FREEPORT-McMoRan

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

Sherry Burt-Kested
Manager, Environmental Services
Telephone: 575-912-5927
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July 30, 2019

Certified Mail #70182290000117903440
Return Receipt Requested

Mr. David Ennis
Energy, Minerals and Natural Resources Department
Mining and Minerals Division
Mining Act Reclamation Program
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Certified Mail #70182290000117903457
Return Receipt Requested

Mr. Brad Reid
New Mexico Environment Department (NMED)
Water Protection Division
P.O. Box 5469
Santa Fe, New Mexico 87502

Dear Messers Ennis and Reid:

Re: Freeport-McMoRan Chino Mines Company: Response to Agency Technical Comments on Updated Closure/Closure Cost Estimate for Chino Mines Mining Act Permit GR009RE and Discharge Permit (DP)-1340

The Energy, Mining and Natural Resources Department, Mining and Minerals Division and the New Mexico Environmental Department, in a joint letter dated June 17, 2019 requested Chino Mines to respond to the following comments regarding the Chino Mines financial assurance cost estimate. The agency comments are listed below in italics, followed by Chino's responses.

Cost Estimate

1. *Attachment 1, Appendix B.1.2, Table of Adjusted EquipmentWatch Specific Inputs. "The Annual Use Hours are adjusted in EquipmentWatch to eliminate the Equipment watch 50 minute work hour." Please provide supporting documentation for the basis that EquipmentWatch uses a 50-minute work hour.*

The RCE update assumes that 100% efficiency is not achieved in the task times for earthmoving production; therefore, a 50-minute work hour is used. The Caterpillar Performance Handbook makes this assumption (page 7-252, Edition 48) with an average mine efficiency of 83% for heavy equipment, which corresponds to a 50-minute work hour. Equipment costs for the earthwork RCE updates are obtained from EquipmentWatch.

EquipmentWatch uses Annual Use Hours to determine cost. Annual Use Hours are defined by EquipmentWatch as:

> Annual Use Hours are the average number of hours per year that a machine performs work as determined by surveying equipment owners. Annual use hours are based on single shift operation and are influenced primarily by equipment type and seasonal weather effects.

Additional explanation of annual usage is detailed in an attached email and letter (Attachment 1) from EquipmentWatch sent to Telesto Solutions, Inc. on February 17, 2010:

> Blue Book ownership costs (monthly, weekly, daily, & hourly rates) are based on average contractor seasons. EquipmentWatch bases this data upon surveys of contractors across the U.S. The 1,584 annual hours given as an example above, represent the way in which Blue Book costs are already adjusted for average annual usage of equipment.

Because EquipmentWatch obtains Annual Use Hours from survey data, it is reasonable to assume that the data collected is based on an average operation efficiency, which is a 50-minute work hour according to the Caterpillar Performance Handbook.

Additionally, because we account for the 50-minute work hour in the efficiency calculations for task time in the RCE spreadsheets, the standard Annual Use Hours in EquipmentWatch is adjusted to a 60-minute work hour to avoid correction for a 50-minute work hour twice.

For the CCP earthwork RCE, the annual use hours were adjusted by the following formula:

- 2085 available work hours in a year minus the EquipmentWatch annual overhaul hours (based on their data base experience) = actual work hours
- Actual work hours are then multiplied by 10 and divided by 60 to adjust for 50-minute hours
- Then, that number (hours) is added back to the EquipmentWatch annual use hours to get the Adjusted Annual Use Hours

<u>Example for Caterpillar D9T dozer</u>:

2085 available work hours (no overtime) minus 410 typical annual downtime hours for dozer overhaul =1675 subtotal

279 = 1675 x 10/60 (correction for 50 minutes factor)

1400 recent Equipment Watch reported annual work hours for D9T

1679 hours = 1400 + 279 = adjusted Annual Use hours

This adjustment is consistent with Freeport's past CCP earthwork RCE calculations for Chino, Continental, and Tyrone Mines.

