U.S. Department of Energy
Office of Civilian Radioactive Waste Management

YUCCA MOUNTAIN PROJECT

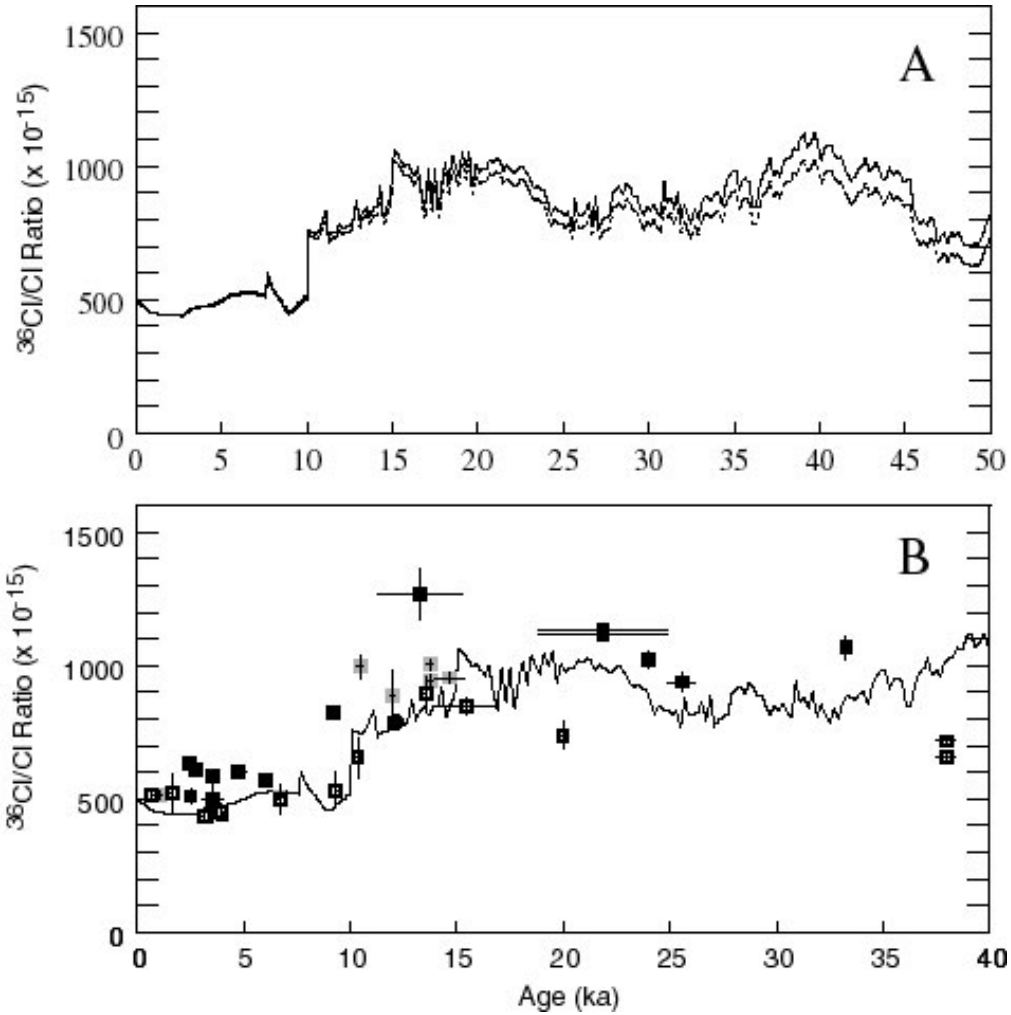
Update on Chlorine 36 Background and History

Presented to:
Nuclear Waste Technical Review Board

Presented by:
William J. Boyle
Director, Postclosure and License Acquisition Division
Office of License Application and Strategy
Office of Repository Development
U.S. Department of Energy

September 16, 2003
Amargosa Valley, Nevada

Variation in $^{36}Cl/Cl$ Through Time



Reconstructed $^{36}Cl/Cl$ ratios based on geomagnetic field intensity and Cl deposition rates

Plot of $^{36}Cl/Cl$ from fossilized packrat urine (Plummer, et al. 1997) compared to reconstructed values

Courtesy of R. Roback

MOL.19970324.0052

U.S. GEOLOGICAL SURVEY - YUCCA MOUNTAIN PROJECT BRANCH

1996 MILESTONE REPORT 3GQH450M

RESULTS OF SAMPLING AND AGE DETERMINATION

LETTER REPORT:

