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Geological Survey of Canada (GSC) of the Earth Sciences Sector of the Department of Natural Resources Canada – United States Geological Survey (USGS) - Project Annex No. 7 Project: Development of Geologic Information System Technology for Predictive Spatial Modeling in Environmental and Mineral Resource Studies

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Responsible Senior Managers: USGS: P. Patrick Leahy, Associate Director for Geology (703) 648-6600; GSC: Murray Duke, Director General (613) 995-4093.

Scope: This Project Annex (PA) is to facilitate cooperation in the development and application of research of the Geographic Information System (GIS) tools and methods for predictive spatial modeling applied to environmental and mineral resource problems in land management and for computer tools in the analysis of other digital spatial data, such as geochemistry, needed for spatial modeling project. The GIS tools and methods developed will enhance the abilities of both geological surveys to use GIS technology and digital databases to analyze spatial data to support environmental and mineral-resource assessments.

## Work Plan:

- 1. The USGS and the GSC (Party or Parties) have been involved informally for a number of years in the development of a series of spatial modeling tools, Arc Weights of Evidence (ArcWofE) and Arc Spatial Data Modeler (ArcSDM), that are being widely used in diverse geologic, medical, biological, criminal, business, and environmental applications. With changes in GIS technology and increased complexity of tools and methods, it is necessary to more closely coordinate research and software development efforts of mutual interest.
- 2. The specific objective of this cooperation is a joint effort between the Parties to develop GIS spatial-analysis tools and to conduct research on predictive spatial modeling applied to mineral-resource and environmental problems. Anticipated research products include a series of jointly and separately authored papers addressing applications issues and a compendium of digital exploration models of important mineral-deposit types.

Funding Arrangements: Both Parties will provide sufficient funding to permit travel for meetings and consultations as agreed upon by the correspondents. In kind, reciprocal sharing of expenses may occur as agreed in particular cases by the correspondents.

Additional Partners: As appropriate, development of these GIS tools and research will be done in collaboration with university, provincial, territorial, and state geological surveys.

Intellectual Property: As per the "Agreement on the Allocation of Intellectual Property Rights, Interests and Royalties for Intellectual Property Created or Furnished under Certain Scientific and Technological Cooperative Research Activities" between the Government of Canada and the

Government of the United States of February 4, 1997, the Parties to this PA shall retain existing intellectual property that they bring to the Project. Intellectual property arising out of or resulting from the PA shall be owned in equal parts by the GSC and USGS.

Duration and Termination: This PA shall remain in effect until the Memorandum of Cooperation (MOC) between the USGS and GSC of the Earth Sciences Sector of the Department of Natural Resources Canada expires on April 9, 2004. If the MOC is extended prior to that date, this PA will continue in effect for the duration of the MOC. Either party may, by giving the other party thirty (30) days written notice, terminate this agreement. Changes or modifications to this PA shall be in writing and signed by the Parties. Each Party shall immediately, upon termination, return the other Party's papers, materials, or other property held for the purpose of carrying out the project.

FOR THE U.S. GEOLOGICAL SURVEY OF THE DEPARTMENT OF INTERIOR OF THE UNITED STATES OF AMERICA

FOR THE GEOLOGICAL SURVEY OF CANADA OF THE EARTH SCIENCES SECTOR OF THE DEPARTMENT OF NATURAL RESOURCES CANADA

P. Patrick Leahy
Associate Director for Geology
United States Geological Survey

Murray Duke Director General Geological Survey of Canada

Date: 7

Date:

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