

**FOR MMD USE ONLY:**

PROJECT NAME: \_\_\_\_\_

PERMIT NUMBER: \_\_\_\_\_

DATE RECEIVED: \_\_\_\_\_

DATE APPROVED: \_\_\_\_\_

LEAD INSPECTOR: \_\_\_\_\_

FORM REVISION DATE: 02/05/08

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT**

**Director**

**Mining and Minerals Division  
1220 South Saint Francis Drive  
Santa Fe, New Mexico 87505  
Telephone: (505) 476-3400  
Fax: (505) 476-3402**

**Webpage: [www.emnrd.state.nm.us/MMD/index.htm](http://www.emnrd.state.nm.us/MMD/index.htm)**

**SUBPART 4  
EXPLORATION  
PERMIT APPLICATION**

The following information is required under the New Mexico Mining Act (Sections 69-36-1 through 69-36-20, NMSA 1978) and associated rules. The Mining and Minerals Division of the Energy, Minerals and Natural Resources Department is the administrative agency through which this application is to be processed. See Subpart 4 Exploration of the New Mexico Mining Act Rules for all regulations associated with Exploration Operations.

The permittee is requested to use this application. If additional space is needed, all information requested in this form must be submitted in this same format.

**Permit Application Requirements: (§401 & §402)**

- Six copies of the application must be submitted.
- Confidential information shall be **clearly** identified and submitted separately.
- Exploration commencing after 12/31/1994 shall submit an application not less than 120 days prior to the anticipated date of operations.
- Renewal applications shall be filed at least 30 days preceding expiration of the current permit.

## **IMPORTANT NOTES!!**

- ! Obtaining a Mining Act permit does not necessarily satisfy the obligation to obtain other federal, state and local permits.**
- ! All proposed disturbance should be flagged or staked in the field prior to the Mining and Mineral Division's (MMD) initial inspection. Failure to properly mark any proposed drill holes or trenches will delay processing of the permit application.**
- ! All proposed disturbance, including any new proposed access road centerlines, all four (4) corners of any proposed drill pads, and proposed drill hole location(s) within the drill pad area must be staked in the field.**
- ! Any staking of proposed disturbances (access road centerline, drill pad corners, drill hole) should be completed using durable materials such as steel re-bar stakes or T-posts. MMD recommends using rebar stakes of suitable height, and flagging on the rebar at all four (4) corners. Drill holes should be marked by a single T-post driven at the location of proposed drilling.**
- ! The application will be deemed incomplete, and likely be denied, without a proper map included. Provide a 1:24,000 USGS quadrangle map with the application. The map should identify locations of drill holes, pads and any new disturbance anticipated.**
- ! If possible, please include with this application for submittal, any other operational plans that may have been submitted, as required, to other land management agencies. Plans of Operations (POO) submitted to the USFS and Notices of Intent (NOI) submitted to the BLM are very helpful in processing this application.**

**PLEASE FILL IN ALL APPLICABLE INFORMATION AS COMPLETELY AS POSSIBLE. PLEASE PRINT OR TYPE ALL INFORMATION.**

### **1. OPERATOR INFORMATION (§402.D.1)**

<b>PROJECT NAME: TURQUOISE MOUNTAIN EXPLORATION PROJECT</b>
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**NAME OF PERMITTEE (or entity obligated under the Mining Act):**

Southern Silver Exploration Corp. (U.S.), a wholly owned subsidiary of  
Southern Silver Exploration Corp.  
Joseph Kizis, Authorized Representative.

**ADDRESS:** 4790 Caughlin Parkway, #207  
Reno, Nevada 89519-0907

**PHONE:** (775) 746-3760      Cell (775) 772-8746

**EMAIL** jkizis@renobravada.com

**NAME OF OWNER (if different from Permittee's name and address):**

**ADDRESS:**

**PHONE:**

**FAX:**

**NAME OF ON-SITE CONTACT OR OPERATOR'S REPRESENTATIVE:**

Grady Wilson

**ADDRESS:** 332 Horizon Circle  
Grass Valley, California 95945

**PHONE:** (530) 852-2734

**FAX:**

**EMAIL:** gradywilson2112@gmail.com

## 2. OPERATION OWNERSHIP INFORMATION (§402.D.2)

- A. List all parties that have an ownership or controlling interest in the proposed exploration operation or submit the most recent 10K form required by the U.S. Securities and Exchange Commission.

Name

***Seven of the sites are located on Federal Lode Mining claims of the Oro Claim Group owned by:***

**Southern Silver Exploration Corp. (U.S.)**

**4790 Caughlin Pkwy #207**

**Reno, NV 89519-0907**

**Phone (775)746-3780**

**Southern Silver is not required to file a 10K form, but the most recent Canadian *Financial Statement* and *MD&A* filings are being submitted in the digital files (See Attachment #1).**

***One site on claim TQ-1 is owned by:***

**North American Turquoise Co. LLC**

**650 Oso Ridge Rt.**

**Grants, New Mexico 87020-0407**

**Southern Silver has a lease on the TQ-1 claim that grants the right to explore the claim.**

***One site is on a State Lease HG 0105, Section 2, T28S R16W:***

**Southern Silver has a lease on this section from the state of New Mexico that grants them the right to explore.**

***Twelve of the thirteen Sites are on Federal BLM Land Under Location of Unpatented Lode Claims (federal mineral) to Southern Silver or American Turquoise (Turquoise Mtn – BLM Notice NMNM-143090 for previously permitted sites, new sites to be added):***

**Bureau of Land Management**

**800 Marquess St Las Cruces,**

**New Mexico 88005**

**575-525-4300**

***Four of the proposed new drill sites are located on private surface/BLM minerals ground with an access agreement completed with private surface ownership:***

**Ace and Kay Peterson**

**PO Box 51 Hachita,**

**New Mexico 88040**

**520-558-2611**



- B. List all mining operations located within the U.S. owned, operated, or directly controlled by the applicant, owner or operator.

Name

**Not applicable, only exploration-stage projects.**

- C. List the names and addresses of regulatory agencies with jurisdiction over the environmental aspects of those operations listed in B above, and that could provide a compliance history for those operations.

Name

**Not applicable.**

### 3. RIGHT TO ENTER INFORMATION (§402.D.3 & 4)

#### Land Status of Areas Where Permitted and Proposed Work is Planned

Claim Name	NMMC #	NM #	Site
Oro 423	199370	101784499	A
Oro 222	191590	101506576	B
Oro 91	191514	101502889	D
TQ-1	187655		E
State Sec 2, T28S, R16W			F
Oro 123	191536	101504145	H
Oro 206	198225	101846866	I
Oro 710	105831608	105831608	J
Oro 721	105831619	105831619	K
Oro 628	105270265	105270265	N
Oro 627	105270264	105270264	O
Oro 756	106304971	106304971	P
Oro 755	106304970	106304970	Q

- A. Four *previously permitted* sites (Sites A,B,D,H) are on unpatented lode claims on BLM land (surface and minerals). These claims are owned by Southern Silver.
- B. Three *newly proposed* sites (Sites I,O,N) are on unpatented lode claims on BLM land (surface and minerals) and are owned by Southern Silver.
- C. Four *newly proposed* sites (Sites J,K,P,Q) are on private surface/BLM minerals ground with claims owned by Southern Silver. An active access agreement to travel over and do exploration on these sites has been granted. See digital file (**Attachment #2**) for copy of the lease agreement.

- D. One *previously permitted* site (Site E) is on ground claimed by North American Turquoise. Southern Silver has a lease on this TQ-1 claim that grants the right to explore the claim. See digital files (Attachment #3) for a copy of the lease agreement.
- E. One *previously permitted* site (Site F) is on State land and Southern Silver has a lease (State Lease HG 0105) on this section State Sec 2, T28S, R16W that grants the right to explore. See digital files (Attachment #4) for a copy of the lease agreement.
- F. Include GPS coordinates for each claim or show on a map in relation to the project area, any mineral leases and/or mineral claim boundaries upon which the permittee intends to conduct the exploration and reclamation.

SITE ID	Easting NAD83Z12	Northing NAD83Z12	Claim/Property	Status
A	739779	3532785	Oro 423	permitted
B	740686	3533262	Oro 222	permitted
D	743571	3532151	Oro 91	permitted
E	740632	3534415	TQ # 1	permitted
F	741870	3531902	New Mexico State Section	permitted
H	742238	3532477	Oro 123	permitted
I	740942	3534852	Oro 206	<i>new site</i>
J	740217	3534705	Oro 721 (Private Surface)	<i>new site</i>
K	739700	3534669	Oro 732 (Private Surface)	<i>new site</i>
N	745163	3533139	Oro 612	<i>new site</i>
O	744984	3533149	Oro 610	<i>new site</i>
P	738799	3535829	Oro 756 (Private Surface)	<i>new site</i>
Q	738680	3535976	Oro 755 (Private Surface)	<i>new site</i>

**See digital files (Attachment #5) for location of Proposed and Permitted Drill Sites**

- G. List the names and addresses of surface and mineral ownership within the proposed permit area.

**Surface Owner(s):**

**Southern Silver Exploration Corp. (U.S.) – Minerals and Surface**  
**4790 Caughlin Pkwy #207**  
**Reno, NV 89519-0907**  
**Phone (775)746-3780**

**BLM – Minerals and surface**  
**800 Marquess St Las Cruces,**  
**New Mexico 88005**

**575-525-4300**

**Ace and Kay Peterson - Surface  
PO Box 51 Hachita,  
New Mexico 88040**

**New Mexico State, S. 2, T28S R16W – Minerals and Surface**

**Mineral Owner(s):**

**Southern Silver Exploration Corp. (U.S.)  
4790 Caughlin Pkwy #207  
Reno, NV 89519-0907  
Phone (775)746-3780**

**North American Turquoise Co. LLC  
650 Oso Ridge Rt.  
Grants, New Mexico 87020-0407**

**BLM  
800 Marquess St Las Cruces,  
New Mexico 88005  
575-525-4300**

**New Mexico State, S. 2, T28S R16W**

**MAPS AND LOCATION (§402.D.4 & 5)**

- H. Provide a legal description of the proposed permit area and each exploration site [i.e. Township(s), Range(s) and Section(s) NM PLSS, as well as GPS coordinates corresponding to each proposed drill hole.]

**Proposed Permit Area Legal Description:**

**T27S, R16W, Sections 26, 27, 28, & 35**

**T28S, R16W, Sections 1-3**

**T28S, R15W, Section 6**

**Proposed Drill Hole/Exploration Site GPS Coordinate(s):**

1. List drill hole/exploration site name and the GPS Coordinate for each site.  
**See table below.**
2. Include datum/coordinate system of GPS coordinates (i.e. decimal degrees, UTM Zone 13, UTM Zone 12, NAD 27, NAD 1983, WGS 1984, etc.

SITE ID	DRILLED	Easting NAD27	Northing NAD27	Easting NAD83	Northing NAD83	Status	Land Title	Dip	Azimuth	Depth (m)
A	YES, OR22-010	739841	3532589	739779	3532785	Reclaimed, not seeded, retain for future drilling	BLM	N/A	N/A	N/A
BB	YES, OR22-011,-013	740748	3533066	740686	3533262	Permitted, retain for future drilling	BLM	N/A	N/A	N/A
D	NO	743633	3531955	743571	3532151	Permitted	BLM	-85	260	1000
E	Yes, OR22-012	740694	3534219	740632	3534415	Permitted, drilled, plugged	BLM	N/A	N/A	N/A
E1	NO	"	"	"	"	Permitted	"	-55	315	1000
E2	NO	"	"	"	"	"	"	-75	270	1000
F	NO	741932	3531706	741870	3531902	Permitted	NM State	-60	125	1000
H1	NO	742300	3532289	742238	3532477	Permitted	BLM	-65	90	1000
H2	"	"	"	"	"	"	"	-60	315	1000
I1	N/A	741004	3534656	740942	3534852	Not Yet Permitted	BLM	-60	270	1000
I2	N/A	"	"	"	"	"	"	-60	615	1000
J	N/A	740279	3534509	740217	3534705	Not Yet Permitted	Private Surface/BLM Claims	-70	315	1000
K	N/A	739762	3534473	739700	3534669	Not Yet Permitted	Private Surface/BLM Claims	-60	270	1000
N	N/A	745227	3532939	745163	3533139	Not Yet Permitted	BLM	-90	0	1000
O	N/A	745048	3532947	744984	3533149	Not Yet Permitted	BLM	-90	0	1000
P	N/A	738861	3535633	738799	3535829	Not Yet Permitted	Private Surface/BLM Claims	-70	135	1000
Q	N/A	738742	3535780	738680	3535976	Not Yet Permitted	Private Surface/BLM Claims	-90	0	1000

Sites previously permitted
Sites not permitted

**Permitted and Proposed Sites with Location, Datum, and Drill Hole Data**

**See digital files (Attachment #6) for a digital copy of this table.**

**NOTE: The sites are staked in the field and labeled with black marking on 36" wooden stakes. Boundaries of the sites will be marked with 36" lath. Overland travel routes will be flagged and periodic stakes will be placed on the proposed routes.**

- I. Provide a topographic map(s) of at least 1 inch = 2,000 feet or appropriate scale for the size of disturbance [i.e. a 1:24,000 USGS Quadrangle map]. The map name and at least two edges of the map [i.e. bottom and side edge] clearly showing all areas of land to be disturbed by the proposed exploration and reclamation. If the area to be explored contains the following features, show them on the map(s):
  1. **Boundary of the proposed permit area** on a topographic map, and the proposed area of disturbance. This boundary should be labeled.
  2. Perennial, intermittent and ephemeral streams, springs, wetlands, riparian areas, lakes and reservoirs.
  3. Residences or other occupied dwelling.
  4. Proposed and existing roads, and other access routes.
  5. Pipelines and support facilities.
  6. Cemeteries, burial grounds and cultural resources.
  7. Previously disturbed areas.

8. Oil, gas, water wells and monitoring wells within the permit area.
9. Areas and types of proposed disturbances. Include the anticipated dimensions of each proposed disturbance.
10. Identify the location of drill holes, shafts, pits, adits, trenches, ponds, stockpiles, wastes dumps, etc.

**See digital files (Attachment #7) or the final page of this application for the Permit Map.**

- J. Provide detailed written driving directions to access the site.

**The project is located approximately 50 miles southwest of Deming. Travel 32 miles west of Deming on Interstate Route 10, and then travel south on route 146 for 19 miles to the town of Hachita and the intersection with US Route 9. Travel 4.6 miles west on Route 9 from Hachita to a gate (close after passing) on the south side of the highway. Open the gate and proceed southwest on this dirt road until the first fork, stay right, follow road through the historic town of Old Hachita, stay on this road until the next fork and then stay right, continue until arriving at unnamed green metal ranch gate, enter gate and follow flagging to drill pads located on maps.**

**An alternate way into the property would be to travel west on US Route 9 for 6.5 miles and enter the property through a gate on the south side of the highway, (close after passing) follow the flagging on this road to a second gate and continue to drill sites. This entrance to the property is preferable for accessing drill pads Q, P, K, J, and I. An access agreement to pass through this private ground has been granted, some minor road repair work will need to be completed before being able to use this road.**

**See digital files (Attachment #8) for the Access Agreement 2024**

**See digital files (Attachment #9) for Detail Washout Repair Site I**

#### **4. EXPLORATION DESCRIPTION (§402.D.6 & 7)**

- A. List the proposed exploration dates:

**Start Date: October 01, 2024**

**End Date: 1 year from permit approval; Extension of the permit may be desired and will be applied for at least 30 days prior to the expiration date.**

- B. List the mineral or minerals to be explored for:

**Minerals containing gold, silver, copper, lead, zinc, molybdenum, and other associated minerals.**

- C. Check the box beside the proposed method(s) of exploration:

- Cuts                       Pits                       Trenches                       Shafts  
 Tunnels/Adits/Declines  
     Air drilling              Fluid drilling               Drilling & Blasting  
 X Other method (describe): Drilling utilizing mud media for circulation.

D. Information on stockpiles, ponds, drilling mud and water recirculation pits, impoundments and any other structures should be provided:

**All drill cuttings, mud, and fluids produced from drill holes will be contained within the excavated sumps and recirculation pits. The sumps will be sized to hold the calculated volume of the drill cuttings and fluids. Material created during excavation will be stockpiled or used to create containment areas and berms to prevent run-off of drilling fluids and run-off of precipitation during rain events.**

E. List the following proposed disturbance for each:

**Drill pads:**

How Many? 13                      Width (ft.): 60                      Length (ft.) 100

**Drill holes:**

How Many? 17    Depth (ft.): < 3300ft                      Diameter (in.): 3 3/8

**Note: Site E will be permitted for three holes, with one drilled in 2022. Site H will be permitted for two holes. Site I will be permitted for two holes. All other pads will be permitted for drill one hole each.**

**See digital files (Attachment #6) for detailed drill locations.**

**Other Disturbances: 1.8 acres.**

Please describe: **0.14 acres per pad (13' X 60' X 100')/43,560 = 1.8 acres. Equipment and supplies may be temporarily stored at a lay-down site, an unvegetated flat area approximately 2,000 feet south of US Route 9 on the main access road to the drill sites. No disturbance will occur in the lay-down area and the approximate size of the area for storage of mud and pipe should be approximately 25'X60'.**

**Access to the vicinity of the drill sites is from existing roads, and ten of the thirteen sites can be constructed immediately adjacent to these roads. Overland access will be required to Site O for 2490 feet, and from Site O to Site N is 587 feet for a total of 3077 feet. Overland access to Site F is 1360 feet and was previously permitted. No actual road construction is anticipated, but minor sloping may be necessary to permit safe and efficient access across dry washes.**

The mud sumps will contain all cuttings and no discharge of drill fluids from the drill pad will occur.

Drilling will be conducted using a truck, track, or skid mounted drill rig. Drill support equipment, such as pickup trucks, water trucks and service vehicles will be used.

The existing road may require minor leveling, grading, and filling in of washouts, but none of this work will change the overall character of the roads. Short areas across minor dry washes on the longer overland travel route may require minor sloping and leveling to permit efficient and safe passage of equipment. Some drill sites will require minor leveling, but most will only require vegetation removal. Sumps will be constructed within the 60'X 100' drill pad to contain drill fluids and cuttings.

Travel on overland routes will be kept to one track as much as possible.

Water will be obtained from the Hachita water system or a nearby established source.

The total estimated disturbance on BLM and State Land is:

Acres of drill sites =  $(13 \times 60' \times 100') / 43,560 = 1.8$  acres

Area of laydown area (if used)  $25' \times 60' / 43,560 = 0.03$  acres

Area of overland travel  $(2510 \times 15) / 43,560 = 1.6$  acres

Total Acres Drill Sites, overland travel, and Laydown Area (BLM, State, Private) total Disturbance  $(1.8 + 0.03 + 1.6) = 3.43$  acres estimated

F. Describe the equipment to be used for the exploration operations.

One drilling rig will be used, supported by one pipe truck, one water truck, crew vehicles, cargo trailer(s), backhoe/track-hoe/bulldozer as needed, road grader as needed, and one portable toilet.

G. Describe the area and size of each type of disturbance for cuts, pits, stockpiles, trenches, shafts, tunnels or other disturbances:

A mud sump will be excavated parallel to the drill on the pad. The drill pad will be approximately 60ft by 100ft. The sumps will be sized to hold the calculated volume of the drill cuttings and fluids within the confines of the drill pad.

H. Roads

Roads shall be located to minimize disturbance to land and wildlife and to

enhance stability. Roads shall be constructed and maintained to control erosion. Roads constructed in or across intermittent or perennial streams require site specific designs. Roads to remain permanent must be approved by the surface owner and must be stabilized to control erosion.

List for New Road(s) the following:

Road description: None Length (ft.) \_\_\_\_\_ Width (ft.) \_\_\_\_\_

List for Extension or Widening of Existing Road(s) the following:

**No roads will be widened.**

**No actual road construction will be done. Minor leveling and sloping may be necessary to provide safe and efficient overland access across minor dry washes to Site O and N. Overland travel access will include the following.**

**See digital files (Attachment #10) for Detail Overland to Sites N and O**

**Acres of overland travel:**

**To Site F - 1360 feet (previously permitted)**

**To Site O - 2490 feet**

**To Site N - 587 feet**

**To Site D - 60 feet (previously permitted)**

**To Site E – 80 feet (previously permitted)**

**Total – 4577 feet**

**Total: 4577 feet; Assume 15-foot width for overland travel routes  
(4577' X 15')/43,560 = 1.6 acres**

List for New Road(s) the following:

Road description: No new roads Length (ft.) \_\_\_\_\_ Width (ft.) \_\_\_\_\_

List for Extension or Widening of Existing Road(s) the following:

Road description: No widening of existing roads Length (ft.) \_\_\_\_\_  
Width (ft.) \_\_\_\_\_

Where applicable, describe road or drainage culvert location, size(s), and design:

**There are no culverts located on this property, no road repair is planned other than grading due to seasonal washouts.**

- I. Describe (location and size) any other disturbances (equipment staging, storage and/or lay down areas, vehicle parking, temporary housing and/or trailers) to be created or situated on the site during exploration operations.

**The equipment staging area will be located approximately 4.6 miles west of**



Hachita in Grant County south of Highway 9. Turn left (south) at the green gate on an unnamed ranch road and go approximately 2000 ft to a well-used existing staging area, this area is commonly used by local ranchers and Border Patrol agents to unload vehicles and horse trailers. The equipment's staging area will be 60ft by 25ft.

**TOTAL ACREAGE TO BE DISTURBED: 3.43 acres.**

**5. CHEMICAL USE (§402.D.8)**

A. List all chemicals, and include Material Safety Data Sheets (MSDS), for any chemicals proposed to be used by the exploration operation, including but not limited to any drilling mud, polymers, down-hole bit lubricants, lost circulation materials (LCM), or any other drilling additives, fuel and lubricants. Material Safety Data Sheets (MSDS) describing must be included. If any water is to be hauled onsite, please provide source information and intended use.

Name	Use
<b>Drilling Mud (EZ Mud)</b>	<b>Borehole stabilizer.</b>
<b>Diesel Fuel</b>	<b>Fuel used in internal combustion engines.</b>
<b>Down-hole Lubricants</b>	<b>Reduces friction in boreholes.</b>
<b>Lost Circulation Materials</b>	<b>Materials used to seal boreholes.</b>
<b>Oil/Grease</b>	<b>Used to lubricate machinery.</b>
<b>Gasoline</b>	<b>Fuel is used in internal combustion engines.</b>
<b>Hydraulic fluid (organic)</b>	<b>Transfer power to machinery.</b>
<b>Cement</b>	<b>Used to cap and seal boreholes.</b>
<b>H2O</b>	<b>Water hauled from Hachita water tower.</b>
<b>Antifreeze</b>	<b>Keep equipment operating at proper temp.</b>

**See digital files (Attachment #11) for MSDS Files**

B. Describe in detail a plan for the containment, use and disposal of all chemicals listed above:

**All drilling materials will be stacked on pallets and placed on plastic tarps and then covered with plastic. Appropriate spill clean-up materials such as absorbent pads and organic waddles will be on site and any minor spills will be contained collected and stored in water-proof containers. Larger fuel and oil spills will be contained, and the contaminated soil will be removed by dump trucks to a certified toxic disposal site, all spills will immediately be reported.**

**6. GROUND WATER INFORMATION (§402.D.9)**

A. Provide an estimate of depth to ground water and the total dissolved solids (TDS)

concentration.

Depth to ground water (ft.): **80ft**

TDS concentration (mg/L): **U/K**

B. What is the source of this information?

**Average depth of water table of four holes drilled in 2022. Permit #GR087ER**

**Holes OR22-010, OR22-011, OR22-012, and OR22-013**

C. Will dewatering activities be conducted:

Yes  No

If yes, please describe:

**No dewatering activities will be conducted.**

RECLAMATION AND OPERATION PLAN (§402.D.10)

Reclamation of the disturbed area shall be initiated as soon as possible following the completion or abandonment of the exploration operation, unless the disturbed area is included within a complete permit application for a new mining operation.

D. Provide a description of the native vegetation of the area to be disturbed. Include tree, shrub and grass communities of the area.

**Desert grassland and scrubland with scattered *Juniperus coahuilensis* at 5,080' elevation. Grasses include *Bouteloua eriopoda*, *Pleuraphis mutica*, *Bouteloua curtipendula*, *Bothriochloa barbinodis*, and *Muhlenbergia porteri*. *Larrea tridentata*, *Prosopis glandulosa*, *Flourensia cernua*, *Cylindropuntia imbricata*, *Opuntia* sp., *Parthenium incanum*, and *Ericameria laricifolia*, are also present. *Echinocereus fendleri* and *Echinomastus intertextus*.**

E. Describe the topsoil or topdressing depth and how topsoil or topdressing will be salvaged, stockpiled and distributed for the re-establishment of vegetation.

**Any salvaged topsoil material that is suitable as a plant growth medium shall be spread over the surface of the drill site, including any other heavily compacted areas, then raked, disked or deep-scarified prior to seeding, to prepare a suitable seedbed for seed germination and root growth. The seed mixture shall be broadcast sown immediately after site re-contouring and seedbed preparation has been completed and while the soil surface is still friable. After the seed mix has been sown, the soil shall be dragged with a**

chain or harrow or raked into the surface using hand tools to cover the seed. Each reclaimed site shall be mulched with certified weed-free straw, or other mulching materials approved by the BLM or SLO, and then crimped or tacked in place. Reclaimed areas not seeded before or during the summer, shall be seeded in late fall to maximize the probability of successful revegetation. Within any areas prohibitive to ripping or scarification, the seed shall be hand- or broadcast sown immediately after site re-contouring and seedbed preparation at an application rate double that of the rate prescribed, and then raked into the soil and mulched.

7. Describe in detail the plant species to be used in the re-establishment of vegetation.

**This is the BLM recommended seed mix to use for reclamation in this Part of Grant County, New Mexico.**

Plant name	Seeding Rate (lbs./acre)
<b>Black gama</b>	<b>2</b>
<b>Sideoats grama</b>	<b>3</b>
<b>Sand Dropseed</b>	<b>2</b>
<b>Plains bristlegrass</b>	<b>2</b>
<b>Desert globemallow</b>	<b>1</b>
<b>Desert marigold</b>	<b>1</b>
<b>Winterfat</b>	<b>1</b>
<b>Four-wing saltbrush</b>	<b>2</b>

**See digital files (Appendix #12) for BLM Seed Mixture**

Provide the methods to be used during revegetation operations and provide a schedule of when the operations are to begin and end.

**Following re-contouring the operator will till the area leaving small wind rows in which seed will be spread using a shoulder broadcaster. The timing for seeding will be done at the BLM's recommendation.**

- A. Proposed Reclamation dates:

**Start Date: a minimum of 31 to 60 days after completion of drilling to allow for drying and settling.**

**End Date: 31 to 60 days after drilling completion for project.**

- B. If riparian areas and wetlands exist, provide the detailed reclamation plan for the mitigation of the area. Describe the methods to minimize disturbance during exploration.

**No wetlands or riparian areas exist in this claim group.**

- C. Describe how drill holes will be plugged and abandoned. What plugging and abandonment methods will be employed where groundwater is encountered versus holes where no groundwater is encountered? (must comply with 19.27.4 NMAC of the State Engineer Office's plugging and abandonment requirements)

**Wet hole abandonment (option 2): High- density bentonite clay (QUIK-GROUT) mixed according to the manufacturer's recommendations, emplaced with a tremie pipe from total depth to within 12 feet of the original ground surface, followed by 10 feet of neat cement, followed by 2 feet of topsoil/topdressing.**

- D. Describe how the reclamation of portals, drilling mud and/or waste pits, adits, shafts, ponds, roads or other disturbances will be performed.

**All stockpiled material will be pulled back from the edge of the drill pads and sumps. A backhoe will fill in waste pits and recontour. Any overland roads will be scarified where necessary, seeded, and blocked from access.**

## **8. CULTURAL RESOURCES (§403.B)**

Cemeteries and burial grounds and the disturbance of cultural resources listed on, or eligible for, the National Register of Historic Places or the State Register of Cultural Properties shall be avoided until clearance has been granted by the Director after consultation with the State Historic Preservation Officer.

Provide information on Cultural Resource Survey(s) performed on the site. Include a copy of the Archeological or Cultural Resource Survey **separately** in the application package. **Please DO NOT display any archaeological site locations upon other project maps submitted under Section 4 of this Application.** Any Archeological or Cultural Resource Survey and Report information shall be submitted with this Application, but separately as a stand alone component of this Application.

**Archeological surveys in 2009 and 2011 in connection with permits issued to Southern Silver for previously proposed work are within the general vicinity of the work proposed by this application. None of the 13 sites addressed by the current application were archeologically studied by these surveys.**

**Southern Silver commissioned Neal Ackerly in 2021 to conduct archeological surveys on drill sites A, B, E, F, G, and H. Neal Ackerly was commissioned in 2023 to conduct a survey for sites I, J, K, N, O, P, and Q.**

**See digital files (Attachment #13) for Neal Ackerly's Archeological report**

## 9. SAFEGUARDING (§403.C)

Provide a description of measures that will be taken to safeguard the public from unauthorized entry into hazardous areas. This description shall address the following:

- A. Closing shafts, adits, and tunnels to prevent entry;
- B. Posting warning signs in locations near hazardous areas (in Spanish, English and/or other languages);
- C. Restricting access to hazardous areas; or other measures to protect human safety; and
- D. Waste disposal.

**Known open shafts and stopes were fenced with T-Posts and barbed wire in 2022, the fences were then posted with “Warning Open Mine Workings” signs. Those protective features will continue to be monitored and repaired as necessary.**

**Portable toilets will be used during drilling operations, the waste will be pumped into tanks and hauled to acceptable treatment plants. The toilets will be cleaned by the owner as often as needed.**

**Waste will be removed from the project site and disposed of at an approved waste facility.**

## 10. PROTECTION OF WILDLIFE AND IMPORTANT HABITAT (§403.G)

- A. Describe in detail the measures that will be taken during the exploration and reclamation to minimize impacts on wildlife and important habitat.

**A biology survey was conducted to identify any protected plant and animal species. Any wildlife habitat areas such as might be found with rodents, reptiles, and birds will be avoided during construction of the drill sites and the overland road. The road will be built according to the biologist’s recommendation.**

**The perimeter of the drill pits will be fenced with T-posts and construction safety fencing to help prevent wildlife entrapment, a 3:1 sloped ramp will be installed on one side of the pit to allow wildlife to escape.**

**Southern Silver commissioned Greg Magee in 2023 to conduct Biological surveys on drill sites I, J, K, N, O, P, and Q, as well as the overland routes to those sites. A survey was previously conducted in 2021 by Greg on sites A, B, D, E, F, G, and H.**

**Southern Silver confirms it will continue to follow previously approved procedures to avoid the Night-blooming cereus cactus.**

**See digital files (Appendix #14) for Greg Magee's Biological Report**

## **11. OPERATIONS TO MINIMIZE EROSION (§403.E)**

A. Describe in detail the measures that will be taken and/or Best Management Practices (BMP's) to be utilized during exploration and reclamation to prevent and minimize erosion. Acceptable practices include:

1. Stabilizing disturbed areas through land shaping, re-contouring, berming or grading to final contour;
2. Minimizing reconstructed slope lengths and gradients;
3. Diverting storm water runoff;
4. Establishing vegetation;
5. Regulating channel velocity of water;
6. Lining drainage channels with rock, vegetation or other geotechnical materials; and
7. Mulching.

**No drilling is planned to occur within any channels of any perennial, intermittent, or ephemeral streams. Any channel crossings will be sloped on the banks to allow the stream to slow down through road crossings during heavy rains minimizing erosional damage.**

**The pad will be kept to a minimum size while still allowing workers to operate safely. Any cuts will be gently sloped taking into consideration the elevation, gradient, and the size of the drill pad.**

**Diverting storm water runoff with water bars, drainage channels, rip rap, and other acceptable manmade materials such as waddles, silt fencing, and straw bales might also be used to control storm runoff.**

**Reseeding disturbed areas is planned as part of the reclamation process.**

## **12. BLASTING INFORMATION (§403.L)**

A. When blasting is employed during the exploration operations, indicate the following:

Distance to nearest structure or dwelling: \_\_\_\_\_ feet

Typical number of pounds used per blast: \_\_\_\_\_ lbs./blast

Type of blasting agent: **No blasting on this exploration project.**

**13. FINANCIAL ASSURANCE, PUBLIC NOTICE AND PERMIT FEES (§402.D.10.c, §402.D.12, & §402.D.13)**

A. Provide an estimate of the proposed financial assurance required by Subpart 12.

**Southern Silver currently has in place a bond of US\$86,635 with the NMMMD for all sites except site F, which is on NM State Lease Land. There is an addition bond of US\$7,000 with the State of New Mexico for Site F. Additional bonding will be necessary for the new sites proposed in this application, which will be determined and bonded prior to full acceptance of the permit.**

B. Attach a copy of the proposed form of public notices required under Subpart 9.

**See digital files (Appendix #15) for Public Legal Notices**

C. Attach the permit fees as determined pursuant to Subpart 2. The application fee for an exploration permit is \$1,000.00.

Check the method of payment.

- Cash  
 Check

Check Number: 4222  
Financial institution: Wells Fargo Bank, NA

**14. CERTIFICATION REQUIREMENT (§402.C)**

Each application shall be signed by the permittee or an authorized agent of the permittee for the operation with the following certification made:

**(Certification does not require notarization):**

**I certify that I have personally examined and am familiar with the information submitted herein, and based on my inquiry of those individuals responsible for obtaining the information; I believe the submitted information is true, accurate, and complete. I agree to comply with the reclamation requirements set forth in this permit application and related correspondence, the New Mexico Mining Act and the Rules. Further, I certify that I am not in violation of any other obligation under the New Mexico Mining Act or the Rules adopted pursuant to that Act and I allow the Director to enter the permit area, without delay, for the purposes of conducting inspections during exploration and reclamation.**

**Signature of Permittee or Authorized Agent**

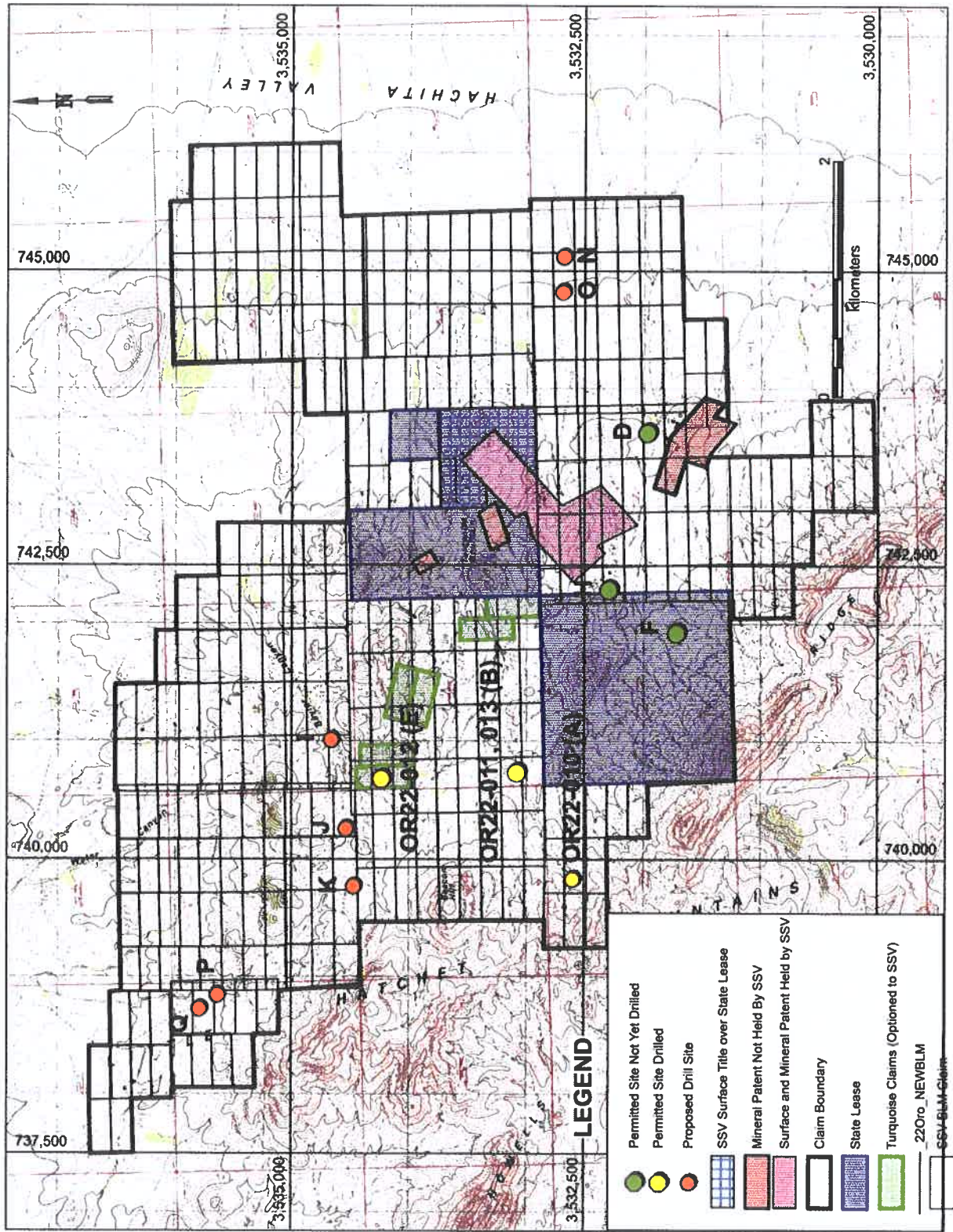
\_\_\_\_\_

**Name (typed or print)      Grady Wilson**

**Title/Position: Consulting Geologic Technician for Southern Silver**

**Date                      April 04, 2024**





Project Status and Proposed Drill Sites (note: UTM grid is NAD27)

# Appendices

## Southern Silver Turquoise Mountain Digital File Stage Four Application

Attachment #1 - Financial Statement and MD&A Filing.

Attachment #2 – Turquoise Mtn Claims.

Attachment #3 - Mining Lease with Option to Purchase - North American Turquoise Company LLC- May 1, 2011.

Attachment #4 - ORO Mining Lease HG-0105 - September 16, 2010.

Attachment #5 - Location of Proposed and Permitted Drill Sites.

Attachment #6 - Proposed and Permitted Drill Sites-Location-Datum-Drillhole data.

Attachment #7 - Oro Permit Map.

Attachment #7.1 – Playas Peak USGS 7.5-minute Quadrangle Map.

Attachment #8 - Access Agreement 2024.

Attachment #9 – Detail Washout Repair Site I.

Attachment #10 - Detail Overland Sites N and O.

Attachment #11 - MSDS Files.

Attachment #12 – Seed Mix Planting Methodology Turquoise Mtn.

Attachment #13 - Neal Ackerly Archeological Survey 2023.

Attachment #14 - Greg Magee Biology 2023 Turquoise Mtn. Project 2.

Attachment #15 - Public Legal Notices.

# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #1 - Financial Statement and MD&A Filing.**



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Vancouver, BC, V6E 3T5  
Tel: 604-806-0626  
[www.southernsilverexploration.com](http://www.southernsilverexploration.com)

**Condensed Consolidated Interim Financial Statements  
Three and Nine Months Ended January 31, 2024 and 2023  
(Expressed in Canadian Dollars)  
(Unaudited)**

<b><u>Index</u></b>	<b><u>Page</u></b>
<b>Notice of No Auditor Review</b>	<b>2</b>
<b>Condensed Consolidated Interim Financial Statements</b>	
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Condensed Consolidated Interim Statements of Financial Position	4
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Notes to the Condensed Consolidated Interim Financial Statements	7-16

## **NOTICE OF NO AUDITOR REVIEW**

The accompanying unaudited condensed consolidated interim financial statements of the Company for the three and nine months ended January 31, 2024 and comparatives for the three and nine months ended January 31, 2023 were prepared by management and have not been reviewed or audited by the Company's auditors.

**Southern Silver Exploration Corp.**

(An Exploration Stage Company)

Condensed Consolidated Interim Statements of Comprehensive Loss

Three and Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

	Note	Three Months Ended January 31,		Nine Months Ended January 31,	
		2024	2023	2024	2023
<b>Expenses</b>					
Administration	6	\$ 15,000	\$ 15,000	\$ 45,000	\$ 35,000
Consulting	6	64,346	79,115	195,491	271,644
Exploration and evaluation	5 & 6	758,392	730,544	1,746,761	4,331,010
Investor relations	6	130,927	150,830	331,344	436,085
Office and general	6	28,753	20,812	56,624	61,278
Professional fees	6	80,640	146,734	256,942	296,717
Regulatory fees and taxes		8,698	3,676	39,802	27,642
Share-based payments	7	-	-	-	98,730
Shareholders' communications		400	-	12,292	17,036
Transfer agent		3,588	3,377	35,310	25,529
		<b>1,090,744</b>	<b>1,150,088</b>	<b>2,719,566</b>	<b>5,600,671</b>
Foreign exchange loss		9,008	15,045	22,307	49,228
Other income		(24,680)	(51,170)	(103,102)	(118,378)
		<b>(15,672)</b>	<b>(36,125)</b>	<b>(80,795)</b>	<b>(69,150)</b>
<b>Net Loss and Comprehensive Loss for the Period</b>		<b>\$ 1,075,072</b>	<b>\$ 1,113,963</b>	<b>\$ 2,638,771</b>	<b>\$ 5,531,521</b>
Loss per share		\$ 0.00	\$ 0.00	\$ 0.01	\$ 0.02
Weighted average number of common shares outstanding		291,546,757	291,546,757	291,546,757	291,546,757

*The accompanying notes form an integral part of these condensed consolidated interim financial statements*

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Condensed Consolidated Interim Statements of Financial Position

(Expressed in Canadian Dollars, Unaudited)

As at	Note	January 31, 2024	April 30, 2023
<b>Current Assets</b>			
Cash and cash equivalents		\$ 1,704,334	\$ 4,670,767
Taxes and other receivables		23,159	24,233
Prepays		175,000	146,346
		<b>1,902,493</b>	<b>4,841,346</b>
<b>Non-Current Assets</b>			
Reclamation bonds		142,756	145,582
Mineral properties	5	34,498,160	34,220,574
		<b>34,640,916</b>	<b>34,366,156</b>
		<b>\$ 36,543,409</b>	<b>\$ 39,207,502</b>
<b>Current Liabilities</b>			
Accounts payable and accrued liabilities		\$ 413,870	\$ 442,911
Due to related parties	6	47,873	44,154
		<b>461,743</b>	<b>487,065</b>
<b>Equity</b>			
Share capital	7	82,225,073	82,225,073
Share-based payments reserve		6,728,386	8,514,546
Other reserve		9,270	9,270
Deficit		(52,881,063)	(52,028,452)
		<b>36,081,666</b>	<b>38,720,437</b>
		<b>\$ 36,543,409</b>	<b>\$ 39,207,502</b>

Nature of Operations and Going Concern (Note 1)

Approved on behalf of the Board

"Lawrence Page"

Lawrence Page, K.C.

"Gina Jones"

Gina Jones

*The accompanying notes form an integral part of these condensed consolidated interim financial statements*

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Condensed Consolidated Interim Statements of Changes in Equity

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

	Share Capital		Share-based				
	Number	Amount	Payments	Other	Deficit	Total	
	of Shares		Reserve	Reserve			
<b>Balance as at April 30, 2022</b>	<b>291,546,757</b>	<b>\$ 82,225,073</b>	<b>\$ 9,523,137</b>	<b>\$ 9,270</b>	<b>\$ (46,809,543)</b>	<b>\$ 44,947,937</b>	
Fair value of options expired	-	-	(715,977)	-	715,977	-	
Share-based payments	-	-	98,730	-	-	98,730	
Net loss	-	-	-	-	(5,531,521)	(5,531,521)	
<b>Balance as at January 31, 2023</b>	<b>291,546,757</b>	<b>\$ 82,225,073</b>	<b>\$ 8,905,890</b>	<b>\$ 9,270</b>	<b>\$ (51,625,087)</b>	<b>39,515,146</b>	
<b>Balance as at April 30, 2023</b>	<b>291,546,757</b>	<b>\$ 82,225,073</b>	<b>\$ 8,514,546</b>	<b>\$ 9,270</b>	<b>\$ (52,028,452)</b>	<b>\$ 38,720,437</b>	
Fair value of warrants expired	-	-	(678,844)	-	678,844	-	
Fair value of options expired	-	-	(97,372)	-	97,372	-	
Fair value of compensation options expired	-	-	(1,009,944)	-	1,009,944	-	
Net loss	-	-	-	-	(2,638,771)	(2,638,771)	
<b>Balance as at January 31, 2024</b>	<b>291,546,757</b>	<b>\$ 82,225,073</b>	<b>\$ 6,728,386</b>	<b>\$ 9,270</b>	<b>\$ (52,881,063)</b>	<b>36,081,666</b>	

*The accompanying notes form an integral part of these condensed consolidated interim financial statements*



**Southern Silver Exploration Corp.**

(An Exploration Stage Company)

Condensed Consolidated Interim Statements of Cash Flows

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

	2024	2023
<b>Operating Activities</b>		
Net loss	\$ (2,638,771)	\$ (5,531,521)
<b>Items not involving cash:</b>		
Share-based payments	-	98,730
Unrealized foreign exchange loss (gain)	2,866	(12,484)
	(2,635,905)	(5,445,275)
<b>Changes in non-cash working capital</b>		
Taxes and other receivables	1,074	15,114
Prepays	(28,654)	151,218
Accounts payable and accrued liabilities	(29,041)	(363,875)
Due to related parties	3,719	(10,500)
	(52,902)	(208,043)
<b>Cash Used in Operating Activities</b>	(2,688,807)	(5,653,318)
<b>Investing Activity</b>		
Mineral property acquisition	(277,586)	(205,520)
<b>Cash Used in Investing Activity</b>	(277,586)	(205,520)
<b>Foreign Exchange Effect on Cash</b>	(40)	7,238
<b>Decrease in Cash and Cash Equivalents During the Period</b>	(2,966,433)	(5,851,600)
<b>Cash and Cash Equivalents, Beginning of Period</b>	4,670,767	11,301,783
<b>Cash and Cash Equivalents, End of Period</b>	\$ 1,704,334	\$ 5,450,183
<b>Cash and cash equivalents consist of:</b>		
<b>Cash</b>	\$ 574,079	\$ 916,484
<b>Cash equivalents</b>	\$ 1,130,255	\$ 4,533,699

Supplemental cash flow information (Note 8)

*The accompanying notes form an integral part of these condensed consolidated interim financial statements*

# **Southern Silver Exploration Corp.**

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

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## **1. Nature of Operations and Going Concern**

Southern Silver Exploration Corp. (the “Company”) is an exploration stage company incorporated under the laws of British Columbia, Canada. The Company’s principal business activities include the acquisition, exploration, and development of natural resource properties for enhancement of value and disposition pursuant to sales agreements or development by way of third-party option and/or joint venture agreements. The Company’s registered office is 1710 - 1177 West Hastings Street, Vancouver, British Columbia, Canada, V6E 2L3.

The business of exploring for minerals involves a high degree of risk and there can be no assurance that any of the Company’s current or future exploration programs will result in profitable mining operations. The recoverability of amounts shown for mineral properties is dependent upon the discovery of economically recoverable reserves, the ability of the Company to obtain financing to complete their exploration and development, and establish future profitable operations, or realize proceeds from their sale. The carrying value of the Company’s mineral properties does not reflect present or future value.

These condensed consolidated interim financial statements were prepared on a going concern basis, which assumes that the Company will be able to realize its assets and discharge its liabilities in the normal course of business. As of January 31, 2024, the Company had a working capital surplus of \$1,440,750 (April 30, 2023 - \$4,354,281). The Company incurred a net loss of \$2,638,771 for the nine months ended January 31, 2024 (2023 - \$5,531,521) and had an accumulated deficit of \$52,881,063 as of January 31, 2024 (April 30, 2023 - \$52,028,452).

As of January 31, 2024, the Company does not have sufficient working capital to meet its administrative overheads and continue its exploration programs. The Company has relied mainly upon the issuance of share capital and short-term debt to finance its activities. Future capital requirements will depend on many factors including the Company’s ability to execute its business plan. In order to finance future activities, the Company will be required to raise further financing which may include issuing further share capital through private placements and the exercise of options and warrants or obtaining additional short-term debt. While the Company has been successful in the past in raising financing to fund its operations, there can be no assurance that such financing will be available to the Company or on favourable terms to the Company. These matters create material uncertainties which cast significant doubt over the Company’s ability to continue as a going concern.

