



May 23, 2019

The Honorable Ron Johnson
Chairman, Committee on Homeland Security
and Governmental Affairs
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

Thank you for your letter of November 30, 2018 on behalf of the Committee on Homeland Security and Governmental Affairs (Committee) requesting additional information from the Department of Commerce (Department) regarding the Section 232 product exclusion process. I appreciate this opportunity to provide the Committee with information on this important topic.

The Department has diligently worked to continuously improve its exclusion process to ensure that tariffs and quotas under Section 232 protect our national security while also minimizing undue impacts on downstream American industries. Two components within the Department work closely together in these efforts — the Bureau of Industry and Security (BIS) and the International Trade Administration (ITA). BIS is the lead agency which renders final decisions on requests for exclusion from the tariffs and quotas on steel and aluminum imports, and ITA analyzes exclusion requests with objections to determine whether domestic production capacity can support the product needs of exclusion requesters.

As of April 1, 2019, the Department had received 83,301 steel and aluminum exclusion requests (including resubmissions) and received more than 41,128 objections, rebuttals, and sur-rebuttals to exclusion requests. The Department began issuing its product exclusion decisions on June 20, 2018 and posted 36,785 decisions as of April 1. Of those 36,785 decisions, 27,520 granted exclusions and 9,265 denied exclusions. Further, the Department had 35,175 active exclusion requests before it, with 21,167 in initial intake process, 7,156 in the objection, rebuttal and sur-rebuttal process and 6,852 pending final determination.

An additional 11,341 requests were rejected because they contained incorrect or incomplete information. More than 5,000 of the rejections were due to incorrect Harmonized Tariff Schedule of the United States (HTSUS) product classifications. The Department has since implemented process changes to alert companies requesting exclusions that their requests contain incorrect HTSUS classifications before their requests enter the objection process. These changes alert the companies to the HTSUS error early in the process and allow them to promptly file a corrected exclusion request. In addition, on September 11, 2018, the Department published an interim final rule amending its March 2018 product exclusion regulation to establish procedures for parties to submit rebuttals and sur-rebuttals to the exclusion requests. The new procedures were effective upon publication. The revised procedures further ensure a well-informed review process. The Department is also launching a new information intake system that has been

specifically designed and developed for product exclusions and incorporates features that will improve transparency and decrease the average length of time from the filing of an exclusion request to a final decision. This new “Exclusions Portal” is expected to launch in June 2019. In your letter, you requested information pertaining to the four topics listed below:

1) Data on market prices for steel and aluminum (2008-2018)

The Department tracks publicly available steel and aluminum price data obtained from the Steel Benchmark¹ and the London Metal Exchange,² respectively. The Steel Benchmark data include both U.S. domestic and international steel prices.³ The London Metal Exchange (CRU) data are only available for international spot market aluminum prices. Attached in Appendices A and B are pricing data the Department has downloaded from these sources.

Figure 1 demonstrates that U.S. steel prices are generally higher than steel prices in other major markets. Figure 1 also shows that steel prices in Summer 2018, immediately after the imposition of the Section 232 tariffs and quotas, peaked at a level below historic highs, and have dropped steadily since then. More specifically, according to the Steel Benchmark, the average price of steel in the United States (\$704 per metric ton (MT)) was approximately 30 percent higher than world prices in March 2017 (\$530/MT). By July 2018, U.S. prices (\$1,006/MT) were 70 percent higher than world prices (\$593/MT). Most recently, in March 2019, U.S. prices (\$781/MT) were 43 percent higher than world prices. This decline is expected to continue. *See Appendix A.*

For aluminum, according to the London Metal Exchange, the price of aluminum increased from \$1,946/MT in March 2017 to \$2,068/MT in March 2018, a 6 percent increase (see Figure 2). From March 2018 to August 2018, aluminum prices decreased by 3 percent to \$2,012/MT. Since then, the price of aluminum has further decreased by 6 percent to \$1,898/MT in March 2019. *See Appendix B.*

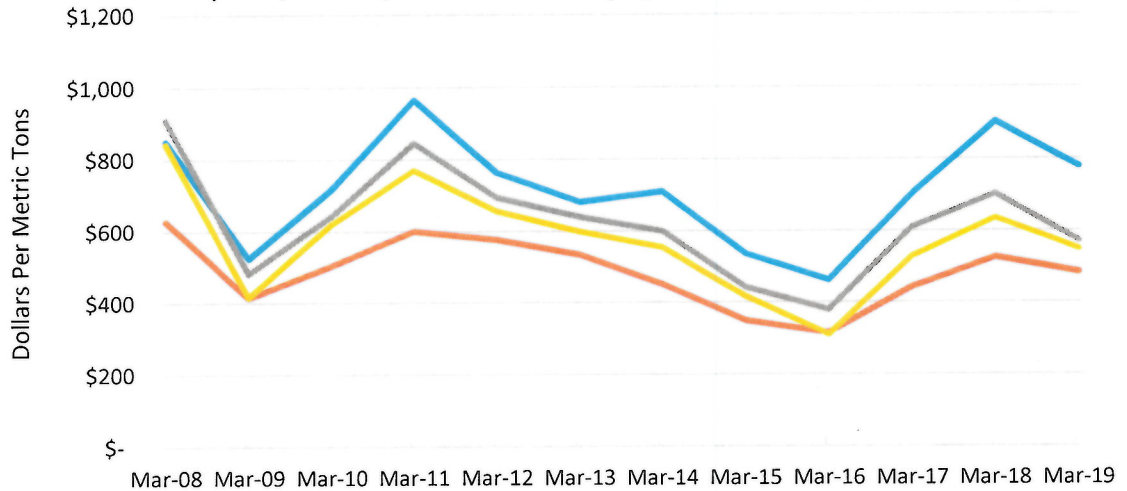
As additional U.S. production capabilities continue to be realized for both steel and aluminum, U.S. prices should continue to moderate. The Department continually monitors steel and aluminum pricing and potential impacts on domestic industry.

