

Freeport-McMoRan Chino Mines Company  
P.O. Box 10  
Bayard, NM 88023

October 30, 2015

**Certified Mail #7015166000060761792**  
**Return Receipt Requested**

Ms. Michelle Hunter, Chief  
New Mexico Environment Department  
Ground Water Quality Bureau  
P. O. Box 5624  
Santa Fe, New Mexico 87502

Dear Ms. Hunter:

**Re: Chino AOC, Annual Monitoring Report, Groundhog Mine Site**  
**Interim Remedial Action, Hanover-Whitewater Creeks Investigation Unit**

Freeport-McMoRan Chino Mines Company (Chino) submits the Annual Monitoring Report for the completed Groundhog Mine Site Interim Remedial Action (IRA) for the monitoring period ending September 30, 2015. The Groundhog Mine Site IRA was performed by Chino pursuant to requirements of the Administrative Order on Consent between the New Mexico Environment Department (NMED) and Chino. Additional acreage was added to the IRA with the old pipeline corridor stockpile removal and remediation within the mine site in 2011.

As per Section 6.0 of the IRA Completion Report dated June 10, 2009, this annual monitoring report includes the following information:

- Data tabulation sheet of analytical results screened against New Mexico Ground Water Standards (Section 20.6.2.3103 NMAC) for monitoring well and surface water samples collected at the Groundhog Mine site;
- Copies of the original laboratory data sheets;
- The quarterly erosion surveys; and
- The annual vegetation monitoring survey summary.

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 following information is also attached for these stockpiles:

- The annual vegetation survey; and
- Quarterly erosion reports for the three historical small stockpiles are included with the Groundhog Mine Site quarterly monitoring survey.

The attached ground water quality data are for monitor wells GH-2004-2S and GH-2004-2D. 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. Chino currently attributes this to oxidation in underground workings, and this is being addressed as part of the Discharge Permit (DP) 1340 Site Wide Abatement (SWA) process. In a letter dated March 13, 2014, which approved the annual 2013 report, NMED requested additional information concerning this statement. Chino responded in a letter dated May 5,

Michelle Hunter  
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2014 that this statement is only conceptual and although groundwater would be fully addressed under SWA, it was too early in the process to provide NMED the requested details.

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. The third surface impoundment sample site is the former 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 north of the haul road that divides the Groundhog Mine site. Chino will continue monitoring groundwater and surface water semi-annually for the following suite of analytes: cadmium, calcium, cobalt, copper, fluoride, iron, lead, magnesium, manganese, nickel, lead, zinc, pH, sulfate, and total dissolved solids. This analyte list was requested in a letter dated May 3, 2005 from the NMED.

If you require additional information regarding this submittal please contact Mr. Ned Hall at (520) 393-2292.

Sincerely,



Sherry Burt-Kested, Manager  
Environmental Services

SBK:fe  
Enclosures  
20151030-002

xc: David Mercer NMED (4 copies)  
Joseph Fox, NMED (via email)  
Chris Eustice, Mining & Minerals Division, NMEMNRD (via email)  
Petra Sanchez, Environmental Protection Agency (via email)  
William Katz, Chino (via email)  
Lynn Lande, Chino (via email)  
Ned Hall, FCX (via email)

Freeport-McMoRan Chino Mines Company  
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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, Fid (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					
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				527	0.0118	<0.006	<0.01	<0.5	<0.06	122	0.0626	<0.01	0.0096	0.804	6.63	1750	2710	2272	17.9	6003.74	147.6	45.34
				525	0.0119	<0.006	<0.01	<0.5	<0.06	123	0.0484	<0.01	0.009	0.852	6.72	1800	2640	2467	19.3	6003.74	147.6	49.13
				540	0.0136	<0.006	0.011	<0.5	<0.06	130	0.0496	<0.01	0.0144	0.912	6.69	1780	2720	2389	18	6003.74	147.6	52.56
				541	0.0143	<0.006	<0.01	1.01	<0.06	127	0.0635	<0.01	0.012	0.912	6.69	1780	2720	2389	17.9	6003.74	147.6	50.28
				512	0.0156	<0.006	<0.01	0.96	<0.06	122	0.0932	<0.01	0.0091	0.883	6.63	1720	2570	2361	17.9	6003.74	147.6	47
				521	0.0148	<0.006	<0.01	<0.5	<0.06	124	0.064	<0.01	<0.0075	0.843	6.75	1750	2680	2404	18.3	6003.74	147.6	50.24
				503	0.0119	<0.006	<0.01	<0.5	<0.06	118	0.044	<0.01	<0.0075	0.801	6.79	1700	2440	2247	16.9	6003.74	147.6	45.65
				489	0.0147	<0.006	<0.01	<0.5	<0.06	112	0.051	<0.01	<0.0075	0.874	6.710	1730	2580	2396	19.3	6003.74	147.6	49.32
				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
				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
				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
				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
				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
				NA	0.0031	0.01	0.11	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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				599	0.203	<0.006	0.012	1.1	<0.06	197	10.7	0.036	0.0133	42.2	6.53	2490	3610	3042	17.9	6003.74	83	37.75
				585	0.171	<0.006	<0.01	1.34	<0.06	197	10	0.03	<0.0075	36.9	6.65	2500	3580	3111	18.6	6003.74	83	41.17
				567	0.157	<0.006	<0.01	1.81	<0.06	192	4.52	0.03	<0.0075	36.9	6.5	2330	3360	2846	18.3	6003.74	83	45.27
				430	0.133	<0.006	0.015	1.43	<0.06	152	4.03	0.025	<0.0075	31	6.6	2010	2980	2635	18.7	6003.74	83	41.56
				570	0.296	<0.006	<0.01	1.59	<0.06	208	27.3	0.056	<0.0075	59.8	6.58	2680	3470	3095	18.3	6003.74	83	38.95
				556	0.227	<0.006	<0.01	1.73	<0.06	198	13.4	0.043	<0.0075	45.2	6.59	2340	3350	2999	18.8	6003.74	83	42.1
				531	0.169	<0.006	0.018	1.760	<0.06	196	3.6	0.035	<0.0075	43.2	6.330	2400	3310	2999	17.1	6003.74	83	37.8
				511	0.197	<0.006	0.069	<0.5	<0.06	178	2.9	0.038	<0.0075	52.4	6.040	2350	3220	2930	19.7	6003.74	83	40.5
				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
				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
				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
				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
			Dry	NS	NS	NS	NS	NS	NS	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	surface	surface	surface
				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
			Dry																			

Freeport-McMoRan Chino Mines Company  
Groundhog Mine IRA  
Annual Report  
October 31, 2015

