# TAX ADMINISTRATION Ways to Simplify the Estimated Tax Penalty Calculation 




United States<br>General Accounting Office<br>Washington, D.C. 20548

## General Government Division

B-278804
May 27, 1998
The Honorable William V. Roth, Jr. Chairman, Committee on Finance United States Senate

The Honorable Daniel Patrick Moynihan
Ranking Minority Member
Committee on Finance
United States Senate
The Honorable Bill Archer
Chairman, Committee on Ways and Means
House of Representatives
The Honorable Charles B. Rangel
Ranking Minority Member
Committee on Ways and Means
House of Representatives
In 1996, about 5.9 million taxpayers were assessed almost $\$ 1.1$ billion in estimated tax (es) penalties. The Internal Revenue Service's (IRS) Taxpayer Advocate's Annual Report to Congress in 1996 described the es penalty rules as extraordinarily complex, and it characterized the Form 2210 used for calculating es penalties as one of the most difficult forms taxpayers have to complete.

This report, which we prepared under our basic legislative responsibilities, identifies (1) Internal Revenue Code and IRS administrative requirements that cause some of the complexity associated with es penalty calculations and (2) the likely effects of corresponding changes to the requirements that would make it easier for taxpayers to calculate their es penalties.

## Background

For more than 50 years, IRS has collected estimated taxes on income not subject to withholding, which is known as nonwage income. Nonwage income generally includes income from pensions, interest, self-employment, capital gains, dividends, and partnerships. In 1994, these six categories accounted for 91 percent of all nonwage income. Nonwage income has represented a growing proportion of total U.S. income in recent years, increasing from 16.7 percent to 23.3 percent between 1970 and 1994. The percentage of tax returns reporting only nonwage income has likewise increased from 10 percent to 14 percent over the same period.

The es process requires taxpayers to make four payments to IRS at regular intervals during the tax year. At the beginning of the tax year, taxpayers are to estimate their annual income, determine their potential tax liability, and compute their es payments. For tax years beginning on January 1, es payments are due on April 15, June 15, September 15, and January 15 of the following year. If taxpayers underpay their es payments, they may be liable for es penalties. ${ }^{1}$

Taxpayers who underpay can choose either to have IRS calculate any penalty they owe or to self-assess their own penalty using a Form 2210. Taxpayers using the form to self-assess their es penalties can use either the short or regular method to calculate their es penalty amounts. ${ }^{2}$ The ES penalty equals the interest on the underpaid amount for the number of days it is outstanding. The interest rate used to compute the penalty is based on the federal short-term interest rate, which is subject to change the first day of each quarter, that is, January 1, April 1, July 1, and October 1. IRS updates the Form 2210 annually to account for changes in the federal short-term interest rate. (See app. I for a copy of a Form 2210.)

In 1994, about 4 million taxpayers self-assessed their es penalties. We could not determine how many of them used the short or regular method because IRS does not collect the data necessary to make that determination. However, to provide a rough approximation of how many taxpayers used the regular method, we examined 100 tax returns from the 1994 Statistics of Income database-the latest information available. The 100 returns were selected to represent taxpayers who either paid ES penalties or were otherwise affected by the es process. Of the 75 taxpayers who self-assessed their es penalties, we found that over half used the regular method.

## Results in Brief

To help ensure compliance with the Internal Revenue Code and IRS administrative requirements, Form 2210 requires numerous calculations to track individual ES underpayments and to determine precise es penalty amounts. We identified three requirements where the additional

[^0]calculations did not seem to be justified because they resulted in either little or no effect on es penalty amounts.

First, the Form 2210 underpayment schedule, which currently requires that taxpayers track each underpayment individually, results in a complicated procedure, involving numerous calculations, to comply with the definition of "underpayment" in the Code. We found that if taxpayers were allowed to track the accumulated underpayment amount rather than individual amounts and if a corresponding change were made to the ES penalty underpayment period, taxpayers could reduce the number of calculations without affecting es penalty amounts.

Second, taxpayers currently have to make additional es penalty calculations to account for three of the four 15-day periods between ES interest rate effective dates and es payment dates. If interest rates change, this requirement increases the number of calculations taxpayers must make but only increases or decreases the penalties by small amounts. In 1986, Congress eliminated this requirement for the 15-day period between April 1 and April 15 by, in essence, aligning the interest rate effective date with the es payment date. Similar alignments for the other three 15-day periods during the year would eliminate the calculations taxpayers must make for the 15 -day periods and have little effect on es penalty amounts.

Third, to account for leap years, taxpayers currently have to make additional es penalty calculations when underpayment balances extend either through the end of a leap year or the end of a year preceding a leap year. We found that, if taxpayers were allowed to use a 365 -day year in all es penalty calculations, they could eliminate the additional calculations and the penalties for the periods affected would increase by a very small amount-only 0.3 percent.

## Objectives, Scope, and Methodology

Our objectives were to identify causes for the complexity in the es penalty process and to determine whether changes could be made to simplify the process for taxpayers who use the regular method to calculate their ES penalties. To achieve our objectives, we

- reviewed IRS reports on the estimated tax process;
- analyzed the instructions for preparing the Form 2210 and discussed the es process with IRS officials; and
- reviewed a random sample of 100 taxpayer returns subject to the ES process to obtain a rough approximation of how many taxpayers used the
regular method. The sample, which was too small to reliably project to the universe, was extracted from IRS' tax year 1994 Statistics of Income database.

