Appendix A

Detailed Conceptual Schedule for Reclamation, Closure, and Post-closure

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Appendix A1

Proposed Action - Conceptual Reclamation Schedule for the North Operations Area Project

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Appendix A1 Proposed Action - Conceptual Reclamation Schedule for the North Operations Area Project[1,2]

Component	Year																																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50 to 80
Open Pit Closure																																																		
Poker Flats Pit																																																		
Duke Pit																																																		
Redbird Pit																																																		
Casino Pit																																																		
Royale Pit																																																		
Bida Pit																																																		
Winrock Main, North, and South Pits																																																		
Top Pit Complex																																																		
South Duke Pit																																																		
Pit Safety Berm Reclamation																																																		
Earthworks																																																		
Seed																																																		
Rock Disposal Area Reclamation																																																		
LBM RDA #1 and #2																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
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Contour/Regrade																																																		
Growth Media Application																																																		
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Appendix A1 Proposed Action - Conceptual Reclamation Schedule for the North Operations Area Project[1,2]

Component	Year																																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50 to 80
Horseshoe RDA																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Duke RDA																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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South Duke RDA 1																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Redbird RDA																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Rat West RDA																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Casino North and South RDAs																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Royale North and South RDAs																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Belmont and Belmont South RDAs																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Winrock North, West, East RDAs																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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South Water Canyon RDA																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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East Sage RDA																																																		
Contour/Regrade																																																		
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Sage Flat RDA																																																		
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South Duke RDA 2																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		

Appendix A1 Proposed Action - Conceptual Reclamation Schedule for the North Operations Area Project[1,2]

Component	Year
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 to 80
Heap Leach Facility Earthwork	
Mooney North HLF	
Contour/Regrade	
Growth Media Application	
Seed	
Mooney South HLF	
Contour/Regrade	
Growth Media Application	
Seed	
Mooney Deep South HLF	
Contour/Regrade	
Growth Media Application	
Seed	
BMM 2/3 Expansion HLF	
Contour/Regrade	
Growth Media Application	
Seed	
North Poker Flats HLF	
Contour/Regrade	
Growth Media Application	
Seed	
LBM HLF	
Contour/Regrade	
Growth Media Application	
Seed	
Winrock HLF	
Contour/Regrade	
Growth Media Application	
Seed	
South Poker Flats HLF	
Contour/Regrade	
Growth Media Application	
Seed	
Process Ponds Reclamation	
Backfill/Regrade	
Cover/Growth Media Application	
Seed	
Haul Roads, Access Roads, Ancillary Facilities (Non-structure related) Reclamation	
Contour/Regrade	
Growth Media Application	
Seed	
Structure Demolition and Reclamation	
Structure Removal	
Concrete Rubblizing	
Cover/Growth Media Application	
Seed	
Processing Facility Site Reclamation	
Contour/Regrade	
Growth Media Application	
Seed	
Well Abandonment	
Well Abandonment	

Appendix A1 Proposed Action - Conceptual Reclamation Schedule for the North Operations Area Project[1,2]

Component	Year																																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50 to 80
Exploration																																																		
Exploration																																																		
Closure																																																		
Interim Fluid Management																																																		
Mooney North HLF																																																		
Mooney South HLF																																																		
Mooney Deep South HLF																																																		
BMM 2/3 Expansion HLF																																																		
North Poker Flats HLF																																																		
LBM HLF																																																		
Winrock HLF																																																		
South Poker Flats HLF																																																		
Fluid Intenvory Reduction																																																		
Mooney North HLF																																																		
Recirculation and Active Evaporation																																																		
ET Cells																																																		
Mooney South HLF																																																		
Recirculation and Active Evaporation																																																		
ET Cells																																																		
Mooney Deep South HLF																																																		
Recirculation and Active Evaporation																																																		
ET Cells																																																		
BMM 2/3 Expansion HLF																																																		
Recirculation and Active Evaporation																																																		
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Recirculation and Active Evaporation																																																		
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North Poker Flats HLF																																																		
Recirculation and Active Evaporation																																																		
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South Poker Flats HLF																																																		
Recirculation and Active Evaporation																																																		
ET Cells																																																		
Winrock HLF																																																		
Recirculation and Active Evaporation																																																		
ET Cells																																																		
Monitoring																																																		
Reclamation Monitoring																																																		
Post-closure Monitoring																																																		

[1]This schedule is conceptual and subject to changes due to mining sequences that may affect the overall plan.

[2]The shaded areas indicate the potential timeframe when certain activities could occur, but do not imply an actual duration for this conceptual reclamation schedule.

Source: Barrick 2012a.

Appendix A2

Proposed Action - Conceptual Reclamation Schedule for the South Operations Area Project

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Appendix A2 Proposed Action - Conceptual Reclamation Schedule for the South Operations Area Project[1,2]

Component	Year																																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50 to 80
Open Pit Closure																																																		
Gator Pit																																																		
Yankee Pit																																																		
Vantage Pit																																																		
Pit Safety Berm Reclamation																																																		
Earthworks																																																		
Seed																																																		
Rock Disposal Area Reclamation																																																		
Gator North and South RDAs																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Luxe RDA																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Yankee North, West, South RDAs																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Vantage RDA																																																		
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Growth Media Application																																																		
Seed																																																		
Heap Leach Facility Earthwork																																																		
Yankee HLF																																																		
Contour/Regrade																																																		
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Gator HLF																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Process Ponds Reclamation																																																		
Backfill/Regrade																																																		
Cover/Growth Media Application																																																		
Seed																																																		
Haul Roads, Access Roads, Ancillary Facilities (Non-structure related) Reclamation																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Structure Demolition and Reclamation																																																		
Structure Removal																																																		
Concrete Rubblizing																																																		
Cover/Growth Media Application																																																		
Seed																																																		
Processing Facility Site Reclamation																																																			
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		

Appendix A2 Proposed Action - Conceptual Reclamation Schedule for the South Operations Area Project[1,2]

Component	Year																																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50 to 80
Well Abandonment																																																		
Well Abandonment																																																		
Exploration																																																		
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Interim Fluid Management																																																		
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Fluid Intenvory Reduction																																																		
Yankee HLF																																																		
Recirculation and Active Evaporation																																																		
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Recirculation and Active Evaporation																																																		
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Gator HLF																																																		
Recirculation and Active Evaporation																																																		
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Monitoring																																																		
Reclamation Monitoring																																																		
Post-closure Monitoring																																																		

[1]This schedule is conceptual and subject to changes due to mining sequences that may affect the overall plan.

[2]The shaded areas indicate the potential timeframe when certain activities could occur, but do not imply an actual duration for this conceptual reclamation schedule.

Source: Barrick 2012a.

Appendix A3

North and South Operations Area Facilities Reconfiguration Alternative - Conceptual Reclamation Schedule for the North Operations Area Project

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Appendix A3 North and South Operations Area Facilities Reconfiguration Alternative - Conceptual Reclamation Schedule for the North Operations Area Project, including Actual Completed Reclamation[1,2,3]

Component	COMPLETED	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050-2079
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36 to 64
Open Pit Closure																																					
Numbers Pit Complex																																					
Poker Flats Pit																																					
Redbird Pit																																					
Keno Pit																																					
Duke Pit																																					
Bida Pit																																					
Saga Pit																																					
LBM Pit																																					
Winrock Main, North, and South Pits																																					
Top Pit Complex																																					
Pit Safety Berm Reclamation																																					
Earthworks																																					
Seed																																					
Rock Disposal Area Reclamation																																					
Rat West RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
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LBM RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
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Poker Flats RDA[2]																																					
Contour/Regrade																																					
Growth Media Application																																					
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North 1 RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
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North 4 RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
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RBM North RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
RBM South RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
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Rat East RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
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Galaxy RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
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Horseshoe RDA																																					
Contour/Regrade																																					
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Saga RDA																																					
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Growth Media Application																																					
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Redbird RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
Casino RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					

Appendix A3 North and South Operations Area Facilities Reconfiguration Alternative - Conceptual Reclamation Schedule for the North Operations Area Project, including Actual Completed Reclamation[1,2,3]

Component	COMPLETED	2015 1	2016 2	2017 3	2018 4	2019 5	2020 6	2021 7	2022 8	2023 9	2024 10	2025 11	2026 12	2027 13	2028 14	2029 15	2030 16	2031 17	2032 18	2033 19	2034 20	2035 21	2036 22	2037 23	2038 24	2039 25	2040 26	2041 27	2042 28	2043 29	2044 30	2045 31	2046 32	2047 33	2048 34	2049 35	2050-2079 36 to 64
Duke RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
South Duke RDA 1																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
Belmont RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
Belmont South RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
Winrock North, West, and East RDAs																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
South Water Canyon RDA																																					
Contour/Regrade																																					
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East Sage RDA																																					
Contour/Regrade																																					
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Sage Flat RDA																																					
Contour/Regrade																																					
Growth Media Application																																					
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Heap Leach Facility Earthwork																																					
Mooney North HLF																																					
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Mooney South HLF																																					
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Growth Media Application																																					
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Mooney Deep South HLF																																					
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Growth Media Application																																					
Seed																																					
BMM 2/3 Expansion HLF																																					
Contour/Regrade																																					
Growth Media Application																																					
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South Poker Flats HLF																																					
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Growth Media Application																																					
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Process Ponds Reclamation																																					
Backfill/Regrade																																					
Cover/Growth Media Application																																					
Seed																																					
Support Facilities Reclamation																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
Building Demolition and Reclamation																																					
Structure Removal																																					
Concrete Rubblizing																																					
Cover/Growth Media Application																																					
Seed																																					

Appendix A3 North and South Operations Area Facilities Reconfiguration Alternative - Conceptual Reclamation Schedule for the North Operations Area Project, including Actual Completed Reclamation[1,2,3]

Component	COMPLETED	2015 1	2016 2	2017 3	2018 4	2019 5	2020 6	2021 7	2022 8	2023 9	2024 10	2025 11	2026 12	2027 13	2028 14	2029 15	2030 16	2031 17	2032 18	2033 19	2034 20	2035 21	2036 22	2037 23	2038 24	2039 25	2040 26	2041 27	2042 28	2043 29	2044 30	2045 31	2046 32	2047 33	2048 34	2049 35	2050-2079 36 to 64
Plant Site Reclamation																																					
Contour/Regrade																																					
Growth Media Application																																					
Seed																																					
Well Abandonment																																					
Well Abandonment																																					
Exploration																																					
Exploration																																					
Closure																																					
Interim Fluid Management																																					
Mooney North HLF																																					
Mooney South HLF																																					
Mooney Deep South HLF																																					
BMM 2/3 Expansion HLF																																					
South Poker Flats HLF																																					
Fluid Inventory Reduction																																					
Mooney North HLF																																					
Recirculation and Active Evaporation																																					
ET Cells																																					
Mooney South HLF																																					
Recirculation and Active Evaporation																																					
ET Cells																																					
Mooney Deep South HLF																																					
Recirculation and Active Evaporation																																					
ET Cells																																					
BMM 2/3 Expansion HLF																																					
Recirculation and Active Evaporation																																					
ET Cells																																					
South Poker Flats HLF																																					
Recirculation and Active Evaporation																																					
ET Cells																																					
Monitoring																																					
Reclamation Monitoring																																					
Post-Closure Monitoring																																					

[1]This schedule is conceptual and subject to changes due to mining sequences that may affect the overall plan.
[2]The entirety of this conceptual reclamation schedule is based on reclamation activities for bonding purposes. The Poker Flats RDA Phase I reclamation, pursuant to the Area 6 Mule Deer Working Group Habitat Management Practices (Area 6 Plan) would be preformed simultaneously with reclamation activities for bonding purposes.
[3]The shaded areas indicate the potential timeframe when certain activities could occur, but do not imply an actual duration for this conceptual reclamation schedule.
Source: Barrick 2014b.

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Appendix A4

North and South Operations Area Facilities Reconfiguration Alternative - Conceptual Reclamation Schedule for the South Operations Area Project

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Appendix A4 North and South Operations Area Facilities Reconfiguration Alternative - Conceptual Reclamation Schedule for the South Operations Area Project[1,2]

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Component	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**
Open Pit Closure																																		
Gator Pit																																		
Yankee Pit																																		
Vantage Pit																																		
Pit Safety Berm Reclamation																																		
Earthworks																																		
Seed																																		
Rock Disposal Area Reclamation																																		
Gator North and Gator South RDAs																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Luxe RDA																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Yankee North RDA																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Yankee West RDA																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Yankee South RDA																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Vantage RDA																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Heap Leach Facility Earthwork																																		
Yankee HLF																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Vantage HLF																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Process Pond Reclamation																																		
Backfill/Regrade																																		
Cover/Growth Media Application																																		
Seed																																		
Support Facilities Reclamation																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Building Demolition and Reclamation																																		
Structure Removal																																		
Concrete Rubblizing																																		
Cover/Growth Media Application																																		
Seed																																		

Appendix A4 North and South Operations Area Facilities Reconfiguration Alternative - Conceptual Reclamation Schedule for the South Operations Area Project[1,2]

Component	2015 1	2016 2	2017 3	2018 4	2019 5	2020 6	2021 7	2022 8	2023 9	2024 10	2025 11	2026 12	2027 13	2028 14	2029 15	2030 16	2031 17	2032 18	2033 19	2034 20	2035 21	2036 22	2037 23	2038 24	2039 25	2040 26	2041 27	2042 28	2043 29	2044 30	2045 31	2046 32	2047 33	2048 34
Haul Roads, Access Roads, Ancillary Facilities (Non-structure related) Reclamation																																		
Contour/Regrade																																		
Growth Media Application																																		
Seed																																		
Plant Site Reclamation																																		
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Vantage HLF																																		
Fluid Intenvory Reduction																																		
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Recirculation and Active Evaporation																																		
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Vantage HLF																																		
Recirculation and Active Evaporation																																		
ET Cells																																		
Monitoring																																		
Reclamation Monitoring																																		
Post-Closure Monitoring																																		

[1]This schedule is conceptual and subject to changes due to mining sequences that may affect the overall plan.

[2]The shaded areas indicate the potential timeframe when certain activities could occur, but do not imply an actual duration for this conceptual reclamation schedule.

Source: Barrick 2014b.

Appendix A5

North and South Operations Area Facilities WRM Alternative – Conceptual Reclamation Schedule for the North Operations Area Project

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Appendix A5 North and South Operations Area Facilities WRM Alternative - Conceptual Reclamation Schedule for the North Operations Area Project[1,2]

	Year																																																	
Component	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50 to 58**
Open Pit Reclamation																																																		
Numbers Pit Complex																																																		
Poker Flats Pit																																																		
Redbird Pit																																																		
Duke Pit																																																		
Bida Pit																																																		
Saga Pit																																																		
Winrock Main, North, and South Pits																																																		
Top Pit Complex																																																		
Pit Safety Berm Reclamation																																																		
Earthworks																																																		
Seed																																																		
Rock Disposal Area Reclamation																																																		
Rat West RDA (Complete)																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
Poker Flats RDA[2]																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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North 1 RDA																																																		
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North 4 RDA																																																		
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Growth Media Application																																																		
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Galaxy RDA																																																		
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Horseshoe RDA (Complete)																																																		
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Growth Media Application																																																		
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Contour/Regrade																																																		

Appendix A5 North and South Operations Area Facilities WRM Alternative - Conceptual Reclamation Schedule for the North Operations Area Project[1,2]

	Year																																																	
Component	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50 to 58**
Growth Media Application																																																		
Seed																																																		
Duke RDA																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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South Duke RDA 1																																																		
Contour/Regrade																																																		
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Winrock North, West, and East RDAs																																																		
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Sage Flat RDA																																																		
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Heap Leach Facility Earthwork																																																		
Mooney North HLF																																																		
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Growth Media Application																																																		
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Mooney Deep South HLF																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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BMM 2/3 Expansion HLF																																																		

Appendix A5 North and South Operations Area Facilities WRM Alternative - Conceptual Reclamation Schedule for the North Operations Area Project[1,2]

	Year																																																
Component	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50 to 58**
Contour/Regrade																																																		
Growth Media Application																																																		
Seed																																																		
South Poker Flats HLF																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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Process Ponds Reclamation																																																		
Backfill/Regrade																																																		
Cover/Growth Media Application																																																		
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Support Facilities Reclamation																																																		
Contour/Regrade																																																		
Growth Media Application																																																		
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Building Demolition and Reclamation																																																		
Structure Removal																																																		
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Mooney Deep South HLF																																																		
BMM 2/3 Expansion HLF																																																		
South Poker Flats HLF																																																		
Fluid Inventory Reduction																																																		
Mooney North HLF																																																		
Recirculation and Active Evaporation																																																		
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Mooney Deep South HLF																																																		
Recirculation and Active Evaporation																																																		
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BMM 2/3 Expansion HLF																																																		

Appendix A5 North and South Operations Area Facilities WRM Alternative - Conceptual Reclamation Schedule for the North Operations Area Project[1,2]

	Year																																																	
Component	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50 to 58**
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South Poker Flats HLF																																																		
Recirculation and Active Evaporation																																																		
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Monitoring																																																		
Reclamation Monitoring																																																		
Post-Closure Monitoring																																																		

Appendix A6

North and South Operations Area Facilities WRM Alternative – Conceptual Reclamation Schedule for the South Operations Area Project

Same as the Reconfigurations Alternative, see Appendix A4 North and South Operations Area Facilities Reconfiguration Alternative - Conceptual Reclamation Schedule for the South Operations Area Project

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Appendix B

Water Quality

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Table B-1

Seep and Spring Inventory

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Table B-1. Seep and Spring Inventory

Basin Number	Hydrographic Basin	Spring Name	Elevation (Feet-AMSL)	Monitor Site	Data Source	Monitoring Period	Flow Range	Remarks	Acres Wetland (JBR 2011)
47	Huntington Valley	Mill Springs (Upper)	7,283	Yes	Tetra Tech 2012	03/2004 - 10/2012	ND - 1.5	No surface flow observed in 2012. Location JBR No. 3. in JBR 2011.	0.00
47	Huntington Valley	JBR No. 12	-	No	JBR 2011	-	-	In channel seep, surface water 0.25 inches deep, water table at 9 inches below ground surface (JBR 2011).	0.46
47	Huntington Valley	JBR No. 11	-	No	JBR 2011	-	-	In channel seep, surface water 0.25 inches deep, water table at 8 inches below ground surface (JBR 2011).	0.52
47	Huntington Valley	JBR No. 10	-	No	JBR 2011	-	-	In channel seep, saturated to 4 inches below ground surface (JBR 2011).	0.99
47	Huntington Valley	JBR No. 9	-	No	JBR 2011	-	-	In channel seep with water table 7 inches below ground (JBR 2011).	0.63
47	Huntington Valley	Mill Springs (Lower)	7,046	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 65.9	Site often has insufficient flow to measure, and is periodically dry. Location JBR No. 6 in JBR 2011.	2.11
47	Huntington Valley	Mill Spring	7425	No	JBR 2011, Geomega 2015	-	-	Shown as Mill Spring on 7.5 min. USGS topo. Location JBR No. 13 in JBR 2011. Non-functional piped trough. Flowing water with saturation at the ground surface. Note: text indicated 1.98 acre which does not match with the 0 acres in Table 5 assumed to be a typo (JBR 2011).	1.98
154	Newark Valley	Water Canyon Spring	7,460	No	Geomega 2014b, Geomega 2015		-		
154	Newark Valley	JBR No. 14	7252	No	JBR 2011, Geomega 2015	03/2006 - 10/2012	ND	In channel seep, surface water 0.25 inches deep, saturated from surface to 6 inches below ground surface. Stockpond with cattails noted downstream of seep (JBR 2011).	13.68

Table B-1. Seep and Spring Inventory

Basin Number	Hydrographic Basin	Spring Name	Elevation (Feet-AMSL)	Monitor Site	Data Source	Monitoring Period	Flow Range	Remarks	Acres Wetland (JBR 2011)
154	Newark Valley	South Water Canyon Seep	7,275	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 228	Typically flowing. Location JBR No. 4 in JBR 2011.	19.20
176	Ruby Valley	JBR No. 7	-	No	JBR 2011	-	-	Also known as East Sage Spring. Surface water ponded 0.5 inch captured by berms and unsaturated four inches below ground surface (JBR 2011).	0.00
176	Ruby Valley	Cherry Springs	7,515	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 12.3	Well located at spring site. Location JBR No. 5 in JBR 2011. Stock pond collects runoff from drainage. Periodically dry.	0.00
47	Huntington Valley	Cracker Johnson Spring No. 2	6,782	Yes	Tetra Tech 2012	6/2006 - 10/2012	ND - 1.0	Small pool, periodically dry, flow estimated and not measured.	
47	Huntington Valley	Cracker Johnson Spring No. 1	6,884	Yes	Tetra Tech 2012	6/2006 - 10/2012	ND -1.0	Large pool (perennial), flow estimated and not measured.	
47	Huntington Valley	JBR No. 1	-	No	JBR 2011	-	-		
47	Huntington Valley	JBR No. 15	-	No	JBR 2011	-	-	Hillside seep with flowing water. Undaturated 5 inches below ground surface (JBR 2011).	1.28
175	Long Valley	Tognini Springs	7,049	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 7.2	Consistent flow since 2007.	
175	Long Valley	Twin Springs	7,548	Yes	Tetra Tech 2012	10/2009 - 10/2012	ND	Dry to small flows (insufficient to measure).	
175	Long Valley	Willow Springs (NOA)	7,229	No	BLM 2009; Geomega 2014b, Geomega 2015	-	-		
175	Long Valley	Twin Trough	6,946	Yes	Tetra Tech 2012	06/2006 - 10/2012	ND -3.4	Always flowing until October 2012 (dry).	
175	Long Valley	Mud Springs	7,062	Yes	Tetra Tech 2012	11/2005 - 10/2012	0.4 - 5.9	Always some flow.	
175	Long Valley	Woodchuck Springs	7,172	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 6.4	Consistent flow from 11/2005 to 05/2012; dry in October 2012.	

Table B-1. Seep and Spring Inventory

Basin Number	Hydrographic Basin	Spring Name	Elevation (Feet-AMSL)	Monitor Site	Data Source	Monitoring Period	Flow Range	Remarks	Acres Wetland (JBR 2011)
175	Long Valley	Little Willow Springs	7,891	Yes	Tetra Tech 2012	11/2009 - 10/2012	ND - 1.4	Pool, flow often not measurable.	
175	Long Valley	Moss Spring	7,925	Yes	Tetra Tech 2012	09/2006 - 10/2012	ND	Shallow pond, flow not measurable.	
175	Long Valley	Willow Springs (SOA)	7,059	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 5.0	Typically flowing.	
175	Long Valley	Cupper	8,599	No	BLM 2009 (Tetra Tech 2007)		-		
154	Newark Valley	Bourne-Tunnel Springs	7,193	Yes	Tetra Tech 2012	05/2000 - 10/2012	ND -8.0	Dry during both sampling events in 2012.	
154	Newark Valley	Warm Springs	5,922	Yes	Tetra Tech 2012	03/2006 - 10/2012	ND	Large perennial pond with fish (approximately 7 acres). Flow not measurable.	
154	Newark Valley	Minoletti Springs	5,870	Yes	Tetra Tech 2012	03/2006 - 10/2012	ND	Large pond (perennial), source flow cannot be measured.	
154	Newark Valley	Minoletti Springs	5,873	No	NAPP Imagery			Large spring apparent on aerial photos.	
154	Newark Valley	Goicoechea Springs	5,842	Yes	Tetra Tech 2012	03/2006 - 10/2012	ND -898.6	Large pond (perennial), source flow is difficult to determine.	
154	Newark Valley	Spring No. 1	5,866	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 229	Spring cheek channel (perennial) overgrown and difficult to measure.	
154	Newark Valley	Unnamed Spring	5,863	No	BLM 2009	-	-		
154	Newark Valley	Spring No. 2	5,864	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 120.7	Spring cheek channel (perennial) with high velocity flows.	
154	Newark Valley	Unnamed Spring	-	No	NAPP Imagery	-	-	Large spring apparent on aerial photos.	
154	Newark Valley	Unnamed Spring	-	No	NAPP Imagery	-	-	Large spring apparent on aerial photos.	
154	Newark Valley	Cottonwood Springs	7,793	Yes	Tetra Tech 2012	05/2007 - 10/2012	ND - 15.3	Multiple seeps with immeasurable flow (perennial).	

Table B-1. Seep and Spring Inventory

Basin Number	Hydrographic Basin	Spring Name	Elevation (Feet-AMSL)	Monitor Site	Data Source	Monitoring Period	Flow Range	Remarks	Acres Wetland (JBR 2011)
154	Newark Valley	Moore Springs No. 1	7,171	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 5.8	Wetted channel (perennial).	
154	Newark Valley	Moore Springs No. 2	7,348	Yes	Tetra Tech 2012	11/2005 - 10/2012	1.8 - 2.6	Pond fed by discharge pipe with consistent flow (perennial).	
154	Newark Valley	Moore Springs No. 3	7,455	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 1.5	Perennial wet area, discharge rate can only be estimated during low flow conditions.	
154	Newark Valley	Spring No. 5	5,850	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 1.0	Consistent flow (perennial). Flow is not measurable.	
154	Newark Valley	Spring No. 3	6,483	Yes	Tetra Tech 2012	11/2005 - 10/2012	10 - 579	Spring cheek channel with consistent perennial flow.	
154	Newark Valley	Spring No. 4 (Upper)	6,525	Yes	Tetra Tech 2012	11/2005 - 10/2012	0.7 - 236	Spring cheek channel with consistent perennial flow.	
154	Newark Valley	Rock Springs (Upper)	7,629	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 1.0	Perennial flow, flow is dispersed and generally not measurable.	
154	Newark Valley	Beck Springs	6,695	Yes	Tetra Tech 2012	11/2005 - 10/2012	ND - 10.8	Flow supports pool (perennial). Pool often stagnant by fall.	

Source: Geomega 2011a; JBR 2011a; Tetra Tech 2012, Geomega 2014b, Geomega 2015.

Table B-2

Water Rights Inventory

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Table B-2 Water Rights Inventory

MAP ID	Basin Number	Basin Name	Application	Change App	Certificate	Priority Date	Status	Source	Township	Range	Section	Diversion Rate (CFS)	Annual Duty (Acre-feet per year)	Type of Use	Owner of Record
HV-155	47	Huntington Valley	48526		12991	5/14/1981	Certificate	UG	24N	56E	11	0.50	230.47	Mining/ Milling	BARRICK GOLD U.S. INC.
HV-158	47	Huntington Valley	52909		0	2/7/1989	Permit	UG	24N	56E	14	1.95	296.77	Mining/ Milling	BARRICK GOLD U.S. INC.
HV-168	47	Huntington Valley	78940		0	2/7/1989	Permit	UG	24N	56E	24	0.05	32.22	Mining/ Milling	BARRICK GOLD U.S. INC. (BALD MOUNTAIN MINE)
LV-008	175	Long Valley	72369	69735	0	4/19/1985	Permit	UG	24N	58E	29	1.00	723.97	Mining/ Milling	BARRICK GOLD U.S. INC.
LV-009	175	Long Valley	70239	56883	0	10/29/1991	Permit	UG	24N	58E	29	1.00	723.97	Mining/ Milling	BARRICK GOLD U.S. INC.
LV-010	175	Long Valley	64061	56763	0	9/23/1991	Permit	UG	24N	58E	29	2.00	1448.52	Mining/ Milling	BARRICK GOLD U.S. INC.
RV-601	176	Ruby Valley	56961		0	11/26/1991	Permit	UG	24N	58E	9	1.99	641.52	Mining/ Milling	BARRICK GOLD U.S. INC.
RV-602	176	Ruby Valley	54243		0	12/18/1989	Permit	UG	24N	58E	16	0.83	536.29	Mining/ Milling	BARRICK GOLD U.S. INC.
RV-605	176	Ruby Valley	84175T	56961	0	11/26/1991	Permit	UG	24N	58E	29	1.12	807.00	Mining/ Milling	BARRICK GOLD U.S. INC
HV-160	47	Huntington Valley	12937		3860	5/31/1949	Certificate	SPR	24N	57E	17	0.02	9.68	Stock	BARRICK GOLD U.S. INC.
HV-164	47	Huntington Valley	R09310		0	4/17/1926	Reserved	SPR	24N	57E	17	0.00	0.00	Stock	BLM
HV-165	47	Huntington Valley	V01560		0		Vested	SPR	24N	57E	17	0.00	0.00	Stock	MOORE, WILLIAM A.
HV-166	47	Huntington Valley	12936		3859	5/31/1949	Certificate	SPR	24N	57E	17	0.02	9.67	Stock	BARRICK GOLD U.S. INC.
NV-001	154	Long Valley	12940		3861	5/31/1949	Certificate	SPR	24N	57E	21	0.02	9.79	Stock	BARRICK GOLD U.S. INC.
NV-002	154	Newark Valley	5325		990	11/27/2018	Certificate	SPR	24N	57E	27	0.03	11.20	Stock	BARRICK GOLD U.S. INC.
RV-603	176	Ruby Valley	83509T	64965	0	3/12/1999	Permit	UG	24N	58E	17	0.01	5.60	Stock	BARRICK GOLD US INC
LV-023	175	Long Valley	55496	35965	0	10/3/1978	Permit	UG	22N	57E	35	1.50	1086.39	Mining/ Milling	BARRICK GOLD U.S. INC.
LV-034	175	Long Valley	56035	52293	0	3/21/1991	Permit	UG	21N	57E	24	1.00	169.40	Mining/ Milling	BARRICK GOLD U.S. INC.
LV-035	175	Long Valley	56034		0	3/21/1991	Permit	UG	21N	57E	24	1.00	304.13	Mining/ Milling	BARRICK GOLD U.S. INC.

