



OFFICE OF INSPECTOR GENERAL

MEMORANDUM

DATE: March 30, 2012

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Managing Director

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PERM

FROM: David L. Hunt 
Inspector General

SUBJECT: Audit Report No. 10-AUD-04-02
Audit of USAC's Low Income Program Disbursement System

The Federal Communications Commission (FCC), Office of Inspector General (OIG) audited the Universal Service Administrative Company's (USAC) Low Income (LI) program disbursement system to determine whether the system is in accordance with applicable law, and meets the goals of eliminating fraud, waste, and abuse in the federal universal service program. Our audit reviewed LI disbursement data for the calendar year 2009. Attached is the report of the audit conducted by our office.

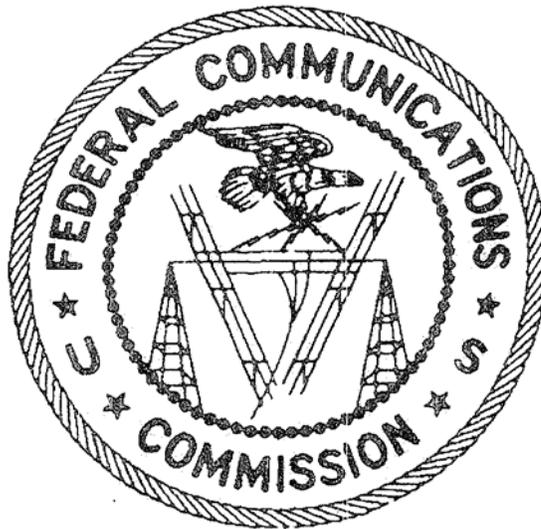
The OIG performed this audit consistent with its authority under the Inspector General Act of 1978, as amended, including, but not limited to sections 2(1) and 4(a) (1). The audit is not intended as a substitute for any agency regulatory compliance review or regulatory compliance audit.

If you have any questions or concerns regarding this referral, contact Randal Skalski, Director, USF Program Audits at 202-418-0479 or randal.skalski@fcc.gov or Gerald Grahe, Assistant Inspector General for USF Oversight at 202-418-0474 or Gerald.grahe@fcc.gov.

Attachment: Final Audit Report
10-AUD-04-02

FEDERAL COMMUNICATIONS COMMISSION

OFFICE OF INSPECTOR GENERAL



Final Audit Report
USAC's Low Income Program Disbursement System
Report No. 10-AUD-04-02
March 30, 2012

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EXECUTIVE SUMMARY

The purpose of this audit was to determine whether the Low Income (LI) disbursement system was in accord with applicable law and met the goals of eliminating fraud, waste and abuse in the federal Universal Service Fund program (USF).

In 2009, the Universal Service Administrative Company (USAC) paid approximately 1,700 carriers \$1 billion under the LI program to serve more than 8 million Americans. We examined USAC's current LI disbursement system and selected a sample of 60 projections from the 22,894 projections entered for the months from December 2008 to November 2009 in order to test the system. We conducted this performance audit in accordance with generally accepted government auditing standards contained in *Government Auditing Standards, July 2007 revision* (GAO 07-731G), issued by the Comptroller General of the United States.

Our audit identified two findings and other LI disbursement system weaknesses. We found no evidence that a system is required or needed. USAC had continued the projection-based system initiated by its predecessor; a system that had not been reevaluated or examined for justification since in 1998. We also found the risk of loss to the LI fund much greater for projections than claims. In addition, we found four significant internal control weaknesses in the projection-based system. See Appendix 1.

In May of 2011, we discussed preliminary findings, conclusions, and recommendations including elimination of the LI projection-based disbursement system with FCC representatives. We were informed that FCC already planned to direct USAC to develop a proposal for disbursing USF LI payments based upon *actual* claims. On September 23, 2011, FCC released a Public Notice requesting comments on the proposal.

On January 31, 2012, the FCC adopted the proposal to transition to a disbursement system based on actual claims. Since FCC has taken action to replace the projection-based system, we make no formal recommendation and applaud the Commission's action.

Introduction

Purpose of the Low Income Program

The purpose of USF LI program is to make telephone service more affordable for low-income households throughout the country and U.S. Territories. The Low Income (LI) program reimburses eligible telecommunications carriers (ETCs or carriers) for the revenue they forgo by providing Lifeline, Link Up, and Toll Limitation Services to low income households. In 2009, the Universal Service Administrative Company (USAC) paid approximately 1,700 carriers \$1 billion under the LI program to serve more than 8 million Americans.

Why the OIG Conducted the Audit

The FCC OIG conducted this audit to determine whether the LI disbursement system was in accord with applicable law and meets the goals of eliminating fraud, waste and abuse in the federal USF program.

On December 12, 2008, the FCC OIG released a LI report under the Improper Payments Information Act (IPIA) that concluded that all LI program payments made by the Universal Service Administrative Company (USAC) during 2007-2008 (\$810.6 million) and during 2006-2007 (\$795.8 million) must be considered erroneous payments. The basis for the finding was that USAC could not provide the source documentation that would permit verification of the calculations of the amounts disbursed.

On February 12, 2009, USAC responded to the OIG report stating that the conclusion that all LI payments were improper was based on a highly restrictive definition of improper payments and a flawed understanding of USAC's disbursement process, which has been reviewed and deemed appropriate¹ by independent auditors every year since 2000. On July 28, 2009, after reviewing the USAC response and additional information, the then-Acting Inspector General submitted a letter to Congress to announce that the OIG was withdrawing its conclusion that 100 percent of LI payments were improper and would conduct a review of the LI disbursement system.