These condensed consolidated interim financial statements do not include the adjustments to assets and liabilities that would be necessary should the Company be unable to continue as a going concern. Such adjustment could be material.

The economic uncertainties around persistent inflation pressure, geopolitical and other global factors have the potential to slow growth in the global economy. Future developments in these challenging areas could impact on the Company’s results and financial condition and the full extent of that impact remains unknown. However, as at January 31, 2024, the Company has not been significantly impacted by these matters.

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

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### 2. Basis of Preparation and Consolidation

These condensed consolidated interim financial statements were prepared in accordance with International Accounting Standard 34: *Interim Financial Reporting* on a historical cost basis, except for cash flow information and financial instruments measured at fair value. The financial statements of the Company consolidate entities controlled by the Company as follows:

Entity	Country of Incorporation	Principal Activity
Southern Silver Holdings Limited ("SSHL")	British Virgin Islands	Holding company - 100% owned by the Company
Minera Plata del Sur S.A de C.V. ("MPS")	Mexico	Mineral exploration - 100% owned by SSHL
Southern Silver Projects Limited ("SSPL")	British Virgin Islands	Holding company - 100% owned by the Company
Exploraciones Magistral S.A de C.V.	Mexico	Mineral exploration - 100% owned by SSPL
Southern Silver Exploration Corp. (US)	United States of America	Mineral exploration - 100% owned by the Company
Exploraciones Minasol S.A de C.V.	Mexico	Mineral exploration - 100% owned by the Company

All inter-company transactions and balances have been eliminated upon consolidation. The Company's functional and presentation currency is the Canadian dollar. These condensed consolidated interim financial statements were approved and authorized for issue by the Board of Directors on March 25, 2024.

### 3. Summary of Significant Accounting Policies

With the exception of below, the same accounting policies are used in the preparation of these condensed consolidated interim financial statements as for the most recent audited annual consolidated financial statements and reflect all the adjustments necessary for fair presentation in accordance with International Financial Reporting Standards of the results for the interim periods presented.

#### *Share Capital*

Proceeds from the issue of units, consisting of common shares and share purchase warrants, are first allocated to common shares based on the quoted market value of the common shares at the time the units are priced, and the balance, if any, is allocated to the attached warrants. Share issue costs are netted against share proceeds prorated to common shares and share purchase warrants. In the event of modification of warrants issued as part of private placement units, no re-measurement adjustment is recognized within equity.

### 4. Financial Instruments

The Company's financial instruments include cash and cash equivalents, other receivables and reclamation bonds which are classified as financial assets at amortized cost, and accounts payable and accrued liabilities and due to related parties, which are classified as financial liabilities at amortized cost. The carrying values of all of these instruments approximate their fair values due to the short period to maturity.

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

### 5. Mineral Properties

Mineral property acquisition costs as at January 31, 2024 were:

	Cerro Las Minitas	El Sol	Oro	Hermanas	Total
	\$	\$	\$	\$	\$
Balance as at April 30, 2022	32,974,699	384,610	551,740	58,342	33,969,391
Additions, net	47,104	-	166,007	38,072	251,183
Balance as at April 30, 2023	33,021,803	384,610	717,747	96,414	34,220,574
Additions, net	26,698	-	205,123	45,765	277,586
<b>Balance as at January 31, 2024</b>	<b>33,048,501</b>	<b>384,610</b>	<b>922,870</b>	<b>142,179</b>	<b>34,498,160</b>

#### (a) Cerro Las Minitas - Durango, Mexico

The property consists of a fully owned interest in twenty-five mineral concessions located in Durango, Mexico. The Company has future and possible obligations as follows:

- On April 20, 2017, two contiguous concessions were acquired by staking. One of these claims is subject to a finder's fee whereby minimum periodic payments are due on a semi-annual basis accelerating from US \$5,000 to US \$25,000 over a ninety-six-month period and a 1% Net Smelter Royalty ("NSR") with such periodic payments being credited to NSR payments. The royalty will be reduced to 0.5% subsequent to payment of US \$5,000,000 in NSR payments
- One additional concession may be acquired if the underlying owner can deliver registered title and by making a payment, excluding applicable local taxes, of US \$200,000.

#### (b) El Sol - Durango, Mexico

The property consists of a fully owned interest in certain mineral claims located in Durango, Mexico. The claims total 63 hectares and are situated contiguous with Cerro Las Minitas. The property is subject to a 2% NSR payable to the optionor who has granted the Company an option to purchase the NSR at any time for US \$1,000,000.

#### (c) Oro - New Mexico, USA

The property consists of certain unpatented mining claims in the Eureka Mining District, Grant County, New Mexico, eight patented lode mining claims, which are adjacent to these claims, and surface rights to a contiguous property. The property is subject to a 2% NSR payable to the optionors whom have granted the Company an option to purchase the NSR at any time in 0.5% increments at US \$500,000 for each increment.

## **Southern Silver Exploration Corp.**

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

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### **5. Mineral Properties, continued**

#### **(c) Oro - New Mexico, USA, continued**

Pursuant to a lease with option to purchase agreement dated May 1, 2011, as amended, the Company can earn a 100% interest in six unpatented lode mining claims also located in the Eureka Mining District, Grant County, New Mexico.

Remaining lease payments are due as:

- (i) US \$30,000 annually until May 1, 2024 (2023 - paid); and
- (ii) US \$60,000 annually from May 1, 2025 to May 1, 2031.

The Company can purchase the property at any time by paying any amounts remaining under the lease, subject to a 1% NSR payable to the optionors, which terminates when aggregate payments thereunder equal US \$500,000.

#### **(d) Hermanas - New Mexico, USA**

On December 7, 2021, the Company entered into an agreement to purchase 83 lode claims in Luna County, New Mexico, east of the Oro property.

Remaining Annual Minimum Royalty ("AMR") payments are due as:

- (i) US \$20,000 on October 15, 2023 (paid);
- (ii) US \$25,000 on October 15, 2024;
- (iii) US \$30,000 on October 15, 2025;
- (iv) US \$35,000 on October 15, 2026; and
- (v) US \$40,000 on October 15, 2027.

Upon payment of the above, the Company will have earned a full interest in the property. A minimum AMR of US \$50,000 will continue to be due each year commencing October 15, 2028. The property is subject to a 2% NSR payable to the optionor. The NSR will be reduced to 1% upon completion of cumulative AMR and NSR payments totaling US \$10,000,000.

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

### 5. Mineral Properties, continued

#### (e) Exploration and Evaluation Expenditures

Exploration and evaluation expenditures for the nine months ended January 31, 2024 and 2023 were:

	Cerro Las Minitas		El Sol		Oro		Hermanas		Total	
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
	2024	2023	2024	2023	2024	2023	2024	2023	2024	2023
Assays and geochemistry	48,803	189,725	-	-	28,422	158,246	-	23	77,225	347,994
Camp, utilities and supplies	205,285	140,390	-	-	5,297	18,273	-	-	210,582	158,663
Claim taxes	233,548	179,646	2,201	1,655	-	-	-	-	235,749	181,301
Drilling	-	427,618	-	-	-	1,991,450	-	-	-	2,419,068
Geological and geophysics	617,125	342,875	-	-	58,020	205,477	12,220	7,246	687,365	555,598
Project supervision	426,325	382,291	100	675	22,469	23,694	937	-	449,831	406,660
Travel	2,316	4,234	-	-	11,602	119,580	2,655	313	16,573	124,127
IVA	61,122	126,512	-	-	-	-	-	-	61,122	126,512
Other	5,616	7,611	-	-	1,352	3,476	1,346	-	8,314	11,087
	1,600,140	1,800,902	2,301	2,330	127,162	2,520,196	17,158	7,582	1,746,761	4,331,010

### 6. Related Party Balances and Transactions

Except as disclosed elsewhere, the Company entered into the following related party transactions:

(a) Pursuant to a service agreement between the Company and Manex Resource Group Inc., a company indirectly controlled by Killian Ruby, an officer of the Company, effective April 1, 2023, the Company was charged as follows:

- \$45,000 (2023 - \$nil) for office space and general administration services;
- \$15,235 (2023 - \$nil) for professional services;
- \$15,960 (2023 - \$nil) for Chief Financial Officer services;
- \$10,991 (2023 - \$nil) for consulting services;
- \$92,700 (2023 - \$nil) for corporate development services;
- \$73,352 (2023 - \$nil) for geological services; and
- \$3,694 (2023 - \$nil) for the mark-up on out-of-pocket expenses.

Amounts payable as at January 31, 2024 were \$27,412 (April 30, 2023 - \$22,768).

(b) Consultancy fees in the amount of \$117,000 (2022 - \$117,000) were charged by Advocate Services Limited, a company controlled by Lawrence Page, a director and officer of the Company. Amounts payable as at January 31, 2024 were \$nil (April 30, 2023 - \$13,650).

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

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### 6. Related Party Balances and Transactions, continued

- (c) Consultancy fees in the amount of \$45,000 (2022 - \$45,000) were charged by Rob Macdonald, an officer of the Company, and were included in consulting fees or mineral property expenditures as applicable. Amounts payable as at January 31, 2024 were \$nil (April 30, 2023 - \$5,250).
- (d) Consultancy fees in the amount of \$45,000 (2022 - \$45,000) were charged by QDBS Resources Inc., a company controlled by Russell Ball, a director of the Company. Amounts payable as at January 31, 2024 were \$15,750 (April 30, 2023 - \$nil).
- (e) Consultancy fees in the amount of \$nil (2022 - \$22,500) were charged by Graham Thatcher, a former officer of the Company.
- (f) Consultancy fees in the amount of \$6,000 (2022 - \$nil) were charged by John Oness, an officer of the Company. Amounts payable as at January 31, 2024 were \$1,575 (April 30, 2023 - \$nil).
- (g) Legal fees in the amount of \$14,580 (2022 - \$14,499) were charged by Page Law Corporation, a company controlled by Arie Page, an officer of the Company, and included in professional fees, share issue costs, or mineral property expenditures. Amounts payable as at January 31, 2024 were \$3,136 (April 30, 2023 - \$2,486).

These transactions were in the normal course of operations. Amounts due to related parties are unsecured, non-interest-bearing, and have no formal terms of repayment. The Company has no long-term employee or post-employment benefits. Key management personnel of the Company are identified in (a) to (f) above and compensation awarded was:

	2024	2023
Short-term benefits	\$ 228,960	\$ 229,500
Total	\$ 228,960	\$ 229,500

One executive officer is entitled to termination benefits in the event of a change of control equal to thirty-six months' compensation. Upon a change of control, and assuming the triggering event took place on the period-end date, the payment would have been \$468,000.

### 7. Share Capital

The authorized share capital of the Company consists of an unlimited number of common shares without par value.

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

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Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

### 7. Share Capital, continued

#### (a) Share Purchase Warrants

Share purchase warrants outstanding as at January 31, 2024 were:

Exercise Price	Expiry Date	Balance		Balance
		April 30, 2023	Expired	January 31, 2024
\$0.50	June 16, 2023	360,000	360,000	-
\$0.75	June 21, 2023	303,500	303,500	-
\$0.50	June 21, 2023	120,000	120,000	-
\$0.35	August 14, 2023	850,000	850,000	-
\$0.38	August 14, 2023	756,000	756,000	-
\$0.25	August 13, 2024	9,337,500	-	9,337,500
\$0.25	August 13, 2024	187,762	-	187,762
\$0.25	September 4, 2024	4,400,000	-	4,400,000
\$0.25	September 4, 2024	47,600	-	47,600
\$0.35	* August 14, 2025	15,597,500	-	15,597,500
\$0.38	* August 14, 2025	8,502,977	-	8,502,977
\$0.50	* September 11, 2025	1,200,000	-	1,200,000
\$0.75	** June 16, 2026	9,000,000	-	9,000,000
\$0.75	** June 21, 2026	3,000,000	-	3,000,000
		<b>53,662,839</b>	<b>2,389,500</b>	<b>51,273,339</b>
Weighted average exercise price		\$0.43	\$0.44	\$0.42
Weighted average remaining life in years		0.52		1.47

\* Expiry date extended two years during May 2023\*\*\*

\*\* Expiry date extended three years during May 2023\*\*\*

\*\*\* The extended warrants are accounted for as equity instruments; accordingly, no amounts were recorded as a result of extending their expiry dates.

The weighted average fair value of share purchase warrants expired was \$0.28 (2023 - \$nil).



## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

### 7. Share Capital, continued

#### (b) Stock Options

Stock options outstanding and exercisable as at January 31, 2024 were:

Exercise Price	Expiry Date	Balance		Balance January 31, 2024
		April 30, 2023	Expired	
\$0.17	September 1, 2023	200,000	200,000	-
\$0.17	September 27, 2023	520,000	520,000	-
\$0.48	November 5, 2023	100,000	100,000	-
\$0.335	May 5, 2024	150,000	-	150,000
\$0.27	October 1, 2024	2,750,000	-	2,750,000
\$0.29	December 6, 2024	300,000	-	300,000
\$0.20	December 20, 2024	100,000	-	100,000
\$0.12	April 3, 2025	1,500,000	-	1,500,000
\$0.255	May 24, 2025	500,000	-	500,000
\$0.51	September 24, 2025	9,000,000	-	9,000,000
\$0.58	October 19, 2025	100,000	-	100,000
\$0.50	February 11, 2026	200,000	-	200,000
\$0.40	August 13, 2026	200,000	-	200,000
\$0.31	September 29, 2026	9,550,000	-	9,550,000
		<b>25,170,000</b>	<b>820,000</b>	<b>24,350,000</b>
Weighted average exercise price		\$0.36	\$0.21	\$0.37
Weighted average remaining life in years		2.57		1.89

The weighted average fair value of stock options expired was \$0.12 (2023 - \$0.29).

#### (c) Compensation Options

Compensation options outstanding and exercisable as at January 31, 2024 were:

Exercise Price	Expiry Date	Balance		Balance January 31, 2024
		April 30, 2023	Expired	
\$0.50	June 16, 2023	1,260,000	1,260,000	-
\$0.20	August 14, 2023	2,130,418	2,130,418	-
		<b>3,390,418</b>	<b>3,390,418</b>	<b>-</b>
Weighted average exercise price		\$0.31	\$0.31	-
Weighted average remaining life in years		0.23		-

The weighted average fair value of compensation options expired was \$0.30 (2023 - \$nil).

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

### 7. Share Capital, continued

#### (d) Fair Value Determination

The weighted average fair value of stock options granted was \$nil (2023 - \$0.12). Fair values were estimated using the Black-Scholes option pricing model with the following weighted average assumptions:

	2023
	Options
Risk-free interest rate	2.85%
Expected share price volatility	81.14%
Expected life (years)	2.35
Expected dividend yield	0.00%

The expected volatility assumptions have been developed taking into consideration the historical volatility of the Company's share price. The total calculated fair value of share-based payments recognized was as follows:

	Three months ended		Nine months ended	
	January 31,	January 31,	January 31,	January 31,
	2024	2023	2024	2023
Consolidated Statements of Comprehensive Loss				
Consultants	\$ -	\$ -	\$ -	\$ 98,730
Total	\$ -	\$ -	\$ -	\$ 98,730

### 8. Supplemental Cash Flow Information

	2024	2023
Cash items		
Interest received	\$ 103,102	\$ 118,290
Non-cash items		
Financing and Investing Activities		
Fair value of options expired	\$ 97,372	\$ -
Fair value of warrants expired	\$ 678,844	\$ -
Fair value of compensation options expired	\$ 1,009,944	\$ -

## **Southern Silver Exploration Corp.**

(An Exploration Stage Company)

Notes to the Condensed Consolidated Interim Financial Statements

Nine Months Ended January 31, 2024 and 2023

(Expressed in Canadian Dollars, Unaudited)

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### **9. Segmented Information**

The Company conducts its business as a single operating segment, being the acquisition and exploration of mineral properties. As at January 31, 2024, the Company's non-current assets were located in Mexico (\$33,433,111 (April 30, 2023 - \$33,406,413)) and in the United States of America (\$1,207,805 (April 30, 2023 - \$959,743)).

### **10. Events After the Reporting Period**

No other significant events occurred subsequent to January 31, 2024.



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**Management's Discussion and Analysis  
For the Nine Months Ended January 31, 2024  
Dated: March 25, 2024**

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# Southern Silver Exploration Corp.

(An Exploration Stage Company)

Management's Discussion and Analysis

For the Nine Months Ended January 31, 2024

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## A. Introduction

The following Management's Discussion and Analysis ("MD&A") of the consolidated operating results and financial condition of Southern Silver Exploration Corp. (the "Company") is for the nine months ended January 31, 2024 and is dated March 25, 2024. This MD&A was prepared to conform to National Instrument ("NI") 51-102F1 and was approved by the Board of Directors prior to its release.

This analysis should be read in conjunction with the Company's unaudited condensed consolidated interim financial statements for the three and nine months ended January 31, 2024, and the Company's audited consolidated financial statements for the years ended April 30, 2023 and 2022, and the accompanying notes, which have been prepared in accordance with International Financial Reporting Standards ("IFRS").

The Company's shares trade on the TSX Venture Exchange ("SSV"), the OTCQX Best Market ("SSVFF") and the Santiago Stock Exchange, Venture ("SSVCL").

The Company's functional and reporting currency is the Canadian dollar and all dollar amounts included herein are in Canadian dollars, unless otherwise indicated.

Additional information relating to the Company is available at [www.southernsilverexploration.com](http://www.southernsilverexploration.com) and on SEDAR+ at <https://www.sedarplus.ca/>.

## B. Qualified Person

Robert W. J. Macdonald, P. Geo., is the qualified person as defined by National Instrument 43-101 responsible for the technical information included in this MD&A and the supervision of work done in association with the exploration and development programs. Mr. Macdonald graduated with a B.Sc. degree from Memorial University of Newfoundland and a M.Sc. from the University of British Columbia. His work has focused on vein and intrusive-related gold systems and massive sulphide deposits.

## C. Foreign Exchange Information and Conversion Tables

For ease of reference, the following information is provided:

Canadian Dollars per US Dollar Nine Months Ended January 31			Conversion Table		
	2024	2023	Imperial		Metric
Rate at end of period	1.3388	1.3335	1 acre	=	0.404686 hectares
Average rate for period	1.3483	1.3219	1 foot	=	0.304800 meters
			1 mile	=	1.609344 kilometres
			1 ton	=	0.907185 tonnes
			1 Ounce (troy)/ton	=	34.285700 g/t

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Management's Discussion and Analysis

For the Nine Months Ended January 31, 2024

### C. Foreign Exchange Information and Conversion Tables, continued

Precious metal units and conversion factors					
ppb	- Part per billion	1 ppb	=	0.0010 ppm	= 0.000030 oz/t
ppm	- Part per million	100 ppb	=	0.1000 ppm	= 0.002920 oz/t
oz	- Ounce (troy)	10,000 ppb	=	10.0000 ppm	= 0.291670 oz/t
oz/t	- Ounce per ton (avdp.)	1 ppm	=	1.0000 ug/g	= 1.000000 g/t
g	- Gram				
g/t	- gram per metric ton	1 oz/t	=	34.2857 ppm	
mg	- milligram	1 Carat	=	41.6660 mg/g	
kg	- kilogram	1 ton (avdp.)	=	907.1848 kg	
ug	- microgram	1 oz (troy)	=	31.1035 g	

### D. Summary of Mineral Properties

The Company's principal business activities include the acquisition, exploration, and development of natural resource properties for enhancement of value and disposition pursuant to sales agreements or development by way of third-party option and/or joint venture agreements.

The Company is continuing to advance its core asset - Cerro Las Minitas - a silver-lead-zinc property located in Durango State, Mexico. The property is a large land position and lies within the prolific Faja de Plata (Belt of Silver) of north central Mexico.

The Company also continues to advance (i) Oro, a gold-silver-copper-lead-zinc property located in New Mexico, USA, that features a classic porphyry zonation within the highly prospective Laramide Porphyry belt of the southern USA; (ii) Hermanas, located approximately 40km east of Oro which covers an area of epithermal quartz veining approximately 4km by 3km; and (iii) the El Sol silver-lead-zinc claim which covers the northwest projection of the Blind and El Sol zones at the Cerro Las Minitas project.

#### Cerro Las Minitas - Durango, Mexico

The property is located about 70 kilometres to the northeast of the city of Durango in Durango State, Mexico, and is accessed easily by road. The property comprises twenty-five concessions totaling approximately 27,422 hectares in one of the most significant silver-producing regions in the world.

Seven separate mineral deposits have been identified. The Blind, the El Sol and the Las Victorias deposits form sets of sub-parallel, northwest-trending and steeply dipping mineralized zones on the west side of the intrusion, which are traced for over 1,300 metres along strike and up to 600 metres in depth. A fourth deposit known as the Skarn Front, forms beneath the Blind, El Sol and Las Victorias deposits and is localized on the outer edge of the skarn alteration zone surrounding a Central Monzonite Intrusion and has been drilled along an approximate 1,100 metre strike length and to depths of up to 1,000 metres.

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Management's Discussion and Analysis

For the Nine Months Ended January 31, 2024

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### D. Summary of Mineral Properties, continued

#### Cerro Las Minitas - Durango, Mexico, continued

Similarly, the South Skarn Deposit is localized on the outer edge of the skarn alteration zone surrounding the Central Monzonite Intrusion, but on the eastern side. The deposit forms a tabular, steeply east-dipping body that has a strike length of approximately 350m and has been drilled to a depth of 500m.

The Bocona Deposit consists of several separate sub-zones – the Bocona Skarn Zone, the Muralla Zone and related hanging wall panels. The Bocona Skarn Zone is also localized on the outer edge of the skarn alteration zone surrounding the Central Monzonite Intrusion, wrapping around its Northeastern margin where it transitions into the North Felsite Deposit. The upper part of the Muralla zone is strongly oxidized and is the basis of the quoted oxide resource.

Mineralization occurs as massive-sulphide pipes, veins and replacements in sub-vertical structures that demonstrate good continuity between drill holes. Mineralization is open on-strike and at depth in a similar geological environment to that of major Mexican Carbonate Replacement Deposits (CRDs) such as Santa Eulalia (45Mt of 310g/t Ag, 7.1% Zn and 8.2% Pb) and Skarn deposits such as San Martin (60Mt of 118g/t Ag, 0.9% Pb and 3.9% Zn).

On March 22, 2023, the Company released an updated NI 43-101 mineral resource estimate for the sulphide resources on the project which, at a US\$60/t NSR cut-off, featured:

- **Indicated Mineral Resources** of 140 million ounces silver equivalent or 2.3 billion pounds zinc equivalent which includes 12.5 million tonnes averaging 106g/t Silver, 0.07g/t Gold, 0.2% Copper, 1.3% Lead and 3.3% Zinc (349g/t AgEq; 8.5% ZnEq) equaling a US\$130/t NSR value and containing: 42.7 million ounces of silver; 29 thousand ounces of gold; 46 million pounds of copper, 364 million pounds of lead; and 903 million pounds of zinc.
- **Inferred Mineral Resources** of 210 million ounces silver equivalent or 3.5 billion pounds zinc equivalent which includes 21.0 million tonnes averaging 118g/t Silver, 0.1g/t Gold, 0.2% Copper, 1.2% Lead and 2.2% Zinc (311g/t AgEq; 7.6% ZnEq) equaling a US\$123/t NSR value and containing 80.0 million ounces of silver; 85 thousand ounces of gold; 101 million pounds of copper, 571 million pounds of lead; and 1,029 million pounds of zinc.

The new Mineral Resource Estimate incorporates results from 26 additional drill holes totalling 11,801.5 metres which tested the north-western extension of the La Bocona deposit, known as the North Felsite zone. Mineralization was also identified in several holes specifically along the northern margin of the central intrusion that were not incorporated into the new resource update and, with further drilling, represent additional expansion opportunities.

A small oxide resource was identified within the upper one hundred metres of surface in the La Bocona zone. The 2021 oxide resources, as reported on October 27, 2021, at a US\$60/t cut-off are:

- An **Indicated Mineral Resource** totaling 65,000 tonnes averaging 28g/t Ag and 2.2 g/t Au equaling a US\$93/t NSR value, containing: 58,000 ounces of silver and 4,500 ounces of gold.
- An **Inferred Mineral Resource** totaling 219,000 tonnes averaging 120g/t Ag and 0.8g/t Au equaling a US\$88/t NSR value, containing: 844,000 ounces of silver and 5,600 ounces of gold.

## Southern Silver Exploration Corp.

(An Exploration Stage Company)

Management's Discussion and Analysis

For the Nine Months Ended January 31, 2024

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### D. Summary of Mineral Properties, continued

#### Cerro Las Minitas - Durango, Mexico, continued

The updated Mineral Resource Estimate increases the size of the resource on a tonnage and silver-equivalency basis making it one of the largest and higher-grade undeveloped silver-based deposits in the world and, significantly, the property is not burdened with royalties, presenting potential financing opportunities for additional work on the property.

Since starting exploration on the project in 2011, the Company has completed, inclusive of the current drill program, 226 drill holes totaling over 97,384 metres. Mineralization remains open at depth, particularly on the eastern side of the Cerro which with further exploration can continue to add high margin mineralization early in the production scenario.

On August 29, 2022 the Company reported on results from its **Preliminary Economic Assessment** ("PEA"). The PEA is based on the October, 2021 Mineral Resource Estimate on the project and did not consider the oxide resource. Highlights include:

- **Robust Project Economics - Base Case:** after-tax NPV5% of US\$349M and IRR of 17.9% (using Ag- \$21.95/oz, Cu – \$3.78/lb, Pb – \$0.94/lb and Zn - \$1.33/lb);
- **Excellent Silver and Zinc Price Leverage - Base-case +15%:** after-tax NPV5% of US\$561M and IRR of 24.4% (Ag- \$25.24/oz, Cu – \$4.35/lb, Pb – \$1.08/lb and Zn - \$1.53/lb);
- **A Large-Scale Underground Mining Operation** with a **15-year mine life** with an annual average plant feed of **14.2 Mozs AgEq** (inc. 5.8 Mozs Ag) at an **AISC of \$13.27/oz AgEq sold**; and
- **A High-Revenue Project:** Base Case gross revenues total **US\$3.7B** with silver representing 42% of revenues, zinc representing 39% of revenues. The project has an **Initial Capital Expenditure of US\$341M** and an NPV-to-CapEx ratio of 1.0X.

The results of the PEA mark a significant milestone in the development of the property. Work on project economics continues with a focus on adding value early in the production timeline for maximum economic benefit. This includes: the scheduling of the recently added mineral resources, approximately 1.5 million tonnes, into the economic modelling; further engineering upgrades to the project design; a detailed review of the capital expenditures; and pre-concentration to improve the project economics.

*The PEA is preliminary in nature, it may include mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized. Mineral resources that are not mineral reserves have not demonstrated economic viability. The mineral resources may be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic, and other factors.*



## **Southern Silver Exploration Corp.**

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For the Nine Months Ended January 31, 2024

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### **D. Summary of Mineral Properties, continued**

#### **Cerro Las Minitas - Durango, Mexico, continued**

Metallurgical test work on representative composites from the Cerro Las Minitas mineral deposits was conducted by Blue Coast Research of Parksville, BC which visited the project in October 2017 to supervise the selection of samples for use in the study. Representative samples of the Blind – El Sol oxides and sulphides as well as the Skarn Front sulphides were collected from drill core and combined into three distinct composites to represent the three different styles of mineralization currently identified on the project.

Batch test work generated high-grade lead and zinc concentrates from the Blind-El Sol deposits, but produced a diluted zinc concentrate from test work on the Skarn Front deposit. Further batch test work successfully optimized the flotation sequence, upgraded the zinc concentrate by removing the chalcopyrite and created a separate copper concentrate.

In mid-2019, the Company collected additional sample material from the Skarn Front zone including +200kg of sample for lock-cycle testing on a master composite and variability testing on seven additional smaller sub-sets of the Skarn Front mineralization. The locked-cycle test work, as reported in January 2020, was based on the open circuit flowsheet established in the earlier batch test work. Results from the locked-cycle test were combined with copper cleaner test work to create an overall metallurgical projection for the Skarn Front composite as follows:

- 83.6% Pb and 77.3% Ag into the lead concentrate assaying 65.1% Pb and 5,504g/t Ag respectively after three stages of cleaning; and
- 94.7% Zn and 8.0% Ag into the zinc concentrate assaying 54.0% Zn and 92g/t Ag respectively after three stages of cleaning; and
- 60.2% Cu and 6.5% Ag into the copper concentrate assaying 27.0% Cu and 1,255g/t Ag respectively after three stages of cleaning;

These latest test results complement previously reported recoveries from the Blind – El Sol sulphide composite which recovered:

- 82% Ag, 90% Pb and 4% Zn into a lead concentrate assaying 2,880ppm Ag, 68% Pb and 2% Zn; and
- 78% Zn into a zinc concentrate assaying 52% Zn.

The combined results from the Blind – El Sol and the Skarn Front deposits provide very favorable recoveries and grades of silver, lead and zinc which form the initial basis for a metallurgical processing flowsheet which in turn, can be used in the further evaluation and scoping of the project. Variability test work on Skarn Front deposit confirmed that the Cu-Pb-Zn flotation circuit accommodates large swings in both overall grade and sulphide content and can effectively handle head grades ~6x higher than average using only reagent dosage control.

## **Southern Silver Exploration Corp.**

(An Exploration Stage Company)

Management's Discussion and Analysis

For the Nine Months Ended January 31, 2024

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### **D. Summary of Mineral Properties, continued**

#### **Cerro Las Minitas - Durango, Mexico, continued**

Earlier work on the CLM project did not consider the potential contribution of gold in the financial modelling mainly due to low gold grades in the Skarn Front mineralization which made up the majority of the mineral resources on the project at that time. The identification of new, more gold-enriched mineral resources represented untapped value to be assessed. In Q2 2023, the Company initiated a metallurgical test program to understand gold deportment in both the sulphide and oxide resources. Metallurgical scoping tests confirmed the technical feasibility of recovering both free cyanide-leachable gold and refractory gold from pyritic material through a process of fine grinding and hot atmospheric pressure oxidation followed by cyanide leaching.

Both sulphide and oxide composites were tested as part of the metallurgical program. Mass balance reconciliations on the sulphide composite test work indicate that 50% of the total gold is recoverable by hot atmospheric pressure oxidation prior to cyanide leaching at an overall 83.9% recovery. An additional 21.5% of gold is recovered into a copper concentrate at payable grades for a total of 71.5% recovery of gold. The oxide composite was treated with standard cyanide-leach over a 48-hour period at increasingly finer grinds. Leach extraction successfully returned 70.2% recovery at a p80 of 75 microns grain size; 74.0% recovery at p80 of 53 microns; and 75.1% recovery at a p80 of 38 microns.

The results are significant as it allows the incorporation of +70% recoveries of gold from both oxide and sulphide mineralization new gold revenues in future economic modelling of the CLM Project. Of the three commercially proven oxidation techniques, the atmospheric leach has demonstrated what is likely the most cost-effective gold extraction technique which can be easily incorporated into future financial modelling of the project.

**Southern Silver Exploration Corp.**  
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Management's Discussion and Analysis  
For the Nine Months Ended January 31, 2024

**D. Summary of Mineral Properties, continued**

**Cerro Las Minitas - Durango, Mexico, continued**

**Table 1: Base-case Sulphide Mineral Resource Estimate for CLM Project Utilizing a US\$60/t NSR cut-off value as of March 22, 2023:**

Indicated Resources		Average Grade							
Zone	Tonnes (Kt)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Cu (%)	AgEq (g/t)	ZnEq (%)	NSR (US\$/t)
Blind Zone	2,347	97	0.04	1.9	2.1	0.11	295	7.2	108
El Sol Zone	1,154	80	0.04	2.2	2.0	0.09	279	6.8	100
Skarn Front Zone	7,254	108	0.06	0.8	4.2	0.19	383	9.3	140
Bocona Zone	1,755	130	0.18	2.2	1.7	0.21	326	7.9	136
<b>Total</b>	<b>12,510</b>	<b>106</b>	<b>0.07</b>	<b>1.3</b>	<b>3.3</b>	<b>0.17</b>	<b>349</b>	<b>8.5</b>	<b>130</b>

Inferred Resources		Average Grade							
Zone	Tonnes (Kt)	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Cu (%)	AgEq (g/t)	ZnEq (%)	NSR (US\$/t)
Blind Zone	1,347	83	0.14	1.4	1.8	0.06	248	6.0	88
El Sol Zone	863	65	0.03	1.8	2.3	0.05	263	6.4	90
Las Victorias Zone	1,083	148	0.66	2.1	2.6	0.14	431	10.5	145
Skarn Front Zone	11,466	115	0.05	0.7	2.7	0.32	318	7.7	126
South Skarn Zone	3,789	140	0.18	2.0	1.3	0.09	309	7.5	130
Bocona Zone	2,481	125	0.17	1.8	1.3	0.13	285	6.9	120
<b>Total</b>	<b>21,030</b>	<b>118</b>	<b>0.12</b>	<b>1.2</b>	<b>2.2</b>	<b>0.22</b>	<b>311</b>	<b>7.6</b>	<b>123</b>

Indicated Resources		Contained Metal								
Zone	Tonnes (Kt)	Ag (000's)	TrOz (000's)	u TrO: (Mlbs)	Pb (Mlbs)	Zn (Mlbs)	Cu Lbs (Mlbs)	AgEq (000's)	TrOz (Mlbs)	ZnEq Lbs (Mlbs)
Blind Zone	2,347	7,350	3	99	109	5.5	22,291	371		
El Sol Zone	1,154	2,956	2	55	51	2.2	10,337	172		
Skarn Front Zone	7,254	25,106	14	126	678	30.7	89,421	1,490		
Bocona Zone	1,755	7,331	10	84	65	8.0	18,406	307		
<b>Total</b>	<b>12,510</b>	<b>42,742</b>	<b>29</b>	<b>364</b>	<b>903</b>	<b>46</b>	<b>140,455</b>	<b>2,341</b>		

Inferred Resources		Contained Metal								
Zone	Tonnes (Kt)	Ag (000's)	TrOz (000's)	u TrO: (Mlbs)	Pb (Mlbs)	Zn (Mlbs)	Cu Lbs (Mlbs)	AgEq (000's)	TrOz (Mlbs)	ZnEq Lbs (Mlbs)
Blind Zone	1,347	3,582	6	40	55	2	10,749	179		
El Sol Zone	863	1,816	1	35	43	1	7,283	121		
Las Victorias Zone	1,083	5,152	23	51	62	3	15,006	250		
Skarn Front Zone	11,466	42,462	18	177	687	80	117,065	1,951		
South Skarn Zone	3,789	17,007	22	167	112	7	37,660	628		
Bocona Zone	2,481	9,977	14	100	71	7	22,702	378		
<b>Total</b>	<b>21,030</b>	<b>79,997</b>	<b>85</b>	<b>571</b>	<b>1,029</b>	<b>101</b>	<b>210,464</b>	<b>3,507</b>		

**D. Summary of Mineral Properties, continued**

**Cerro Las Minitas - Durango, Mexico, continued**

- 1) The current Resource Estimate was prepared by Garth Kirkham, P.Geo., of Kirkham Geosystems Ltd.
- 2) All mineral resources have been estimated in accordance with Canadian Institute of Mining and Metallurgy and Petroleum (“CIM”) definitions, as required under National Instrument 43-101 (“NI43-101”).
- 3) Mineral resources were constrained using continuous mining units demonstrating reasonable prospects of eventual economic extraction.
- 4) Silver Equivalents were calculated from the interpolated block values using relative recoveries and prices between the component metals and silver to determine a final AgEq value. The same methodology was used to calculate the ZnEq value.
- 5) Silver Equivalents and NSR\$/t values were calculated using average long-term prices of \$20/oz. silver, \$1,650/oz. gold, \$3.25/lb. copper, \$1.0/lb. lead, and \$1.20/lb. zinc. Metal recoveries, payables and deductions are reported in Table 1. All prices are stated in \$USD.
- 6) Mineral resources are not mineral reserves until they have demonstrated economic viability. Mineral resource estimates do not account for a resource’s mineability, selectivity, mining loss, or dilution.
- 7) An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
- 8) All figures are rounded to reflect the relative accuracy of the estimate and therefore numbers may not appear to add precisely.

**Table 2: Base-case Oxide Mineral Resource Estimate for CLM Project Utilizing a US\$60/t NSR cut-off value:**

La Bocona	Tonnes (kt)	Average Grade			Contained Metal	
		Ag (g/t)	Au (g/t)	NSR (US\$/t)	Ag TrOz (koz)	Au TrOz (koz)
Indicated	65	28	2.2	93	58	4.5
Inferred	219	120	0.8	88	844	5.6

*The \$60/t NSR cut-off value was calculated using average long-term prices of \$20/oz. silver, \$1,650/oz. gold. Base metals were not recovered in the leach circuit. Metallurgical work from batch test work recovered 74% silver from oxidized composites from the Blind – El Sol zones. Gold recovery was not assessed and is estimated at 70% for the purposes of this report. This work, along with marketing studies, were used to decide the NSR cut-off value. All prices are stated in \$USD.*

**El Sol - Durango, Mexico**

The El Sol concession is a single 63 hectare claim strategically located on the northwestern boundary of the Bocona block of claims and is adjacent to the Area of the Cerro which hosts the seven mineral deposits currently identified within the Cerro Las Minitas claim package. It covers an important northwest projection of the Blind-El Sol deposits and potentially at least one additional mineralized structure.

The claim is largely gravel covered with previous work including airborne magnetic geophysics; surface soil and acacia sampling; limited dump sampling of historic artisanal workings and a single core hole in the southeastern end of the property.

Select dump sampling of artisanal workings located to the northeast of the Blind Zone structure returned anomalous values from several strongly oxidized and silicified rocks including sample CLM-316 which returned 0.67g/t Au, 559g/t Ag, 3.3% Pb and 4.3% Zn. These workings do not appear to be related to the Blind Zone mineralization and represent a second potential high-grade target for priority follow-up.

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### **D. Summary of Mineral Properties, continued**

#### **El Sol - Durango, Mexico, continued**

Five core holes were completed in late 2021 and a further three holes in 2022 to test a series of targets defined by earlier surface mapping, rock and soil sampling and proximity to artisanal workings. Drill hole 21SOL-003 returned:

- a 0.8 metre interval grading 1,760g/t Ag, 0.9g/t Au, 23.6% Pb and 1.2% Zn (2,622g/t AgEq) within a 3.5 metre interval averaging 549g/t Ag, 0.3g/t Au, 8.6% Pb and 3.6% Zn (982g/t AgEq) from drill hole 21SOL-003.

The highlight interval intersected down-dip of historic workings located on a northeast-southwest trending structure which has been traced on surface for up to 300 metres laterally before plunging under gravel cover. Work continues on the project to identify additional drill targets on the claim.

#### **Oro - New Mexico, USA**

The Oro property consists of a contiguous block of Federal, State, and private land in the historic Eureka mining district in Grant County, New Mexico and is located approximately 80 kilometres southwest of the Silver City porphyry copper district. The claims surround a highly prospective zone of quartz-sericite-pyrite alteration, interpreted to overlie a series of unexposed porphyry centres. Classic porphyry system zonation is indicated by surface gold and copper mineralization associated with Laramide-age intrusions in this core area, flanked by lead-zinc skarn mineralization and distal sediment-hosted gold occurrences. In addition to bulk-tonnage porphyry copper-molybdenum-gold potential, the property also includes sediment-hosted gold mineralization at the Stockpond target located 3 kilometres to the northeast of the porphyry system and a recently staked, potentially similar, target identified by soil sampling beneath shallow gravel cover to the south of Stockpond.

In October 2017, the company completed the second phase of a 17-hole reverse circulation (RC) drill program on the Stockpond gold target, which intersected thick horizons of strongly silicified and hematite-rich sediments in eight of nine holes drilled, with the higher gold grades spatially associated with zones of strong silicification. The strongest values were obtained in hole SP16-004, which intersected a 41.2 metre interval of 0.42g/t Au (including a 9.1 metre interval of 0.75g/t Au). Offset drilling from this hole returned a 53.3 metre interval averaging 0.24g/t Au from drill hole SP17011 and a 39-metre interval averaging 0.17g/t Au from drill hole SP17-010. Historic gravity data indicates shallow gravel cover exists to the south of Stockpond where attractive host-rocks project into an area with a broad ZTEM anomaly and anomalous values of gold in soil samples. Two drill sites are being permitted to test this area of shallow gravel cover.

The Company previously completed a 300 line-kilometre airborne Z-TEM survey over the entire property at 200-metre line spacing as part of a larger evaluation of the property to identify new targets for drill testing Cu-Mo porphyry and skarn potential. Several potential high-quality Cu-Au porphyry and skarn targets were identified, and six initial sites were permitted for drilling.

A 4,050-metre core hole program was conducted on the property between February and November 2022. Three of the holes focused on a porphyry target and intersected copper porphyry-style alteration and metal zoning, but with sub-economic concentrations of copper.

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### **D. Summary of Mineral Properties, continued**

#### **Oro, New Mexico, USA, continued**

One hole, OR22-012, tested part of a strong ZTEM geophysical anomaly in an area believed to be relatively high in the metal system, and where Cretaceous-age carbonate host rocks were expected to lie at relatively shallow depths beneath Laramide-age andesite volcanic rocks. The hole intersected veins with strongly anomalous gold (12.4 g/t Au over 0.8 metres at 495.7 metres depth) in a banded anhydrite+pyrite+calcite breccia vein and, deeper in the hole, intersected anomalous silver and lead (908 g/t Ag and 10.4% Pb over 0.2 metres at 594.6 metres depth) in a barite+galena vein, consistent with expected metal zoning. Favourable carbonate host rocks were intersected with abundant sulfide minerals below a 6-metre-thick massive anhydrite vein at roughly 590-metres depth. The 427.2-metres interval from 578.6 to 1,005.8 metres averages 0.15% CuEq (0.08% Cu, 0.01% Mo, and 1.4g/t Ag), with variable mineralization continuing to the end of the hole at 1,006 metres depth. The strongest mineralization is 9.1 metres of 0.59% Cu, 0.01% Mo, 0.3 g/t Au, and 2.3g/t Ag (0.92% CuEq) from 834.5 to 843.7 metres in a carbonate replacement zone with abundant magnetite, specular hematite, and epidote with minor pyrite, calcite, and anhydrite. Dikes ranging from unaltered to strongly altered are common throughout the hole.

Hole OR22-012 only tested a portion of the strong ZTEM anomaly in the area leaving a significant strike-length and width of the anomaly remaining for further drill testing. Additional Federal lode claims were staked to cover the possible extensions of the copper-rich skarn/CRD mineralization intersected in OR22-012 as well as other newly identified targets.

In November 2023 the Company verified strong Rare Earth Element (REEs) enrichment in reconnaissance hole OR22-012. Thirty-nine pulps were selected from three enriched Light Rare Earth Element (LREE) zones for re-analyses by a more robust analytical method of fusion/ICPMS to confirm the initial test results and returned:

- **0.104% TREO\* (1,045 ppm) over 10.9m starting at 613.9m,**
- **0.091% TREO\* (913 ppm) over 33.8m starting at 647.4m, and**
- **0.128% TREO\* (1,285 ppm) over 24.4m starting at 794.0m.**

*\* Total Rare Earth Oxides*

The three zones occur in a broad 427.7 metre Cu-enriched mineralized zone averaging 0.15% CuEq (0.08% Cu, 0.01% Mo and 1.4g/t Ag starting at 578m downhole). These results are initially encouraging, and further geological and metallurgical work is required to establish any specific relationship to copper mineralization on the property and if there is potential for byproduct REEs at the property.

#### **Hermanas - New Mexico, USA**

The Hermanas project consists of 83 lode claims on Federal land. The claims are located approximately 40km east of the Oro property.

The vendors collected 151 surface samples, with seven samples containing +4ppm Au (maximum 30.1ppm Au) and 22 samples containing +30ppm Ag (maximum 4,790ppm Ag).

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**D. Summary of Mineral Properties, continued**

**Hermanas - New Mexico, USA, continued**

Verification sampling by the company contain anomalous gold and silver in seven of nine samples collected, including a sample from a small historic mine dump that assayed 6.7ppm Au & 150ppm Ag and a sample of outcropping banded quartz + carbonate vein that assayed 4.6ppm Au & 56ppm Ag. Detailed geologic mapping and additional sampling were conducted. In addition, historic drilling data and airborne geophysical data were identified and acquired.

Drill targets have been identified and permitting has been submitted for a planned drill program.

**Acquisition Costs**

Mineral property acquisition costs as at January 31, 2024 were:

	<b>Cerro Las Minitas</b>	<b>El Sol</b>	<b>Oro</b>	<b>Hermanas</b>	<b>Total</b>
	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
Balance as at April 30, 2022	32,974,699	384,610	551,740	58,342	33,969,391
Additions, net	47,104	-	166,007	38,072	251,183
Balance as at April 30, 2023	33,021,803	384,610	717,747	96,414	34,220,574
Additions, net	26,698	-	205,123	45,765	277,586
<b>Balance as at January 31, 2024</b>	<b>33,048,501</b>	<b>384,610</b>	<b>922,870</b>	<b>142,179</b>	<b>34,498,160</b>

**Exploration and Evaluation Expenditures**

Exploration and evaluation expenditures for the nine months ended January 31, 2024 and 2023 were:

	<b>Cerro Las Minitas</b>		<b>El Sol</b>		<b>Oro</b>		<b>Hermanas</b>		<b>Total</b>	
	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>
	<b>2024</b>	<b>2023</b>	<b>2024</b>	<b>2023</b>	<b>2024</b>	<b>2023</b>	<b>2024</b>	<b>2023</b>	<b>2024</b>	<b>2023</b>
Assays and geochemistry	48,803	189,725	-	-	28,422	158,246	-	23	77,225	347,994
Camp, utilities and supplies	205,285	140,390	-	-	5,297	18,273	-	-	210,582	158,663
Claim taxes	233,548	179,646	2,201	1,655	-	-	-	-	235,749	181,301
Drilling	-	427,618	-	-	-	1,991,450	-	-	-	2,419,068
Geological and geophysics	617,125	342,875	-	-	58,020	205,477	12,220	7,246	687,365	555,598
Project supervision	426,325	382,291	100	675	22,469	23,694	937	-	449,831	406,660
Travel	2,316	4,234	-	-	11,602	119,580	2,655	313	16,573	124,127
IVA	61,122	126,512	-	-	-	-	-	-	61,122	126,512
Other	5,616	7,611	-	-	1,352	3,476	1,346	-	8,314	11,087
	<b>1,600,140</b>	<b>1,800,902</b>	<b>2,301</b>	<b>2,330</b>	<b>127,162</b>	<b>2,520,196</b>	<b>17,158</b>	<b>7,582</b>	<b>1,746,761</b>	<b>4,331,010</b>

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**E. Results of Operations**

The Company incurred a net loss for the nine months ended January 31, 2024 of \$2,638,771 (2023 – \$5,531,521). A summary of variances is as follows:

	2023	2022	Variance
	\$	\$	\$
Administration	45,000	35,000	10,000
Consulting	195,491	271,644	(76,153)
Exploration and evaluation	1,746,761	4,331,010	(2,584,249)
Investor relations	331,344	436,085	(104,741)
Office and general	56,624	61,278	(4,654)
Professional fees	256,942	296,717	(39,775)
Regulatory fees and taxes	39,802	27,642	12,160
Share-based payments	-	98,730	(98,730)
Shareholders' communications	12,292	17,036	(4,744)
Transfer agent	35,310	25,529	9,781
Foreign exchange loss (gain)	22,307	49,228	(26,921)
Other income	(103,102)	(118,378)	15,276

As per its mandate to acquire, explore, and develop mineral resource properties, the Company continued towards an updated PEA on Cerro Las Minitas and preparations for further drilling at Oro and Hermanas (*D - Summary of Mineral Properties*).

Administration costs increased because of a credit received in the prior period. Consulting costs decreased because of certain contracts expiring. Investor relations were higher in the comparative period as a result of increased promotional and related initiatives in Europe. Professional fees in the prior period included an amount for an investment banking fee not repeated in the current period and increased legal costs incurred in the current period relative to appeals in place with respect to changes in mining laws in Mexico. Other overhead costs fluctuate as relevant activities are undertaken.

Non-cash share-based payments expense fluctuates as stock options are granted and vest. A number of stock options were granted in the prior period not repeated in the current period. Foreign exchange gains and losses fluctuate based on the US and Canadian dollar exchange rate and the extent of transactions and balances denominated in US dollars. Other income recognized mainly relates to interest income earned on cash reserves.

