

Tyrone Operations
P.O. Box 571
Tyrone, NM 88065

July 31, 2019

Hand Delivered

Ms. Michelle Hunter
Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502

Hand Delivered

Mr. Fernando Martinez
Division Director
Mining Act Reclamation Program
Mining and Minerals Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Ms. Hunter and Mr. Martinez:

**Re: Freeport-McMoRan Tyrone Inc. Tyrone Mine
Closure/Closeout Plan Summary and Net Present Value
Calculation Update, Permit Nos. GR010RE and DP-1341**

Freeport-McMoRan Tyrone Inc. (Tyrone) submitted an update to the Closure/Closeout Plan (CCP) update to the Mining and Mineral Division (MMD) and the New Mexico Environmental Department (NMED) on June 11, 2015. In a letter dated May 6, 2019, Tyrone submitted an updated Earthwork Cost Estimate Process, Updated Earthwork, Demolition, and Earthwork Operations and Maintenance Cost Estimate, and Updated Earthwork Site Engineering Drawings and Material Takeoffs. Tyrone has received and responded to comments from MMD and NMED in 2018. Please find enclosed for agency review:

- Attachment 1 - Freeport-McMoRan Tyrone, Inc. Closure/Closeout Plan Cost Estimate Net Present Value Calculation and Supporting Information July 31, 2019
 - Attachment 1A – Net Present Value Calculation
 - Attachment 1B - Summary, Rationale and Supporting Data for NPV Calculation
- Attachment 2 - Electronic copy of the NPV calculations
- Attachment 3 – Freeport-McMoRan Tyrone, Inc. 2013 Tyrone Mine Closure/Closeout Plan Update
 - Updated 2013 Tyrone Mine Closure/Closeout Plan Update
 - Updated Tables
 - Updated Figures
 - Updated Plates
 - Copy of Appendix A
 - Updated Appendices B and D
 - Appendix E – Characterization and Volumetrics of Gila Conglomerate and Precambrian Granite Reclamation Cover Materials

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- Appendix F – Tyrone Stockpile Slope Stability Analysis for the 2013 Closure Close-out Plan Update

Since 2013, Tyrone has responded to comments and agreed to incorporate changes in the CCP and cost estimate. The Water Management and Treatment cost estimate (Appendix D) was developed in accordance with the FA work group agreement and derivation and standard practice sources for unit rates.

The FA in place for Tyrone in NPV dollars (including expansion projects such as the 9AX Stockpile and Copper Mountain South Pit Expansion) is \$179,504,992.00. The updated FA NPV'd is \$156,859,817 (see table 1 below for details).

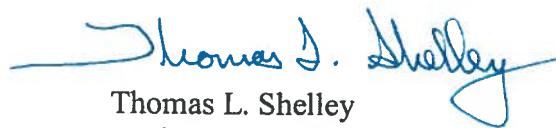
Table 1

Component	Current Cost	NPV
Earthwork	\$101,878,190	\$75,507,394
Water Treatment	\$325,606,787	\$81,352,423
Total	\$427,484,978	\$156,859,817

Where noted, these documents have been updated based on NMED and MMD comments, the cost estimating work group agreement, and various other aspects and assumptions that have changed since 2013.

Tyrone appreciates the time and effort spent by NMED and MMD staffs in reviewing and commenting on the CCP. Tyrone looks forward to reviewing these documents with NMED and MMD in the future. In the meantime, please contact Ms. Mandy Lilla at (575) 912-5388 if you have any immediate questions or concerns.

Sincerely,



Thomas L. Shelley
Reclamation Manager
Environmental/Sustainable Development

TLS:ml
Enclosures
20190731-101

- c. Keith Ehlert - NMED
- Kurt Vollbrecht - NMED
- Holland Shepherd - MMD
- David Otori - MMD

Attachment 1
Freeport-McMoRan Tyrone, Inc.
Closure/Closeout Plan Cost Estimate
Net Present Value Calculation
and
Supporting Information
July 31, 2019

Table of Contents of This Attachment

- Attachment 1A –Net Present Value Calculation
- Attachment 1B – Summary, Rationale and Supporting Data for NPV Calculation