Table B-2 Water Rights Inventory

MAP ID	Basin Number	Basin Name	Application	Change App	Certificate	Priority Date	Status	Source	Township	Range	Section	Diversion Rate (CFS)	Annual Duty (Acre-feet per year)	Type of Use	Owner of Record
LV-036	175	Long Valley	56036	52294	0	3/21/1991	Permit	UG	21N	57E	24	1.00	169.40	Mining/ Milling	BARRICK GOLD U.S. INC.
HV-149	47	Huntington Valley	62945		0	3/26/1997	Permit	UG	25N	55E	26	4.00	1680.00	Irregation	BARRICK GOLD U.S. INC.
HV-152	47	Huntington Valley	62946		0	3/26/1997	Permit	UG	25N	55E	35	2.00	600.00	Irregation	BARRICK GOLD U.S. INC.
LV-014	175	Long Valley	35797		11603	8/23/1978	Certificate	SPR	23N	58E	25	0.20	30.08	Irregation	BARRICK GOLD U.S. INC.
LV-016	175	Long Valley	62956		0	3/26/1997	Permit	UG	23N	58E	36	2.00	480.00	Irregation	BARRICK GOLD U.S. INC.
NV-007	154	Newark Valley	V01255		0		Vested	SPR	23N	55E	14	0.00	0.00	Irregation	BARRICK GOLD U.S. INC.
NV-008	154	Newark Valley	80090		0	3/26/1997	Permit	UG	23N	55E	24	1.56	0.00	Irregation	BARRICK GOLD US INC
NV-009	154	Newark Valley	80089	62947	0	3/26/1997	Permit	UG	23N	55E	24	0.67	480.00	Irregation	BARRICK GOLD US INC
NV-010	154	Newark Valley	81962	23508	0	4/23/1963	Permit	UG	23N	55E	24	2.19	520.00	Irregation	BARRICK GOLD US INC
NV-011	154	Newark Valley	80525	62947	0	3/26/1997	Permit	UG	23N	55E	24	0.50	359.10	Irregation	BARRICK GOLD US INC
NV-012	154	Newark Valley	80528	62955	0	3/26/1997	Permit	UG	23N	55E	24	0.87	36.90	Irregation	BARRICK GOLD US INC
NV-013	154	Newark Valley	80024		0	3/26/1997	Permit	UG	23N	56E	19	1.50	0.00	Irregation	BARRICK GOLD US INC
NV-014	154	Newark Valley	80022	62947	0	3/26/1997	Permit	UG	23N	56E	19	0.73	520.00	Irregation	BARRICK GOLD US INC
NV-015	154	Newark Valley	80527	62955	0	3/26/1997	Permit	UG	23N	55E	24	0.25	104.28	Irregation	BARRICK GOLD US INC
NV-016	154	Newark Valley	80526	62954	0	3/26/1997	Permit	UG	23N	55E	24	1.24	132.12	Irregation	BARRICK GOLD US INC
NV-018	154	Newark Valley	80025		0	3/26/1997	Permit	UG	23N	56E	30	1.50	0.00	Irregation	BARRICK GOLD US INC
NV-019	154	Newark Valley	80023	62947	0	3/26/1997	Permit	UG	23N	56E	30	0.73	520.00	Irregation	BARRICK GOLD US INC
NV-020	154	Newark Valley	V01077		0		Decreed	SPR	23N	55E	26	5.40	5559.80	Irregation	BARRICK GOLD U.S. INC.
NV-021	154	Newark Valley	62947		0	3/26/1997	Permit	UG	23N	55E	26	1.68	1200.90	Irregation	BARRICK GOLD U.S. INC.

Table B-2 Water Rights Inventory

MAP ID	Basin Number	Basin Name	Application	Change App	Certificate	Priority Date	Status	Source	Township	Range	Section	Diversion Rate (CFS)	Annual Duty (Acre-feet per year)	Type of Use	Owner of Record
NV-022	154	Newark Valley	62951		0	3/26/1997	Permit	UG	23N	56E	35	6.00	2400.00	Irregation	BARRICK GOLD U.S. INC.
NV-024	154	Newark Valley	62948		0	3/26/1997	Permit	UG	23N	55E	35	6.00	2640.00	Irregation	BARRICK GOLD U.S. INC.
NV-025	154	Newark Valley	34456		11622	10/27/1977	Certificate	SPR	23N	56E	36	14.80	6509.15	Irregation	BARRICK GOLD U.S. INC.
NV-026	154	Newark Valley	62952		0	3/26/1997	Permit	UG	22N	56E	1	6.00	2640.00	Irregation	BARRICK GOLD U.S. INC.
NV-027	154	Newark Valley	62949		0	3/26/1997	Permit	UG	22N	55E	2	3.00	1560.00	Irregation	BARRICK GOLD U.S. INC.
NV-028	154	Newark Valley	34455		11594	10/27/1977	Certificate	SPR	22N	55E	2	7.10	4457.20	Irregation	BARRICK GOLD U.S. INC.
NV-029	154	Newark Valley	34457		11595	10/27/1977	Certificate	SPR	22N	55E	11	5.80	4199.00	Irregation	BARRICK GOLD U.S. INC.
NV-031	154	Newark Valley	62950		0	3/26/1997	Permit	UG	22N	55E	11	4.00	2896.00	Irregation	BARRICK GOLD U.S. INC.
NV-032	154	Newark Valley	V01453		0		Vested	SPR	22N	55E	11	0.00	0.00	Irregation	BARRICK GOLD U.S. INC.
NV-033	154	Newark Valley	47735	34458	11601	10/27/1977	Certificate	SPR	22N	55E	11	5.60	4054.20	Irregation	BARRICK GOLD U.S. INC.
NV-035	154	Newark Valley	62954		0	3/26/1997	Permit	UG	22N	56E	15	0.08	54.00	Irregation	BARRICK GOLD U.S. INC.
NV-036	154	Newark Valley	34454		11621	10/27/1977	Certificate	SPR	22N	56E	16	0.18	72.00	Irregation	BARRICK GOLD U.S. INC.
NV-037	154	Newark Valley	34459		11596	10/27/1977	Certificate	SPR	22N	55E	14	0.20	144.79	Irregation	BARRICK GOLD U.S. INC.
NV-039	154	Newark Valley	13611		4324	1/25/1951	Certificate	SPR	22N	55E	14	1.00	195.00	Irregation	BARRICK GOLD U.S. INC.
NV-041	154	Newark Valley	35796		11625	8/23/1978	Certificate	SPR	22N	56E	21	0.15	13.20	Irregation	BARRICK GOLD U.S. INC.
NV-042	154	Newark Valley	62953		0	3/26/1997	Permit	UG	22N	56E	21	0.04	9.90	Irregation	BARRICK GOLD U.S. INC.
NV-044	154	Newark Valley	V01561		0		Vested	SPR	22N	55E	34	0.00	0.00	Irregation	HOOPER, R.W.
NV-048	154	Newark Valley	35798		11626	8/23/1978	Certificate	SPR	21N	56E	5	0.20	59.20	Irregation	BARRICK GOLD U.S. INC.
NV-049	154	Newark Valley	18759		6570	4/27/1960	Certificate	SPR	21N	56E	10	0.42	303.54	Irregation	BARRICK GOLD U.S. INC.

Table B-2 Water Rights Inventory

MAP ID	Basin Number	Basin Name	Application	Change App	Certificate	Priority Date	Status	Source	Township	Range	Section	Diversion Rate (CFS)	Annual Duty (Acre-feet per year)	Type of Use	Owner of Record
NV-050	154	Newark Valley	V02453		0		Vested	SPR	21N	56E	9	2.00	400.00	Irregation	BARRICK GOLD U.S. INC.
NV-052	154	Newark Valley	62955		0	3/26/1997	Permit	UG	21N	56E	9	1.05	326.70	Irregation	BARRICK GOLD U.S. INC.
NV-053	154	Newark Valley	V01157		0		Vested	SPR	21N	55E	9	0.00	0.00	Irregation	SMITH, WM. H.
NV-054	154	Newark Valley	V02454		0		Vested	SPR	21N	56E	22	2.00	400.00	Irregation	BARRICK GOLD U.S. INC.
NV-057	154	Newark Valley	V02886		0		Vested	SPR	21N	55E	27	0.84	150.00	Irregation	GOICOECHEA, PETER J AND GLADYS P
NV-060	154	Newark Valley	V02885		0		Vested	SPR	21N	55E	33	0.76	225.00	Irregation	HELD, CHLOE TRUST, U/W PAUL R. HELD
NV-061	154	Newark Valley	7226		1509	10/6/2024	Certificate	SPR	21N	55E	34	0.29	120.20	Irregation	GOICOECHEA, PETER J AND GLADYS P
NV-062	154	Newark Valley	7227		1642	10/6/2024	Certificate	SPR	20N	55E	3	0.37	181.00	Irregation	GOICOECHEA, PETER J AND GLADYS P
NV-066	154	Newark Valley	V01751		0		Vested	SPR	20N	55E	8	0.00	0.00	Irregation	CHLOE HELD TRUST
NV-017	154	Newark Valley	48723		13038	1/16/1985	Certificate	UG	23N	55E	23	0.01	8.01	Quasi-Municipal	BARRICK GOLD U.S. INC.
HV-144	47	Huntington Valley	R09395		0	7/25/2003	Reserved	SPR	25N	55E	20	0.00	0.00	Stock	BLM
HV-145	47	Huntington Valley	1879		69	11/14/1910	Certificate	SPR	25N	55E	20	0.01	2.75	Stock	PARIS FAMILY TRUST
HV-146	47	Huntington Valley	12938		3838	5/31/1949	Certificate	SPR	25N	57E	29	0.02	9.68	Stock	BARRICK GOLD U.S. INC.
HV-148	47	Huntington Valley	8964		2962	6/20/1929	Certificate	SPR	25N	55E	25	0.03	17.92	Stock	BROWN, ARTHUR H.
HV-150	47	Huntington Valley	12939		3930	5/31/1949	Certificate	SPR	25N	57E	32	0.02	9.68	Stock	BARRICK GOLD U.S. INC.
HV-151	47	Huntington Valley	9311		2963	8/7/1930	Certificate	SPR	25N	55E	35	0.03	17.92	Stock	BROWNE, ARTHUR D.
HV-153	47	Huntington Valley	8859		2958	4/6/1929	Certificate	SPR	24N	55E	10	0.03	17.92	Stock	BROWN, ARTHUR H.
HV-157	47	Huntington Valley	8970		2966	6/26/1929	Certificate	SPR	24N	55E	17	0.03	17.92	Stock	BROWN, ARTHUR H.
HV-159	47	Huntington Valley	8969		2965	6/26/1929	Certificate	SPR	24N	55E	15	0.03	17.92	Stock	BROWN, ARTHUR H.

Table B-2 Water Rights Inventory

MAP ID	Basin Number	Basin Name	Application	Change App	Certificate	Priority Date	Status	Source	Township	Range	Section	Diversion Rate (CFS)	Annual Duty (Acre-feet per year)	Type of Use	Owner of Record
HV-161	47	Huntington Valley	46033		14502	9/13/1993	Certificate	SPR	24N	55E	16	0.01	7.96	Stock	BARRICK GOLD U.S. INC.
HV-162	47	Huntington Valley	46034		14503	9/13/1993	Certificate	SPR	24N	55E	16	0.01	9.70	Stock	BARRICK GOLD U.S. INC.
HV-163	47	Huntington Valley	46035		14504	9/13/1993	Certificate	SPR	24N	55E	16	0.01	9.70	Stock	BARRICK GOLD U.S. INC.
HV-167	47	Huntington Valley	46036		14505	9/13/1993	Certificate	SPR	24N	55E	16	0.02	11.29	Stock	BARRICK GOLD U.S. INC.
HV-169	47	Huntington Valley	1820		51	9/14/1910	Certificate	SPR	24N	55E	21	0.01	3.55	Stock	PARIS FAMILY TRUST
HV-170	47	Huntington Valley	8971		2967	6/26/1929	Certificate	SPR	24N	55E	21	0.03	17.92	Stock	BROWN, ARTHUR H.
HV-172	47	Huntington Valley	1824		55	9/14/1910	Certificate	SPR	24N	55E	20	0.01	3.55	Stock	PARIS FAMILY TRUST
HV-173	47	Huntington Valley	46037		14506	9/13/1993	Certificate	SPR	24N	55E	27	0.01	6.44	Stock	BARRICK GOLD U.S. INC.
HV-174	47	Huntington Valley	46038		14507	9/13/1993	Certificate	SPR	24N	55E	27	0.01	6.72	Stock	BARRICK GOLD U.S. INC.
HV-176	47	Huntington Valley	46040		14509	9/13/1993	Certificate	SPR	24N	55E	33	0.02	7.84	Stock	BARRICK GOLD U.S. INC.
HV-177	47	Huntington Valley	46039		14508	9/13/1993	Certificate	SPR	24N	55E	33	0.01	7.84	Stock	BARRICK GOLD U.S. INC.
HV-178	47	Huntington Valley	1821		52	9/14/1910	Certificate	SPR	24N	55E	33	0.01	3.55	Stock	PARIS FAMILY TRUST
LV-006	175	Huntington Valley	11638		3507	7/22/1946	Certificate	SPR	24N	58E	22	0.00	1.32	Stock	ROSENLUND, RAYMOND G.
LV-007	175	Long Valley	5529		646	6/7/2019	Certificate	SPR	24N	58E	22	0.01	4.33	Stock	ROSENLUND, RAYMOND G.
LV-011	175	Long Valley	3030		384	7/8/2014	Certificate	SPR	24N	58E	32	0.01	7.24	Stock	GOICHECHEA, JULIAN
LV-018	175	Long Valley	9430		2919	3/18/1931	Certificate	UG	22N	58E	21	0.03	22.40	Stock	BARRICK GOLD U.S. INC.
LV-020	175	Long Valley	5327		992	11/27/2018	Certificate	SPR	22N	57E	29	0.03	14.58	Stock	BARRICK GOLD U.S. INC.
LV-021	175	Long Valley	43695		11212	5/8/1981	Certificate	UG	22N	58E	34	0.03	22.43	Stock	BARRICK GOLD U.S. INC.
LV-022	175	Long Valley	5324		989	11/27/2018	Certificate	SPR	22N	57E	32	0.03	14.58	Stock	BARRICK GOLD U.S. INC.
LV-024	175	Long Valley	2339		123	2/15/2012	Certificate	SPR	22N	57E	32	0.03	18.11	Stock	BARRICK GOLD U.S. INC.

Table B-2 Water Rights Inventory

MAP ID	Basin Number	Basin Name	Application	Change App	Certificate	Priority Date	Status	Source	Township	Range	Section	Diversion Rate (CFS)	Annual Duty (Acre-feet per year)	Type of Use	Owner of Record
LV-025	175	Long Valley	5326		991	11/27/2018	Certificate	SPR	22N	57E	33	0.03	14.58	Stock	BARRICK GOLD U.S. INC.
LV-026	175	Long Valley	5323		988	11/27/2018	Certificate	SPR	21N	57E	5	0.03	14.58	Stock	BARRICK GOLD U.S. INC.
LV-027	175	Long Valley	2338		122	2/15/2012	Certificate	SPR	21N	57E	6	0.03	10.04	Stock	BARRICK GOLD U.S. INC.
LV-028	175	Long Valley	43696		11213	5/8/1981	Certificate	UG	21N	59E	5	0.03	22.43	Stock	BARRICK GOLD U.S. INC.
LV-029	175	Long Valley	2340		124	2/15/2012	Certificate	SPR	21N	56E	1	0.03	9.70	Stock	BARRICK GOLD U.S. INC.
LV-030	175	Long Valley	2337		121	2/15/2012	Certificate	SPR	21N	57E	8	0.03	9.76	Stock	BARRICK GOLD U.S. INC.
LV-031	175	Long Valley	9350		4242	10/12/1930	Certificate	UG	21N	58E	10	0.03	22.40	Stock	BARRICK GOLD US INC
LV-032	175	Long Valley	7019		1704	12/12/2023	Certificate	UG	21N	58E	7	0.03	22.40	Stock	BARRICK GOLD U.S. INC.
LV-033	175	Long Valley	7927		1705	11/10/2026	Certificate	UG	21N	59E	18	0.05	23.94	Stock	BARRICK GOLD U.S. INC.
LV-037	175	Long Valley	7928		1706	11/10/2026	Certificate	UG	21N	58E	35	0.03	15.96	Stock	BARRICK GOLD U.S. INC.
LV-038	175	Long Valley	14618		4452	11/12/1952	Certificate	UG	21N	59E	31	0.03	3.81	Stock	BARRICK GOLD U.S. INC.
LV-039	175	Long Valley	9368		3904	11/5/1930	Certificate	UG	21N	58E	32	0.03	8.44	Stock	BARRICK GOLD US INC
LV-040	175	Long Valley	9369		2579	11/6/1930	Certificate	UG	20N	58E	8	0.03	22.40	Stock	BARRICK GOLD U.S. INC.
LV-041	175	Long Valley	9386		2578	11/25/1930	Certificate	UG	20N	58E	14	0.03	22.40	Stock	BARRICK GOLD U.S. INC.
NV-003	154	Newark Valley	5322		987	11/27/2018	Certificate	OGW	24N	57E	31	0.03	6.94	Stock	BARRICK GOLD U.S. INC.
NV-004	154	Newark Valley	6964		1454	8/30/2023	Certificate	SPR	23N	55E	3	0.03	8.96	Stock	BARRICK GOLD U.S. INC.
NV-005	154	Newark Valley	64409		16107	8/21/1998	Certificate	UG	23N	56E	11	0.02	11.20	Stock	BARRICK GOLD U.S. INC
NV-023	154	Newark Valley	3522		1468	7/23/2015	Certificate	SPR	23N	55E	33	0.03	13.56	Stock	BARRICK GOLD U.S. INC.
NV-030	154	Newark Valley	2341		125	2/15/2012	Certificate	SPR	22N	55E	9	0.03	10.04	Stock	BARRICK GOLD U.S. INC.
NV-034	154	Newark Valley	V01242		0		Vested	SPR	22N	55E	11	0.01	0.00	Stock	BARRICK GOLD U.S. INC
NV-038	154	Newark Valley	2520		294	10/5/2012	Certificate	SPR	22N	55E	15	0.03	14.56	Stock	BARRICK GOLD U.S. INC.

Table B-2 Water Rights Inventory

MAP ID	Basin Number	Basin Name	Application	Change App	Certificate	Priority Date	Status	Source	Township	Range	Section	Diversion Rate (CFS)	Annual Duty (Acre-feet per year)	Type of Use	Owner of Record
NV-040	154	Newark Valley	16863		4809	2/16/1956	Certificate	UG	22N	55E	15	0.02	11.20	Stock	BARRICK GOLD U.S. INC.
NV-043	154	Newark Valley	V01306		0		Vested	SPR	22N	57E	30	0.03	0.00	Stock	BARRICK GOLD U.S. INC.
NV-045	154	Newark Valley	4789		993	12/17/2017	Certificate	SPR	22N	56E	35	0.03	18.11	Stock	BARRICK GOLD U.S. INC.
NV-047	154	Newark Valley	4790		994	12/17/2017	Certificate	SPR	22N	56E	36	0.03	18.11	Stock	BARRICK GOLD U.S. INC.
NV-051	154	Newark Valley	V01158		0		Vested	SPR	21N	55E	10	0.01	0.00	Stock	SMITH, WM. H.
NV-055	154	Newark Valley	8412		2315	12/27/2027	Certificate	SPR	21N	55E	22	0.01	3.77	Stock	SMITH, KATE P.
NV-056	154	Newark Valley	V01159		0		Vested	SPR	21N	55E	22	0.00	0.00	Stock	SMITH, WM. H.
NV-058	154	Newark Valley	2315		150	1/15/2012	Certificate	SPR	21N	56E	36	0.03	18.11	Stock	GOICOECHEA, PETER J AND GLADYS P
NV-059	154	Newark Valley	V02892		0		Vested	SPR	21N	55E	34	0.00	0.00	Stock	GOICOECHEA, PETER J AND GLADYS P
NV-063	154	Newark Valley	V02891		0		Vested	SPR	20N	57E	6	0.00	0.00	Stock	GOICOECHEA, PETER J AND GLADYS P
NV-065	154	Newark Valley	V02902		0		Vested	SPR	20N	55E	9	0.00	0.00	Stock	GOICOECHEA, PETER J AND GLADYS P
NV-067	154	Newark Valley	V02896		0		Vested	SPR	20N	56E	10	0.00	0.00	Stock	GOICOECHEA, PETER J AND GLADYS P
RV-599	176	Newark Valley	4138		1572	8/30/2016	Certificate	SPR	25N	59E	28	0.02	10.74	Stock	ROSENLUND, RAYMOND G.
RV-600	176	Ruby Valley	64965		0	3/12/1999	Permit	UG	24N	58E	6	0.01	5.60	Stock	BARRICK GOLD U.S. INC.
RV-604	176	Ruby Valley	5530		647	6/7/2019	Certificate	SPR	24N	58E	16	0.01	4.27	Stock	ROSENLUND, RAYMOND G.
NV-006	154	Newark Valley	64645		16178	11/30/1998	Certificate	UG	23N	56E	11	0.01	2.00	Wildlife	BLM

SPR = Spring
UG = Underground (i.e., groundwater)
OGW = Other groundwater
Source: NDWR 2014.

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Table B-3

Values for General Water Quality Constituents at Monitored Locations

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Table B-3 Values for General Water Quality Constituents at Monitored Locations[1]

Site	Bicarbonate	Calcium	Chloride	pH	Sodium	Sulfate	TDS
Huntington Valley Seeps and Springs							
Cracker Johnson Spring No. 1	212 - 325	37.3 - 61.0	24.0 - 41.0	7.58 - 8.57	27.0 - 46.1	29.0 - 71.0	326 - 480
Cracker Johnson Spring No. 2	280 - 573	24.9 - 390	40.7 - 105	7.77 - 8.74	66.7 - 141	38.0 - 177	468 - ***1,110*** [2]
Mill Springs Lower	223 - 326	74.4 - 108	12.6 - 26	7.2 - 8.17	12.8 - 19.0	19.3 - 25.0	294 - 437
Mill Springs Upper	214 - 270	73.9 - 91	9.1 - 63	8.02 - 8.14	16.0 - 18.7	21.0 - 27.0	348
Long Valley Seeps and Springs							
Little Willow Spring	91.1 - 142	33.0 - 41.7	8.0 - 9.0	7.78 -8.37	8.0 - 9.7	13.5 - 24.0	136 - 500
Moss Spring	96.4 - 128	31.0 - 34.0	2.0 - 3.29	7.78 - 8.61	5.0 - 7.0	5.0 - 10.0	112 - 228
Mud Spring	314- 410	110 - 140	26.0 - 33.0	7.36 - 8.21	33.0 - 42.2	73.0 - 101	444 - ***540*** [2]
Tognini Spring	187 - 236	65.5 - 79.5	8.0 - 11.0	7.35 - 8.09	12.0- 14.1	19.0 - 28.0	234 - 294
Twin Spring	63.5 - 97.2	14.2 - 20.0	4.73 - 6.51	7.14 - 7.67	11.2 - 14.3	6.91 - 8.72	135 - 258
Twin Trough	78.1 - 105	17.0 - 24.6	2.0 - 6.01	6.53 - 7.78	12.0 - 17.7	8.26 - 18.0	128 - 165
Willow Spring	316 - 396	92.1 - 118	12.0 - 20.5	7.26 - 8.06	17.0 - 26.7	28.8 - 47.3	336 - 484
Woodchuck Spring	273 - 372	101 - 127	16.0 - 24.0	7.23 - 7.95	25.0 - 29.8	67.0 - 91.7	390 - 500
Newark Valley Seeps and Springs							
Beck Spring	116-239	37.1 - 69	14 - 18	7.53 - 8.5	18 - 19.2	22.1 - 26	181 - 274
Bourne Tunnel Spring	267 - 283	74.5 - 76.3	3.03 - 3.49	7.82 - 7.99	5.32 - 5.72	10.6 - 11.3	279 - 318
Cottonwood Spring	59.1 - 76	15 - 17.7	2 - 4.06	7.85 - 8.23	5 - 7.42	6 - 10	86 - 144
Goicoechea Spring	85 - 288	40.6 -76	1.97 - 4	7.17 - 8.5	4.67 - 8.2	13.3 - 28	142 - 289
Minoletti Spring	140 - 212	31 - 91.9	3 - 6	7.58 - 8.84	6.9 - 10.6	8 - 26	152 - 238
Moore Spring No. 1	153 - 189	46.7 - 54.5	5 - 9	7.82 - 8.45	5.4 - 6.5	<1 - 19	170 - 233

Table B-3 Values for General Water Quality Constituents at Monitored Locations[1]

Site	Bicarbonate	Calcium	Chloride	pH	Sodium	Sulfate	TDS
Moore Spring No. 2	104 - 132	29.4 - 34.9	<1 - 6	7.78 - 8.48	9 - 10	10 -14	144 - 202
Moore Spring No. 3	134 - 187	39.4 -49.1	6 - 8.07	7.29 - 8.11	13.4 - 15.6	13 - 30	172 - 237
Rock Spring (Lower)	165 - 200	50.9 - 55	8 - 10	7.88 - 8.2	9.5 - 10	18	174 - 232
Rock Spring (Upper)	158 - 219	12.3 - 22	6.76 - 10	7.39 - 8.34	9.7 - 11	12.3 - 22	180 - 256
South Water Canyon Seep	<1 - 214	47.3 - 70	5 - 34	2.41 - 8.3	10.7 - 17	11.3 - ***725*** [2]	192 - 410
Spring No. 1	206 - 263	45 - 53.9	5 - 9	7.61 - 8.1	16.2 - 20.4	7 - 32	242 - 292
Spring No. 2	204 - 256	39 - 49.4	6 - 7.92	7.86 - 8.4	18.8 - 24.4	29 - 34	226 - 280
Spring No. 3	135 - 171	40.2 - 48.2	5 - 6.7	7.75 - 8.41	7 - 8.3	12 - 23	144 - 185
Spring No. 4 (upper)	173 -342	53.4 - 93.8	6 - 9	8.07 - 8.59	8.7 - 16.6	14 - 27	192 - 337
Spring No. 5	137 -187	40.5 - 48.2	6 - 6.55	7.85 - 8.41	9 - 10.4	13 - 33	152 - 194
Warm Spring	249 - 320	56.8 - 69.4	5 - 7.29	7.57 - 8.69	16.9 - 21	0.1 - 0.208	276 - 326
Ruby Valley Springs and Seeps							
Cherry Spring	49.5 - 315	10.6 - 41	3 - 20	7.29 - 8.11	8.54 - 20.4	0.59 - 31	81 - 252

[1] Concentrations are in milligrams per liter.

