



# Columbia Center on Sustainable Investment

A JOINT CENTER OF COLUMBIA LAW SCHOOL  
AND THE EARTH INSTITUTE, COLUMBIA UNIVERSITY

## Water Risks in the Mining Sector

### USA - NEVADA<sup>1</sup>

*As of August 2016*

## 1. Overview of mining and water in Nevada

Modern **mining in Nevada** began in 1849 with the discovery of placer gold in a stream flowing into the Carson River near the present town of Dayton.<sup>2</sup> Today, Nevada remains the largest producer of gold in the United States, having accounted for 72.8 per cent of U.S. production in 2014.<sup>3</sup> Most of Nevada's gold deposits are extracted from large open pit operations using cyanide heap leaching recovery. Nevada is also known for its silver and copper production. The Bureau of Mining Regulation and Reclamation (BMRR), in cooperation with other state, federal, and local agencies, regulates mining activities under state regulations adopted in 1989.

### *Water appropriation in Nevada*

Nevada water law is based on two fundamental concepts: prior appropriation and beneficial use. Prior appropriation (also known as "first in time, first in right") allows for the use of Nevada's water resources by granting priority to senior water rights. This concept ensures the senior uses are protected, even as new uses for water are allocated. A water right permit may only be granted for beneficial uses as provided in Chapters 533 and 534 of the Nevada Revised Statutes. Mining is considered a beneficial use, as is irrigation, recreation, commercial, industrial, and municipal uses. Beneficial use also includes the principle known as "use it or lose it", which is meant to prevent the speculate holding of water rights.

The **Nevada Division of Water Resources** (NDWR) is responsible for quantifying existing water rights, monitoring water use, awarding water permits and carry out other associated regulatory duties.

### *Discharge of waste water in Nevada*

Discharge of water from mining operations is regulated by the State of Nevada and by federal statutes, such as the Clean Water Act and Safe Drinking Water Act.<sup>4</sup> Mining operations are required to obtain several permits, which set guidelines for controlling water pollution through establishment of discharge standards. These permits include federally-administered National Pollution Discharge Elimination

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<sup>1</sup> This project was managed by CCSI Senior Legal Researcher, Sophie Thomashausen. Research was conducted by Preeti Shanker and Sophie Thomashausen. Interviews were also conducted with employees of the Nevada Division of Water Resources and the Bureau of Mining Regulation and Reclamation.

<sup>2</sup> University of Nevada, "Mining History," available at: <http://www.nbmjg.unr.edu/mining/MiningHistory.html>.

<sup>3</sup> Nevada Mining Association, available at: <http://www.nevadaminig.org/faq/analysis.php>.

<sup>4</sup> Ibid.

System (NPDES) permits which regulate point sources for pollution and Stormwater Pollution Prevention plans in case of overflow. These permits set limits on the amounts of particular substances that can be discharged in water, to protect public and environmental health.

The **Bureau of Water Pollution Control (BWPC)** in the Nevada Division of Environmental Protection regulates all discharges to waters of the State through issuing permits and enforcing the State's water pollution control (WPC) laws and regulation.

*Please see the Annexures for a description of the relevant State legislation and institutions regulating water use in Nevada.*

## 2. State regulation of water use in mining in Nevada

Water Quantity questions		
No	Question	Answer
1.	<b>Which authority is responsible for water allocation?</b>	The Nevada Division of Water Resources (NDWR) with the State Engineer as its administrative head is responsible for enforcing Nevada's water law, including the allocation of water right permits.
2.	<b>Water appropriation process</b> - How is water granted to a mining concessionaire/ permit holder? Is there a water licensing/ permitting	The allocation of rights to use water (or "water rights") in the United States is determined at a state level according to the riparian doctrine, the appropriation doctrine, or a hybrid model of the two doctrines depending on the state.  In Nevada, all ground and surface waters belong to the public and are subject to appropriation for beneficial use <sup>5</sup> (Nevada General Water Law Act of 1913 and the Nevada Underground Water Act of 1939, with their subsequent amendments). All water may be appropriated for beneficial use through permits are allocated by the NDWR pursuant to the doctrine of prior appropriation. <sup>6</sup> Mining is considered a beneficial use of water.

<sup>5</sup> Mining is considered a beneficial use.

<sup>6</sup> The **prior appropriation doctrine** states that water rights are determined by priority ("first use in time, first in right") and beneficial use. This means that the first person to use water or divert water for a beneficial use or purpose at a specified rate of flow can acquire individual rights to the water. Moreover, the right continues as against subsequent users as long as the appropriator puts the water to beneficial use. For these purposes,



