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

IN THE MATTER OF APPLICATION NUMBER 84853
FILED BY City of West Wendover, Nevada; City of Wendover, UT
ON February 20, 20 15

} PROTEST

FILED
APR 23 2015
STATE ENGINEER'S OFFICE

Comes now Ren Lohoefener, Regional Director, Region 8, U. S. Fish and Wildlife Service
Printed or typed name of protestant

whose post office address is 2800 Cottage Way, Suite W-2606, Sacramento, CA 95825
Street No. or PO Box, City, State and ZIP Code

whose occupation is Regional Director, Region 8, U. S. Fish and Wildlife Service and protests the granting

of Application Number 84853, filed on February 20, 20 15

by City of West Wendover, Nevada; City of Wendover, Utah for the

waters of underground source situated in Elko
an underground source or name of stream, lake, spring or other source

County, State of Nevada, for the following reasons and on the following grounds, to wit:
(see attachment)

THEREFORE the Protestant requests that the application be Denied
Denied, issued subject to prior rights, etc., as the case may be

and that an order be entered for such relief as the State Engineer deems just and proper.

Signed _____
Agent or protestant

Ren Lohoefener (Regional Director, Regional 8, USFWS)
Printed or typed name, if agent

Address 2800 Cottage Way, Suite W-2006
Street No. or PO Box

Sacramento. CA 95825
City, State and ZIP Code

(916) 414-6469
Phone Number

ren_lohoefener@fws.gov
E-mail

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STATE ENGINEERS OFFICE

State of Nevada
County of _____

Subscribed and sworn to before me on _____

by _____

See attached

Signature of Notary Public Required

Notary Stamp or Seal Required

+ $30 FILING FEE MUST ACCOMPANY PROTEST. PROTEST MUST BE FILED IN DUPLICATE.
ALL COPIES MUST CONTAIN ORIGINAL SIGNATURE.

CALIFORNIA JURAT WITH AFFIANT STATEMENT **GOVERNMENT CODE § 8202**

[✓] See Attached Document (Notary to cross out lines 1–6 below)
[ ] See Statement Below (Lines 1–6 to be completed only by document signer[s], *not* Notary)

Signature of Document Signer No. 1 *Signature of Document Signer No. 2 (if any)*

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Sacramento

Subscribed and sworn to (or affirmed) before me on this 22nd day of April, 2015, by
Date *Month* *Year*

(1) Ren Lohoefener

(and (2) —),
Name(s) of Signer(s)

proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

ALENE THOMAS
Commission # 2093604
Notary Public - California
Sacramento County
My Comm. Expires Jan 11, 2019

Signature A. Thomas
Signature of Notary Public

Seal
Place Notary Seal Above

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Description of Attached Document

Title or Type of Document: Protest - Office of State Engineer Document Date: 02/20/2015

Number of Pages: 1 + Jurat Signer(s) Other Than Named Above: None

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Southwest Region
2800 Cottage Way, Suite W-2606
Sacramento, California 95825

In Response Reply To:
FWS/R8/AES

April 21, 2015
File No. 2015-CPA-0024

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STATE ENGINEERS OFFICE

Mr. Jason King, P.E., State Engineer
Nevada Department of Conservation
and Natural Resources
Division of Water Resources
901 South Stewart Street, Suite 2002
Carson City, Nevada 89701

Dear Mr. King:

Subject: Protest to Application No. 84853, Proposed Change in Point of Diversion by the Cities of Wendover, Utah and West Wendover, Nevada, in Goshute Valley (Hydrographic Basin 187)

The U.S. Fish and Wildlife Service (Service) reviewed permanent water right application Number 84853 for a change in the point of diversion by the Cities of Wendover, Utah and West Wendover, Nevada (Cities) within Goshute Valley (Hydrographic Basin 187). We are concerned that the proposed change in point of diversion would impair the protection of Big Springs in Goshute Valley and habitat for relict dace (*Relictus solitarius*) and late brood rearing habitat downstream for greater sage-grouse (*Centrocercus urophasianus*; sage-grouse); two species that our agency is in the midst of evaluating for protection (listing as threatened or endangered) under the Endangered Species Act of 1973, as amended (ESA; 16 U.S. C. 1531 *et seq*). In June 2014, the Service was petitioned to list the population of relict dace at Big Springs, Goshute Valley, Nevada as a Distinct Population Segment. On April 10, 2015, the Service determined that substantial information was provided that indicated the petitioned action may be warranted for the relict dace. As a result, the Service will review the status of the species and subsequently prepare a 12-month finding to determine whether listing under the ESA is or is not warranted. In 2010, the Service determined that ESA listing for sage-grouse was warranted but precluded (by higher-priority listing actions); our agency is in the process of making a final decision regarding whether ESA listing remains warranted for that species.

The Service has been actively reviewing the threats to relict dace and sage-grouse in this geographic area due to a proposal by Newmont Mining Corporation (Newmont) to construct an open pit gold mine, associated facilities and alternative water supply for the Cities. Newmont's proposal entails authorizations from the Bureau of Land Management (BLM); given this federal nexus, Newmont's proposal was evaluated pursuant to the National Environmental Protection Act of 1970 (NEPA; 42 U.S.C. 4321 et seq.) within the BLM's Long Canyon Mine Final

Environmental Impact Statement (FEIS; BLM 2015). The FEIS states that as part of the preferred alternative, Newmont will replace the portion of the Cities' municipal water supply that comes from Big Springs (1 cubic foot per second (cfs) under permit No. 28527, and an additional possible 1 cfs under V10645) under a legal agreement between Newmont and the Cities. To this end, Newmont has constructed two wells, each capable of producing 2 cfs, equipped with pumps capable of 1 cfs, in Section 21, T35N, R66E, approximately 4 miles south of Big Springs. The Service provided comments to BLM on the Long Canyon Mine FEIS on February 9, 2015; we have provided a copy of our comments as an enclosure to this letter. BLM issued a Record of Decision for the Long Canyon Mine project on April 7, 2015.

On February 20, 2015, the Cities submitted application No. 84853 to change the point of diversion for 2 cfs from their existing municipal (Shafter) wellfield on the east side of Goshute Valley (Section 13, T35N, R67E), roughly 8 miles from Big Springs, to the more northerly of the two well sites recently constructed by Newmont in Section 21, T35N, R66E on the west side of the valley about 4 miles south of the spring. The Cities have also submitted a second application (No. 84852) to add a point of diversion for up to 2 cfs of their existing underground rights (a total 6 cfs or 4,443 acre-feet per year under a combined duty) to the more southerly of the two well sites constructed by Newmont in Section 21 (T35N, R66E). Under application No. 84853 (the subject of this protest), the Cities are seeking to move one-third of their existing 6 cfs in underground rights (under the combined duty) from the east to the west side of the valley, significantly closer to Big Springs. Together, applications Nos. 84853 and 84852 would allow the Cities to move two-thirds of their existing underground water rights in Goshute Valley to the west side of the basin.

Given that the general direction of groundwater flow on the west side of the valley through valley fill is from the range front to the center of the valley and north to south, the Service is concerned that the discharge of Big Springs will be reduced over time by pumping at the point of diversion proposed by the Cities, if only due to the capture of water from the spring pool and connected wetlands which are underlain by valley fill. The discharge of Big Springs, in turn, dropped to 400 gallons per minute (gpm) in December 2013 (the most recent measurement reported in the FEIS) in response to drought conditions that began in 2012, and is likely lower today due to continuing drought. The Service is concerned that if any significant portion of the pumping proposed by the Cities under application No. 84853, up to 2 cfs (898 gpm), is captured from Big Springs, its spring pool or connected wetlands, aquatic habitat for this population of relict dace may be substantially negatively affected. If both applications Nos. 84853 and 84852 are approved for up to 4 cfs (1,795 gpm) and any significant portion of the Cities' proposed pumping on the west side of the valley is captured from Big Springs, its spring pool or connected wetlands, the Service believes that the discharge of the spring may be substantially reduced, up to and including the cessation of flow, and (or) the extent of the spring pool and connected wetlands supporting this population of relict dace is likely to be substantially reduced and degraded, with additional negative downstream effects on habitat for sage-grouse.