<u>References Cited:</u>

Caterpillar, Inc. (2018). Caterpillar Performance Handbook, Edition 48. Peoria, Illinois: Caterpillar, Inc.
Penton Media. (2019). EquipmentWatch Construction Estimator. Retrieved from EquipmentWatch: https://equipmentwatch.com

Appendix B.5 Direct Quotes, Layne Christensen Company. The quoted exploration borehole plugging cost is approximately $10.47 per foot, however additional quotes from Wilcox Professional Services (provided in a 2011 letter) that range from $15.75 to $23.83 per foot are included in Appendix 8.5. Please provide justification for use of the Layne Christensen Company quote instead of an average per foot cost from all the quotes provided. MMD believes that some wells may require a more detailed plugging plan of operations than an exploration borehole. Older wells may require ripping, drilling, removing or cutting casing for an adequate seal of the annulus to limit hydraulic connections and subsurface pathways. Generally, undamaged, properly sealed wells should have less complexity during plugging except when adjacent wells may be impacted from sealant flowing beyond the sand/gravel filter pack of the plugged well.

Telesto Solutions, Inc. recently obtained a quote from Layne, A Granite Company (formerly Layne Christensen Company) for plugging wells and exploration boreholes. The quote is attached (Attachment 2). The cost information yields $18.17/ft. for abandonment which includes plugging cased wells. This updated cost will be included in the RCE, with the following note added "Unit cost of $18.17/ft. is based on a direct quote from Layne, A Granite Company (formerly Layne Christensen Company) for a total of 172,631 ft. of well and exploration borehole abandonment over 300 days (575 ft/day); the unit cost includes 1 mobilization ($15,000) and 1 demobilization ($15,000) spread over 300 days at 575 ft/day".

NPV Calculation

2. *Attachment 2, NPV Calculation and Supporting Information, Escalation and Discount Rates.*
   Chino cites a preference for the longest possible data sets for escalation (35-100 years) and discount (43-46 years) rates, and these inputs calculate a net discount rate per year of cash flow. While the larger data sets are useful for evaluating historical trends, MMD and NMED recommend using a time period of the last 25 years for geometric means of escalation and discount rates. Please provide an updated NPV calculation using the revised escalation and discount rates.

The Agencies' recommendation to use the last 25 years of data is arbitrary and no justification is provided to support why that period is expected to be more representative of future inflation and investment performance than the longer period of record that Chino proposed and was agreed to by the Agencies in the past. Chino's justification for using the proposed rates include: 1) the cost estimate is for a long-term project (over a period of 100 years) and therefore using an average of the selected indices for the maximum years available (up to 100 years) is the most appropriate approach in our view; we do not believe it is appropriate to arbitrarily choose a shorter historical time horizon, as this would be inconsistent with guidance; 2) the intention of using long historical periods is to smooth out short-term fluctuations; and 3) Chino followed Agency guidance including the specific discount rate indices recommended for years 1-10 and years 11-100.

3. *Attachment 2, NPV Calculation Flow Sheet. The duration of earthwork includes the major capital expenditures, and this interval should track the usage of the short-term discount rate. Please update the NPV calculation to be consistent with 1-20 years of earthwork and 21-100 years of long-term costs.*

We disagree with your argument that the short-term time frame should match or be consistent with the number of years capital is expended for earthwork. This is not consistent with your guidance, which clearly indicates that short-term expenditures are all expenditures that occur in years 1-10 of reclamation work. The short-term rate is intended to take into consideration the rate funds could be invested for a shorter duration of 10 years. For longer periods of time, it is appropriate to use longer term discount rates. It is illogical to base the use of short-term vs. long-term discount rates on the period of the capital expenditures. Using that approach, if the capital spend is over 75 years, we would be required to use a short-term discount rate for that 75 year period. In summary, applying short-term interest rates for a period of 20 years would not be logical or appropriate in Chino's opinion.