¹ Steel Benchmarker is a global steel benchmark pricing system.

² The London Metal Exchange is a reputable organization that provides comprehensive market data for metals.

³ Hot-rolled band steel price data are an industry standard used for general steel prices.

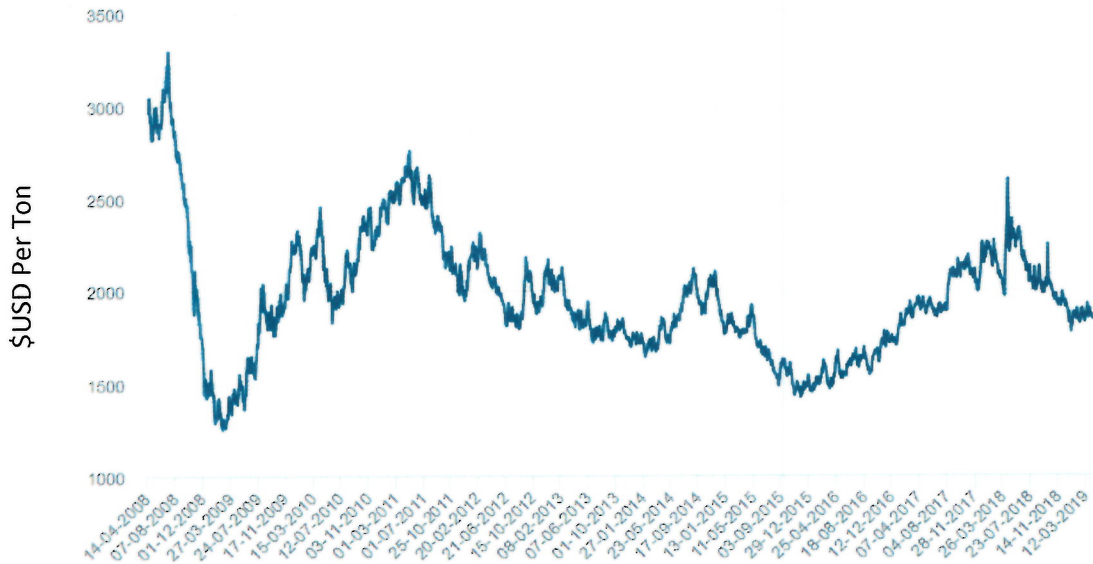
Figure 1: Hot-Rolled Band Average Year-to-Date Price (March)
in Dollars per Metric Ton
(USA, China, Western Europe, and World Export Price)



	Mar-08	Mar-09	Mar-10	Mar-11	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17	Mar-18	Mar-19
USA	\$850	\$523	\$718	\$964	\$763	\$681	\$708	\$534	\$462	\$702	\$902	\$777
China	\$628	\$415	\$506	\$600	\$576	\$534	\$452	\$351	\$315	\$442	\$524	\$483
Western Europe	\$909	\$483	\$643	\$845	\$694	\$639	\$599	\$442	\$380	\$609	\$701	\$570
World Export Price	\$843	\$417	\$621	\$770	\$656	\$598	\$554	\$418	\$310	\$527	\$634	\$547

Source: Steel Benchmarker

Figure 2: London Metal Exchange Historical Price Graph of
Aluminum Cash Prices 2008 – 2018 Quarterly



Source: London Metal Exchange

2) Data on steel and aluminum tariffs

In your letter, you requested additional data about the steel and aluminum tariffs, including data provided by steel companies and aluminum companies in their objections to Section 232 exclusion requests. In addition to the requested data on objections, I have provided information from steel and aluminum exclusion requests for context.

Steel:

As of April 1, 2019 (the most updated data available at the time of analysis), the Department had received 47,471 steel exclusion requests that reached or passed the objection stage of the filing process. These 47,000 plus filings contained requests for 65.9 million metric tons of steel to be excluded from tariffs or quotas, an amount that is more than twice the 30.6 million metric tons of steel the U.S. imported in all of 2018, and nearly 90 percent higher than the level of imports in 2017.

U.S. steel producers objected to 28 percent of the total number of requests, accounting for 57.5 million metric tons, indicating they were able to produce some or all of this amount of steel domestically. The three U.S. steel producers identified in your letter – Nucor, AK Steel, and U.S. Steel – filed objections on 50.5 million metric tons of exclusion requests. Based on information provided in these companies' SEC filings, the total cumulative U.S. production capacity of these three companies in 2018 was approximately 58.6 million metric tons of steel.

Moreover, as there is significant overlap in the objections made by Nucor, AK Steel, U.S. Steel, and other objecting steel producers, aggregating their production volumes based on the quantities listed in their filed objections will not provide a complete picture of the capabilities of the domestic steel industry. When two or more companies object to the same exclusion request, the amount of domestic steel production capacity provided in response to each exclusion request is necessarily double-counted, triple-counted, or otherwise overstated. Additionally, many companies requested exclusions for far more steel than they have historically imported. One company in particular requested exclusions for nearly 30 million metric tons of steel, significantly above their typical annual usage. Objections by one domestic producer to this company's requests account for two-thirds of the total volume of requests to which the domestic producer objected.

