



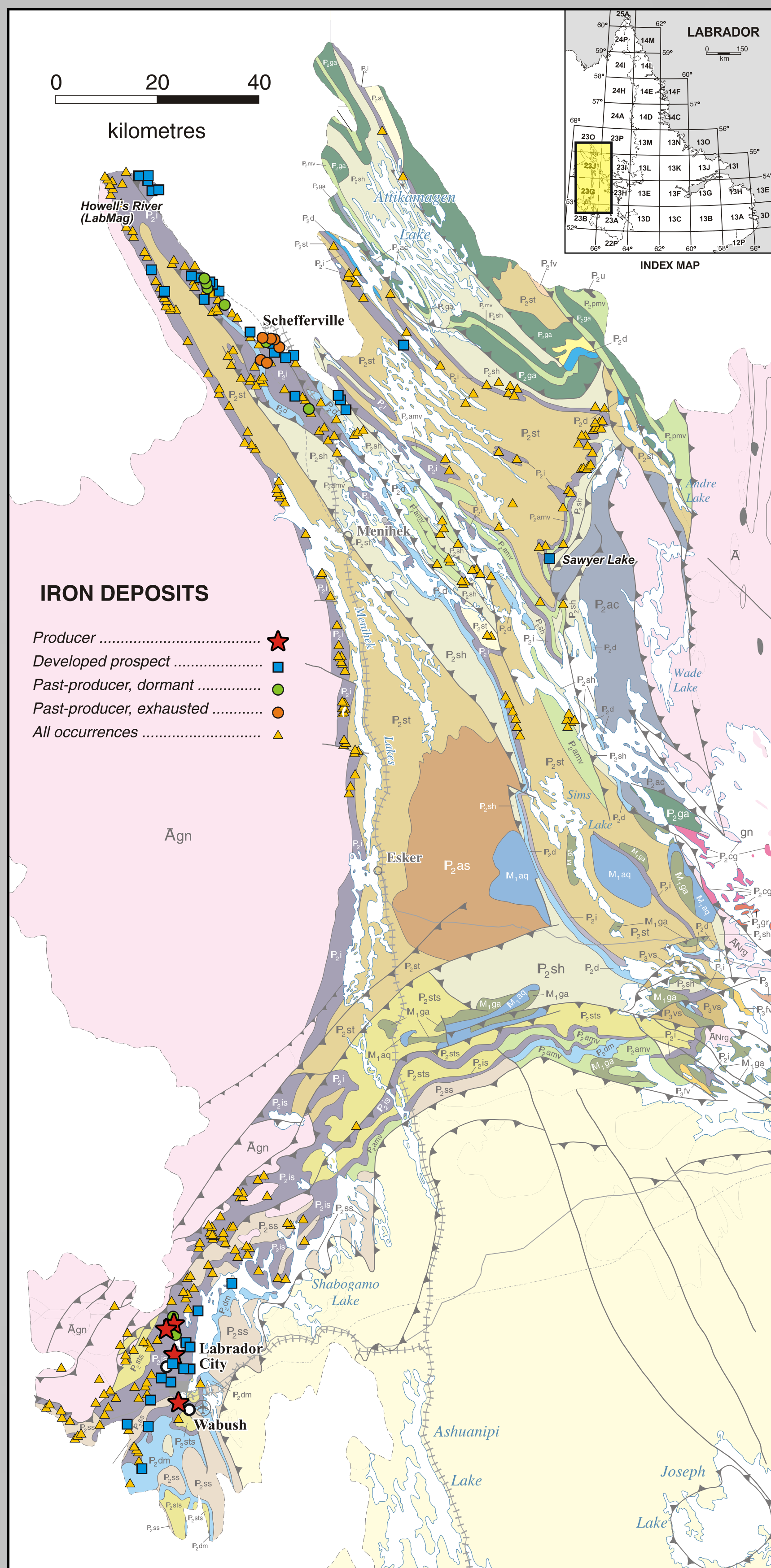
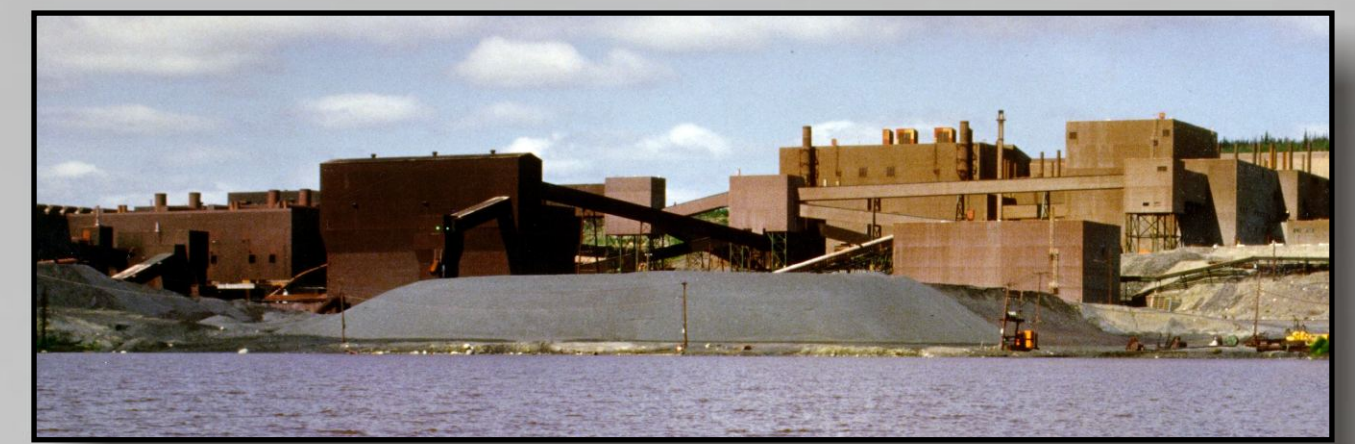
# 铁矿： 拉布拉多西部