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<p>process? A water market?</p>	<p>A mining company wishing to acquire a water permit must file an application with the State Engineer (<a href="#">NRS 533.325</a>). Read <a href="#">here</a> for more details on the water permit application process.</p> <p>When considering an application for approval or denial, the State Engineer must consider the following:</p> <ul style="list-style-type: none"><li>• Is there unappropriated water at the source?</li><li>• Will the use of the water under the proposed application conflict with existing rights?</li><li>• Will the use of the water under the proposed application prove detrimental to the public interest?</li><li>• Will the use of the water under the proposed application adversely impact domestic wells?</li></ul> <p>A fee is associated with the application for a permit in accordance with <a href="#">NRS 533.435</a>.</p> <p><b>Period for public to contest an application:</b> Upon completion of application, the law also requires the applicant to publish a notice in a newspaper for approximately 30 days, giving any interested parties an opportunity to file a protest with the State Engineer to deny the application or requesting other appropriate action.</p> <p>Once a permit is issued, the applicant may initiate work to divert and use the water established as the beneficial use.</p> <p>Once granted, water rights in Nevada have the standing of both real and personal property - meaning they are conveyed as an appurtenance to real property unless they are specifically excluded in the deed of conveyance. When water rights are purchased or sold as personal property or treated as a separate appurtenance in a real-estate transaction, the water rights are conveyed specifically by a deed of conveyance.</p> <p><b>Water market:</b> No water market exists in Nevada where water rights can be traded.<sup>7</sup> It is however possible to buy or sell water rights and change the water's point of diversion, manner of use and place of use by filing the appropriate application with the State Engineer.</p> <p><i>Exception:</i> Previously acquired water rights can be sold by way of a Deed or transfer instrument to an interested buyer, without prior approval from the State Engineer,</p>
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**beneficial use** is defined as “the use of water by man for any purpose which benefits are derived, such as domestic, municipal, irrigation, livestock, industrial, power development, and recreation.”

<sup>7</sup> Interviews with NDWR and BMRR.



		<p>provided the manner of use remains the same. Buyers and sellers negotiate terms and price according to their needs.<sup>8</sup></p> <p>The NDWR provides a searchable database of water permits <a href="#">here</a> and additional online resources on the State Engineer’s Orders, Adjudications, Titles and more, <a href="#">here</a>.</p> <p><b>Super Permits:</b> In some cases, large mining operations apply for ‘Super Permits’ for mining, milling and dewatering purposes; Super Permits help avoid multiple permit applications. Super Permit applications specify one point of diversion (well location) in a central location (lowest point) of the mine and they specify how many dewatering wells will be drilled during the life of the permit. Prior to the drilling of any well under the Super Permit, a Notice of Intent to Drill (NOI) card must be submitted at least three days prior to the commencement of drilling.<sup>9</sup></p> <p>A permit to construct, reconstruct or alter a dam may also be required in some cases; such a permit is required prior to construction (NRS Chapter 535).<sup>10</sup>The permit takes between 45 days to 360 days to obtain.</p>
3.	<p><b>Scope of a water allocation permit/ license</b></p>	
	<p>(a) <b>Requirements separate water permit</b> – is a separate water permit required? What is the process for obtaining the permit</p>	<p>Yes – a permit is required for the appropriation of surface and ground water in Nevada (Nevada Revised Statute Chapters 533-4). Currently separate permits are required for ground water and surface water, since they are considered to be different sources. The application procedure is similar for both.</p> <p>Projects are currently underway in collaboration with the US Geological Survey to examine the interaction between surface and ground water use to understand the effects of surface and ground water sources and use on each other.<sup>11</sup> A consolidated, or at the least, more interactive process for surface and ground water allocation is anticipated in the future.<sup>12</sup></p> <p><b>Perfecting the water right:</b> Once a permit has been issued, conditions are imposed in order for that water right to be perfected, which means placed to beneficial use.</p>

<sup>8</sup> Interview with NDWR.

<sup>9</sup> Information on Super Permits was provided during an interview with the NDWR.

<sup>10</sup> Nevada Bureau of Mines and Geology, “State and federal permits required in Nevada before mining or milling can begin,” available at: [http://ndep.nv.gov/bmrr/file/SPL6\\_StAndFedPermitsRequired\\_201110\\_V1.pdf](http://ndep.nv.gov/bmrr/file/SPL6_StAndFedPermitsRequired_201110_V1.pdf).

<sup>11</sup> Particularly in the Humboldt region.

<sup>12</sup> Interview with NDWR.



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		<p>Time frames are established for filing proof of completion of diversion works and proof of beneficial use. A water right can be perfected only if the completion of the diversion works is made and the water is placed to the beneficial use in the manner and place for which the permit was granted.<sup>13</sup></p> <p>The State Engineer is limited on the amount of time he can give the applicant to file the two proofs:</p> <ul style="list-style-type: none"> <li>- A maximum time limit – within five years – in which work must be completed, and</li> <li>- The beneficial use must be established within 10 years after the date of approval of the permit. (NRS 533.380)</li> </ul> <p>Failure to submit these proofs by the time specified results in the cancellation of the water right.</p> <p><b>Reclaimed water:</b> A discharge permits must be obtained from the Nevada Division of Environmental Protection (NDEP) for the use of reclaimed water in mining operations (NAC 445A.275).<sup>14</sup> The Nevada Division of Water Resources, must be notified of the plan to use reclaimed water in order to address requirements for secondary water rights.</p>
	<p><b>(b) Time required to obtain permits – how long does it generally take?</b></p>	<p>The minimum time is approximately 90 to 120 days<sup>15</sup>, provided all application materials are in order and all stages of the application process are cleared smoothly.<sup>16</sup></p> <p>The application process includes an initial review (overview), notice publication, call for protests and comments, detailed review by NDWR engineers, subsequent review by senior engineers in the Review Committee, processing of fees and final approval by the State Engineer.<sup>17</sup></p> <p>The Nevada Revised Statute provides for a minimum of 60 days, including a 30-day period of notice published in a newspaper and another 30-day period for accepting protests. Subsequently, the State Engineer considers the application for approval or denial, based on multiple criteria. (<u>NRS 533.370</u>)</p>

<sup>13</sup> Nevada Department of Conservation and Natural Resources: “Nevada water law 101,” available at: <http://dcnr.nv.gov/documents/documents/nevada-water-law-101/>.

