Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
Hon. Jack Davis, Minister

B.C. GEOLOGICAL SURVEY BRANCH
1990 - 1991 Project Inventory

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VICTORIA
BRITISH COLUMBIA
CANADA

JUNE 1990

PREFACE

This is an inventory of major projects which the Geological Survey Branch plans to undertake during the 1990 field season. This publication is designed to inform the mineral industry and interested public of the locations and objectives of our current research.

The number of field programs is reduced from the previous fiscal year due to a drop of $240,000 in our operational budget. The overall Branch budget in fiscal 1990/91 is $7.034 million which reflects an increase of $878,000 over fiscal 1989/90 due to negotiated employee salary increases and return of employee benefits to the Branch budget. The Canada/British Columbia Mineral Development Agreement (MDA) is in its final wrap up year with a budget of $300,700. These funds are directed to the completion and write-up stages of MDA field programs carried out over the past four years.

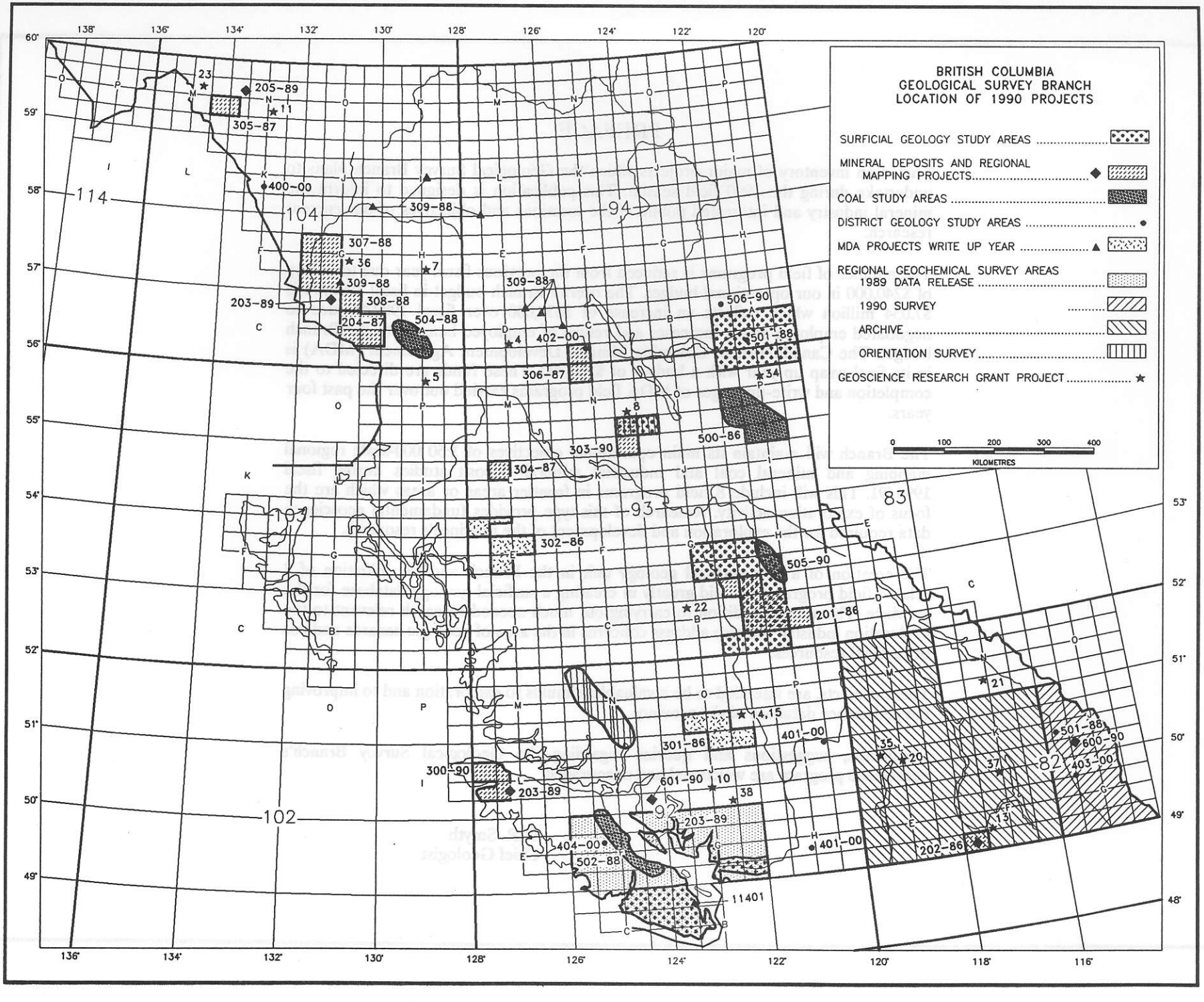
The Branch will maintain its main operational objectives of 1:50 000-scale regional mapping and mineral coal and industrial mineral deposit studies during fiscal 1990/91. This will include 8 field programs in frontier areas or areas which are the focus of exploration activity. Research of this type provides fundamental geoscience data required for the exploration and development of the province's resources.

The creation of a new surficial geology unit in the Branch and the initiation of 3 related field programs will aid greatly in creating a surficial geology database for the province. This unit in addition to carrying out much needed research relevant to the exploration industry will also address concerns in the area of geologic hazards and use of surficial resources.

These projects, are intended to be a valuable stimulus to exploration and to improving the geoscience database of the province.

Comments, suggestions and queries regarding the Geological Survey Branch's geoscience program are welcomed and encouraged.