位于拉布拉多西部和相邻的魁北克的拉布拉多洼地有世界级的元古宙铁矿,这些铁矿已经开采了半个多世纪。

这条1100公里长的带状构造产出了数个大型矿床,其中包括三个位于拉布拉多-魁北克边界附近的大型铁矿:加拿大铁矿公司(IOCC)、Wabush矿、和魁北克Cartier矿。仅加拿大铁矿公司的矿床就产出了超过13亿吨的铁矿石。现有储量和资源显示这个地区还可以持续生产数十年。

左边的地质图显示这个区域大量的铁矿点、前景区、和矿床。其中的最大的一些矿床列在表1(据Hatch, 1980)。未来矿业开发的机会和潜力在拉布拉多洼地的这一区域是相当可观的。

位于拉布拉多洼地的Wabush镇和拉布拉多市是纽芬兰-拉布拉多省交通枢。全年畅通的空中、地面、和铁路交通网将它们与Baie Comeau, Sept-Isles, Happy Valley - Goose Bay, 等其他城市相连。这一地区有稳定的、技术水平很高的劳动力和良好的矿业传统。



正在开采的和已开采完的矿床主要是氧化物相、苏必利尔型含铁建造,是产于浅海环境的化学沉积。这些矿床的详细描述、起源、和地质环境见 Gross (1972, GSC Economic Geology Report 22), Neal (2000, Exploration and Mining Geology, volume 9) 提供了综述。Hatch and Associates (1980)给纽芬兰-拉布拉多省政府提供的总结也很有用。

一般说到目前为止有三种铁矿被开采过:

- 表生铁矿(赤铁矿、针铁矿、褐铁矿):弱变质的硅质含铁建造,在白垩纪风化过程中富集;
- 磁铁矿含铁建造或铁燧岩(弱变质的);
- 变质的粗粒的(镜铁矿-磁铁矿)含铁建造

拉布拉多洼地大型含铁单元, Sokoman组,在下面的地层表中有描述。纽芬兰-拉布拉多省的大部分铁矿产自300米厚的Wabush铁建造,它等同于位于拉布拉多洼地其他区域的Sokoman组。铁燧岩和变质铁燧岩铁矿产于三个地层单元,最典型的矿物是赤铁矿和镜铁矿,有少量磁铁矿;废石主要是硅,占矿石的50%。这一地区Hudsonian期变形的含铁建造在格林威尔造山期中被再次褶皱和变质。因尔变质程度高于拉布拉多洼地北部,铁更容易开采,因为矿物粒度更粗。下面的剖面图显示本区的复杂构造(据Gross, 1972)。大型矿床的形成,例如Carol矿,部分是由于向斜核部加厚和褶皱重复的结果。