Additionally, the Service understands that development (use) of the point of diversion requested in application No. 84853 (and No. 84852) will be accompanied by development of the Long Canyon Mine and water supply pumping for the mine as identified in a Surplus Water Service Agreement entered into by Newmont and the Cities in October 2013 (provided as Appendix 2A in BLM's FEIS), also described in the FEIS as BLM's Preferred North Facilities Alternative.

According to the FEIS and modeling performed by Golder (2014) for the FEIS, pumping for the mine water supply will occur in Section 13, T36N, R66E under BLM's preferred alternative at a rate of up to 9.3 cfs (6,730 acre-feet per year (afy) or 4,170 gpm) during construction/start-up of the mine in 2015/2016, and up to 4.8 cfs (3,470 afy or 2,150 gpm) during the operation of the mine from 2016 to 2024 (approximately 8 years). The Cities' recent application for a temporary change in the method of use and point of diversion of 0.8 cfs (579 afy) of their existing municipal underground rights on the east side of the valley for "mining and milling" at the location of BLM's preferred site for the mine water supply well, approved by the Nevada State Engineer last month, is consistent with these plans. Additional water supply pumping due to the Long Canyon Mine project beyond the 2 (to 4) cfs described earlier, increases the Service's concern that pumping on the west side of the valley will capture a significant portion of the flow of Big Springs, through the spring pool and (or) connected wetlands if application No. 84853 (or No. 84852) is approved, up to and including a cessation of flow under current or future drought conditions, substantially reducing and degrading habitat supporting this population of relict dace, with additional negative downstream effects on habitat for sage-grouse.

Specifically, groundwater flow modeling by Golder (2014) suggests that pumping on the west side of the valley by the Cities at the point(s) of diversion proposed in application No. 84853 (and No. 84852), in conjunction with pumping for the mine in Section 13, T36N, R66E (also on the west side of the valley), will result in a reduction in the discharge of Big Springs on the order of several hundred gallons per minute. Whereas the rate of pumping proposed by the Cities on the west side of the valley (application No. 84853) is somewhat different than that simulated for BLM's preferred alternative, we note the following:

1) if application No. 84853 is approved, the Cities' pumping on the west side of the valley in Section 21, T35N, R66E may exceed that simulated by 100 percent (2 versus 1 cfs) during both the operation and reclamation of the Long Canyon Mine from 2016 to 2027;

2) if application No. 84853 is approved and utilized to its fullest extent, the Cities' pumping in the existing (Shafter) wellfield on the east side of the valley may exceed that simulated by up to 5 percent (4 versus 3.8 cfs) during mine operations from 2016 to 2024 and up to 18 percent (4 versus 3.4 cfs) during mine reclamation from 2024 to 2027, assuming the Cities' combined duty in the valley remains at 6 cfs or 4,443 afy;

3) the Cities' pumping in the valley as a whole may exceed that simulated by 25 percent during mine operations from 2016 to 2024 (6 versus 4.8 cfs), 36 percent during mine reclamation from 2024 to 2027 (6 versus 4.4 cfs), and 82 percent during the construction/start-up of the mine in 2015/2016 (6 versus 3.3 cfs);

4) anticipated rates of pumping for the mine per the FEIS exceeds that simulated by Golder (for the FEIS) by as much as 45 percent during mine construction/start-up in 2015/2016 (a possible 9.3 versus simulated 6.4 cfs) and 85 percent during mine operations from 2016 to 2024 (a possible 4.8 versus simulated 2.6 cfs);

5) the Cities' pumping in the valley (under a combined duty of 6 cfs or 4,443 afy), in combination with the anticipated pumping for the mine, exceeds that simulated by as much as 58 percent during mine construction/start-up in 2015/2016 (a possible 15.3

6) versus simulated 9.7 cfs), 46 percent during mine operations from 2016 to 2024 (a possible 10.8 versus simulated 7.4 cfs), and 19 percent during mine reclamation from 2024 to 2027 (a possible 6.2 versus simulated 5.2 cfs); and

7) if both applications Nos. 84853 and 84852 are approved, the Cities' pumping at the proposed points of diversion on the west side of the valley may exceed that simulated in the FEIS by 300 percent (4 versus 1 cfs).

Consequently, the Service is concerned that the potential effects of approving application No. 84853 (and/or No. 84852) on the discharge of Big Springs would likely equal or exceed those predicted by the Golder model for BLM's preferred alternative, and that the discharge of the spring would likely be reduced by at least several hundred gallons per minute, up to and including a cessation of flow from the spring, through the spring pool and (or) connected wetlands, with significant negative effects on the population of relict dace that resides there, as well as downstream negative effects on habitat for sage-grouse. The Service believes that approval of both of the Cities' current applications (Nos. 84853 and 84852) could be substantially harmful.

Moreover, it is unclear that the model overestimates the effects of groundwater pumping on the discharge of Big Springs as suggested by Golder (2014). Further, although the FEIS interprets that the discharge of Big Springs will not drop below 450 gpm based on the simulated response to pumping under BLM's preferred alternative (which under-represents the proposed City and mine pumping as outlined above), we note that the model simulates discharge from the spring at a rate of about 990 gpm in December 2013 (see Figure 43 of the FEIS), when it is known to have been 400 gpm based on actual measurements. We conclude that, whereas the model is not a good predictor of absolute spring flow rates, it has utility for approximating changes in groundwater levels and changes in the discharge of Big Springs in response to pumping stresses.

Lastly, we note that the discharge rates reported for Big Springs in the FEIS (including the 400 gpm flow rate recorded in December 2013) are metered above the Cities' surface water diversion at the spring, per an email communication with Mark Dean (2015). If the Cities typically divert their full 449 gpm (1 cfs) surface water right from the natural discharge of the spring (under permit No. 28527) as suggested in the FEIS, and Newmont continues to divert this same amount during the construction of the mine and possibly during mine operations (as described in the FEIS and Surplus Water Service Agreement), it is unclear how much spring flow is currently, or will be, available to the population of relict dace that resides at Big Springs under drought conditions, even in the absence of additional pumping stresses. In other words, we are concerned that the Cities' current surface water diversion (449 gpm) approximates the most recent measurement of spring discharge reported in the FEIS (400 gpm, in December 2013), notwithstanding any additional pumping pressures associated with the point of diversion proposed by the Cities in application No. 84853 (or No. 84852).

The Service believes that approval of the Cities' application No. 84853 to change the point of diversion for 2 cfs from their existing municipal (Shafter) wellfield on the east side of northern Goshute Valley (Section 13, T35N, R67E) to the more northerly of the two well sites recently constructed by Newmont in Section 21, T35N, R66E on the west side of the valley would impair the protection of Big Springs and habitat for the relict dace. We are additionally concerned that

approval of this change may have a negative downstream effect on late brood rearing habitat for sage-grouse in the vicinity of Big Springs. We therefore request that this application be denied.

