AREA: VALORA LAKE **REPORT NO:** 51

WORK PERFORMED FOR: Minnova Inc.

RECORDED HOLDER: SAME AS ABOVE (**xx**)

: OTHER

CLAIM NO.	HOLE NO.	FOOTAGE	DATE	NOTE
Pa 964755 & Pa 227072	DW-01	413.90m	Jan/88	(1)

NOTES: (1) W8903.176, filed Jan/90

HOLE NUMBER: DW-01

MINNOVA INC.
DRILL HOLE RECORD

DATE: 21-November-1989
IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: WEST STURGEON
PROJECT NUMBER: PN030
CLAIM NUMBER: 964755 227072
LOCATION: DARKWATER

PLOTTING COORDS GRID: DARKWATER 1987
NORTH: 300.00S
EAST: 1310.00E
ELEV: 412.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -60° 0' 0"
LENGTH OF THE HOLE: 413.90m
START DEPTH: 0.00m
FINAL DEPTH: 413.90m

COLLAR GRID AZIMUTH : 360° 0' 0"

COLLAR ASTRO. AZIMUTH : 335° 0' 0"

DATE STARTED: January 16, 1988
DATE COMPLETED: January 25, 1988
DATE LOGGED: January 27, 1988

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
CAPPED: NO
HOLE SIZE: BQ

CONTRACTOR: CONNORS DRILLING RIG 11
CASING: 9.1m; INTACT
CORE STORAGE: STURGEON LAKE MINE

PURPOSE: TEST DOWNDIP EXTENSION OF DARKWATER VEIN AT 250m VERTICAL.

COMMENTS :

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
26.80	-	-60° 0'	ACID	OK	
61.00	-	-59° 0'	ACID	OK	
122.00	-	0° 0'	ACID		
243.80	-	-55° 0'	ACID	OK	
304.80	-	-50° 0'	ACID	OK	
366.00	-	-49° 0'	ACID	OK	

