



**NI 43-101 TECHNICAL REPORT  
FOR THE  
DEER MUSK EAST LITHIUM PROPERTY**

**CLAYTON VALLEY  
ESMERALDA COUNTY  
NEVADA, USA**

**PREPARED ON BEHALF OF  
AMERIWEST LITHIUM INC.**

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# 1 Summary

Ameriwest Lithium Inc. (“Ameriwest”), formerly Oakley Ventures Inc., is a publicly traded lithium exploration company located in Vancouver, B.C. and listed on the Canadian Securities Exchange (CSE:AWLI). Ameriwest has staked 283 unpatented placer claims, encompassing a total area of 2,274 ha (5,618 acres) of public land, in southern Clayton Valley, Nevada, USA. The property, known as Deer Musk East (“DME”), has potential to host both lithium brine and lithium sedimentary deposits, subject to exploration success.

Clayton Valley is located within the Basin and Range Province in southern Nevada. It is a closed-basin that is fault bounded on the north by the Weepah Hills, the east by Clayton Ridge, the south by the Palmetto Mountains, and the west by the Silver Peak Range and Mineral Ridge. The basin is bounded to the east by a steep normal fault system toward which basin strata thicken (Davis et al., 1986). These basin-filling strata compose the aquifer system which hosts and produces the lithium-rich brine (Zampirro, 2004; Munk et al., 2011).

The north and east parts of Clayton Valley are flanked with Miocene to Pliocene sediments containing multiple primary and reworked volcanic ash deposits within fine-grained clay and silt units. These deposits, mapped primarily to the north, are a part of the Esmeralda Formation, a sedimentary sequence grading from coal-bearing siltstones, sandstones, and conglomerates at the base, to fine-grained tuffaceous lacustrine sediments at the top of the section. Lacustrine deposits, composed primarily of clays and fine-grained sediments with volcanic ash layers, occur on the east side of Clayton Valley described as the Esmeralda Formation by Kunasz (1974) and Davis (1981).

Lithium bearing sediments have been recognized in Clayton Valley for some time in uplifted paleo Miocene Esmeralda Formation lacustrine clays, ash and tuffs (Kunasz, 1974; Morissette, 2012). Lithium values range from 496 - 4,950 ppm. Recent exploration work by other companies has confirmed large volumes of lithium-bearing sediments on the east flank of the valley.

DME is located in the southeast lower flank of Clayton Valley and lies south, and along strike, of exposed mudstone, claystone and welded tuffs of the Miocene Esmeralda Formation. The area is characterized by valley floor sediments to the east, an uplifted central core and large unsorted alluvial deposits on the west. The Esmeralda Formation is not exposed on the DME claims as it terminates at the north boundary of the property. Evidence suggests a small normally faulted and rotated crustal block has offset the Esmeralda Formation and it is believed the Formation exists at depth on the DME property.

The property is located approximately five miles southeast of Albemarle Corporation’s (NYSE:ALB) (“Abermarle”) Silver Peak Operation where lithium brines are extracted and processed in evaporation ponds to produce a variety of lithium chemicals. The Silver Peak Operation is currently the only operating lithium mine in North America and has been in operation since 1967. Pure Energy Minerals (TSXV: PE), whose project is west of DME, is constructing a pilot plant to evaluate brine recovery.

Noram Ventures Inc. (TSXV:NRM) (“Noram”), Cypress Development Corporation (TSXV: CYP) (“Cypress”), and Spearmint Resources Inc. (CSE: SPMT) (“Spearmint”) have all reported

sedimentary mineral resources in the Clayton Valley. These deposits are contiguous along strike to the north of DME.

The DME property therefore has potential to host both lithium brine placer deposits and lithium sedimentary placer deposits. Note that the vicinity of DME to these adjacent or nearby properties does not guarantee exploration success or that mineral resources or reserves will be defined at DME. The deposit models that apply to these properties also apply to DME and will help guide exploration. The property is an early stage exploration property and no mineral resources or reserves have yet been delineated on the property.

A majority of Ameriwest's unpatented placer mining claims (222) are located on federal public lands on which another party, Authium LLC, previously recorded certificates of location for unpatented lode mining claims. Ameriwest believes that the brine deposit and the sedimentary lithium clay deposit on Ameriwest's mining claims are properly located as placer mining claims. BLM regulations expressly provide that under the Mining Law of 1872 a claimant may locate a mineral-bearing brine deposit or a bedded deposit of gypsum or similar minerals as a placer mining claim. The lode mining claim locator could challenge the validity of some of Ameriwest's placer mining claims. If the locator of the lode mining claims challenges Ameriwest's placer mining claims in a legal proceeding, Ameriwest would have the opportunity to assess the case and either assert the validity of Ameriwest's claims or decide to surrender certain of its placer mining claims to avoid the cost, delay, and effort of the legal proceeding.

A concern to future development of the DME will be securing water rights. Exploration for lithium in sedimentary or brine deposits, which includes drilling and pump testing, can be performed through temporary discharge permits. Should Ameriwest conduct exploration and ultimately define mineral resources or mineral reserves (note that none are currently defined on the property), the company will have to be concerned about availability of water rights. This can potentially be addressed through acquisition of water rights from other holders, permitting of new water rights (if there is availability at the time), and through selection of technology that minimizes water use and recycles water.

It is recommended that a Phase 1 exploration program consisting of soil sampling, rock chip sampling, and geophysics be completed to initially evaluate the lithium potential on the DME property. The following geophysical surveys are recommended:

- Seismic reflection for definition for subsurface strata and fault definition;
- Gravity for depth to bedrock and structure;
- Resistivity to evaluate the extent of conductors that may represent lithium brine hosting units.

The estimated cost for completing the soil sampling, rock chip sampling, and geophysical work is \$US190,000. Information from the Phase 1 exploration program will be used to make recommendations for a Phase 2 exploration program, which would potentially include drilling for placer brine or placer sedimentary lithium deposits.

## **2 Introduction**

### **2.1 Introduction and Purpose of Report**

This report is prepared for Ameriwest Lithium Inc., (“Ameriwest”), a publicly traded lithium exploration company located in Vancouver, BC and is listed on the Canadian Securities Exchange under the symbol AWLI. Ameriwest has staked 283 unpatented placer claims, encompassing a total area of 2,274 ha (5,618 acres) of public land, in southern Clayton Valley, Nevada, USA.

The purpose of this report is to provide recommendations to Ameriwest management for exploration work to evaluate the property. Raymond P. Spanjers, QP, was retained by Ameriwest to prepare this technical report on the lithium potential of the DME property and he is responsible for this entire report.

### **2.2 Terms of Reference**

This report has been prepared in conformity to National Instrument 43-101 (“NI 43-101”) standards and in accordance with the formatting requirements of NI 43-101 F1. It provides documentation for written disclosures and should be read in its entirety.

### **2.3 Source of Information**

The report is based upon information provided by Ameriwest, and data collected, compiled, and validated by the author. Mineral rights and land ownership information were provided by David Watkinson, President and CEO of Ameriwest, and Charles Watson, Advanced Geologic Exploration Inc., who staked the unpatented mineral claims on behalf of Ameriwest.

The majority of the information contained within the report was derived from the following:

- Ameriwest supplied exploration maps and third-party reports, including Technical Reports by other companies.
- Published literature.
- Personal knowledge and discussions with other persons.

The author visited the site on March 29, 2021 and acquired information on the leases, their physical location and the local geology from Charles Watson, President of Advanced Geologic Exploration Inc., and a consultant geologist working for Ameriwest.

### **2.4 Units and List of Abbreviations**

All units of measurement in this report are metric unless otherwise stated. All costs are expressed in US dollars (\$US). Exploration survey data are reported in Universal Transverse Mercator (UTM) coordinates, North American Datum (NAD 83). The abbreviations used in this report are shown in Table 1.

## **3 Reliance on Other Experts**

The author relied on Charles Watson, President of Advanced Geologic Exploration Inc., for a field review of the Ameriwest DME claims and associated geology. Legal description of the claims was provided by Ameriwest. All other work is the responsibility of the Author.

**Table 1. List of Units and Abbreviations**

AWLI	Ameriwest	M.S.	Master of Science	m	Meter
CSE	Canadian Stock Exchange	4WD	Four Wheel Drive	\$US	US Dollars
Li	Lithium	ATV	All-Terrain Vehicle	LiCO3	Lithium Carbonate
LCE	Lithium Carbonate Equivalent	ac	Acre	LCE	Lithium Carbonate Equivalent
NI	National Instrument	ha	Hectare	ppm	Parts per Million
BLM	Bureau of Land Management	km	Kilometer	Mt	Metric Ton
DME	Deer Musk East	mi	Mile	kg	Kilogram
CPG	Certified Professional Geologist	MW	Megawatt	Li	Lithium Ion
QP	Qualified Person	ft	Foot	Ma	Million Years
UTM	Universal Transverse Mercator	kV	Kilovolt	Co	Degree Centigrade
NAD	North American Datum	ASL	Above Sea Level	PLS	Pregnant Leach Solution

## 4 Property Description and Location

### 4.1 Property Description

The DME property consists of 283 unpatented placer claims totalling an approximate area of 2,274 ha (5,618 ac). The claims fall under the jurisdiction of the Bureau of Land Management (“BLM”). They are located in southeastern Clayton Valley Nevada, USA as shown in Figure 1. The claims were staked by Advanced Geologic Exploration Inc. in February of 2021 on behalf of Ameriwest. The claims, listed in Table 1 and shown in Figure 2, are held by Ameriwest’s 100% owned U.S. subsidiary, Oakley Ventures (USA) Inc.

