

Roger Day

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Education and Professional Affiliations

- B.S. Mechanical Engineering, 1971, Michigan Technological University
- Board of Directors Member, Silt Water Conservation District
- President, Shadow Ridge Townhome Association, Rifle CO
- Past President of the Board of Directors and Current Member National Oil Shale Association
- Past Colorado Mountain College Advisory Board Member
- Past Fire Chief, Mountain Pass Fire Department, California
- Past School Board Member, Baker California

Patents

WIPO Patents

WO/2006/023657, Methods for Constructing Underground Borehole Configurations and Related Solution Mining Methods

USA Patents

10,122,210 Trona solution mining methods and compositions

9,464,513 System for providing uniform heating to subterranean formation for recovery of mineral deposits

9,260,918 Methods for constructing underground borehole configurations and related solution mining methods

9,127,541 Heater and method for recovering hydrocarbons from underground deposits

8,899,691 Methods for constructing underground borehole configurations and related solution mining methods

8,464,792 Conduction convection reflux retorting process

8,162,043 In situ method and system for extraction of oil from shale

8,057,765 Methods for constructing underground borehole configurations and related solution mining methods

7,921,907 In situ method and system for extraction of oil from shale

7,611,208 Methods for constructing underground borehole configurations and related solution mining methods

6,660,049 Process for control of crystallization of inorganics from aqueous solutions

4,815,790 Nahcolite solution mining process

Professional Papers and Presentations:

Solution Mining Colorado Nahcolite, First International Soda Ash Conference, 1997
White River Nahcolite Solution Mine, Mining, Metallurgy, and Exploration Soc, 2008
Oil Shale Review, National Society of Science, 2006
EGL Oil Shale Project Review, 27th CSM Oil Shale Symposium, 2007
Overview: Progress and Plans, 28th CSM Oil Shale Symposium October 2008.
AMSO's: Oil Shale - Progress and Plans, 29th CSM Oil Shale Symposium, 2009
Pilot Test of AMSO's CCR In-Situ Oil Shale Process, 31st CSM Oil Shale Symposium. 2011
Total Organic Carbon: Wireline Logs, SPE Technical Conference, October 2011
Applications of Dielectric: Oil Shale Reservoirs, SPWLA 52nd Symposium May 2011
AMSO's Novel Approach to In-Situ Oil Shale Recovery, ACS Symposium Series 1032
AMSO's: In-Situ Oil Shale Recovery, Chemical Engineering, August 2009

Summary of Experience

2017 to present: Sage Geotech Inc. Rifle, CO

Senior Associate: Working on oil shale and other mineral projects

2002 to present: Sesqui Mining, LLC Fort Collins, CO

Co-Owner and Developer; Developing and commercializing Sesqui's patented borehole configurations and mining processes applicable to trona and nahcolite solution mining and in-situ oil shale processing technology. Patented in both the USA and Turkey.

2007 to 2016: American Shale Oil, LLC (AMSO) Rifle, CO

Vice President of Operations: A prime developer of an experimental in-situ oil shale process including advanced directional drilling technology including responsibility for the research and development pilot project including conception, permitting, drilling and well completion, surface plant design and construction, and pilot plant operation. The research project was primarily funded by Total.

2006 to 2007: EGL Oil Shale, LLC Midland, TX

Technical Team Member and Manager of Field Operations: Process development and commercialization of EGL's RD&D Oil Shale Lease resulting in the creation of American Shale Oil, LLC.

2000-2002 Natural Soda, Inc. Rifle, CO

President: Managed Natural Soda, Inc., an AmerAlia, Inc. solution mining subsidiary, including business planning/execution/control, Federal Sodium Mineral Leases, water rights, permitting, and competitor acquisition

1998-2000 AmerAlia, Inc. Rifle, CO

Vice President of Operations: Greenfield nahcolite solution mining project – conception, marketing, permitting, process design, EPC contract, debt/equity financing, water rights

**1981 to 1998 White River Nahcolite Minerals Project Piceance Basin, CO
(currently Natural Soda)**

Prime Project and Technology Developer: critically involved in all aspects of a unique nahcolite solution mine and sodium bicarbonate production facility including conception, exploration, mining & process technology, lab & pilot demonstration, hydrology, water rights, permitting, financing, design, construction management, directional drilling, horizontal borehole solution mining, process design, intellectual property protection, production management, general management, and marketing for a succession of project owners. This project development involved working for 4 different companies as follows:

1993-1998 White River Nahcolite Minerals, LLP. Meeker, CO

General Manager/Technical Manager

Sodium bicarbonate solution mining and production, expansion, food grade modification, mining, process technology development, and patent protection

1988-1992 Natec, Inc Houston, TX

General Manager 2 years, Mine Manager 2 years: Design, construct and operate the world's first nahcolite solution mine and natural sodium bicarbonate production facility including exploration, design, construction, operation, and intellectual property protection

1987-1988 Industrial Resources, Inc. Denver, CO

Vice President: The creation and funding of Natec, Inc to construct and operate a nahcolite project

1981-1987 Cliffs Engineering, Inc. Rifle, CO

Consultant: Assisting Industrial Resources conceive, permit, design, develop, demonstrate and finance a unique sodium solution mining technology and project including the completion of the world's first solution mining application of a horizontal borehole connected well pair.

1981-1987 Cliffs Engineering, Inc. Rifle, CO

Senior Engineer: Natural resource project development – conception, engineering, financial analysis, construction, and operation – oil shale, carnallite, nahcolite, gold, gypsum, light weight aggregate, hydro-electric, lime, solution mining, hydrology, water rights

1976-1981 Molycorp, Inc. Mt. Pass Operation, CA

Asst. General Manager, 2 years; Project Engineer 2 years: World's dominate (at the time) rare-earth mine; engineering, construction management, and operation; crushing, grinding, flotation, drying, solvent extraction, water supply, water rights

1972-1976 Cleveland Cliffs Iron Mining Company Ishpeming, MI

Project Engineer: Design, construct, startup, and operation of the Empire III and Tilden iron ore mines including some of the largest grinding and pyro-equipment in the world

Strengths

Mr. Day's major strength is developing pilot and commercial natural resource projects with an emphasis on in-situ recovery methods of inorganic and hydrocarbon minerals. He is expert in project development and permitting, steerable drilling and well completion technology, utilizing underground mineral recovery fluid flow, dissolution and pyrolysis chemistry, nahcolite and trona solution mining, in-situ hydrocarbon retorting, and pilot and commercial plant operation. He has led natural resource projects from conception, exploration, R&D, pilot, and commercial phase design, construction, startup and production; and has managed local, state and federal level permitting for projects including several Final Environmental Impact Statements.

He has over 40 years of experience in oil shale and the sodium minerals industry. He has extensive knowledge with a particular emphasis on the Green River oil shale and sodium minerals of Colorado, Utah, and Wyoming.

He has served as Chairman of National Oil Shale Association's Board of Directors and continues to support the association's educational and pro-development efforts for the industry.