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
-	-	-	-	-	

Pat Lewis Dec 5/89

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 9.80	CASING «CASING»	Overburden - boulders, clay, sand.				
9.80 TO 82.30	QUARTZ DIORITE «QTZ DIORITE»	A pale blue, homogeneous, cg. quartz rich diorite containing 50% glassy pale - deep blue coloured angular to subrounded quartz crystals 2-5mm in size. Quartz crystals often occur as discreet crystals, but may be clustered in amorphous masses 2-5% milky white < mm feldspar grains peppered throughout unit. Enveloping quartz crystals is a chlorite altered mafic component of amphibole and biotite. Foliation moderately well defined by feathery mafic component @ ..... Unit competent; RQD > 90%. (Note: 5.9-9.5m - drilled qtz-diorite boulder). Generally 1% 1-2cm wide glassy - milky - white qtz veins criss crossing unit, occasionally rimmed with py or po. 11.0-12.2 Blocky, broken core, strong chl adjacent to 10cm wide fractures. 15.5-16.0 Weak pale orange - pink staining k-spar. ┤21.0-27.0├ «QV'S» Zone of 10% 1cm-30cm wide milky white quartz veins, oftem rimmed with and/or containing chlorite +/- bio seams. 23.9-24.6 Milky white, vuggy qtz vein, bleached wallrock, 10% chl - bio filled fractures associated with coarse pyrite, 5% albite. 30.6-30.9 Late chlorite + Ca carb altered fracture at 30 degrees CA. 31.1-32.0	50	«CHL, SER» Moderate - strong chlorite alteration of mafic component, feathert pale brown sericite occurs locally through unit. ┤21.0-27.0├ «SIL» Moderate - strong silicification through matrix, bleaches zone. ┤30.9-44.5├ «SIL» As at 21.0, zone of silicification.	┤21.0-43.0├ «PY, PO» Tr- 1% coarse pyrite seams, fg-granular, associated with chlorite filled fractures, occasionally with associated po. 23.9-24.6 1% coarse py seams.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		10% 1-2mm angular milky white feldspar grains through unit. ┤43.0-52.0├ «FLT» Late fault; blocky, broken core, RQD = 50% limonite stained adjacent to fractures. 52.0 Foliation @	40		44.8-44.9 3cm wide qtz-tour 'crack-seal' type vein at 30 degrees CA. Vein vuggy barren. 52.3-53.0 1% py and po associated with chl filled fractures. 55.8-56.0 Milky white quartz vein, contains 3% coarse cpy and po assoicated with chl filled fractures.	
		┤57.0-62.5├ «SIL, QV'S» Zone of silicification, 2-3% 1-2cm wide qv's. ┤63.5-68.3├ «BX, QV'S» Brecciated/Fault zone; 5% qtz veining generally 1-2cm wide, associated with chlorite. 68.0-68.3 Milky white vuggy quartz-carb vein; rimmed with chlorite. 68.3-82.3 Typical qtz-diorite, moderate chlorite alteration occasional chlorite filled slip < cm at 20-30 degrees CA.		┤63.5-68.3├ «HEM» Hematite stained zone associated with fractures.		
82.30 TO 88.50	MAFIC DYKE «MA DY»	Fine-med. grained dull blue-green dyke, 10% 3-5mm wispy chlorite clots parallel to well defined foliation @ ..... 5% fg qtz-carb veinlets. 86.5-87.0 Broken and fractured core. Dyke has sharp contacts with adjacent diorite at 80 degrees CA, markde by q-c veining.	50	«CARB» Dyke moderately carbonatized, Fe carb stained near fractures.		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
88.50 TO 175.00	QUARTZ DIORITE «QTZ DIORITE»	Coarse grained diorite as at 9.8, foliation poorly defined. ┤89.6-90.0├ «MAG» Bands of massive magnetite 1-3mm wide in zone of strong chl and carb alteration. 98.9-99.0 Vuggy qtz-carb vein, barren. 102.5-102.6 Cm wide qv, rimmed with chlorite. ┤124.0-127.0├ «QV'S» 1% qtz-carb - py - po veining generally < cm, larger vein at 124.2-124.6 rimmed with py. 127.7-128.1 Qtz - carb vein rimmed with massive chl. ┤132.4-133.0├ «FLT» Late fault, blocky, broken oxidized core, weakly siliceous. 137.9-138.4 Carbonatized f-mg mafic dyke, contacts 80 degrees CA. 150.5-150.7 Qtz - chl fillled slip, foliation at 60 degrees		«CHL,SER» Weak-moderate chlorite and poorly developed sericite; occurs as fg pale brown wisps, locally may be more strongly developed. ┤89.6-90.0├ «CHL, CARB» Chlorite and carbonate in poorly developed shear at 70 degrees CA. ┤107.5-111.0├ «SIL» Silica flooding, bleached zone. ┤114.0-116.7├ «CHL, BIO» Zone of moderate chlorite and accompanying bio alt'n, Chl + Bio totals about 30% of unit. ┤124.0-127.0├ «SIL» Silicification bleaches rock adjacent to qv's.	«PY» Trace py, occasional speck of po and cpy. Sulphides occur as fg specks within matrix; and as blebs up to 2mm. ┤107.5-111.0├ «PY,PO» Tr-1% fg specks of py and po. 130.0-130.5 Cm wide qtz-carb veinlet; tr py; silicified wallrock. ┤142.0-160.0├ «PY» Trace py, as coarse, granular seams, +/- po, associated with chlorite filled fractures, and/or qtz veins.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		to CA. 156.5-157.0 Blocky, chloritic slip. 170.1-170.3 Typical fg mafic dyke.				
175.00 TO 184.10	DYKE SWARM «INT DYKES»	«QP» Interval consists of about 50% typical f-mg carbonatized mafic dykes with 10% mm qtz-carbonate veinlets. Dykes are 20-50cm long, with sharp contacts parallel to foliation at 60-70 degrees CA. Dykes contain 5% mm blue quartz crystals scatteed throughout matrix. Dykes occasionally strongly biotitic. Dykes intrude typical c.g. qtz diorite, mineralized with 1% coarse pyrite stringers. Dykes occur at: 175.0-175.4 MA DY ┤176.6-177.4├ «MA DY» ┤177.6-178.6├ «MA DY» ┤182.4-183.6├ «MA DY» ┤180.8-181.8├ «QV» 184.1 Sand Seam		Moderate chlorite and sericite alteration through Qtz - diorite.	┤180.8-181.8├ «PY» Tr pyrite in qtz-chl-tour veining injected into qtz-diorite.	
184.10 TO 235.40	QUARTZ DIORITE «QTZ DIORITE»	Typical cg quartz diorite, as at 9.8m. Foliation poorly defined @ ..... 60 ┤192.2-192.3├ «FLT» Late chloritic fault.		┤184.1-194.0├ «CHL, SER» Moderate chlorite and sericite alteration. ┤192.0-193.5├ «STG CHL» Zone of increased chlorite, totals 40% of unit, enveloping mm qtz-feldspar masses. 5% bio accompanies the chlorite. ┤194.0-203.0├ «SIL» Unit silicified, bleached, qtz crystals clustered into amorphous masses. Weak chlorite, biotite and sericite alteration persists.	«PY» Tr py; occasional speck of cpy. ┤197.0-214.0├ «PY» Tr-1% py as coarse seams associated with chlorite +/- qtz filled fractures; occasionally occurs as discreet clusters within matrix, or fg	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
				┤203.0-214.0├ «CHL,SER» As at 184.1.	disseminations.	
		┤214.0-224.0├ «QV'S» 1-2% cm wide qtz veining, chl + tour, angle to C.A. varies from 30-90 degrees C.A. Minor CaCO3 within qv's. 224.3-235.4 Blocky broken core, RQD = 70%.		┤214.0-224.0├ «SIL» Silica flooding associated with qtz veining.	┤214.0-224.0├ «1% PY» 1% py, associated with chlorite rimmed 1-2cm wide qtz veining, or with chlorite filled fractures.	
235.40 TO 239.40	FRACTURE ZONE «FRACTURE»	Fracture / fault zone, broken core, RQD = 50%. 50% dark green chlorite; 30% quartz-carbonate veining of an irregular nature, often broken up, rimmed with chlorite. Sections of quartz - diorite 10-30cm through zone have strong chlorite alteration. Contacts with adjacent diorite sharp, upper at 80 degrees; lower 40 degrees.		«CHL» Strong chlorite altered.	«PY» Trace pyrite. occasional specks associated with chlorite.	
239.40 TO 345.80	QUARTZ DIORITE «QTZ DIORITE»	Massive - weakly foliated cg qtz - diorite, moderate - strong chl alt'd foliation @ ..... Qtz crystals 3-5mm in size, often clustered together. ┤239.4-243.0├ «QV'S» Strong silica flooding, and 2% cm wide qv's, often with 1% py. 242.0-265.0 Core often blocky and broken over zones 20-30cm long. RQD for interval 70%. ┤288.7-301.9├ «5% QV'S» Diorite cut by several qv's rimmed by chlorite and diffuse silica sweats, veins 15-20cm long, 1-2cm wide, subparallel to core axis. 293.9-294.9 QV	40	┤239.4-243.0├ «SIL» Silica flooding and associated quartz veining. ┤243.0-261.0├ «CHL,SER» Moderate - strong chlorite, moderate sericite through unit. ┤274.1-279.4├ «CHL» Moderate - strong chlorite alteration, associated sericite and biotite.	┤239.4-243.0├ «1% PY» Py within qv's. Balance of unit contains occasional speck of fg py within matrix.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		298.2-299.4 QV 300.3-301.9 QV 331.0-345.0 1% qtz veining; generally associated with chlorite.		[317.0-341.0] «STG SER, CHL» Strong pale yellow - brown sericite, some moderate - strong chlorite locally		
345.80 TO 352.50	INTER-MEDIATE DYKE QP «INT DY»	«QP» Fine grained pale green mafic to intermediate dyke containing tr-1% widely scattered 2-3mm round blue quartz crystals. Matrix contains chlorite and biotite as fine grained wisps. Sharp contacts at 85 degrees CA; dyke has strong phlogopite alteration within 30-50cm of contacts.				
352.50 TO 358.00	QUARTZ DIORITE «QTZ DIORITE»	Typical moderate - strongly altered quartz diorite; 30-50% 2-3mm blue quartz crystals.		«SER,CHL» Moderate - strong sericite and chlorite alteration.		
358.00 TO 365.10	INTER-MEDIATE DYKE QP «INT QP»	«QP» As at 345.8.				
365.10 TO 413.90	QUARTZ DIORITE «QTZ DIORITE» E.O.H.	Coarse grained quartz diorite, weakly siliceous, quartz clustered in irregular masses; minor q-c veinlets. Massive. 371.7-373.7 Cm wide qtz-chl vein subparallel to CA. Pink - orange k-spar stained at 371.7. End of Hole.		«CHL,BIO» Moderate to strong chlorite and bio altered, gives speckled appearance.		