Scope and Methodology

To accomplish our objectives, we conducted analytical procedures to assess the effectiveness and efficiency of the LI disbursement system including: (1) whether the projections were computed accurately based on USAC's documented procedures; (2) how close the projections matched the eventual claims submitted by companies; (3) whether the disbursements were properly reviewed and approved by USAC personnel; and (4) whether changes or alternatives to the system could produce suitable results with less costs.² We also reviewed applicable laws and regulations. The purpose of the audit was not to produce a report under the IPIA or to restate improper payments reported in earlier reports.

¹ The OIG does not concur with USAC's comment that the process has been deemed appropriate. [See Results of Independent and Internal Projection Algorithm Testing on page 9.](#)

² [See Appendix 2](#) for additional details on audit results and methodology.

We conducted this performance audit in accordance with generally accepted government auditing standards contained in *Government Auditing Standards, July 2007 revision* (GAO 8.30), issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis of our findings and conclusions based on our audit objectives. Our examination does not provide a legal determination on USAC's compliance with specified requirements.

OIG representatives visited USAC's location in Washington, DC on several occasions during the period March - July, 2010, met with USAC's staff, and reviewed supporting data related to the LI program disbursements to carriers in 2009. Additional fieldwork was conducted to update the results of the review.

Conclusions

Our audit identified two findings and other LI disbursement system weaknesses. We found no evidence that a projection-based system is required or needed. USAC had continued the projection-based system initiated by its predecessor; a system that had not been reevaluated or examined for justification since 1998. We also found the risk of loss to the LI fund much greater for projections than claims.

We also identified four significant weaknesses in the LI projection-based disbursement system. These weaknesses result from our analysis of the internal controls over the projection component of the disbursement system. We found that the process was not fully documented, the algorithm and override calculations were not retained, six months is too long to continue projections without a claim, and the algorithm could be improved in a number of ways. See Appendix 1.

Commission Actions Regarding LI Disbursement System

On May 5, 2011, we discussed preliminary findings, conclusions, and recommendations, including elimination of the projection-based disbursement system, with FCC representatives. We were informed that FCC had decided to direct USAC to develop a proposal for disbursing lifeline funds based on actual claims rather than projections. On May 13, the Deputy Managing Director sent the letter to USAC. USAC responded on August 9, 2011, with a detailed plan for transition to a new process and an outreach plan to participating carriers.

On September 23, 2011, FCC released Public Notice (DA 11-1593) – Inquiry Into Disbursement Process For The Universal Service Low Income Fund Program – requesting comments on “a proposal for disbursing Universal Service Fund low income support to eligible telecommunications carriers (ETCs) based upon claims for reimbursement of actual support payments made, instead of projected claims for support.” On October 20, 2011, FCC released Public Notice (DA 11-1741) -Comment Cycle Established for Inquiry into Disbursement Process for the Universal Service Fund Low Income Program – confirming that on October 19, 2011, a summary of the Public Notice appeared in the Federal Register and establishing due dates for comments.

On January 31, 2012, the FCC adopted, with a few modifications, the USAC proposal to transition to a disbursement system based on actual claims.

FINDINGS

Our two findings pertain to our analysis of the authority and justification for the projection-based LI program disbursement system.

Finding 1: No Evidence that a Projection-Based System is Required or Needed

Although the LI program disbursement system matches claims closely, there is no evidence that the aspect of the system that makes payments based on projections rather than claims is needed because: (1) there is nothing in the rules and regulations that requires or addresses it; (2) the National Exchange Carriers Association did not determine whether it was needed when it created the LI disbursement system in 1985; and (3) the additional cost of a projection-based system is not necessary or reasonable.

How the LI Projection-Based Disbursement System Worked

Carriers received monthly payments for Lifeline, Link Up, and Toll Limitation Service discounts based on an algorithm using projections, claims and true-ups, rather than submitting claims based on actual data by a specific date each month. Payment amounts were generated by an algorithm in the disbursement system program. This algorithm used the prior 12 months of carrier projections and/or claims to establish a growth factor (positive or negative) and then utilized this growth factor to project the next payment to the carrier. A projection for a particular month is “trued-up” based on actual data on FCC Form 497 for that month. The projection for a particular month was netted against the true-ups for any claims received from the carrier during the month. Carriers received payments based on claims only, and not projections, if they were: (1) too new to create a growth factor by not submitting at least three claims; (2) bankrupt; (3) in process of merging with another carrier; or (4) a carrier whose ETC status was being reviewed.

Disbursements Based on Projections Not Authorized or Prohibited by FCC Rules

FCC rules authorize USAC to determine the frequency with which ETCs must file support claims, but such rules neither require nor prohibit the practice of paying ETCs based on projections and then true-up payments when ETCs file actual support claims. 47 CFR § 54.701 states that USAC must administer “universal service support mechanisms in an efficient, effective, and competitively neutral manner.”

Cost of System Based on Projections versus Claims

During our audit, we attempted to compare the costs incurred by USAC to administer the current LI disbursement system based on projections to one based solely on claims. Although we found no readily available financial data to make such a comparison, there are implied costs of the additional duties related to using projections that would not be necessary under a system based solely on carrier claims. Such additional duties, as described in subsequent sections of this report, include: (1) processing projections, overrides, and true-ups; (2) collecting debts due to over-projections; (3) documenting the projection processes; and (4) maintaining additional documentation for the monthly projection calculations and overrides. Although USAC would

incur costs to develop and implement a new disbursement system, we believe these to be one-time costs and would be less than the ongoing costs of processing projections.

Finding 2: Risk of Loss to the LI Fund Much Greater for Projections than Claims

The risk of loss to the LI program is much greater with projection-based disbursements rather than claims because USAC paid the carrier before it received a claim for the corresponding period. Since most carriers continue providing LI services from month-to-month, over-projections would be corrected through the true-up process. However, carriers that cease operations without USAC's knowledge could continue to be paid for up to six months until the projections were stopped. As of March 21, 2012, the amount of uncollectible over-projections attributed to companies that ceased operations was \$1.6 million. A disbursement system based on claims eliminates the risk of loss due to carriers that cease operations although there is still some risk that carriers will submit false or inaccurate claims.