**Table 2. Deer Musk East Claim Information (BLM LR 2000 website, 2021)**

Serial Number	Lead File Number	Claim Name	County	Case Disposition	Claim Type	Next Payment Due Date	Date Of Location	Meridian Township Range Section	Quadrant
NV105235314 thru NV105235455	NV105235314	DME 1 to DME 143	ESMERALDA	FILED	PLACER CLAIM	9/1/2021	2/14/2021	21 0030S 0400E 020	NW
NV105235456 thru NV105235527	NV105235314	DME 300 to DME 439	ESMERALDA	FILED	PLACER CLAIM	9/1/2021	2/14/2021	21 0030S 0400E 020	NW

### 4.2 Location

The property is located in the east end and southeast flank of Clayton Valley, as shown in Figure 1. The nearest settlement is the town of Silver Peak, which lies approximately 5 km (3 mi) to the NW. Access to Silver Peak is from Highway 265, a paved road that links Silver Peak to Highway 95. Highway 95 links Las Vegas to Reno, and the site is equidistant to both main cities (approximately 270 km (170 mi) from each main city). Silver Peak is approximately 61 km (38 mi) from Tonopah, which is the regional commercial centre, and approximately 45 km (28 mi) from Goldfield, which is the County Seat of Esmeralda County. Access to and across the site from Silver Peak is via a series of gravel/dirt roads. The geographic coordinates at the approximate center of the property are N37.2022 by E 117.548971.

The DME claims are located approximately five miles southeast of Albemarle's Silver Peak Operations, a lithium brine processing evaporation pond/plant complex that has been in operation since 1967.

Figure 1. Deer Musk East Property Location, Nevada, USA.

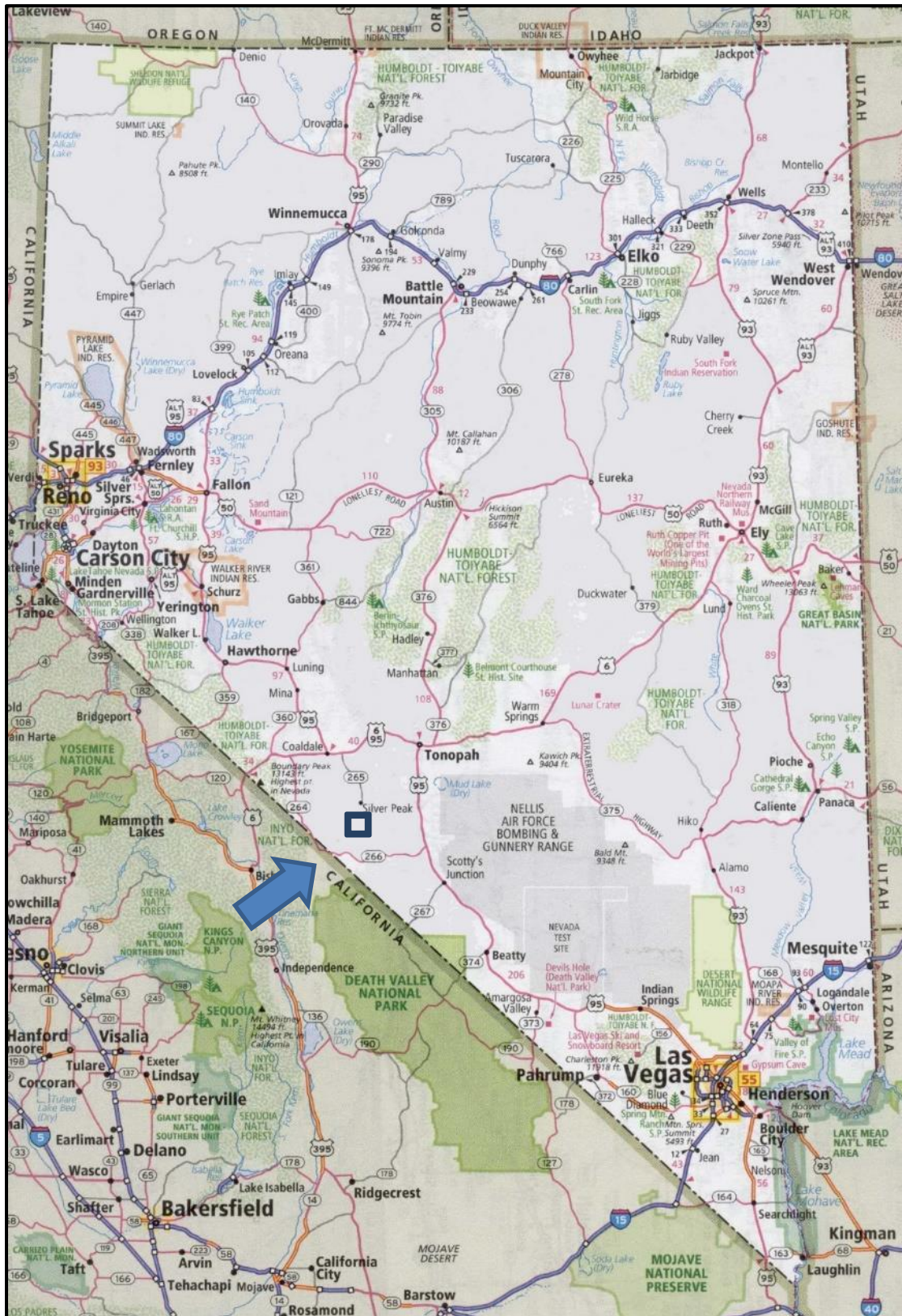
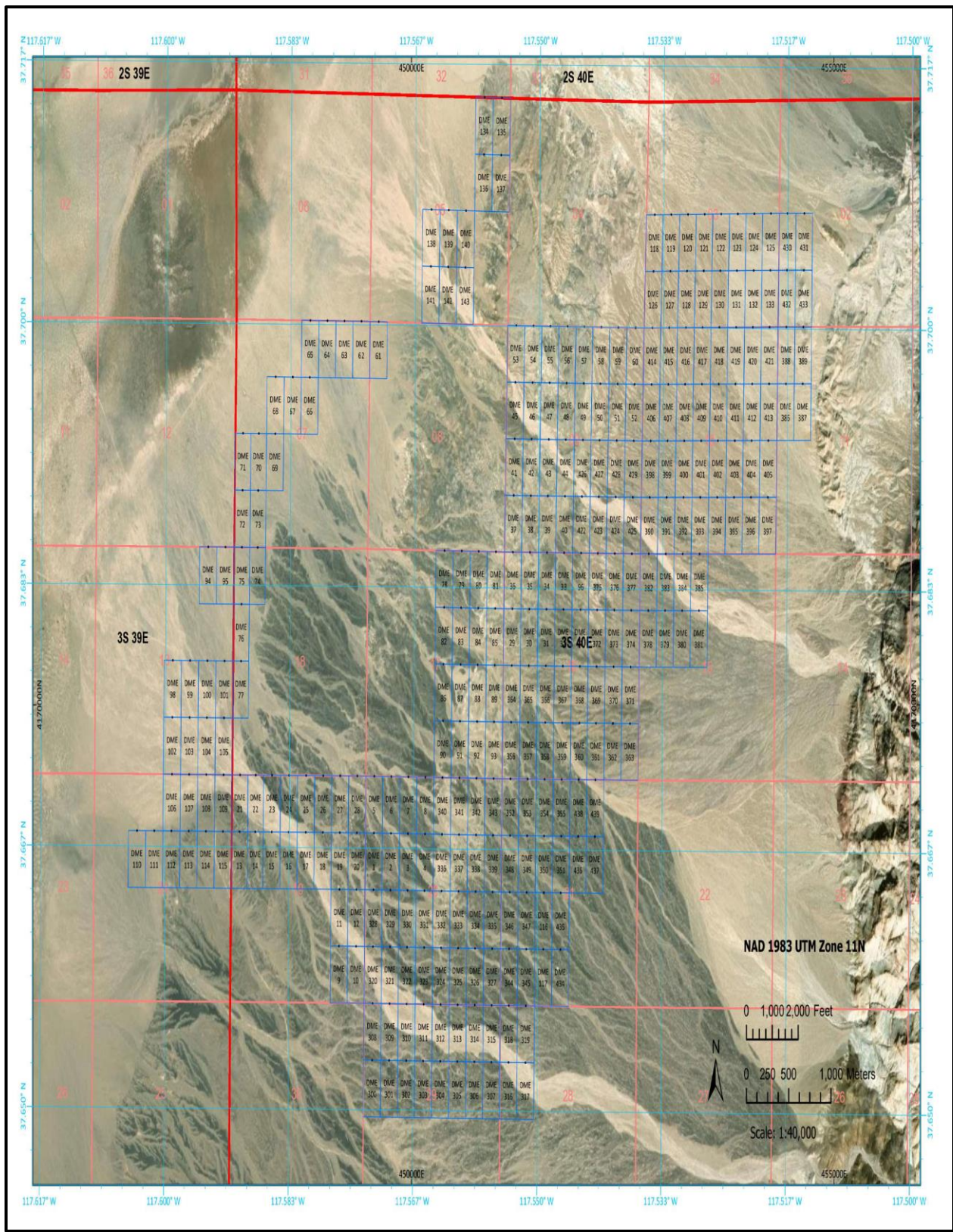




Figure 2. Deer Musk East Claim Locations in Clayton Valley, Nevada.



## **5 Accessibility, Climate, Local Resources, Infrastructure and Physiography**

### **5.1 Accessibility**

The DME placer claims are accessed from the small township of Silver Peak and lie to the southeast of the long-established lithium operations, currently owned and operated by Albemarle. Silver Peak is approximately 61 km (38 miles) from Tonopah, which is the regional commercial centre, and approximately 45 km (28 miles) from Goldfield, which is the County Seat of Esmeralda County. Access to and across the site from Silver Peak is via a series of gravel/dirt roads. The main gravel roads that run south and southeast from Silver Peak into the project area are well maintained and easily accessible with a normal 2WD vehicle. The minor gravel/dirt roads that criss-cross the property are typically not maintained and require 4WD to negotiate safely, particularly after high winds have caused drifting sand to form on the roads. Most of the property requires the use of an ATV for access.

### **5.2 Climate and Vegetation**

Clayton Valley has a generally arid to semi-arid climate, characterised by hot dry summers and cold winters. The climate is influenced strongly by the Sierra Nevada Mountains to the west, which produce a pronounced rain shadow, and have the general effect of making Nevada the driest state in the US. Precipitation is scattered throughout the year, with slightly more precipitation in late winter/early spring. During the winter months, high-pressure conditions predominate and result in west-to-east trending winds and precipitation patterns. During the summer months, low-pressure conditions predominate, resulting in southwest-to-northeast trending precipitation patterns. Winter storm events tend to last longer and produce more precipitation than the summer events, which tend to produce widely scattered showers of short duration; drought is common and can last for more than 100 days.

