

STATE OF MINNESOTA
DEPARTMENT OF PUBLIC SERVICE

In the Matter of the Proposed Amendments
to Rules of the Minnesota Department of
Public Service amending the Cost-Share
Maxi-Audit Grant Program (Minn. Rules
ch. 7660).

STATEMENT OF NEED AND
REASONABLENESS

August 1992

I. INTRODUCTION

The Commissioner of the Minnesota Department of Public Service (department) proposes to adopt amendments to Minn. Rules Chapter 7660, rules regarding the Cost-Share Maxi-Audit Grant Program.

The principal change is to incorporate currently referenced requirements into ch. 7660. Reorganization and grammatical changes are proposed to improve clarity.

The department began the present rule notification process on 16 December 1991, by publishing a note in the State Register (16 S.R. 1510) soliciting opinions and information from the public on the Minnesota Rules Chapter 7660 governing the Cost-Share Maxi-Audit Grants Program.

II. STATEMENT OF DEPARTMENT'S STATUTORY AUTHORITY

The Commissioner's authority to adopt the rule amendments is set forth in Minnesota Statute § 216C.09, which provides:

The commissioner shall dispense loans, grants, or other financial aid from money received from litigation or settlement of alleged violations of federal petroleum pricing regulations made available to the department for this purpose. The commissioner shall adopt rules under chapter 14 for this purpose.

Minn. Stat. chapter 14 requires the department to make an affirmative presentation of facts establishing the reasonableness of the proposed rules. This means that the department must set forth the reasons for its proposal, and the reasons must not be arbitrary or capricious. However, to the extent that need and reasonableness are separate, need has come to mean that a problem exists which requires administrative attention, and reasonableness means that the solution proposed by the department is appropriate. The need and reasonableness for the proposed rule amendments are discussed below.

The Legislative Commission to
Review Administrative Rules

AUG 19 1992



III. STATEMENT OF NEED

Minnesota rules governing the Cost-Share Maxi-Audit Manual were last modified effective November 21, 1987.

The changes to the Maxi-Audit Manual are needed for a variety of reasons detailed below. For the purpose of this need and reasonable statement the readers of the maxi-audit refer to the building administrators and the DPS engineering staff and may also include other consulting engineers and/or architects and the building operating staff.

Changes needed to be made because the Maxi-Audit Manual has not been effective in detailing the possible significant energy savings arrived at through changes to the operation and/or maintenance practices in buildings being audited. A more complete list of energy conservation measures that have a consistent economic benefit and significant impact on energy savings was needed. Procedures needed to be updated to those procedures that are currently being recommended in standard reference sources, such as ASHRAE. Forms needed to be updated to make them easier to use. Also grammatical changes were needed to improve the clarity of the manual.

IV. STATEMENT OF REASONABLENESS

Minnesota Statutes Ch. 14 requires the department to make an affirmative presentation of facts establishing the reasonableness of the proposed rules. This means the department must set forth the reasons for its proposal, and the reasons must not be arbitrary or capricious. However, to the extent that need and reasonableness are separate, need has come to mean that a problem exists which requires administrative attention, and reasonableness means that the solution proposed by the department is appropriate. Discussion of the need and reasonableness for the proposed rule amendments follows.

Organizational Change

The department proposes to modify the standard organization of the Cost-Share Maxi-Audit reports. It is proposed that the Maxi-Audit Report Form and the Fuel and Electric Report Form be move to a later section of the report so they appear in reports next to the other building data forms. The proposed organization is listed in Chapter I sec. A.

This is needed because it is important that the maxi-audit reports be as readable as possible. The building administrator reading a maxi-audit report

needs to be presented with the essential narrative portions of the report in an order in which these sections are not broken up with building data forms. With this organization all of the narrative and more readable sections are in the first part of the report.

This change to the organization of the maxi-audit report is reasonable since it will represent no additional effort to the auditor during the compilation of the maxi-audit report. This change was recommended by one of the authorized maxi-auditors.

Format Change to Introduction Section

The department proposes to make a change to the required format of the maxi-audit report. It is proposed that an "Introduction" section be a required part of the maxi-audit report.

An "introduction" section is needed in the maxi-audit report to give the reader an understanding of the usefulness and importance of the report. It is also needed to provide the building administrator information on the importance of energy conservation and information on financing options that may be available to the facility to finance energy conservation measures.

It is reasonable to expect that a maxi-audit report would have an introduction describing the reasons for doing the study and the usefulness of the report. Although this is a new report nearly all maxi-audit reports submitted for cost-share approval in recent years have contained an introduction. This requirement is also reasonable because the content and style of the introduction is left to the auditor.

An example introduction has been included in the manual on page A.16.

Format Changes

The department proposes to make numerous grammatical changes to Chapters I and II of the manual to improve clarity. Language is also changed in the manual to change the authority from "DPS requirements" to "requirements of the maxi-audit manual."

The purpose for this change is to assure that the requirements are known, and not subject to the judgment of the DPS staff. The changes are reasonable because what the manual says is what the DPS staff has been enforcing. Three examples follow:

As one example of these changes it is proposed that the first paragraph of

Chapter I sec. A include an opening sentence that describes the Minn Statues that give the authority for this manual.