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, Fid (micromho)	Water Temp (Cent)	Well Collar Level (ft msl)	Well Depth (ft)	Depth to Water (ft)
Lower GH-Sump Pond*		3/14/2006		NA	<b>0.701</b>	<b>0.284</b>	<b>20.2</b>	<b>5.34</b>	<0.06	NA	<b>116</b>	0.184	<b>0.16</b>	<b>232</b>	<b>4.88</b>	<b>3160</b>	<b>5100</b>	3293	13.1	surface	surface	surface
Lower GH-Sump Pond*	299169	2/6/2007		NA	<b>0.273</b>	<b>0.117</b>	<b>6.41</b>	<b>2.22</b>	<0.06	NA	<b>45</b>	0.073	<b>0.053</b>	<b>72.6</b>	<b>4.8</b>	<b>1870</b>	<b>2900</b>	2047	10.5	surface	surface	surface
GH-Lower Pond <sup>2</sup>	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 <sup>2</sup>	323314	03/10/2010		261	0.0048	<0.0061	0.016	1.21	<0.061	49.7	<b>0.225</b>	<0.01	<0.0076	0.496	7.49	<b>849</b>	<b>1360</b>	1140	9.5	surface	surface	surface
GH-Lower Pond <sup>2</sup>	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	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	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	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	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	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 <sup>2</sup>	GH-Lower Pond	07/22/2013		62.3	0.0059	<0.006	0.061	0.52	<0.06	10.9	<b>1.12</b>	<0.01	<0.0075	1.02	6.75	210	350	442	21.6	surface	surface	surface
GH-Lower Pond <sup>2</sup>	334166	08/05/2013		98.1	0.0061	<0.006	0.039	0.7	<0.06	16	<b>1.71</b>	<0.01	<0.0075	0.447	7.52	330	494	682	26.5	surface	surface	surface
GH-Lower Pond <sup>2</sup>	334323	09/18/2013		123	<b>0.018</b>	0.0061	0.131	0.62	<0.06	24.1	<b>2.84</b>	<0.01	0.0077	3.53	7.09	411	634	745	21.2	surface	surface	surface
GH-Lower Pond	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	<b>1,090</b>	<b>1,650</b>	1,574	16.5	surface	surface	surface
GH-Lower Pond	337695	09/09/2014		127	0.0055	<0.006	0.045	0.95	<0.06	19.5	<b>0.812</b>	<0.01	<0.0075	0.35	7.79	406	607	772	22.7	surface	surface	surface
GH-Lower Pond	339362	3/12/2015		251	0.0377	0.0069	0.0354	1	<0.06	50.9	4.88	<0.01	<0.0075	3.66	7.18	873	1260	1157	13.6	surface	surface	surface
GH-Lower Pond	341188	9/2/2015		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-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	<b>0.155</b>	<b>0.124</b>	<b>1.77</b>	0.636	<0.061	86.5	<b>38.9</b>	0.065	<b>0.296</b>	<b>33.1</b>	<b>5.24</b>	<b>1370</b>	<b>2090</b>	1712	13.9	surface	surface	surface
GH-Upper Pond	324884	09/20/2010	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	326365	03/02/2011	Reclaimed	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	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.

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

<sup>2</sup> "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: **W5C0240**  
Reported: 27-Mar-15 14:07

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received	Notes
339360 / GH-2004-2D	W5C0240-01	Water	12-Mar-15 11:49	SM	13-Mar-2015	
339361 / GH-2004-2S	W5C0240-02	Water	12-Mar-15 10:41	SM	13-Mar-2015	
339362 / GH-LOWER POND	W5C0240-03	Water	12-Mar-15 12:35	SM	13-Mar-2015	
339363 / GH-SUMP	W5C0240-04	Water	12-Mar-15 13:40	SM	13-Mar-2015	

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: **W5C0240**  
Reported: 27-Mar-15 14:07

Client Sample ID: **339360 : GH-2004-2D**  
SVL Sample ID: **W5C0240-01 (Water)**

Sampled: 12-Mar-15 11:49  
Received: 13-Mar-15  
Sampled By: SM

**Sample Report Page 1 of 1**

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	<b>Cadmium</b>	0.0119	mg/L	0.0020	0.0006		W512002	MCE	03/16/15 15:13	
EPA 200.7	<b>Calcium</b>	503	mg/L	0.040	0.029		W512002	MCE	03/16/15 15:13	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0008		W512002	MCE	03/16/15 15:13	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0023		W512002	MCE	03/16/15 15:13	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.026		W512002	MCE	03/16/15 15:13	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0038		W512002	MCE	03/16/15 15:13	
EPA 200.7	<b>Magnesium</b>	118	mg/L	0.20	0.11		W512002	MCE	03/16/15 15:13	
EPA 200.7	<b>Manganese</b>	0.0436	mg/L	0.0040	0.0023		W512002	MCE	03/16/15 15:13	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0028		W512002	MCE	03/16/15 15:13	
EPA 200.7	<b>Zinc</b>	0.801	mg/L	0.010	0.003		W512002	MCE	03/16/15 15:13	
<b>Classical Chemistry Parameters</b>										
SM 2540 C	<b>Total Diss. Solids</b>	2440	mg/L	40			W511263	JDM	03/16/15 16:45	D1
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Fluoride	< 0.500	mg/L	0.500	0.110	5	W513126	JMW	03/26/15 16:40	D1
EPA 300.0	<b>Sulfate as SO4</b>	1700	mg/L	15.0	2.50	50	W513126	JMW	03/26/15 17:15	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: **W5C0240**  
Reported: 27-Mar-15 14:07

Client Sample ID: **339361 : GH-2004-2S**

SVL Sample ID: **W5C0240-02 (Water)**

Sample Report Page 1 of 1

Sampled: 12-Mar-15 10:41  
Received: 13-Mar-15  
Sampled By: SM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	Cadmium	0.169	mg/L	0.0020	0.0006		W512002	MCE	03/16/15 15:21	
EPA 200.7	Calcium	531	mg/L	0.040	0.029		W512002	MCE	03/16/15 15:21	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0008		W512002	MCE	03/16/15 15:21	
EPA 200.7	Copper	0.0181	mg/L	0.0100	0.0023		W512002	MCE	03/16/15 15:21	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.026		W512002	MCE	03/16/15 15:21	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0038		W512002	MCE	03/16/15 15:21	
EPA 200.7	Magnesium	196	mg/L	0.20	0.11		W512002	MCE	03/16/15 15:21	
EPA 200.7	Manganese	3.55	mg/L	0.0040	0.0023		W512002	MCE	03/16/15 15:21	
EPA 200.7	Nickel	0.0349	mg/L	0.0100	0.0028		W512002	MCE	03/16/15 15:21	
EPA 200.7	Zinc	43.2	mg/L	0.010	0.003		W512002	MCE	03/16/15 15:21	
<b>Classical Chemistry Parameters</b>										
SM 2540 C	Total Diss. Solids	3310	mg/L	40			W511263	JDM	03/16/15 16:45	D1
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Fluoride	1.76	mg/L	0.500	0.110	5	W513126	JMW	03/26/15 17:26	D1
EPA 300.0	Sulfate as SO4	2400	mg/L	15.0	2.50	50	W513126	JMW	03/26/15 17:37	D2