Localized dust storms are common in Clayton Valley, and typically form later in the day after pronounced solar heating of the ground surface (all general climate information sourced from City-Data.com for Silver Peak are provided in Figure 3).

The exploration season is effectively year-round. There are periods where heavy rainfall may cause minor localized flooding of access roads, and in this instance, access onto the playa floor may be limited for a few days.

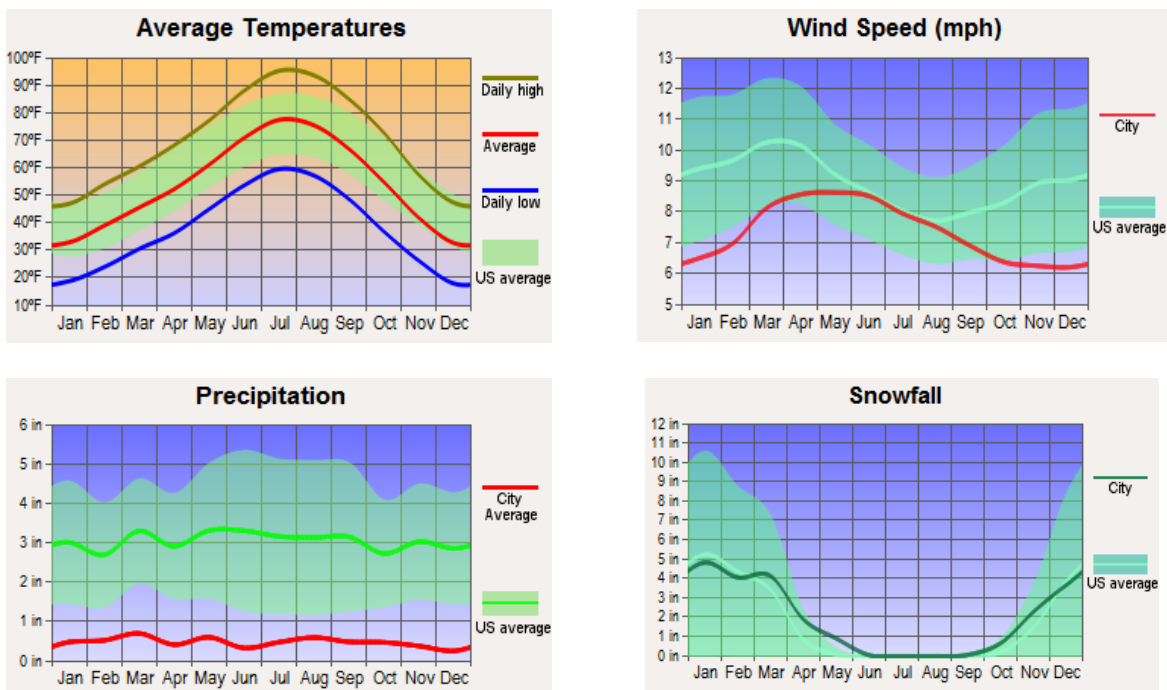
Vegetation coverage across the site area is generally very sparse and consists of a mixture of low scrub and grasses forming high desert, prairie, or shrub-steppe vegetation populations. Previous biological fieldwork completed at the site reported a mix of Saltbush, Greasewood Bush, Pickleweed, Saltgrass and Russian Thistle, with other occasional minor species (Spanjers, 2015). Many areas on the flat playa floor and the sand dune area having effectively no vegetation cover at all.

### **5.3 Local Resources**

Silver Peak is the nearest census-designated settlement, with a population of 142 in 2021 ([www.city-data.com](http://www.city-data.com)). The unincorporated town has a US Post Office (ZIP code 89047), fire/EMS station, small school and a tavern. There are no significant services/shops in Silver Peak. The

main employers are the lithium-brine operation of Albemarle Corp and other hard-rock mining operations in the Clayton Valley area.

**Figure 3. Average Weather Data for Silver Peak, Nevada (www.city-data.com).**



Goldfield is the County Seat for Esmeralda County with a population of 298 at the last census in 2020 ([www.city-data.com](http://www.city-data.com)). It has a series of small convenience stores, a small restaurant, motel and a gas station. As with Silver Peak, the population fluctuates depending on economic factors, as there are several small mining operations close to Goldfield that open and close with varying commodity prices. The County buildings in Goldfield house all the claim records for the various mining claims in Clayton Valley.

Tonopah is the main commercial centre close to Clayton Valley and has a full range of services, including grocery stores, restaurants, hotels/motels, banks, hardware stores and government offices (e.g. local BLM office for recording claims, making permit applications etc.). The population of Tonopah was 2,478 in the 2020 census, and is the County Seat of Nye County. Employment in Tonopah is a mixture of service jobs, military (Tonopah Test Range), mining and industrial jobs related to the nearby Crescent Dunes concentrating solar plant.

## 5.4 Infrastructure

A series of well-maintained state highways connect Silver Peak to the main road network in Nevada and beyond, and graded and maintained gravel roads link Silver Peak to the southern half of Clayton Valley. A gravel road from Goldfield to Clayton Valley has been paved. These roads connect Silver Peak to the local community of Lida in the south and allow year-round access to the project area. Access to the DME claims will require additional road construction off of existing roads or the use of ATVs.

The nearest rail system is in Hawthorne, Nevada, approximately 145 km (90 miles) by road to the north of Silver Peak. This rail system is operated by Union Pacific and links northwards towards

the main Union Pacific rail system in the Sparks/Reno area. There is a County-owned, public use airport in Tonopah that has two runways, each approximately 2 km (7,000 ft) long.

Electrical connection is possible at the sub-station in Silver Peak and is shown in Figure 4. This sub-station connects a pair of 55kV lines that form an electrical intertie between the Nevada and California electrical systems (maximum power capacity exchange allowed of 17 MW across the intertie), with two 55kV lines that link the sub-station to the main electrical grid in Nevada. One of the 55kV lines from the sub-station runs northwards to the Millers sub-station that lies approximately 47 km (29 mi) northeast from Silver Peak, and at this point, the 55kV line interconnects to the 120kV transmission system (and then the 230kV system just north at the Crescent Dunes plant and Anaconda Moly sub-station). The other 55kV line runs east from Silver Peak and feeds back into Goldfield and Tonopah. Total electricity usage by the existing Albemarle lithium facility is reported as averaging 1.89 MW, with maximum usage of 2.54 MW (DOE/EA-1715, Sept 2010); note that a typical 55kV line is capable of transferring 10-40 MW of power depending on local factors.

**Figure 4. Silver Peak Electrical Substation.**



Water supply is currently served by the Silver Peak municipal water supply. This is serviced by three wells that abstract water from alluvial fans on the western flank of Clayton Valley, approximately 1 km (0.62 mi) southwest of the town.

## **5.5 Physiography**

### **5.5.1 Clayton Valley Physiography**

Clayton Valley lies in a complex zone of disrupted structure between the northwest trending Sierra Nevada Mountain Range to the west, and the north-south trending Basin and Range province to the north and east. The valley has a total watershed area of 1,437 km<sup>2</sup> (555 mi<sup>2</sup>) and the floor of the valley lies at an altitude of approximately 1,320 m ASL (4,320 ft ASL). The surrounding mountains generally rise several hundred meters above the valley floor, with the highest surrounding mountain being Silver Peak at 2,859 m ASL (9,380 ft ASL). The valley is bounded

to the west by the Silver Peak Mountain Range, to the south by the Palmetto Mountains, to the east by Clayton Ridge and the Montezuma Range, and to the north by the Weepah Hills as shown in Figure 5.

There is no permanent surface water in the Clayton Valley watershed, with the exception of the man-made evaporation ponds operated by Albemarle Corp. All watercourses are ephemeral and only active during periods of intense precipitation.

Clayton Valley lies at a lower elevation than the surrounding basins (Big Smoky Valley lies approximately 122 m (400 ft) higher; Alkali Flats Valley lies approximately 140 m (460 ft) higher, and it is thought to receive some sub-surface groundwater flow from these basins based on regional static groundwater levels).

### **5.5.2 Deer Musk East Physiography**

Field observations on the DME property indicate a subdivision into three physiographic zones that are bounded by fault systems: 1) the playa and adjacent lowlands, 2) the central core uplift, and 3) the eastern fan complex (Charles Watson, personal communication).

The Playa and adjacent lowlands are composed of sedimentary strata and alluvium. The land is sparsely populated with vegetation. The central core uplift appears to be the manifestation of a rotated normal fault block sliver, that has exposed uplifted Pleistocene deposits between specific fault traces. Field measurements indicate that the sediments exposed in the core uplift fault block dip 3-6 degrees eastward, as shown in Figure 6.

The eastern part of the property is a fan complex that covers the majority of the property area. The fans are characterized by poorly sorted alluvial deposits and are cut by washes, as shown in Figure 7.

## **6 History**

The author is not aware of any historical exploration or production work on the DME claims.