We did our audit work in Washington, D.C., and San Francisco between September 1997 and March 1998 in accordance with generally accepted government auditing standards.

We requested comments on a draft of this report from the Commissioner of Internal Revenue. The comments we received are in appendix II and are evaluated at the end of this letter.

> Three Requirements That Increase the Number of Calculations on the Form 2210 Can Be Changed With Little or No Effect on Penalty Amounts

The Form 2210 includes three requirements that complicate the es penalty process and result in additional calculations that need to be made by taxpayers who use the regular method. Simplifying the underpayment schedule, changing the effective dates of the es penalty interest rates, and using a 365 -day year for all es penalty calculations would make the form easier to understand and reduce the number of es penalty calculations taxpayers have to make. The changes to the underpayment schedule and the es penalty calculations could be made administratively by IRS, while changing the effective dates of the es penalty interest rates would require legislative action. These changes would have either little or no effect on ES penalty amounts.

Tracking Individual<br>Underpayments Adds<br>Calculations to the Form 2210 That Do Not Affect<br>ES Penalty Amounts

The Form 2210 underpayment schedule is used to determine taxpayers' underpayments in each of the four es payment periods. The underpayment calculation first requires taxpayers to apportion the required annual payment amount-the amount of taxes that should have been paid during the year-to each of the four es payment periods. ${ }^{3}$ The apportioned amounts are the required es installments-the taxes that should have been paid in each of the es payment periods.

Conceptually, the basis for the underpayment calculation is relatively straightforward. To determine the underpayment amount, taxpayers essentially compare the es installment with the es payments made and any withholding during the payment period. When the installment amount is greater than the combined amounts of es payments and withholding, taxpayers have an underpayment and are liable for es penalties.
${ }^{3}$ The required annual payment is allocated either (1) equally to the four ES payment periods, if the taxpayer's income was earned evenly throughout the year or (2) unequally in accordance with the proportion of the taxpayer's income that was earned in each of the ES payment periods.

However, in actual practice, taxpayers must follow a more complicated procedure to calculate their underpayments. This procedure entails additional calculations to account for underpayment balances that may remain from previous payment periods. These additional calculations are necessary to comply with the definition of the term "underpayment" in section 6654(b)(1) of the Internal Revenue Code. The definition precludes existing underpayment balances from being used in underpayment calculations for succeeding es payment periods. To illustrate the complexity of this procedure, a completed Form 2210 for a hypothetical taxpayer is shown in figure III. 1 in appendix III.

The underpayment schedule would be simplified by changing the form so as to allow taxpayers to carry forward underpayment balances to succeeding es payment periods. To calculate their underpayments using this simplified approach, taxpayers would subtract the combined amount of their es payment and withholding from the total of their current ES installment and their underpayment balance from the previous payment period. This change would reduce the number of calculations taxpayers have to make on the underpayment schedule but would, in some cases, make the computed underpayment amounts different. Figure III. 2 in appendix III shows our revised underpayment schedule for a hypothetical taxpayer.

To avoid a difference in the es penalty amounts calculated using the different underpayment amounts, a corresponding change to the ES penalty underpayment period would be needed. The change would further simplify the process for taxpayers by eliminating additional es penalty calculations, while ensuring that es penalty amounts are not affected. Appendix IV shows a comparison of es penalty calculations required under the current and simplified approaches.

Although simplifying the Form 2210 underpayment schedule and changing the underpayment period in the es penalty calculation schedule would reduce the number of calculations taxpayers need to make, it would require that taxpayers and tax preparers adjust to a revised Form 2210, which has not changed since 1986. However, we believe the recurring advantages of simplifying the form outweigh this one-time adjustment.

## The 15-Day Periods <br> Between ES Interest Rate Dates and ES Payment Dates Increase the Number of Calculations Taxpayers Have to Make

To determine their es penalties, taxpayers must calculate the interest on the underpayment amount for the number of days it was outstanding, that is, the number of days between when the taxpayer should have made the es payment and the earlier of (1) when the payment was actually made, or (2) the 15th day of the 4th month following the close of the taxable year (April 15 for a taxpayer using a calendar-year basis). The interest rate used in the calculation is based on the federal short-term interest rate, which is subject to change on the first day of each quarter.

Under the current approach, if interest rates change while an underpayment is outstanding, taxpayers are required to make separate calculations for the periods before and after the interest rate change. Typically, in such instances, the separate calculations are necessary to cover only 15 -day periods because the applicable es payment dates occur either 15 days immediately before or after the effective dates of interest rate changes. For example, the July 1 interest rate change occurs 15 days after the June 15 payment date.

This use of different dates for es payment dates and interest rate effective dates has the effect of increasing the number of penalty calculations taxpayers must make. Table 1 illustrates the calculations that would have to be made by a hypothetical taxpayer with underpayments in three ES payment periods. To compute the es penalty for the June 15 underpayment, the taxpayer would need to make two calculations, numbers 1 and 2, because the April 1 interest rate was in effect during the first period the underpayment was outstanding and the July 1 interest rate was in effect for the second period the underpayment was outstanding. Similarly, three calculations, numbers 3 , 4 , and 5 would be necessary to compute the taxpayer's es penalty for the September 15 underpayment because three different interest rates were in effect during the period the underpayment was outstanding.