Removing data associated with this exclusion request and objection, AK Steel objected to 7.6 million metric tons of requests, Nucor objected to 11.5 million metric tons of requests, and U.S. Steel objected to 18.4 million metric tons of requests, all of which in total are still below their publicly reported estimated production capacities (a combined 58.6 million metric tons of steel in 2018). Additionally, total U.S. steel capacity in 2018 was 110 million metric tons compared to total U.S. demand for steel in 2018 at approximately 100 million metric tons. With added capacity since the implementation of the Section 232 tariffs and quotas, domestic steel producers continue to be well-positioned to support U.S. demand.

That said, should a company with a denied exclusion request be able to demonstrate that a domestic supplier is unable or unwilling to provide steel at the sufficient quantity or quality

requested, that requester has the ability to alert the Department and file a new exclusion request. The new exclusion request may include information about breached contracts or unsuccessful negotiations with the objector(s) for steel deliveries and this new information, if submitted, will be factored into the Department's decision on the exclusion.

Aluminum:

As of April 9, 2019 (the most updated data available at the time of analysis), the Department had 6,937 aluminum exclusion requests that had reached or passed the objection stage of the process. These 6,937 filings contained requests for 10.1 million metric tons of aluminum to be excluded from tariffs or quotas, roughly 60 percent more than the 6.1 million metric tons imported to the U.S. in all of 2018. U.S. aluminum producers objected to 14 percent of these requests, accounting for 6 million metric tons, indicating they were able to produce some or all of this amount of aluminum domestically.

The aluminum products covered by the Section 232 tariffs and quotas are more heterogeneous than the corresponding steel products, making broad capacity comparisons difficult. However, restricting the analysis to primary aluminum (HTSUS 7601) allows for a more straightforward comparison. The Department has received requests for exclusion for 1.38 million metric tons of primary aluminum, with 1.36 million metric tons receiving corresponding objections. Based on data from the Section 232 Report, cumulative U.S. domestic capacity for production of primary aluminum is approximately 1.82 million metric tons.

Industry Impact Assessments Including Capacity Utilization and Downstream Effects:

ITA and BIS are continuously analyzing the economic effects of the steel and aluminum tariffs and quotas on downstream industries and consumers. Based on data available from June 2018 through December 2018, employment, production and exports have increased in most U.S. downstream industries, notwithstanding the increases in steel and aluminum input prices during much of this time period. Importantly, as steel and aluminum prices are now facing a decline, it is expected that downstream industries will experience an improvement in input costs and thereby an even greater improvement in their competitive positions in the U.S. and global marketplace.

In addition, the Department is also analyzing the effects of the tariffs and quotas on capacity utilization of domestic producers, including anticipated production volumes associated with new facilities, to inform its ongoing assessment of the impact of steel and aluminum imports on U.S. national security pursuant to Section 232. As part of this effort, the Department will soon seek input directly from the steel and aluminum industry on their growth and long-term viability.

3) Factors the Department considers in evaluating tariff exclusion requests

The merits of exclusion requests and associated objection, rebuttal, and sur-rebuttal filings are evaluated on a case-by-case basis, based on the factual information provided in the filings. The exclusion requestors and objection filers must provide detailed information for all relevant products, whether of domestic or foreign origin, including metal composition, strength, hardness,

ductility, engineering standards, and other information. Failure to provide this information can be a basis for rejecting the exclusion request or objection filing.

Further, significant deviation from required specifications for a steel product, such as pipe length in steel pipe, can be a basis for rejecting an exclusion request or finding an objection insufficient where these differences are critical factors in determining the suitability of the product. For example, longer pipes, while reducing the number of weld joints, are not without risk and vulnerability as there is greater lateral stress on longer pipes relative to shorter pipes. However, welding of pipes can be and is performed to meet widely accepted industry standards. Factors such as differences in product specifications, which might raise environmental or safety concerns, are considered as part of the Department's inquiry into whether a substitute product that meets the requisite quality standards is available within eight weeks in sufficient quantity in the United States.

Declarations of steel product quality and specifications that are made by companies submitting exclusion requests and objection filings are certified as truthful under penalty of law by the submitting parties and are assumed to be correct, unless screening by BIS and ITA detect questionable information. The exclusion filings and responses (objections, rebuttals, and sur-rebuttals) are public documents available for the public to scrutinize. Serious omissions and inaccuracies are usually flagged quickly by customers and competitors alike and are directly addressed via the rebuttal and sur-rebuttal process. Further, and as noted above, the Department is committed to taking all steps as necessary to ensure the integrity of this very important process.

4) Information about the Department's process for evaluating tariff exclusion requests

The Department continues to work diligently to evaluate Section 232 exclusion requests fairly and effectively, and to continuously improve the exclusion process to minimize impacts on downstream U.S. industries. In response to feedback from companies requesting exclusions and concerns raised by members of Congress, the Department implemented a rebuttal/sur-rebuttal process through an interim final rule promulgated on September 11, 2018. This allowed companies requesting exclusions to respond to objections by filing a rebuttal, and for objectors to provide an additional response as a sur-rebuttal. These additions to the process necessarily involve an extension of the time period required to reach a decision, as the rebuttal and sur-rebuttal each add seven days, plus the time necessary to process each new submission and the additional information contained therein.

