

**Supplemental File 5**  
**References Cited in Supplemental Files 1-4**

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- Anderson, R.E. and Hintze, L. F., 1993, Geologic map of the Dodge Spring quadrangle, Washington County, Utah, and Lincoln County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1721, scale 1:24,000.
- Ashley, R.P., 1975, Preliminary geologic map of the Goldfield mining district: U.S. Geological Survey Miscellaneous Field Studies Map MF-681, scale 1:24,000.
- Askren, D.R., 1992, Origin of andesites interlayered with large-volume ash-flow tuffs in the western United States [Ph.D. Thesis]: Athens, University of Georgia, 276 p.
- Askren, D.R., Roden, M.F., and Whitney, J.A., 1997, Petrogenesis of Tertiary andesite lava flows interlayered with large-volume felsic ash-flow tuffs of the western USA: *Journal of Petrology*, v. 38, p. 1021-1046.
- Bell, J.W., Garside, L.J., and House, P.K., 2005, Geologic map of the Wadsworth quadrangle, Washoe County, Nevada: Nevada Bureau of Mines and Geology Map 153, scale 1:24,000.
- Best, M.G., Christiansen, E.H., Deino, A.L., Gromme, C.S., and Tingey, D.G., 1995, Correlation and emplacement of a large, zoned, discontinuously exposed ash flow sheet: The  $^{40}\text{Ar}/^{39}\text{Ar}$  chronology, paleomagnetism, and petrology of the Pahrangat Formation, Nevada: *Journal of Geophysical Research*, v. 100, p. 24,593-24,609.
- Best, M.G., Hintze, L.F., and Holmes, R.D., 1987, Geologic map of the southern Mountain Home and northern Indian Peak Ranges (central Needle Range), Beaver County, Utah: U.S. Geological Survey Miscellaneous Investigation Series Map I-1796, scale 1:50,000.
- Best, M.G., Hintze L.F, Deino, A.L., and Maughan, L.L., 1998, Geologic map of the Fairview Range and Grassy Mountain, Lincoln County, Nevada: Nevada Bureau of Mines and Geology Map 114, scale 1:24,000.
- Boden, D.R., 1992, Geologic map of the Toquima caldera complex, central Nevada: Nevada Bureau of Mines and Geology Map 98, scale 1:48,000.
- Bonham, H.F., 1970, Geologic map and sections of a part of the Shoshone Mountains, Lander and Nye Counties, Nevada: Nevada Bureau of Mines Map 38, scale 1:62,500.
- Bonham, H.F., Jr. and Garside, L.J., 1979, Geology of the Tonopah, Lone Mountain, Klondike, and northern Mud Lake quadrangles, Nevada: Nevada Bureau of Mines and Geology Bulletin 92, 142 p., map scale 1:48,000.
- Brooks, E.R., Henry, C.D., and Faulds, J.E., 2008, Age and character of silicic ash-flow tuffs at Haskell Peak, Sierra County, California: Part of a major Eocene(?)–Oligocene paleovalley spanning the Sierra Nevada–Basin and Range boundary: California Geological Survey Map Sheet 55A, 39 p., map scale 1:12,000.
- Cornwall, H.R., 1972, Geology and mineral deposits of southern Nye County, Nevada: Nevada Bureau of Mines and Geology Bulletin 77, 49 p., map scale 1:250,000.
- Dixon, G.L., Hedlund, D.C., and Ekren, E.B., 1972, Geologic map of the Pritchards Station quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigation Series Map I-728, scale 1:48,000.
- du Bray, E.A., 1995, Petrology and geochemistry of Oligocene and Miocene ash-flow tuffs of the southeastern Great Basin, Nevada: U.S. Geological Survey Professional Paper 1559, 38 p.
- du Bray, E.A. and Hurtubise, D.O., 1994, Geologic map of the Seaman Range, Lincoln and Nye

