

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER R5-2014-0706
FOR

NEWMONT USA Ltd
NORTH STAR PROPERTY, NEVADA COUNTY

This Order is issued to Newmont USA Ltd (hereafter Newmont or Discharger) pursuant to Water Code section 13304, which authorizes the Central Valley Regional Water Quality Control Board, (Central Valley Water Board or Water Board) to issue a Cleanup and Abatement Order (CAO), and Water Code section 13267, which authorizes the Board to require the submittal of technical reports.

The Executive Officer of the Central Valley Water Board finds, with respect to the Discharger's acts, or failure to act, the following:

1. Newmont owns and controls the North Star Property (the Site) located south of the City of Grass Valley. The Site covers approximately 800-acres and includes Nevada County APNs 22-120-28 and 29-350-16. A portion of the Site consists of former underground gold mines that operated from the late 1800's to 1956. Following the closure of the mines and the cessation of mine dewatering activities, groundwater within the underground mines recovered to elevations of the mine drainage tunnels. These tunnels currently drain by gravity from a mine adit and a pipe culvert to Wolf Creek, which is tributary to the Bear River, and both are considered waters of the United States.
2. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. This Order is designed to ensure compliance with the Basin Plan.
3. Surface water drainage is to Wolf Creek, a tributary to the Upper Bear River watershed, which flows into the Sacramento-San Joaquin Delta. The beneficial uses of the Bear River, as specified in the Basin Plan, are municipal and domestic supply (MUN), agricultural irrigation supply and stock watering (AGR), hydroelectric power generation (POW), water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), fish migration (MIGR) and spawning (SPWN), and wildlife habitat (WILD).
4. The discharge points for the two North Star mine drainage features are located on Nevada County Assessor's Parcel Number 29-350-16 as shown on Attachment A, which is attached hereto and made part of this Order by reference. Discharge for an adjacent spring, SP2, located on Assessor's Parcel Number 22-120-28 is potentially associated with the two mine drainage features.
5. The mine drainage features were identified in April of 2008 by Central Valley Water Board staff following a water quality complaint of yellowish material leaching into Wolf Creek at the Site. Flow rates for the mine adit and pipe culvert average 172 and 111 gallons per minute respectively. Spring SP2 discharge averages 11 gallons per minute; however, this flow infiltrates into the hillside before reaching Wolf Creek.
6. Discharges from the mine adit and pipe culvert contain iron and manganese at concentrations that threaten to impact beneficial uses in Wolf Creek. In addition, the adit and pipe culvert discharges periodically contain arsenic at concentrations that exceed the arsenic Primary Maximum

Contaminant Level (MCL) of 10 parts per billion (µg/L) (see Table 1 below). Although the arsenic concentration in the mine adit discharge ranges from 2.8 to 22.2 µg/L, the average is approximately equal to the 10 µg/L Primary MCL, and the average is a more reliable indicator of long-term exposure than individual measurements. Spring SP2 contains iron and manganese at substantially lower concentrations than the mine adit and pipe culvert, but above adopted water quality criteria.

Table 1. Iron, Manganese, and Arsenic Concentrations in North Star Mine Drainage Feature Discharges*

Mine Feature (Average Flow)	Iron (µg/L) (total recoverable)**			Manganese (µg/L) (total recoverable)**			Arsenic (µg/L) (total recoverable)**		
	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave
Mine Adit (172 gpm)	9,950	1,420	3,884	2,160	1,320	1,865	22.2	2.8	10.2
Pipe Culvert (111 gpm)	3,740	1,100	3,026	1,990	1,370	1,805	11.3	2.2	8.4
Spring SP2 (11 gpm)	2,680	60	515	1,200	407	1,006	0.8***	<0.5	0.7***
Applicable water quality objective and Related Beneficial Use	300 µg/L (Secondary MCL, drinking water); Chemical Constituents (MUN), Tastes and Odors (MUN)			50 µg/L (Secondary MCL, drinking water); Chemical Constituents (MUN), Tastes and Odors (MUN)			10 µg/L (Primary MCL, drinking water); Chemical Constituents (MUN), Toxicity (MUN)		

* Water quality data collected from October 2008 through March 2012.

