

AUG 23 2023



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

DIVISION OF MINERALS

Date Received 8/23/2023
County NYE
NDOM Permit Number W0021
FOR DIVISION USE ONLY

DISSOLVED MINERAL RESOURCE EXPLORATION WELL PERMIT APPLICATION

Applicant/Operator Name: Origin Minerals Exploration, LLC
Street Address: 1900 McKinney Avenue, Suite 2002
City: Dallas State/Prov.: Texas
Country: USA Zip Code: 75201

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.)

Origin Minerals Exploration, LLC was formed on August 5, 2022 in Delaware.

Well Name BSV-R-01

This application is for a: [X] New Exploration Well [] 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# 105277676

Project Name: Big Smoky Valley (BSV) Lithium Exploration Project NVN# 101873

[] Non Federal

APN#: Land Owner:
Bond Type: Issued by:
Amount: Number:

Groundwater Basin Name and Number

Area With Limitations?

Big Smoky Valley/Northern Part, 137B [X] Y [X] N

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

Location of Well:

County: Nye

SE 1/4 of the SW 1/4 of 10 Sec., Township 13 N S, Range 43 E

UTM East: 488059 or Longitude:
UTM North: 4316253 Latitude:
[X] NAD83 [X] WGS84 M.D.B. & M.

Drilling Contractor (if known): Layne
Address: 5810 E. 77th Ave
City, State Zip: Commerce City, CO 80022

Purpose of Well: Mineral Exploration
Drill Rig Type: Atlas Copco RD20
Surface Hole Diameter: 32 inches Casing Size/Length: 0-50 ft 26-in, 0-260 ft 18-in, 0-2975 8.8625-in
Expected Total Depth: 2,995 feet Casing Weight/Gauge: 85.8#/ft / 59.1#/ft / 27.7#/ft
Casing Schedule/Grade A53B and A606 Type 4, 0.312 wall

Blowout Prevention Equipment Rating: None 2000 psi 3000 psi 5000 psi
>1000 psi rotating diverter

Fluid Management Plan - NAC 534B.140(1)(C):

Please see attached Narrative, Section 4.0.

(Describe Here or Attach Additional Pages)

Contamination Prevention/Cementing Plan - NAC 534B.140(1)(D):

Please see attached Narrative, Section 5.0. See Attachment 4 for well schematic.

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

Flow Monitoring and Plugging Plan - NAC 534B.140(1)(E) / NAC 534B.180:

Please see attached Narrative, Section 6.0.

(Describe Here or Attach Additional Pages)

Drilling will commence approximately on: August 1, 2023

Signature of Applicant/Agent: 

Printed Name/Title: Garrett Frey / Project Hydrogeologist

Date: 6/1/2023

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: dholcomb@minerals.nv.gov
- 6. Additional Conditions/Comments

A.	The well driller will set the blank casing 100 ft below the deepest depth in which fresh water is encountered.
B.	
C.	

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.

PERMIT APPROVAL

Approved 9/21/2023 with the conditions noted above.
Date

Permit Number W0021



 Administrator
 Division of Minerals

**DISSOLVED MINERAL RESOURCE
EXPLORATION WELL
CONDITIONS OF APPROVAL**

Operator: Origin Minerals Exploration, LLC
Project Name: Big Smoky Valley (BSV) Lithium Exploration Project
Well: BSV-R-01
Permit# W0021

Submit forms and correspondence to: Nevada Division of Minerals
400 West King Street
Suite 106
Carson City, NV 89703

Communications with the Division shall be directed to:

Dustin Holcomb, Fluid Minerals Program Manager
Office 775-684-7045 Email dholcomb@minerals.nv.gov
Cell 775-721-2726
Fax 775-684-7052

Robert Ghiglieri, Division Administrator
Office 775-684-7048 Email rghiglieri@minerals.nv.gov
Cell 775-291-7825
Fax 775-684-7052

Voicemail is available on all cell phones and office phones. Please leave a message if you are unable to speak to someone and we will return your call as quickly as possible.