Thank you for the opportunity to formally express our concerns related to this permit application. If you have any questions, please contact the Reno Fish and Wildlife Office Assistant Field Supervisor, Lee Ann Carranza, at 775-861-6329 or Hydrologist, Sue Braumiller, at 775-861-6332.

Sincerely,

Regional Director

Enclosures (3)

cc:
USFWS, Utah Ecological Services Field Office, Field Supervisor, West Valley City, Utah
Bureau of Land Management, State Director, Nevada State Office, Reno, Nevada
Bureau of Land Management, District Manager, Elko District Office, Elko, Nevada
Goshute Tribe, Chairwoman, Ibapah, Utah
Nevada Department of Wildlife, Director, Reno, Nevada

REFERENCES

Bureau of Land Management (BLM). 2015. Final Environmental Impact Statement for the Long Canyon Mine, DOI-BLM-NV-E030-2013-006-EIS. Elko District Office, Nevada.

Dean, Mark. 2015. Bureau of Land Management. Email addressed to Sue Braumiller, U.S. Fish and Wildlife Service, Reno Fish and Wildlife Office, dated April, 10, 2015.

Golder Associates, Inc. (Golder). 2014. Long Canyon Groundwater Supply Model. Report 133-81702. Revision 3. January 30, 2014.

United States Department of the Interior

Pacific Southwest Region
FISH AND WILDLIFE SERVICE
Reno Fish and Wildlife Office
1340 Financial Blvd., Suite 234
Reno, Nevada 89502
Ph: (775) 861-6300 ~ Fax: (775) 861-6301

February 9, 2015
File No. 2015-CPA-0024

Memorandum

To: District Manager, Elko District Office, Bureau of Land Management, Elko, Nevada

From: Field Supervisor, Reno Fish and Wildlife Office, Reno, Nevada

Subject: Comments on Long Canyon Mine Final Environmental Impact Statement, Elko County, Nevada

The U.S. Fish and Wildlife Service (USFWS) appreciates the opportunity to comment on the Bureau of Land Management's (BLM) Long Canyon Mine Final Environmental Impact Statement (FEIS). The proposed and preferred actions include constructing, operating, closing, and reclaiming an open pit gold mine and associated facilities. Construction would take approximately 18 months with mining to continue an additional 8 to 13 years. Reclamation and reclamation-management would continue for several years after mining is completed. Building and operating a power supply pipeline corridor and alternative water supply and associated facilities for Wendover, Utah and West Wendover, Nevada (Cities) are also part of the proposed action. Prior to construction of the on-site mill, high-grade ore would be hauled to Newmont's Gold Quarry facility near Carlin for processing. The BLM has chosen the North Facilities Alternative as its preferred alternative because it generally reduces impacts to the environment. Environmental impacts are identified for several BLM sensitive species, including the following: relict dace (*Relictus solitarius*), greater sage-grouse (*Centrocercus urophasianus*; sage-grouse), pygmy rabbit (*Brachylagus idahoensis*), and golden eagle (*Aquila chrysaetos*). Duckwater Warm Spring pyrg (*Pyrgulopsis villacampae*) and California floater (*Anodonta californiensis*) were also noted as potentially present in the project area, but no surveys were conducted.

We have reviewed the Long Canyon Mine FEIS and spoken with BLM Elko District staff via conference call on January 14, 2015, and met with staff from the BLM Nevada State Office and Elko District on January 21, 2015, to improve our understanding of the proposed project and impacts. Our resulting comments and recommendations are provided below pursuant to the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531 *et seq*. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act as amended (48

Stat. 401; 16 U.S.C. 661 *et seq.*) and the Fish and Wildlife Act of 1956, as amended (70 Stat. 1119; 16 U.S.C. 742a-742j). Please note our comments do not address Migratory Bird Treaty Act (16 U.S.C. 703) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668) regulations. Please coordinate directly with the Service's Migratory Bird Program for review and/or guidance on these issues.

Relative to the proposed action alternative (Case 2 in the FEIS), the BLM's preferred alternative (Case 6, also referred to as the North Facilities alternative) has been devised to reduce impacts to upland habitats and water quality. However, the USFWS remains concerned with potential impacts, including but not limited to reductions in water availability, likely to occur under the agency-preferred alternative. These impacts appear likely to have appreciable, adverse effects upon relict dace, sage-grouse, and pygmy rabbit in the project area.

We are particularly concerned about the potential effects of your preferred alternative upon relict dace and sage-grouse, two species that our agency is in the midst of evaluating for protection (listing as threatened or endangered) under the ESA. As you are aware, in July 2014, our agency was petitioned to list the population of relict dace at Big Springs; we are currently preparing a 90-day finding in response to that petition to determine if listing may be warranted. In 2010, our agency determined that ESA listing for sage-grouse was warranted but precluded (by higher-priority listing actions); our agency is in the process of making a final decision regarding whether ESA listing remains warranted for that species. Thus, there is a compelling and timely need for BLM and the project applicants to work with the USFWS to conserve these BLM sensitive species.

Our most substantive concern, which applies to each of the action alternatives presented in your FEIS, is the predicted (modeled) reductions in flow within the Johnson Springs system, which supports the Big Springs population of relict dace. All of the action alternatives modeled in your FEIS predict a reduction in the discharge (output) of Big Springs on the order of several-hundred gallons per minute (gpm), due to the combined effects of pumping required in support of the mine and the Cities. This long-term reduction in flow is predicted to occur regardless of the location of the mine water-supply well. Given that the discharge of Big Springs dropped to 400 gpm in December 2013 under drought conditions (the last reported measurement in the FEIS), and that 2014 was another year of drought, a future decrease in the discharge of the spring on the order of several hundred gallons per minute would have a significant effect, possibly up to and including cessation of flow. We are concerned with the implications of such conditions for the spring system as a whole and the species that are dependent upon it, such as the relict dace. We are also concerned with the potential for groundwater pumping activities to reduce surface flows in Hardy Creek, which provides the water necessary to support adjacent late brood-rearing habitat for two sage-grouse leks in the project area. We believe the deterioration or loss of this vital and limited habitat type may affect continued viability of these leks.

The FEIS is unclear and at times seemingly inconsistent with regard to the degree to which these predicted reductions will occur regardless of BLM's action, as illustrated by the statement (on p.4-36) that: "...if the mine were not developed, it would likely affect the projected population growth of the Cities which would reduce water demands and impacts; nevertheless, the same assumptions [as made under the action alternatives] about population growth for the Cities has been incorporated into this [the No Action] scenario." Based on this statement, as well as the way in which the effects of the No Action scenario are described as having been estimated (p. 4-36, in conjunction with Table 8, Appendix 3B), the effects of the No Action alternative presented in the FEIS do not seem to correspond to conditions that can be said to occur regardless of BLM's action. We view these premises to be contradictory and representative of the FEIS's lack of clarity regarding the underlying assumptions and resultant differences in environmental impact associated with the No Action and action alternatives. This lack of clarity hinders our ability to understand the entirety of environmental effects likely to result from mine expansion, current and future water consumption by the Cities, and the proportion of such impacts that is directly or indirectly attributable to BLM's action.

The USFWS is eager to work with BLM and your permit applicant, Newmont Corporation, and Cities to find viable means of assuring adequate flow of water sufficient for relict dace to persist and for sage-grouse late brood rearing habitat to continue to function along with avoidance of power line impacts. Such assurances, along with the minimization measures already proposed, would alleviate a majority of our concerns. I am attaching comments compiled from my staff biologists and groundwater hydrologist; if you have questions regarding these comments please contact me, and I will assist in directing you to the appropriate staff member for additional clarification or information.