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

**John Kern**  
Laboratory Director



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**Project Name: Chino Routine**  
Work Order: **W5C0240**  
Reported: 27-Mar-15 14:07

Client Sample ID: **339362 : GH-LOWER POND**  
SVL Sample ID: **W5C0240-03 (Water)**

Sampled: 12-Mar-15 12:35  
Received: 13-Mar-15  
Sampled By: SM

**Sample Report Page 1 of 1**

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	Cadmium	0.0377	mg/L	0.0020	0.0006		W512002	MCE	03/16/15 15:24	
EPA 200.7	Calcium	251	mg/L	0.040	0.029		W512002	MCE	03/16/15 15:24	
EPA 200.7	Cobalt	0.0069	mg/L	0.0060	0.0008		W512002	MCE	03/16/15 15:24	
EPA 200.7	Copper	0.0354	mg/L	0.0100	0.0023		W512002	MCE	03/16/15 15:24	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.026		W512002	MCE	03/16/15 15:24	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0038		W512002	MCE	03/16/15 15:24	
EPA 200.7	Magnesium	50.9	mg/L	0.20	0.11		W512002	MCE	03/16/15 15:24	
EPA 200.7	Manganese	4.88	mg/L	0.0040	0.0023		W512002	MCE	03/16/15 15:24	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0028		W512002	MCE	03/16/15 15:24	
EPA 200.7	Zinc	3.66	mg/L	0.010	0.003		W512002	MCE	03/16/15 15:24	
<b>Classical Chemistry Parameters</b>										
SM 2540 C	Total Diss. Solids	1260	mg/L	10			W511263	JDM	03/16/15 16:45	
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Fluoride	1.00	mg/L	0.100	0.022		W513126	JMW	03/26/15 17:49	
EPA 300.0	Sulfate as SO4	873	mg/L	7.50	1.25	25	W513126	JMW	03/26/15 18:00	D2

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

**John Kern**  
Laboratory Director





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**Project Name: Chino Routine**  
Work Order: **W5C0240**  
Reported: 27-Mar-15 14:07

Client Sample ID: **339363 : GH-SUMP**  
SVL Sample ID: **W5C0240-04 (Water)**

Sampled: 12-Mar-15 13:40  
Received: 13-Mar-15  
Sampled By: SM

**Sample Report Page 1 of 1**

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	Cadmium	0.0274	mg/L	0.0020	0.0006		W512002	MCE	03/16/15 15:27	
EPA 200.7	Calcium	310	mg/L	0.040	0.029		W512002	MCE	03/16/15 15:27	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0008		W512002	MCE	03/16/15 15:27	
EPA 200.7	Copper	0.407	mg/L	0.0100	0.0023		W512002	MCE	03/16/15 15:27	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.026		W512002	MCE	03/16/15 15:27	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0038		W512002	MCE	03/16/15 15:27	
EPA 200.7	Magnesium	48.3	mg/L	0.20	0.11		W512002	MCE	03/16/15 15:27	
EPA 200.7	Manganese	0.0865	mg/L	0.0040	0.0023		W512002	MCE	03/16/15 15:27	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0028		W512002	MCE	03/16/15 15:27	
EPA 200.7	Zinc	7.91	mg/L	0.010	0.003		W512002	MCE	03/16/15 15:27	
<b>Classical Chemistry Parameters</b>										
SM 2540 C	Total Diss. Solids	1370	mg/L	10			W511263	JDM	03/16/15 16:45	
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Fluoride	0.828	mg/L	0.500	0.110	5	W513126	JMW	03/26/15 18:12	D1
EPA 300.0	Sulfate as SO4	912	mg/L	15.0	2.50	50	W513126	JMW	03/26/15 18:23	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: **W5C0240**  
 Reported: 27-Mar-15 14:07

**Quality Control - BLANK Data**

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
<b>Metals (Dissolved)</b>								
EPA 200.7	Cadmium	mg/L	<0.0020	0.0006	0.0020	W512002	16-Mar-15	
EPA 200.7	Calcium	mg/L	<0.040	0.029	0.040	W512002	16-Mar-15	
EPA 200.7	Cobalt	mg/L	<0.0060	0.0008	0.0060	W512002	16-Mar-15	
EPA 200.7	Copper	mg/L	<0.0100	0.0023	0.0100	W512002	16-Mar-15	
EPA 200.7	Iron	mg/L	<0.060	0.026	0.060	W512002	16-Mar-15	
EPA 200.7	Lead	mg/L	<0.0075	0.0038	0.0075	W512002	16-Mar-15	
EPA 200.7	Magnesium	mg/L	<0.20	0.11	0.20	W512002	16-Mar-15	
EPA 200.7	Manganese	mg/L	<0.0040	0.0023	0.0040	W512002	16-Mar-15	
EPA 200.7	Nickel	mg/L	<0.0100	0.0028	0.0100	W512002	16-Mar-15	
EPA 200.7	Zinc	mg/L	<0.010	0.003	0.010	W512002	16-Mar-15	

**Classical Chemistry Parameters**

SM 2540 C	Total Diss. Solids	mg/L	<10		10	W511263	16-Mar-15	
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**Anions by Ion Chromatography**

EPA 300.0	Fluoride	mg/L	<0.100	0.022	0.100	W513126	25-Mar-15	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.05	0.30	W513126	25-Mar-15	

**Quality Control - LABORATORY CONTROL SAMPLE Data**

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
<b>Metals (Dissolved)</b>									
EPA 200.7	Cadmium	mg/L	1.01	1.00	101	85 - 115	W512002	16-Mar-15	
EPA 200.7	Calcium	mg/L	19.9	20.0	99.5	85 - 115	W512002	16-Mar-15	
EPA 200.7	Cobalt	mg/L	1.04	1.00	104	85 - 115	W512002	16-Mar-15	
EPA 200.7	Copper	mg/L	1.04	1.00	104	85 - 115	W512002	16-Mar-15	
EPA 200.7	Iron	mg/L	10.4	10.0	104	85 - 115	W512002	16-Mar-15	
EPA 200.7	Lead	mg/L	1.00	1.00	100	85 - 115	W512002	16-Mar-15	
EPA 200.7	Magnesium	mg/L	20.5	20.0	103	85 - 115	W512002	16-Mar-15	
EPA 200.7	Manganese	mg/L	1.04	1.00	104	85 - 115	W512002	16-Mar-15	
EPA 200.7	Nickel	mg/L	1.03	1.00	103	85 - 115	W512002	16-Mar-15	
EPA 200.7	Zinc	mg/L	1.00	1.00	100	85 - 115	W512002	16-Mar-15	
<b>Anions by Ion Chromatography</b>									
EPA 300.0	Fluoride	mg/L	2.00	2.00	100	90 - 110	W513126	25-Mar-15	
EPA 300.0	Sulfate as SO4	mg/L	10.0	10.0	100	90 - 110	W513126	25-Mar-15	

