

JOHN ROBERT CLARK

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Education:

School	Major and Minor Specializations	Dates Attended	Degree, Year
University of Alabama	Geology, Geography	1966-1970	B.Sc. Geol., 1970
University of Alabama	Geology, Geochem.	1970-1973	M.Sc., 1973
McGill University	Explor. Geochem.	1973-1975	transferred
Colorado School of Mines	Economic Geology, & Explor. Geochem.	1975-1983	Ph.D., May 1983

Fields of Specialization:

Oxidation Anomaly Model and Geochemical Characterization of Subsurface Features
Selective Extractions
Instrumental Geochemical Analysis (ICP-MS)
Exploration Geochemistry
Economic Geology

Career experience:

From: To:

6/70 9/70 Petroleum Geologist, Texaco, Jackson district, New Orleans, Louisiana.
1970 1973 Teaching and Research Assistant, University of Alabama,
1972 (6 months) Research Assistant, Alabama Geological Survey.
9/73 4/75 Research Assistant, McGill University, Geology Department, Montreal, Quebec.
5/74 8/75 Research Geologist, Noranda Exploration Company, Ltd., Noranda, Quebec.
9/75 8/80 Research Assistant, Colorado School of Mines, Geology Department
1976 1979 Assisted in presentation of exploration geochemistry short courses, Colorado School of Mines, Geology Department
1977 1978 Geologist, National Science Foundation research project.
6/78 10/80 Geologic Field Assistant, U.S. Geological Survey, Branch of Exploration Research, Geologist.
10/80 12/81 Student Appointment, U.S. Geological Survey, Branch of Exploration Research.
12/81 5/93 Research Geologist, U.S. Geological Survey, Branch of Exploration Geochemistry.
5/93 present General Manger, Enzyme-ACTLABS, LLC

Honors, awards, recognition, elected membership:

Institute of Mining and Metallurgy, Gold Fields of South Africa Premium, May 4, 1994.

Special inventions, patents held, techniques or methods developed or improved:

The **MAGIC organic-extraction system** was developed jointly by myself and John Viets. The process quantitatively separates 24 trace analytes from interfering geological matrices.
The **Enzyme Leach**, a highly discriminating selective extraction for enhancing subtle geochemical anomalies in surficial geological materials, was first envisioned January, 1976.

Special inventions, patents, techniques or methods developed or improved: (continued)

The **oxidation anomaly model** was initially developed between 1989 and 1992, to explain features found with the Enzyme Leach over hydrocarbon and mineral occurrences in the subsurface.

TerraSol, a less discriminating alternative to Enzyme Leach, which in turn gives it less depth of penetration for mineral surveys, was developed from 1998 to 2000.

Selected Bibliography:

- Clark, J. R., and Viets, J. G., 1981, Multi-element extraction system for the determination of eighteen trace elements in geochemical samples: *Analytical Chemistry*, v. 53, p. 61-65.
- Clark, J.R., 1993. Enzyme-induced leaching of B-horizon soils for mineral exploration in areas of glacial overburden. *Trans. Instn. Min. Metall. (Sect. B: Appl. earth sci.)*, v. 102, p. B19-B29 (invited paper). (See Honors, awards,.... above.)
- Clark, J.R., 1995, Method of geochemical prospecting. United States Patent 5,385,827, 20 pp.
- Clark, J.R., 1996, Leach solution containing glucose, galactose, catalase, glucose oxidase, galactose oxidase, ascorbic acid and water soluble metal cyanides and halides. United States Patent 5,491,078, 23 pp.
- Yeager, J.R., Clark, J.R., Mitchell, W., and Renshaw, R., 1998, Enzyme leach anomalies associated with deep Mississippi Valley-type zinc ore bodies at the Elmwood Mine, Tennessee. *Jour. Geoch. Expl.*, v. 61, p. 103-112
- Clark, J.R., and Hill, G.T., 2000, Structural Control of Oxidation Anomalies Above Buried Mineral Bodies, *in* Cluer, J.K., Price, J.G, Struhsacker, E.M., Hardyman, R.F., and Morris, C.L., eds., *Geology and Ore Deposits 2000: The Great Basin and Beyond*, Geological Society of Nevada Symposium Proceedings, Vol. II pp. 883-891.
- Hill, G.T. and Clark, J.R., 2000, Enzyme Leach Signatures of the Marigold 8 North and Clay Pit Gold Deposits, Humboldt County, Nevada, *in* Cluer, J.K., Price, J.G, Struhsacker, E.M., Hardyman, R.F., and Morris, C.L., eds., *Geology and Ore Deposits 2000: The Great Basin and Beyond*, Geological Society of Nevada Symposium Proceedings, Vol. II pp. 903-918.
- Clark, J.R., Hill, G.T., and Tompkins, Reed, 2003, Mapping of Reservoirs and Subsurface Structures Using Selective Analysis of the Surface Chemistry of Soil Particles. American Assoc. of Petroleum Geologists annual meeting, Salt Lake City, May, 2003 (invited paper).

A more detailed Professional/Technical Record, which includes an extended bibliography, and selected recent abstracts and presentations are available on the Internet --

<http://www.enzymeleach.com/~bobclark/clarklist.html>

Personal references are available upon request.