Edward D. Koch

Attachment

ATTACHMENT

Comments from Reno FWO staff

I. GENERAL COMMENTS

A. Relict Dace

1. The Service is most concerned about impacts to the Johnson Springs system, where relict dace reside. Relict dace and its habitat are of high value and is unique and irreplaceable. In fact, it may be a genetically distinct population (Houston *et al.* 2014). Thus, the goal for this species should be no loss of existing habitat value. Both the Proposed Action alternative and North Facilities alternative have the potential, as stated in the FEIS, to result in loss of habitat and endemic species, including relict dace.

2. On August 18, 2014, the Nevada Fish and Wildlife Office (now the Reno Fish and Wildlife Office) sent the BLM Nevada State Office a memo stating that we received a petition to list a Distinct Population Segment (DPS) of relict dace at Big Spring, Goshute Valley, Elko, Nevada. In the memo, we noted our decision that emergency listing is not warranted at this time. However, we also noted that if at any time conditions change with regard to the immanency of threats to relict dace, such that we were to determine that emergency listing is warranted, an emergency rule would be developed. Therefore, we encouraged BLM to carefully consider and seek to avoid or minimize potential impacts to this BLM sensitive species, as you proceed with finalizing your EIS for Long Canyon Mine, as well as any other actions that your agency and its permittees may undertake.

   It is important to note that at present, we have merely determined that the DPS of relict dace at Big Spring does not warrant emergency listing. We have not yet completed a petition finding (90-day finding) as to whether the petition presents substantial information that listing may be warranted. If we were to determine that the petition contains substantial information to suggest listing may be warranted, we would then undertake a status review (12-month finding) to determine whether the DPS of relict dace at Big Spring actually warrants listing as a threatened or endangered species. As you may already be aware, the listing process requires that we consider the need for emergency listing upon receipt of any petition, as well as for any other species that our agency suspects may warrant listing, even in the absence of a petition. Therefore, determining whether a species is warranted for emergency listing is only the first step in the process of our response to incoming petitions.

3. The USFWS shares concerns also expressed by the United States Environmental Protection Agency (USEPA) in their May 4, 2014, comment letter on the Draft EIS (comment 24.2), regarding the increased drawdown in the alluvial and carbonate aquifers and reduced flows in the Johnson Springs system and Hardy Creek from the North Facilities alternative. Reduced flow would result in significant impacts to aquatic species, sensitive wildlife species, migratory birds and other taxa that rely on these wetland and riparian areas, particularly in drought years. The groundwater flow model

prepared by Golder 2014 is not intended to predict the absolute value (magnitude) of discharge from Big Springs (groundwater recharge prescribed in the model is constant in time). As a consequence, it does not simulate the effects of wet and dry years, including the drought this portion of Nevada has been experiencing since about 2012 and continuing. However, neither this or the assumed average discharge rate of 990 gpm at Big Springs at the start of the pumping simulations (an initial condition) affect the capacity of the model to estimate changes in the discharge (capture) of Big Springs due to pumping. We do not find the 990 gpm pre-project at Big Springs as 'conservative' as cited on p 4-6 of the FEIS (now $\leq$ 400 gpm) or relevant per our explanation below. Given that the discharge of Big Springs dropped to a total of 400 gpm in December 2013 (FEIS, p 3-17) in response to drought conditions that began in 2012, and that the discharge of the spring is likely lower today (although unreported in the FEIS) due to continuing drought, a decrease in the discharge of the spring on the order of several hundred gallons per minute would have a significant effect, up to and including the possible cessation of flow, if the current drought continues or similar drought conditions prevail in the future under either alternative. As a result, we again reiterate the recommendations of the USEPA that such impacts be adequately mitigated, by BLM and your applicant, Newmont, to include development of a detailed plan that specifies monitoring requirements, action levels, and commitments to specific mitigation measures for impacts to wetland/riparian resources and each potentially affected species. Specific commitments need to be made regarding Newmont's water use at various flow thresholds or resource conditions. In light of uncertainly of groundwater pumping impacts to surface waters and wetlands, an adaptive management plan may provide an appropriate approach to mitigating impacts.

4. The FEIS acknowledges additional loss of water from the spring source could result from the project as stated in Page 2-27:Table 2-2.3 3, Page 4-7, and Page 4-8. For example, Page 4-7 states "... there is no guarantee that Newmont would not use additional Big Springs or additional surface water in connection with mining operations." Given this disclosure, in addition to the relative magnitude of the projected impact of Case 2 and Case 6 on the discharge of Big Springs (currently presumed to be less than or equal to an annual average 400 gpm), the risk to relict dace habitat which is dependent on Big Springs flows is significant. The BLM should be providing assurances that the flow rate will not decrease to the point that relict dace cannot persist throughout the Johnson Spring system. This should entail development of a plan with trigger points and monitoring flow rates bi-weekly to determine when those trigger points for implementing mitigation measures are met. Mitigation could include moving pumping wells outside of aquifers that feed the Johnson Springs system.

5. The FEIS is unclear and seemingly inconsistent in its assumptions regarding water use within the No Project alternative, as illustrated by the statement (on p.4-36) that "... if the mine were not developed, it would likely affect the projected population growth of the Cities which would reduce water demands and impacts; nevertheless, the same assumptions [as made under the action alternatives] about population growth for the Cities has been incorporated into this [the No Action] scenario." Based on this statement, as well as the way in which the effects of the No Action scenario are described as having

been estimated (p. 4-36, in conjunction with Table 8, Appendix 3B), the effects of the No Action alternative presented in the FEIS do not seem to correspond to conditions that can be said to occur regardless of BLM's action.

6. As a consequence, the FEIS is also unclear with respect to the proportion of the reduction in flow (at Big Springs) that is directly attributable to the mine expansion as opposed to ongoing and future water withdrawals by the Cities, and the extent to which BLM's authorization of any of the action alternatives would increase water consumption (and associated impacts to surface and groundwater resources) over baseline conditions. This makes is difficult/impossible to determine the net effect of the BLM's discretionary action, particularly the degree to which BLMs authorizing of mine expansion will contribute to short and long-term reductions in flow at Big Springs. Additional comments regarding the lack of model simulation for the No Action Alternative are provided under our specific comments below. We recommend the No Project alternative assume current water use levels by the Cities. The action alternatives should be compared to this No Project alternative to provide a clearer picture of net change in water use and possible reductions in flow at Big Springs.

7. There were no minimization or mitigation measures for relict dace in the FEIS. We recommend such measures be developed. One such minimization measure could be to monitor the Johnson Springs system and ensure non-native fish do not get established. We would be happy to work with the BLM to develop these measures in greater detail.

B. Greater Sage-grouse

1. In 2010, the USFWS determined that listing sage-grouse under the ESA was warranted, but precluded by other priorities. USFWS is currently reviewing the status of sage-grouse to determine if requiring protection of the species under the ESA is still warranted. The sage grouse is impacted by loss of occupied habitat which is of high quality and becoming scarce on a national basis. Due to the difficulty and uncertainty of creating functional sagebrush habitat, avoiding and minimizing degradation of habitat occupied by sage-grouse should be the primary focus of any mitigation process. Consistent with the USFWS Greater Sage-Grouse Range-Wide Mitigation Framework (USFWS 2014), compensation for unavoidable impacts should have the goal of delivering net gain in functional habitat available to sage-grouse in order to account for the inherent risk and uncertainty involved in compensatory mitigation.

