



Freeport-McMoRan Chino Mines Company
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October 30, 2018

Certified Mail #7018068000000227481
Return Receipt Requested

Mr. Kurt Vollbrecht, Manager
New Mexico Environment Department
Ground Water Quality Bureau
Mining Environmental Compliance Section
P. O. Box 5624
Santa Fe, New Mexico 87502

Dear Mr. Vollbrecht:

Re: Annual Monitoring Report, Groundhog Mine Site IRA
Hanover-Whitewater Creeks Investigation Unit, Chino AOC

Freeport-McMoRan Chino Mines Company (Chino) submits the attached Annual Monitoring Report for the completed Groundhog Mine Site Interim Remedial Action (IRA) for the monitoring period ending September 30, 2018. The Groundhog Mine Site IRA was completed by Chino pursuant to requirements of the Administrative Order on Consent (AOC, 1994) between the New Mexico Environment Department (NMED) and Chino.

Per Section 6.0 of the IRA Completion Report dated June 10, 2009, this annual monitoring report includes the bulleted information listed below with the exception of the annual vegetation monitoring survey required to be performed for the first five years. Chino has performed a quantitative five year vegetation survey as per the Completion Report requirements which was submitted to NMED September 30, 2016. NMED approved the *Vegetation Monitoring Report for the Groundhog Mine Site and Small Historic Stockpile Sites Interim Remedial Action* in a letter dated August 31, 2017.

- Data tabulation sheet of analytical results screened against NM Groundwater Quality Standards from monitoring well and surface water samples collected at the Groundhog Mine site;
- Copies of the original laboratory data sheets; and
- The quarterly erosion surveys.

Additionally, this report includes information described in Section 6.0 of the Completion Report for the Osceolla, CG Bell, and Tenderfoot B Stockpiles IRA. These three historical mine sites are proximal and have similar requirements as the Groundhog IRA. The five year quantitative vegetation survey report submitted September 30, 2016 also addresses these sites and thus no further annual vegetation surveys are required as provided in the Completion Report. The following information is also attached for these stockpiles:

- Quarterly erosion reports for the three historic small stockpiles are included with the Groundhog Mine Site quarterly monitoring survey.
- Also included are monitoring reports for the Star Stockpile.
- Figure 1 illustrates locations for all of the IRA sites.

The attached ground water quality data are for monitor wells GH-2004-2S and GH-2004-2D. See Figure 1 for well locations. Noted in the shallow ground water quality is a trend beginning in 2009 which shows an increase in concentrations for cadmium, manganese, sulfate, TDS, and zinc.

This is being addressed as part of the Discharge Permit (DP) 1340 Site Wide Abatement (SWA) process. A *Draft Revised Final Site Investigation Report* under, Site Wide Stage 1 Abatement dated March 30, 2016 is under review by NMED that includes the Groundhog Mine Site.

The other water quality data in the table are from three surface impoundment locations. The surface impoundment sampling locations include the Lower Stormwater Sump "GH-Sump" and the Lower Stormwater Pond "GH-Lower Pond" which make up the Groundhog Mine seepage collection system located up gradient of the headwall. See Figure 1. Surface water from this collection system, when present, is pumped to Reservoir 17 for use as process water. The third surface impoundment sample site is the Upper Stormwater Pond "GH-Upper Pond" which was removed during the supplemental site remediation in 2011 as the containment was no longer needed to alleviate subsurface flow through the adjacent stockpile material supporting the old pipeline corridor. Sampling of this site ceased upon its removal. This pond was located east of the haul road that divides the Groundhog Mine site.

Chino has continued monitoring surface water quality for improvements from remediation at this seepage collection system for approximately eleven years as it is the downstream drainage endpoint for the Groundhog Mine Site. Sample results are provided in this annual report as required in the Groundhog IRA Completion Report to establish improving water quality that upon reaching standards, and following the Record Of Decision, the watershed surface water from the remediated mine site runoff would be allowed to flow into Whitewater Creek.

However, due to mine operation pipeline corridors dividing the IRA site and the Groundhog Mine seepage collection system now utilized as part of the contingency "pipeline spill containment system" as discussed under Discharge Permit (DP) 213; sample data from GH-Lower Pond now reflects residual tailing effects. This is noted in recent sampling data due to a pipeline spill on January 27, 2017 as reported in the DP-213 Quarterly Monitoring Report dated April 27, 2017. Mine operations now utilizes the lower pond system, which is the natural drainage system, and this portion of the Groundhog Mine Site can no longer be considered part of the IRA as the remedial objectives cannot be met.

In alignment with requests made by NMED, in their letter dated March 21, 2018 approving the 2017 Annual Groundhog Mine Site Monitoring Report, Chino will submit a separate detailed request to move the lower pond collection system out of the oversight of the AOC. As requested Chino will first submit a request under Discharge Permit 213 to address this portion of the Groundhog Mine Site under active operations.

If you require additional information regarding this submittal, please contact Ms. Alicia Voss at (602) 366-8049.

Sincerely,



Sherry Burt-Kested, Manager
Environmental Services

SBK:pp
Attachments
20181030-003

c: David Mercer, NMED (4 copies)
Joseph Fox, NMED (via email)
D.J. Ennis, Mining & Minerals Division, NMEMNRD (via email)
Petra Sanchez, Environmental Protection Agency (via email)
Christian Krueger, Chino (via email)
Rita Lloyd-Mills, Chino (via email)