W.R. Smyth
Chief Geologist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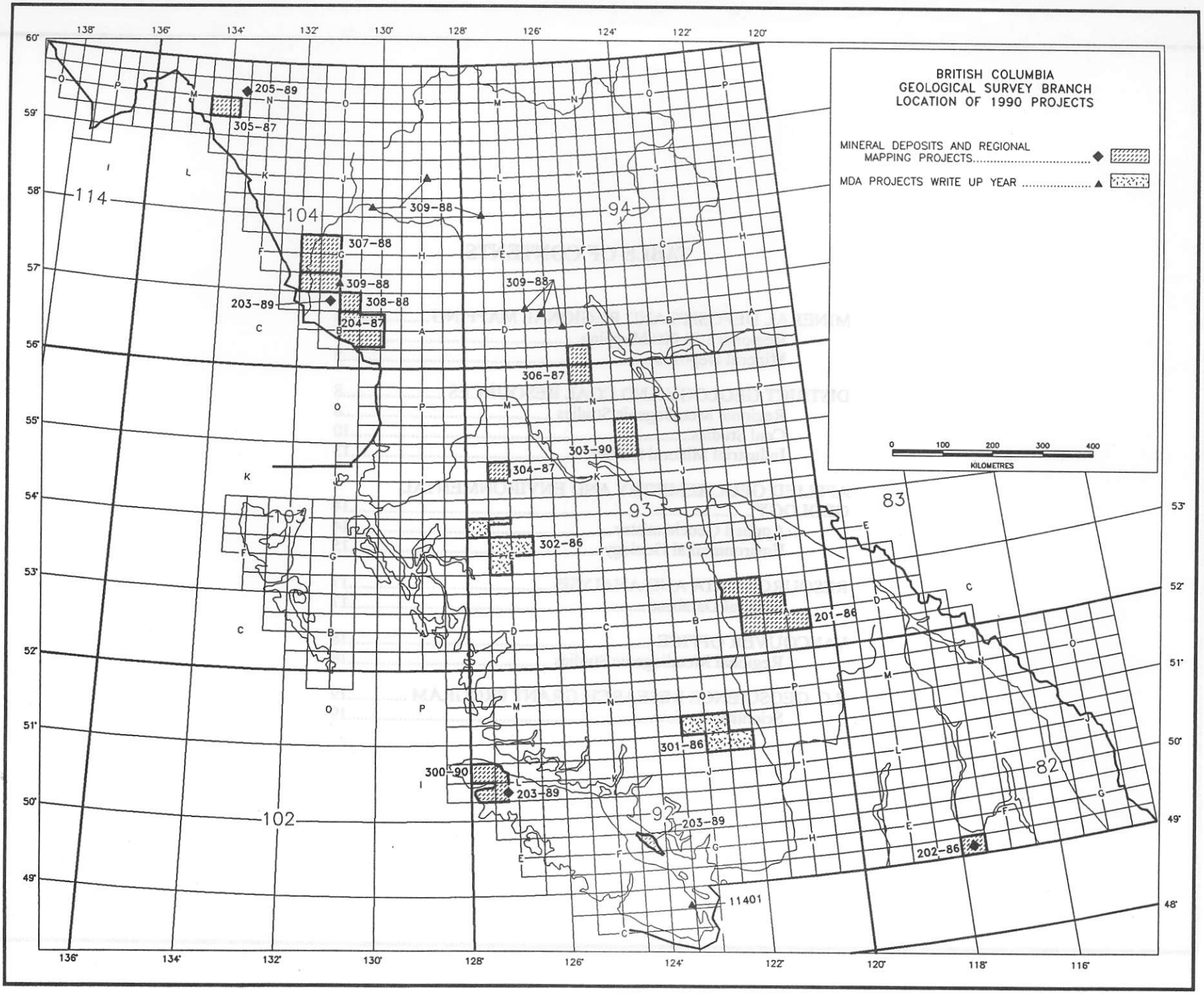
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Year: 1990-91
Section: Mineral Deposits and Regional Mapping
Category: Regional 1:50 000 Mapping

Project Number	Principle Researcher	Title	Project Statement	Area	Fieldwork Days 1989	$ Budget M = MDA A = A-base
300-90	N. Massey D. Melville	Quatsino Sound Year 1 of 5	This new project will provide regional 1:50 000 geological maps of the Quatsino (92L/12) and Mahatta Creek (92L/5) sheets and the western halves of the Alice Lake (92L/6) and Port McNeill (92L/11) sheets on northern Vancouver Island. This area is underlain by Mesozoic rocks predominantly of the Vancouver and Bonanza groups and hosts important porphyry Cu (Island Copper), Cu-Au skarn (Merry Widow), Fe-skarn and gold vein mineralization. The 1990 field program will be limited to regional work around the Merry Widow deposit in cooperation with G. Ray, and a general reconnaisance of the area.	Northern Vancouver Island	28	$102,000 (A)
301-86	P. Schiarizza B. Gaba	Taseko-Bridge River Year 5 of 5	1:50 000 mapping in the Warner Pass, Noaxe Creek, Big Bar Creek, Bralorne and Bridge River map areas was completed in the 1986 to 1989 field seasons. This mapping has contributed to a better understanding of the distribution and relationships of late Paleozoic through Tertiary mineral occurrences, which include porphyry Cu-Mo, mesothermal gold-quartz veins, polymetallic sulphide veins, Sb±W veins, and Hg-Sb veins and disseminations. Final maps and reports for the project will be produced in the 1990-91 fiscal year.	SW B.C. 92I, J	0	$62,500 (A) $46,500 (M)
302-86	L. Diakow	Whitesail Lake	1:50 000 mapping of the Whitesail Project	93E, 6, 10, 11, 14	0	$62,500 (A)

		Year 5 of 5	was completed in 1989. The Whitesail Reach map area (93E/10) the eastern half of Troitsa Lake (93E/11), Chikamin Mountain (93E/6), Nanika Lake map area 93E/13 and the northern half of Newcombe Lake (93E/14) map sheets were mapped. A final report will be completed in 1990.	North Central B.C.		$40,000 (M)
303-90	J. Nelson	Mount Milligan Project Year 1 of 2	The Mt. Milligan porphyry Au-Cu deposits are one of B.C.'s hottest new potential producers, with current geological reserves of over 400 million tonnes at greater than 0.2% Cu, greater than 0.48 grams per tonne Au. The steadily increasing potential of Mt. Milligan over the past three years has led to a major staking rush in the 4 map-areas around it. Modern geological maps of the area are badly needed. This project will cover two 1:50 000 sheets in 1990, emphasizing geological indicators of porphyry systems such as alteration in the Takla volcanics and any previously unrecognized small plutonic bodies.	93N/1 93K/16 Eastern North Central B.C.	90	$173,000 (A) $3,500 (M)
304-86	D. MacIntyre P. Desjardins	Telkwa Project Year 4 of 4	The area between the Teklwa Range and Morice Lake will be mapped at 1:50 000 scale in order to fill in the area between the Telkwa and Whitesail Projects. Significant mineral occurrences in this area include the Lucky Ship porphyry deposit. Final report and map compilation has been started for previously mapped areas.	Telkwa Range 93L/3 near Smithers	90	$162,000 (A)
305-87	M. Mihalynuk	Tagish Project Year 4 of 5	Past producers like the Engineer and Polaris Taku mines lie along a northwest structural trend. The Tagish Project began work along this trend in the Tutshi Lake area and continues to extend mapping southward into the Edgar Lake area along this zone of	104M/8 104N/5W Tagish Lake area	30	$114,500 (A)