How Over-Projections were Handled

As stated earlier, USAC pays carriers each month based on a projection and then adjusts or true-ups the projection against the claim when the carrier submits its FCC Form 497 for the month. If a carrier's projection exceeds its claim for a month (over-projection), the true-up results in a negative number that is offset against the next month's payment. If the negative amount is greater than the next month's payment, USAC invoices the carrier. If a carrier fails to pay the invoiced amount by the due date, USAC applies the Red Light Rule³ and sends the carrier monthly collection letters for a period of 90 days. After 90 days of delinquency, responsibility for the debt is transferred to the FCC in accordance with the rules and processes established to implement the Debt Collection Improvement Act (DCIA). The FCC will also attempt to collect the debt and may retransfer it to the U.S. Treasury for further collection efforts. If a carrier applies for bankruptcy protection, the debt must be pursued through the bankruptcy process.

Over-Projections Represent a Risk of Loss

In addition to the amount of over-projections resulting in uncollected debts, any over-projections to carriers represent a risk of loss to the LI program fund. To assess this risk, we examined the 2009 list of carriers and compared the sum of the amounts disbursed to the amounts claimed for the year. We identified 1,000 carriers that received net 2009 over-projections totaling \$4.9 million. Most of the individual carriers' over-projections were relatively low in terms of dollars (less than \$10,000 for the year) or low in terms of the relative amounts (less than 5 percent of the cumulative claim). However, there were 64 carriers in 2009 that received over-projections of at least \$10,000, totaling \$4.3 million. Within that group, 22 carriers received unusually large over-projections that exceeded \$10,000 and 5 percent of their claims, totaling \$1.5 million. See Appendix 3 for details regarding list of 22 carriers. The largest over projection was attributed to Southwest Bell of Texas with about \$750,000 disbursed in 2009 in excess of claims (representing only about 1 percent of its claims for the year).

³ Any other USAC disbursement that the carrier would receive under another USF program, such as the High Cost program, is applied to the unpaid invoice.

As previously mentioned, the FCC adopted the proposal to transition to a disbursement system based on actual claims on January 31, 2012. We applaud the Commission's action to replace the LI projection-based disbursement system and therefore make no recommendations.

A handwritten signature in black ink, appearing to read "Gerald T. Grahe". The signature is fluid and cursive, with a large initial "G" and "T".

GERALD T. GRAHE
Assistant Inspector General
for USF Oversight

Projection-Based Disbursement System Weaknesses

Projection Algorithm Calculations Not Maintained

USAC did not maintain adequate documentation for the LI disbursement system because it did not maintain worksheets containing data used to calculate each carrier's monthly projection. See *Sample LI Projection Algorithm Calculation Worksheet* in Appendix 6. As stated earlier, projections were generated by an algorithm in the disbursement system. See *How the LI Disbursement System Works* on page 4. The system only saved the results of the algorithm (the payment), which used 13 months of data, rather than the source data used in the algorithm itself.

Without the worksheets, whether digital or paper, a reviewer cannot review and approve the amounts disbursed to each carrier each month without rerunning the algorithm using the data that existed at the time the projection was made. Because this review process was slow and tedious, only a very small number of the 22,000 LI disbursements made each year can be tested. The review process would be significantly improved if worksheets were maintained. USAC stated that when required by auditors, it recreated the worksheets for those transactions the auditors reviewed. The audits tested whether the disbursements were calculated accurately and approved the transactions, but did not review or comment on the adequacy of U program system internal controls. The OIG concludes that not retaining the projection algorithm calculations to support LI disbursements represents an internal control weakness.

How USAC Processed the Monthly LI Disbursements

The first step in the payment process was validating FCC Form 497 data entered into the system by the Customer Operations Team or filed electronically by the company using USAC's on-line filing capability. After validation of the data entry, the LI System was used to run projections, capture projection overrides and run monthly disbursements. LI Operations Staff compared each carrier's system-generated projection to its last two submitted actual support claims to identify projections that are higher or lower than the carrier's last claims by approximately 50 percent or more. These projections would be overridden to an amount based on the previous month's LI disbursement.⁴

Each month, during the 2nd to 7th business day, LI Operations Staff prepared a disbursement package based on a series of reports generated by the LI program system that contained the amounts to be paid to each carrier. The Disbursement Authorization Form (DAF) was used to indicate approval of the disbursement package by the LI Director and the Vice President, High Cost and Low Income. The disbursement package was then handed off to USAC's Finance Division by a specified date mid-month for disbursement release by the last business day of the month.

⁴ USAC's LI Disbursement Process Draft Final dated April 29, 2010

Results of Independent and Internal Projection Algorithm Testing

Prior to the OIG's sample review of 2009 projections, we considered the results of projection algorithm testing conducted by (1) independent auditors as disclosed in Agreed-Upon Procedures (AUP) reports in 2007 and 2008, and (2) USAC's Internal Audit Division as disclosed in a memo to the FCC Managing Director dated May 27, 2009. The 2007 and 2008 AUP reports included random samples of 45 carriers receiving LI disbursements greater than \$5,000 in October 2007 and 2008, respectively. The AUP reports disclosed that the mathematical accuracy of the sampled projection disbursements and the related FCC Forms 497 were tested with no exceptions found. However, the independent auditors stated that they make no representation regarding the sufficiency of the procedures and that they were not engaged to express an opinion on compliance with the FCC rules.

USAC's internal review was based on a random sample of three carriers with LI disbursements during the 12-month period ended June 2007 and found that the mathematical accuracy of the sampled disbursements and the related FCC Forms 497 were tested with no exceptions.

