenic. Samples analysed at X-Ray Assay Laboratories, 1885 Leslie St., Don Mills, Ontario.

Blended sample material was hydrolically compressed to form a pellet weighing 8 grams.

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

Ontario Ministry of Natural Resources

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

The Mining Act

#441

2.4237 approved.

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s)	Township or Area
Geochemical - Humus Sampling	Thorneloe Township

Claim Holder(s)	Prospector's Licence No.
D.R. Pyke, 157 Burbank Dr., Willowdale, Ont.	K-19126

Survey Company	Survey Dates (linecutting to office)	Total Miles of line Cut
----------	Day 11 Mo. 8 Yr. 80 — Day 8 Mo. 10 Yr. 81	--------

Name and Address of Author (of Geo-Technical report)
D.R. Pyke, 157 Burbank Drive, Willowdale, Ontario, M2K 1N9

Special Provisions Credits Requested

Instructions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical	
	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Man Days

Instructions		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	4.37

RECEIVED
PORCUPINE MINING DIVISION
OCT 23 1981
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

Airborne Credits

Note: Special provisions credits do not apply to Airborne Surveys.		Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed
Geochemical Analysis-Au & As

Performed on Claim(s) Assaying (Section 77-19)
P568445, P568444

Calculation of Expenditure Days Credits

Total Expenditures				Total Days Credits
$ 461.50	+	15	=	30.76

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
P	568448	10.25
	568444	10.25
	596000	10.25

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.

Approved AUG 6 1982

RECORDED
OCT 2 2 1981
Receipt No. .....
MINING LANDS SECTION

RECEIVED
NOV - 2 1981
MINING LANDS SECTION

Total number of mining claims covered by this report of work. 3

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
438	Oct 27/81	
	Date Approved as Recorded Aug 6/82	for Regional/Branch Director

Report Completed

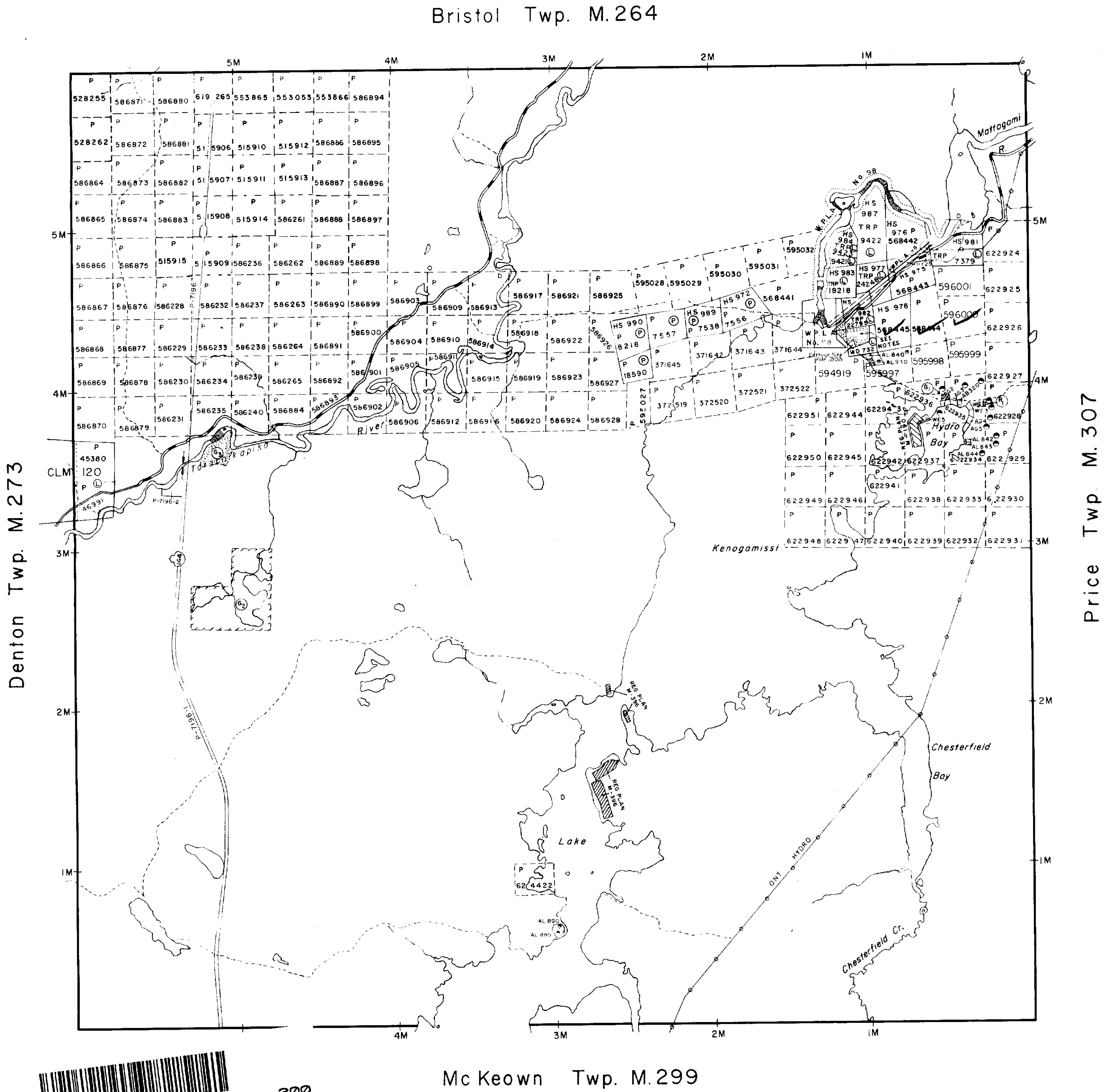
Date of Report	Recorded Holder or Agent (Signature)
October 19, 1981	Kimberly M. Cunnison

