BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

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Chairman
Commissioner
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In the Matter of the Selection of a Pilot Utility to Establish Utility Energy Conservation Investments

Docket No. G, E 999/CI-80-494
ORDER ESTABLISHING PILOT PROGRAMS

PROCEDURAL HISTORY

Chapter 579 of Laws 1980 included amendments to M.S. § 216B which directed the Minnesota Public Utilities Commission (the Commission) to initiate before January 1, 1981, a pilot program designed to demonstrate the feasibility of investments and expenses of a public utility in energy conservation improvements. The legislation directing establishment of the pilot program is codified as M.S. § 216B.241 (1980).

On June 9, 1980, the Commission gave notice to all gas and electric utilities in Minnesota, to consumer groups known to be interested in energy-related matters, to the Minnesota Energy Agency (MEA), the Office of Consumer Services, Minnesota Department of Commerce (COS), and to the Minnesota Department of Public Service (DPS), that the Commission would hold a public investigatory meeting to assist it in selecting a pilot utility. Comments at that meeting or in writing were solicited.

The Commission held that meeting on June 20, 1980. Comments were received at that meeting or in writing by June 30, 1980, from the following:

Minnesota Gas Company,
Minnesota Power and Light Company,
Otter Tail Power Company,
Northern States Power Company,
Minnesota Public Interest Research Group,
City of St. Paul,
City of Minneapolis,
Minnesota Energy Agency,
Natural Resources Corporation, and
Twin Cities Piping Industry Association.
The Commission met in open deliberation on July 16, 1980, to select a pilot utility. By order dated July 31, 1980, the Commission selected Northern States Power Company (NSP), Minnesota Gas Company (Minnegasco), Otter Tail Power Company (Otter Tail), and Interstate Power Company (Interstate) as pilot utilities, and directed them to work with the MEA and Commission to develop and refine the pilot programs.

By subsequent orders, the Commission scheduled a conference on utility investments, MEA Task Force reports on utility investments, and the filing of the four utilities' specific plans.

Otter Tail and Interstate filed their plans on November 24, 1980. NSP and Minnegasco filed their plans on November 26.

Public meetings to discuss the plans were held around the utilities' service areas:

Monday, December 8, 2 p.m., Auditorium, "A" Level
Hennepin County Government Center
300 South 6th Street, Minneapolis

Tuesday, December 9, 2 p.m., Room 57, State Office Building
St. Paul, Minnesota
7 p.m., Large Hearing Room, 7th Floor
American Center Building
160 East Kellogg Boulevard
St. Paul, Minnesota

Wednesday, December 10, 2 p.m., Auditorium, Basement
Freeborn County Courthouse
Albert Lea

Thursday, December 11, 2 p.m., Council Chambers, First Floor
City Hall, Moorhead
7 p.m., Commissioners' Rooms
Otter Tail County Courthouse
Fergus Falls

Friday, December 12, 2 p.m., Council Chambers, City Hall Annex,
St. Cloud

Representatives of the utilities, the MEA, and the Commission were present at each meeting.

In addition, the Commission received written comments on the plans from the NSP Consumer Advisory Panel, the Minnesota Public Interest Research Group (MPIRG), the City of Minneapolis, Representatives Tom Stos and Ken Nelson, and the Urban Coalition of Minneapolis. NSP, Minnegasco, Otter Tail and the City of Minneapolis also filed further explanations and revisions of their plans.
FINDINGS AND CONCLUSIONS

I. Interstate Power Company

Interstate proposed to install a radio-controlled load management system in a specific residential subdivision of a selected community. The system would control residential central air conditioners and residential electric hot water heaters. The plan proposed four goals: 1) To measure the emergency or total load reduction that would occur if all controlled appliances were switched off; 2) To measure the reduction in the load of the controlled appliances that would occur when various cycled control strategies were implemented; 3) To evaluate participating customer reactions and satisfaction to the controlled load concept; 4) To evaluate the cost effectiveness of this pilot program considering all customers, participating and non-participating.

The program called for the installation of radio-controlled switches on 20 central air conditioners and 20 water heaters in 1981, with expansion to 40 of each in 1982. Several cycled control strategies would be evaluated.