Table 1: Calculations Necessary to Compute an ES Penalty for a Hypothetical Taxpayer

| Calculation <br> number and <br> underpayment <br> date | Interest rate <br> effective date | Date <br> underpayment <br> balance paid | Period covered by <br> calculation |
| :--- | :--- | :--- | :--- |
| 1. June 15 | April 1 | September 15 | June 16-June 30 |
| 2. June 15 | July 1 | September 15 | July 1-September 15 |
| 3. September 15 | July 1 | January 15 | September 16-September 30 |
| 4. September 15 | October 1 | January 15 | October 1-December 31 |
| 5. September 15 | January 1 | January 15 | January 1-January 15 |
| 6. January 15 | January 1 | April 15 | January 16-April 15 |

Source: GAO analysis of IRS Publication 505, Tax Withholding and Estimated Tax.

Unlike the es penalty calculations previously discussed, penalty calculation number 6 is different. For that penalty, only one calculation at the January 1 interest rate would be required for the entire period the underpayment was outstanding because of a special rule in section 6621(b)(2)(B) of the Internal Revenue Code. The special rule, in essence, changes the effective date of the April 1 interest rate change to April 15, thereby allowing IRS to use the January 1 interest rate for the 15 -day period between April 1 and April 15. ${ }^{4}$

Expansion of the special rule to cover all es payment dates and interest rate dates would reduce the number of calculations taxpayers would have to make. Specifically, aligning the July 1, October 1, and January 1 interest rate effective dates with the June 15, September 15, and January 15 es payment dates, respectively, would eliminate the 15 -day es penalty calculations. Instead, taxpayers would make only one calculation at the interest rate, which becomes effective at the end of the affected 15-day period. To illustrate the effect of the change, we used the hypothetical taxpayer case shown in table 1 . Under an expanded special rule, the taxpayer would be required to make only three calculations rather than six, as shown in table 2.

[^1]Table 2: Calculations Necessary to Compute an ES Penalty If the Special Rule Were Expanded

| Calculation number <br> and underpayment <br> date | Interest rate <br> effective date | Date <br> underpayment <br> balance paid | Period covered by <br> calculation |
| :--- | :--- | :--- | :--- |
| 1. June 15 | July 1 | September 15 | June 16-September 15 |
| 5. September 15 | October 1 | January 15 | September 16-January <br> 15 |
| 6. January 15 | January 1 | April 15 | January 16-April 15 |
| Source: GAO analysis of revised changes and IRS Publication 505. |  |  |  |

Expanding the special rule would have little effect on es penalty amounts, either increasing or decreasing them for the affected 15-day periods, depending on the direction of the interest rate change. For example, if the interest rates increased on July 1, the rate used to calculate es penalties for June 15 underpayments would be the higher July 1 rate rather than the lower rate effective before July 1. Conversely, if the interest rates decreased on July 1, es penalties would be based on the lower July 1 rate. Expressed in terms of the es underpayment, a 1-percent change for the 15-day period increases or decreases an es penalty by 0.04 percent of the underpayment amount, or $\$ 4.11$ on a $\$ 10,000$ underpayment. ${ }^{5}$

We analyzed the effect of expanding the special rule on actual es penalty amounts for 32 taxpayers in our sample of 100 taxpayers subject to the ES process who used the regular method in 1994 and who had submitted Form 2210s with their tax returns. A comparison of the es penalty amounts computed using the expanded special rule with the actual es penalties showed that changes were relatively small. In 15 cases, the es penalties did not change. In the 17 other cases, the changes ranged from an increase of $\$ 1$ on a $\$ 49$ penalty to an increase of $\$ 163$ on a $\$ 8,573$ penalty. In 24 cases, the use of the expanded rule reduced the number of penalty calculations taxpayers needed to make. In 1 case, the number of penalty calculations declined from 11 to 4 . (See app. VI for more details on the comparison and the es penalty calculation schedules required on the current and revised Form 2210 for a sample case.)

The comparison reflects 1994 interest rates, which increased from 7 to 9 percent during the year. If interest rates had decreased, the ES penalty amounts would have similarly decreased. Over the 10-year period 1987 through 1996, changes in the interest rate used to compute es penalties

[^2]varied, increasing in 2 years, decreasing in 2 years, both increasing and decreasing in 4 years, and not changing in 2 years. (See app. V for a summary of interest rate changes over the 10 -year period.)

# The Requirement to Adjust the ES Penalty Formula for Leap Year Related Changes Increases the Number of Calculations Taxpayers Have to Make 

Under current IRS procedures, taxpayers who have outstanding underpayment balances that extend through the end of a leap year must make separate calculations to account for the change from a 366 - to a 365-day year regardless of whether there is an interest rate change on January 1. For example, if a taxpayer has an underpayment on September 15 that extends through January 15, the taxpayer would have to make two calculations to compute the es penalty. For the first calculation, which would cover the period September 15 through December 31, the taxpayer would need to use a 366 -day year in the formula. For the second calculation, which would cover the period January 1 through January 15, the taxpayer would need to use a 365 -day year in the formula. In years preceding a leap year, taxpayers would have to use a similar calculation method to account for the change from a 365 - to a 366 -day year.

