DESCRIPTION AND JUSTIFICATION

1.0 Introduction and Description of Filing

In this tariff filing, scheduled to become effective February 15, 2022, Somos, Inc. (hereinafter referred to as "Company") proposes changes to Tariff F.C.C. No. 1, <u>800 Service Management System (SMS800) Toll-Free Number Registry (TFNRegistry™) Functions (</u>TFN Registry Tariff) including: update to Technical Publications; adding Juneteenth to the list of national holidays; retirement of the MGI and WBA functions (completing the transition to the new platform); retirement of batch processing; updates to reflect new or changed names; changes to the definition of proprietary information; eliminate rates and charges no longer available due to MGI retirement; and modify rates and charges based on an updated cost study and current cost and demand data. The proposed modifications are detailed below.

1.1 Modify Regulations and Service Offerings

- On Title Page, update to current product names.
- On pages 3, 4 and 5, removing items that are no longer relevant due to the retirement of MGI and WBA functions.
- On page 7, updating current trademarks.
- On page 9, deleting abbreviations no longer used in the tariff and updating names of products.
- On pages 10 and 11, update URL for Somos Portal, update the titles, issue numbers and dates for certain Technical Publications. All publications are available as of the filing date for this tariff.
- On pages 10 and 11, delete statement that MGI and WBA access will be available through September 30, 2021, as MGI and WBA were retired on September 30, 2021.
- On page 12, section 1.1, updating names of the products.
- On page 21, section 2.1.6 (A) eliminating monthly calendar of downtime as it is no longer needed on the new platform and in section 2.1.6 (C) delete reference to MGI.
- On page 23, section 2.1.8 (A) corrects a typographical error.
- On page 26.1, section 2.2.3, corrects a typographical error.
- On page 31, section 2.3.1 (C) (2) eliminates "written" before request, as all requests are handled electronically through the Resp Org Change (ROC) system.
- On page 32, section 2.3.2 and page 39, section 2.4.1 (A), update URL for Somos Portal.
- On pages 32 and 34, section 2.3.2 (A) eliminate items no longer needed for service establishment due to retirement of MGI.
- On page 34, section 2.3.2 (B) eliminate reference to MGI password.
- Page 36, section 2.3.4 (C) update term "Workers' Compensation."
- Page 37, section 2.3.5 (D) eliminate reference to non-dedicated access, as that form of access no longer exists.
- Page 37, section 2.3.6, added "API Key/secret" as that is now required with the new platform and corrects a typographical error.
- Page 38, section 2.3.7 (A) eliminate references to MGI and WBA.

- Page 38, section 2.3.7 (B) eliminate hardware and link specifications relating to MGI.
- Page 39, section 2.4.1 (A) update URL for Somos Portal, and add Juneteenth to the list of national holidays.
- Page 45, sections 2.4.2 (B) and (C) eliminate references to TFN Registry access credit allowance, as the access charges have been eliminated.
- Page 46 and 47, section 2.5.2 update registry environment and security requirements due to retirement of MGI.
- Page 48, section 2.6.1 (C) add "the dates of the most recent status changes" to the list of non-proprietary information, as this information is very helpful in fighting fraud and abuse on Toll-Free Numbers.
- Pages 51, 52, and 53, section 2.7, add, delete and modify definitions to reflect current TFN Registry environment with the termination of MGI and WBA.
- Page 54, section 3, delete drawing as it is no longer representative of how the TFN Registry operates.
- Page 55, section 3.1.1 update to current product names.
- Page 56, section 3.1.3, eliminate references to WBA and update name of user guide.
- Page 57, section 3.3, eliminate provisions dealing with MGI access and update provisions for current access methods (GUI and API).
- Page 58, section 3.3.1, eliminate provisions for non-dedicated access, which is no longer necessary due to MGI retirement.
- Pages 59 and 60, section 3.3.2 and 3.3.3 deleted due to MGI retirement.
- Page 60, section 3.3.5 and 3.3.6 update to reflect current user guide names.
- Page 60.1, section 3.4, deleted due to Batch Process Update no longer being necessary as Resp Orgs perform these functions on their own in the new platform.
- Page 61, section 3.5, delete provisions on MGI testing, due to MGI retirement.
- Page 65, section 4.1.2 (A) delete section on security keys, as these are no longer used.
- Page 65, section 4.1.2 (B) delete section on TFN Registry access due to MGI retirement.
- Page 66, section 4.1.2 (D) update product names and update parties involved in creating off-line reports.
- Page 68, section 4.1.2 (E) eliminate provisions regarding MGI testing due to MGI retirement.
- Page 68, section 4.1.2 (F) eliminate provisions regarding Batch Updates as as Resp Orgs perform these functions on their own in the new platform.