Freeport-McMoRan Chino Mines Company

Groundhog Mine IRA Annual Report

October 30, 2018

Site Number	Sample ID	Sample Date	Comments	Ca, Diss (mg/L)	Cd, Diss (mg/l)	Co, Diss (mg/l)	Cu, Diss (mg/l)	F, Tot (mg/l)	Fe, Diss (mg/l)	Mg, Diss (mg/L)	Mn, Diss (mg/l)	Ni, Diss (mg/l)	Pb, Diss (mg/l)	Zn, Diss (mg/l)	pH, Field (su)	SO4, Tot (mg/l)	TDS (mg/l)	Cond, Fld (micromho)	Water Temp (Cent)	Well Collar Level (ft msl)	Well Depth (ft)	Depth to Water (ft)
WQCC Water Quality Standard					0.01	0.05	1	1.6	1		0.2	0.2	0.05	10	6-9	600	1000					
GH-2004-2D	235809	10/28/2004		NA	0.0044	<0.006	0.0049	<1	<0.02	NA	0.0591	<0.01	<0.005	0.743	6.63	1780	2580	2292	17.3	6009.7	157.6	62
GH-2004-2D	245863	5/17/2005		NA	0.0027	<0.006	<0.01	<0.5	0.089	NA	0.374	<0.01	<0.005	0.654	6.76	1640	2440	2339	17.4	6003.74	147.6	44.5
GH-2004-2D	270674	10/25/2005		NA	0.0074	<0.006	<0.01	1.03	<0.06	NA	0.213	<0.01	0.009	1.65	6.62	1620	2530	2354	17.4	6003.74	147.6	46.3
GH-2004-2D	276910	3/14/2006		NA	0.0087	<0.006	<0.01	0.2	<0.06	NA	0.129	<0.01	0.009	0.851	6.63	1600	2770	2334	17.2	6003.74	147.6	47.43
GH-2004-2D	283019	8/4/2006		NA	0.0119	<0.006	<0.01	<0.2	<0.06	NA	0.123	<0.01	0.0108	1	6.58	1590	2620	2384	17.6	6003.74	147.6	50.3
GH-2004-2D	299167	2/6/2007		NA	0.0095	<0.006	<0.01	<0.2	<0.06	NA	0.108	<0.01	0.0091	0.903	6.53	1660	2630	2372	17.3	6003.74	147.6	43.03
GH-2004-2D	305946	7/23/2007		NA	0.011	<0.006	<0.01	<0.5	<0.06	NA	0.0899	<0.01	0.011	0.935	6.72	1640	2700	2432	18.1	6003.74	147.6	43.45
GH-2004-2D	316507	3/25/2008		NA	0.0105	<0.006	<0.01	<0.2	<0.06	NA	0.0555	<0.01	0.0086	0.82	6.79	1760	2700	2304	17	6003.74	147.6	44.7
GH-2004-2D	320089	10/28/2008		NA	0.0094	<0.006	<0.01	<0.5	<0.06	NA	0.112	<0.01	0.011	0.866	6.63	1990	2700	2351	17.2	6003.74	147.6	41.42
GH-2004-2D	321236	03/23/2009		NA	0.0072	<0.006	0.015	0.107	<0.06	NA	0.254	<0.01	<0.0075	0.904	6.82	1570	2690	2348	17.2	6003.74	147.6	44.8
GH-2004-2D	322688	09/30/2009		494	0.0101	<0.006	0.016	<0.5	<0.06	121	0.139	<0.01	<0.0075	0.873	6.43	1560	2730	2405	17.8	6003.74	147.6	48.08
GH-2004-2D	323312	03/11/2010		491	0.0116	<0.0061	0.013	<0.2	<0.061	118	0.0689	<0.01	0.008	0.838	6.77	1710	2680	2382	16.9	6003.74	147.6	48.22
GH-2004-2D	324880	09/20/2010		515	0.0117	<0.006	<0.01	<0.5	<0.06	125	0.0606	<0.01	0.0108	0.775	6.81	1660	2760	2422	18.7	6003.74	147.6	44.74
GH-2004-2D	326361	03/02/2011		509	0.0122	<0.006	<0.01	<0.5	<0.06	118	0.0703	<0.01	0.0134	0.855	6.73	1620	2540	2367	17.5	6003.74	147.6	47.99
GH-2004-2D	327872	09/02/2011		489	0.0098	<0.006	0.01	<0.1	<0.06	113	0.0474	<0.01	<0.0075	0.782	6.75	1640	2660	2416	18.9	6003.74	147.6	50.32
GH-2004-2D	329325	03/22/2012		527	0.0118	<0.006	<0.01	<0.5	<0.06	122	0.0626	<0.01	0.0096	0.804	6.63	1,750	2,710	2,272	17.9	6003.74	147.6	45.34
GH-2004-2D	330950	09/06/2012		525	0.0119	<0.006	<0.01	<0.5	<0.06	123	0.0484	<0.01	0.009	0.852	6.72	1,800	2,640	2,467	19.3	6003.74	147.6	49.13
GH-2004-2D	332598	03/11/2013		540	0.0136	<0.006	0.011	<0.5	<0.06	130	0.0496	<0.01	0.0144	0.912	6.69	1,780	2,720	2,389	18	6003.74	147.6	52.56
GH-2004-2D	334321	09/18/2013		541	0.0143	<0.006	<0.01	1.01	<0.06	127	0.0635	<0.01	0.012	0.912	6.69	1,780	2,720	2,428	17.9	6003.74	147.6	50.28
GH-2004-2D	335938	03/06/2014		512	0.0156	<0.006	<0.01	0.96	<0.06	122	0.0932	<0.01	0.0091	0.883	6.63	1,720	2,570	2,361	17.9	6003.74	147.6	47
GH-2004-2D	337693	09/09/2014		521	0.0148	<0.006	<0.01	<0.5	<0.06	124	0.064	<0.01	<0.0075	0.843	6.75	1,750	2,680	2,404	18.3	6003.74	147.6	50.24
GH-2004-2D	339360	03/12/2015		503	0.0119	<0.006	<0.01	<0.5	<0.06	118	0.0436	<0.01	<0.0075	0.801	6.79	1,700	2,440	2,247	16.9	6003.74	147.6	45.65
GH-2004-2D	341186	09/02/2015		489	0.0147	<0.006	<0.01	<0.5	<0.06	112	0.0507	<0.01	<0.0075	0.874	6.71	1,730	2,580	2,396	19.3	6003.74	147.6	49.32
GH-2004-2D	343006	03/03/2016		486	0.0154	<0.006	<0.01	0.732	<0.06	115	0.0539	<0.01	<0.0075	0.956	6.75	1,710	2,610	2,310	18	6003.74	147.6	49.74
GH-2004-2D	345111	09/13/2016		505	0.0146	<0.006	<0.01	<0.1	<0.1	116	0.0276	<0.01	<0.0075	0.79	6.74	1,650	2,530	2,260	17.4	6003.74	147.6	54.09
GH-2004-2D	347288	06/01/2017		498	0.0151	<0.006	<0.01	0.577	<0.1	118	0.0484	<0.01	0.0089	0.889	6.74	1,690	2,540	2,450	17.6	6003.74	147.6	44.35
GH-2004-2D	349336	09/12/2017		522	0.0151	<0.006	<0.01	0.185	<0.1	127	0.0829	<0.01	<0.0075	0.866	6.65	44	2,500	2,539	18.8	6003.74	147.6	44.21
GH-2004-2D	351227	03/21/2018		515	0.0142	<0.006	<0.01	<0.5	<0.1	113	0.0517	<0.01	<0.0075	0.878	6.77	2,030	2,490	2,504	17.6	6003.74	147.6	48.47
GH-2004-2D	352966	09/24/2018		460	<0.002	<0.006	<0.01	<0.1	<0.1	108	0.129	<0.01	<0.0075	0.117	7.01	1,490	2,440	2,279	17.7	6003.74	147.6	46.7
GH-2004-2S	236057	10/28/2004		NA	0.0153	<0.006	0.007	0.31	<0.02	NA	0.703	<0.01	<0.005	2.15	7.07	1460	2120	2019	17	6009.7	**	53.25
GH-2004-2S	245864	5/17/2005		NA	0.0029	<0.006	0.014	<0.5	<0.06	NA	0.0826	<0.01	<0.005	0.371	7.39	1360	2080	2046	17.4	6003.74	83	46.73
GH-2004-2S	270675	10/25/2005		NA	0.0026	<0.006	<0.01	1.02	<0.06	NA	0.0321	<0.01	<0.0075	0.421	6.99	1390	2160	2152	17.3	6003.74	83	40.16
GH-2004-2S	276911	3/14/2006		NA	0.0027	<0.006	<0.01	0.73	<0.06	NA	0.0216	<0.01	<0.008	0.291	7.26	1410	2240	2204	17.1	6003.74	83	40.64
GH-2004-2S	283020	8/4/2006		NA	0.0027	<0.006	<0.01	<0.2	<0.06	NA	0.011	<0.01	<0.0075	0.359	7.27	1390	2240	2203	17.8	6003.74	83	43.84
GH-2004-2S	299168	2/6/2007		NA	0.0031	0.01	0.111	1.16	<0.06	NA	0.564	<0.01	<0.0075	0.557	6.53	1410	2220	2142	17.4	6003.74	83	37.08
GH-2004-2S	305947	7/23/2007		NA	<0.002	<0.006	<0.01	<0.5	<0.06	NA	<0.004	<0.01	<0.008	0.226	7.03	1440	2300	2279	17.7	6003.74	83	36.89
GH-2004-2S	316508	3/25/2008		NA	0.0052	<0.006	0.065	<0.5	0.092	NA	0.389	<0.01	<0.0075	1.36	7.23	1970	3000	2648	16.3	6003.74	83	37.75
GH-2004-2S	320090	10/28/2008		NA	0.0022	<0.006	0.011	<0.5	<0.06	NA	0.0547	<0.01	<0.0075	0.318	7.07	1870	2900	2650	17.8	6003.74	83	59.59
GH-2004-2S	321237	03/23/2009		NA	0.0068	<0.006	0.051	<0.1	<0.06	NA	0.916	<0.01	<0.0075	1.63	7.02	1720	2810	2554	16.9	6003.74	83	37.27
GH-2004-2S	322689	09/30/2009		468	0.0286	<0.006	0.072	0.995	<0.06	137	3.42	0.031	<0.0075	5.91	6.73	1850	3170	2845	17.3	6003.74	83	39.47
GH-2004-2S	323313	03/11/2010		539	0.0906	0.0114	0.768	1.48	<0.061	172	12	0.026	<0.0076	21	6.62	2520	3620	2639	15.7	6003.74	83	40.25
GH-2004-2S	324881	09/20/2010		619	0.115	<0.006	0.019	<1	<0.06	200	6.43	0.036	<0.0075	21.5	6.69	2450	3820	3318	18.2	6003.74	83	37.33
GH-2004-2S	326362	03/02/2011		563	0.111	<0.006	0.012	0.858	<0.06	181	5.52	0.036	<0.0075	23	6.6	2220	3550	3102	17.1	6003.74	83	42.2
GH-2004-2S	327873	09/02/2011		527	0.0748	<0.006	0.032	<0.5	<0.06	167	1.13	0.016	<0.0075	18	6.65	2150	3380	3023	18.8	6003.74	83	42.57
GH-2004-2S	329326	03/22/2012		599	0.203	<0.006	0.012	1.1	<0.06	197	10.7	0.036	0.0133	42.2	6.53	2,490	3,610	3,042	17.9	6003.74	83	37.75
GH-2004-2																						