[2] Bold italicized values are discussed in the text.

[3] Sample from well adjacent to spring site.

Source: Tetra Tech 2011

Table B-4

Total Metals Ranges at Monitored Locations

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Table B-4 Total Metals Ranges at Monitored Locations[1]

Site	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Zinc
Livestock Watering Standards [2]	0.2	0.05	1.0	0.5	0.10	0.01	0.05	25
Huntington Valley Seeps and Springs								
Cracker Johnson Spring No. 1	0.0097 - ***0.34*** [3]	ND	ND - 0.0106	ND	ND - 0.008	ND	ND	ND - 0.06
Cracker Johnson Spring No. 2	0.087 - 0.192	ND	0.0101 - 0.071	0.02 - 0.098	0.00413 - 0.066	ND - 0.0005	ND - 0.00563	0.0401 - 0.46
Mill Springs Lower	0.011 - 0.0443	ND	ND	ND - 0.011	ND - 0.00423	ND	ND	ND - 0.0217
Mill Springs Upper	0.007	ND	ND	ND	ND	ND	ND	0.04
South Water Canyon Seep	0.0195 - 0.0396	ND	ND	ND	ND - 0.002	ND - 0.0008	ND	ND - 0.03
Long Valley Seeps and Springs								
Little Willow Spring	ND - 0.0089	ND	ND - 0.0099	ND - 0.01	ND - 0.00442	ND	ND	ND - 0.0383
Moss Spring	ND	ND		ND - 0.002	ND	ND	ND	ND
Mud Spring	ND	ND	ND	ND	ND	ND	ND - 0.0107	ND
Tognini Spring	ND - 0.002	ND	ND	ND	ND	ND	ND - 0.001	ND
Twin Spring	ND - 0.00812	ND	ND - 0.0144	ND - 0.02	ND - 0.0173	ND	ND	ND - 0.129
Twin Trough	ND - 0.001	ND	ND	ND	ND	ND	ND	ND
Willow Spring	ND - 0.00331	ND	ND - 0.002	ND	ND	ND	ND - 0.001	ND - 0.0214
Woodchuck Spring	ND	ND	ND - 0.001	ND	ND	ND	ND - 0.00642	ND
Newark Valley Seeps and Springs								

Table B-4 Total Metals Ranges at Monitored Locations[1]

Site	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Zinc
Beck Spring	ND - 0.00403	ND	ND - 0.0066	ND	ND	ND	ND	ND 0.0131
Bourne Tunnel Spring	ND	ND	ND	ND	ND	ND	ND	ND
Cottonwood Spring	ND	ND	ND	ND	ND	ND	ND	ND
Goicoechea Spring	ND - 0.011	ND	ND	ND - 0.162	ND - 0.048	ND - 0.0031	ND - 0.005	ND - 0.0407
Minoletti Spring	ND - 0.01	ND	ND - 0.004	ND - 0.004	ND - 0.003	ND - 0.002	ND - 0.03	ND - 0.06
Moore Spring No. 1	ND - 0.01	ND	ND	ND	ND - 0.002	ND	ND - 0.002	ND
Moore Spring No. 2	ND - 0.009	ND	ND	ND	ND	ND	ND - 0.001	ND
Moore Spring No. 3	ND	ND	ND	ND	ND - 0.001	ND - 0.0008	ND - 0.002	ND - 0.03
Rock Spring (Lower)	ND	ND	ND	0.002	ND	ND	ND	ND
Rock Spring (Upper)	ND - 0.002	ND	ND	ND - 0.001	ND	ND	ND	ND - 0.02
Spring No. 1	0.0084 - 0.016	ND	ND	ND - 0.002	ND - 0.002	ND	ND	ND - 0.06
Spring No. 2	0.0072 - 0.02	ND	ND - 0.005	ND - 0.002	ND - 0.001	ND - 0.0007	ND - 0.02	ND - 0.04
Spring No. 3	ND - 0.006	ND - 0.004	ND - 0.004	ND - 0.002	ND	ND - 0.001	ND - 0.003	ND - 0.03
Spring No. 4 (upper)	ND - 0.006	ND	ND - 0.006	ND - 0.003	ND - 0.001	ND - 0.0005	ND - 0.002	ND - 0.04
Spring No. 5	0.00344 - 0.014	ND	ND - 0.005	ND	ND - 0.002	ND - 0.0011	ND - 0.002	ND - 0.05
Warm Spring	0.0113 - 0.022	ND	ND	ND - 0.006	ND - 0.001	ND	ND	ND - 0.06
Ruby Valley Springs and Seeps								
Cherry Spring[4]	0.0089 - 0.0603	ND	ND	ND	ND	ND	ND - 0.001	ND - 0.012

Table B-4 Total Metals Ranges at Monitored Locations[1]

Site	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Zinc

[1] ND: not detected. Values are expressed as total recoverable concentrations.

[2] NAC 445A-1236, in milligrams per liter.

[3] Bold italicized values are discussed in the text.

[4] Sample from well at spring site.

Source: Tetra Tech 2011

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Table B-5

Summary of Humidity Cell Test Results

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Table B-5 Summary of Humidity Cell Test Results

Humidity Cell	Sample	Duration (weeks)	Rock Unit	Pit	ANP kg/t as $CaCO_3$	AGP kg/t as $CaCO_4$	NNP kg/t as $CaCO_5$	Last 5-week pH	Last 5-week Sulfate mg/kg	Cumulative Sulfate (mg/kg)	Cumulative SO_4-S / Total S (%)
Quarterly Composite Samples											
	Saga 6975	20	not reported	Saga	#N/A	#N/A	#N/A	7.40	3.90	57	#N/A
	Bida BWF Sed Ox	20	not reported	Bida	1.5	2.8	-1.3	7.93	1.60	28	18%
	Bida BWF Int Ox	22	not reported	Bida	0.3	4.1	-4.1	7.89	0.13	9	6%
	SWF-Sed-Ox 1st Qtr 2008	20	not reported	Saga	0.3	8.5	-8.5	8.04	3.82	89	32%
	SG-1054 195'-220'	117	not reported	Saga	5.8	10.1	-4.29	6.92	1.09	236	45%
	SG-1054 355'-380'	117	not reported	Saga	4.2	16.2	-12	6.14	0.43	53	8%
	SG-1009 50-100	115	not reported	Saga	7.3	5.78	1.52	8.01	0.55	86	70%
	SG-1043, 40-80	115	not reported	Saga	6.8	7.41	-0.61	7.24	0.47	84	29%
	B3WF-INT-OX	98	not reported	Bida	1.5	12.3	-10.8	6.99	0.54	118	46%
	SWF-SED-OX	98	not reported	Saga	3.5	3.94	-0.44	7.22	0.91	136	93%
	BWF_SED_OX (3rd 09)	73	not reported	Bida	509	0.3	508.7	8.57	1.60	65	100%
	BWF_INT_OX (4th 09)	57	not reported	Bida	4.4	5.3	-0.9	6.42	0.46	47	88%
	TWA1F_Sed_Ox	47	not reported	Top	3.9	5.2	-1.3	6.79	0.60	57	115%
	SA4_Sed_Ox (April 2011)	on-going	not reported	Sage	0.3	0.3	0	8.02	3.14	206	100%
Top Pit Samples											
3482-1	DT 05-01, 1000-1020	62		Top	1030	<0.3	1029.7	7.95	1	33	11%
3482-2	DT 05-01, 1020-1040	62		Top	1030	<0.3	1029.7	7.83	1	34	11%
3482-3	DT 05-03, 1144-1164	62		Top	811	<0.3	810.7	7.91	1	35	12%

Table B-5 Summary of Humidity Cell Test Results

Humidity Cell	Sample	Duration (weeks)	Rock Unit	Pit	ANP kg/t as $CaCO_3$	AGP kg/t as $CaCO_4$	NNP kg/t as $CaCO_5$	Last 5-week pH	Last 5-week Sulfate mg/kg	Cumulative Sulfate (mg/kg)	Cumulative SO_4-S / Total S (%)
3482-4	PZ-1007, 520-540	62		Top	542	<0.3	541.7	7.87	1	30	10%
3482-5	PZ-1008, 140-160	62		Top	518	<0.3	517.7	8.01	1	45	15%
3482-6	PZ-1008, 160-180	62		Top	721	<0.3	720.7	7.965	1	38	13%
3482-7	PZ-1008, 180-200	62		Top	947	<0.3	946.7	7.875	1	27	9%
3482-8	SF-1171, 20-40	62		Top	6.8	1.6	5.2	7.375	1.4	125	4%
3482-9	SF-1171, 80-100	62		Top	679	<0.3	678.7	7.58	1	65	4%
3482-10	SF-1171, 160-180	62		Top	929	<0.3	928.7	8.03	1	51	17%
3482-11	TD-1012, 63-83	62		Top	284	<0.3	283.7	7.995	1	52	17%
3482-12	TD-1012, 278-298	62		Top	837	<0.3	837	7.94	1	32	11%
3482-13	TD-1016, 262-282	62		Top	555	<0.3	555	8.035	1	30	10%
3482-14	TD-1016, 282-302	62		Top	153	<0.3	153	7.82	1	39	13%
3482-15	TD-1016, 302-322	62		Top	97.4	<0.3	97.4	7.77	1	57	10%
3482-16	TD-1082, 30-40	62		Top	658	<0.3	658	8.035	1	31	10%
3482-17	TD-1082, 40-50	62		Top	800	<0.3	800	7.75	1	37	12%
3482-18	TD-1175, 100-120	62		Top	437	<0.3	437	8.01	1	35	12%
3482-19	TOP PIT ALLUVIUM-1	62		Top	287	<0.3	287	7.97	1	43	7%
3482-20	TOP PIT ALLUVIUM-2	62		Top	263	<0.3	263	7.98	1	104	17%

Table B-5 Summary of Humidity Cell Test Results

Humidity Cell	Sample	Duration (weeks)	Rock Unit	Pit	ANP kg/t as $CaCO_3$	AGP kg/t as $CaCO_4$	NNP kg/t as $CaCO_5$	Last 5-week pH	Last 5-week Sulfate mg/kg	Cumulative Sulfate (mg/kg)	Cumulative SO_4-S / Total S (%)
3482-21	TOP PIT LAKE TOWN-1	62		Top	1030	<0.3	1030	7.495	1	26	9%
3482-22	TOP PIT LAKE TOWN-2	62		Top	1050	<0.3	1050	7.74	1	25	8%
Dominant Rock Units											
726-1	GX 1033 780-800	29	Pilot Shale	Galaxy	386.6	57.2	329.0	7.844	124.6	5,845	11%
726-2	GX 1033 800-820/960-980	29	Pilot Shale	Galaxy	476.8	35.4	441.0	7.622	196.2	7,538	22%
726-3	GX 1033 980-1000	29	Pilot Shale	Galaxy	510.3	35.2	475.0	9.106	36.4	2,912	9%
726-4	GX 1035 200-220	29	Pilot Shale	Galaxy	378.9	9.6	369.0	7.958	29.8	3,539	38%
726-5	GX 1035 640-660	29	Devils Gate/Guilmette LS	Galaxy	590.2	3.8	586.0	9.032	21.2	1,157	32%
726-6	GXD 1046 340-360	29	Pilot Shale	Galaxy	520.7	<0.3	521.0	8.036	12	1,473	100%
726-7	PZ 1013 200-220	29	Diamond Peak	Gator	5.7	17.4	-11.8	7.596	62.6	2,569	15%
726-8	PZ 1013 360-380	29	Diamond Peak	Gator	5.2	56.6	-51.4	2.72	248	10,664	20%
726-9	PZ 1013 680-700	29	Diamond Peak	Gator	213.9	22.7	191.0	8.046	39	2,021	9%
726-10	PZ 1016 200-220	29	Pilot Shale	Yankee	6.2	16.8	-10.6	7.722	9.8	345	2%
726-11	PZ 1016 380-400	29	Pilot Shale	Yankee	693.3	16	677.0	8.52	59.4	3,679	24%
726-38	VD05-09 320-	29	Pilot Shale	Vantage	<0.3	33.4	-33.4	2.59	290	28,020	87%

Table B-5 Summary of Humidity Cell Test Results

Humidity Cell	Sample	Duration (weeks)	Rock Unit	Pit	ANP kg/t as $CaCO_3$	AGP kg/t as $CaCO_4$	NNP kg/t as $CaCO_5$	Last 5-week pH	Last 5-week Sulfate mg/kg	Cumulative Sulfate (mg/kg)	Cumulative SO_4-S / Total S (%)
	340										
726-39	VD06-13 800-815	29	Devils Gate/Guilmette LS	Vantage	234.5	11	224.0	7.906	76.4	5,247	50%
726-40	VD06-13 815-835	29	Devils Gate/Guilmette LS	Vantage	247.4	32.1	215.0	7.832	88	4,964	16%
Redbird Samples											
726-12	PZ-1004 640-660	29	Pogonip	Red Bird	40.2	1.5	38.7	8.372	15	2,054	100%
726-13	PZ-1004 660-680	29	Pogonip	Red Bird	39.7	0.5	39.2	8.344	13	566	94%
726-14	PZ-1004 680-700	29	Pogonip	Red Bird	22.7	0.7	22.0	8.072	13.6	1,182	100%
726-15	PZ-1004 700-720	29	Pogonip	Red Bird	36.1	2	34.1	8.202	15.8	895	50%
726-16	PZ-1004 720-740	29	Pogonip	Red Bird	18	2.8	15.2	7.84	16.6	596	22%
726-17	PZ-1004 740-760	29	Jurassic	Red Bird	112.1	2.4	110.0	8.344	12.2	1,108	46%
726-18	RBD-1054 830-834	29	Pogonip	Red Bird	6.7	0.6	6.1	7.706	5	424	71%
726-19	RBD-1054 839-844	29	Jurassic	Red Bird	7.2	0.9	6.4	7.726	76	2,259	100%
726-20	RBD-1071 1020-1040	29	Jurassic	Red Bird	2.1	<0.3	2.1	7.772	7.8	830	100%
726-21	RBD-1078 180-200	29	Chainman	Red Bird	<0.3	16.9	-16.9	7.85	16.2	388	2%
726-22	RBD-1078 280-	29	Chainman	Red Bird	0.5	5.3	-4.8	7.902	26.8	611	12%

Table B-5 Summary of Humidity Cell Test Results

Humidity Cell	Sample	Duration (weeks)	Rock Unit	Pit	ANP kg/t as $CaCO_3$	AGP kg/t as $CaCO_4$	NNP kg/t as $CaCO_5$	Last 5-week pH	Last 5-week Sulfate mg/kg	Cumulative Sulfate (mg/kg)	Cumulative SO_4-S / Total S (%)
	300										
726-23	RBD-1078 360-380	29	Chainman	Red Bird	0.5	2.3	-1.8	7.898	9.2	1,062	51%
726-24	RBD-1088 1100-1120	29	Pogonip	Red Bird	3.6	<0.3	3.6	7.662	8.2	1,597	100%
726-25	RBD-1091 860-880	29	Jurassic	Red Bird	386.6	<0.3	387.0	8.026	3.2	241	80%
726-26	RBD-1092 500-520	29	Jurassic	Red Bird	1	1	0.3	7.554	8.6	841	93%
726-27	RBD-1092 600-620	29	Pogonip	Red Bird	791.3	<0.3	791.0	8.422	0.4	80	27%
726-28	RBD-1092 640-660	29	Pogonip	Red Bird	415	<0.3	415.0	8.244	1.4	97	32%
726-29	RBD-1107 800-820	29	Jurassic	Red Bird	505.2	<0.3	505.0	8.244	3.4	190	63%
726-30	RBD-1110 980-995	29	Jurassic	Red Bird	4.1	<0.3	4.0	7.658	7.2	454	100%
726-31	RBD-1120 385-387	29	Alluvium	Red Bird	42.8	0.4	42.4	8.02	1.8	197	66%
726-32	RBD-1131 580-595	29	Chainman	Red Bird	<0.3	80.5	-80.5	2.468	322	18,841	24%
726-33	RBD-1131 660-680	29	Chainman	Red Bird	<0.3	59	-59.0	2.602	290	16,957	30%
726-34	RBD-1131 780-795	29	Chainman	Red Bird	0.5	3.6	-3.1	7.092	4.2	274	8%
726-35	RBM OVBN-1	29	Alluvium	Red Bird	306.7	-0.8	308.0	8.154	7.4	516	57%
726-36	RBM OVBN-2	29	Alluvium	Red Bird	95.4	1.8	93.6	7.968	7.4	763	42%
726-37	RBM OVBN-3	29	Alluvium	Red Bird	358.3	-0.8	359.0	8.296	4.4	427	47%

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Appendix C

Soils with Salvage Depths within the Study Area

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Appendix C Soils with Salvage Depths within the Study Area

Mapunit Symbol	Mapunit Name	Component Name	Component %	Horizon Designation	Horizon Top depth	Horizon Bottom depth	Texture	pH	Soil Adsorption Ratio (SAR)	Electrical Conductivity (EC)	Water Erosion Potential	Wind Erosion Potential	Mapunit Acres	Component Acres	Slope	Geomorphic Description	Topsoil Suitability	Limiting Factors	Recommended Salvage Depth (RSD)
North Operations Area Project																			
100	Pookaloo-Cavehill-Rock outcrop association	Cavehill	30	H1	0	15	very gravelly silt loam	7.9-9	0-0	0-0	Severe	Moderate	895.18	268.56	15-50	mountains	Poor	C, D, DB, NR, OM, R, S	0
100	Pookaloo-Cavehill-Rock outcrop association	Cavehill	30	H2	15	27	very cobbly loam	7.9-9	0-0	0-2	Severe								
100	Pookaloo-Cavehill-Rock outcrop association	Cavehill	30	H3	27	31	unweathered bedrock	-	-	-									
100	Pookaloo-Cavehill-Rock outcrop association	Pookaloo	40	H1	0	4	very gravelly loam	7.9-8.4	0-0	0-0	Severe	Moderate		358.07	15-50	mountains	Poor	C, D, DB, NR, OM, R, S	0
100	Pookaloo-Cavehill-Rock outcrop association	Pookaloo	40	H2	4	19	very gravelly loam	7.9-8.4	0-0	0-0	Severe								
100	Pookaloo-Cavehill-Rock outcrop association	Pookaloo	40	H2	4	19	very gravelly loam	7.9-8.4	0-0	0-0	Severe								
100	Pookaloo-Cavehill-Rock outcrop association	Pookaloo	40	H3	19	23	unweathered bedrock	-	-	-									
1010	Hunnton-Chiara association	Chiara	35	H1	0	4	silt loam	6.6-8.4	0-5	0-2	Not Severe	Moderate	51.19	17.92	2-8	fan remnants	Poor	CL, D, E, OM, R, SC	4
1010	Hunnton-Chiara association	Chiara	35	H2	4	19	loam	7.4-9	5-30	0-4	Not Severe								
1010	Hunnton-Chiara association	Chiara	35	H3	19	23	indurated	-	-	-									
1010	Hunnton-Chiara association	Hunnton	50	H1	0	4	silt loam	7.4-8.4	0-5	0-4	Not Severe	Moderate		25.59	2-8	fan remnants	Poor	CL, D, E, OM, R, SC	10
1010	Hunnton-Chiara association	Hunnton	50	H2	4	10	clay loam	7.9-8.4	0-5	0-4	Not Severe								
1010	Hunnton-Chiara association	Hunnton	50	H3	10	35	clay	7.4-8.4	1-5	0-4	Not Severe								
1010	Hunnton-Chiara association	Hunnton	50	H4	35	40	indurated	-	-	-									
1081	Bobs-Fax-Parisa association	Bobs	40	H1	0	3	very gravelly loam	7.9-9	0-0	0-0	Not Severe	Moderate	327.81	131.12	2-15	fan remnants	Poor	C, D, E, OM, R, S, SC, StC	14
1081	Bobs-Fax-Parisa association	Bobs	40	H2	3	14	gravelly loam	7.9-9	1-5	0-2	Not Severe								
1081	Bobs-Fax-Parisa association	Bobs	40	H3	14	18	indurated	-	-	-									
1081	Bobs-Fax-Parisa association	Fax	25	H1	0	3	very cobbly coarse sandy loam	7.4-8.4	0-0	0-0	Not Severe	Moderate		81.95	4-15	fan remnants	Poor	C, D, E, OM, R, S, SC, StC	0
1081	Bobs-Fax-Parisa association	Fax	25	H2	3	12	very cobbly sandy clay loam	7.4-8.4	0-0	0-0	Not Severe								
1081	Bobs-Fax-Parisa association	Fax	25	H3	12	22	very cobbly coarse sandy loam	7.9-8.4	0-0	0-2	Not Severe								
1081	Bobs-Fax-Parisa association	Fax	25	H4	22	48	cemented	-	-	-									
1081	Bobs-Fax-Parisa association	Parisa	20	H1	0	4	gravelly loam	7.9-9	1-5	0-2	Not Severe	Moderate		65.56	2-8	fan remnants	Poor	C, D, E, OM, R, S, SC, StC	4
1081	Bobs-Fax-Parisa association	Parisa	20	H2	4	26	very gravelly loam	7.9-9	5-12	0-2	Not Severe								
1081	Bobs-Fax-Parisa association	Parisa	20	H3	26	47	indurated	-	-	-									
1081	Bobs-Fax-Parisa association	Parisa	20	H4	47	60	extremely gravelly coarse sandy loam	7.9-9	13-30	2-8	Not Severe								
1372	Wardbay-Hardol-Adobe association	Adobe	15	H1	0	5	very gravelly silt loam	7.9-8.4	0-0	0-0	Severe	Moderate	242.59	36.39	15-50	mountains	Poor	C, CC, D, DB, HR, R, S	0
1372	Wardbay-Hardol-Adobe association	Adobe	15	H2	5	17	very gravelly loam	7.9-8.4	0-0	0-0	Severe								
1372	Wardbay-Hardol-Adobe association	Adobe	15	H3	17	21	unweathered bedrock	-	-	-									
1372	Wardbay-Hardol-Adobe association	Cumulic Haplaquolls	2	H1	0	6	silt loam	8.5-9.6	0-0	4-8	Not Severe	Moderate		4.85	4-15	drainageways	Poor	C, CC, D, DB, HR, R, S	22
1372	Wardbay-Hardol-Adobe association	Cumulic Haplaquolls	2	H2	6	22	silt loam	8.5-9.6	0-0	4-8	Not Severe								
1372	Wardbay-Hardol-Adobe association	Cumulic Haplaquolls	2	H3	22	60	clay	8.5-9.6	0-0	4-8	Not Severe								
1372	Wardbay-Hardol-Adobe association	Hardol	30	H1	0	12	very gravelly silt loam	7.4-8.4	0-0	0-0	Severe	Moderate		72.78	15-30	mountains	Poor	C, CC, D, DB, HR, R, S	0
1372	Wardbay-Hardol-Adobe association	Hardol	30	H2	12	33	extremely gravelly silt loam	7.4-8.4	0-0	0-0	Not Severe								
1372	Wardbay-Hardol-Adobe association	Hardol	30	H3	33	60	extremely gravelly loam	7.9-8.4	0-0	0-0	Not Severe								
1372	Wardbay-Hardol-Adobe association	Wardbay	40	H1	0	18	very gravelly loam	7.4-8.4	0-0	0-0	Severe	Moderate		97.04	15-50	mountains	Poor	C, CC, D, DB, HR, R, S	0
1372	Wardbay-Hardol-Adobe association	Wardbay	40	H2	18	45	extremely cobbly silt loam	7.9-8.4	0-0	0-0	Severe								
1372	Wardbay-Hardol-Adobe association	Wardbay	40	H3	45	49	unweathered bedrock	-	-	-									
226	Hutchley-Tusel-Suak association	Devilsgait	1	H1	0	10	silt loam	7.9-8.4	1-5	0-2	Not Severe	Moderate	10.64	0.11	2-8	drainageways	Poor	CC, CL, D, DB, HR, NSL, OM, R, S	60

Appendix C Soils with Salvage Depths within the Study Area

Mapunit Symbol	Mapunit Name	Component Name	Component %	Horizon Designation	Horizon Top depth	Horizon Bottom depth	Texture	pH	Soil Adsorption Ratio (SAR)	Electrical Conductivity (EC)	Water Erosion Potential	Wind Erosion Potential	Mapunit Acres	Component Acres	Slope	Geomorphic Description	Topsoil Suitability	Limiting Factors	Recommended Salvage Depth (RSD)
226	Hutchley-Tusel-Suak association	Devilsgait	1	H2	10	60	silt loam to silty clay loam	7.9-8.4	1-5	0-2	Not Severe								
226	Hutchley-Tusel-Suak association	Hutchley	35	H1	0	3	very gravelly loam	6.6-7.8	0-0	0-0	Severe	Low		3.73	15-50	mountains	Poor	CC, CL, D, DB, HR, NSL, OM, R, S	0
226	Hutchley-Tusel-Suak association	Hutchley	35	H2	3	12	very cobbly clay loam	6.6-7.8	0-0	0-0	Severe								
226	Hutchley-Tusel-Suak association	Hutchley	35	H3	12	16	unweathered bedrock	-	-	-									
226	Hutchley-Tusel-Suak association	Suak	25	H1	0	10	very stony loam	6.6-7.3	0-0	0-0	Not Severe	Low		2.66	8-30	mountains	Poor	CC, CL, D, DB, HR, NSL, OM, R, S	0
226	Hutchley-Tusel-Suak association	Suak	25	H2	10	25	extremely cobbly loam	7.4-7.8	0-0	0-0	Not Severe								
226	Hutchley-Tusel-Suak association	Suak	25	H3	25	35	unweathered bedrock	-	-	-									
226	Hutchley-Tusel-Suak association	Tusel	25	H1	0	13	cobbly loam	6.1-7.3	0-0	0-0	Severe	Moderate		2.66	15-50	mountains	Poor	CC, CL, D, DB, HR, NSL, OM, R, S	13
226	Hutchley-Tusel-Suak association	Tusel	25	H2	13	42	extremely gravelly clay loam	6.1-7.3	0-0	0-0	Severe								
226	Hutchley-Tusel-Suak association	Tusel	25	H3	42	46	unweathered bedrock	-	-	-									
271	Atlow association	Atlow	20	H1	0	2	very gravelly loam	7.4-8.4	0-0	0-0	Not Severe	Low	3.96	0.79	4-15	mountains	Poor	CL, D, DB, OM, R, S	0
271	Atlow association	Atlow	20	H2	2	16	very cobbly clay loam	7.9-9	0-0	0-2	Not Severe								
271	Atlow association	Atlow	20	H3	16	20	unweathered bedrock	-	-	-									
271	Atlow association	Atlow	65	H1	0	2	very gravelly loam	7.4-8.4	0-0	0-0	Severe	Low		2.57	15-50	mountains	Poor	CL, D, DB, OM, R, S	0
271	Atlow association	Atlow	65	H2	2	16	very cobbly clay loam	7.9-9	0-0	0-2	Severe								
271	Atlow association	Atlow	65	H3	16	20	unweathered bedrock	-	-	-									
282	Palinor very gravelly loam, 2 to 15 percent slopes	Palinor	85	H1	0	10	very gravelly loam	7.9-9	1-5	0-0	Not Severe	Moderate	0.16	0.14	2-15	fan piedmonts, fan remnants	Poor	C, CP, D, R, S	0
282	Palinor very gravelly loam, 2 to 15 percent slopes	Palinor	85	H2	10	18	extremely gravelly fine sandy loam	7.9-9	1-5	2-4	Not Severe								
282	Palinor very gravelly loam, 2 to 15 percent slopes	Palinor	85	H3	18	30	cemented material	-	-	-									
282	Palinor very gravelly loam, 2 to 15 percent slopes	Palinor	85	H4	30	60	gravelly sandy loam to extremely gravelly coarse sand	7.9-9	1-12	0-0	Not Severe								
283	Palinor-Urmafot association	Palinor	65	H1	0	10	gravelly loam	7.9-9	1-5	0-0	Not Severe	Moderate	13.38	8.70	2-8	fan remnants	Poor	C, D, R, S	10
283	Palinor-Urmafot association	Palinor	65	H2	10	18	extremely gravelly fine sandy loam	7.9-9	1-5	2-4	Not Severe								
283	Palinor-Urmafot association	Palinor	65	H3	18	30	indurated	-	-	-									
283	Palinor-Urmafot association	Palinor	65	H4	30	60	gravelly sandy loam to extremely gravelly coarse sand	7.9-9	1-12	0-0	Not Severe								
283	Palinor-Urmafot association	Urmafot	20	H1	0	8	very gravelly loam	7.9-8.4	0-0	0-0	Not Severe	Moderate		2.68	4-15	fan remnants	Poor	C, D, R, S	0
283	Palinor-Urmafot association	Urmafot	20	H2	8	14	gravelly loam	7.9-8.4	0-0	0-0	Not Severe								
283	Palinor-Urmafot association	Urmafot	20	H3	14	32	indurated	-	-	-									
283	Palinor-Urmafot association	Urmafot	20	H4	32	60	extremely gravelly coarse sandy loam to extremely gravelly sandy loam	7.9-8.4	0-0	0-2	Not Severe								
290	Palinor-Shabliss-Tulase association	Palinor	45	H1	0	10	gravelly loam	7.9-9	1-5	0-0	Not Severe	Moderate	232.34	104.55	2-8	fan remnants	Poor	ALK, C, D, E, OM, R, SC	10
290	Palinor-Shabliss-Tulase association	Palinor	45	H2	10	18	extremely gravelly fine sandy loam	7.9-9	1-5	2-4	Not Severe								
290	Palinor-Shabliss-Tulase association	Palinor	45	H3	18	30	indurated	-	-	-									
290	Palinor-Shabliss-Tulase association	Palinor	45	H4	30	60	gravelly sandy loam to extremely gravelly coarse sand	7.9-9	1-12	0-0	Not Severe								
290	Palinor-Shabliss-Tulase association	Shabliss	25	H1	0	3	gravelly loam	7.9-8.4	1-5	0-4	Not Severe	Moderate		58.09	2-8	fan remnants	Poor	ALK, C, D, E, OM, R, SC	13
290	Palinor-Shabliss-Tulase association	Shabliss	25	H2	3	13	gravelly loam	7.9-8.4	1-12	0-4	Not Severe								
290	Palinor-Shabliss-Tulase association	Shabliss	25	H3	13	55	cemented	-	-	-									
290	Palinor-Shabliss-Tulase association	Tulase	20	H1	0	2	silt loam	7.9-8.4	0-0	0-2	Not Severe	Moderate		46.47	2-4	inset fans	Poor	ALK, C, D, E, OM, R, SC	60
290	Palinor-Shabliss-Tulase association	Tulase	20	H2	2	60	silt loam	8.5-9	1-5	0-2	Not Severe								