The current process could be simplified by allowing taxpayers to use a 365 -day year for all es penalty calculations, regardless of the year. If there were no interest rate change on January 1, this change would eliminate an extra calculation for taxpayers with outstanding underpayment balances extending either through the end of a leap year or the end of a year preceding a leap year.

This change would increase es penalty amounts by 0.3 percent during the period affected. ${ }^{6}$ For example, the Es penalty computed using the current method would be $\$ 2,557$ on a $\$ 40,000$ underpayment outstanding for 260 days at 9 percent. Using a 365 -day year in the same calculation results in an ES penalty of $\$ 2,564$. The dollar amount of the increase would vary depending on the underpayment amount and how long it was outstanding.

## One-Time Adjustment to the ES Penalty Calculation Process Would Provide Recurring Benefits

Modifying the es penalty calculation would require taxpayers and tax preparers to adjust to a revised Form 2210, which has not been changed since 1986. Making the adjustment would not be difficult because it would occur one time and would affect only the calculation of the es penalty. The rules governing application of the es penalty process would not be

[^3]affected by the change. The effect on IRS would also be minimal, since they currently revise the Form 2210 annually to account for interest rate changes.

The benefits of modifying the es penalty calculation process would be recurring for taxpayers who use the regular method. Revising the underpayment schedule would make it easier to understand and would reduce the number of calculations taxpayers have to make on the schedule. Similarly, adjusting the effective dates for interest rates used to compute es penalties and using a 365-day year to calculate all Es penalties could further reduce the number of calculations taxpayers would have to make.

## Conclusions

To help ensure compliance with the Internal Revenue Code and IRS administrative requirements, the Form 2210 requires taxpayers to perform numerous calculations to track individual underpayment amounts and to determine precise es penalty amounts. In three instances, the additional calculations did not seem to be justified because they resulted in either little or no change in penalty amounts.

Administrative changes and legislative action would be needed to reduce the number of calculations required on the Form 2210 and make it easier for taxpayers to complete. Although the changes would require taxpayers and tax preparers to adjust to using a new form, we believe the recurring advantages of the change would outweigh that one-time adjustment.

## Recommendations to the Commissioner of Internal Revenue

To simplify the es penalty process for taxpayers, we recommend that the Commissioner of Internal Revenue

- revise the Form 2210 underpayment schedule to allow taxpayers to track the accumulated underpayment amount rather than individual underpayment amounts and
- revise the Form 2210 es penalty calculation schedule to allow taxpayers to use a 365 -day year in all ES penalty calculations.


## Recommendation to Congress

To further simplify the es penalty process for taxpayers, we recommend that Congress amend section 6621(b)(2)(B) of the Internal Revenue Code to include the periods June 15 through June 30, September 15 through September 30, and January 1 through January 15.

# Agency Comments and Our Evaluation 

We obtained written comments on a draft of this report from the Commissioner of Internal Revenue (see app. II). The Commissioner said that he generally agreed with all of our recommendations.

The Commissioner commented, however, that IRS would not consider revising the Form 2210 underpayment schedule before legislative action is taken to amend section 6621(b)(2)(B) and expand the Es special rule to the new periods. IRS believes that expanding the special rule would provide the greatest relief to taxpayers and that revising the Form 2210 without incorporating that change would not be justified by the lesser benefits derived from revising the underpayment schedule.

We concur with IRS' position and believe that all changes should be made at the same time to minimize the adjustment required by taxpayers and tax preparers to the revised Form 2210.

We are sending copies of this report to the Secretary of the Treasury, Commissioner of Internal Revenue, and other interested parties. We will make copies available to others upon request.

The major contributors to this report are listed in appendix VII. If you have any questions, please contact me on (202) 512-9110.


James R. White
Associate Director, Tax Policy and
Administration Issues

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Figure I.1: IRS Form 2210, Schedule to Compute Required Annual

Figure III.1: Steps Required on the Current Form 221020 Underpayment Schedule

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Figure III.2: Steps Required on Our Revised Form 2210
Underpayment Schedule

## Abbreviations

| ES | estimated tax |
| :--- | :--- |
| IRS | Internal Revenue Service |

Figure I.1: IRS Form 2210, Schedule to Compute Required Annual Payment and ES Penalty Using the Short Method


## Appendix I

## IRS Form 2210

Figure I.2: IRS Form 2210, Schedule to Compute Underpayments and ES Penalty

Form 2210 (1994)
Part IV Regular Methad (See the instructions if you are filing Form 1040NR.)

