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STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89703
(775) 684-7040 | Fax (775) 684-7052
http://minerals.nv.gov

Date Received 01/13/2022
County Churchill
NDOM Permit Number W0009
FOR DIVISION USE ONLY

DISSOLVED MINERAL RESOURCE EXPLORATION WELL PERMIT APPLICATION

Applicant/Operator Name: Waterleaf Minerals, LLC (WML)
Street Address: 1700, 20th Street
City: Oakland State/Prov.: California
Country: United States of America Zip Code: 94607

hereby makes application for a dissolved mineral resource exploration well permit.

(if applicant is a corporation, show state and date of incorporation; if a partnership, list names of partners.)

WML is a wholly owned subsidiary of Gibbs Development Corporation, LLC, which is a Delaware limited liability company formed on April 14, 2020.

Well Name Dixie Valley 1

This application is for a: [X] New Exploration Well [X] Borehole to Well Conversion
[ ] Permit Extension (NDOM Permit # ) (Indicate below any changes to original permit)
Permit Extension Reason:

Applicant is: [X] Land Owner [X] Lease/Claim Holder

Land Status (choose one):

[X] Federal (BLM, USFS, etc...)
Mining Claim: NMC# Pending

Project Name: Dixie Valley NVN# 100773

[X] Non Federal
APN#: Land Owner:
Bond Type: Issued by:
Amount: Number:

Groundwater Basin Name and Number Area With Limitations?
Dixie Valley #128 [X] Y [ ] N

(Well proposed to be drilled within areas with limitations may require Blowout Prevention Equipment, per NAC 534B)

Location of Well:

County: Churchill

SE 1/4 of the SW 1/4 of 9 Sec., Township 24 N S, Range 37 E

UTM East: 429803 or Longitude:
UTM North: 4423069 Latitude:
[X] NAD83 [X] WGS84 M.D.B. & M.

Drilling Contractor (if known): Harris Exploration Drilling & Associates, Inc.

Address: 19 Sheckler Cutoff

City, State Zip: Fallon, Nevada 89406

Purpose of Well: Dissolved mineral resource exploration

Drill Rig Type: Maxi drill core rig, or equivalent drill setup

Surface Hole Diameter: 20", then 13 1/2", 8 1/4" Casing Size/Length: 16" for 40', 9 5/8" for 320'

Expected Total Depth: 2,500 feet Casing Weight/Gauge: Weight: 36 lbs/ft

Casing Schedule/Grade Grade: J-55

Blowout Prevention Equipment Rating:  None  2000 psi  3000 psi  5000 psi

**Fluid Management Plan (NAC 534B):**

Please see specifications included in Attachment 2.

(Describe Here or Attach Additional Pages)

**Contamination Prevention/Cementing Plan (NAC 534B):**

Please see specifications included in Attachment 2.

(Describe Here or Attach Additional Pages, must include Well Schematic)

**Flow Monitoring and Plugging Plan (NAC 534B):**

Please see specifications included in Attachment 2.

(Describe Here or Attach Additional Pages)

Drilling will commence approximately on: mid January through late February 2022

Signature of Applicant/Agent: 

Printed Name/Title: Thomas Wilson

Date: January 12, 2022

*An application submitted without a signature and date will not be considered for approval.*

-----Attach \$1,000.00 Application Fee Per NAC 534B-----

**----- TO BE COMPLETED BY DIVISION -----**

**CONDITIONS OF PERMIT**

1. All permittees must comply with appropriate sections of the Dissolved Mineral Resource Regulations of the Division of Minerals and with applicable rules and regulations of state and federal agencies.
2. For a well located on non-federal land, a bond in an amount determined by the Division to be necessary to properly plug the well in accordance with NAC 534B must be included.
3. Well Permit Expires two (2) years from date of approval.
4. See attached Conditions of Approval.
5. Send any required reports to: ..... [ndom@minerals.nv.gov](mailto:ndom@minerals.nv.gov)
6. Additional Conditions/Comments

|           |  |
|-----------|--|
| <b>A.</b> |  |
| <b>B.</b> |  |
| <b>C.</b> |  |

This permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal, and local agencies.