2. The two leks that are located close to the proposed Long Canyon mine development (Big Springs and Little Lake Pass) are part of the sparsely populated sage-grouse East Valley Population Management Unit (PMU), and are isolated from other leks by more than 23 kilometers. These leks may be especially reliant on late brood rearing habitat here. Impacts to these leks could impact a disproportionately large area of sage-grouse range.

3. The Service is concerned that the Long Canyon Mine Project could cause significant impacts to sage-grouse due to predation and loss of brood rearing habitat, and that those

impacts would exacerbate the stressors associated with isolation and lack of available habitat faced by local sage-grouse subpopulations. Ensuring brood rearing habitat continues to function in Hardy Creek and avoiding impacts from power lines would address a majority of our concerns identified within the Specific Comments below.

C. Pygmy rabbit

1. Although the preferred North Facilities alternative reduces some impacts to sage-grouse by relocating facilities farther from nesting habitat, this alternative would impact a greater number of pygmy rabbit complexes and individual burrow sites than under the Proposed Action alternative based on information provided on pages 4-90; 4-98; and 4-108. This greater impact is primarily due to the relocation of the heap leach facility and the waste rock storage facility under the North Facilities Alternative. As a result, we recommend that additional planning and conservation efforts be implemented for pygmy rabbits.

2. On September 30, 2010, we published a 12-month finding for the pygmy rabbit in the Federal Register (USFWS 2010) announcing that the species did not warrant protection under the ESA. However, we continue to request that new information concerning survey data or threats to the species or its habitat be submitted to the Reno Fish and Wildlife Office. This information will help us monitor the species and encourage its conservation. We would appreciate being provided the pygmy rabbit survey results mentioned on pages 3-124–3-125 of the FEIS.

3. Because there is a lack of information related to mining impacts to pygmy rabbits, consideration should be made regarding development of a research project to document impacts to pygmy rabbit individuals or populations as a result of this project. This could include whether pygmy rabbits colonize or re-colonize disturbed areas after restoration efforts have reached appropriate success levels.

D. Other Sensitive Aquatic Species

1. Page 3-143. Table 3.8-2 indicates that there may be additional spring-dependent species such as the Duckwater Warm Spring pyrg and the California floater that have not been surveyed for but which potentially may have suitable habitat within the Johnson Spring system. We recommend BLM or the project proponent conduct surveys for these species prior to any work on the project to determine if they are present and allow evaluation of potential project impacts.

2. The Duckwater Warm Spring pyrg was included in a February 17, 2009 petition to list 42 Great Basin springsnails under the ESA. On September 13, 2011, we published a 90-day finding (76 FR 5608-56630) for this petition, noting that there was not substantial information presented in the petition to indicate listing may be warranted for the Duckwater Warm Spring pyrg. However, not all occupied habitat was known at the time

of the 90-day finding. We recommend that you survey for all spring-dependent BLM sensitive species that have potential habitat within the project area.

3. Although the water right holders within the Johnson Springs system were identified in the FEIS, it is unclear the extent of each party's water right. This makes it difficult to identify potential opportunities for water conservation to ensure adequate flow to Big Springs to support BLM sensitive aquatic species and flows to Hardy Creek for sage-grouse.

II. SPECIFIC COMMENTS

A. Relict Dace

1. Page 3-17. We recognize that the groundwater flow model prepared by Golder 2014 is not intended to predict the absolute value (magnitude) of discharge from Big Springs (groundwater recharge prescribed in the model is constant in time). As a consequence, it does not simulate the effects of wet and dry years, including the drought this portion of Nevada has been experiencing since about 2012 and continuing. However, neither this or the assumed average discharge rate of 990 gpm at Big Springs at the start of the pumping simulations (page 3-17), an initial condition, affect the capacity of the model to estimate changes in the discharge (capture) of Big Springs due to pumping. Rather, the capacity of the model to predict changes in the discharge of Big Springs is limited by other factors related to the structure and calibration of the model (based on our review of Golder 2014). Nonetheless, the model simulations presented for Case 2 (the proposed action) and Case 6 (preferred North Facilities alternative), which include pumping for the Cities at projected increasing rates as well as pumping for the mine, suggest that the reduction in the discharge of Big Springs would be on the order of several hundred gallons per minute under either scenario during all phases of the mine project beyond the mine startup (Table 4.2.1, page 4-6), irrespective of the location of the mine water supply well. Given that the discharge of Big Springs dropped to a total of 400 gpm in December 2013 (FEIS, p 3-17) in response to drought conditions that began in 2012, and that the discharge of the spring is likely lower today (although unreported in the FEIS) due to continuing drought, a decrease in the discharge of the spring on the order of several hundred gallons per minute would have a significant effect, up to and including the possible cessation of flow. The effects of flow rates during drought conditions need to be analyzed in respect to sensitive aquatic species, including relict dace. This includes analyzing the downstream effects to Hardy Creek and associated impacts to sage-grouse.

2. Page 3-57: As recognized in the FEIS, the Johnson Spring System falls under the category of a special aquatic site defined by the Army Corps of Engineers and EPA in 40 CFR 230.3 as geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. Subpart E—Potential Impacts on Special

Aquatic Sites includes disruptions in flow and circulation patterns where apparently minor loss of wetland acreage may result in major losses through secondary impacts. The FEIS recognizes that any reduction in flow could adversely affect relict dace in the spring (Page 4-93). The FEIS further states (Page 4-101) "The potential decline of wetlands could lead to the loss of endemic species including relict dace, potential springsnail habitat, or other aquatic species residing in the spring systems." However, no measures are identified in the FEIS to assure adequate flow for persistence of relict dace (and late brood rearing sage-grouse habitat). We recommend BLM include such measures.

3. Page 3-57: As stated in the FEIS, the land management plans of federal agencies provide protection for riparian areas including the BLM's no net loss of wetland/riparian habitat policy. Federal agency management goals are to maintain, restore, and improve riparian areas to protect water quality, improve water retention and groundwater recharge, provide wildlife habitat, support biodiversity, and other goals. In addition, Page 3-58: The FEIS identifies the following three policies within the Elko County Public Lands Policy Plan (Elko County, 2008) to protect wetlands, riparian habitat, and waters of the US (WOUS), which are stated as follows: 1) Policy 13-1: Wetlands, riparian habitat, and WOUS should be protected from undue degradation. Undue degradation may result from over pumping of groundwater, destruction of vegetation for over-development or misplacement of recreational facilities, poorly planned land dispositions, unintentional misuse of riparian resources by public and private users, and other actions; 2) Policy 13-2: Wetlands, riparian habitat, and waters should be managed in a responsible and balanced manner with other resources and uses; and 3) Policy 13-3: Support a coordinated effort to protect wellhead protection areas and municipal watersheds from undue degradation through proactive zoning and development controls, pursuant to the County's Wellhead Protection ordinance. This project may result in undue degradation of wetlands (Johnson Spring system) if drought conditions continue and the water use for the project occurs as described in the FEIS. The reduction in water flow through the Johnson Springs System, and ultimately Hardy Creek, is likely to degrade riparian areas, and we recommend BLM include mitigation for riparian losses such that there is no net loss of riparian acreage, function, and value.

4. Page 3-152. The FEIS states that Johnson Spring system provides the most secure, abundant and diverse habitat of any relict dace population, and that recent genetic testing of this population suggests that the relict dace are genetically distinct and diverse from other rangewide populations. As stated in the FEIS, according to the Nevada Natural Heritage Program (NNHP) data and Nevada Department of Wildlife 2006 report, the Johnson Spring System represents the most secure, abundant and diverse habitat of any population within the relict dace's range at the time of the survey. They recorded the highest numbers of dace of any locale sampled (NNHP, 2012; NDOW, 2006). According to the FEIS, they further describe the Johnson Springs system as the most complex system of springs, potholes, ponds, and outflows encountered within the relict dace's known distribution (NNHP, 2012) (Figure 3.8-5). The habitat associated with the project area is described as having 11 populations of relict dace with each population having limited connectivity because of the morphology of the spring systems (NDOW, 2006).

