

## GS-31 The Manitoba Kimberlite Indicator Mineral Database: an update by G.R. Keller and D.J. Bogdan<sup>1</sup>

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### Summary

In early 2003, the Manitoba Geological Survey began the process of compiling all existing regional kimberlite indicator mineral (KIM) survey data (i.e., government reports, assessment files and various company data) into a Microsoft® Access database. Data compilation was necessary so that the existing published data, which were presented in different formats and media, could be manipulated for use in a GIS. The goal of this compilation project was to bring all existing published data to an Internet map server (IMS) service that would be accessible through the departmental website. A subset of this data is now available on the departmental website in the GIS map gallery. Over the past year, the usefulness of the database has become more apparent with positive feedback from exploration companies and from the number of MGS projects that have included KIM survey data. Several upgrades and data updates have been incorporated into the database since Version 1.0. For example, with the most recent version, Version 3.0, it will be possible to plot and view queries on a map without exiting the database.



### Introduction

Since its inception in 2003, the KIM database has been updated as new data became available and upgraded for additional functionality. The current database houses sample location data, preparation and reference data, as well as microprobe analyses of heavy mineral grains. It is anticipated that surficial geochemical data will be appended to the database (or possibly a second database will be created) in the future. Other indicator mineral data, such as metamorphosed massive sulphide indicator minerals (MMSIM), could also be appended to the database. Version 3.0 will feature a customized query form which will provide additional query options including geographic area, and mineral and/or grain chemistry attributes, as well as the ability to create and view shapefiles from queried data. Different software packages require different data inputs and formats; Version 3.0 will have several data export options. Users will now be able to choose to save queried data as an Access table, Excel spreadsheet, dBASE compatible datafile (DBF), delimited text file or shapefile. There will be no need to exit the database environment to view your exported data in its spatial context, as the KIM database will have a built-in shapefile viewer.

Please note that due to the variable sample density of KIM data, the database is not intended for detailed exploration but rather to provide a regional context for exploration in Manitoba.

### KIM classification

As each KIM survey used a slightly different classification system for mineral naming, there was a need for a standardized naming scheme to allow comparison between samples. Previous versions of the database used a classification system by Harvey Thorliefson of the Minnesota Geological Survey, who previously spent many years at the Geological Survey of Canada working with published classification schemes including Gurney (1984) and Fipke (1989). Version 3.0 of the Manitoba KIM database will include both the original published mineral names, minerals classified using the Thorliefson and Garrett system (described in Thorliefson and Garrett [1993]), as well as garnets classified using the Grütter et al. (2004) classification system. The Grütter et al. (2004) garnet classification system was chosen because it relies only on compositional microprobe data, and is compatible with many previous works.

### Included data

Recently acquired data from Indicator Explorations Ltd., Kennecott Canada Exploration Inc. and De Beers Canada Exploration Inc., as well as recent data from the 2002 Hudson Bay Lowland (HBL) field survey by E. Nielsen (formerly of the Manitoba Geological Survey) will be included in the database. New data will be easily accessed by using the customized query form included in the database, or by using the database menu system. As in previous versions of the database, all available KIM data for Manitoba will be included as well as some data for Alberta and Saskatchewan (specifically, data from Manitoba studies that included Alberta and Saskatchewan study areas). Please

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see the citation and project information tables within the Manitoba KIM Database for a detailed list of included KIM survey data (<http://www.gov.mb.ca/itm/mrd/info/libmin/OF2004-2.zip>).

Updates will be available from the Manitoba Industry, Economic Development and Mines website as new data are added. Please check the website at <http://www.gov.mb.ca/itm/mrd/> for update notices.

### Database structure

The KIM database was originally built in Microsoft® Access 97, and has been subsequently upgraded to Microsoft® Access 2000 in order to add functionality. Microsoft® Access is a relational database management system (RDBMS) which stores data in several related two-dimensional tables. A RDBMS was chosen because tables are 'normalized' so that the vast amount of KIM data is not repeated more often than necessary. The KIM database query forms use a transparent Structured Query Language (SQL) as a data manipulation language to interface between the user forms and the data tables. The database consists of eight related tables (Figure GS-31-1) and six unrelated tables. Queries are dynamically created based on user input.