Another example of the type of editorial changes that are proposed is the proposed change to the first sentence of Chapter I sec. B part 8. The original sentence reads "All ECMs must be analyzed using the ECM development sheet format specified by DPS." It is proposed that this sentence read "All ECMs must be analyzed and reported using the ECM development sheet format specified in this manual on pages III.9-10."

A third example of the proposed editorial changes is the proposed change to the first sentence of Chapter II sec. B part 3. The original sentence read "DPS prescribes the following formula:" and it is proposed that this sentence read "The following formula is recommended for determining savings from reduced ventilation."

The proposed editorial changes are needed to clarify the wording of this manual. In reference to the third example, the 1987 manual contained language that prescribed procedures for calculating energy savings. The auditors have always been allowed to use other calculation procedures if those procedures are described properly. This wording change, making recommendations only regarding calculation procedures, is reasonable because alternate calculation procedures have always been allowed.

Chapter I Sec. B 9

The department proposes to change the wording of this section to require that the general format of the building data forms listed in the manual be followed by those auditors choosing to create their own forms. It is also proposed that auditors that wish to use building data forms that do not follow the general format of the listed forms receive prior approval for these forms from the department.

These changes are needed to make sure that the departments technical review of an application can be accomplished without difficulty. Information that pertains to an energy conservation measure must be readily found. These changes are also needed so that during the Federal Institutional Conservation Program technical review process (when over 100 maxi-audits are reviewed) the DPS technical staff does not become overburdened by having to review maxi-audits that have several different organizations and styles of presenting building data.

These changes are reasonable since nearly all maxi-audits submitted in recent years for cost-share review have had building data sheets that are either from the manual or have a format that is similar to these forms. It is also reasonable because, in addition to providing a hard copy of these forms, it is the departments' intention to make the building data forms available to the maxi-auditors on floppy disks in several file formats.

Chapter II Section B Paragraph 2

The department proposes to change the wording of the section relating to heating plant efficiency.

The change is needed because the recommendations in this section have lead to the use of 70% for almost all buildings being audited. The manual needs to have more clearly defined recommendations so a heating plant efficiency that reflects the varying heating plant conditions found in the wide range of buildings being audited is used in calculations in the maxi-audit reports. The statement "An acceptable range of efficiencies is from 65% and 85%." is needed and reasonable so that a wide range of acceptable heating plant efficiencies are available for use by the auditors.

The department also proposes to include the following recommendation for the use of heating plant efficiency for general building types, "For older buildings such as schools that have heating plant equipment that is substantial original a heating plant efficiency of 70% is recommended. For newer buildings that have reasonably sized heating plant equipment or buildings that have had major revisions to their heating systems, such as new burners, a higher heating plant efficiencies such as 75% is recommended."

It is also proposed that the efficiency an auditor chooses for a building be justified by including a discussion in the Explanation and Alternative Calculation section of the report of the heating plant systems affecting efficiency, the assumed average combustion efficiency, and the assumed system distribution losses.

These changes to this section of the maxi-audit manual are need because the general use of 70% for most buildings being audited has at times lead to over estimations of possible savings of analyzed energy conservation measures. The choice of the heating plant efficiency used in heating degree day calculations is an important assumption that is made by the auditor and has a significant affect on the resulting energy savings. The variable base heating degree day method is

a simplified approach to calculating energy savings and as such the parameters involved in this method need to be conservative in order to avoid over estimation of energy savings. There is a wide range of buildings being audited and the auditors need to make sure the heating plant efficiency being used reflects the actual conditions in the building. Additionally, some buildings have poorly sized and inefficient heating systems and an efficiency less than 70% may be justified. The proposed changes to this section provide the basis for the justification the auditor would need to present in order to use a lower efficiency in calculations.

These changes are reasonable because the auditor needs to justify an assumption that has such a significant impact on energy savings calculations. Since detailed load analysis is not required, an engineering discussion of the factors that affect the heating plant efficiency is sufficient to justify the efficiency used in maxi-audits.

Chapter II Sec. B 1

The department proposes to change the calculation procedures recommended in Chapter II of the 1987 Maxi-Audit Manual that relate to Heating Degree Day calculations. It is proposed that the Maxi-Audit Manual recommend the use of heat loss calculations that are based on the Variable Base Degree Day method.

The Maxi-Audit Manual needs to recommend procedures that are simplified in their approach to calculating energy conservation for the convenience of the maxi-auditors and to keep the cost of the maxi-audits down. The Variable Base Degree Day method is very similar to the standard degree day base method recommended in the 1987 Maxi-Audit Manual. The significant difference between the two methods is the variable base method recommends that the base temperature at which heating degrees are accumulated is the balance point temperature of a building. The balance point temperature is the temperature at which the building needs to have its heating systems activated. The Variable Base Degree Day method is the method that is being recommended in the 1989 ASHRAE Fundamentals Handbook. This method should produce more accurate results than the current method, since the degree day base temperature is based on an estimate of the buildings' balance temperature.