The Department held a total of 6,428 steel exclusion requests and 216 aluminum exclusion requests that were submitted prior to the implementation of the rebuttal/sur-rebuttal process from moving forward until the rule allowing these requesters to provide rebuttals to objections was published. For exclusion requests submitted in April 2018, objection periods closed in May 2018, and these cases were then re-opened for rebuttal and sur-rebuttal in September 2018 following the implementation of the September 11 interim rule to ensure a more robust administrative record. While the Department initially planned to post decisions on these cases at the end of December, the lapse in appropriations delayed posting until January 30, 2019.

Based on these circumstances, as of April 1, 2019, the process takes an average of 122 days from the time of filing to post final decisions for steel exclusion requests with no objections, and 235 days (this includes an average of 74 days held for the rebuttal process and 35 days due to the lapse in appropriations) for those with objections. For aluminum exclusion requests, the process takes an average of 154 days from the time of filing to post final decisions for requests with no objections and 186 days for those with objections. Requesters with approved exclusion requests are eligible to receive a refund for Section 232 steel and aluminum tariffs paid since the date such exclusion requests were submitted to Regulations.gov.

As noted above, as of April 1, 2019, the Department has received a total of 83,301 exclusion requests (72,738 steel and 10,563 aluminum), and 41,128 objections, rebuttals, and sur-rebuttals (37,584 steel and 3,544 aluminum). Of these 41,128 response filings, 23,363 were properly submitted objections (22,225 steel and 1,138 aluminum), 10,139 were properly submitted rebuttals (9,546 steel and 593 aluminum), and 5,224 were properly submitted sur-rebuttals (4,887 steel and 337 aluminum). The remaining 2,402 improperly submitted objections, rebuttals, and sur-rebuttals were not considered by the Department.

The Department considers the decisions on exclusions to be final agency actions subject to judicial review under the Administrative Procedures Act.

Effective at the beginning of 2019, exclusion requests are reviewed by U.S. Customs and Border Protection (CBP) at the front end of the process to confirm the HTSUS classification of the product. When CBP confirms the accuracy of the classification, the requests are then reviewed for completeness by BIS and either publicly posted for objection or rejected. If a request is rejected based on CBP review or an incomplete filing, BIS contacts the requesting company informing it of the rejection and its ability to refile immediately. This process allows for rapid notification to a company that its request is not administrable by CBP or contains errors that make it an incomplete filing. This process has the effect of increasing initial rejections but decreasing the number of final denials.

Posted requests that satisfy the criteria for an exclusion, receive no objections after the 30-day objection period, and present no national security concerns, are granted. Requests that receive objections are subject to the rebuttal/sur-rebuttal process. ITA reviews those requests and provides to BIS its recommendations. The Deputy Assistant Secretary of Commerce for Export Administration and the Director of the Office of Strategic Industries and Economic Security within BIS are the decision-makers on all requests to date, which has added an additional layer of consistency to the standard of review.

5) Additional Information

In addition to the information provided in response to your inquiries, I wanted to provide you with additional information on the exclusion process and related activities of the Department. As you know, the Department continues to work diligently to evaluate Section 232 exclusion requests fairly and effectively, and to continuously improve the exclusion process.

Portal:

Based on a collaborative effort from both ITA and BIS, the Department's website will host a dedicated Section 232 Exclusions Portal that will substantially streamline the exclusion process, provide transparency to all external stakeholders, and increase system security. The new Exclusions Portal will provide users with a real-time status on each of their exclusion requests, so they can follow the progress of their exclusion requests and have greater visibility into the process. The Exclusions Portal will provide the Department with enhanced reporting capabilities and the ability to monitor and track the real-time status of each exclusion request from initial submission to decision.

The Exclusions Portal utilizes web-based forms for exclusion requests, objections, rebuttals, and sur-rebuttals. These web-based forms will allow the Department to ensure that data entered by users do not contain errors or invalid inputs. The web-based forms have also been programmed to provide additional data and field validation which will ensure that exclusion requesters submit complete data during their initial submission. Based on previous experience handling industry email and phone call inquiries requesting guidance, the Department has added examples and explanatory texts to certain sections of the web-based forms to assist industry in completing their submissions.

The Exclusions Portal will also allow for better and more timely collaboration between government agencies that contribute to the processing of Section 232 exclusion requests. The current Section 232 exclusions process for steel and aluminum is implemented on three separate web portals: Regulations.gov, FDMS.gov, and MAX.gov. These separate online systems require BIS, ITA, and CBP to expend extra effort verifying data submitted by the public and extracting, editing, and manually sharing data, which can lead to delays and slower adjudication of exclusion requests. The Exclusions Portal will modernize the Section 232 exclusion process by using one unified system that will increase transparency, expedite government agency collaboration and result in faster processing times and decisions for industry.

The Department is planning to launch the portal in summer 2019. If the Committee is interested in receiving a private demonstration of the portal, we would be happy to arrange a time to show you or your staff the system and demonstrate its capabilities.

Small- and Medium-Sized Businesses Outreach:

BIS has posted guidance with step-by-step visual guides to assist industry, including small- and medium-sized businesses, with the exclusion process. These guides include information on how to submit exclusion requests, objections, rebuttals and sur-rebuttals. BIS also has dedicated phone numbers and email addresses for U.S. industry to seek assistance or ask questions about the filing process. The Department continues to work with industry to ensure that it has full access to the information needed to comply with the exclusion process.