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**PERMIT APPROVAL**

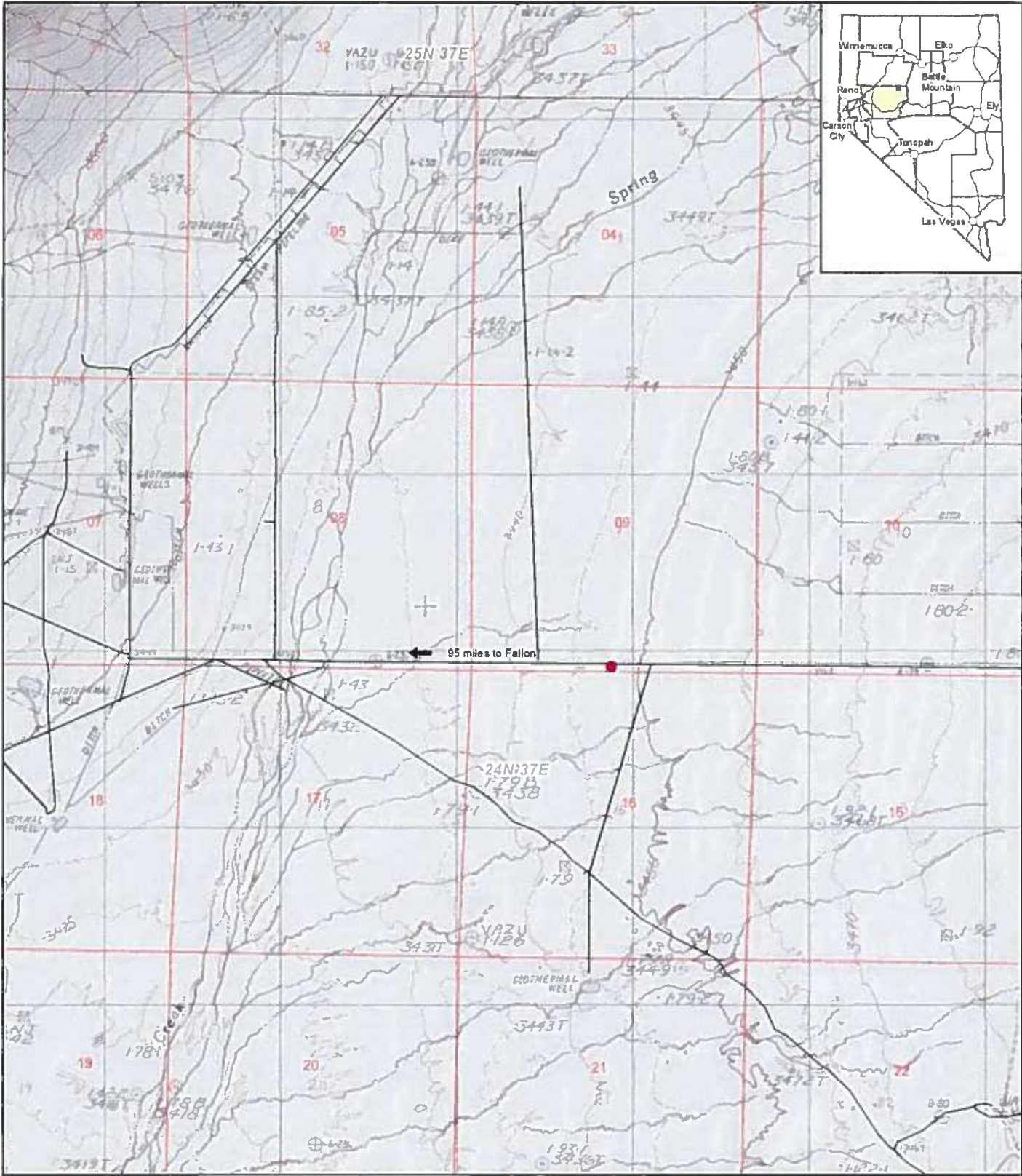
Approved \_\_\_\_\_ with the conditions noted above.  
Date