**Quality Control - DUPLICATE Data**

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
<b>Classical Chemistry Parameters</b>									
SM 2540 C	Total Diss. Solids	mg/L	283	258	9.2	10	W511263	16-Mar-15	
SM 2540 C	Total Diss. Solids	mg/L	650	674	3.6	10	W511263	16-Mar-15	



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**Project Name: Chino Routine**  
 Work Order: **W5C0240**  
 Reported: 27-Mar-15 14:07

**Quality Control - MATRIX SPIKE Data**

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	Cadmium	mg/L	1.06	<0.0020	1.00	106	70 - 130	W512002	16-Mar-15	
EPA 200.7	Cadmium	mg/L	1.03	<0.0020	1.00	103	70 - 130	W512002	16-Mar-15	
EPA 200.7	Calcium	mg/L	84.0	63.3	20.0	103	70 - 130	W512002	16-Mar-15	
EPA 200.7	Calcium	mg/L	56.2	35.7	20.0	103	70 - 130	W512002	16-Mar-15	
EPA 200.7	Cobalt	mg/L	1.07	<0.0060	1.00	107	70 - 130	W512002	16-Mar-15	
EPA 200.7	Cobalt	mg/L	1.05	<0.0060	1.00	105	70 - 130	W512002	16-Mar-15	
EPA 200.7	Copper	mg/L	1.07	<0.0100	1.00	106	70 - 130	W512002	16-Mar-15	
EPA 200.7	Copper	mg/L	1.04	<0.0100	1.00	103	70 - 130	W512002	16-Mar-15	
EPA 200.7	Iron	mg/L	10.9	<0.060	10.0	109	70 - 130	W512002	16-Mar-15	
EPA 200.7	Iron	mg/L	10.7	<0.060	10.0	107	70 - 130	W512002	16-Mar-15	
EPA 200.7	Lead	mg/L	1.04	<0.0075	1.00	104	70 - 130	W512002	16-Mar-15	
EPA 200.7	Lead	mg/L	1.08	<0.0075	1.00	108	70 - 130	W512002	16-Mar-15	
EPA 200.7	Magnesium	mg/L	48.4	26.0	20.0	112	70 - 130	W512002	16-Mar-15	
EPA 200.7	Magnesium	mg/L	21.9	0.55	20.0	107	70 - 130	W512002	16-Mar-15	
EPA 200.7	Manganese	mg/L	1.07	<0.0040	1.00	107	70 - 130	W512002	16-Mar-15	
EPA 200.7	Manganese	mg/L	1.11	0.0535	1.00	106	70 - 130	W512002	16-Mar-15	
EPA 200.7	Nickel	mg/L	1.06	<0.0100	1.00	106	70 - 130	W512002	16-Mar-15	
EPA 200.7	Nickel	mg/L	1.05	<0.0100	1.00	105	70 - 130	W512002	16-Mar-15	
EPA 200.7	Zinc	mg/L	1.06	<0.010	1.00	106	70 - 130	W512002	16-Mar-15	
EPA 200.7	Zinc	mg/L	1.03	<0.010	1.00	103	70 - 130	W512002	16-Mar-15	

**Anions by Ion Chromatography**

EPA 300.0	Fluoride	mg/L	2.19	0.162	2.00	101	90 - 110	W513126	25-Mar-15	
EPA 300.0	Fluoride	mg/L	2.93	0.642	2.00	114	90 - 110	W513126	26-Mar-15	M1
EPA 300.0	Sulfate as SO4	mg/L	205	201	10.0	R > 4S	90 - 110	W513126	25-Mar-15	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	200	188	10.0	R > 4S	90 - 110	W513126	26-Mar-15	D2,M3

**Quality Control - MATRIX SPIKE DUPLICATE Data**

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	%R	RPD	RPD Limit	Batch ID	Analyzed	Notes
<b>Metals (Dissolved)</b>											
EPA 200.7	Cadmium	mg/L	1.05	1.06	1.00	105	0.3	20	W512002	16-Mar-15	
EPA 200.7	Calcium	mg/L	84.5	84.0	20.0	106	0.5	20	W512002	16-Mar-15	
EPA 200.7	Cobalt	mg/L	1.06	1.07	1.00	106	0.3	20	W512002	16-Mar-15	
EPA 200.7	Copper	mg/L	1.07	1.07	1.00	107	0.5	20	W512002	16-Mar-15	
EPA 200.7	Iron	mg/L	11.0	10.9	10.0	110	1.1	20	W512002	16-Mar-15	
EPA 200.7	Lead	mg/L	1.04	1.04	1.00	104	0.6	20	W512002	16-Mar-15	
EPA 200.7	Magnesium	mg/L	48.7	48.4	20.0	114	0.5	20	W512002	16-Mar-15	
EPA 200.7	Manganese	mg/L	1.07	1.07	1.00	107	0.3	20	W512002	16-Mar-15	
EPA 200.7	Nickel	mg/L	1.06	1.06	1.00	106	0.4	20	W512002	16-Mar-15	
EPA 200.7	Zinc	mg/L	1.06	1.06	1.00	106	0.4	20	W512002	16-Mar-15	
<b>Anions by Ion Chromatography</b>											
EPA 300.0	Fluoride	mg/L	2.20	2.19	2.00	102	0.6	20	W513126	25-Mar-15	
EPA 300.0	Sulfate as SO4	mg/L	206	205	10.0	R > 4S	0.4	20	W513126	25-Mar-15	D2,M3



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**Project Name: Chino Routine**  
Work Order: **W5C0240**  
Reported: 27-Mar-15 14:07

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### Notes and Definitions

D1	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
M1	Matrix spike recovery was high, but the LCS recovery was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

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Freeport McMoRan - Chino Mines  
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**Project Name: Chino Routine**  
Work Order: **W5I0119**  
Reported: 23-Sep-15 10:38

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received	Notes
341186 / GH-2004-2D	W5I0119-01	Water	02-Sep-15 12:13	NL	04-Sep-2015	
341187 / GH-2004-2S	W5I0119-02	Water	02-Sep-15 11:43	NL	04-Sep-2015	
341188 / GH-LOWER POND	W5I0119-03	Water	01-Sep-15 15:04	SM	04-Sep-2015	
341189 / GH-SUMP	W5I0119-04	Water	01-Sep-15 15:59	SM	04-Sep-2015	

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  
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**Project Name: Chino Routine**  
Work Order: **W5I0119**  
Reported: 23-Sep-15 10:38

Client Sample ID: **341186 : GH-2004-2D**  
SVL Sample ID: **W5I0119-01 (Water)**