As part of the Department's continued efforts to improve the exclusion process, the Department will be establishing a working group to focus specifically on issues faced by small- and medium-sized businesses and how to address their specific needs. The Department will also be designating a dedicated small- and medium-sized business liaison to ensure they receive prompt

and individualized assistance. The Department wants to ensure that these businesses are able to easily navigate the exclusion process and have all the resources available to help them do so. After the launch of the new Exclusions Portal, small- and medium-sized businesses will be able to access a variety of materials including training videos and step-by-step guides to familiarize themselves with the portal and its many features. We look forward to providing these improved materials and customer service offerings to exclusion requesters this summer.

Thank you again for your attention to these important issues. If you have further concerns or questions, please have your staff contact me at (202) 482-3663.

Sincerely,



Charles Kolo Rathburn
Performing the duties of the
Assistant Secretary for Legislative and
Intergovernmental Affairs

Attachments

Appendix A: Steel Historic Price Data

Appendix B: Aluminum Historic Price Data

Appendix A:

SteelBenchmarker™ Data (2008 - Present)				
HRB (US\$ per metric tonne)				
	USA	China	Western Europe	World Export Price
Jan-00	\$352	\$261	\$275	\$314
Feb-00	\$361	\$266	\$285	\$324
Mar-00	\$361	\$271	\$288	\$324
Apr-00	\$361	\$278	\$291	\$333
May-00	\$360	\$287	\$295	\$315
Jun-00	\$360	\$285	\$298	\$294
Jul-00	\$339	\$283	\$289	\$274
Aug-00	\$318	\$288	\$279	\$254
Sep-00	\$297	\$281	\$270	\$234
Oct-00	\$283	\$283	\$258	\$215
Nov-00	\$269	\$285	\$245	\$195
Dec-00	\$255	\$279	\$233	\$175
Jan-01	\$260	\$277	\$239	\$182
Feb-01	\$265	\$277	\$245	\$190
Mar-01	\$267	\$275	\$249	\$195
Apr-01	\$268	\$274	\$253	\$200
May-01	\$270	\$275	\$257	\$205
Jun-01	\$267	\$273	\$252	\$201
Jul-01	\$264	\$272	\$246	\$197
Aug-01	\$261	\$270	\$241	\$193
Sep-01	\$258	\$270	\$235	\$190
Oct-01	\$249	\$261	\$220	\$185
Nov-01	\$240	\$257	\$204	\$180
Dec-01	\$230	\$252	\$189	\$175
Jan-02	\$283	\$247	\$192	\$188
Feb-02	\$299	\$247	\$195	\$201
Mar-02	\$308	\$247	\$198	\$214
Apr-02	\$371	\$298	\$205	\$249
May-02	\$376	\$308	\$211	\$255
Jun-02	\$377	\$329	\$217	\$274
Jul-02	\$382	\$351	\$227	\$282
Aug-02	\$393	\$355	\$244	\$288
Sep-02	\$396	\$357	\$265	\$294
Oct-02	\$382	\$365	\$265	\$296
Nov-02	\$365	\$371	\$272	\$300
Dec-02	\$338	\$383	\$294	\$319

Jan-03	\$338	\$391	\$326	\$332
Feb-03	\$329	\$393	\$352	\$352
Mar-03	\$316	\$322	\$352	\$323
Apr-03	\$299	\$298	\$355	\$290
May-03	\$283	\$283	\$355	\$265
Jun-03	\$288	\$308	\$360	\$250
Jul-03	\$310	\$324	\$349	\$280
Aug-03	\$310	\$319	\$338	\$278
Sep-03	\$321	\$339	\$354	\$275
Oct-03	\$332	\$355	\$360	\$288
Nov-03	\$364	\$372	\$365	\$310
Dec-03	\$397	\$401	\$376	\$350
Jan-04	\$453	\$447	\$407	\$405
Feb-04	\$540	\$485	\$421	\$421
Mar-04	\$566	\$476	\$521	\$524
Apr-04	\$573	\$478	\$536	\$559
May-04	\$590	\$375	\$538	\$524
Jun-04	\$650	\$391	\$558	\$494
Jul-04	\$664	\$438	\$560	\$534
Aug-04	\$827	\$462	\$565	\$598
Sep-04	\$809	\$472	\$577	\$624
Oct-04	\$734	\$468	\$635	\$624
Nov-04	\$690	\$483	\$640	\$601
Dec-04	\$684	\$503	\$717	\$599
Jan-05	\$684	\$508	\$645	\$574
Feb-05	\$665	\$512	\$650	\$574
Mar-05	\$624	\$556	\$641	\$574
Apr-05	\$610	\$531	\$613	\$539
May-05	\$560	\$490	\$602	\$479
Jun-05	\$500	\$407	\$591	\$399
Jul-05	\$440	\$377	\$558	\$389
Aug-05	\$530	\$375	\$514	\$449
Sep-05	\$600	\$375	\$480	\$474
Oct-05	\$600	\$370	\$482	\$474
Nov-05	\$605	\$300	\$470	\$424
Dec-05	\$610	\$290	\$456	\$399
Jan-06	\$605	\$296	\$465	\$419
Feb-06	\$612	\$338	\$512	\$449
Mar-06	\$620	\$352	\$520	\$519
Jan-08	\$659	\$543	\$718	\$633
Jan-08	\$706	\$544	\$713	\$693