1.2 Modify Rates and Charges

This tariff filing is being made by Company to modify rates and charges in the TFN Registry Tariff. The proposed changes, reflecting the Company's most current estimates of demand and cost for services provided under the tariff, would decrease revenue over the prospective one-year period of February 15, 2022 through February 14, 2023 by $2,909,147. A comparison of current and proposed rates, as well as the revenue impact of the rate changes, is displayed in Table 1 (after section 4.8).

2.0 Revenue Requirement Development

The prospective revenue requirement for TFN Registry from February 15, 2022 through February 14, 2023 consists of expenditures for ongoing operations and continued development of the TFN Registry platform. Specific budget items for the Company's ongoing operations are:

- TFN Registry Operation and Administration which consists of: (a) Help Desk operational support to TFN Registry users including telephone assistance related to interfacing with TFN Registry and preparation/maintenance of Toll-Free Number (TFN) records, service establishment, and processing of requests for changes in Responsible Organization (Resp Org) for TFNs; and, (b) day-to-day management, planning and administrative oversight provided by Company, external operational support services such as billing, accounting, cost analysis, website support and TFN authentication, and expenses associated with the Company's membership and Board of Directors to support management, operation and administration of the TFN Registry.

  The estimated revenue requirement for TFN Registry operation and administration, which includes the effort related to Resp Orgs obtaining STIR/SHAKEN delegated certificates, for the one-year period of February 15, 2022 through February 14, 2023 is $44,851,874.

- TFN Registry Data Center Operation reflects the cost of the ongoing support, maintenance of the existing production and test/disaster recovery TFN Registry data centers and operation of a Service Center (Help Desk) facility to handle security and access problems. The estimated revenue requirement for the data center operation is $10,774,327.

- TFN Registry Software Support includes the provision of software maintenance, computer site and application support, and software development for new features for the existing TFN Registry system. The estimated revenue requirement for software support is $8,187,256.

  A comparison of projected past year and actual past year costs, and projected future year costs are shown in Table 2.

2.1 Revenue Requirement Distributions

A detailed hardware, software and activity-based cost study was performed to identify average unit costs for the TFN Registry rate elements. The updated costing methodology is consistent with the methodology used for previous TFN Registry Tariff filings. The average unit costs developed are shown in Table 5. The resulting revenue requirement for each rate element is shown in Table 4. Cost-causation analyses were performed and applied to budget elements as follows:

- A Task Oriented Costing (TOC) study was used to distribute Help Desk costs to rate elements. Help Desk managers identified the primary tasks performed, how often the tasks were performed, and the average time spent performing them. Each task was then analyzed and associated with the particular rate element it supports. To the extent that

Help Desk costs are not specific to a rate element, the costs are included in the CRA rate element. The resulting unit costs are shown in Table 5, column (a).

- Data center costs consist primarily of cloud-based: (a) network equipment and facilities needed to provide communications access for customers' links; (b) storage hardware for TFN record data; and (c) a processing community used to respond to and execute customer requests for TFN Registry services. The processing community and storage costs are related almost exclusively to the support and processing of customer records and were therefore assigned to the CRA rate element. The resulting average unit costs for the Data Center are shown in Table 5, column (b).

- The cost of software support includes software maintenance, site support and software development for new features. The software maintenance and site support dollars were attributed on the basis of analyses of effort by software personnel for the basic functions of software development, software maintenance and support services. The costs of the various functions were attributed to rate elements based on these analyses. The software development staff also supports production of some reports. Activity based analyses were used to capture these costs and associate them with the appropriate rate elements. The average unit costs developed for software costs are shown in Table 5, column (c).