Participating air conditioning customers would be offered a credit of $3 per kVA of air conditioning capacity during each of the summer months. Water heating customers currently on the controlled water heating rate would continue to be billed under that tariff; those now on one meter service would be offered a credit of $1.00 per kVA of water heater capacity each month.

Data collected was proposed to be interpreted and correlated with different cycled control strategy schedules to establish statistics on which to decide to what extent load management would be cost effective for all customers. Interstate estimated the two-year program would cost $38,600.

Interstate asserted in its filing that it had followed the guidelines of M.S. § 216B.241 (1980). The MEA stated that Interstate's peak reduction program is cost-effective relative to added peak or capacity expansion if it reduces peak by more than half a kilowatt per radio-controlled unit.

Representatives Nelson and Stoa urged the Commission to order Interstate to undertake a larger pilot program. MPEG suggested a tenfold expansion with customer override of the shutoff signal. The MEA urged a phased-in program, leading to a larger level of investment. The MEA also recommended that customers have free choice of installers for the load control devices, and that the FM switching devices become the property of the participating customers.
The Commission finds that the Interstate proposal satisfies the statutory requirement that the conservation improvements will result in energy savings at a total cost to Interstate less than the cost to produce or purchase an equivalent amount of new supply of energy.

The two MEA recommendations require examination of the legislation enabling this program. M.S. § 216B.241, subd 2 (1980) states, "The order of the commission shall provide to the extent practicable for a free choice of contractor . . . for consumers participating in the pilot program." The Commission finds that the legislative intent is best met by placing the decision on installation contracts for this plan in the hands of Interstate. It would not be practicable for homeowners, who may reasonably be expected to have no familiarity with the load control devices Interstate has proposed, to choose installers. The situation under Interstate's plan is sufficiently distinguishable from the installation of insulation or caulking and weather-stripping to require this use of the statute's flexibility.

M.S. § 216B.241, subd 3 (1980) states, "Any energy conservation improvement made to or installed in any residential building pursuant to this section shall be the exclusive property of the owner of the building except insofar as it is subjected to a security interest in favor of the utility in case of a loan to the building owner." While the Commission feels that the situation here goes beyond the contemplated scope of the statute, and is the sort of investment that should remain the property of the utility (for the same reasons that metering equipment installed on a customer's property remains the property of the utility), the Commission finds itself constrained by the plain language of the statute as currently worded, and will order that any and all load control devices installed in customers' homes become the property of those customers.

The remaining suggestion, received from numerous persons, was to increase the size of Interstate's plan. The Commission finds that 40 heating/cooling units the first year and 80 units the second year is insufficient for a meaningful evaluation of the plan, and that confinement of the plan to a single neighborhood will not allow a sufficient determination of the potential benefits to Interstate or other utilities.
Interstate will thus be ordered to increase the size of its plan, beginning with two or three feeder lines, rather than one. Interstate will be directed to maximize the number of units on each feeder line, and to seek the broadest possible variety of housing types and load patterns in the customers it uses in the plan.

II. Otter Tail Power

Otter Tail proposed a two-year study to determine the cost effectiveness of conservation investments. 100-125 houses, representing a cross-section of electrically heated homes, would be specially metered to record kWh usage and KW demand by time at 15-minutes intervals. Data would be recorded and analyzed over 12 months. The houses would then be inspected to determine which energy conservation investments and methods could make significant reductions in energy use and demand. Local contractors would make bids on these investments, and an analysis would be made to determine the savings to the customer and the net effect on Otter Tail's system. This would be compared for total cost and annualized cost with other methods of demand control, and a report would be submitted to the Commission by September 1, 1982.

The MREA found Otter Tail's plan to be unacceptable for inclusion in a pilot conservation investment program as submitted. The MREA stated the plan appeared to involve no conservation investments or other conservation activities of any kind, and did not appear to comply with either the spirit or the letter of the law. The Energy Agency recommended that Otter Tail be required to actually make conservation investments in customers' residences, and then measure the load imposed by those homes as compared to a control group.

MFIIC described Otter Tail's proposal as a "mockery of the legislation and the Commission." MFIIC argued that a Residential Conservation Services (RCS) audit would provide the analysis sufficient to determine what conservation measures would be needed in a home, and that Otter Tail should be ordered to implement a conservation investment program as proposed by another of the utilities.