Freeport-McMoRan Chino Mines Company

Groundhog Mine IRA Annual Report

October 30, 2018

Site Number	Sample ID	Sample Date	Comments	Ca, Diss (mg/L)	Cd, Diss (mg/l)	Co, Diss (mg/l)	Cu, Diss (mg/l)	F, Tot (mg/l)	Fe, Diss (mg/l)	Mg, Diss (mg/L)	Mn, Diss (mg/l)	Ni, Diss (mg/l)	Pb, Diss (mg/l)	Zn, Diss (mg/l)	pH, Field (su)	SO4, Tot (mg/l)	TDS (mg/l)	Cond, Fld (micromho)	Water Temp (Cent)	Well Collar Level (ft msl)	Well Depth (ft)	Depth to Water (ft)
GH-2004-2S	351228	03/21/2018		499	0.385	<0.006	0.391	1.49	<0.1	168	17.4	0.0803	<0.0075	102	6.09	2,180	3,130	2,879	17.3	6003.74	5,964.67	40.91
GH-2004-2S	352967	09/24/2018		510	0.187	<0.006	0.0108	1.11	<0.1	179	43.7	0.0696	0.0121	71.1	6.61	2,150	3,500	3,055	17.6	6003.74	5,965.81	39.77
Lower GH-Sump*	250151	4/14/2005		NA	2.31	1.11	95.1	6.04	0.28	NA	333	0.846	1.24	844	3.92	5530	9220	5550	17.7	surface	surface	surface
Lower GH-Sump*	267561	9/26/2005		NA	0.749	0.307	20.2	1.32	<0.3	NA	95.3	0.178	0.289	224	4.05	2870	4450	3643	23.6	surface	surface	surface
Lower GH-Sump*	283021	8/4/2006		NA	0.35	0.147	9.11	1.08	0.15	NA	44	0.086	0.0815	92	5.27	1530	2390	2298	22.6	surface	surface	surface
Lower GH-Sump*	305948	7/23/2007		NA	0.299	0.15	7.19	1.15	<0.06	NA	52.8	0.097	0.078	76.8	5.64	1600	2600	2314	22.8	surface	surface	surface
Lower GH-Sump*	316509	3/25/2008	Dry	NS	NS	NS	NS	NS	NS	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
Lower GH-Sump*	320091	10/28/2008		NA	0.0725	<0.006	0.227	0.825	<0.06	NA	6.43	0.019	<0.0075	18	6.93	1890	2400	1970	15.8	surface	surface	surface
Lower GH-Sump*	321238	03/23/2009	Dry	NS	NS	NS	NS	NS	NS	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
Lower GH-Sump	322691	09/30/2009		111	0.0028	<0.006	0.03	1.02	<0.06	18.1	0.124	<0.01	<0.0075	0.55	7.35	329	536	645	18	surface	surface	surface
GH-Sump ¹	323315	03/10/2010		279	0.0149	<0.0061	0.04	1.08	<0.061	44.5	0.67	<0.01	<0.0076	1.69	6.88	837	1360	1130	8.8	surface	surface	surface
GH-Sump ¹	324883	09/20/2010	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Sump ¹	326364	03/02/2011	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Sump ¹	327875	09/02/2011		126	0.0074	<0.006	0.049	0.87	<0.06	20.6	1.02	<0.01	<0.0075	1.07	6.65	378	626	838	24.5	surface	surface	surface
GH-Sump ¹	329328	03/22/2012	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Sump ¹	330953	09/06/2012	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Sump ¹	332601	03/11/2013	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Sump ¹	334167	08/05/2013		119	0.0046	<0.006	0.027	0.98	<0.06	17.7	0.0281	<0.01	<0.0075	0.737	6.82	379	570	758	24.2	surface	surface	surface
GH-Sump ¹	334324	09/18/2013		155	0.0069	<0.006	0.031	1.06	<0.06	24.6	0.203	<0.01	<0.0075	0.907	6.83	409	699	837	20.6	surface	surface	surface
GH-Sump ¹	335941	03/06/2014	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Sump ¹	337696	09/09/2014		162	0.0029	<0.006	0.019	1.04	<0.06	23.8	<0.004	<0.01	<0.0075	0.461	7.06	475	748	906	21.4	surface	surface	surface
GH-Sump ¹	339363	03/12/2015		310	0.0274	<0.006	0.407	0.828	<0.06	48.3	0.0865	<0.01	<0.0075	7.91	6.66	912	1,370	1,245	14.4	surface	surface	surface
GH-Sump ¹	341189	09/01/2015		130	0.0082	<0.006	0.126	1.27	0.559	21.5	0.235	<0.01	0.0854	1.51	6.8	419	653	851	24.7	surface	surface	surface
GH-Sump ¹	343009	03/04/2016		186	0.0065	<0.006	0.02	0.928	<0.06	29.2	<0.004	<0.01	<0.0075	1.54	7.17	554	884	849	12.2	surface	surface	surface
GH-Sump ¹	345114	09/14/2016		159	0.0046	<0.006	0.0279	0.639	<0.1	23.4	0.0197	<0.01	<0.0075	0.72	7.04	404	691	809	21.5	surface	surface	surface
GH-Sump ¹	347291	06/01/2017	Dry		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Sump ¹	349339	09/12/2017		107	0.0039	<0.006	0.0134	0.697	<0.1	18.9	0.316	<0.01	<0.0075	0.834	7.08	348	552	758	22.1	surface	surface	surface
GH-Sump ¹	351230	03/21/2018		107	0.0088	<0.006	0.0347	0.627	<0.1	16.1	0.0335	<0.01	<0.0075	3.38	7.01	350	522	566	10.6	surface	surface	surface
GH-Sump ¹	352970	09/24/2018		61.4	0.0022	<0.006	0.0166	1.18	0.121	9.56	0.284	<0.01	0.0211	0.501	6.92	148	326	426	19.6	surface	surface	surface
Lower GH-Sump Pond*		3/14/2006		NA	0.701	0.284	20.2	5.34	<0.06	NA	116	0.184	0.16	232	4.88	3160	5100	3293	13.1	surface	surface	surface
Lower GH-Sump Pond*	299169	2/6/2007		NA	0.273	0.117	6.41	2.22	<0.06	NA	45	0.073	0.053	72.6	4.8	1870	2900	2047	10.5	surface	surface	surface
GH-Lower Pond ²	322690	09/30/2009		85.3	<0.002	<0.006	0.017	0.991	<0.06	15.3	0.0159	<0.01	<0.0075	0.0108	7.72	254	438	524	17.1	surface	surface	surface
GH-Lower Pond ²	323314	03/10/2010		261	0.0048	<0.0061	0.016	1.21	<0.061	49.7	0.225	<0.01	<0.0076	0.496	7.49	849	1360	1140	9.5	surface	surface	surface
GH-Lower Pond ²	324882	09/20/2010		151	<0.002	<0.006	0.013	0.847	<0.06	25.9	0.183	<0.01	<0.0075	0.0204	8.58	430	740	874	23.5	surface	surface	surface
GH-Lower Pond ²	326363	03/02/2011	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Lower Pond ²	327874	09/02/2011		130	<0.002	<0.006	0.018	0.86	<0.06	20.7	0.119	<0.01	<0.0075	<0.01	7.94	415	656	821	23.8	surface	surface	surface
GH-Lower Pond ²	329327	03/22/2012	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Lower Pond ²	330952	09/06/2012	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Lower Pond ²	332600	03/11/2013	Dry	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Lower Pond ²	GH-Lower Pond	07/22/2013		62.3	0.0059	<0.006	0.061	0.52	<0.06	10.9	1.12	<0.01	<0.0075	1.02	6.75	210	350	442	21.6	surface	surface	surface
GH-Lower Pond ²	334166	08/05/2013		98.1	0.0061	<0.006	0.039	0.7	<0.06	16	1.71	<0.01	<0.0075	0.447	7.52	330	494	682	26.5	surface	surface	surface
GH-Lower Pond ²	334323	09/18/2013		123	0.018	0.0061	0.131	0.62	<0.06	24.1	2.84	<0.01	0.0077	3.53	7.09	411	634	745	21.2	surface	surface	surface
GH-Lower Pond ²	335940	03/06/2014		333	0.0055	<0.006	0.051	1.52	<0.06	59.6	0.0924	<0.01	<0.0075	0.554	8.03	1,090	1,650	1,574	16.5	surface	surface	surface
GH-Lower Pond ²	337695	09/09/2014		127	0.0055	<0.006	0.045	0.95	<0.06	19.5	0.812	<0.01	<0.0075	0.35	7.79	406	607	772	22.7	surface	surface	surface
GH-Lower Pond ²	339362	03/12/2015		251	0.0377	0.0069	0.0354	1	<0.06	50.9	4.88	<0.01	<0.0075	3.66	7.18	873	1,260	1,157	13.6	surface	surface	surface
GH-Lower Pond ²	341188	09/01/2015		83.2	0.0047	<0.006	0.0282	0.67	<0.06	13	0.92	<0.01	<0.0075	0.266	8.58	269	406	585	26.3	surface	surface	surface
GH-Lower Pond ²	343008	03/04/2016		191	0.0043	<0.006	0.0199	0.936	<0.06	32	0.292	<0.01	<0.0075	0.216	8.27	622	956	911	13.1	surface	surface	surface
GH-Lower Pond ²	345113	09/13/2016		108	0.0028	<0.006	0.0207	0.555	<0.1	16.3	0.467	<0.01	<0.0075	0.067	7.78	310	486	606	19.7	surface	surface	surface
GH-Lower Pond ²	347290	04/28/2017	Dry		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Lower Pond ²	349338	09/12/2017		109	<0.002	<0.006	0.0137	0.621	<0.1	17.4	0.144	<0.01	<0.0075	0.056	7.2	339	507	761	24.2	surface	surface	surface
GH-Lower Pond ²	351229	03/21/2018		150	0.0056	&																

Freeport-McMoRan Chino Mines Company Groundhog Mine IRA Annual Report October 30, 2018

Site Number	Sample ID	Sample Date	Comments	Ca, Diss (mg/L)	Cd, Diss (mg/l)	Co, Diss (mg/l)	Cu, Diss (mg/l)	F, Tot_ (mg/l)	Fe, Diss (mg/l)	Mg, Diss (mg/L)	Mn, Diss (mg/l)	Ni, Diss (mg/l)	Pb, Diss (mg/l)	Zn, Diss (mg/l)	pH, Field (su)	SO4, Tot_ (mg/l)	TDS (mg/l)	Cond, Fld (micromho)	Water Temp (Cent)	Well Collar Level (ft msl)	Well Depth (ft)	Depth to Water (ft)
GH-Upper Pond	322692	09/30/2009	Pumped dry, mud puddle is all that remained. No water.	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
GH-Upper Pond	323316	03/10/2010		306	0.155	0.124	1.77	0.636	<0.061	86.5	38.9	0.065	0.296	33.1	5.24	1370	2090	1712	13.9	surface	surface	surface

*Water in sump at this time was from the construction phase of the stockpile removal.

**Well depth on record is incorrect.

NS - Not sampled, sump and/or sump pond are dry.

NA - Not analysed.