Feb-08	\$746	\$549	\$770	\$725
Feb-08	\$785	\$604	\$834	\$767
Mar-08	\$834	\$628	\$888	\$816
Mar-08	\$865	\$627	\$930	\$870
Apr-08	\$1,003	\$657	\$1,007	\$946
Apr-08	\$1,097	\$671	\$1,066	\$995
May-08	\$1,154	\$697	\$1,088	\$1,024
May-08	\$1,158	\$704	\$1,119	\$1,051
Jun-08	\$1,166	\$719	\$1,152	\$1,076
Jun-08	\$1,187	\$717	\$1,156	\$1,097
Jul-08	\$1,184	\$733	\$1,204	\$1,111
Jul-08	\$1,203	\$721	\$1,190	\$1,113
Aug-08	\$1,189	\$687	\$1,159	\$1,077
Aug-08	\$1,159	\$636	\$1,108	\$1,006
Sep-08	\$1,122	\$640	\$1,064	\$957
Sep-08	\$1,076	\$599	\$1,005	\$899
Oct-08	\$981	\$458	\$920	\$799
Oct-08	\$886	\$408	\$852	\$702
Nov-08	\$798	\$378	\$776	\$630
Nov-08	\$696	\$396	\$620	\$595
Dec-08	\$614	\$427	\$585	\$540
Dec-08	\$592	\$437	\$576	\$502
Jan-09	\$582	\$472	\$549	\$503
Jan-09	\$574	\$485	\$547	\$480
Feb-09	\$554	\$477	\$528	\$468
Feb-09	\$550	\$436	\$511	\$444
Mar-09	\$531	\$417	\$479	\$427
Mar-09	\$515	\$413	\$486	\$406
Apr-09	\$474	\$391	\$482	\$400
Apr-09	\$453	\$400	\$453	\$395
May-09	\$443	\$416	\$460	\$394
May-09	\$429	\$421	\$466	\$396
Jun-09	\$433	\$429	\$465	\$402
Jun-09	\$461	\$447	\$491	\$446
Jul-09	\$501	\$462	\$509	\$481
Jul-09	\$522	\$492	\$528	\$507
Aug-09	\$553	\$508	\$552	\$542
Aug-09	\$566	\$462	\$570	\$546
Sep-09	\$607	\$437	\$604	\$551
Sep-09	\$616	\$415	\$606	\$545
Oct-09	\$609	\$407	\$582	\$537

Oct-09	\$592	\$430	\$588	\$503
Nov-09	\$570	\$437	\$577	\$496
Nov-09	\$553	\$453	\$571	\$502
Dec-09	\$575	\$457	\$577	\$519
Dec-09	\$590	\$473	\$574	\$534
Jan-10	\$614	\$483	\$589	\$549
Jan-10	\$646	\$468	\$605	\$574
Feb-10	\$656	\$466	\$592	\$587
Feb-10	\$670	\$473	\$600	\$596
Mar-10	\$706	\$485	\$625	\$607
Mar-10	\$730	\$526	\$661	\$635
Apr-10	\$748	\$573	\$698	\$696
Apr-10	\$772	\$574	\$742	\$718
May-10	\$776	\$567	\$742	\$716
May-10	\$760	\$535	\$728	\$684
Jun-10	\$728	\$517	\$711	\$625
Jun-10	\$708	\$511	\$697	\$593
Jul-10	\$674	\$482	\$675	\$584
Jul-10	\$637	\$515	\$678	\$588
Aug-10	\$634	\$527	\$690	\$595
Aug-10	\$640	\$521	\$683	\$604
Sep-10	\$660	\$551	\$692	\$615
Sep-10	\$653	\$539	\$692	\$623
Oct-10	\$631	\$548	\$700	\$612
Oct-10	\$607	\$539	\$694	\$607
Nov-10	\$601	\$552	\$683	\$593
Nov-10	\$618	\$552	\$668	\$595
Dec-10	\$702	\$560	\$679	\$619
Dec-10	\$752	\$576	\$696	\$655
Jan-11	\$805	\$591	\$701	\$667
Jan-11	\$851	\$614	\$753	\$705
Feb-11	\$897	\$630	\$802	\$773
Feb-11	\$932	\$614	\$815	\$772
Mar-11	\$958	\$593	\$838	\$771
Mar-11	\$970	\$606	\$852	\$769
Apr-11	\$969	\$628	\$840	\$759
Apr-11	\$951	\$633	\$830	\$731
May-11	\$916	\$636	\$832	\$732
May-11	\$877	\$634	\$815	\$728
Jun-11	\$849	\$631	\$814	\$738
Jun-11	\$834	\$620	\$798	\$718