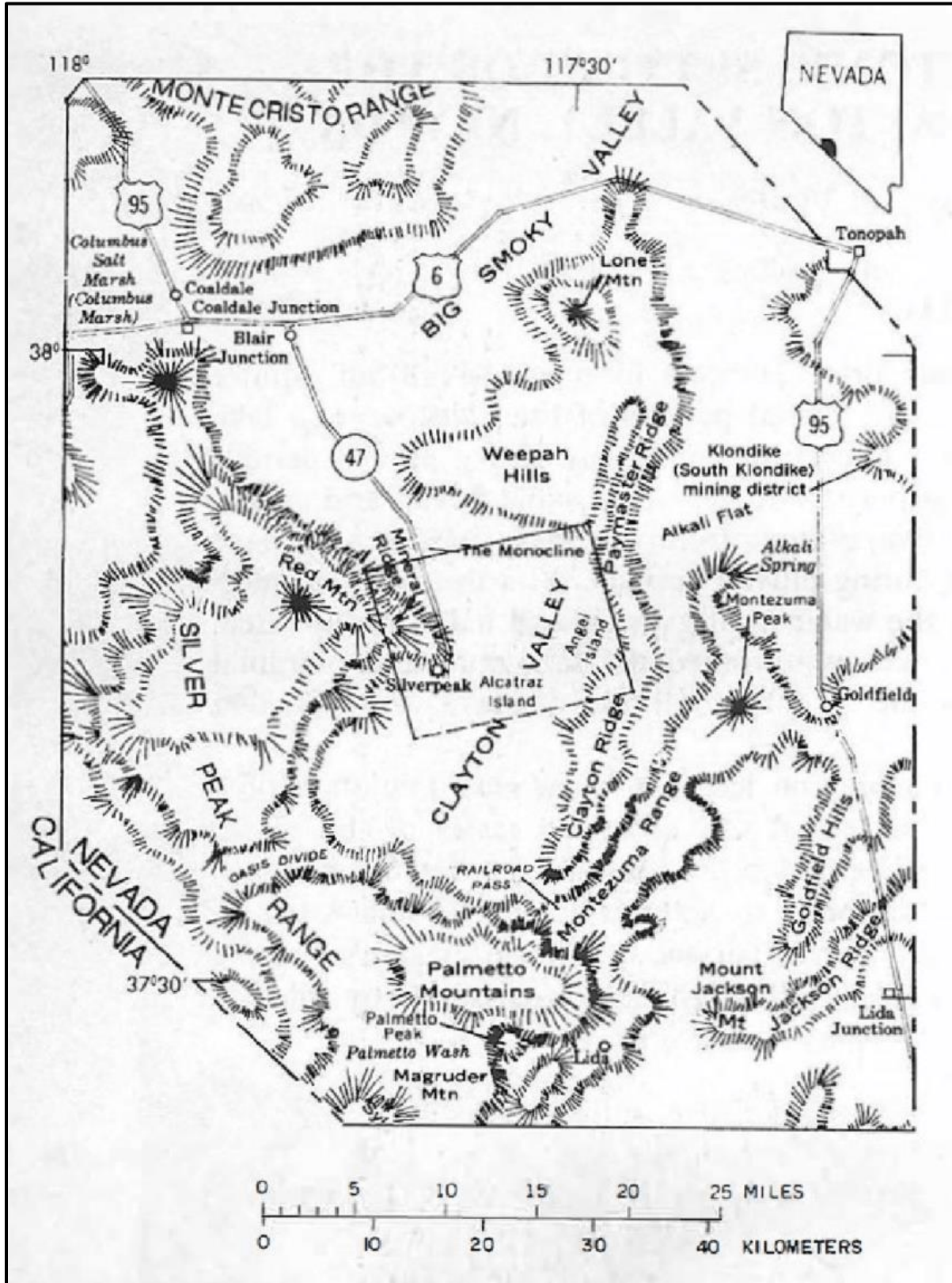
## **7 Geological Setting Mineralization**

### **7.1 Geology**

#### **7.1.1 Regional Geology**

Clayton Valley is located within the Basin and Range Province in southern Nevada. It is a closed basin that is fault bounded on the north by the Weepah Hills, the east by Clayton Ridge, the south by the Palmetto Mountains and the west by the Silver Peak Range and Mineral Ridge as shown in Figure 8. The general geology of Clayton Valley is illustrated in Figure 9. This area has been the focus of several tectonic and structural investigations because of its position relative to Walker Lane, the Mina Deflection, and the Eastern California Shear Zone (McGuire, 2012; Burris, 2013). The basement rock of Clayton Valley consists of late Neoproterozoic to Ordovician carbonate and clastic rocks that were deposited along the ancient western passive margin of North America.

Figure 5. Physiographic Map of Clayton Valley and Environs (Zampirro, 2005).



**Figure 6. Drone Photograph of the Valley Floor and Core Uplift Zones on DME Property.**



**Figure 7. Drone Photo of Typical Alluvial Fan on DME Property.**



During late Paleozoic and Mesozoic orogenies, the region was shortened and subjected to low-grade metamorphism (Oldow et al., 1989; Oldow et al., 2009) and granitoids were emplaced at ca. 155 and 85 Ma. Extension commenced at ca. 16 Ma and has continued to the present, with changes in structural style as documented in the Silver Peak-Lone Mountain Extensional Complex (Oldow et al., 2009; Burris, 2013). A metamorphic core complex just west of Clayton Valley was exhumed from mid-crustal depths during Neogene extension. There is a Quaternary cinder cone and associated basaltic lava flows in the northwest part of the basin.

The basin is bounded to the east by a steep normal fault system toward which basin strata thicken (Davis et al., 1986). These basin-filling strata compose the aquifer system which hosts and produces the lithium-rich brine (Zampirro, 2004; Munk et al., 2011). The north and east parts of Clayton Valley are flanked with Miocene to Pliocene sediments containing multiple primary and reworked volcanic ash deposits within fine-grained clay and silt units. These deposits are a part of the Esmeralda Formation first described by Turner (1900) and later by Stewart (1989) and Stewart and Diamond (1990). The Esmeralda Formation is a sedimentary sequence grading from coal-bearing siltstones, sandstones and conglomerates at the base to fine-grained tuffaceous lacustrine sediments at the top of the section. This formation is primarily mapped in the areas north of Clayton Valley (Stewart and Diamond, 1990) but there are also lacustrine deposits composed primarily of clays and fine-grained sediments with volcanic ash layers on the east side of Clayton Valley described as Esmeralda Formation by Kunasz (1974) and Davis (1981).

Recent work by Burris (2013), aimed at unravelling the tectonic and structural history of the Weepah Hills area to the north of Clayton Valley, reports a series of zircon helium ages for three volcanic-sedimentary depositional units from the upper plate in the Weepah Hills area. These are considered eruptive ages and include the Lone Mountain (23-18 Ma) unit, the Esmeralda Formation (12-10 Ma), and the Alum Mine Formation (10-6 Ma). Ongoing work by L. Munk (pers. comm.) includes efforts to date volcanic-sedimentary units from the east side of the basin as well as from downhole samples in order to further understand the depositional history of these units and possible correlation with surface outcrops.

Multiple wetting and drying periods during the Pleistocene resulted in the formation of lacustrine deposits, salt beds, and lithium-rich brines in the Clayton Valley basin. The Late Miocene to Pliocene tuffaceous lacustrine facies of the Esmeralda Formation contain up to 1,300 ppm lithium and an average of 100 ppm lithium (Kunasz, 1974; Davis and Vine, 1979). Hectorite (lithium bearing smectite) in the surface playa sediments contains from 350 to 1,171 ppm lithium (Kunasz, 1974). More recent work by Morissette (2012) confirms elevated lithium concentrations in hectorite in the range of 160-910 ppm from samples collected on the northeast side of Clayton Valley. Miocene silicic tuffs and rhyolites along the basin's eastern flank have lithium concentrations up to 228 ppm (Price et al., 2000).

Prior to development of the brine resource in Clayton Valley, a salt flat and brine pool existed in the northern part of the basin, but groundwater pumping has eliminated the surface brine pool. The presence of travertine deposits which occur in the northeast part of the valley, as well as the west and central parts of the valley, are also evidence of past hot spring activity on the valley floor. At the base of Paymaster Canyon, gravity and seismic surveys have been used to map the Weepah Hills detachment fault but also reveal the presence of tufa at depth coincident with a geothermal anomaly (McGuire, 2012). This area and another just north of the town of Silver Peak are underlain by aquifers that contain hot water (~50-60°C) and approximately 40 ppm lithium (L.



Munk, pers. comm.). Hot spring deposits in these locations and others in the basin have also been mapped by Hulen (2008).

### **7.1.2 DME Property Geology**

The surface geology of the DME property consists of quaternary unsorted sands and gravel on the playa floor and core uplift. The eastern side of the property is composed of large unsorted alluvial fans. Foy et al. (2016) mapped alluvium on a portion of southeast Clayton Valley near the DME claims, and characterized the alluvium into eight age-dated and two undated Quaternary units as shown in Figure 9. Undivided bedrock, consisting of sandstone, shale, marl, conglomerate, and breccia and white volcanic ash deposits of unknown age, were mapped through portions of the valley, some of which also appear to have been deformed by earlier Cenozoic faults. Mapped faults in the alluvium indicates that active faulting in the area continues.

There is no Miocene Esmeralda Formation exposed but is thought to be buried beneath alluvium. The abrupt absence of Esmeralda Formation siltstones, clays and altered tuffs, combined with the central core uplift on the west side of the property suggests the presence of a small normal fault block or sliver that has rotated