¹ "GH-Sump" is the same monitoring site and location as "Lower GH-Sump" (the site was renamed)

² "GH-Lower Pond" is the same monitoring site and location as "Lower GH-Sump" (the site was renamed)



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X8C0439**
Reported: 10-Apr-18 13:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received	Notes
351227 / GH-2004-2D	X8C0439-01	Water	21-Mar-18 10:40	LS	23-Mar-2018	
351228 / GH-2004-2S	X8C0439-02	Water	21-Mar-18 11:15	LS	23-Mar-2018	
351229 / GH-LOWER POND	X8C0439-03	Water	21-Mar-18 11:40	LS	23-Mar-2018	
351230 / GH-SUMP	X8C0439-04	Water	21-Mar-18 11:50	LS	23-Mar-2018	

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X8C0439**
Reported: 10-Apr-18 13:22

Client Sample ID: **351227 : GH-2004-2D**
SVL Sample ID: **X8C0439-01 (Water)**

Sampled: 21-Mar-18 10:40
Received: 23-Mar-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	0.0142	mg/L	0.0020	0.0016		X813175	DT	04/09/18 12:45	
EPA 200.7	Calcium	515	mg/L	0.100	0.069		X813175	DT	04/09/18 17:05	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0016		X813175	DT	04/09/18 12:45	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0027		X813175	DT	04/09/18 12:45	
EPA 200.7	Iron	< 0.100	mg/L	0.100	0.056		X813175	DT	04/09/18 12:45	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0049		X813175	DT	04/09/18 12:45	
EPA 200.7	Magnesium	113	mg/L	0.50	0.32		X813175	DT	04/09/18 12:45	
EPA 200.7	Manganese	0.0517	mg/L	0.0080	0.0034		X813175	DT	04/09/18 12:45	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0023		X813175	DT	04/09/18 12:45	
EPA 200.7	Zinc	0.878	mg/L	0.010	0.005		X813175	DT	04/09/18 12:45	
Classical Chemistry Parameters										
SM 2540 C	Total Diss. Solids	2490	mg/L	40			X813032	RS	03/27/18 12:40	D2
Anions by Ion Chromatography										
EPA 300.0	Fluoride	< 0.500	mg/L	0.500	0.310	5	X813010	SMB	04/04/18 06:17	D1
EPA 300.0	Sulfate as SO4	2030	mg/L	15.0	9.00	50	X813010	SMB	04/03/18 14:12	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X8C0439**
Reported: 10-Apr-18 13:22

Client Sample ID: **351228 : GH-2004-2S**
SVL Sample ID: **X8C0439-02 (Water)**

Sampled: 21-Mar-18 11:15
Received: 23-Mar-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	0.385	mg/L	0.0020	0.0016		X813175	DT	04/09/18 12:49	
EPA 200.7	Calcium	499	mg/L	0.100	0.069		X813175	DT	04/09/18 17:08	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0016		X813175	DT	04/09/18 12:49	
EPA 200.7	Copper	0.391	mg/L	0.0100	0.0027		X813175	DT	04/09/18 12:49	
EPA 200.7	Iron	< 0.100	mg/L	0.100	0.056		X813175	DT	04/09/18 12:49	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0049		X813175	DT	04/09/18 12:49	
EPA 200.7	Magnesium	168	mg/L	0.50	0.32		X813175	DT	04/09/18 12:49	
EPA 200.7	Manganese	17.4	mg/L	0.0080	0.0034		X813175	DT	04/09/18 12:49	
EPA 200.7	Nickel	0.0803	mg/L	0.0100	0.0023		X813175	DT	04/09/18 12:49	
EPA 200.7	Zinc	102	mg/L	0.100	0.054	10	X813175	DT	04/09/18 17:35	D2
Classical Chemistry Parameters										
SM 2540 C	Total Diss. Solids	3130	mg/L	40			X813032	RS	03/27/18 12:40	D2
Anions by Ion Chromatography										
EPA 300.0	Fluoride	1.49	mg/L	0.500	0.310	5	X813010	SMB	04/04/18 06:32	D1
EPA 300.0	Sulfate as SO4	2180	mg/L	15.0	9.00	50	X813010	SMB	04/03/18 14:42	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X8C0439**
Reported: 10-Apr-18 13:22

Client Sample ID: **351229 : GH-LOWER POND**
SVL Sample ID: **X8C0439-03 (Water)**

Sampled: 21-Mar-18 11:40
Received: 23-Mar-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	0.0056	mg/L	0.0020	0.0016		X813175	DT	04/09/18 12:53	
EPA 200.7	Calcium	150	mg/L	0.100	0.069		X813175	DT	04/09/18 17:10	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0016		X813175	DT	04/09/18 12:53	
EPA 200.7	Copper	0.0120	mg/L	0.0100	0.0027		X813175	DT	04/09/18 12:53	
EPA 200.7	Iron	< 0.100	mg/L	0.100	0.056		X813175	DT	04/09/18 12:53	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0049		X813175	DT	04/09/18 12:53	
EPA 200.7	Magnesium	23.3	mg/L	0.50	0.32		X813175	DT	04/09/18 12:53	
EPA 200.7	Manganese	1.22	mg/L	0.0080	0.0034		X813175	DT	04/09/18 12:53	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0023		X813175	DT	04/09/18 12:53	
EPA 200.7	Zinc	0.500	mg/L	0.010	0.005		X813175	DT	04/09/18 12:53	
Classical Chemistry Parameters										
SM 2540 C	Total Diss. Solids	722	mg/L	10			X813032	RS	03/27/18 12:40	
Anions by Ion Chromatography										
EPA 300.0	Fluoride	0.818	mg/L	0.100	0.062		X813010	SMB	04/03/18 14:57	
EPA 300.0	Sulfate as SO4	480	mg/L	3.00	1.80	10	X813010	SMB	04/03/18 15:12	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X8C0439**
Reported: 10-Apr-18 13:22

Client Sample ID: **351230 : GH-SUMP**
SVL Sample ID: **X8C0439-04 (Water)**

Sampled: 21-Mar-18 11:50
Received: 23-Mar-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	0.0088	mg/L	0.0020	0.0016		X813175	DT	04/09/18 12:56	
EPA 200.7	Calcium	107	mg/L	0.100	0.069		X813175	DT	04/09/18 17:13	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0016		X813175	DT	04/09/18 12:56	
EPA 200.7	Copper	0.0347	mg/L	0.0100	0.0027		X813175	DT	04/09/18 12:56	
EPA 200.7	Iron	< 0.100	mg/L	0.100	0.056		X813175	DT	04/09/18 12:56	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0049		X813175	DT	04/09/18 12:56	
EPA 200.7	Magnesium	16.1	mg/L	0.50	0.32		X813175	DT	04/09/18 12:56	
EPA 200.7	Manganese	0.0335	mg/L	0.0080	0.0034		X813175	DT	04/09/18 12:56	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0023		X813175	DT	04/09/18 12:56	
EPA 200.7	Zinc	3.38	mg/L	0.010	0.005		X813175	DT	04/09/18 12:56	
Classical Chemistry Parameters										
SM 2540 C	Total Diss. Solids	522	mg/L	10			X813032	RS	03/27/18 12:40	
Anions by Ion Chromatography										
EPA 300.0	Fluoride	0.627	mg/L	0.100	0.062		X813010	SMB	04/03/18 15:57	
EPA 300.0	Sulfate as SO4	350	mg/L	3.00	1.80	10	X813010	SMB	04/03/18 16:12	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director



Freeport McMoRan - Chino Mines
 PO Box 10
 Bayard, NM 88023

Project Name: Chino Routine
 Work Order: **X8C0439**
 Reported: 10-Apr-18 13:22

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Metals (Dissolved)

EPA 200.7	Cadmium	mg/L	<0.0020	0.0016	0.0020	X813175	09-Apr-18	
EPA 200.7	Calcium	mg/L	<0.100	0.069	0.100	X813175	09-Apr-18	
EPA 200.7	Cobalt	mg/L	<0.0060	0.0016	0.0060	X813175	09-Apr-18	
EPA 200.7	Copper	mg/L	<0.0100	0.0027	0.0100	X813175	09-Apr-18	
EPA 200.7	Iron	mg/L	<0.100	0.056	0.100	X813175	09-Apr-18	
EPA 200.7	Lead	mg/L	<0.0075	0.0049	0.0075	X813175	09-Apr-18	
EPA 200.7	Magnesium	mg/L	<0.50	0.32	0.50	X813175	09-Apr-18	
EPA 200.7	Manganese	mg/L	<0.0080	0.0034	0.0080	X813175	09-Apr-18	
EPA 200.7	Nickel	mg/L	<0.0100	0.0023	0.0100	X813175	09-Apr-18	
EPA 200.7	Zinc	mg/L	<0.010	0.005	0.010	X813175	09-Apr-18	

Classical Chemistry Parameters

SM 2540 C	Total Diss. Solids	mg/L	<10		10	X813032	27-Mar-18	
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Anions by Ion Chromatography

EPA 300.0	Fluoride	mg/L	<0.100	0.062	0.100	X813010	03-Apr-18	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.18	0.30	X813010	03-Apr-18	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Metals (Dissolved)