Representative Stoa called the plan "laughable," and urged the Commission to implement "a true utility conservation investment program."

Representative Nelson also recommended a program incorporating some genuine conservation investments in homes throughout Otter Tail's service area.
Otter Tail supplemented its original filing by a letter on December 12, 1980. That letter stated that, in the Company's opinion, its proposal did comply with the requirements of the statute and that it would allow Otter Tail to determine where conservation investments could be justified. Otter Tail also noted it expected to spend about $3.5 million on a radio load control project to control its seasonal peak.

The Commission finds that Otter Tail's proposal as filed does not meet the requirements of M.S. § 216B.241, subd 2 (1980). That statute directs the Commission to "initiate a pilot program designed to demonstrate the feasibility of investments and expenses of a public utility in energy conservation improvements." (Emphasis added.) The goal of the legislation is to demonstrate investments in conservation, not merely to plan for them, analyze them, or develop studies about them. To meet that goal, the Commission concludes it must put into place programs under which utilities actually make conservation investments where those investments are cost-effective within the meaning of the statute.

In its Supplemental Statement of December 29, 1980, the MEA demonstrated that a utility conservation investment program, using an RCS-audit simple payback which is shorter than the lifetime of an energy-saving investment as a cost-effectiveness criterion, is consistent with M.S. § 216B.241, subd 2 (1980) as to cost-effectiveness.

The Commission thus concludes it may properly order Otter Tail to make conservation investments after performing RCS audits and within the criterion stated above. Otter Tail will be directed to select a sample group of 100 high-consuming, electrically heated homes. 50 of those homes, selected randomly, will become a control group and will be metered as proposed by Otter Tail. The other 50 will have RCS audits performed, qualifying conservation investments made, and identical metering performed.

The investments made in the 50 homes will be by a deferred principal payment plan in the form proposed by NSP in their Program 3: 5 1/4% interest, principal repayment deferred until sale or transfer of home, with the option of monthly repayment if the customer chooses. If Otter Tail chooses, it may file an alternative plan for financing the investments within 30 days of this Order.
III. Minnegasco

Minnegasco's proposal, made in partnership with the City of Minneapolis, was for a one-year program which could be continued for a second year. The program would involve educating people and financing individual energy conservation improvements. There would be three main parts to the program. First would be Neighborhood Energy Workshops (NEW), involving training sessions for residents of a 125-block target area of Minneapolis, to enable them to install low cost weatherization measures themselves. During the sessions, Minnegasco would inspect participating residents' heating systems for safety and efficiency. Minnegasco would also provide each participant a free "starter kit," estimated to cost $40. Second would be an Energy Bank, envisioned to be a clearinghouse for information about and assistance in financing energy conservation improvements. Among other programs, the Energy Bank would administer loans from $3 million in revenue bonds to be issued by the Housing and Redevelopment Authority of Minneapolis. Loans of $250 to $1500 would be available. The maximum repayments period would be ten years; and the loan would be called if the house were sold. The interest rate would be 8-9%, and loan payments would be made monthly on the gas bill. Third would be the Conservation Investment Incentive Payment (CIIP). This would be a payment from Minnegasco to its customers who make a qualifying conservation improvement and (1) participated in NEW, or (2) received a revenue bond funded energy conservation loan. The payment would be 10% of the cost of the qualifying improvement, up to a payment of $100. Qualifying improvements would include furnace replacements and other improvements costing $250 or more, with a payback of 10 years or less.

The NEW would be available in the 125-block target area, while the Energy Bank and the Investment Incentive Payment would be available to all residents of Minneapolis. Minnegasco estimated the cost of the program, for a year, to be $400,000: $75,000 for materials and labor for NEW; $300,000 for the Investment Incentive Payment, $5,000 for funding uncollectible loans; and $20,000 for promotion. The costs were proposed to be recovered through an increase in rates to all firm customers.

On December 12, 1980, Minnegasco submitted a letter clarifying certain aspects of their proposal. In that letter, Minnegasco proposed expanding the NEW target area from 125 to approximately 225 blocks, increasing
the first year costs of the program to allow full establishment of the uncollectible fund prior to the placement of the $3 million revenue bonds, expanding the applicability of the program to all residential dwellings of four units or less, and making CIPF rebates available to customers in the new target area who finance a qualifying improvement with an Energy Bank loan, including financing through the Minnesota Housing Finance Agency or the Minnesota Housing and Redevelopment Authority.