**F. Summary of Quarterly Results**

The following financial data was derived from the Company's consolidated financial statements for the eight previous quarters:



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### F. Summary of Quarterly Results, continued

	Jan 31, 2024	Oct 31, 2023	July 31, 2023	Apr 30, 2023	Jan 31, 2023	Oct 31, 2022	July 31, 2022	Apr 30, 2022
	\$	\$	\$	\$	\$	\$	\$	\$
Net loss	1,075,072	708,598	855,101	794,709	1,113,963	2,119,165	2,298,393	1,976,922
Basic loss per share	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.01	\$ 0.01	\$ 0.01

*The aggregate sum of the quarterly amounts per share may not equal the year-to-date per share amounts due to rounding in the calculations.*

The Company earned no revenue due to the nature of current operations.

Quarterly fluctuations mainly relate to mineral property exploration expenses which occur as projects are identified, as exploration activities increase or decrease, or impairments which occur when indicators arise, recognition of share-based payments which occur as stock options are granted and vest and foreign exchange gains and losses which vary with market rates. Significant share-based payments expense was recognized in the three months ended July 31, 2022.

### G. Related Party Transactions

Except as disclosed elsewhere, the Company entered into the following related party transactions:

(a) Pursuant to a service agreement between the Company and Manex Resource Group Inc., a company indirectly controlled by Killian Ruby, an officer of the Company, effective April 1, 2023, the Company was charged as follows:

- \$45,000 (2023 - \$nil) for office space and general administration services;
- \$15,235 (2023 - \$nil) for professional services;
- \$15,960 (2023 - \$nil) for Chief Financial Officer services;
- \$10,991 (2023 - \$nil) for consulting services;
- \$92,700 (2023 - \$nil) for corporate development services;
- \$73,352 (2023 - \$nil) for geological services; and
- \$3,694 (2023 - \$nil) for the mark-up on out-of-pocket expenses.

Amounts payable as at January 31, 2024 were \$27,412 (April 30, 2023 - \$22,768).

(b) Consultancy fees in the amount of \$117,000 (2022 - \$117,000) were charged by Advocate Services Limited, a company controlled by Lawrence Page, a director and officer of the Company. Amounts payable as at January 31, 2024 were \$nil (April 30, 2023 - \$13,650).

(c) Consultancy fees in the amount of \$45,000 (2022 - \$45,000) were charged by Rob Macdonald, an officer of the Company, and were included in consulting fees or mineral property expenditures as applicable. Amounts payable as at January 31, 2024 were \$nil (April 30, 2023 - \$5,250).

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### G. Related Party Transactions, continued

- (d) Consultancy fees in the amount of \$45,000 (2022 - \$45,000) were charged by QDBS Resources Inc., a company controlled by Russell Ball, a director of the Company. Amounts payable as at January 31, 2024 were \$15,750 (April 30, 2023 - \$nil).
- (e) Consultancy fees in the amount of \$nil (2022 - \$22,500) were charged by Graham Thatcher, a former officer of the Company.
- (f) Consultancy fees in the amount of \$6,000 (2022 - \$nil) were charged by John Oness, an officer of the Company. Amounts payable as at January 31, 2024 were \$1,575 (April 30, 2023 - \$nil).
- (g) Legal fees in the amount of \$14,580 (2022 - \$14,499) were charged by Page Law Corporation, a company controlled by Arie Page, an officer of the Company, and included in professional fees, share issue costs, or mineral property expenditures. Amounts payable as at January 31, 2024 were \$3,136 (April 30, 2023 - \$2,486).

These transactions were in the normal course of operations. Amounts due to related parties are unsecured, non-interest-bearing, and have no formal terms of repayment. The Company has no long-term employee or post-employment benefits. Key management personnel of the Company are identified in (a) to (f) above and compensation awarded was:

	2024	2023
Short-term benefits	\$ 228,960	\$ 229,500
Total	\$ 228,960	\$ 229,500

One executive officer is entitled to termination benefits in the event of a change of control equal to thirty-six months' compensation. Upon a change of control, and assuming the triggering event took place on the period-end date, the payment would have been \$468,000.

### H. Financial Condition, Liquidity and Capital Resources

As at January 31, 2024, the Company had working capital of \$1,440,750. During the nine months ended January 31, 2024, the Company utilized cash for operating activities of \$2,688,807 and for investing activities of \$277,586.

The Company does not yet generate any revenue from operations and, for the foreseeable future, will need to rely upon earn-in agreements and / or issue share capital to finance future exploration and administrative activities. Although the Company has been successful in its financing initiatives, there can be no assurance that the Company will be able to obtain adequate future financing. Failure to obtain such additional financing could result in delay or indefinite postponement of further exploration and development of its projects with a possible loss of some properties and reduction or termination of operations.

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**I. Outstanding Equity and Convertible Securities**

**i) Issued and Outstanding Shares**

As of March 25, 2024, the Company had 291,546,757 common shares issued and outstanding.

**ii) Stock Options**

Stock options outstanding and exercisable as at March 25, 2024 were:

Exercise Price	Expiry Date	Balance January 31, 2024	Balance March 25, 2024
\$0.335	May 5, 2024	150,000	150,000
\$0.27	October 1, 2024	2,750,000	2,750,000
\$0.29	December 6, 2024	300,000	300,000
\$0.20	December 20, 2024	100,000	100,000
\$0.12	April 3, 2025	1,500,000	1,500,000
\$0.255	May 24, 2025	500,000	500,000
\$0.51	September 24, 2025	9,000,000	9,000,000
\$0.58	October 19, 2025	100,000	100,000
\$0.50	February 11, 2026	200,000	200,000
\$0.40	August 13, 2026	200,000	200,000
\$0.31	September 29, 2026	9,550,000	9,550,000
		<b>24,350,000</b>	<b>24,350,000</b>
Weighted average exercise price		\$0.37	\$0.37
Weighted average remaining life in years		1.89	1.74

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**I. Outstanding Equity and Convertible Securities, continued**

**iii) Share Purchase Warrants**

Share purchase warrants outstanding as at March 25, 2024 were:

Exercise Price	Expiry Date	Balance	Balance
		January 31, 2024	March 25, 2024
\$0.25	August 13, 2024	9,337,500	9,337,500
\$0.25	August 13, 2024	187,762	187,762
\$0.25	September 4, 2024	4,400,000	4,400,000
\$0.25	September 4, 2024	47,600	47,600
\$0.35	August 14, 2025	15,597,500	15,597,500
\$0.38	August 14, 2025	8,502,977	8,502,977
\$0.50	September 11, 2025	1,200,000	1,200,000
\$0.75	June 16, 2026	9,000,000	9,000,000
\$0.75	June 21, 2026	3,000,000	3,000,000
		<b>51,273,339</b>	<b>51,273,339</b>
Weighted average exercise price		\$0.42	\$0.42
Weighted average remaining life in years		1.47	1.32

**J. Financial Instruments**

The Company's financial instruments include cash and cash equivalents, other receivables, reclamation bonds, accounts payable and accrued liabilities and amounts due to related parties. The Company has classified its financial instruments into the following categories:

Financial Instrument	Category	Carrying Value
Cash and Cash Equivalents	Financial Asset	Amortized Cost
Other Receivables	Loans and Receivables	Amortized Cost
Reclamation Bonds	Financial Asset	Amortized Cost
Accounts Payable and Accrued Liabilities	Financial Liabilities	Amortized Cost
Due to Related Parties	Financial Liabilities	Amortized Cost

The carrying values of all the above financial instruments approximate their fair values due to the short period to maturity. The main risks these financial instruments are exposed to are credit risk and foreign currency risk with respect to assets and liabilities denominated in US dollars and Mexican Pesos. The Company's risk management policies require significant cash deposits, or any short-term investments be invested with Canadian chartered banks rated BBB or better. All investments must be less than one year in duration. Based on relatively stable historical and forecast exchange rates, the Company does not manage currency risks through hedging or other currency management tools. The Company does not believe any of these risks to be material.

## **Southern Silver Exploration Corp.**

(An Exploration Stage Company)

Management's Discussion and Analysis

For the Nine Months Ended January 31, 2024

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### **K. Events After the Reporting Period and Outlook**

Other than disclosed elsewhere in this MD&A, there are no other material events subsequent to the end of the reporting period. The Company plans to continue to explore its properties and activities over the ensuing year will focus on this. The Company expects to continue its strategy of collaborating with experienced mining companies to acquire and develop other properties and to advance them to production.

### **L. Off-Balance Sheet Arrangements**

The Company does not have any off-balance sheet arrangements and does not contemplate entering into any such arrangements in the foreseeable future.

### **M. Disclosure Controls and Procedures**

The Board of Directors, through its Audit Committee, is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal control. The Audit Committee is composed of three directors, two of whom are independent, who meet at least quarterly with management, and at least annually with the external auditors, to review accounting, internal control, financial reporting, and audit matters. There have been no significant changes to the Company's internal control over financial reporting that occurred during the period that have materially affected, or are reasonably likely to materially affect the Company's internal control over financial reporting.

The Audit Committee has established procedures for complaints received regarding accounting, internal controls, or auditing matters, and for a confidential, anonymous submission procedure for employees who have concerns regarding questionable accounting or auditing matters.

The Whistleblower policy is in accordance with National Instrument 52-110 Audit Committees, National Policy 58-201 Corporate Governance Guidelines and National Instrument 58-101 Disclosure of Corporate Governance Practices.

As a venture issuer, the Company is exempt from the certification on Disclosure Controls and Procedures and Internal Control Over Financial Reporting. The Company is required to file Form 52-109FV1 for annual reporting and Form 52-109FV2 for interim reporting.

### **N. Risks and Uncertainties**

The principal business of the Company is the acquisition, exploration, and development of mineral properties. Given the nature of the mining business, the limited extent of the Company's assets and the present stage of development, the following risk factors, among others, should be considered:

*Exploration Stage Company*

The Company does not hold any known mineral reserves of any kind and does not generate any revenues from production. The Company's success will depend largely upon its ability to locate commercially productive mineral reserves.

## **Southern Silver Exploration Corp.**

(An Exploration Stage Company)

Management's Discussion and Analysis

For the Nine Months Ended January 31, 2024

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### **N. Risks and Uncertainties, continued**

Mineral exploration is highly speculative in nature, involves many risks and frequently is non-productive. There is no assurance that exploration efforts will be successful. Success in establishing reserves is a result of a number of factors, including the quality of management, the level of geological and technical expertise, and the quality of property available for exploration.

Once mineralization is discovered, it may take several years in the initial phases of drilling until production is possible, during which time the economic feasibility of production may change. Substantial expenditures are required to establish proven and probable reserves through drilling and bulk sampling, to determine the optimal metallurgical process to extract the metals from the ore and, in the case of new properties, to construct mining and processing facilities.

Because of these uncertainties, no assurance can be given that our exploration programs will result in the establishment or expansion of resources or reserves.

#### *No Operating History and Availability of Financial Resources*

The Company does not have an operating history and has no operating revenues and is unlikely to generate any significant amount in the foreseeable future. Therefore, it may not have sufficient financial resources to undertake, by itself, all of its planned exploration and administrative activities.

Historically, the Company has relied mainly upon the issuance of share capital to finance its activities. In the future, the Company will be required to rely on earn-in agreements and / or issue share capital to finance future exploration and administrative activities, which may result in dilution to existing shareholders. Furthermore, the amount of additional funds required may not be available under favorable terms, if at all.

Failure to obtain additional funding on a timely basis could result in delay or indefinite postponement of further exploration and development and could cause the Company to forfeit its interests in some or all of its properties or to reduce or discontinue its operations.

#### *Dependence on Key Personnel*

The Company is dependent on a relatively small number of key directors, officers, and senior personnel. The loss of any one of those people could have an adverse effect on the Company. The Company does not currently maintain "key-man" insurance in respect of any of its management.

#### *Price Volatility and Lack of Active Market*

Securities markets in Canada and elsewhere continue to experience a high level of price and volume volatility, and the market prices of securities of many public companies have experienced significant fluctuations in price which have not necessarily been related to the operating performance, underlying asset values or prospects of such companies. It may be anticipated that any quoted market for the Company's securities will be subject to such market trends and that the value of such securities may be affected accordingly. If an active market does not develop, the liquidity of the investment may be limited, and the market price of such securities may decline below the subscription price.

**N. Risks and Uncertainties, continued**

*Government Regulations and Environmental Risks and Hazards*

The Company conduct is subject to various federal, provincial, state laws, rules, and regulations, including environmental legislation. Environmental legislation is becoming increasingly stringent, and costs and expenses of regulatory compliance are increasing. The impact of new and future environmental legislation on the Company's operations may cause additional expenses and restrictions. If the restrictions adversely affect the scope of exploration and development on the resource property interests, the potential for production on the property may be diminished or negated.

The Company has adopted environmental practices designed to ensure that it continues to comply with environmental regulations currently applicable to it. All of the Company's activities comply in all material respects with applicable environmental legislation. Environmental hazards may exist on the Company's properties, which may have been caused by previous or existing owners or operators of the properties. The Company is not aware of any existing environmental hazards related to any of its current property interests that may result in material liability to the Company.

*Competition*

The resource industry is intensively competitive in all of its phases, and the Company competes with many other companies possessing much greater financial and technical resources. Competition is particularly intense with respect to the acquisition of desirable undeveloped properties.

The principal competitive factors in the acquisition of prospective properties include the staff and data necessary to identify and investigate such properties, and the financial resources necessary to acquire and develop the projects. Competition could adversely affect the Company's ability to acquire suitable prospects for exploration.

*Title to Property*

Although the Company has exercised the usual due diligence with respect to title to properties in which it has a material interest, there is no guarantee that title to the properties will not be challenged or impugned. The Company's mineral property interests may be subject to prior unregistered agreements or transfers, aboriginal land claims or government expropriation and title may be affected by undetected defects.

*Licenses and Permits*

The operations of the Company require licenses and permits from various government authorities. The Company believes that it holds all necessary licenses and permits under applicable laws and regulations for work in progress and believes it is presently complying in all material respects with the terms of such licenses and permits. However, such licenses and permits are subject to change in various circumstances. There can be no guarantee that the Company will be able to obtain or maintain all necessary licenses and permits that may be required to explore and develop its properties, commence construction or operation of mining facilities or to maintain continued operations that economically justify the cost.

**N. Risks and Uncertainties, continued**

*Other*

The economic uncertainties around persistent inflation pressure, geopolitical and other global factors have the potential to slow growth in the global economy. Future developments in these challenging areas could impact on the Company's results and financial condition and the full extent of that impact remains unknown.

**O. Proposed Transactions**

Other than normal course review of monthly submittals, there are no other new acquisitions or proposed transactions contemplated as at the date of this report.

**P. Forward-Looking Statements**

Some of the statements contained in this MD&A may be deemed "forward-looking statements."

These include estimates and statements that describe the Company's future plans, objectives or goals, and expectations of a stated condition or occurrence. Forward-looking statements may be identified by the use of words such as "believes", "anticipates", "expects", "estimates", "may", "could", "would", "will", or "plan". Since forward-looking statements are based on assumptions and address future events and conditions, by their very nature they involve inherent risks and uncertainties.

Actual results relating to, among other things, results of exploration, reclamation, capital costs, and the Company's financial condition and prospects, could differ materially from those currently anticipated in such statements for many reasons such as but not limited to; changes in general economic conditions and conditions in the financial markets; changes in demand and prices for the minerals the Company expects to produce; litigation, legislative, environmental and other judicial, regulatory, political and competitive developments; technological and operational difficulties encountered in connection with the Company's activities; changing foreign exchange rates and other matters discussed in this MD&A.

Readers should not place undue reliance on the Company's forward-looking statements. Further information regarding these and other factors, which may cause results to differ materially from those projected in forward-looking statements, is included in the filings by the Company with securities regulatory authorities. The Company does not assume any obligation to update or revise any forward-looking statement that may be made from time to time by the Company or on its behalf, except in accordance with applicable securities laws, whether as a result of new information, future events or otherwise.



# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #2 – Turquoise Mtn Claims.**

Valid Claims; Oro Project		Legacy BLM numbers	New BLM numbers
Item	Claim Name	BLM Serial No (NMMC#)	MLRS No (NM#)
1	Oro 1	191495	101502882
2	Oro 3	191496	101502883
3	Oro 81	191504	101502884
4	Oro 83	191506	101502885
5	Oro 85	191508	101502886
6	Oro 87	191510	101502887
7	Oro 89	191512	101502888
8	Oro 91	191514	101502889
9	Oro 101	191516	101502890
10	Oro 102	191517	101502891
11	Oro 103	191518	101502892
12	Oro 104	191519	101502893
13	Oro 105	191520	101502894
14	Oro 106	191521	101502895
15	Oro 107	191522	101502896
16	Oro 108	191523	101502897
17	Oro 109	191524	101502898
18	Oro 111	191525	101504134
19	Oro 112	191526	101504135
20	Oro 113	191527	101504136
21	Oro 114	191528	101504137
22	Oro 115	191529	101504138
23	Oro 116	191530	101504139
24	Oro 117	191531	101504140
25	Oro 119	191532	101504141
26	Oro 120	191533	101504142
27	Oro 121	191534	101504143
28	Oro 122	191535	101504144
29	Oro 123	191536	101504145
30	Oro124	191537	101504146
31	Oro 125	191538	101504147
32	Oro 126	191539	101504148
33	Oro 127	191540	101504149
34	Oro 128	191541	101504150
35	Oro 141	191542	101504151
36	Oro 142	191543	101504152
37	Oro 143	191544	101504153
38	Oro 144	191545	101504154
39	Oro 145	191546	101505353
40	Oro 146	191547	101505354
41	Oro 147	191548	101505355
42	Oro 148	191549	101505356

43	Oro 149	191550	101505357
44	Oro 150	191551	101505358
45	Oro 151	191552	101505359
46	Oro 152	191553	101505360
47	Oro 159	191560	101505361
48	Oro 160	191561	101505362
49	Oro 161	191562	101505363
50	Oro 162	191563	101505364
51	Oro 163	191564	101505365
52	Oro 164	191565	101505366
53	Oro 208	191576	101505367
54	Oro 209	191577	101505368
55	Oro 210	191578	101505369
56	Oro 211	191579	101505370
57	Oro 212	191580	101505371
58	Oro 213	191581	101505372
59	Oro 214	191582	101505373
60	Oro 216	191584	101506573
61	Oro 218	191586	101506574
62	Oro 220	191588	101506575
63	Oro 222	191590	101506576
64	Oro 224	191592	101506577
65	Oro 226	191594	101506578
66	Oro 228	191596	101506579
67	Oro 301	191608	101506580
68	Oro 302	191609	101506581
69	Oro 303	191610	101506582
70	Oro 304	191611	101506583
71	Oro 305	191612	101506584
72	Oro 306	191613	101506585
73	Oro 307	191614	101506586
74	Oro 308	191615	101506587
75	Oro 309	191616	101506588
76	Oro 310	191617	101506589
77	Oro 311	191618	101506590
78	Oro 312	191619	101507801
79	Oro 314	191621	101507802
80	Oro 316	191623	101507803
81	Oro 318	191625	101507804
82	Oro 320	191627	101507805
83	Oro 322	191629	101507806
84	Oro 324	191631	101507807
85	Oro 346	191646	101507808
86	Oro 347	191647	101507809

87	Oro 350	191649	101507810
88	Oro 351	191650	101507811
89	Oro 352	191651	101507812
90	Oro 5	198213	101846854
91	Oro 7	198214	101846855
92	Oro 9	198215	101846856
93	Oro 11	198216	101846857
94	Oro 13	198217	101846858
95	Oro 15	198218	101846859
96	Oro 17	198219	101846860
97	Oro 186	198220	101846861
98	Oro 188	198221	101846862
99	Oro 190	198222	101846863
100	Oro 202	198223	101846864
101	Oro204	198224	101846865
102	Oro 206	198225	101846866
103	Oro 225	198226	101846867
104	Oro227	198227	101846868
105	Oro229	198228	101846869
106	Oro 230	198229	101846870
107	Oro 231	198230	101846871
108	Oro 232	198231	101566699
109	Oro233	198232	101566700
110	Oro235	198233	101566701
111	Oro237	198234	101566702
112	Oro239	198235	101566703
113	Oro241	198236	101566704
114	Oro 243	198237	101566705
115	Oro 245	198238	101566706
116	Oro 251	198239	101566707
117	Oro 252	198240	101566708
118	Oro 253	198241	101566709
119	Oro 254	198242	101566710
120	Oro 255	198243	101566711
121	Oro 256	198244	101566712
122	Oro 257	198245	101566713
123	Oro 258	198246	101566714
124	Oro 323	198247	101566715
125	Oro 325	198248	101566716
126	Oro 326	198249	101566717
127	Oro 341	198250	101566718
128	Oro 342	198251	101566719
129	Oro 343	198252	101568042
130	Oro 344	198253	101568043

131	Oro 345	198254	101568044
132	Oro 353	198255	101568045
133	Oro 354	198256	101568046
134	Oro 355	198257	101568047
135	Oro 356	198258	101568048
136	Oro 357	198259	101568049
137	Oro 358	198260	101568050
138	Oro 359	198261	101568051
139	Oro 361	198262	101568052
140	Oro 362	198263	101568053
141	Oro 363	198264	101568054
142	Oro 364	198265	101568055
143	Oro 365	198266	101568056
144	Oro 6	199297	101650312
145	Oro 8	199298	101650313
146	Oro 10	199299	101650314
147	Oro 12	199300	101650315
148	Oro 14	199301	101650316
149	Oro 16	199302	101781975
150	Oro 55	199303	101781976
151	Oro 56	199304	101781977
152	Oro 57	199305	101781978
153	Oro 58	199306	101781979
154	Oro 59	199307	101781980
155	Oro 60	199308	101781981
156	Oro 61	199309	101781982
157	Oro 62	199310	101781983
158	Oro 63	199311	101781984
159	Oro 64	199312	101781985
160	Oro 65	199313	101781986
161	Oro 66	199314	101781987
162	Oro 153	199315	101781988
163	Oro 154	199316	101781989
164	Oro 155	199317	101781990
165	Oro 156	199318	101781991
166	Oro 157	199319	101781992
167	Oro 158	199320	101781993
168	Oro 165	199321	101781994
169	Oro 166	199322	101647771
170	Oro 167	199323	101647772
171	Oro 180	199324	101647773
172	Oro 181	199325	101647774
173	Oro 182	199326	101647775
174	Oro 183	199327	101647776

175	Oro 187	199328	101647777
176	Oro 189	199329	101647778
177	Oro 207	199330	101648953
178	Oro 215	199331	101648954
179	Oro 217	199332	101648955
180	Oro 219	199333	101648956
181	Oro 221	199334	101648957
182	Oro 223	199335	101648958
183	Oro 259	199336	101648959
184	Oro 260	199337	101648960
185	Oro 261	199338	101648961
186	Oro 262	199339	101648962
187	Oro 263	199340	101648963
188	Oro 264	199341	101648964
189	Oro 265	199342	101648965
190	Oro 266	199343	101648966
191	Oro 267	199344	101648967
192	Oro 268	199345	101648968
193	Oro 269	199346	101648969
194	Oro 270	199347	101648970
195	Oro 338	199348	101648971
196	Oro 340	199349	101648972
197	Oro 401	199350	101648973
198	Oro 402	199351	101650317
199	Oro 403	199352	101650318
200	Oro 404	199353	101650319
201	Oro 405	199354	101650320
202	Oro 406	199355	101650321
203	Oro 407	199356	101650322
204	Oro 408	199357	101650323
205	Oro 409	199358	101650324
206	Oro 410	199359	101650325
207	Oro 411	199360	101650326
208	Oro 412	199361	101650327
209	Oro 413	199362	101650328
210	Oro 414	199363	101650329
211	Oro 415	199364	101650330
212	Oro 416	199365	101650331
213	Oro 417	199366	101650332
214	Oro 420	199367	101650333
215	Oro 421	199368	101650334
216	Oro 422	199369	101650335
217	Oro 423	199370	101650336
218	Oro 424	199371	101650337

219	Oro 425	199372	101784495
220	Oro 426	199373	101784496
221	Oro 427	199374	101784497
222	Oro 428	199375	101784498
223	Oro 429	199376	101784499
224	Oro 430	199377	101784500
225	Oro 431	199378	101784501
226	Oro 501	199379	101784502
227	Oro 502	199380	101784503
228	Oro 503	200436	101784504
229	Oro 504	200437	101784505
230	Oro 505	200438	101784506
231	Oro 506	200439	101784507
232	Oro 507	200440	101784508
233	Oro 508	200441	101784509
234	Oro 607	105270244	105270244
235	Oro 608	105270245	105270245
236	Oro 609	105270246	105270246
237	Oro 610	105270247	105270247
238	Oro 611	105270248	105270248
239	Oro 612	105270249	105270249
240	Oro 613	105270250	105270250
241	Oro 614	105270251	105270251
242	Oro 615	105270252	105270252
243	Oro 616	105270253	105270253
244	Oro 617	105270254	105270254
245	Oro 618	105270255	105270255
246	Oro 619	105270256	105270256
247	Oro 620	105270257	105270257
248	Oro 621	105270258	105270258
249	Oro 622	105270259	105270259
250	Oro 623	105270260	105270260
251	Oro 624	105270261	105270261
252	Oro 625	105270262	105270262
253	Oro 626	105270263	105270263
254	Oro 627	105270264	105270264
255	Oro 628	105270265	105270265
256	Oro 629	105270266	105270266
257	Oro 630	105270267	105270267
258	Oro 631	105270268	105270268
259	Oro 632	105270269	105270269
260	Oro 633	105270270	105270270
261	Oro 634	105270271	105270271
262	Oro 635	105270272	105270272

263	Oro 636	105270273	105270273
264	Oro 637	105270274	105270274
265	Oro 638	105270275	105270275
266	Oro 639	105270276	105270276
267	Oro 640	105270277	105270277
268	Oro 93	105785628	105785628
269	Oro 641	105785629	105785629
270	Oro 642	105785630	105785630
271	Oro 643	105785631	105785631
272	Oro 644	105785632	105785632
273	Oro 700	105831598	105831598
274	Oro 701	105831599	105831599
275	Oro 702	105831600	105831600
276	Oro 703	105831601	105831601
277	Oro 704	105831602	105831602
278	Oro 705	105831603	105831603
279	Oro 706	105831604	105831604
280	Oro 707	105831605	105831605
281	Oro 708	105831606	105831606
282	Oro 709	105831607	105831607
283	Oro 710	105831608	105831608
284	Oro 711	105831609	105831609
285	Oro 712	105831610	105831610
286	Oro 713	105831611	105831611
287	Oro 714	105831612	105831612
288	Oro 715	105831613	105831613
289	Oro 716	105831614	105831614
290	Oro 717	105831615	105831615
291	Oro 718	105831616	105831616
292	Oro 719	105831617	105831617
293	Oro 720	105831618	105831618
294	Oro 721	105831619	105831619
295	Oro 722	105831620	105831620
296	Oro 723	105831621	105831621
297	Oro 724	105831622	105831622
298	Oro 725	105831623	105831623
299	Oro 726	105831624	105831624
300	Oro 727	105831625	105831625
301	Oro 728	105831626	105831626
302	Oro 729	105831627	105831627
303	Oro 730	105831628	105831628
304	Oro 731	105831629	105831629
305	Oro 732	105831630	105831630
306	Oro 733	105831631	105831631



307	Oro 734	105831632	105831632
308	Oro 735	105831633	105831633
309	Oro 736	105831634	105831634
310	Oro 737	105831635	105831635
311	Oro 738	105831636	105831636
312	Oro 739	105831637	105831637
313	Oro 740	105831638	105831638
314	Oro 741	105831639	105831639
315	Oro 742	105831640	105831640
316	Oro 743	105831641	105831641
317	Oro 744	105831642	105831642
318	Oro 745	105831643	105831643
319	Oro 746	105831644	105831644
320	Oro 747	105831645	105831645
321	Oro 748	105831646	105831646
322	Oro 749	105831647	105831647
323	Oro 750	105831648	105831648
324	Oro 751	105831649	105831649
325	Oro 752	105831650	105831650
326	Oro 753	105831651	105831651
327	Oro 754	106304969	106304969
328	Oro 755	106304970	106304970
329	Oro 756	106304971	106304971
330	Oro 757	106304972	106304972
331	Oro 758	106304973	106304973
332	Oro 759	106304974	106304974
333	Oro 760	106304975	106304975
334	Oro 761	106304976	106304976
<b>TOTAL = 334 claims</b>			

# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #3 - Mining Lease with Option to Purchase - North American Turquoise Company  
LLC- May 1, 2011.**

## MINING LEASE WITH OPTION TO PURCHASE

THIS MINING LEASE WITH OPTION TO PURCHASE ("Agreement") is made as of the 1st day of May, 2011 ("Effective Date"), by and between North American Turquoise Company LLC of 650 Oso Ridge Rt., Grants, New Mexico, 87020-9407, USA ("Lessor"), and Southern Silver Exploration Corp. (U.S.) with offices c/o Southern Silver Exploration Corp., 1199 West Hastings Street, Suite 1100, Vancouver, British Columbia, V6E 3T5, Canada ("Lessee").

### RECITALS

A. Lessor owns and possesses six (6) unpatented lode mining claims situated in the Eureka Mining District, Grant County, New Mexico more particularly described on Schedule "A" attached hereto and made a part hereof (the "Claims"). The Claims, together with all ores, minerals, surface and mineral rights, and the right to explore for, mine, and remove the same, and all water rights and improvements, easements, licenses, rights-of-way, appurtenances and other interests appurtenant thereto, shall be referred to collectively as the "Property".

B. Lessee owns or has the option to acquire a 100% interest in several patented and unpatented mining claims in the Eureka Mining District, Grant County, New Mexico more particularly described on Schedule "B" attached hereto and made a part hereof (the "Oro Lands").

C. The parties desire to enter into this Agreement to grant Lessee the exclusive right to explore, develop, and mine the Property in accordance with applicable laws, together with an exclusive option to purchase the Property, and furthermore to grant Lessor the right to use the Property and Oro Lands for extraction of turquoise, upon the terms and conditions herein set forth.

THEREFORE, for good and valuable consideration, the adequacy and receipt of which are hereby acknowledged, the parties agree as follows:

### SECTION ONE Lease Term, Payments and Royalties

1.1 Term of Lease. The term of this Agreement shall be deemed to commence as of the Effective Date and shall continue for a period of twenty-one years, subject to being earlier terminated, forfeited, or surrendered in the manner herein provided.

1.2 Lease Payments. During the term of the Agreement, Lessee shall make the following lease payments to Lessor:

- (a) US\$1,000 per Claim upon execution of this Agreement;
- (b) US\$1,000 per Claim on or before the first, second, third, fourth, fifth and sixth anniversaries of the Effective Date;
- (c) US\$5,000 per Claim on or before the seventh, eighth, ninth, tenth, eleventh, twelfth and thirteenth anniversaries of the Effective Date; and
- (d) US\$10,000 per Claim on or before the fourteenth, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth and twentieth anniversaries of the Effective Date.

1.3. Option to Purchase.

- (a) Lessor grants to Lessee, during the term of this Agreement, the sole and exclusive irrevocable right and option (the "Option") to purchase the Property (including the surface, water rights and other rights appurtenant to the Property), by paying to the Lessor the aggregate amount of lease payments due under section 1.2 less any amounts already paid (the "Purchase Price").
- (b) Upon receiving written notice from Lessee that it will exercise its Option to purchase the Property and pay the Purchase Price, Lessor shall execute a quitclaim deed conveying the Property to Lessee. Upon closing of such purchase, Lessee shall acquire and own the Property subject to the Royalty and this Agreement shall be deemed terminated subject to Lessee's obligations which are intended to survive termination or which arise from or relate to Lessee's occupation, possession or use of the Property before closing the purchase.

1.4 NSR Royalties. Upon commencing Mining Operations, Lessee shall pay Lessor a production royalty ("Royalty") equal to 1% with regard to materials removed from the Property as described in Schedule "C". The Royalty shall terminate when aggregate payments thereunder equal \$500,000. For greater clarity, except for any materials removed for test purposes, if the Lessee sells any such materials or minerals removed from the Property then a production royalty shall be payable with respect the proceeds of such sale.

1.5 For purposes of this Agreement, "Mining Operations" shall include, but shall not be limited to, development, extraction, processing, leaching, or sale of ores, concentrates, or derivatives retrieved through leaching of ores, produced from the Property. Activities off the Property shall constitute Mining Operations when they are conducted in connection with an integrated mining operation involving the Property and other properties in which Lessee holds an interest. Development includes activities carried on diligently and in good faith preparatory to commencing or resuming operations at a mine. Mining Operations will be deemed to have occurred upon the processing for 10 continuous days of at least 100 tonnes of ore per day. For greater clarity, it is agreed that a Royalty shall be payable with respect to any amounts received by the Lessee from the sale of ores or other materials removed from the Property and sold by the Lessee.

1.6 Option Only. This Agreement provides for an option only and the making of any payments, or the expending of any funds by Lessee under this Agreement will not obligate Lessee to make any further or other payments, or expend any further or other funds.

1.7 Assignability. Neither party may transfer or assign this Agreement in whole or in part without the prior written consent of the other, which prior written consent shall not be unreasonably withheld, conditioned or delayed.

## **SECTION TWO**

### **Use of Property**

2.1 Grant of Exploration and Mining Rights. Subject to New Mexico mining regulation, Lessor leases the Property to the Lessee with the exclusive right and privilege to enter on the Property for the purpose of exploring, prospecting, developing, mining, concentrating, removing, and selling minerals, including reasonable rights of ingress and egress for personnel, machinery,

equipment, supplies and products and the right to use so much of the surface of the Property as may be reasonably needed for such purposes.

2.2 Uses. Lessee is granted the exclusive right to use the Property including, but without being limited to, the right to use existing excavations, tunnels, shafts, open pit mines, openings, ditches and drains, and to construct, erect, maintain, use and, at its election, remove buildings, tunnels, pits, shafts, structures, plants, roadways, pumps, pipelines, electrical power lines and facilities, stockpiles, waste piles, facilities, and all other improvements, property and fixtures for mining, removing, beneficiating, concentrating, extracting, refining and shipping of minerals. Lessee is also granted the right, if it so desires, to mine and remove mineral substances existing on, in or under the Property through or by means of shafts, openings or pits which may be sunk or made upon adjoining and nearby properties, and the right to store any mineral substances from the Property upon any such properties. In addition, Lessee may use the Property conjunctively or independently for any shafts, openings, pits and storage areas sunk or make for the mining, removal and/or stockpiling of any mineral substances from any adjoining or nearby properties. Mineral substances taken from the Property shall at all times be kept entirely separate and distinct from any other mineral substances until the same are measured and sampled so that the rights of Lessor shall be at all times preserved and protected. Lessee shall also have the right to temporarily or permanently deposit on or off the Property tailings, waste rock, overburden, surface stripping materials, process solutions and all other materials originating from the Property or from adjoining or nearby properties. In addition, Lessee shall have the right, at its election and in any manner it deems fit, to beneficiate, concentrate, smelt, refine, and otherwise process or treat on or off the Property any mineral substances taken from the Property or from adjoining or nearby properties by any physical or chemical method or methods. In exercising this right, mineral substances may be removed to a plant or plants existing, established or maintained upon the Property or elsewhere.

2.3 Conduct of Work. Lessee shall perform its exploration, development and mining activities on the Property in accordance with good exploration, development or mining practice, shall comply in all material respects with the applicable laws and regulations relating to the performance of its operations on the Property, and shall comply with any applicable worker's compensation laws of the State of New Mexico.

2.4 Liability. During the term of this Agreement, Lessee shall defend, indemnify and hold Lessor harmless from any claims, demands, liabilities or liens arising out of or directly related to the Lessee's activities on the Property.

2.5 Liens. Lessee shall, prior to the exercise of the Option, keep the Property free and clear from any and all mechanics' or laborers' liens arising from labor performed on or material furnished to the Property at Lessee's request. A lien on the Property, however, shall not constitute a default so long as payment for the same is not yet due or if Lessee, in good faith, disputes the validity of the claim, in which event the existence of the lien shall constitute a default thirty (30) days after the validity of the lien has been adjudicated adversely to Lessee.

2.6 Installation of Equipment. Lessee may install, maintain, replace, and remove during the term of this Agreement any and all machinery, equipment, tools, and facilities which it may desire to use in connection with its activities on the Property. Upon termination of this Agreement for any reason other than exercise of the Option to purchase, Lessee shall have a period of six (6) months following such termination during which it shall remove all of Lessee's equipment from the Property.

2.7 Acquisition of Permits. Lessee shall be responsible for acquiring all federal, state and local permits required for its operations. If Lessee is required to post a reclamation bond, the bond will revert to Lessee upon satisfactory completion of the reclamation program.

2.8 Commingling of Ore. Lessee shall have the right to commingle ores from the Property with ores from other properties; provided that Lessee weighs and samples Lessor's ores in accordance with sound mining and metallurgical practices and accounts for Lessor's share of production under good mining and metallurgical practices.

2.9 Drill Logs, Assays, and Maps. Copies of all drill logs, exploration information, assays, maps, metallurgical studies, and other factual information pertaining to the Property shall be furnished by Lessee to Lessor bi-annually and upon the expiration or termination of this Agreement (except in the case of termination by exercise of the Option to purchase granted herein).

### **SECTION THREE**

#### **Inspection by Lessor**

3.1 Inspection of Property. Lessor, or its authorized agents or representatives, shall be permitted to enter upon the Property at all reasonable times for the purpose of inspection, but shall enter upon the Property at their own risk and so as not to hinder unreasonably the operations of Lessee. Lessor shall indemnify and hold Lessee and its officers, agents, and shareholders harmless from any damage, claim, or demand by reason of injury to Lessor's agents or representatives on the Property or the approaches thereto, including arising from the simple negligence of Lessee. All such inspections shall be subject to the reasonable security and safety rules of Lessee. Notwithstanding the foregoing, Lessor shall also have the right to use the Property for the purposes of mining for turquoise pursuant to Section 4, provided that such use does not interfere with the operations of the Lessee.

3.2 Inspection of Accounts. Lessee agrees to keep accurate books of account reflecting the Mining Operations on the Property, and Lessor shall have the right, either personally or through a qualified accountant of its choice and at its cost, to examine and inspect the books and records of Lessee pertaining to the Mining Operations of Lessee.

### **SECTION FOUR**

#### **Lessor's Use of Property and Oro Lands**

4.1 Grant of Turquoise Mining Rights. During the term of this Agreement, and thereafter if the Lessee exercises its option to purchase the Property pursuant to section 1.3 hereof, Lessor shall have the right and privilege to enter on the Property and the Oro Lands (with the exception of the two New Mexico State Leases as indicated on Schedule "B") for the purposes of exploring, prospecting, developing, mining, concentrating, removing, and selling turquoise, provided that such use does not interfere with the operations of the Lessee.

4.2 New Mexico State Leases. Lessor acknowledges that it shall not have any right or privilege to enter on the two New Mexico State Leases indicated on Schedule "B" for the purposes of exploring, prospecting, developing, mining, concentrating, removing, or selling turquoise, or for any other reason whatsoever. The Lessee agrees that it shall use its best efforts to receive approval of the State of New Mexico Commissioner of Public Lands or any other applicable governmental body to amend the New Mexico State Leases in order to permit the

exploration and mining for turquoise by the Lessor. In the event of the grant of such approved amendment, Lessor shall have the rights and privileges set out in Clause 4.1 hereof.

4.3 Conduct of Work. Lessor shall perform its exploration, development and mining activities on the Property and the Oro Lands in accordance with good exploration, development or mining practice, shall comply in all material respects with the applicable laws and regulations relating to the performance of its operations on the Property and the Oro Lands, and shall comply with any applicable worker's compensation laws of the State of New Mexico.

4.4 Liability. During the term of this Agreement, Lessor shall defend, indemnify and hold Lessee harmless from any claims, demands, liabilities or liens arising out of or directly related to the Lessor's activities on the Property and the Oro Lands.

4.5 Liens. Lessor shall keep the Property and Oro Lands free and clear from any and all mechanics' or laborers' liens arising from labor performed on or material furnished to the Property at Lessor's request. A lien on the Property or Oro Lands, however, shall not constitute a default so long as payment for the same is not yet due or if Lessor, in good faith, disputes the validity of the claim, in which event the existence of the lien shall constitute a default thirty (30) days after the validity of the lien has been adjudicated adversely to Lessor.

4.6 Acquisition of Permits. Lessor shall be responsible for acquiring all federal, state and local permits required for its operations. If Lessor is required to post a reclamation bond, the bond will revert to Lessor upon satisfactory completion of the reclamation program.

## **SECTION FIVE**

### **Taxes**

5.1 Taxes. Lessor shall pay all taxes levied or assessed upon the Property until such time as the Lessee exercises the Option to purchase the Property pursuant to Section 1.3. Lessee shall be responsible for all taxes levied or assessed upon the Property subsequent to Lessee exercising the Option.

## **SECTION SIX**

### **Termination and Default**

6.1 Termination. Lessee shall have the right to terminate this Agreement at its sole discretion at any time by giving written notice to Lessor. Upon termination, Lessor shall retain all payments previously made. Lessee will provide Lessor with all factual data, maps, assays, and reports pertaining to the Property not previously provided.

6.2 Default. If Lessee fails to perform any requirement under this Agreement, and in particular, subject to Section 1.4 hereof, fails to make any payment to Lessor under Section 1.2 of this Agreement, Lessor may declare Lessee in default by giving Lessee written notice of default, which specifies the requirement(s) which Lessee has failed to perform. If Lessee fails to remedy a default in payment within thirty (30) days of receiving the notice of default, and forty-five (45) days for any other default (or does not commence to cure the default within such time periods if the nature of the default is such that it cannot reasonably be cured within such time periods), then Lessor may terminate this Agreement and Lessee shall peaceably surrender possession of the Property to Lessor. Notice of termination shall be in writing and served in accordance with this Agreement.

6.3 Obligations Following Termination. In the event of voluntary or involuntary termination other than by exercise of the Option to purchase, Lessee shall surrender possession of the Property to Lessor and shall have no further obligation under this Agreement except for the obligation (1) to make all payments owed hereunder to Lessor; (2) to remove all equipment as set forth herein; (3) to fulfill its reclamation responsibility as set forth herein; (4) to satisfy any accrued obligations or liabilities; and (5) to satisfy any other obligation imposed by this Agreement or by law. Upon such termination, Lessor shall have no further right to enter upon, explore, develop or mine for turquoise on the Oro Lands except for the obligation (1) remove all equipment from the Oro Lands; (2) to fulfill its reclamation responsibility as set forth herein; (3) to satisfy any accrued obligations or liabilities; and (4) to satisfy any other obligation imposed by this Agreement or by law.

## **SECTION SEVEN Notices and Payment**

7.1 Notices. All notices to Lessee or Lessor shall be in writing and shall be delivered in person or sent by certified or registered mail, return receipt requested, to the addresses below. Notice of any change in address shall be given in the same manner.

**TO LESSOR:** North American Turquoise Company LLC  
650 Oso Ridge Rt.  
Grants, New Mexico, 87020-9407, USA  
Tel: \_\_\_\_\_  
Fax: \_\_\_\_\_

**TO LESSEE:** Southern Silver Exploration Corp. (U.S.)  
c/o Southern Silver Exploration Corp.  
1100 – 1199 West Hastings Street  
Vancouver, BC V6E 3T5 CANADA  
Tel: (604) 684-9384  
Fax: (604) 688-4670

7.2 Payments. All payments shall be in the lawful currency of the United States and shall be payable to the Lessor at the address above.

## **SECTION EIGHT Representation of Title**

8.1 Representation. Lessor represents, to the best of his knowledge and belief at the execution of this Agreement, that he is the owner of the Claims constituting the Property. Lessor further represents that he is not aware of any dispute, legal action, or environmental citation or problem affecting the Property or any part or parts thereof otherwise than as fully disclosed to Lessee in writing prior to the Effective Date.

8.2 Examination of Title Documents. Promptly after execution of this Agreement, Lessor shall deliver to Lessee copies of all documents bearing upon ownership of the Property and Lessor's interest in the Property. Lessee may then undertake such further investigation of the title and status of the Property as Lessee shall deem necessary. If that investigation should review defects in the title, Lessee may, at its option, cure such defects or, upon proper notice, terminate this Agreement.



8.3 Lessor Liens. In the event that Lessor fails to promptly pay, when due, any taxes, mortgages or other liens that may be levied against the Property and payable by Lessor, then Lessee shall have the right (but not the obligation) to pay such past due amounts and, if Lessee does so, Lessee shall be subrogated to all the rights of the holders thereof and Lessor shall reimburse Lessee for all such payments and for all related costs and expenses paid or incurred by Lessee (including any related attorneys' fees) within three months after the same are paid or incurred by Lessee. Any payments due Lessor under this Agreement may be credited by reimbursements due Lessee under this Section. The provisions of this Section shall survive termination of this Agreement.

## **SECTION NINE Lessee's Practices; Information**

9.1 Lessee's Practices. Lessee shall conduct all operations on the Property in a good and workmanlike manner and in accordance with lawful and accepted mining practice and all dealings with Lessor shall be in the utmost of good faith.

9.2 Inspection of Data. From time to time during the term of this Agreement, Lessor shall have the right to examine and make copies of all factual data regarding the Property in Lessee's possession during reasonable business hours and upon not less than two (2) business days prior notice. The inspection and copying of data shall be at Lessor's cost. All such information shall be kept strictly confidential by Lessor.

9.3 Measurements; Analysis. Lessee shall measure minerals and take and analyze samples in accordance with industry practice, and shall keep accurate records as a basis for computing the Royalty payments. These records shall be available for inspection and copying by Lessor at all reasonable times subject to the provisions of this Agreement regarding accounts, records and payments.

9.4 Production Records. Lessee shall keep accurate records of the sale or shipment of minerals from the Property, and these records shall be available for inspection and copying by Lessor at all reasonable times. All such records shall be kept on the Property or at Lessee's address for notice.

## **SECTION TEN Surrender**

10.1 Surrender by Lessee. On expiration of the term of, or sooner termination of, this Agreement, except on Lessee's exercise and closing of the Option to purchase, Lessee shall surrender the Property, free and clear of any and all liabilities, including any third-party interests, promptly to Lessor and shall remove from the Property, at Lessee's sole cost, all buildings, structures, and equipment which Lessee has placed on the Property. After termination of this Agreement, Lessee shall have the right to enter on the Property to perform its obligations for compliance with reclamation or restoration required as a result of Lessee's activities on the Property. Lessee shall commence reclamation and restoration of the Property immediately on expiration of or sooner termination of this Agreement (except on Lessee's exercise of the Option to purchase) such that Lessee's reclamation and restoration shall be completed at the earliest reasonable time, and no later than the date required for completion by any governmental entity. Upon termination of this Agreement, Lessee shall execute and deliver to Lessor an instrument, in

form acceptable for recording, by which Lessee releases all of its right, title and interest in and under this Agreement.

10.2 Surrender by Lessor. On expiration of the term of, or sooner termination of, this Agreement, except on Lessee's exercise and closing of the Option to purchase, Lessor shall surrender the Oro Lands, free and clear of any and all liabilities, including any third-party interests, promptly to Lessee and shall remove from the Oro Lands, at Lessor's sole cost, all buildings, structures, and equipment which Lessor has placed on the Property. After termination of this Agreement, Lessor shall have the right to enter on the Oro Lands to perform its obligations for compliance with reclamation or restoration required as a result of Lessor's activities on the Oro Lands. Lessor shall commence reclamation and restoration of the Oro Lands immediately on expiration of or sooner termination of this Agreement (except on Lessee's exercise of the Option to purchase) such that Lessor's reclamation and restoration shall be completed at the earliest reasonable time, and no later than the date required for completion by any governmental entity.

## **SECTION ELEVEN Miscellaneous Provisions**

11.1 Binding Effect. This Agreement shall inure to the benefit of and be binding upon the parties hereto, their respective heirs, executors, administrators, successors, and assigns.

11.2 Further Assurances. Each party shall execute such additional documents and instruments as reasonably requested by the other party or its counsel, to more fully perfect the rights and obligations provided in this Agreement.

11.3 Applicable Law. The terms and provisions of this Agreement shall be interpreted in accordance with the laws of the Province of British Columbia, except as to matters relating to title to the Property which shall be interpreted in accordance with the laws of the jurisdiction in which the Property is located.

11.4 Void or Invalid Provisions. If any term, provision, covenant or condition of this Agreement, or any application thereof, should be held by a court of competent jurisdiction to be invalid, void or unenforceable, all provisions, covenants and conditions of this Agreement, and all applications thereof not held invalid, void or unenforceable, shall continue in full force and effect and shall in no way be affected, impaired, or invalidated thereby.

11.5 Time of the Essence. Time is of the essence of this Agreement and each and every part thereof.

11.6 Confidentiality. All reports and data provided by Lessee to Lessor shall be held in strictest confidence, and Lessor shall not disclose such information without Lessee's prior written consent.

