

**IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA**

#1283

ORDER

**AMENDING CONDITIONS AND PROVISIONS OF PERMITS ISSUED TO
THE CORTEZ JOINT VENTURE TO APPROPRIATE UNDERGROUND
WATER OF THE CRESCENT VALLEY HYDROGRAPHIC BASIN (4-54),
LANDER AND EUREKA COUNTIES, NEVADA.**

WHEREAS, the Crescent Valley Hydrographic Basin was designated by the State Engineer on March 20, 1981, by Order No. 755.

WHEREAS, this Order is issued pursuant to the provisions of Chapter 534 of Nevada Revised Statutes (NRS) that authorize the State Engineer to prescribe and adopt rules and regulations for the administration of groundwater and includes consideration of the evidence and public comment submitted at a duly noticed public hearing on March 29, 2017, in Eureka, Nevada.

WHEREAS, Cortez Joint Venture (Cortez JV) owns permits to appropriate groundwater from Crescent Valley for mining, milling, and dewatering purposes related to its Pipeline and Cortez Hills mines (see attached Exhibit A, the "Cortez-Pipeline Permits"¹). The perennial yield of Crescent Valley is estimated to be 16,000 acre-feet annually (afa). The total volume of water appropriated under the Cortez-Pipeline Permits is approximately 65,211 afa. Of this volume, approximately 4,998 afa is permitted for consumptive mining use and 60,213 afa is permitted for non-consumptive dewatering use. Cortez JV owns 6,589 afa of irrigation water rights and uses groundwater produced by dewatering to irrigate under those rights in Crescent Valley.

WHEREAS, under the Cortez-Pipeline Permits, Cortez JV must return any groundwater produced from dewatering in excess of the amount consumptively used for mining or substitutive uses to Crescent Valley using infiltration basins. Groundwater monitoring data show that the Crescent Valley basin is approaching a point where there will be technical limitations on the amount of water that can be infiltrated; however, Cortez JV will continue to use the Crescent Valley infiltration basins to the extent practicable.

WHEREAS, Cortez JV's groundwater monitoring data and numerical groundwater flow model indicate that dewatering in Crescent Valley is increasing the rate of natural flow from Grass Valley into Crescent Valley. The increased flow is affecting groundwater levels in Grass Valley. The groundwater flow model simulation indicates that from 1996 until the end of 2015, there was an increase in the flow from Grass Valley to Crescent Valley of approximately 11,200 acre-feet due to mine dewatering in Crescent Valley.² The model simulation indicates that from 2016 until the currently projected end of mining in 2032, there will be an increase in the flow from Grass

¹ For the purpose of this Order, the Cortez-Pipeline Permits include any subsequent change applications and certificates issued thereunder.

² Groundwater Flow Model Report, Deep South Expansion Project, SRK Consulting, August 2016.

Valley to Crescent Valley of approximately 29,600 acre-feet due to mine dewatering in Crescent Valley.³

WHEREAS, because groundwater pumping in Crescent Valley is increasing groundwater flow from Grass Valley, the State Engineer has determined that an equal amount of water from the dewatering may be returned to the Grass Valley basin over the life of dewatering operations at the Pipeline and Cortez Hills mines. Returning groundwater to Grass Valley to the extent that interbasin flows have been increased will stabilize the water balance between the basins.

WHEREAS, Cortez JV presented evidence that it could feasibly return to Grass Valley the volume of increased groundwater flow to Crescent Valley from Grass Valley to provide a balance of the water resource. Based on the evidence presented at the hearing, the State Engineer finds that it is reasonable to allow Cortez JV to return to Grass Valley the volume of groundwater that is flowing from that basin to Crescent Valley because of dewatering by Cortez JV. The State Engineer will not rely on the returned discharge to increase the perennial yield of Grass Valley. Further, the State Engineer finds that returning the groundwater to Grass Valley will not conflict with existing appropriative rights or with decreed or claimed pre-statutory vested rights.

WHEREAS, the State Engineer, having considered the evidence and public comment presented at the hearing and all relevant facts, finds that as a result of the necessities and unique characteristics of dewatering the Pipeline and Cortez Hills mines, Cortez JV is allowed to discharge excess groundwater produced in Crescent Valley to Grass Valley.

THEREFORE, IT IS HEREBY ORDERED that the following terms and conditions apply to the Cortez-Pipeline Permits:

1. The volume of induced groundwater flow from Grass Valley to Crescent Valley due to mine dewatering at the Cortez JV Pipeline and Cortez Hills mines will be returned to Grass Valley through injection wells and rapid infiltration basins;

2. Cortez JV will discharge up to 40,800 acre-feet of groundwater to Grass Valley until dewatering at the Pipeline and Cortez Hills mines ceases. Cortez JV shall infiltrate or inject the groundwater at the discharge locations shown on the attached map. If these discharge locations prove to be unacceptable to Cortez JV, then it will submit a request to the State Engineer to add discharge locations. Any such request must be accompanied by sufficient data and analysis to show that the additional discharge locations will not conflict with existing rights or cause potential hazards;

3. The maximum volume of groundwater that Cortez JV may discharge to Grass Valley in any twelve (12) month period may not exceed 13,000 acre-feet, which will allow for operational flexibility at the Pipeline and Cortez Hills mines;

4. Cortez JV must submit measurements to the State Engineer setting forth the volume of water discharged to each discharge location in Grass Valley. These data shall be measured on a monthly frequency and included in the Cortez JV pumpage and water management reports that

³ *Id.*

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must be submitted within 15 business days after the end of the calendar quarter for which they are submitted;

5. Cortez JV shall update their existing monitoring plan so that the effects of groundwater recharge on surface water and groundwater resources are adequately monitored;

6. On or before the 28th of February of every year, in conjunction with regularly scheduled mine update meetings, Cortez JV must meet with the State Engineer and present a report showing:

- i. the actual results of discharging groundwater to Grass Valley; and
- ii. the predicted effects of any expected future discharge to the basin based on the numerical groundwater flow model;

7. This Order only authorizes Cortez JV to discharge groundwater from Crescent Valley to Grass Valley. Cortez JV may be required to obtain other approvals to accomplish the discharge.