			precious metal potential. Limited geological mapping and complementary stream sediment geochemical surveys to define the settings of known mineral deposits and outline areas favourable for exploration will complete the field aspect of the project.			
306-87	F. Ferri	Manson Creek Year 5 of 5	The Manson Creek-Germansen Landing area is a long known producer of placer gold in British Columbia. It contains bedrock occurrences of precious and base metals, barite and rare earths. Detailed geological, geochemical and mineral occurrence maps and a final report are in preparation.	93N/9, 10, 15 94C/2, 5 Eastern North Central B.C.	0	$86,000 (A)
307-88	D. Brown V. Koyanagi	Stikine Project Year 3 of 5	Limited field work will be conducted in 1990. The existing geological data will be compiled at 1:100 000 scale with emphasis on Paleozoic Stikine assemblage, Upper Triassic Stuhini Group and Lower Jurassic Hazelton Group. The relationships of stratigraphy and structure to mineralization will be outlined and viable exploration models generated. A M.Sc. study by Mike Gunning will complement the project and provide detailed information on the Stikine assemblage.	104G/5, 6, 11, 12 Northwestern B.C.	20	$110,000 (A)
308-88	J. Logan	Iskut-North Year 3 of 5	Follow-up mapping in the Scud River and Round Lake areas will focus on the stratigraphic and structural relationships of pre-Lower Carboniferous vs Permian units of the Stikine assemblage and their relationship with the Upper Triassic Stuhini Group. Volcanic horizons within the Paleozoic rocks are potential massive sulphide hosts, structures control alkaline copper-gold mineralization. A week will be spent participating in a regional correlation of	Sphaler Creek and Forrest Kerr map area 104B/G NW B.C.	20	$110,000

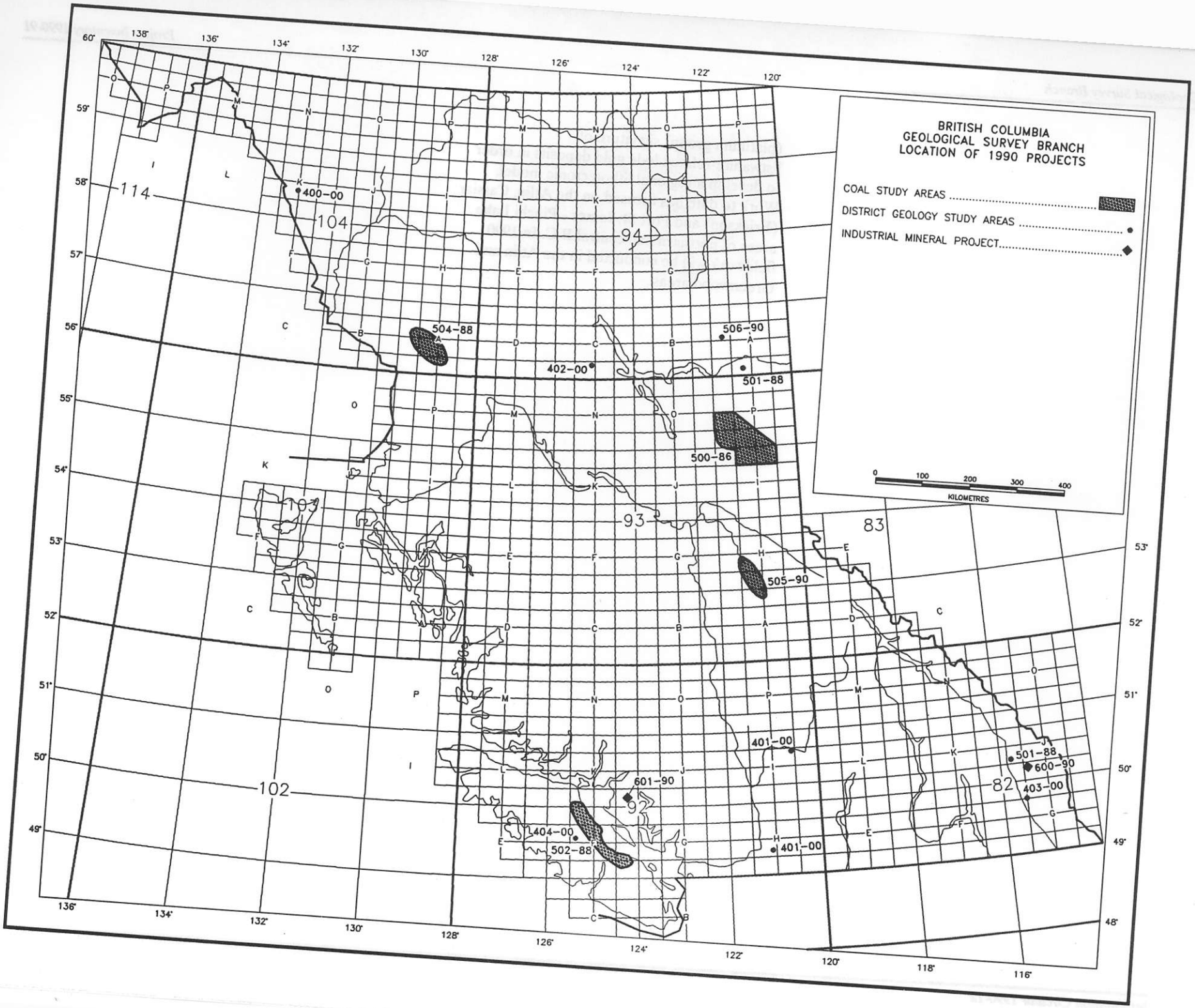
			stratigraphy between Stewart and Forrest Kerr to define a consistent stratigraphic nomenclature for NW B.C.			
309-87	G. Nixon	Ultramafic Year 3 of 3	The project is intended to make a preliminary evaluation of the economic potential of Alaskan-type ultramafic-mafic intrusive complexes and to establish exploration guidelines for platinum group elements, chromite, Ni-Cu-Fe sulphides and other commodities through geologic mapping and geochemical sampling. The field program ended in 1989 and the results are presently being compiled for publication.	94C, D East North Central B.C.	0	$65,500 (A) $40,000 (M)

Year: 1990-91
Section: Mineral Deposits and Regional Mapping
Category: Mineral Deposits