11.7 No Partnership. Nothing in this Agreement shall create a partnership between Lessor and Lessee nor shall either party be construed to be the agent or legal representative of the other. This Agreement shall not create any fiduciary obligations between the parties.

11.8 Entire Agreement. This Agreement terminates and replaces all prior agreements, either written, oral or implied, between the parties hereto, and constitutes the entire agreement between the parties pertaining to the subject matter hereof.

11.9 Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be deemed to constitute an original and all of which shall be deemed to constitute the same instrument.

11.10 No Mining Obligation. Nothing in this Agreement shall impose any obligations or covenants, express or implied, upon Lessee to conduct any exploration, development, or mining operations upon the Property; rather, Lessee shall have sole discretion to determine the technical and economic feasibility, timing, method, manner and rate of conducting any such operations.

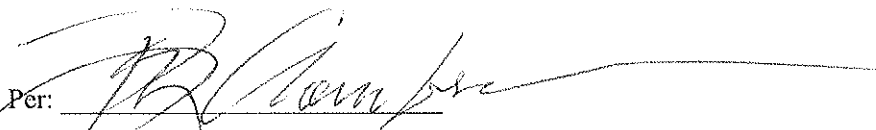
11.11 Force Majeure. If Lessee is prevented by Force Majeure from timely performance of any of its obligations hereunder, except the payment of money, the failure of performance shall be excused and the period for performance shall be extended for an additional period equal to the duration of Force Majeure. Upon the occurrence and upon the termination of Force Majeure, Lessee shall promptly notify Lessor in writing. Lessee shall use reasonable diligence to remedy Force Majeure, but shall not be required to contest the validity of any law or regulation or any action or inaction of civil or military authority. "Force Majeure" means any cause beyond a party's reasonable control, including without limitation, any law or regulation; action or inaction of civil or military authority; inability to obtain any license, permit, or other authorization that may be required to conduct operations on or in connection with the Property; interference with mining operations by a lessee of oil, gas, or geothermal resources under the Property; unusually severe weather; mining casualty; unavoidable mill shutdown; damage to or destruction of mine plant or facility; fire; explosion; flood; insurrection; riot; labor disputes; inability after diligent effort to obtain workmen or material; delay in transportation; and acts of God (but excepting any obligation to pay money) or any other event beyond the reasonable control of the affected party, whether similar or dissimilar to the foregoing.

11.12 Memorandum of Agreement. At the request of either party, the parties shall execute, acknowledge and deliver to the other, and either the Lessor or the Lessee may cause to be recorded in the appropriate jurisdictions a memorandum of this Agreement in the form attached hereto as Schedule "D".

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

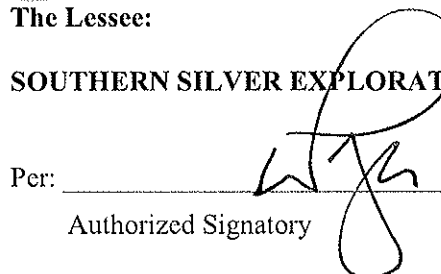
**The Lessor:**

**NORTH AMERICAN TURQUOISE COMPANY LLC**

Per:   
Authorized Signatory

**The Lessee:**

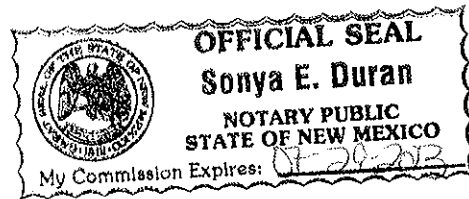
**SOUTHERN SILVER EXPLORATION CORP. (U.S.)**

Per:   
Authorized Signatory

STATE OF New Mexico )  
 ) ss.  
COUNTY OF Cibola )

The foregoing instrument was acknowledged before me this 27<sup>th</sup> day of May, 2011 by Philip Chambers of North American Turquoise Company LLC for and on behalf of the corporation.

Sonya E. Duran  
Notary Public  
My commission expires: 07-29-2013



Province STATE OF B.C. )  
 ) ss.  
City COUNTY OF Vancouver )

The foregoing instrument was acknowledged before me this 3<sup>rd</sup> day of May, 2011 by Lawrence Page, President of Southern Silver Exploration Corp. (U.S.) for and on behalf of the corporation.

Lawrence Page  
Notary Public  
My commission expires: does not expire

ARIE A. PAGE  
Barrister & Solicitor  
1100-1199 West Hastings Street  
Vancouver, BC V6E 3T5  
604-641-2767

**SCHEDULE "A"**

**DESCRIPTION OF THE PROPERTY**

<b>Unpatented Lode Mining Claims</b>	
<b>Claim/Site Name</b>	<b>BLM Serial No.</b>
American Turquoise	NMMC 167550
Turquoise Mountain	NMMC 167551
TQ#1	NMMC 187655
TQ#2	NMMC 187656
Smugglers Gem	NMMC 190127
Cameo	NMMC 168755

**SCHEDULE "B"**

**DESCRIPTION OF THE ORO LANDS**






Unpatented Mining Claims							
Claim	NMMC #	Claim	NMMC #	Claim	NMMC #	Claim	NMMC #
Oro No 1	170611	Oro No 101	175507	Oro No 147	177474	Oro No 214	Pending
Oro No 3	170613	Oro No 102	175508	Oro No 148	177475	Oro No 215	Pending
Oro No 5	170615	Oro No 103	175509	Oro No 149	177476	Oro No 216	Pending
Oro No 7	170617	Oro No 104	175510	Oro No 150	177477	Oro No 217	Pending
Oro No 9	170619	Oro No 105	175511	Oro No 151	177478	Oro No 218	Pending
Oro No 11	170621	Oro No 106	175512	Oro No 152	177479	Oro No 219	Pending
Oro No 13	170623	Oro No 107	175513	Oro No 153	177480	Oro No 220	Pending
Oro No 15	170625	Oro No 108	175514	Oro No 154	177481	Oro No 221	Pending
Oro No 17	170627	Oro No 109	175515	Oro No 155	177482	Oro No 222	Pending
Oro No 29	170639	Oro No 110	175516	Oro No 156	177483	Oro No 223	Pending
Oro No 30	170640	Oro No 111	175517	Oro No 157	177484	Oro No 224	Pending
Oro No 31	170641	Oro No 112	175518	Oro No 158	177485	Oro No 225	Pending
Oro No 32	170642	Oro No 113	175519	Oro No 159	Pending	Oro No 226	Pending
Oro No 33	170643	Oro No 114	175520	Oro No 160	Pending	Oro No 227	Pending
Oro No 34	170644	Oro No 115	175521	Oro No 161	Pending	Oro No 228	Pending
Oro No 35	170645	Oro No 116	175522	Oro No 162	Pending		
Oro No 81	175487	Oro No 117	175523	Oro No 163	Pending		
Oro No 82	175488	Oro No 118	175524	Oro No 164	Pending		
Oro No 83	175489	Oro No 119	175803	Oro No 167	Pending		
Oro No 84	175490	Oro No 120	175804	Oro No 186	Pending		
Oro No 85	175491	Oro No 121	175805	Oro No 188	Pending		
Oro No 86	175492	Oro No 122	175806	Oro No 190	Pending		
Oro No 87	175493	Oro No 123	175807	Oro No 192	177519		
Oro No 88	175494	Oro No 124	175808	Oro No 201	Pending		
Oro No 89	175495	Oro No 125	175809	Oro No 202	Pending		
Oro No 90	175496	Oro No 126	175810	Oro No 203	Pending		
Oro No 91	175497	Oro No 127	175811	Oro No 204	Pending		
Oro No 92	175498	Oro No 128	175812	Oro No 205	Pending		
Oro No 93	175499	Oro No 129	175813	Oro No 206	Pending		
Oro No 94	175500	Oro No 140	175824	Oro No 207	Pending		
Oro No 95	175501	Oro No 141	177468	Oro No 208	Pending		
Oro No 96	175502	Oro No 142	177469	Oro No 209	Pending		
Oro No 97	175503	Oro No 143	177470	Oro No 210	Pending		
Oro No 98	175504	Oro No 144	177471	Oro No 211	Pending		
Oro No 99	175505	Oro No 145	177472	Oro No 212	Pending		
Oro No 100	175506	Oro No 146	177473	Oro No 213	Pending		

The American Mine, consisting of the following named patented lode mining claims situate in the Eureka Mining District, Grant County, New Mexico, MS 1130; American, Alaska, Florida, Ohio, Texas, Oregon, Maine, and Virginia, U.S. Mineral Patent for which is of record in the Office of the County Clerk of Grant County, New Mexico, in Book 42 of Mining Deeds at Page 465 through 470, containing 162.66 acres, more or less.

The surface rights on Lots 6, 7, and 10 of Section 36, Township 27 South, Range 16 West, N.M.P.M., containing 106.92 acres, more or less.

**Note:** The following State Leases (indicated on the attached map as "State Land" in blue) are specifically excluded from the definition of the "Oro Lands" and the Lessor shall have no right to enter upon such State Leases for the purposes of exploring, prospecting, developing, mining, concentrating, removing, and selling turquoise, or for any other purpose whatsoever:

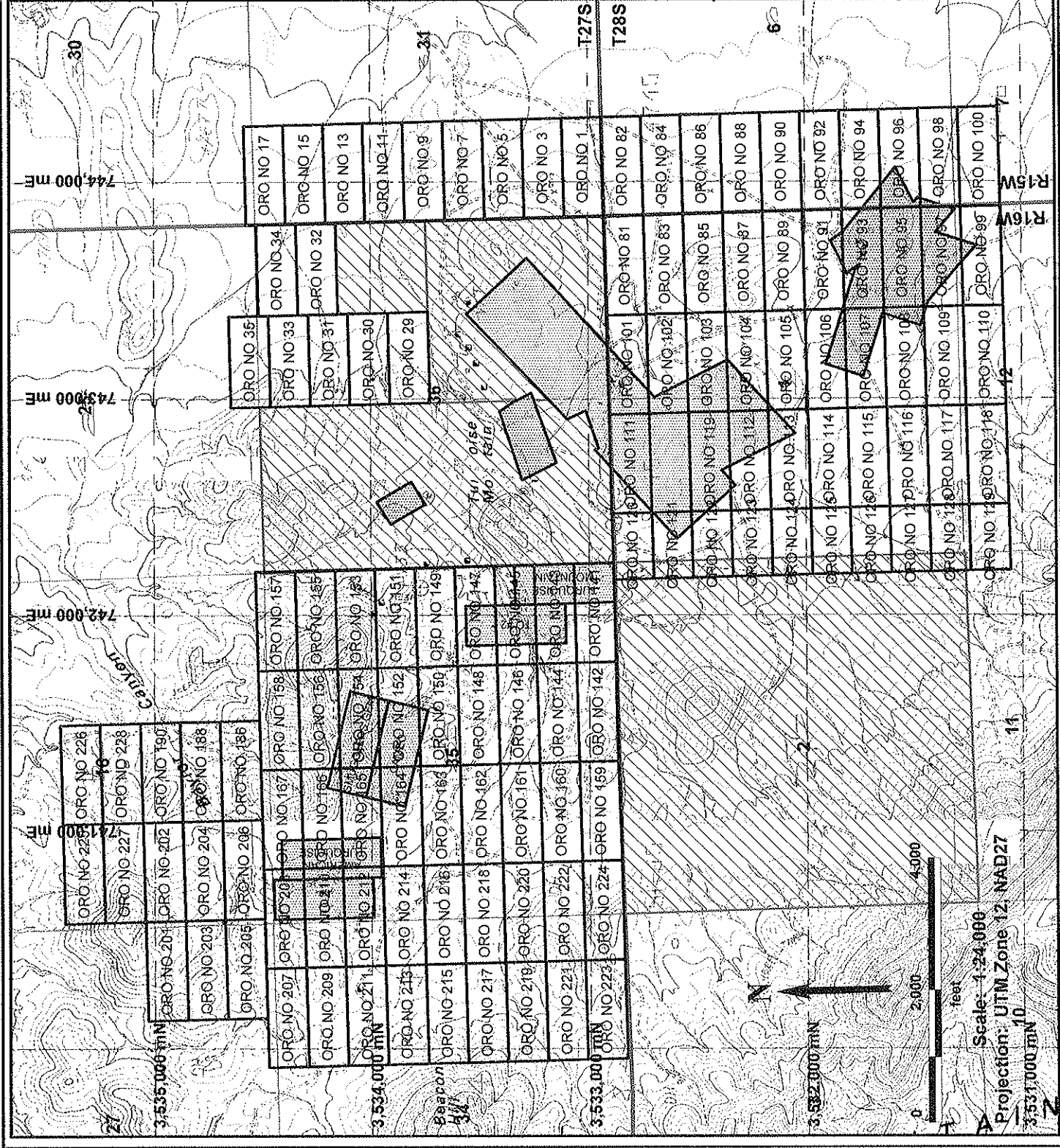
- New Mexico State lease #HG-0104  
all state lands in S26, T27S, R16W
- New Mexico State Lease # HG-0105  
all state lands in S2, T28S, R16W

- Explanation**
-  Southern Silver Claims
  -  Southern Silver Mineral Patents
  -  State Land
  -  Private Claims (non Southern Silver)
  -  Private Mineral Patents (non Southern Silver)



**Oro Project**  
Grant Co., NM

**Land Status**  
02/11/11



Scale: 1:24,000  
Projection: UTM Zone 12, NAD27  
3,537,000 mN



## **SCHEDULE "C"**

### **NET SMELTER RETURNS ROYALTY**

1. As additional consideration, Lessee acknowledges and agrees that its interest in the Property will, on commencement of commercial production, be subject to the Royalty in favour of Lessor.
2. For the purposes of this Agreement, "Net Smelter Returns" means the actual proceeds received by Lessee from a smelter or other place of sale or treatment for all ore removed by Lessee from the Property following commencement of commercial production, as evidenced by its returns or settlement sheets, after deducting from the proceeds all loading, freight or other transportation costs from the shipping point to the smelter or other place of sale or treatment but without any other deduction.
3. Lessee will pay Net Smelter Returns due and payable to Lessor within thirty (30) days after Lessee's receipt of the actual proceeds.
4. Within ninety (90) days after the end of each financial year of Lessee's during which the Property is in commercial production, the records relating to the calculation of Net Smelter Returns during that financial year will be audited and any adjustments will be made forthwith. The audited statements will be delivered to Lessor who will have sixty (60) days after receipt of such statements to question in writing their accuracy and, failing any questions, the statements will be deemed correct.
5. Lessor or his representatives appointed in writing will have the right at all reasonable times, on written request, to inspect the books and financial records of Lessee that are relevant to the determination of Net Smelter Returns and, at their own expense, to make copies of those books and records.

## SCHEDULE "D"

### MEMORANDUM OF AGREEMENT

**NOTICE IS HEREBY GIVEN** that under that certain Mining Lease with Option to Purchase (the "Agreement") made and entered into effective as of the 1st day of May, 2011 ("Effective Date"), by and among North American Turquoise Company LLC of 650 Oso Ridge Rt., Grants, New Mexico, 87020-0407, USA ("Lessor") and Southern Silver Exploration Corp. (U.S.) with offices c/o Southern Silver Exploration Corp., 1199 West Hastings Street, Suite 1100, Vancouver, British Columbia, V6E 3T5, Canada ("Lessee") whereby Lessor has agreed to and hereby does grant to Lessee the exclusive right to explore, develop, and mine the Property (as hereinafter defined), together with an exclusive option to purchase the Property, subject to the Royalty (as hereinafter defined), by satisfying certain conditions of the Agreement on or before May 1, 2032.

Some of the provisions of the Agreement are summarized as follows:

1. Except as permitted under and in accordance with the Agreement, neither party will sell, convey, assign, grant an encumbrance or grant an option in respect of or grant a right to purchase or in any manner transfer, alienate or otherwise dispose of any or all of its interest in the Property or any of its rights under the Agreement.
2. The Agreement will terminate upon the happening of any of the following:
  - (a) Lessee terminates the Agreement at its sole discretion at any time by giving written notice to Lessor;
  - (b) Lessor terminates the Agreement by giving Lessee a written notice of default specifying the requirement(s) which Lessee has failed to perform and Lessee then fails to remedy the default within 30 days (for a default in payment) or 45 days (for any other default); or
  - (c) Lessee exercises the option to purchase the Property.
2. During the term of the Agreement, and thereafter if the Lessee elects to exercise its option to purchase the Property, Lessor shall have the right and privilege to enter on the Property and the Oro Lands (as hereinafter defined) for the purposes of exploring, prospecting, developing, mining, concentrating, removing, and selling turquoise, provided that such use does not interfere with the operations of the Lessee.
3. This Memorandum is executed for the purpose of affording notice of the existence of the Agreement and terms and conditions thereof, which terms and conditions are incorporated herein by reference for all purposes. This Memorandum is not intended to alter or vary the terms or conditions of the Agreement and any inconsistency between the terms of this Memorandum of Agreement and the Agreement shall be governed by the Agreement. All capitalized words in this Memorandum have the same meaning as assigned to them in the Agreement and as defined below:

"Oro Lands" means the patented and unpatented mining claims which Lessee owns or has the option to acquire located in the Eureka Mining District, Grant County, New Mexico more particularly described on Schedule "B" attached hereto and made a part hereof.

“Property” means the six (6) unpatented lode mining claims situated in the Eureka Mining District, Grant County, New Mexico more particularly described on Schedule “A” attached hereto and made a part hereof, together with all ores, minerals, surface and mineral rights, and the right to explore for, mine, and remove the same, and all water rights and improvements, easements, licenses, rights-of-way, appurtenances and other interests appurtenant thereto.

“Royalty” means that certain net smelter returns royalty more fully described in the Agreement.

4. A copy of the Agreement is on file with each of the parties.

**EXECUTED** effective as of the date first above written.

**The Lessor:**

**NORTH AMERICAN TURQUOISE COMPANY LLC**

Per: \_\_\_\_\_

Authorized Signatory

**The Lessee:**

**SOUTHERN SILVER EXPLORATION CORP. (U.S.)**

Per: \_\_\_\_\_

Authorized Signatory



**SCHEDULE "A"**

**DESCRIPTION OF THE PROPERTY**

<b>Unpatented Lode Mining Claims</b>	
<b>Claim/Site Name</b>	<b>BLM Serial No.</b>
American Turquoise	NMMC 167550
Turquoise Mountain	NMMC 167551
TQ#1	NMMC 187655
TQ#2	NMMC 187656
Smugglers Gem	NMMC 190127
Cameo	NMMC 168755

**SCHEDULE "B"**

**DESCRIPTION OF THE ORO LANDS**

Unpatented Mining Claims							
Claim	NMMC #	Claim	NMMC #	Claim	NMMC #	Claim	NMMC #
Oro No 1	170611	Oro No 101	175507	Oro No 147	177474	Oro No 214	Pending
Oro No 3	170613	Oro No 102	175508	Oro No 148	177475	Oro No 215	Pending
Oro No 5	170615	Oro No 103	175509	Oro No 149	177476	Oro No 216	Pending
Oro No 7	170617	Oro No 104	175510	Oro No 150	177477	Oro No 217	Pending
Oro No 9	170619	Oro No 105	175511	Oro No 151	177478	Oro No 218	Pending
Oro No 11	170621	Oro No 106	175512	Oro No 152	177479	Oro No 219	Pending
Oro No 13	170623	Oro No 107	175513	Oro No 153	177480	Oro No 220	Pending
Oro No 15	170625	Oro No 108	175514	Oro No 154	177481	Oro No 221	Pending
Oro No 17	170627	Oro No 109	175515	Oro No 155	177482	Oro No 222	Pending
Oro No 29	170639	Oro No 110	175516	Oro No 156	177483	Oro No 223	Pending
Oro No 30	170640	Oro No 111	175517	Oro No 157	177484	Oro No 224	Pending
Oro No 31	170641	Oro No 112	175518	Oro No 158	177485	Oro No 225	Pending
Oro No 32	170642	Oro No 113	175519	Oro No 159	Pending	Oro No 226	Pending
Oro No 33	170643	Oro No 114	175520	Oro No 160	Pending	Oro No 227	Pending
Oro No 34	170644	Oro No 115	175521	Oro No 161	Pending	Oro No 228	Pending
Oro No 35	170645	Oro No 116	175522	Oro No 162	Pending		
Oro No 81	175487	Oro No 117	175523	Oro No 163	Pending		
Oro No 82	175488	Oro No 118	175524	Oro No 164	Pending		
Oro No 83	175489	Oro No 119	175803	Oro No 167	Pending		
Oro No 84	175490	Oro No 120	175804	Oro No 186	Pending		
Oro No 85	175491	Oro No 121	175805	Oro No 188	Pending		
Oro No 86	175492	Oro No 122	175806	Oro No 190	Pending		
Oro No 87	175493	Oro No 123	175807	Oro No 192	177519		
Oro No 88	175494	Oro No 124	175808	Oro No 201	Pending		
Oro No 89	175495	Oro No 125	175809	Oro No 202	Pending		
Oro No 90	175496	Oro No 126	175810	Oro No 203	Pending		
Oro No 91	175497	Oro No 127	175811	Oro No 204	Pending		
Oro No 92	175498	Oro No 128	175812	Oro No 205	Pending		
Oro No 93	175499	Oro No 129	175813	Oro No 206	Pending		
Oro No 94	175500	Oro No 140	175824	Oro No 207	Pending		
Oro No 95	175501	Oro No 141	177468	Oro No 208	Pending		
Oro No 96	175502	Oro No 142	177469	Oro No 209	Pending		
Oro No 97	175503	Oro No 143	177470	Oro No 210	Pending		
Oro No 98	175504	Oro No 144	177471	Oro No 211	Pending		
Oro No 99	175505	Oro No 145	177472	Oro No 212	Pending		
Oro No 100	175506	Oro No 146	177473	Oro No 213	Pending		

The American Mine, consisting of the following named patented lode mining claims situate in the Eureka Mining District, Grant County, New Mexico, MS 1130; American, Alaska, Florida, Ohio, Texas, Oregon, Maine, and Virginia, U.S. Mineral Patent for which is of record in the Office of the County Clerk of Grant County, New Mexico, in Book 42 of Mining Deeds at Page 465 through 470, containing 162.66 acres, more or less.

The surface rights on Lots 6, 7, and 10 of Section 36, Township 27 South, Range 16 West, N.M.P.M., containing 106.92 acres, more or less.

**Note:** The following State Leases (indicated on the attached map as "State Land" in blue) are specifically excluded from the definition of the "Oro Lands" and the Lessor shall have no right to enter upon such State Leases for the purposes of exploring, prospecting, developing, mining, concentrating, removing, and selling turquoise, or for any other purpose whatsoever:

- New Mexico State lease #HG-0104  
all state lands in S26, T27S, R16W
- New Mexico State Lease # HG-0105  
all state lands in S2, T28S, R16W





# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #4 - ORO Mining Lease HG-0105 - September 16, 2010.**



*State of New Mexico*  
*Commissioner of Public Lands*

310 OLD SANTA FE TRAIL  
P.O. BOX 1148  
SANTA FE, NEW MEXICO 87504-1148

PATRICK H. LYONS  
COMMISSIONER

COMMISSIONER'S OFFICE

Phone (505) 827-5760  
Fax (505) 827-5766  
www.nmstatelands.org

September 16, 2010

Lawrence Page, W.C., President  
Southern Silver Exploration Corp (U.S.)  
4790 Caughlin Pkwy #207  
Reno, NV 89519-0907

Re: Rule 2 - General Mining Lease HG-0105 / Approval

Dear Mr. Page:

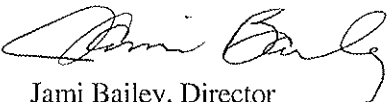
We are enclosing the above lease for your records. This lease is being issued for the purpose of exploration mining, developing, and producing Gold & Silver minerals in:

<u>SUBDIVISION</u>	<u>SECTION</u>	<u>TOWNSHIP</u>	<u>RANGE</u>	<u>COUNTY</u>
Lots 1-4, S2N2, S2	2	28S	16W	Grant

If you have any questions regarding this matter or if we can be of additional assistance, please contact Ken Churan, Minerals Specialist, at (505) 476-0378 or Michael Mariano, Minerals Manager, at (505) 827-5750

Sincerely,

PATRICK H. LYONS  
Commissioner of Public Lands

By:   
Jami Bailey, Director  
Oil, Gas and Minerals Division

PHL/JB/mm

Enclosures

Cc: Diego Villalba  
John Pfeil, NMEMNRD

**-State Land Office Beneficiaries -**

Carrie Tingley Hospital • Charitable Penal & Reform • Common Schools • Eastern NM University • Rio Grande Improvement • Miners' Hospital of NM • NM Boys School • NM Highlands University • NM Institute of Mining & Technology • New Mexico Military Institute • NM School for the Deaf • NM School for the Visually Handicapped • NM State Hospital • New Mexico State University • Northern NM Community College • Penitentiary of New Mexico • Public Buildings at Capital • State Park Commission • University of New Mexico • UNM Saline Lands • Water Reservoirs • Western New Mexico University

NEW MEXICO STATE LAND OFFICE

MINING LEASE FOR GENERAL MINING - LEASE NO. HG-0105

This Lease is made and entered into between the COMMISSIONER OF PUBLIC LANDS, ("Commissioner"), as Lessor, and

Southern Silver Exploration Corp (U.S.)
4790 Caughlin Pkwy #207
Reno, NV 89519-0907

("Lessee"), and shall become effective upon the date executed by the Commissioner.

The Lessee has duly filed an application for a mining lease for the purpose stated in this Lease, covering the lands described below which are under the jurisdiction of the Commissioner. The Lessee has tendered a bonus amount of \$11,211.00 which includes the first year's annual rental and the further sum of \$ 100.00 as application fee, and the Commissioner has accepted the application as submitted.

The parties agree as follows:

The Commissioner does grant, demise and lease to Lessee for the sole and only purpose of exploring for, mining, removing, and processing of Gold and Silver as the principal mineral and minerals associated therewith on and from the following described lands, (the "Property"), situated in Grant County, New Mexico:

Table with 6 columns: SUBDIVISION, SEC, TWP, RGE, BENEFICIARY, ACRES. Row 1: Lots 1-4, S2N2, S2, 2, 28S, 16W, C.S., 640.96

The parties agree as follows:

1. Inspection by Lessee: Lessee is leasing the Property based on Lessee's own inspection of and judgment regarding the Property. Lessee agrees that the Commissioner is making no representations or warranties with regard to the Property.

2. Term:

A. Primary Term Of Mineral Lease:

- i. The Lease shall be for a primary term of three (3) years and so long thereafter as minerals are produced or mined in paying quantities from the Property.
ii. Annual rent during the primary term shall be one dollar (\$1.00) per acre, which amount shall be paid in advance each year.

B. Secondary Term Of Mineral Lease:

- i. If minerals are not produced or mined in paying quantities during the primary term, then the Lessee may continue the Lease in full force and effect through a secondary term. The secondary term shall be two (2) years and so long thereafter as minerals are produced or mined in paying quantities from the Property.
ii. Annual rent during the secondary term shall be ten dollars (\$10.00) per acre, which amount shall be paid each year in advance.

C. Tertiary Term Of Mineral Lease:

- i. If minerals are not produced or mined in paying quantities during the primary or secondary term, then the Lease may be continued into the tertiary term. The tertiary term shall be five (5) years and so long thereafter as minerals are produced or mined in paying quantities from the Property.
ii. Annual rent during the tertiary term shall be three dollars (\$3.00) per acre, which amount shall be paid each year in advance.

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**D. Quaternary Term Of Mineral Lease:**

- i. If minerals are not produced or mined in paying quantities from the Property during the primary, secondary or tertiary term, then the Lease may be continued into the quaternary term. The quaternary term shall be five (5) years and so long thereafter as minerals are produced or mined in paying quantities from the Property.
- ii. Annual rent during the quaternary term shall be ten dollars (\$10.00) per acre, which amount shall be paid each year in advance.

3. **Amount Of Royalty:** In addition to annual rentals, the Lessee shall pay royalty on all minerals mined and removed except special minerals.

- A. The royalty for “special minerals” (uranium, thorium, precious and semi-precious stones, rare earth minerals, or minerals which have been or may hereafter be determined to be essential to the production of fissionable materials) shall be five percent (5%) of the gross returns as described in C. below.
- B. On other minerals the royalty shall be two percent (2%) of the gross returns as described in C. below.
- C. Gross returns shall be based on the arm’s-length sales price of the produced minerals and shall include all premiums, bonuses and other consideration of any kind received by the Lessee for the minerals produced from the Property. Deductions for actual and reasonable transportation and smelting or reduction costs may not exceed 50% of the gross returns.

4. **Advance Royalty During Quaternary Term:** If minerals are not produced or mined in paying quantities during the primary, secondary or tertiary term, then the Lease may be continued into the quaternary term by the payment of advance royalties:

- A. In the eleventh year of the Lease, the Lessee shall pay, in addition to rent, ten dollars (\$10) per acre as an advance royalty.
- B. In the twelfth year of the Lease, the Lessee shall pay, in addition to rent, twenty dollars (\$20) per acre as an advance royalty.
- C. In the thirteenth year of the Lease, the Lessee shall pay, in addition to rent, thirty dollars (\$30) per acre as an advance royalty.
- D. In the fourteenth year of the Lease, the Lessee shall pay, in addition to rent, forty dollars (\$40) per acre as an advance royalty.
- E. In the fifteenth year of the Lease, the Lessee shall pay, in addition to rent, fifty dollars (\$50) per acre as an advance royalty.

5. **Credit For Advance Royalties:** Upon the commencement of production of minerals in paying quantities, the principal sum paid as an advance royalty for the year in which such production commences, and the principal sums so paid for the two (2) previous years, shall be credited against the royalty otherwise payable to the Commissioner.

6. **Payment Of Royalty And Accounting:** The Lessee shall pay the correct amount of royalty to the Commissioner on the twentieth (20<sup>th</sup>) day of the month following the month of use, sale or other disposal of minerals. On the same day, the Lessee shall submit to the Commissioner a production and royalty statement, accounting for the production and royalty for the previous calendar month. Such statements shall be prepared upon forms prescribed and furnished by the Commissioner and in accordance with instructions accompanying the forms.

7. **Reclamation Plan Required:** Notwithstanding the issuance of this mineral Lease, no mining activity shall be conducted on the Property except in accordance with a written reclamation plan approved by the Commissioner. Reclamation plans consist of the mining permit or other authorizations issued by the permitting agency and any supplemental requirements deemed necessary by the Commissioner to assure adequate protection and reclamation of Property. Upon approval by the Commissioner, the reclamation plan shall automatically be incorporated into this mineral Lease without the necessity of further agreement between the

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Lessee and the Commissioner. A violation of the reclamation plan shall constitute a violation of the mineral Lease.

8. **Obtaining Permit From The Permitting Agency:**

- A. The Lessee shall apply for a permit from the permitting agency in accordance with the New Mexico Mining Act or other applicable laws, whichever applies. The Lessee shall submit copies of the permit application and all supporting documents to the Commissioner at the same time that these materials are submitted to the permitting agencies. The Lessee shall also promptly submit copies to the Commissioner of all correspondence, reports and other documents regarding the Lessee's permit applications.
- B. The Lessee's permit applications and supporting documents shall fully disclose the intended mining activity to the permitting agencies and the Commissioner. The Commissioner will review the Lessee's application and supporting documents and may participate in the permitting process at the discretion of the Commissioner.
- C. If the permitting agencies require the land management agency or landowner to approve a proposed permit prior to issuance, the Commissioner may withhold such approval if the Commissioner determines that a proposed mining activity is not in the best interest of the trust. At the written request of the Commissioner, the Lessee shall withdraw any such proposed mining activities from its permit application.

9. **Supplemental Requirements:**

- A. After the Lessee obtains the necessary permits or other final authorization from the permitting agencies in accordance with 19.2.2.25 NMAC, the Lessee shall submit a complete and accurate copy of the permit or other authorization to the Commissioner. The Commissioner may review the permit or other authorization to determine whether to include any supplemental requirements in the reclamation plan.
- B. If the Commissioner determines that supplemental requirements are needed, the Commissioner may notify the Lessee of the specific areas of concern, and the Lessee shall thereafter propose supplemental requirements to address these concerns. The Commissioner may review the Lessee's proposal and may notify the Lessee of any deficiencies, which the Lessee shall address in a subsequent submittal. The process of submittal and review shall be repeated until the Commissioner approves the Lessee's proposed supplemental requirements.

10. **Issuance Of Reclamation Plan:** After the permitting agencies issue the mining permit or other authorizations and the Commissioner reviews the permit and approves any supplemental requirements, the Commissioner may prepare a reclamation plan. The reclamation plan may consist of the permits or other authorization issued by the permitting agencies, incorporated by reference, and any supplemental requirements imposed by the Commissioner. The Lessee shall sign and acknowledge the plan, in triplicate, and return all three originals to the Commissioner. The Commissioner may thereafter approve the reclamation plan by signing the plan, in triplicate, and returning one fully executed original to the Lessee.

11. **Strict Compliance With Reclamation Plan:** The Lessee shall conduct mining activity in strict compliance with an approved reclamation plan. The reclamation plan in effect at any given time authorizes only such mining activity as is authorized under the permit or other authorization issued by the permitting agencies and expressly incorporated by reference into the plan.

12. **Additional Reclamation Plans:** The Lessee shall obtain an additional reclamation plan before conducting any mining activity that is not authorized under its existing reclamation plan. The Lessee shall obtain the additional reclamation plan to cover the new mining activity by following the procedure set out in 19.2.2.25 NMAC through 19.2.2.27 NMAC. The original and all additional reclamation plans approved by the Commissioner shall remain in full force and effect unless otherwise provided in the latest plan approved by the Commissioner. In the event of a direct conflict between the most current reclamation plan and any earlier plan, the most current plan shall govern.

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13. **Survival Of Reclamation Plan Requirements:** The Lessee's obligation to reclaim the Property in accordance with the reclamation plan in effect at the time the mineral Lease is suspended, relinquished or otherwise terminated for any reason shall survive such suspension, relinquishment or termination and continue so long thereafter as Lessee's liability under the Mining Act or other applicable laws continues. In the event of such suspension, relinquishment or termination of the mineral Lease, the Commissioner may provide the Lessee with written authorization to enter the Property to carry out the reclamation plan.
14. **Mine Development Plan Required:** No minerals shall be produced except in substantial compliance with a written mine development plan approved by the Commissioner. The mine development plan shall provide for efficient and orderly development of mineral reserves and prevention of waste. The mine development plan shall be consistent with the Lessee's obligation to reclaim the Property. The requirements of the mine development plan shall, upon approval by the Commissioner, be incorporated automatically into the mineral Lease without the necessity of further agreement between the Lessee and the Commissioner. Failure to substantially comply with the mine development plan shall constitute a violation of the mineral Lease.
15. **Obtaining A Mine Development Plan:** The Lessee shall submit a proposed mine development plan to the Commissioner, who shall review the plan and thereafter notify the Lessee, in writing, of any deficiencies. The Lessee shall then submit a modified proposal addressing the deficiencies and any other issues raised by the Commissioner. This process of submittal and review shall be repeated until the Commissioner and Lessee reach agreement on the plan. Once agreement is reached, the Lessee shall sign and acknowledge the mine development plan, in triplicate, and return all originals to the Commissioner. The Commissioner shall thereafter approve the plan by signing all three originals and returning one original to the Lessee.
16. **Modification Of Mine Development Plan:** If the Lessee determines that it is no longer feasible or economically prudent to follow the approved mine development plan, the Lessee shall submit a proposed modification of the plan to the Commissioner, together with the reasons that modification is required. The Lessee shall seek the Commissioner's approval for the modification by following the procedure set out in 19.2.2.32 NMAC. The Lessee shall continue to comply with the existing mine development plan until the Commissioner approves the modification. The Commissioner may refuse to approve any modification that the Commissioner determines is not in the best interest of the trust.
17. **Restriction On Permanent Pits, Piles And Impoundments:** No permanent pit, pile, impoundment or any other permanent manmade feature or improvement shall be placed on the Property unless specifically approved by the Commissioner. The Commissioner may refuse to approve any such permanent feature or improvement that would prevent productive post-mining use of the affected land, as determined by the Commissioner, unless the Lessee fully compensates the trust for the loss of such land through purchase or other arrangement approved by the Commissioner.
18. **No Processing Or Stockpiling Of Off-Lease Materials:** This Lease grants the Lessee the right to enter the Property for mining purposes, together with the right to use and occupy so much of the Property as may be necessary or convenient to carry out such mining purposes. The Lease does not authorize the Lessee to process or stockpile minerals, waste rock, ore, overburden or other materials obtained from off-Lease sources. Therefore, unless authorized under a separate commercial Lease issued by the Commissioner, no minerals, waste rock, ore, overburden or other materials obtained from off-Lease sources shall be processed or stockpiled on the Property.

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19. **Financial Assurance:**

- A. Unless waived by the Commissioner in writing, and before the commencement of mining activity, the Lessee shall provide financial assurance to guarantee payment of royalties and to comply with the terms and conditions of this Lease other than reclamation, which is covered under 19.2.2.39 NMAC. The Commissioner will determine the amount of financial assurance required.
- B. Unless waived by the Commissioner in writing, and before commencement of any exploration, drilling, development, processing and/or mining activities on, in and/or under the Property pursuant to this Lease, the Lessee shall execute and provide financial assurance to secure payment for potential injuries to the Property's surface and/or mineral estates, water rights appertaining thereto, and/or improvements on, in and/or under the Property that may result from the Lessee's said activities. The Commissioner shall fix or set the required financial assurance in an amount to be determined by the Commissioner depending upon the Lessee's proposed operations but not less than five thousand dollars (\$5,000). The financial assurance shall be in favor of the Commissioner, but held for the benefit of the State Land Office Trust and/or its beneficiaries, contract purchasers, patentees, right-of-way holders, easement grantees, licensees, permittees, surface and/or other lessees of the Property (including without limitation, agricultural, grazing, business, commercial, oil and gas, carbon dioxide, helium, coal bed methane, and/or other mineral estate lessees) with rights to the Property's surface and/or mineral estates. Provided that, in lieu of said financial assurance, the Commissioner may accept a waiver of financial assurance, duly executed or acknowledged by the owners of the said improvements and/or other rights described above.
- C. Lessees having multiple leases with the Commissioner may, with the approval of the Commissioner, provide one instrument to fulfill their total financial assurance obligations under all such Leases regarding the protection of improvements and/or other rights described above concerning the Property. The Commissioner shall fix or set the amount of the Lessee's consolidated financial assurance obligation, which amount shall not be less than twenty-five thousand dollars (\$25,000). The Lessee's obligation to provide financial assurance for payment of royalties and reclamation of the Property's surface and/or mineral estates is not eligible for coverage under this provision.
- D. The financial assurance required under this Lease and/or 19.2.2.36 NMAC, 19.2.2.37 NMAC, and 19.2.2.38 NMAC is in addition to that which the permitting agency may require pursuant to the New Mexico Mining Act or comparable law, whichever applies. If the Commissioner determines that the amount or coverage of financial assurance required by the permitting agency is insufficient to adequately protect and reclaim the Property's surface and/or mineral estate, the Commissioner may require the Lessee to provide additional financial assurance as a supplemental requirement to this Lease under 19.2.2.26 NMAC.
- E. Forms for all financial assurance instruments required by the Commissioner shall either be prescribed by the Commissioner or be in a form approved by the Commissioner.

20. **Inspections:**

- A. The Commissioner has the right to inspect all records and books of account pertaining to the operations under the mineral Lease, including records and books relating to mining, production, extraction, processing, transportation, reduction, returns and reclamation. At the request of the Commissioner, the Lessee shall furnish such reports, books, records, samples, logs, assays or cores, as the Commissioner deems reasonably necessary to the proper administration of the Lease.
- B. The Commissioner has the right to enter the Property and the facilities located thereon to inspect operations thereon, to conduct a field audit and to inspect the records and books referred to in Subsection A of this section. To facilitate field audits and inspections under this subsection, the Lessee shall keep originals or true and accurate copies of all of the foregoing records, books, documents and sample materials on the Property unless otherwise approved by the Commissioner in writing.
- C. The Lessee shall allow the permitting agencies to enter the Property and the facilities located thereon to conduct activities or inspection consistent with such agencies' regulatory jurisdiction over Lessee's operations or mining activity.
- D. No prior notice is required under this section. Failure to timely comply with this section by the

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Lessee, and failure to correct violations noted as a result of site inspections provided hereunder, shall constitute a breach subjecting the Lease to cancellation.

21. **Compliance With Laws:** The Lessee shall be responsible for compliance with all laws, regulations, rules, ordinances, permits, licenses and other requirements applicable to the Leasehold estate and the operations thereon. Upon receiving notice from a government agency of an actual, potential or alleged violation of law, the Lessee shall promptly notify the Commissioner of the alleged violation and provide copies of all related documents to the Commissioner.
22. **Cessation Of Production Before Expiration Of Set Terms:**
- A. If production in paying quantities commences during the primary or any subsequent term and thereafter ceases before the quaternary term would have expired had there been no such production, then the Lease shall be deemed a "non-producing" Lease on the date that production in paying quantities ceases. Notwithstanding such cessation of production in paying quantities, a non-producing Lease shall not expire if the Lessee continues to pay rent and, if the Lease is in its quaternary term, advanced royalties.
  - B. The Lessee may maintain the mineral Lease in effect under this section until the end of the quaternary term and so long thereafter as minerals are produced in paying quantities.
23. **Cessation Of Production After Expiration Of Set Terms:** If for any reason beyond the Lessee's control, production in paying quantities ceases after the quaternary term would have expired, then the Lessee may, with the written approval of the Commissioner, continue the Lease from year to year for an additional period not to exceed three years. The Lessee shall continue to pay in advance the annual rental at the rate provided in the quaternary term and an advance royalty of sixty dollars (\$60.00) per acre per each year of the extended term.
24. **Suspension Of Mineral Lease:** After notice and hearing, the Commissioner may suspend a mineral Lease for a period not exceeding five years if the Commissioner finds:
- A. the Lessee is not in default,
  - B. suspension of the Lease will not affect compliance with safety, reclamation or environmental requirements,
  - C. the Lessee submitted a written request for suspension to the Commissioner prior to expiration of the Lease,
  - D. the Lessee submitted adequate evidence, as determined by the Commissioner, to prove that the discovery on the Property of an ore body containing valuable mineral deposits in merchantable quality and quantity, and
  - E. temporary conditions beyond the Lessee's control have precluded mining on the Property except at an economic loss or at an unreasonable threat to safety.
25. **Lessee's Obligations During Suspension Of Mineral Lease:** The Lessee's obligation to pay rent and royalties shall be suspended during the period the mineral Lease is suspended. Provided, however, that the Lessee shall pay a non-refundable fee of sixty dollars (\$60.00) per acre for each year of suspension. Suspension of a mineral Lease shall not operate to relieve the Lessee from its obligations under this lease, the New Mexico Mining Act and other applicable laws.
26. **Notice Of Commencement Of Production:** Within five (5) days after commencing production, the Lessee shall notify the Commissioner of such production in writing, giving the date that production commenced, and stating specifically the legal subdivision, section, township and range where production occurred. The Lessee shall provide the same notice where production re-commences after a period of cessation lasting three consecutive months or longer.
27. **Lease Assignments Must Be Approved By Commissioner:** The Lessee may assign this mineral Lease, in whole or in part, only if the Commissioner approves the assignment. No purported assignment will bind the Commissioner, or change the Lessee of record, unless approved in writing by the Commissioner. Provided, however, that a mere change in the name of the mineral Lessee will not constitute an assignment requiring approval by the Commissioner. The Lessee shall promptly notify the Commissioner, in writing, of any change

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in name or mailing address.

28. **Approval Of Lease Assignments:** The Commissioner may approve an assignment of this mineral Lease, in whole or in part, if the Commissioner finds:
- A. the assignment does not create an undivided interest in the Lease or any part thereof,
  - B. the assigned portion of the Property is not less than a legal subdivision,
  - C. the assignment is executed in the proper form and by the proper person,
  - D. the Lease is in good standing as to the assigned portion of the Property,
  - E. no litigation is pending that could affect the Lease or the interest of any person therein,
  - F. the assignee has been pre-qualified pursuant to 19.2.2.21 NMAC; and
  - G. the assignment will not adversely affect the interests of the trust.
29. **Form Of Assignments:** Assignments of mineral Leases shall be upon forms prescribed and furnished by the Commissioner. The Commissioner's approval of an assignment shall be noted on all copies of the assignment. Assignments shall be executed and acknowledged in the same manner prescribed for conveyance of real estate and shall be filed in triplicate with the Commissioner. One original shall be recorded permanently, the second filed and the third returned to the assignee.
30. **Assignment Fee:** The non-refundable fee for filing an assignment of a mineral Lease shall be set forth in the schedule of fees.
31. **Subleasing Prohibited:** The Lessee shall not sublease this mineral Lease.
32. **Side Agreements:** Side agreements are not binding upon the Commissioner and do not change the Lessee's obligations under this mineral Lease. The Lessee of record shall remain responsible for compliance with the terms and conditions of the mineral Lease.
33. **Cancellation Of Mineral Lease And Opportunity To Cure:** The Commissioner may cancel any mineral Lease for non-payment of rentals, non-payment (or underpayment) of royalties and for violation of any of the terms, covenants or conditions of the mineral Lease. However, before any such cancellation shall be made, the Commissioner shall mail a thirty-day (30) notice of cancellation to the Lessee, by registered or certified mail, at the address of the Lessee shown by the records of the Commissioner. The thirty-day (30) notice shall specify the default for which the Lease is subject to cancellation. If the default is not cured within thirty (30) days after the Commissioner mails the notice, then the Commissioner may cancel the Lease. No proof of receipt of such notice is necessary for cancellation. The Lessee shall be liable for all reasonable attorneys fees and costs incurred by the Commissioner in enforcing the terms of the Lease, including fees and costs incurred in regaining possession of and reclaiming the Property.
34. **Relinquishment Of Mineral Lease:** With the consent of the Commissioner, a mineral Lease in good standing may be relinquished, in whole or in part, upon approval of the Commissioner and payment of the non-refundable filing fee in accordance with the schedule of fees. However, the Commissioner will not approve relinquishment of an undivided interest in a Lease or less than a legal subdivision. Relinquishment does not relieve the Lessee from its obligation to reclaim the Property.
35. **Reservations:** All rights not expressly granted under this mineral Lease are reserved to the Commissioner. Notwithstanding the issuance of this mineral Lease, and without limitation of said reservation of rights by the Commissioner, the Commissioner specifically reserves the right to:
- A. Lease the Property for grazing, agricultural or commercial purposes;
  - B. Lease the Property for oil and gas, coal bed methane gas, helium and/or carbon dioxide exploration and extraction;
  - C. Lease the Property for the development of geothermal resources;
  - D. Lease the Property for exploration, drilling, development, processing, extraction and/or mining of minerals on, in, under and/or from the Property other than the aforescribed principal mineral and minerals associated therewith which are the subject of this mineral Lease;

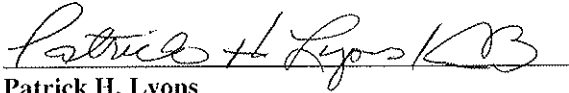
- E. Sell the Property subject to the mineral Lease, reserving all minerals of whatsoever kind to the New Mexico State Land Office; and
  - F. Issue rights of way and easements over, under, upon or across the Property for any purpose, including but not limited to, public highways, railroads, tramways, telegraph, telephone and power lines, pipelines, irrigation works, mining, logging and for exploration and development of geothermal resources.
36. **Cultural Properties:** Any archaeological sites, historical artifacts or other cultural resources, including but not limited to pottery, bone, modified stone and early historic remains, on or within the Property are the Commissioner's property. Lessee shall immediately stop mining or exploration operations, report the discovery of any such material to the State Land Office Field Operations Division Director, and shall consult with the State Land Office Field Operations Division Director to determine a course of action.
- A. Adequate fencing may be required to protect and preserve any significant sites as determined by the State Land Office Field Operations Division Director.
  - B. Liability for damages to cultural resources, including restoration costs, is that of the Lessee.
  - C. In the event that the presence of cultural resources materially and adversely affects the ability of the Lessee to use a portion or all of the Property, the Lessee may, with the approval of the State Land Office Field Operations Division Director, negotiate an effects mitigation plan for legal removal of the cultural resources, surrender the entire legal subdivision in which the archaeological sites or other cultural resources are located or surrender the entire parcel.
  - D. Unless a class III Archaeological survey is conducted for the Property and a Letter of Clearance obtained, the following will apply:
    - i. An on-site archaeologist will be required during any ground disturbing activities conducted under an Exploration permit issued to the Lessee for the Property under the New Mexico Mining Act.
    - ii. A letter of clearance for the specific site to be disturbed from the State Historical Preservation Officer must be obtained by the Lessee under the New Mexico Mining Act for the Property prior to any ground disturbing activities initiated under a minimal impact mining permit.
37. **Indemnity.** Lessee shall save, hold harmless, indemnify and defend the State of New Mexico, Commissioner and Commissioner's employees, agents and contractors, in both their official and individual capacities, from any and all liability, claims, losses, damages, or expenses, including but not limited to attorney's fees, court costs, loss of land value or use, third party claims, penalties, or removal, remedial or restoration costs arising out of, or alleged to arise out of:
- A. The operations or presence on the Property, or on adjacent or proximate state trust lands, including those used to access the Property for the purposes of this Lease, of Lessee or Lessee's employees, agents, contractors or invitees;
  - B. The activities of third parties on the Property, or on adjacent or proximate state trust lands, including those used to access the Property or other adjacent or proximate state trust lands, whether with or without Lessee's knowledge or consent;
  - C. Any Hazardous Materials located in, under, upon or otherwise affecting the Property or adjacent or proximate property, resulting from the Lessee's operations.
38. **Waiver Of Reservations:** The Commissioner may, at the Commissioner's discretion, agree not to exercise one or more of the rights reserved above upon payment of additional consideration determined by the Commissioner.