Results of the OIG's Projection Algorithm Testing

We selected a sample of 60 projections recorded in USAC's LI system in 2009 and recalculated the amounts to determine whether they were correct. The testing procedures focused on the mathematical accuracy of the sampled projection disbursements, similar to the tests conducted by the independent auditors and USAC's Internal Audit Division. The sample was randomly selected from the list of all projections recorded in 2009 and included four strata:

- 20 projections of more than \$100,000,
- 10 projections of \$100,000 or less,
- 10 projections resulting in zero dollars, and,
- 20 projections that were overridden.

All recalculations agreed with algorithm projections reported by USAC⁵ except for one case that was subsequently corrected. We also performed additional testing on the 20 projections that were overridden as described later in this Appendix.

Disbursement Process Not Fully Documented

The projection algorithm aspect of USAC's documentation for the LI disbursement system is incomplete and outdated. USAC provided us with the following documents in response to our request for all documentation for the LI disbursement system:

- LI 497 Process Method and Procedure, draft dated May 14, 2010
- LI Disbursement Process Method and Procedure, draft dated April 29, 2010
- LI Operating Procedures, dated October 2007

⁵ Some recalculations differed by small amounts apparently as a result of differences in rounding.

- Projection Algorithm Technical Document, dated August 19, 1999

The Projection Algorithm Technical Document⁶ provided to us by USAC as the only substantiating document that formally described and documented the workings of the projection algorithm aspect of USAC's LI disbursement system was inadequate. We found that the document was (1) incomplete because it referred to examples that are not included, (2) hard to read or illegible in parts, (3) not consistent with the algorithm that USAC provided to us for testing, and (4) outdated because other LI process documentation has been recently updated. See Appendix 2, *Review of Projection Algorithm Documentation*, for additional details.

In order to recalculate a sample of the LI projections, we created the *Mathematical Model of the Projection Algorithm* (Appendix 5) and the *LI Projection Algorithm Calculation Worksheet* (Appendix 6) based on informal documentation included in memos, e-mails and USAC's verbal explanations. The OIG concludes that the lack of adequate formal documentation for USAC's LI system represents a weakness in internal controls. Adequate formal documentation is needed to ensure that systems and processes are working as intended by management.

Override Documentation Not Retained

The two steps in the override process were (1) determining which of the system-generated projections need to be overridden, and (2) determining the revised projection amount. We found that USAC maintained documentation to support the first step, showing why it performed projection overrides, but did not retain documentation for the second step, explaining how it determined the projection override amounts. See *How Projection Overrides are Determined* below. Of the almost 23,000 LI program disbursements made in 2009, USAC performed overrides on 1,056 of the projections. See details in Appendix 4. We reviewed a sample of 20 projection overrides and found that we could not establish how USAC determined four of the projection override amounts based on the documentation retained in the LI disbursement system. See *Results of the OIG's Sample Review of 20 Overrides* below. The subjectivity and uncertainty in how overrides are determined represents a weakness in internal controls.

How Projection Overrides are Determined

According to USAC's LI Operating Procedures document, the disbursement system calculated payments using the projection algorithm each month for each carrier and then determined whether any projections should be overridden to bring system-generated projections more in line with expected support claims. There were 25 different types or reasons for overrides such as "Differ from Last Actual," "Higher than Past Growth," "50% higher," and "Zeroed Out." For example, an override may be made if a carrier's projection, based on 12 months, is substantially (usually 50 percent or more) higher or lower than its growth over the last several months. In these instances, the projection was overridden and an alternate growth rate, based on the last several months, was applied. Also, USAC may override a projection if the allocation between

⁶ The two-page Adobe file named "Projection Algorithm Technical Document.pdf" contains the title on the first page: "Method to Calculate ETC Projected Payments."

Lifeline, Link Up and TLS is out of line with expectations. However, USAC's procedures did not specify how many months the new growth rate was based on or how to reallocate projections.

Results of the OIG's Sample Review of 20 Overrides

We selected a judgement sample of 20 overrides of various types and attempted to recalculate the revised projection amounts to determine whether the overrides were consistent with descriptions provided in USAC's operating procedures. Override projections were performed on a component basis; thus, the comparison of the recalculations with USAC's override projections was done separately for each component. We successfully recalculated seven of the 20 overrides based on the documentation. Because operating procedures did not always specify how overrides are determined (and USAC's computation is not documented), we sought verbal guidance from the USAC staff that prepared and approved the overrides for the remaining 13 overrides. Although all the override amounts were eventually explained, in four cases the USAC staff could not readily explain how they were determined. Details regarding one of the overrides are included in *Sample LI Projection Algorithm Calculation Worksheet* in Appendix 6.

Six Months is Too Long to Continue Projections Without a Claim

USAC's practice of making payments based on projections for up to six months to carriers that have not filed applicable FCC Forms 497 is too long because the projection algorithm becomes increasingly inaccurate as filings for actual claims become less frequent, resulting in potentially substantial over-projections and over-payments. For example, if a carrier's LI payment is \$10,000 in one month and experiences a one-time growth rate of 50 percent the next month, USAC would pay the carrier \$15,000 for the following month. If the carrier stopped filing claims, USAC would continue to pay the carrier \$15,000 per month for the next five months. If the carrier then filed six monthly claims in the sixth month for \$10,000 each, the negative true-up in the sixth month and hence the cumulative amount that USAC overpaid would be \$25,000 ($\$5,000 \times 5$), which exceeds the carrier's claim by \$15,000 ($\$25,000 - \$10,000$) or 150 percent.