AGES AND ORIGINS OF SUBSURFACE SECONDARY MINERALS IN THE EXPLORATORY STUDIES FACILITY (ESF)

By

J.B. Paces, L.A. Neymark, B.D. Marshall, J.F. Whelan, and Z.E.Peterman

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Yucca Mountain Site Characterization Project

Peer Review Report

on

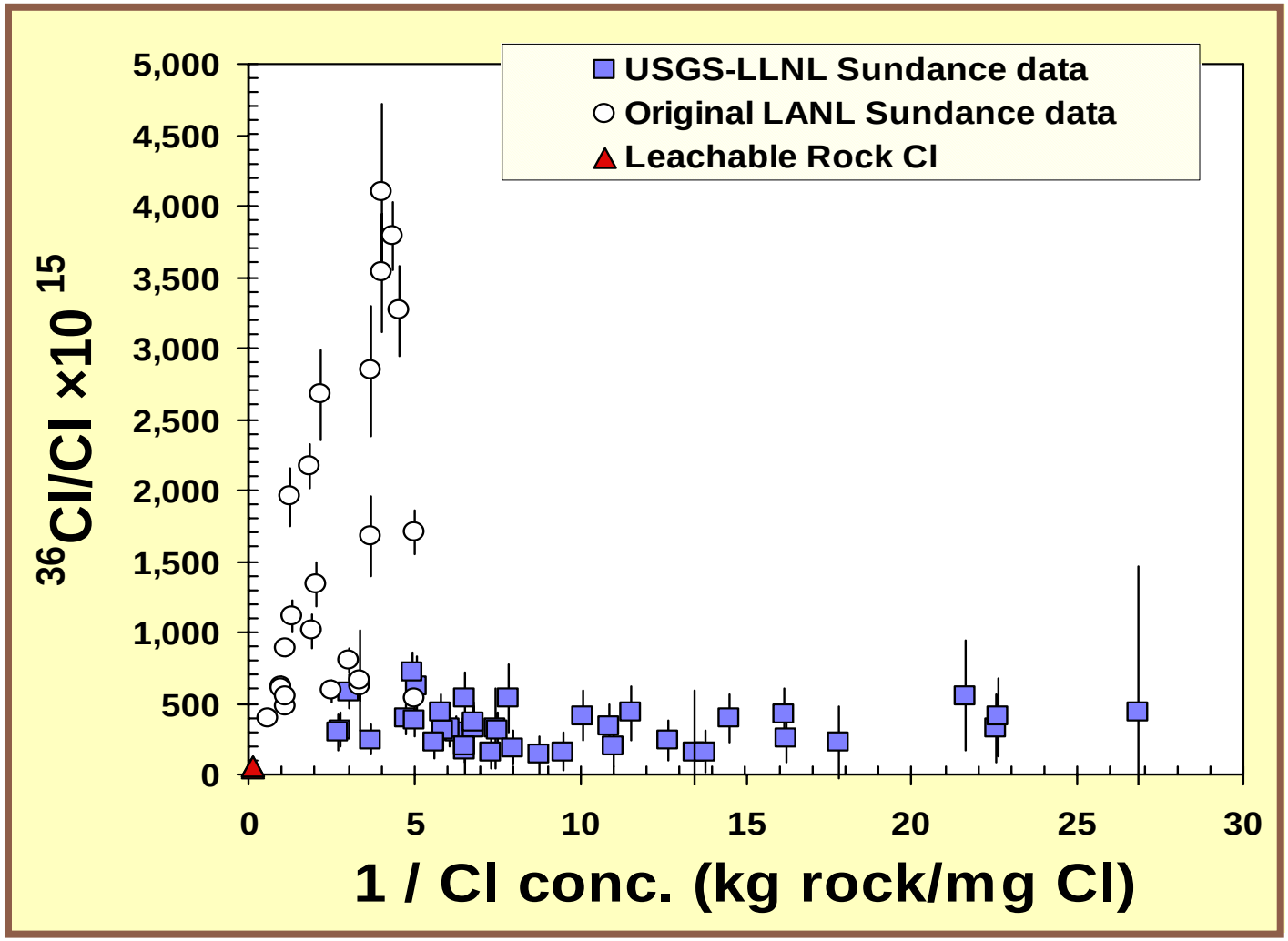
CHLORINE-36 STUDIES AT YUCCA MOUNTAIN

Peer Review Team Approval

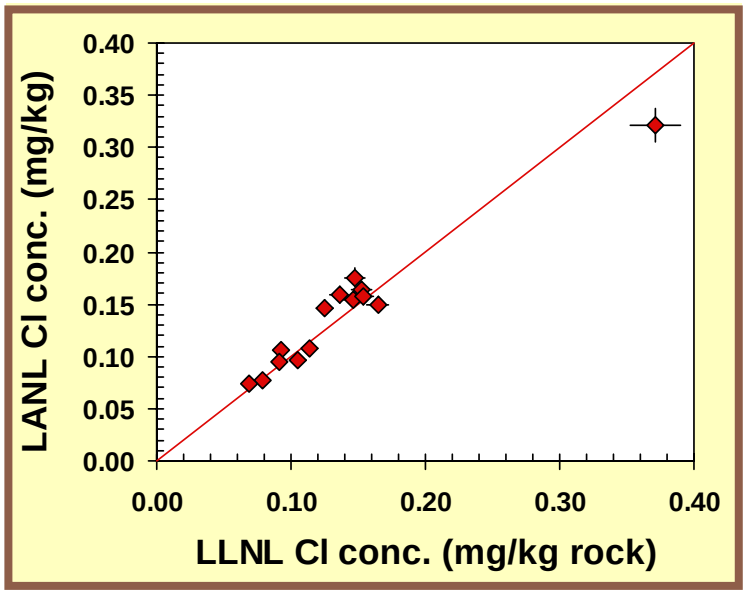
Dr. R. Jack Cornett (Chlorine Isotope Geochemistry)	Jack Cornett 5/1/98
Dr. Thomas W. Doe (Chair) (Fluid Flow in Fractured Rock)	Thomas W. Doe 5/22/98
Dr. Anthony H. Muller (Groundwater Isotope Geochemistry)	Anthony B. Muller 5/20/98