Project Number	Principle Researcher	Title	Project Statement	Area	Fieldwork Days 1989	$ Budget M = MDA A = A-base
200-90	B.N. Church Z.D. Hora	Tertiary structures and outliers Year 1 unspecified	Little is known about the mineral potential of the Williams Lake - Quesnel area. The object of this study is to investigate precious metal and industrial mineral resources.	Quesnel Williams Lake 93B	90	$130,000 (A)
201-86	A. Panteleyev	Quesnel Mineral Belt Year 5 of 4	The project studied the geological framework for mineral deposits in the Quesnel Mineral Belt. A summary paper and 1:1 000 000-scale compilation map are being prepared based on fieldwork and research conducted from 1986 to 1988. The paper describes the geology and mineral potential of the Triassic/Jurassic volcanic arc. Mineral deposits of note are alkalic stock-related porphyry copper-gold deposits, auriferous quartz veins and the QR deposit, a new type of gold occurrence in propylitized basaltic rocks. Bedrock sources of placer gold in the Miocene and younger Horsefly River drainage system are considered.	Quesnel River and Horsefly Lake 93A/5, 6, 7, 11, 12, 13 93B/16	0	$70,000 (A)
202-86	T. Höy K. Andrew	Rossland Project Year 4 of 5	The Rossland camp is the second largest historical gold producer in British Columbia. It is hosted by volcanic and sedimentary rocks of the Lower Jurassic Rossland Group which extend in an arcurate belt northeastward to Nelson. Although the Rossland Group has traditionally been considered a mesothermal vein camp, recent revival in exploration	Rossland 82F/4W	90	$170,000 (A)

			activity has concentrated on shear-related, alkaline prophyry, copper-gold and skarn as well as gold-silver-copper vein targets. The objective of this project is to better define the controls of these deposit types and to better understand their tectonic and stratigraphic setting. Fieldwork planned for 1990 includes completion of 1:20 000-scale mapping south of Rossland as well as detailed study of selected mineral deposits in the Rossland and Nelson camps.			
203-89	G.E. Ray I.C.L. Webster	Skarns Year 2 of 4	This project continues to investigate the origin, distribution, controls and metallogeny of B.C. skarns. There are over 600 mineralized skarns documented in the province and at least 100 past producers. A 1:20 000 mapping and mineral deposits study of the Texada Island Fe-Cu-Au skarn camp was completed in 1989. The 1990 season will involve mapping and core logging studies at the Merry Widow Fe-Au deposit (Northern Vancouver Island) and the Iskut River area of northern B.C.	Merry Widow 92L, N. Vancouver Island Iskut River 104B, NW B.C.	70	$175,000 (A)
204-87	D.J. Alldrick J.M. Britton	Iskut-Sulphurets Project Year 4 of 5	The Iskut-Sulphurets gold camp is one of the most active mineral exploration areas in B.C. Two gold mines have come into production since 1981; four other properties are in advanced stages of exploration, yet the geology of the area is not well known.	Boundary Ranges 104B, NW B.C.	50	$150,000 (A)
205-89	C. Ash	Listwanite Project Year 2 of 2	Alpine ultramafic rocks occur within the Cache Creek Terrane throughout B.C. and host structurally controlled zones of listwanite alteration (carbonatized ultramafic rocks) that are a target for lode-gold mineralization. This project is investigating the timing, tectonic setting and trace element geochemical	Atlin, 104N Greenwood, 82F	30	$70,000 (A)

(platinum group) signature of listwanite-related lode gold deposits in order to develop a regional lithotectonic model. Work to date has focused on the Atlin, Cassiar (Erickson) and Fort St. James - Pinchi Lake areas of northern and central B.C. In 1990 fieldwork will be conducted in the Atlin and Greenwood areas.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DISTRICT GEOLOGY STUDY AREAS
INDUSTRIAL MINERAL PROJECT
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Year: 1990-91
Section: District Geology and Coal Resources
Category: Regional Metallogenic Studies

Project Number	Principle Researcher	Title	Project Statement	Area	Fieldwork Days 1989	$ Budget M = MDA A = A-base
400-00	D.V. Lefebure	Metallogeny of Northwestern B.C. Ongoing	Emphasis will be on volcanogenic massive sulphide deposits and on mesothermal and epithermal precious metal veins. The study of the precious metal potential of the Tertiary volcanic rocks of the Ootsa Lake Group on Nechako Plateau will be completed. The north coast study will move into a follow up phase to investigate the effectiveness of gold evaluation completed in an expert system analysis in 1989. The study of volcanogenic massive sulphide deposits in the district will continue with emphasis on the Tulsequah mining camp and the Ecstall and Kutcho Creek deposits.	Tulsequah Area, Douglas Channel, Nechako Plateau, Babine	90	$158,163 (A)
401-00	R.E. Meyers	Gold Metallogenic Studies, South Central B.C. Year 3 of 4	The study of the distribution, setting and character of lode precious metal deposits in the district will continue with the study of precious metal occurrences in the Deadman Creek to Vidette Area (92I/NE). Reconnaissance mapping and detailed studies of mineral occurrences in the Treasure Mountain area (92H/6E) will be undertaken.	Deadman Creek/ Vidette, Treasure Mountain 92I/15E & W 92H/6E	100	$143,916 (A)
402-00	E.L. Faulkner	Metallogenic Studies Central B.C. Ongoing	The study of alkali porphyry copper-gold deposits in the district will continue with a field study of the Cat property on the Osilinka River, 100 kilometres north of the Mount Milligan deposit. Monitoring of	Northern and Southern Quesnel Trough 94C/3E	40	$99,229 (A)

			exploration activity and detailed studies of other porphyry deposits will also be carried out.			
403-00	A. Legun	Metallogenic Studies Kootenay Region Ongoing	Exploration activity in the region will be monitored and detailed studies will be made of several of the most active properties. Geological compilation of data pertaining to the mineral potential of certain map quadrants (*e.g.* 82G/NW) will be initiated.	Kootenay Region 82G	50	$11,029 (A)
404-00	H.P. Wilton	Metallogenic Studies Southwestern B.C. Ongoing	The investigation and documentation of the exploration trends, geology and metallogeny of the district will continue. The study of epithermal gold deposits at Mt. Washington and of similar deposits in the Beaufort range will be completed. A comprehensive review of the geology and metallogeny of the Tofino-Kennedy Lake area will be initiated and complemented by field studies of mineral deposits. The short term impact of the 1990 RGS release on Vancouver Island and adjacent mainland will be evaluated. A compilation of the geological data in the district will be initiated.	Mt. Washington, Kennedy Lake 92F/11, 12, 13, 14	92	$95,087 (A)

Year: **1990-91**
Section: **District Geology and Coal Resources**
Category: **Coal Studies**

