FACT SHEET  
(Pursuant to Nevada Administrative Code (NAC) 445A.236)

Permittee Name: National Oilwell Varco, LP
Project Name: Big Ledge Mine Discharge Project
Permit Number: NEV2021117
Review Type/Year/Revision: New Permit 2022, Fact Sheet Revision 00

A. Location of Discharge

Location: The Big Ledge Mine Discharge Project authorizes discharge of the treated pit lake water (RO-1 permeate) for construction, dust control, land application and/or discharge to surface water in Tabor Creek and its tributaries (NAC 445A.1486). The discharge is located in Elko County, NAD 83 Datum, within Section 26, Township 42 North, Range 61 East, Mount Diablo Baseline and Meridian, about 27 miles north of Wells, Nevada.

General Description: The Project consists of a small reverse osmosis (RO) system to reduce or eliminate water needed from groundwater wells for dust control and general construction activities while furthering objectives to reduce fluid inventory in the pit. Water not used for dust control or construction may be land applied in designated, authorized areas onsite called the North and South Tabor Land Application Area or discharged to Tabor Creek. The groundwater wells and pit are permitted and monitored under the Big Ledge Mine and Dry Creek Mill Water Pollution Control Permit (WPCP) NEV2007103.

The RO-1 discharge point, Outfall 001, is located at Universal Transverse Mercator (UTM) coordinates meters 663006 East (m E), 4595995 meters North (m N) and represents the main treated water outfall. From this location, the treated water is routed to either the water stand, Outfall 002, UTM 662964 m E, 4595905 m N; the North Tabor Land Application Area (TLAA), Outfall 003, UTM 663842.88 m E, 4596181.73 m N; South TLAA, Outfall 004, UTM 663582.40 m E, 4595918.55 m N; or Tabor Creek Outfall 005, UTM 663505.58 m E, 4595612.43 m N.

The discharge Permit application was originally submitted on 3 February 2021. Following submittal, as discharge was not anticipated at the time, National Oilwell Varco, LP (NOV) requested, and the Division agreed to delay processing of the Permit until needed. On 29 April 2022, NOV requested the Division to resume processing of Water Pollution Control Permit NEV2021117, thus resulting in the Permit having an effective date beginning in 2022.

B. Description of Discharge

General: NOV requires clean water for dust control and construction operations.

The Permittee is authorized to discharge up to 144,000 gallons per day (gpd) of treated pit lake water from the from pit lake Reverse Osmosis (RO-1) water
treatment plant for use in construction, dust control, land application and/or surface water to Tabor Creek and its tributaries (NAC 445A.1486). The RO-1 permeate is of good quality and meets all Profile I reference values.

If used for in construction, dust control, or drilling, water will be directed to water stand, Outfall 002, located at UTM 662964 m E, 4595905 m N.

**North and South Tabor Creek Land Application**

Water is conveyed from the RO discharge (Outfall 001) frac tanks through an approximately 0.5 mile long, 6-inch (in.) diameter (diam) high-density polypropylene (HDPE) pipeline where the system tees to two header pipes, also 6 in. diam HDPE. One header pipe (approximately 0.15 miles in length) continues to the South Tabor Creek Land Application Area, Outfall 003. The second header pipe (approximately 0.3 miles in length) allows for discharge to the North Tabor Creek Land Application Area, Outfall 004.

This same discharge system will be utilized for both the North and South Tabor Creek Land Application areas. The system consists of hand-laid pipes (on the ground surface) described by the manufacturer as a *Solid Set Land Application Spray Field* that utilizes 3-in x 40-foot Certa Set Lateral Pipe with sprinkler jet hollow cone spiral nozzles. The sprinklers discharge at a rate of approximately 5 gallons per minute (gpm).

The discharge sample locations are located at the following UTM coordinates:

South Area: 663582.40 m E, 4595918.55 m N.

North Area: 663842.88 m E, 4596181.73 m N.

Figure 1 provides a general overview of the system.

**RO Discharge to Tabor Creek Description:**

Water will be conveyed by existing pipeline to the tributary adjacent to Tabor Creek at the discharge location (Outfall 005) 663505.58 m E, 4595612.43 m N, NAD 83 Datum. The pipeline is 8-in. diam standard dimension ratio (SDR) 17 HDPE. It begins at the RO discharge frac tanks and is routed around the West Waste Rock Facility. It is approximately half a mile in length. The pipe then enters an existing 8-foot diameter tank that is two feet in depth and will route flow to the tank bottom through a tee fitting. The existing tank is sunk into the native soils to provide a level installation and a maximum drop from the lip of the tank to native soils of no more than 12 inches, and a minimum drop of no less than four inches. Water will overflow the tank onto 8-ounce non-woven geofabric, staked and ballasted with sandbags or large rocks (oxide) to native ground between the tank and highwater mark in the native channel. The intent of the design is to break velocity and momentum of the discharge at the tank and allow for gentle overflow onto the geofabric. The water will flow over the geofabric until it reaches the stream channel to prevent erosion of native soils into the channel.