Habitat is associated with the springs of the Johnson Springs system including ponded areas along Hardy Creek and at Big Springs. This dace has survived in these waters following the drying of Pleistocene Lakes (Sigler and Sigler, 1987). The Nevada Department of Conservation and Natural Resources attributes the historic decline of this fish to agricultural or other water diversions altering suitable aquatic habitat (NDCNR, 2013). Relict dace are generally considered stable in a spring setting without non-native fish. The FEIS goes on to say, on page 4-93, that impacts to relict dace and other aquatic species from flow reductions in the Johnson Spring system could be minor to moderate. Based on the definitions of minor and moderate presented in the FEIS (page 4-2), the flow reductions may affect up to 15 to 75 percent of individuals of a population which leads to significant modification in the overall population. No minimization or mitigation measures are identified in the FEIS to eliminate this threat to BLM sensitive aquatic resources, including relict dace. We recommend that you fully analyze the potential impacts of the North Facilities alternative on BLM sensitive aquatic resources, including under drought conditions (as identified above), and provide minimization and mitigation measures to eliminate threats to these species.

5. Page 4-6, Table 4.2.1: The FEIS only presents a tabular, quantitative summary of flow rates under various action alternatives; no analogous tabular, quantitative summary of flow rates under the No Action alternative are provided in the table for ease of comparison. According to the FEIS (p 4-36), a No Action Alternative was not simulated with the model. Rather, it was defined only in terms of the results of the Case 2 model simulation, less the Case 0 simulation. The No Action alternative was not clearly defined in text within the FEIS. Moreover, Case 2 and Case 6 include the effects of existing, as well as projected increases in, pumping by the City of Wendover in the Shafter wellfield . Therefore, they do not represent the effects of only the Proposed Action, or only the Preferred North Facilities alternative, but rather some combination of those things and the effects of existing City pumping. This makes it difficult to evaluate the extent to which BLM's decision to authorize of any one of the action alternatives examined is likely to produce environmental effects appreciably different than baseline (No Action alternative) conditions. Please provide an analogous tabular, quantitative summary of flow rates under the No Action alternative with the assumptions provided.

6. Page 4-34: Mitigation: The FEIS states there are no specific mitigation measures for water resources. BLM suggested a riparian conservation plan to mitigate for the expected flow reductions from Big Springs, but Newmont did not agree to this measure and therefore potential impacts to water resources remain. This is disappointing and seemingly inconsistent with BLM policy which states "In the absence of conservation strategies, incorporate best management practices, standard operating procedures, conservation measures, and design criteria to mitigate specific threats to Bureau sensitive species during the planning of activities and projects. Off-site mitigation may be used to reduce potential effects on Bureau sensitive species." The Service recommends the following conservation measures (Page 4-31) proposed by BLM be incorporated as part of this project: "To mitigate for the expected flow reductions from Big Springs the BLM suggested that Newmont commit to a riparian conservation plan in the areas adjacent to

Big Springs and Hardy Creek. This plan would have included a conservation easement with detailed measures and commitments, such as limiting livestock use in riparian areas and changes in manner of use of some water rights. A quitclaim of a portion of Newmont's irrigation water rights would be used for maintenance of instream flow in the Big Springs waterway and Hardy Creek. A commitment to instream flow would have reduced the probability that future combined reductions in flow from surface and groundwater diversions would dry up waterways supported by Big Springs. Limitations on livestock use would also have beneficial impacts to riparian areas."

7. Page 4-99: Aquatic species mitigation. The FEIS states that Newmont would monitor water resources in accordance with the monitoring program developed for the state permits and would consult BLM only if significant change in conditions were observed. The FEIS goes on to say that if significant changes are observed, BLM would then determine if a working group is necessary to develop a management strategy for sensitive species within the wetland and riparian areas. We believe it is very important that Newmont have an appropriate plan in place prior to any potential drawdowns occurring and a specific water drawdown level that would trigger implementation of the plan, rather than simply stating a significant change. As stated above, this plan should specify monitoring requirements, action levels, and commitments to specific mitigation measures for impacts to wetland/riparian resources and each potentially affected species. Specific limitations should be placed on Newmont's water use at various flow thresholds or resource conditions. In light of uncertainly of groundwater pumping impacts to surface waters and wetlands, an adaptive management, developed in coordination with the Service, plan may provide an appropriate approach to mitigating impacts.

B. Greater Sage-grouse

1. Sage-grouse rely on mesic areas that support diverse forb and insect communities for chicks to grow and gain weight. In late summer hens walk with their chicks from nesting habitat near leks to late brood-rearing habitat, which is typically the limiting habitat for sage-grouse populations in Nevada. Since the habitat associated with Hardy Creek and the Johnson Springs complex is the only brood-rearing habitat available to the isolated leks near the mine development, the Big Springs and Little Lake Pass leks are dependent upon the habitat quantity and quality provided by the springs that will be surrounded by development associated with the proposed mine. As stated in the FEIS (Page 4-8), "Should flow from Big Springs and the Johnson Springs System be substantially reduced over an extended period, the extent, health, and function of the wetland complex and Hardy Creek would likely be reduced"; such an impact could result in loss of the forb and insect communities that define late brood-rearing habitat. If the late brood-rearing habitat is degraded or lost, the Big Springs and Little Lake Pass leks could lose (potentially all) productivity, effectively narrowing the range of sage-grouse. Since the Big Springs and Little Lake Pass leks are isolated and within a sparsely-populated PMU, loss of productivity from the Big Springs and Little Lake Pass leks could have a large impact on the whole East Valley PMU and could effectively decrease the range of sage-grouse in Nevada. Throughout the life of the project appropriate monitoring needs to be

implemented to identify detrimental habitat changes due to water withdrawals, followed by remedial measures.

2. While the North Facilities Alternative poses less of a threat to local sage-grouse than the original proposed action, there remain features that could significantly impact sage-grouse. Hens and chicks are vulnerable to predation as they travel from nesting habitat to late brood-rearing habitat, and proposed mine structures could intensify that predation. Ravens are the predominant predator of sage-grouse chicks, and human activity can subsidize raven populations. An active raven nest was identified in 2013 within the Project boundary (Page 16, Appendix 2c). Opportunistic ravens forage on garbage and food left by people and take advantage of tall structures for nesting and perching. The infrastructure, buildings, and people associated with construction and operation of the Long Canyon mine project will attract ravens, thereby increasing predation pressure on sage-grouse. The proposed power line between the mine complex and the municipal wells could serve to particularly subsidize predation. Like other tall structures, power lines create nesting and perching opportunities for ravens. The municipal wells and the associated power line are located between the nearby leks and the only late brood-rearing habitat available to local sage-grouse meaning that hens and chicks will be especially exposed to increased predation from ravens on the power line. As stated previously, impacts to the productivity of the leks near the project, here in terms of juvenile recruitment, could have a disproportionately large impact on the East Valley PMU. Further mitigation of impacts to the local population is warranted to maintain the viability of broader sage-grouse population. To minimize predation subsidies, any tall structure that can be buried should be (i.e. power lines), perch deterrents should be installed on buildings and other structures that cannot be buried, and there should be a plan to control garbage and food waste.

