Table DR-1. Analytical techniques and age calculation methods for Ar^{40}-Ar^{39} analyses of Mono Basin basalt samples.

Sample preparation and irradiation:

Groundmass concentrates were prepared using standard crushing and hand-picking techniques.

The groundmass concentrates were loaded into a machined Al disc and irradiated for 4 hours in D-3 position at the Nuclear Science Center, College Station, TX.

Neutron flux monitor Fish Canyon Tuff sanidine (FC-1). Assigned age = 27.84 Ma (Deino and Potts, 1990) relative to Mmhb-1 at 520.4 Ma (Samson and Alexander, 1987).

Instrumentation:

Mass Analyzer Products 215-50 mass spectrometer on line with automated all-metal extraction system.

Samples were step-heated in a Mo double-vacuum resistance furnace. Heating duration 7 minutes.

Reactive gases removed by reaction with 3 SAES GP-50 getters, 2 operated at ~450°C and 1 at 20°C. Gas also exposed to a W filament operated at ~2000°C.

Analytical parameters:

Electron multiplier sensitivity averaged $1x10^{-16}$ moles/pA.

Total system blank and background for the furnace averaged 2100, 10, 1.9, 1.3, 11 x 10^{-18} moles at masses 40, 39, 38, 37, and 36, respectively for temperatures <1300°C.

J-factors determined to a precision of ± 0.1% by CO_2 laser-fusion of 4 single crystals from each of 6 radial positions around the irradiation tray.

Correction factors for interfering nuclear reactions were determined using K-glass and CaF_2 and are as follows: $(^{40}Ar/^{39}Ar)_K = 0.0002\pm0.0003$; $(^{36}Ar/^{37}Ar)_{Ca} = 0.00028\pm0.0000011$; and $(^{39}Ar/^{37}Ar)_{Ca} = 0.00088\pm0.00003$.

Age calculations:

Total gas ages and errors calculated by weighting individual steps by the fraction of ^{39}Ar released.

Plateau ages calculated for the indicated steps by weighting each step by the inverse of the variance.

Plateau age errors calculated using the method of (Taylor, 1982).

MSWD values are calculated for n-1 degrees of freedom for plateau ages.

Isochron ages, $^{40}Ar/^{36}Ar_i$ and MSWD values obtained using the York (1969) method.

If the MSWD is outside the 95% confidence window (cf. Mahon, 1996; Table 1), the error is multiplied by the square root of the MSWD.

Decay constants and isotopic abundances after Steiger and Jäger (1977).

All final errors reported at ±2s, unless otherwise noted.

References cited (for Table DR-1)

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Table DR-2. Description of map units in the area of the Mt. Hicks spillway. See tables 1-3 for details of radiometric and tephra ages; see figures 5 and 6 for locations.

Map unit	Age control	Description and relations to other units
Late Tertiary and early Quaternary sedimentary units		
Qu	Holocene and late Pleistocene	Undifferentiated alluvium and low terraces of Mud Spring Canyon and Bodie Creek; includes sheetwash and colluvial deposits around flow margins
Qp3	Middle (?) Pleistocene	Unconsolidated granitic pediment gravel derived from Wassuk Range to north and east. Pediment gravels preserved at different relative heights reflect alternating episodes of stream stability and incision. Qp3 forms broad surface on north side of Mud Spring Canyon; inset below surface of higher Qt terrace, and appears to truncate it; possibly coeval with lower Qt terrace
Qtb	Younger than flow Qb3	Fluvial sand and gravel; distinctively dominated by basalt clasts, in contrast to granitic composition of older pediment deposits. Unit Qtb mapped only along a small drainage that dissects the surface of Qp1 west of the north edge of basalt flow Qb3 (fig. 5), and must postdate Qb3.
Qt	Inset slightly below surface of Qp2	Well-washed, relatively well-bedded fluvial sand and gravel. Lap onto reddish, more poorly sorted and bedded fan/pediment gravel. Two nested terraces lie 12-20 m above present drainage; higher terrace appears coeval with Qp2. Terrace remnants are found only along western reach of Mud Spring Canyon (that part of the canyon west of flow Qb5, fig. 5). Distribution of remnants suggests that the stream that transported and deposited these fluvial sediments along the western reach of Mud Spring Canyon did not flow down the eastern reach.
Qp2	Inset below surface of Qp1 and flow Qb3	Unconsolidated granitic gravel, described as pediment gravel derived from Wassuk Range to north and east (Gilbert and Reynolds, 1973; Dohrenwend, 1982). Forms broad surface on north side of Mud Spring Canyon; appears graded to upper Qto terrace. Arroyos draining into Mud Spring Canyon expose over 10 m of fan deposits beneath this surface; thus Qp2 may be an aggradational unit, not a pediment. Isolated remnants of gravel capping unit Tg are mapped as unit Qp2 based on apparent height above modern drainages, but could be older.
Qp1	Older than flow Qb3; younger than Ts and probably Tg	Pediment gravel, granitic. Caps part of the surface along north side of Mud Spring Canyon; also forms broad surface north and west of flow Qb3 (fig. 5). Unit Qp1 mainly overlies the older sedimentary unit Ts, though this relation is uncertain in the area west of flow Qb3 because diatomite and green mudstone beds are absent there. Likely younger than unit Tg, but relations are unclear.
Tg	2.9-2.5 Ma (EL-35A-MS, EL-35B-MS, EL-36-MS, EL-103-MS, EL-105-MS; table 1)	Poorly consolidated, pale tuffaceous alluvium containing at least three airfall pumice layers. Where best exposed (EL-35-37-MS, fig. 5), deposits are flat-lying and overlie angular debris-flow gravel, mainly andesite clasts, that in turn overlies Miocene andesite. Locally contains other debris flows with a mixture of granitic and volcanic clasts derived from the Wassuk Range. Elsewhere, as on south flank of flow Qb5, Tg is gently tilted and faulted. Inset within deposits of unit Ts and the highest pediment, Tp; thus, unit Tg was likely deposited after dissection of this old pediment and Ts.
Tp	Older than Tg, younger than Ts	Pediment gravel, granitic. Overlies unit Ts but not younger deposits. Highest of several pediment gravels; preserved in only a few localities (fig. 5).