Sampled: 02-Sep-15 12:13  
Received: 04-Sep-15  
Sampled By: NL

**Sample Report Page 1 of 1**

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	<b>Cadmium</b>	0.0147	mg/L	0.0020	0.0009		W537036	SMB	09/17/15 09:20	
EPA 200.7	<b>Calcium</b>	489	mg/L	0.100	0.058		W537036	SMB	09/17/15 09:20	M3
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0019		W537036	SMB	09/17/15 09:20	
EPA 200.7	Copper	< 0.0100	mg/L	0.0100	0.0023		W537036	SMB	09/17/15 09:20	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.048		W537036	SMB	09/17/15 09:20	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0030		W537036	SMB	09/17/15 09:20	
EPA 200.7	<b>Magnesium</b>	112	mg/L	0.20	0.11		W537036	SMB	09/17/15 09:20	
EPA 200.7	<b>Manganese</b>	0.0507	mg/L	0.0040	0.0023		W537036	SMB	09/17/15 09:20	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0037		W537036	SMB	09/17/15 09:20	
EPA 200.7	<b>Zinc</b>	0.874	mg/L	0.010	0.004		W537036	SMB	09/17/15 09:20	
<b>Classical Chemistry Parameters</b>										
SM 2540 C	<b>Total Diss. Solids</b>	2580	mg/L	40			W536268	JDM	09/08/15 16:25	D1
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Fluoride	< 0.500	mg/L	0.500	0.110	5	W538221	DT	09/21/15 20:19	D1
EPA 300.0	<b>Sulfate as SO4</b>	1730	mg/L	15.0	2.50	50	W538221	DT	09/21/15 20:28	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  
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Bayard, NM 88023

**Project Name: Chino Routine**  
Work Order: **W510119**  
Reported: 23-Sep-15 10:38

Client Sample ID: **341187 : GH-2004-2S**

SVL Sample ID: **W510119-02 (Water)**

Sample Report Page 1 of 1

Sampled: 02-Sep-15 11:43  
Received: 04-Sep-15  
Sampled By: NL

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	Cadmium	0.197	mg/L	0.0020	0.0009		W537036	SMB	09/17/15 09:26	
EPA 200.7	Calcium	511	mg/L	0.100	0.058		W537036	SMB	09/17/15 09:26	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0019		W537036	SMB	09/17/15 09:26	
EPA 200.7	Copper	0.0688	mg/L	0.0100	0.0023		W537036	SMB	09/17/15 09:26	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.048		W537036	SMB	09/17/15 09:26	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0030		W537036	SMB	09/17/15 09:26	
EPA 200.7	Magnesium	178	mg/L	0.20	0.11		W537036	SMB	09/17/15 09:26	
EPA 200.7	Manganese	2.87	mg/L	0.0040	0.0023		W537036	SMB	09/17/15 09:26	
EPA 200.7	Nickel	0.0380	mg/L	0.0100	0.0037		W537036	SMB	09/17/15 09:26	
EPA 200.7	Zinc	52.4	mg/L	0.010	0.004		W537036	SMB	09/17/15 09:26	
<b>Classical Chemistry Parameters</b>										
SM 2540 C	Total Diss. Solids	3220	mg/L	40			W536268	JDM	09/08/15 16:25	D1
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Fluoride	< 0.500	mg/L	0.500	0.110	5	W538221	DT	09/21/15 20:36	D1
EPA 300.0	Sulfate as SO4	2350	mg/L	15.0	2.50	50	W538221	DT	09/21/15 20:44	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: **W5I0119**  
Reported: 23-Sep-15 10:38

Client Sample ID: **341188 : GH-LOWER POND**

SVL Sample ID: **W5I0119-03 (Water)**

Sample Report Page 1 of 1

Sampled: 01-Sep-15 15:04  
Received: 04-Sep-15  
Sampled By: SM

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	Cadmium	0.0047	mg/L	0.0020	0.0009		W537036	SMB	09/17/15 09:30	
EPA 200.7	Calcium	83.2	mg/L	0.100	0.058		W537036	SMB	09/17/15 09:30	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0019		W537036	SMB	09/17/15 09:30	
EPA 200.7	Copper	0.0282	mg/L	0.0100	0.0023		W537036	SMB	09/17/15 09:30	
EPA 200.7	Iron	< 0.060	mg/L	0.060	0.048		W537036	SMB	09/17/15 09:30	
EPA 200.7	Lead	< 0.0075	mg/L	0.0075	0.0030		W537036	SMB	09/17/15 09:30	
EPA 200.7	Magnesium	13.0	mg/L	0.20	0.11		W537036	SMB	09/17/15 09:30	
EPA 200.7	Manganese	0.920	mg/L	0.0040	0.0023		W537036	SMB	09/17/15 09:30	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0037		W537036	SMB	09/17/15 09:30	
EPA 200.7	Zinc	0.266	mg/L	0.010	0.004		W537036	SMB	09/17/15 09:30	
<b>Classical Chemistry Parameters</b>										
SM 2540 C	Total Diss. Solids	406	mg/L	10			W536268	JDM	09/08/15 16:25	
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Fluoride	0.670	mg/L	0.100	0.022		W538221	DT	09/22/15 14:57	
EPA 300.0	Sulfate as SO4	269	mg/L	3.00	0.50	10	W538221	DT	09/22/15 15:07	D2,M3

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: **W5I0119**  
Reported: 23-Sep-15 10:38

Client Sample ID: **341189 : GH-SUMP**  
SVL Sample ID: **W5I0119-04 (Water)**

Sampled: 01-Sep-15 15:59  
Received: 04-Sep-15  
Sampled By: SM

**Sample Report Page 1 of 1**

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	Cadmium	0.0082	mg/L	0.0020	0.0009		W537036	SMB	09/17/15 09:33	
EPA 200.7	Calcium	130	mg/L	0.100	0.058		W537036	SMB	09/17/15 09:33	
EPA 200.7	Cobalt	< 0.0060	mg/L	0.0060	0.0019		W537036	SMB	09/17/15 09:33	
EPA 200.7	Copper	0.126	mg/L	0.0100	0.0023		W537036	SMB	09/17/15 09:33	
EPA 200.7	Iron	0.559	mg/L	0.060	0.048		W537036	SMB	09/17/15 09:33	
EPA 200.7	Lead	0.0854	mg/L	0.0075	0.0030		W537036	SMB	09/17/15 09:33	
EPA 200.7	Magnesium	21.5	mg/L	0.20	0.11		W537036	SMB	09/17/15 09:33	
EPA 200.7	Manganese	0.235	mg/L	0.0040	0.0023		W537036	SMB	09/17/15 09:33	
EPA 200.7	Nickel	< 0.0100	mg/L	0.0100	0.0037		W537036	SMB	09/17/15 09:33	
EPA 200.7	Zinc	1.51	mg/L	0.010	0.004		W537036	SMB	09/17/15 09:33	
<b>Classical Chemistry Parameters</b>										
SM 2540 C	Total Diss. Solids	653	mg/L	10			W536268	JDM	09/08/15 16:25	
<b>Anions by Ion Chromatography</b>										
EPA 300.0	Fluoride	1.27	mg/L	0.100	0.022		W538221	DT	09/21/15 20:53	
EPA 300.0	Sulfate as SO4	419	mg/L	3.00	0.50	10	W538221	DT	09/21/15 21:01	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: **W510119**  
 Reported: 23-Sep-15 10:38