## **7.2 Mineralization**

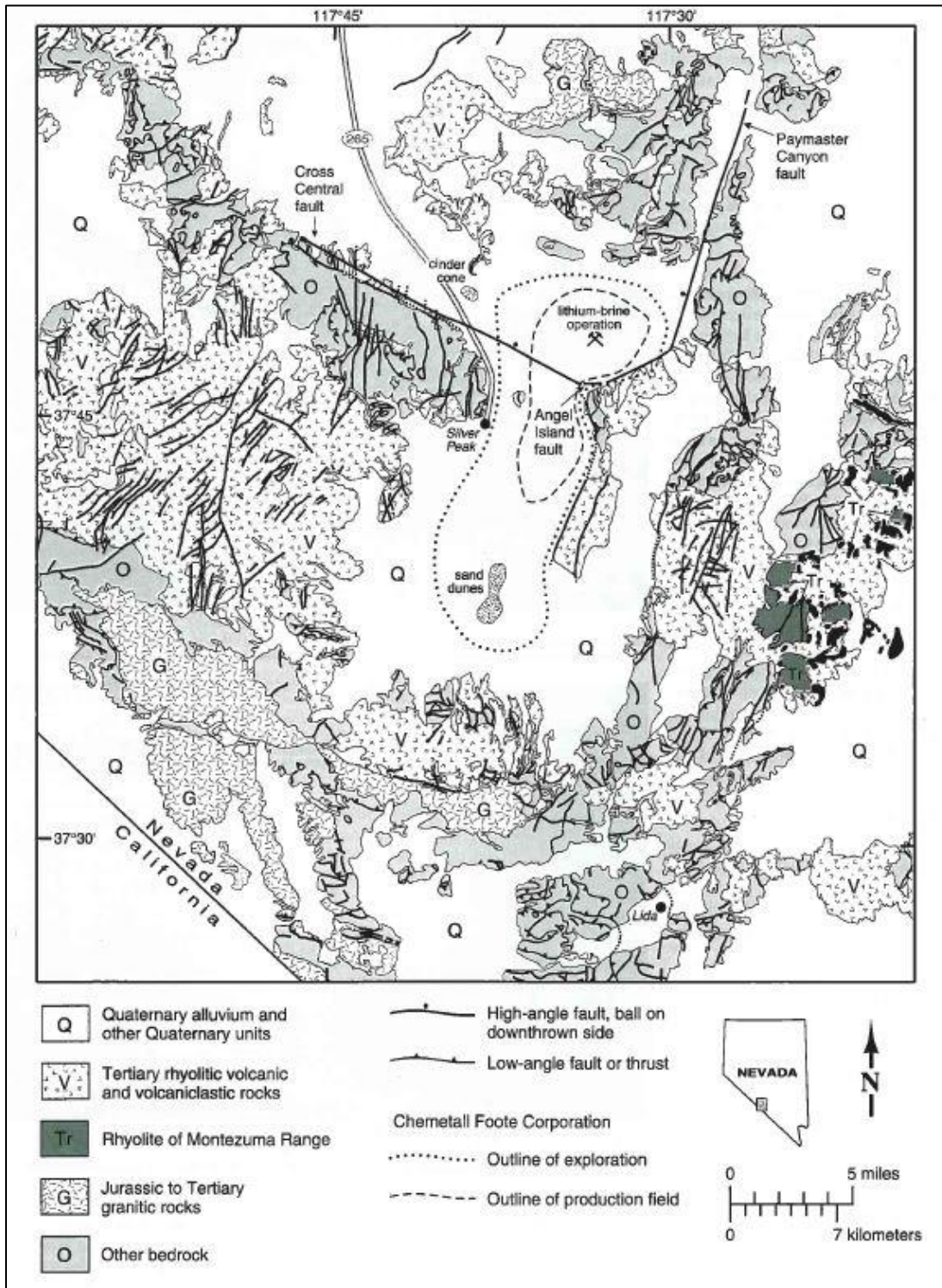
### **7.2.1 Brine Mineralization**

Lithium mineralization in Clayton Valley occurs as lithium rich brine in Pleistocene lake placer sediments and in older uplifted Miocene Esmeralda Formation lacustrine clays, ash, and tuffs. Both occurrences are applicable to the DME project.

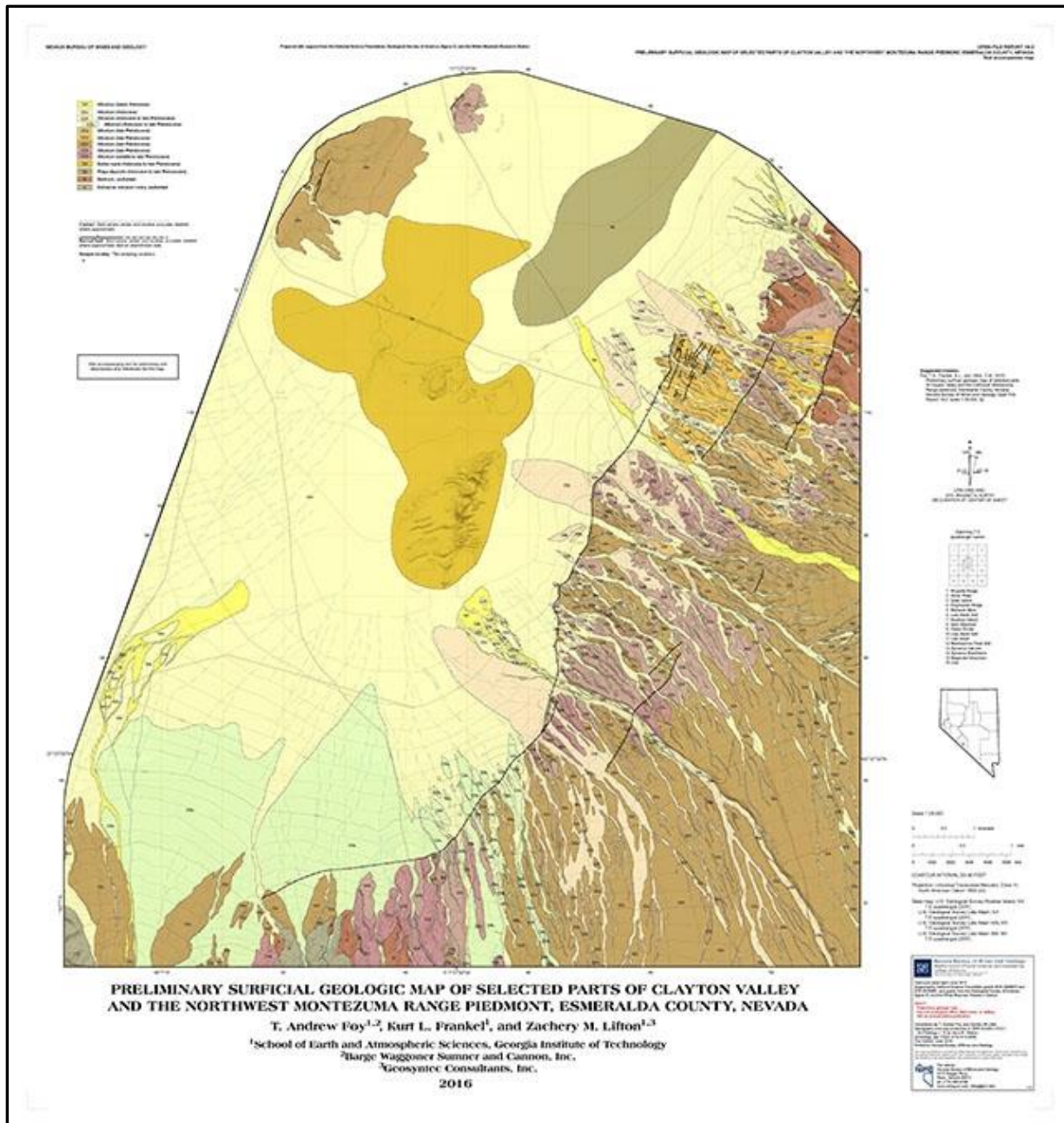
The lithium brine geochemistry and composition were first investigated by Davis and Vine (1979) and Davis et al. (1986), Munk et al. (2011) and Jochens and Munk (2011). A model for continental Li-rich brine systems was proposed by L. Munk, et al. (2016), which described six common characteristics that provide clues to deposit genesis while also serving as exploration guidelines. As shown in Figure 10. They are: (1) arid climate; (2) closed basin containing a salar (salt crust), a salt-lake, or both; (3) associated igneous and/or geothermal activity; (4) tectonically driven subsidence; (5) suitable lithium sources; and (6) sufficient time to concentrate brine. In general, the brines from the north part of Clayton Valley are Na-Cl in composition and have lithium concentrations in the range of 60-400 mg/L Li.

Lithium mineralization is present within the finer-grained clastic sediments and ash/tuff layers that were deposited as part of a Pleistocene lake. Zampirro (2005) noted that these sediments are typically found in the eastern half of the elongated Clayton Valley. The mineralization is present as a series of aquifers that contain brines with varying concentrations of lithium. Where data exist, they tend to show that the aquifers are closer to the surface in the northern part of Clayton Valley, and that they deepen in the southern half, as the total thickness of the basin increases to the south, as does the thickness of the overlying alluvial sediments which do not contain mineralization.

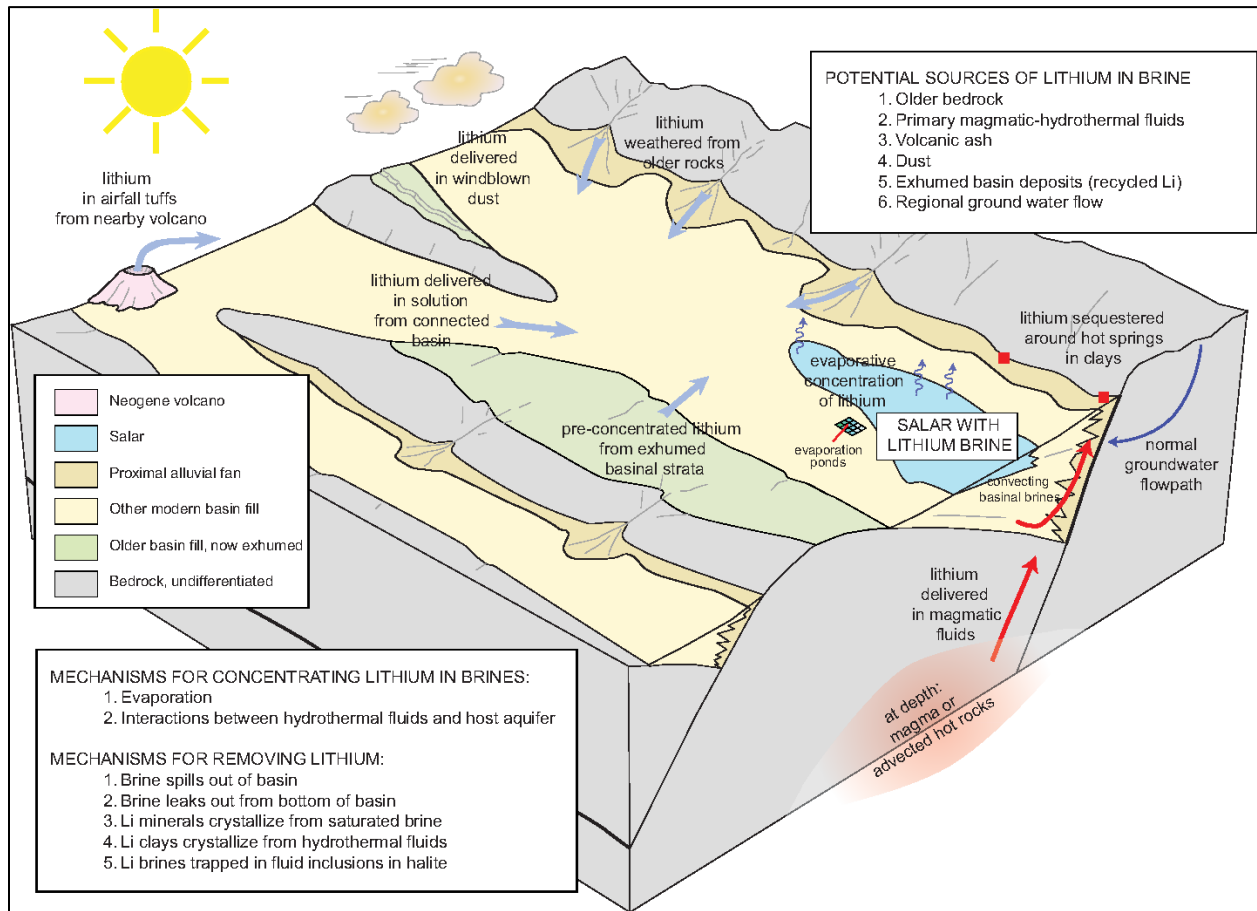
Figure 8. Geologic Map of Clayton Valley and Surrounding Area (Zampirro, 2005).