3. Page 2-35: Reclamation success: The Newmont Weed Management Plan could not be found on the CD with appendices of the FEIS nor the electronic version from the internet. This should be made publicly available. Weeds are detrimental to sage grouse because they reduce the native plants that sage-grouse rely on for food and cover. Please recognize that restoration of native plant species may be increasingly difficult and/or take longer time to become established under drought conditions.

4. Mitigation Plan: Pages 16-17:
   a. Mitigation Measures W-3 and W-4: The sensitive nature of the leks near the project warrants further protection from disturbance during the lekking season. BLM should consider expanding the seasonal restrictions of activity that could interfere with lekking behavior. Restricting activity near the leks to daylight hours after 10 AM from March 1 to May 15 would help reduce impacts from sound on the Big Springs and Little Lake Pass leks.

   b. Mitigation Measure W-5: There are methodologies available to determine the correct amount and type of compensatory mitigation that are more accurate and rigorous than the 3:1 and 2:1 ratios suggested. BLM should consider applying the Habitat

Quantification Tool developed by the state of Nevada or the Sage-grouse Conservation Forecasting Methodology developed by The Nature Conservancy to help ensure that compensatory mitigation considers the habitat functionality important to sage-grouse. Any mitigation strategy implemented for this project must strive to achieve a net conservation gain for the species.

5. Bird and Bat Conservation Strategy: Page 24: As recognized by the following statement in the FEIS: "common ravens may benefit from the presence of transmission lines because they may provide more roosting or nesting opportunities (Steenhof et al., 1993)." The BLM should consider burying the transmission line while avoiding active pygmy rabbit burrows.

C. Pygmy rabbit

1. Pygmy rabbits may be seasonal migrants (Larrucea 2007). It can be difficult to accurately determine burrow activity (active or inactive). It is possible surveyors interpret possibly seasonally inactive burrows as population declines. Unless multiple years of survey data collected at appropriate times can be provided, one cannot assume areas classified as inactive no longer support pygmy rabbits or are used infrequently. It should be kept in mind that individual pygmy rabbits may use more than one burrow or burrow system (Purcell 2006). Inactive burrows may play an important role in providing escape cover; cameras placed on burrows classified as inactive have documented use by pygmy rabbits (Larrucea 2007). As a result, we encourage avoidance and minimizing impacts to those areas containing pygmy rabbit sign whether appearing current or not.

2. Timing of construction-related activities can be a useful mitigation measure. Where pygmy rabbits are present, we encourage scheduling construction outside of the pygmy rabbit's reproductive period (February to June) (Wilde 1978). However, timing restrictions are not sufficient to reduce impacts to all pygmy rabbits because burrows can be used year-round. As a result, construction activities that impact burrows may impact individual adults year-round not only the young during spring and summer. Although we agree that prior mowing of pygmy rabbit areas may encourage dispersal from project impact areas to reduce injury and death, we further recommend additional facility location planning to avoid active pygmy rabbit burrows.

3. We recommend that pygmy rabbit burrow locations found along the power pipeline proposed route be taken into further consideration. We recommend that placement of the route avoids going through a pygmy rabbit complex and occurs along its edge with a buffer zone (100 feet), where possible. Adjusting the power pipeline route could assist in reducing habitat fragmentation for this species.

4. Additionally, a conservation measure could include the placement of escape ramps at periodic intervals along the pipeline trenches during construction to provide an escape for small animals, including pygmy rabbits, which fall into the trench and become trapped. Monitoring of the trenches could occur at various times throughout the day to remove

animals that have not escaped on their own. These incidences should be reported to a biological monitor, and the outcomes (*i.e.*, released unharmed, injury, death) should be documented to determine project impacts.

5. Where avoidance is not possible, we recommend that potential pygmy rabbit habitat near areas of direct impacts be identified and considered for improvement for pygmy rabbits. This would be similar to Mitigation Measure W-5 for sage-grouse as discussed on pages 4-99–4-100; and 4-109. If this is not possible, then we recommend that pygmy rabbit life history requirements also be considered where sage-grouse habitat improvement projects are conducted under this mitigation measure.

D. Hydrology

1. The capacity of the model to estimate changes in the discharge of the spring due to pumping is determined by the values and spatial variations in aquifer properties (aquifer parameters) reflected in the calibrated model and parameters/structure utilized to simulate discharge from the spring. That is, their reasonableness as judged by the capacity of the model to reproduce observed changes in the discharge of Big Springs in response to pumping. Here the only information provided (Golder 2014) is the predicted versus observed response of Big Springs to the LCPW-1 pumping test, conducted in carbonate rocks which are the primary source of the spring. Whereas the simulated discharge of the spring (and simulated changes in the spring's discharge) over a 6-day period during and following this pumping test is quite good, simulated drawdown in the source carbonate rocks is poor (Golder 2014, Figure 36), suggesting that compensating errors in the parameters/structure used to simulate the spring account for the good fit to recorded discharges, calling into question the general capacity of the model to predict changes in the discharge of the spring due to pumping (simulated Cases 0 - 6).

   In view of the above, our evaluation of the potential significance of the model-projected impacts on the discharge of Big Springs is as follows: Given the uncertainties associated with the model predictions (some enumerated above), the model simulations provided (Golder 2014 and FEIS) suggest that moving the mine water supply well from the location of irrigation well BSR-1 south and east of Big Springs under the proposed action (included in Case 2) to the location north and east of Big Springs under the preferred alternative (included in Case 6) could reduce the effects of mine water supply pumping somewhat during mine startup, the time when water supply pumping for the mine is greatest and would have the greatest impact on Big Springs. However, during all other phases of the mine project (roughly 8 years of operations and 3 years of reclamation), as well as at 25-years beyond mine reclamation, the model simulations suggest that the reduction in the discharge of Big Springs would be on the order of several hundred gallons per minute under either scenario (Case 2 or Case 6) due to the combined effects of pumping for the mine and pumping for the Cities of Wendover at the rates assumed in those cases on both the west and east sides of the valley, i.e., regardless of the location of the mine water supply well.

2. According to the FEIS (p 4-36), a No Action Alternative was not simulated with the model. Rather, it was defined only in terms of the results of the Case 2 model simulation, less the Case 0 simulation. Upon careful inspection then (Case 2 minus Case 0), the No Action alternative appears to be defined as the effects of: (i) future City pumping at the new well(s) installed by Newmont south of the mine site; and (ii) the difference between the gradually increasing City pumping schedule projected to occur in the Shafter wellfield under Case 2 and the current rate of pumping by the City in the Shafter wellfield (simulated in the Case 0 scenario), i.e., just the difference between the two Shafter wellfield schedules, projected versus current – not all of the City pumping, current or future. By extension, it follows that the effects simulated in Case 2 and Case 6 that are not attributable to the No Action scenario are: (a) the effects of pumping for the mine from the mine water supply well located south or north of the pit area, respectively (properly included); plus (b) the effects of City pumping on the west side of the valley in the Shafter wellfield at the current annual average rate of 1,354 gpm, which is not properly included. If so, the effects of the No Action alternative presented in the FEIS do not seem to correspond to conditions that can be said to occur regardless of BLM's action, and the effects simulated in Case 2 and Case 6 which are not attributable to No Action effects do not appear to be limited to project-related effects.

3. It is our understanding that the simulated future City pumping at the well(s) installed by Newmont south of the mine site can only occur but for Newmont's mining project (i.e., depends on the installation of a transmission line by Newmont to carry water from the new wells to the City). Thus, this pumping would be related/dependent on the project, as opposed to being part of a No Action condition. In addition, we could not find any rationale for including only the difference between the City's projected and current Shafter wellfield pumping in the definition/analysis of the effects of the No Action alternative.