**Quality Control - BLANK Data**

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
<b>Metals (Dissolved)</b>								
EPA 200.7	Cadmium	mg/L	<0.0020	0.0009	0.0020	W537036	16-Sep-15	
EPA 200.7	Calcium	mg/L	<0.100	0.058	0.100	W537036	16-Sep-15	
EPA 200.7	Cobalt	mg/L	<0.0060	0.0019	0.0060	W537036	16-Sep-15	
EPA 200.7	Copper	mg/L	<0.0100	0.0023	0.0100	W537036	16-Sep-15	
EPA 200.7	Iron	mg/L	<0.060	0.048	0.060	W537036	16-Sep-15	
EPA 200.7	Lead	mg/L	<0.0075	0.0030	0.0075	W537036	16-Sep-15	
EPA 200.7	Magnesium	mg/L	<0.20	0.11	0.20	W537036	16-Sep-15	
EPA 200.7	Manganese	mg/L	<0.0040	0.0023	0.0040	W537036	16-Sep-15	
EPA 200.7	Nickel	mg/L	<0.0100	0.0037	0.0100	W537036	16-Sep-15	
EPA 200.7	Zinc	mg/L	<0.010	0.004	0.010	W537036	16-Sep-15	

**Classical Chemistry Parameters**

SM 2540 C	Total Diss. Solids	mg/L	<10		10	W536268	08-Sep-15	
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**Anions by Ion Chromatography**

EPA 300.0	Fluoride	mg/L	<0.100	0.022	0.100	W538221	21-Sep-15	
EPA 300.0	Sulfate as SO4	mg/L	<0.30	0.05	0.30	W538221	21-Sep-15	

**Quality Control - LABORATORY CONTROL SAMPLE Data**

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
<b>Metals (Dissolved)</b>									
EPA 200.7	Cadmium	mg/L	0.948	1.00	94.8	85 - 115	W537036	16-Sep-15	
EPA 200.7	Calcium	mg/L	18.3	20.0	91.7	85 - 115	W537036	16-Sep-15	
EPA 200.7	Cobalt	mg/L	0.962	1.00	96.2	85 - 115	W537036	16-Sep-15	
EPA 200.7	Copper	mg/L	0.925	1.00	92.5	85 - 115	W537036	16-Sep-15	
EPA 200.7	Iron	mg/L	8.96	10.0	89.6	85 - 115	W537036	16-Sep-15	
EPA 200.7	Lead	mg/L	0.942	1.00	94.2	85 - 115	W537036	16-Sep-15	
EPA 200.7	Magnesium	mg/L	18.0	20.0	89.8	85 - 115	W537036	16-Sep-15	
EPA 200.7	Manganese	mg/L	0.950	1.00	95.0	85 - 115	W537036	16-Sep-15	
EPA 200.7	Nickel	mg/L	0.946	1.00	94.6	85 - 115	W537036	16-Sep-15	
EPA 200.7	Zinc	mg/L	0.919	1.00	91.9	85 - 115	W537036	16-Sep-15	

**Anions by Ion Chromatography**

EPA 300.0	Fluoride	mg/L	2.05	2.00	102	90 - 110	W538221	21-Sep-15	
EPA 300.0	Sulfate as SO4	mg/L	10.3	10.0	103	90 - 110	W538221	21-Sep-15	

**Quality Control - DUPLICATE Data**

Method	Analyte	Units	Duplicate Result	Sample Result	RPD	RPD Limit	Batch ID	Analyzed	Notes
<b>Classical Chemistry Parameters</b>									
SM 2540 C	Total Diss. Solids	mg/L	271	277	2.2	10	W536268	08-Sep-15	
SM 2540 C	Total Diss. Solids	mg/L	405	406	0.2	10	W536268	08-Sep-15	



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

**Project Name: Chino Routine**  
 Work Order: **W510119**  
 Reported: 23-Sep-15 10:38

**Quality Control - MATRIX SPIKE Data**

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
<b>Metals (Dissolved)</b>										
EPA 200.7	Cadmium	mg/L	1.03	0.0041	1.00	102	70 - 130	W537036	16-Sep-15	
EPA 200.7	Cadmium	mg/L	1.04	0.0147	1.00	103	70 - 130	W537036	17-Sep-15	
EPA 200.7	Calcium	mg/L	565	542	20.0	115	70 - 130	W537036	16-Sep-15	M3
EPA 200.7	Calcium	mg/L	516	489	20.0	R > 4S	70 - 130	W537036	17-Sep-15	M3
EPA 200.7	Cobalt	mg/L	1.60	0.643	1.00	95.5	70 - 130	W537036	16-Sep-15	
EPA 200.7	Cobalt	mg/L	0.970	<0.0060	1.00	97.0	70 - 130	W537036	17-Sep-15	
EPA 200.7	Copper	mg/L	1.03	0.0271	1.00	100	70 - 130	W537036	16-Sep-15	
EPA 200.7	Copper	mg/L	1.02	<0.0100	1.00	102	70 - 130	W537036	17-Sep-15	
EPA 200.7	Iron	mg/L	9.47	0.225	10.0	92.5	70 - 130	W537036	16-Sep-15	
EPA 200.7	Iron	mg/L	9.45	<0.060	10.0	94.5	70 - 130	W537036	17-Sep-15	
EPA 200.7	Lead	mg/L	0.913	<0.0075	1.00	91.3	70 - 130	W537036	16-Sep-15	
EPA 200.7	Lead	mg/L	0.965	<0.0075	1.00	96.5	70 - 130	W537036	17-Sep-15	
EPA 200.7	Magnesium	mg/L	506	484	20.0	110	70 - 130	W537036	16-Sep-15	M3
EPA 200.7	Magnesium	mg/L	132	112	20.0	104	70 - 130	W537036	17-Sep-15	
EPA 200.7	Manganese	mg/L	38.2	36.9	1.00	127	70 - 130	W537036	16-Sep-15	
EPA 200.7	Manganese	mg/L	1.03	0.0507	1.00	97.9	70 - 130	W537036	17-Sep-15	
EPA 200.7	Nickel	mg/L	1.16	0.219	1.00	93.7	70 - 130	W537036	16-Sep-15	
EPA 200.7	Nickel	mg/L	0.963	<0.0100	1.00	96.3	70 - 130	W537036	17-Sep-15	
EPA 200.7	Zinc	mg/L	2.27	1.34	1.00	92.6	70 - 130	W537036	16-Sep-15	
EPA 200.7	Zinc	mg/L	1.81	0.874	1.00	93.6	70 - 130	W537036	17-Sep-15	