Sample	From (m)	To (m)	Length (m)	ESTIMATES Cu %	Zn %	Py %	Po %	Mt %	ASSAYS Cu %	Zn %	Pb %	Ag g/t	Au g/t	GEOCHEMICAL Cu ppm	Zn ppm	Pb ppm	Ag ppm	Au ppb		COMMENTS
TBD-9970	21.00	21.40	0.40											8	10		0.2	5		BARREN Q.V.
TBD-9971	23.50	25.00	1.50			1								17	17		0.3	7		
TBD-9972	40.20	41.20	1.00			1	1							136	9		0.3	43		
TBD-9973	44.70	45.00	0.30											5	25		0.3	6		
TBD-9974	55.70	56.10	0.40	3			3							2050	84		1.8	11		
TBD-9975	67.70	68.30	0.60											84	34		0.4	7		
TBD-9976	127.70	128.10	0.40											6	40		0.4	23		Q-C VEIN
TBD-9977	180.80	181.80	1.00			TR								4	29		0.3	5		
TBD-9978	235.40	236.90	1.50			TR								3	93		1.0	17		
TBD-9979	236.90	238.40	1.50			TR								4	83		0.8	7		
TBD-9980	238.40	239.40	1.00											4	95		1.0	5		
TBD-9981	240.50	241.50	1.00			1								41	22		0.4	34		
TBD-9982	288.80	289.40	0.60											10	31		0.3	5		QV
TBD-9983	293.90	294.90	1.00											6	30		0.3	4		QV
TBD-9984	298.20	299.40	1.20											2	32		0.4	8		QV
TBD-9985	300.30	301.90	1.60											3	12		0.2	40		QV
TBD-9986	313.30	313.90	0.60											3	63		0.6	5		QV'S
TBD-9987	355.60	356.20	0.60											8	54		0.5	5		
TBD-9988	371.70	373.70	2.00											3	21		0.3	5		QV