If the policy was changed to stop projections after three months instead of six, the negative true-up in the third month would be only \$10,000. Netting the negative true-up against the \$10,000 claim for the third month results in a zero disbursement and thus no overpayment. As we previously discussed, the risk of loss to the LI program is much greater with disbursements based on projections rather than on actual claims. Also, see *Any Over-Projections Represent a Risk of Loss* on page 7. Notwithstanding our prior discussion, we found that the risk of loss to the LI fund is greater with projections based on a six-month old claim than a three-month old claim.

USAC's Policy on the Frequency of Claims

FCC rules authorize USAC to determine the frequency with which ETCs must file support claims. Although carriers were required to file an FCC Form 497 for every month that LI program reimbursement is sought, carriers may file monthly, quarterly (by submitting 3 claims) or less frequently but may not file less than every six months. USAC stopped monthly support disbursements to any company that has not filed its actual support claims on FCC Form 497 for

six months. Then USAC informed the company that it must file a Form 497 before additional support will be provided. If the company failed to file, USAC would seek to recover the support paid for the previous six-month period. USAC stated that the purpose of its filing frequency policy is to alleviate hardship caused if LI payments were stopped to some carriers that have billing systems with late close-outs or lack administrative staff to file claims more frequently.

Projection Algorithm Could be Improved

We found that the projection algorithm could be improved by (1) revising the algorithm so that month-to-month changes are limited to 25 percent, (2) simplifying the algorithm by using fewer months of data, and (3) paying carriers less than the full amount of the projection, thereby reducing the risk of loss.

Month-to-Month Growth Limit Not Consistent with USAC Procedures

Based on our review of the projection algorithm, we found that the month-to-month growth rate was not limited in the same way as it was described in USAC's written procedures. USAC examined a carrier's monthly claim total to ensure that it was within 25 percent of the previous month's total.⁷ The growth rate limits built into the algorithm should, however, follow this 25 percent guideline. The algorithm limits the month-to-month ratio to values that range from -25 percent to 225 percent.⁸ Because the algorithm did not limit unusually high growth (capped at 225 percent instead of 25 percent) the resulting projections were more likely to be manually overridden.⁹ We also found that the existing algorithm was flawed because it did not intervene to limit a negative month-to-month growth rate except in the unlikely event that USAC makes a negative disbursement (true up) to the carrier.

Algorithm Could Be Simplified

Although the algorithm used 13 months of data to generate projections,¹⁰ we believe that comparable or better results would be achieved using fewer months of data. Because projections were often overridden to amounts closer to claims received in the previous two months, we experimented with two simplified algorithms using fewer or more recent data. See Appendix 2 for additional details of the testing. In our simplified algorithm, we used the average change between the first and last months of data from USAC's algorithm and the last actual month to determine the projection. We found that in 17 of the 18 examples tested, the simplified method resulted in a projection that was closer to USAC's override amount than USAC's algorithm. In our ultra-simplified method, we simply used the last actual amount as the projection. We found that in 12 of the 18 examples tested, the ultra-simplified method resulted in a projection that was

⁷ See Page 5-10 of Section 5. Low Income Methods and Procedures, October 2007.

⁸ Where R^i = month-to-month growth rate:

$R^i = \text{Max} [\text{Min} [(D_{i,m} / D_{i,m-1}) - 1, 1.25], -1.25]$ when $D_{i,m} \neq 0$ and $D_{i,m-1} \neq 0$.

Also, see Appendix 5.

⁹ To correct the algorithm, the month-to-month growth rate bounds should be R ; with values between -0.25 and 0.25.

¹⁰ See Finding 1.

closer to USAC's override amount than USAC's algorithm. Our tests suggest that the simplified algorithms should be easier to administer and may reduce the need for manual overrides.

Paying Less than the Full Projection Reduces Risk

Although the projection algorithm results in payments to carriers that are intended to approximate the carriers' claim, the risk of loss to the fund could be greatly reduced by paying carriers less than the full projection. As previously stated, any over-projection represents a risk of loss. If carriers are paid less than the full amount of the projection, for example 75 percent, then any underpayment could be made up the next time the carrier submits a claim. The carriers would still benefit from advanced funds, although in lesser amounts, but the USF would also benefit from reduced losses in the event that a carrier defaults on its obligation to make the LI fund whole. Furthermore, paying less than the full projection provides carriers with an incentive to file claims more promptly thereby increasing the accuracy of the algorithm.

Additional Details of Audit Results and Methodology

We used LI disbursement data for 2009 as a basis for our evaluation. In order to test aspects of the system, we selected a sample of 60 projections from the 22,894 projections made in 2009, as shown below.

Table 1. Summary of 2009 LI Program Disbursements

Month/ 2009	No. of Payment	Claims	Projections	True-Ups
January	1,845	\$69,250,049	\$68,046,112	\$1,203,937
February	1,854	\$71,198,869	\$69,715,641	\$1,483,228
March	1,865	\$72,904,562	\$71,944,094	\$960,468
April	1,872	\$75,056,987	\$73,008,572	\$2,048,415
May	1,896	\$78,116,913	\$75,268,539	\$2,848,374
June	1,902	\$80,339,803	\$79,449,987	\$889,816
July	1,907	\$83,706,493	\$82,324,779	\$1,381,714
August	1,924	\$85,789,598	\$86,048,810	(\$259,212)
September	1,940	\$88,888,032	\$86,308,216	\$2,579,816
October	1,952	\$92,911,078	\$90,624,027	\$2,287,051
November	1,963	\$96,870,672	\$92,820,432	\$4,050,240
December	1,974	\$98,300,295	\$97,425,686	\$874,609
Total	22,894	\$993,333,351	\$972,984,895	\$20,348,456

Sample Selection

We selected a stratified sample of 60 from the universe of 22,894 projections made for the months from December 2008 to November 2009 and paid from January 2009 through December 2009. The sample was selected randomly using Mathematica software.