- The Operations and Administration cost are analyzed to determine if they explicitly support any of the TFN Registry rate elements. With the exception of a small amount associated with Resp Org restoration (post suspension), the operations and administration costs are shared and common costs. The resulting average unit costs are shown in Table 5, column (d).

3.0 Basis of Ratemaking

The rate structure for TFN Registry consists of service elements that are used by Resp Orgs. The proposed rate for each element is based on its projected revenue requirement and demand. The only exception are the proposed hourly rates for Resp Org requested WSI Additional Resp Org Testing. This rate is based on changes to vendor contracts. The contractual rate of $100 per hour is expected to remain valid for the proposed tariff period. This information is shown in Table 6.

4.0 Demand Forecast

The demand forecast for the prospective tariff period is displayed in Table 3B. Information and/or data considered in developing the forecast are discussed in the following sections.

4.1 Customer Record Administration (CRA)

This rate element represents the quantity of toll-free numbers for which customer records exist in the TFN Registry and is charged on a recurring (monthly) basis for each number record administered. Following the methodology used to produce prior CRA forecasts, we examined alternative statistical models (e.g., simple regression, ARIMA), searching to find the best fit of the

historical data. These models predict the future value of the dependent variable (toll-free numbers) largely by analysis of past values of that variable.[1]

The first issue addressed involved data frequency. The toll-free number data are collected and reported daily, but previous tariff filings (as well as the CRA rate element charge) use monthly data. A two-year forecast of monthly data requires a 24-period forecast. Because data typically contain random elements, projections tend to become less reliable with the number of periods forecast. This problem can be mitigated by using lower data frequency, allowing random influences to offset, smoothing observed values. When high frequency forecasts are not needed, modeling the dynamics at a lower frequency is usually more accurate. For example, estimating a moving average error term with quarterly data provides an average over three months to improve the forecast, while using monthly data produces just one month's worth of moving average correction. When the individual months are not required in their own right—as is the case here—the longer observation period provides an error correction more closely related to the longer forecast needed. Of course, lower frequency data yield fewer observations over the same time frame and, all else equal, additional observations tend to improve estimation accuracy. Given that the use of annual data is ruled out due to insufficient degrees of freedom, we chose to perform our estimations with demand measured quarterly. This approach is designed to balance forecast variance against loss of observations.

The monthly forecasts for January 2022 through February 2023 reported in Table 3A represent either linear interpolations of the quarterly forecasts (1Q2021 -1Q2023) or the result of estimated monthly CRA (1Q2022).[2] For the quarterly forecast, we used the unweighted average of the three months in each quarter to construct the quarterly series of toll-free numbers. The average monthly toll-free numbers for a quarter is considered to be that number which would accrue to the middle month of each quarter. For example, the middle month for the quarter ending March 2008 is February 2008, the middle month for the quarter ending June 2008 is May 2008, etc. Use of this averaging methodology tended to smooth out fluctuations, as desired.

It should be noted that this forecast makes use of 13 quarters of CRA. To better estimate the first quarter of the tariff period, monthly data were used to estimate the months of December 2021 – March 2022 (actual CRA data were available through October 2021 with estimate from November 2021). The estimated months were then used to complete the 13-quarter series for the quarterly CRA tariff forecast (1Q2019 - 1Q2022). The CRA tariff quarterly forecast begins with 2Q2022.

In general, whenever actual data available ends mid-quarter, data for the remaining months of that quarter are unknown. This means that either some known data must be disregarded or that the remaining months in the quarter must be forecast. Since the former option requires disregarding actual data, the latter option is preferable. The methodology for forecasting demand for the remaining months of the quarter is similar to the methodology used for forecasting quarterly estimates (i.e., simple regression, ARIMA). The difference is that only monthly data will be used in this forecast, as opposed to smoothed quarterly data. The lack of smoothing is acceptable because the demand will only be forecasted three to four months ahead, which is a fairly short-run forecast.