| Section A-Figure Your Underpayment |  | Payment Due Dates |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | (a) 4/15/94 | $\begin{gathered} \text { (b) } \\ 6 / 15 / 94 \end{gathered}$ | $\begin{gathered} \text { (c) } \\ 9 / 15 / 94 \end{gathered}$ | $\begin{gathered} \text { (d) } \\ 1 / 15 / 95 \end{gathered}$ |
| 21 Required installments. If box 1b applies, enter the amounts from Schedule Al, line 26. Otherwise, enter $1 / 4$ of line 13 , Form 2210, in each column | 21 |  |  |  |  |
| 22 Estimated tax paid and tax withheld (see instructions). For column (a) only, also enter the amount from line 22 on line 26. If line 22 is equal to or more than line 21 for all payment periods, stop here; you do not owe the penalty. Do not file Form 2210 unless you checked a box in Part I | 22 |  |  |  |  |
| Complete lines 23 through 29 of one column before going to the next column. <br> 23 Enter amount, if any, from line 29 of previous column | 23 |  |  |  |  |
| 24 Add lines 22 and 23 | 24 |  |  |  |  |
| 25 Add amounts on lines 27 and 28 of the previous column | 25 |  |  |  |  |
| 26 Subtract line 25 from line 24. If zero or less, enter -0-. For column (a) only, enter the amount from line 22 | 26 |  |  |  |  |
| 27 If the amount on line 26 is zero, subtract line 24 from line 25. Otherwise, enter -0- | 27 |  |  |  |  |
| 28 Underpayment. If line 21 is equal to or more than line 26 , subtract line 26 from line 21 . Then go to line 23 of next column. Otherwise, go to line 29 | 28 |  |  |  |  |
| 29 Overpayment. If line 26 is more than line 21, subtract line 21 from line 26. Then go to line 23 of next column | 29 |  |  |  |  |

Section B-Figure the Penalty (Complete lines 30 through 35 of one column before going to the next column.)


# Comments From the Internal Revenue Service 

EOMMISSIONER

## DEPARTMENT OF THE TREASURY <br> INTERNAL REVENUE SERVICE <br> WASHINGTON. D.C. 20224

May 7, 1998

Ms. Lynda D. Willis
Director, Tax Policy
and Administration Issues
United States General Accounting Office
Washington, D.C. 20548
Dear Ms. Willis:
Thank you for the opportunity to review and comment on your recent draft report entitled "Ways to Simplify the Estimated Tax Penalty."

We agree with the two recommendations to revise the Form 2210, Underpayment of Estimated Tax by Individuals, Estates, and Trusts. However, we believe the form should not be revised before legislative action is taken to amend section 6621(b)(2)(B). Although taxpayers would realize some minor benefit from merely tracking the accumulated underpayment amount rather than individual underpayment amounts, the most significant burden reduction would occur if all the recommendations are implemented at the same time. Taxpayers have told us that they can better adjust to forms changes if they are not made year after year.

We have not provided implementation dates for the two recommendations since we are suggesting that revisions to the Form 2210 should not be made until enactment of the statutory recommendation. The General Accounting Office auditors who met with Internal Revenue Service representatives to discuss the draft report concurred with our suggestions.

Sincerely,
cocch coss oti

Charles O. Rossotti

# Comparison of a Current Form 2210 Underpayment Schedule to a Revised Underpayment Schedule 

In figures III. 1 and III.2, we compare section A, lines 21-29, of the current Form 2210 Underpayment Schedule with our revised section A for a hypothetical taxpayer. The hypothetical taxpayer had underpayments of $\$ 5,000$ in each es payment period, and made es payments of $\$ 3,000$ on April 15, $\$ 1,000$ on June 15, $\$ 2,000$ on July 30, \$4,500 on September 15, and \$9,500 on January 15.

## Appendix III <br> Comparison of a Current Form 2210 <br> Underpayment Schedule to a Revised Underpayment Schedule

Figure III.1: Steps Required on the Current Form 2210 Underpayment Schedule

## IRS Current Version



Appendix III
Comparison of a Current Form 2210
Underpayment Schedule to a Revised Underpayment Schedule

Figure III.2: Steps Required on Our Revised Form 2210 Underpayment Schedule

## GAO Revised Version



Source: GAO analysis of IRS Publication 505.

# Comparison of ES Penalty Calculations Using the Current and Revised Instructions 

|  |  | In tables IV. 1 and IV.2, we compare the es penalty calculations necessary using the instructions on the current Form 2210 with the es penalty calculations necessary if the instructions for the calculations were revised in accordance with the revisions made to simplify the form's underpayment schedule. |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Table IV.1: Calculations Necessary Using Current ES Penalty Instructions |  |  |  |  |  |  |  |  |
| ES payment period | Apr. 15 - June 30 |  |  | July 1 - Sept. 30 |  |  | Oct. 1 - Jan. 15 |  |
| Underpayment amount | \$2,000 |  |  | \$5,000 |  |  | \$4,500 |  |
| Calculation number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Amount used in calculation (payment or residual underpayment) | \$1,000 | \$1,000 | \$1,000 | \$5,000 | \$1,000 | \$4,000 | \$4,500 | \$4,500 |
| Reason for calculation-payment (P) or interest rate change (I) | P | 1 | P | I | P | P | I | P |
| Period covered by the calculation | $\begin{aligned} & 4 / 15- \\ & 6 / 15 \\ & \hline \end{aligned}$ | $\begin{aligned} & 4 / 15- \\ & 6 / 30 \\ & \hline \end{aligned}$ | $\begin{aligned} & 7 / 1- \\ & 7 / 30 \end{aligned}$ | $\begin{aligned} & \text { 6/15- } \\ & 6 / 30 \end{aligned}$ | $\begin{aligned} & 7 / 1- \\ & 7 / 30 \end{aligned}$ | $\begin{aligned} & \hline 7 / 1- \\ & 9 / 15 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { 9/16- } \\ & 9 / 30 \end{aligned}$ | $\begin{aligned} & 10 / 1- \\ & 1 / 15 \end{aligned}$ |
| Number of days covered by the calculation | 61 | 76 | 30 | 15 | 30 | 77 | 15 | 107 |
| Interest rate | . 07 | . 07 | . 08 | . 07 | . 08 | . 08 | . 08 | . 09 |
| Penalty <br> Total penalty = \$257 <br> (diff. due to rounding) | \$12 | \$15 | \$7 | \$14 | \$7 | \$68 | \$15 | \$119 |