NMED Comments

1. *Section 6.2.4 of Attachment 2, Chino Mine Closure/Closeout Plan Update, Basis of Cost Estimate for Water Management and Treatment, dated March 18, 2019, discusses the replacement, operation and maintenance ("O&M"), and routine maintenance costs associated with the proposed short and long-term water management and treatment systems. FMI states that routine maintenance costs are set at 1.5% annually of the total capital costs for each component of the water treatment systems with the exception of the Sludge Disposal Facility and Salt Disposal Facility. The replacement O&M costs are set at 1.5% annually for the South Treatment System ("STS"). In Attachment B, STS Direct Cost Cash Flow by Year in Current Cost Dollars, the table shows that 1.0% has been allocated for replacement O&M and 1.5% for routine maintenance. This is not consistent with what is stated in Section 6.2.4. The replacement O&M should be 1.5%. Please update the table to reflect this. In addition, labor costs as shown in the STS Direct Cost Cash Flow by Year in Current Cost Dollars table, indicate that labor costs decrease approximately 50% by year 16. Please provide the rationale for significantly decreasing labor costs by year 16.*

The replacement O&M was inadvertently set at 1% in Attachment B, STS Direct Cost Cash Flow in the Current Cost Dollars table. The replacement O&M has been revised from 1 to 1.5% to be consistent with the text in Section 6.2.4 of Attachment 2. An updated spreadsheet will be submitted once the NPV is agreed upon.

Justification for the labor costs presented in the STS Direct Cost Cash Flow in the Current Cost Dollars table is as follows:
Labor cost and crew size in the first few years of operation is based on the sludge production and lime demand of the influent flow to the STS and the influent sulfate. These values are highest in the first year of operation (Year 6) and the labor effort/estimate for that year form the basis for the labor in Years 6 through 15. Operations in year 6 require round the clock operators to run the filter press to dewater sludge. From Year 6 the flow

and sulfate in the influent decrease annually, however, the labor requirement is only stepped down when the sludge and lime demand are approximately half of the Year 6 values. This occurs in Year 16. Dewatering can be achieved in one 12-hour shift and so the operations labor requirement was reduced in one step at that year and it was assumed that the plant could operate unmanned for 12 hours per day. To achieve the round the clock coverage in Year 6 required 4 hours of scheduled overtime per week and in Year 16 each operator has only 2 hours of scheduled overtime per week. Therefore, Chino is not arbitrarily reducing labor costs. It is based on the actual scope of work and timeline for reducing the load to the treatment system. Furthermore, already Chino took a conservative/simplified approach by maintaining the labor for Year 6 and applying it to all subsequent years through year 15, even though the influent contaminant load is decreasing.

Please contact Ms. Rita Lloyd-Mills at (575) 912-5778 if you have any questions regarding this submittal. Chino also recommends that perhaps a dialogue between financial managers of Freeport-McMoRan Inc. and those of the State Agencies may help to resolve the path forward on the NPV matters discussed above.

Sincerely,

Sherry Burt-Kested, Manager
Environmental Services

SBK:rlm
20190730-002
Enclosures

From: Yamauchi, Takako [mailto:TYamauchi@equipmentwatch.com]
Sent: Wednesday, February 17, 2010 6:32 PM
To: Terry Fairbanks
Subject: RE: Discrepancy between the Equipment Watch web and book versions?

Mr. Fairbanks,

Thank you for your inquiry.

Actually, they are different products and the Custom Cost Evaluator is basically, a cost breakdown of the Rental Rate Blue Book.

The difference between the two products is that the Cost Reference Guide book does not include any allowance for salvage value and sales tax and the CCE (web version) does. The Annual usage in the CCE (like the Blue Book) for the ownership costs are based on average contractor seasons (hrs/yr). The CRG costs are distributed over 2,112 hours in a year.

I have attached a letter than describes the differences between the Cost Reference Guide and Blue Book (CCE is a breakdown of Blue Book costs). Please also review the online User Guide for the CCE and the Introduction of the Cost Reference Guide for more detailed explanations and formulas. This also attached to this e-mail.

I hope this helps. Please contact me if you have any questions.

Sincerely,

Takako Yamauchi
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From: Terry Fairbanks [mailto:tfairbanks@telesto-inc.com]
Sent: Tuesday, February 16, 2010 3:26 PM
To: Yamauchi, Takako
Subject: Discrepancy between the Equipment Watch web and book versions?