EPA 200.7	Cadmium	mg/L	0.996	1.00	99.6	85 - 115	X813175	09-Apr-18	
EPA 200.7	Calcium	mg/L	19.2	20.0	96.0	85 - 115	X813175	09-Apr-18	
EPA 200.7	Cobalt	mg/L	0.997	1.00	99.7	85 - 115	X813175	09-Apr-18	
EPA 200.7	Copper	mg/L	0.986	1.00	98.6	85 - 115	X813175	09-Apr-18	
EPA 200.7	Iron	mg/L	9.69	10.0	96.9	85 - 115	X813175	09-Apr-18	
EPA 200.7	Lead	mg/L	0.994	1.00	99.4	85 - 115	X813175	09-Apr-18	
EPA 200.7	Magnesium	mg/L	19.7	20.0	98.4	85 - 115	X813175	09-Apr-18	
EPA 200.7	Manganese	mg/L	0.975	1.00	97.5	85 - 115	X813175	09-Apr-18	
EPA 200.7	Nickel	mg/L	0.993	1.00	99.3	85 - 115	X813175	09-Apr-18	
EPA 200.7	Zinc	mg/L	1.00	1.00	100	85 - 115	X813175	09-Apr-18	

Anions by Ion Chromatography

EPA 300.0	Fluoride	mg/L	2.04	2.00	102	90 - 110	X813010	03-Apr-18	
EPA 300.0	Sulfate as SO4	mg/L	10.4	10.0	104	90 - 110	X813010	03-Apr-18	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Classical Chemistry Parameters

SM 2540 C	Total Diss. Solids	mg/L	703	722	2.7	10	X813032	27-Mar-18	
SM 2540 C	Total Diss. Solids	mg/L	736	737	0.1	10	X813032	27-Mar-18	



Freeport McMoRan - Chino Mines
 PO Box 10
 Bayard, NM 88023

Project Name: Chino Routine
 Work Order: **X8C0439**
 Reported: 10-Apr-18 13:22

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Recovery	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	mg/L	1.02	<0.0020	1.00	102	70 - 130	X813175	09-Apr-18	R5
EPA 200.7	Cadmium	mg/L	1.03	<0.0020	1.00	103	70 - 130	X813175	09-Apr-18	
EPA 200.7	Calcium	mg/L	68.8	49.0	20.0	98.9	70 - 130	X813175	09-Apr-18	
EPA 200.7	Calcium	mg/L	70.8	50.2	20.0	103	70 - 130	X813175	09-Apr-18	
EPA 200.7	Cobalt	mg/L	0.991	<0.0060	1.00	99.1	70 - 130	X813175	09-Apr-18	R5
EPA 200.7	Cobalt	mg/L	1.02	<0.0060	1.00	102	70 - 130	X813175	09-Apr-18	
EPA 200.7	Copper	mg/L	0.988	<0.0100	1.00	98.8	70 - 130	X813175	09-Apr-18	R5
EPA 200.7	Copper	mg/L	0.997	<0.0100	1.00	99.7	70 - 130	X813175	09-Apr-18	
EPA 200.7	Iron	mg/L	9.80	<0.100	10.0	98.0	70 - 130	X813175	09-Apr-18	
EPA 200.7	Iron	mg/L	9.54	<0.100	10.0	95.4	70 - 130	X813175	09-Apr-18	
EPA 200.7	Lead	mg/L	0.995	<0.0075	1.00	99.5	70 - 130	X813175	09-Apr-18	R5
EPA 200.7	Lead	mg/L	1.01	<0.0075	1.00	101	70 - 130	X813175	09-Apr-18	
EPA 200.7	Magnesium	mg/L	25.1	5.58	20.0	97.8	70 - 130	X813175	09-Apr-18	
EPA 200.7	Magnesium	mg/L	24.3	5.34	20.0	94.9	70 - 130	X813175	09-Apr-18	
EPA 200.7	Manganese	mg/L	0.981	<0.0080	1.00	98.1	70 - 130	X813175	09-Apr-18	R5
EPA 200.7	Manganese	mg/L	0.957	0.0138	1.00	94.3	70 - 130	X813175	09-Apr-18	
EPA 200.7	Nickel	mg/L	0.983	<0.0100	1.00	98.3	70 - 130	X813175	09-Apr-18	R5
EPA 200.7	Nickel	mg/L	1.00	<0.0100	1.00	100	70 - 130	X813175	09-Apr-18	
EPA 200.7	Zinc	mg/L	1.01	<0.010	1.00	101	70 - 130	X813175	09-Apr-18	R5
EPA 200.7	Zinc	mg/L	1.02	<0.010	1.00	102	70 - 130	X813175	09-Apr-18	

Anions by Ion Chromatography

EPA 300.0	Fluoride	mg/L	2.23	0.244	2.00	99.1	90 - 110	X813010	03-Apr-18	
EPA 300.0	Fluoride	mg/L	2.56	0.627	2.00	96.8	90 - 110	X813010	03-Apr-18	
EPA 300.0	Sulfate as SO4	mg/L	16.5	5.78	10.0	108	90 - 110	X813010	03-Apr-18	
EPA 300.0	Sulfate as SO4	mg/L	361	350	10.0	109	90 - 110	X813010	03-Apr-18	D2

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	% Rec.	RPD	RPD Limit	Batch ID	Analyzed	Notes
Metals (Dissolved)											
EPA 200.7	Cadmium	mg/L	1.27	1.02	1.00	127	22.0	20	X813175	09-Apr-18	R5
EPA 200.7	Calcium	mg/L	69.0	68.8	20.0	100	0.3	20	X813175	09-Apr-18	
EPA 200.7	Cobalt	mg/L	1.24	0.991	1.00	124	22.1	20	X813175	09-Apr-18	R5
EPA 200.7	Copper	mg/L	1.23	0.988	1.00	123	22.1	20	X813175	09-Apr-18	R5
EPA 200.7	Iron	mg/L	10.0	9.80	10.0	100	2.4	20	X813175	09-Apr-18	
EPA 200.7	Lead	mg/L	1.24	0.995	1.00	124	22.0	20	X813175	09-Apr-18	R5
EPA 200.7	Magnesium	mg/L	25.4	25.1	20.0	99.0	0.9	20	X813175	09-Apr-18	
EPA 200.7	Manganese	mg/L	1.21	0.981	1.00	121	20.5	20	X813175	09-Apr-18	R5
EPA 200.7	Nickel	mg/L	1.23	0.983	1.00	123	22.2	20	X813175	09-Apr-18	R5
EPA 200.7	Zinc	mg/L	1.26	1.01	1.00	126	21.8	20	X813175	09-Apr-18	R5
Anions by Ion Chromatography											
EPA 300.0	Fluoride	mg/L	2.54	2.56	2.00	95.4	1.1	20	X813010	03-Apr-18	
EPA 300.0	Sulfate as SO4	mg/L	359	361	10.0	92.2	0.5	20	X813010	03-Apr-18	D2



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X8C0439**
Reported: 10-Apr-18 13:22

Notes and Definitions

D1	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
R5	MS/MSD RPD exceeded the laboratory acceptance limit. Recovery met acceptance criteria.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
0.30R>S	% recovery not applicable; spike level is less than 30% of the sample concentration
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X810659**
Reported: 10-Oct-18 17:09

ANALYTICAL REPORT FOR SAMPLES

COC Number: 7940

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received	Notes
352976 / Equipment Blank - Chino	X810659-01	Water	24-Sep-18 11:10	LS	26-Sep-2018	
352977 / Field Blank - Chino	X810659-02	Water	24-Sep-18 11:00	LS	26-Sep-2018	
352966 / GH-2004-2D	X810659-03	Water	24-Sep-18 10:35	LS	26-Sep-2018	
352967 / GH-2004-2S	X810659-04	Water	24-Sep-18 11:00	LS	26-Sep-2018	
352969 / GH-Lower Pond	X810659-05	Water	24-Sep-18 11:23	LS	26-Sep-2018	
352970 / GH-Sump	X810659-06	Water	24-Sep-18 11:46	LS	26-Sep-2018	

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.

Sample preparation is defined by the client as per their Data Quality Objectives.

This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.

Analyses were performed in accordance with SVL standard operating procedures and calibrations were performed and met SVL internal QC criteria.

The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.



One Government Gulch - PO Box 929

Kellogg, ID 83837-0929

(208) 784-1258

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Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X810659**
Reported: 10-Oct-18 17:09

Client Sample ID: **352976 : Equipment Blank - Chino**
SVL Sample ID: **X810659-01 (Water)**

Sampled: 24-Sep-18 11:10
Received: 26-Sep-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Classical Chemistry Parameters

SM 2540 C	Total Diss. Solids	16	mg/L	10			X839246	dks	09/28/18 11:15	
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	0.44	mg/L	0.30	0.18		X840198	DT	10/06/18 02:03	
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Dianne Gardner **Dianne Gardner**
Project Manager



One Government Gulch - PO Box 929

Kellogg, ID 83837-0929

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Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X810659**
Reported: 10-Oct-18 17:09

Client Sample ID: **352977 : Field Blank - Chino**
SVL Sample ID: **X810659-02 (Water)**

Sampled: 24-Sep-18 11:00
Received: 26-Sep-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Classical Chemistry Parameters

SM 2540 C	Total Diss. Solids	3480	mg/L	40			X839246	dks	09/28/18 11:15	D2
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Anions by Ion Chromatography

EPA 300.0	Sulfate as SO4	2130	mg/L	15.0	9.00	50	X840198	DT	10/06/18 02:59	D2
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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Dianne Gardner
Project Manager



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X810659**
Reported: 10-Oct-18 17:09