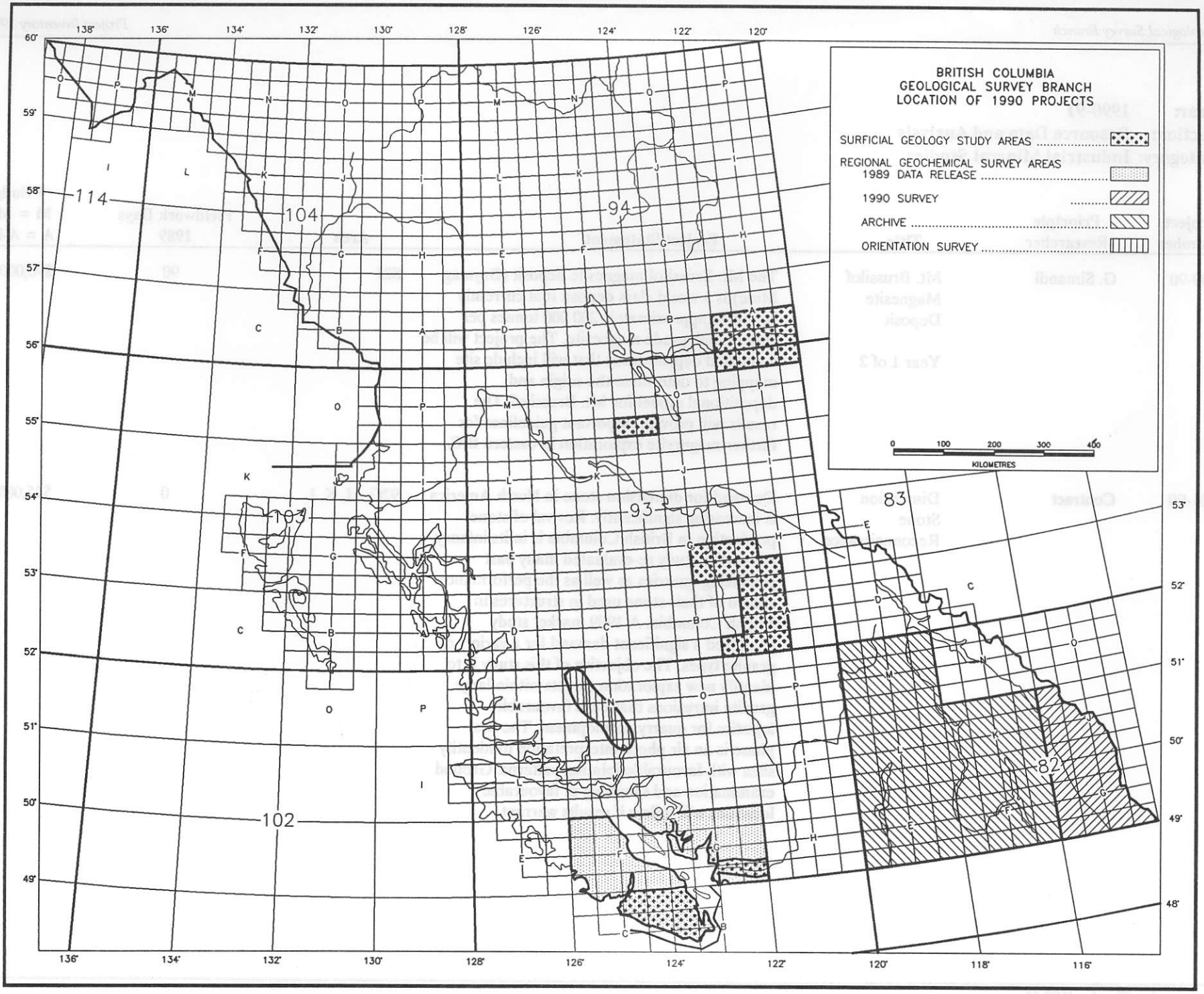
Project Number	Principle Researcher	Title	Project Statement	Area	Fieldwork Days 1989	$ Budget M = MDA A = A-base
500-86	W. Kilby J. Hunter	Burnt River/ Tumbler Ridge	The coal measure geology and regional stratigraphy of the Burnt River map sheet (93P/5) will be mapped. All existing coal and petroleum exploration data will be incorporated. The Burnt River thermal coal deposit is located in the centre of the area. Coalbed methane has strong potential in the area as does conventional petroleum. The Tumbler Ridge portion of the project is in final report phase. 1:50 000-scale mapping has been completed for four and a half map sheets which include the two producing coal mines in NE B.C. and the potential Sukunka and Monkman mines. The area contains several producing gas fields and holds excellent coalbed methane potential.	93I/14, 15 93P/2, 3, 4, 5	60	$104,567 (A)
501-88	D. Grieve	Coal Quality Ongoing	Coal quality dictates the ultimate utilization and value of a coal. The project will collect, compile and interpret quality data for B.C. coals and augment this data with analytical results on samples collected in the field. Studies in 1990-91 will focus on: factors contributing to good coking coal, thermal coals and gasification feed stocks; develop techniques for predicting utilization potential; update B.C. Coal Catalogue and Coal brochure.	E. Kootenay, Peace River, Comox coalfields	20	$137,889 (A)
502-88	C. Kenyon	Vancouver Island	This project will provide an update of the critical geologic relationships of the Vancouver	Vancouver Island 092	20	$67,637 (A)

			Island Coal deposits. In addition it will provide data to assist industry and government in assessing the potential of these coals for the production of coalbed methane, coal-water fuel as well as traditional thermal and metallurgical applications.			
503-00	C. Kenyon	COALFILE Ongoing	COALFILE contains summarized exploration data from coal company assessment reports. This system provides a rapid and efficient method for accessing large volumes of data, both for industry and government agencies. The file is updated on a yearly basis and constantly maintained. Complete file listings or ad-hoc retrievals are available in map or report format, or on magnetic media.	British Columbia	0	$8,830 (A)
504-88	A. Matheson	Subsurface Coal Sampling Survey Year 3 of 3	Sampling by small diameter coring of unoxidized coals in poorly understood and poorly sampled deposits was successfully tested at the Quinsam Mine area in 1988. In 1989 coal seams in the Telkwa Coalfield were sampled. Core analysis allows detailed correlations between depositional environment and coal quality. The Bowron River deposit will be investigated in 1990 in cooperation with the ISPG.	British Columbia	60	$52,247 (A)
505-90	B. Ryan	Bowser Basin	Locate, quantify and qualify the coal resources of Bowser Basin and northwestern B.C. Large volumes of potentially extractable coal for export have been identified. Significant areas of coal-bearing rocks remain to be documented. This first season of a multi-year program will be conducted in cooperation with the ISPG and the GSC (Vancouver). Results of the 1990 effort will be compiled onto a regional map illustrating the coal distribution, rank and structural complexity of the study	Northern British Columbia 93, 94	40	$101,411 (A)

			area. In following years more specific studies will address problems of stratigraphy, coal quality and economic potential.			
506-90	W. Kilby	Coalbed Methane	Examine the coalbed methane potential of the Rocky Mountain Foothills and Plains of northeastern B.C. Coal seams are the source and reservoir for CBM sweetgas. Coal studies typically have not dealt with coals beyond economic mining depths. Study of this resource requires analysis of the coal resource throughout the foreland basin of B.C. Extensive use will be made of petroleum exploration data and computer modelling procedures.	NEBC	0	$10,000 (A)