39. **Commissioner's Statutory Right To Purchase Production:** The Commissioner has the right to purchase at any time and from time to time, at the market price prevailing in the area on the date of purchase, all or part of the minerals that may be produced from the Property. (The Commissioner may waive this reservation by following the procedure set out in Section 19-14-2 NMSA 1978.)
40. **Road Development:** Lessee shall comply with the requirements for development and closure of roads set forth in 19.2.20 NMAC.
41. **Trespass And Prevention Of Waste:** Lessees shall protect the Property and mineral estate from waste or trespass in accordance with Sections 19-6-1 *et seq.* NMSA 1978.
42. **Water Rights:**
- A. Any and all water rights developed on the Property by Lessee shall be developed in the name of the Commissioner. Lessee, at its own expense, shall comply with all regulations of, and obtain all necessary permits from, the New Mexico State Engineer's Office.
  - B. Lessee shall have the use of such water rights solely for Lease operations during the term of the Lease. Upon expiration or termination of the Lease, such water rights shall be retained by Commissioner. During the term of the Lease, Lessee shall preserve, protect and defend such water rights.
43. **Venue And Applicable Law:** All legal actions regarding mineral Leases issued under 19.2.2 NMAC shall be brought in the First Judicial District, Santa Fe, New Mexico. New Mexico law shall govern.
44. **Interest On Late Payments:** Lessee shall pay interest at the rate of one percent (1%) per month on any late payment of rents, royalties or other payments required under the mineral Lease. If the Lessee fails to pay the entire amount owed, then interest shall accrue on the unpaid portion. Interest shall begin to accrue on the day the payment becomes due and continue to accrue daily until payment is made.
45. **Removal Of Improvements:** Upon termination of the mineral Lease by reason of forfeiture, surrender, expiration of term or for any other reason, Lessee may with the Commissioner's consent and/or approval, pursuant to Section 19-8-29 NMSA 1978, remove all improvements and equipment as can be removed without material injury to the Property; provided, however, that all rents and royalties have been paid and that such removal is accomplished within two (2) years from the termination date or before such earlier date as the Commissioner may set upon thirty (30) days written notice to the Lessee. All improvements and equipment remaining upon the Property after the removal date as set in accordance with this section shall be forfeited to the Commissioner without compensation, unless such forfeiture is disclaimed by the Commissioner. Notwithstanding the foregoing, the Commissioner may require the Lessee to remove any and all improvements from the Property and to reclaim any surface disturbance caused by such removal in accordance with its reclamation plan.
46. **Immediate Cessation Of Operations In The Event Of An Environmental Or Health And Safety Threat:** In the event that the Commissioner, in his discretion, concludes that there exists any substantial and imminent environmental or health and safety threat caused by, connected with, or affecting either Lessee's operations under this Lease or the Property, the Commissioner may direct the immediate cessation of Lessee's operations on the Property, vacating the Property by Lessee's personnel, and/or removal of any equipment or supplies that the Commissioner believes should be removed in order to abate or avoid the threat.

SIGNATURE PAGE

Mineral Lease HG-0105

Approved by the Commissioner of Public Lands on this 16th day of Sept, 2010.



Patrick H. Lyons  
Commissioner of Public Lands



Signature of Lessee or Authorized Agent

ACKNOWLEDGMENT IN AN INDIVIDUAL CAPACITY

State of \_\_\_\_\_

County of \_\_\_\_\_

This instrument was acknowledged before me on 20 by \_\_\_\_\_  
(date) (name(s) of person(s))

\_\_\_\_\_  
Signature of Notarial Officer

Printed Name \_\_\_\_\_  
(Notary)

(Seal)

My commission expires: \_\_\_\_\_

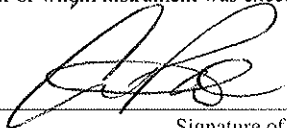
2010 SEP 13 PM 10 04

ACKNOWLEDGMENT IN A REPRESENTATIVE CAPACITY

City of Vancouver  
State of B.C.  
Province of B.C.

This instrument was acknowledged before me on September 10, 2010  
by Lawrence Page, V.C.  
(name(s) of person(s))

as officer (President)  
(type of authority, e.g., officer, trustee, etc.) of  
Southern Silver Exploration Corp (U.S.)  
(name of party on behalf of whom instrument was executed.)

  
Signature of Notarial Officer  
Printed Name: Arie Page  
(Notary)

(Seal)

My commission expires: does not expire

ARIE A. PAGE  
Barrister & Solicitor  
1100-1199 West Hastings Street  
Vancouver, BC V6E 3T5  
604-641-2767

# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #5 - Location of Proposed and Permitted Drill Sites.**

SITE ID	Easting NAD83Z12	Northing NAD83Z12	Claim/Property	Status
A	739779	3532785	Oro 423	permitted
B	740686	3533262	Oro 222	permitted
D	743571	3532151	Oro 91	permitted
E	740632	3534415	TQ # 1	permitted
F	741870	3531902	New Mexico State Section	permitted
H	742238	3532477	Oro 123	permitted
I	740942	3534852	Oro 206	<i>new site</i>
J	740217	3534705	Oro 721 (Private Surface)	<i>new site</i>
K	739700	3534669	Oro 732 (Private Surface)	<i>new site</i>
N	745163	3533139	Oro 612	<i>new site</i>
O	744984	3533149	Oro 610	<i>new site</i>
P	738799	3535829	Oro 756 (Private Surface)	<i>new site</i>
Q	738680	3535976	Oro 755 (Private Surface)	<i>new site</i>

# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #6 - Proposed and Permitted Drill Sites-Location-Datum-Drillhole data.**



SITE ID	DRILLED	Easting NAD27	Northing NAD27	Easting NAD83	Northing NAD83	Status	Land Title	Dip	Azimuth	Depth (m)
A	YES, OR22-010	739841	3532589	739779	3532785	Reclaimed, not seeded, retain for future drilling	BLM	N/A	N/A	N/A
BB	YES, OR22-011,-013	740748	3533066	740686	3533262	Permitted, retain for future drilling	BLM	N/A	N/A	N/A
D	NO	743633	3531955	743571	3532151	Permitted	BLM	-85	260	1000
E	Yes, OR22-012	740694	3534219	740632	3534415	Permitted, drilled, plugged	BLM	N/A	N/A	N/A
E1	NO	"	"	"	"	Permitted	"	-55	315	1000
E2	NO	"	"	"	"	"	"	-75	270	1000
F	NO	741932	3531706	741870	3531902	Permitted	NM State	-60	125	1000
H1	NO	742300	3532289	742238	3532477	Permitted	BLM	-65	90	1000
H2	"	"	"	"	"	"	"	-60	315	1000
I1	N/A	741004	3534656	740942	3534852	<i>Not Yet Permitted</i>	BLM	-60	270	1000
I2	N/A	"	"	"	"	"	"	-60	615	1000
J	N/A	740279	3534509	740217	3534705	<i>Not Yet Permitted</i>	Private Surface/BLM Claims	-70	315	1000
K	N/A	739762	3534473	739700	3534669	<i>Not Yet Permitted</i>	Private Surface/BLM Claims	-60	270	1000
N	N/A	745227	3532939	745163	3533139	<i>Not Yet Permitted</i>	BLM	-90	0	1000
O	N/A	745048	3532947	744984	3533149	<i>Not Yet Permitted</i>	BLM	-90	0	1000
P	N/A	738861	3535633	738799	3535829	<i>Not Yet Permitted</i>	Private Surface/BLM Claims	-70	135	1000
Q	N/A	738742	3535780	738680	3535976	<i>Not Yet Permitted</i>	Private Surface/BLM Claims	-90	0	1000

Sites previously permitted
Sites not permitted

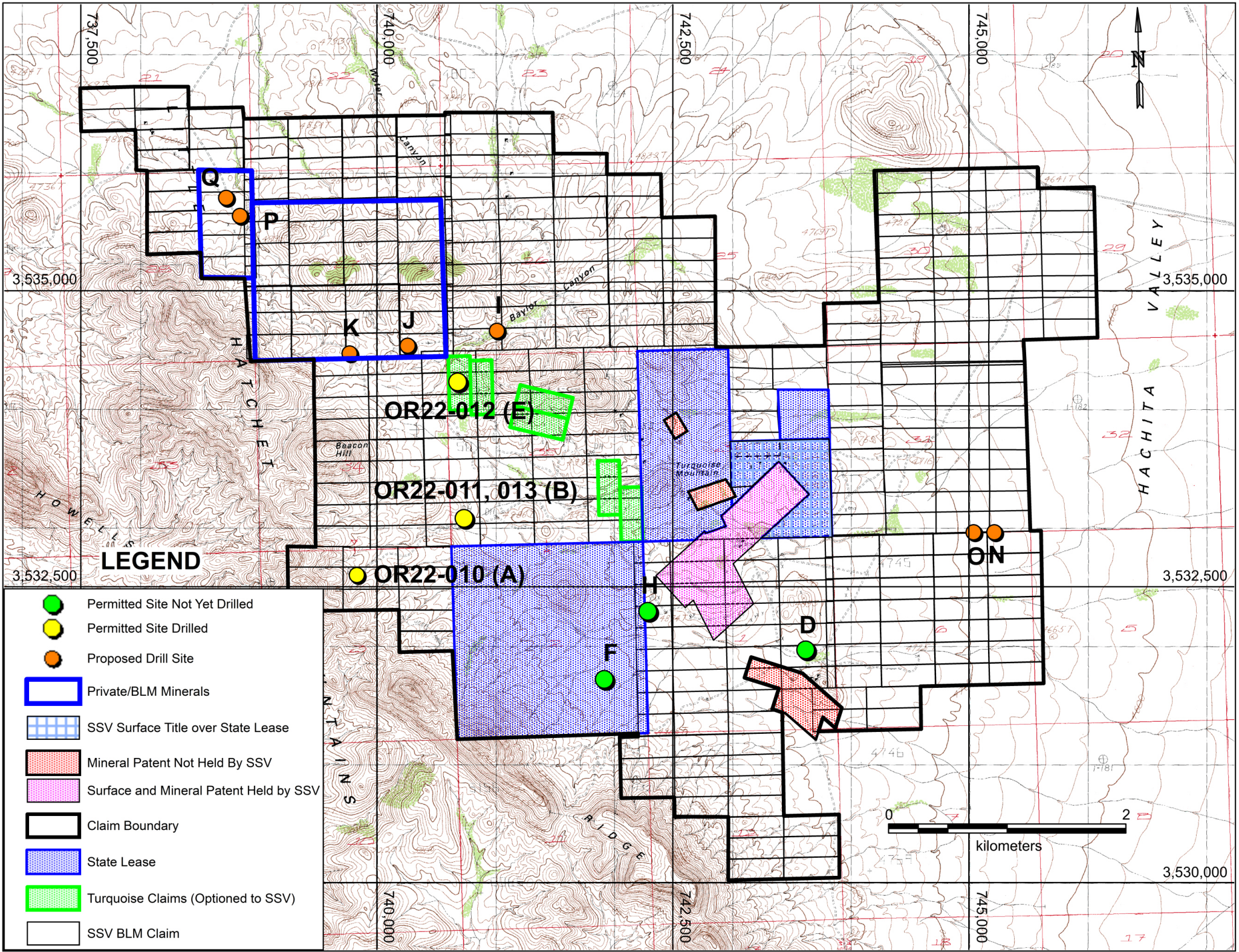
# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

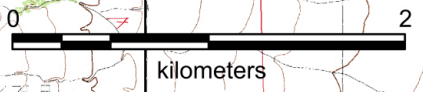
**Attachment #7 - Oro Permit Map.**





**LEGEND**

- Permitted Site Not Yet Drilled
- Permitted Site Drilled
- Proposed Drill Site
- Private/BLM Minerals
- SSV Surface Title over State Lease
- Mineral Patent Not Held By SSV
- Surface and Mineral Patent Held by SSV
- Claim Boundary
- State Lease
- Turquoise Claims (Optioned to SSV)
- SSV BLM Claim



OR22-012 (E)

OR22-011, 013 (B)

OR22-010 (A)

HATCHET

VALLEY

HACHITA

MOUNTAINS

RIDGE

737,500

740,000

742,500

745,000

3,535,000

3,535,000

3,532,500

3,532,500

3,530,000

740,000

742,500

745,000



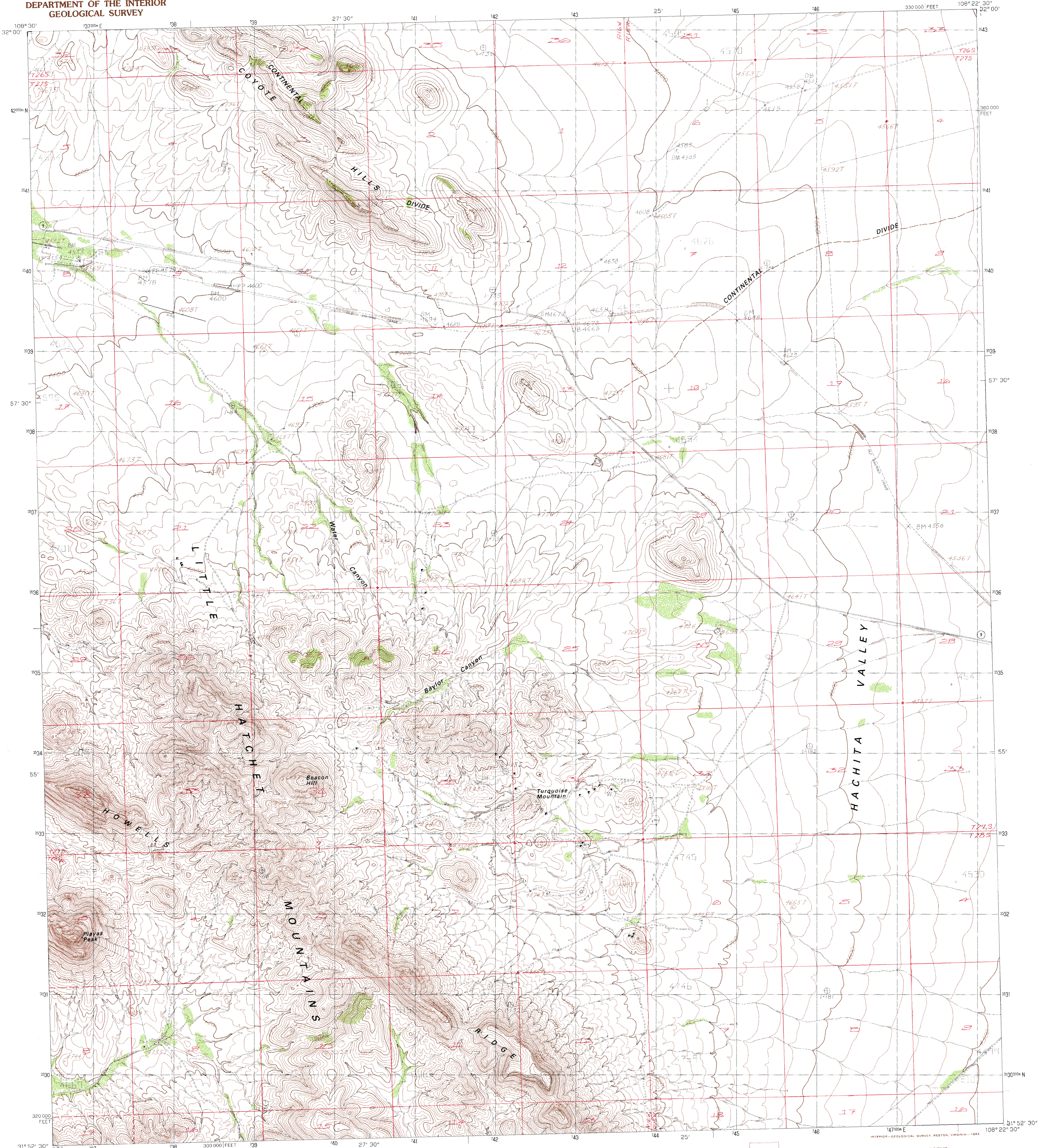
# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

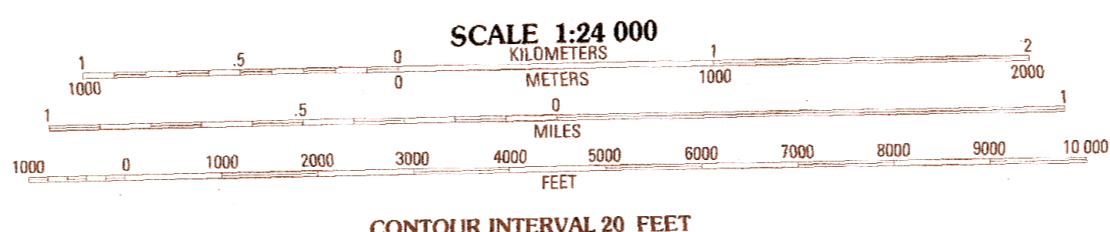
**Attachment #7.1 – Playas Peak USGS 7.5-minute Quadrangle Map.**





PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY  
CONTROL BY USGS, NOS/NOAA  
COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1976  
FIELD CHECKED 1977 MAP EDITED 1982  
PROJECTION TRANSVERSE MERCATOR ZONE 12  
GRID: 1000-METER UNIVERSAL TRANSVERSE MERCATOR  
10,000-FOOT STATE GRID TICKS NEW MEXICO WEST ZONE  
1982 MAGNETIC NORTH DECLINATION 11°30' EAST  
UTM GRID DECLINATION 1927 NORTH AMERICAN DATUM  
VERTICAL DATUM NATIONAL GEODETIC VERTICAL DATUM OF 1929  
HORIZONTAL DATUM 1927 NORTH AMERICAN DATUM  
To place on the predicted North American Datum of 1983, move  
the projection lines as shown by dashed corner ticks  
(9 meters south and 56 meters east)  
There may be private inholdings within the boundaries of any  
Federal and State Reservations shown on this map

**PROVISIONAL MAP**  
Produced from original  
manuscript drawings.  
Information shown as of date of  
field check.



SCALE 1:24 000  
CONTOUR INTERVAL 20 FEET

To convert meters to feet multiply by 3.2808  
To convert feet to meters multiply by 0.3048

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO, 80225  
OR RESTON, VIRGINIA 22092



QUADRANGLE LOCATION

1	2	3	1 Coyote Peak
4	5	6	2 Brockman
7	8	7	3 The Salinas
		8	4 Playas Lake North
			5 Hachita
			6 Playas Lake South
			7 Hachita Peak
			8 Doyle Peak

ADJOINING 7.5 QUADRANGLE NAMES

ROAD LEGEND

Improved Road .....  
Unimproved Road .....  
Trail .....  
Interstate Route ..... U.S. Route ..... State Route .....

PLAYAS PEAK, NEW MEXICO  
PROVISIONAL EDITION 1982

31108-H4-TF-024



# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #8 - Access Agreement 2024.**

**ACCESS AGREEMENT – ORO PROJECT, GRANT COUNTY, NEW MEXICO**

THIS AGREEMENT made as of the 16th day of March, 2024

BETWEEN:

**SOUTHERN SILVER EXPLORATION CORP.**, a British Columbia company, together with its wholly-owned subsidiary **SOUTHERN SILVER EXPLORATION CORP. (US)**, a Nevada company, having an office at 1100 – 1199 West Hastings Street, Vancouver, British Columbia V6E 3T5

(collectively, “**Southern Silver**”)

AND:

**ACE PETERSON AND KAY PETERSON**, individuals having an address of

1353 S. Turkey Creek Rd., San Simon, AZ 85632

(collectively, “**Peterson**”)

WHEREAS:

- A. Peterson is the registered owner in lands derived from a patent issued under the federal *Stock Raising and Homestead Act*, whereby the federal government reserved the mineral estate. The lands are located approximately 10 kilometres west of Hachita, New Mexico and are more particularly described in the attached Schedule A (the “**Ranch**” or “**Lands**”).
- B. Southern Silver owns Federal lode mineral claims that are located partly on the Ranch as set out in Schedule B, by way of which Southern Silver holds the mineral rights in this area entitling it to explore for minerals underlying all or a portion of the Ranch;
- C. Southern Silver is planning to apply for permits with the Bureau of Land Management (“**BLM**”) and the New Mexico Mines and Minerals Division (“**NMMMD**”) for exploration on the claims, subject to an access agreement with the owner of the surface patent;
- D. Southern Silver Exploration Corp. is a publicly traded mining company that, through its wholly-owned Nevada subsidiary, owns lode mineral claims with respect to minerals beneath the surface of the Ranch and adjacent parcels. Southern Silver wishes to perform certain mineral exploration work on its mineral holdings within the Ranch. A map illustrating the interests of the parties is attached as Schedule C; and
- E. The parties wish to enter a fair and equitable arrangement whereby Southern Silver is allowed access to the Ranch in order to carry out its mineral exploration and related work and whereby Peterson is protected from the risks of damage to the Ranch which may result from that work.

NOW, THEREFORE, THIS AGREEMENT WITNESSES that, in consideration of the payment of \$1.00 by Southern Silver to Peterson and the mutual covenants and agreements herein contained, the parties hereto mutually agree as follows:

## **1.0 ACKNOWLEDGMENTS**

1.1 The parties acknowledge provisions in the *Stock Raising and Homestead Act* which provide that a miner may enter land in which minerals are reserved to the government and prospect and explore for, locate, mine and produce minerals.

1.2 The parties further acknowledge that to obtain permits to conduct physical surface work on such land, an access agreement with the recorded surface patent holder must be filed as part of the permit applications with the BLM and the NMMMD.

## **2.0 ACCESS**

2.1 Subject to the terms and conditions contained in this Agreement, Peterson will allow Southern Silver, its consultants, employees, and agents access onto the Ranch until December 31, 2033, for the purpose of carrying out the mineral exploration work on the Ranch described in Section 3.0.

2.2 The parties acknowledge that Southern Silver may wish to perform further exploration work after this Agreement has expired, but that the terms for access under which further work may be carried out will be subject to a further agreement which the parties agree to negotiate and conclude in good faith.

2.3 Southern Silver shall only use the existing roads as indicated on the U.S. Geological Survey Topographic map attached hereto as Schedule D (the "Roads") or temporary access roads that have been approved by Peterson in writing, as well as approved and bonded for reclamation with the NMMMD.

2.4 In accordance with the terms of this Agreement, Southern Silver may use the Roads located on or providing access to the Lands. Southern Silver will keep Peterson informed of its use of such Roads and will use the Roads in a manner which does not interfere with Peterson's use of the Roads.

2.5 Southern Silver shall leave all gates on the Ranch closed unless otherwise instructed by Peterson from time to time.

## **3.0 SCOPE OF INTENDED WORK**

3.1 Southern Silver will, prior to commencing the work, provide Peterson with a summary of the work program it intends to conduct in each year of this Agreement on or before April 1st of that year.

3.2 If Southern Silver proposes to amend or alter a part of the work which Peterson has been provided notice of, Southern Silver shall provide a revised work plan at least 30 days in advance of commencing or continuing that part of the work. Southern Silver will reclaim any areas where its work has had any impact on the Ranch.

## **4.0 COMPENSATION AND REGULATORY BONDS**

4.1 Southern Silver will obtain all necessary permits to carry out its work programs referred to in Section 3.1 and will post such bonds as may be required by the NMMMD in connection with its activities on the Ranch and, prior to commencing a work program, Southern Silver will provide copies of the permits thereof to Peterson.

4.2 In addition to obligations of Southern Silver hereunder, Southern Silver agrees to pay Peterson compensation of \$2,000 on an annual basis during the term of this Agreement commencing on April 1, 2024.



## **5.0 SOUTHERN SILVER'S OBLIGATIONS TO RECLAIM AND COMPENSATE**

5.1 Southern Silver will repair any damage to the Roads caused by the actions of Southern Silver or its contractors. Southern Silver, at its discretion, shall be entitled to repair any damage to the Roads necessary for its access to its mineral holdings within the Lands, regardless of the cause of such damage.

5.2 Southern Silver will not, and will ensure that its contractors do not, use any water resources on the Ranch.

5.3 Southern Silver will, upon completion of work, leave the work sites in a safe and environmentally sound condition as required by BLM and NMMMD permits.

5.4 Should Southern Silver cause damage to soils or vegetation, Southern Silver will, at its expense, restore and reclaim those Lands disturbed by Southern Silver's use as required by BLM and NMMMD permits. Reclamation bonds will remain in place until sign-off by the BLM, NMMMD and Peterson, provided that such sign-off by Peterson shall not be unreasonably withheld.

5.5 Notwithstanding any other term of this Agreement, Southern Silver will at its own expense repair any and all damage and alteration caused by it on the Lands in carrying out its work so as to restore the Lands and Roads as nearly as possible to the state it was in before that work was done in accordance with BLM and NMMMD permits.

## **6.0 HAZARDOUS SUBSTANCES**

6.1 Southern Silver will not bring upon, or permit to be brought upon, the Lands or any part thereof, any Hazardous Substances except in the normal course of business in its operation on the Lands and as may be allowed pursuant to permits.

## **7.0 INDEMNITIES**

7.1 Southern Silver will indemnify and save Peterson harmless from any and all liabilities, damages, costs, claims, suits or actions growing out of any injury to any person or persons, including death, or any damage to property occurring in or about the Lands resulting from Southern Silver's exploration work or the activities of Southern Silver, its employees or agents on the Lands and arising from or occasioned by any cause whatsoever.

7.2 Southern Silver shall promptly pay all costs and charges incurred by it in connection with its activities on the Ranch and shall not suffer nor permit any mechanics' or other liens to attach to any property of Peterson, save and except for such liens which Southern Silver in good faith disputes arising from the actions of Southern Silver. Southern Silver will post security for such liens contested in good faith.

## **8.0 INSURANCE**

8.1 Southern Silver shall provide, maintain and pay for the following insurance:

- (a) Commercial General Liability Insurance, in an amount not less than \$3 million per occurrence and in aggregate, covering claims for bodily injury, property damage and contractual liability which may arise directly or indirectly out of the operations of Southern Silver under this Agreement, and in an amount not less than \$2,000,000 with respect to forest fire fighting expenses; and

- (b) Statutory motor vehicle liability insurance in an amount not less than \$2 million inclusive of any one occurrence on Southern Silver's non-owned vehicles, covering claims for property damage arising out of the operations of Southern Silver, under this Agreement.

8.2 Southern Silver shall ensure that the policy of insurance referred to in Section 8.1(a) indicates that the insurer will give Peterson at least 30 days' prior written notice of cancellation or termination of the coverage and will promptly cause its insurer to send a certificate of insurance evidencing this coverage to Peterson at the address set out on the first page of this Agreement. Upon request, Southern Silver will arrange for Peterson to be included as an Additional Insured on such insurance policy.

8.3 The requirement for insurance in the amounts and for the coverage as stated in this Section 8.0 shall not limit the liability of Southern Silver to Peterson as contemplated in this Agreement. Southern Silver will obtain insurance in such greater amounts and for such greater coverage as it deems prudent to protect itself and Peterson hereunder.

8.4 If an employee of Southern Silver or any other individual is injured or if any incident of fire, explosion or other accident type losses occur, whether or not they are covered by insurance, Southern Silver will immediately notify Peterson and, within 24 hours, provide Peterson with a detailed written report describing any incident.

8.5 Southern Silver shall require any contractors performing mechanized work on the Lands to carry their own insurance and will require that Southern Silver is listed as an Additional Insured on such contractor's insurance policy.

8.6 If any insurance policy or coverage outlined in this Section 8.0 lapses or terminates, Southern Silver must, and must cause all contractors and agents of Southern Silver to, stop all work on the Lands until such insurance coverage is re-established.

## **9.0 COMPLIANCE WITH LAWS**

9.1 Southern Silver shall comply with all provisions of law including, but not limited to, all federal, state and municipal laws, by-laws, ordinances and regulations relating to its activities on the Ranch.

## **10.0 TERMINATION**

10.1 This Agreement may be terminated by Peterson upon occurrence of any of the following events:

- (a) upon failure of Southern Silver to maintain any required bond as required under Section 4.1;
- (b) upon failure of Southern Silver to comply with the material terms of any permits issued to Southern Silver in connection with the work to be carried out under this Agreement;

Peterson may give Southern Silver written notice of default and Peterson may, unless Southern Silver promptly begins to remedy the default and does, in fact, remedy the default or take steps to cure such default within 60 days of Peterson's notice, terminate this Agreement.

10.2 This Agreement may be terminated by Southern Silver prior to April 1 in any given year.

**11.0 MISCELLANEOUS**

11.1 Peterson makes no representations or warranties to Southern Silver respecting the condition of the Lands, the Roads or the suitability thereof for their use as contemplated herein.

11.2 This Agreement will enure to the benefit of and be binding upon the parties and their respective successors and assigns.

11.3 Any notice required hereunder will be deemed to have been properly and sufficiently given if delivered in person or sent by prepaid registered mail to the address of the parties first above written and shall be deemed to have been received and delivered, in person, or five days after date of mailing if mailed.

11.4 All references to currency in this Agreement shall refer to the lawful currency of the United States of America.

11.5 The parties agree to enter into such further agreements and arrangements as may be reasonably necessary to carry out the spirit and intent of this Agreement.

11.6 This Agreement may be executed in counterpart and delivered in original or electronically transmitted form and where so executed the date of this Agreement will be deemed to be the date on which this Agreement is executed by the last person to execute it.

IN WITNESS WHEREOF the parties have executed this Agreement as of the date first above written.

**SOUTHERN SILVER EXPLORATION CORP.**

Per:   
\_\_\_\_\_  
Authorized Signatory

**SOUTHERN SILVER EXPLORATION CORP. (US)**

Per:   
\_\_\_\_\_  
Authorized Signatory

SIGNED AND DELIVERED by  
**ACE PETERSON** in the presence of:

*Ace Peterson*

Signature

1353 S Turkey Creek Rd., San Simon, AZ 85632

Address

rancher

Occupation

*Ace Peterson*

**ACE PETERSON**

SIGNED AND DELIVERED by  
**KAY PETERSON** in the presence of:

*Kay Peterson*

Signature

1353 S Turkey Creek Rd., San Simon, AZ 85632

Address

rancher

Occupation

*Kay Peterson*

**KAY PETERSON**

**Schedule A: The "Ranch"**

The "**Ranch**" means the Homestead Patent parcels described below and outlined in heavy blue color on the map attached below as Schedule C.

**All Private Lands Owned by Peterson**

**Homestead Patent Number 1087952**

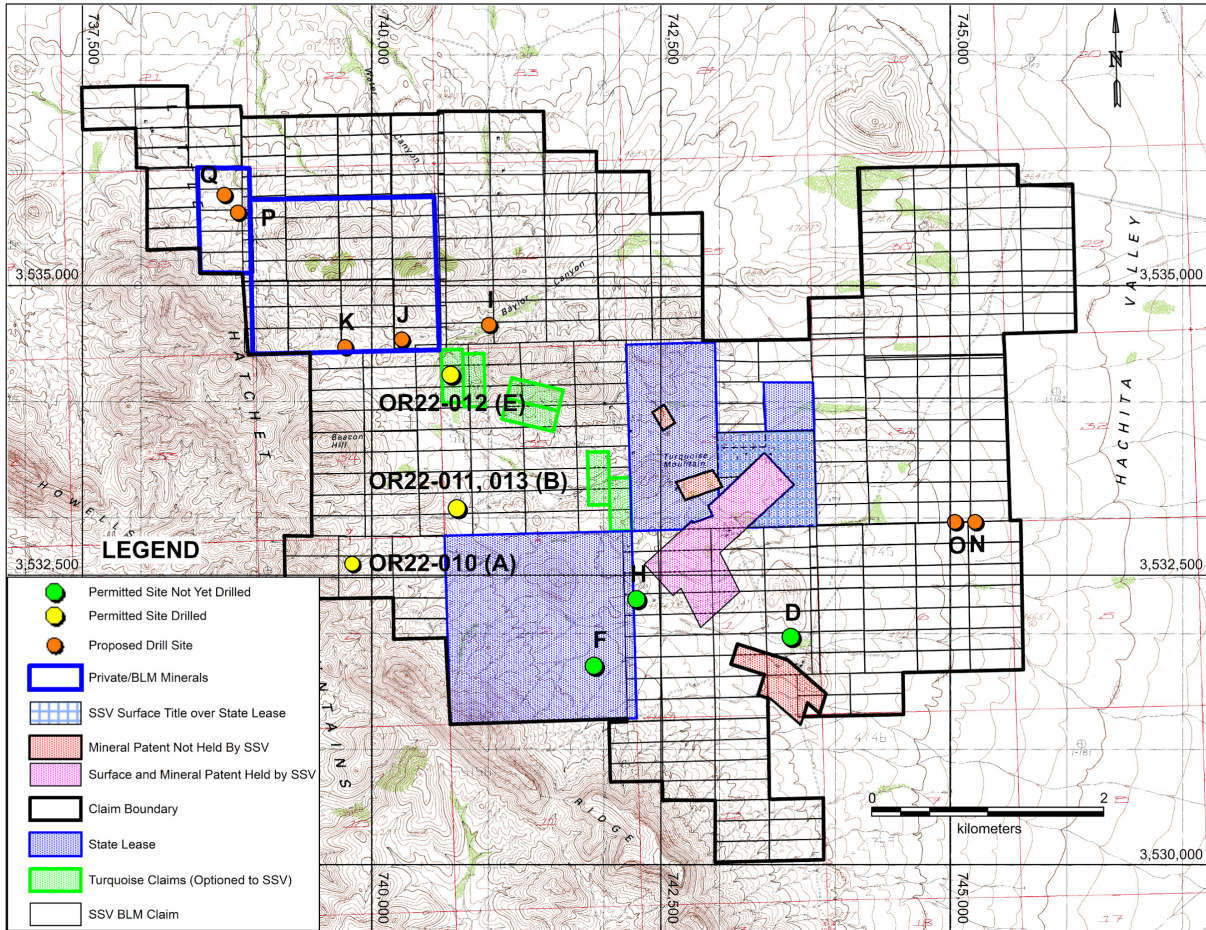
<b>Subdivision</b>	<b>Section</b>	<b>Township</b>	<b>Range</b>	<b>Meridian</b>
S1/2	27	27S	16W	NM
S1/2 of N ½	27	27S	16W	NM
E1/2 of NE ¼	28	27S	16W	NM

**Schedule B: Legal Descriptions of Lode Mining Claims Owned by Southern Silver Partially or Completely within Ranch Lands**

**Mineral Tenures 100% Owned by Southern Silver:**

<b>Southern Silver Claims</b>		<b>BLM nmbers</b>
<b>Count</b>	<b>Claim Name</b>	<b>MLRS No (NM#)</b>
1	Oro 703	105831601
2	Oro 704	105831602
3	Oro 705	105831603
4	Oro 706	105831604
5	Oro 707	105831605
6	Oro 708	105831606
7	Oro 709	105831607
8	Oro 710	105831608
9	Oro 714	105831612
10	Oro 715	105831613
11	Oro 716	105831614
12	Oro 717	105831615
13	Oro 718	105831616
14	Oro 719	105831617
15	Oro 720	105831618
16	Oro 721	105831619
17	Oro 725	105831623
18	Oro 726	105831624
19	Oro 727	105831625
20	Oro 728	105831626
21	Oro 729	105831627
22	Oro 730	105831628
23	Oro 731	105831629
24	Oro 732	105831630
25	Oro 736	105831634
26	Oro 737	105831635
27	Oro 738	105831636
28	Oro 739	105831637
29	Oro 740	105831638
30	Oro 741	105831639
31	Oro 742	105831640
32	Oro 743	105831641
33	Oro 750	105831648
34	Oro 751	105831649
35	Oro 752	105831650
36	Oro 753	105831651
37	Oro 754	106304969
38	Oro 755	106304970
39	Oro 756	106304971
40	Oro 757	106304972
41	Oro 758	106304973
42	Oro 759	106304974
43	Oro 760	106304975
44	Oro 761	106304976
<b>TOTAL = 44 claims</b>		

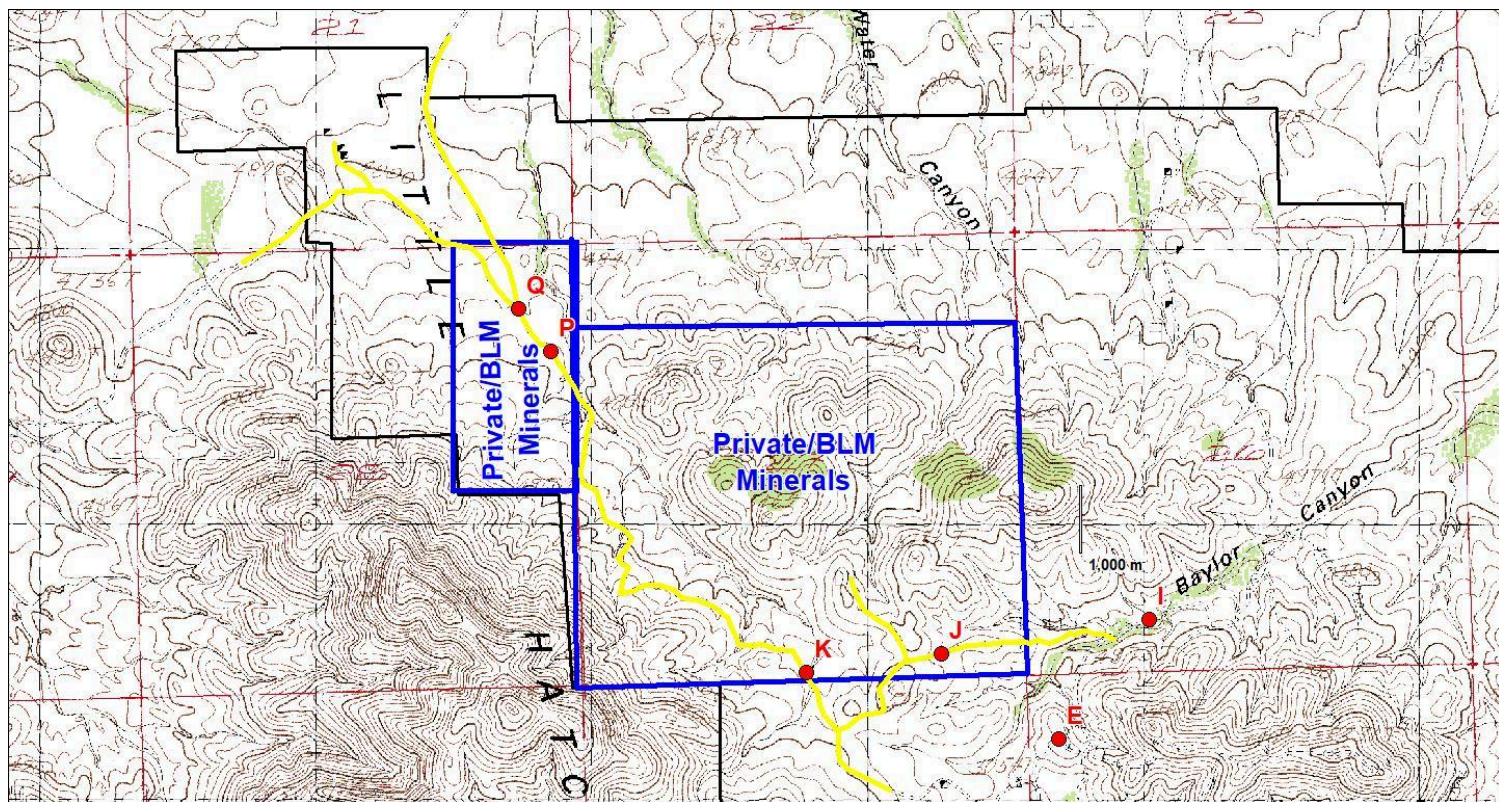
### Schedule C: Property Map



Schedule C indicates approximate Ranch land boundaries in heavy, blue-colored outline. Potential initial drill sites that are being permitted on Ranch land are shown as orange dots labeled J, K, P, and Q and are located along existing roads. Access to these sites is from the southeast and northwest and are along existing dirt roads shown as dashed double lines on U.S. Geological 7.5-minute Maps.



**Schedule D: The "Roads"**



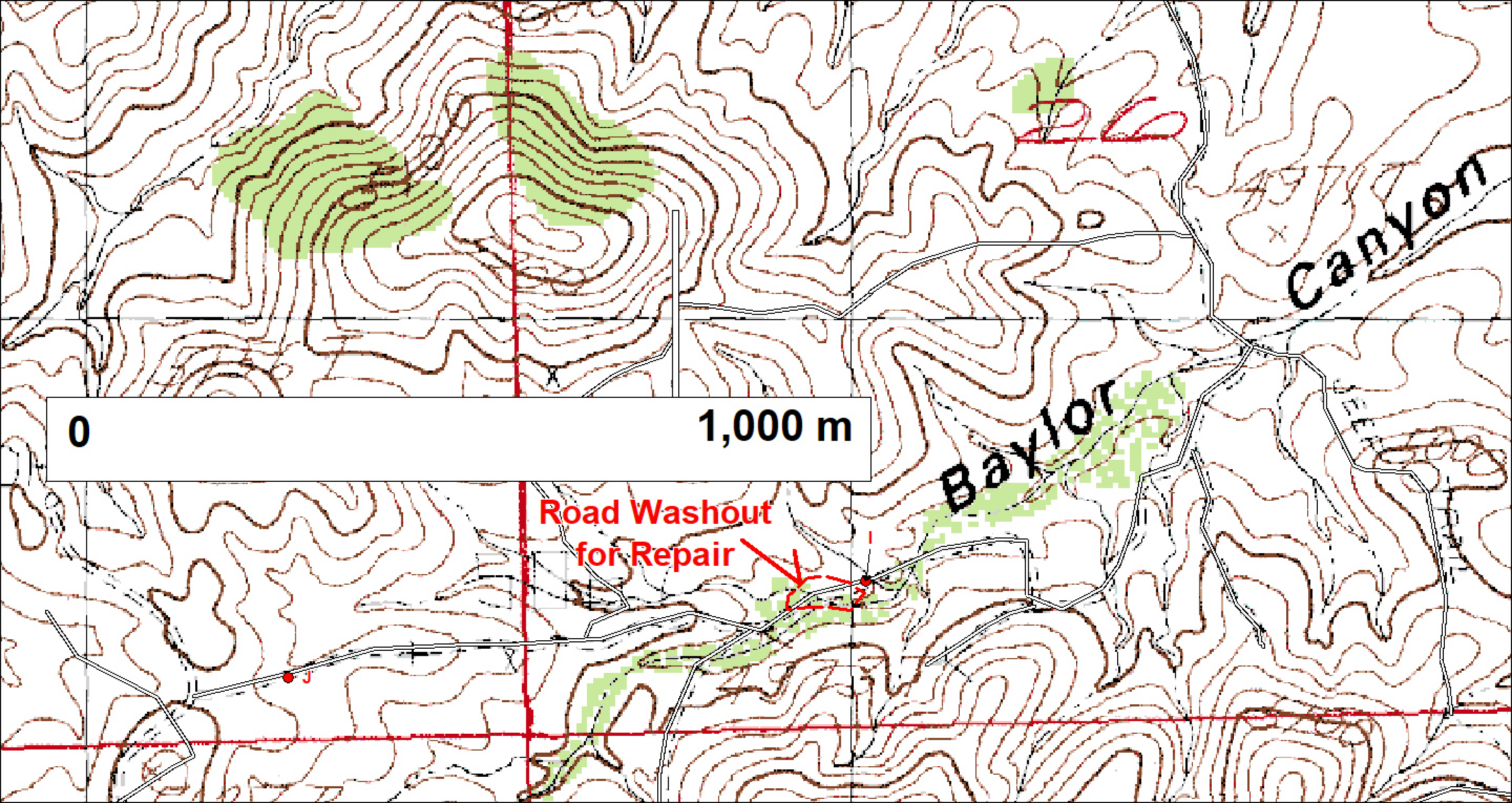


# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #9 – Detail Washout Repair Site I.**



0

1,000 m

Road Washout  
for Repair

Baylor

Canyon

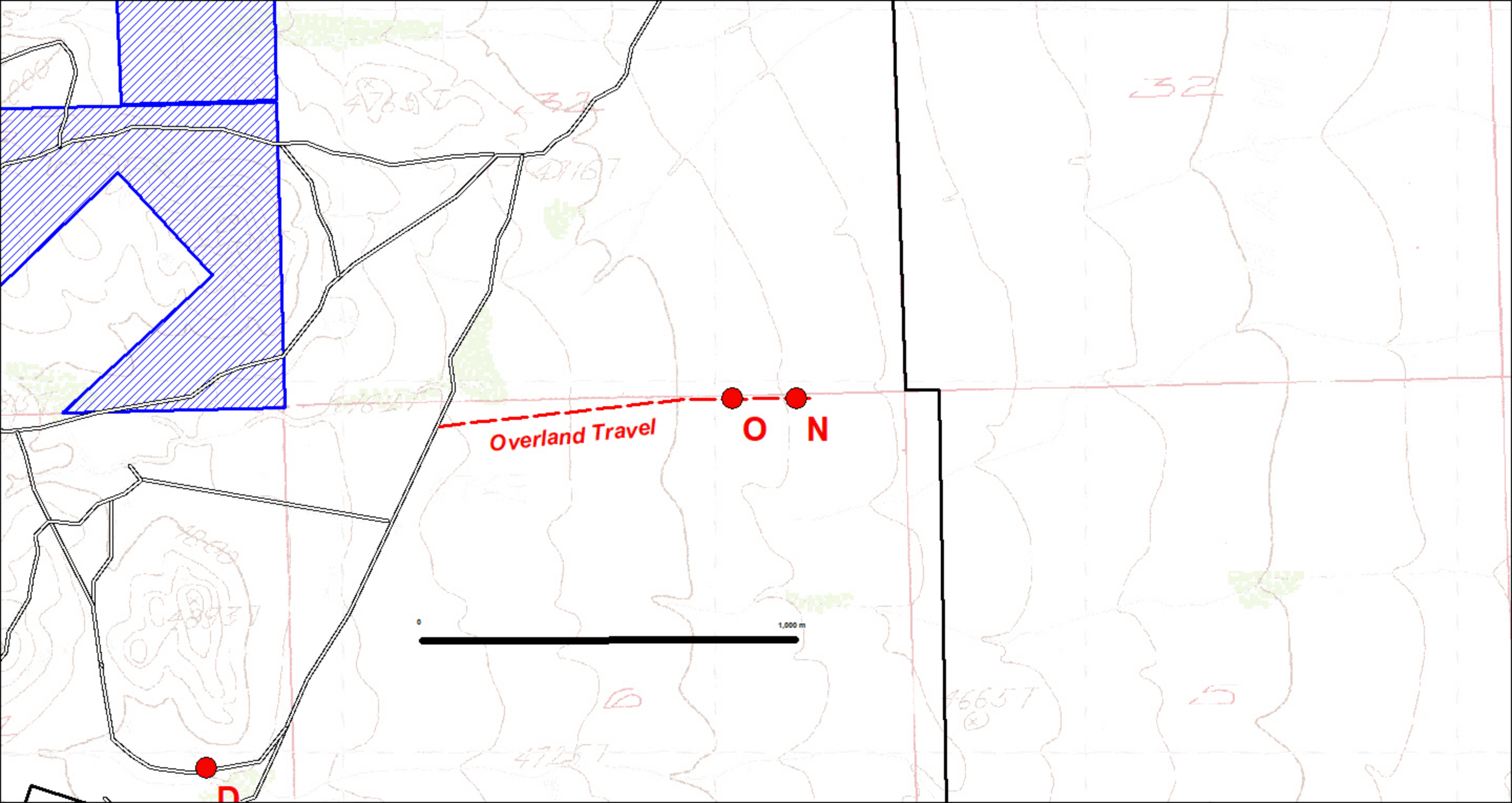
# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #10 - Detail Overland Sites N and O.**





# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #11 - MSDS Files.**

# Safety Data Sheet



## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### Havoline Xtended Life Antifreeze/Coolant - Concentrate

**Product Use:** Automotive Coolant

**Product Number(s):** 236542

**Company Identification**

Chevron Products Company  
a division of Chevron U.S.A. Inc.  
6001 Bollinger Canyon Rd.  
San Ramon, CA 94583  
United States of America  
www.chevronlubricants.com

**Transportation Emergency Response**

CHEMTREC: (800) 424-9300 or (703) 527-3887

**Health Emergency**

Chevron Emergency & Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

**Product Information**

email : lubemsds@chevron.com

Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

## SECTION 2 HAZARDS IDENTIFICATION

**CLASSIFICATION:**

- Acute oral toxicant: Category 4.
- Reproductive toxicant (developmental): Category 1B.
- Target organ toxicant (repeated exposure): Category 2.