**Figure 9. Preliminary Surficial Geologic Map of Selected Parts of Clayton Valley and the Northwest Montezuma Range Piedmont, Esmeralda County, Nevada.**



**Figure 10. Continental Lithium Brine Formation (L. Munk, S. Hynek, D. Bradley, D. Boutt, K. Labay, Hillary Jochens, 2016).**



## 7.2.2 Clay Mineralization

Lithium bearing sediments have been recognized in Clayton Valley for some time in uplifted paleo Miocene Esmeralda Formation lacustrine clays, ash, and tuffs. Kunasz (1974) reported up to 623 ppm lithium in a sequence of altered volcanic ashes on the east side of Clayton Valley with a bulk lithium concentration ranging from 496-2,740 ppm. Morissette (2012) measured lithium concentration in the clay size fraction from samples collected in the upper member of the Esmeralda Formation in the range of 1,140-4,950 ppm for six samples. whereas Kunasz (1974) reports up to 140 mg/L water soluble lithium from the clay-sized fraction in the Esmeralda Formation on the east side of the basin. As noted earlier, exploration efforts by Noram, Cypress and Spearmint have confirmed Esmeralda Formation lithium values.

## 8 Deposit Types

Lithium is found in five main types of deposits: pegmatites, continental brines, clays, oil well field brines, and lithium-borate evaporites. Continental brines and lithium clay sedimentary deposits, potential exploration targets on the Ameriwest claims, are found in Clayton Valley.

## **8.1 Continental Brines**

Continental brines are the primary source of lithium products worldwide. Bradley, et al. (2013) noted that “all producing lithium brine deposits share a number of first-order characteristics: (1) arid climate; (2) closed basin containing a playa or salar; (3) tectonically driven subsidence; (4) associated igneous or geothermal activity; (5) suitable lithium source-rocks; (6) one or more adequate aquifers; and (7) sufficient time to concentrate a brine.” The lithium atom does not readily form evaporite minerals, remains in solution and concentrates to high levels, reaching 4,000 ppm at Salar de Atacama. Large deposits are mined in the Salar de Atacama, Chile (SQM and Albemarle), Salar de Hombre Muerto, Argentina (Livent Corporation, formerly FMC) and Clayton Valley, Nevada (Albemarle), the only North American producer. Pure Energy has a lithium brine property south of Abermarle’s Silver Peak Operation that is being advanced toward production and is at the pilot plant stage (See Section 23, Adjacent Properties).

Lithium brine deposit models have been discussed by Houston et al. (2011), Bradley et al. (2013) and more extensively by Munk et al. (2016). Houston et al. (2011) classified the salars in the Altiplano-Puna region of the Central Andes, South America in terms of two end members, “immature clastic” or “mature halite,” primarily using (1) the relative amount of clastic versus evaporate sediment; (2) climatic and tectonic influences, as related to altitude and latitude; and (3) basic hydrology, which controls the influx of fresh water. The immature classification refers to basins that generally occur at higher (wetter) elevations in the north and east of the region, contain alternating clastic and evaporite sedimentary sequences dominated by gypsum, have recycled salts, and a general low abundance of halite. Mature refers to salars in arid to hyperarid climates, which occur in the lower elevations of the region, reach halite saturation, and have intercalated clay and silt and/or volcanic deposits. An important point made by Houston et al. (2011) is the relative significance of aquifer permeability which is controlled by the geological and geochemical composition of the aquifers. For example, immature salars may contain large volumes of easily extractable lithium rich brines simply because they are comprised of a mixture of clastic and evaporite aquifer materials that have higher porosity and permeability. For example, the Salar de Atacama could be classified as a mature salar whereas the Clayton Valley salar has characteristics more like an immature salar.

## **8.2 Lithium Clays**

Lithium clay deposits have gained notice in recent years due to advances in lithium extraction technology. Clay deposit provenance is lithium-rich volcanic ash that is deposited in lacustrine environments, forms claystones and altered tuffs, and is exposed through subsequent uplift. Clay mineralogy includes smectite, hectorite (a subset of smectite) and illite. Examples of lithium clay deposits are Lithium Americas’ Thacker Pass project at the south end of the McDermott Caldera near the Nevada-Oregon border and Bacanora Minerals’ La Ventana deposit in Sonora, Mexico. Three companies, Cypress, Spearmint, and Noram Ventures, have advanced-stage lithium clay projects on the east slope of Clayton Valley directly north of the Ameriwest claims (see Section 23, Adjacent Properties). Ameriwest believes sedimentary placer lithium deposits are found at DME.

## **9 Exploration**

Cursory geologic mapping was completed during claim staking. At the time of this writing Ameriwest is in the initial stage of sampling and performing geophysical work on the property.

## **10 Drilling**

The property is an early-stage exploration project, and no drilling has yet taken place.

## **11 Sample Preparation, Analyses and Security**

The property is in the early stages of exploration and no sampling has taken place.

### **11.1 Sample Preparation**

The property is in the early stages of exploration and no sample preparation has taken place.

### **11.2 Analyses and Security**

The property is in the early stages of exploration and no sample analysis has taken place.

## **12 Data Verification**

The project is in the early stages of exploration and no data verification has taken place.

## **13 Mineral Processing and Metallurgical Testing**

The property is in the early stages of exploration and no mineral processing or metallurgical testing has been performed.

## **14 Mineral Resource Estimates**

The property is in the early stages of exploration and no resource estimates have been completed.

## **15 Mineral Reserve Estimates**

The project is in the early stages of exploration and no reserve estimates have been completed.

## **16 Mining Methods**

Potential mining methods for the DME property may include open pit mining for sedimentary lithium deposits and pumping for lithium brine deposits, should they be delineated at some point in the future. Currently no mineral resources or reserves have been delineated on the property.

## **17 Recovery Methods**

No lithium recovery methods have been established for DME as the property is in the early stages of exploration.

## **18 Project Infrastructure**

There is no infrastructure (buildings or equipment) on the property at this time.

## **19 Market Studies and Contracts**

The project is in the early stage of exploration and no data is available.

## **20 Environmental Studies, Permitting and Social or Community Impact**

There have been no activities in this category due to the early stage of exploration. Permitting of exploration will be done through the BLM and will require filing of a Notice of Intent and posting of a reclamation bond. Permitting under a Notice of Intent allows surface disturbance on an area of less than five acres. Regulation of dissolved mineral and exploration boreholes falls under the Nevada Division of Minerals as per Assembly Bill 52, signed into law on June 9, 2017. Regulations for dissolved mineral resource exploration were developed jointly by the Nevada Division of Environmental Protection and the Bureau of Mining Regulation and Reclamation – Permitting Requirements for Lithium Exploration and Extraction Activities. Should additional permitting be required, and the area of disturbance exceeds five acres, permitting will be done on the National Environmental Policy Act (“NEPA”) with the BLM as the Lead Agency.

## **21 Capital and Operating Costs**

The project is in the early stages of exploration and there are no capital or operating costs yet determined.

## **22 Economic Analysis**

The project is in the early stages and no exploration has taken place.