** The Central Valley Water Board implements limits for MCLs as “total recoverable.”

*** Estimated concentration was reported by laboratory as below the practical quantitation limit.

BACKGROUND

- In 2008, the Site was owned and controlled by North Star/Grass Valley LLC, an Oregon-based property developer. In a 4 April 2008 Central Valley Water Board letter, both North Star/Grass Valley LLC and Newmont were requested to provide information regarding the source and nature of the discharge. Newmont was notified of the discharge because of its predecessor’s (Empire Star Mines Company) past ownership of the Site¹. Newmont, in coordination with North Star/Grass Valley LLC submitted a Site Characterization Work Plan in September 2008 to investigate, delineate, and monitor the mine adit, pipe culvert and two springs. The Work Plan included monthly collection of water samples from the mine adit and pipe culvert, and quarterly water sampling of an upper and lower spring. The lower spring is identified as spring SP2.
- On February 27, 2009, Newmont submitted a Technical Memorandum titled, “Historic Mine Information Review and Site Reconnaissance.” The historic mine information review and site reconnaissance were performed to delineate the location of the mine drainage features at the Site and to determine if the features were potentially associated with the historic mine workings on the North Star Property. The Technical Memorandum concluded that the surveyed location of the pipe culvert and mine adit were consistent with the alignment and approximate location of the Snyder

¹ In 1929, Empire Star Mines Company purchased certain assets of the North Star Mines Company, including the Massachusetts Hill Mine, which is drained by the Drew Tunnel. A Newmont subsidiary, Newmont Empire Mine Company, owned stock in Empire Star Mines Company.

Drain Tunnel. Water Board staff believes that the Snyder Drain Tunnel and the Snyder Adit Tunnel identified in the Technical Memorandum are part of a larger mine drainage system for the New York Hill Mine, Chevanne Shaft, Rocky Bar, and North Star Mine underground workings as shown on Plate 30 of USGS Professional Paper 194 (Johnston, 1940)².

9. On 1 April of 2009, the Water Board staff requested a report of waste discharge (ROWD) for the mine drainage features from the then property owner, North Star/Grass Valley LLC and from Newmont because of Empire Star Mines Company past ownership of the Site. In that letter, Water Board staff specified that, "treatment and/or source control methods to reduce the quantity of potential pollutants discharged to waters of the state must be implemented."
10. In a 23 April 2009 meeting, Newmont notified Water Board staff that negotiations with North Star/Grass Valley LLC to purchase a portion of the Site for purposes of capture and treatment of the discharges emanating from the mine drainage features had not been productive. Newmont also notified staff that North Star/Grass Valley LLC had filed for relief under Chapter 11 of the United States Bankruptcy Code in November of 2008 and that Newmont was in discussions with the creditor of the North Star Property to purchase a portion of the property.
11. On 2 June 2009, Newmont submitted a Site Characterization Work Plan Amendment which provided for collection of water samples for priority pollutant analysis as requested by Water Board staff. The Work Plan Amendment included monitoring at five locations for a period of one year, including collection of monthly water quality samples from the mine adit, pipe culvert, Spring SP2 and two additional nearby springs, and at a location in Wolf Creek upstream of the North Star mine features discharges.
12. On 17 June 2009, Water Board staff sent a second letter requesting a ROWD from the property owner, North Star/Grass Valley LLC, and from Newmont.
13. In July 2009, North Star/Grass Valley LLC and Newmont jointly submitted a ROWD for the mine drainage features located on the North Star Property. The ROWD transmittal acknowledged that the information contained in the ROWD was incomplete because it only presented a conceptual water treatment plant design, that locations for construction and operation of the water treatment plant were still being investigated, and did not provide a schedule for permitting and other considerations. The ROWD stated that water quality monitoring demonstrated that the primary constituents of concern which would require treatment included pH, iron, and manganese. Arsenic was not listed as requiring treatment, although it was frequently reported at concentrations slightly above the water quality criteria of 10 ug/L.
14. In November 2009, Newmont submitted a Water Monitoring Plan which had been developed from results of their previous work and to provide for continuation of portions of the previous monitoring program on a quarterly basis. Previous sampling demonstrated that water quality characteristics of the mine adit, pipe culvert, and spring SP2 were similar and that variations in water quality could be assessed with quarterly sample collection.
15. In the November 2009 Water Monitoring Plan, Newmont concluded that priority pollutants Methyl-tert-butyl-ether (MTBE) and Cis-1,2 Dichloroethene (DCE), which had been detected at relatively low concentrations in the mine adit, pipe culvert and spring SP2 were not associated with historic mining or milling operations. Newmont did not provide an explanation of the source of the MTBE or