Year: 1990-91
Section: Resource Data and Analysis
Category: Industrial Mineral Studies

Project Number	Principle Researcher	Title	Project Statement	Area	Fieldwork Days 1989	$ Budget M = MDA A = A-base
600-90	G. Simandl	Mt. Brussilof Magnesite Deposit Year 1 of 2	The Mt. Brussilof magnesite deposit (Baymag Mine) is a world class deposit that currently produces approximately 200 000 tonnes per year of high grade magnesite. The project will be a detailed deposit study that will include site mapping to determine the origin and depositional model for Mt. Brussilof. The results will provide important guidelines for further magnesite exploration in eastern B.C.	82J	90	$90,000 (A)
601-90	Contract	Dimension Stone Reconnaissance	Demand for dimension stone in North America is increasing significantly. Revival of stone production in British Columbia is in its infancy. An earlier study re-evaluated many past producing quarries as well as the performance record of their stone used in structures in British Columbia. A 1989 market study identified a significant demand for a variety of granite types. The objective of this study is to identify new exploration targets within large granite intrusions that have favourable logistics for quarry development. The first phase is an air photo interpretation to identify sites with favourable jointing patterns. Ground examination and sampling of favourable locations will follow if results warrant.	92G, H, K, L	0	$25,000 (A)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Year: 1990-91
Section: Applied Geochemistry and Environmental Geology
Unit: Applied Geochemistry

Project Number	Principle Researcher	Title	Project Statement	NTS Area	Fieldwork Days 1990	$ Budget M = MDA A = A-base
800-00	P. Matysek J. Gravel W. Jackaman S. Feulgen	Regional Geochemical Surveys	The Regional Geochemical Survey (RGS) program produces high quality multi-element geochemical data primarily used by the mineral sector to guide exploration for new mineral resources. The data is also used to provide background data for environmental, health and land use issues. Open files and floppy diskettes will be produced from 1989 RGS survey (92B, C, F & G) as well as from the analyses of archived RGS pulps from previously sampled RGS survey areas (82E, F, K, L & M). The 1990 Regional Geochemical Survey will cover southeastern British Columbia (82G & J).	92B, C, F, G (1989 data release) 82E, F, K, L, M (Archive data release) 82G, J (1990 survey)	50	$128,000 (M) $50,000 (A)
801-00	J. Gravel P. Matysek	Geochemical Research Ongoing	Research on sampling, analytical and interpretation methods for conducting geochemical exploration in British Columbia. Studies include (1) geochemical orientation studies along the eastern margin of the Coast Mountains to establish survey parameters for future RGS programs; (2) integrated geochemical-surficial geology drift prospecting studies of the Mt. Milligan and Fish Lake deposits. Outcome to be a procedural guide on geochemical exploration in areas of extensive glacial drift. Write-ups for sediment sampling research and orientation studies of Vancouver Island and Eastern Rocky Mountains.	82 92 93 94	100	$200,000 (A)

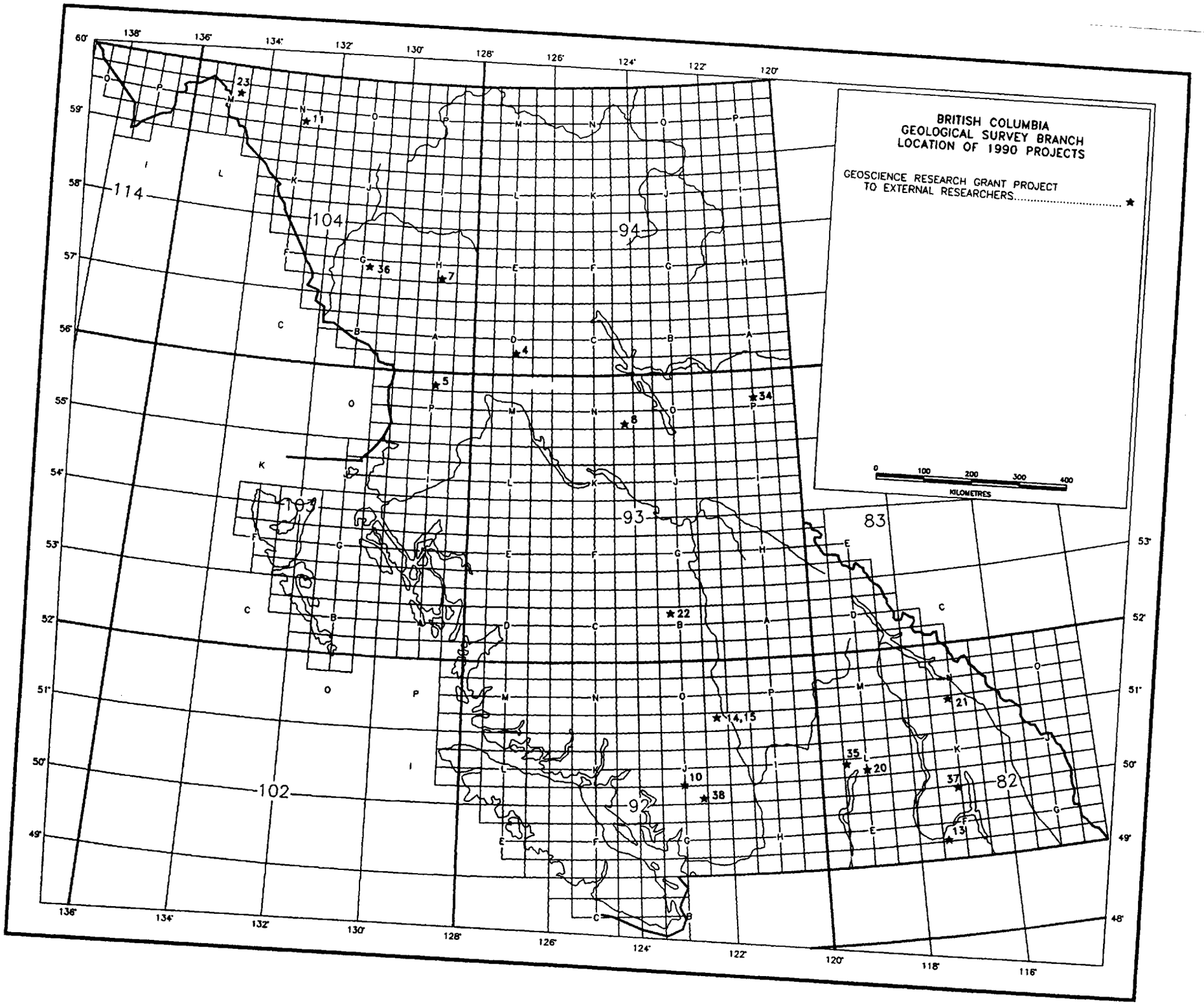
Year: 1990-91
Section: Applied Geochemistry and Environmental Geology
Unit: Environmental Geology