Figure 2 provides a location map of the Tabor Creek pipeline and discharge.
Figure 1 – North and South Land Application Areas. Blue lines indicate approximate piping route(s) and green indicate anticipated disturbance area.
Figure 2 – Tabor Creek discharge pipeline and discharge location. Blue lines indicate approximate piping route.
C. **Proposed Determination**

The Division has made the tentative determination to issue the Permit.

D. **Receiving Water Characteristics**

**Ground Water:** Exploration borehole and monitoring well installation data indicate that the groundwater system within the Big Ledge Mine/Dry Creek Mill Project Area is a confined or semi-confined system. During drilling, water was typically encountered at depths between 160 and 240 feet below ground surface (bgs), recovering to between 130 and 150 feet bgs. Shale and mudstone units beneath the main barite zone appear to act as a vertical barrier to groundwater flow. Water quality results indicate a slight exceedance of the Profile I criteria for aluminum (Al), iron (Fe), and manganese (Mn).

Groundwater elevation in the Big Ledge Pit area is approximately 7,790 feet amsl with groundwater flow to the southeast.

**Surface Water:** The Big Ledge Mine and Dry Creek Mill are located on the northern margin of the Great Basin. Tabor Creek, a perennial stream, is located within one-half mile to one mile downgradient of the Big Ledge Mine. Stormy Creek is a perennial stream located within one-half mile to one mile of the Stormy Creek Mine. Currant Creek is located within one-half mile downgradient of the Stormy Creek Mill Site.

There are intermittent and ephemeral drainages within the project area, most of which are normally dry during the summer months. Snowmelt occurring in the spring may cause small amounts of water to flow short distances along the drainage bottoms. These flows will be diverted around mining and process components by the use of ditches, berms, and culverts. Surface water quality upgradient and downgradient of the Stormy Creek Pit, Tabor Creek upgradient and downgradient of the Big Ledge Pit, Currant Creek downgradient of the Big Ledge Pit and Dry Creek downgradient of the west WRDF show exceedances of the Profile I criteria standard for aluminum.

E. **Proposed Effluent Limitations, Schedule of Compliance, Monitoring, Special Conditions**

Refer to WPC Permit NEV2021117, Parts I.D.1 through I.D.4 (Monitoring Requirements) and Parts I.G.1 through I.G.13 (Permit Limitations) for specific details.
F. **Rationale for Permit Requirements**

The facility must not discharge a pollutant that would result in the degradation of existing or potential underground sources of drinking water, or that would cause an exceedance of an applicable surface water quality standard or regulation.

The primary methods for ensuring compliance will be required routine monitoring and reporting, augmented by Division site inspections. Specific monitoring requirements can be found in the WPC Permit.

G. **Procedures for Public Comment**

The Notice of the Division’s intent to issue a Permit authorizing the discharge, subject to the conditions within the Permit, is being published on the Division website: [https://ndep.nv.gov/posts/category/land](https://ndep.nv.gov/posts/category/land). The Notice is being mailed to interested persons on the Bureau of Mining Regulation and Reclamation mailing list. Anyone wishing to comment on the proposed Permit can do so in writing within a period of 30 days following the date the public notice is posted to the Division website. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected intrastate agency, or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. The public hearing must be conducted in accordance with Nevada Revised Statutes (NRS) Chapter 233B, unless waived by the applicant.

H. **Federal Migratory Bird Treaty Act**

Under the Federal Migratory Bird Treaty Act, 16 U.S. Code 701-718, it is unlawful to kill migratory birds without license or permit, and no permits are issued to take migratory birds using toxic ponds. The Federal list of migratory birds (50 Code of Federal Regulations 10, 15 April 1985) includes nearly every bird species found in the State of Nevada. The U.S. Fish and Wildlife Service is authorized to enforce the prevention of migratory bird mortalities at ponds. Compliance with State permits may not be adequate to ensure protection of migratory birds for compliance with provisions of Federal statutes to protect wildlife.
Open waters attract migratory waterfowl and other avian species. High mortality rates of birds have resulted from contact with toxic ponds at operations utilizing toxic substances. The Service is aware of two approaches that are available to prevent migratory bird mortality: 1) physical isolation of toxic water bodies through barriers (e.g., by covering with netting), and 2) chemical detoxification. These approaches may be facilitated by minimizing the extent of the toxic water. Methods which attempt to make uncovered ponds unattractive to wildlife are not always effective. Contact the U.S. Fish and Wildlife Service at 1340 Financial Boulevard, Suite 234, Reno, Nevada 89502-7147, (775) 861-6300, for additional information.

Prepared by: Karl W. McCrea
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