Permit Number W0009

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Administrator  
Division of Minerals

Attachment 1  
Figure



**Explanation**

- Existing Road
- Planned Drill Site (1)

Land Status: All BLM

**WATERLEAF MINERALS, LLC**

**DIXIE VALLEY  
EXPLORATION PROJECT**  
Project Location, Access,  
Planned Activities and Land Status



Label Figure 1 Drawn By: TLF  
Date 11/01/2021 Project No.: 4806  
Base Map: USGS 7.5' quad: Boyer Ranch  
File Name: 4606T\_DixieValley\_Fig1\_Notice.mxd



**Attachment 2**  
**Additional Details for the Drilling of**  
**Waterleaf Minerals, LLC Dixie Valley 1**

## **Additional Details for the Drilling of Waterleaf Minerals, LLC Dixie Valley 1**

### **Project Description:**

Waterleaf Minerals, LLC (WML) is proposing to conduct mineral exploration activities at the Dixie Valley Exploration Project (Project) located in Section 9, Township 24 North (T24N), Range 37 East (R37E), Mount Diablo Base and Meridian, Churchill County, Nevada (Project Area). WML plans to conduct exploration drilling and groundwater chemistry characterization from one aquifer Exploration Test Well (ETW), which will be accessed from an existing road network as shown in the attached area map. The ETW is proposed to be drilled to a Total Depth (TD) of 2,500 feet. The total planned surface disturbance associated with the Project will be approximately 0.41 acre.

### **Proposed Exploration Disturbance:**

Disturbance will include existing access roads, one drill pad, and a sump complex. The drill pad will be constructed with the approximate disturbance dimensions of 150 feet long by 100 feet wide. Up to three sumps will be constructed in sequence with the individual dimensions (including the material piles) of 50 feet long by 20 feet wide with a total sump volume of 150 cubic yards. Each sump will be constructed next to the disturbance area of the drill site to contain drill cuttings and manage drilling fluids. Only existing access roads will be disturbed during the execution of the ETW. The location of the ETW, existing access, and planned surface disturbance are shown on the figure in Attachment 1.

The Standardized Reclamation Cost Estimator, Version 1.4.1 Build 17b, and including 2021 cost data was used to generate the required reclamation cost estimate (RCE). Please see Attachment #2 of the accompanying Notice to the BLM for additional detail regarding the reclamation cost estimate for the ETW.

### **Description of Planned Operations:**

*WML will address the requirements detailed below per (NAC 534B.160 1.(a) through 2.(d) as applicable for the proposed ETW.*

#### **Fluid Management Plan (NAC 534B):**

Water will be purchased from a nearby water well or from the town of Fallon. Drill cuttings and mud will be maintained within the mud system of the rig. Multiple sumps will be constructed next to the disturbance area of the drill site to contain drill cuttings and manage drilling fluids. See attached basis of design for a general description of the drilling and sampling plan. Best Management Practices (BMPs) for sediment control will be utilized during construction, operation, and reclamation to minimize sedimentation from disturbed areas. Sediment control structures are outlined under Section 8 of the Notice.

#### **Contamination Prevention/Cementing Plan (NAC 534B.160.):**

The first 40 feet of the borehole will be 20 inches wide with a 16-inch diameter conductor casing set from 18 inches above the surface. From 40 to 320 feet below ground surface (bgs) the borehole will be 13.5 inches wide with a 9 5/8-inch diameter surface casing set from the surface. The surface casing will control formation fluids and protect groundwater. This casing plan ensures that casing will be set below all known or reasonably estimated levels of good quality water, protect such fresh water aquifers and prevent blowouts or uncontrolled flows. A surface seal with a minimum length of 50 feet will be set using

neat cement. The liner of the intermediate string of casing will overlap the bottom of the surface casing string by a minimum of 100 feet.