其他正在勘查中的拉布拉多矿床包括低品位富含磁铁矿的Howells River铁燧岩铁矿(LabMag项目),位于Schefferville西北大约30公里,拉布拉多市以北220公里。LabMag最初由加拿大铁矿公司(IOCC)在七十年代和八十年代勘探。New millennium Capital Corporation (NMCC)在2006年4月公布的结果显示在一个10公里长的区域大约有30.84亿吨的探测储量和5.81亿吨的显示储量,总储量达36.65亿吨(NI 43-101标准)。未开发的高品位矿床,那种在Schefferville地区开采的可直接运输的矿石,仍然存在(例如,Sawyer Lake)。

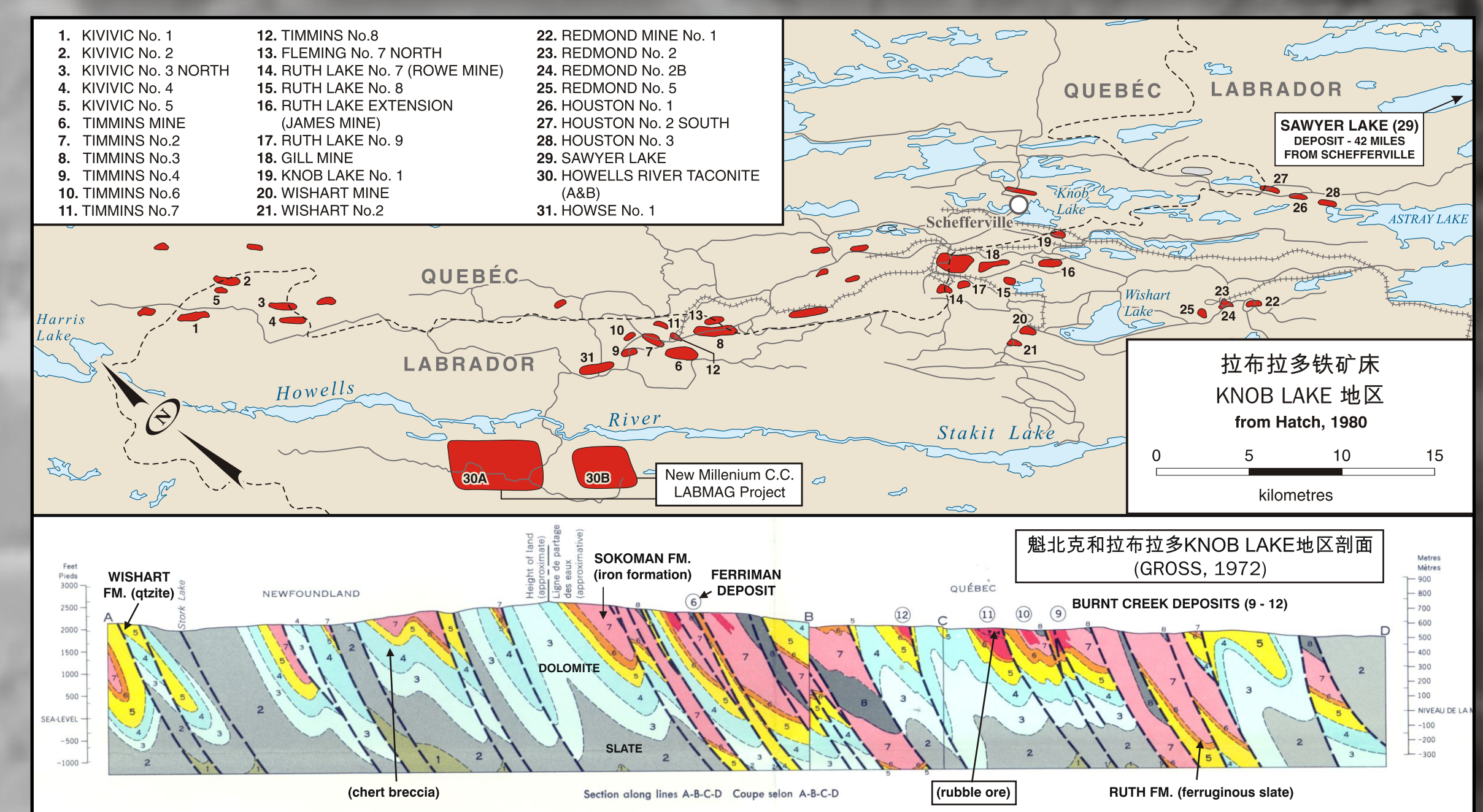
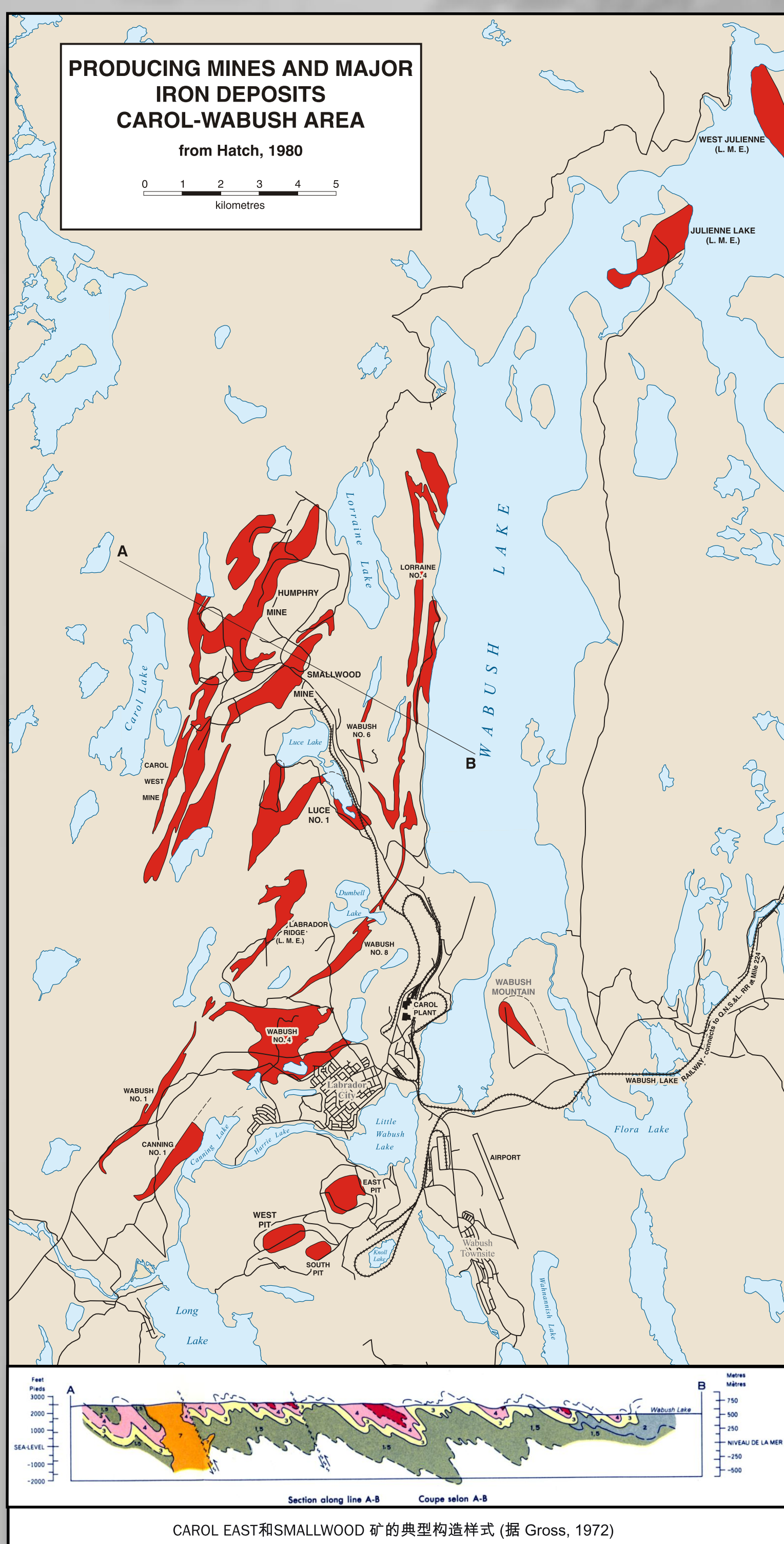