JASON KING, P.E.
State Engineer

Dated at Carson City, Nevada this

16th day of May, 2017.

Exhibit A

Cortez Hills Permits

24663
24664
46224
46225
58187E
58188E
58189E
58190E
58191E
58192E
58985E
59339
59340
75342
76864
77179
80335
82592
85012
85013
85014

Pipeline Mine Permits

57134 79896
57138 79897
57144 80130
57146 80131
57147 80132
57148 80133
72666 80134
72667 80135
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72674 80137
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72687 80974
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72689 80976
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78085 81730
78086 82046
78087 84319
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Map of Discharge Locations



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WHEREAS, under the Cortez-Pipeline Permits, Cortez JV must return any groundwater produced from dewatering in excess of the amount consumptively used for mining or substitutive uses to Crescent Valley using infiltration basins. Groundwater monitoring data show that the Crescent Valley basin is approaching a point where there will be technical limitations on the amount of water that can be infiltrated; however, Cortez JV will continue to use the Crescent Valley infiltration basins to the extent practicable.

WHEREAS, Cortez JV's groundwater monitoring data and numerical groundwater flow model indicate that dewatering in Crescent Valley is increasing the rate of natural flow from Pine Valley into Crescent Valley; some of the increase in groundwater flow is from Pine Valley to Grass Valley and thence to Crescent Valley. The increased flow is affecting groundwater levels in Pine Valley. The groundwater flow model simulation indicates that from 1996 until the end of 2015, there was an increase in the flow from Pine Valley to Crescent Valley of approximately 3,500

¹ For the purpose of this Order, the Cortez-Pipeline Permits include any subsequent change applications and certificates issued thereunder.

acre-feet due to mine dewatering in Crescent Valley.² The model simulation indicates that from 2016 until the currently projected end of mining in 2032, there will be an increase in the flow from Pine Valley to Crescent Valley of approximately 22,300 acre-feet due to mine dewatering in Crescent Valley.³

WHEREAS, because groundwater pumping in Crescent Valley is increasing groundwater flow from Pine Valley, the State Engineer has determined that an equal amount of water from the dewatering may be returned to the Pine Valley basin over the life of dewatering operations at the Pipeline and Cortez Hills mines. Returning groundwater to Pine Valley to the extent that interbasin flows have been increased will stabilize the water balance between the basins.

WHEREAS, Cortez JV presented evidence that it could feasibly return to Pine Valley the volume of increased groundwater flow to Crescent Valley from Pine Valley to provide a balance of the water resource. Based on the evidence presented at the hearing, the State Engineer finds that it is reasonable to allow Cortez JV to return to Pine Valley the volume of groundwater that is flowing from that basin to Crescent Valley because of dewatering by Cortez JV. The State Engineer will not rely on the returned discharge to increase the perennial yield of Pine Valley. Further, the State Engineer finds that returning the groundwater to Pine Valley will not conflict with existing appropriative rights or with decreed or claimed pre-statutory vested rights.

WHEREAS, the State Engineer, having considered the evidence and public comment presented at the hearing and all relevant facts, finds that as a result of the necessities and unique characteristics of dewatering the Pipeline and Cortez Hills mines, Cortez JV is allowed to discharge excess groundwater produced in Crescent Valley to Pine Valley.

THEREFORE, IT IS HEREBY ORDERED that the following terms and conditions apply to the Cortez-Pipeline Permits:

1. The volume of induced groundwater flow from Pine Valley to Crescent Valley due to mine dewatering at the Cortez JV Pipeline and Cortez Hills mines will be returned to Pine Valley through injection wells and rapid infiltration basins;
2. Cortez JV will discharge up to 25,800 acre-feet of groundwater to Pine Valley until dewatering at the Pipeline and Cortez Hills mines ceases. Cortez JV shall infiltrate or inject the groundwater at the discharge locations shown on the attached map. If these discharge locations prove to be unacceptable to Cortez JV, then it will submit a request to the State Engineer to add discharge locations. Any such request must be accompanied by sufficient data and analysis to show that the additional discharge locations will not conflict with existing rights or cause potential hazards;
3. The maximum volume of groundwater that Cortez JV may discharge to Pine Valley in any twelve (12) month period may not exceed 6,000 acre-feet, which will allow for operational flexibility at the Pipeline and Cortez Hills mines;

² Groundwater Flow Model Report, Deep South Expansion Project, SRK Consulting, August 2016.

³ *Id.*


4. Cortez JV must submit measurements to the State Engineer setting forth the volume of water discharged to each discharge location in Pine Valley. These data shall be measured on a monthly frequency and included in the Cortez JV pumpage and water management reports that must be submitted within 15 business days after the end of the calendar quarter for which they are submitted;

5. Cortez JV shall update their existing monitoring plan so that the effects of groundwater recharge on surface water and groundwater resources are adequately monitored;

6. On or before the 28th of February of every year, in conjunction with regularly scheduled mine update meetings, Cortez JV must meet with the State Engineer and present a report showing:

- i. the actual results of discharging groundwater to Pine Valley; and
- ii. the predicted effects of any expected future discharge to the basin based on the numerical groundwater flow model;

7. This Order only authorizes Cortez JV to discharge groundwater from Crescent Valley to Pine Valley. Cortez JV may be required to obtain other approvals to accomplish the discharge.



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