Total amount of samples= 19
Total length sampled = 18.2M

Sample	From (m)	To (m)	Length (m)	SiO2 %	TiO2 %	Al2O3 %	FeO %	MgO %	MnO %	K2O %	CaO %	Na2O %	LOI %	Cu ppm	Zn ppm	Ni ppm	Ag ppm	Au ppb	TOTAL %	Pb ppm
MSD-2501	18.00	21.00	3.00	78.70	0.28	10.34	2.79	0.44	0.04	1.79	0.61	3.82	0.99	6	19	4	0.3	9	99.80	
MSD-2502	52.00	55.00	3.00	76.00	0.30	10.76	3.72	0.88	0.04	2.79	0.97	2.73	1.49	26	33	4	0.4	4	99.68	
MSD-2503	75.00	78.00	3.00	78.20	0.30	10.59	2.88	0.20	0.02	1.50	0.81	4.16	1.06	9	24	4	0.3	4	99.72	
MSD-2504	108.00	111.00	3.00	77.70	0.30	10.53	2.94	0.26	0.04	1.63	0.89	4.02	1.32	7	17	4	0.3	5	99.63	
MSD-2505	124.00	127.00	3.00	78.70	0.30	10.20	2.83	0.13	0.03	1.11	0.91	4.58	1.05	79	21	3	0.4	6	99.84	
MSD-2506	152.00	155.00	3.00	78.70	0.30	10.31	2.88	0.31	0.03	1.24	0.57	4.47	0.85	16	22	3	0.3	7	99.66	
MSD-2507	170.00	173.00	3.00	76.90	0.32	10.30	5.38	1.28	0.04	1.93	0.33	1.65	1.57	7	35	4	0.4	4	99.70	
MSD-2508	200.00	203.00	3.00	77.20	0.32	10.03	3.97	0.62	0.04	2.32	0.69	3.12	1.52	13	23	4	0.4	4	99.83	
MSD-2509	220.00	223.00	3.00	75.00	0.28	11.35	3.99	0.85	0.04	2.23	1.59	2.21	2.31	63	16	3	0.4	4	99.85	
MSD-2510	250.00	253.00	3.00	76.70	0.27	9.87	6.35	1.50	0.05	2.29	0.16	0.51	2.11	4	30	4	0.5	6	99.81	
MSD-2511	279.00	281.00	2.00	75.90	0.30	10.32	5.92	1.40	0.05	2.89	0.16	0.76	1.90	3	31	4	0.4	4	99.60	
MSD-2512	307.00	310.00	3.00	77.80	0.29	9.49	3.55	0.93	0.04	2.49	1.42	1.65	2.21	8	30	4	0.4	4	99.87	
MSD-2513	340.00	343.00	3.00	75.40	0.30	10.33	4.85	1.59	0.05	2.38	0.87	1.70	2.10	4	55	4	0.5	4	99.57	
MSD-2514	359.00	361.00	2.00	64.30	0.73	11.32	5.18	2.04	0.16	3.43	5.08	1.06	6.38	30	53	11	0.7	4	99.68	
MSD-2515	392.00	395.00	3.00	77.10	0.33	10.47	3.44	0.89	0.03	2.62	0.80	2.62	1.42	6	25	5	0.6	4	99.72	