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[1] This is an example of the Box-Jenkins approach to time-series modeling that only uses past values of a variable to predict future values. In addition to past values, a time trend may also be considered as well as transformations of the variable (e.g. natural logarithms) and seasonal indicators (e.g. quarter). Indicator variables take on a value of 1 or 0 (e.g. an indicator for the first quarter of a year takes on a value of 1 for the first quarter; 0 for all other quarters).
[2] In the case of linear interpolations, if toll-free lines were projected to rise from 25,000,000 to 25,300,000 from one quarter to the next, the consecutive monthly totals would be 25,100,000, 25,200,000 and 25,300,000.

Forecasting December 2021 to March 2022 Monthly Demand

Because of the available data mid-November 2021, to produce a quarterly forecast as described above, it is first necessary to produce a monthly forecast for December 2021 and for the first quarter of 2022. Although monthly CRA data for the prior month are not released until the 15th of the following month, daily CRA data for the following month are available around the 15th of the month. An approximation of the billing calculations was used as an estimate for November CRA count and December 2021 CRA value was forecasted. This provided a complete monthly CRA series through December 2021 which was used to estimate a model to forecast January through March 2022.

The model that best fits the monthly CRA series and reflects the current CRA trend is a regression model explaining undifferenced CRA using lagged daily average of TFNs In Use (TFNsInUseAvg) and the lagged average of daily disconnected toll-free numbers (DisconnectsAvg) over the lagged month. In this case, TFNs In Use (TFNsInUseAvg) and Average Disconnects (DisconnectsAvg) were both lagged by 4-months. The model is defined by the following parameters and summary statistics:

Monthly Regression Model: R-Squared = 0.9946   R-Squared Adjusted = 0.9945

	Coefficients	Standard Error	t Stat	P-value
Constant	2394855.829	225101.5322	10.6390028	2.36E-20
TFNsInUseAvg	0.954965729	0.005648042	169.079076	3.39E-183
DisconnectsAvg	-1.439409725	0.310029345	-4.64281768	7.09E-06

In equation form, the model indicates that:

Forecasted Monthly CRA$_t$ = 2394855.829 + 0.9549 * TFNsInUseAvg $_{t-4}$ - 1.4394 * DisconnectsAvg $_{t-4}$

The point forecast for the January 2022 to March 2022 period is shown below:

	Point Forecast
Jan-22	43,381,913
Feb-22	43,566,069
Mar-22	43,685,500

Forecasting Quarterly Demand Through February 2022

The monthly forecast model was used to complete the most recent 13 quarters of CRA data (1Q2019 - 1Q2022). Since using lagged regression models would have resulted in losing somewhat limited number of 13-quarterly datapoints, ARIMA Models were then fit to this quarterly series. The model that best fits the 13-quarters of CRA data and reflects the current CRA

trend is a model an ARIMA (0,2,0) using second differenced CRA with neither an auto-regressive or moving average term. The model is defined by the following parameters and summary statistics:

ARIMA Model Statistics for Qly Forecast

Model	MPE	MAPE	MASE	ACF1	SE SQ	AIC
c(0, 2, 0))	-0.0018336	0.5092091	0.7224258	-0.3781045	9.30E+10	311.03

The point forecast for the 2022Q2 to 2023Q1 period is shown below:

	Point Forecast
2022Q2	43,767,403
2022Q3	43,990,312
2022Q4	44,213,221
2023Q1	44,436,130

The global pandemic and emerging developments in the 10DLC numbers for messaging applications add unique dynamics into the CRA forecast process for the upcoming tariff period. As a direct impact of the global pandemic, need for communication services and technologies continued in Y2021 and contributed to a robust demand for toll-free demand. The increase in demand is likely related to additional video and other conferencing resources needed to accommodate the educational system, from kindergarten through colleges, responding to a need for additional access for their students, as well as an increase in demand related to pandemic driven remote shopping via Internet and phone, and business call/video conferencing from a largely at-home workforce.