<sup>14</sup> Bureau of Water Pollution Control: “Permitting programs and requirements” available at: [http://ndep.nv.gov/bwpc/docs/discharge\\_permits\\_options\\_r2015.pdf](http://ndep.nv.gov/bwpc/docs/discharge_permits_options_r2015.pdf).

<sup>15</sup> In most cases, the period is longer than 120 days, sometimes stretching to many months or even a few years.

<sup>16</sup> Interview with NDWR.

<sup>17</sup> Ibid.



	<p><b>(c ) Duration of water permit</b></p>	<p>Generally, once issued, a water permit is valid for perpetuity or for the duration of the mine’s lifetime.<sup>18</sup> However, if the mine fails or ceases to use the water allocated, the State Engineer may authorize the unused portion to be made available for public use and appropriation. If the water right is not used for 5 consecutive years, it is liable to be forfeited.<sup>19</sup></p> <p><b>Reporting on water use:</b> Reports must be periodically made as to the quantities of water being used. A bi-annual report is made by the engineers of the mining company to the NDWR. NDWR’s hydrologists assess the report, determine its accuracy and check for any changes in the water table surrounding the mine’s activities. In addition, an annual report is also required to be filed including information about water used, any draw-downs in the area and so on.<sup>20</sup></p> <p>Water rights can be lost by cancellation, forfeiture, or abandonment.</p> <p>A certificated groundwater right can be lost by forfeiture or abandonment – “use it or lose it.” Surface water rights can only be lost by abandonment.</p>
	<p><b>(d) process for permit renewal</b></p>	<p>N/A</p>
<p><b>4.</b></p>	<p><b>How does the process of securing a water allocation relate to the general mining permit approval process (i.e. is a water permit required before a mining permit, or is information about water use required</b></p>	<p>The groundwater permit is required prior to construction (NRS 445A.300 through 445A.730). The time to obtain the groundwater permit is approximately 180 days. More information can be found <a href="#">here</a>.</p> <p>Generally, the processes of applying for the mining permit, water permits (surface and ground water) and the Environmental Impact Statement (EIS) happen almost in concert with one another. Also, on a case-by-case basis, it may be determined (by the stakeholders or the executives of the mining company or by other regulatory agencies) that securing the water permit or mining permit must take precedence over other permit processes.</p> <p>The EIS typically requires information about water quantity and quality issues.</p>

<sup>18</sup> This ‘valid for perpetuity’ concept is currently under scrutiny. Typically when mines were granted water rights it was expected that they would operate for a temporary period of 10-15 years (after which the mine would close). However, in reality with the operation of mines being closely tied to metal prices, especially gold, there are cases where mines have gone on operating for over 40 years and they continue to use water under their permit much longer than anticipated. This leads to a depletion of the State’s water resources.

<sup>19</sup> Interview with NDWR.

<sup>20</sup> Ibid.



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	for an EIA which is required for a mining permit)?	The state of Nevada has a system of a clearing house where any (major) new project is distributed among multiple State agencies to determine it meets the requirements and standards of each. <sup>21</sup>
5.	<b>Tariffs for water use:</b> Do mines have to pay for water usage? If yes, who sets the tariffs?	Yes, the tariffs range from 3 cents/ acre foot to 40 cents/ acre foot. They are levied on a case-by-case basis depending on the area the mine is located in, any additional administrative requirements for the project, additional personnel that may need to be employed to oversee the operations of the mine and so on. Additional storage fees in the case of tailings ponds may also be levied. (NRS 533.435) <sup>22</sup>
6.	<b>Requirements for recycling water</b>	None currently. A discharge permit is required where reclaimed water is going to be used in the mining operations.
7.	<b>What rights, if any, does the relevant Authority have to change the amount of water allotted to a mine? Is the mining company allowed compensation for such changes?</b>	Except in the case of non-use of allocated water or forfeiture or abandonment (as mentioned in 4.3(c)), regulatory agencies do not have the rights to change the amount of water allotted to a mine.

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<sup>21</sup> Interview with NDWR.

<sup>22</sup> Ibid.



### 3. Regulation of water quality and waste water discharge in mining in Nevada

Water Quality questions		
No	Topic	Answer
1.	<p><b>Requirements for a permit for mine waste discharge</b></p> <p>Does a mine have to apply for a permit to discharge waste/ waste water into surrounding water courses? If so, what permits are required? What is the permitting process?</p>	<p><b>Around 10 different types of discharge permits may be required for a mining operation.</b></p> <p>Discharge permits are broadly classified into 3 types – Individual permits, General permits and Temporary permits.</p> <p><b>Individual Permits:</b> Individual permits are issued by the Bureau of Water Pollution Control, considering the waters that may be impacted. Individual permits applicable to mining operations include:</p> <ol style="list-style-type: none"> <li>i. <b>National Pollutant Discharge Elimination System (NPDES) permits:</b> Federally-required permits, which regulate point sources for pollution (see Federal template). The forms are available <a href="#">here</a>.<sup>23</sup></li> <li>ii. <b>Water Pollution Control permits:</b> regulate discharges into State waters that are not regulations by the NPDES program.<sup>24</sup> More information on the requirement and exemptions can be found <a href="#">here</a>.</li> <li>iii. <b>Underground Injection Control (UIC) Permits:</b> issued to prevent degradation of underground drinking water sources due to underground injection practices. Nevada has divided injection wells into 5 classes which include wells used to enable mineral extraction.</li> </ol> <p><b>General Permits:</b> These are “umbrella” permits issued for a category of specific, defined types of discharges (NRS 445A.475). The following type of general permits may be applicable for mining operations:</p> <ol style="list-style-type: none"> <li>1. <b>General Mining Stormwater Permits:</b> Regulate storm water discharges associated with exploration, construction, development and reclamation activities at mine sites.</li> <li>2. <b>General Holding Tank permits:</b> Allow for the construction and operation of holding tanks to collect and hold domestic sewage at commercial operations.</li> </ol> <p><b>Temporary Permits:</b> Required for discharges, which are expected to last between 48 hours and six months. The two types of temporary permits that are issued are:</p> <ol style="list-style-type: none"> <li>i. Temporary Discharge to Waters of the State Permit where the discharges are of a temporary nature and require immediate action; and</li> </ol>

