Death Valley Regional Ground-Water Flow System, Nevada and California— Hydrogeologic Framework and Transient Ground-Water Flow Model

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Acknowledgments

> Tho' much is taken, much abides; and tho'
> We are not now that strength which in the old days
> Moved earth and heaven; that which we are, we are;
> One equal-temper of heroic hearts,
> Made weak by time and fate, but strong in will
> To strive, to seek, to find, and not to yield.

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Conversion Factors, Datums, and Abbreviations

Multiply	By	To obtain
millimeter (mm)	0.03937	inch
meter (m)	3.281	foot
kilometer (km)	0.6214	mile
square kilometer (km^2)	0.3861	square mile
cubic meter (m^3)	35.31	cubic foot
million cubic meters (Mm^3)	35.31	million cubic feet
meter per day (m/d)	3.281	foot per day
millimeter per year (mm/yr)	0.03937	inch per year
meter per year (m/yr)	3.281	foot per year
meter squared per day (m^2/d)	10.76	square foot per day
cubic meter per day (m^3/d)	35.31	cubic foot per day
cubic meter per day (m^3/d)	264.2	gallon per day
cubic meter per year (m^3/yr)	35.31	cubic foot per year
meter per day per meter (m/d/m)	1	foot per day per foot

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F = (1.8 \times °C) + 32$$

Vertical coordinate information is referenced to the North American Vertical Datum of 1988 (NAVD 88). Horizontal coordinate information is referenced to the North American Datum of 1927 (NAD 27). Altitude, as used in this report, refers to distance above the vertical datum.

Abbreviations and Acronyms

2D	Two-dimensional
3D	Three-dimensional
AA	Alluvial aquifer
ACU	Alluvial confining unit
BRU	Belted Range unit
CAU	Corrective Action Unit
CFBCU	Crater Flat–Bullfrog confining unit
CFPPA	Crater Flat–Prow Pass aquifer
CFTA	Crater Flat–Tram aquifer
CHVU	Calico Hills volcanic-rock unit
CSS	Composite scaled sensitivity
CV	Coefficient of variation
DEM	Digital elevation model
DOE	U.S. Department of Energy
DOE/NV	U.S. Department of Energy, Nevada Operations Office
DRN	Drain
DSS	Dimensionless scaled sensitivity
DVRFS	Death Valley regional ground-water flow system
ECU	Eleana confining unit
EM	Office of Environmental Management
ERD	Environmental Restoration Division

ET	Evapotranspiration
EWDP	Early Warning Drilling Program
FWS	U.S. Fish and Wildlife Service
Ga	Giga-annum (billion years ago)
GFM	Geologic framework model
GIS	Geographic information system
GPS	Global positioning system
GWSI	Ground-Water Site Inventory
HFB	Horizontal flow barrier
HFM	Hydrogeologic framework model
HG	Hydrograph
HGU	Hydrogeologic unit
HRMP	Hydrologic Resource Management Program
HUF	Hydrogeologic-unit flow
ICU	Intrusive-rock confining unit
K	Hydraulic conductivity
ka	Thousand years ago
K-Ar	Potassium-argon
LA	Limestone aquifer
LCA	Lower carbonate-rock aquifer
LCA_T1	Lower carbonate-rock thrust
LCCU	Lower clastic-rock confining unit
LCCU_T1	Lower clastic-rock confining unit thrust
LFU	Lava-flow unit
LOTR	Line of transient regression
LVVSZ	Las Vegas Valley shear zone
LVVWD	Las Vegas Valley Water District
Ma	Mega-annum (million years ago)
MNW	Multi-node well
Mvs	Mesozoic volcanics and sedimentary rock unit
NAD 27	North American Datum of 1927
NAVD 88	North American Vertical Datum of 1988
NDWR	Nevada Division of Water Resources
NNSA	National Nuclear Security Administration
Nobs	Number of observations
NPS	National Park Service
NSO	Nevada Site Office
NTS	Nevada Test Site
NWIS	National Water Information System
OAA	Older alluvial aquifer
OACU	Older alluvial confining unit
OCRWM	Office of Civilian Radioactive Waste Management
ORD	Office of Repository Development
OVU	Older volcanic-rock unit
P1	Lower clastic confining unit

P2	Regional carbonate aquifer
PCC	Parameter correlation coefficient
PMOV	Pahute Mesa–Oasis Valley
PVA	Paintbrush volcanic-rock aquifer
SCCC	Silent Canyon caldera complex
SCU	Sedimentary-rock confining unit
sd	Standard deviation
SOSWR	Sum of squared weighted residuals
SWNVF	Southwestern Nevada volcanic field
TBA	Belted Range aquifer
TBCU	Basal confining unit
TBQ	Basal aquifer
TC	Paintbrush/Calico Hills tuff cone unit
TCB	Bullfrog confining unit
TMA	Timber Mountain aquifer
TMCC	Timber Mountain caldera complex
TMVA	Thirsty Canyon–Timber Mountain volcanic-rock aquifer
TSDVS	Tertiary sediments–Death Valley sediments
Tv	Tertiary volcanic-rock unit
UCA	Upper carbonate-rock aquifer
UCCU	Upper clastic-rock confining unit
UGTA	Underground Test Area
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
VA	Volcanic-rock aquifer
VCU	Volcanic-rock confining unit
VSU	Volcanic- and sedimentary-rock unit
VU	Volcanic rocks undifferentiated
WVU	Wahmonie volcanic-rock confining unit
XCU	Crystalline-rock confining unit
YAA	Younger alluvial aquifer
YACU	Younger alluvial confining unit
YMP	Yucca Mountain Project
YVU	Younger volcanic-rock unit