- Counties, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I-2282, scale 1:50,000.
- Ekren, E.B., Rogers, C.L., Anderson, R.E., and Botinelly, T., 1967, Geologic map of the Belted Peak quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-606, scale 1:62,500.
- Ekren, E.B., Anderson, R.E., Rogers, C.L., and Noble, D.C., 1971, Geology of northern Nellis Air Force Base Bombing and Gunnery Range, Nye County, Nevada: U.S. Geological Survey Professional Paper 651, 91 p., map scale 1:125,000.
- Ekren, E.B., Hinrichs, E.N., and Dixon, G.L., 1972, Geologic map of The Wall quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigation Series Map I-719, scale 1:48,000.
- Ekren, E.B., Hinrichs, E.N., Quinlivan, W.D., Hoover, D.L., 1973a, Geologic map of the Moores Station quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-756, scale 1:48,000.
- Ekren, E.B., Rogers, C.L., and Dixon, G.L., 1973b, Geologic and Bouguer gravity map of the Reveille quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-806, scale 1:48,000.
- Ekren, E.B., Orkild, P.P., Sargent, K.L., and Dixon, G.L., 1977, Geologic map of Tertiary rocks, Lincoln County, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I-1041, scale 1:250,000.
- Ekren, E.B., Rowley, P.D., Dixon, G.L., Page, W.R., Kleinhampl, F.J., Ziony, J.I., Brandt, J.M., and Patrick, B.G., 2011, Geology of the Quinn Canyon Range and vicinity, Nye and Lincoln Counties, Nevada: Southern Nevada Water Authority, Doc. No. HAM-ED-000X, 46 p., map scale 1:100,000.
- Emmons, D.L., and Eng, T.L., 1995, Geologic map of the McCoy mining district, Lander County, Nevada: Nevada Bureau of Mines and Geology Map 103, scale 1:12,000.
- Faulds, J.E., Henry, C.D., and de Polo, C.M., 2001, Preliminary geologic map of the Tule Peak quadrangle, Washoe County, Nevada: Nevada Bureau of Mines and Geology Open-File Report 3-10, scale 1:24,000.
- Faulds, J.E., de Polo, C.M., and Henry, C.D., 2007, Preliminary geologic map of the Sutcliffe quadrangle, Washoe County, Nevada: Nevada Bureau of Mines and Geology Open-File Report 3-17, scale 1:24,000.
- Faulds, J.E., Ramelli, A.R., and Henry, C.D., 2008, Preliminary geologic map of the Fernley West quadrangle, Lyon, Storey, and Washoe Counties, Nevada: Nevada Bureau of Mines and Geology Open-File Report 8-4, scale 1:24,000.
- French, D.E. and Freeman, K.J., 1979, Tertiary volcanic stratigraphy and reservoir characteristics of the Trap Spring field, Nye County, Nevada, *in* Newman, G.W., and Goode, H.D., eds., Basin and Range Symposium and Great Basin field conference: Denver, Colorado, Rocky Mountain Association of Geologists and Salt Lake City, Utah Geological Association, p.487-502.
- Gans, P.B., Mahood, G.A., and Schermer, E., 1989, Synextensional magmatism in the Basin and Range province; A case study from the eastern Great Basin: Geological Society of America Special Paper 233, 53 p.
- Gardner, J.N., Eddy, A.C., Goff, F.E., and Grafft, K.S., 1980, Reconnaissance geologic map of the northern Kawich and southern Reveille Ranges, Nye County, Nevada: University of