<sup>23</sup> NPDES permits are issues pursuant to Section 402 of the federal Clean Water Act as amended and the State of Nevada Water Pollution Control Law, Chapter 445A of the Nevada Revised Statutes (NRS 445A.300- 445A.730).

<sup>24</sup> BMRR: “Policy and procedures for water pollution control permits,” available at: [http://ndep.nv.gov/bmrr/201403PandP\\_WPCP.pdf](http://ndep.nv.gov/bmrr/201403PandP_WPCP.pdf).



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		<p>ii. Working in Waterways Temporary Permits, for instances of temporary working or maintenance of surface waters of the State. This permit is required before operating earthmoving equipment in any body of water.</p> <p>Detailed information on all discharge permits can be found <a href="#">here</a>.</p> <p>The Regulation Branch of the BMRR oversees the permit review and processing.</p> <p>Generally, the permit is valid for a maximum of <b>five years</b> and is renewable in five year increments. A valid permit must be maintained through the life of the facility.<sup>25</sup></p>
2.	<p><b>Other licensing/permitting processes that cover water quality/discharge</b></p>	<p><b>A Mining Reclamation Permit</b> is required prior to initiation of certain exploration projects and mining operations (NRS 519A.010 through 519A.240 plus .260 through .280). The BMRR oversees the issuance of this permit, which may take upto 180 days to obtain.</p> <p>A Mining Reclamation Permit is required for any exploration, mining, milling, or other beneficiation process activity that proposes to create disturbance of 5 acres or greater, or remove in excess of 36,500 tons of material from the earth in any calendar year. In determining the proposed surface area disturbance, an operator must account for all land proposed to be disturbed as well as existing disturbances that will be part of the project. Land shall be considered disturbed until all reclamation activities have been completed to establish a productive post mining use of the land.</p> <p>More details on this permit can be found <a href="#">here</a>.</p>
3.	<p><b>Nexus with environmental impact assessments/statements</b></p> <p>What is the process for obtaining an environmental impact assessment? At which stage of the mining process must it be obtained? To what extent are</p>	<p>Generally, the process of obtaining the Environmental Impact Statement (EIS) occurs in parallel with the processes for mining permit and water permits (surface and ground water).<sup>26</sup></p> <p>Also, on a case-by-case basis, it may be determined (by the stakeholders or the executives of the mining company or by other regulatory agencies) that obtaining the EIS approval must take precedence over other stages of the mining process. In certain cases, mining permits may be reviewed only after EIS has been obtained.<sup>27</sup></p> <p>A large part of the EIS deals with information about water quantity and quality issues.<sup>28</sup></p>

<sup>25</sup> Interview with BMRR – Regulation branch.

<sup>26</sup> Interview with NDWR.

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.



	water issues covered in it?	
4.	<b>Are there regulations regarding the storage of tailings/waste water by mines?</b> <sup>29</sup>	<p>The Bureau of Mining Regulation and Reclamation (BMRR) within the NDEP enforces regulations governing the design, construction, operation, closure and reclamation of mining facilities (NAC 445A.350 - 445A.447, and 519A.010 - 519A.415).<sup>30</sup></p> <p>A permit is required before construction of any new process components or modifications to existing process components such as, heap leaching facilities, lined solution ponds, and tailing impoundments. The permit also requires site-specific surface and ground water monitoring programs. The facilities must routinely characterize process solutions and waste rock.</p> <p>Submittal of quarterly and annual reports is required. Spills or releases must be reported to the BMRR.</p> <p>Mining sites are monitored weekly for water quality and leak detection, while reports are required quarterly. Also, if a mining facility has been previously reported to have faced water quality or leakage issues or is anticipated to face such issues given the nature of the facility, additional monitoring and increased frequency of reports may also be required. This is determined by the Regulation branch of the BMRR on a case-by-case basis.<sup>31</sup></p> <p>BWPC does not permit the storage of any wastewater that is classified as a hazardous waste.<sup>32</sup></p>
5.	<b>Acid mine drainage regulations</b>	There is guidance from the Nevada Bureau of Land Management for sampling, and analyzing acid mine drainage, available <a href="#">here</a> .
6.	<b>Recycling requirements</b> – Are there any requirements/incentives for mines to recycle water/	<p>Currently there are no requirements to recycle mine water or to minimize water usage or discharge.</p> <p>However, generally mining companies in their own interest strive for the least amount of water usage and water discharge. High amounts of water usage and/or water discharge means additional monitoring and reporting requirements for the mining facilities. They also have implications on the mine’s closure strategies and Reclamation Bonds.<sup>33</sup></p>

<sup>29</sup> Tailing are crushed rock particles that are transported hydraulically in a slurry form to a tailing impoundment or storage facility. The tailing solids are a mixture of sand, silt, and clay size particles. Tailings are sent to a tailing impoundment for disposition.