It is important that the Maxi-Audit Manual recommend the use of the calculation procedures that are the most accurate and widely accepted simplified

calculations procedures. It is, therefore, reasonable to recommend the Variable Base Degree Day method since it is the simplified calculation procedure that is recommended in ASHRAE's 1989 Fundamentals Handbook. Calculation procedures are not prescribed in the proposed Maxi-Audit Manual as was done in the 1987 Maxi-Audit Manual. The recommended procedures do not prevent auditors from using other approaches as long as those approached include enough information to allow verification of the results using the recommended procedures.

Chapter II Sec B 2

The department proposes to change the calculation procedures recommended in Chapter II of the 1987 Maxi-Audit Manual that relate to heat loss caused by infiltration. It is proposed that the Maxi-Audit Manual recommend the use of a calculation procedure that is based on the method for determining air flow rates through openings caused by wind that is recommended in ASHRAE's 1989 Fundamentals Handbook.

The Maxi-Audit Manual needs to recommend procedures that are simplified in their approach to calculating energy conservation savings for the convenience of the maxi-auditors and to keep the cost of performing the audits as low as possible. These procedures need to be based on generally accepted reference data. This method is based on a formula that takes into account effective opening area, wind speed and a correction factor for the effectiveness of the opening. The area of openings can be determined from the data presented in chapter 23 of the ASHRAE 1989 Fundamentals Handbook. The average wind speed can be determined from National Weather Service data. It is recommended that a correction factor for diagonal winds be used in this calculation because it represents an average condition.

It is reasonable to recommend a simplified procedure of calculating energy savings that is based on procedures and data presented in a reference source such as ASHRAE's 1989 Fundamentals Handbook. The proposed Maxi-Audit Manual does not prescribe calculation procedures as in the 1987 Maxi-Audit Manual (see Format Changes section of this need and reasonableness statement). The recommended procedures do not prevent auditors from using other methods of calculating the energy losses associated with infiltration air such as the crack length method or the stack effect method, as long as those approaches include enough information to allow verification of the results.

Checklist "A"

The department proposes to revise checklist "A" to include additional items. The new items relate to energy conservation measures that have a consistent economic payback and a significant impact on energy savings. The department also proposes to change the wording of some of the items in this checklist so that the analysis related to a negative condition is required only if there are significant energy savings and/or a reasonable payback for the item.

The Maxi-Audit Manual needs to define the minimum set of required energy conservation measures that must be analyzed by the maxi-auditors. This is accomplished by requiring the maxi-auditors fill out checklist "A" and address the noted negative conditions by analyzing an energy conservation measure correcting that negative condition. Checklist "A" needs to contain as complete a list of typical energy conservation measures as reasonably possible so that maxi-audit reports will contain a variety of energy conservation opportunities. Some of the items in the existing checklist "A" needed to be modified so that an analysis would not be required if it is known that no reasonable economic benefit is going to be available.

The proposed revisions to checklist "A" are reasonable because energy conservation measures that address the conditions found in the proposed checklist "A" have been consistently presented in maxi-audit reports over the years. Example energy conservation measures for many of these items have been presented in Chapter II of the Maxi-Audit Manual. It is the departments intention to work with the maxi-auditors to develop additional examples and to update the existing examples as needed. These examples have been provided for the convenience of the maxi-auditors, especially those who are new to the maxi-audit requirements.

Building Condition Report

The department proposes to revise the operation and maintenance (O&M) checklists "B" and "C". It is proposed that the information collected in these checklists be presented in a more descriptive format. It is proposed that this information be presented in a report called the Building Condition Report to be filled out by the maxi-auditors and included in maxi-audit reports.

The information collected and presented in the current O&M checklist needs to be presented in a format that has a greater impact on the energy savings possible through changes to operation and/or maintenance practices

found in buildings. The current O&M checklists have not been effective in initiating changes to O&M practices. The proposed format for this report provides the auditors the opportunity to list locations or procedures that contain O&M deficiencies and to make recommendations that address these deficiencies.

The new format for the proposed Building Condition Report is reasonable because the maxi-auditors would collect the same information they would need for the current checklists, but they would present this information in a more narrative format that can be easily used by the building administrator and the building operating staff. The basic content and format of this report was developed by a firm that is authorized to perform maxi-audits through a contract with the State of Minnesota. It is the departments' intention to make this report available to maxi-auditors on floppy disks in several file formats. As described in the instructions for this report, the maxi-auditors are encouraged to modify the content of individual items in this report so they more closely match the actual conditions found in the building being audited.

V. SMALL BUSINESS CONSIDERATIONS IN RULEMAKING

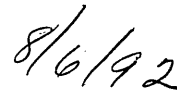
The proposed rule amendment affects a voluntary program of financial assistance to Minnesota public schools and units of local government to implement energy conservation improvements. As such, it has no direct affect on small business. Rules covering programs such as this are exempt from Minnesota Statutes, section 14.115 (1990) by subd. 7 (2) which exempts rules which do not directly affect small businesses.

VII. CONCLUSION

Based on the foregoing, the proposed amendments to Minnesota Rules Chapter 7660 are both needed and reasonable.



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Dated