From 320 feet bgs to the maximum TD of 2,500 feet, the borehole will be open with a width of 8.75 inches. In order to isolate zones of varying water quality and prevent migration of formation fluids between disparate aquifers, WML will take a number of preventative measures including utilizing bentonite clay-based drilling mud. WML and its contractors will also consistently monitor the flow of fluid to ensure no remedial measures are required after drilling operations have begun to prevent unwanted vertical migration of formation fluid. In the event the envisioned open hole design construct is not able to adequately control/mitigate the migration of formation fluid between discrete water quality/aquifer zones, WML will promptly case and cement the open hole section of the well from 320 feet to TD with Schedule-80 polyvinyl chloride (PVC) and neat cement. The proposed cased length was determined from a review of the depth to water and freshwater column data from the nearest wells and is included as a conservative measure. WML completed an analysis of the offset wells when planning how/to what depth to set the surface casing. Attachment 4 shows that the wells in closest proximity to WML's proposed ETW has set casing to depths no greater than 320 feet. Specifically, WML reviewed the available data for well 62-21 as there was significant public data available and it is very close to WML's ETW location. As all the wells shown on the figures included in Attachment 4 were successfully permitted through the relevant regulatory bodies, 320 feet of surface casing was determined to be a conservative planning measure for WML's ETW specification.

While it is WML's vision and desire to drill the exploration well and conduct all fluid sampling tests while the wellbore is open from 320 feet to TD, WML and its contractors will have enough Schedule-80 PVC casing available on site to effectively case the entire well down to TD prior to the completion of drilling operations if ultimately deemed necessary. WML will also openly communicate with the Nevada Division of Minerals (NDOM) in real-time, all learnings from drill cutting analysis and wireline logging analysis and will be cooperative in the event NDOM recommends any immediate remedial or corrective measures be taken during the drilling process. Finally, WML is willing to abandon the well pursuant to Nevada Administrative Code (NAC) 534B.180 in an expediated fashion in the event that vertical migration of formation fluid between discrete zones ultimately does not warrant or allow for the well to be kept open longer than a brief period of time. WML is committed to working closely with the relevant regulatory authorities in all respects and will heed the advice of the authorities with respect to any corrective/remedial measures and/or expedited abandonment timelines ultimately required by the authorities before the ETW is drilled.

*Flow Monitoring and Plugging Plan (NAC 534B.180):*

Water extracted during the drilling process will be managed in the sump; the volume will be estimated and recorded. After completion of the ETW, water volume will be recorded using a flow meter. Upon completion of the testing and analysis of dissolved mineral resource potential, the well may be converted to a groundwater monitoring well for use in baseline studies. Most likely, however, the ETW will be promptly abandoned pursuant to NAC 534B.180. All necessary reports and documentation will be provided to the relevant regulatory authorities as soon as practicable and, in all cases, within the permissible timeline.



Surface & Groundwater – Erosion Prevention and Control

WLM will conduct exploration operations in a manner that minimizes soil erosion. Equipment will not be operated when ground conditions are such that excessive resource damage or increased sediment transport will occur. BMPs will be utilized to control erosion and sedimentation.

BMPs for sediment control will be employed as needed during construction, operation, and reclamation to minimize sedimentation of disturbed areas. Sediment control structures will include, but not be limited to, fabric and/or certified weed free straw bale filter fences, siltation or filter berms, mud sumps and down gradient drainage channels to prevent unnecessary or undue degradation to the environment. Sediment traps (sumps), constructed as necessary adjacent to drill sites, will be used to settle drill cuttings and prevent uncontrolled release of drill cuttings. To control erosion from roads and drill sites, and from the unlikely event of drill cuttings being released, weed-free straw bales and silt fences will be placed in drainages to capture sediment, where required.

Surface & Groundwater – Stormwater and Control

Sediment controls such as straw or hay bales, filter fences or other controls will be implemented as necessary. Where straw or hay bales are required, only certified, weed-free product will be used.

While not anticipated due to the environment and generally flat terrain, stormwater controls will be constructed or installed where necessary to prevent or minimize erosion and sedimentation. Drainage structures will consist of, but not be limited to, water bars, borrow ditches, contour furrows and culverts sized to handle maximum seasonal water flows. Disturbed areas will be broadcast-seeded with an approved weed free seed mix to reduce erosion immediately after construction. Once an area has been revegetated, notices and/or signs may be posted to allow vegetation to establish while reducing or restricting vehicular traffic.