Source: GAO analysis of IRS Publication 505.

Eight calculations are necessary under the current instructions to determine the total es penalty. Three calculations for the $\$ 2,000$ underpayment are needed to account for (1) the $\$ 1,000$ payment on June 15 , (2) the interest rate change on July 1, and (3) the $\$ 2,000$ payment on July 30 . Three calculations for the $\$ 5,000$ underpayment are needed to account for (1) the interest rate change on July 1, (2) the $\$ 1,000$ payment on July 30, and (3) the $\$ 4,500$ payment on September 15. Two calculations for the $\$ 4,500$ underpayment are needed to account for (1) the interest rate change on October 1, and (2) the $\$ 9,500$ payment on January 15.

Table IV.2: Calculations Necessary Using ES Penalty Instructions Revised in Accordance With Simplifications Made to the Form 2210's Underpayment Schedule

| ES payment period | $\begin{gathered} \text { Apr. } 15 \text { - June } \\ 15 \end{gathered}$ | June 16 - Sept. 15 |  |  | Oct. 1 - Jan. 15 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Underpayment amount | \$2,000 | \$6,000 |  |  | \$4,500 |  |
| Calculation number | 1 | 2 | 3 | 4 | 5 | 6 |
| Amount used in calculation (underpayment or residual underpayment) | \$2,000 | \$6,000 | \$6,000 | \$4,000 | \$4,500 | \$4,500 |
| Reason for calculation-payment/ end of ES period (P) or interest change (I) | P | I | P | P | I | P |
| Period covered by the calculation | $\begin{aligned} & 4 / 15- \\ & 6 / 15 \end{aligned}$ | $\begin{aligned} & \text { 6/15- } \\ & 6 / 30 \end{aligned}$ | $\begin{aligned} & \hline 7 / 1- \\ & 7 / 30 \end{aligned}$ | $\begin{aligned} & 8 / 1- \\ & 9 / 15 \end{aligned}$ | $\begin{aligned} & 9 / 16- \\ & 9 / 30 \end{aligned}$ | $10 / 1-$ |
| Number of days covered by the calculation | 61 | 15 | 30 | 47 | 15 | 107 |
| Interest rate | . 07 | . 07 | . 08 | . 08 | . 08 | . 09 |
| Penalty <br> Total penalty = \$254 <br> (diff. due to rounding) | \$23 | \$17 | \$39 | \$41 | \$15 | \$119 |

Source: GAO analysis of IRS Publication 505.

The revised instructions affect underpayments outstanding through more than one es payment period, and the difference involves the period used to calculate the es penalty. The difference is illustrated in tables IV. 1 and IV. 2 by the calculations used to compute the es penalty for the $\$ 2,000$ underpayment. In table IV.1, the $\$ 2,000$ underpayment is outstanding from April 15, the es payment due date, to July 30, when the underpayment balance was paid. Under the revised instructions, the underpayment is outstanding from April 15 to June 15, the next es payment due date.

Under the revised instructions, there is a $\$ 1,000$ underpayment balance outstanding on June 15 that is not paid until July 30. This $\$ 1,000$ balance is accounted for by carrying it forward to the next es payment period, as shown in appendix III. In figure III.2, the underpayment for June 15 is $\$ 6,000$, while the underpayment for the same period in figure III. 1 is $\$ 5,000$. As a result, the es penalty for the $\$ 1,000$ balance is included in the es penalty calculated for the $\$ 6,000$ underpayment, shown in table IV.2.

The number of calculations necessary for the June 15 and September 15 underpayments are the same under both methods because the underpayments are not outstanding through more than one es payment period. However, calculation numbers 2 and 5 in table IV. 2 could be eliminated by expanding the es special rule (see pp. 6-9).