4. There is no rationale for including the effects of existing City pumping on the west side of the valley in the Shafter wellfield at the current rate of 1,354 gpm in an assessment of the effects of the project.

5. Table 4.2.1 of the FEIS (p 4-6 & 4-7), Case 2 and Case 6, present the combined effects of the mine pumping (at the south and north sites, respectively), plus gradually increasing City pumping in the existing Shafter wellfield and future City pumping in the two new wells installed by Newmont south of the mine site. Immediately following Table 4.2.1 (p 4-7 of the FEIS) is an explanation (example) of the breakdown of the portion of the projected decrease in the discharge of Big Springs due to the 'Proposed Action' versus what were occur in any case under the No Action Alternative: "Of the predicted 280 gpm of predicted long term flow reduction from Big Springs, approximately 110 gpm would be the result of the Proposed Action and the rest [170 gpm] would occur under the No Action Alternative, assuming the Cities pumping would increase." This suggests that the bulk of the impacts to the discharge of Big Springs simulated in Case 2 is attributable to conditions that would exist without the project.

Rather, the estimated reduction in the discharge of Big Springs at the end of mine operations under the No Action scenario is 95 gpm per page 4-36 of the FEIS, which is consistent with Case 2 minus Case 0 results presented on Figure 4.2-6 of the FEIS and Figure 44 of Golder 2014. It follows, that the reduction in Big Springs flow due to pumping at the mine water supply well (the more southerly location), in combination with City pumping in the existing wellfield at the current rate (see comment 3 above) would be roughly 175 gpm. That is, the effects of the No Action scenario as presented on page 4-36 have been transposed in the description provided on page 4-7.

6. Table 4.2.1 of the FEIS (p 4-6 & 4-7), Case 2 and Case 6, present the combined effects of the mine pumping (at the south and north sites, respectively), plus gradually increasing City pumping in the existing Shafter wellfield and future City pumping in the two new wells installed by Newmont south of the mine site. Consequently, the results presented in Table 4.2.1 of the FEIS (p 4-6 & 4-7) are not directly useful in evaluating the effects of the project – whether the effects of the project are properly considered to be limited to the mine pumping, or the mine pumping plus the effects of future City at the two new wells south of the mine site.

7. The Case 0 scenario simulates the effects of continued City pumping in the existing Shafter wellfield at a current average annual rate of 1,354 gpm, plus the effects of pumping for the mine (according to Table 8 in Appendix 3A of the FEIS and Golder 2014 (Table 8, and pages ES-2 & 23). Please clarify whether mine pumping is simulated in Case 0 at the southerly or northerly location (which would make a difference in the simulated impacts on Big Springs since the spring is much closer to the south well site than the north well site).

8. If the No Action alternative is more clearly defined or its definition is revised, a scenario for No Action alternative pumping should be run to estimate its effects on groundwater levels and the discharge of Big Springs (and the Central and Northern springs) directly, in order to confirm the result obtained 'by difference'.

9. The potential effects of increased evaporation from the area of the pit on drawdown of the water table in carbonate rocks underlying the pit, carbonate rocks that are the primary source of Big Springs (and the Central and Northern springs), has not been evaluated in the FEIS or Golder 2014 (Model Report). The impact of this potential groundwater sink on the discharge of Big Springs should be evaluated using the model, in analogy to other sinks (pumping from wells).

10. If the water table is inadvertently exposed during excavation of the pit (planned excavation of 100's of feet of material to within ~14 ft of the water table), evaporation from the area of the pit is likely to increase substantially. Hydrographs provided by Golder 2014 (Model Report, Figure 18) indicate that groundwater levels in the carbonate monitoring well located in the northern (deepest) part of the proposed pit area, LCMW-03, dropped ~2 ft from the summer of 2011 to early 2013 over ~18 months; water levels in the carbonate monitoring well located in the southern (less deep) portion of the

proposed pit area, LCMW-4, dropped ~2.5 ft in the same 18 months. Given that the rate of decline of the water table in the vicinity of the pit may accelerate given both drought and the possibility of increased evaporation due to the excavation of the pit, groundwater levels should be monitored more frequently than quarterly in carbonate rocks in the pit area (e.g., continuously).

11. Model-simulated drawdown of groundwater levels should be depicted to less than the predicted 4 ft since a major purpose of the modeling is to evaluate the potential effects of pumping on springs. The rationale provided for making the 4 ft drawdown contour the 'outmost' drawdown contour shown (observed natural variations in groundwater levels of 3 to 5 ft) is not valid. Drawdown due to pumping is superimposed on natural increases and decreases in the elevation of the water table.

12. Assertions in the FEIS that predicted drawdown of groundwater levels (and impacts to springs) is limited at locations outside interpreted 4 ft groundwater level drawdown contours may be incorrect. Drawdown of less than 4 ft could have a very significant impact on the discharge of Big Springs, more so on the smaller Central and Northern springs.

13. The FEIS (p 4-7) states "The model's predicted reduction in flow for the Proposed Action expected case is within the range of observed natural variation in Big Springs flow, consequently, any reduction due to pumping may be difficult to distinguish from natural variability in flow rates." Whereas true in any given year, pumping-induced reductions in flow are superimposed on 'natural' decreases (and increases) in the discharge of the spring. As such, this observation, while true, does not diminish the predicted (order of magnitude) effects of the Proposed Action on the discharge of Big Springs. Any analogous comment can be made with respect to the predicted effects of the Preferred North Facilities Alternative.

14. Assertions in the FEIS that some pumping effects may be overestimated by the model because a pumping test of limited duration did not result in an observed impact to the resource in question is not valid. The model evaluates the potential for impacts due to pumping at those locations over much longer periods of time than a few days (e.g., 1 year of mine start-up, another 8 years of mine operations, etc.). The absence of documented effects at, for example, Big Springs, during the period of a pumping test which is just a few days in duration just means that impacts did not occur as a result of pumping for just those few days, or that any impacts that did propagate to Big Springs as a result of pumping during the tests didn't manifested at Big Springs until after they terminated data collection for the tests. USFWS would like to work with BLM to provide suggestions concerning the adequacy of the proposed groundwater level monitoring network under both the Preferred North Facilities Alternative and Proposed Action.

15. Some of the steady model calibration targets were not steady; the model is additionally over-parameterized (heterogeneous Kx, Ky, Kz, and storage coefficients estimated). These are additional reasons to interpret the model predictions regarding reductions in the

discharge of Big Springs as 'order of magnitude' (e.g., on the order of several hundred gallons per minute).

16. The FEIS (p 4-14) states that the schedule of City pumping outlined in Table 8 (of the FEIS and Golder 2014) for Cases 2 and 6 were not simulated as such. Rather for the 25-year period following the completion of reclamation, City pumping was simulated as a total 6.3 cfs, rather than the 7.5 cfs (3,211 gpm) projected and shown in Table 8. The FEIS acknowledges that "this would have the effect of dampening the impacts of the maximum pumping periods... In other words, in Figure 4.2-6, for the period 2029 to 2054 (after the mine is no longer pumping water), the expected flow rate from Big Springs would be expected to start higher and end lower than what is shown...". Given that impacts to Big Springs are of significant interest, these key model simulations (Cases 2 and 6) should be rerun using the total City pumping projected and shown in Table 8 (3,211 gpm or 7.5 cfs).

17. There appear to be numerous inconsistencies in the figures depicting predicted drawdown at the end of mine startup, mining operations, mine reclamation, and 25 years after the completion of mine reclamation (Golder 2014, Figures 39 – 42).

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