Drilling Effluent Management

Drilling fluid products used during drilling and abandonment operations will be contained and deposited in tanks with overflow to sumps to ensure environmental protection.

Overflow and mud sumps for drill water, fluids, and cuttings will be excavated within the limit of the drill site using a backhoe. Anticipated sump dimensions, including the material piles, will be up to 50 feet long by 20 feet wide with a total sump volume of 150 cubic yards. One end of each sump will be sloped to provide escape routes for wildlife and/or other animals.

Sumps will be backfilled after completion of drilling. If mud tanks are cleaned at the site, the contents will be contained in the sump and covered with backfilled soil materials.

Drill Hole or Well Abandonment

Drill holes or wells will be plugged in accordance with Nevada State and administering agency standards and will be done consistent with the definitions in NAC 534B.180 for abandonment. The abandonment costs included in the RCE are for the single ETW.

*Solid & Hazardous Substances*

Non-hazardous Project-related exploration refuse will be collected in approved trash bins and/or containers and hauled from the site by WLM or their contractors for disposal at an approved landfill on a regular basis. The bins and/or containers will be equipped with lids. Debris that may have a hazardous characteristic, residue, or fluids, will not be disposed of in the trash bins. To minimize impacts during precipitation events, trash bins will be regularly inspected for leaks and the lids will remain closed except when depositing debris. The trash bins will not contain materials that may attract wildlife (food items, etc.) and will be emptied on a regular basis.

Hazardous substances employed for the Project will include diesel fuel, gasoline, hydraulic fluid and lubricating grease. Approximately 300 gallons of diesel fuel and gasoline will be stored in fuel delivery systems on drill rigs and support vehicles. Approximately 50 pounds of lubricating grease and 35 gallons of hydraulic fluid will be stored on each drill rig or transported by drill trucks. Transportation of these materials will be conducted in accordance with applicable regulatory guidelines.

*Schedule for the Project and Reclamation*

Drilling success will determine the reclamation schedule. Disturbance will be reclaimed at the earliest opportunity unless economically viable resources are identified.

Earthwork and revegetation activities are limited by the time of year during which such activities can be effectively implemented. Site conditions and/or yearly climatic variations may require that this schedule be modified to achieve revegetation success. Reclamation activities will be coordinated with the BLM as necessary. Monitoring of revegetation success will be conducted annually for a minimum of three years or until revegetation standards have been met.

*Drill Hole Plugging Procedures*

The exploration drill hole will be plugged in accordance with Nevada regulations as described in NAC 534B.180, or NAC 534B.170 if artesian conditions are encountered. A drill rig with appropriate support equipment will be used to abandon the drill holes before the drill rig leaves the drill site.

*Coexistence of Geothermal Leases and Geothermal Restriction Areas*

The claim on which the ETW will be drilled coexists with an existing, active geothermal lease and is in a geothermal restriction area. Per the terms of the geothermal restriction, WML maintains unfettered rights to conduct mineral exploration on the lease area provided it notifies the coexisting geothermal lease holder (ORMAT) via written communication and does not in any way interfere with existing geothermal resources. WML will notify ORMAT in writing of its drilling plans prior to commencement of drilling operations per BLM guidelines. WML will be conducting its resource exploration work in a completely different resource strata than the existing geothermal resource and, therefore, will in no way interfere with existing geothermal resources in the area.

There are no oil, gas or geothermal wells in the area surrounding the planned ETW, as such, WML does not anticipate any damage to or interference with existing oil, gas, or geothermal resource exploration or production activities.

*Resource Logging Plan*

During the drilling process, WML will deploy a suite of wireline logging tools to effectively analyze and record the depth, thickness and character of the different strata penetrated and the location of the water-bearing strata. WML will submit the results of these analyses to the relevant regulatory authorities in a timely fashion and in accordance with all regulatory requirements.