Client Sample ID: **352966 : GH-2004-2D**
SVL Sample ID: **X810659-03 (Water)**

Sampled: 24-Sep-18 10:35
Received: 26-Sep-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	< 0.0020	mg/L	0.0020	0.0016		X839313	AS	10/09/18 10:38	
EPA 200.7	Calcium	460	mg/L	0.100	0.069		X839313	AS	10/09/18 10:38	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0016		X839313	AS	10/09/18 10:38	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0027		X839313	AS	10/09/18 10:38	
EPA 200.7	Iron	< 0.100	mg/L	0.100	0.056		X839313	AS	10/09/18 10:38	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0049		X839313	AS	10/09/18 10:38	
EPA 200.7	Magnesium	108	mg/L	0.50	0.32		X839313	AS	10/09/18 10:38	
EPA 200.7	Manganese	0.129	mg/L	0.0080	0.0034		X839313	AS	10/09/18 10:38	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0023		X839313	AS	10/09/18 10:38	
EPA 200.7	Zinc	0.117	mg/L	0.010	0.005		X839313	AS	10/09/18 10:38	
Classical Chemistry Parameters										
SM 2540 C	Total Diss. Solids	2440	mg/L	40			X839246	dks	09/28/18 11:15	D2
Anions by Ion Chromatography										
EPA 300.0	Fluoride	< 0.100	mg/L	0.100	0.062		X840198	DT	10/06/18 03:13	
EPA 300.0	Sulfate as SO4	1490	mg/L	15.0	9.00	50	X840198	DT	10/06/18 03:27	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Dianne M Gardner **Dianne Gardner**
Project Manager



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X810659**
Reported: 10-Oct-18 17:09

Client Sample ID: **352967 : GH-2004-2S**
SVL Sample ID: **X810659-04 (Water)**

Sampled: 24-Sep-18 11:00
Received: 26-Sep-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	0.187	mg/L	0.0020	0.0016		X839313	AS	10/09/18 10:41	
EPA 200.7	Calcium	510	mg/L	0.100	0.069		X839313	AS	10/09/18 10:41	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0016		X839313	AS	10/09/18 10:41	
EPA 200.7	Copper	0.0108	mg/L	0.0100	0.0027		X839313	AS	10/09/18 10:41	
EPA 200.7	Iron	< 0.100	mg/L	0.100	0.056		X839313	AS	10/09/18 10:41	
EPA 200.7	Lead	0.0121	mg/L	0.0075	0.0049		X839313	AS	10/09/18 10:41	
EPA 200.7	Magnesium	179	mg/L	0.50	0.32		X839313	AS	10/09/18 10:41	
EPA 200.7	Manganese	43.7	mg/L	0.0080	0.0034		X839313	AS	10/09/18 10:41	
EPA 200.7	Nickel	0.0696	mg/L	0.0100	0.0023		X839313	AS	10/09/18 10:41	
EPA 200.7	Zinc	71.1	mg/L	0.100	0.054	10	X839313	AS	10/09/18 11:41	D2
Classical Chemistry Parameters										
SM 2540 C	Total Diss. Solids	3500	mg/L	40			X839246	dks	09/28/18 11:15	D2
Anions by Ion Chromatography										
EPA 300.0	Fluoride	1.11	mg/L	0.100	0.062		X840198	DT	10/06/18 04:08	
EPA 300.0	Sulfate as SO4	2150	mg/L	15.0	9.00	50	X840198	DT	10/06/18 04:22	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Dianne M Gardner **Dianne Gardner**
Project Manager



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Project Name: Chino Routine
Work Order: **X810659**
Reported: 10-Oct-18 17:09

Client Sample ID: **352969 : GH-Lower Pond**
SVL Sample ID: **X810659-05 (Water)**

Sampled: 24-Sep-18 11:23
Received: 26-Sep-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	0.0086	mg/L	0.0020	0.0016		X839313	AS	10/09/18 10:45	
EPA 200.7	Calcium	144	mg/L	0.100	0.069		X839313	AS	10/09/18 10:45	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0016		X839313	AS	10/09/18 10:45	
EPA 200.7	Copper	0.0225	mg/L	0.0100	0.0027		X839313	AS	10/09/18 10:45	
EPA 200.7	Iron	< 0.100	mg/L	0.100	0.056		X839313	AS	10/09/18 10:45	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0049		X839313	AS	10/09/18 10:45	
EPA 200.7	Magnesium	23.3	mg/L	0.50	0.32		X839313	AS	10/09/18 10:45	
EPA 200.7	Manganese	2.22	mg/L	0.0080	0.0034		X839313	AS	10/09/18 10:45	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0023		X839313	AS	10/09/18 10:45	
EPA 200.7	Zinc	0.361	mg/L	0.010	0.005		X839313	AS	10/09/18 10:45	
Classical Chemistry Parameters										
SM 2540 C	Total Diss. Solids	695	mg/L	10			X839246	dk	09/28/18 11:15	
Anions by Ion Chromatography										
EPA 300.0	Fluoride	0.685	mg/L	0.100	0.062		X840198	DT	10/06/18 04:36	
EPA 300.0	Sulfate as SO4	423	mg/L	3.00	1.80	10	X840198	DT	10/06/18 04:50	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Dianne M Gardner **Dianne Gardner**
Project Manager



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X810659**
Reported: 10-Oct-18 17:09

Client Sample ID: **352970 : GH-Sump**
SVL Sample ID: **X810659-06 (Water)**

Sampled: 24-Sep-18 11:46
Received: 26-Sep-18
Sampled By: LS

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	0.0022	mg/L	0.0020	0.0016		X839313	AS	10/09/18 10:51	
EPA 200.7	Calcium	61.4	mg/L	0.100	0.069		X839313	AS	10/09/18 10:51	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0016		X839313	AS	10/09/18 10:51	
EPA 200.7	Copper	0.0166	mg/L	0.0100	0.0027		X839313	AS	10/09/18 10:51	
EPA 200.7	Iron	0.121	mg/L	0.100	0.056		X839313	AS	10/09/18 10:51	
EPA 200.7	Lead	0.0211	mg/L	0.0075	0.0049		X839313	AS	10/09/18 10:51	
EPA 200.7	Magnesium	9.56	mg/L	0.50	0.32		X839313	AS	10/09/18 10:51	
EPA 200.7	Manganese	0.284	mg/L	0.0080	0.0034		X839313	AS	10/09/18 10:51	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0023		X839313	AS	10/09/18 10:51	
EPA 200.7	Zinc	0.501	mg/L	0.010	0.005		X839313	AS	10/09/18 10:51	
Classical Chemistry Parameters										
SM 2540 C	Total Diss. Solids	326	mg/L	10			X839246	dk	09/28/18 11:15	
Anions by Ion Chromatography										
EPA 300.0	Fluoride	1.18	mg/L	0.100	0.062		X840198	DT	10/06/18 05:04	M2
EPA 300.0	Sulfate as SO4	148	mg/L	3.00	1.80	10	X840198	DT	10/06/18 05:17	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Dianne M Gardner **Dianne Gardner**
Project Manager



Freeport McMoRan - Chino Mines
 PO Box 10
 Bayard, NM 88023

Project Name: Chino Routine
 Work Order: **X810659**
 Reported: 10-Oct-18 17:09

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
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Metals (Dissolved)

EPA 200.7	Cadmium	mg/L	<0.0020	0.0016	0.0020	X839313	09-Oct-18	
EPA 200.7	Calcium	mg/L	<0.100	0.069	0.100	X839313	09-Oct-18	
EPA 200.7	Cobalt	mg/L	<0.0060	0.0016	0.0060	X839313	09-Oct-18	
EPA 200.7	Copper	mg/L	<0.0100	0.0027	0.0100	X839313	09-Oct-18	
EPA 200.7	Iron	mg/L	<0.100	0.056	0.100	X839313	09-Oct-18	
EPA 200.7	Lead	mg/L	<0.0075	0.0049	0.0075	X839313	09-Oct-18	
EPA 200.7	Magnesium	mg/L	<0.50	0.32	0.50	X839313	09-Oct-18	
EPA 200.7	Manganese	mg/L	<0.0080	0.0034	0.0080	X839313	09-Oct-18	
EPA 200.7	Nickel	mg/L	<0.0100	0.0023	0.0100	X839313	09-Oct-18	
EPA 200.7	Zinc	mg/L	<0.010	0.005	0.010	X839313	09-Oct-18	

Classical Chemistry Parameters

SM 2540 C	Total Diss. Solids	mg/L	<10		10	X839246	28-Sep-18	
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Anions by Ion Chromatography

EPA 300.0	Fluoride	mg/L	<0.100	0.062	0.100	X840198	06-Oct-18	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.18	0.30	X840198	06-Oct-18	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
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Metals (Dissolved)

EPA 200.7	Cadmium	mg/L	0.935	1.00	93.5	85 - 115	X839313	09-Oct-18	
EPA 200.7	Calcium	mg/L	19.8	20.0	99.0	85 - 115	X839313	09-Oct-18	
EPA 200.7	Cobalt	mg/L	0.929	1.00	92.9	85 - 115	X839313	09-Oct-18	
EPA 200.7	Copper	mg/L	0.951	1.00	95.1	85 - 115	X839313	09-Oct-18	
EPA 200.7	Iron	mg/L	9.91	10.0	99.1	85 - 115	X839313	09-Oct-18	
EPA 200.7	Lead	mg/L	0.954	1.00	95.4	85 - 115	X839313	09-Oct-18	
EPA 200.7	Magnesium	mg/L	19.7	20.0	98.3	85 - 115	X839313	09-Oct-18	
EPA 200.7	Manganese	mg/L	0.933	1.00	93.3	85 - 115	X839313	09-Oct-18	
EPA 200.7	Nickel	mg/L	0.948	1.00	94.8	85 - 115	X839313	09-Oct-18	
EPA 200.7	Zinc	mg/L	0.948	1.00	94.8	85 - 115	X839313	09-Oct-18	