Appendix C Soils with Salvage Depths within the Study Area

Mapunit Symbol	Mapunit Name	Component Name	Component %	Horizon Designation	Horizon Top depth	Horizon Bottom depth	Texture	pH	Soil Adsorption Ratio (SAR)	Electrical Conductivity (EC)	Water Erosion Potential	Wind Erosion Potential	Mapunit Acres	Component Acres	Slope	Geomorphic Description	Topsoil Suitability	Limiting Factors	Recommended Salvage Depth (RSD)
291	Urmafot-Borvant-Biken association	Biken	15	H1	0	9	very gravelly fine sandy loam	8.5-9	0-0	0-0	Not Severe	Moderate	656.16	98.42	8-30	hills	Poor	ALK, C, D, DB, OM, R, S, SC, SD	0
291	Urmafot-Borvant-Biken association	Biken	15	H2	9	18	very gravelly fine sandy loam	8.5-9	1-12	0-0	Not Severe								
291	Urmafot-Borvant-Biken association	Biken	15	H3	18	30	weathered bedrock	-	-	-									
291	Urmafot-Borvant-Biken association	Biken	15	H4	30	40	unweathered bedrock	-	-	-									
291	Urmafot-Borvant-Biken association	Borvant	20	H1	0	2	gravelly loam	7.9-9	0-0	1-2	Not Severe	Moderate		131.23	4-15	fan remnants	Poor	ALK, C, D, DB, OM, R, S, SC, SD	2
291	Urmafot-Borvant-Biken association	Borvant	20	H2	2	19	extremely gravelly loam	8.5-9	0-0	0-2	Not Severe								
291	Urmafot-Borvant-Biken association	Borvant	20	H3	19	43	indurated	-	-	-									
291	Urmafot-Borvant-Biken association	Urmafot	50	H1	0	8	very gravelly loam	7.9-8.4	0-0	0-0	Not Severe	Moderate		328.08	2-8	fan remnants	Poor	ALK, C, D, DB, OM, R, S, SC, SD	8 to 14
291	Urmafot-Borvant-Biken association	Urmafot	50	H2	8	14	gravelly loam	7.9-8.4	0-0	0-0	Not Severe								
291	Urmafot-Borvant-Biken association	Urmafot	50	H3	14	32	indurated	-	-	-									
291	Urmafot-Borvant-Biken association	Urmafot	50	H4	32	60	extremely gravelly coarse sandy loam to extremely gravelly sandy loam	7.9-8.4	0-0	0-2	Not Severe								
480	Pioche-Cropper association	Cropper	35	H1	0	4	very cobbly loam	6.6-7.8	0-0	0-0	Severe	Low	20.38	7.13	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
480	Pioche-Cropper association	Cropper	35	H2	4	16	extremely gravelly clay loam	6.6-7.8	0-0	0-0	Severe								
480	Pioche-Cropper association	Cropper	35	H3	16	20	unweathered bedrock	-	-	-									
480	Pioche-Cropper association	Pioche	50	H1	0	3	extremely stony loam	6.6-7.8	0-0	0-0	Severe	Low		10.19	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
480	Pioche-Cropper association	Pioche	50	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Severe								
480	Pioche-Cropper association	Pioche	50	H3	15	19	unweathered bedrock	-	-	-									
481	Pioche-Segura-Cropper association	Cropper	15	H1	0	4	very cobbly loam	6.6-7.8	0-0	0-0	Not Severe	Low	121.47	18.22	8-30	mountains	Poor	CC, CL, D, DB, R, S, StC	0
481	Pioche-Segura-Cropper association	Cropper	15	H2	4	16	extremely gravelly clay loam	6.6-7.8	0-0	0-0	Not Severe								
481	Pioche-Segura-Cropper association	Cropper	15	H3	16	20	unweathered bedrock	-	-	-									
481	Pioche-Segura-Cropper association	Pioche	40	H1	0	3	extremely stony loam	6.6-7.8	0-0	0-0	Not Severe	Low		48.59	8-30	mountains	Poor	CC, CL, D, DB, R, S, StC	0
481	Pioche-Segura-Cropper association	Pioche	40	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Not Severe								
481	Pioche-Segura-Cropper association	Pioche	40	H3	15	19	unweathered bedrock	-	-	-									
481	Pioche-Segura-Cropper association	Segura	30	H1	0	3	very cobbly loam	6.6-8.4	0-0	0-0	Severe	Low		36.44	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
481	Pioche-Segura-Cropper association	Segura	30	H2	3	14	gravelly clay loam	6.6-8.4	0-0	0-0	Severe								
481	Pioche-Segura-Cropper association	Segura	30	H3	14	18	unweathered bedrock	-	-	-									
486	Pioche-Cropper-Upatad association	Cropper	20	H1	0	4	very cobbly loam	6.6-7.8	0-0	0-0	Severe	Low	203.91	40.78	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
486	Pioche-Cropper-Upatad association	Cropper	20	H2	4	16	extremely gravelly clay loam	6.6-7.8	0-0	0-0	Severe								
486	Pioche-Cropper-Upatad association	Cropper	20	H3	16	20	unweathered bedrock	-	-	-									
486	Pioche-Cropper-Upatad association	Pioche	50	H1	0	3	extremely stony loam	6.6-7.8	0-0	0-0	Severe	Low		101.96	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
486	Pioche-Cropper-Upatad association	Pioche	50	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Severe								
486	Pioche-Cropper-Upatad association	Pioche	50	H3	15	19	unweathered bedrock	-	-	-									
486	Pioche-Cropper-Upatad association	Upatad	20	H1	0	3	very gravelly silt loam	7.4-7.8	0-0	0-0	Severe	Low		40.78	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
486	Pioche-Cropper-Upatad association	Upatad	20	H2	3	15	very cobbly silty clay loam	7.4-8.4	0-0	0-0	Severe								
486	Pioche-Cropper-Upatad association	Upatad	20	H3	15	19	unweathered bedrock	-	-	-									
500	Segura-McIvey-Hutchley association	Hutchley	15	H1	0	3	very gravelly loam	6.6-7.8	0-0	0-0	Not Severe	Low	519.33	77.90	8-30	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
500	Segura-McIvey-Hutchley association	Hutchley	15	H2	3	12	very cobbly clay loam	6.6-7.8	0-0	0-0	Not Severe								
500	Segura-McIvey-Hutchley association	Hutchley	15	H3	12	16	unweathered bedrock	-	-	-									
500	Segura-McIvey-Hutchley association	McIvey	25	H1	0	12	very gravelly loam	6.6-7.3	0-0	0-0	Severe	Low		129.83	30-50	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	12 to 18
500	Segura-McIvey-Hutchley association	McIvey	25	H2	12	18	gravelly clay loam	6.1-7.3	0-0	0-0	Severe								

Appendix C Soils with Salvage Depths within the Study Area

Mapunit Symbol	Mapunit Name	Component Name	Component %	Horizon Designation	Horizon Top depth	Horizon Bottom depth	Texture	pH	Soil Adsorption Ratio (SAR)	Electrical Conductivity (EC)	Water Erosion Potential	Wind Erosion Potential	Mapunit Acres	Component Acres	Slope	Geomorphic Description	Topsoil Suitability	Limiting Factors	Recommended Salvage Depth (RSD)
500	Segura-McIvey-Hutchley association	McIvey	25	H3	18	62	extremely cobbly clay	6.1-7.3	0-0	0-0	Severe								
500	Segura-McIvey-Hutchley association	Segura	45	H1	0	3	very cobbly loam	6.6-8.4	0-0	0-0	Severe	Low		233.70	15-50	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
500	Segura-McIvey-Hutchley association	Segura	45	H2	3	14	gravelly clay loam	6.6-8.4	0-0	0-0	Severe								
500	Segura-McIvey-Hutchley association	Segura	45	H3	14	18	unweathered bedrock	-	-	-									
566	McIvey-Segura-Cropper association	Cropper	25	H1	0	4	very cobbly loam	6.6-7.8	0-0	0-0	Severe	Low	946.23	236.56	15-50	mountains	Poor	CL, D, DB, HR, OM, R, S	0
566	McIvey-Segura-Cropper association	Cropper	25	H2	4	16	extremely gravelly clay loam	6.6-7.8	0-0	0-0	Severe								
566	McIvey-Segura-Cropper association	Cropper	25	H3	16	20	unweathered bedrock	-	-	-									
566	McIvey-Segura-Cropper association	McIvey	30	H1	0	5	gravelly loam	6.6-7.3	0-0	0-0	Severe	Low		283.87	15-50	mountains	Poor	CL, D, DB, HR, OM, R, S	5
566	McIvey-Segura-Cropper association	McIvey	30	H2	5	12	very gravelly loam	6.6-7.3	0-0	0-0	Severe								
566	McIvey-Segura-Cropper association	McIvey	30	H3	12	18	gravelly clay loam	6.1-7.3	0-0	0-0	Severe								
566	McIvey-Segura-Cropper association	McIvey	30	H4	18	62	extremely cobbly clay	6.1-7.3	0-0	0-0	Severe								
566	McIvey-Segura-Cropper association	Segura	30	H1	0	3	very cobbly loam	6.6-8.4	0-0	0-0	Severe	Low		283.87	15-50	mountains	Poor	CL, D, DB, HR, OM, R, S	0
566	McIvey-Segura-Cropper association	Segura	30	H2	3	14	gravelly clay loam	6.6-8.4	0-0	0-0	Severe								
566	McIvey-Segura-Cropper association	Segura	30	H3	14	18	unweathered bedrock	-	-	-									
670	Cavehill-Grink-Rock outcrop association	Cavehill	45	H1	0	15	very gravelly silt loam	7.9-9	0-0	0-0	Severe	Moderate	153.21	68.94	15-50	mountains	Poor	C, D, DB, NR, R, S, StC	0
670	Cavehill-Grink-Rock outcrop association	Cavehill	45	H2	15	27	very cobbly loam	7.9-9	0-0	0-2	Severe								
670	Cavehill-Grink-Rock outcrop association	Cavehill	45	H3	27	31	unweathered bedrock	-	-	-									
670	Cavehill-Grink-Rock outcrop association	Grink	30	H1	0	7	very stony loam	7.4-8.4	0-0	0-0	Severe	Low		45.96	15-50	mountains	Poor	C, D, DB, NR, R, S, StC	0
670	Cavehill-Grink-Rock outcrop association	Grink	30	H2	7	19	very gravelly fine sandy loam	7.4-8.4	0-0	0-0	Severe								
670	Cavehill-Grink-Rock outcrop association	Grink	30	H3	19	29	unweathered bedrock	-	-	-									
753	Upatad-Cropper-Atlow association	Atlow	15	H1	0	2	very gravelly loam	7.4-8.4	0-0	0-0	Severe	Low	1.70	0.26	15-50	mountains	Poor	CL, D, DB, OM, R, S	0
753	Upatad-Cropper-Atlow association	Atlow	15	H2	2	16	very cobbly clay loam	7.9-9	0-0	0-2	Severe								
753	Upatad-Cropper-Atlow association	Atlow	15	H3	16	20	unweathered bedrock	-	-	-									
753	Upatad-Cropper-Atlow association	Cropper	30	H1	0	4	very cobbly loam	6.6-7.8	0-0	0-0	Severe	Low		0.51	15-50	mountains	Poor	CL, D, DB, OM, R, S	0
753	Upatad-Cropper-Atlow association	Cropper	30	H2	4	16	extremely gravelly clay loam	6.6-7.8	0-0	0-0	Severe								
753	Upatad-Cropper-Atlow association	Cropper	30	H3	16	20	unweathered bedrock	-	-	-									
753	Upatad-Cropper-Atlow association	Upatad	40	H1	0	3	very gravelly silt loam	7.4-7.8	0-0	0-0	Severe	Low		0.68	15-50	mountains	Poor	CL, D, DB, OM, R, S	0
753	Upatad-Cropper-Atlow association	Upatad	40	H2	3	15	very cobbly silty clay loam	7.4-8.4	0-0	0-0	Severe								
753	Upatad-Cropper-Atlow association	Upatad	40	H3	15	19	unweathered bedrock	-	-	-									
763	Segura-Pioche-McIvey association	McIvey	20	H1	0	5	gravelly loam	6.6-7.3	0-0	0-0	Not Severe	Low	285.12	57.02	4-15	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	5
763	Segura-Pioche-McIvey association	McIvey	20	H2	5	12	very gravelly loam	6.6-7.3	0-0	0-0	Not Severe								
763	Segura-Pioche-McIvey association	McIvey	20	H3	12	18	gravelly clay loam	6.1-7.3	0-0	0-0	Not Severe								
763	Segura-Pioche-McIvey association	McIvey	20	H3	12	18	gravelly clay loam	6.1-7.3	0-0	0-0	Not Severe								
763	Segura-Pioche-McIvey association	McIvey	20	H4	18	62	extremely cobbly clay	6.1-7.3	0-0	0-0	Not Severe								
763	Segura-Pioche-McIvey association	Pioche	30	H1	0	3	extremely stony loam	6.6-7.8	0-0	0-0	Severe	Low		85.54	15-50	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
763	Segura-Pioche-McIvey association	Pioche	30	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Severe								
763	Segura-Pioche-McIvey association	Pioche	30	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Severe								
763	Segura-Pioche-McIvey association	Pioche	30	H3	15	19	unweathered bedrock	-	-	-									
763	Segura-Pioche-McIvey association	Segura	35	H1	0	3	very cobbly loam	6.6-8.4	0-0	0-0	Not Severe	Low		99.79	8-30	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
763	Segura-Pioche-McIvey association	Segura	35	H2	3	14	gravelly clay loam	6.6-8.4	0-0	0-0	Not Severe								

Appendix C Soils with Salvage Depths within the Study Area

Mapunit Symbol	Mapunit Name	Component Name	Component %	Horizon Designation	Horizon Top depth	Horizon Bottom depth	Texture	pH	Soil Adsorption Ratio (SAR)	Electrical Conductivity (EC)	Water Erosion Potential	Wind Erosion Potential	Mapunit Acres	Component Acres	Slope	Geomorphic Description	Topsoil Suitability	Limiting Factors	Recommended Salvage Depth (RSD)
763	Segura-Pioche-McIvey association	Segura	35	H3	14	18	unweathered bedrock	-	-	-									
801	Broland very gravelly loam, 4 to 8 percent slopes	Broland	100	H1	0	3	very gravelly loam	7.9-8.4	0-0	0-2	Not Severe	Low	193.86	193.86	4-8	fan remnants	Poor	D, OM, R	3 to 9
801	Broland very gravelly loam, 4 to 8 percent slopes	Broland	100	H2	3	9	gravelly clay loam	7.9-8.4	0-0	0-2	Not Severe								
801	Broland very gravelly loam, 4 to 8 percent slopes	Broland	100	H3	9	16	extremely gravelly clay loam	7.9-8.4	1-5	0-2	Not Severe								
801	Broland very gravelly loam, 4 to 8 percent slopes	Broland	100	H4	16	19	extremely gravelly sandy loam	7.9-8.4	1-5	0-2	Not Severe								
801	Broland very gravelly loam, 4 to 8 percent slopes	Broland	100	H5	19	40	cemented	-	-	-									
801	Broland very gravelly loam, 4 to 8 percent slopes	Broland	100	H6	40	60	extremely gravelly coarse sand	7.9-8.4	1-5	0-2	Not Severe								
920	Abgese-Yody-Shabliss association	Abgese	45	H1	0	4	sandy loam	7.9-8.4	1-5	0-2	Not Severe	Moderate	1.37	0.62	2-4	fan remnants	Poor	ALK, D, E, HR, OM, R, SC	22
920	Abgese-Yody-Shabliss association	Abgese	45	H2	4	22	gravelly sandy clay loam	7.9-8.4	1-5	0-2	Not Severe								
920	Abgese-Yody-Shabliss association	Abgese	45	H3	22	43	very gravelly sandy loam	7.9-8.4	1-5	0-2	Not Severe								
920	Abgese-Yody-Shabliss association	Abgese	45	H4	43	60	very gravelly loamy sand	8.5-9	1-5	2-4	Not Severe								
920	Abgese-Yody-Shabliss association	Shabliss	20	H1	0	3	gravelly loam	7.9-8.4	1-5	0-4	Not Severe	Moderate		0.27	2-4	fan remnants	Poor	ALK, D, E, HR, OM, R, SC	13
920	Abgese-Yody-Shabliss association	Shabliss	20	H2	3	13	gravelly loam	7.9-8.4	1-12	0-4	Not Severe								
920	Abgese-Yody-Shabliss association	Shabliss	20	H3	13	55	cemented	-	-	-									
920	Abgese-Yody-Shabliss association	Yody	20	H1	0	4	gravelly sandy loam	7.9-8.4	0-5	0-2	Not Severe	Moderate		0.27	2-4	fan remnants	Poor	ALK, D, E, HR, OM, R, SC	36
920	Abgese-Yody-Shabliss association	Yody	20	H2	4	30	gravelly clay loam	7.9-8.4	1-12	2-4	Not Severe								
920	Abgese-Yody-Shabliss association	Yody	20	H3	30	36	gravelly loam	7.9-9	1-12	2-4	Not Severe								
920	Abgese-Yody-Shabliss association	Yody	20	H4	36	60	cemented	-	-	-									
South Operations Area Project																			
100	Pookaloo-Cavehill-Rock outcrop association	Cavehill	30	H1	0	15	very gravelly silt loam	7.9-9	0-0	0-0	Severe	Moderate	40.65	12.20	15-50	mountains	Poor	C, D, DB, NR, OM, R, S	0
100	Pookaloo-Cavehill-Rock outcrop association	Cavehill	30	H2	15	27	very cobbly loam	7.9-9	0-0	0-2	Severe								
100	Pookaloo-Cavehill-Rock outcrop association	Cavehill	30	H3	27	31	unweathered bedrock	-	-	-									
100	Pookaloo-Cavehill-Rock outcrop association	Pookaloo	40	H1	0	4	very gravelly loam	7.9-8.4	0-0	0-0	Severe	Moderate		16.26	15-50	mountains	Poor	C, D, DB, NR, OM, R, S	0
100	Pookaloo-Cavehill-Rock outcrop association	Pookaloo	40	H2	4	19	very gravelly loam	7.9-8.4	0-0	0-0	Severe								
100	Pookaloo-Cavehill-Rock outcrop association	Pookaloo	40	H3	19	23	unweathered bedrock	-	-	-									
120	Tecomar-Pookaloo-Zimbob association	Pookaloo	20	H1	0	4	very gravelly loam	7.9-8.4	0-0	0-0	Severe	Moderate	51.43	10.29	15-50	mountains	Poor	C, CC, D, DB, OM, R, S	0
120	Tecomar-Pookaloo-Zimbob association	Pookaloo	20	H2	4	19	very gravelly loam	7.9-8.4	0-0	0-0	Severe								
120	Tecomar-Pookaloo-Zimbob association	Pookaloo	20	H3	19	23	unweathered bedrock	-	-	-									
120	Tecomar-Pookaloo-Zimbob association	Tecomar	50	H1	0	3	extremely gravelly silt loam	7.9-9	0-0	0-2	Severe	Low		25.71	15-50	mountains	Poor	C, CC, D, DB, OM, R, S	0
120	Tecomar-Pookaloo-Zimbob association	Tecomar	50	H2	3	18	extremely cobbly silt loam	7.9-9	1-5	0-2	Severe								
120	Tecomar-Pookaloo-Zimbob association	Tecomar	50	H3	18	22	unweathered bedrock	-	-	-									
120	Tecomar-Pookaloo-Zimbob association	Zimbob	15	H1	0	1	very gravelly loam	7.9-8.4	1-5	0-0	Severe	Moderate		7.71	15-50	hills	Poor	C, CC, D, DB, OM, R, S	0
120	Tecomar-Pookaloo-Zimbob association	Zimbob	15	H2	1	12	very gravelly loam	7.9-9	1-5	0-0	Severe								
120	Tecomar-Pookaloo-Zimbob association	Zimbob	15	H3	12	16	unweathered bedrock	-	-	-									
1260	Urmafot association	Urmafot	15	H1	0	9	very gravelly loam	7.9-8.4	0-0	0-0	Not Severe	Moderate	35.85	5.38	4-15	fan remnants	Poor	C, D, R, S	0
1260	Urmafot association	Urmafot	15	H2	9	32	gravelly loam	-	-	-									

Appendix C Soils with Salvage Depths within the Study Area

Mapunit Symbol	Mapunit Name	Component Name	Component %	Horizon Designation	Horizon Top depth	Horizon Bottom depth	Texture	pH	Soil Adsorption Ratio (SAR)	Electrical Conductivity (EC)	Water Erosion Potential	Wind Erosion Potential	Mapunit Acres	Component Acres	Slope	Geomorphic Description	Topsoil Suitability	Limiting Factors	Recommended Salvage Depth (RSD)
1260	Urmafot association	Urmafot	15	H4	32	60	extremely gravelly coarse sandy loam to extremely gravelly sandy loam	7.9-8.4	0-0	0-2	Not Severe								
1260	Urmafot association	Urmafot	70	H1	0	8	very gravelly loam	7.9-8.4	0-0	0-0	Not Severe	Moderate		25.09	4-15	fan remnants	Poor	C, D, R, S	8 to 14
1260	Urmafot association	Urmafot	70	H2	8	14	gravelly loam	7.9-8.4	0-0	0-0	Not Severe								
1260	Urmafot association	Urmafot	70	H3	14	32	indurated	-	-	-									
1260	Urmafot association	Urmafot	70	H4	32	60	extremely gravelly coarse sandy loam to extremely gravelly sandy loam	7.9-8.4	0-0	0-2	Not Severe								
271	Atlow association	Atlow	20	H1	0	2	very gravelly loam	7.4-8.4	0-0	0-0	Not Severe	Low	24.11	4.82	4-15	mountains	Poor	CL, D, DB, OM, R, S	0
271	Atlow association	Atlow	20	H2	2	16	very cobbly clay loam	7.9-9	0-0	0-2	Not Severe								
271	Atlow association	Atlow	20	H3	16	20	unweathered bedrock	-	-	-									
271	Atlow association	Atlow	65	H1	0	2	very gravelly loam	7.4-8.4	0-0	0-0	Severe	Low		15.67	15-50	mountains	Poor	CL, D, DB, OM, R, S	0
271	Atlow association	Atlow	65	H2	2	16	very cobbly clay loam	7.9-9	0-0	0-2	Severe								
271	Atlow association	Atlow	65	H3	16	20	unweathered bedrock	-	-	-									
288	Palinor-Yody-Broland association	Broland	20	H1	0	3	very gravelly loam	7.9-8.4	0-0	0-2	Not Severe	Low	212.62	42.52	4-15	fan remnants	Poor	C, CP, D, OM, R, S, SC	3 to 9
288	Palinor-Yody-Broland association	Broland	20	H2	3	9	gravelly clay loam	7.9-8.4	0-0	0-2	Not Severe								
288	Palinor-Yody-Broland association	Broland	20	H3	9	16	extremely gravelly clay loam	7.9-8.4	1-5	0-2	Not Severe								
288	Palinor-Yody-Broland association	Broland	20	H4	16	19	extremely gravelly sandy loam	7.9-8.4	1-5	0-2	Not Severe								
288	Palinor-Yody-Broland association	Broland	20	H5	19	40	cemented material	-	-	-									
288	Palinor-Yody-Broland association	Broland	20	H6	40	60	extremely gravelly coarse sand	7.9-8.4	1-5	0-2	Not Severe								
288	Palinor-Yody-Broland association	Palinor	40	H1	0	10	gravelly loam	7.9-9	1-5	0-0	Not Severe	Moderate		85.05	2-8	fan piedmonts, fan remnants	Poor	C, CP, D, OM, R, S, SC	10
288	Palinor-Yody-Broland association	Palinor	40	H2	10	18	extremely gravelly fine sandy loam	7.9-9	1-5	2-4	Not Severe								
288	Palinor-Yody-Broland association	Palinor	40	H3	18	30	cemented material	-	-	-									
288	Palinor-Yody-Broland association	Palinor	40	H4	30	60	gravelly sandy loam to extremely gravelly coarse sand	7.9-9	1-12	0-0	Not Severe								
288	Palinor-Yody-Broland association	Yody	25	H1	0	4	gravelly sandy loam	7.9-8.4	0-5	0-2	Not Severe	Moderate		53.15	2-8	fan remnants	Poor	C, CP, D, OM, R, S, SC	36
288	Palinor-Yody-Broland association	Yody	25	H2	4	30	gravelly clay loam	7.9-8.4	1-12	2-4	Not Severe								
288	Palinor-Yody-Broland association	Yody	25	H2	4	30	gravelly clay loam	7.9-8.4	1-12	2-4	Not Severe								
288	Palinor-Yody-Broland association	Yody	25	H3	30	36	gravelly loam	7.9-9	1-12	2-4	Not Severe								
288	Palinor-Yody-Broland association	Yody	25	H4	36	60	cemented material	-	-	-									
292	Palinor-Urmafot-Urmafot, very shallow association	Palinor	45	H1	0	10	gravelly loam	7.9-9	1-5	0-0	Not Severe	Moderate	47.39	21.33	8-15	fan remnants	Poor	C, D, R, S	10
292	Palinor-Urmafot-Urmafot, very shallow association	Palinor	45	H2	10	18	extremely gravelly fine sandy loam	7.9-9	1-5	2-4	Not Severe								
292	Palinor-Urmafot-Urmafot, very shallow association	Palinor	45	H3	18	30	indurated	-	-	-									
292	Palinor-Urmafot-Urmafot, very shallow association	Palinor	45	H4	30	60	gravelly sandy loam to extremely gravelly coarse sand	7.9-9	1-12	0-0	Not Severe								
292	Palinor-Urmafot-Urmafot, very shallow association	Urmafot	15	H1	0	9	very gravelly loam	7.9-8.4	0-0	0-0	Not Severe	Moderate		7.11	4-15	fan remnants	Poor	C, D, R, S	9 to 32
292	Palinor-Urmafot-Urmafot, very shallow association	Urmafot	15	H2	9	32	gravelly loam	-	-	-									
292	Palinor-Urmafot-Urmafot, very shallow association	Urmafot	15	H4	32	60	extremely gravelly coarse sandy loam to extremely gravelly sandy loam	7.9-8.4	0-0	0-2	Not Severe								
292	Palinor-Urmafot-Urmafot, very shallow association	Urmafot	25	H1	0	8	very gravelly loam	7.9-8.4	0-0	0-0	Not Severe	Moderate		11.85	2-8	fan remnants	Poor	C, D, R, S	8 to 14
292	Palinor-Urmafot-Urmafot, very shallow association	Urmafot	25	H2	8	14	gravelly loam	7.9-8.4	0-0	0-0	Not Severe								
292	Palinor-Urmafot-Urmafot, very shallow association	Urmafot	25	H3	14	32	indurated	-	-	-									