<sup>30</sup> NDEP, “Wellhead protection and Nevada regulations for protection of ground water,” available at: [https://ndep.nv.gov/bwpc/docs/guidance\\_nvregs\\_whp.pdf](https://ndep.nv.gov/bwpc/docs/guidance_nvregs_whp.pdf), page 4.

<sup>31</sup> Interview with BMRR – Regulation branch.

<sup>32</sup> BWPC: “Overview of permitting programs and requirements,” available at: [http://ndep.nv.gov/bwpc/docs/discharge\\_permits\\_options\\_r2015.pdf](http://ndep.nv.gov/bwpc/docs/discharge_permits_options_r2015.pdf), page 8

<sup>33</sup> Interview with BMRR – Regulation Branch. “The less water there is to manage, the better it is for all involved parties”.



	minimize water discharge?	Reuse of spent ore requires a permit from the BMRR. Use or disposal of spent ore outside of containment and is considered a Water Pollution Control Permit modification requiring the submittal of an application for Permit modification and appropriate fee. <sup>34</sup> The spent ore material must be characterized for its potential to release contaminants.
7.	<b>Any specific regulation of waste for copper and/or gold mining?</b>	No.  Copper and gold mining facilities however may be subject to additional monitoring in case of potential issues.

#### 4. Monitoring and reporting on water in Nevada

General questions		
No	Question	Answer
1.	<b>Who monitors a mining operation's water quality to ensure compliance with legislation? And how often does such monitoring occur?</b>	<p>The Bureau of Mining Regulation and Reclamation (BMRR) monitors mining facilities through its three branches – Regulation branch, Reclamation branch and Closure branch.</p> <p>The <b>Regulation branch</b> monitors the operation's water quality through periodic inspections. Several types of Regulation Branch inspections may be performed – Compliance Inspections, Permit/Construction Inspections, Investigation Inspections.</p> <p><i>Compliance Inspections</i> are scheduled on a periodic basis with varying frequency depending on the size of the facility and its potential to degrade waters of the State. The goal is to inspect large sites at least four times a year, medium sites twice a year, and small or inactive sites once a year.</p> <p><i>Permit/ Construction Inspections</i> are performed by the Permit Writers. They are performed on an as-needed basis, usually before a permit is issued, or corresponding with significant construction activity. The purpose of these inspections is to familiarize the Permit Writer with the layout of a new facility or to ensure that construction of process components is in accordance with the approved engineering design.</p> <p><i>Investigation Inspections</i> are performed in response to a release of contaminants or a complaint requiring follow-up by the BMRR. The purpose of these inspections is to investigate and document the severity and extent of a release in preparation for potential enforcement action, or to evaluate the validity of a complaint and recommend corrective actions.</p> <p>More details on inspections can be found <a href="#">here</a>.</p>

<sup>34</sup> <http://ndep.nv.gov/bmrr/file/reuse.pdf>



2.	<b>Are there any reporting requirements?</b>	<p><b>Reporting on water quantity to the NDWR:</b> Reports must be periodically made as to the quantities of water being used. A bi-annual report is made by the engineers of the mining company to the NDWR. NDWR’s hydrologists assess the report, determine its accuracy and check for any changes in the water table surrounding the mine’s activities. In addition, an annual report is also required to be filed including information about water used, any draw-downs in the area and so on.<sup>35</sup></p> <p><b>Reporting on water quality to BMRR:</b> Quarterly and annual reports must be submitted to the BMRR providing information regarding water quality, leakage, contamination, water management measures and so on.</p>
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## 5. Regulation of water issues post-mine closure

Post-mine closure questions		
No	Question	Answer
1.	<b>Requirements for mine closure</b>	<p>The primary function of the BMRR Regulation and Closure Branches is to ensure that “Waters of the State” (as described in NRS 445A.415) are not degraded during and after a mining operation. These regulations apply to all mining operations, with the exceptions of those facilities as provided for within NAC 445A.387, located within the State of Nevada, regardless of land ownership.</p> <p>Water Pollution Control Permits, as issued, renewed, or subsequently modified, remain in effect throughout the life of the mine until final closure is achieved and approved by the BMRR. Closure-related activities (e.g., monitoring) are coordinated by the BMRR Closure Branch. Branch staff will evaluate chemical data to confirm stabilization of all applicable mine components (or sources) that must be considered for closure.<sup>36</sup></p>
	<b>(a) Closure plan:</b> What are the requirements for a closure plan? Who	<p><b>Required Mine Closure Documents:</b> There are four major mine site closure documents, listed in sequential order that must be submitted to the BMRR for review and approval. The first two documents are regulatory requirements while the third and fourth are BMRR requirements.<sup>37</sup></p> <p><b>1. Tentative Plan for Permanent Closure (TPPC)</b> - submitted at the time of application for a WPC Permit (NAC 445A.398);</p>

<sup>35</sup> ibid

<sup>36</sup> BMRR: “Preparation requirements and guidelines for permanent closure plans and final closure reports,” available at: <https://ndep.nv.gov/bmrr/closure2.pdf>.

<sup>37</sup> Ibid.