- California Los Alamos Scientific Laboratory, LA-8390-Map, scale 1:62,500.
- Garside, L.J., Castor, S.B., dePolo, C.M., and Davis, D.A., 2003, Geologic map of the Fraser Flat quadrangle and the west half of the Moses Rock quadrangle, Washoe County, Nevada: Nevada Bureau of Mines and Geology Map 146, scale 1:24,000.
- Garside, L.J., Nials, F.L., and Ramelli, A.R., 2010, Preliminary geologic map of the Griffith Canyon quadrangle, Washoe County, Nevada: Nevada Bureau of Mines and Geology Open-File Report 10-2, scale 1:24,000.
- Grier, S., 1983, Tertiary stratigraphy and geologic history of the Sacramento Pass area, Nevada: Utah Geological and Mineralogical Survey Special Studies 59, p. 139-144.
- Henry, C.D., 1996, Geologic map of the Bell Canyon quadrangle, western Nevada: Nevada Bureau of Mines and Geology Field Studies Map 11, scale 1:24,000.
- Henry, C.D., and John, D.A., Magmatism, ash-flow tuffs, and calderas of the ignimbrite flareup in the Western Nevada volcanic field, Great Basin, USA: Geosphere, this themed issue.
- Henry, C.D., Ramelli, A.R., and Boden, D.R., 2007, Preliminary geologic map of the Stockton Flat Well quadrangle, Lyon and Storey Counties, Nevada: Nevada Bureau of Mines and Geology Open-File Report, scale 1:24,000.
- Henry, C.D., Ramelli, A.R., and Faults, J.E., 2009, Geologic map of the Seven Lakes Mountain quadrangle, Washoe County, Nevada and the eastern part of the Constantia Quadrangle, Lassen County, California: Nevada Bureau of Mines and Geology Map 164, scale 1:24,000.
- Hintze, L.F., 1974, Preliminary geologic map of the Crystal Peak quadrangle, Millard County, Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-635, scale 1:48,000.
- Hintze, L.F., 1981, Preliminary geologic map of the Marjum Pass and Swasey Peak SW quadrangles, Millard County, Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1332, scale 1:24,000.
- Hintze, L.F. and Axen, G.J., 1995, Geologic map of the Scarecrow Peak quadrangle, Washington County, Utah and Lincoln County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1759, scale 1:24,000.
- Hintze, L.F., and Best, M.G., 1987, Geologic map of the Mountain Home Pass and Miller Wash quadrangles, Millard and Beaver Counties, Utah and Lincoln County, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-1950, scale 1:24,000.
- Hinz, N.H., Faults, J.E., and Oppliger, G.L., 2010, Preliminary geologic map of the Lee-Allen geothermal area, Churchill County, Nevada: Nevada Bureau of Mines and Geology Open-File Report 10-6, scale 1:24,000.
- Hose, R.K., 1983, Geologic Map of the Cockalorum Wash Quadrangle, Eureka and Nye Counties, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I-1410, scale 1:31,680.
- Hose, R.K. and Blake, M.C., Jr., 1976, Geology and mineral resources of White Pine County, Nevada: Nevada Bureau of Mines and Geology Bulletin 85, Part I, 35 p., map scale 1:250,000.
- Hudson, D.M., Castor, S.B., Garside, L.J., and Henry, C.D., 2009, Geologic map of the Virginia City quadrangle, Washoe, Storey, and Lyon Counties and Carson City, Nevada: Nevada Bureau of Mines and Geology Map 165, scale 1:24,000.
- John, D.A., 1987, Geologic Map of parts of the Morey and Fandango Wilderness Study Areas, Nye County, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-

1847, scale 1:62,500.

- John, D.A., 1988, Geologic Map of Oligocene and Miocene volcanic rocks, Paradise Peak and western part of the Ione quadrangles, Nye County, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2025, scale 1:24,000.
- John, D.A., 1997, Geology of the Wonder Mountain quadrangle, Churchill County, Nevada: Nevada Bureau of Mines and Geology Map 109, scale 1:24,000.
- John, D.A., 1992, Stratigraphy, regional distribution, and reconnaissance geochemistry of Oligocene and Miocene volcanic rocks in the Paradise Range and northern Pactolus Hills, Nye County, Nevada: U.S. Geological Survey Bulletin 1974, 67 p.
- John, D.A., Henry, C.D., Colgan, J.P., 2008, Magmatic and tectonic evolution of the Caetano caldera, north-central Nevada: A tilted, mid-Tertiary eruptive center and source of the Caetano Tuff: *Geosphere*, v. 4, p. 75-106.
- Keith, W.J., 1987a, Preliminary geologic map of the Big Ten Peak quadrangle, Nye County, Nevada: U.S. Geological Survey Open-File Report 87-7, scale 1:62,500.
- Keith, W.J., 1987b, Preliminary geologic map of the McCann 15'- quadrangle, Nye County, Nevada: U.S. Geological Survey Open-File Report 87-425, scale 1:62,500.
- Kleinhampl, F.J., and Ziony, J.I., 1985, Geology of northern Nye County, Nevada: Nevada Bureau of Mines and Geology Bulletin 99A, 172 p., map scale 1:250,000.
- Loucks, M.D., Tingey, D.G., Best, M.G., Christiansen, E.H., and Hintze, L.F., 1989, Geologic map of the Fortification Range, Lincoln and White Pine Counties, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I-1866, scale 1:50,000.
- Martin, M.W and Naumann, T.R., 1995, Geologic map of the Reveille quadrangle, Nevada: Nevada Bureau of Mines and Geology Map 104, scale 1:24,000.
- McKee, E.H., 1968a, Geologic map of the Ackerman Canyon quadrangle, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-761, scale 1:62,500.
- McKee, E.H., 1968b, Geologic map of the Spencer Hot Springs quadrangle, Lander County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-770, scale 1:62,500.
- McKee, E.H., 1970, Fish Creek Mountains Tuff and volcanic center, Lander County, Nevada: U.S. Geological Survey Professional Paper 681, 17 p.
- McKee, E.H., 1972, Preliminary geologic map of the Wildcat Peak quadrangle and the western part of the Dianas Punch Bowl quadrangle, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-337, scale 1:62,500.
- McKee, E.H., 1976, Geology of the northern part of the Toquima Range, Lander, Eureka, and Nye Counties, Nevada: U.S. Geological Survey Professional Paper 931, 49 p., map scale 1:62,500.
- Moore, E.M., Scott, R.B., and Lumsden, W.W., 1968, Tertiary tectonics of the White Pine-Grant Range region, east-central Nevada: *Geological Society of America Bulletin*, v. 79, p.1703-1726.
- Nielsen, P.J., 1992, Petrology of the Oligocene Shingle Pass Tuff in the northern Basin and Range, Nevada: Evolution of a dry, reduced magma system [M.S. Thesis]: Provo, Utah, Brigham Young University, 38 p.
- Noble, D.C., and Christiansen, R.L., 1968, Geologic map of the southwest quarter of the Black Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-562, scale 1:24,000.
- Nolan, T.B., Merriam, C.W., and Blake, M.C., Jr., 1974, Geologic map of the Pinto Summit