² See Central Valley Water Board letter dated 11 March 2009.

the DCE; however, Newmont did conclude that the presence of MTBE and DCE in the sample from the mine adit, pipe culvert and spring SP2 indicated a similar water source pathway, and that the three locations were hydraulically connected. Subsequent sampling, performed semi-annually since 2009, has not detected the presence of DCE above the method detection limit. MTBE has been detected in subsequent semi-annual sampling of the mine adit, pipe culvert and spring SP2, at concentrations of approximately 2.5 ug/L, which is below the primary drinking water standard MCL.

16. In January 2010, Newmont provided Water Board staff with an update of its activities at the North Star Property and of their intent to treat the nearby Drew Tunnel discharge, which is currently being collected and treated at the City of Grass Valley's (the "City") waste water treatment plant (WWTP). Furthermore, Newmont stated that they had submitted written purchase agreements for a 2.2 acre-portion of the North Star Property needed for construction of the water treatment plant, and that the bankruptcy trustee believed that the agreements would be satisfactory to the bankruptcy court and should be completed in a matter of weeks.
17. By September 2010, Newmont had not been successful in purchasing the portion of the North Star Property needed to collect and treat discharges emanating from the North Star mine drainage features. In October 2010, Board staff met with Newmont, the bankruptcy trustee, and the creditor of the North Star Property in an attempt to facilitate a timely resolution of the matter³ but Board staff was ultimately unsuccessful in facilitating a solution⁴.
18. In June of 2011, Newmont was able to purchase 760-acres of the North Star Property from the creditor at a price in excess of \$3 million dollars. In a 1 August 2011 interview with the Grass Valley Union Newspaper, a Newmont representative stated that they intended to use about 10-acres of the property for the purposes of capturing and treating the discharges emanating from the North Star mine drainage features and the Drew Tunnel.
19. Since 2008, the Discharger has continued to collect water samples and report water quality monitoring data for the North Star mine drainage features. The Discharger has also performed pilot-scale treatability testing at the Drew Tunnel to support sizing and design of a planned passive treatment system and optional active polishing water treatment system for the North Star Mine drainage features and the Drew Tunnel discharge.
20. During 2013, Newmont initiated preliminary discussions with City and County officials regarding the proposed water treatment project, conducted preliminary biological, civil, and geophysical surveys and installed three groundwater monitoring wells into the Snyder Drain Tunnel alignment referenced in Finding 8 above. Newmont also conducted pilot treatability testing for both passive and active treatment of the mine discharges.
21. On 19 December 2013, Newmont met with Water Board staff and discussed the status of relocating the Drew Tunnel discharge from the City's WWTP and provided a summary of progress towards completion of the project. Newmont also discussed with staff its forthcoming report, in which an evaluation of the potential alternatives would be presented to the City for collecting and conveying water draining from the Drew Tunnel to the proposed North Star water treatment facility.

³ Central Valley Water Board letter dated 29 September 2010.

⁴ Central Valley Water Board letter dated 24 January 2011 and 25 January 2011 letter from the bankruptcy trustee to Victor Izzo of the Central Valley Water Board.

