

U.S. DEPARTMENT OF ENERGY
CONTINENTAL SCIENTIFIC DRILLING - THERMAL REGIMES
VALLES CALDERA #2B PROJECT (PROPOSED)

• DRILLING AND LOGISTICS

LOCALE: SULPHUR SPRINGS, VALLES CALDERA, NEW MEXICO
 DEPTH: 1.75 TO 2 KM
 EST. BHT: >300°C
 EST.SPUD: JULY, 1988
 EST.COMPLETION: NOVEMBER, 1988
 EST. COST: \$ 1.3 MILLION
 CONTINUOUSLY CORED
 FLUID SAMPLING, FLOW TESTING, & EXPERIMENTS THROUGH 1991
 SPECIAL CONCERNS:
 A) SUPERHEATED FLUIDS
 B) H₂S
 C) PUSHING LIMITS OF DIAMOND CORING TECHNOLOGY
 D) HIGH DOWNHOLE TEMPERATURES

• SCIENTIFIC OBJECTIVES & KNOWLEDGE TO BE GAINED

1. STRUCTURAL AND GEOCHEMICAL EVOLUTION OF HYDROTHERMAL SYSTEM.
2. ACTIVE ORE DEPOSITION IN GEOTHERMAL SYSTEM.
3. DEVELOPMENT OF VAPOR-DOMINATED GEOTHERMAL SYSTEMS.
4. STRUCTURAL AND MAGMATIC DEVELOPMENT OF LARGE CALDERA
5. EXPLOSIVE SILICIC VOLCANISM.
6. PHYSICAL CHEMISTRY OF FLUIDS AND MINERALIZATION.
7. NATURE OF BOILING TRANSITION ZONE.
8. STRUCTURAL SETTINGS AND FACIES MODELS FOR CALDERA-HOSTED NATURAL RESOURCES (EXPLORATION/EXPLOITATION STRATEGIES).
9. HEAT TRANSFER AND ACTIVE METAMORPHISM IN CONDUCTIVE-CONVECTIVE THERMAL REGIME TRANSITION ZONE.

• INSTITUTIONAL INVOLVEMENT

LEAD INSTITUTIONS: LOS ALAMOS; UNIVERSITY OF UTAH
 RESEARCH INSTITUTE; SANDIA NATIONAL LABORATORIES
 USGS (FIVE INVESTIGATORS)
 ARGONNE NATIONAL LABORATORY
 LAWRENCE BERKELEY LABORATORY
 BATTELLE NORTHWEST LABORATORIES
 GEO OPERATOR CORPORATION
 UNIVERSITY OF CALIFORNIA, BERKELEY (THREE INVESTIGATORS)
 UNIVERSITY OF CALIFORNIA, RIVERSIDE (THREE
 INVESTIGATORS)
 UNIVERSITY OF TEXAS, ARLINGTON (THREE INVESTIGATORS)
 SUNY, ALBANY (TWO INVESTIGATORS)
 NORTHERN ARIZONA STATE UNIVERSITY
 NM INST. MINING & MINERAL TECH. (THREE INVESTIGATORS)
 UNIVERSITY OF NEW MEXICO (FOUR INVESTIGATORS)

• FOREIGN PARTICIPATION

GEOLOGICAL SURVEY OF JAPAN
 BRITISH PETROLEUM (GREAT BRITAIN)
 TOKYO UNIVERSITY (JAPAN)
 UNIVERSITY OF TORONTO (CANADA)