## Summary of Changes in the Interest Rate Used to Compute ES Penalties for the Period 1987 Through 1996

| Year | Change in Interest Rate and New Interest Rate |  |  |  | Number of changes |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Apr. 1 | July 1 | Oct. 1 | Jan. 1 | Increases | Decreases |
| 1987 |  |  | +1(10\%) | +1(11\%) | 2 | 0 |
| 1988 | -1(10\%) |  | +1(11\%) |  | 1 | 1 |
| 1989 | + 1(12\%) |  | -1(11\%) |  | 1 | 1 |
| 1990 |  |  |  |  | 0 | 0 |
| 1991 | -1(10\%) |  |  | -1(9\%) | 0 | 2 |
| 1992 | -1(8\%) |  | -1(7\%) |  | 0 | 2 |
| 1993 |  |  |  |  | 0 | 0 |
| 1994 |  | +1(8\%) | +1(9\%) |  | 2 | 0 |
| 1995 | +1(10\%) | -1(9\%) |  |  | 1 | 1 |
| 1996 | -1(8\%) | +1(9\%) |  |  | 1 | 1 |
| Total increases | 2 | 2 | 3 | 1 | 8 |  |
| Total decreases | 4 | 1 | 2 | 1 |  | 8 |
| Total changes | 6 | 3 | 5 | 2 | 16 |  |

[^4]
## Analysis of How Expanding the ES Special Rule Affected the ES Penalties Computed for a Random Sample of 32 Taxpayers

In table VI.1, we compare the es penalty amounts computed for 32 sampled taxpayers using the current Form 2210 and the penalties computed using the expanded special rule. In tables VI. 2 and VI.3, we compare the es penalty schedule required on the current Form 2210 and on the revised Form 2210 for sample case number 13.

Table VI.1: Comparison of ES Penalty Amounts Computed for 32 Sampled Taxpayers Using the Current Form 2210 and the Expanded Special Rule

| Case number | Penalty calculations |  | Difference |  | Calculations required by taxpayer |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Form 2210 | Using expanded special rule | Amount | Percent of Form 2210 amount | Form 2210 | Using expanded special rule |
| 1 | \$8,573 | \$8,736 | \$163 | 1.9 | 6 | 3 |
| 2 | 5,098 | 5,188 | 90 | 1.8 | 6 | 3 |
| 3 | 6,801 | 6,886 | 85 | 1.3 | 8 | 4 |
| 4 | 1,779 | 1,816 | 37 | 2.1 | 2 | 1 |
| 5 | 1,668 | 1,695 | 27 | 1.6 | 3 | 2 |
| 6 | 770 | 791 | 21 | 2.7 | 6 | 3 |
| 7 | 1,207 | 1,225 | 18 | 1.5 | 5 | 3 |
| 8 | 1,447 | 1,462 | 15 | 1.1 | 6 | 4 |
| 9 | 822 | 835 | 13 | 1.6 | 3 | 2 |
| 10 | 1,270 | 1,282 | 12 | 0.1 | 8 | 4 |
| 11 | 765 | 772 | 7 | 0.1 | 6 | 4 |
| 12 | 233 | 237 | 4 | 1.8 | 2 | 1 |
| 13 | 251 | 254 | 3 | 1.4 | 11 | $4{ }^{\text {a }}$ |
| 14 | 100 | 102 | 2 | 2.3 | 9 | 4 |
| 15 | 168 | 170 | 2 | 1.1 | 5 | 3 |
| 16 | 188 | 189 | 1 | 0.7 | 6 | 4 |
| 17 | 49 | 50 | 1 | 1.6 | 3 | 2 |
| 18 | 3 | 3 | 0 | 0 | 2 | 1 |
| 19 | 61 | 61 | 0 | 0 | 4 | 4 |
| 20 | 45 | 45 | 0 | 0 | 5 | 3 |
| 21 | 11 | 11 | 0 | 0 | 4 | 2 |
| 22 | 2 | 2 | 0 | 0 | 1 | 1 |
| 23 | 1 | 1 | 0 | 0 | 1 | 1 |
| 24 | 2 | 2 | 0 | 0 | 1 | 1 |
| 25 | 757 | 757 | 0 | 0 | 1 | 1 |
| 26 | 19 | 19 | 0 | 0 | 2 | 1 |
| 27 | 44 | 44 | 0 | 0 | 2 | 2 |
| 28 | 82 | 82 | 0 | 0 | 1 | 1 |
| 29 | 3 | 3 | 0 | 0 | 2 | 1 |

Appendix VI
Analysis of How Expanding the ES Special
Rule Affected the ES Penalties Computed
for a Random Sample of 32 Taxpayers

| Case number | Penalty calculations |  | Difference |  | Calculations required by taxpayer |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Form 2210 | Using expanded special rule | Amount | Percent of Form 2210 amount | Form 2210 | Using expanded special rule |
| 30 | 3 | 3 | 0 | 0 | 2 | 1 |
| 31 | 43 | 43 | 0 | 0 | 6 | 4 |
| 32 | 1 | 1 | 0 | 0 | 3 | 3 |

${ }^{\text {a }}$ See tables VI. 2 and VI. 3 for a comparison of the ES penalty calculations required on the current Form 2210 and the revised Form 2210 for this sampled case.

Source: GAO analysis of selected tax returns and GAO ES penalty computations using the simplified underpayment schedule and revised interest rate effective dates.