22. Water Board staff's 24 December 2013 letter summarized the 19 December meeting and requested that Newmont provide a copy of the report evaluating the potential alternatives for collecting and conveying water draining from the Drew Tunnel. Staff also requested that Newmont provide an estimated timeline for project completion of each of the alternatives and to help staff in evaluation of the project's progress and schedule for completion, that the report also include information such as land and right-of-way acquisition, county and city permits acquisition, California Environmental Quality Act (CEQA) process, construction and conveyance system, and construction of the proposed treatment system.
23. On 31 January 2014, Newmont submitted the Drew Tunnel Water Collection and Conveyance Alternatives Report (Worthington Miller Environmental, February 1, 2014). The Report presented the evaluation of feasible piping alignments and pumping alternatives for collecting and conveying the Drew Tunnel discharge from the City's WWTP to Newmont's proposed water treatment plant located on the North Star property. Newmont identified Alternative 1, Gravity Flow Pipeline buried along the western boundary of the City's WWTP to the south and onto North Star Property to the proposed treatment facility, as being the most effective alternative in collecting and conveying the Drew Tunnel water and would require the least time to implement.
24. In a 24 February 2014 letter responding to Newmont's Drew Tunnel Water Collection and Conveyance Alternatives Report, the City stated that they had no interest in the option of running piping for the Drew Tunnel discharge collection system to Newmont's conceptual North Star Water Treatment Plant through the City's WWTP property.
25. The Discharger's difficulty in purchasing the property (June 2009 to July 2011) and in reaching an agreement with the City to capture and route the Drew Tunnel discharge to the proposed North Star water treatment plant has caused considerable delay in mitigating impacts to water quality caused by the North Star Mine discharges.

IMPACTS TO GROUNDWATER QUALITY

26. In August 2013, the Discharger performed geophysical surveying of the mine workings. Based on results of the geophysical survey, the Discharger installed three groundwater monitoring wells within the alignment of the Snyder Drain Tunnel. With the completion of the monitoring wells, the Discharger has the capability to monitor and evaluate the potential for increasing water level conditions and to monitor water quality within the underground mine workings.

BASIS FOR CLEANUP AND ABATEMENT ORDER

27. This Order provides a timeframe for the Discharger to perform additional predesign investigations and engineering, obtain necessary permits, construct the proposed water treatment facility, and to collect and convey water from the North Star Mine drainage features and the nearby Drew Tunnel to the proposed water treatment facility for treatment and discharge to Wolf Creek.
28. This Order also provides a timeframe for completing the actions necessary to ensure compliance with potentially-applicable water quality objectives as identified in Finding 6, above.

REGULATORY CONSIDERATIONS

29. Water Code section 13304 subdivision (a) states, in relevant part:

Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.

30. Water Code section 13267 subdivision (b) states, in relevant part:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by Water Code section 13267 and this CAO are necessary to evaluate compliance with this CAO, and to ensure the protection of water quality. The Discharger owns the facility that discharges waste subject to this CAO.

31. This Order requires the Discharger to design and build waste treatment facilities that would likely need multiple permits from state and local agencies, including the Central Valley Water Board. It would be too speculative at this time to conduct an environmental analysis of the potentially-significant environmental effects of treatment facilities pursuant to the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.).

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13304 and 13267, the Discharger shall cleanup and abate the North Star Mine drainage features in accordance with the scope and schedule set forth below.

<u>Task</u>	<u>Compliance Date</u>
Submit Nevada County Land Use Pre-Application	30 September 2014
Complete pre-design investigation and engineering design	31 December 2014
Submit Nevada County land use application	31 December 2014
Complete North Star water treatment plant construction	31 December 2015

1. Quarterly Summary Reports. On a quarterly basis, the Discharger shall submit to the Central Valley Water Board a Quarterly Summary Report documenting its activities completed under the provisions of this Order to comply with the tasks listed above. The report shall be received by the Central Valley Water Board by the fifteenth (15th) day following the end of each quarter of the calendar year (e.g., Q3-2014 report due 15 October 2014), and shall describe:
 - a. Specific actions taken by or on behalf of the Discharger during the previous quarter to comply with the tasks listed above and the status of ongoing activities;
 - b. Summary of actions expected to be undertaken during the upcoming quarter; and
 - c. Any problems or anticipated problems in complying with this Order.
2. Extension Requests: If the Discharger is unable to perform any activity or submit any document in compliance with the schedule set forth herein, or in compliance with any work schedule submitted pursuant to this Order and approved by the Assistant Executive Officer, the Discharger may request, in writing, an extension of the time specified. The extension request shall include justification for the delay. Any extension request shall be submitted as soon as a delay is recognized and prior to the compliance date. An extension may be granted by revision of this Order or by a letter from the Assistant Executive Officer.
3. As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed by the registered professional.
4. Any person signing a document submitted under this Order shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

If the Discharger fails to comply with the provisions of this Order, the Assistant Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability. Failure to comply with this Order may result in the assessment of administrative civil liability up to \$10,000 per violation per day, pursuant to the Water Code sections

13268, 13350, and/or 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

This Order is effective upon the date of signature.