**Anions by Ion Chromatography**

EPA 300.0	Fluoride	mg/L	2.90	<1.00	2.00	114	90 - 110	W538221	21-Sep-15	M1
EPA 300.0	Fluoride	mg/L	2.75	0.670	2.00	104	90 - 110	W538221	22-Sep-15	
EPA 300.0	Sulfate as SO4	mg/L	111	102	10.0	91.8	90 - 110	W538221	21-Sep-15	D2,M3
EPA 300.0	Sulfate as SO4	mg/L	273	269	10.0	R > 4S	90 - 110	W538221	22-Sep-15	D2,M3

**Quality Control - MATRIX SPIKE DUPLICATE Data**

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	%R	RPD	RPD Limit	Batch ID	Analyzed	Notes
<b>Metals (Dissolved)</b>											
EPA 200.7	Cadmium	mg/L	1.03	1.03	1.00	103	0.4	20	W537036	16-Sep-15	
EPA 200.7	Calcium	mg/L	570	565	20.0	R > 4S	0.9	20	W537036	16-Sep-15	M3
EPA 200.7	Cobalt	mg/L	1.61	1.60	1.00	96.7	0.8	20	W537036	16-Sep-15	
EPA 200.7	Copper	mg/L	1.04	1.03	1.00	101	0.3	20	W537036	16-Sep-15	
EPA 200.7	Iron	mg/L	9.55	9.47	10.0	93.2	0.8	20	W537036	16-Sep-15	
EPA 200.7	Lead	mg/L	0.920	0.913	1.00	92.0	0.8	20	W537036	16-Sep-15	
EPA 200.7	Magnesium	mg/L	509	506	20.0	125	0.6	20	W537036	16-Sep-15	
EPA 200.7	Manganese	mg/L	38.4	38.2	1.00	R > 4S	0.6	20	W537036	16-Sep-15	M3
EPA 200.7	Nickel	mg/L	1.17	1.16	1.00	94.8	0.9	20	W537036	16-Sep-15	
EPA 200.7	Zinc	mg/L	2.30	2.27	1.00	96.3	1.6	20	W537036	16-Sep-15	
<b>Anions by Ion Chromatography</b>											
EPA 300.0	Fluoride	mg/L	3.04	2.90	2.00	121	4.6	20	W538221	21-Sep-15	M1
EPA 300.0	Sulfate as SO4	mg/L	112	111	10.0	97.7	0.5	20	W538221	21-Sep-15	D2,M3



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

**Project Name: Chino Routine**  
Work Order: **W510119**  
Reported: 23-Sep-15 10:38

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### Notes and Definitions

D1	Sample required dilution due to matrix.
D2	Sample required dilution due to high concentration of target analyte.
M1	Matrix spike recovery was high, but the LCS recovery was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable

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**Chino Mines Co. Reclamation/Erosion Monitoring Form**

Monthly  
 Quarterly  
 1" Rain Event

Reclamation Unit: <i>Bell</i>	Weather Conditions: <i>Partly Cloudy, breezy</i>
Inspector: <i>Steve Garcia</i>	
Time/Date: <i>3:20 12-11-2014</i>	
Vegetation Conditions: <i>Dry grasses and weeds visible.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>None</i>	Significant Erosion (Attach Description): <i>None visible.</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>Osceola</i>	Weather Conditions: <i>Clear &amp; breezy</i>
Inspector: <i>Steve Garcia</i>	
Time/Date: <i>3:30 pm 12-11-2014</i>	
Vegetation Conditions: <i>Very little vegetation. Oak scrub trees (small) are visible Along with some dry grass &amp; weeds.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>None</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>Ground Hog.</i>	Weather Conditions: <i>Cloudy, Cold</i>
Inspector: <i>Steve Garcia</i>	<i>scattered rain; snow showers.</i>
Time/Date: <i>10:40 AM 12-17-2014</i>	
Vegetation Conditions: <i>Dry grass and shrubs visible.</i>	Fences/Livestock: <i>none</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>No new erosion visible.</i>
Monitoring Stations: <i>none.</i>	
Other Observations:	

**Chino Mines Co. Reclamation/Erosion Monitoring Form**

Monthly  
 Quarterly  
 1" Rain Event

Reclamation Unit: <i>Star</i>	Weather Conditions: <i>Cloudy, Cold</i>
Inspector: <i>Steve Garcia</i>	<i>Scattered Showers,</i>
Time/Date: <i>10:20 am 12-17-2014</i>	
Vegetation Conditions: <i>Dry grass and shrubs visible throughout area</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>tender foot</i>	Weather Conditions: <i>Cloudy, Cold</i>
Inspector: <i>Steve Garcia</i>	<i>Scattered showers.</i>
Time/Date: <i>10:00 AM 12-17-2014</i>	
Vegetation Conditions: <i>Dry GRASS and shrubs visible through out area along with live trees and cactus.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>No new erosion visible.</i>  <i>Rills noted on the borrow area are in process of being assessed for repair.</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>Bell</i>	Weather Conditions: <i>Cloudy/Wet</i>
Inspector: <i>Steve Garcia</i>	
Time/Date: <i>9:40 3-18-2015</i>	
Vegetation Conditions: <i>Dry grass visible some new growth visible.</i>	Fences/Livestock: <i>None</i>
Ditches/Water Control: <i>No visible issues.</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>STAR</i>	Weather Conditions: <i>Cloudy and Wet</i>
Inspector: <i>Steve Garcia</i>	
Time/Date: <i>10:00 AM 3-18-2009</i>	
Vegetation Conditions: <i>Thick Dry vegetation visible with lots of new growth visible.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>None.</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>Tenderfoot</i>	Weather Conditions: <i>Cloudy wet</i>
Inspector: <i>Steve Garcia</i>	
Time/Date: <i>10:15</i>	
Vegetation Conditions: <i>Thick dry grasses visible. Lots of new 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>Borrow site repairs complete. Rills filled in and water bars in place. Riprap is being placed <del>at</del> along top berm of remediation site to slow storm water down when it runs. Road to site <del>is</del> is currently open but will be blocked off.</i>	

**Chino Mines Co. Reclamation/Erosion Monitoring Form**

Monthly  
 Quarterly  
 1" Rain Event

Reclamation Unit: <i>Osceola</i>	Weather Conditions: <i>Cloudy <del>dry</del> wet.</i>
Inspector: <i>Steve Garcia</i>	
Time/Date: <i>10:40 3-18-2015</i>	
Vegetation Conditions: <i>SPARSE dry vegetation visible. Very little new growth showing up.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>None.</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>Ground Hog</i>	Weather Conditions: <i>Cloudy and wet</i>
Inspector: <i>Steve Garcia</i>	
Time/Date: <i>11:10 3-18-2015</i>	
Vegetation Conditions: <i>Thick dry grass with new vegetation visible.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>No visible concerns.</i>	Significant Erosion (Attach Description): <i>None visible. (New).</i>
Monitoring Stations: <i>None.</i>	
Other Observations: <i>Erosion <del>note</del> that has been repaired is holding as of inspection. (Fall 2014)</i>	