**Signal Word:** Danger

**Health Hazards:**

- Harmful if swallowed.
- May damage the unborn child.
- May cause damage to organs (Kidney) through prolonged or repeated exposure.

**PRECAUTIONARY STATEMENTS:**

**Prevention:**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use personal protective equipment as required.

**Response:**

- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- IF exposed or concerned: Get medical advice/attention.
- Rinse mouth.

**Storage:**

- Store locked up.

**Disposal:**

- Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

**HAZARDS NOT OTHERWISE CLASSIFIED:** Not Applicable

**SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS**

COMPONENTS	CAS NUMBER	AMOUNT
Ethylene glycol	107-21-1	80 - 98 %weight
Potassium 2-ethylhexanoate	3164-85-0	1 - 5 %weight
Tolyltriazole	29385-43-1	0.1 - < 1 %weight

**SECTION 4 FIRST AID MEASURES****Description of first aid measures**

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

**Most important symptoms and effects, both acute and delayed****IMMEDIATE HEALTH EFFECTS**

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

**Ingestion:** May be harmful if swallowed.

**Inhalation:** Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

**DELAYED OR OTHER HEALTH EFFECTS:**

**Reproduction and Birth Defects:** Swallowing this material may cause harm to the unborn child based on animal data.

**Target Organs:** Contains material that may cause damage to the following organ(s) following repeated inhalation at concentrations above the recommended exposure limit: Kidney See Section 11 for additional information. Risk depends on duration and level of exposure.

**Indication of any immediate medical attention and special treatment needed** Not Applicable

**SECTION 5 FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** Dry Chemical, CO<sub>2</sub>, Aqueous Film Forming Foam (AFFF) or alcohol resistant foam.

**PROTECTION OF FIRE FIGHTERS:**

**Fire Fighting Instructions:** This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Potassium.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Eliminate all sources of ignition in vicinity of spilled material.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

**SECTION 7 HANDLING AND STORAGE**

**General Handling Information:** Do not taste or swallow antifreeze or solution. Keep out of the reach of children and animals.

**Precautionary Measures:** Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.



**General Storage Information:** Do not store in open or unlabeled containers.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the workplace when designing engineering controls and selecting personal protective equipment (PPE). If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, refer to PPE information below.

Factors that affect PPE include, but are not limited to: properties of the chemical, other chemicals which may contact the same PPE, physical requirements (fit & sizing, cut/puncture protection, dexterity, thermal protection, etc.), and potential allergic reactions to the PPE material. It is the responsibility of the user to read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

### ENGINEERING CONTROLS:

Use general ventilation, local exhaust ventilation, or a combination of both.

### PERSONAL PROTECTIVE EQUIPMENT

**Eye/Face Protection:** Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.

**Skin Protection:** Wear chemical personal protective equipment (PPE) to prevent skin contact. Selection of chemical protective clothing should be performed by an Occupational Hygienist or Safety Professional and be based upon applicable standards (ASTM F739 or EN 374). Using chemical PPE depends upon operations conducted and may include chemical gloves, boots, chemical apron, chemical suit, and complete facial protection. Refer to PPE manufacturers to obtain breakthrough time information to determine how long PPE can be used before it needs to be replaced. Unless specific glove manufacturer data indicates otherwise, the below table is based upon available industry data to assist in the glove selection process and is intended to be used as reference only.

Chemical Glove Material	Thickness (mm)	Typical Breakthrough Time (minutes)
Butyl	0.7	120
Neoprene	0.61	120
Nitrile	0.8	120
Polyvinyl Chloride (PVC)	1.5	120
Viton Butyl	0.3	120

**Respiratory Protection:** Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors, Dusts and Mists.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

### Occupational Exposure Limits:

Component	Agency	Form	TWA	STEL	Ceiling	Notation
Ethylene glycol	ACGIH	Inhalable aerosol	--	10 mg/m <sup>3</sup>	--	--
Ethylene glycol	ACGIH	Vapor fraction	25 ppm	50 ppm	--	--

Ethylene glycol	ACGIH	--	0.01 ppm	--	--	Skin
-----------------	-------	----	----------	----	----	------

Consult local authorities for appropriate values.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Attention: the data below are typical values and do not constitute a specification.**

**Color:** Orange

**Physical State:** Liquid

**Odor:** Faint or Mild

**Odor Threshold:** No data available

**pH:** 8 - 8.6; 33%volume @ 20°C (solution in water)

**Vapor Pressure:** No data available

**Relative Vapor Density:** No data available

**Initial Boiling Point:** 180°C (356°F) (Estimated)

**Solubility:** Soluble in water.

**Freezing Point:** -18°C (-0.4°F) (Typical)

**Melting Point:** Not Applicable

**Specific Gravity:** 1.1150 @ 15.6°C (60°F) (Minimum)

**Particle Characteristics:** Not applicable

**Density:** 1.07 kg/l @ 15°C (59°F) (Typical)

**Kinematic Viscosity:** No data available

**Evaporation Rate:** No data available

**Decomposition temperature:** No data available

**Partition coefficient n-octanol/water (logarithmic value):** No data available

### FLAMMABLE PROPERTIES:

**Flammability (solid, gas):** Not Applicable

**Flashpoint:** (Pensky-Martens Closed Cup) 122 °C (252 °F) (Estimated)

**Autoignition:** No data available

**Flammability (Explosive) Limits (% by volume in air):** Lower: No data available Upper: No data available

## SECTION 10 STABILITY AND REACTIVITY

**Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Incompatibility With Other Materials:** Not applicable

**Hazardous Decomposition Products:** Aldehydes (Elevated temperatures), Ketones (Elevated temperatures)

**Hazardous Polymerization:** Hazardous polymerization will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

### Information on toxicological effects

**Serious Eye Damage/Irritation:** The material is not considered an eye irritant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Skin Corrosion/Irritation:** The material is not considered a skin irritant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Skin Sensitization:** The material is not considered a skin sensitizer. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Dermal Toxicity:** The material is not considered a dermal toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Oral Toxicity:** This material is harmful if swallowed. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Inhalation Toxicity:** The material is not considered an inhalation toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Toxicity Estimate (oral):** 1678 mg/kg

**Germ Cell Mutagenicity:** The material is not considered a mutagen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Carcinogenicity:** The material is not considered a carcinogen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Reproductive Toxicity:** This material may damage the unborn child. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Specific Target Organ Toxicity - Single Exposure:** The material is not considered a target organ toxicant (single exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Specific Target Organ Toxicity - Repeated Exposure:** This material may cause damage to organs through prolonged or repeated exposure. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Aspiration Hazard:** The material is not considered an aspiration hazard.

#### **ADDITIONAL TOXICOLOGY INFORMATION:**

This product contains ethylene glycol (EG). The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz.) for an adult human. Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and muscle pain, difficulty in breathing and decreased urine output. When EG was heated above the boiling point of water, vapors formed which reportedly caused unconsciousness, increased lymphocyte count, and a rapid, jerky movement of the eyes in persons chronically exposed. When EG was administered orally to pregnant rats and mice, there was an increase in fetal deaths and birth defects. Some of these effects occurred at doses that had no toxic effects on the mothers. We are not aware of any reports that EG causes reproductive toxicity in human beings.

2-Ethylhexanoic acid (2-EXA) caused an increase in liver size and enzyme levels when repeatedly administered to rats via the diet. When administered to pregnant rats by gavage or in drinking water, 2-EXA caused teratogenicity (birth defects) and delayed postnatal development of the pups. Additionally, 2-EXA impaired female fertility in rats. Birth defects were seen in the offspring of mice who were administered sodium 2-ethylhexanoate via intraperitoneal injection during pregnancy.

## **SECTION 12 ECOLOGICAL INFORMATION**

### **ECOTOXICITY**

This material is not expected to be harmful to aquatic organisms.

The product has not been tested. The statement has been derived from the properties of the individual components.

#### **MOBILITY**

No data available.

#### **PERSISTENCE AND DEGRADABILITY**

This material is expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

#### **POTENTIAL TO BIOACCUMULATE**

Bioconcentration Factor: No data available.

Partition coefficient n-octanol/water (logarithmic value): No data available

### **SECTION 13 DISPOSAL CONSIDERATIONS**

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations.

### **SECTION 14 TRANSPORT INFORMATION**

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Description:** PROPRIETARY ANTIFREEZE PREPARATION IN NON-BULK PACKAGING; NOT REGULATED FOR TRANSPORT UNDER 49 CFR.

**Additional Information:** Bulk shipments containing a reportable quantity (RQ, 5000 pounds or more) of ethylene glycol in a single packaging are transported as hazardous material. The shipping description is: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ETHYLENE GLYCOL CONTAINS BITTERANT), 9, III, RQ (ETHYLENE GLYCOL)

**IMO/IMDG Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

**ICAO/IATA Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:**  
Not applicable

### **SECTION 15 REGULATORY INFORMATION**

#### **EPCRA 311/312 CATEGORIES:**

Acute toxicity (any route of exposure)

Reproductive toxicity

Specific target organ toxicity (single or repeated exposure)

#### **REGULATORY LISTS SEARCHED:**

01-1=IARC Group 1	05=MA RTK
01-2A=IARC Group 2A	06=NJ RTK
01-2B=IARC Group 2B	07=PA RTK

02=NTP Carcinogen  
 03=EPCRA 313  
 04=CA Proposition 65

08-1=TSCA 5(e)  
 08-2=TSCA 12(b)

The following components of this material are found on the regulatory lists indicated.

Ethylene glycol 03, 04, 05, 07

**CHEMICAL INVENTORIES:**

All components comply with the following chemical inventory requirements: AIIIC (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

**NEW JERSEY RTK CLASSIFICATION:**

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: Refer to components listed in Section 3.

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:** Health: 1 Flammability: 1 Reactivity: 0

**HMIS RATINGS:** Health: 1\* Flammability: 1 Reactivity: 0  
 (0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT:** SECTION 02 - Hazard Statements information was modified.  
 SECTION 02 - Health Classification information was modified.  
 SECTION 02 - Signal Word information was modified.  
 SECTION 03 - Composition information was modified.  
 SECTION 04 - Delayed Health Effects - Reproductive Toxicity information was modified.  
 SECTION 11 - Reproductive Toxicity information was modified.  
 SECTION 11 - Toxicological Information information was modified.  
 SECTION 12 - Ecological Information information was added.  
 SECTION 12 - Ecological Information information was deleted.

**Revision Date:** July 27, 2023

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Technical Center, 6001 Bollinger

Canyon Road, San Ramon, CA 94583.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**



# SAFETY DATA SHEET

## BARA-KADE® BENTONITE

Product Trade Name:

Revision Date: 02-Apr-2015

Revision Number: 10

### 1. Identification

#### 1.1. Product Identifier

Product Trade Name: BARA-KADE® BENTONITE  
Synonyms: None  
Chemical Family: Mineral  
Internal ID Code: HM005230

#### 1.2 Recommended use and restrictions on use

Application: Additive  
Uses Advised Against: No information available

#### 1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier: BENTONITE Performance Minerals LLC  
3000 N Sam Houston Parkway East  
Houston, TX 77032

Telephone: (281) 871-7900  
Fax: (281) 871-7940  
Emergency Telephone: (281) 575-5000

#### Prepared By

Chemical Stewardship  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

#### 1.4. Emergency telephone number

Emergency Telephone Number (281) 575-5000

### 2. Hazard(s) Identification

#### 2.1 Classification in accordance with paragraph (d) of §1910.1200

Carcinogenicity	Category 1A - H350
Specific Target Organ Toxicity - (Repeated Exposure)	Category 1 - H372

#### 2.2. Label Elements

##### Hazard Pictograms



<b>Signal Word</b>	Danger
<b>Hazard Statements</b>	H350 - May cause cancer by inhalation H372 - Causes damage to organs through prolonged or repeated exposure if inhaled
<b>Precautionary Statements</b>	
<b>Prevention</b>	P201 - Obtain special instructions before use P202 - Do not handle until all safety precautions have been read and understood P260 - Do not breathe dust/fume/gas/mist/vapors/spray P264 - Wash face, hands and any exposed skin thoroughly after handling P270 - Do not eat, drink or smoke when using this product P280 - Wear protective gloves/eye protection/face protection
<b>Response</b>	P308 + P313 - IF exposed or concerned: Get medical advice/attention P314 - Get medical attention/advice if you feel unwell
<b>Storage</b>	P405 - Store locked up
<b>Disposal</b>	P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

<b>Contains Substances</b>	<b>CAS Number</b>
Bentonite	1302-78-9
Crystalline silica, quartz	14808-60-7
Crystalline silica, cristobalite	14464-46-1
Crystalline silica, tridymite	15468-32-3

**2.3 Hazards not otherwise classified**  
None known

<b>3. Composition/information on Ingredients</b>			
<b>Substances</b>	<b>CAS Number</b>	<b>PERCENT (w/w)</b>	<b>GHS Classification - US</b>
Bentonite	1302-78-9	60 - 100%	Not classified
Crystalline silica, quartz	14808-60-7	1 - 5%	Carc. 1A (H350) STOT RE 1 (H372)
Crystalline silica, cristobalite	14464-46-1	0.1 - 1%	Carc. 1A (H350) STOT RE 1 (H372)
Crystalline silica, tridymite	15468-32-3	0.1 - 1%	Carc. 1A (H350) STOT RE 1 (H372)

The exact percentage (concentration) of the composition has been withheld as proprietary.

**4. First-Aid Measures**

**4.1. Description of first aid measures**

**Inhalation** If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.



<b>Eyes</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
<b>Skin</b>	Wash with soap and water. Get medical attention if irritation persists.
<b>Ingestion</b>	Under normal conditions, first aid procedures are not required.

#### **4.2 Most important symptoms/effects, acute and delayed**

Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

#### **4.3. Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** Treat symptomatically.

### **5. Fire-fighting measures**

#### **5.1. Extinguishing media**

##### **Suitable Extinguishing Media**

All standard fire fighting media

##### **Extinguishing media which must not be used for safety reasons**

None known.

#### **5.2 Specific hazards arising from the substance or mixture**

##### **Special Exposure Hazards**

Decomposition in fire may produce toxic gases.

#### **5.3 Special protective equipment and precautions for fire-fighters**

##### **Special Protective Equipment for Fire-Fighters**

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

### **6. Accidental release measures**

#### **6.1. Personal precautions, protective equipment and emergency procedures**

Use appropriate protective equipment. Avoid creating and breathing dust.

See Section 8 for additional information

#### **6.2. Environmental precautions**

Prevent from entering sewers, waterways, or low areas.

#### **6.3. Methods and material for containment and cleaning up**

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

### **7. Handling and storage**

#### **7.1. Precautions for Safe Handling**

##### **Handling Precautions**

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.

##### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

#### **7.2. Conditions for safe storage, including any incompatibilities**

##### **Storage Information**

Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

**8. Exposure Controls/Personal Protection**

**8.1 Occupational Exposure Limits**

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Bentonite	1302-78-9	Not applicable	TWA: 1 mg/m <sup>3</sup>
Crystalline silica, quartz	14808-60-7	10 mg/m <sup>3</sup> %SiO <sub>2</sub> + 2	TWA: 0.025 mg/m <sup>3</sup>
Crystalline silica, cristobalite	14464-46-1	1/2 x 10 mg/m <sup>3</sup> %SiO <sub>2</sub> + 2	TWA: 0.025 mg/m <sup>3</sup>
Crystalline silica, tridymite	15468-32-3	1/2 x 10 mg/m <sup>3</sup> %SiO <sub>2</sub> + 2	0.05 mg/m <sup>3</sup>

**8.2 Appropriate engineering controls**

**Engineering Controls** Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

**8.3 Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment** If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

**Respiratory Protection** Not normally needed. But if significant exposures are possible then the following respirator is recommended:

Dust/mist respirator. (N95, P2/P3)

**Hand Protection** Normal work gloves.

**Skin Protection** Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.

**Eye Protection** Wear safety glasses or goggles to protect against exposure.

**Other Precautions** None known.

**9. Physical and Chemical Properties**

**9.1. Information on basic physical and chemical properties**

**Physical State:** Solid **Color:** Various  
**Odor:** Odorless **Odor** No information available  
**Threshold:**

Property Remarks/ - Method	Values
<b>pH:</b>	8-10
<b>Freezing Point/Range</b>	No information available.
<b>Melting Point/Range</b>	No data available
<b>Boiling Point/Range</b>	No data available
<b>Flash Point</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
upper flammability limit	No data available
lower flammability limit	No data available
<b>Evaporation rate</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Vapor Density</b>	No data available
<b>Specific Gravity</b>	2.65
<b>Water Solubility</b>	Insoluble in water
<b>Solubility in other solvents</b>	No data available

<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	No data available
<b>Explosive Properties</b>	No information available
<b>Oxidizing Properties</b>	No information available

**9.2. Other information**

<b>VOC Content (%)</b>	No data available
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**10. Stability and Reactivity**

**10.1. Reactivity**

Not expected to be reactive.

**10.2. Chemical Stability**

Stable

**10.3. Possibility of Hazardous Reactions**

Will Not Occur

**10.4. Conditions to Avoid**

None anticipated

**10.5. Incompatible Materials**

Hydrofluoric acid.

**10.6. Hazardous Decomposition Products**

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

**11. Toxicological Information**

**11.1 Information on likely routes of exposure**

**Principle Route of Exposure** Eye or skin contact, inhalation.

**11.2 Symptoms related to the physical, chemical and toxicological characteristics**

**Acute Toxicity**

**Inhalation**

Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).

**Eye Contact**

May cause mechanical irritation to eye.

**Skin Contact**

May cause mechanical skin irritation.

**Ingestion**

None known

**Chronic Effects/Carcinogenicity** Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

**11.3 Toxicity data**

**Toxicology data for the components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bentonite	1302-78-9	> 5000 mg/kg (Rat) > 2000 mg/kg (Rat)	No data available	> 5.27 mg/L (Rat)
Crystalline silica, quartz	14808-60-7	500 mg/kg (Rat) >15,000 mg/kg (Human)	No data available	No data available
Crystalline silica, cristobalite	14464-46-1	500 mg/kg (Rat)	No data available	No data available
Crystalline silica, tridymite	15468-32-3	500 mg/kg (Rat)	No data available	No data available

Substances	CAS Number	Skin corrosion/irritation
Bentonite	1302-78-9	Non-irritating to the skin (Rabbit)
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin
Crystalline silica, cristobalite	14464-46-1	Non-irritating to the skin
Crystalline silica, tridymite	15468-32-3	Non-irritating to the skin

Substances	CAS Number	Eye damage/irritation
Bentonite	1302-78-9	Non-irritating to the eye (Rabbit)
Crystalline silica, quartz	14808-60-7	Mechanical irritation of the eyes is possible.
Crystalline silica, cristobalite	14464-46-1	Mechanical irritation of the eyes is possible.
Crystalline silica, tridymite	15468-32-3	Mechanical irritation of the eyes is possible.

Substances	CAS Number	Skin Sensitization
Bentonite	1302-78-9	Did not cause sensitization on laboratory animals (mouse)
Crystalline silica, quartz	14808-60-7	Not regarded as a sensitizer.
Crystalline silica, cristobalite	14464-46-1	Not regarded as a sensitizer.
Crystalline silica, tridymite	15468-32-3	Not regarded as a sensitizer.

Substances	CAS Number	Respiratory Sensitization
Bentonite	1302-78-9	No information available
Crystalline silica, quartz	14808-60-7	No information available

Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

Substances	CAS Number	Mutagenic Effects
Bentonite	1302-78-9	In vitro tests did not show mutagenic effects
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.
Crystalline silica, cristobalite	14464-46-1	Not regarded as mutagenic.
Crystalline silica, tridymite	15468-32-3	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Bentonite	1302-78-9	Did not show carcinogenic effects in animal experiments (similar substances)
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. Based on available scientific evidence, this substance is a threshold carcinogen with a mode of action involving indirect genotoxicity secondary to lung injury.
Crystalline silica, cristobalite	14464-46-1	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. Based on available scientific evidence, this substance is a threshold carcinogen with a mode of action involving indirect genotoxicity secondary to lung injury.
Crystalline silica, tridymite	15468-32-3	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. Based on available scientific evidence, this substance is a threshold carcinogen with a mode of action involving indirect genotoxicity secondary to lung injury.

Substances	CAS Number	Reproductive toxicity
Bentonite	1302-78-9	Did not show teratogenic effects in animal experiments.
Crystalline silica, quartz	14808-60-7	No information available
Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

Substances	CAS Number	STOT - single exposure
Bentonite	1302-78-9	None under normal use conditions
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.
Crystalline silica, cristobalite	14464-46-1	No significant toxicity observed in animal studies at concentration requiring classification.
Crystalline silica, tridymite	15468-32-3	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Bentonite	1302-78-9	None under normal use conditions
Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)
Crystalline silica, cristobalite	14464-46-1	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)
Crystalline silica, tridymite	15468-32-3	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Substances	CAS Number	Aspiration hazard
Bentonite	1302-78-9	Not applicable
Crystalline silica, quartz	14808-60-7	Not applicable
Crystalline silica, cristobalite	14464-46-1	Not applicable
Crystalline silica, tridymite	15468-32-3	Not applicable

## 12. Ecological Information

### 12.1. Toxicity Ecotoxicity Effects

#### Product Ecotoxicity Data No data available

**Substance Ecotoxicity Data**

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Bentonite	1302-78-9	EC50(72h): > 100 mg/L (freshwater algae)	TLM96 10,000 ppm (Oncorhynchus mykiss) LC50 (96h) 16,000 - 19,000 mg/L (Oncorhynchus mykiss) LC50 (24h) 2800 – 3200 mg/L (black bass, warmouth bass, blue gill and sunfish)	No information available	EC50 (96h) 81.6 mg/L (Metacarcinus magister) EC50 (96h) 24.8 mg/L (Pandalus danae) EC50 (48h) > 100 mg/L (Daphnia magna)
Crystalline silica, quartz	14808-60-7	No information available	LL50 (96h) 10,000 mg/L (Danio rerio) (similar substance)	No information available	LL50 (24h) > 10,000 mg/L (Daphnia magna) (similar substance)
Crystalline silica, cristobalite	14464-46-1	No information available	LL0 (96h) 10,000 mg/L (Danio rerio) (similar substance)	No information available	LL50 (24h) > 10,000 mg/L (Daphnia magna) (similar substance)
Crystalline silica, tridymite	15468-32-3	No information available	LL0 (96h) 10,000 mg/L (Danio rerio) (similar substance)	No information available	LL50 (24h) > 10,000 mg/L (Daphnia magna) (similar substance)

**12.2. Persistence and degradability**

Substances	CAS Number	Persistence and Degradability
Bentonite	1302-78-9	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, cristobalite	14464-46-1	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, tridymite	15468-32-3	The methods for determining biodegradability are not applicable to inorganic substances.

**12.3. Bioaccumulative potential**

Substances	CAS Number	Log Pow
Bentonite	1302-78-9	No information available
Crystalline silica, quartz	14808-60-7	No information available
Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

**12.4. Mobility in soil**

**12.5 Other adverse effects**

No information available

**13. Disposal Considerations**

**13.1. Waste treatment methods**

**Disposal Method** Bury in a licensed landfill according to federal, state, and local regulations.  
**Contaminated Packaging** Follow all applicable national or local regulations.

**14. Transport Information**

**US DOT**

**UN Number:** Not restricted  
**UN Proper Shipping Name:** Not restricted

**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**US DOT Bulk**  
**DOT (Bulk)** Not applicable

**Canadian TDG**  
**UN Number:** Not restricted  
**UN Proper Shipping Name:** Not restricted  
**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**IMDG/IMO**  
**UN Number:** Not restricted  
**UN Proper Shipping Name:** Not restricted  
**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**IATA/ICAO**  
**UN Number:** Not restricted  
**UN Proper Shipping Name:** Not restricted  
**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable  
**Special Precautions for User:** None

<b>15. Regulatory Information</b>
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**US Regulations**

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Chronic Health Hazard
<b>EPA SARA (313) Chemicals</b>	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
<b>EPA CERCLA/Superfund Reportable Spill Quantity</b>	Not applicable.
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
<b>California Proposition 65</b>	The California Proposition 65 regulations apply to this product.
<b>MA Right-to-Know Law</b>	One or more components listed.

**NJ Right-to-Know Law** One or more components listed.

**PA Right-to-Know Law** One or more components listed.

## Canadian Regulations

**Canadian DSL Inventory** All components listed on inventory or are exempt.

## 16. Other information

### Preparation Information

**Prepared By**

Chemical Stewardship  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

**Revision Date:** 02-Apr-2015

**Reason for Revision** Update to Format SECTION: 2

### Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

### Key or legend to abbreviations and acronyms

bw – body weight

CAS – Chemical Abstracts Service

EC50 – Effective Concentration 50%

ErC50 – Effective Concentration growth rate 50%

LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL50 – Lethal Loading 50%

mg/kg – milligram/kilogram

mg/L – milligram/liter

NIOSH – National Institute for Occupational Safety and Health

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PEL – Permissible Exposure Limit

ppm – parts per million

STEL – Short Term Exposure Limit

TWA – Time-Weighted Average

UN – United Nations

h - hour

mg/m<sup>3</sup> - milligram/cubic meter

mm - millimeter

mmHg - millimeter mercury

w/w - weight/weight

d - day

### Key literature references and sources for data

[www.ChemADVISOR.com/](http://www.ChemADVISOR.com/)



**Disclaimer Statement**

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

**End of Safety Data Sheet**


**TATA CHEMICALS LIMITED**
**SAFETY DATA SHEET (SDS)**

**Name of chemical: CEMENT**

**1. PRODUCT IDENTIFICATION / COMPANY ADDRESS**

<b>Trade Name</b>	CEMENT	<b>Common Name</b>	CEMENT	<b>Synonyms</b>	Portland cement. Also known as hydraulic cement
<b>Company Name / Address / Phone / Fax</b>	<b>Tata Chemicals Limited, Mithapur</b> District: Devbhoomi Dwarka (Gujarat) 361 345 INDIA <b><u>Contact in case of Emergency Only:</u></b> +91(02892 675802 /03 ) Contact Person :+91 9227676113 Mr. Devendra Thakur				
<b>Chemical Name</b>	CEMENT				

**2. HAZARD IDENTIFICATION**

<b>Hazard Classification</b>	<b><u>Hazardous Substances</u></b>	<b><u>OSHA PEL (8-Hour TWA)</u></b>	<b><u>ACGIH TLV-TWA (1995–1996) (8-Hour TWA)</u></b>	<b><u>NIOSH REL (8-Hour TWA)</u></b>
	Portland Cement Clinker (CAS#65997-15-1) Nominal 95% by weight	50 million particles/ft <sup>3</sup>	10mg total dust/m <sup>3</sup>	
	Calcium sulphate (CAS#7778-18-9) [Gypsum (CAS#13397-24-5)] Nominal 5% by weight	5 mg respirable dust / m <sup>3</sup> 10 mg total dust / m <sup>3</sup>	10 mg total dust/m <sup>3</sup>	
	Calcium Oxide (CAS#1306-78-8) (Free Lime) < 4% by weight	5 mg / m <sup>3</sup>	2 mg / m <sup>3</sup>	
	Magnesium Oxide (CAS #1309-48-4) < 5% by weight	15 mg total dust / m <sup>3</sup>	10 mg total dust / m <sup>3</sup>	

	Crystalline silica (CAS#14808-60-7)	10 mg of respirable dust / m <sup>3</sup> (%SiO <sub>2</sub> +2)	0.10 mg respirable quartz / m <sup>3</sup>	0.05 mg respirable quartz / m <sup>3</sup>
<b>LABEL ELEMENTS</b>				
<b>Signal word</b>	Danger			
<b>Hazard statement</b>				
<b>Precautionary statement</b>				

### 3. COMPOSITION / INFORMATION AND INGREDIENTS

<b>Structural Formula</b>	Mainly mixture of: 3 CaO-SiO <sub>2</sub> , 2CaO-SiO <sub>2</sub> , 3CaO-Al <sub>2</sub> O <sub>3</sub> , 4CaO-Al <sub>2</sub> O <sub>3</sub> Fe <sub>2</sub> O <sub>3</sub> -CaSO <sub>4</sub> . Contains less than 1 % crystalline Silica.	<b>Chemical Family</b>	Calcium compounds
		<b>Molecular weight</b>	
<b>CAS No</b>		<b>Molecular Formula</b>	3 CaO-SiO <sub>2</sub> , 2CaO-SiO <sub>2</sub> , 3CaO-Al <sub>2</sub> O <sub>3</sub> , 4CaO-Al <sub>2</sub> O <sub>3</sub> Fe <sub>2</sub> O <sub>3</sub> -CaSO <sub>4</sub> .
<b>Name</b>	<b>Product identifier</b>	<b>%</b>	<b>Classification</b>
Cement		100%	

### 4. FIRST AID MEASURE

<b>Ingestion</b>	Do not induce vomiting. Wash out mouth with water and give patient plenty of water to drink, Seek medical help
<b>Inhalation</b>	Move the person to a non-polluted area. The dust in the throat and nasal ducts must be removed immediately. Consult a physician if the irritation persists.
<b>Eyes</b>	A speedy response is essential in order to avoid permanent damage to the eyes. Wash eyes immediately with plenty of clean water for at least 15 minutes and seek medical advice without delay.
<b>Skin</b>	Wash the affected area thoroughly with soap and water before continuing. If irritation, pain or other skin trouble occurs, seek medical advice. Clothing contaminated by wet cement, concrete or mortar should be removed and washed thoroughly before use.
<b>Antidote</b>	

<b>Most important symptoms/ effects, acute and or delayed</b>	<p><b>Eye Contact-</b> Eye contact with cement (dry or wet) may cause serious and potentially irreversible injuries.</p> <p><b>Inhalation-</b> Frequent inhalation of large quantities of cement dust over a long period of time increases the risk of developing lung diseases.</p> <p><b>Skin contact-</b> Cement may have an irritating effect on moist skin (due to transpiration or humidity) after prolonged contact. Prolonged skin contact with wet cement or fresh concrete may causes serious burns because they develop without pain being felt (for example when kneeling in-fresh concrete even when wearing trousers). Repeated skin contact with wet cement may cause contact dermatitis.</p> <p><b>Ingestion-</b> No Relevant routes of entry, only by accident</p>
<b>Indication of immediate medical attention and special treatment needed</b>	

## 5. FIRE FIGHTING MEASURES

<b>Fire extinguishing media</b>	In case of fire in adjacent areas, any suitable fire-extinguishing media may be used.
<b>Hazardous decomposition products</b>	Cement is non-flammable, non-combustible and may not cause or maintain combustion processes of other materials.
<b>Special fire fighting procedure</b>	No special instruction
<b>Precaution to Fire Fighters</b>	


## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precaution</b>	<ul style="list-style-type: none"> <li>• Avoid contact with eyes and skin, do not inhale the dust. Use personal protection equipment, as mentioned under point number 8, No special procedures are necessary.</li> </ul>
<b>Precautions for the environment</b>	Do not attempt to wash Portland cement down drains. Dispose of waste material according to local, state and federal regulations.
<b>Clean up method</b>	<ul style="list-style-type: none"> <li>• Recover the spillage in a dry state if possible. Minimize generation of airborne dust. The product can be slurred by the addition of water but will subsequently set as a hard material.</li> <li>• Do not wash cement down sewage and drainage system</li> </ul>

**7. HANDLING AND STORAGE**

<b>General precaution</b>	<ul style="list-style-type: none"> <li>• Do not handle or store near food, drinks or tobacco products.</li> <li>• Bagged cement used in open mixers: First put the water and then carefully add the cement.</li> <li>• Do not pour it from a great height. Mix slowly and carefully. Do not press the empty bags, except if you put them in a clean bag.</li> <li>• Carry the bags carefully to avoid straining and bruising your back, arms, shoulders and legs. Load the bags carefully and use suitable control measures.</li> </ul>
<b>Personal protection</b>	Refer to Section 8.
<b>Storage</b>	<ul style="list-style-type: none"> <li>• Packed products should be stored in unopened bags clear of the ground in cool, dry conditions and protected from excessive draught in order to avoid degradation of quality.</li> <li>• Bags should be stacked in a stable manner.</li> </ul>
<b>Incompatibilities</b>	Moisture (Water). Keep away from unintentional contact with water.

**8. EXPOSURE CONTROL / PERSONAL PROTECTION**

<b>Personal protection</b>			
			
<b>Skin</b>	<ul style="list-style-type: none"> <li>• Chemical protective gloves, gum boots, and/or other chemical protective clothing to prevent all possible skin contact.</li> <li>• A chemical protective acid-resistant full-body encapsulating suit and respiratory protection may be required in some operations.</li> <li>• Have a safety shower/eye-wash fountain readily available in the immediate work area.</li> </ul>	<b>Eyes</b>	<ul style="list-style-type: none"> <li>• Wear appropriate protective face shield and eyeglasses or chemical safety goggles.</li> </ul>
<b>Respiration</b>	<ul style="list-style-type: none"> <li>• Use cartridge type gas mask to evacuate from area.</li> <li>• To attend emergency wear self-contained breathing apparatus or supplied airline.</li> </ul>	<b>Other</b>	
<b>Exposure limits</b>			
<b>TLV-TWA</b>	NA	<b>TLV-STEL</b>	NA
<b>Appropriate Engineering Control</b>	Use local exhaust or general dilution ventilation to control exposure below applicable limits.		

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	Solid grey particles	<b>Molecular Weight</b>		<b>Specific gravity</b>	No data available
<b>Odour/Odor threshold</b>	Odorless	<b>Flash Point °C</b>	Not Pertinent	<b>pH/ Acidity</b>	11-13.5 (in saturated water solution, T = 25°C):
<b>Auto Ignition Temp. °C</b>	Not Pertinent	<b>Boiling Point °C @ 760 mm Hg</b>	Not Pertinent	<b>Melting Point °C</b>	
<b>Vapor Press. Mm Hg @ 20 °C</b>	1.41 kPa (10.6 mm Hg) at 20 °C	<b>Vapour Density</b>		<b>Water Solubility @ 20 °C</b>	Slightly Soluble
<b>LEL %</b>		<b>UEL %</b>		<b>% Volatile</b>	
<b>Evaporation rate</b>		<b>Viscosity @ 25 °C</b>		<b>PH</b>	
<b>Octanol / Water Partition Coefficient</b>	No data Available			No data available	

**10. STABILITY AND REACTIVITY**

<b>Chemical Stability</b>	Dry cements are chemically stable	<b>Possibility of Hazardous reaction</b>	Will not spontaneously occur. Adding water results in hydration and produces (caustic) calcium hydroxide.
<b>Hazardous Reactions/ Decomposition products</b>	Cement does not decompose in any hazardous substances	<b>Incompatible Materials</b>	Wet Portland cement is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal.
<b>Condition to avoid</b>	<p>If stored appropriately dry cements are stable and compatible with most building materials. When mixed with water they cure and form a stable mixture which may not react with the environment.</p> <p>Presence of moisture during storage may cause lumps and product quality loss.</p> <p>Avoid uncontrolled application of aluminium powder with wet cement as it liberates hydrogen.</p>		

**11. TOXICOLOGICAL INFORMATION**

<b>Routes of exposure</b>	Inhalation.				
<b>LD50 (oral / rats) mg/kg</b>	----	<b>LD50 (dermal/ rats) mg/kg</b>		<b>LC50 (inhalation / rats)</b>	----
<b>Target Organ Effects</b>	lungs				
<b>Symptoms related to physical, chemical &amp; toxicological characteristics</b>					

**12. ECOLOGICAL INFORMATION**

<b>Mobility in Soil</b>	No data available
<b>Persistence and degradability</b>	No data available
<b>Bio accumulative Potential</b>	No data available
<b>Effects on fish (Ecotoxicity)</b>	Large quantity of cement in water can raise pH and therefore can be toxic to water life under certain circumstances.
<b>Effects on birds</b>	No recognized unusual toxicity to plants or animals.
<b>Effects on bees</b>	No

**13. DISPOSAL CONSIDERATIONS**

Waste bags must be disposed of in accordance with federal, state and local environmental control regulations

**14. TRANSPORT INFORMATION**

<b>UN No.</b>	.....	<b>IMDG No.</b>	---
<b>Shipping Name</b>	cement	<b>Hazard class</b>	---
<b>Packing group</b>	---	<b>Hazard Sub class</b>	---
<b>Marine Pollutant</b>	---	<b>Labels required</b>	---
<b>Warning Statement</b>	---		
<b>Packaging / Precaution</b>			
<b>Shipping Marking</b>			

**15. REGULATORY INFORMATION****LABELING:****PHRASES R:**

R37/38 Irritates respiratory system and skin  
R41 Risk of serious damage to eyes  
R43 Possible sensitization in case of skin contact.

**PHRASES S:**

S 2 Keep out of the reach of children  
S22 Do not breathe dust  
S24/25 Avoid contact with eyes and skin  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice  
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection  
S46 If swallowed, seek medical advice immediately and show this container or label

**16. OTHER INFORMATION**

The information provided in this Material Safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with other materials

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## MATERIAL SAFETY DATA SHEET

**Product Trade Name:** EZ-MUD®

**Revision Date:** 02-Dec-2013

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name:** EZ-MUD®  
**Synonyms:** None  
**Chemical Family:** Blend  
**Application:** Shale Inhibitor

**Manufacturer/Supplier** Baroid Fluid Services  
Product Service Line of Halliburton  
P.O. Box 1675  
Houston, TX 77251  
Telephone: (281) 871-4000  
Emergency Telephone: (281) 575-5000

**Prepared By** Chemical Compliance  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Hydrotreated light petroleum distillate	64742-47-8	10 - 30%	Not applicable	Not applicable

### 3. HAZARDS IDENTIFICATION

**Hazard Overview** May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed.

### 4. FIRST AID MEASURES

**Inhalation** If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

**Skin** Wash with soap and water. Get medical attention if irritation persists. Remove contaminated shoes and discard.

**Eyes** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

**Ingestion** Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

**Notes to Physician** Not Applicable

## 5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	> 200
Flash Point/Range (C):	Not Determined
Flash Point Method:	PMCC
Autoignition Temperature (F):	> 392
Autoignition Temperature (C):	> 200
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

**Fire Extinguishing Media** Water fog, carbon dioxide, foam, dry chemical.

**Special Exposure Hazards** Decomposition in fire may produce toxic gases. Use water spray to cool fire exposed surfaces.

**Special Protective Equipment for Fire-Fighters** Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

**NFPA Ratings:** Health 2, Flammability 1, Reactivity 0  
**HMIS Ratings:** Health 2, Flammability 1, Physical Hazard 0, PPE: B

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment.

**Environmental Precautionary Measures** Prevent from entering sewers, waterways, or low areas.

**Procedure for Cleaning / Absorption** Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

## 7. HANDLING AND STORAGE

**Handling Precautions** Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

**Storage Information** Store away from oxidizers. Keep container closed when not in use.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

**Personal Protective Equipment** If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

**Respiratory Protection** Organic vapor respirator with a dust/mist filter. (A2P2/P3) In high concentrations, supplied air respirator or a self-contained breathing apparatus.

**Hand Protection** Impervious rubber gloves.

<b>Skin Protection</b>	Rubber apron.
<b>Eye Protection</b>	Chemical goggles; also wear a face shield if splashing hazard exists.
<b>Other Precautions</b>	Eyewash fountains and safety showers must be easily accessible.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Liquid
<b>Color:</b>	White to gray
<b>Odor:</b>	Mild hydrocarbon
<b>pH:</b>	6-8
<b>Specific Gravity @ 20 C (Water=1):</b>	1.0
<b>Density @ 20 C (lbs./gallon):</b>	8.3
<b>Bulk Density @ 20 C (lbs/ft3):</b>	Not Determined
<b>Boiling Point/Range (F):</b>	347
<b>Boiling Point/Range (C):</b>	175
<b>Freezing Point/Range (F):</b>	Not Determined
<b>Freezing Point/Range (C):</b>	Not Determined
<b>Vapor Pressure @ 20 C (mmHg):</b>	0.002
<b>Vapor Density (Air=1):</b>	Not Determined
<b>Percent Volatiles:</b>	70
<b>Evaporation Rate (Butyl Acetate=1):</b>	< 1
<b>Solubility in Water (g/100ml):</b>	Partially soluble
<b>Solubility in Solvents (g/100ml):</b>	Not Determined
<b>VOCs (lbs./gallon):</b>	Not Determined
<b>Viscosity, Dynamic @ 20 C (centipoise):</b>	Not Determined
<b>Viscosity, Kinematic @ 20 C (centistokes):</b>	Not Determined
<b>Partition Coefficient/n-Octanol/Water:</b>	Not Determined
<b>Molecular Weight (g/mole):</b>	Not Determined

## 10. STABILITY AND REACTIVITY

<b>Stability Data:</b>	Stable
<b>Hazardous Polymerization:</b>	Will Not Occur
<b>Conditions to Avoid</b>	Keep away from heat, sparks and flame.
<b>Incompatibility (Materials to Avoid)</b>	Strong oxidizers.
<b>Hazardous Decomposition Products</b>	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
<b>Additional Guidelines</b>	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

**Principle Route of Exposure** Eye or skin contact, inhalation.

### Symptoms related to exposure

#### **Acute Toxicity**

<b>Inhalation</b>	May cause mild respiratory irritation.
<b>Eye Contact</b>	May cause mild eye irritation.
<b>Skin Contact</b>	May cause mild skin irritation.

**Ingestion**

Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.

**Chronic Effects/Carcinogenicity**

No data available to indicate product or components present at greater than 1% are chronic health hazards.

**Toxicology data for the components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrotreated light petroleum distillate	64742-47-8	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	5.2 mg/L (Rat) 4 h

**12. ECOLOGICAL INFORMATION****Ecotoxicological Information****Ecotoxicity Product**

**Acute Fish Toxicity:** TLM96: >1000 mg/l (Pimephales promelas)

**Acute Crustaceans Toxicity:** TLM48: 98 mg/l (Acartia tonsa)

**Acute Algae Toxicity:** EC50: 16.70 mg/l (Skeletonema costatum)

**Ecotoxicity Substance**

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Hydrotreated light petroleum distillate	64742-47-8	EC50(72h): > 10,000 mg/L (Skeletonema costatum) (ISO 10253)	LC50 96h): > 10,000 mg/L (Scophthalmus maximus) (OSPARCOM 1995)	No information available	LC50(48h): > 10,000 mg/L (Acartia tonsa) (ISO 14669)

**12.2 Persistence and degradability**

No information available

**12.3 Bioaccumulative potential**

Substances	Log Pow
Hydrotreated light petroleum distillate	7.5

**12.4 Mobility in soil**

No information available

**12.5 Results of PBT and vPvB assessment**

No information available.

**12.6 Other adverse effects****13. DISPOSAL CONSIDERATIONS****Disposal Method**

Disposal should be made in accordance with federal, state, and local regulations.

**Contaminated Packaging**

Follow all applicable national or local regulations.

**14. TRANSPORT INFORMATION****Land Transportation**

**DOT**  
Not restricted

**Canadian TDG**  
Not restricted

**ADR**  
Not restricted

## **Air Transportation**

**ICAO/IATA**  
Not restricted

## **Sea Transportation**

**IMDG**  
Not restricted

## **Other Transportation Information**

**Labels:** None

## **15. REGULATORY INFORMATION**

### **US Regulations**

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Acute Health Hazard
<b>EPA SARA (313) Chemicals</b>	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
<b>EPA CERCLA/Superfund Reportable Spill Quantity</b>	Not applicable.
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
<b>California Proposition 65</b>	All components listed do not apply to the California Proposition 65 Regulation.
<b>MA Right-to-Know Law</b>	Does not apply.
<b>NJ Right-to-Know Law</b>	Does not apply.
<b>PA Right-to-Know Law</b>	Does not apply.

### **Canadian Regulations**

<b>Canadian DSL Inventory</b>	All components listed on inventory or are exempt.
<b>WHMIS Hazard Class</b>	D2B Toxic Materials

## 16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS

Not applicable

### Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

### Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

**\*\*\*END OF MSDS\*\*\***

# Safety Data Sheet



## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### Ultra-Duty HD 0, 1, 2

**Product Use:** Industrial Grease  
**Product Number(s):** 238011, 238012, 238013  
**Synonyms:** Chevron Ultra-Duty Grease EP NLGI 0, 1, 2  
**Company Identification**  
Chevron Products Company  
a division of Chevron U.S.A. Inc.  
6001 Bollinger Canyon Rd.  
San Ramon, CA 94583  
United States of America  
www.chevronlubricants.com

**Transportation Emergency Response**  
CHEMTREC: (800) 424-9300 or (703) 527-3887

**Health Emergency**  
Chevron Emergency & Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

**Product Information**  
email : lubemsds@chevron.com  
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

## SECTION 2 HAZARDS IDENTIFICATION

### CLASSIFICATION:

- Acute aquatic toxicant: Category 3.
- Chronic aquatic toxicant: Category 3.

### Environmental Hazards:

- Harmful to aquatic life with long lasting effects.

### PRECAUTIONARY STATEMENTS:

#### Prevention:

- Avoid release to the environment.

#### Disposal:

- Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

**HAZARDS NOT OTHERWISE CLASSIFIED:** Not Applicable

## SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight
Distillates (petroleum), hydrotreated middle	64742-46-7	0 - 30 %weight
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts	68457-79-4	1 - < 4 %weight
Succinic anhydride, alkylation products with C12-rich branched olefins from propene oligomerisation, hydrolyzed, esterification products with propylene oxide	Not Available	< 1 %weight
Phosphoric acid ester, amine salt	Mixture	< 1 %weight

#### SECTION 4 FIRST AID MEASURES

##### Description of first aid measures

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

##### Most important symptoms and effects, both acute and delayed

###### IMMEDIATE HEALTH EFFECTS

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

**Ingestion:** Not expected to be harmful if swallowed.

**Inhalation:** Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

**DELAYED OR OTHER HEALTH EFFECTS:** Not classified

##### Indication of any immediate medical attention and special treatment needed

**Note to Physicians:** In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

#### SECTION 5 FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.



**Unusual Fire Hazards:** Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

#### **PROTECTION OF FIRE FIGHTERS:**

**Fire Fighting Instructions:** This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Phosphorus, Sulfur, Zinc, Lithium.

### **SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Eliminate all sources of ignition in vicinity of spilled material.

**Spill Management:** Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

### **SECTION 7 HANDLING AND STORAGE**

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Precautionary Measures:** DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Keep out of the reach of children.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

### **SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

#### **GENERAL CONSIDERATIONS:**

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the workplace when designing engineering controls and selecting personal protective equipment (PPE). If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, refer to PPE information below.

Factors that affect PPE include, but are not limited to: properties of the chemical, other chemicals which

may contact the same PPE, physical requirements (fit & sizing, cut/puncture protection, dexterity, thermal protection, etc.), and potential allergic reactions to the PPE material. It is the responsibility of the user to read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

**ENGINEERING CONTROLS:**

Use in a well-ventilated area.

**PERSONAL PROTECTIVE EQUIPMENT**

**Eye/Face Protection:** Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.

**Skin Protection:** Wear chemical personal protective equipment (PPE) to prevent skin contact. Selection of chemical protective clothing should be performed by an Occupational Hygienist or Safety Professional and be based upon applicable standards (ASTM F739 or EN 374). Using chemical PPE depends upon operations conducted and may include chemical gloves, boots, chemical apron, chemical suit, and complete facial protection. Refer to PPE manufacturers to obtain breakthrough time information to determine how long PPE can be used before it needs to be replaced. Unless specific glove manufacturer data indicates otherwise, the below table is based upon available industry data to assist in the glove selection process and is intended to be used as reference only.