Jul-11	\$810	\$621	\$763	\$708
Jul-11	\$770	\$630	\$761	\$693
Aug-11	\$732	\$633	\$748	\$695
Aug-11	\$731	\$637	\$753	\$710
Sep-11	\$768	\$636	\$758	\$711
Sep-11	\$767	\$617	\$721	\$707
Oct-11	\$751	\$609	\$701	\$685
Oct-11	\$732	\$555	\$698	\$656
Nov-11	\$709	\$563	\$663	\$635
Nov-11	\$730	\$557	\$652	\$612
Dec-11	\$756	\$561	\$635	\$617
Dec-11	\$774	\$562		\$619
Jan-12	\$802	\$558	\$645	\$629
Jan-12	\$816	\$560	\$662	\$643
Feb-12	\$810	\$564	\$698	\$642
Feb-12	\$786	\$566	\$700	\$645
Mar-12	\$763	\$569	\$696	\$656
Mar-12	\$763	\$582	\$691	\$655
Apr-12	\$759	\$583	\$680	\$645
Apr-12	\$754	\$583	\$681	\$651
May-12	\$738	\$570	\$680	\$643
May-12	\$716	\$552	\$655	\$630
Jun-12	\$692	\$549	\$643	\$609
Jun-12	\$670	\$546	\$629	\$595
Jul-12	\$669	\$535	\$622	\$598
Jul-12	\$683	\$498	\$614	\$588
Aug-12	\$713	\$479	\$614	\$583
Aug-12	\$727	\$462		\$579
Sep-12	\$725	\$447	\$600	\$562
Sep-12	\$692	\$475	\$625	\$542
Oct-12	\$667	\$495	\$616	\$532
Oct-12	\$652	\$498	\$612	\$534
Nov-12	\$680	\$523	\$591	\$542
Nov-12	\$693	\$520	\$600	\$546
Dec-12	\$705	\$518	\$604	\$553
Dec-12	\$702	\$525	\$628	\$553
Jan-13	\$689	\$545	\$638	\$563
Jan-13	\$688	\$549	\$661	\$578
Feb-13	\$696	\$557	\$659	\$592
Feb-13	\$676	\$553	\$655	\$608
Mar-13	\$684	\$538	\$645	\$604

Mar-13	\$678	\$529	\$633	\$591
Apr-13	\$673	\$519	\$623	\$586
Apr-13	\$660	\$511	\$620	\$573
May-13	\$647	\$499	\$617	\$553
May-13	\$637	\$484	\$602	\$546
Jun-13	\$652	\$473	\$601	\$539
Jun-13	\$668	\$473	\$606	\$537
Jul-13	\$698	\$481	\$590	\$534
Jul-13	\$702	\$492	\$588	\$546
Aug-13	\$720	\$497	\$600	\$566
Aug-13	\$720	\$503	\$594	\$570
Sep-13	\$718	\$500	\$603	\$577
Sep-13	\$717	\$491	\$610	\$573
Oct-13	\$723	\$488	\$607	\$556
Oct-13	\$729	\$480	\$611	\$555
Nov-13	\$734	\$482	\$611	\$557
Nov-13	\$736	\$476	\$601	\$559
Dec-13	\$738	\$476	\$611	\$564
Dec-13	\$744	\$477	\$608	\$565
Jan-14	\$744	\$477	\$608	\$563
Jan-14	\$743	\$475	\$610	\$564
Feb-14	\$736	\$474	\$605	\$562
Feb-14	\$722	\$467	\$599	\$560
Mar-14	\$704	\$456	\$604	\$557
Mar-14	\$712	\$448	\$593	\$550
Apr-14	\$749	\$459	\$595	\$551
Apr-14	\$756	\$455	\$593	\$553
May-14	\$756	\$454	\$593	\$552
May-14	\$763	\$451	\$589	\$552
Jun-14	\$750	\$452	\$581	\$556
Jun-14	\$740	\$451	\$580	\$556
Jul-14	\$741	\$450	\$579	\$558
Jul-14	\$742	\$450	\$566	\$551
Aug-14	\$749	\$452	\$576	\$551
Aug-14	\$746	\$445	\$568	\$554
Sep-14	\$742	\$436	\$564	\$534
Sep-14	\$736	\$418	\$558	\$533
Oct-14	\$721	\$415	\$552	\$533
Oct-14	\$720	\$413	\$550	\$532
Nov-14	\$723	\$410	\$536	\$524
Nov-14	\$713	\$407	\$515	\$512

Dec-14	\$706	\$410	\$511	\$504
Dec-14	\$684	\$405	\$503	\$502
Jan-15	\$670	\$392	\$487	\$494
Jan-15	\$640	\$361	\$457	\$484
Feb-15	\$615	\$348	\$457	\$473
Feb-15	\$575	\$350	\$453	\$453
Mar-15	\$546	\$349	\$442	\$421
Mar-15	\$522	\$352	\$442	\$414
Apr-15	\$504	\$330	\$432	\$399
Apr-15	\$498	\$333	\$437	\$390
May-15	\$501	\$335	\$450	\$384
May-15	\$513	\$325	\$440	\$380
Jun-15	\$514	\$321	\$429	\$383
Jun-15	\$513	\$307	\$428	\$374
Jul-15	\$518	\$275	\$420	\$371
Aug-15	\$522	\$282	\$414	\$352
Aug-15	\$505	\$269	\$428	\$340
Sep-15	\$497	\$265	\$416	\$333
Sep-15	\$490	\$261	\$403	\$324
Oct-15	\$478	\$259	\$397	\$310
Oct-15	\$462	\$253	\$376	\$294
Nov-15	\$448	\$244	\$367	\$286
Nov-15	\$417	\$238	\$346	\$276
Dec-15	\$412	\$231	\$353	\$285
Dec-15	\$422	\$244	\$352	\$283
Jan-16	\$425	\$251	\$352	\$283
Jan-16	\$441	\$248	\$352	\$281
Feb-16	\$443	\$250	\$360	\$272
Feb-16	\$441	\$262	\$362	\$283
Mar-16	\$457	\$310	\$369	\$299
Mar-16	\$466	\$320	\$390	\$321
Apr-16	\$504	\$352	\$420	\$370
Apr-16	\$559	\$414	\$441	\$434
May-16	\$625	\$361	\$475	\$452
May-16	\$684	\$333	\$487	\$427
Jun-16	\$697	\$327	\$492	\$414
Jun-16	\$691	\$313	\$469	\$362
Jul-16	\$693	\$320	\$459	\$365
Jul-16	\$687	\$323	\$456	\$364
Aug-16	\$679	\$337	\$458	\$367
Aug-16	\$660	\$351	\$480	\$376