With vaccination rolling out across the United States and Canada, the expectation is that, over time, toll-free demand will return to pre-pandemic levels. In Y2022, Company expects that demand related to pandemic driven investments in communication services to level off to pre-pandemic patterns. Additionally, starting Q4-2021 and beyond, Company expects toll-free demand to be negatively impacted with use of 10DLC numbers for messaging applications.

The statistical analysis described above produces a point and interval forecast as follows:

	Point Forecast – 2*SE	Point Forecast	Point Forecast + 2*SE
2022Q2	43,169,653	43,767,403	44,365,153
2022Q3	42,653,703	43,990,312	45,326,921
2022Q4	41,976,646	44,213,221	46,449,796
2023Q1	41,162,120	44,436,130	47,710,140

The interval forecast (+/- 2*standard forecast error (SE)) represents a 95% forecast interval, i.e., there is a 95% probability that actual tariff demand will lie within the interval forecast. Absent the pandemic impact, the Company would ordinarily use the point forecast to represent the tariff period. That would result in a tariff period linearized CRA forecast of 528.3M, which includes a dip back below 43M in Dec 2022.

Company believes the recent substantive impacts related to the pandemic compounded with an emerging developments in 10DLC numbers for messaging, described above, will lower the demand during the proposed tariff period and it will be less than the point forecast. Company remains confident that actual CRA will reside within the interval forecast and above the lower bound established by the point forecast less twice the standard forecast error. Without further data to specify the forecast, Company establishes the midpoint between the point forecast and the lower bound of the interval forecast, i.e., the point forecast less one standard forecast error.

	Point Forecast − 1*SE
2022Q2	43,468,528
2022Q3	43,322,008
2022Q4	43,094,934
2023Q1	42,799,125

The linearized CRA forecast maintains the characteristics of the point forecast, including increases through March 2022, resulting in a total for the proposed tariff period of 519.03M, about 1.77% less than the point forecast. The linearized monthly results of this forecast are shown in Table 3A.

4.2 Change of Resp Org for Toll-Free Number

This element provides for changing the Resp Org for a TFN and is charged on a non-recurring (per request) basis. Demand during the prior tariff period is expected to be 1,454. Projected demand is expected to be 1,200 for the prospective one-year period of February 15, 2022 through February 14, 2023.

4.3 TFN Registry Access

Access related rate elements are proposed to be removed in this filing.

4.4 Service Establishment

The provisioning and issuance of Security Keys is related to TFN Registry access and is proposed to be removed with this filing. This service element provides for various aspects of establishing service including: first logon ID, subsequent (additional) logon IDs, and the restoration of services for Resp Orgs that have had service suspended. Charges for these services are applied on a non- recurring (one time) basis. Demand for first logon IDs is expected to remain steady over the upcoming tariff period at 14. Average monthly demand for subsequent logon IDs is anticipated to increase resulting in annualized demand projection of 559 for the prospective tariff period. The demand for Resp Org Restoration of service (post suspension)

remains low, in part, due to changes in process and thus is anticipated to have a demand of 1 for the prospective tariff period.

4.5 Customer Reports

This service element provides for the preparation and delivery of customer specific off-line reports as well as the preparation and delivery of standard recurring on-line reports. The on-line report demand for the prospective tariff period February 15, 2022 through February 14, 2023 is 56 as Resp Orgs continue to develop more reports without the support of Company. The on-line report is charged "per report." Off-line reports are charged "per hour" to prepare and deliver for each customer request. Four and one-half (4.5) hours of effort are anticipated during the prospective tariff period of February 15, 2022 through February 14, 2023.

4.6 WSI Additional Resp Org Testing per Hour

This service element provides for initial and/or additional testing as requested from the TFN Registry support team and is charged on an hourly basis as required. There were no requests for WSI testing during the prior tariff period, and as the WSI is relatively mature, additional testing needs for WSI are not anticipated during the prospective tariff period February 15, 2022 through February 14, 2023. MGI testing is no longer a component of this rate element as MGI access to TFN Registry has been retired.

4.7 Batch Updates

Batch Update rate elements are proposed to be removed in this filing.

4.8 Batch Update Testing per Hour

Batch Update rate elements are proposed to be removed in this filing.