Appendix C Soils with Salvage Depths within the Study Area

Mapunit Symbol	Mapunit Name	Component Name	Component %	Horizon Designation	Horizon Top depth	Horizon Bottom depth	Texture	pH	Soil Adsorption Ratio (SAR)	Electrical Conductivity (EC)	Water Erosion Potential	Wind Erosion Potential	Mapunit Acres	Component Acres	Slope	Geomorphic Description	Topsoil Suitability	Limiting Factors	Recommended Salvage Depth (RSD)
292	Palinor-Urmafot-Urmafot, very shallow association	Urmafot	25	H4	32	60	extremely gravelly coarse sandy loam to extremely gravelly sandy loam	7.9-8.4	0-0	0-2	Not Severe								
296	Palinor-Urmafot-Palinor, steep association	Palinor	15	H1	0	10	gravelly loam	7.9-9	1-5	0-0	Severe	Moderate	63.06	9.46	15-50	fan remnants	Poor	C, D, R, S	10
296	Palinor-Urmafot-Palinor, steep association	Palinor	15	H2	10	18	extremely gravelly fine sandy loam	7.9-9	1-5	2-4	Severe								
296	Palinor-Urmafot-Palinor, steep association	Palinor	15	H3	18	30	indurated	-	-	-									
296	Palinor-Urmafot-Palinor, steep association	Palinor	15	H4	30	60	gravelly sandy loam to extremely gravelly coarse sand	7.9-9	1-12	0-0	Severe								
296	Palinor-Urmafot-Palinor, steep association	Palinor	50	H1	0	10	gravelly loam	7.9-9	1-5	0-0	Not Severe	Moderate		31.53	4-15	fan remnants	Poor	C, D, R, S	10
296	Palinor-Urmafot-Palinor, steep association	Palinor	50	H2	10	18	extremely gravelly fine sandy loam	7.9-9	1-5	2-4	Not Severe								
296	Palinor-Urmafot-Palinor, steep association	Palinor	50	H3	18	30	indurated	-	-	-									
296	Palinor-Urmafot-Palinor, steep association	Palinor	50	H4	30	60	gravelly sandy loam to extremely gravelly coarse sand	7.9-9	1-12	0-0	Not Severe								
296	Palinor-Urmafot-Palinor, steep association	Urmafot	20	H1	0	8	very gravelly loam	7.9-8.4	0-0	0-0	Not Severe	Moderate		12.61	4-15	fan remnants	Poor	C, D, R, S	8 to 14
296	Palinor-Urmafot-Palinor, steep association	Urmafot	20	H2	8	14	gravelly loam	7.9-8.4	0-0	0-0	Not Severe								
296	Palinor-Urmafot-Palinor, steep association	Urmafot	20	H3	14	32	indurated	-	-	-									
296	Palinor-Urmafot-Palinor, steep association	Urmafot	20	H4	32	60	extremely gravelly coarse sandy loam to extremely gravelly sandy loam	7.9-8.4	0-0	0-2	Not Severe								
326	Palinor-Urmafot-Roden association	Palinor	35	H1	0	10	gravelly loam	7.9-9	1-5	0-0	Not Severe	Moderate	378.79	132.58	2-8	fan remnants	Poor	C, CL, D, DB, OM, R, S	10
326	Palinor-Urmafot-Roden association	Palinor	35	H2	10	18	extremely gravelly fine sandy loam	7.9-9	1-5	2-4	Not Severe								
326	Palinor-Urmafot-Roden association	Palinor	35	H3	18	30	indurated	-	-	-									
326	Palinor-Urmafot-Roden association	Palinor	35	H4	30	60	gravelly sandy loam to extremely gravelly coarse sand	7.9-9	1-12	0-0	Not Severe								
326	Palinor-Urmafot-Roden association	Roden	20	H1	0	1	very gravelly clay loam	7.9-8.4	0-0	0-0	Not Severe	Moderate		75.76	4-15	hills	Poor	C, CL, D, DB, OM, R, S	0
326	Palinor-Urmafot-Roden association	Roden	20	H2	1	8	very gravelly clay	7.9-8.4	0-0	0-0	Not Severe								
326	Palinor-Urmafot-Roden association	Roden	20	H3	8	12	weathered bedrock	-	-	-									
326	Palinor-Urmafot-Roden association	Urmafot	30	H1	0	9	gravelly loam	7.9-8.4	0-0	0-0	Not Severe	Moderate		113.64	2-8	fan remnants	Poor	C, CL, D, DB, OM, R, S	9
326	Palinor-Urmafot-Roden association	Urmafot	30	H2	9	32	indurated	-	-	-									
326	Palinor-Urmafot-Roden association	Urmafot	30	H4	32	60	extremely gravelly coarse sandy loam to extremely gravelly sandy loam	7.9-8.4	0-0	0-2	Not Severe								
351	Heist-Tulase association	Heist	60	H1	0	3	silt loam	7.9-8.4	1-5	0-2	Not Severe	Moderate	13.29	7.98	0-2	fan skirts	Fair	ALK, E, HR, OM, R, SC, SD	60
351	Heist-Tulase association	Heist	60	H2	3	36	fine sandy loam	7.9-9	5-12	2-4	Not Severe								
351	Heist-Tulase association	Heist	60	H2	3	36	fine sandy loam	7.9-9	5-12	2-4	Not Severe								
351	Heist-Tulase association	Heist	60	H3	36	60	gravelly fine sandy loam	7.9-9	5-12	2-4	Not Severe								
351	Heist-Tulase association	Tulase	30	H1	0	2	silt loam	7.9-8.4	0-0	0-2	Not Severe	Moderate		3.99	0-2	inset fans	Fair	ALK, E, HR, OM, R, SC, SD	60
351	Heist-Tulase association	Tulase	30	H2	2	60	silt loam	8.5-9	1-5	0-2	Not Severe								
480	Pioche-Cropper association	Cropper	35	H1	0	4	very cobbly loam	6.6-7.8	0-0	0-0	Severe	Low	38.67	13.54	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
480	Pioche-Cropper association	Cropper	35	H2	4	16	extremely gravelly clay loam	6.6-7.8	0-0	0-0	Severe								
480	Pioche-Cropper association	Cropper	35	H3	16	20	unweathered bedrock	-	-	-									
480	Pioche-Cropper association	Pioche	50	H1	0	3	extremely stony loam	6.6-7.8	0-0	0-0	Severe	Low		19.34	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
480	Pioche-Cropper association	Pioche	50	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Severe								

Appendix C Soils with Salvage Depths within the Study Area

Mapunit Symbol	Mapunit Name	Component Name	Component %	Horizon Designation	Horizon Top depth	Horizon Bottom depth	Texture	pH	Soil Adsorption Ratio (SAR)	Electrical Conductivity (EC)	Water Erosion Potential	Wind Erosion Potential	Mapunit Acres	Component Acres	Slope	Geomorphic Description	Topsoil Suitability	Limiting Factors	Recommended Salvage Depth (RSD)
480	Pioche-Cropper association	Pioche	50	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Severe								
480	Pioche-Cropper association	Pioche	50	H3	15	19	unweathered bedrock	-	-	-									
481	Pioche-Segura-Cropper association	Cropper	15	H1	0	4	very cobbly loam	6.6-7.8	0-0	0-0	Not Severe	Low	520.96	78.14	8-30	mountains	Poor	CC, CL, D, DB, R, S, StC	0
481	Pioche-Segura-Cropper association	Cropper	15	H2	4	16	extremely gravelly clay loam	6.6-7.8	0-0	0-0	Not Severe								
481	Pioche-Segura-Cropper association	Cropper	15	H3	16	20	unweathered bedrock	-	-	-									
481	Pioche-Segura-Cropper association	Pioche	40	H1	0	3	extremely stony loam	6.6-7.8	0-0	0-0	Not Severe	Low		208.39	8-30	mountains	Poor	CC, CL, D, DB, R, S, StC	0
481	Pioche-Segura-Cropper association	Pioche	40	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Not Severe								
481	Pioche-Segura-Cropper association	Pioche	40	H3	15	19	unweathered bedrock	-	-	-									
481	Pioche-Segura-Cropper association	Segura	30	H1	0	3	very cobbly loam	6.6-8.4	0-0	0-0	Severe	Low		156.29	15-50	mountains	Poor	CC, CL, D, DB, R, S, StC	0
481	Pioche-Segura-Cropper association	Segura	30	H2	3	14	gravelly clay loam	6.6-8.4	0-0	0-0	Severe								
481	Pioche-Segura-Cropper association	Segura	30	H3	14	18	unweathered bedrock	-	-	-									
561	McIvey-Pioche-Upatad association	McIvey	40	H1	0	12	very gravelly loam	6.6-7.3	0-0	0-0	Severe	Low	81.98	32.79	15-50	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
561	McIvey-Pioche-Upatad association	McIvey	40	H2	12	18	gravelly clay loam	6.1-7.3	0-0	0-0	Severe								
561	McIvey-Pioche-Upatad association	McIvey	40	H3	18	62	extremely cobbly clay	6.1-7.3	0-0	0-0	Severe								
561	McIvey-Pioche-Upatad association	Pioche	25	H1	0	3	extremely stony loam	6.6-7.8	0-0	0-0	Severe	Low		20.50	15-50	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
561	McIvey-Pioche-Upatad association	Pioche	25	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Severe								
561	McIvey-Pioche-Upatad association	Pioche	25	H3	15	19	unweathered bedrock	-	-	-									
561	McIvey-Pioche-Upatad association	Upatad	20	H1	0	3	very gravelly silt loam	7.4-7.8	0-0	0-0	Severe	Low		16.40	15-50	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
561	McIvey-Pioche-Upatad association	Upatad	20	H2	3	15	very cobbly silty clay loam	7.4-8.4	0-0	0-0	Severe								
561	McIvey-Pioche-Upatad association	Upatad	20	H3	15	19	unweathered bedrock	-	-	-									
763	Segura-Pioche-McIvey association	McIvey	20	H1	0	5	gravelly loam	6.6-7.3	0-0	0-0	Not Severe	Low	627.20	125.44	4-15	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	5
763	Segura-Pioche-McIvey association	McIvey	20	H2	5	12	very gravelly loam	6.6-7.3	0-0	0-0	Not Severe								
763	Segura-Pioche-McIvey association	McIvey	20	H3	12	18	gravelly clay loam	6.1-7.3	0-0	0-0	Not Severe								
763	Segura-Pioche-McIvey association	McIvey	20	H4	18	62	extremely cobbly clay	6.1-7.3	0-0	0-0	Not Severe								
763	Segura-Pioche-McIvey association	Pioche	30	H1	0	3	extremely stony loam	6.6-7.8	0-0	0-0	Severe	Low		188.16	15-50	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
763	Segura-Pioche-McIvey association	Pioche	30	H2	3	15	very cobbly clay	6.6-7.8	0-0	0-0	Severe								
763	Segura-Pioche-McIvey association	Pioche	30	H3	15	19	unweathered bedrock	-	-	-									
763	Segura-Pioche-McIvey association	Segura	35	H1	0	3	very cobbly loam	6.6-8.4	0-0	0-0	Not Severe	Low		219.52	8-30	mountains	Poor	CC, CL, D, DB, HR, OM, R, S, StC	0
763	Segura-Pioche-McIvey association	Segura	35	H2	3	14	gravelly clay loam	6.6-8.4	0-0	0-0	Not Severe								
763	Segura-Pioche-McIvey association	Segura	35	H3	14	18	unweathered bedrock	-	-	-									

Appendix D

Inventory of Migratory and Resident Bird Species Potentially Occurring within the Study Area

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Appendix D Inventory of Migratory and Resident Bird Species Potentially Occurring within the Study Area

Common Name	Scientific Name	Status[1]	Observed in Study Area[2]
American crow	*Corvus brachyrhynchos*	-	Yes
American kestrel	*Falco sparverius*	-	No
American robin	*Turdus migratorius*	-	Yes
Ash-throated flycatcher	*Myiarchus cinerascens*	PIF	Yes
Barn swallow	*Hirundo rustica*	-	Yes
Black-billed magpie	*Pica pica*	-	Yes
Black-headed grosbeak	*Pheucticus melanocephalus*	-	Yes
Black rosy-finch	*Leucosticte atrata*	BLM, BCC, PIF	No
Black-throated gray warbler	*Dendroica nigrescens*	PIF	Yes
Black-throated sparrow	*Amphispiza bilineata*	-	Yes
Blue-gray gnatcatcher	*Polioptila caerulea*	-	Yes
Brewer's blackbird	*Euphagus cyanocephalus*	-	Yes
Brewer's sparrow	*Spizella breweri*	BCC	Yes
Broad-tailed hummingbird	*Selasphorus platycercus*	-	Yes
Brown-headed cowbird	*Molothrus ater*	-	No
Bullock's oriole	*Icterus bullockii*	-	Yes
Bushtit	*Psaltriparus minimus*	-	Yes
Cassin's finch	*Carpodacus cassinii*	-	Yes
Chipping sparrow	*Spizella passerina*	-	Yes
Chukar	*Alectoris chukar*	-	Yes
Clark's nutcracker	*Nucifraga columbiana*	-	Yes
Cliff swallow	*Hirundo pyrrhonota*	-	No
Common raven	*Corvus corax*	-	Yes
Cooper's hawk	*Accipiter cooperii*	PIF	Yes
Dusky grouse	*Dendragapus obscurus*	-	Yes
Ferruginous hawk	*Buteo regalis*	BLM, PIF	Yes
Golden eagle	*Aquila chrysaetos*	BLM, BCC	Yes
Gray flycatcher	*Empidonax wrightii*	PIF	Yes
Gray partridge	*Perdix perdix*	-	No
Great horned owl	*Bubo virginianus*	-	Yes
Greater sage-grouse	*Centrocercus urophasianus*	BLM, BCC, PIF	Yes
Green-tailed towhee	*Pipilo chlorurus*	BCC	Yes
Hairy woodpecker	*Picoides villosus*	-	Yes
Hermit thrush	*Catharus guttatus*	-	Yes

Appendix D Inventory of Migratory and Resident Bird Species Potentially Occurring within the Study Area

Common Name	Scientific Name	Status[1]	Observed in Study Area[2]
Horned lark	*Eremophila alpestris*	-	Yes
House finch	*Carpodacus mexicanus*	-	Yes
House wren	*Troglodytes aedon*	-	Yes
Lark sparrow	*Chondestes grammacus*	-	Yes
Lazuli bunting	*Passerina amoena*	-	Yes
Lewis's woodpecker	*Melanerpes lewis*	BLM, BCC, PIF	No
Loggerhead shrike	*Lanius ludovicianus*	BLM, BCC, PIF	No
MacGillivray's warbler	*Oporornis tolmiei*	PIF	Yes
Mountain bluebird	*Sialia currucoides*	-	Yes
Mountain chickadee	*Poecile gambeli*	-	Yes
Mourning dove	*Zenaida macroura*	-	Yes
Northern flicker	*Colaptes auratus*	-	Yes
Northern Goshawk	*Accipiter gentilis*	BLM, BCC	No
Northern harrier	*Circus cyaneus*	-	Yes
Pinyon jay	*Gymnorhinus cyanocephalus*	BLM, BCC, PIF	Yes
Plumbeous vireo	*Vireo plumbeus*	-	Yes
Peregrine falcon	*Falco peregrines*	BLM, BCC, PIF	No
Prairie falcon	*Falco mexicanus*	BLM, PIF	Yes
Red-naped sapsucker	*Sphyrapicus nuchalis*	PIF	Yes
Red-tailed hawk	*Buteo jamaicensis*	-	Yes
Rock wren	*Salpinctes obsoletus*	-	Yes
Ruby-crowned kinglet	*Regulus calendula*	-	Yes
Sage sparrow	*Amphispiza belli*	BCC, PIF	Yes
Sage thrasher	*Oreoscoptes montanus*	BLM, BCC, PIF	Yes
Song sparrow	*Melospiza melodia*	-	Yes
Southwestern willow flycatcher	*Empidonax traillii extimus*	BLM, BCC, PIF	No
Spotted towhee	*Pipilo maculates*	-	Yes
Swainson's hawk	*Buteo swainsoni*	BLM, PIF	Yes
Townsend's solitaire	*Myadestes townsendii*	-	Yes
Turkey vulture	*Cathartes aura*	-	Yes
Vesper sparrow	*Pooecetes gramineus*	BLM, PIF	Yes
Violet-green swallow	*Tachycineta thalassina*	-	Yes
Warbling vireo	*Vireo gilvus*	-	Yes
Western meadowlark	*Sturnella magna*	-	Yes

Appendix D Inventory of Migratory and Resident Bird Species Potentially Occurring within the Study Area

Common Name	Scientific Name	Status[1]	Observed in Study Area[2]
Western scrub-jay	*Aphelocoma californica*	-	Yes
Western snowy plover	*Charadrius alexandrinus nivosus*	BLM, BCC	No
Western tanager	*Piranga ludoviciana*	-	Yes
Western wood-peewee	*Contopus sordidulus*	-	Yes
Western yellow-billed cuckoo	*Coccyzus americanus*	BLM, BCC	No
White-breasted nuthatch	*Sitta carolinensis*	-	Yes
White-crowned sparrow	*Zonotrichia leucophrys*	-	Yes
White-throated swift	*Aeronautes saxatalis*	-	Yes
Yellow warbler	*Setophaga petechia*	-	Yes
Yellow-rumped warbler	*Setophaga coronata*	-	Yes

[1] BLM = BLM Sensitive; BCC = USFWS Birds of Conservation Concern; PIF = Nevada Partners in Flight Priority Bird Species.

[2] Identified during baseline biological surveys within the study area.

Sources: BLM 2009a; Floyd et al. 2007; JBR 2011b; Neel 1999; SRK 2011a, 2008; USFWS 2008b.

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Appendix E

Mule Deer Monitoring Plan

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Bald Mountain Mine (BMM) North Operations Area Project
Mule Deer Monitoring Plan

Monitoring Plan Objective:

Measure the effectiveness and success of the decision and the accuracy of analysis and whether the decision is achieving the intended environmental goal of supporting mule deer migration through the project area between seasonal ranges (environmental objective) and determine if predicted environmental direct and indirect effects, as identified in the North and South Operations Area Projects EIS, are accurate.

Coverage:

The BLM will be responsible for inspections to ensure that Barrick is in compliance with the mule deer design features and other measures designed to achieve the environmental objective.

A Wildlife Working Group (WWG) consisting of representatives from the BLM, NDOW, and Barrick will be established in order to review data and reports prepared under this monitoring plan.

Mule deer migration will primarily be monitored by placing GPS collars on individual mule deer that migrate through the North Operations Area Project (NOA). Potential additional information could be gathered and utilized as determined by the WWG, which could include camera traps, track counts, aerial imagery, migratory trail mapping flights (during heavy and fresh snow events), and other tracking methods in order to determine whether the decision is achieving the intended environmental objective and to measure the effectiveness of the mule deer design features and other measures designed to achieve the environmental objective.

Pertinent project development as-builts will be collected and provided by Barrick to the WWG for the annual report preparation to determine the behavioral responses of the collared individuals from development within the project area.

Frequency:

Inspections will be conducted prior to each migration season (e.g., January/early February and August/early September) in order to ensure that Barrick is in compliance with the mule deer design features and others measures designed to achieve the environmental objective.

Annual monitoring data points will be collected from mule deer GPS collars at regular intervals to be determined by the WWG in order to meet the objective of the monitoring plan. Time intervals will be modified as needed to obtain more precise migrating mule deer locations through the NOA.

Pertinent project development as-builts will be collected in early November and late February and provided to the WWG at the end of the migration season.

Intensity:

Duration:

Monitoring will be conducted from the signing of the Record of Decision (ROD) until 3 years after all facilities have been recontoured and reseeded within the North Operations Area. However, the monitoring plan will be reevaluated by the WWG after 5 years and every year thereafter and the WWG will provide a recommendation to the BLM to determine whether additional monitoring would be required to meet the monitoring plan objective identified above. Subsequently, the BLM Authorized Officer may determine to terminate the monitoring requirements.

Methods:

Monitoring of the mule deer design features and other measures designed to achieve the environmental objective will be conducted by performing inspections. Photos, locations, and descriptions will be documented during these inspections.

Mule deer migration movement will be monitored by collaring migratory mule deer that are expected to move through the NOA during each migration season. If mule deer are collared and determined to be resident mule deer to the area, data from those collars would be noted but not included in the monitoring report and those mule deer would not be recaptured and collared. Capture and collaring locations are expected to vary based on weather and other factors in order to collar mule deer that are expected to migrate through the NOA.

A minimum of 30 mule deer will be collared at all times during the monitoring period. During each subsequent year, additional mule deer will be collared in order to maintain the minimum 30 collared mule deer. To the extent practicable, GPS collars will be redeployed on individual mule deer that are known (from prior telemetry data) to have traversed the NOA. This step will ensure individual behavioral responses to mining development can be detected on an annual basis. This will generally require individual deer to be recaptured approximately every 2 years to maintain a functional GPS collar. If a collared deer dies before the battery life of the collar is depleted, then a new individual may be captured during the following capture period to maintain the required sample size.

Mule deer migration movement may also be potentially monitored with equipment which could include: camera traps, track counts, migratory trail mapping flights (during heavy and fresh snow events), or other tracking methods as determined by the WWG.

Reporting:

Inspection reports will be prepared following the on-site inspections in order to document Barrick's compliance with the mule deer design features and other measures designed to achieve the environmental objective.

An annual report will be prepared by a third party contractor identified by the WWG and selected and approved by the BLM. This analysis will use the collar data plus any other data identified by the

WWG in order to make a determination of whether the monitoring plan objective is being met. The best available science at the time would be applied to the analysis of the data. The BLM will review and approve the annual report.

Other data to be used within the annual report will include:

- Aerial imagery or other pertinent project development as-builts;
- Weather data, including precipitation and snow depth;
- Mule deer collar data from previous years; and
- NDOW annual mule deer assessments.

An annual meeting will be held by the WWG to discuss the information presented in the annual report and to discuss the effectiveness of the mule deer design features and other measures designed to achieve the environmental objective and discuss potential adjustments to the mule deer design features already constructed on-site.

Points of discussion during the annual meetings will include:

- Identifying field trips to be conducted to sites where successful and unsuccessful actions have been completed;
- Presentations of completed actions by BLM, NDOW, and Barrick; and
- Presentations of upcoming actions by BLM, NDOW, and Barrick.