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
Kimberly M. Cunnison, 180 Kennedy Street West, Aurora, Ontario

Date Certified	Certified by (Signature)



THE TOWNSHIP OF

THORNELOE

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH 40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S.
LEASES	Ⓛ
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
PATENTED S.R.O.	

NOTES

400' Surface Rights reservation along the shores of all lakes and rivers.

Reservation for Deputy Chief Ranger's Headquarters site shown thus File 110657

Flooding rights on Mattagami River & Kenogamissi Lake are reserved to Ont. Hydro — L.O. 7598 File 1163 vol. 3

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970.)

Order Nº	File	Date	Disposition
(R1)	164584	17/8/72	S.R.O.

DATE OF ISSUE
NOV. - 5 1981
Ministry of Natural Resources
TORONTO

SAND and GRAVEL 24237

(G1) M.N.R. GRAVEL PIT 258, FILE 111467
(G2) GRAVEL FILE 143834
(G3) M.N.R. GRAVEL RESERVE

This township lies within the Municipality of the CITY of TIMMINS.

PLAN NO. M.313

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A06SW0104 2.4237 THORNELOE

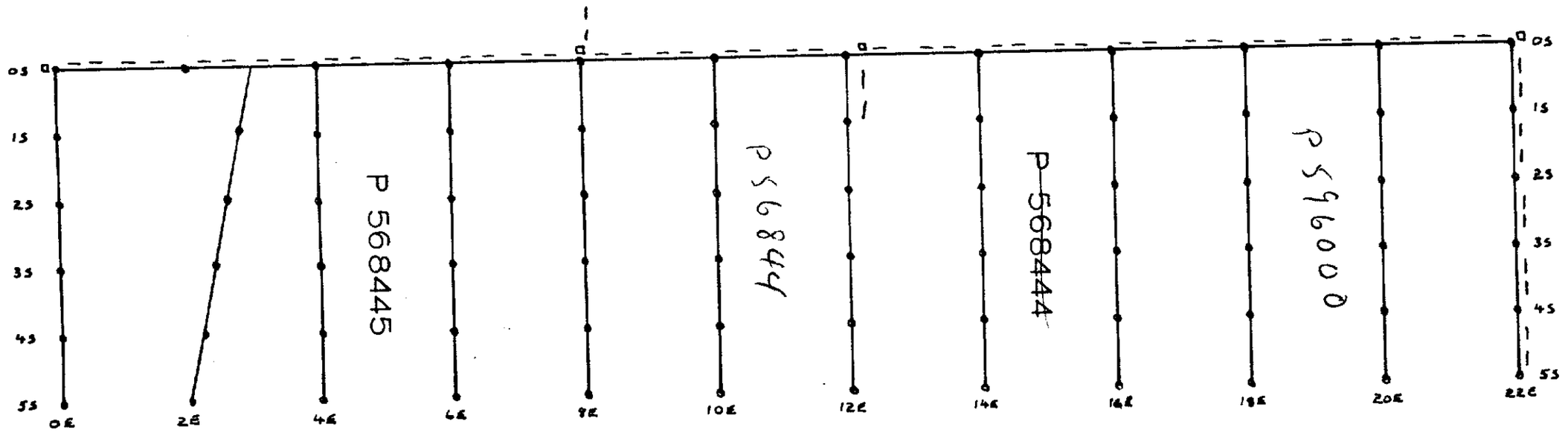
200

M.Z.

D.R. PYKE

MAP A

SURVEY CONDUCTED AUGUST 11, 1980



HUMUS SAMPLE LOCATIONS ("T" series e)