Project Number	Principle Researcher	Title	Project Statement	NTS Area	Fieldwork Days 1990	$ Budget M = MDA A = A-base
900-00	P.T. Bobrowsky V.M. Levson	Drift Exploration/ Placer Geology	Thick surficial sediments blanket large portions of B.C. and hamper or prohibit exploration activities. In this program, investigations of the regional Quaternary geology in areas of high mineral potential and detailed studies of selected occurrences (Mt. Milligan and Fish Lake) will help to develop exploration techniques for drift covered regions. The techniques will lead to a better understanding of how to locate buried mineral deposits. Detailed stratigraphic and sedimentologic studies and the development of a placer geology database will aid in identifying of promising geologic settings for buried placer deposits.	93A, B, G, H, N 92J, N, O 104N, P	65	$148,000
901-00	P.T. Bobrowsky V.M. Levson	Quaternary Stratigraphy and mapping	Continued urban expansion, development in rural areas and exploration in isolated regions require a surficial geology database for proper land management, sand and gravel extraction and ancillary objectives such as hazards and mineral exploration. This long term program will provide basic surface and subsurface Quaternary data by carrying out field studies in priority areas, compiling unpublished maps and archival data from numerous government and industry offices, and will also produce applied derivative maps.	82E, L 93P 94A, M, N, O	60	$55,000
902-00	P.T. Bobrowsky V.M. Levson	Geologic Hazards	The aim of this program is to coordinate with other agencies information related	92B, C, F, G, H	40	$35,000

to geologic hazards (*e.g. mass movements, earthquakes, volcanic eruptions, etc.*) which may affect the residents of B.C. Projects include the development of public information circulars, archival data compilation, coordination of a workshop on geologic hazards, and research on neotectonics and earthquake sensitivity mapping. The results will address public concerns regarding types of hazards present in B.C., the probability of great earthquakes, and will contribute to our scientific database.

Year: 1990-91
Section: Resource Data and Analysis
Category: Mineral Database

Project Number	Principle Researcher	Title	Project Statement	Area	Fieldwork Days 1989	$ Budget M = MDA A = A-base
700-00	L. Jones C. McPeek	MINFILE Ongoing	MINFILE is the B.C. Geological Survey Branch's computerized mineral inventory and geology database of over 10 000 mineral occurrences. Coding of the database is 60% complete, of which 41% is released. Coding of 2000 occurrences and the release of 11 map sheets is planned for the 1990-91 fiscal year and this data will cover about 60% of the Province. MINFILE/pc, a search and report program for the personal computer, will be released with a new data entry module.	British Columbia	N/A	$432,000 (A) $2,700 (M)
701-00	T. Kalnins L. deGroot	Assessment Report Administration (ARIS) Ongoing	The Geological Survey Branch reviews assessment reports (approx. 1200/year) for compliance with the Mineral Tenure Act Regulations. An assessment report library of more than 20 000 reports is maintained. The ARIS computer database is maintained and an index, (paper, fiche and diskette formats) location maps and summaries of assessment reports are published.	British Columbia	N/A	$263,000 (A)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Year: 1990-91
Section: B.C. Geoscience Research Grant Program
Unit: Scientific Review

Project Number	Principle Researcher	Title	Project Statement	NTS Area	Fieldwork Days 1990	$ Grant A = A-base
02	P. Bartier (P. Keller) (U. Victoria)	GIS	This project will investigate the suitability of computerized methods for interpreting geochemical and geological data. The research problem is to determine the optional technique for interpolation of geochemical data. A secondary objective will be to determine the 'edge effect' of including or excluding data immediately adjacent to a study area. A third area of study will examine the effect of uncertainty in geological boundaries when overlain with other data types.	B.C.	N/A	$2,000
04	Guowei Zhang (A. Hynes) (McGill)	Finlay-Pinchi Faults	This project intends to characterize the deformation associated with dextral strike-slip faulting in the Finlay-Pinchi fault system It will include geological mapping and a stratigraphic/structural investigation of the 'eastern Takla Group' between the Finlay and Lay faults.	McConnel Creek 94D	N/A	$5,000
05	C. Greig (G. Gehrels) (U. Arizona)	Cambria Icefield Geochem	As part of a larger program of mapping the stratigraphy and structure of the Bowser Lake and Hazelton groups, this project will include the collection and analysis of stream sediment and moss-mat geochemical samples. It is also proposed to sample and report on significant occurrences of economic mineralization, update MINFILE records and provide a summary report for publication in *Exploration in B.C.*	103P 104A	N/A	$5,000

06	C.I. Godwin (UBC)	Galena-lead Isotopes	Researchers from UBC, industry and MEMPR will contribute data to update and refine the lead isotope database for B.C. It is intended to produce a series of case-histories of the application of such data in exploration and to continue research into models relevant to metallogenic studies.	B.C.	N/A	$5,000
07	H.O. Cookenboo (R.M. Bustin) (U.B.C.)	Bowser Basin	The Bowser basin is a Jura-Cretaceous successor basin in-filled by thick marine and non-marine sediments that include important coal-bearing strata in the north-central region. This project is an ongoing stratigraphic and sedimentologic study of the north-central Bowser basin to clarify the resource potential and depositional history of the coal bearing strata.	104H	N/A	$5000
08	C. DeLong (C.I. Godwin) (U.B.C.)	Mt. Milligan	Mt. Milligan is a world-class alkaline Au-Cu porphyry deposit discovered in 1987. It has geological reserves exceeding 300 million tonnes of over 0.3 g/t Au and 0.2% Cu. This project will study the alteration and metal zonation at Mt. Milligan and relate them to the economic mineralization. This research should result in an improved genetic model for this significant class of ore deposit in the northern Cordillera.	93N	N/A	$3,000
10	T. Calon J. Malpas (M.U.N.)	Shulaps Ophiolite	The Shulaps ophiolite project was initiated in the 1988 field season. Current work is proposed to continue the geochemical study of the lava suites, volcanic blocks in the melange and the dike types in the ophiolitic plutonic complexes which occur as blocks in the melange. In addition the structure and petrography of the complex will be examined. Data will provide structural, petrological and geochemical	Pemberton 92J	N/A	$5,000