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Appendix F

Special Status Species Identified for the Proposed Project

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Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
MAMMALS					
Pallid bat *Antrozous pallidus*	BLM; NV-SP	Range: Throughout Nevada. Habitat: Found in a variety of habitats from desert scrub to forests. Roosts in a variety of structures including mines, caves, buildings, and trees. Intolerant of roosts in excess of 40°C.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.
Townsend's big-eared bat *Corynorhinus townsendii*	BLM; NV-SPS	Range: Throughout Nevada. Habitat: Highly associated with caves and mines. Very susceptible to disturbance at roost sites. Periodically moves to alternate roosts and actively forages and drinks throughout the winter. Typically forages in open forest habitats.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.
Big brown bat *Eptesicus fuscus*	BLM	Range: Throughout Nevada. Habitat: Found in a variety of habitats including forests, shrublands, and agricultural and urban areas. Roosts in a variety of structures including mines, caves, buildings and trees. More tolerant of human habitation than other bat species. Roosts in groups up to several hundred individuals.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Spotted bat *Euderma maculatum*	BLM; NV-T	Range: Throughout Nevada. Habitat: Found in a variety of habitats from low elevation desert scrub to high elevation coniferous forest habitats, including pinyon-juniper, sagebrush, and urban habitats. Closely associated with rocky cliffs. Roosts primarily in crevices on cliff faces and in caves and mines.	High. This species has been documented in White Pine county, Nevada. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006.
Silver-haired bat *Lasionycteris noctivagans*	BLM	Range: Throughout Nevada but occurs primarily in forest and riparian habitats. Habitat: A forest associated species often found at higher elevations in pinyon-juniper, subalpine fir, aspen and willow habitats. Roosts almost exclusively in trees in the summer. Frequently alternates roost sites. Maternity roost sites are usually in woodpecker holes.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.
Hoary bat *Lasiurus cinereus*	BLM	Range: Patchy distribution throughout Nevada. Habitat: Tree-associated species. Found primarily in forested upland habitats, as well as in forest riparian zones, and agriculture habitats. May occur in park and garden settings in urban areas. A solitary rooster that typically roosts in trees.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
California myotis *Myotis californicus*	BLM	Range: Throughout Nevada but mainly found in the southern half of the state at lower elevations. Habitat: Found in a variety of habitats from desert scrub to forests. Roosts in a variety of structures including mines, caves, buildings, and trees. Actively forages throughout the winter.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.
Western small-footed myotis *Myotis ciliolabrum*	BLM	Range: Throughout Nevada. Habitat: Found in a variety of habitats from desert scrub to pine-fir forests. Roosts in caves, mines and trees. Forages in open areas.	High. This species has been documented at abandoned mines within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2006.
Long-eared myotis *Myotis evotis*	BLM	Range: Throughout Nevada, primarily at higher elevations. Habitat: Primarily a forest-associated species. Roosts in caves, mines and under bridges. May forage within mine and cave structures, gleaning moths from the rock walls.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2006, 2012a.
Little brown myotis *Myotis lucifugus*	BLM	Range: Found primarily in the northern part of Nevada. Habitat: Found at higher elevations in coniferous forest. Requires a nearby water source. Roosts in trees, buildings, caves, and mines. One of the species most commonly found in human structures.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Fringed myotis *Myotis thysanodes*	BLM	Range: Throughout Nevada. Habitat: Found in a variety of habitats from low desert scrub habitats to high elevation coniferous forests. Found from upper elevation creosote bush desert to pinyon-juniper and white fir in the White Pine Range in White Pine County, Nevada. Roosts in mines, caves, trees, and buildings.	High. This species has been documented in White Pine county, Nevada. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006.
Long-legged myotis *Myotis volans*	BLM	Range: Throughout Nevada but absent from the low desert. Habitat: Pinyon-juniper and other higher elevation forest habitats. Night roosts and hibernacula located in caves and mines. Forages in open areas at canopy height.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.
Yuma myotis *Myotis yumanensis*	BLM	Range: Found in the western, southern and north-central part of Nevada. Habitat: Found in a wide variety of habitats from low to mid-elevations, including sagebrush, salt desert scrub, agriculture, playa, and riparian habitats. One of the species that is most tolerant of human habitation and one of the few that thrives in a relatively urbanized environment. Roosts in buildings, trees, mines, caves, bridges and other man-made structures.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Western pipistrelle bat *Pipstrellus hesperus*	BLM	Range: Throughout most of Nevada. More common in the western and southern portions. Habitat: Lower and Upper Sonoran desert habitats of blackbrush, creosote, salt desert shrub and sagebrush, with occasional occurrence in Ponderosa pine and pinyon-juniper, usually in association with rock features such as granite boulders and canyons. Roosts in mainly in rock crevices.	High. This species has been documented in White Pine county, Nevada. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006.
Brazilian free-tailed bat *Tadarida braziliensis*	BLM; NV-SP	Range: Throughout Nevada. Habitat: Found in a wide variety of habitats from desert scrub to coniferous forests. Roosts in caves, mines, trees, bridges, and buildings. Colonies often number in the thousands.	High. This species has been documented within the study area. Suitable roosting and foraging habitat occurs within the study area.	No.	Bradley et al. 2006; JBR 2012a.
Dark kangaroo mouse *Microdipodops megacephalus*	BLM; NV-SP	Range: Throughout Nevada. Habitat: Intermountain desert scrub, sagebrush, grasslands and meadows, badlands and dunes, and areas around desert playas and ephemeral pools.	Moderate. This species has not been documented within the study area; however, suitable sagebrush habitat occurs within the study area.	No.	Wildlife Action Plan Team 2012.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Pygmy rabbit *Brachylagus idahoensis*	BLM	Range: Throughout Nevada but typically found in areas dominated by sagebrush. Habitat: Requires dense sagebrush for cover as well as appropriate deep soils for burrowing (i.e., high clay content). Often found in drainages with taller sagebrush present.	High. This species has been recorded north of the study area near Ruby Lake NWR and likely occurs within the study area based on the presence of suitable habitat. The study area contains approximately 15,853 acres of potentially suitable habitat.	No.	BLM 2004; NNHP 2012b; SRK 2011b.
BIRDS					
Bald eagle *Haliaeetus leucocephalus*	BLM; NV-E	Range: Throughout Nevada. Habitat: Generally nests and roosts in close proximity to large water bodies including rivers, lakes, and reservoirs. Requires abundant food sources such as fish and waterfowl. Breeding period is February 15 to July 15.	Low: Due to the lack of suitable habitat within the study area, occurrence within the study area would be limited to migrating and foraging individuals from the Ruby Lake NWR.	No.	Floyd et al. 2007; Herron et al. 1985; Johnsgard 1990.
Northern goshawk *Accipiter gentilis*	BLM; NV-SPS	Range: Primarily found in the northern two-thirds of Nevada. Habitat: Deep conifer-dominated mixed forests. May exhibit seasonal migrations depending on prey availability. Preferred nesting habitat is aspen stands within coniferous forests along perennial streams. Breeding period is April 15 to August 1.	None.	Yes. No suitable habitat occurs within the study area.	Floyd et al. 2007; Herron et al. 1985; Johnsgard 1990.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Swainson's hawk *Buteo swainsoni*	BLM	Range: Found throughout Nevada, typically in agricultural areas. Habitat: Agricultural valleys and associated uplands. Nests in large shrubs and trees such as cottonwood, willows and aspen. Breeding period is April 15 to July 15.	High. This species has been documented as nesting approximately 1 mile west of the study area. Suitable nesting and foraging habitat occurs within the study area.	No.	Floyd et al. 2007; Herron et al. 1985; JBR 2011b; Johnsgard 1990.
Ferruginous hawk *Buteo regalis*	BLM	Range: Throughout Nevada; mainly in the east-central portion of the state. Habitat: Dry, open country. Nests usually occur in trees at the interface between pinyon-juniper and desert scrub/grasslands. Forages over open areas with an adequate prey base such as jackrabbits and ground squirrels. Breeding period is March 15 to July 15.	High. A total of 10 nests have been documented within or near the study area. Suitable nesting and foraging habitat occurs throughout the study area.	No.	Floyd et al. 2007; Herron et al. 1985; JBR 2011b; Johnsgard 1990.
Golden eagle *Aquila chrysaetos*	BLM	Range: Throughout Nevada. Habitat: Mountain or hilly terrain. Nests usually occur on cliffs or in trees. Forages over open areas with an adequate prey base. Breeding period is March 15 to July 15.	High. A total of seven nests have been documented within or near the study area. Suitable nesting and foraging habitat occurs within the study area.	No.	Floyd et al. 2007; Herron et al. 1985; JBR 2011b; Johnsgard 1990, Stantec 2015.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Peregrine falcon *Falco peregrinus*	BLM; NV-E	Range: Southwest and extreme southeast Nevada. Habitat: Open country near cliffs. Typically migrates south of U.S. during winter months. Nests on cliffs and rock ledges. Forages in open areas typically near water. Breeding period is March 15 to July 15.	None.	Yes. This species known distribution in Nevada is outside the study area.	Floyd et al. 2007; Herron et al. 1985; Johnsgard 1990.
Greater sage-grouse *Centrocercus urophasianus*	FC; BLM	Range: Throughout Nevada in areas with sagebrush. Habitat: Sagebrush grasslands. Leks are located in open areas in close proximity to escape cover. Nests are located in sagebrush habitat, typically within 2 miles of the lek. Broods are raised in wet, grassy areas near sagebrush. Winter habitat consists of south and east facing slopes with minimal snow cover. Breeding period (including displaying, nesting, and brooding) is March 1 to July 31.	High. Nine active, one inactive, and six unknown leks occur within three miles of the study area. Suitable nesting, brooding, and wintering habitat occurs within the study area. In addition, the BLM and NDOW have mapped Core, Priority, and General Habitat within the study area.	No.	Connelly et al. 2000; Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2012, Coates et al. 2014.
Western burrowing owl *Athene cunicularia hypugea*	BLM	Range: Throughout Nevada. Habitat: Open country from desert scrub to grasslands. Often found in or around prairie dog colonies and ground squirrel colonies. Nests in burrows. Breeding period is April 15 to August 15.	High. This species has been documented within the study area and suitable nesting and foraging habitat occurs within the study area, especially in recently reclaimed grassland areas.	No.	Floyd et al. 2007; Herron et al. 1985; JBR 2012a.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Lewis's woodpecker *Melanerpes lewis*	BLM	Range: A resident breeder in isolated pockets mainly in the northern half of the state. Habitat: During the breeding season, this species prefers open habitats that facilitate its foraging behavior of hawking for insects. Scattered trees and/or snags are necessary for nesting. Open or park-like ponderosa pine, burned-over stands of Douglas fir, mixed conifer, pinyon-juniper, riparian and oak woodlands are preferred nesting areas. Furthermore, this species prefers areas with a grassy and bushy understory. Breeding period is April 15 to July 15.	Moderate. This species has not been documented within the study area; however, suitable nesting and foraging habitat occurs within the study area.	No.	Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2012.
Loggerhead shrike *Lanius ludovicianus*	BLM; NV-SPS	Range: Throughout Nevada. Habitat: Open country including desert scrub and sagebrush grasslands. Nests and forages in brushy areas. Breeding period is April 15 to July 15.	High. This species has been observed within the study area and suitable nesting and foraging habitat occurs within the study area.	No.	Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2012; JBR 2012a.
Pinyon jay *Gymnorthinus cyanocephalus*	BLM	Range: Throughout Nevada, although more common in the central and southern portions of the state. Habitat: Pinyon-juniper woodlands. Less frequently found in pine forests and sagebrush grasslands. Distribution is determined by availability of food resources. Nests in loose colonies. Breeding period is April 15 to July 15.	High. This species has been documented within the study area during field surveys. Suitable nesting and foraging habitat occurs within the study area.	No.	Floyd et al. 2007; JBR 2012a, 2011; Neel 1999; SRK 2011a; Wildlife Action Plan Team 2012.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Sage thrasher *Oreoscoptes montanus*	BLM; NV-SPS	Range: Throughout Nevada. Habitat: Spends the summer months in sagebrush shrublands and winters in desert scrub. Breeding period is April 15 to July 15.	High: This species has been documented within the study area during field surveys. Suitable nesting and foraging habitat occurs within the study area.	No.	JBR 2012a, 2011b; SRK 2011a; Stokes and Stokes 1996.
Brewer's sparrow *Spizella breweri*	BLM; NV-SPS	Range: Throughout Nevada. Habitat: Sagebrush shrublands, brushy areas, and desert scrub. Except for singing males, this bird is very secretive and found under the canopy cover. Breeding season is April 15 to July 15.	High: This species has been documented within the study area during field surveys. Suitable nesting and foraging habitat occurs within the study area.	No.	JBR 2012a, 2011b; SRK 2011a; Stokes and Stokes 1996.
Black rosy-finch *Leucosticte atrata*	BLM	Range: In Nevada, this species breeds on the highest mountains of Elko and White Pine counties. Habitat: Breeds and nests in alpine tundra habitat. Nests on high ridges and peaks (9,000 to 13,000 feet in elevation) near rock cover, usually in crevices and holes in cliff sides. Breeding period is May 1 to July 15.	None.	Yes. No suitable habitat occurs within the project area.	Floyd et al. 2007; Neel 1999; Wildlife Action Plan Team 2012.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
AMPHIBIANS					
Northern leopard frog *Rana pipiens*	BLM; NV-SP	Range: Isolated habitats throughout Nevada. Absent from the southwest portion of the state. Habitat: Springs, slow streams, marshes, bogs, ponds, canals, flood plains, reservoirs, and lakes. Usually found in permanent water with rooted aquatic vegetation. During the summer, commonly inhabits wet meadows and fields. Females typically lay eggs in late April and May. Tadpoles develop into frogs from mid-summer to late fall.	Low. No known records of this species exist for the study area, although this species has been documented north of the study area at the Ruby Lake NWR. Suitable habitat occurs at the springs and seeps located within the study area.	No.	NatureServe 2012; NNHP 2012a; SRK 2007.
PLANTS					
White bearpoppy *Arctomecon merriamii*	BLM	Range: Clark, Lincoln, and Nye counties, Nevada; also in California. Habitat: On a wide variety of dry to sometimes moist basic soils, including alkaline clay and sand, gypsum, calcareous alluvial gravels, and carbonate rock outcrops. Elevation: 2,000 to 6,280 feet amsl. Flowering: Spring.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Eastwood milkweed *Asclepias eastwoodiana*	BLM	Range: Esmeralda, Lander, Lincoln, and Nye counties, Nevada. Habitat: Open areas on a wide variety of basic soils, including calcareous clay knolls, sand, carbonate or basaltic gravels, or shale outcrops, generally barren and lacking competition, frequently in small washes or other moisture-accumulating micro-sites, in the shadscale, mixed-shrub, sagebrush and lower pinyon-juniper zones. Elevation: 4,680 to 7,080 feet amsl. Flowering: late-spring.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, the NOA and SOA projects are outside of the elevation for the species.	Yes.	NNHP 2001.
Torrey milkvetch *Astragalus calycosus* var. *monophyllidius*	BLM	Range: Clark, Elko, Eureka, Lincoln, and Nye counties, Nevada, also in Utah. Habitat: Unknown. Elevation: 5,350 to 7,465 feet amsl. Flowering: unknown.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.
Veyo milkvetch *Astragalus ensiformis* var. *gracilior*	BLM	Range: Lincoln County, Nevada, Washington County, Utah. Habitat: Open washes, valley floors, and hillsides, in clay soil, with pinyon-juniper and sagebrush species. Elevation: 4,200 to 5,000 feet.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NatureServe 2013.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Needle Mountains milkvetch *Astragalus eurylobus*	BLM	Range: Known within Lincoln and Nye counties, Nevada and also in Arizona and Utah. Habitat: Generally deep, barren, sandy, gravelly, or clay soils derived from sandstone or siliceous volcanics, frequently in or along drainages. Elevation: 4,600 to 5,750 feet amsl. Flowering late spring.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.
Threecorner milkvetch *Astragalus geyeri* var. *triquetrus*	BLM, NV-SP	Range: Clark and Lincoln counties, Nevada; also in Arizona. Habitat: Open, deep sandy soil or dunes, generally stabilized by vegetation and/or a gravel veneer. Dependent on sand dunes or deep sand in Nevada. Elevation: 1,100 to 2,400 feet amsl. Flowering: late-winter to early spring.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.
Straw milkvetch *Astragalus lentiginosus* var. *stramineus*	BLM	Range: Mohave County, Arizona, Clark County, Nevada, and Washington County Utah. Habitat: Sandy and gravelly flats and dunes. Elevation 2,000 to 3,000 feet. Flowering: Unknown.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NatureServe 2013.
Long-calyx eggvetch *Astragalus oophorus* var. *lonchocalyx*	BLM	Range: Lincoln County, Nevada; also in Utah. Habitat: No Information available. Elevation: 6,000 to 7,480 feet amsl. Flowering: Unknown.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001; NatureServe 2013.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Currant milkvetch *Astragalus uncialis*	BLM	Range: Millard County, Utah; and Nye County, Nevada. Habitat: Found in shadscale communities in Utah, and sagebrush communities in Nevada. In Nevada, found on dry, open, sparsely vegetated, calcareous sandy-clay soils on flats and gentle slopes of hillsides and alluvial fans. Elevation 4,800 to 6,050 feet amsl. Flowering late-spring.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NatureServe 2013; NNHP 2001.
Dainty moonwort *Botrychium crenulatum*	BLM	Range: Clark County, Nevada, and may include Elko, Esmeralda, Lander, Lyon, Mineral, Nye, and White Pine counties, Nevada; also in Arizona, California, Idaho, Montana, Oregon, Utah, Washington, and Wyoming. Likely occurs in isolated pockets in many of the higher and wetter mountains of Nevada. Habitat: Aquatic or wetland-dependent in Nevada. Elevation: 8,202 to 11,150 feet amsl. Flowering late-spring.	None. The proposed NOA and SOA projects do not meet the required habitat characteristics.	Yes.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Monte Neva paintbrush *Castilleja salsuginosa*	BLM, NV-SP	Range: Eureka and White Pine counties, Nevada. Nevada endemic. Habitat: Damp, open, alkaline to saline clay soils of hummocks and drainages on travertine hot-spring mounds with greasewood, rubber rabbitbrush, alkali sacaton, etc. Aquatic or wetland-dependent. Elevation: 5,965 to 6,130 feet amsl. Flowering late-spring to summer.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, it is highly unlikely that suitable habitat is found in the study area.	Yes.	NNHP 2001.
Intermountain wavewing *Cymopterus basalticus*	BLM	Range: White Pine County, Nevada, also in Utah. Habitat (Not reviewed for Nevada): Bare basaltic rocks, barren clays, and (in Utah) gravelly hills and alluvial fans, mostly on dolomite in the pinyon-juniper, sagebrush, and shadscale zones. Elevation: 4,429 to 6,998 feet amsl. Flowering: spring.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, the NOA and SOA projects are outside of the elevation for the species.	Yes.	NNHP 2001.
Nevada willowherb *Epilobium nevadense*	BLM	Range: Clark, Eureka, and Lincoln counties, Nevada; also in Utah. Habitat: (Utah) - Slopes with limestone outcrops or talus at 5,118 to 9,186 m elevation. Associated with singleleaf pinyon and ponderosa pine. Habitat information not available for Nevada. Elevation: 6,000 to 8,930 feet amsl. Flowering: unknown.	Low. Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, it is unlikely the species would be found in the project footprint.	Yes.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Antelope Canyon goldenbush *Ericameria cervina*	BLM	Range: northwest Arizona, adjacent Nevada, and Utah. Habitat: Rock-crevices and talus, often on granitic outcrops and soils. Elevation 4,921 to 7, 874 feet amsl. Flowering: late summer-fall.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	Efloras 2008.
Sheep fleabane *Erigeron ovinus*	BLM	Range: Clark and Lincoln counties, Nevada. Known only from the Sheep and Groom ranges and Mount Irish. Nevada endemic. Habitat: Crevices in carbonate cliffs and ridgeline outcrops in the pinyon-juniper and montane conifer zones. Elevation: 3,600 to 8,400 feet amsl. Flowering late-spring to summer.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.
Las Vegas buckwheat *Eriogonum corymbosum* var. *nilesii*	BLM	Range: Clark County, Nevada; also in Washington County, Utah. Habitat: On and near gypsum soils, often forming low mounds or outcrops in washes and drainages, or in areas of generally low relief, often with California bearpoppy and other gypsum-tolerant species, surrounded by burrobush, Desert princes' plume, fourwing saltbush, Torrey's jointfir, creosote bush, catclaw acacia, Mojave seablite, Fremont's dalea, etc. Elevation: 1,900 to 3,839 feet amsl. Flowering summer to fall.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Scarlet buckwheat *Eriogonum microthecum* var. *phoeniceum* [*Eriogonum microthecum* var. *arceuthinum]*	BLM	Range: Juab and Millard counties, Utah. Habitat: Tuffaceous ash outcrops, sagebrush communities, pinyon-juniper woodlands. Elevation: 5,429 to 6,889 feet amsl.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	Efloras 2008.
Deer Lodge buckwheat *Eriogonum pharnaceoides* var. *cervinum*	BLM	Range: Lincoln County, Nevada, Iron and Washington counties, Utah, and Mohave County, Arizona. Habitat: Sandy or gravelly slopes, sagebrush, and mountain mahogany communities, oak, pinyon-juniper and montane conifer woodlands. Elevation: 4,593 to 7,545 feet amsl. Flowering: July to September.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	Efloras 2008.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Sticky buckwheat *Eriogonum viscidulum*	BLM, NV-SP	Range: Clark and Lincoln counties, Nevada; also in Arizona. Habitat: Deep loose sandy soils in washes, flats, roadsides, steep aeolian slopes, and stabilized dune areas, with burrobush, creosote bush, big galleta, littleleaf ratany, Indian ricegrass, saltcedar, arrowweed, geyer's milkvetch, gravel milkvetch, little deserttrumpet, Torrey's jointfir, desert twinbugs, breadroot, California croton, sand dropseed, Fremont's dalea, sand verbena, woody crinklemat, etc. Can withstand moderate temporary disturbance. Dependent on sand dunes or deep sand in Nevada. Elevation: 1,200 to 2,200 feet amsl.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Sunnyside green gentian *Frasera gypsicola*	BLM, NV-SP	Range: Nye and White Pine counties, Nevada; also in Utah. Habitat: Open, dry, whitish, alkaline, often salt-crusted and spongy silty-clay soils on calcareous flats and barrens, with little if any gypsum content, in cushion-plant associations surrounded by sagebrush, greasewood, and occasionally barberry and swamp cedar vegetation, with pygmy sagebrush, big sagebrush, Shockley's buckwheat, Chamber's twinpod, Welsh's cryptantha, fineleaf hymenopappus, mound phlox, dwarf pepperweed, etc. Elevation: 5,180 to 5,510 feet amsl. Flowering: Summer.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, it is highly unlikely that suitable habitat is found in the study area.	Yes.	NNHP 2001.
Sand cholla *Grusonia pulchella*	BLM	Range: Churchill, Douglas, Esmeralda, Lander, Lincoln, Mineral, Nye, Pershing, and Washoe counties, Nevada; also in Arizona, California, and Utah. Habitat: (not yet reviewed for Nevada): Sand of dunes, dry-lake borders, river bottoms, washes, valleys, and plains in the desert. Dependent on sand dunes or deep sand in Nevada. Elevation: 3,950 to 6,300 feet amsl. Flowering: unknown.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, the NOA and SOA projects are outside of the elevation for the species.	Yes.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Rock purpusia *Ivesia arizonica* var. *saxosa*	BLM	Range: Lincoln and Nye counties, Nevada. Endemic to Nevada. Habitat: Crevices of cliffs and boulders on volcanic and possibly carbonate rocks in the upper mixed-shrub, sagebrush, and pinyon-juniper zones. Elevation: 4,925 to 6,800 feet amsl. Flowering: May to July.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.
Waxflower *Jamesia tetrapetala*	BLM	Range: Lincoln, Nye, and White Pine counties, Nevada; also in Utah. Habitat: (not yet reviewed for Nevada): Crevices in limestone cliffs. Elevation: 7,000 to 10,720 feet amsl. Flowering: Unknown.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, it is unlikely the species would be found in the project footprint.	Yes.	NNHP 2001.
Maquire's bitterroot *Lewisia maguirei*	BLM	Range: Nye County, Nevada. Endemic to the Quinn Canyon and Grant ranges. Habitat: Dry, sparsely vegetated carbonate scree or shallow gravelly clay soils on steep slopes and ridgelines of all aspects in the pinyon-juniper zone with desert frasera, Torrey's milkvetch, stemless four-nerve daisy, Nevada onion, rock goldenrod, etc. Elevation: 7,360 to 8,280 feet amsl. Flowering: late-spring.	None. Species is an endemic with limited distribution. The proposed NOA and SOA projects are located outside of the species limited range.	Yes.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Pioche blazingstar *Mentzelia argillicola*	BLM	Range: Lincoln County, Nevada, Sanpete and Sevier counties, Utah. Habitat: Silty clay soils on knolls and slopes with sparse vegetation Elevation: around 5,600 feet amsl. Flowering: unknown.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NatureServe 2013; Holmgren and Holmgren 2002
Tiehm blazingstar *Mentzelia tiehmii*	BLM	Range: Endemic to the White River Valley within northeastern Nye County and adjacent Lincoln County, Nevada. Habitat: Unknown. Elevation: 4,900 to 5,200 feet amsl. Flowering late June to early September.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	Holmgren and Holmgren 2001; NatureServe 2010; NNHP 2001.
Tunnel Springs beardtongue *Penstemon concinnus*	BLM	Range: Lincoln and White Pine counties, Nevada; also in Utah. Habitat: no summary available. Elevation: 6,200 to 6,600 feet amsl. Flowering: unknown.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, it is highly unlikely that suitable habitat is found in the study area. In further, the proposed project is outside the range of known locations.	Yes.	NNHP 2013.
Pennell beardtongue *Penstemon leiophyllus* var. *francisci-pennellii*	BLM	Range: Lincoln, Nye, and White Pine counties, Nevada; also in Utah. In Nevada known from the Snake, Wilson Creek, southern Schell Creek, Egan, and Grant ranges. Habitat: (not yet reviewed for Nevada): Rocky calcareous slopes, shaded banks. Elevation: 7,000 to 11,500 feet. Flowering: Unknown.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, it is highly unlikely that suitable habitat is found in the study area. In further, the proposed project is outside the range of known locations.	Yes.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Parish phacelia *Phacelia parishii*	BLM	Range: Clark, Lincoln, Nye, and White Pine counties, Nevada; also in Arizona and California. Habitat: Moist to superficially dry, open, flat to hummocky, mostly barren, often salt-crusted silty-clay soils on valley bottom flats, lake deposits, and playa edges, often near seepage areas, sometimes on gypsum deposits, surrounded by saltbush scrub vegetation. Aquatic or wetland-dependent in Nevada. Elevation: 2,190 to 5,922 feet amsl.	Low. The proposed NOA and SOA projects have limited aquatic or wetland vegetation and are outside the range of known locations.	Yes.	NNHP 2001.
Blaine pincushion *Sclerocactus blainei*	BLM	Range: Nye County, Nevada; also in Utah. Habitat: Alkaline calcareous and volcanic gravelly clay soils in open valley bottom areas in the shadscale and lower sagebrush zones with greasewood, James galleta, shadscale saltbush, big sagebrush, rubber rabbitbrush, etc. Elevation: 5,100 to 5,300 feet amsl. Flowering: late-spring.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.
Great Basin fishhook cactus *Sclerocactus pubispinus*	BLM	Range: Lincoln, Elko and White Pine counties, Utah; Beaver, Iron, Juab, Millard, Sevier, and Toole counties, Utah. Habitat: Rocky hillsides of woodland and upper desert mountains. Elevation range and flowering period unknown.	Low. While the proposed NOA and SOA projects do meet some of the required habitat characteristics, it is highly unlikely that suitable habitat is found in the study area. In further, the proposed NOA and SOA projects are located outside the known range of the species.	Yes.	NNHP 2001; NatureServe 2013.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Schlesser pincushion *Sclerocactus schlesseri*	BLM	Range: Lincoln County, Nevada; also in Utah. Possible or probable Nevada endemic. Habitat: Open, stable or stabilized, gravelly, sandy silt or silty clay soils derived from somewhat ashy and/or gypsiferous lacustrine sediments, on mesic microsites created and/or maintained by gentle north to east aspects, dense shrub and/or grass canopies, high clay and silt content of the soil, and/or cryptobiotic soil crusts, usually associated with such soil crusts in the shadscale zone. Elevation: 4,760 to 5,145 feet amsl. Flowering: late-spring.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.
Nachlinger's catchfly *Silene nachlingerae*	BLM	Range: Elko, Nye, and White Pine counties, Nevada. Nevada endemic. Habitat: Generally dry, exposed or somewhat sheltered carbonate (rarely quartzite) crevices in ridgeline outcrops, talus, or very rocky soils on or at the bases of steep slopes or cliffs, on all aspects but predominantly on northwesterly to northeasterly exposures, mainly in the subalpine conifer zone. Elevation: 7,160 to 11,250 feet amsl. Flowering: Summer.	Moderate. Potential habitat could occur in the study area.	No.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
St. George blue-eyed grass *Sisyrinchium radicatum*	BLM	Range: Known from southern Nevada; and southwestern Utah, apparently restricted to the St. George-Las Vegas region. Habitat: Moist meadows or on streambanks associated with bluegrass, rush, and sea milkwort. Elevation: 1,970 to 4,265 feet amsl. Flowering late-spring to mid-summer.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NatureServe 2013; Efloras 2008.
Railroad Valley globemallow *Sphaeralcea caespitosa* var. *williamsiae*	BLM	Range: Nye County, Nevada. Habitat: Dry, open flat to gently sloped, gravelly carbonate soils on alluvium and valley fill, often more abundant on recovering disturbances such as washes and roadsides in the greasewood, shadscale and mixed shrub zones. Elevation: unknown. Flowering May - June.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NatureServe 2013; NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Ute ladies'-tresses orchid *Spiranthes diluvialis*	BLM, FT	Range: Lincoln and White Pine counties, Nevada; also in Colorado, Idaho, Montana, Nebraska, Utah, and Wyoming. Habitat: Moist to very wet, somewhat alkaline or calcareous native meadows near streams, springs, seeps, lake shores, or in abandoned stream meanders that still retain ample ground water, global. Aquatic or wetland-dependent in Nevada. Elevation: In Nevada, found around 4,750 feet amsl. Flowering: Summer.	None. The proposed NOA and SOA projects do not have the required habitat characteristics.	Yes.	NNHP 2001.
Currant Summit clover *Trifolium andinum* var. *podocephalum*	BLM	Range: Lincoln and Nye counties, Nevada. Endemic to the White Pine and Egan ranges. Habitat: Crevices of volcanic or carbonate rock in the pinyon-juniper zone, Elevation: 6,900 to 7,400 feet amsl. Flowering: late-springs to summer.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.

Appendix F Special Status Species Identified for the Proposed Project

Common Name/ Scientific Name	Status[1]	Range and Habitat Requirements	Potential for Occurrence Within or Near the Project Area	Eliminated from Detailed Analysis	References
Rock violet *Viola lithion*	BLM	Range: Elko, Nye, and White Pine counties, Nevada; also in Utah. In Nevada known only from the White Pine and Pilot ranges. Habitat: Seasonally wet crevices in steep carbonate or quartzite outcrops in shaded northeast-facing avalanche chutes and cirque headwalls in the subalpine conifer zone. Elevation: 7,840 to 10,480 feet amsl. Flowering: late-spring to summer.	None. The proposed NOA and SOA projects are outside of the species range.	Yes.	NNHP 2001.

[1] Status:

BLM = BLM Sensitive Species.

FC = Federal Candidate Species.

FT = Federally Threatened Species.

NV-SP = Nevada State Protected.