Attachment 1A-
Net Present Value Calculation

NEW MEXICO ED & MMD

Submitted July 31, 2019

DP-1341 & GR010RE Tyrone Mine Closure Financial Assurance;
financial assurance 2013 Tyrone Closure/Closeout Plan

	Escalation Rate	Yr 1-10 Discount Rate	Yr 11-100 Discount Rate
Earth	3.41%	7.09%	7.27%
Water	2.99%	7.09%	7.27%

Component	Current Cost	NPV
Earthwork	\$101,878,190	\$75,507,394
Water Treatment	\$325,606,787	\$81,352,423
Total	\$427,484,978	\$156,859,817

Year	Earthwork Current Cost	Earthwork NPV	Water Treatment Current Cost	Water Treatment NPV
1	1,114,175	1,114,175	4,929,174	4,929,174
2	4,123,344	3,981,651	3,400,079	3,269,905
3	7,248,582	6,758,967	3,087,847	2,855,933
4	7,248,582	6,526,704	2,774,959	2,468,283
5	7,248,582	6,302,423	2,461,227	2,105,408
6	7,254,636	6,090,931	2,147,590	1,766,778
7	7,254,636	5,881,625	1,841,544	1,456,998
8	7,230,076	5,660,284	1,527,906	1,162,571
9	7,230,076	5,465,776	3,465,393	2,535,839
10	7,230,076	5,277,952	1,296,924	912,704
11	7,230,076	5,011,704	1,196,111	796,048
12	7,230,175	4,831,430	1,096,692	700,760
13	7,230,269	4,657,636	905,588	555,561
14	7,253,956	4,504,746	12,310,148	7,250,724
15	3,178,325	1,902,733	3,944,267	2,230,494
16	178,325	102,915	3,924,296	2,130,656
17	178,325	99,211	3,904,500	2,035,325
18	178,325	95,641	3,882,784	1,943,249
19	178,325	92,200	3,863,348	1,856,375
20	178,325	88,882	3,842,013	1,772,465
21	143,733	69,062	3,823,376	1,693,490
22	143,733	66,577	3,804,848	1,618,042
23	143,733	64,181	3,787,338	1,546,334
24	143,733	61,872	3,771,798	1,478,544
25	86,973	36,092	3,613,362	1,359,922
26	86,973	34,793	3,598,254	1,300,203
27	86,973	33,541	3,584,841	1,243,673
28	86,973	32,334	3,570,991	1,189,438
29	86,973	31,170	3,557,702	1,137,730
30	86,973	30,049	3,544,941	1,088,418
31	86,973	28,968	3,533,696	1,041,676
32	86,973	27,925	3,521,841	996,758
33	86,973	26,920	3,498,455	950,634
34	86,973	25,952	3,489,165	910,280
35	86,973	25,018	3,480,225	871,721
36	86,973	24,118	3,470,555	834,615
37	86,973	23,250	3,462,220	799,390
38	86,973	22,413	3,454,163	765,709
39	86,973	21,607	3,446,362	733,497
40	86,973	20,829	3,437,762	702,474
41	61,908	14,293	3,430,437	673,008
42	61,908	13,779	3,280,707	617,953
43	61,908	13,283	3,273,815	592,050
44	61,908	12,805	3,267,124	567,266
45	61,908	12,344	3,260,626	543,550
46	61,908	11,900	3,253,261	520,684