Wabush Mines

Iron Ore Co. of Canada



SOKOMAN	含铁建造上段	石英-铁闪石-阳起石-碳酸盐 石英-铁闪石-阳起石 石英-铁闪石(铁闪石) 石英-磁铁矿-碳酸盐 石英-碳酸盐-磁铁矿 石英-碳酸盐(铁闪石)
	含铁建造中段	石英-磁铁矿-磁铁矿 石英-磁铁矿-磁铁矿 低品位石英-磁铁矿 石英-磁铁矿
	矿层	石英-磁铁矿-磁铁矿 石英-磁铁矿-磁铁矿 石英-磁铁矿-磁铁矿 石英-磁铁矿-磁铁矿 石英-碳酸盐(铁闪石)
	含铁建造下段	石英-碳酸盐-磁铁矿 石英-磁铁矿-碳酸盐 石英-磁铁矿-磁铁矿 石英-碳酸盐(铁闪石)



**TABLE 1**  
FROM A 1980 REPORT BY HATCH ASSOCIATES LTD. TO THE GOVERNMENT OF NEWFOUNDLAND & LABRADOR - DEPARTMENT OF MINES & ENERGY  
POTENTIAL FOR FURTHER IRON ORE DEVELOPMENT IN NEWFOUNDLAND AND LABRADOR: ALTERNATIVE POSSIBLE ORE SOURCES