- quadrangle, Eureka and White Pine Counties, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-793, scale 1:62,500.
- Nolan, T.B., Merriam, C.W., and Brew, D.A., 1971, Geologic map of the Eureka quadrangle, Eureka and White Pine Counties, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigation Series Map I-612, scale 1:62,500.
- Orkild, P.P., Sargent, K.A., and Snyder, R.P., 1969, Geologic map of Pahute Mesa, Nevada Test Site and vicinity, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I-567, scale 1:48,000.
- Page, W.R., and Dixon, G.L., 1994, Modal analyses of selected Tertiary volcanic rocks from Nye and Lincoln Counties, Nevada: U.S. Geological Survey Open-File Report 94-151.
- Page, W.R., and Ekren, E.B., 1995, Preliminary geologic map of the Bristol Well quadrangle, Lincoln County, Nevada: U.S. Geological Survey Open-File Report 95-580, scale 1:24,000.
- Phillips, L.V., 1989, The petrology and magmatic evolution of the large-volume ash-flow tuffs of the central Nevada caldera complex, Nye County, Nevada [Ph. D. Thesis]: Athens, University of Georgia, 300 p.
- Profett, J.M., Jr., and Dilles, J.H., 1984, Geologic map of the Yerington district, Nevada: Nevada Bureau of Mines and Geology Map 77, scale 1:62,500.
- Quinlivan, W.D. and Rogers, C.L., 1974, Geologic map of the Tybo quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-821, scale 1:48,000.
- Quinlivan, W.D., Rogers, C.L., and Dodge, H.W., Jr., 1974, Geologic map of the Portuguese Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-804, scale 1:48,000.
- Radke, L.E., 1992, Petrology and temporal evolution of the rhyolite ash-flow tuffs of the Stone Cabin Formation [M.S. Thesis]: Provo, Utah, Brigham Young University, 102 p.
- Robinson, P.T. and Stewart, J.H., 1984, Uppermost Oligocene and lowermost Miocene ash-flow tuffs of western Nevada: U.S. Geological Survey Bulletin 1557, 53 p.
- Rogers, C.L., Anderson, R.E., Ekren, E.B., and O'Connor, J.T., 1967, Geologic map of the Quartzite Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-672, scale 1:62,500.
- Rogers, C.L., Ekren, E.B., Noble, D.C., and Weir, J.E., 1968, Geologic map of the northern half of the Black Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-545, scale 1:62,500.
- Rowley, P.D. and Shroba, R.R., 1991, Geologic map of the Indian Cove quadrangle, Lincoln County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1701, scale 1:24,000.
- Rowley, P.D., Shroba, R.R., Simonds, F.W., Burke, K.J., Axen, G.J., and Olmore, S.D., 1994, Geologic map of the Chief Mountain quadrangle, Lincoln County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1731, scale 1:24,000.
- Sargent, K.A. and McKee, E.H., 1969, The Bates Mountain Tuff in northern Nye County, Nevada: U.S. Geological Survey Bulletin 1294E, 12 p.
- Sargent, K.A. and Orkild, P.P., 1973, Geologic map of the Wheelbarrow Peak-Rainier Mesa area, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-754, scale 1:62,500.