YOUR APPLICATION TO DRILL **BSV-R-01** EXPLORATION WELL IS APPROVED
SUBJECT TO THE FOLLOWING PERMIT CONDITIONS

1. These conditions of approval (COA's) and the minimum Blowout Prevention Equipment (BOPE) requirements, if required by the Division or utilized, shall be posted at the well site and read by all company personnel associated with the subject well.
2. If the well is located within a boundary designated by the Division as an "area with limitations" as delineated on the map maintained by the Division and titled, "Oil, Gas, and Geothermal Resources and Groundwater Basins with High Temperature Gradients" must:
 - (a) Not be drilled to a depth greater than 3,000 feet without the use of blowout prevention equipment meeting the requirements discussed below;
 - (b) Have the temperature of the mud that is returned up the hole monitored continuously by the operator during the drilling of the well whenever temperatures of the drilling fluids at the surface reach 125 degrees Fahrenheit. The temperature of the mud must be recorded by the well driller after each joint of the pipe is drilled; and
 - (c) Be designed, drilled and operated so as not to degrade an aquifer, or an oil, gas or geothermal resource.
3. The operator shall ensure that blowout prevention equipment is installed on any dissolved mineral resource exploration well where temperatures may exceed 200 degrees Fahrenheit. An operator and well driller shall take all necessary precautions to keep a dissolved mineral resource exploration well under control and operating safely at all times. Well control and wellhead assemblies used in any dissolved mineral resource exploration well must meet the minimum specifications for assemblies prescribed by the American Petroleum Institute, or its successor organization, in Standard 53, "Blowout Prevention Equipment Systems for Drilling Wells," Fourth Edition, which is available by mail from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112-5776, by telephone at (800) 854-7179 or at the Internet address <http://global.ihs.com>, for the price of \$155, or such specifications as may be prescribed by the Administrator. Blowout prevention equipment capable of shutting in a dissolved mineral resource exploration well during any operation must be installed on the surface casing and be maintained in good operating condition at all times. Such equipment must have a rating for pressure greater than the maximum anticipated pressure at the wellhead. The minimum accepted rating of blowout prevention equipment is 2M, or capable of holding 2,000 psig. Certain drilling conditions may require 3M or 5M blowout prevention equipment.
4. An operator shall:
 - (a) Test the blowout prevention equipment under pressure. The results of each test must be recorded by the well driller in the well log.
 - (b) Submit, on a form designated by the Division, the pressure data and supporting information for the blowout prevention equipment as soon as practicable after the conclusion of the test conducted pursuant to paragraph (a).
 - (c) A 24-hour notification is required prior to testing BOPE. The 24-hour BOPE notification may be made by telephone or email to the Fluid Minerals Program Manager. Please refer to the contacts list on page one of this notice. Operator must have access to

email or fax in order to receive the Division's BOPE Test Form that will be sent to the operator within this 24-hour period.

5. When drilling a dissolved mineral resource exploration well, a well driller shall:
 - (a) Isolate zones of varying water quality to prevent the migration of fluids between aquifers;
 - (b) Prevent the contamination or waste of groundwater; and
 - (c) Minimize damage to the environment, ground and surface waters, property and any known oil, gas or geothermal resources.

6. The following standards apply to the construction of a dissolved mineral resource exploration well:
 - (a) The top of the casing must be at least 18 inches above the surface of the ground;
 - (b) The surface casing must:
 - (1) Provide for the control of formation fluids and protection of groundwater, including, without limitation, setting sufficient casing to reach a depth below all known or reasonably estimated levels of good quality water to protect the aquifer and prevent blowouts or uncontrolled flows; and
 - (2) Provide a minimum 2-inch annular space;
 - (c) There must be a minimum 50-foot surface seal using neat cement;
 - (d) If an intermediate string of casing is used which does not extend to the surface, the top of the liner must overlap the bottom of the surface casing by at least 100 feet; and
 - (e) If thermoplastic casing is used:
 - (1) The thermoplastic casing must be clearly marked as well casing.
 - (2) The thermoplastic casing must comply with the standards adopted by ASTM International, designated as ASTM F480-14 for polyvinyl chloride casing and F2686-14 for glass fiber reinforced casing or the current designation at the time of installation. These publications are hereby adopted by reference. A copy of the standards may be obtained by mail from ASTM International at 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, Pennsylvania 19428-2959, by telephone at (610) 832-9585 or at the Internet address <http://www.astm.org> for the price of \$67 and \$46, respectively.
 - (3) The differential pressures and temperatures that may occur during the installation of the casing, the development of the well and the operation of the well must be considered by the well driller and the person responsible for designing the well.
 - (4) The joint couplings must form a watertight seal.
 - (5) For polyvinyl chloride casing, in each case, the standard dimension ratio must equal the outside diameter divided by the wall thickness and the wall thickness must:
 - (I) For nominal diameters that are 6 inches or less, conform to a rating of schedule 40 or heavier; and
 - (II) For nominal diameters that are more than 6 inches, conform to an ASTM International standard dimension ratio of schedule 21 or heavier.

7. If an artesian condition is encountered in a dissolved mineral resource exploration well, such that water is flowing at the surface, the well driller shall ensure that an unperforated casing extends through the confining strata above the artesian zone. The annular space between the casing and the walls of the well bore must be sealed by placing neat cement, cement grout or

bentonite chips by tremie pipe in an upward direction from the top of the artesian zone to the level necessary to prevent the leakage of artesian water above or below the surface.

8. Any flow of artesian water must be stopped completely using any necessary valves, plugs or other appliances to prevent or control the flow of water from the dissolved mineral resource exploration well and prevent the loss of groundwater above or below the ground surface before the drill rig is removed from the drill site.

9. The operator of a dissolved mineral resource exploration well shall:

(a) Install a water meter capable of measuring the total withdrawal of water from the dissolved mineral resource exploration well.

(b) Maintain an accurate record of meter readings, including the serial number of the meter.

(c) Submit to the Division, on a form designated by the Division, a monthly report which includes the serial number of the meter and the meter readings from the dissolved mineral resource exploration well. The monthly report:

(1) Is required for each month beginning with the commencement of drilling operations until the later of the expiration of the permit or until the dissolved mineral resource exploration well is plugged; and

(2) Must be filed with the Division on or before the last day of the month following the month in which the meter is read.