Projection Sample Strata

Stratum	Population Size	Sample Size	Definition
Override	643	20	Override projections such that Override Total Projection-Algorithm Total Projection > \$1
Zero	1,551	10	Projections not in the Override stratum with Total Projection = \$0
Low	19,853	10	Projections not in the Override or Zero strata with Total Projection ≤ \$100,000
High	847	20	Projections not in the Override stratum with Total Projection > \$100,000
	22,894	60	

Recalculation of USAC Algorithm Projections

For the override stratum, See *Results of the OIG 's Sample Review of 20 Overrides* in Appendix 1. For the zero, low and high strata projections, the OIG recalculated each sample projection using the worksheets provided by USAC using only data available to USAC at the time of the projection and compared the results with the algorithm projections recorded by USAC. The comparison was performed separately for each component (Lifeline, Link Up, and TLS) as well as for the projection total. All recalculations agreed with algorithm projections reported by USAC¹¹ except for one case in the Override stratum in which the USAC algorithm projection total was \$704,943 while the projection recalculation total was \$707,941.¹² However, the USAC override projection total for this case was \$707,943, which indicated that the USAC algorithm projection likely was calculated correctly but recorded erroneously. The algorithm projection did not result in an erroneous disbursement as it was overridden with the proper amount.

Verification of FCC Form 497 Data Entry

We selected one FCC Form 497 from each of the 50 sample projections in the High, Low, and Override strata to test whether USAC entered the data from the forms correctly. The accuracy of the LI disbursement system depended on the input accuracy of the FCC Form 497 data. For each month, the disbursement data consisted of claim data from the most recent FCC Form 497 submitted or the projection for the month if no claim has been entered. If a claim was not submitted by a certain date, USAC paid the carrier based on projection data without true-ups. The claim selected was the one entered for the most recent month. For example, one sample projection for October 2009 utilized disbursement data where a claim for September 2009 had been submitted in time for the projection, so the claim submitted for September 2009 was tested. In another example, one sample projection for March 2009 utilized disbursement data where no claim for January or February 2009 had been submitted in time for the projection; so we tested the claim submitted for December 2008. This process generally tested the disbursement data item with the greatest influence on the calculation of the projection using USAC's algorithm. We found only one error in the 50 claim forms tested in which the form showed \$555 for Linkup support and \$0 for TLS support whereas USAC recorded \$0 for Linkup support and \$555 for TLS support. We concluded that the FCC Form 497 data entry was materially accurate.

Review of Projection Algorithm Documentation

USAC provided OIG with a file containing a document entitled "Method to Calculate ETC Projected Payments." The first page of the document describes the basic method of calculating the projection in most circumstances. Section B describes exception cases to the basic method. Section B references examples 2 through 6 relevant to explaining five of the seven exception cases. However, the pdf file did not contain any of the referenced examples and was, therefore, incomplete. No other documentation provided by USAC contains these referenced examples.

¹¹ Some recalculations differed by small amounts apparently because of differences in rounding.

¹² The USAC algorithm and OIG recalculation agreed with respect to the Linkup and TLS projections but not with respect to the Lifeline projection.

Example 1 of the document has two steps numbered 6. A key phrase in the second of these steps entitled “To Calculate’ Month 1 Projection Amount” is difficult to read as it appears to have been highlighted with a marker prior to scanning; the phrase appears to identify the spreadsheet cell containing the most recent fund total.

The document has four potential inconsistencies with the spreadsheet “Example -- Projection Algorithm - Exceeds 1.25” provided by USAC as well as the spreadsheets used by USAC for internal audits¹³:

1. Example 1 of the document only refers to 12 months of fund total data. The spreadsheets use 13 months of data: 12 months of data for the trend and one month of data as the latest monthly fund total.
2. Step 6 “To Calculate Month 1 Projection Amount” indicates that the most recent fund total should be multiplied by the average growth rate to obtain the projection amount. The spreadsheets determine the projection amount by multiplying the latest monthly total by the average growth rate and then adding the latest monthly total.
3. The spreadsheets do not use any data with zero dollars disbursed in the determination of the average growth rate. The document indicates only certain cases where zero dollar disbursements are given special treatment.
4. Exception Case B.2 indicates that the average growth rate should be applied to the most recent fund total for which the data is not missing. The provided portion of the document does not clarify the interpretation of “missing data.” The document refers to example 3 but it was not provided. A possible interpretation is that data is missing if a Form 497 has not been received from the carrier. If so, the document would be inconsistent with the spreadsheets which use the projected dollars disbursed if no Form 497 has been received.

Review of Projection Algorithm Functionality

We created a mathematical depiction of USAC's projection algorithm based on the spreadsheet examples of the projection calculation provided by USAC, not on the document "Method to Calculate ETC Projected Payments." We then reviewed the projection algorithm for any apparent errors or inconsistencies with USAC guidelines.

We found that the algorithm bounds the monthly growth rate R to values between -1.25 and 1.25 . R is greater than 1.25 when the disbursed dollars for a month are greater than 2.25 times that of the previous month. R is less than -1.25 when the ratio of disbursed dollars for a month to that of the previous month is less than -0.25 ; this can only happen when (1) negative dollars are

¹³ “4-1 159007 disbursement recalculation”, “4-2 230476 disbursement recalculation”, “4-3 259005 disbursement recalculation.”

disbursed for one but not both of the months, and (2) the absolute value of the dollars in one month is greater than 4 times than that in the succeeding month.

The Low Income Methods and Procedures document, dated October 2007, Section 5 pages 5-10, indicates that USAC checks FCC Form 497 forms to determine if a month's claim total is within 25% of the previous month's total. The growth rate bounds above may have been intended to follow this guideline. If so, the proper growth rate bounds should be R values between -0.25 and 0.25. The technique for calculating the average growth rate gives greater weight to monthly increases rather than monthly decreases in disbursements. The combination of the existing algorithm bounds and the disproportionate weighting of monthly changes in disbursements is a possible cause for the increased employment of overrides for projections in early stages of a carrier's participation in the Low Income program.