Chemical Glove Material	Thickness (mm)	Typical Breakthrough Time (minutes)
Butyl	0.7	120
Nitrile	0.8	240
Viton Butyl	0.3	240

**Respiratory Protection:** No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

**Occupational Exposure Limits:**

Component	Agency	Form	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	--	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	--	5 mg/m3	--	--	--
Distillates (petroleum), hydrotreated middle	ACGIH	Inhalable fraction	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

**SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**

**Attention: the data below are typical values and do not constitute a specification.**

**Color:** Red

**Physical State:** Semi-solid

**Odor:** Petroleum odor

**Odor Threshold:** No data available

**pH:** Not Applicable

**Vapor Pressure:** No data available

**Vapor Density (Air = 1):** No data available  
**Initial Boiling Point:** 260°C (500°F) (Minimum)  
**Solubility:** Soluble in hydrocarbons; insoluble in water  
**Freezing Point:** No data available  
**Melting Point:** 165°C (329°F) (Minimum)  
**Density:** No data available  
**Viscosity:** 22 mm<sup>2</sup>/s @ 100°C (212°F) (Minimum)  
**Evaporation Rate:** No data available  
**Decomposition temperature:** No data available  
**Octanol/Water Partition Coefficient:** No data available

**FLAMMABLE PROPERTIES:**

**Flammability (solid, gas):** No Data Available

**Flashpoint:** (Cleveland Open Cup) 204 °C (399 °F) (Minimum)

**Autoignition:** No data available

**Flammability (Explosive) Limits (% by volume in air):** Lower: Not Applicable Upper: Not Applicable

**SECTION 10 STABILITY AND REACTIVITY**

**Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Incompatibility With Other Materials:** Not applicable

**Hazardous Decomposition Products:** Alkyl Mercaptans (Elevated temperatures), Hydrogen Sulfide (Elevated temperatures)

**Hazardous Polymerization:** Hazardous polymerization will not occur.

**SECTION 11 TOXICOLOGICAL INFORMATION**

**Information on toxicological effects**

**Serious Eye Damage/Irritation:** The material is not considered an eye irritant. The product has not been tested. The statement is based on evaluation of data for product components.

**Skin Corrosion/Irritation:** The material is not considered a skin irritant. The product has not been tested. The statement is based on evaluation of data for product components.

**Skin Sensitization:** The material is not considered a skin sensitizer. The product has not been tested. The statement is based on evaluation of data for product components.

**Acute Dermal Toxicity:** The material is not considered a dermal toxicant. The product has not been tested. The statement is based on evaluation of data for product components.

**Acute Oral Toxicity:** The material is not considered an oral toxicant. The product has not been tested. The statement is based on evaluation of data for product components.

**Acute Inhalation Toxicity:** The material is not considered an inhalation toxicant. The product has not been tested. The statement is based on evaluation of data for product components.

**Acute Toxicity Estimate:** Not Determined

**Germ Cell Mutagenicity:** The material is not considered a mutagen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Carcinogenicity:** The material is not considered a carcinogen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Reproductive Toxicity:** The material is not considered a reproductive toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Specific Target Organ Toxicity - Single Exposure:** The material is not considered a target organ toxicant (single exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Specific Target Organ Toxicity - Repeated Exposure:** The material is not considered a target organ toxicant (repeated exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Aspiration Hazard:** The material is not considered an aspiration hazard.

**ADDITIONAL TOXICOLOGY INFORMATION:**

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

**SECTION 12 ECOLOGICAL INFORMATION**

**ECOTOXICITY**

This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

The product has not been tested. The statement has been derived from the properties of the individual components.

**MOBILITY**

No data available.

**PERSISTENCE AND DEGRADABILITY**

This material is not expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

**POTENTIAL TO BIOACCUMULATE**

Bioconcentration Factor: No data available.

Octanol/Water Partition Coefficient: No data available

**SECTION 13 DISPOSAL CONSIDERATIONS**

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

**SECTION 14 TRANSPORT INFORMATION**

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate

Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Description:** NOT REGULATED AS HAZARDOUS MATERIAL UNDER 49 CFR

**IMO/IMDG Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

**ICAO/IATA Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:**  
Not applicable

## SECTION 15 REGULATORY INFORMATION

**EPCRA 311/312 CATEGORIES:** Not applicable

### REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	05=MA RTK
01-2A=IARC Group 2A	06=NJ RTK
01-2B=IARC Group 2B	07=PA RTK
02=NTP Carcinogen	08-1=TSCA 5(e)
03=EPCRA 313	08-2=TSCA 12(b)
04=CA Proposition 65	

The following components of this material are found on the regulatory lists indicated.

Distillates (petroleum), hydrotreated middle 05, 07  
Phosphorodithioic acid, mixed O,O-bis(iso-Bu and pentyl) esters, zinc salts 03, 06, 07

### CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AIIIC (Australia), DSL (Canada), IECSC (China), KECl (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

### NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

## SECTION 16 OTHER INFORMATION

**NFPA RATINGS:** Health: 0 Flammability: 1 Reactivity: 0

**HMIS RATINGS:** Health: 1 Flammability: 1 Reactivity: 0  
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT:** SECTION 01 - Product Identifier information was modified.  
 SECTION 03 - Composition information was modified.  
 SECTION 05 - Unusual Fire Fighting Hazards information was added.  
 SECTION 07 - Precautionary Measures information was modified.  
 SECTION 08 - Eye/Face Protection information was modified.  
 SECTION 08 - General Considerations information was modified.  
 SECTION 08 - Personal Protective Equipment List information was deleted.  
 SECTION 08 - Personal Protective Equipment information was added.  
 SECTION 08 - Skin Protection information was modified.  
 SECTION 15 - Regulatory Information information was modified.

**Revision Date:** December 09, 2022

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Technical Center, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**



## Diaseal M® Lost Circulation Material

Version 2.4

Revision Date 2019-08-01

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### Product information

Product Name : Diaseal M® Lost Circulation Material  
 Material : 1016804, 1017933

Use : Lost Circulation Material

Company : Chevron Phillips Chemical Company LP  
 Drilling Specialties Company LLC  
 10001 Six Pines Drive  
 The Woodlands, TX 77380

#### Emergency telephone:

##### Health:

866.442.9628 (North America)

1.832.813.4984 (International)

##### Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group  
 E-mail address : SDS@CPChem.com  
 Website : www.CPChem.com

### SECTION 2: Hazards identification

#### Classification of the substance or mixture

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

#### Classification


: Skin irritation, Category 2  
 Serious eye damage, Category 1  
 Carcinogenicity, Category 1A, Inhalation

#### Labeling

**Diaseal M® Lost Circulation Material**

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Symbol(s) : 

Signal Word : Danger

Hazard Statements : H315: Causes skin irritation.  
H318: Causes serious eye damage.  
H350i: May cause cancer by inhalation.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P264 Wash skin thoroughly after handling.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P362 Take off contaminated clothing and wash before reuse.  
**Storage:**  
P405 Store locked up.  
**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

**Carcinogenicity:**

**IARC** Group 1: Carcinogenic to humans  
Crystalline Silica 14808-60-7

**NTP** Known to be human carcinogen  
Crystalline Silica 14808-60-7

**SECTION 3: Composition/information on ingredients**

Synonyms : LCM  
Lost Circulation Material

Molecular formula : Mixture

Component	CAS-No.	Weight %
Diatomaceous Earth	61790-53-2	60 - 90
Cellulose	9004-34-6	5 - 15
Calcium Hydroxide	1305-62-0	7 - 13



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Crystalline Silica

14808-60-7

0.1 - 1

**SECTION 4: First aid measures**

- General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Do not leave the victim unattended.
- If inhaled : Move to fresh air. If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
- In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If swallowed : Induce vomiting immediately and call a physician. Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

**SECTION 5: Firefighting measures**

- Flash point : Not applicable
- Autoignition temperature : Not applicable
- Unsuitable extinguishing media : High volume water jet.
- Specific hazards during fire fighting : Standard procedure for chemical fires.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
- Further information : Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Fire and explosion protection : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
- Hazardous decomposition products : None.

**SECTION 6: Accidental release measures**

- Personal precautions : Use personal protective equipment. Avoid dust formation. Avoid breathing dust.
- Environmental precautions : Prevent product from entering drains. Prevent further leakage

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or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods for cleaning up : Keep in suitable, closed containers for disposal.

**SECTION 7: Handling and storage****Handling**

Advice on safe handling : Avoid formation of respirable particles. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.

**Storage**

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Use : Lost Circulation Material

**SECTION 8: Exposure controls/personal protection****Ingredients with workplace control parameters****US**

Components	Basis	Value	Control parameters	Note
Diatomaceous Earth	OSHA Z-1-A	TWA	6 mg/m3	
	OSHA Z-3	TWA	20 Million particles per cubic foot	a, Dust
	OSHA Z-3	TWA	80 mg/m3 / %SiO <sub>2</sub>	Dust
Calcium Hydroxide	ACGIH	TWA	5 mg/m3	URT irr, eye irr, skin irr,
	OSHA Z-1	TWA	15 mg/m3	total dust
	OSHA Z-1	TWA	5 mg/m3	respirable fraction
Cellulose	OSHA Z-1-A	TWA	5 mg/m3	i,
	ACGIH	TWA	10 mg/m3	URT irr, NA,
	OSHA Z-1	TWA	15 mg/m3	total dust
Crystalline Silica	OSHA Z-1	TWA	5 mg/m3	respirable fraction
	OSHA Z-1-A	TWA	15 mg/m3	Total dust
	OSHA Z-1-A	TWA	5 mg/m3	respirable dust fraction
	OSHA Z-3	TWA	250 mppcf / %SiO <sub>2</sub> +5	(f), a, b, respirable
	OSHA Z-3	TWA	10 mg/m3 / %SiO <sub>2</sub> +2	(f), e, respirable
	OSHA Z-3	TWA	0.1 mg/m3	Respirable fraction
	OSHA Z-1-A	TWA	0.1 mg/m3	respirable dust fraction
	ACGIH	TWA	0.025 mg/m3	lung cancer, pulm fibrosis, A2, Respirable fraction
	OSHA Z-1	TWA	0.05 mg/m3	Respirable fraction
	OSHA Z-1	TWA	0.05 mg/m3	(7), (respirable dust)

(7) See Table Z-3 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1053 is stayed or is otherwise not in effect.

(f) This standard applies to any operations or sectors for which the respirable crystalline silica standard, 1910.1053, is stayed or is otherwise not in effect.

a Based on impinger samples counted by light-field techniques.

A2 Suspected human carcinogen

b The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.

e Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics: Aerodynamic diameter (unit density sphere): 2; Percent passing selector: 90 Aerodynamic

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diameter (unit density sphere): 2,5; Percent passing selector: 75 Aerodynamic diameter (unit density sphere): 3,5; Percent passing selector: 50 Aerodynamic diameter (unit density sphere): 5,0; Percent passing selector: 25 Aerodynamic diameter (unit density sphere): 10; Percent passing selector: 0 The measurements under this note refer to the use of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figure corresponding to that of 2.4 mg/m<sup>3</sup> in the table for coal dust is 4.5 mg/m<sup>3</sup>.

eye irr	Eye irritation
i	The TWA PEL of 5 mg/m <sup>3</sup> is not in effect as a result of reconsideration. Calcium hydroxide is covered by the exposure limits for particulates not otherwise regulated of 5 mg/m <sup>3</sup> respirable dust and 15 mg/m <sup>3</sup> total dust.
lung cancer	Lung cancer
NA	Not applicable
pulm fibrosis	Pulmonary fibrosis
skin irr	Skin irritation
URT irr	Upper Respiratory Tract irritation

**Immediately Dangerous to Life or Health Concentrations (IDLH)**

Substance name	CAS-No.	Control parameters	Update
Crystalline Silica	14808-60-7	Immediately Dangerous to Life or Health Concentration Value 50 mg/m <sup>3</sup>	1995-03-01

**Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**Personal protective equipment**

- Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Dusts and Mists / P100. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate: Protective suit. Safety shoes.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

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**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****Appearance**

Physical state : Solid  
 Color : Light brown  
 Odor : Mild, earthy

**Safety data**

Flash point : Not applicable

Lower explosion limit : Not applicable

Upper explosion limit : Not applicable

Oxidizing properties : no

Autoignition temperature : Not applicable

Molecular formula : Mixture

Molecular weight : Not applicable

pH : Not applicable

Pour point : No data available

Boiling point/boiling range : Not applicable

Vapor pressure : Not applicable

Relative density : 2  
Water = 1.0

Bulk density : 20.2 LB/FT3

Water solubility : No data available

Partition coefficient: n-octanol/water : No data available

Viscosity, kinematic : No data available

Relative vapor density : Not applicable

Evaporation rate : No data available

**SECTION 10: Stability and reactivity**

**Reactivity** : Stable at normal ambient temperature and pressure.

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**Chemical stability** : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Possibility of hazardous reactions**

**Hazardous reactions** : Hazardous reactions: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

**Conditions to avoid** : Generation of Dusts.

**Materials to avoid** : Strong acids.

**Hazardous decomposition products** : None

**Other data** : No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information****Acute oral toxicity**

Calcium Hydroxide : LD50: 7,340 mg/kg  
Species: Rat

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**Skin irritation** : Irritating to skin.

**Diaseal M® Lost Circulation Material**

**Eye irritation** : Risk of serious damage to eyes.

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**Aspiration toxicity** : No aspiration toxicity classification.

**CMR effects**

Crystalline Silica : Carcinogenicity: Positive evidence from human epidemiological studies (inhalation)

**Further information**

Crystalline Silica : Chronic Health Hazard.

**SECTION 12: Ecological information****Ecotoxicity effects****Toxicity to fish**

Calcium Hydroxide : LC50: 160 mg/l

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Exposure time: 96 h  
 Species: Gambusia affinis (Fish, fresh water)  
 static test

Biodegradability : Not applicable

Elimination information (persistence and degradability)

Bioaccumulation : This material is not expected to bioaccumulate.

Mobility : immobile

Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Additional ecological information : This material is not expected to be harmful to aquatic organisms.

**Ecotoxicology Assessment**

Short-term (acute) aquatic hazard : This material is not expected to be harmful to aquatic organisms.

Long-term (chronic) aquatic hazard : This material is not expected to be harmful to aquatic organisms.

**SECTION 13: Disposal considerations**

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

**SECTION 14: Transport information**

**The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).**

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

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**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

**SECTION 15: Regulatory information****National legislation**

**SARA 311/312 Hazards** : Serious eye damage or eye irritation  
Carcinogenicity  
Skin corrosion or irritation

CERCLA Reportable Quantity : This material does not contain any components with a CERCLA RQ.

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

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SARA 302 Threshold Planning Quantity : This material does not contain any components with a section 302 EHS TPQ.

SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

SARA 313 Components : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

**US State Regulations**

Pennsylvania Right To Know : Diatomaceous Earth - 61790-53-2  
Calcium Hydroxide - 1305-62-0  
Cellulose - 9004-34-6  
Crystalline Silica - 14808-60-7

California Prop. 65 Components : WARNING: This product can expose you to chemicals including [listed below], which is [are] known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov/food](http://www.P65Warnings.ca.gov/food).



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Crystalline Silica

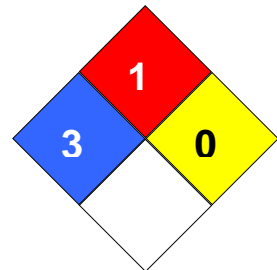
14808-60-7

**Notification status**

Europe REACH	:	This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada DSL	:	All components of this product are on the Canadian DSL
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance.
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory

**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 3  
Fire Hazard: 1  
Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 59340

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
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AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

# LUBE-100

LUBE-100\* lubricant reduces torque, drag and the potential for differential sticking by reducing the coefficient of friction of water-base muds.

It can also provide additional wellbore stability and inhibition, reduce bit-balling and improve high-temperature filtration control. LUBE-100 lubricant is only slightly water soluble under most conditions but is readily dispersible in water-base muds. It is acceptable for most situations specifying a low-toxicity lubricant.

### Typical Physical Properties

Physical appearance .....	Black liquid
Specific gravity.....	0.98-1.04
pH .....	8-9.5
Solubility in water .....	Slight
Flash point .....	430° F (221° C) (PMCC)

### Applications

LUBE-100 lubricant should be specified for those situations where torque, drag and/or the potential for differential sticking are likely, such as when drilling highly deviated or high-differential-pressure wells. This additive is especially useful for preventing the "stick-slip" condition in directional drilling when using the "slide" method without rotation.

Normal concentrations of LUBE-100 lubricant range from 2 to 4% or 7 to 17.5 lb/bbl (20 to 50 kg/m<sup>3</sup>), depending on the mud density, desired reduction in coefficient of friction and the mud system. After the initial treatment, periodic treatments should be made to maintain the desired concentration. Higher concentrations may be needed for pills and special applications. Treatment levels and product usage will depend on the rate of penetration, solids-control equipment and dilution rates. Due to the potential for an increase in viscosity when added to lightly-treated, high-bentonite systems or to systems with high solids, heavy treatments of LUBE-100 lubricant should be added slowly. If high viscosity occurs, circulation time and temperature cycling will restore the fluid to near-original conditions. While LUBE-100 lubricant does not affect the rheology of most mud systems, pilot testing is recommended as a precautionary measure for all initial applications and large treatments.

LUBE-100 lubricant should be added slowly, directly to the mud system wherever there is good agitation or through the mixing hopper. One suggested application method consists of maintaining a small, constant stream, added directly into the suction pit.

LUBE-100 lubricant does not "grease," is resistant to contamination and is compatible with common water-base mud additives. Because the product has very low foaming potential, it will not cause foaming problems in the mud system. For offshore applications with LUBE-100 lubricant concentrations approaching 4%, the LC50 should be monitored closely.

### Advantages

- Highly effective down hole lubricant for reducing torque and drag
- Reduces the potential for, and the severity of, differential sticking
- Ideal for minimizing the "stick-slip" condition when "sliding" in directional drilling
- Resists contamination and is compatible with other water-base additives
- Chemically stable down hole under pressure and at temperatures of more than 450° F (232 °C)
- Reduces the tendency for bit and stabilizer balling when drilling gumbo clays
- Can improve wellbore stability and inhibition, and help obtain more gauge holes
- Helps improve high-temperature filtration control
- Helps maximize rate of penetration
- Environmentally acceptable for offshore use
- Does not sheen

### Limitations

- May cause high viscosity when added to non-dispersed, lightly-treated bentonite or high-solids fluids

### Toxicity and Handling

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the Material Safety Data Sheet (MSDS).

LUBE-100 lubricant is a low toxicity product. For offshore applications with LUBE-100 lubricant concentrations approaching 4%, the LC50 should be closely monitored.

### Packaging and Storage

LUBE-100 additive is packaged in 55 gal (208 l) drums and is available in bulk.

Store in a dry, well-ventilated area. Keep container closed. Keep away from heat, sparks and flames. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.

**MISWACO**  
A Schlumberger Company

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# Safety Data Sheet



## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### Clarity Hydraulic Oil AW 32, 46, 68, 100

**Product Use:** Hydraulic Oil

**Product Number(s):** 219612, 230340, 230341, 230342, 255702, 278022, 278023, 278024

**Synonyms:** Clarity Hydraulic Oil AW 32 ISOCLEAN Certified; Clarity Hydraulic Oil AW 46 ISOCLEAN Certified; Clarity Hydraulic Oil AW 68 ISOCLEAN Certified

#### Company Identification

Chevron Products Company  
a division of Chevron U.S.A. Inc.  
6001 Bollinger Canyon Rd.  
San Ramon, CA 94583  
United States of America  
www.chevronlubricants.com

#### Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

#### Health Emergency

Chevron Emergency & Information Center: Located in the USA. International collect calls accepted.  
(800) 231-0623 or (510) 231-0623

#### Product Information

email : lubemsds@chevron.com

Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

## SECTION 2 HAZARDS IDENTIFICATION

### CLASSIFICATION:

- Reproductive toxicant (fertility): Category 2.



**Signal Word:** Warning

#### Health Hazards:

- Suspected of damaging fertility.

### PRECAUTIONARY STATEMENTS:

#### Prevention:

- Obtain special instructions before use.

- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required.

**Response:**

- IF exposed or concerned: Get medical advice/attention.

**Storage:**

- Store locked up.

**Disposal:**

- Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

**HAZARDS NOT OTHERWISE CLASSIFIED:** Not Applicable

**SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS**

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight
N-Phenylbenzenamine, reaction products with 2,4,4-trimethylpentene	68411-46-1	0.1 - < 1 %weight

**SECTION 4 FIRST AID MEASURES**

**Description of first aid measures**

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

**Most important symptoms and effects, both acute and delayed**

**IMMEDIATE HEALTH EFFECTS**

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

**Ingestion:** Not expected to be harmful if swallowed.

**Inhalation:** Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

**DELAYED OR OTHER HEALTH EFFECTS:**

**Reproduction and Birth Defects:** Swallowing this material may cause adverse reproductive effects based on animal data. See Section 11 for additional information. Risk depends on duration and level of exposure.

### **Indication of any immediate medical attention and special treatment needed**

**Note to Physicians:** In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

## **SECTION 5 FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Unusual Fire Hazards:** Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

### **PROTECTION OF FIRE FIGHTERS:**

**Fire Fighting Instructions:** This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

## **SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Eliminate all sources of ignition in vicinity of spilled material.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

## **SECTION 7 HANDLING AND STORAGE**

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Precautionary Measures:** DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Wash thoroughly after handling.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the workplace when designing engineering controls and selecting personal protective equipment (PPE). If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, refer to PPE information below.

Factors that affect PPE include, but are not limited to: properties of the chemical, other chemicals which may contact the same PPE, physical requirements (fit & sizing, cut/puncture protection, dexterity, thermal protection, etc.), and potential allergic reactions to the PPE material. It is the responsibility of the user to read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

### ENGINEERING CONTROLS:

Use general ventilation, local exhaust ventilation, or a combination of both.

### PERSONAL PROTECTIVE EQUIPMENT

**Eye/Face Protection:** Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.

**Skin Protection:** Wear chemical personal protective equipment (PPE) to prevent skin contact. Selection of chemical protective clothing should be performed by an Occupational Hygienist or Safety Professional and be based upon applicable standards (ASTM F739 or EN 374). Using chemical PPE depends upon operations conducted and may include chemical gloves, boots, chemical apron, chemical suit, and complete facial protection. Refer to PPE manufacturers to obtain breakthrough time information to determine how long PPE can be used before it needs to be replaced. Unless specific glove manufacturer data indicates otherwise, the below table is based upon available industry data to assist in the glove selection process and is intended to be used as reference only.

Chemical Glove Material	Thickness (mm)	Typical Breakthrough Time (minutes)
Butyl	0.7	120
Neoprene	0.61	120
Nitrile	0.8	120
Polyvinyl Chloride (PVC)	1.1	120
Viton Butyl	0.3	120

**Respiratory Protection:** No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

### Occupational Exposure Limits:

Component	Agency	Form	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	--	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	--	5 mg/m <sup>3</sup>	--	--	--

Consult local authorities for appropriate values.



## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Attention:** the data below are typical values and do not constitute a specification.

**Color:** Colorless to yellow  
**Physical State:** Liquid  
**Odor:** Petroleum odor  
**Odor Threshold:** No data available  
**pH:** Not Applicable  
**Vapor Pressure:** No data available  
**Vapor Density (Air = 1):** No data available  
**Initial Boiling Point:** No data available  
**Solubility:** Soluble in hydrocarbons; insoluble in water  
**Freezing Point:** Not Applicable  
**Melting Point:** No data available  
**Density:** 0.8618 kg/l - 0.8694 kg/l @ 15°C (59°F) (Typical)  
**Viscosity:** 32 mm<sup>2</sup>/s - 110 mm<sup>2</sup>/s @ 40°C (104°F)  
**Evaporation Rate:** No data available  
**Decomposition temperature:** No data available  
**Octanol/Water Partition Coefficient:** No data available

### FLAMMABLE PROPERTIES:

**Flammability (solid, gas):** Not Applicable

**Flashpoint:** (Cleveland Open Cup) 190 °C (374 °F) (Minimum)

**Autoignition:** No data available

**Flammability (Explosive) Limits (% by volume in air):** Lower: Not Applicable Upper: Not Applicable

## SECTION 10 STABILITY AND REACTIVITY

**Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Incompatibility With Other Materials:** Not applicable

**Hazardous Decomposition Products:** None known (None expected)

**Hazardous Polymerization:** Hazardous polymerization will not occur.

## SECTION 11 TOXICOLOGICAL INFORMATION

### Information on toxicological effects

**Serious Eye Damage/Irritation:** The material is not considered an eye irritant. The product has not been tested. The statement is based on evaluation of data for product components.

**Skin Corrosion/Irritation:** The material is not considered a skin irritant. The product has not been tested. The statement is based on evaluation of data for product components.

**Skin Sensitization:** The material is not considered a skin sensitizer. The product has not been tested. The statement is based on evaluation of data for product components.

**Acute Dermal Toxicity:** The material is not considered a dermal toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Oral Toxicity:** The material is not considered an oral toxicant. The product has not been tested. The statement is based on evaluation of data for product components.

**Acute Inhalation Toxicity:** The material is not considered an inhalation toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Toxicity Estimate:** Not Determined

**Germ Cell Mutagenicity:** The material is not considered a mutagen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Carcinogenicity:** The material is not considered a carcinogen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Reproductive Toxicity:** This material is suspected of damaging fertility. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Specific Target Organ Toxicity - Single Exposure:** The material is not considered a target organ toxicant (single exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Specific Target Organ Toxicity - Repeated Exposure:** The material is not considered a target organ toxicant (repeated exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Aspiration Hazard:** The material is not considered an aspiration hazard.

#### **ADDITIONAL TOXICOLOGY INFORMATION:**

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

## **SECTION 12 ECOLOGICAL INFORMATION**

### **ECOTOXICITY**

This material is not expected to be harmful to aquatic organisms.

The product has not been tested. The statement has been derived from the properties of the individual components.

### **MOBILITY**

No data available.

### **PERSISTENCE AND DEGRADABILITY**

This material is not expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

### **POTENTIAL TO BIOACCUMULATE**

Bioconcentration Factor: No data available.

Octanol/Water Partition Coefficient: No data available

## SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

## SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Description:** NOT REGULATED AS HAZARDOUS MATERIAL UNDER 49 CFR

**IMO/IMDG Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

**ICAO/IATA Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:**  
Not applicable

## SECTION 15 REGULATORY INFORMATION

### EPCRA 311/312 CATEGORIES:

Reproductive toxicity

### REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	05=MA RTK
01-2A=IARC Group 2A	06=NJ RTK
01-2B=IARC Group 2B	07=PA RTK
02=NTP Carcinogen	08-1=TSCA 5(e)
03=EPCRA 313	08-2=TSCA 12(b)
04=CA Proposition 65	

No components of this material were found on the regulatory lists above.

### CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AIIIC (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

One or more components is listed on ELINCS (European Union). All other components are listed or exempted from listing on EINECS.

### NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Hydraulic oil)

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:** Health: 0 Flammability: 1 Reactivity: 0

**HMIS RATINGS:** Health: 0\* Flammability: 1 Reactivity: 0  
 (0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT:** SECTION 02 - Hazard Statements information was added.

SECTION 02 - Health Classification information was added.

SECTION 02 - Pictogram information was added.

SECTION 02 - Precautionary Statements information was added.

SECTION 02 - Signal Word information was added.

SECTION 03 - Composition information was modified.

SECTION 04 - Delayed Health Effects - Reproductive Toxicity information was modified.

SECTION 07 - Precautionary Measures information was modified.

SECTION 08 - Engineering Control Measures information was modified.

SECTION 08 - Personal Protective Equipment information was modified.

SECTION 11 - Reproductive Toxicity information was modified.

SECTION 12 - Ecological Information information was added.

SECTION 12 - Ecological Information information was deleted.

SECTION 15 - Chemical Inventories information was modified.

SECTION 15 - SARA 311 EPCRA Score information was added.

SECTION 15 - SARA 311 EPCRA Score information was deleted.

SECTION 16 - HMIS Rating information was modified.

**Revision Date:** November 04, 2022

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS System - Hazardous Materials Information System	NFPA (USA) - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA Administration - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Technical Center, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person**

receiving it shall make his own determination of the suitability of the material for his particular purpose.

# Safety Data Sheet



## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### Delo 100 Motor Oil SAE 40

**Product Use:** Heavy Duty Motor Oil  
**Product Number(s):** 219932, 222404

#### Company Identification

Chevron Products Company  
a division of Chevron U.S.A. Inc.  
6001 Bollinger Canyon Rd.  
San Ramon, CA 94583  
United States of America  
www.chevronlubricants.com

#### Transportation Emergency Response

CHEMTREC: (800) 424-9300 or (703) 527-3887

#### Health Emergency

Chevron Emergency & Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

#### Product Information

email : lubemsds@chevron.com  
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

## SECTION 2 HAZARDS IDENTIFICATION

#### CLASSIFICATION:

Not classified as hazardous according to 29 CFR 1910.1200 (2012).

**HAZARDS NOT OTHERWISE CLASSIFIED:** Not Applicable

## SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Distillates, hydrotreated heavy paraffinic	64742-54-7	70 - 99 %weight

## SECTION 4 FIRST AID MEASURES

#### Description of first aid measures

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

**Most important symptoms and effects, both acute and delayed**

**IMMEDIATE HEALTH EFFECTS**

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

**Ingestion:** Not expected to be harmful if swallowed.

**Inhalation:** Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

**DELAYED OR OTHER HEALTH EFFECTS:** Not classified

**Indication of any immediate medical attention and special treatment needed** Not Applicable

**SECTION 5 FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**PROTECTION OF FIRE FIGHTERS:**

**Fire Fighting Instructions:** This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Boron, Nitrogen.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Eliminate all sources of ignition in vicinity of spilled material.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

**SECTION 7 HANDLING AND STORAGE**

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Precautionary Measures:** Keep out of the reach of children.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating

an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the workplace when designing engineering controls and selecting personal protective equipment (PPE). If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, refer to PPE information below.

Factors that affect PPE include, but are not limited to: properties of the chemical, other chemicals which may contact the same PPE, physical requirements (fit & sizing, cut/puncture protection, dexterity, thermal protection, etc.), and potential allergic reactions to the PPE material. It is the responsibility of the user to read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

### ENGINEERING CONTROLS:

Use in a well-ventilated area.

### PERSONAL PROTECTIVE EQUIPMENT

**Eye/Face Protection:** Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.

**Skin Protection:** Wear chemical personal protective equipment (PPE) to prevent skin contact. Selection of chemical protective clothing should be performed by an Occupational Hygienist or Safety Professional and be based upon applicable standards (ASTM F739 or EN 374). Using chemical PPE depends upon operations conducted and may include chemical gloves, boots, chemical apron, chemical suit, and complete facial protection. Refer to PPE manufacturers to obtain breakthrough time information to determine how long PPE can be used before it needs to be replaced. Unless specific glove manufacturer data indicates otherwise, the below table is based upon available industry data to assist in the glove selection process and is intended to be used as reference only.

Chemical Glove Material	Thickness (mm)	Typical Breakthrough Time (minutes)
Butyl	0.7	120
Nitrile	0.8	240
Viton Butyl	0.3	240

**Respiratory Protection:** No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.



**Occupational Exposure Limits:**

Component	Agency	Form	TWA	STEL	Ceiling	Notation
Distillates, hydrotreated heavy paraffinic	ACGIH	Inhalable fraction	5 mg/m3	--	--	--
Distillates, hydrotreated heavy paraffinic	ACGIH	--	5 mg/m3	10 mg/m3	--	--
Distillates, hydrotreated heavy paraffinic	OSHA Z-1	--	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

<b>SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES</b>
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**Attention: the data below are typical values and do not constitute a specification.**

**Color:** Brown to yellow

**Physical State:** Liquid

**Odor:** Petroleum odor

**Odor Threshold:** No data available

**pH:** Not Applicable

**Vapor Pressure:** No data available

**Vapor Density (Air = 1):** No data available

**Initial Boiling Point:** No data available

**Solubility:** Soluble in hydrocarbons; insoluble in water

**Freezing Point:** No data available

**Melting Point:** No data available

**Density:** 0.8883 kg/l - 0.8892 kg/l @ 15°C (59°F) (Typical)

**Viscosity:** 131 mm<sup>2</sup>/s @ 40°C (104°F) (Typical)

**Evaporation Rate:** No data available

**Decomposition temperature:** No data available

**Octanol/Water Partition Coefficient:** No data available

**FLAMMABLE PROPERTIES:**

**Flammability (solid, gas):** Not Applicable

**Flashpoint:** (Cleveland Open Cup) 180 °C (356 °F) (Minimum)

**Autoignition:** No data available

**Flammability (Explosive) Limits (% by volume in air):** Lower: Not Applicable Upper: Not Applicable

<b>SECTION 10 STABILITY AND REACTIVITY</b>
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**Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Incompatibility With Other Materials:** Not applicable

**Hazardous Decomposition Products:** None known (None expected)

**Hazardous Polymerization:** Hazardous polymerization will not occur.

<b>SECTION 11 TOXICOLOGICAL INFORMATION</b>
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**Information on toxicological effects**

**Serious Eye Damage/Irritation:** The material is not considered an eye irritant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Skin Corrosion/Irritation:** The material is not considered a skin irritant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Skin Sensitization:** The material is not considered a skin sensitizer. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Dermal Toxicity:** The material is not considered a dermal toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Oral Toxicity:** The material is not considered an oral toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Inhalation Toxicity:** The material is not considered an inhalation toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Acute Toxicity Estimate:** Not Determined

**Germ Cell Mutagenicity:** The material is not considered a mutagen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Carcinogenicity:** The material is not considered a carcinogen. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Reproductive Toxicity:** The material is not considered a reproductive toxicant. The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Specific Target Organ Toxicity - Single Exposure:** The material is not considered a target organ toxicant (single exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Specific Target Organ Toxicity - Repeated Exposure:** The material is not considered a target organ toxicant (repeated exposure). The product has not been tested. The statement is based on evaluation of data for similar materials or product components.

**Aspiration Hazard:** The material is not considered an aspiration hazard.

#### **ADDITIONAL TOXICOLOGY INFORMATION:**

During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

## **SECTION 12 ECOLOGICAL INFORMATION**

### **ECOTOXICITY**

This material is not expected to be harmful to aquatic organisms.

The product has not been tested. The statement has been derived from the properties of the individual components.

**MOBILITY**

No data available.

**PERSISTENCE AND DEGRADABILITY**

This material is not expected to be readily biodegradable. The product has not been tested. The statement has been derived from the properties of the individual components.

**POTENTIAL TO BIOACCUMULATE**

Bioconcentration Factor: No data available.

Octanol/Water Partition Coefficient: No data available

**SECTION 13 DISPOSAL CONSIDERATIONS**

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

**SECTION 14 TRANSPORT INFORMATION**

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Description:** NOT REGULATED AS HAZARDOUS MATERIAL UNDER 49 CFR

**IMO/IMDG Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

**ICAO/IATA Shipping Description:** NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:**

Not applicable

**SECTION 15 REGULATORY INFORMATION**

**EPCRA 311/312 CATEGORIES:** Not applicable

**REGULATORY LISTS SEARCHED:**

01-1=IARC Group 1	05=MA RTK
01-2A=IARC Group 2A	06=NJ RTK
01-2B=IARC Group 2B	07=PA RTK
02=NTP Carcinogen	08-1=TSCA 5(e)
03=EPCRA 313	08-2=TSCA 12(b)
04=CA Proposition 65	

The following components of this material are found on the regulatory lists indicated.

Distillates, hydrotreated heavy paraffinic 05, 07

**CHEMICAL INVENTORIES:**

All components comply with the following chemical inventory requirements: AIC (Australia), DSL (Canada), ENCS (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

**NEW JERSEY RTK CLASSIFICATION:**

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Motor oil)

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:** Health: 0 Flammability: 1 Reactivity: 0

**HMIS RATINGS:** Health: 0 Flammability: 1 Reactivity: 0  
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT:** SECTION 03 - Composition information was modified.  
SECTION 08 - Eye/Face Protection information was modified.  
SECTION 08 - General Considerations information was modified.  
SECTION 08 - Occupational Exposure Limit Table information was modified.  
SECTION 08 - Personal Protective Equipment List information was deleted.  
SECTION 08 - Personal Protective Equipment information was added.  
SECTION 08 - Skin Protection information was modified.  
SECTION 15 - Regulatory Information information was added.

**Revision Date:** May 02, 2023

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Technical Center, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**



## Safety Data Sheet

Gasoline

### SECTION 1 IDENTIFICATION

**Product Name:** Gasoline

**Synonyms:** Unleaded Gasoline, Regular Gasoline, Motor Fuel, 85 Octane Gasoline, 87 Octane Gasoline

**SDS #:** F1

**Product Use:** Motor Fuel

**Restrictions on Use:** Use only as directed

**Manufacturer:**

Sinclair Oil Company  
P.O. Box 30825  
Salt Lake City, Utah 84130

**Telephone:**   **General Information:** (801) 524-2777   **Fax:** (801) 524-2740

**Contact person:** Jeremiah Webster

Emergency Telephone: 800-424-9300 (CHEMTREC) or (703) 527-3887

**SDS Date of Preparation:** January 23, 2015

### SECTION 2: HAZARDS IDENTIFICATION

**Classification:**

Physical	Health
Flammable Liquid Category 2	Aspiration Toxicity Category 1 Skin Irritation Category 2 Specific Target Organ Toxicity Single Exposure Category 3 (Nervous System) Carcinogen Category 1A Germ Cell Mutagenicity Category 1B

**Label Elements:**

Danger!



**Hazard Phrases:**

Highly flammable liquid and vapor.  
May be fatal if swallowed and enters airways.  
Causes skin irritation.  
May cause drowsiness or dizziness.  
May cause cancer.  
May cause genetic defects.

**Precautionary Phrases:**

**Prevention**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood  
Keep away from heat, sparks, open flames, and hot surfaces. No smoking.  
Keep container tightly closed.  
Ground and bond container and receiving equipment  
Use explosion-proof electrical, ventilating and lighting equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Avoid breathing vapors.  
Wash thoroughly after handling.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves, skin protection and eye protection.

#### Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor.  
Do NOT induce vomiting.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
If skin irritation occurs: Get medical attention.  
Take off contaminated clothing and wash it before reuse.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Call a POISON CENTER or doctor if you feel unwell.  
IF exposed or concerned: Get medical attention.  
In case of fire: Use water fog, carbon dioxide, dry chemical and foam to extinguish.

#### Storage and Disposal

Store in a well-ventilated place. Keep cool. Keep container tightly closed.  
Store locked up.  
Dispose of contents and container in accordance with local and national regulations.

### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Gasoline	8006-61-9	95-100%
Naphthalene	91-20-3	0-3%
Benzene	71-43-2	0-0.5%

### SECTION 4 EMERGENCY and FIRST AID PROCEDURES

**Eye Contact:** Immediately flush eyes with water for several minutes. Get medical attention if irritation persists.

**Skin Contact:** Remove contaminated clothing and flush skin with water for several minutes. Wash thoroughly with soap and water. Get medical attention if irritation develops or persists. Launder clothing before reuse. Discard contaminated shoes.

**Inhalation:** Remove to fresh air. If breathing is difficult have qualified personnel administer oxygen. If breathing has stopped, administer artificial respiration. Get medical attention.

**Ingestion:** Do not induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. Get immediate medical attention.

**Most important symptoms/effects, acute and delayed:** May cause eye irritation. Causes skin irritation with redness and drying. Inhalation may cause respiratory irritation and central nervous system effects. Harmful or fatal if swallowed. Aspiration during swallowing or vomiting may cause lung damage. May cause cancer. May cause genetic defects.

**Indication of immediate medical attention and special treatment, if necessary:** Immediate medical attention is required for ingestion.

#### SECTION 5 FIRE and EXPLOSION HAZARD DATA

**Suitable extinguishing media:** Use water fog, foam, carbon dioxide, or dry chemical. Do not use a steady stream of water. Product may float on the surface of water and create a floating fire hazard.

**Specific hazards arising from the chemical:** This product is highly flammable and forms explosive mixtures with air. Vapors are heavier than air and will travel along surfaces to remote ignition sources and flash back. Closed containers may explode if exposed to extreme heat. Combustion may produce carbon oxides and other products of incomplete combustion.

**Special protective equipment and precautions for fire-fighters:** Firefighters should wear full emergency equipment and a NIOSH approved positive pressure self-contained breathing apparatus. Cool fire exposed container with water. Do not allow run-off from firefighting to enter drains or water courses.

#### SECTION 6 ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment, and emergency procedures:** Wear appropriate protective equipment. Eliminate ignition sources and ventilate the area with explosion proof equipment. Wash thoroughly after handling.

**Environmental hazards:** Avoid release into the environment. Report spill as required by local and federal regulations.

**Methods and materials for containment and cleaning up:** Contain with an inert absorbent and place into a closable container for disposal. Use non-sparking tools and equipment. If spill has not ignited, use water spray to disperse the vapors and protect personnel attempting to stop leak. Prevent entry in storm sewers and waterways. Runoff can cause a fire or explosion hazard in sewers.

#### SECTION 7 HANDLING and STORAGE

**Precautions for safe handling:** Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Wash thoroughly after handling. Use only with adequate ventilation. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep product away from heat, sparks, flames and all other sources of ignition. Do not permit smoking in use or storage areas. Use with non-sparking tools and explosion proof equipment. Electrically bond and ground containers for transfer

Do not cut, drill, grind or weld on or near containers, even empty containers. Empty containers retain product residues can be hazardous. Follow all SDS precautions when handling empty containers.

Improper filling of portable gasoline containers creates a fire hazard. Only dispense gasoline into an approved and properly labeled gasoline container. Always place portable containers on the ground while filling. Ensure pump nozzle is in contact with the container while filling. Do not use the nozzle's lock open device. Do not fill portable containers that are inside a vehicle or trailer/truck bed.

Do not use as a cleaner or solvent. Use only as a motor fuel. Do not siphon by mouth.

Refer to OSHA 1910.1028 for requirements for handling and use of benzene.

**Conditions for safe storage, including any incompatibilities:** S Store in accordance with regulations for the storage of flammable liquids. Store in a dry, well ventilated area away from heat, direct sunlight and all sources of ignition. Store away from oxidizers and other incompatible materials. Protect containers from physical damage.

**SECTION 8 EXPOSURE CONTROLS and PERSONAL PROTECTION**

**Exposure Guidelines:**

**INGREDIENTS**

Gasoline  
Naphthalene  
  
Benzene

**EXPOSURE LIMITS**

300 ppm TWA , 500 ppm STEL ACGIH TLV  
10 ppm TWA OSHA PEL  
10 ppm, skin TWA ACGIH TLV  
1 ppm TWA, 5 ppm STEL OSHA PEL  
0.5 ppm TWA, 2.5 ppm STEL ACGIH TLV

29 CFR 1910.1028 is the OSHA regulation on Occupational Exposure to Benzene. Assure compliance with these regulations.

**Appropriate engineering controls:** Use with local exhaust ventilation to maintain exposures below the occupational exposure limits. Use explosion proof equipment where required

**Respiratory protection:** If exposures are exceeded, use a NIOSH approved organic vapor respirator appropriate for the form and concentration of the contaminants should be used. Selection of respiratory protection depends on the contaminant type, form and concentration. Select in accordance with OSHA 1910.134 and good Industrial Hygiene practice.

**Skin protection:** Impervious gloves such as viton recommended to prevent skin contact.

**Eye protection:** Wear chemical safety goggles to avoid eye contact.

**Other:** Impervious coveralls, apron and boots is required to prevent skin contact and contamination of personal clothing. A safety shower and eye wash should be available in the immediate work area.

**SECTION 9 PHYSICAL and CHEMICAL PROPERTIES**

**Appearance (physical state, color, etc.):** Colored or clear liquid

**Odor:** Aromatic hydrocarbon odor.

<b>Odor threshold:</b> 0.3 ppm (gasoline)	<b>pH:</b> Not applicable
<b>Melting point/Pourpoint:</b> -76°F (-60°C)	<b>Boiling Point:</b> 230° F (110°C)
<b>Flash point:</b> -45°F (-42.8°C)	<b>Evaporation rate:</b> Not available
<b>Flammability (solid, gas):</b> Not applicable	
<b>Flammable limits: LEL:</b> 1.4%	<b>UEL:</b> 7.6%
<b>Vapor pressure:</b> 7-15 psia	<b>Vapor density:</b> >1
<b>Relative density:</b> 0.65-0.75	<b>Solubility:</b> Insoluble in water
<b>Partition coefficient: n-ctanol/water:</b> Not available	<b>Auto-ignition temperature:</b> >530°F (>276.6°C)
<b>Decomposition temperature:</b> Not available	<b>Viscosity:</b> Not applicable

**SECTION 10 STABILITY and REACTIVITY**

**Reactivity:** This product is not expected to be reactive.

**Chemical stability:** The product is stable.

**Possibility of hazardous reactions:** None known.

**Conditions to avoid:** Keep away from heat and all sources of ignition.

**Incompatible materials:** Avoid oxidizing agents, acids, alkalies and halogens.



**Hazardous decomposition products:** Thermal decomposition may yield carbon oxides and other products of incomplete combustion.

## SECTION 11 TOXICOLOGICAL INFORMATION

### Health Hazards:

**Inhalation:** Vapors may cause respiratory irritation and central nervous system effect including headache, dizziness, headaches, giddiness, euphoria, vertigo, blurred vision, nausea, numbness, drowsiness, anesthesia, and coma. Gasoline vapors are heavier than air and may cause asphyxiation in enclosed or poorly ventilated area. Overexposure to benzene by inhalation may cause exhilaration, nervous excitation, and/or giddiness, followed by a period of depression, drowsiness, or fatigue, tightness of the chest, unconsciousness, tremors or death.

**Skin Contact:** Skin contact may cause irritation, redness and defatting of the skin.

**Eye Contact:** Eye contact may cause mild irritation with redness, tearing and pain.

**Ingestion:** Swallowing may cause gastrointestinal irritation, nausea, vomiting, diarrhea, vertigo, drowsiness, mental confusion, staggering gait, slurred speech, convulsions, unconsciousness and death due to circulatory failure. Aspiration during swallowing or vomiting may cause lung damage.

**Chronic Effects of Overexposure:** Prolonged occupational overexposure may cause dermatitis. Reports have associated repeated and prolonged overexposure to petroleum distillates with adverse liver, kidney and bone marrow effects and with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the product may be harmful or fatal. Repetitive direct skin application of kerosene over a two year period resulted in skin cancer in laboratory animals. Petroleum hydrocarbons of similar composition and boiling ranges have been known to product kidney damage and tumors in male rats following prolonged inhalation exposures. Benzene has been shown to cause damage to the blood forming system with anemia, leukopenia and thrombocytopenia by all routes of exposure.

**Mutagenicity:** Benzene did not induce in vitro mutation in bacteria using standard AMES test conditions. Mammalian cell gene mutation tests carried out in various human, mouse and Chinese hamster cells resulted in mixed results. Benzene is an in vivo mutagen in mammals, especially when chromosomal aberrations and micronuclei are induced. It has been reported that benzene exposure in humans induces genotoxic effects in lymphocytes in vivo.

**Reproductive Toxicity:** In a reproductive study, rats were administered 250 and 1000 mg/kg of petroleum distillates for at least 70 days prior to mating and during the 14 day mating cycle. The absence of adverse effects on in-life parameters (such as body weight, feed consumption, and clinical observations), a dosage level of 1000 mg/kg/day was considered to be the no-observed-adverse-effect level (NOAEL) for reproductive and systemic toxicity.

**Carcinogenicity:** Gasoline is listed by IARC as "Possibly Carcinogenic to Humans", Group 2B and as a "Confirmed Animal Carcinogen with Unknown Relevance to Humans: A3 by ACGIH. Benzene is listed by IARC as "Carcinogenic to Humans" Group 1, by NTP as "Known to Be a Human Carcinogen" and as a "Confirmed Human Carcinogen", A1 by ACGIH. Naphthalene is listed by IARC as "Possibly Carcinogenic to Humans", Group 2B, as "Reasonably Anticipated to be a Human Carcinogen" and as a "Confirmed Animal Carcinogen with Unknown Relevance to Humans", A3 by ACGIH.