Ts	~4.8 Ma (EL-102-MS, table 1)	Upwardly coarsening sequence of diatomite, green mudstone, siltstone, sandstone, and pebble conglomerate; indurated, flat to gently dipping (about 10°), and cut locally by small faults. Overlies widely distributed andesite of Miocene age (included in unit R, fig. 5; Gilbert and Reynolds, 1973). A tephra layer (EL-102-MS) was sampled at one locality on the north side of Mud Spring Canyon (fig. 5). Unit is younger than the Miocene Coal Valley Formation, and is similar in sedimentary character to a unit found further north in the valley of the East Walker River that contains a Pliocene fauna (Gilbert and Reynolds, 1973).
Quaternary volcanic flows		
Qb5	0.04±0.04 Ma (EL-KA-6, table 3) 0.11±0.08 Ma (K-Ar; Lange et al., 1993) Older than mid-late Holocene (EL-104-MS, table 1)	Hornblende andesite (Lange and Carmichael, 1996). Narrow flow with very fresh surface (figs. 6 and 7A); closed depressions have accumulated small amounts of fine-grained sediment. Qb5 flowed northwest from a small cone and is elongated in the flow direction. Buries northeastern edge of flow Qb3 (fig. 5), and at that site extends several meters below base of flow Qb3 down to modern valley floor. West end of flow Qb5 is thickest on south against edge of flow Qb3, and thins to north. Along its northern margin, flow Qb5 is only 2-3 m thick and overlies pediment gravel and older sedimentary deposits (fig. 7B). In places these buried deposits stand high and consist of pediment unit Tp overlying unit Ts; elsewhere the buried deposits stand lower and consist of unit Qp2 (?) or younger alluvium overlying unit Tg. Late Quaternary age is consistent with stratigraphic position and youthful surface appearance.
Qb4	0.26±0.05 Ma (Silberman and McKee, 1972) 0.47±0.19 Ma (K-Ar; Lange et al., 1993)	Two-pyroxene andesite. Blocky, fresh-appearing, nearly circular flow (fig. 6) erupted from Aurora Crater. In figure 5, includes older basaltic andesite at the north edge as mapped by Lange and Carmichael (1996). Many closed depressions on surface contain significant amounts of fine-grained sediment. Buries western end of flow Qb3 (fig. 5) and paleovalley occupied by Qb3. K-Ar age by Silberman and McKee (1972) corrected using new isotopic ratios by Robinson and Kistler (1986).
Qb3	1.32±0.08 Ma (EL-KA-9, table 3) Younger than Qb2 and Qp1	Basaltic andesite. Narrow flow with smooth surface; little depositional topography preserved (fig. 6). Qb3 flowed northwest from small cone; elongated in flow direction (fig. 5). Near cone, flow Qb3 buries northern edge of flow Qb2. All along northern margin, flow Qb3 overlies gravel of unit Qp1 and underlying unit Ts (fig. 7A, B); baked contact exposed in one roadcut. West of where flow Qb3 diverges from modern canyon, thickens southward due to descent of flow base toward axis of a paleovalley in which flow was confined. Paleovalley incised into units Qp1 and Ts and floored by alluvium; at western end of flow Qb3, basalt-alluvium contact is inset nearly 10 m below surface of Qp1 to north.
Qb2	Older than Qb3; younger than Qb1	Basaltic andesite. Irregular surface but with no closed depressions. Erupted from cone on the northern edge of flow Qb1. Overlies Qb1 and seems to have been emplaced against an irregular rampart of older volcanic rocks on the north (R, fig. 5). Not directly dated.
Qa	1.44±0.06 Ma (EL-KA-2, table 2) 1.6 ± 0.02 Ma (EL-KA-7, table 3)	Andesite. Forms broad ridge that comprises Mt. Hicks spillway; across a normal fault, continues as thin finger north down a narrow valley north of Alkali Valley (figs. 5 and 8C). Appears to have emanated from Mt. Hicks; similar in age to unit Qb1, from which it is separated by a landslide on north side of Mt. Hicks.
Qb1	1.6±0.1 Ma (Gilbert et al., 1968	Basaltic andesite. Erupted from the eroded summit of Mt. Hicks (figs. 5 and 6). K-Ar age of Gilbert et al. (1968) from south side of Mt. Hicks, corrected using new isotopic ratios by Robinson and Kistler (1986). On north side of Mt. Hicks, a landslide separates the basalt from andesite flow Qa.