Total amount of samples= 15
Total length sampled = 43.0M

From (m)	To (m)	Length (L)	Sum Of Length S>= 8.38cm	RQD S/LX100	Number Of Fracturs	Fracturs Per Metres	Number Of Veins	Veins Per Metres	Angle	Comments
0.00	0.00	0.00	0.00	0	0	0	0	0	0	

Ministry of Northern Development and Mines

Ontario

Report of Work

DOCUMENT
W8903.176
Mining

52G14SE0003 51 VALORA LAKE

900

Assessment Library

Name and Postal Address of Recorded Holder

MINNOVA Inc. | T-556

P. O. BOX 91, COMMERCE COURT WEST, TORONTO, ONTARIO M5L 1C7

Summary of Work Performance and Distribution of Credits

Total Work Days Cr. claimed ~~840~~ 1040	Mining Claim Prefix	Mining Claim Number	Work Days Cr.	Mining Claim Prefix	Mining Claim Number	Work Days Cr.	Mining Claim Prefix	Mining Claim Number	Work Days Cr.
for Performance of the following work. (Check one only)	PA	964755	140						
☐ Manual Work	[redacted]	964756	140	[redacted]			[redacted]		
☐ Shaft Sinking Drifting or other Lateral Work.		964757	140						
☐ Compressed Air, other Power driven or mechanical equip.		964758	140						
☐ Power Stripping		964759	140						
☒ Diamond or other Core drilling BQ		964760	140						
☐ Land Survey									

All the work was performed on Mining Claim(s): PA 964755 Valora Lake G 2565

Required Information eg: type of equipment, Names, Addresses, etc. (See Table Below)

CONTRACTOR: CONNORS DRILLING LTD., 2007 WEST TRANS CANADA HIGHWAY, KAMLOOPS, B. C. V1S 1A7

DRILLING PERIOD: JANUARY 16th - JANUARY 25th, 1988

D.D.H. #DW-01 - Total Footage ~~1,004~~ 1040 Feet/Days

To be used for this submission 840 Feet/Days

Retained for future submission ---- ~~164~~ 100 Feet/Days

Core Storage: MINNOVA Inc. - Sturgeon Lake Mine Site

Assignment
Pa. 964755 T556 (W8903-176) 900 3100

ONTARIO GEOLOGICAL SURVEY
ASSESSMENT FILES OFFICE
JAN - 5 1990
RECEIVED

RECEIVED
DEC 18 1989
PATRICIA MINING DIVISION

Recorded

Date of Report	Recorded Holder or Agent (Signature)
NOVEMBER 24, 1989	Patrick Lewis

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.