On December 15, 1980, the City of Minneapolis submitted some specific recommendations for the program. The City supported all the program elements, and suggested the program have two phases. Phase 1 would be similar to Minnesaspo’s revised plan; Phase 2 would be a significant enlargement and would include a significant program element for multi-family energy conservation. Minnesaspo projected its revised plan would cost $445,000 for the first year. The City of Minneapolis indicated a first year range of $495,000 to $525,000, with a second year range of $1,505,000 to $1,625,000.

MIPRG supported Minnesaspo’s neighborhood workshops, but disagreed with the proposed recovery of program costs from firm customers. MIPRG argued that residential conservation would make more gas available for interruptible customers, who should thus share in the program costs.

The Urban Coalition of Minneapolis suggested that the loan maximum be raised beyond $1500, that the program cover residents with high risk loans such as holders of contracts for deed, that the program cover the whole city rather than 125 blocks, that all residences be eligible for the program so that multi-family dwellings not be excluded, that greater incentive payments be made available on a sliding-scale basis, and that loan payments relative to the Commission disconnection rules be classified.

Representative Stoa found the plan disappointing, because of the small expenditure of Minnesaspo compared to the City of Minneapolis. Representative Nelson hoped the Commission would consider ordering a larger utility investment. He also felt the ten-year maximum loan terms was too restrictive, and raised several questions on the rebates.

The MFA strongly endorsed Minnesaspo’s program, but argued against a ten-year payback restriction, against restricting CIPF rebates to loan recipients, against only 125 blocks of MBN, and against a minimum $250 rebate investment (favoring a $50 minimum). The MFA urged raising the loan maximum to at least $3000, and recommended at least a two-year program, expanding in the second year.
Minnegasco asserted that its program would meet the cost-effectiveness criterion of M.S. § 216B.241, subd 2 (1980). The MEA also described the plan as consistent with the statute. The Commission finds that the plan meets the cost-effectiveness criterion.

The Commission finds that this cooperative proposal complies with the intent of the underlying legislation. Although the City of Minneapolis is making a considerably larger contribution to the program than is Minnegasco, Minnegasco's projected level of expenditure should be sufficient to evaluate the program.

The Commission will order the plan as proposed by Minnegasco and supplemented by the December 12, 1980, letter, with the following specifics: the plan will run for a minimum of two years, expanding in the second year to include multi-family rental units; the first-year NEW target area will be 225 blocks, including an area with a high proportion of high-density housing; the first-year level of the uncollectibles fund will be set at $50,000; the CIP rebates will be available as proposed, with a minimum investment of $250; the 10-year payback limitation shall be a general guideline, with flexibility granted to the Energy Bank to evaluate and make exceptions for special circumstances; the costs of the plan shall be apportioned to all customers, firm and interruptible, because the long-term benefits will accrue to all customers.

IV. Northern States Power

NSP submitted four proposals.

A. Program 1.

Program 1 would be Financing Heating System Modification or Replacement. NSP would finance the full cost of modifications or replacements necessary to improve the efficiency of gas and electric heating systems. Loans would be at 16%, payable in monthly installments for up to sixty months. Qualifying improvements would include Energy Efficient Gas Replacement Furnaces, Gas Furnace Efficiency Modifications, Automatic Set-back Thermostats, and Energy Efficient Heat Pumps. The program was proposed for the Twin Cities Metropolitan Area; anticipated financing level would be $2 million.

The MEA recommended the Commission not order Program 1 alone, since it appeared to be nothing more than an expansion of NSP's existing Attic Reinsulation Program and would do very little to test the underlying concepts of a cost-effective conservation investment strategy.
MPIRC stated that Program 1 would not be appropriate for consideration under the Pilot Program. Representative Nelson suggested that Program 1 could not really be considered a utility investment program. Representative Strom voiced general support for all four plans.

The Commission declines to include Program 1 in the Pilot Program. NSP is encouraged to pursue market-rate financing of heating systems as an expansion of their attic reinsulation program, but should do so, if it chooses, outside the framework of conservation investments.