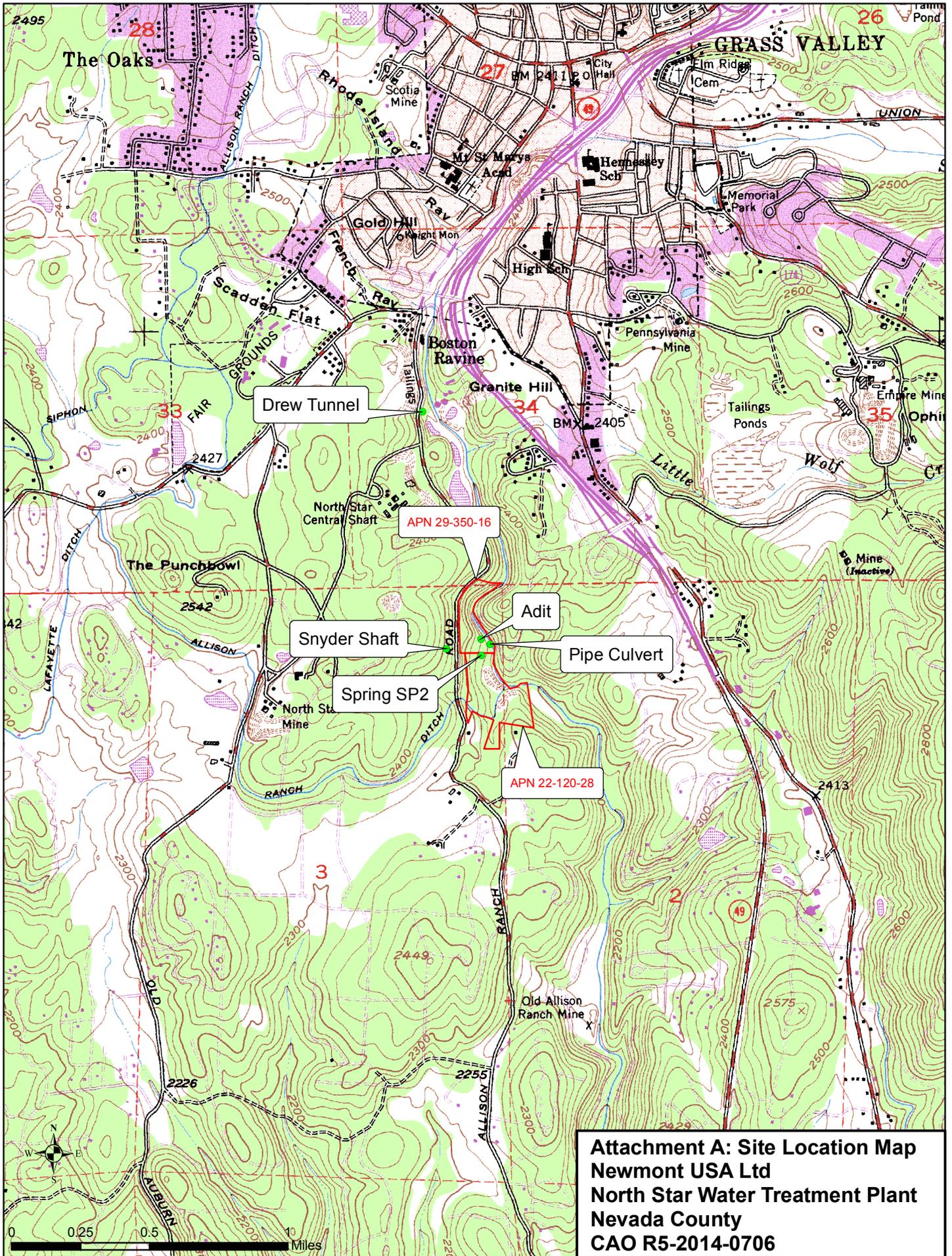
Original signed by

Andrew Altevogt, Assistant Executive Officer

15 August 2014

JSH/MH/RB: XX August 14

Attachments: A – Site Location Map



Attachment A: Site Location Map
Newmont USA Ltd
North Star Water Treatment Plant
Nevada County
CAO R5-2014-0706