## **23 Adjacent Properties**

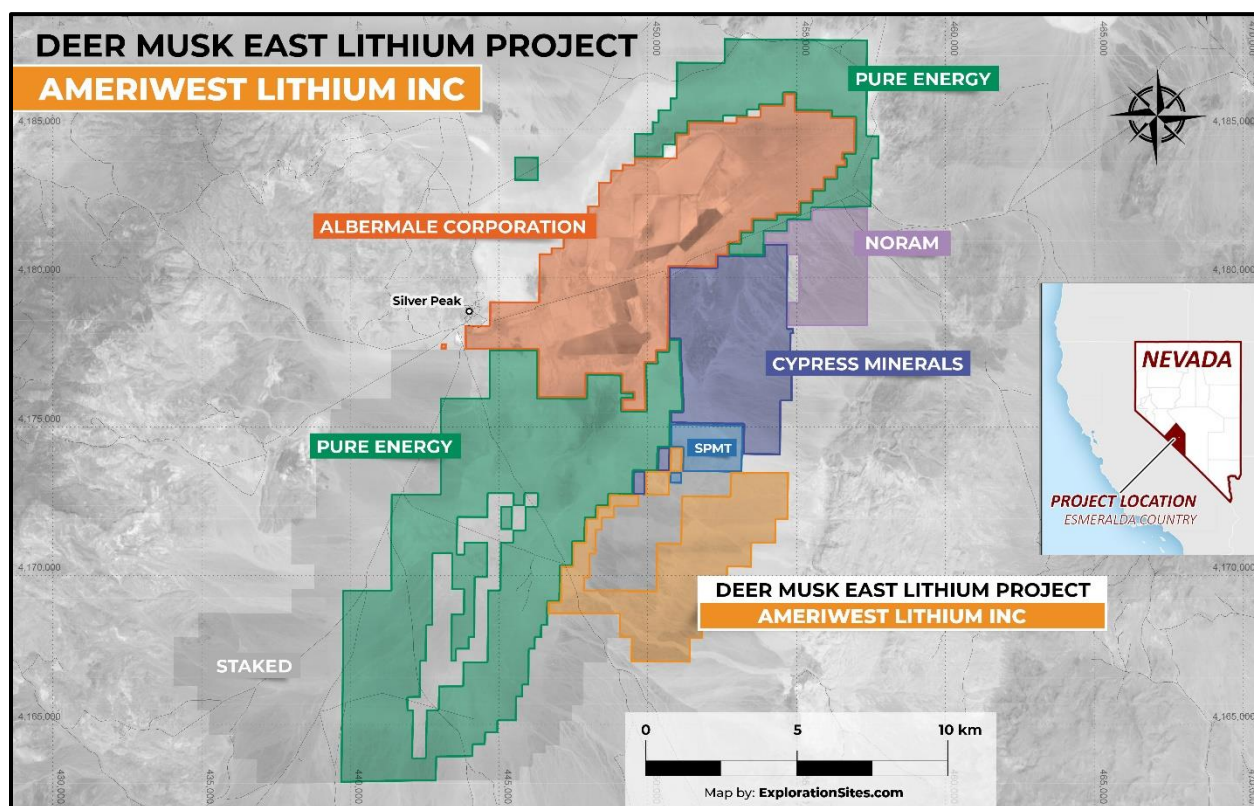
Lithium brine production and recent clay exploration activities on the east side of Clayton Valley, north of the DME claims are worth noting. Locations are shown in Figure 11.

### **23.1 Albemarle Corporation’s Clayton Valley Brine Operation**

Albemarle’s Silver Peak operation is currently the only operating lithium mine in North America. Brine processing is through an evaporation pond and plant complex, which has been in existence since 1967. Previous owners include Newmont (Foote Mineral Company), Chemetall-Foote Corporation and Rockwood Holdings, Inc. Albemarle Corporation purchased Rockwood Holdings, Inc. in 2014 for US\$6.2 Billion, which included the Salar de Atacama brine operation in Chile, a lithium chemical processing plant in North Carolina, and the Silver Peak operation in Nevada.

Production data from the Silver Peak operations is proprietary and unpublished. However, the 2014 Rockwood Holdings Inc. Annual Report cites production in 2013 at 870 metric tons Li. Previous production was reported by Price, Lechler, Lear and Giles (2000) at 25,600 metric tons Li through 1991. Garrett (2004) reported 5,700 metric tons  $\text{Li}_2\text{CO}_3$ , (1,072 metric tons Li) in 1997. The Li concentration in the production brines averaged 400 ppm initially, dropped to 300 ppm in 1970 and 160 ppm in 2001 (Garrett, 2004). The historical lithium brine resource in Clayton Valley has been estimated at 0.7 Mt Li (Kunasz, 1975), 0.65 Mt Li (Price et al., 2000) and 0.4 Mt Li (Yaksic and Tilton, 2009).

Figure 11. Location Map of the Deer Musk East Lithium Project.



### 23.2 Cypress Development Clayton Valley Lithium Project

The Cypress Clayton Valley Lithium Project consists of 2,197 ha (5,430 ac) east of Albemarle's brine operation. Fayam et al. (2020) report that the western portion of the project area is dominated by the uplifted basement rocks of Angel Island which consist of metavolcanic and clastic rocks, and colluvium. The southern and eastern portions are dominated by uplifted, lacustrine sedimentary units of the Esmeralda Formation. Within the project area, the Esmeralda Formation is comprised of fine grained sedimentary and tuffaceous units, with some occasionally pronounced local undulation and minor faulting. Elevated lithium concentrations, generally greater than 600 ppm, are encountered in the local sedimentary units of the Esmeralda Formation from surface to at least 142 meters (466 ft) below surface grade. The lithium bearing sediments primarily occur as silica-rich, moderately calcareous, interbedded tuffaceous mudstone, claystone, and siltstone (Peek, 2019).

Cypress leached illite and smectite clays with a dilute sulfuric acid leach followed by filtration, solution purification, concentration, and electrolysis to produce lithium hydroxide. The two samples were leached in a heated (temperature unknown) 75-gallon jacketed stainless-steel leach vessel. The tests yielded 277 liters (L) of pregnant leach solution (PLS) from sample L-1 and 133 L of PLS from sample L-2. Extractions of lithium into the PLS were 85.5% and 86.8%, respectively. Acid consumptions as determined by titration were 125.7 kg/ metric ton and 127.2 kg/ metric ton, respectively (Fayam et al., 2020).

Cypress issued an NI 43-101 Prefeasibility Study with effective date May 19, 2020 which reported an Indicated Mineral Resource of 1,204 million metric tonnes averaging 904 ppm Li and an



Inferred Mineral Resource of 236 million metric tonnes averaging 760 ppm Li (Fayram, et al., 2021).

### **23.3 Spearmint Resources Clayton Valley Lithium Project**

Spearmint's Clayton Valley Lithium Project consists of 26 contiguous unpatented claims, McGee 30 to McGee 55, and cover 360 ha (890 ac). Drilling on the east half of the Project by Spearmint has discovered a continuous, well mineralized section up to 300 feet thick. The interpreted subsurface distribution of the mineralized claystone includes mixed sediments (tuffaceous mudstone) and green clay. The mixed sediments gradationally overlie the green clays and are positively weathering relative to the green clay below. The majority (greater than 80%) of the mineralized claystone comprise the green clay unit.

The maiden resource estimate includes a Indicated Mineral Resource of 196 million indicated metric tons at a grade of 781 ppm Li and an Inferred Mineral Resource of 44 million inferred metric tons at a grade of 808 ppm Li, using a cut-off grade of 400 ppm Li (source: Technical Report on the Clayton Valley Lithium Clay Project, Esmeralda, Nevada, USA, Loveday and Turner, report date of June 10, 2021, effective date of June 9, 2021, available under Spearmint's corporate filings at [www.sedar.com](http://www.sedar.com)).

### **23.4 Noram Ventures Zeus Lithium Project**

Noram's Zeus Lithium Project consists of 150 placer and 140 lode claims that cover approximately 2,400 ha (6,000 ac) where the Esmeralda Formation is exposed in a series of low north-trending ridges. The claims are located 1.6 km (1 mi) east of Albemarle's brine operation and contiguous to the Cypress Development's Clayton Valley Lithium Project to the south. The Esmeralda Formation, in the main area of interest on the Zeus claims, was mostly soft and crumbly siltstones, mudstones and claystones, but contained several thin beds of harder, more consolidated sediments. Most beds were tuffaceous, as evidenced by fine crystal shards. Nearly all of the sediments are calcareous, indicating lakebed deposition (Peek, 2019). The lithium is found in light green, interbedded tuffaceous mudstones and claystones

Noram leached two clay samples from the Zeus project with distilled water for one hour at 80° C and progressively added sulfuric acid up to two molal sulfuric acid for an additional two hours. The result was >80% lithium release after three hours.

Noram reports an Inferred Mineral Resource of 330 million metric tonnes at a grade of 858 ppm Li using a cut-off grade of 300 ppm Li (source: NI 43-101 Technical Report, Updated Inferred Lithium Mineral Resource Estimate, Zeus Project, Clayton Valley, Esmeralda County, Nevada, USA, Peek and Barrie, effective date February 20, 2019, available under Noram's corporate filings at [www.sedar.com](http://www.sedar.com)).

### **23.5 Pure Energy's Clayton Valley Lithium Project**

Pure Energy's Clayton Valley Lithium Project is at the pre-development stage and has advanced through various preliminary engineering and processing studies. It is directly southwest and abutting Albemarle's Silver Peak operation. The company entered into an Earn-In Agreement (the "Agreement") with Schlumberger Technology Corporation, a subsidiary of Schlumberger Limited ("SLB"), dated May 1, 2019, whereby the company granted SLB an option in favor of SLB to acquire all of the company's interests in the Project (the "Option"). SLB is operator of the Project and is responsible for all costs associated with the Project and pilot plant. SLB will have three

years following acquiring the necessary permits to construct a pilot plant, test lithium brine fluids, and produce lithium products at a determined rate and capacity. The property consists of 950 placer claims totaling about 5,000 ha (12,350 ac). Pure Energy reports a lithium brine Inferred Mineral Resource of 5,524,800,000 cubic meters of brine at an average grade of 123 mg/l (Molnar, et al. 2019).