B. Program 2.

Program 2 would be Rebate Incentives - Residential Heating Efficiency. NSP would provide a rebate to any customer who implements a qualifying conservation improvement following an RCS audit indicating a need for the improvement. $100 would be rebated for Attic Insulation, Wall Insulation, Energy Efficient Gas Furnace Replacements, or Energy Efficient Heat Pumps; $50 would be rebated for Gas Furnace Efficiency Modifications or Storm Windows and Doors. The program was proposed for implementation in St. Paul with a demonstration fund of $1 million.

The MEA, while not objecting strongly to the program, recommended against implementing it, because it would not be part of a coordinated financing program and it would be unduly restrictive as to minimum levels of investment.

MPIRC was silent on Program 2; Representative Nelson noted the popularity of rebate plans with other utilities around the country.

The Commission stated in its Order Selecting Utilities that NSP (along with Minnegasco) would provide metro-area results. The Commission did not intend thereby to foreclose the possibility of establishing programs outside the Twin Cities where appropriate.

NSP customers in the Northwestern portion of the state receive gas which NSP purchases from the Midwest Gas Transmission Company. Those customers currently pay significantly higher retail rates for that natural gas than do NSP customers in the metro area. The Commission finds that Program 2, aimed at increasing the efficient use of natural gas, would be a particularly appropriate pilot program for NSP's Midwest System customers.

Program 2 will be ordered implemented, with two changes. One will be to confine its offering to Midwest System customers; the other will be to include energy efficient gas water heater replacements as a qualifying conservation improvement.
NSP provided a program analysis which calculated the utility's cost of conserved energy on a per MCF or per KWH basis. That analysis shows the cost of the conserved energy to be less than the cost of newly produced or acquired energy. The MFA also described the program as meeting the provisions of M.S. § 216B.241 (1980) in their December 16 statement. The Commission finds this program to be cost-effective within the meaning of the enabling legislation.

C. Program 3.

Program 3 would be Deferred Principal Payment Financing. NSP would provide deferred principal payment financing for all conservation measures relating to home or water heating efficiency meeting a minimum cost effectiveness criteria following an RCS audit. The principal would be deferred with interest at 5 1/4% annually until sale or transfer of the home. The customer could also choose to repay the loan in a series of monthly installments.

The program was proposed for a minimum of 500 homes in St. Paul, with financing of approximately $1 million. NSP subsequently stated that, if the Commission wished to make the plan available outside of St. Paul, an appropriate split would be 400 homes in St. Paul and 100 homes outstate.

The City of St. Paul submitted a proposal for an "Energy Bank" as an addition to Program 3. The Bank would be a one-stop energy conservation finance center, using NSP funds, tax exempt bonds, Urban Development Action Grant funds, Neighborhood Energy Co-ops, a Department of Energy administrative funds grant, a multi-family moderate rehabilitation fund, existing City Housing and Redevelopment programs, and other private capital sources.

The City sought NSP's participation in the Energy Bank as a means of maximizing NSP's audit and financing obligations under the Residential Conservation Services program and as a means of extending NSP's conservation investments under this docket. Under the City's proposal, NSP would contribute $2 million to the Bank for energy retrofit loans, and would guarantee a $10 million tax-exempt bond issue to be privately placed by the City on behalf of the Energy Bank.

NSP stated its opposition to the enlarged investment that would be required of it under St. Paul's proposal, and argued that its involvement should be limited to the scope it had proposed until the economics of the investments could be established based upon actual experience.
The MEA recommended that, to the extent feasible, NSP should be encouraged to participate with the City of St. Paul in the formation of the Energy Bank. MEIRG urged the Commission to approve a program similar to Program 3, to test many of the issues in the interface of gas and electric utilities. NSP's Consumer Advisory Panel supported Program 3, and recommended it be expanded to include rental property of more than four units.

NSP provided an investment analysis for Program 3 which showed the utility's cost of conserved energy to be generally less than newly produced or acquired energy. The MEA stated the program would meet the requirements of M.S. § 216B.241 (1980). MEIRG also offered an analysis of the St. Paul Energy Bank proposal, demonstrating a net positive revenue effect. The Commission finds that NSP's Program 3 satisfies the cost-effectiveness criterion of the statute.