Table VI.2: ES Penalty Calculations Required for Sample Number 13 Using the Current Form 2210

|  |  | (a) 4/15/94 | (b) 6/15/94 | (c) | (d) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| April 16, 1994 - June 30, 1994 |  | Days: | Days: |  |  |
| 30. Number of days FROM the date shown |  | 61 | 15 |  |  |
| above line 30 TO the date the amount on line |  |  | 15 |  |  |
| 28 was paid or 6/30/94, whichever is sooner. | 30 |  |  |  |  |
| 31. Underpayment Number of days |  | \$13 | \$5 |  |  |
| on line 28 X days on line 30 X. 07 |  |  | \$1 |  |  |
| 365 | 31 |  |  |  |  |
|  |  | 6/30/94 | 6/30/94 | 9/15/94 |  |
| July 1, 1994 - September 30, 1994 |  | Days: | Days: | Days: |  |
| 32. Number of days FROM the date shown |  |  | 77 | 15 |  |
| above line 30 TO the date the amount on line |  |  | 92 | 15 |  |
| 28 was paid or 6/30/94, whichever is sooner. | 32 |  |  |  |  |
| 33. Underpayment Number of days |  |  | \$31 | \$5 |  |
| on line 28 X days on line 32 X .08 |  |  | \$7 | \$5 |  |
| 365 | 33 |  |  |  |  |
|  |  | 9/30/94 | 9/30/94 | 9/30/94 | 1/15/95 |
| October 1, 1994 - April 15, 1995 |  | Days: | Days: | Days: | Days: |
| 34. Number of days FROM the date shown |  |  | 107 | 107 | 90 |
| above line 30 TO the date the amount on line |  |  |  | 197 |  |
| 28 was paid or $6 / 30 / 94$, whichever is sooner. | 34 |  |  |  |  |
| 35. Underpayment Number of days |  |  | \$9 | \$39 | \$65 |
| on line 28 X days on line 34 X .09 |  |  |  | \$71 |  |
| 365 | 35 |  |  |  |  |
| 36. Penalty: Add all amounts on lines 31, 33, |  |  |  | 36 | \$251 |
| and 35 in all columns. Enter the total here and |  |  |  |  |  |
| on Form 1040, line 65; Form 1040A, line 33; |  |  |  |  |  |
| Form 1040NR, line 66; or Form 1041, line 26 |  |  |  |  |  |

[^5]On the current Form 2210, 11 calculations (results in bold) were necessary to compute the total es penalty because the underpayments in columns (b) and (c) were outstanding through January 15 and April 15, respectively, and interest rates changed twice during that period.

Table VI.3: ES Penalty Calculations Required for Sample Number 13 on the Revised Form 2210

|  |  | (a) 4/15/94 | (b) 6/15/94 | (c) 9/15/94 | (d) 1/15/95 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 29. Number of days FROM the date shown above line 29 TO the date the amount on line |  | Days: <br> 61 | Days: <br> 92 | Days: <br> 122 | Days: <br> 90 |
| 27 was paid or the next ES payment date. | 29 |  |  |  |  |
| 30. Interest rate | 30 | . 07 | . 08 | . 09 | . 09 |
| 31. Underpayment Days on Interest on line $27 \times$ line $29 \times$ Rate on 365 line 30 | 31 | \$13 | \$44 | \$99 | \$98 |
| 32. Penalty: Add all amounts on lines 31 in all columns. Enter the total here and on Form 1040, line 65; Form 1040A, line 33; Form 1040NR, line 66; or Form 1041, line 26 |  |  |  | 32 | \$254 |

On the revised Form 2210, only four calculations would be necessary to compute the es penalty because rather than tracking each underpayment until it is paid, the es penalty is calculated for the underpayment at the end of each es payment period. Any remaining underpayment balance is carried forward, and the es penalty for the accumulated balance would be calculated at the end of the next es payment period.

# Major Contributors to This Report 

## San Francisco Field Office

Ralph Block, Assistant Director
John Zugar, Senior Evaluator
Susan Mak, Evaluator
Gerhard Brostrom, Communications Analyst

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[^0]:    ${ }^{1}$ Generally, taxpayers are not liable for ES penalties if either (1) their current year's tax liability minus their withholding is less than $\$ 1,000$ or (2) their withholding covered at least 90 percent of their current year's tax liability or 100 percent of their prior year's tax liability.
    ${ }^{2}$ Only taxpayers who either made no ES payments or made four equal ES payments on time can use the short method to compute their penalties. Taxpayers using the short method merely apply a percentage rate shown on the Form 2210 to their ES underpayment to determine their ES penalty. Taxpayers who use the regular method are required to make additional calculations on the Form 2210. These extra calculations entail taxpayers calculating an underpayment for each of the four ES payment periods and a separate ES penalty amount for each period in which there is an underpayment.

[^1]:    ${ }^{4}$ The special rule was implemented to facilitate the Form 2210 update process, which concludes in December. To have the Form 2210 available to taxpayers in January, IRS must use the January 1 interest rate because the interest rate for the April 1-April 15 period is not known in December.

[^2]:    ${ }^{5}$ In the past 10 years, interest rates used to compute ES penalty amounts have increased by 1 percent 8 times and decreased by 1 percent 8 times. This pattern would tend to equalize this change's effect on ES penalty amounts. Appendix V shows the changes and when they occurred.

[^3]:    ${ }^{6}$ The maximum number of days affected by this change would be 260 days in a leap year (April 15 through December 31). In a year preceding a leap year, 106 days would be affected by this change (January 1 through April 15). The ES penalty formula would use a 365-day year rather than a 366-day year during these periods if the change were made.

[^4]:    Source: GAO analysis of Form 2210s from 1987 through 1996.

[^5]:    Source: GAO analysis of IRS Publication 505, Tax Withholding and Estimated Tax.