Anions by Ion Chromatography

EPA 300.0	Fluoride	mg/L	1.90	2.00	95.2	90 - 110	X840198	06-Oct-18	
EPA 300.0	Sulfate as SO4	mg/L	10.2	10.0	102	90 - 110	X840198	06-Oct-18	

Quality Control - DUPLICATE Data

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
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Classical Chemistry Parameters

SM 2540 C	Total Diss. Solids	mg/L	644	642	0.3	10	X839246	28-Sep-18	
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Freeport McMoRan - Chino Mines
 PO Box 10
 Bayard, NM 88023

Project Name: Chino Routine
 Work Order: **X810659**
 Reported: 10-Oct-18 17:09

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Recovery	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Dissolved)										
EPA 200.7	Cadmium	mg/L	1.17	<0.0020	1.00	117	70 - 130	X839313	09-Oct-18	
EPA 200.7	Cadmium	mg/L	0.984	0.0086	1.00	97.6	70 - 130	X839313	09-Oct-18	
EPA 200.7	Calcium	mg/L	136	118	20.0	91.4	70 - 130	X839313	09-Oct-18	
EPA 200.7	Calcium	mg/L	161	144	20.0	85.6	70 - 130	X839313	09-Oct-18	
EPA 200.7	Cobalt	mg/L	1.15	<0.0060	1.00	115	70 - 130	X839313	09-Oct-18	
EPA 200.7	Cobalt	mg/L	0.963	<0.0060	1.00	96.1	70 - 130	X839313	09-Oct-18	
EPA 200.7	Copper	mg/L	1.19	<0.0100	1.00	119	70 - 130	X839313	09-Oct-18	
EPA 200.7	Copper	mg/L	1.02	0.0225	1.00	99.4	70 - 130	X839313	09-Oct-18	
EPA 200.7	Iron	mg/L	11.2	0.722	10.0	105	70 - 130	X839313	09-Oct-18	
EPA 200.7	Iron	mg/L	9.94	<0.100	10.0	99.4	70 - 130	X839313	09-Oct-18	
EPA 200.7	Lead	mg/L	1.18	<0.0075	1.00	118	70 - 130	X839313	09-Oct-18	
EPA 200.7	Lead	mg/L	0.997	<0.0075	1.00	99.7	70 - 130	X839313	09-Oct-18	
EPA 200.7	Magnesium	mg/L	63.3	43.9	20.0	97.0	70 - 130	X839313	09-Oct-18	
EPA 200.7	Magnesium	mg/L	42.5	23.3	20.0	96.2	70 - 130	X839313	09-Oct-18	
EPA 200.7	Manganese	mg/L	1.21	0.0595	1.00	115	70 - 130	X839313	09-Oct-18	
EPA 200.7	Manganese	mg/L	3.12	2.22	1.00	89.5	70 - 130	X839313	09-Oct-18	
EPA 200.7	Nickel	mg/L	1.17	<0.0100	1.00	117	70 - 130	X839313	09-Oct-18	
EPA 200.7	Nickel	mg/L	0.988	<0.0100	1.00	98.8	70 - 130	X839313	09-Oct-18	
EPA 200.7	Zinc	mg/L	1.21	0.016	1.00	119	70 - 130	X839313	09-Oct-18	
EPA 200.7	Zinc	mg/L	1.34	0.361	1.00	97.4	70 - 130	X839313	09-Oct-18	

Anions by Ion Chromatography

EPA 300.0	Fluoride	mg/L	1.71	<0.100	2.00	85.7	90 - 110	X840198	06-Oct-18	M2
EPA 300.0	Fluoride	mg/L	2.97	1.18	2.00	89.7	90 - 110	X840198	06-Oct-18	M2
EPA 300.0	Sulfate as SO4	mg/L	10.9	0.44	10.0	104	90 - 110	X840198	06-Oct-18	
EPA 300.0	Sulfate as SO4	mg/L	157	148	10.0	96.3	90 - 110	X840198	06-Oct-18	D2

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	% Rec.	RPD	RPD Limit	Batch ID	Analyzed	Notes
Metals (Dissolved)											
EPA 200.7	Cadmium	mg/L	0.966	1.17	1.00	96.6	19.5	20	X839313	09-Oct-18	
EPA 200.7	Calcium	mg/L	140	136	20.0	109	2.6	20	X839313	09-Oct-18	
EPA 200.7	Cobalt	mg/L	0.941	1.15	1.00	94.1	19.7	20	X839313	09-Oct-18	
EPA 200.7	Copper	mg/L	0.966	1.19	1.00	96.6	20.8	20	X839313	09-Oct-18	R5
EPA 200.7	Iron	mg/L	12.4	11.2	10.0	117	10.2	20	X839313	09-Oct-18	
EPA 200.7	Lead	mg/L	0.962	1.18	1.00	96.2	20.0	20	X839313	09-Oct-18	
EPA 200.7	Magnesium	mg/L	66.6	63.3	20.0	113	5.0	20	X839313	09-Oct-18	
EPA 200.7	Manganese	mg/L	0.996	1.21	1.00	93.7	19.0	20	X839313	09-Oct-18	
EPA 200.7	Nickel	mg/L	0.960	1.17	1.00	96.0	19.7	20	X839313	09-Oct-18	
EPA 200.7	Zinc	mg/L	0.994	1.21	1.00	97.8	19.5	20	X839313	09-Oct-18	
Anions by Ion Chromatography											
EPA 300.0	Fluoride	mg/L	1.82	1.71	2.00	91.1	6.1	20	X840198	06-Oct-18	
EPA 300.0	Sulfate as SO4	mg/L	11.0	10.9	10.0	106	1.3	20	X840198	06-Oct-18	



Freeport McMoRan - Chino Mines
PO Box 10
Bayard, NM 88023

Project Name: Chino Routine
Work Order: **X810659**
Reported: 10-Oct-18 17:09

Notes and Definitions

D2	Sample required dilution due to high concentration of target analyte.
M2	Matrix spike recovery was low, but the LCS recovery was acceptable.
R5	MS/MSD RPD exceeded the laboratory acceptance limit. Recovery met acceptance criteria.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
0.30R>S	% recovery not applicable; spike level is less than 30% of the sample concentration
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>CG Bell site</i>	Weather Conditions: <i>clear & cool</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>8:36 AM 11-28-2017</i>	
Vegetation Conditions: <i>Some dry grass and vegetation visible</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>!</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Fender foot</i>	Weather Conditions: <i>Clear & cool</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>8:50 AM 11-28-2017</i>	
Vegetation Conditions: <i>Dry grass & vegetation along with live trees & cactus visible.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None is noted.</i> <i>Minor rill on EAST end of borrow area</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>Signs of wildlife on site.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

- Monthly
- Quarterly
- 1" Rain Event

Reclamation Unit: <i>Star Rock Stockpile.</i>	Weather Conditions: <i>Clear & Cool</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:05 AM 11-28-2017</i>	
Vegetation Conditions: <i>dry grass; vegetation</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None visible</i>
Monitoring Stations: <i>None.</i>	
Other Observations: 	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Ocala site.</i>	Weather Conditions: <i>Clear & cool</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:15 AM 11-28-2017</i>	
Vegetation Conditions: <i>very little vegetation some dry grass and a few live scrub oak bushes</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None</i>
Monitoring Stations: <i>None.</i>	
Other Observations:	

Chino Mines Co. Reclamation/Erosion Monitoring Form

- Monthly
- Quarterly
- 1" Rain Event

Reclamation Unit: <i>Ground Hog Site.</i>	Weather Conditions: <i>Clear & cool</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:30 11-28-2017</i>	
Vegetation Conditions: <i>dry grass visible through outside.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns</i>	Significant Erosion (Attach Description): <i>None visible.</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>Signs of wild life onsite.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>C G Bell</i>	Weather Conditions: <i>Partly Cloudy, Mostly Clear and Cool</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:10 AM 3-28-2018</i>	
Vegetation Conditions: <i>dry grass (very little) and a few live oak bushes visible.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concern.</i>	Significant Erosion (Attach Description): <i>None.</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>Animal track visible on site.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Oceola</i>	Weather Conditions: <i>Mostly Clear and Cool</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:25 AM 3-28-2018</i>	
Vegetation Conditions: <i>Some dry grass, vegetation visible Along with a few small oak bushes</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None notable.</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>None.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Ground Hog</i>	Weather Conditions: <i>Mostly Clear; cool</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:45 AM 3-28-2018</i>	
Vegetation Conditions: <i>Mostly dry grass; vegetation visible throughout site. Some new growth is also visible.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None.</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>Earthen Pipeline crossing installed at the NE section of site.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Tender Foot</i>	Weather Conditions: <i>Mostly Clear</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:55 AM 3-28-2018</i>	
Vegetation Conditions: <i>dry grass; vegetation visible throughout site. Along with new vegetation; Live trees.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible canals.</i>	Significant Erosion (Attach Description): <i>None visible.</i>
Monitoring Stations: <i>None</i>	
Other Observations: <i>Variety of Animal scat observed.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Star Rock Stockpile.</i>	Weather Conditions: <i>Mostly Clear</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>10:00 AM 3-28-2018</i>	
Vegetation Conditions: <i>Dry grass & vegetation visible throughout site. Along with new vegetation and live trees.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None visible.</i>
Monitoring Stations: <i>None.</i>	
Other Observations:	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: Ground Hog Minesite IRA		Weather Conditions: 95° clear, sunny.	
Inspector: Daniel LeDeBass / Julianna Acero			
Time/Date: 6/27/18 11:55 AM			
Vegetation Conditions: Sparse shrub, both sides of Lake 1 road look good		Fences/Livestock: N/A	
Ditches/Water Control: N/A		Significant Erosion (Attach Description): N/A	
Monitoring Stations: N/A			
Other Observations: N/A			