NV-SPS = Nevada State Protected Sensitive.

NV-T = Nevada State Threatened.

Appendix G

Visual Resources

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Appendix G1

Visual Simulations

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BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-1

Visual Simulations for KOP-1

BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-2

Visual Simulations for
KOP-2

BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-3

Visual Simulations for
KOP-3

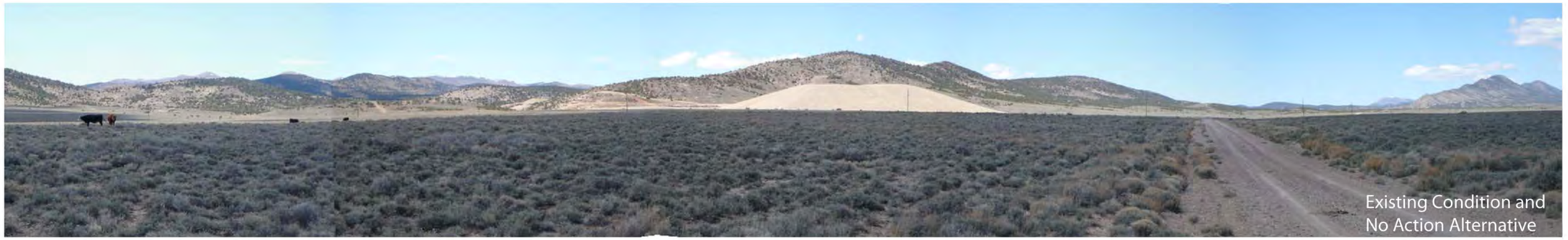
BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-4

Visual Simulations for
KOP-4



BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-5

Visual Simulations for
KOP-5

BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-6

Visual Simulations for KOP-6

Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-7

Visual Simulations for
KOP-7

BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-8

Visual Simulations for
KOP-8

BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-9

Visual Simulations for
KOP-9

BLM

Ely District Office

Bald Mountain Mine
North and South Operations
Area Projects EIS

Figure G-10

Visual Simulations for KOP-1 (Western Redbird Modification Alternative)

Appendix G2

Contrast Rating Forms

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/24/2012

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-1

3. VRM Class
IV

4. Location Nevada SH 892-Pony Express Tr.

Township

Range

Section

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☑ **Yes** ☐ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names M. Paulson

Date 03/06/2013

BLM has directed the use of building surface color from the BLM Standard Environmental Colors Chart, with one color for those buildings/structures in disturbed soils (Carlsbad Canyon color), and another color in areas with surrounding vegetation, including tree lines (Shadow Gray color). Vegetation and landform reclamation are included in the vegetation section.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/24/2012

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-2

3. VRM Class
III

4. Location White Pine Cty Rd 3-Pony Exp Tr.

Township

Range

Section

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☐ **Yes** ☑ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names M. Paulson

Date 03/06/2013

Strong contrasts of form, line, color, and/or texture do not meet VRM Class III management objectives.

BLM has directed the use of building surface color from the BLM Standard Environmental Colors Chart, with one color for those buildings/structures in disturbed soils (Carlsbad Canyon color), and another color in areas with surrounding vegetation, including tree lines (Shadow Gray color). Vegetation and landform reclamation are included in the vegetation section.

The Reconfiguration Alternative contrasts will be less than the Proposed Action and will meet VRM Class III objectives from this KOP (KOP-2) over the long term.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/24/2012

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-3

3. VRM Class
III

4. Location White Pine Cty Rd 3 – Ruby Valley.

Township

Range

Section

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☐ **Yes** ☑ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names	Date
M. Paulson	03/06/2013

Strong contrasts of form, line, color, and/or texture do not meet VRM Class III management objectives.

BLM has directed the use of building surface color from the BLM Standard Environmental Colors Chart, with one color for those buildings/structures in disturbed soils (Carlsbad Canyon color), and another color in areas with surrounding vegetation, including tree lines (Shadow Gray color). Vegetation and landform reclamation are included in the vegetation section.

The Reconfiguration Alternative contrasts will be less than the Proposed Action and will meet VRM Class III objectives from this KOP (KOP-3) over the long term.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/24/2012

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-4

3. VRM Class
IV

4. Location BLM Road-Alligator Ridge Area.

Township

Range

Section

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☑ **Yes** ☐ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names M. Paulson

Date 03/06/2013

Strong contrasts of form, line, color, and/or texture comply with VRM Class IV management objectives.

BLM has directed the use of building surface color from the BLM Standard Environmental Colors Chart, with one color for those buildings/structures in disturbed soils (Carlsbad Canyon color), and another color in areas with surrounding vegetation, including tree lines (Shadow Gray color). Vegetation and landform reclamation are included in the vegetation section.

The Reconfiguration Alternative contrasts will be less than the Proposed Action as seen from this KOP (KOP-4) over the long term.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/24/2012

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-5

3. VRM Class
IV

4. Location BLM Road-Sunshine Area.

Township

Range

Section

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☑ **Yes** ☐ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names M. Paulson

Date 03/06/2013

Strong contrasts of form, line, color, and/or texture comply with VRM Class IV management objectives.

BLM has directed the use of building surface color from the BLM Standard Environmental Colors Chart, with one color for those buildings/structures in disturbed soils (Carlsbad Canyon color), and another color in areas with surrounding vegetation, including tree lines (Shadow Gray color). Vegetation and landform reclamation are included in the vegetation section.

The Reconfiguration Alternative contrasts will be less than the Proposed Action as seen from this KOP (KOP-5) over the long term.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/24/2012

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-6

3. VRM Class
IV

4. Location Long Valley Road.

Township

Range

Section

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☑ **Yes** ☐ **No (Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names M. Paulson

Date 03/06/2013

Strong contrasts of form, line, color, and/or texture comply with VRM Class IV management objectives.

BLM has directed the use of building surface color from the BLM Standard Environmental Colors Chart, with one color for those buildings/structures in disturbed soils (Carlsbad Canyon color), and another color in areas with surrounding vegetation, including tree lines (Shadow Gray color). Vegetation and landform reclamation are included in the vegetation section.

The Reconfiguration Alternative contrasts will be less than the Proposed Action as seen from this KOP (KOP-6) over the long term.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/12/2013

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-7

3. VRM Class
IV

4. Location Sunshine Locality Historic Site
Township
Range
Section

5. Location Sketch
Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☑ **Yes** ☐ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names M. Paulson

Date 05/14/2013

Strong contrasts of form, line, color, and/or texture comply with VRM Class IV management objectives.

BLM has directed the use of building surface color from the BLM Standard Environmental Colors Chart, with one color for those buildings/structures in disturbed soils (Carlsbad Canyon color), and another color in areas with surrounding vegetation, including tree lines (Shadow Gray color). Vegetation and landform reclamation are included in the vegetation section.

The Reconfiguration Alternative contrasts will be less than the Proposed Action as seen from this KOP (KOP-7) over the long term.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/12/2013

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-8

3. VRM Class
III

4. Location Fort Ruby National Historic Landmark

Township

Range

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☐ **Yes** ☑ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names M. Paulson

Date 05/14/2013

Strong contrasts do not meet VRM Class III objectives.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 04/12/2013

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine

2. Key Observation Point
KOP-9

3. VRM Class
III

4. Location Fort Ruby National Historic Landmark

Township

Range

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct new roads and buildings
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct new roads and buildings
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct new roads and buildings
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct new roads and buildings

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form	X					X					X	
	Line	X						X				X	
	Color		X			X						X	
	Texture		X				X					x	

2. Does project design meet visual resource management objectives? ☐ **Yes** ☑ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names	Date
M. Paulson	05/14/2013

Strong contrasts do not meet VRM Class III objectives.

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 05/15/2015

District Ely FO

Resource Area

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name
Bald Mountain Mine – Western Redbird Modification Alt.

2. Key Observation Point
KOP-1

3. VRM Class
IV

4. Location NV SH 892
Pony Express Tr.
Township
Range
Section

5. Location Sketch

Please see Figure 3.19-1

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar mine landforms, angular mountains and wide planar valley floor.	Planar blanket of pinyon juniper, sagebrush and grasses.	Indistinct roads and buildings in the background.
LINE	Horizontal and angular mine landforms, horizontal valley and angular ridgelines.	Irregular pinyon juniper, sagebrush and grass patterns.	Indistinct roads and buildings in the background
COLOR	Light to medium reddish tan.	Dark olive green pinyon-juniper and light to medium silvery green sagebrush and light tan grasses.	Light tans and grays of distant roads and buildings
TEX-TURE	Smooth landforms.	Smooth, medium and coarse.	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Planar and rounded rock disposal and heap leach area	Change from removal of trees and shrubs to indistinct grasses	Indistinct upgraded road
LINE	Vertical, horizontal, and angular rock disposal and heap leach areas	Change from rounded trees and shrubs to horizontal grasses	Indistinct upgraded road
COLOR	Light, medium and dark browns	Change from dark olive trees and varied shrubs to homogenous light tan grasses	Indistinct upgraded road
TEX-TURE	Smooth	Change medium and coarse to smooth	Indistinct upgraded road

SECTION D. CONTRAST RATING ☐ SHORT TERM ☑ LONG TERM

	DEGREE OF CONTRAST	FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Elements	Form		X				X					X	
	Line		X					X				X	
	Color			X				X				X	
	Texture			X				X				x	

2. Does project design meet visual resource management objectives? ☑ **Yes** ☐ **No** **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ **Yes** ☐ **No (Explain on reverse side)**

Evaluator's Names M. Paulson

Date 05/15/2015

See revegetation section.

Appendix H

Programmatic Agreement Regarding the Bald Mountain Mining District Project

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PROGRAMMATIC AGREEMENT

AMONG

THE BUREAU OF LAND MANAGEMENT, EGAN FIELD OFFICE

AND

THE NEVADA STATE HISTORIC PRESERVATION OFFICER

REGARDING THE BALD MOUNTAIN MINING DISTRICT PROJECT

WHEREAS, the Bureau of Land Management Egan Field Office (BLM) has determined that the authorization of mining operations at the Bald Mountain Mining District Project (BMMD or Project) for Barrick Gold, Inc. (Barrick) in White Pine County, Nevada, may have an effect on historic properties eligible for inclusion in the National Register of Historic Places (NRHP), and has consulted with the Nevada State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA); and

WHEREAS, effects to historic properties in the Area of Potential Effect (APE) (Appendix A) cannot be fully determined and the Signatories desire to enter into this Programmatic Agreement (PA) to set forth procedures to be followed in satisfaction of BLM's Section 106 responsibilities of the National Historic Preservation Act, for the BMMD in the APE; and

WHEREAS, the BLM, the SHPO and the Advisory Council on Historic Preservation (ACHP) are Signatories to a PA governing all aspects of the development for the Project executed in December of 1995; and

WHEREAS, the BLM, the SHPO and the ACHP wish to terminate the existing Bald Mountain Mine PA effective on the day this document is executed and the BLM and the SHPO desire to enter into this PA; and

WHEREAS, BLM has invited Barrick to be a concurring party to this PA; and

WHEREAS, BLM has consulted with the ACHP pursuant to 36 CFR §800.14(b), to develop and execute this PA and the ACHP has elected not to formally enter consultation on the development of this PA; and

WHEREAS, Ely Shoshone and Duckwater Tribes may have an interest in the area and will be contacted and offered an opportunity to participate in the Section 106 process and those tribes requesting an opportunity to participate as concurring parties will be included in the process as provided in this PA; and

WHEREAS, BLM has a Nationwide Programmatic Agreement and a State Protocol Agreement between BLM and SHPO dated February 3, 2012 (Protocol) that govern all other undertakings

and historic properties that may occur within the APE and those agreements are hereby incorporated by reference into this PA; and

WHEREAS, the definitions given in the Protocol between the Nevada Bureau of Land Management State Director and the SHPO apply throughout this PA, unless specifically modified below; and

WHEREAS, this PA covers all aspects of authorized mining operations in the BMMD;

NOW, THEREFORE, the Signatories agree that the BMMD shall be administered in accordance with the following stipulations to ensure that historic properties will be treated to avoid or mitigate effects to the extent practicable, regardless of surface ownership, and to satisfy BLM's Section 106 responsibilities for all aspects of the BMMD.

I. ROLES AND RESPONSIBILITIES

A. BLM is responsible for administering this PA. This includes but is not limited to ensuring that all Signatories carry out their responsibilities; overseeing all cultural resource work; and assembling all submissions to the SHPO and consulting parties during the implementation of this PA. The Egan Field Manager is the BLM Authorized Officer for BMMD. The Authorized Officer, or their designee, is the BMMD point of contact for BLM.

B. Barrick's signatory, or their designees, will be the responsible point of contact for the BMMD and provide BLM with any and all information needed to implement this PA.

C. Barrick shall bear the expense of identification, evaluation, and treatment of all historic properties directly or indirectly affected by BMMD related activity. Such costs shall include, but not be limited to, pre-field planning, fieldwork, post-fieldwork analysis, research and report preparation, interim and summary report preparation, publications for the general public, and the cost of curating project documentation and artifact collections. If Barrick withdraws project applications, then Barrick shall incur no further expense except for completing fieldwork and post-fieldwork activities (production of final inventory, testing and data recovery reports covering the description and analysis of data, and the curation of materials) that has occurred as of the date of withdrawal.

D. BLM will be responsible for all submissions to SHPO and any other interested parties identified during the implementation of this PA for the BMMD. Any submission to SHPO or interested parties not from BLM will be considered as informational only and will not trigger any compliance timelines or other actions.

E. BLM shall ensure that ethnographic, historic, architectural, and archaeological work conducted pursuant to this PA is carried out by or under the direct supervision of persons meeting qualifications set forth in the Draft Secretary of the Interior's Professional Qualification Standards dated June 20, 1997 (62 FR 33707-33723) and who have been permitted for such work on public lands by BLM.

F. Barrick, in cooperation with BLM and SHPO, shall provide in-house training to ensure that all its personnel and all the personnel of its contractors and subcontractors are directed not to engage in the illegal collection of historic and prehistoric materials. Subsequent hires will also be required to be subject to similar training. Training can be in association with Barrick's safety and or related job training and project orientation. Barrick shall cooperate with BLM to ensure compliance with the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470) on Federal lands and with Nevada Revised Statutes (NRS) 381 for private lands.

G. Barrick shall be responsible for costs of rehabilitation or mitigation, and may be subject to criminal penalties, should damage to cultural resources inside or outside the APE occur during the period of construction, mine operation or reclamation due to the unauthorized, inadvertent or negligent actions of Barrick, their employees, contractors or any other project personnel.

H. If the BMMD is sold or otherwise transferred to another proponent other than Barrick, the Signatories will determine within 90 days of the sale or transfer if the PA will remain in effect, be amended per Stipulation V, or be terminated per Stipulation VI. All provisions of the PA will remain in effect until such a determination is made.

II. STIPULATIONS

BLM ensure that the following stipulations are carried out:

A. Identification of Historic Properties

1. BLM shall involve interested parties and Tribes identified through the Section 106 process, as appropriate, in all activities carried out under this PA associated with the Project.

2. Identification and evaluation of historic properties shall be conducted on all lands identified within approved Plans of Operation and subsequent amendments on BMMD (Plans). Identification and evaluation may be phased to reflect BMMD's operational timelines.

3. BLM shall require the consulting archaeologists conduct records searches of General Land Office (GLO) plat maps, BLM's Master Title Plats/Historic Index, the GLO Land Records website (http://www.glorecords.BLM SWFO.gov/), the Nevada State Lands Patent Database Query (http://www.lands.nv.gov/patents/patents.htm), The Nevada Cultural Resources Information System (NVCRIS), the National and State Register of Historic Places, National Trail System, historic maps, BLM and SHPO cultural resources records, and pertinent historic records/publications and maps to identify historic properties as a part of the identification process.

4. Required identification activities shall be completed on Federal or private lands owned by Barrick. For privately held lands not owned by Barrick, Barrick shall exercise reasonable effort to obtain access from the landowner for the purpose of conducting inventory, eligibility, and adverse effects analysis. "Reasonable effort" for this purpose is defined as seeking to obtain landowner consent on reasonable, negotiated terms, without resort to any formal legal process or proceedings. After all such reasonable efforts have been made, if access cannot be obtained to private land not owned by Barrick and after consulting with BLM, Barrick shall use existing data to determine the types of resources that might be present and anticipated effects. Upon BLM determination that the intention of this section has been satisfied, BLM Authorized Officer may issue a Notice to Proceed (NTP) for any construction segment as prescribed in Stipulation II.G.

5. BLM shall allow Barrick's point of contact to receive the location of any historic properties that have been or are identified within the APE or in any part of the APE directly from the archeological contractor. Barrick shall protect, secure, and restrict access to this sensitive information to the point of contact. Barrick shall not share this information with others without prior consent in writing from BLM.

B. Eligibility

1. BLM, in consultation with SHPO, shall evaluate all cultural resources recorded under this PA for eligibility to the NRHP based on the following document: *Historic Context II, The Bald Mountain Historic Mining District, White Pine County, Nevada* (Kautz 2011). This document shall be reviewed for adequacy every three years or by the request of a Signatory.

2. BLM shall consult with the appropriate Tribes to evaluate the eligibility of properties of traditional religious and cultural importance within the APE.

3. A separate report will be prepared to document historic properties with standing architectural resources that qualify for the National Register under Criteria A, B, or C in order to expedite SHPO review.

4. To the extent practicable, NRHP eligibility determinations shall be based on documented inventory information. If the information gathered in the inventory is inadequate to determine eligibility, Barrick, through its contractor, may be required to conduct limited subsurface testing or other evaluative techniques to determine eligibility. Subject to approval by BLM, in consultation with SHPO, evaluative testing is intended to provide the minimum data necessary to define the nature, age, and distribution of materials in potential historic properties, to make final evaluations of eligibility, and to inform the development of a treatment plan should data recovery be deemed necessary. BLM requires Barrick's cultural resource contractor be approved for a testing Cultural

Resources Use Permit (CRUP) prior to subsurface probing, testing, data recovery, or surface material collection.

5. If any of the Signatories, Tribes, or other consulting parties disagree regarding eligibility of a cultural resource, BLM and SHPO shall work together with Tribes and interested parties (when appropriate) to seek a resolution on the determination of eligibility. If the dispute cannot be resolved, BLM shall seek a formal determination of eligibility from the Keeper of the National Register in accordance with 36 CFR 63.2. The Keeper's determination will be considered final.

6. Eligibility will be determined prior to the initiation of activities that may adversely affect those cultural resources. Eligibility will be determined in a manner consistent with the Protocol. The required evaluation activities shall be completed on Federal or private lands owned by Barrick. If Barrick cannot gain access to private land not owned by Barrick after a reasonable effort is made, the historic property shall remain unevaluated. Sites may remain unevaluated for the NRHP only with approval by BLM in consultation with SHPO.

C. Treatment

1. BLM shall ensure that BMMD avoids adverse effects to historic properties, whenever practical, through project design, or redesign, relocation of facilities, or by other means in a manner consistent with the Protocol.

2. When avoidance is not practical and data recovery is proposed to minimize or mitigate project related adverse effects to historic properties, BLM, in consultation with the SHPO, shall ensure that Barrick, through its contractor, develops a Data Recovery Treatment Plan (Plan) that is consistent with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-37), *Treatment of Historic Properties: A Handbook* (Advisory Council on Historic Preservation 1980) and ACHP's Recommended Approach for Consultation on the Recovery of Significant Information from Archaeological Sites dated June 17, 1999. The required mitigation activities shall be completed regardless of the ownership (Federal or private lands owned by Barrick) of the lands involved. If Barrick cannot gain access to private lands not owned by Barrick through reasonable efforts, only the portions of the historic property directly affected by the project shall be treated. BLM shall submit the Plan to SHPO for review. Concurrently, BLM shall provide Tribes and other consulting parties, as appropriate, with a copy of the Plan with a fifteen (15) day review opportunity.

3. For historic properties eligible under criteria A through C, BLM will consider, in consultation with SHPO, mitigation other than data recovery in the Treatment Plan (e.g., oral history, historic markers, exhibits, interpretive brochures or publications, etc.). Where appropriate, the Treatment Plan shall include

provisions (content and number of copies) for a publication for the general public.

4. Pursuant to Stipulation F, BLM shall ensure as a condition of approval/special stipulation on any authorization or Notice to Proceed that Barrick, through its contractor, implement and complete the fieldwork portions of any final Treatment or Data Recovery Plan prior to initiating any activities that may affect those historic properties.

5. BLM shall ensure that all records and materials resulting from identification and treatment efforts are curated in accordance with 36 CFR 79 in an approved curation facility in Nevada. As defined in the Native American Graves Protection and Repatriation Act (NAGPRA) materials will be handled in accordance with 43 CFR 10. All materials collected will be maintained in accordance with 36 CFR 79 or 43 CFR 10, until the final treatment report is complete and collections are curated and/or returned to their owners. Barrick, or their contractor, shall provide proof of a current curation agreement to BLM within two (2) weeks of BLM acceptance of the final reports.

6. BLM shall provide to SHPO, Tribes, and other consulting parties as appropriate all final archaeological reports resulting from actions pursuant to this PA. All such reports shall be consistent with contemporary professional standards and the Secretary of Interior's Formal Standards for Final Reports of Data Recovery Programs (48 FR 44716-44740). Final reports will be submitted in both paper and electronic copies and will include digital copies of all associated data (e.g. GPS files, GIS data layers, digital photographs, etc.).

D. Other Considerations

1. Identification, evaluation, and treatment efforts may extend beyond the geographic limits of the APE when the resources being considered extend beyond the boundary of the construction activities. No identification, evaluation, or treatment efforts will occur beyond that necessary to gather data for the completion of the Section 106 process as agreed to in this PA.

2. Information on the location and nature of all cultural resources or information considered proprietary by a Tribe will be held confidential to the extent provided by Federal and state law.

E. Monitoring

1. Any Signatory may monitor actions carried out pursuant to this PA, provided that personnel undertaking monitoring activities shall comply with all applicable Barrick mine safety and health rules and requirements when visiting the mine. To the extent practicable, all monitoring activities conducted by SHPO, Tribes, or

other consulting parties will attempt to minimize the number of monitors involved in the Project.

2. Any areas that BLM, in consultation with the SHPO, identifies as sensitive will be monitored during related construction activities by a qualified individual (Monitor). Monitors shall be empowered to stop work to protect resources if that work is inconsistent with the terms of this PA or any corresponding treatment or monitoring plan.

F. Notices to Proceed

BLM may issue a NTP to Barrick for individual construction segments as defined by Barrick in their Plans, under any of the following conditions:

1. BLM, in consultation with SHPO, have determined that there are no cultural resources within the APE for that construction segment location; or

2. BLM, in consultation with SHPO, have determined that there are no historic properties within the APE for the construction segment locations; or

3. BLM, in consultation with the SHPO, Tribes, and other consulting parties as appropriate, has implemented an adequate Treatment Plan for the properties affected by the construction segment locations; and

   (a) Barrick has posted a surety as set forth in Stipulation H. 1.

   (b) The fieldwork phase of the treatment option has been completed; and

   (c) BLM has accepted a summary description of the fieldwork performed and a reporting schedule for that work; and

   (d) BLM shall provide an electronic copy of the summary to SHPO; and

   (e) SHPO shall review the summary and if the SHPO concurs or does not respond within two working days of receipt, BLM shall assume concurrence and issue the NTP; and

   (f) Barrick shall not begin any ground disturbing activities within the boundary of any historic property until BLM issues a NTP for the property.

G. Time Frames

1. BLM will review and comment on any report submitted by Barrick, through its contractor, within thirty (30) calendar days of receipt.

2. BLM shall submit the results of all identification, evaluation, effects assessment, and treatment efforts, including discovery situations, and Treatment or Data Recovery Plans to the SHPO. The SHPO will have thirty (30) calendar days from their receipt to

review and comment on any submission. In the event SHPO does not respond within thirty (30) calendar days from its receipt, BLM shall assume SHPO concurrence.

3. A draft final report of all identification, evaluation, treatment activities will be due to BLM from Barrick within nine (9) months after the completion of the fieldwork associated with the activity, unless otherwise negotiated. Final reports will be due sixty (60) days after receiving BLM comments.

H. Surety Bonds

1. Based on a written detailed cost estimate submitted by the Cultural Contractor and agreed to by Barrick and BLM, Barrick will post a surety bond with the BLM, not to exceed $500,000 to cover all costs associated with all data recovery fieldwork, analysis, research and report preparation, interim and summary reports, and curation of project documentation and artifact collections in an approved curation facility anticipated to run concurrently from the signing date of the PA to one calendar year from the signing date. The surety shall be posted prior to BLM issuing any NTP.

2. Portions of the surety bond posted shall be subject to forfeiture if the data recovery projects tasks are not completed within the time period established by the treatment option selected; provided, however, BLM and Barrick may agree to extend any such time periods. BLM shall notify Barrick that the surety is subject to forfeiture and shall allow Barrick thirty (30) calendar days to respond before action is taken to forfeit the surety.

3. The surety bond may be increased or decreased annually based on a written detailed cost estimate submitted by the Cultural Contractor and agreed to by Barrick and BLM for concurrently running data recovery projects anticipated for the following year. If the amount of concurrently running data recovery projects exceeds what is presented in the Cultural Contractor's cost estimate, the BLM shall meet with Barrick to increase the bond amount prior the required annual surety bond adjustment date.

J. Post-Review Discovery Situations

Stipulations of this PA and Protocol are intended to identify and mitigate historic properties. Unplanned discoveries of buried cultural resources are not anticipated. In the case of an unplanned discovery, the BLM will ensure that provisions in the Protocol (Section VI.B) and the following stipulations are met.

1. When previously unidentified cultural resources are discovered or an unanticipated impact situation occurs, all BMMD related activities within 100 meters of the discovery/impact will cease immediately. Barrick, through its contractor or its authorized representative, shall secure the location to prevent vandalism or other

damage. Barrick or its authorized representative shall immediately notify the BLM Authorized Officer of the discovery followed by written confirmation. Activity at the location shall be suspended until the discovery has been evaluated and any necessary mitigation measures completed.

2. BLM shall notify SHPO, Tribes, and other consulting parties as appropriate, within one (1) working day of the discovery or unanticipated impact notification, and consider their initial comments on the situation. Within two (2) working days after initial discovery, BLM shall notify SHPO or other parties, of the decision to either allow BMMD Activities to proceed or to require further evaluation and/or mitigation.

3. If BLM determines, in consultation with SHPO, that mitigation for discoveries or unanticipated impacts is required, BLM shall solicit comments from SHPO, Tribes, and other consulting parties, as appropriate, to develop mitigating measures. SHPO, Tribes, and other consulting parties, as appropriate, will have two (2) working days to provide BLM with comments on the nature and extent of mitigative efforts. Within seven (7) working days of initial SHPO notification, BLM will inform SHPO of the nature of the mitigation required, and ensure that such mitigative actions are implemented before allowing BMMD activities to resume.

4. BLM shall ensure that reports of mitigation efforts for discoveries or unanticipated impacts are completed in a timely manner and conform to the Department of Interior's Formal Standards for Final Reports of Data Recovery Program (42 FR 5377-79). Drafts of such reports shall be submitted to the SHPO for a fifteen (15) day review and comment period. BLM will submit final reports to the SHPO, other Signatories, Tribes, and other consulting parties, as appropriate for informational purposes.

5. Any disputes or objections arising during a discovery or unanticipated impact situation regarding the treatment of historic properties that cannot be resolved by BLM and SHPO shall be referred to the Nevada BLM State Office for consultation. The Nevada BLM State Office shall be given seven (7) days to provide BLM with comments.

6. BMMD related activities in the area of the discovery or unanticipated impact will be halted until Barrick is notified by the BLM Authorized Officer in writing that mitigation is complete and activities can resume.

III. Dispute Resolution

1. If any party to this PA, or any other consulting party, objects to any activities proposed pursuant to the terms of this PA, BLM shall consult with the objecting party and SHPO to resolve the issue.

2. An interested person or other consulting party can request participation by the ACHP should consultation not resolve the issue.