- Scott, R.B., 1965, The Tertiary geology and ignimbrite petrology of the Grant Range, east central Nevada [Ph.D. Thesis]: Houston, Texas, Rice University, 159 p.
- Scott, R.B., Swadley, WC, and Byron, B., 1992, Preliminary geologic map of the Pahroc Spring quadrangle, Lincoln County, Nevada: U.S. Geological Survey Open-File Report 92-423, scale 1:24,000.
- Scott, R.B., Swadley, WC, and Taylor, W.J., 1994, Preliminary geologic map of the Wheatgrass Spring quadrangle, Lincoln County, Nevada: U.S. Geological Survey Open-File Report 94-175, scale 1:24,000.
- Scott, R.B., Swadley, WC, Taylor, W.J., and Harding, A.E., 1995, Preliminary geologic map of the Deadman Spring quadrangle, Lincoln County, Nevada: U.S. Geological Survey Open-File Report 95-94, scale 1:24,000.
- Shawe, D.R., 1995, Geologic map of the Round Mountain quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1756, scale 1:24,000.
- Shawe, D.R., 1998, Geologic map of the Belmont West quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1801, scale 1:24,000.
- Shawe, D.R., 1999a, Geologic map of the Jefferson quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-2670, scale 1:24,000.
- Shawe, D.R., 1999b, Geologic map of the Manhattan quadrangle, Nye County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1775, scale 1:24,000.
- Shawe, D.R. and Byers, F.M., Jr., 1999, Geologic map of the Belmont East quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-2675, scale 1:24,000.
- Shawe, D.R., Hardyman, R.F., and Byers, F.M., Jr., 2000, Geologic map of the Corcoran Canyon quadrangle, Nye County, Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-2680, scale 1:24,000.
- Snyder, R.P., Ekren, E.B., and Dixon, G.L., 1972, Geologic map of the Lunar Crater quadrangle, Nye County, Nevada. Nevada: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-700, scale 1:48,000.
- Steven, T.A., 1989, Geologic map of the Crystal Peak caldera, west-central Utah: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-2002, scale 1:100,000.
- Stewart, J.H. and McKee, E.H., 1968, Geologic map of the Mount Callaghan quadrangle, Lander County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-730, scale 1:62,500.
- Stewart, J.H., 1999, Geology of the Carson City 30 x 60 minute quadrangle, Nevada: Nevada Bureau of Mines and Geology Map 118, scale 1:100,000.
- Swadley, WC, Page, W.R., Scott, R.B., and Pampeyan, E.H., 1994, Geologic map of the Delamar 3 SE quadrangle, Lincoln County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1754, scale 1:24,000.
- Swadley, W. C., and Rowley, P. D., 1994, Geologic map of the Pahroc Spring SE quadrangle, Lincoln County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1752, scale 1:24,000.
- Whitebread, D.H. and Hardyman, R.F., 1987, Preliminary geologic map of part of the Cedar Mountains and Royston Hills, Esmeralda and Nye Counties, Nevada: U.S. Geological

- Survey Open-File Report 87-613, scale 1:62,500.
- Williams, V.S., Best, M.G., and Keith, J.D., 1997, Geologic map of the Ursine-Panaca Summit-Deer Lodge area, Lincoln County, Nevada and Iron County, Utah: U.S. Geological Survey Miscellaneous Geologic Investigations Series Map I-2479, scale 1:50,000.
- Willis, J.B., Best, M.G., Kowallis, J.B., and Best, V.C., 1987, Preliminary geologic map of the northern Wilson Creek Range, Lincoln County, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-1971, scale 1:50,000.