*The author has not verified the information provided in the above technical reports and the information is not necessarily indicative of the mineralization that is found at DME. No mineral resources or reserves have yet been identified on the DME property.*

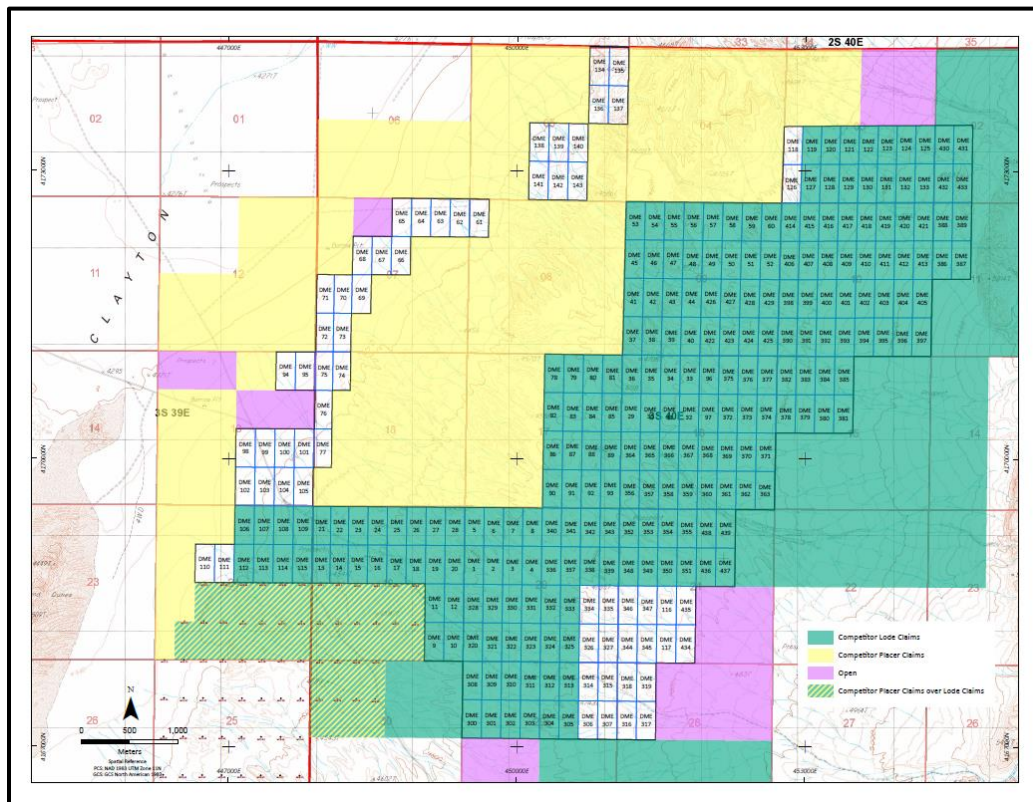
## 24 Other Relevant Data and Information

### 24.1 Potential Conflict with Existing Lode Claims

The majority of Ameriwest’s placer claims (222 out of 286) are located on federal public lands on which another party, Authium LLC, previously recorded certificates of location for unpatented lode mining claims. The validity of some of Ameriwest’s claims could be disputed by the lode claimant at some point in the future.

Ameriwest believes both the brine and sedimentary deposits on the 222 mining claims are clearly placer in nature and the locator of the lode mining claims has incorrectly located its mining claims as lode claims. Figure 12 shows Ameriwest’s claims (numbered claims) overlapping with Authium LLC’s lode claims in green (numbered claims shown in green). Sixty-four of Ameriwest’s claims do not overlap any lode claims and Ameriwest believes there is no concern about the validity of these claims.

**Figure 12. DME Placer Claims Overlapping with Adjacent Lode Claims.**



Generally, a lode mineral deposit will not support a placer mining claim and a placer mineral deposit will not support a lode mining claim. Legal decisions hold that a claim that is incorrectly located for a particular type of deposit will be held to be invalid, if contested.

The ultimate test of the validity of any unpatented mining claim, lode, or placer, is whether the claim locator has made a discovery of valuable minerals within the boundaries of the mining claim. Under the Mining Law of 1872, to constitute a valid discovery on a lode claim, three basic elements must be proven:

1. There must be a vein or lode of quartz or other rock-in-place;
2. The quartz or other rock-in-place must carry gold or some other valuable mineral deposit; and
3. The two preceding elements, when taken together, must be such that as to warrant a prudent man in the expenditure of his time and money in the effort to develop a valuable mine.

The brines on the Ameriwest placer mining claims clearly do not meet the requirements for a lode claim and it is Ameriwest's position that its placer mining claims appropriate all of the lithium bearing brines on the Ameriwest mining claims. The sedimentary placer deposits consist of alluvium, tuffaceous mudstone that have alternating beds of silt mudstones, and ash deposited in a lacustrine environment, in this case a lake. Bedded gypsum, limestone, and pumice are examples of similar minerals that are located with placer claims. Kaolin clay deposits have also been located with placer claims. The DME sedimentary deposits are, in Ameriwest's opinion, similar to these types of deposits and are sedimentary placer deposits. Lode claims typically cover classic veins or lodes having well-defined boundaries and also include other rock in-place bearing valuable mineral deposits.

If the locator of the lode mining claims challenges the validity of Ameriwest's 222 placer mining claims in a legal proceeding, Ameriwest would have the opportunity to assess the case and either assert the validity of Ameriwest's claims or decide to surrender certain of its placer mining claims to avoid the cost, delay, and effort of the legal proceeding.

## **24.2 Water Rights**

A concern to future development of the DME will be securing water rights. Exploration for lithium in sedimentary or brine deposits, which includes drilling and pump testing, can be performed through temporary discharge permits. Water rights appropriations are not required if the loss of water is not more than 5 ac-ft during the testing and sampling of water pumped within a dissolved mineral resource exploration project. If more than this amount is pumped, water appropriation processes must be followed (Nevada Research Division, 2019).

As with many water basins in Nevada, there is risk in obtaining water rights in Clayton Valley necessary for a producing mine. Clayton Valley has a perennial water yield of 20,000 ac-ft per year and is currently over-appropriated for water rights (Farr West Engineering, 2012). The majority of water rights are held by Albemarle, which is currently permitted to use up to 20,000 ac-ft per year of water. Nevada Sunrise Gold Corporation (TSXV: NEV) ("Nevada Sunrise") is permitted to use up to 1,770 ac-ft per year. Cypress has entered into a Letter of Intent with Nevada Sunrise (Cypress, 2019) to acquire their water rights. In 2019, Pure Energy was granted a permit

for 50 ac-ft per year of water rights in Clayton Valley for brine extraction to allow it to operate a pilot plant for pilot scale production of lithium.

The DME property has potential to host both sedimentary and brine deposits. Should Ameriwest conduct exploration and ultimately define mineral resources or mineral reserves (note that none are currently defined on the property), the company will have to be concerned about availability of water rights. This can potentially be addressed through acquisition of water rights from other holders, permitting of new water rights (if there is availability at the time), and through selection of technology that minimizes water use and recycles water. Technology for processing lithium is currently being developed by numerous companies. Companies like Albemarle that arguably have not necessarily had to conserve, recycle, or follow best practices for use of water are being pressured to reduce water usage which may free up water rights for other.

## **25 Interpretation and Conclusions**

The Deer Musk East property is a property of merit for exploration with significant potential for discovery of lithium brine placer and/or lithium sedimentary placer deposits. The lithium bearing clays, siltstones, and tuffs of the Miocene Esmeralda Formation are found on properties owned by Spearmint, Noram Ventures, and Cypress to the north and are believed to be fault offset and located below the alluvium on DME.

Additionally, faults contribute to the movement and entrapment of lithium brines in the south end of the valley (Kunasz, 1974). Field evidence suggests there may be a rotated normal faulted block under the DME claims. Clayton Valley is reportedly deepest in the south (Zampirro, 2005). Field work by Foy et al. (2020) indicates that numerous small-scale faults in the Quaternary alluvial deposits in this end of the valley are active. Brine deposits may exist on the DME property and are found just to the west on Pure Energy's property.

While the location of DME to these other properties does not guarantee exploration success at DME or that mineral resources or reserves will be delineated, the deposit models generated by these other companies are applicable at DME and indicate there is potential for discovery. Exploration by Ameriwest is warranted to look for Esmeralda Formation sedimentary placer deposits that may occur below the surface. In addition, the potential exists for brine placer deposits at depth.

A number of Ameriwest's claims (222 out of 286, representing about 1,797 ha (4,440 ac)), are located on federal public lands on which another party, Authium LLC, previously recorded certificates of location for unpatented lode mining claims. If the locator of the lode mining claims challenges Ameriwest's placer mining claims in a legal proceeding, Ameriwest would have the opportunity to assess the case and either assert the validity of Ameriwest's claims or decide to surrender certain of its placer mining claims to avoid the cost, delay, and effort of the legal proceeding. Also, an unpatented mining claims must be supported by a discovery of valuable minerals which are locatable under the mining law. BLM has the authority to contest any unpatented mining claim, including the Ameriwest mining claims, for lack of discovery.

## **26 Recommendations**

Surface evidence suggests that a faulted and rotated block underlies the DME claims, and the potential for the existence of subsurface lithium bearing bedded placer deposits associated with

the Esmeralda Formation. The potential lithium brine entrapment at depth is also compelling. Due to the subsurface hidden nature of lithium-bearing strata and brines, the following surveys are recommended:

- Seismic reflection for definition for subsurface strata and fault definition
- Gravity for depth to bedrock and structure
- Resistivity for determining water/brine location and extent.

In addition, mapping of geology and structures and surface rock chip and soil sampling is recommended to help determine the potential for subsurface lithium. The cost of completing the mapping, soil and rock chip sampling, and geophysical work is estimated to be \$US190,000. The breakdown of costs is as follows:

- Seismic Reflection Survey, Data Processing, and Reporting - US\$98,500
- TEM Survey and Gravity Survey Setup, Data Processing, and Reporting – US\$29,100
- Soil Sampling, Geologic Mapping, and Project Management – US\$50,000
- Summary of Findings Report and Recommendations for Future Work - US\$12,400
- Total – US\$190,000

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## Qualified Person (QP) Certificate

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CERTIFICATE of AUTHOR

I, **Raymond P. Spanjers**, do hereby certify that:

1. I am currently engaged as a Geological Consultant.
2. I am a graduate of the University of Wisconsin – Parkside with a Bachelor of Science in Earth Science (1977), and a Master of Science degree in Geology from North Carolina State University (1983).
3. I am a Registered Professional Geologist through the Society for Mining, Metallurgy & Exploration (SME), Number 3041730RM.
4. I have practiced by profession in geology since 1980 and have 41 years of experience in mineral exploration, mining and mineral processing of industrial minerals and lithium brines.
5. I have read the definition of “qualified person” set out in NI 43-101 (“NI 43-101”) and certify that I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I am responsible for the preparation of the report titled “NI 43-101 Technical Report for the Deer Musk East Lithium Property, Clayton Valley, Esmeralda County, Nevada, USA”.
7. I visited the Ameriwest Lithium Inc. Deer Musk East property on March 29, 2021.
8. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information for disclosure and is not misleading.
9. I am independent of Ameriwest Lithium Inc. according to the criteria stated in Section 1.5 of NI 43-101.
10. I have read NI 43-101 and Form NI 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 23rd day of August, 2021.



*“Raymond P. Spanjers”*

(Signed and sealed)  
Raymond P. Spanjers