		<p>approves it, if anybody?</p>	<p><b>2. Final Plan for Permanent Closure (FPPC)</b> - submitted at least two (2) years prior to the anticipated permanent closure of that process component (NAC 445A.447);</p> <p><b>3. Final Closure Report</b> - (a) summarizes all completed closure-related activities, for example detoxification of the heap, monitoring, component characterization, leach field construction, and completed earthwork; (b) provides closure related as-builts, if required; and (c) proposes post-closure monitoring, as applicable; and</p> <p><b>4. Request for Final Closure</b> - demonstrates component stabilization (both chemical and physical) have been achieved and solicits WPC Permit retirement.</p> <p>Closure documents must be updated regularly during the life of a mine and are required to be thoroughly reviewed as part of the application for renewal of the WPC Permit.<sup>38</sup></p> <p>More details on Closure requirements can be found <a href="#">here</a>.</p>
		<p><b>(b) Bond requirements</b></p>	<p>The BMRR’s Reclamation Branch requires Reclamation Bonds as part of the permitting process for a mine’s operations.<sup>39</sup></p> <p><b>Three types of Reclamation Bonds may be required</b> – Reclamation Personal Bond, Reclamation Surety Bond and Cash Bond Reclamation Personal Bond.<sup>40</sup></p> <p>The BMRR recognizes that reclamation activities such as reshaping, regrading, covering, placing of growth medium, applying soil amendments, and revegetation are in many cases major elements of the site stabilization and closure process.</p> <p>These reclamation activities become part of the closure plan and are described or referenced as part of the FPPC.</p> <p>As general closure scenarios become more detailed, the reclamation plan, together with the <u>bond cost</u> calculations, are reviewed and amended as necessary.<sup>41</sup></p>

<sup>38</sup> Ibid.

<sup>39</sup> Ibid. Interview with the BMRR – Regulation Branch

<sup>40</sup> BMRR website: “Reclamation Branch — Permit Applications, Fees & Guidance Documents” available at: <http://ndep.nv.gov/bmrr/recapp.htm>.

<sup>41</sup> BMRR: “Preparation requirements and guidelines for permanent closure plans and final closure reports,” available at: <https://ndep.nv.gov/bmrr/closure2.pdf>.



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<b>2.</b>	<b>Post-mine closure monitoring requirements</b>	<p>The Final Closure Report includes the proposal for post-closure monitoring for <b>an initial period of time not less than five (5) years</b> in order to provide additional supporting data that stabilization has truly been achieved.</p> <p>The Request for Final Closure is made following the completion of the post-closure monitoring period. The request should contain all post-closure monitoring information and clearly demonstrate stabilization. Upon the successful demonstration of stabilization, the Bureau would consider the mine site to be in final closure, retire the Water Pollution Control Permit, and eliminate all NAC445A fee requirements.<sup>42</sup></p>
<b>3.</b>	<b>Liability period</b> - For how long, if at all, is a mine liable for water contamination after a mine has closed?	<p>The mine continues to remain liable for any water contamination that may be detected or traced to its activities, even after the mine has closed.<sup>43</sup></p> <p>In case of outright abandonment, the state (through the BMRR) undertakes the liability and costs for clean up, in which case the Reclamation Bond will be used towards clean up and containment expenses.</p>

<sup>42</sup> BMRR Closure Branch website, available at: <http://ndep.nv.gov/BMRR/clshome.htm>.

<sup>43</sup>Interview with BMRR – Regulation Branch.



### 3. Enforcement/ Regulatory actions

General questions		
No	Topic	Answer
1.	<b>Enforcement actions available to the government/ public authorities/ citizens take for breach of any of the relevant laws/ regulations</b>	<p>The Bureau of Mining Regulation and Reclamation (BMRR) takes enforcement actions in accordance with Nevada Revised Statutes (NRS) 445A.675 and 445A.690. The Bureau Chief decides whether a violation requires enforcement action, which includes corrective measures and a fine.<sup>44</sup></p> <p>Per NDEP policy, no permits are to be issued, modified or renewed for facilities which have unresolved Division enforcement actions without Bureau Chief approval. This applies also to facilities which are owned, operated, or managed by persons having unresolved enforcement actions at other facilities under their control.</p>
2.	<b>Bodies responsible for regulatory enforcement and associated procedures</b>	<p>The State Water Pollution Control Agency (NRS 445A.440)</p> <p>The Bureau of Mining Regulation and Reclamation (BMRR) takes enforcement actions against violations.</p> <p>The enforcement document issued by BMRR is a Finding of Alleged Violation and Order (FOAV/Order). The Finding describes the situation and which statutes, regulations, or permit conditions have allegedly been violated. The Order sets forth corrective actions to be undertaken to correct the violation(s) and a schedule for completion of the corrective actions.</p> <p>An FOAV/Order is normally prepared by the Regulation Branch Compliance Inspector assigned to the mine facility. The draft FOAV/Order is reviewed by the Regulation Branch Supervisor and the Bureau Chief. The final FOAV/Order is effective upon issuance, but an appeal may be filed within 30 days, to the State Environmental Commission.</p> <p>A Show Cause meeting is provided as an opportunity for the defendant all of the information regarding the incident in question.</p> <p>Upon completion of the Show Cause meeting, a meeting of the Penalty Panel is scheduled to hear the case. The Penalty Panel meeting is held in accordance with the Division Civil Penalty Policy. The Panel determines a proposed settlement amount.</p> <p>More details on the acceptance or refusal of the proposed settlement amount, other options and further steps are available <a href="#">here</a>.</p>

<sup>44</sup> More details on the enforcement actions can be found [here](#).