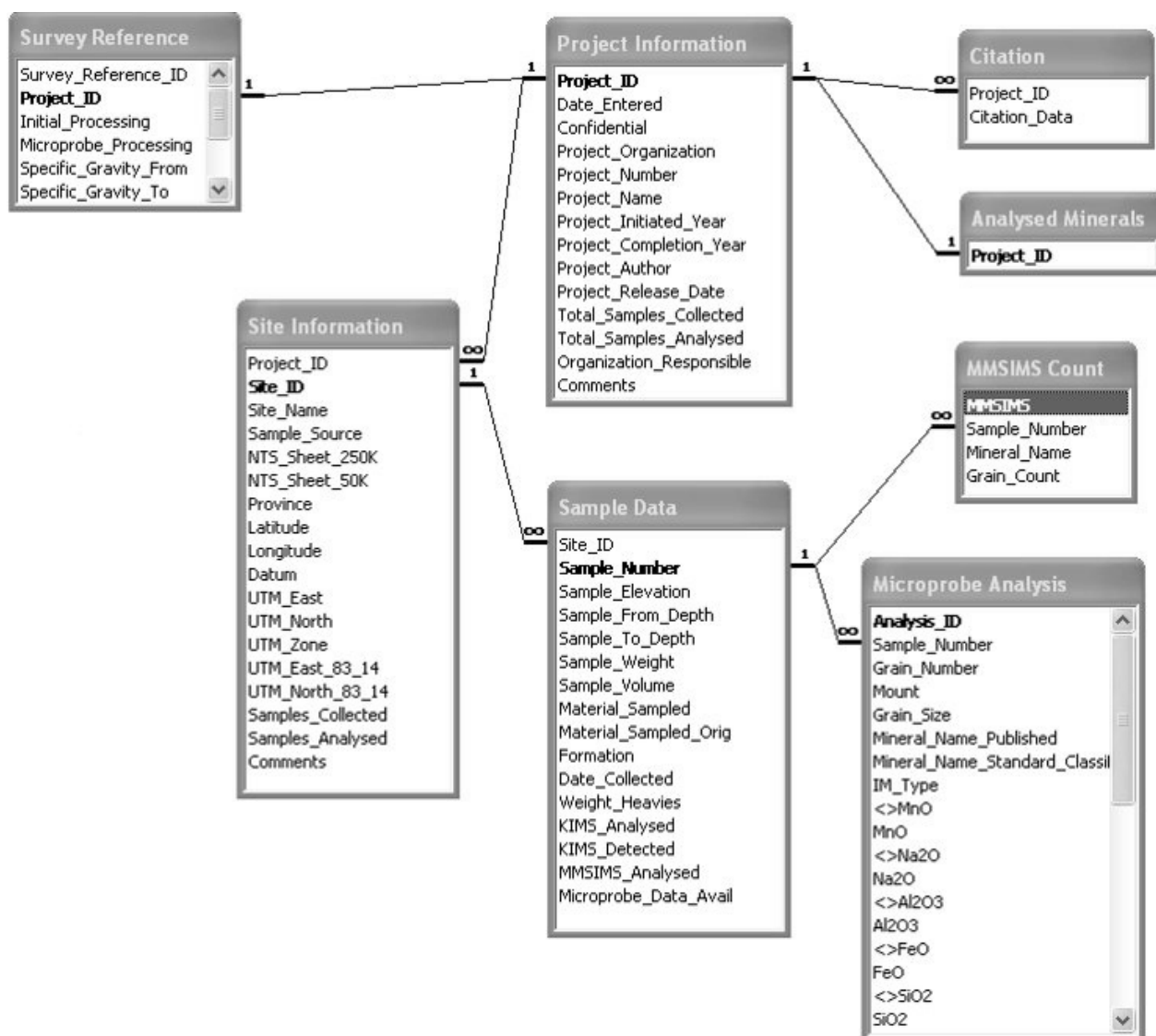


Figure GS-31-1: Database structure (related tables).

## **Economic considerations**

The ongoing compilation of existing KIM data from various regional surveys and company assessment files into the Manitoba KIM database provides users with a comprehensive view of public-sector survey results. These data provide important new information relating to the diamond potential in Manitoba and will assist the exploration community in the province.

## **Acknowledgments**

Many thanks to the companies who submitted data for inclusion in the database.

## **References**

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