3. If there is an objection by SHPO to the manner in which the terms of this PA are implemented, SHPO will notify the Egan Field Manager in writing of the objection. BLM will consult with SHPO to resolve the objection. If BLM determines that the objection cannot be resolved, it shall request consultation by BLM Nevada State Office to help resolve the objection.

4. The Signatories may continue all actions under this PA that are not the subject of the dispute.

IV. Duration

This PA shall become effective on the date of the last signature below, and shall remain in effect for a period of ten years or until terminated as provided in Stipulation VI. If Barrick does not initiate the Project within the ten (10) year period, this PA will automatically terminate.

V. Amendment

Any Signatory to this PA may request that this PA be amended, whereupon the Signatories will consult to consider such amendment. The amendment will be effective on the date a copy signed by all of the Signatories is filed with the ACHP.

VI. Termination

Any Signatory may terminate this PA by providing written notice with cause to the other party. After notification by the initiating party, the other Signatory shall have thirty (30) calendar days to consult to seek agreement on amendments or any other actions that would address the issues and avoid termination. If such consultation fails, the termination will go into effect at the end of this thirty (30) calendar-day period, unless both parties agree to a longer period. The Signatories shall be required to meet any and all current or outstanding obligations the Signatories assumed under the terms of the PA.

EXECUTION of this PA and implementation of its terms evidences that the BLM has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

SIGNATORIES:

2/8/13

Jill A. Moore, Egan Field Manager, Ely District, Bureau of Land Management DATE

2/15/13

Rebecca L. Palmer, Acting Nevada State Historic Preservation Officer DATE

Concurring Party:

2/19/2013

Amanda Steensen, Environmental Superintendent, Barrick Gold, Inc.

DATE

Bureau of Land Management
FEB 28 2013
RECEIVED
Ely, NV

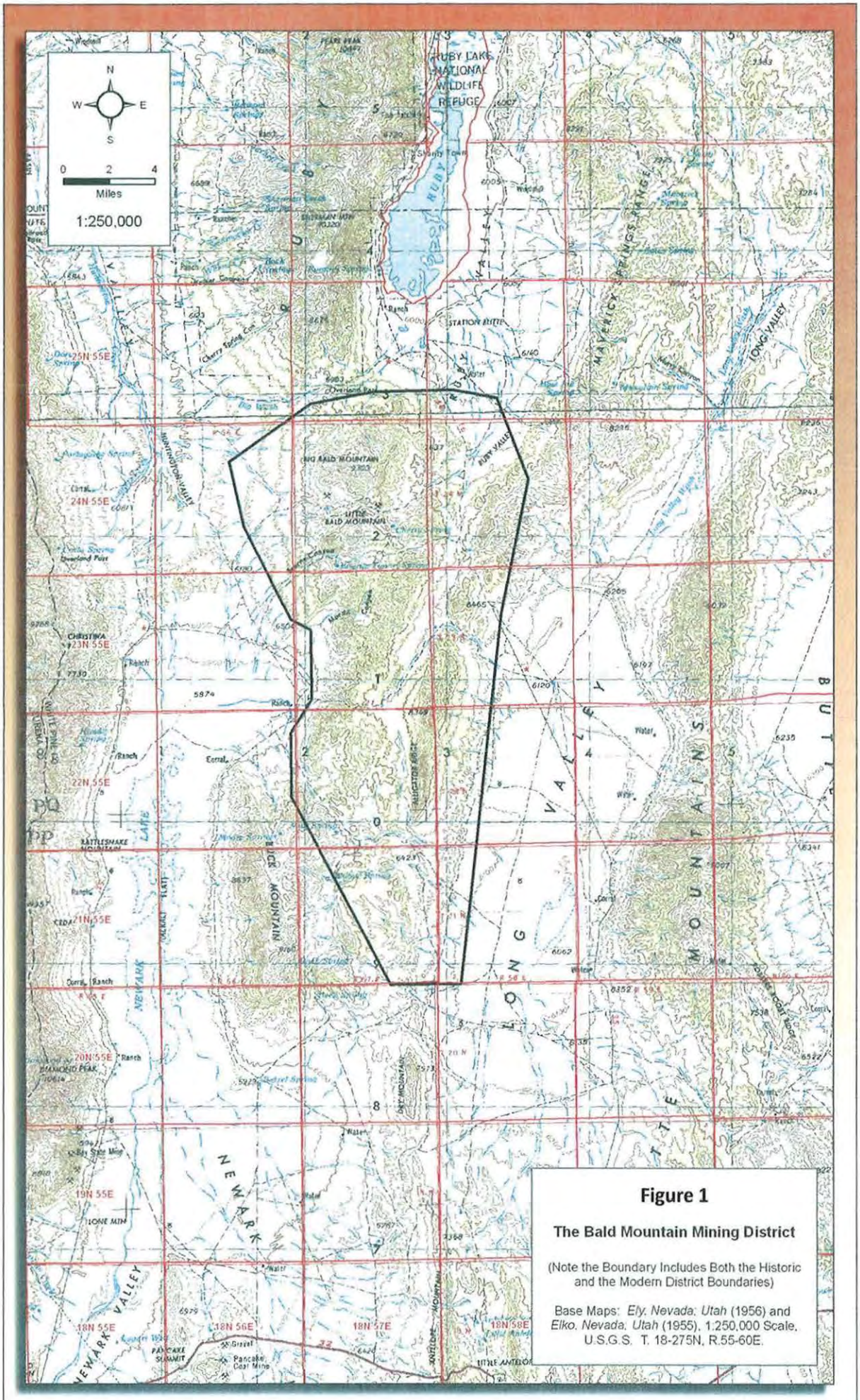

Figure 1

The Bald Mountain Mining District

(Note the Boundary Includes Both the Historic and the Modern District Boundaries)

Base Maps: *Ely, Nevada; Utah* (1956) and *Elko, Nevada, Utah* (1955), 1:250,000 Scale, U.S.G.S. T. 18-27S N, R.55-60E.

Appendix I

Memorandum of Understanding Regarding the Establishment of a Partnership for the Conservation and Protection of the Greater Sage-Grouse and Greater Sage-Grouse Habitat

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MEMORANDUM OF UNDERSTANDING

United States Department of Interior
Bureau of Land Management-Nevada State Office

United States Department of Agriculture, United States Forest Service, Humboldt-Toiyabe National Forest,

Nevada Department of Conservation and Natural Resources,

and

Barrick Gold of North America, Newmont Mining Corporation, and Other Companies

MEMORANDUM OF UNDERSTANDING

Among

THE U. S. DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, NEVADA STATE OFFICE

THE UNITED STATES DEPARTMENT OF AGRICULTURE, UNITED STATES FOREST SERVICE, HUMBOLDT-TOIYABE NATIONAL FOREST,

NEVADA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

And

BARRICK GOLD OF NORTH AMERICA, NEWMONT MINING CORPORATION, and OTHER COMPANIES

Regarding the Establishment of a Partnership for the Conservation and Protection of the Greater Sage-Grouse and Greater Sage-Grouse Habitat

I. PURPOSE

This Memorandum of Understanding ("MOU") establishes a formal partnership among BLM Nevada ("BLM"), Humboldt-Toiyabe National Forest ("HTNF"), the Nevada Department of Conservation and Natural Resources ("DCNR") (together the "Agencies") and Barrick Gold of North America (including its US affiliates and subsidiaries), Newmont Mining Corporation (including its US affiliates and subsidiaries), and other members of the Nevada Mining Association as may choose to execute this Agreement (together the "Companies"). Collectively, the Agencies and Companies shall be referred to as the "Parties."

This MOU provides a consultation process for proposed mining projects occurring in sage-grouse preliminary priority habitat ("PPH") and preliminary general habitat ("PGH") located on federal lands. This process will guide the design and implementation of appropriate and consistent action to avoid, minimize, or mitigate adverse impacts to Greater Sage-grouse and Greater Sage-grouse habitat associated with mining exploration and development.

This MOU is consistent with BLM Washington Office Instructional Memorandum No. 2012-043, entitled Greater Sage-Grouse Interim Management Policies and Procedures, and Nevada BLM Instructional Memorandum No. NV-2012-058, entitled Revised Direction for Proposed Activities within Greater Sage-Grouse Habitat and the Forest Service (Regions 1, 2 and 4) "Interim Conservation Recommendations for Greater Sage-Grouse and Sage-Grouse Habitat" dated October 2, 2012.

II. PROCEDURES

A. The BLM is responsible for the administration and management of public lands. The BLM will be the lead agency in the National Environmental Policy Act ("NEPA") processes as described by 40 C.F.R. §§ 1501.5, 1508.16 and 43 CFR part 3809 for evaluation, analysis, and processing of Plans of Operation and mining exploration Notices of Intent within BLM administered lands.

B. The HTNF is responsible for the administration and management of National Forests. The HTNF will be the lead agency in the NEPA process as described by 40 C.F.R. §§ 1501.5, 1508.16 and 36 CFR 228 Subpart A for evaluation, analysis, and processing of Plans of Operation and mining exploration Notices of Intent within National Forest administered lands.

C. The DCNR is responsible for the administration of mining exploration and development on private and state lands.

D. The Parties agree to become cooperating partners in the formation of the BLM Nevada, Humboldt-Toiyabe National Forest, DCNR, and Nevada mining industry Greater Sage-grouse conservation partnership and in the NEPA process for plans of operation or mining exploration notices on public lands. DCNR will participate as a cooperating agency under 40 CFR §§ 1501.6, 1508.5, 43 CFR part 3809, and 36 CFR 228 Subpart A. Individual mining companies will participate as project applicants in the NEPA processes for their own Plans of Operation or mining exploration Notices of Intent.

E. All Parties agree to:

   i. Adhere to and comply with the applicable laws and regulations of the United States and regulations of the Secretary of the Interior and Secretary of Agriculture, for areas under their respective jurisdictions.

   ii. Meet as needed on mutually agreed dates to review and evaluate current conditions and trends as well as the implementation of this MOU. These meetings will also serve as coordination sessions to determine immediate and future timing requirements and the general programming of cooperative actions.

   iii. Implement the state consultation requirements of BLM NV Instructional Memorandum No. 2012-058 through this MOU for mining projects. This MOU provides that the consultation process will involve a collaborative approach among the Parties on a project basis.

   iv. Support and implement appropriate sage-grouse monitoring and mitigation for mining related activities in PPH and PGH on federal lands. Through the NEPA process for Plans of Operation or through the development of mining exploration Notices of Intent, the Agencies will consult with the Parties to identify and implement appropriate monitoring and mitigation for mining exploration and development on BLM and HTNF lands in Nevada, consistent with the interim management direction for PPH and PGH. The goals for project development include, but are not limited to: (a) Avoidance and minimization of sage-grouse

habitat disturbance where practicable, recognizing existing mineral rights and authorizations; (b) Offsetting, or mitigation where avoidance is not practicable; and (c) Establishment of sage-grouse mitigation bank(s).

v. For mining projects on federal lands not previously approved by the appropriate Agency, provide for restoration, mitigation, or offsetting of potential impacts on sage-grouse. The final determination of the effects that require restoration, mitigation, and offsetting shall be accomplished through site specific analysis and/or addressed in a NEPA compliant document. In determining any requirements, the Agencies shall consider the recommendations of an evaluation committee consisting of representatives of the project, the federal land management agency, and the State Sage-Grouse Technical Team. Such determinations shall be guided by the following principles:

   a. No restoration, mitigation, or offset would be required where site specific analysis establishes that there will be no negative effects to sage-grouse or its habitat, even in areas that have been designated on maps as PPH or PGH. Such analysis would be conducted by a qualified biologist with sage-grouse experience and agreed to by the relevant Parties. The analysis would include an evaluation of the use of the site by sage-grouse during its life cycle. In order to reach a conclusion that no restoration, mitigation, or offsetting is required in an area previously designated as PPH or PGH, the analysis must be conducted prior to any disturbance and must account for any projected changes in sage-grouse behavior as a result of the activity proposed. Attachment A (Sage-Grouse Habitat Assessment Framework) hereto describes one acceptable approach to such site-specific analysis. Other methods or procedures, including without limitation streamlining of data requirements, may be considered on a case-by-case basis.

   b. Site reclamation plans may include specific measures designed to provide for restoration/rehabilitation or improvement of sage-grouse habitat during the reclamation process. Where such reclamation is found to adequately address some or all of the impacts on Greater sage-grouse, the required mitigation or offsetting may be reduced or eliminated.

   c. Where reclamation is infeasible or will not, by itself, adequately address all impacts on Greater Sage-grouse, any excess impact not addressed by reclamation will be offset or mitigated as provided in a plan approved by the appropriate federal Party, consistent with the objective of no unmitigated net loss and the following principles:

      i. Offset at a ratio of 1 to 1 by providing long-term assurances, acceptable to the land management agency and in place prior to the disturbance, for the protection, management, and conservation of comparable habitat on private land. For purposes of this Agreement, "comparable" shall refer to habitat

of the same (or better) kind and quality, to the satisfaction of the land management agency.

ii. Mitigated by the project proponent at ratios of no more than 3 to 1 for PPH-quality habitat and 2 to 1 for PGH-quality habitat. Notwithstanding these mitigation targets, it is understood and agreed that the Agencies may approve alternative mitigation proposals where the net benefit to sage-grouse conservation meets or exceeds the benefit that would be achieved by performing traditional acre for acre mitigation. For example, but without limitation, it is agreed that fire control, focused improvements to high value habitat areas, and other projects may have great benefit to sage-grouse that is not easily correlated to per acre mitigation ratios.

iii. Mitigated by the project proponent providing payment to a sage-grouse mitigation bank account or other program approved by DCNR and the appropriate federal land management agency in an amount equal to the cost of satisfying the target mitigation ratios set forth above. Costs for making such improvements on private lands shall be based on the Nevada Standardized Reclamation Cost Estimator (SCRE) model. SCRE shall also provide the basis for negotiating costs for public lands, which will also include cost of NEPA compliance.

iv. Without limitation, mitigation measures may include habitat restoration/rehabilitation, vegetation management, fencing of springs and meadows, thinning or removal of woodland vegetation in sagebrush communities, creating fuel breaks to protect intact sagebrush communities, noxious weed treatments, and supplemental (*i.e.*, not baseline) GPS or telemetry sage-grouse population monitoring. Mitigation/offsetting may be performed on or off-site, on either private or public lands, subject to appropriate mechanisms for assuring that off-site mitigation projects will maintain adequate protections.

vi. Continue to work toward development of a program for and establishment of a sage-grouse mitigation bank(s) across all land ownerships and jurisdictions. The Parties will identify potential habitat to be included in a mitigation bank(s); a program for implementing restoration/rehabilitation, reclamation, and enhancement activities on banked land; a system for validating, tracking, and monitoring the success of mitigation efforts on Greater Sage-grouse populations; mechanisms for assuring adequate protection of projects; and an accounting system for banked credits.

vii. Support the development and application of state and transition models for ecological sites to assess Greater Sage-grouse habitat values and optimize Greater Sage-grouse restoration/rehabilitation, reclamation, and enhancement efforts. Modeling will be used, if available, during the NEPA process and during consultation with the Parties to assess habitat disturbance and identify appropriate mitigation measures. Modeling may also be used to identify potential land for a mitigation bank(s) and provide a metric for assigning values to habitat restoration/rehabilitation, reclamation, and enhancement activities within the bank(s).

viii. Greater Sage-grouse related data that becomes available through site-specific surveys, remote sensing data, state and transitional models, or other sources will be provided to and stored in a central location acceptable to the relevant Parties. The appropriate protocols and location of the data storage will be coordinated by the State Sage-Grouse Technical Team.

ix. Consistent with this MOU, offsetting/mitigation, including any monitoring or other requirements, to address impacts to Greater Sage-grouse from mining projects on federal lands will be developed through the NEPA process and issued as a condition of project approval.

III. AUTHORITIES

A. The following Legislative Authorities apply to the BLM and will apply to other subsequent and mutually agreed to instruments:

i. The Taylor Grazing Act of June 28, 1934, (43 U.S.C. § 315 *et seq.*), as amended.

ii. General Mining Law of 1872 (30 U.S.C. § 22 *et seq.*), as amended.

iii. The Federal Land Policy and Management Act of 1976 (43 U.S.C. § 1737(b)).

iv. The Public Rangelands Improvement Act of 1978 (43 U.S.C. § 1901 *et seq.*).

v. National Environmental Policy Act of 1969 (42 U.S.C. § 4321 *et seq.*).

B. The following Legislative Authorities apply to the HTNF and will apply to other subsequent and mutually agreed to instruments:

i. National Forest Management Act of 1976 (16 U.S.C. §§ 1600-1614), as amended.

ii. General Mining Law of 1872 (30 U.S.C. § 22 *et seq.*), as amended.

iii. The Federal Land Policy and Management Act of 1976 (43 U.S.C. § 1737(b)),

iv. National Environmental Policy Act of 1969 (42 U.S.C. § 4321 *et seq.*).

C. The following Legislative Authorities under this MOU apply to DCNR, for its participation as a NEPA cooperating agency, and to the Companies for participation as project applicants: NRS 232.070(3).

IV. ADMINISTRATION

A. It is mutually agreed and understood by all Parties that:

i. Nothing in this MOU will be construed as affecting or restricting the legal authorities of the Parties or as binding beyond their respective authorities, or to obligate the federal agencies to any current or future expenditure in advance of appropriations from Congress. Nor does this agreement obligate or require the United States, through BLM or NTNF, or the State of Nevada to expend funds on any particular project or purpose, even if funds are available.

ii. Any information furnished to the BLM, HTNF, or other Parties during and related to the NEPA process may be subject to disclosure under the Freedom of Information Act (5 U.S.C. § 552), unless covered by a relevant exception (e.g., for confidential commercial or financial information (5 U.S.C. § 552(b)).

iii. This MOU in no way restricts the BLM, HTNF, DCNR, or the Companies from participating in similar activities with other public or private agencies, organizations, and individuals.

iv. Nothing in this MOU shall obligate the BLM, HTNF, DCNR, or the Companies to obligate or transfer any funds. Specific work projects or activities that involve the transfer of funds, services, or property among the various agencies and offices of the BLM, HTNF, DCNR, and the Companies shall require execution of separate agreements consistent with law and any funds provided by the government agencies pursuant to their legal authorities will be contingent upon the availability of appropriated funds. All funded activities must be independently authorized by appropriate statutory authority as this MOU does not provide such authority. Negotiation, execution, and administration of each such agreement must comply with all applicable statues and regulations.

v. This MOU is not intended to and does not create, any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the United States, its agencies, its officers, or against the State of Nevada or any other person.

vi. Conflicts between the Parties concerning procedures under this MOU, which cannot be resolved at the operational level, will be referred to successively higher levels as necessary for resolution.

vii. Upon request by any of the Parties, each Party shall review this MOU to assure that it continues to reflect the appropriate understandings and procedures to provide for current needs and capabilities and adherence to the Public Laws.

viii. The terms of this MOU may be renegotiated at any time at the initiative of any Party. Any Party may propose changes to this MOU during its term by providing 30-day written notification to the other Parties. Such changes will be in the form of an amendment and will become effective upon signature by the Parties.

ix. The Federal Government's liability shall be governed by the provisions of the Federal Tort Claims Act (28 U.S.C. §§ 2671-80). The Parties shall operate in conformance with the Code of Federal Regulations and the United States Code.

x. The Parties shall comply with all Federal Statutes relating to nondiscrimination. These include but are not limited to: a) Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d), which prohibits discrimination on the basis of race, color, handicap, or national origin; b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§ 1681-16783, §§ 1685-1686), which prohibits discrimination on the basis of sex.

xi. Any Party may terminate its involvement under this MOU upon providing a 30-day written notice of such termination to the other Parties.

xii. Unless otherwise provided, this agreement is not intended to supersede provisions of other agreements between the Parties, in whole or in part, unless there is a conflict between the two agreements.

xiii. FEDERAL IDENTIFIER NUMBER. For the purposes of the HTNF, the Federal Identifier Number is **13-MU-11041730-040**.

xiv. SUPPLEMENTAL PROVISIONS. The U.S. Forest Service (HTNF) Supplemental Provisions are hereby incorporated into and made part of the Memorandum of Understanding among the BLM, HTNF, DCNR, and the Companies regarding the Establishment of a Partnership for the Conservation and Protection of the Greater Sage-Grouse and Greater Sage-Grouse Habitat.

xv. NON-FEDERAL STATUS FOR COOPERATOR PARTICIPANT LIABILITY. DCNR and the Companies agree that any of their employees, volunteers, and program participants shall not be deemed to be Federal employees for any purposes including Chapter 171 of Title 28, United States Code (Federal Tort Claims Act) and Chapter 81 of Title 5, United States Code (OWCP), as DCNR and the Companies hereby willingly agree(s) to assume these responsibilities.

Further, DCNR and the Companies shall provide any necessary training to DCNR and the Companies' employees, volunteers, and program participants to ensure that such personnel are capable of performing tasks to be completed. DCNR and the Companies shall also supervise and direct the work of its employees, volunteers, and participants performing under this agreement.

xvi. ASSURANCE REGARDING FELONY CONVICTION OR TAX DELINQUENT STATUS FOR CORPORATE ENTITIES. This agreement is subject to the provisions contained in the Department of Interior, Environment, and Related Agencies Appropriations Act, 2012, P.L. No. 112-74, Division E, Section 433 and 434 regarding corporate felony convictions and corporate federal tax delinquencies. Accordingly, by entering into this agreement the Companies acknowledges that it: 1) does not have a tax delinquency, meaning that it is not

subject to any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, and (2) has not been convicted (or had an officer or agent acting on its behalf convicted) of a felony criminal violation under any Federal law within 24 months preceding the agreement, unless a suspending and debarring official of the United States Department of Agriculture has considered suspension or debarment is not necessary to protect the interests of the Government. If any of the signatory mining Companies fails to comply with these provisions, the U.S. Forest Service will annul this agreement and may recover any funds the Companies have expended in violation of sections 433 and 434.

xvii. MEMBERS OF U.S. CONGRESS. Pursuant to 41 U.S.C. 22, no U.S. member of, or U.S. delegate to, Congress shall be admitted to any share or part of this agreement, or benefits that may arise therefrom, either directly or indirectly.

xviii. NOTICES. Any communications affecting the operations covered by this agreement given by the U.S. Forest Service or the Parties is sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

To the Principal Contact(s) listed in Section IV(A)(xxii).

Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

xix. DEBARMENT AND SUSPENSION. The Cooperator shall immediately inform the U.S. Forest Service if they or any of their principals are presently excluded, debarred, or suspended from entering into covered transactions with the federal government according to the terms of 2 CFR Part 180. Additionally, should the Cooperator or any of their principals receive a transmittal letter or other official Federal notice of debarment or suspension, then they shall notify the U.S. Forest Service without undue delay. This applies whether the exclusion, debarment, or suspension is voluntary or involuntary.

xx. This MOU documents a framework for cooperation between the HTNF and the other Parties for carrying out their separate activities in a coordinated and mutually beneficial manner where nothing of value transfers between the Parties. The Parties direct their own activities, use their own resources and funding, and do not expect any deliverable by the HTNF and the other Parties. Nothing in this MOU commits the HTNF to future projects or any future obligation.

xxi. ENDORSEMENT. Any of the Parties' contributions made under this MOU do not by direct reference or implication convey U.S. Forest Service endorsement of the Parties' products or activities.

xxii. PRINCIPAL CONTACTS. Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

Principal DCNR Contacts:

DCNR Program Contact	DCNR Administrative Contact
Name: Jim Lawrence Address: 901 S Stewart St, Suite 5003 City, State, Zip: Carson City, NV 89701 Telephone: 775-684-2720 FAX: Email: Lawrence@lands.nv.gov	Name: Tim Rubald Address: 901 S. Stewart St, Suite 1003 City, State, Zip: Carson City, NV 89701 Telephone: 775-684-2764 FAX: Email: timrubald@sagebrusheco.nv.gov

Principal BLM Contacts:

BLM Program Contact	BLM Administrative Contact
Name: Raul Morales Address: 1340 Financial Blvd City, State, Zip: Reno, NV 89502 Telephone: 775-861-6464 FAX: 775-861-6712 Email: rmorales@blm.gov	Name: Kenda Tucker Address: 1340 Financial Blvd City, State, Zip: Reno, NV 89502 Telephone: 775-861-6417 FAX: 775-861-6634 Email: ktucker@blm.gov

Principal Companies Contacts:

Companies Program Contact	Companies Administrative Contact
Name: Tim Crowley, President, Nevada Mining Association Address: 201 West Liberty St City, State, Zip: Reno, NV 89501 Telephone: 775-829-2121 FAX: 775-852-2631 Email: Tim@nevadamining.org	Name: Address: City, State, Zip: N/A Telephone: FAX: Email:

Principal HTNF Contacts:

HTNF Program Manager Contact	HTNF Administrative Contact
Name: Tom Frolli, Natural Resources & Planning Officer Address: 1200 Franklin Way City, State, Zip: Sparks, NV 89431 Telephone: 775-355-5313 FAX: 775-355-5398 Email: tfrolli@fs.fed.us	Kevin Worth, Grants Management Specialist Southwest ID & NV Acquisition Center 1249 S Vinnell Way, Suite 200 Boise, ID 83709 Telephone: (208) 373-4295 FAX: (208) 373-4294 Email: kworth@fs.fed.us

The authority and format of this agreement have been reviewed and approved for signature. 13-MU-11041730-040

7/8/13

KEVIN WORTH — Date
U.S. Forest Service Grants Management Specialist

V. APPROVALS

This MOU will become effective upon the last date of signature between the Parties and shall remain in effect for 5 years or until the issuance of a Record of Decision approving BLM and HTNF's California-Nevada Greater Sage-Grouse Sub-regional Resource Management Plan Amendments, as contemplated by IM No. 2012-044, whichever is sooner. ***This MOU may be amended to include additional participating Companies as deemed appropriate by the signatory agencies.***

7/8/13

Amy Lueders — Date
State Director, Nevada
Bureau of Land Management

William Dunkelberger — Date
Forest Supervisor, Humboldt-Toiyabe National Forest
United States Forest Service

Leo Drozdoff — Date
Director
Nevada Department of Conservation and Natural Resources

The authority and format of this agreement have been reviewed and approved for signature. 13-MU-11041730-040

7/8/13

KEVIN WORTH
U.S. Forest Service Grants Management Specialist
Date

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Amy Lueders
State Director, Nevada
Bureau of Land Management
Date

Jack R Isaacs
for William Dunkelberger
Forest Supervisor, Humboldt-Toiyabe National Forest
United States Forest Service
7/18/13
Date

Leo Drozdoff
Director
Nevada Department of Conservation and Natural Resources
Date

The authority and format of this agreement have been reviewed and approved for signature. 13-MU-11041730-040

7/8/13

KEVIN WORTH
U.S. Forest Service Grants Management Specialist

Date

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Amy Lueders
State Director, Nevada
Bureau of Land Management

Date

William Dunkelberger
Forest Supervisor, Humboldt-Toiyabe National Forest
United States Forest Service

Date

7/9/13

Leo Drozdoff
Director
Nevada Department of Conservation and Natural Resources

Date

Gary Halverson
President
Barrick Gold of North America

July 24/13
Date

Tom Kerr
Senior Regional Vice President – North American Region
Newmont USA Limited

Date

Gary Halverson
President
Barrick Gold of North America

Date

Tom Kerr
Senior Regional Vice President – North American Region
Newmont USA Limited

07-15-13
Date

AUTHORIZED REPRESENTATIVE. By signing below, the President of the Nevada Mining Association (NvMA) certifies as being an authorized representative to sign on behalf of all members of NvMA who shall be and are a participating party to this Memorandum of Understanding (MOU), FS Agreement #13-MU-11041730-040. It shall be the responsibility of the President of NvMA to maintain a current and accurate list of the legal names of all members of NvMA who are a participating party to this MOU. At the request of a party to this MOU, the President of NvMA shall provide that party with a current and accurate list of the legal names of all members of NvMA who are a participating party to this MOU within 30 days of such request.

Tim Crowley — 8-21-13

TIM CROWLEY, President
Nevada Mining Association

Date