ALTERNATIVE POSSIBLE SOURCES OF IRON ORE	IDENT NO.	DEPOSIT OR MINE IDENTIFICATION	OWNERSHIP	ORE RESERVES		PROCESS DATA SUMMARY			DATA SOURCE	COMMENTS	
				TONNAGE LONG TONS	CATEGORY	MINERAL TYPE	ESTIMATED CONC. GRADE	PROBABLE RATIO OF CONC.			PROBABLE WASTE-RATIO
IRON ORE CO. OF CANADA LTD.	1	CAROL LAKE DEPOSITS LABRADOR CITY AREA	MINING LICENCES & LEASES OWNED BY LABRADOR MINING & EXPLORATION CO. MINING, CONCENTRATING & PELLETIZING MANAGED BY THE HATCH MING. CO.	RESERVES IN 13 DEPOSITS INDICATED BY EXTENSIVE DRILLING. PROBABLE 5 BILLION TONS OF ORE.	INDICATED RESERVE CALCULATION BASED ON EXTENSIVE DRILLING.	SPECULAR HEMATITE	65-68% Fe	2.5 : 1	LOW	ORE RESERVE DATA CONFIRMED BY ION ORE CO. OF CANADA LTD.	RESERVES APPEAR TO BE SUFFICIENT TO SUPPORT PRESENT OPERATIONS FOR 50 - 100 YEARS
WABUSH MINES	2	SCULLY MINE LABRADOR CITY AREA	MINING LEASES HELD BY KNOB LAKE MINERALS MANAGEMENT BY PICKANDS-MATHERS	RESERVES STATED TO BE OVER 1 BILLION TONS OF ORE.	RESERVES BASED ON EXTENSIVE DRILLING.	SPECULAR HEMATITE	65.5% Fe		LOW	ORE RESERVE DATA CONFIRMED BY PICKANDS-MATHER	RESERVES APPEAR TO BE SUFFICIENT TO SUPPORT PRESENT OPERATIONS FOR 50 - 100 YEARS
LABRADOR MINING & EXPLORATION CO.	3	LABRADOR RIDGE	MINING LEASES HELD BY LABRADOR MINING & EXPLORATION CO.	550 X 10 <sup>6</sup> 37.7% Fe	RESERVES ESTABLISHED BY 25000 FT. OF DRILLING & ARE TO BE IN PROVEN CATEGORY	SPECULAR HEMATITE	68-67% Fe	2.2 : 1 48.8% W/REC-Y	0.03	FEASIBILITY STUDY ON LABRADOR RIDGE DEPOSIT BY LABRADOR MINING & EXPLORATION CO.	PRELIMINARY FEASIBILITY STUDY COMPLETED 1985
PROVINCE OF NEWFOUNDLAND	4	JULIENNE LAKE LABRADOR CITY AREA	PROVINCE OF NEWFOUNDLAND	500 X 10 <sup>6</sup> 35% Fe	NINE DRILL HOLES INDICATED BY EXTENSIVE DRILLING. NO RESERVE ESTABLISHED. IRON ORE CO. REPORTED TO HAVE A NUMBER OF SIMILAR PROSPECTS	SPECULAR HEMATITE	66% Fe	EST. TO BE 30% SO <sub>2</sub> Fe <sub>2</sub> O <sub>3</sub> 80% RECYC. 2.5 : 1	0.05	MINERAL DEVELOPMENT DIVISION, DEPT. OF MINES & ENERGY GOVERNMENT OF NEWFOUNDLAND & LABRADOR	ORE BODY EXTENSIONS NOT TO BE VARIABLE UNDER PRESENT LINE SOUTH OF EXPLORATION CO.
WABUSH MOUNTAIN & OTHER PROSPECTS	5	LABRADOR CITY AREA	WABUSH MINES & OTHERS IRON ORE CO. OF CANADA LTD.		WABUSH MOUNTAIN DEPOSIT NOT DRILLED. NO RESERVE ESTABLISHED. IRON ORE CO. REPORTED TO HAVE A NUMBER OF SIMILAR PROSPECTS	SPECULAR HEMATITE				PRIVATE COMMUNICATIONS	ALL PROSPECTS WOULD REQUIRE DRILLING PROGRAM TO ESTABLISH RESERVES
IRON ORE CO. OF CANADA LTD.	6	HOWELLS RIVER TACONITES SCHEFFERVILLE AREA	DEVELOPMENT LICENCE HELD BY ION ORE CO. OF CANADA LTD.		RESERVES BELIEVED TO BE EXTENSIVE. DRILLING DONE FROM 1972 TO 1979	MAGNETITE (FINE GRAINED)	ABOUT 68% Fe	ABOUT 3.3 : 1	LOW	DATA FROM IRON ORE CO. OF CANADA LTD.	REQUIRES ABOUT 30 MI. OF R.R. TO CONNECT WITH PRESENT LINE SOUTH OF EXPLORATION CO.
IRON ORE CO. OF CANADA LTD.	7	KNOB LAKE DEPOSITS SCHEFFERVILLE AREA	LICENCES & LEASES HELD BY LABRADOR MINING & EXPLORATION CO.	45,000,000 AT +4.5% Fe	DIRECT SHIPPING & PELLET PLANT FEED 148.3 X 10 <sup>6</sup> TONS	PROVEN HEMATITE	64.5% Fe	DIRECT SHIPPING 54.5% Fe 63.1% Fe		DATA FROM IRON ORE CO. OF CANADA LTD.	DEVELOPMENT OF THIS TYPE OF ORE DEPOSIT CONSIDERED NOT TO BE VARIABLE UNDER PRESENT & FORESEEABLE FUTURE IRON ORE MARKETS
WABANA MINES LTD.	8	WABANA BELL ISLAND	PROVINCE OF NEWFOUNDLAND		GEOLOGICAL INFERRED RESERVES ARE SEVERAL BILLION TONS	OLOLITHIC IRON ORE	47-59% Fe			MISC. REPORTS	THIS DEPOSIT CONSIDERED NOT TO BE VARIABLE TO 1 COSTLY UNDERGROUND MINE. 2 ORE TYPE NOT DESIRABLE IN PRESENT & FORESEEABLE FUTURE IRON ORE MARKETS
OTHERS	9	1. SAWYER LAKE 2. WISS. SMALL SHOWINGS NOT EXPLORED IN ANY DETAIL.	IRON ORE CO. OF CANADA LTD.	1-2 MILLION TONS		MASSIVE HEMATITE	65% Fe			GEOLOGY OF IRON ORE DEPOSITS IN CANADA. GSC ECONOMIC GEOLOGY REPORT 22. DEPT. ENERGY, MINES & RESOURCES	SAWYER LAKE DEPOSIT WOULD BE INTERESTING FOR DIRECT REDUCTION IF MORE TONNAGE COULD BE FOUND. POTENTIAL FOR MORE TONNAGE IS POOR