MINERAL CLAIMS 568445 & 568444

THORNELOE TWP

o SAMPLE SITE

□ CLAIM POST

-- CLAIM LINE

1 inch = 200 feet

OCTOBER, 1981

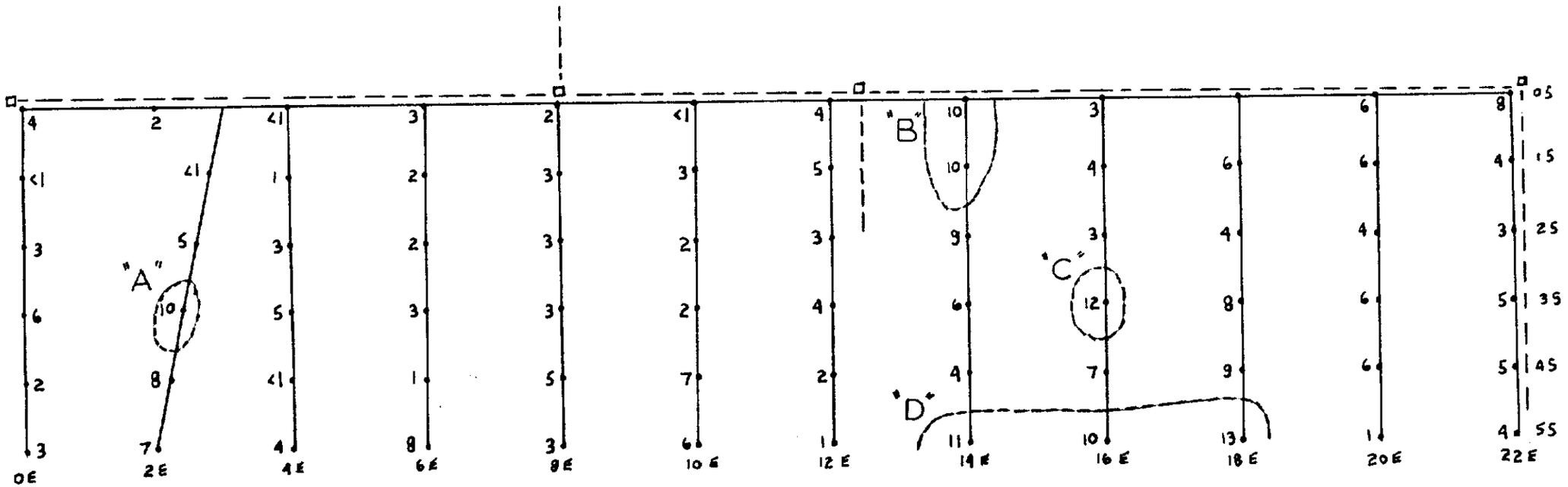
42A06SW0104 2.4237 THORNELOE

HUMUS SAMPLES ("T" series 'e')
THORNELOE TOWNSHIP
VALUES OF GOLD - parts per billion

D. R. PYKE

MAP B

SURVEY CONDUCTED AUGUST 11, 1980



• SAMPLE SITE
□ CLAIM POST
--- CLAIM LINE

N

1 inch = 200 feet

OCTOBER, 1981

42A06SW0104 2.4237 THORNELOE

HUMUS SAMPLES ("T" series 'e')

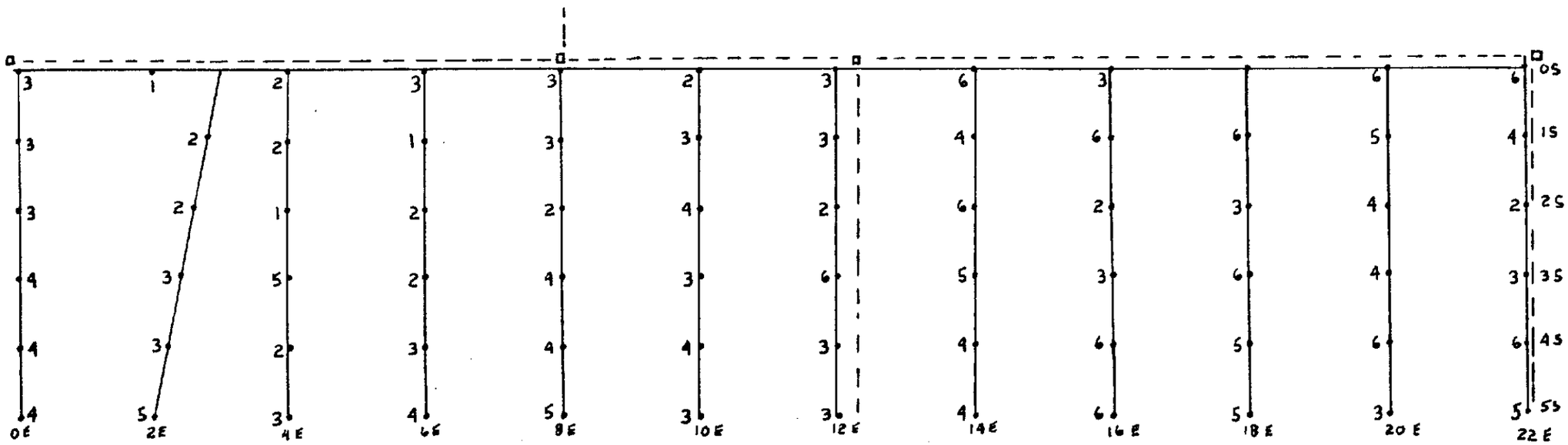
THORNELOE TOWNSHIP

VALUES OF ARSENIC - parts per million

SURVEY CONDUCTED AUGUST 11, 1980

D.R. PYKE

MAP C



- SAMPLE SITE
- CLAIM POST
- CLAIM LINE

N

1 inch = 200 feet

OCTOBER, 1981

42A06SW0104 2.4237 THORNELOE