Review of USAC Override Procedures

Overrides are manually identified and calculated by USAC based on a carrier's past disbursement history. The identification and adjustment of projections by override were performed separately on the Lifeline, Link Up, and TLS components.

The most common reasons for USAC to override a component projection were:

- *The projection is higher than past growth.* Of 13 projections identified as this type in the sample, seven were adjusted by replacing the algorithm's projection with the following calculation:
Last Actual Disbursement / Month 12 Disbursement
- One override used the following calculation to replace the algorithm projection:
Last Actual Disbursement * Month 12 Disbursement / Month 11 Disbursement

The other five overrides were adjusted by replacing the algorithm's projection with the last actual disbursement for the component.

- *The projection is at least 50% higher than the most recent disbursement.* All eight overrides of this type in the sample were performed by replacing the algorithm's projection with the last actual disbursement for the component.
- *Allocations to Lifeline, Linkup, and/or TLS differ from the most recent disbursement.* All 16 overrides of this type were performed by replacing the algorithm's projection with the following calculation:

Algorithm Total Projection x Last Actual Component Disbursement / Last Actual Total Disbursement.

List of Carriers with Unusually Large Over-Projections¹⁴

<u>SPIN</u> <u>SAC</u>	<u>SAC Name</u>	<u>Claims</u>	<u>Projections</u>	<u>Negative</u> <u>True-ups</u>	<u>% of</u> <u>Claims</u>
143000842	Southern Communications				
1 259010	Services, Inc. -AL	\$112,229	\$237,040	-\$124,811	-111..21%
143000896					
2 529002	RCC Minnesota, Inc.	\$15,063	\$28,467	-\$13,404	-88.99%
143000896	RCC Minnesota, Inc. -				
3 399003	SD	\$89,418	\$119,982	-\$30,564	-34.18%
143000896	RCC Holdings, Inc.-				
4 539001	OR	\$82,922	\$104,213	-\$21,291	-25.68%
143000896					
5 289002	RCC Holdings, Inc.	\$623,870	\$774,740	-\$150,870	-24.18%
143000896	RCC Minnesota, Inc. -				
6 369004	MN	\$585,988	\$716,366	-\$130,378	-22.25%
143032385	dPi Teleconnect, Inc. -				
7 239007	NC	\$431,476	\$511,394	-\$79,918	-18.52%
143000897					
8 369005	Wireless Alliance, LLC	\$83,445	\$98,037	-\$14,592	-17.49%
	McImetro Access				
143001197	Transmission Services,				
9 159001	LLC-NY	\$82,138	\$93,558	-\$11,420	-13.90%
143000896					
10 259001	RCC Holdings, Inc.	\$551,922	\$624,893	-\$72,971	-13.22%
143032544					
11 259014	FastPhones, Inc. -AL	\$525,234	\$594,341	-\$69,107	-13.16%
143032385	dPi Teleconnect, Inc. -				
12 259015	AL	\$828,341	\$936,771	-\$108,430	-13.09%
143030766	Kerrville Telephone				
13 442097	Company	\$146,729	\$164,345	-\$17,616	-12.01%
143030542	Nexus Commun., Inc. -				
14 439018	OK	\$747,639	\$822,934	-\$75,295	-10.07%
143002588	United Telephone Co of				
15 522400	NW - WA	\$340,950	\$370,945	-\$29,995	-8.80%
143031142	Family Tel of				
16 439023	Oklahoma, LLLC	\$2,807,570	\$3,038,633	-\$231,063	-8.23%
143032848					
17 219004	Flatel	\$502,518	\$536,340	-\$33,822	-6.73%
143030542	Nexus Communications				
18 349015	Inc. Db a TSI	\$742,283	\$787,054	-\$44,771	-6.03%
143001432	Verizon West Virginia				
19 205050	Inc.	\$356,506	\$377,964	-\$21,458	-6.02%
20 143004824	South Central Bell-LA	\$3,734,226	\$3,945,449	-\$211,223	-5.66%

¹⁴ The appendix shows cumulative projections in calendar year 2009 that exceed cumulative claims (negative true-ups or “over-projections”) of at least \$ 10,000 and 5 percent of the claims.

	275183					
	143002749	United Telephone				
21	381636	Mutual Aid Corp.	\$478,284	\$504,674	-\$26,390	-5.52%
		Nexus				
	143030542	Communications, Inc. -				
22	319014	MI	\$425,060	\$447,955	-\$22,895	-5.39%
	Totals		\$14,293,811	\$15,836,095	-\$1,542,284	

Summary of 2009 Projection Overrides

	<u>Types or Reasons for Overrides</u>	<u>Count</u>	<u>Value of Original Projections</u>	<u>Value of Override Projections</u>	<u>Difference</u>
1	Differ from last actual	408	\$249,132,768	\$249,088,202	\$44,566
2	Higher than past growth	261	177,575,765	131,649,301	45,926,464
3	50% higher	117	55,016,335	36,156,509	18,859,826
4	Higher than last actual	107	44,442,274	32,458,097	11,984,177
5	Zeroed out	44	1,645,516	0	1,645,516
6	Allocations differ	24	1,383,719	1,383,577	142
7	Differ from last actual / Higher than past growth	14	2,039,924	1,893,755	146,169
8	Lower than past growth / 50% higher	13	4,000,435	3,047,013	953,422
9	Lower than last actual	12	336,768	463,699	(126,931)
10	Higher than past growth / 50% higher	8	1,796,373	1,249,916	546,457
11	Lower / Higher than past growth	6	456,487	569,393	(112,906)
12	Per USAC management	6	8,100,529	0	8,100,529
13	Inconsistent filing	5	270	3,153	(2,883)
14	Higher than anticipated growth	4	11,881	10,450	1,431
15	Higher than last actual / 50% higher	4	888,814	598,846	289,968
16	Higher than past growth / higher than last actual	4	557,853	403,986	153,867
17	Lower than last actual / 50% higher	4	294,606	186,874	107,732
18	Lower than past growth / Higher than last actual	4	330,474	233,272	97,202
19	Lower / Higher than last actual	3	555	472	83
20	Differ from last actual / Lower than past growth	1	43,004	37,986	5,018
21	Higher / Lower than anticipated growth	1	2,153	3,644	(1,491)
22	Lower than last actual / Higher than past growth	1	85,008	81,846	3,162
23	Lower than past / anticipated growth	1	1,947	10,351	(8,404)
24	Missing all 2008 & 1st qtr 2009	1	964	0	964
25	Projection low due to unusually high negative partials for back credits	1	3	80	(77)
26	(blank)	2	9,357	9,357	0
	Totals	1,056	\$548,153,782	\$459,539,779	\$88,614,003