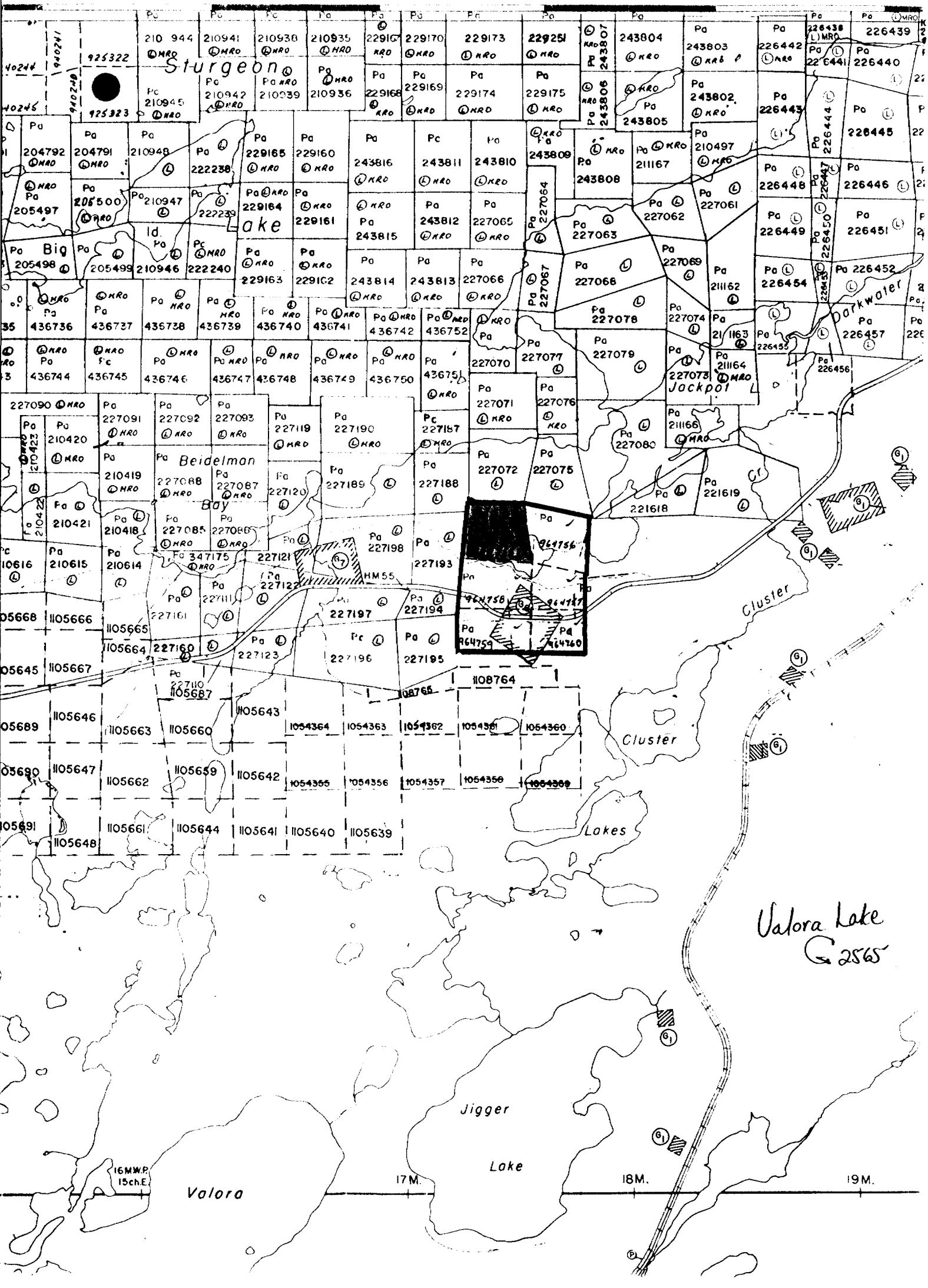
Name and Postal Address of Person Certifying

PATRICK LEWIS c/o MINNOVA Inc. 2606 VICTORIA AVENUE, EAST, THUNDER BAY, ONTARIO P7C 1E7

Date Certified	Certified by (Signature)
NOVEMBER 24, 1989	Patrick Lewis

Table of Information/Attachments Required by the Mining Recorder

Type of Work	Specific information per type	Other information (Common to 2 or more types)	Attachments
Manual Work	Nil	Names and addresses of men who performed manual work/operated equipment, together with dates and hours of employment.	Work Sketch: these are required to show the location and extent of work in relation to the nearest claim post.
Shaft Sinking, Drifting or other Lateral Work			
Compressed air, other power driven or mechanical equip.	Type of equipment		
Power Stripping	Type of equipment and amount expended. Note: Proof of actual cost must be submitted within 30 days of recording.	Names and addresses of owner or operator together with dates when drilling/stripping done.	
Diamond or other core drilling	Signed core log showing; footage, diameter of core, number and angles of holes.		Work Sketch (as above) in duplicate
Land Survey	Name and address of Ontario land surveyor.	Nil	Nil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226449
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226455
226456
226457

STURGEON

LAKE

TAK

LAKE

1040'

JACKPOT

LAKE

WEST STURGEON LAKE PROJECT

DAPEWATER AREA

Dec 5/89