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Star Rock Stockpile</i>	Weather Conditions: <i>95° (Hot) sunny, clear</i>
Inspector: <i>Danielle DeVoss / Julianna Acero</i>	
Time/Date: <i>6/27/18 12:40 PM</i>	
Vegetation Conditions: <i>Shrubs and grasses established</i>	Fences/Livestock: <i>N/A</i>
Ditches/Water Control: <i>N/A</i>	Significant Erosion (Attach Description): <i>N/A</i>
Monitoring Stations: <i>N/A</i>	
Other Observations:	

Chino Mines Co. Reclamation/Erosion Monitoring Form

- Monthly
- Quarterly
- 1" Rain Event

Reclamation Unit: <i>Tenderfoot</i>	Weather Conditions: <i>sunny, windy</i>
Inspector: <i>Danielle DeVoss / Julianna Acero</i>	
Time/Date: <i>6/27/18 12:15 pm</i>	
Vegetation Conditions: <i>excellent coverage of vegetation</i>	Fences/Livestock: <i>N/A</i>
Ditches/Water Control: <i>Stable</i>	Significant Erosion (Attach Description): <i>none</i>
Monitoring Stations: <i>N/A</i>	
Other Observations: <i>N/A</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Osceola</i>	Weather Conditions: <i>clear, sunny, breezy</i>
Inspector: <i>Julianna Acero; Danielle DeVos</i>	
Time/Date: 6/27/18 <i>6/27/18 11:38am</i>	
Vegetation Conditions: <i>grasses; shrubs covering slopes. flat area covered by grass and shrubs</i>	Fences/Livestock: <i>N/A</i>
Ditches/Water Control: <i>N/A</i>	Significant Erosion (Attach Description): <i>none</i>
Monitoring Stations: <i>N/A</i>	
Other Observations: <i>N/A</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: CG Bell	Weather Conditions: clear, sunny, breezy
Inspector: Julianna Acero & Daniel DeBos	
Time/Date: 6/21/18 6/27/18 11:30 am	Fences/Livestock: N/A
Vegetation Conditions: sparse vegetation in bottom (flat area). West slope has grass and shrubs, east slope very minimal vegetation.	
Ditches/Water Control: N/A	Significant Erosion (Attach Description): N/A
Monitoring Stations: N/A	
Other Observations:	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>CG Bell</i>	Weather Conditions: <i>Clear sky warm</i>
Inspector: <i>STEVEN M. GARCIA</i>	
Time/Date: <i>8:20 AM 9-25-2018</i>	
Vegetation Conditions: <i>green vegetation on upper portion of site. water collected in low point.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None visible</i>
Monitoring Stations: <i>N/A</i>	
Other Observations: <i>None</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Oceola</i>	Weather Conditions: <i>Clear sky, warm</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>8:35 AM</i>	
Vegetation Conditions: <i>Green vegetation on lower portion of site. Very little vegetation on bank slope besides a few scrub oak bushes.</i>	Fences/Livestock: <i>N/A</i>
Ditches/Water Control: <i>Road berm need to be reestablished for storm water control & safety</i>	Significant Erosion (Attach Description): water flowing <i>Erosion cut through road berm and continuing on down slope. (minor)</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>None.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>STAR</i>	Weather Conditions: <i>Clear & warm</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:00 AM 9-25-2018</i>	
Vegetation Conditions: <i>Lots of green vegetation visible.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None visible.</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>None.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

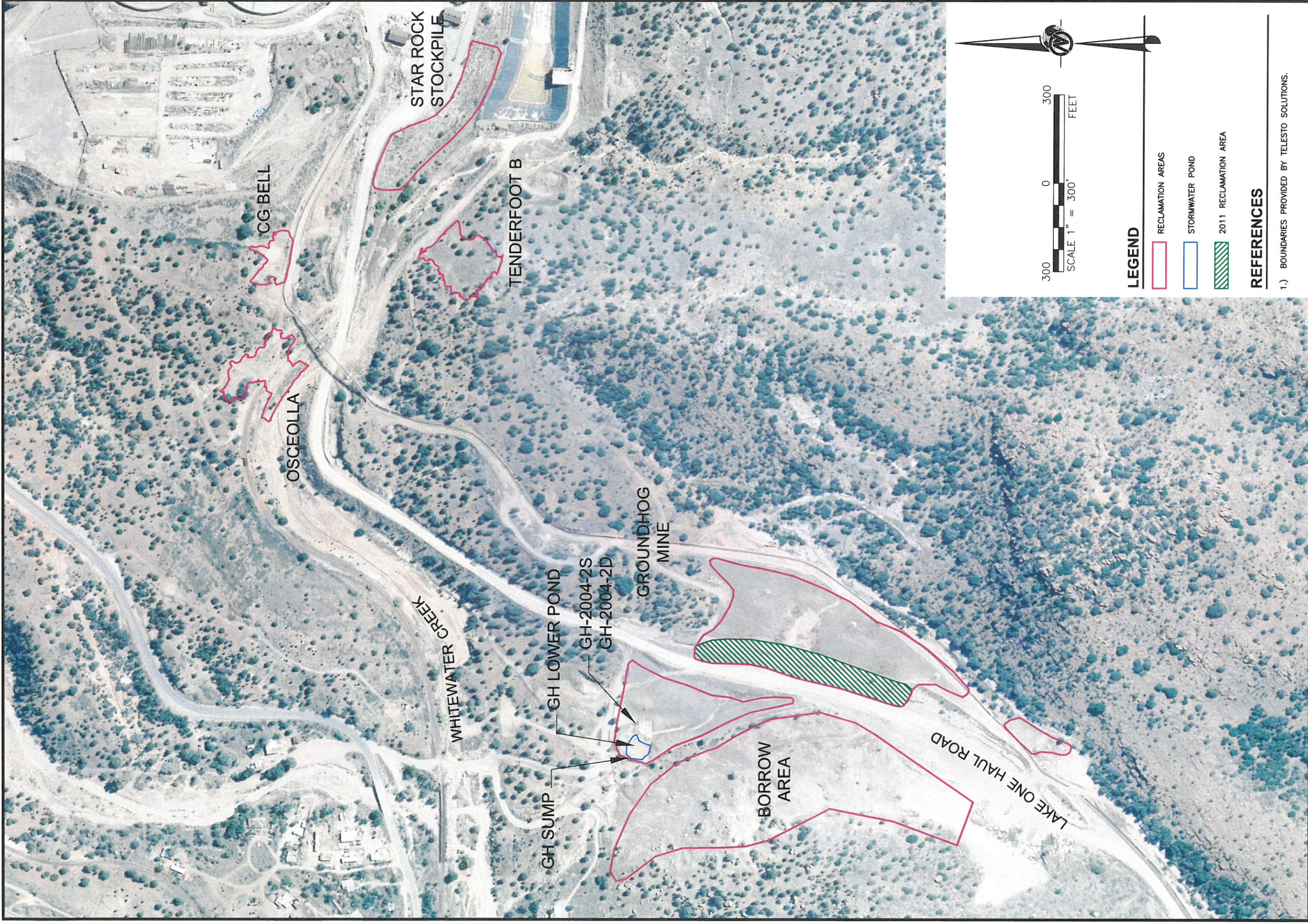
Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Tenderfoot</i>	Weather Conditions: <i>clear & warm</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:15 AM 9-25-2018</i>	
Vegetation Conditions: <i>Lots of green vegetation Visible along with juniper trees and cactus.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>water bars on upper borrow location have one part that has some minor erosion.</i>	Significant Erosion (Attach Description): <i>None visible.</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>Observed a Rattlesnake on the site.</i>	

Chino Mines Co. Reclamation/Erosion Monitoring Form

Monthly
 Quarterly
 1" Rain Event

Reclamation Unit: <i>Ground Hog</i>	Weather Conditions: <i>Clear, warm</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>9:45 AM 9-25-2018</i>	
Vegetation Conditions: <i>Lots of green vegetation on most of the site. Upper portion has some bare spots.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None visible</i> <i>Some erosion noted on the upper portion of site. mainly on the bare spots with little to no vegetation</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>Noted that the old workings on the East side of site are opening up.</i>	



LEGEND

- RECLAMATION AREAS
- STORMWATER POND
- 2011 RECLAMATION AREA

REFERENCES

1.) BOUNDARIES PROVIDED BY TELESTO SOLUTIONS.

TITLE

**ANNUAL MONITORING OF INTERIM
REMEDIAL ACTION SITES
LOCATION MAP**

PROJECT No.	141-1160
FILE No.	Figure01.dwg
REV. 0	SCALE AS SHOWN
DESIGN	DR 10/28/10
CADD	CM 10/20/14
CHECK	EC 10/20/14
REVIEW	DR 10/20/14

FIGURE 1

PROJECT



GROUNDHOG MINE AND SMALL
HISTORIC STOCKPILES IRAS
GRANT COUNTY, NEW MEXICO