St. Paul's Energy Bank proposal offers a significant opportunity for weatherization and energy conservation in the city. Offering citizens a "one-stop" center combining many programs, all focused on improving the energy efficiency of St. Paul's housing stock, should serve to reduce confusion and uncertainty, and should greatly improve the penetration of worthwhile improvements. NSP would be an important and valuable part of that "one-stop" concept.

The additional levels of investment proposed by St. Paul would, however, be more than is necessary to evaluate the in-place effectiveness of the Energy Bank. The Commission's intention is to put into place pilot programs which may be expected to produce positive results. After the programs have had a chance to be tested and evaluated, the Commission will be able to judge which programs should be continued, which should be modified, and which should be abandoned.

Accordingly, the Commission finds that NSP's proposed levels of $1 million and 500 homes are appropriate for an initial phase of the program. The Commission also finds that the Energy Bank concept is valid and worthwhile, and will order NSP to work with the City, as part of the Energy Bank, within NSP's $1 million/500 homes limits.

Program 4.

Program 4 would be Rebate Incentives - Energy Efficient Electric Appliances. NSP would rebate a portion of the additional purchase cost of an electric appliance having an energy efficiency greater than that of the market average appliance. The rebate would be based on the savings in
coincident peak demand attributable to the use of the energy efficient appliance. Eligible appliances would include room and central air conditioners, electric water heaters, refrigerators, refrigerator-freezers, and freezers. The rebate would be up to $600 per kilowatt of expected reduction in peak demand. A demonstration fund of up to $3 million was proposed. Anticipated program costs range from $750,000 for Minneapolis alone, to $3 million to cover the seven-county metropolitan area.

The MEA recommended that Program 4 be implemented in several municipalities around NSP's service area, and urged the Commission to interpret the statute "liberally" regarding which customers would be eligible for the program.

Representative Nelson questioned the wisdom of offering rebates for the purchase of air conditioners. MPIRG thought Program 4 showed the most promise in terms of saving electricity, and suggested the Commission explore the possibility of installing devices which are directly related to the end-use efficiency of residential appliances.

NSP's investment analysis for Program 4 showed the cost per Kw of conserved energy to be lower than new generation. MEA stated the program appeared to meet the cost-effectiveness criterion of the statute, and the Commission so finds.

NSP will be ordered to implement Program 4 in all its electric service area. The Commission concludes that any NSP customer for whom NSP is the primary supplier of energy, whether gas or electricity, used for space heating or cooling that customer's home shall be eligible for Program 4.

V. Evaluation of Programs

The MEA recommended that each of the four participating utilities be directed to work with the Commission and Energy Agency to develop an Evaluation Plan for their programs. The Commission finds that such evaluation of the ongoing expenses and benefits of the programs, and the participation therein, will be essential in confirming the success or failure of the various programs, and will order the utilities to work with its staff and the MEA in developing such an Evaluation Plan.
ORDER

1. Interstate Power Company is authorized to begin its radio-controlled load management program, expanded as noted herein.

2. Otter Tail Power Company shall forthwith begin an energy conservation investment program as described herein. If Otter Tail wishes to finance the conservation investments in a manner other than described herein, it shall file a financing plan within 30 days of the service date of this Order.

3. Minnesota Gas Company is authorized to begin its program of energy education and conservation with the City of Minneapolis, within the parameters described herein.

4. Northern States Power Company is authorized to begin its Programs 2 and 4 within the parameters noted herein.

5. Northern States Power Company shall proceed to invest $1 million in 500 homes for conservation measures related to home and water heating. NSP shall provide deferred principal financing as proposed in its Program 3 for 100 homes outside the metro Twin Cities area. NSP shall provide deferred principal financing for the other 400 homes as a participant in the proposed St. Paul Energy Bank. Within 30 days of the service date of this Order, NSP shall file with the Commission for its review and approval a plan for implementing its cooperative effort with the City of St. Paul, in which plan both NSP and the City shall have concurred.

6. Within 90 days of the service date of this Order, the four utilities shall file with the Commission for its review and approval plans for evaluating the effectiveness of the investments ordered herein. The utilities shall work with the Minnesota Energy Agency and the Commission's staff in developing those plans.

7. This Order shall be effective immediately.

BY ORDER OF THE COMMISSION

[Signature]

Christopher K. Sandberg
Acting Executive Secretary

SERVICE DATE: DEC 31 1980

(SEAL)