			information upon which to base regional metallogenic interpretations.			
11	J. Jackson (G. Gehrels) (U. Arizona)	Tectonic Analysis Terrane Boundaries	This project is a continuation of previous field research in the northern Stikine and Cache Creek terranes of northern B.C. and the southern Yukon. It consists of 1:25 000-scale mapping with concentration on terrane boundaries and granitic plutons to clarify the geochronology and stratigraphy.	Atlin 104N, O	N/A	$3,000
13	S. Trupia (J. Nicholls) (U. Calgary)	Bonnington Pluton	The proposed research will investigate the geology, petrology and geochemistry of the Bonnington pluton, a tonalitic/gabbroic body associated with the Nelson batholith. Objectives are to identify the number of intrusive phases, major and trace element geochemistry, crystallization history and the nature of the internal and external contacts of the pluton. Products will include a 1:20 000-scale geology map and a better definition of the magmatic history of southeastern B.C.	82F	N/A	$3,000
14	J. Garver (Union College) (New York)	Cinnabar Creek	This project will include geological mapping and a kinematic analysis of small scale structures of the blueschists in the Cinnabar Creek area of southwestern B.C. Objectives are to better define the deformation history in the Taseko-Bridge River area and to provide structural data in support of GSB project activities in the area.	92J	N/A	$2,500
15	D.A. Archibald (Queen's)	Taseko Lakes	This is the final phase of a research program involving $^{40}Ar/^{39}Ar$ geochronology in the area between the Coast plutonic complex and the Yalakom fault zone. This program will better define the absolute timing of deformation and metamorphism and will determine the thermal	Noaxe 92J	N/A	$5,170

			history of metamorphic rocks in the area between the Shulaps ultramafic complex in the east and the Bralorne fault system in the west.			
16	M.J. Orchard (U.B.C.)	Conodonts	Research will provide support for GSB staff by providing age and CAI determinations of conodont collections. Conodont studies have become a valuable aid to geologists interpreting the complex geology of the Cordillera. Determinations of collections from Paleozoic and Triassic strata will provide data on age, thermal maturation/history of host rocks, original depositional environments and the provenance or biogeographic affinity of fauna.	B.C.	N/A	$8,000
20	J. Ryder (W.K. Fletcher) (U.B.C.)	Anomaly Decay	This study will involve terrain mapping to identify sediment sources, and sediment sampling and analysis to determine effects of mass wasting events on anomaly decay patterns. Results of the research will be interpreted to determine the direct, local influence of mass wasting events on sediment composition and geochemistry. It should also determine how long (years, decades?) such effects persist in the stream bed. Conclusions will attempt to provide practical methods to deal with these problems in routine exploration geochemical surveys.	82L	N/A	$5,000
21	C.R. Barnes (U. Victoria)	Conodont Biostratigraphy	The objective of this project is to develop a refined conodont biostratigraphy for, and establish regional correlations of Lower and early Middle Ordovician strata in western Canada. Lower Paleozoic carbonates are potential hosts for Howards Pass-type mineral occurrences and this work will improve the geoscience database available for exploration	82G, M, N	N/A	$5,000

			work. Observational data on conodant Colour Alteration Index (CAI) values will be collected to assist in interpreting regional patterns of thermal maturation.			
22	R.W. Renault D. Stead (U. of S.)	Magnesite and Hydromagnesite	This program intends to investigate the origin of non-marine sedimentary magnesite and hydromagnesite deposits of interior B.C. Specifically the researchers intend to identify in which sedimentary and hydrological environment(s) Mg-carbonates form and to assess their distribution and quality on the Cariboo Plateau.	Central B.C.	N/A	$5,000
23	J.R. Dickie (R.A. Donelick) (Dalhousie Univ.)	Apatite Fission Track	This program consists of three components which are: (1) to provide a regional picture of low-temperature thermal evolution of the western Intermontane Belt in NW B.C.; (2) determine the timing of Au mineralization at the Engineer mine on southern Tagish Lake; and (3) to determine the timing of activity on several major faults in NW B.C., particularly the Lewellyn fault. The results of this research will directly support regional mapping efforts of the B.C. Geological Survey.	104M	N/A	$3,200
34	N.R. Catto (M.U.N.)	Peace River	This research program proposes to complete 1:50 000-scale maps of the Quaternary sediments and landforms in the Peace River area. The course of this study will include characterization, identification and sedimentological analysis of the Quaternary deposits. Results will include maps of the Quaternary sediments, directions of ice flow and the Quaternary stratigraphy and chronology of the region.	94A 93P	N/A	$8,000

35	R.M. Barker (Queensland Dept. of Mines Australia)	Vernon	This program will entail mapping and evaluation of selected base and precious metal occurrences in the Vernon area. The fieldwork will include mapping of host rock lithologies, structure and economic mineral assemblages with the objective of determining deposit type and relationship to local and regional geology. Revisions to MINFILE and articles for *Exploration in B.C.* will be the products of the project.	82L	N/A	$8,000
36	M. Gunning (R. Hodder) (U.W. Ont.)	Stikine Assemblage	The main objective of this project is to develop new lithostratigraphic subdivisions for the Stikine assemblage. In addition the researchers will address the structural character of the sequence including the nature of the Permo-Triassic boundary, and of the pre-Permian unconformity and possible deformation event. Fusulinid collections will provide more precise age constraints for the subdivisions within the thick Permian limestone succession. Paleoenvironments and post-depositional genesis will be defined for the Permian or older volcanic and sedimentary rocks.	104G	N/A	$8,500
37	G. Beaudoin (D.F. Sangster) (U. of Ontario)	Kokanee Vein Deposits	This study intends to generate geological, mineralogical and geochemical data from Ag-Pb-Zn-Au vein deposits in the area north of Nelson, B.C. The spatial distribution of these deposits has led to them being linked genetically with the emplacement of the Nelson batholith (165Ma). However, some geological evidence indicates the mineralization is younger than Mid-Cretaceous (95Ma) metamorphism and deformation. This study will attempt to resolve the genetic history of these deposits.	82F	N/A	$7,000

38	J. Riddell (U. Montana)	Lillooet Lake	This is a mapping project focusing on the west of Lillooet Lake. Primary objectives will be to define the structure and stratigraphy of the Cadwallader and Fire Lake groups and this will include correlations with equivalent stratigraphy in the coast Belt. Compilation maps at 1:50 000-scale will be produced.	92J	N/A	$4,500