**Acute Toxicity Values: Acute Toxicity Estimate:** Oral 14492 mg/kg

Gasoline: Oral rat LD50 >5000 mg/kg, Inhalation rat LC50 >5.61 mg/L/4 hr, Dermal rabbit LD50 >2000 mg/kg

Naphthalene: Oral rat LD50 533 mg/kg, Inhalation rat LC0 0.4 mg/L (highest attainable concentration), Dermal rat LC50 >2500 mg/kg

Benzene: Oral rat LD50 >2000 mg/kg, Inhalation rat LC50 41.69 mg/L/4 hr, Dermal rabbit LD50 > 8260 mg/kg

**SECTION 12: ECOLOGICAL INFORMATION**

**Ecotoxicity:**

Gasoline: 96 hr LL50 Pimephales promelas 8.2 mg/kg, 48 hr EL50 4.5 mg/L, 72 hr EL50 Pseudokirchnerella subcapitata 3.1 mg/L

Naphthalene: 96 hr LC50 Pimephales promelas 6.08 mg/L, 48 hr EC50 daphnia magna 2.16 mg/L

Benzene: 96 hr LC50 Oncorhynchus mykiss 5.3 mg/L, 48 hr EC50 daphnia magna 10 mg/L, 72 hr EC50 Pseudokirchnerella subcapitata 32 mg/L

**Persistence and degradability:** Gasoline is inherently biodegradable.

**Bioaccumulative potential:** The bioaccumulation potentials of the major components of gasoline range from low to high. Some higher molecular weight components may be taken up by fish and domestic animals and bioconcentrated if they persist in environment.

**Mobility in soil:** Gasoline is expected to possess low to moderate mobility in soil.

**Other adverse effects:** None known.

**SECTION 13: DISPOSAL INFORMATION**

**Waste Disposal Method:** Dispose in accordance with all local, state and federal regulations.

**SECTION 14: TRANSPORTATION INFORMATION**

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
<b>DOT</b>	UN1203	Gasoline	3	PG II	No
<b>TDG</b>	UN1203	Gasoline	3	PG II	No
<b>IMDG</b>	UN1203	Gasoline	3	PG II	No
<b>IATA</b>	UN1203	Gasoline	3	PG II	No

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Not applicable.

**Special precautions:** None known.

**SECTION 15: REGULATORY INFORMATION**

**Safety, health, and environmental regulations specific for the product in question.**

**CERCLA Hazardous Substances (Section 103)/RQ:** This product has a Reportable Quantity (RQ) of 3,333 lbs. (based on the RQ for Naphthalene of 100 lbs). Releases above the RQ must be reported to the National Response Center. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

**EPA SARA 311 Hazard Classification:** Acute Health, Chronic Health, Fire Hazard

**SARA 313:** This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372):

Benzene	71-43-2	0-0.5%
Naphthalene	91-20-3	0-3%

**CALIFORNIA PROPOSITION 65:** This product contains chemicals known to the State of California to cause cancer or reproductive toxicity.

**WHMIS CLASSIFICATION:** Class B, Division 2 (Flammable Liquid), Class D, Division 2A (Very Toxic Material Causing Other Toxic Effects)

This product has been classified in accordance with the hazard criteria in the CPR and the MSDS contains all the information required by the CPR.

**Australia AICS:** All of the components are listed on the Australian Inventory of Chemical Substances.

**Canada DSL:** All of the components are listed on the Canadian Domestic Substances List.

**China:** All the components are listed on Inventory of Existing Chemical Substances in China.

**European EINECS:** All of the ingredients are listed on the EINECS inventory.

**Korea:** All the components are listed on the Korean Existing Chemical List.

**New Zealand:** All the components are listed on the New Zealand Inventory of Chemicals.

**Philippines:** All the components are listed on the Philippine Inventory of Chemical and Chemical Substances inventory.

**US EPA Toxic Substances Control Act:** All of the components of this product are listed on the TSCA inventory.

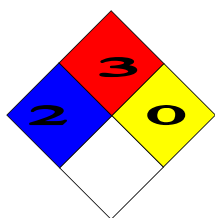
## SECTION 16: OTHER INFORMATION

**SDS Revision History:** Converted to GHS format – all Sections revised

**Date of current revision:** January 9, 2015

**Date of previous revision:** December 2002

National  
Fire  
Protection  
Association  
(U.S.A)



Health: 2\*  
Flammability : 3  
Instability: 0  
Specific Hazard:

Disclaimer: This product material safety data sheet provides health and safety information. The product should be used in applications consistent with this product literature. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to ensure safe workplace operations.

This material safety data sheet is provided in good faith and meets the requirements of the hazardous communication provisions of SARA TITLE III and 29 CFR 1910.1200(g) of the OSHA regulations. The above information is based on review of available information Sinclair believes is reliable and is supplied for informational purposes only. Sinclair does not guarantee its completeness or accuracy. Since conditions of use are outside the control of Sinclair, Sinclair disclaims all warranties, express or implied, and any liability for damage or injury which results from the use of the above data. Nothing herein is intended to permit infringement of valid patents and licenses.

# Safety Data Sheet



**SECTION 1 PRODUCT AND COMPANY IDENTIFICATION**

## Diesel Fuel No. 2 / GTL Diesel

**Product Use:** Fuel

**Company Identification**

Chevron Products Company  
Marketing, MSDS Coordinator  
6001 Bollinger Canyon Road  
San Ramon, CA 94583  
United States of America

**Transportation Emergency Response**

CHEMTREC: (800) 424-9300 or (703) 527-3887

**Health Emergency**

Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623

**Product Information**

MSDS Requests: <http://www.chevron.com/contact/>  
Technical Information: (510) 242-5357

**SECTION 2 HAZARDS IDENTIFICATION**

**CLASSIFICATION:** Flammable liquid: Category 3. Aspiration toxicant: Category 1. Carcinogen: Category 1B. Skin irritation: Category 2. Target organ toxicant (repeated exposure): Category 2. Target organ toxicant (central nervous system): Category 3. Acute inhalation toxicant: Category 4. Acute aquatic toxicant: Category 2. Chronic aquatic toxicant: Category 2.



**Signal Word:** Danger

**Physical Hazards:** Flammable liquid and vapor.

**Health Hazards:** May be fatal if swallowed and enters airways. May cause cancer. Causes skin irritation. Harmful if inhaled. May cause drowsiness or dizziness.

**Target Organs:** May cause damage to organs (Blood/Blood Forming Organs, Liver, Thymus) through prolonged or repeated exposure.

**Environmental Hazards:** Toxic to aquatic life with long lasting effects.

**PRECAUTIONARY STATEMENTS:**

**General:** Keep out of reach of children. Read label before use.

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. -- No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting/equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Use personal protective equipment as required. Wash thoroughly after handling. Avoid release to the environment.

**Response:** IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with water/shower. IF SWALLOWED: Immediately call a poison center or doctor/physician. Do NOT induce vomiting. Call a poison center or doctor/physician if you feel unwell. In case of fire: Use media specified in the SDS to extinguish. Specific treatment (see Notes to Physician on this label). Collect spillage.

**Storage:** Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

**Disposal:** Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

**HAZARDS NOT OTHERWISE CLASSIFIED:** Not Applicable

**SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS**

COMPONENTS	CAS NUMBER	AMOUNT
Diesel Fuel No. 2	68476-34-6	95 - 100 %vol/vol
Distillates (Fischer-Tropsch), C8-26	848301-67-7	0 - 25 %vol/vol
Fatty Acid Methyl Esters (FAME)	Mixture	0 - 5 %vol/vol
Alkanes, C10-20 Branched & Linear	928771-01-1	0 - 5 %vol/vol
Naphthalene	91-20-3	0.02 - 0.2 %vol/vol
Total sulfur	Mixture	0 - 5000 ppm (weight)

**SECTION 4 FIRST AID MEASURES**

**Description of first aid measures**

**Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

**Skin:** Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

**Ingestion:** If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

**Inhalation:** Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue or if any other symptoms develop.

**Most important symptoms and effects, both acute and delayed**

**IMMEDIATE HEALTH EFFECTS**

**Eye:** Not expected to cause prolonged or significant eye irritation.

**Skin:** Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Symptoms may include pain, itching, discoloration, swelling, and blistering. Contact with the skin is not expected to cause an allergic skin response.

**Ingestion:** Highly toxic; may be fatal if swallowed. Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.

**Inhalation:** Excessive or prolonged breathing of this material may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

**DELAYED OR OTHER HEALTH EFFECTS:**

**Cancer:** Prolonged or repeated exposure to this material may cause cancer. Whole diesel engine exhaust has been classified as a Group 2A carcinogen (probably carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

**Target Organs:** Contains material that may cause damage to the following organ(s) following repeated inhalation at concentrations above the recommended exposure limit based on animal data: Liver Blood/Blood Forming Organs Thymus Risk depends on duration and level of exposure. See Section 11 for additional information.

**Indication of any immediate medical attention and special treatment needed**

**Note to Physicians:** Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

**SECTION 5 FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

**Unusual Fire Hazards:** See Section 7 for proper handling and storage.

**PROTECTION OF FIRE FIGHTERS:**

**Fire Fighting Instructions:** For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.

**Spill Management:** Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

**Reporting:** Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

## SECTION 7 HANDLING AND STORAGE

**General Handling Information:** Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

**Precautionary Measures:** Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 29C (85F).

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling. Keep out of the reach of children.

**Unusual Handling Hazards:** WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death. Slow heat generation may occur with oil-soaked rags, spent filter aids and spent absorbent material and may cause spontaneous combustion if stored near combustibles and not handled properly. Store biodiesel soaked rags, filter aids, and spill absorbent material in approved safety disposal containers and dispose of properly. Biodiesel soaked rags may be washed with soap and water and allowed to dry in well ventilated area.

**Static Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.

**Container Warnings:** Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

**General Storage Information:** DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces . USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should

read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**ENGINEERING CONTROLS:**

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT**

**Eye/Face Protection:** No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

**Skin Protection:** Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted.

Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.

**Respiratory Protection:** Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors.

When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

**Occupational Exposure Limits:**

Component	Agency	TWA	STEL	Ceiling	Notation
Diesel Fuel No. 2	ACGIH	100 mg/m3	--	--	Skin A3 total hydrocarbon
Diesel Fuel No. 2	CVX	--	1000 mg/m3	--	--
Distillates (Fischer-Tropsch), C8-26	Not Applicable	--	--	--	--
Fatty Acid Methyl Esters (FAME)	Not Applicable	--	--	--	--
Alkanes, C10-20 Branched & Linear	Not Applicable	--	--	--	--
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	--	Skin
Naphthalene	OSHA Z-1	50 mg/m3	--	--	--
Total sulfur	Not Applicable	--	--	--	--
Total sulfur	Not Applicable	--	--	--	--

Consult local authorities for appropriate values.

**SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**

**Attention: the data below are typical values and do not constitute a specification.**



**Color:** Varies depending on specification  
**Physical State:** Liquid  
**Odor:** Petroleum odor  
**Odor Threshold:** No data available  
**pH:** Not Applicable  
**Vapor Pressure:** 0.54 kPa (Approximate) @ 25 °C (77 °F)  
**Vapor Density (Air = 1):** >1  
**Initial Boiling Point:** 175.6°C (348°F) - 370°C (698°F)  
**Solubility:** Soluble in hydrocarbons; insoluble in water  
**Freezing Point:** Not Applicable  
**Melting Point:** Not Applicable  
**Viscosity:** 1.3 cSt - 4.5 cSt @ 40°C (104°F)  
**Decomposition temperature:** No data available  
**Octanol/Water Partition Coefficient:** No data available

**FLAMMABLE PROPERTIES:**

**Flammability (solid, gas):** No Data Available

**Flashpoint:** (Pensky-Martens Closed Cup) 52 °C (125 °F) (Min)

**Autoignition:** 208 °C (406 °F)

**Flammability (Explosive) Limits (% by volume in air):** Lower: 0.6 Upper: 4.7

**SECTION 10 STABILITY AND REACTIVITY**

**Reactivity:** May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

**Chemical Stability:** This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

**Conditions to Avoid:** Avoid contact with heat, sparks, fire and oxidizing agents

**Incompatibility With Other Materials:** Not applicable

**Hazardous Decomposition Products:** None known (None expected)

**Hazardous Polymerization:** Hazardous polymerization will not occur.

**SECTION 11 TOXICOLOGICAL INFORMATION**

**Information on toxicological effects**

**Serious Eye Damage/Irritation:** The eye irritation hazard is based on evaluation of data for similar materials.

**Skin Corrosion/Irritation:** The skin irritation hazard is based on evaluation of data for similar materials.

**Skin Sensitization:** The skin sensitization hazard is based on evaluation of data for similar materials.

**Acute Dermal Toxicity:** The acute dermal toxicity hazard is based on evaluation of data for similar materials.

**Acute Oral Toxicity:** The acute oral toxicity hazard is based on evaluation of data for similar materials.

**Acute Inhalation Toxicity:** The acute inhalation toxicity hazard is based on evaluation of data for similar materials.

**Acute Toxicity Estimate:** Not Determined

**Germ Cell Mutagenicity:** The hazard evaluation is based on data for components or a similar material.

**Carcinogenicity:** Refer to ADDITIONAL TOXICOLOGY INFORMATION below. Whole diesel engine exhaust has been classified as a Group 2A carcinogen (probably carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).

**Reproductive Toxicity:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Single Exposure:** The hazard evaluation is based on data for components or a similar material.

**Specific Target Organ Toxicity - Repeated Exposure:** The hazard evaluation is based on data for components or a similar material.

**ADDITIONAL TOXICOLOGY INFORMATION:**

The National Institute of Occupational Safety and Health (NIOSH) has recommended that whole diesel exhaust be regarded as potentially causing cancer. This recommendation was based on test results showing increased lung cancer in laboratory animals exposed to whole diesel exhaust.

This product contains gas oils.

CONCAWE (product dossier 95/107) has summarized current health, safety and environmental data available for a number of gas oils, typically hydrodesulfurized middle distillates, CAS 64742-80-9, straight-run middle distillates, CAS 64741-44-2, and/or light cat-cracked distillate CAS 64741-59-9.

**CARCINOGENICITY:** All materials tested have caused the development of skin tumors in mice, but all featured severe skin irritation and sometimes a long latency period before tumors developed. Straight-run and cracked gas oil samples were studied to determine the influence of dermal irritation on the carcinogenic activity of middle distillates. At non-irritant doses the straight-run gas oil was not carcinogenic, but at irritant doses, weak activity was demonstrated. Cracked gas oils, when diluted with mineral oil, demonstrated carcinogenic activity irrespective of the occurrence of skin irritation. Gas oils were tested on male mice to study tumor initiating/promoting activity. The results demonstrated that while a straight-run gas oil sample was neither an initiator or promoter, a blend of straight-run and FCC stock was both a tumor initiator and a promoter.

**GENOTOXICITY:** Hydrotreated & hydrodesulfurized gas oils range in activity from inactive to weakly positive in in-vitro bacterial mutagenicity assays. Mouse lymphoma assays on straight-run gas oils without subsequent hydrodesulfurization gave positive results in the presence of S9 metabolic activation. In-vivo bone marrow cytogenetics and sister chromatic exchange assay exhibited no activity for straight-run components with or without hydrodesulfurization. Thermally or catalytically cracked gas oils tested with in-vitro bacterial mutagenicity assays in the presence of S9 metabolic activation were shown to be mutagenic. In-vitro sister chromatic exchange assays on cracked gas oil gave equivocal results both with and without S9 metabolic activation. In-vivo bone marrow cytogenetics assay was inactive for two cracked gas oil samples. Three hydrocracked gas oils were tested with in-vitro bacterial mutagenicity assays with S9, and one of the three gave positive results. Twelve distillate fuel samples were tested with in-vitro bacterial mutagenicity assays & with S9 metabolic activation and showed negative to weakly positive results. In one series, activity was shown to be related to the PCA content of samples tested. Two in-vivo studies were also conducted. A mouse dominant lethal assay was negative for a sample of diesel fuel. In the other study, 9 samples of No 2 heating oil containing 50% cracked stocks caused a slight increase in the number of chromosomal aberrations in bone marrow cytogenetics assays. **DEVELOPMENTAL TOXICITY:** Diesel fuel vapor did not cause fetotoxic or teratogenic effects when pregnant rats were exposed on days 6-15 of pregnancy. Gas oils were applied to the skin of pregnant rats daily on days 0-19 of gestation. All but one (coker light gas oil) caused fetotoxicity (increased resorptions, reduced litter weight, reduced litter size) at dose levels that were also maternally toxic.

This product contains naphthalene.

**GENERAL TOXICITY:** Exposure to naphthalene has been reported to cause methemoglobinemia and/or hemolytic anemia, especially in humans deficient in the enzyme glucose-6-phosphate dehydrogenase. Laboratory animals given repeated oral doses of naphthalene have developed cataracts. **REPRODUCTIVE TOXICITY AND BIRTH DEFECTS:** Naphthalene did not cause birth defects when administered orally to rabbits, rats, and mice during pregnancy, but slightly reduced litter size in mice at dose levels that were lethal to the pregnant females. Naphthalene has been reported to cross the human placenta. **GENETIC TOXICITY:** Naphthalene caused chromosome aberrations and sister chromatid exchanges in Chinese hamster ovary cells, but was not a mutagen in several other in-vitro tests. **CARCINOGENICITY:** In a study conducted by the National Toxicology Program (NTP), mice exposed to 10 or 30 ppm of naphthalene by inhalation daily for two years had chronic inflammation of the nose and lungs and increased incidences of metaplasia in those tissues. The incidence of benign lung tumors (alveolar/bronchiolar adenomas) was significantly increased in the high-dose female group but not in the male groups. In another two-year inhalation study conducted by NTP, exposure of rats to 10, 30, and 60 ppm naphthalene caused increases in the incidences of a variety of nonneoplastic lesions in the nose. Increases in nasal tumors were seen in both sexes, including olfactory neuroblastomas in females at 60 ppm and adenomas of the respiratory epithelium in males at all exposure levels. The relevance of these effects to humans has not been established. No carcinogenic effect was reported in a 2-year feeding study in rats receiving naphthalene at 41 mg/kg/day.

## SECTION 12 ECOLOGICAL INFORMATION

### ECOTOXICITY

This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment. A series of studies on the acute toxicity of 4 diesel fuel samples were conducted by one laboratory using water accommodated fractions. The range of effective (EC50) or lethal concentrations (LC50) expressed as loading rates were:

48 hour(s) EC50: 20-210 mg/l (Daphnia magna)  
96 hour(s) LC50: 21-210 mg/l (Salmo gairdneri)  
72 hour(s) EC50: 2.6-25 mg/l (Selenastrum capricornutum)

### MOBILITY

No data available.

### PERSISTENCE AND DEGRADABILITY

This material is not expected to be readily biodegradable. On release to the environment the lighter components of diesel fuel will generally evaporate but depending on local environmental conditions (temperature, wind, mixing or wave action, soil type, etc.) the remainder may become dispersed in the water column or absorbed to soil or sediment. Diesel fuel would not be expected to be readily biodegradable. In a modified Strum test (OECD method 301B) approximately 40% biodegradation was recorded over 28 days. However, it has been shown that most hydrocarbon components of diesel fuel are degraded in soil in the presence of oxygen. Under anaerobic conditions, such as in anoxic sediments, rates of biodegradation are negligible.

The product has not been tested. The statement has been derived from products of a similar structure and composition.

### POTENTIAL TO BIOACCUMULATE

Bioconcentration Factor: No data available.

Octanol/Water Partition Coefficient: No data available

## SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations.

## SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**DOT Shipping Description:** For packages with an Initial Boiling Point > 35 deg C and a Flash Point (PM Closed Cup) >= 23 deg C but <= 60 deg C: UN1202, GAS OIL, 3, III; OPTIONAL DISCLOSURE: UN1202, GAS OIL, 3, III, MARINE POLLUTANT (DIESEL FUEL) Optional disclosure per 49 CFR when Flash Point (PM Closed Cup) >= 38 deg C < 93 deg C per 49 173.150 (f): UN1202, GAS OIL, COMBUSTIBLE LIQUID, III; NON-BULK PACKAGES ARE EXEMPTED FROM THE PROVISIONS OF 49 CFR IN USA JURISDICTIONS Optional disclosure as a GHS Environmental Hazard/Marine Pollutant when Flash Point (PM Closed Cup) > 60 deg C: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(DIESEL FUEL), 9, III, MARINE POLLUTANT (DIESEL FUEL)

**IMO/IMDG Shipping Description:** For packages with an Initial Boiling Point > 35 deg C and a Flash Point (PM Closed Cup) >= 23 deg C, <= 60 deg C: UN1202, GAS OIL, 3, III, FLASH POINT SEE SECTION 5 OR 9, MARINE POLLUTANT (DIESEL FUEL); OPTIONAL DISCLOSURE: UN1268, PETROLEUM DISTILLATES, N.O.S. (DIESEL FUEL), 3, III, FLASH POINT SEE SECTION 5 OR 9, MARINE POLLUTANT (DIESEL FUEL) For packages with a Flash Point (PM Closed Cup) > 60 deg C: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIESEL FUEL), 9, III, MARINE POLLUTANT (DIESEL FUEL)

**ICAO/IATA Shipping Description:** For packages with an Initial Boiling Point > 35 deg C and a Flash Point (PM Closed Cup) >= 23 deg C, <= 60 deg C: UN1202, GAS OIL, 3, III For packages with a Flash Point (PM Closed Cup) > 60 deg C: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIESEL FUEL), 9, III, MARINE POLLUTANT (DIESEL FUEL)

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:**

Not applicable

## SECTION 15 REGULATORY INFORMATION

<b>EPCRA 311/312 CATEGORIES:</b>	1. Immediate (Acute) Health Effects:	YES
	2. Delayed (Chronic) Health Effects:	YES
	3. Fire Hazard:	YES
	4. Sudden Release of Pressure Hazard:	NO
	5. Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK

02=NTP Carcinogen

06=NJ RTK

07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Naphthalene	01-2B, 02, 03, 04, 05, 06, 07
Diesel Fuel No. 2	07

**CERCLA REPORTABLE QUANTITIES(RQ)/EPCRA 302 THRESHOLD PLANNING QUANTITIES(TPQ):**

Component	Component RQ	Component TPQ	Product RQ
Naphthalene	100 lbs	None	50000 lbs

**CHEMICAL INVENTORIES:**

AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

**NEW JERSEY RTK CLASSIFICATION:**

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: DIESEL FUEL

**SECTION 16 OTHER INFORMATION**

**NFPA RATINGS:** Health: 1 Flammability: 2 Reactivity: 0

**HMIS RATINGS:** Health: 2\* Flammability: 2 Reactivity: 0 (0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, \*- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

**REVISION STATEMENT:** This revision updates the following sections of this Safety Data Sheet: 1 - 16

**Revision Date:** MAY 08, 2015

**ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:**

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road San Ramon, CA 94583.

**The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.**

# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #12 – Seed Mix Planting Methodology Turquoise Mtn.**

## **Recommended BLM Seed Mix & Planting Methodology NMNM-143090 Turquoise Mtn.**

- Seeding is recommended for June or July to coincide with the "rainy" season to achieve optimum results. However, seeding/revegetation efforts can be accomplished any-time of year given all dirt work for site stabilization is adequate and seed is protected. Seed will be planted a quarter to half- inch deep using a disc type or similar rangeland drill sufficient to accommodate variations in seed sizes. If broadcast, seeding rates should be doubled.
- At this time, soil in these areas to be reclaimed should be treated to reduce compaction. Even very minimal use of roads greatly increases compaction. Soil structure compaction reduces available soil, air, and water; this reduction kills soil organisms, and decreases success rate of re-vegetation.
- Seed-bed preparation should be performed to provide a hospitable environment for germinating seed by breaking up impermeable soil layers that have formed and increasing void spaces for air and water. Ground should be roughed-up prior to planting, by raking, harrowing or other methods.
- Seed should be broadcast with a "cyclone" hand seeder or similar broadcast seeder to facilitate an even spread. After seed is broadcast, ground should be raked or dragged, to help bury it and improve soil contact and provide texture. Next, mulch should be placed to reduce loss of moisture and protect seed source.
- Mulching is **required** on **all** seeding projects. Mulch should be free of weeds and weed seed. Mulching should be accomplished using one of these following methods:
  - a. weed free straw (2 tons/ac;kg/ha)
  - b. wood residues (sawdust, wood chips, bark (2 tons/ac;kg/ha)
  - c. hydro-mulching (1,500 lb/ac;kg/ha)
  - d. composted manure (5 tons/ac;kg/ha)
  - e. excelsior blanket
  - f. straw jute
  - g. rock mulch
- Straw mulch is not recommended if livestock potentially have access to the area. Livestock should be temporarily fenced-out of any seeded area, as they will otherwise greatly reduce possibility of successful re-vegetation. Probability of successful seeding will be considerably increased if fencing remains until reclamation is stable, and plants have grown well enough to withstand grazing. Stabilization would occur after a minimum of two full summer growing seasons after planting.
- Mulch should be applied on all surfaces within one day following seeding. Mulch must be free of noxious weeds and other diseased plant residues. Rotten or molded hay is not acceptable as mulch. A soil-stabilant tack should be applied as an overspray after seed and mulch are in place. This tack should be at a sufficient rate to prevent mulch from moving due to wind. Here is this link to certified weed-free mulch providers:

<http://aces.nmsu.edu/ces/seedcert/certified-weed-free-fora.html>



Curtis & Curtis and/or Granite Seed are possible vendors for seed.

The following recommended seed mixture and application rate of pounds pure-live-seed (PLS) per acre will be used. Currently, this mixture represents perennial grasses, forbs and shrubs providing for adequate plant diversity. Species substitutions and deviations to application rates must be approved by a BLM Authorized Officer. Seed must be obtained from weed-free sources.

<u>Species</u>	<u>Application Rate Lbs/Ac-Kg/ha PLS</u>
Black grama <i>(Bouteloua eriopoda)</i>	2.0
Sideoats grama <i>(Bouteloua curtipendula</i> var. <u>Vaughn</u> or <u>Niner</u> )	3.0
Sand Dropseed <i>(Sporobolus cryptandrus)</i>	2.0
Plains bristlegrass <i>(Setaria macrostachya)</i>	2.0
Desert globemallow <i>(Sphaeralcea ambigua)</i>	1.0
Desert marigold <i>(Baileya multiradiata)</i>	1.0
Winterfat <i>(Krascheninnikovia lanata)</i>	1.0
Four-wing saltbush <i>(Atriplex canescens</i> var. <u>Santa Rita</u> )	2.0
<b>Total</b>	<b>14.0</b>

If you have any questions regarding any of this information, or if in the event certain species need to be substituted due to unavailability, costs, etc., please call Joseph Navarro, Environmental Protection & Reclamation Specialist at (575) 525-4363, or email: <jnavarro@blm.gov>

# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

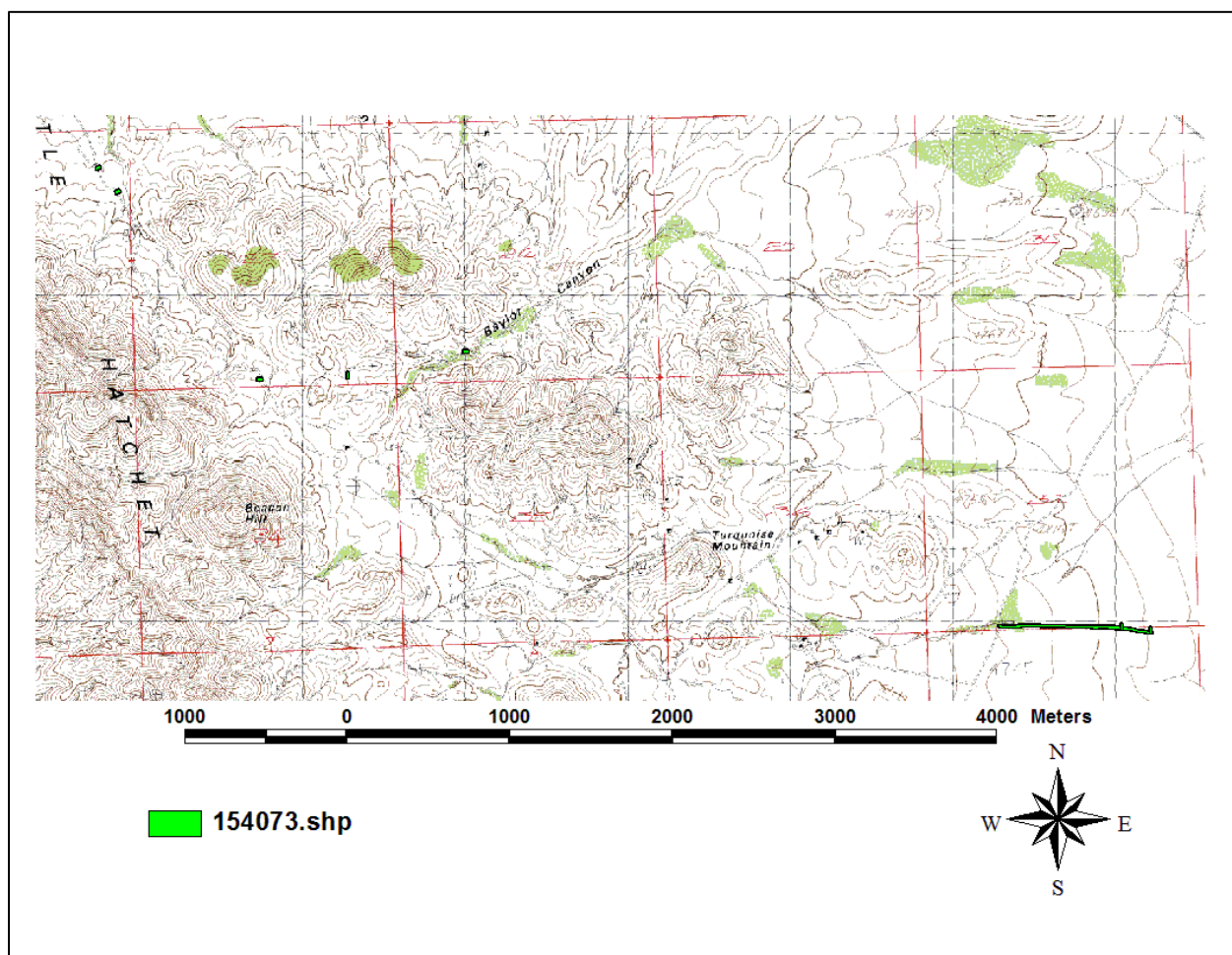
**Attachment #13 - Neal Ackerly Archeological Survey 2023.**

## Southern Silver Exploration Corporation – Oro Project

(Turquoise Mountain MMD Permit GR087ER and Turquoise Mountain BLM Notice NMNM-143090)

This project is a continuation of an exploratory drilling program undertaken by Southern Silver Exploration Corporation in the Eureka/Old Hachita mining district southwest of Hachita, NM. The overall project area encompasses most of the Eureka District and totals 6,432 acres of patented and unpatented claims. This specific phase focuses on adding new drill locations to those already completed to better define the locations and characteristics of Larimide age copper (Cu) and molybdenum (Mo) ore veins in the area (<https://southernsilverexploration.com/projects/oro-polymetallic-project-new-mexico/>)

The Southern Silver project consists of two components (Figure 1). The company proposes to install seven (7) exploratory core drill pads, each nominally measuring 60 X 100 ft. Orientations vary from pad to pad, although most are oriented with the long axis to the north. A total of 3092 m<sup>2</sup> (0.76 acres) will be impacted by the drill pads.



**Figure 1. Southern Silver Exploration Corp. – Oro Exploratory Drilling Program (2023)**

The second component is brush clearing and removing high spots along a 1945 meter access route into two pads, designated 'N' and 'O,' situated along the south boundary of Section 31 in T27S, R15W (USGS Playas Peak, NM 7.5' Quadrangle, 1982). The total area to be affected by this activity is 14,591 m<sup>2</sup> (3.61 acres). The total area to be affected by Southern Silver's activities, including both drill pads and the access road, is 4.56 acres, most of which results from access road clearing.



**Figure 2. Overview of Pad K Looking Northwest.**





**Figure 3. Overview of Pad O Looking Southeast.**



**Figure 4. Overview of Pad N Looking East.**





**Figure 5. Overview of Pad P Looking Northwest.**



**Figure 6. Overview of Pad Q Looking Northwest.**

A Class III (100%) archeological survey with 15 meter crew spacing was completed for all seven drill pads and the access route. No prehistoric or historic sites were found. A total of 11 isolated occurrences were found and recorded. These include two historic tin can fragments and nine chipped stone items, mostly small (10mm<), late-stage chert debitage. A single unifacial core and a unifacial scraper were also present.

Based on these findings, an archeological clearance is recommended for Southern Silver Exploration Corporations proposed drilling program. This report has been filed with the Archeological Records Management System as NMCRIS 154073.



# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #14 - Greg Magee Biology 2023 Turquoise Mtn. Project 2.**

# TURQUOISE MOUNTAIN PROJECT

Southern Silver Exploration Corp.

Night-blooming Cereus (*Peniocereus greggii*) Survey  
Sites I, J, K N, O, P, Q

Prepared by Greg Magee

October 16, 2023

(gregnature@aol.com)

P.O. Box 162

Rodeo, NM 88056

## SURVEY METHODOLOGY

1 – The four corners of each drilling site were established (Information provided by Southern Silver Exploration Corp. – see attached map).

2 – A distance 30 meters outside of each drilling site was measured to establish the total survey area. Within this area, transects 5-6 meters apart were surveyed for *Peniocereus greggii*.

3 – In the case of the access route to Sites N and O, the centerline of the route was established and transects 5 - 6 meters apart were surveyed on either side of the centerline for a distance of 30 meters.

## SURVEY RESULTS

### SITE I

Site I is located next to the arroyo in Baylor Canyon in desert scrubland at 4,975' elevation. It is dominated by *Prosopis glandulosa*. Other shrubs include *Rhus microphylla*, *Parthenium incanum*, *Flourensia cernua*, *Alloysia wrightii*, *Cylindropuntia imbricata*, and *Opuntia sp.* Grasses include *Muhlenbergia porteri* and *Pleuraphis mutica*. *Juniperus coahuilensis* is found adjacent to the site.

**Conclusion:** No *Peniocereus greggii* were located in the survey area for Site I.

### SITE J

Site J is located in mixed desert grassland and desert scrubland at 5,060' elevation. *Prosopis glandulosa* is dominant with *Parthenium incanum*, *Flourensia cernua*, *Alloysia wrightii*, *Ephedra sp.*, *Cylindropuntia imbricata*, and *Opuntia sp.* also present. Grasses include *Muhlenbergia porteri* and *Pleuraphis mutica*.

**Conclusion:** No *Peniocereus greggii* were located in the survey area for Site J.

## **SITE K**

Site K is located in mixed desert scrubland at an elevation of 5,055' and is dominated by *Larrea tridentata* and *Prosopis glandulosa*. *Parthenium incanum*, *Flourensia cernua*, *Alloysia wrightii*, *Cylindropuntia imbricata*, and *Opuntia sp.* also present. *Echinocereus fendleri* is also found in the survey area. Grasses include *Muhlenbergia porteri* and *Pleuraphis mutica*.

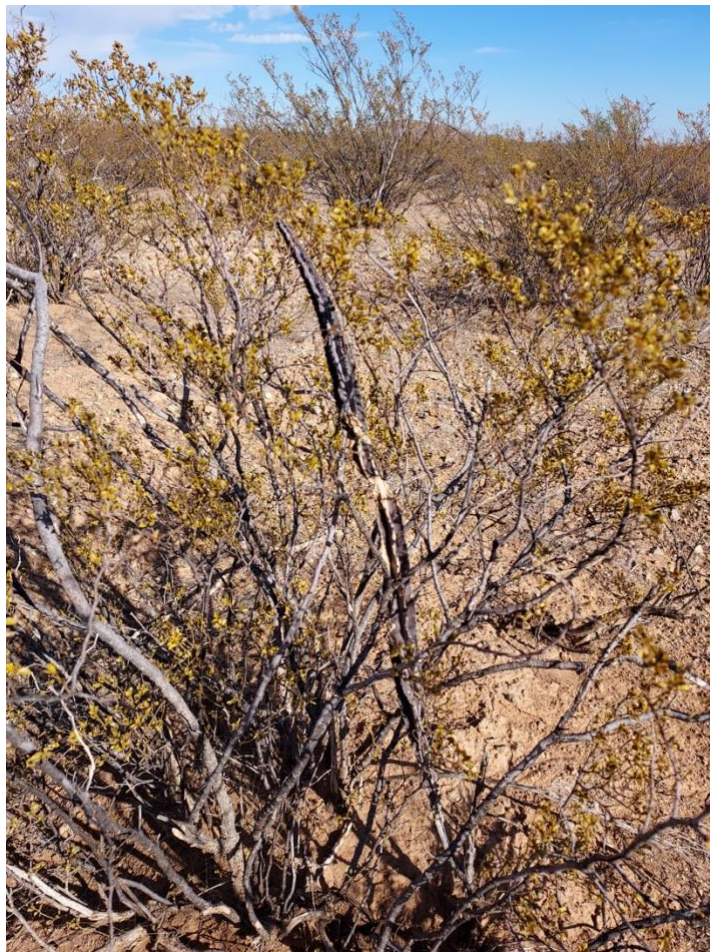
**Conclusion:** No *Peniocereus greggii* were located in the survey area for Site K.

## **SITES N and O and Access Route**

Sites N and O, along with the access route to the sites is located in mixed desert scrubland at 4,675' elevation. It is dominated by *Larrea tridentata* with *Prosopis glandulosa*, *Parthenium incanum*, *Flourensia cernua*, *Cylindropuntia imbricata*, *Cylindropuntia leptocaulis*, and *Opuntia sp.* also present. Grasses include *Muhlenbergia porteri* and *Pleuraphis mutica*.

**Conclusion:** One *Peniocereus greggii* was located within the survey area for Site N. The site was moved to the east to meet the minimum distance required for avoidance.

Location: UTM 12R – Easting 0746138 Northing 3533146



TMN-PEGR1

## SITE P

Site P is located in desert scrubland at an elevation of 4,875' elevation. The dominant shrub is *Larrea tridentata*. Other shrubs include *Parthenium incanum*, *Flourensia cernua*, *Mimosa biuncifera*, *Alloysia wrightii*, *Fouquieria splendens*, *Cylindropuntia imbricata*, *Cylindropuntia leptocaulis*, and *Opuntia sp.* Grasses include *Muhlenbergia porteri* and *Pleuraphis mutica*.

**Conclusion:** No *Peniocereus greggii* were located in the survey area for Site P.

## SITE Q

Site Q is located in desert scrubland at 4,860' elevation. The dominant shrub is *Larrea tridentata*. Other shrubs include *Parthenium incanum*, *Flourensia cernua*, *Mimosa biuncifera*, *Alloysia wrightii*, *Fouquieria splendens*, *Cylindropuntia imbricata*, *Cylindropuntia leptocaulis*, and *Opuntia sp.* Grasses include *Muhlenbergia porteri* and *Pleuraphis mutica*.

**Conclusion:** Two *Peniocereus greggii* were located within the survey area for Site Q. The site was moved to the east to meet the minimum distance required for avoidance.

Location: UTM 12R – Easting 0738672 Northing 3535999



TMQ-PEGR1



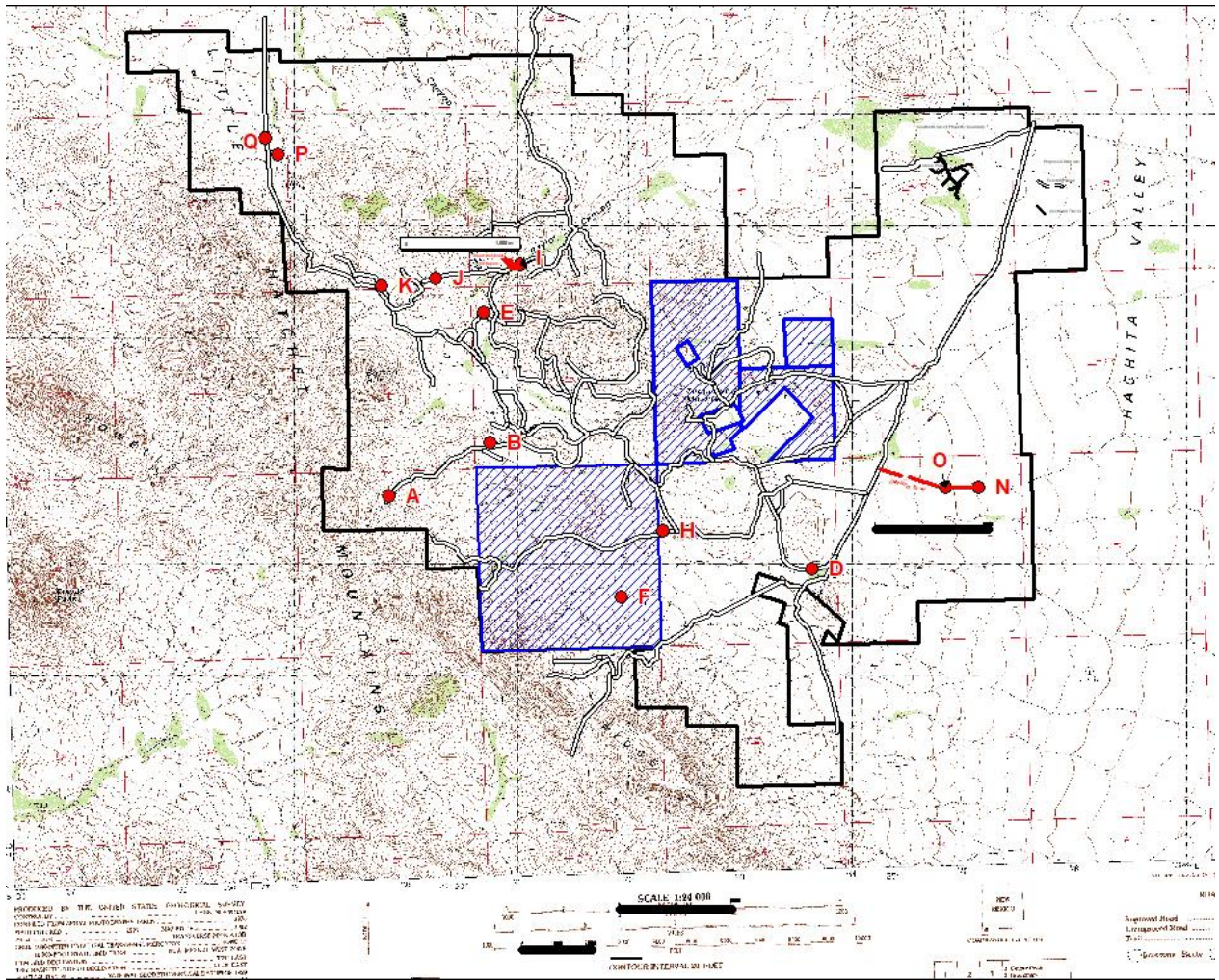
Location: UTM 12R – Easting 0738659 Northing 3535986



TMQ-PEGR2



# Map of Drill Sites



# **Appendices**

## **Southern Silver Turquoise Mountain Digital File**

### **Stage Four Application**

**Attachment #15 - Public Legal Notices.**

**Legal Notice**  
**Part 4 Regular Exploration Permit Renewal – Turquoise Mountain Exploration**

Pursuant to the New Mexico Mining Act Rules, 19.10.4 and 19.10.9.903 A through H, Southern Silver Corp. (U.S.) (“Southern Silver”) provides this notice of its application to the New Mexico Energy, Minerals, and Natural Resources Department Mining and Minerals Division (“MMD”) to renew the Part 4 Regular Exploration permit for the Turquoise Mountain Exploration, Permit No. GR087ER. The application for renewal describes reclamation provisions and standards subject to the New Mexico Mining Act and Mining Act Rules.

Location of real property affected: The Turquoise Mountain Exploration project area is located within Grant County, approximately 6.5 miles west of Hachita, New Mexico. The project area is located in T27S, R16W Sections 21 and 35 and T28S, R16W Sections 1-3.

Purpose of the Application: The purpose of the application is to renew a Part 4 Regular Exploration permit to drill up to fifteen (15) boreholes from six (6) drill pads to explore for various minerals and disturb up to a maximum of 1.39 acres. The application is being processed by MMD as Permit No. GR087ER-R2.

Permittee and mailing address: Southern Silver Corp. (U.S), 4790 Caughlin Pkwy, #207 Reno, NV 89519-0907.

A copy of the application is available for viewing during normal business hours at:

New Mexico Energy, Minerals, Natural Resource Department  
Mining and Minerals Division  
1220 South St. Francis Drive  
Santa Fe New Mexico 87505

This application can also be viewed at or downloaded from New Mexico Energy, Minerals, and Natural Resources Department website:

[https://www.emnrd.nm.gov/mmd/mining-act-reclamation-program/pending-and-approved-exploration-applications/pending-exploration-applications-regular/gr087er-turquoise-mountain-part-4/?et\\_fb=1&PageSpeed=off](https://www.emnrd.nm.gov/mmd/mining-act-reclamation-program/pending-and-approved-exploration-applications/pending-exploration-applications-regular/gr087er-turquoise-mountain-part-4/?et_fb=1&PageSpeed=off)

Name and address to submit written comments or requests for Public Hearing:

Written comments or requests for a public hearing with regard to this application shall be submitted to: Albert Chang, Director, Mining and Minerals Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. Within 30 days of the date of this public notice, any interested person may file written comments to the proposed application with the Director at the above address and request a public hearing. If a hearing is timely requested, the Director shall set a hearing unless the request is clearly frivolous. The Director may hold a public hearing absent any request. If a public hearing is held, it will be advertised in accordance with 19.10.9.904 NMAC.



**Aviso Público**  
**Solicitud Para Permiso de Exploración Regular Parte 4 - Exploración de la Montaña Turquesa**

Conforme a las Reglas 19.10.4 y 19.10.9.903 de A hasta H, de la Ley de Minería de Nuevo México, Southern Silver Corp. (U.S.) (“Plata del Sur”) proporciona este aviso de su Solicitud a la División de Minería y Minerales del Departamento de Energía, Minerales y Recursos Naturales de Nuevo México (MMD, por sus siglas en inglés) para una nueva Parte 4 del Permiso de Exploración Regular para la Exploración de la Montaña Turquesa, Permiso No. GR087ER. La solicitud describe disposiciones y estándares de reclamación sujetos a las Leyes de Minería de Nuevo México y Reglas de las Leyes de Minería de Nuevo México.

Localidad de bienes raíces afectadas: el área del proyecto de exploración de la Montaña Turquesa está localizada dentro del Condado de Grant, aproximadamente 6.5 millas al oeste de Hachita, Nuevo México. El área del proyecto esta localizado en T27S, R16W Secciones 21 y 35 y T28S, R16W Secciones 1-3.

Propósito de la Solicitud: el propósito de la solicitud es obtener un permiso Parte 4 de Exploración Regular para taladrar quince (15) agujeros en seis (6) sitios con el fin de explorar varios minerales y perturbar un máximo de 1.39 acres. La solicitud esta siendo procesada por MMD como Permiso No. GR087ER2.

Permisionario y dirección de correspondencia: Southern Silver Corp. (U.S) 4790 Caughlin Parkway, #207 Reno, NV 89519-0907.

Una copia de la solicitud está disponible para inspección durante horas hábiles normales en:

New Mexico Energy, Minerals, Natural Resource Department  
Mining and Minerals Division  
1220 South St. Francis Drive  
Santa Fe New Mexico 87505

Esta solicitud también puede ser vista o descargada el sitio web del Departamento de Energía, Minerales y Recursos Naturales de Nuevo México:

[https://www.emnrd.nm.gov/mmd/mining-act-reclamation-program/pending-and-approved-exploration-applications/pending-exploration-applications-regular/gr087er-turquoise-mountain-part-4/?et\\_fb=1&PageSpeed=off](https://www.emnrd.nm.gov/mmd/mining-act-reclamation-program/pending-and-approved-exploration-applications/pending-exploration-applications-regular/gr087er-turquoise-mountain-part-4/?et_fb=1&PageSpeed=off)

Nombre y dirección para enviar comentarios escritos o peticiones para la Audiencia Pública:

Comentarios escritos o peticiones para la audiencia pública con respecto a esta solicitud deberán ser entregados a: Albert Chang, Director, División de Minería y Minerales, 1220 South St. Francis Drive, Santa Fe, New Mexico 87505. Dentro de los 30 días posteriores a este aviso, cualquier persona interesada puede dar sus comentarios escritos de la solicitud propuesta al Director en la dirección de arriba y solicitar una audiencia pública. Si una audiencia es solicitada oportunamente, el Director fijará una audiencia a menos que la solicitud sea claramente frívola. El Director podría tener una Audiencia Pública aún en ausencia de una petición. Si se lleva a cabo una audiencia pública, se anunciará de acuerdo con 19.10.9.904 NMAC.