(d) Ensure the total withdrawal of water from the dissolved mineral resource exploration well project does not exceed 5 acre-feet.

(e) Comply with the appropriation procedures of chapters 533 and 534 of NRS if water is pumped from the dissolved mineral resource exploration project in excess of 5 acre-feet.

10. The well driller shall:

(a) Keep a record of the depth, thickness and character of the different strata penetrated and the location of the water-bearing strata;

(b) Keep an accurate record of the work, including, without limitation:

(1) A statement of the date that work begins;

(2) The date of completion of the dissolved mineral resource exploration well;

(3) The name and the type of machine used to drill;

(4) The length, size and weight of the casing and how it is placed, including, without limitation, a description of any perforations;

(5) The size of the hole that is drilled for the dissolved mineral resource exploration well;

(6) Identification of the water-bearing strata;

(7) The maximum temperature of the water in the dissolved mineral resource exploration well measured in degrees Fahrenheit; and

(8) If a seal was installed, the interval sealed off and the type of seal; and

(c) Submit a report of the record of the work to the Administrator on a form designated by the Division. The report must be provided by the well driller to the Administrator for every dissolved mineral resource exploration well that is drilled not later than 30 days after the well is completed.

11. A dissolved mineral resource exploration well must be plugged by:

- (a) A well driller before the expiration of the permit, unless a waiver or permit is issued by the State Engineer to change the status of the dissolved mineral resource exploration well.
- (b) Placing neat cement, cement grout or bentonite grout by tremie pipe in an upward direction from the bottom of the well to 100 feet above the uppermost perforated casing or to the surface of the dissolved mineral resource exploration well.
- (c) Removing the pump and any debris from the well bore with appropriate equipment.
- (d) Cement plugs must:
 - (1) Be placed in the uncased portion of all dissolved mineral resource exploration wells to protect all subsurface resources.
 - (2) Extend a minimum of 100 lineal feet above the producing formations and 100 lineal feet below the producing formations or to the total depth drilled, whichever is less.
 - (3) Be placed to isolate formations and to protect the fluids in those formations from interzonal migration.
- (e) A well driller may use uncontaminated fill from the top of the plug installed in accordance with subsection 1 to within 20 feet of the surface of the dissolved mineral resource exploration well. The well driller shall place a surface plug in the dissolved mineral resource exploration well consisting of neat cement, cement grout or concrete grout from a depth of at least 20 feet to the surface of the dissolved mineral resource exploration well.
- (f) All casing strings must be cut off below ground level and the casing stub must be permanently capped.
- (g) The surface must be restored as near as practicable to its original condition.
- (h) If conditions are encountered which prevent compliance with this section, the operator or well driller must submit an alternative plugging plan to the Division for the approval of the Division.
- (i) The operator or well driller shall file a plugging report to the Division on a form designated by the Division and available on the Internet website of the Division. The report must be signed by the well driller documenting proper plugging of the dissolved mineral resource exploration well not later than 30 days after completion of the work.
- (j) The owner and lessor of the land on which the dissolved mineral resource exploration well is located, the operator and the well driller are jointly and severally responsible for plugging the dissolved mineral resource exploration well pursuant to this chapter.

12. The operator of a dissolved mineral resource exploration well shall:

- (a) Install a water meter capable of measuring the total withdrawal of water from the dissolved mineral resource exploration well.
- (b) Maintain an accurate record of meter readings, including the serial number of the meter.
- (c) Submit to the Division, on a form designated by the Division, a monthly report which includes the serial number of the meter and the meter readings from the dissolved mineral resource exploration well. The monthly report:
 - (1) Is required for each month beginning with the commencement of drilling operations until the later of the expiration of the permit or until the dissolved mineral resource exploration well is plugged; and
 - (2) Must be filed with the Division on or before the last day of the month following the month in which the meter is read.

- (d) Ensure the total withdrawal of water from the dissolved mineral resource exploration well project does not exceed 5 acre-feet.
- (e) Comply with the appropriation procedures of chapters 533 and 534 of NRS if water is pumped from the dissolved mineral resource exploration project in excess of 5 acre-feet.

13. A permit to drill a dissolved mineral resource exploration well may be modified, suspended or revoked in whole or in part for any violation of this chapter and may be grounds for an action for enforcement. Any person who willfully violates any provision of this chapter or an order of the Division issued pursuant to this chapter is subject to a penalty of not more than \$1,000 for each act or violation and for each day that the violation continues.
14. A permit to drill a dissolved mineral resource exploration well expires 2 years after the date on which it was issued. If requested in writing by the operator, on a form designated by the Division, the permit may be extended once for an additional 2 years by the Administrator if the permit is determined to be in compliance with the provisions of this chapter. An application for an extension must be filed not later than 60 days before the expiration of the permit. A permit to drill a dissolved mineral resource exploration well may be assigned, subject to the conditions of the permit, upon the written approval of the Administrator.