3.	Is there an online database of penalties/fines related to water use in the mining sector	None currently.
4.	What is the procedure for bringing a case?	<p><b>1. Section 402 and 404 permits</b> <b>1.1 Criminal, Civil and Administrative Procedures</b></p> <p>The relevant regional office of EPA's Criminal Investigation Division, namely office 10, may initiate an investigation into permit violations (under section 402 or 404). Such violations may be prosecuted by the U.S. District Attorney in a District Court. The Administrator can bring civil enforcement actions before the relevant federal judge, whereas administrative sanctions are imposed at agency's level and may undergo a review proceeding in case they are challenged.</p> <p><b>1.2 Citizens' suits</b></p> <p>Citizens may bring a suit against any person alleged to be in violation of water-related permits,<sup>45</sup> immediately for violations of NPDES or toxic effluents standards,<sup>46</sup> and in general after 60 days from the date the plaintiff gives notice of an alleged violation to the EPA, the State, and the alleged violator.<sup>47</sup> Nonetheless, any such action is barred if the Administrator or State "has commenced and is diligently prosecuting a civil or criminal action."<sup>48</sup></p> <p><b>1.3 CERCLA actions</b></p> <p>For action under CERCLA to be taken, a mining site must be listed on the National Priorities List (NPL). Section 300.425(c) of CERCLA's implementing regulations designate (3) ways in which sites may be placed on the list, as explained <a href="#">here</a>:</p> <p><b>(1)</b> The release scores sufficiently high pursuant to the Hazard Ranking System described in appendix A to CERCLA.</p> <p><b>(2)</b> A state (not including Indian tribes) has designated a release as its highest priority. States may make only one such designation; or</p>

<sup>45</sup> Federal Water Pollution Control Act (Clean Water Act), 33 U.S.C. § 505 (2012).

<sup>46</sup> Clean Water Act § 505 (b).

<sup>47</sup> Clean Water Act § 505 (b) (A).

<sup>48</sup> Clean Water Act § 505 (b) (B).



**(3)** The release satisfies all of the following criteria:

**(i)** The Agency for Toxic Substances and Disease Registry has issued a health advisory that recommends dissociation of individuals from the release;

**(ii)** EPA determines that the release poses a significant threat to public health; and

**(iii)** EPA anticipates that it will be more cost-effective to use its remedial authority than to use removal authority to respond to the release.

**Actions related to State Permits:**

Applications may be made to the NDEP for adjudication with regard to water rights.

The final decisions of the NDEP can be appealed to the State Environmental Commission.

The State Environmental Commission (SEC) is an eleven member quasi-judicial and quasi- legislative board that operates under the authority of Nevada Revised Statute. The SEC acts on regulatory "Petitions" proposed by the Nevada Division of Environmental Protection (NDEP).

The SEC also hears and decides contested cases through appeals of final decisions issued by NDEP. Appeals address final decision by NDEP such as compliance with permit requirements and related enforcement actions.<sup>49</sup>

The SEC's jurisdiction is limited to that which is set forth in the statutes and regulations associated with the following NDEP programs: air, water, safe drinking water, mining, hazardous waste and solid waste.<sup>50</sup>

**Nuisance actions at common law**

A public nuisance action may be brought by the relevant state authority for an unreasonable interference with a right to the general public.

A private nuisance action is brought by a private person for the non-trespassory invasion of his/her interest in the private use and enjoyment of land.

<sup>49</sup> <http://www.sec.nv.gov/index.htm>

<sup>50</sup> [http://www.sec.nv.gov/docs/sec\\_complete\\_packet.pdf](http://www.sec.nv.gov/docs/sec_complete_packet.pdf)



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<p>5.</p>	<p><b>Who has standing to bring a case?</b></p>	<p>Standing mainly concerns citizen actions, either under statute or common law:</p> <p><b>1) Citizens' suit under the CWA</b></p> <p>Citizens need to prove (i) an injury in fact (ii) an injury that is fairly traceable to the challenged action of the defendant; (iii) redressability by a favorable judicial decision. A fourth prong has recently been introduced as a non-constitutional but only judicial requirement, and is prudential standing (zone of interests test), whether the kind of injury the plaintiff is complaining is within the zone of interest protected by the statute (<i>Comer v. Murphy Oil</i>, 2013).</p> <p>Citizens often sue through environmental NGOs. Standing has been increasingly limited for such NGOs, and the following elements are required: (i) at least one member would have standing to sue individually; (ii) the interests the organization seeks to protect are "germane" to the organization purposes; and (iii) neither the claims asserted nor the relief requested requires the participation in the lawsuits of individual members (<i>Int'l Union</i>, 1986).</p> <p><b>2) Common law</b> (private nuisance action)</p> <p>According to the <i>Second Restatement of Torts</i> § 822, plaintiffs of a private nuisance action need to show a substantial harm and prove that interference is intentional and unreasonable or unintentional and otherwise actionable under the rules controlling liability for negligent or reckless conduct, or for abnormally dangerous conditions or activities.</p>
<p>6.</p>	<p><b>Statute of limitations</b></p>	<p>The CWA does not provide a statute of limitations for either citizens' or government's enforcement actions, leaving it to the relevant judge, if any, to decide whether and what statute of limitations is applicable.</p> <p>For CERCLA-related violations, the statute of limitations period depends on how an action has been characterized. Indeed, a CERCLA civil suit could be a contribution action (three years), a cost recovery removal action (three years after completion of the removal action, or a cost recovery remedial action (six years after the initiation of physical on-site construction of the remediation).<sup>51</sup></p> <p>The statute of limitations for most violations of the state wastewater disposal permit is generally six years.</p> <p>In private nuisance actions, the statute of limitations differs depending upon whether the activity is a "permanent" or "continuing" nuisance. No specific information was found on Nevada common law. However, the statute of limitations for actions based upon a "permanent" nuisance is usually three years from the date original creation of the nuisance. Similarly, actions based upon a "continuing" nuisance carry a statute of limitations of generally three years from the most recent repetition and/or continuation of the offensive activity.</p>

<sup>51</sup> Sections 106-7 of CERCLA.