Year	Earthwork Current Cost	Earthwork NPV	Water Treatment Current Cost	Water Treatment NPV
47	61,908	11,472	3,247,119	498,965
48	61,908	11,059	3,241,128	478,173
49	61,908	10,661	3,235,294	458,268
50	61,908	10,277	3,227,663	438,945
51	61,908	9,907	3,218,234	420,200
52	61,908	9,551	3,213,721	402,869
53	61,908	9,207	3,209,321	386,265
54	61,908	8,876	3,205,036	370,358
55	61,908	8,557	3,200,859	355,118
56	61,908	8,249	3,196,785	340,515
57	61,908	7,952	3,192,815	326,523
58	61,908	7,666	3,187,896	313,012
59	61,908	7,390	3,184,114	300,166
60	61,908	7,124	3,180,432	287,856
61	61,908	6,868	3,176,826	276,058
62	61,908	6,620	3,173,310	264,750
63	61,908	6,382	3,169,875	253,911
64	61,908	6,153	3,166,512	243,522
65	61,908	5,931	3,163,232	233,563
66	61,908	5,718	3,160,028	224,017
67	61,908	5,512	3,155,846	214,794
68	61,908	5,314	3,152,767	206,023
69	61,908	5,122	3,149,763	197,614
70	61,908	4,938	3,146,823	189,553
71	61,908	4,760	3,143,948	181,823
72	61,908	4,589	3,141,128	174,412
73	61,908	4,424	3,138,377	167,307
74	61,908	4,265	3,135,882	160,503
75	61,908	4,111	3,133,443	153,980
76	61,908	3,963	3,131,039	147,723
77	61,908	3,821	3,128,681	141,722
78	61,908	3,683	3,126,364	135,966
79	61,908	3,551	3,124,082	130,446
80	61,908	3,423	3,121,835	125,151
81	61,908	3,300	3,118,568	120,032
82	61,908	3,181	3,116,376	115,162
83	61,908	3,067	3,114,222	110,491
84	61,908	2,956	3,112,108	106,010
85	61,908	2,850	3,110,015	101,712
86	61,908	2,747	3,107,941	97,589
87	61,908	2,648	3,105,909	93,634
88	61,908	2,553	3,103,905	89,840
89	61,908	2,461	3,101,931	86,200
90	61,908	2,373	3,099,985	82,709
91	61,908	2,287	3,098,069	79,360
92	61,908	2,205	2,953,562	72,639
93	61,908	2,126	2,951,711	69,698
94	61,908	2,049	2,949,875	66,875
95	61,908	1,975	2,948,076	64,168
96	61,908	1,904	2,946,291	61,570
97	61,908	1,836	2,944,532	59,078
98	61,908	1,770	2,942,796	56,688
99	61,908	1,706	2,941,083	54,394
100	61,908	1,645	2,939,400	52,194
Total	101,878,190	75,507,394	325,606,787	81,352,423

**Attachment 1B-
Summary, Rationale and Supporting Data for NPV Calculation**

Overview

The Net Present Value (NPV) of each component of the Tyrone Closure/Closeout Cost Estimate has been calculated following the guidance document titled Guidance for Calculating Reclamation Costs in Net Present Value dated May 2016 provided by the New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division (MMD, MMD Guidance) as well as other Federal and State regulations. Both primary components of the Tyrone CCP (earthwork and water management/treatment) have a duration well over five years. The methodology used to estimate future cost inflation for the current permit renewal is consistent with the approach previously used and accepted by the state agencies in prior calculations of the net present value of reclamation costs, and is also consistent with the MMD's published guidelines for these calculations. Freeport-McMoRan New Mexico Operations proposes to use the same methodology and escalation and discount rates for all financial assurance calculations and all New Mexico Operations permits during this renewal cycle.

The NPV calculation is provided in Attachment 1A. Tyrone utilized the same escalation and discount rates that were proposed for the Chino Mine (please see Freeport-McMoRan Chino Mines Company - Chino Mine Financial Assurance Cost Estimate and Net Present Value Calculation, Permit No. GR009RE and Discharge Permit 1340; letter dated March 20, 2019 – for NPV calculation and supporting information please see Attachment 3 to that letter)

The information required in MMD Guidance was presented in Attachment 3 of the March 20, 2019 Chino Mine submittal referenced above. Rather than duplicate that material here, Tyrone hereby incorporates that information by reference.

The escalation and discount rates utilized in the NPV calculation and a summary of the resulting NPV are presented in the table at the top of the first page of Attachment 1A.

The cash flows utilized in the NPV calculation were derived directly from Appendix A (see tab 'Cashflow' in electronic copy, submitted May 11, 2019) and Appendix D (see tab '2019 CCP Cash Flow' in attached electronic copy).

Attachment 2
Electronic copy of the NPV calculations

Attachment 3
Freeport-McMoRan Tyrone, Inc.
2013 Tyrone Mine Closure/Closeout Plan Update