Dr. Bridget R. Scanlon (Chlorine Isotope Geochemistry and Unsaturated Zone Transport)	Bridget R. Scanlon 5/5/98

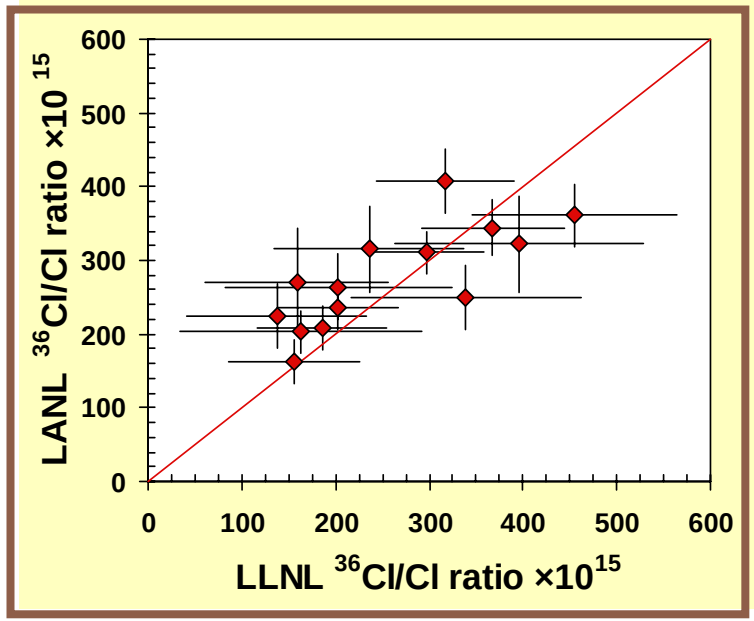
Signature/Date

Data Mismatch



Data Match


LANL Cl conc. (mg/kg)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.00
0.10
0.20
0.30
0.40
LLNL Cl conc. (mg/kg rock)


LANL 36Cl/Cl ratio ×10 15
600
500
400
300
200
100
0
0
100
200
300
400
500
600
LLNL 36Cl/Cl ratio ×1015

BOMB-PULSE CHLORINE-36 AT THE PROPOSED YUCCA MOUNTAIN REPOSITORY HORIZON: AN INVESTIGATION OF PREVIOUS CONFLICTING RESULTS AND COLLECTION OF NEW DATA

SUBMITTED BY:

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AUGUST 1, 2003