Hi Takako,

We noticed that there is a large difference between the D11R costs available on the Equipment Watch web and the book versions (both dated 2nd Half 2009). Could you help us to understand the apparent discrepancy? Below is a table that enumerates the differences for the D11R. I have also attached printouts from the web and book for the D11R.

Thanks for your help,

Terry

D11R	Book	Web

	($/hr)	($/hr)
Dep	67.91	87.05
CFC	27.67	41.74
I	28.12	42.43
Labor	8.99	13.56
Parts	53.63	80.91
Sub-Total	186.32	265.69
Field Labor	10.52	15.87
Field Parts	52.24	78.8
Elec/Fuel	65.45	65.45
Lube	18.83	18.83
Tires	0	0
GEC	8.22	12.4
Sub-Total	155.26	191.35
Total	341.58	457.04
Delta	115.46	

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This letter explains the applications and differences of the Rental Rate Blue Book and Cost Reference Guide. It provides a general description of each product and its common applications, and then give some specific information regarding adjustments and methodology for each.

Cost Reference Guide:
The CRG (Cost Reference Guide) is generally used by equipment estimators or equipment managers to try and determine accurate ownership & operating costs for owned machinery. CRG hourly costs are considered "raw average" data and provides for costs that need to be collected over the life of the machine to recover one's initial investment.

In using the CRG, actual equipment cost history provides the estimator with a base of "real" data to blend into CRG's average data. The result should be a very accurate hourly cost for owning & operating a machine. However, adjusting the published CRG information is necessary regardless of whether actual cost histories are used or not. The reasons are explained in the Introduction, but to give you the idea, I'll list some examples of necessary adjustments that we recommend:

1.) Annual Usage: CRG costs are distributed over a 2112 hour year. The user of CRG must recalculate ownership costs based on "actual" hours worked per year. Contractors rarely experience seasons that put over 2,000 hours on a machine. Adjusting the ownership costs to account for shorter seasons (e.g. 9 months-or 176 hrs./month x 9 = 1,584 actual hours) effectively increases the hourly rates since the same costs must now be collected over a shorter period. Failure to adjust ownership costs in this way will give an inaccurate estimate of costs based on hours of operation, and could lead to losses in the equipment portion of a job estimate or life-cycle cost analysis.

2.) Depreciation: Costs are based upon a mfrs. list price and there is not any allowance for trade-in or salvage value at the end of the machine life. Most modern methods of equipment cost estimating do take this into account as it is a means to lower the actual depreciable price. Therefore, a user should make adjustments for actual "acquisition price" paid vs. list price, and trade-in costs. Additionally, economic life is a key in estimating depreciation. If a machine operates in severe conditions, the CRG economic life hours would be lowered in most cases to account for increased wear and a quicker reduction in the machine's value over time.

3.) Mechanic's wages & fuel: CRG costs for repair labor are based on national averages for a mechanic's wage (including fringe benefits). The number we use must be replaced with the cost of your mechanic's wages to determine "actual" repair labor costs. The same is true of fuel costs. We currently use a cost of $2.33 per gallon for diesel fuel to calculate hourly fuel costs. Obviously, a charge for hourly fuel should be based on the "actual" local fuel prices one would pay.

As you can judge from these few examples, CRG requires extensive manipulation to arrive at costs that reflect equipment costs based on "actual" data. CRG is not a product that should be used "as-is", unless one has determined that our average data (hours, fuel, labor, etc.) is representative of real conditions and costs.

Rental Rate Blue Book:

The most common application of Blue Book is in negotiating payments for costs of contractor-owned equipment on a job, claim, change, etc. Some contractors use it for charging internal rates for their equipment use or in renting to outside parties during idle periods. However, since 48 of the 50 states in the U.S. specify or refer to Blue Book for change orders, force account, etc., it is obviously an industry standard in negotiating costs for equipment usage by contractors. Additionally, the Blue Book is accepted by the FHWA for usage on federal-aid projects.