**Chino Mines Co. Reclamation/Erosion Monitoring Form**

Monthly  
 Quarterly  
 1" Rain Event

Reclamation Unit: Ground Hog	Weather Conditions: <i>Clear</i>
Inspector: Steve Garcia	
Time/Date: <i>3:06 PM 6-19-2015</i>	
Vegetation Conditions: <i>New Plant and GRASS visible throughout site.</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>Washout repaired <del>was</del> SEPT. 2014 holding up good, healing slow.</i>	

**Chino Mines Co. Reclamation/Erosion Monitoring Form**

Monthly  
 Quarterly  
 1" Rain Event

Reclamation Unit: Bell	Weather Conditions: <i>Clear</i>
Inspector: Steve Garcia	
Time/Date: <i>2:05 pm 6-19-2015</i>	
Vegetation Conditions: <i>New growth visible in spots.</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: Osceola	Weather Conditions: <i>Clear</i>
Inspector: Steve Garcia	
Time/Date: <i>2:20 PM 6-19-2015</i>	
Vegetation Conditions: <del>SAME</del> <i>Some new growth visible mostly bare grass and plants.</i>	Fences/Livestock: <i>None</i>
Ditches/Water Control: <i>None.</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: Star Shaft	Weather Conditions: <i>Clear.</i>
Inspector: Steve Garcia	
Time/Date: <i>2:30<sup>pm</sup> 6-19-2015</i>	
Vegetation Conditions: <i>New Plant and grass growth visible. As well as older dry grass and plants.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>None</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: Tender Foot	Weather Conditions: <i>Clean</i>
Inspector: Steve Garcia	
Time/Date: <i>2:40 PM 6-19-2015</i>	
Vegetation Conditions: <i>New Plant &amp; grass visible.                  Along with dry old growth covering                  site.</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>Repairs <del>to</del> of Rills on the borrow area holding up well.                  After good rain fall earlier in the week.</i>	

**Chino Mines Co. Reclamation/Erosion Monitoring Form**

Monthly  
 Quarterly  
 1" Rain Event

Note: Visited site with <sup>(EmP)</sup> Fredrick Ennis & David Marcor (NMEQ)

Reclamation Unit: Star	Weather Conditions: Cloudy, light Rain
Inspector: Steven Garcia	Fences/Livestock: None.
Time/Date: 8:10 9-10-2015	
Vegetation Conditions: Good vegetation growth throughout site.	Significant Erosion (Attach Description): None visible.
Ditches/Water Control: None.	
Monitoring Stations: None.	
Other Observations: None.	

**Chino Mines Co. Reclamation/Erosion Monitoring Form**

Monthly  
 Quarterly  
 1" Rain Event

*Note: Visited site with Fredrick Enain & David Mercer (NMBD)*

Reclamation Unit: <i>Bell</i>	Weather Conditions: <i>Cloudy, light rain</i>
Inspector: <i>Steven M. Garcia</i>	
Time/Date: <i>6:20 AM 9-10-2015</i>	
Vegetation Conditions: <i>Some vegetation visible, very little growth.</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>Oceola</i>	Weather Conditions: <i>Cloudy light rain off E:0A</i>
Inspector: <i>Visited site with Steven Garcia Fredrick Ennis (LAIN 50) David Moore</i>	
Time/Date: <i>8:30 AM 9-10-2015</i>	
Vegetation Conditions: <i>Very little growth visible on slope below road.</i>	Fences/Livestock: <i>None.</i>
Ditches/Water Control: <i>None.</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>Tender Foot</i>	Weather Conditions: <i>Cloudy, light rain</i>
Inspector: <i>visited site with Steven Barrios, Fredrick Ennis, David Mercer (AIA EO)</i>	
Time/Date: <i>8:40 9-10-2015</i>	
Vegetation Conditions: <i>Lots of vegetation <del>is</del> visible throughout site.</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>Repairs to borrow area holdings up sand.</i>	

**Chino Mines Co. Reclamation/Erosion Monitoring Form**

Monthly  
 Quarterly  
 1" Rain Event

Reclamation Unit: <i>Ground Hog</i>	Weather Conditions: <i>Cloudy, on and off light rain</i>
Inspector: <i>visited site w. PA Steven Barone &amp; Fredrick Eason (see memo)</i>	
Time/Date: <i>9:00 AM 9-10-2015</i>	
Vegetation Conditions: <i>Good vegetation &amp; growth throughout site.</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>None.</i>	



October 28, 2015

Project No. 1411160

Ned Hall  
Freeport-McMoRan  
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**Freeport-McMoRan Chino Mines Company**

**Administrative Order on Consent (AOC)**

**Annual Groundhog Mine and Small Historical Stockpile Vegetation Monitoring Survey Summary**

**October 2015**

According to the commitments in the AOC, Chino performs qualitative vegetation and erosion inspections of the reclaimed Small Historic Stockpiles and the Groundhog Mine on an annual basis. Pursuant to the IRA Work Plan, annual inspections are to continue for a minimum of 4 years after initial vegetation establishment. Since the Groundhog site was seeded in 2009, qualitative inspections have been performed annually through 2014, exceeding Chino's 4-year inspection commitment. However, because the Groundhog pipeline corridor was reseeded in 2011, Chino elected to continue the annual inspections of the sites until the Groundhog pipeline corridor reached the fourth year. Thus, the 2014 inspection was the fourth for the Groundhog pipeline corridor.

Golder Associates, on behalf of Chino, completed a quantitative vegetation survey in September 2015 of the Groundhog Mine and Small Historic Stockpiles to evaluate the progress of the reclamation after a minimum of five growing seasons. Because the AOC does not include formal vegetation closeout actions, Chino will evaluate whether the remediated sites have achieved the success targets consistent with the Vegetation Success Standards of Appendix C in the New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division (MMD) revision 01-1 to Permit GR009RE. The MMD revegetation success standards for Chino are based on canopy cover, shrub density, and plant diversity compared to an undisturbed reference site.

Quantitative vegetation monitoring data was collected in 2015 from the reclaimed/remediated sites and Chino's Rustle Canyon reference area using quadrat sampling along randomly located transects. Shrub density, or the number of woody plants per square meter, was determined using the point-centered quarter method. The status of the revegetated sites will be determined by comparative analysis of the reclaimed and reference areas. The vegetation data will be compiled statistically analyzed and summarized for a comprehensive report that Chino will submit to the agencies by the end of January 2016. The comprehensive report will serve as an interim success monitoring report.

Sincerely,  
**GOLDER ASSOCIATES INC.**

Emily Clark, CPSS  
Project Manager  
EC/DR/rj

Doug Romig  
Senior Scientist

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