Mathematical Model of USAC's Low Income Projection Algorithm

USAC's projection algorithm is represented in the following mathematical model to provide data for each carrier receiving monthly Low Income program disbursements. The model was not obtained directly from any of USAC's LI system documentation but rather constructed by OIG staff based on USAC procedure narratives and examples.

P_i = the USAC projection dollars applied to month i

$T_{i,j}$ = the true up dollars applied to month i and entered in month j

$D_{i,j} = P_i + \sum_{k=1}^j T_{i,k}$ (i.e., dollars disbursed for month i to carrier through month j)

The USAC projection P_m for month m is calculated as follows:

$$P_m = D_{m-1,m} (1 + \text{Trend}_m)$$

Where

$$\text{Trend}_m = \sum_{i=m-12}^{m-2} R_i / n$$

$R_i = \text{Max}[\text{Min}[(D_{i,m} / D_{i-1,m}) - 1, 1.25], -1.25]$ when $D_{i,m} \neq 0$ and $D_{i-1,m} \neq 0$ and

$n = \text{number of } R_i \text{ where } D_{i,m} \neq 0 \text{ and } D_{i-1,m} \neq 0 \text{ (typically, } n = 11)$

Sample LI Projection Algorithm Calculation Worksheet¹⁵

Month	Lifeline		Link Up		TLS		Total	Month to Month Trend
	Projection	True-Up	Projection	True-Up	Projection	True-Up		
Jan-08	\$56,113	-\$2,221	\$31,080	\$8,910	\$0	\$0	\$93,882	
Feb-08	\$54,431	\$5,373	\$39,990	-\$2,070	\$0	\$0	\$97,724	0.040924
Mar-08	\$63,149	-\$7,838	\$37,920	-\$14,100	\$0	\$0	\$79,131	-0.19026
Apr-08	\$47,591	\$12,387	\$23,820	\$36,090	\$0	\$0	\$119,888	0.515057
May-08	\$64,776	\$13,286	\$52,048	\$10,292	\$0	\$0	\$140,402	0.17111
Jun-08	\$86,936	-\$18,799	\$62,023	-\$46,363	\$0	\$0	\$83,797	-0.403164
Jul-08	\$96,170	-\$33,729	\$66,618	-\$4,488	\$0	\$0	\$124,571	0.486581
Aug-08	\$79,825	-\$9,807	\$50,312	\$29,758	\$0	\$16,735	\$166,823	0.33918
Sep-08	\$74,685	\$2,447	\$85,405	-\$9,235	\$17,850	\$8,397	\$179,549	0.076284
Oct-08	\$85,739	-\$5,320	\$84,669	-\$10,629	\$29,176	\$12,642	\$196,277	0.093167
Nov-08	\$88,774	-\$8,541	\$81,732	-\$32,442	\$46,162	-\$6,563	\$169,122	-0.13835
Dec-08	\$89,140	-\$6,639	\$54,762	-\$1,842	\$43,995	-\$3,093	\$176,323	0.042579
Total	\$887,329	-\$59,401	\$670,379	-\$36,119	\$137,183	\$28,118	\$1,627,489	1.033107
Average Trend (Total Month to Month Trend / 11 months)								0.093918
12-month Net	\$827,928		\$634,260		\$165,301		\$1,627,489	
12-month Breakdown	0.508715		0.389717		0.101568		1.000000	
Jan-09	\$84,976	-\$1,424	\$58,187	\$9,943	\$44,973	-\$2,401	\$194,254	
(Jan-09 total x [average trend =1])							x1.093918	
Total Feb-09 Projection							\$212,498	
Total Feb-09 Projection x 12 component breakdown:								
	\$212,498	0.508715	\$212,498	0.389717	\$212,498	0.101568		
Component Allocation	\$108,101		\$82,814		\$21,583		\$212,498	
Feb-09 Override¹⁶ Difference	\$84,388		\$74,529		\$46,570		\$205,487	
	-\$23,713		-\$8,285		\$24,987		-\$7,011	

¹⁵ The worksheet represents the OIG's recalculation of the LI program projection amount computed by USAC's LI system for one carrier for the month of February 2009. The sample carrier and month was selected randomly and includes actual data from the system although the worksheets are not retained by the system. The sample results in a projection amount \$212,498 which was overridden by USAC to \$205,487.

¹⁶ The comments in the LI system stated "Lifeline (\$108,101), Linkup (\$82,814), and TLS (\$21,583) projection allocations differ from last actuals as well as Lifeline higher than past growth." Per USAC's verbal explanation, because TLS was introduced by the carrier late in the year, the Lifeline projection was reduced to the 12 month component growth rate; the Link-Up and TLS growth rate was kept the same; and the Jan-09 allocation rate was used.