Blue Book is designed to allow for collecting "estimated" equipment costs and making such detailed adjustments as mentioned above for CRG are not required. It is expected, however, that using Blue Book correctly will also allow the contractor-owner to recover equipment related costs over the machine life. It is simply impossible for job owners, state & local governments, etc. to take the time to request copies of the contractor's actual equipment cost records for the purposes of analyzing the data to arrive at an equitable and accurate equipment rate. In lieu of this long process where CRG would provide a base, governmental agencies have opted to specify Blue Book along with certain kinds of adjustments to the published costs. To show how Blue Book differs from CRG, I'll cover the same cost elements as I have for adjusting CRG:

1.) Annual Usage: Blue Book ownership costs (monthly, weekly, daily, & hourly rates) are based on average contractor seasons. EquipmentWatch bases this data upon surveys of contractors across the U.S. The 1,584 annual hours given as an example above, represent the way in which Blue Book costs are already adjusted for average annual usage of equipment. Further adjustments to account for variations in climate that affect working seasons can be made using the "Regional Adjustment Maps".

2.) Depreciation: Blue Book uses the manufacturer's suggested list price to calculate costs for depreciation just like CRG. However, there is an allowance built into the calculation for trade-in. This is generally between 5% and 30% depending on the type of equipment. If one wanted to reduce depreciation costs to reflect "acquisition", they could use the "Rate Element Tables" provided in any of the sections. Also, to reduce depreciation to account for the age of equipment and the differences in prices between the years of manufacture, one simply looks up the adjustment for the year of manufacture in the "Rate Adjustment Tables". These are specified in using Blue Book for federal-aid projects.

3.) Labor & Fuel prices: These are costs that are seldom adjusted using the Blue Book. Because Blue Book rates are listed as totals (e.g. Monthly), it's generally not practical to begin adjusting such costs that are necessarily combined with other cost elements. In other words, gross percentages could be used to increase/decrease operating costs, etc., but it would be wiser to use the CRG at this point and adjust at a more detailed level.

I hope this explanation of the differences between Blue Book and CRG has been helpful in providing you with the correct understanding of each book and it's most practical application and purpose.

Fred Charles

From: Medhurst, Audie <Audie.Medhurst@gcinc.com>
Sent: Tuesday, July 9, 2019 1:38 PM
To: Fred Charles
Subject: RE: request for cost information - well/exploratory borehole abandonment

Hi Fred
The information as written in the mail below is correct
Thank you
Audie

Audie Medhurst
General Manager
Mineral Services Division

12030 E Riggs Road
Chandler AZ 85249

Direct: 602-824-0934|**Cell:** 602-359-3010
Email: Audie.Medhurst@gcinc.com

www.graniteconstruction.com

From: Fred Charles <fcharles@telesto-inc.com>
Sent: Tuesday, July 9, 2019 11:12 AM
To: Medhurst, Audie <Audie.Medhurst@gcinc.com>
Subject: request for cost information - well/exploratory borehole abandonment

Hi Audie (with Layne, A Granite Company – formerly Layne Christensen Company). Thanks for the updated cost information you provided for abandonment of wells and boreholes. Please confirm the following is correct in an email reply to me. We will include this email in documentation we provide to the State for the reclamation cost estimate.

Estimate 7000.00 per day rig time- estimate 300 days to complete. $2,100,000.00

Estimate 6.00 per foot abandonment material costs. $ 1,035,786.00

Mob 15,000.00
Demob 15,000.00

As I communicated with you, the estimated costs reflect requirements for the work which include:

1. All work done in conformance with New Mexico requirements/guidance
2. Costs include mobilization/demobilization (site is in Grant County, NM), which includes moving between wells assumed at 1,000 ft apart
3. Costs include labor, equipment, and materials
4. Wells/boreholes will be plugged and abandoned from bottom of hole to the surface – total well lengths and diameters are combined for monitoring wells and exploration boreholes, as follows:
   - 2-inch diameter PVC – 431 ft total well length
   - 4-inch diameter PVC – 102,876 ft total well length
   - 5.5-inch diameter PVC – 63,240 ft total well length

- 6-inch diameter PVC – 6,084 ft total well length

Thanks,

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