## Annexures

### A. Relevant State legislation (policies, laws, and regulations) governing water use and discharge in the mining sector in Nevada<sup>52</sup>

No.	Name of Legislation	Brief description of how it applies
1	<a href="#">Nevada Revised Statute (NRS) Chapter 533</a>	Nevada Revised Statute Chapter 533 is the general water law that provides for the appropriation process and is specifically applicable to surface water.
2	<a href="#">Nevada Revised Statute Chapter 534</a>	Nevada Revised Statute Chapter 534 is specific to groundwater and works in conjunction with Chapter 533.
3	<a href="#">Nevada General Water Law Act of 1913 (with multiple subsequent amendments)</a>	These Acts provide that all water within the boundaries of the state, whether above or beneath the surface of the ground, belongs to the public, as referenced in NRS 533.025 and is subject to appropriation for beneficial use.
4	<a href="#">Nevada Underground Water Act of 1939 (with multiple subsequent amendments)</a>	
5	<a href="#">Nevada Revised Statute (NRS) 519A.010 - 519A.240 519A.260 - 519A.280 and Nevada Administrative Code (NAC) 519A.010 - 519A.415</a>	Mining Regulation and Reclamation.
6	<a href="#">Nevada Revised Statute (NRS) *459.400 - 459.600 and Nevada Administrative Code 444.965 - 444.976</a>	Facilities for Management of Hazardous Waste
7	<a href="#">Nevada Revised Statute (NRS) 444A.420 NRS and Nevada Administrative Code (NAC) 445A.118 - 445A.2234 NAC</a>	Nevada's Water Quality Standards.
8	<a href="#">Nevada Revised Statute (NRS) 445A - ALL and Nevada</a>	Water Pollution Control – ALL

<sup>52</sup> Specifically copper and gold, which are hard rock minerals. Also note that there may be some references to water use, environmental/ water discharge, and post-closure obligations in the mining code/ general mining legislation.



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	<b>Administrative Code (NAC) 445A - ALL</b>	Includes Mining Regulations (BMRR's Regulation and Closure branch).
9	<b>Nevada Revised Statute (NRS) 445A.300 - 445A.730 and Nevada Administrative Code (NAC) 445A.350 - 445A.447</b>	Mining Facilities.
10	<b>Nevada Revised Statute (NRS) <a href="#">445A.465</a> and <a href="#">Nevada Administrative Code (NAC) 445A.810 - 445A.925, NAC</a></b>	Underground Injection Control.
11	<b><a href="#">Nevada Revised Statute (NRS) 459.380 - 459.3874</a> and Nevada Administrative Code (NAC) 459.952 - 459.9542</b>	Highly Hazardous Substances
12	<b><a href="#">Nevada Revised Statute (NRS) *459.800 - 459.856</a> and Nevada Administrative Code (NAC) 459.9921 - 445.9995</b>	Storage Tanks



**A. List of relevant State departments and agencies involved in the regulation of water in the mining sector in Nevada**

No.	Name (In English and local language)	Brief description of its role
1.	<p><a href="#">Nevada Division of Water Resources</a> (NDWR) and the State Engineer</p>	<p>The Nevada Division of Water Resources, which is housed in the Department of Conservation and Natural Resources, is responsible for administering and enforcing Nevada water law, which includes the adjudication and appropriation of groundwater and surface water in the state.</p> <p>The appointed administrative head of this division is the <b>State Engineer</b>. The State Engineer is the deciding authority for all water use applications. All manners of use of water in Nevada require a permit from the State Engineer with two exceptions – domestic use and those uses that pre-date water law requirements.</p>
2.	<p><a href="#">Nevada Department of Conservation and Natural Resources</a></p>	<p>The Nevada Department of Conservation and Natural Resources conserves, protects, manages, and enhances the state’s natural resources in order to provide the highest quality of life for Nevada’s citizens and visitors.</p> <p>The Division of Water Resources (NDWR) is one of the Department’s nine divisions.</p>
3.	<p><b>The <a href="#">Bureau of Mining Regulation and Reclamation</a> (BMRR) in the Nevada Division of Environmental Protection</b></p>	<p>The Bureau of Mining Regulation and Reclamation (BMRR), in cooperation with other state, federal, and local agencies, regulates mining activities under regulations adopted in 1989.</p> <p>The Bureau is composed of three technical branches: regulation, closure, and reclamation. It is the mission of BMRR to ensure that Nevada's waters are not degraded by mining operations and that the lands disturbed by mining operations are reclaimed to safe and stable conditions to ensure a productive post-mining land use.</p>
4.	<p><b>The <a href="#">Bureau of Water Pollution Control</a> (BWPC) in the Nevada Division of Environmental Protection</b></p>	<p>The BWPC regulates all discharges to waters of the State through issuing permits and enforcing the State's water pollution control (WPC) laws and regulation.</p>
<p><b><i>Note: Generally speaking, water allocation (water quantity) issues, permits and adjudication are managed by the NDWR. Water quality issues, permits, monitoring and compliance in the context of mines are managed by the BMRR.</i></b></p>		



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