Sep-16	\$636	\$350	\$500	\$381
Sep-16	\$584	\$348	\$500	\$381
Oct-16	\$569	\$352	\$498	\$399
Oct-16	\$546	\$361	\$496	\$417
Nov-16	\$542	\$415	\$518	\$448
Nov-16	\$588	\$434	\$543	\$477
Dec-16	\$629	\$453	\$584	\$490
Dec-16	\$670	\$459	\$588	\$515
Jan-17	\$671	\$453	\$594	\$522
Jan-17	\$690	\$463	\$608	\$528
Feb-17	\$681	\$467	\$605	\$516
Feb-17	\$673	\$474	\$600	\$527
Mar-17	\$699	\$455	\$609	\$524
Mar-17	\$704	\$429	\$608	\$530
Apr-17	\$713	\$404	\$574	\$527
Apr-17	\$704	\$371	\$580	\$510
May-17	\$686	\$379	\$585	\$496
May-17	\$673	\$396	\$576	\$496
Jun-17	\$665	\$404	\$555	\$479
Jun-17	\$669	\$423	\$548	\$474
Jul-17	\$672	\$449	\$559	\$477
Jul-17	\$681	\$468	\$573	\$491
Aug-17	\$683	\$516	\$605	\$542
Aug-17	\$694	\$525	\$619	\$536
Sep-17	\$702	\$551	\$645	\$561
Sep-17	\$690	\$517	\$641	\$577
Oct-17	\$672	\$533	\$635	\$574
Oct-17	\$661	\$533	\$634	\$570
Nov-17	\$671	\$528	\$626	\$561
Nov-17	\$682	\$533	\$632	\$566
Dec-17	\$690	\$556	\$628	\$564
Dec-17	\$703	\$558	\$634	\$578
Jan-18	\$726	\$549	\$648	\$578
Jan-18	\$736	\$540	\$667	\$586
Feb-18	\$794	\$549	\$688	\$595
Feb-18	\$838	\$556	\$702	\$617
Mar-18	\$894	\$538	\$701	\$630
Mar-18	\$909	\$510	\$701	\$637
Apr-18	\$941	\$524	\$694	\$617
Apr-18	\$955	\$542	\$680	\$617
May-18	\$972	\$559	\$671	\$612

May-18	\$976	\$555	\$657	\$602
Jun-18	\$982	\$566	\$644	\$599
Jun-18	\$1,000	\$559	\$649	\$601
Jul-18	\$1,006	\$535	\$634	\$593
Jul-18	\$995	\$530	\$637	\$593
Aug-18	\$997	\$531	\$649	\$588
Aug-18	\$981	\$542	\$654	\$594
Sep-18	\$968	\$540	\$636	\$588
Sep-18	\$961	\$534	\$644	\$586
Oct-18	\$940	\$519	\$622	\$579
Oct-18	\$928	\$515	\$620	\$577
Nov-18	\$920	\$479	\$610	\$550
Nov-18	\$864	\$450	\$601	\$533
Dec-18	\$858	\$458	\$574	\$512
Dec-18	\$846	\$461	\$575	\$488
Jan-19	\$806	\$461	\$573	\$503
Jan-19	\$764	\$467	\$548	\$498
Feb-19	\$773	\$474	\$561	\$515
Feb-19	\$773	\$476	\$566	\$537
Mar-19	\$781	\$483	\$570	\$547
Mar-19	\$773	N/A	N/A	N/A

Appendix B:

CRU Group Data	
Aluminum - Dollars per metric ton	
2008Q1	\$2,724
2008Q2	\$2,939
2008Q3	\$2,792
2008Q4	\$1,820
2009Q1	\$1,361
2009Q2	\$1,486
2009Q3	\$1,807
2009Q4	\$2,007
2010Q1	\$2,166
2010Q2	\$2,100
2010Q3	\$2,088
2010Q4	\$2,345
2011Q1	\$2,502
2011Q2	\$2,609
2011Q3	\$2,398
2011Q4	\$2,087
2012Q1	\$2,174
2012Q2	\$1,981
2012Q3	\$1,917
2012Q4	\$1,999
2013Q1	\$2,001
2013Q2	\$1,835
2013Q3	\$1,781
2013Q4	\$1,767
2014Q1	\$1,709
2014Q2	\$1,798
2014Q3	\$1,988
2014Q4	\$1,962
2015Q1	\$1,800
2015Q2	\$1,765
2015Q3	\$1,591
2015Q4	\$1,495
2016Q1	\$1,516
2016Q2	\$1,572
2016Q3	\$1,620
2016Q4	\$1,710
2017Q1	\$1,851
2017Q2	\$1,909

2017Q3	\$2,012
2017Q4	\$2,102
2018Q1	\$2,159
2018Q2	\$2,259
2018Q3	\$2,057
2018Q4	\$1,971