MANAGEMENT INFORMATION ANALYSIS

WEIGHTS AND MEASURES PROGRAM

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May 1977

I N D E X

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INTRODUCTION

Early in 1971, the Bureau of Management Consulting (D.S.S.) completed a preliminary report on the strategic options for the inspection activities of the Bureau of Consumer Affairs. This study found that there was an absence of information to conduct effective planning and control. As a result, the Management Consulting Division (CCA) undertook the first comprehensive study of management information requirements for the Weights and Measures program. This latter study brought the Weights and Measures Information System (WMIS), an elaborate EDP system, into full operation at the beginning of the 1974-75 fiscal year. In accordance with the initial BMC study, the stated purpose of this system is to provide all levels of management with the information necessary for both program and operational planning and control.

The"Weights and Measures Task Force Report" published in December 1975 expressed criticism of the operation of the system due to:-

i) Little commitment at all levels of management.
ii) Coding problems due to lack of a formal training program.
iii) Lack of timeliness for certain decisions required at the District level.
iv) Product value per device inaccuracies.
v) Very limited practical use.

These criticisms were leveled at a system that:-

i) Gave rise to an EDP cost of $50,000 per annum.[1] This figure excludes the cost of staff time in the Information Systems Branch CCA (ISB) used for systems maintenance and information retrieval.

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[1] Post Implementation Study of the Weights and Measures Information System; Systemhouse Ltd.; Jan.1977; p.19

ii) In terms of input by field personnel, it is estimated that no less than 10 staff years of the 100 staff years of inspection time are used in gathering the statistical data elements and no less than 4 staff years of clerical time are used for data control.

iii) In terms of output the average District office receives over 300 different WMIS reports in 11 formats per year and a similar quantity is distributed to the Standards Directorate and Field Operations Services Headquarters (FOS HQ). In the Regional offices this figure climbs to about 800.

The information in this report has been gathered by the Weights and Measures Division, Consumer Standards Directorate, Initially, the involvement was in conjunction with the I.S.G. study and later it was carried out independently and this report attempts to define the information requirements of the current program. Certain concepts were developed by the Task Force which were not established at the time that the present WMIS was developed.

This report denotes the findings in three sections. The first section, Part I, analyses the information requirements, determines what information should be made available and recommends means by which it can be provided. The second section, Part II, examines the issue of information co-ordination between the various users and recommends changes in this area. Part III is intended primarily for consideration by those involved with collecting and controlling data as it lists specific recommendations for providing necessary data. The intention of these changes are towards simplifying this process and making it more compatible with the proposed information changes.

Unfortunately, this report does not go all the way to pre-implementation of acceptable recommendations. Due to limitations of resources and specific EDP knowledge within the Weights and Measures Division this report does not contain any data on the cost of implementation or any estimate of the decrease/increase in annual expense for operating the information system(s).

P A R T I

MANAGEMENT INFORMATION REQUIREMENTS

A) APPROACH

One of the most recognized styles for analysing integrated management information requirements is the bottom-up approach which has been formalized by individuals such as Robert V. Head.[5]

In brief, this approach suggests analysing the data available from the basic transaction of an operation (ie. in our case inspections, trader education, prosecutions etc.) and then using this to define first control information and then policy or planning information. During this process, also, data is identified as being related to various functional areas within the program (i.e. different levels of management within different areas of the department). The main advantage to this approach is that it concentrates on specific information requirements without burdening the operation with costly irrelevant information.

Basically it was this approach that was employed in this study, with some slight modifications. First there has already been considerable investigation of the data available from the program transactions (i.e. the original BMC study and the ensuing MCD study). Second, from the work conducted by the Task Force, and through issues raised by various managers within the program as a result of attempting to use the present information system, a general outline for the type of information required has been generated. Therefore, rather than re-inventing the wheel at every turn, the information available from these sources was used as a starting point in the study. The next step was to discuss the relevance of this available material with representatives of the various management levels involved.

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[5] Head, Robert V.: "Management Information Systems: "A Critical Appraisal"; Datamation; F.D. Thompson Publications; vol. 13, pp. 22-27; May, 1967.

Outside of the Weights and Measures Division, the individuals questioned were representative of the following groups:

- Regional Supervisors, W&M, and Regional Managers, Legal Metrology; F.O.S.
- District Inspectors and Asst. District Inspectors, W&M, F.O.S.
- Regional Data Clerks, W&M, F.O.S.
- Planning and Evaluation Branch, F.O.S.
- Program Planning and Co-ordination, Consumer Affairs
- Financial Services, F.A.S.B.

The general approach that was followed during these discussions was to analyse problems with existing information, identify information required yet currently not available and to determine changes necessary to provide the required information. Throughout these discussions emphasis was placed on ensuring that any proposals for providing information or making changes were in accordance with the following two criteria:

i) that they were compatible with the existing management style and
ii) that they were aimed at reducing the current resource input into information system(s).

In the ensuing sections, this report will cover the results of these discussions in terms of current information problems, functional information requirements, operational information requirements and specific proposals for satisfying these proposals.

B) CURRENT INFORMATION PROBLEMS

Early in the discussions that were held, particularly those with managers in the field staff and those responsible for program management in the Weights and Measures Division, it became quite apparent that aside from WMIS a number of other both formal and informal information systems are in existence. This is not particularly surprising considering that the program has been in existence for over 100 years. For example;

i) District inspectors are well aware of problems or bad "actors" in their area from the Weights and Measures Inspection Certificate or the Retail Pack Inspection Report even before this information is input to WMIS.

ii) Inspectors are aware of whether a device is of an approved design and what special conditions must be watched for through the distribution of Device Approval Notices (Note: Changes are currently being made to these notices to improve the information for inspectors at the request of the field staff).

iii) Regular meetings held by the District Inspector with his inspectors and by the Regional Supervisors/Managers with the District Inspectors of the region, identify problems being experienced in the inspection activity which are not covered by the formal reports.

iv) Mandatory reports by service agencies advise the District Inspector of which problem devices have presumably been repaired.

While this report could go on with many other regular or unique reports which have been initiated by various managers to support their particular style of management, this brief list should suffice to indicate that aside from WMIS there already exists an abundance of information. These information systems though, for the most part have been established for day-to-day decision making or problem solving, and with one exception which shall be noted later, satisfy their intended purposes.

Where then does WMIS fit into this already congested arena of information systems and sources? Supposedly the intent of WMIS was to provide further information for the day to day decision making process and to fulfill the need for longer range planning and control information. Unfortunately, this system is not working out satisfactorily in either of these areas. First, it is redundant to the more timely information available from other sources in the day-to-day decision making process. Secondly, it does not provide most of the information required for longer range planning and control decisions. For example:

i) In preparing the annual workplan, most of the information required has to be generated manually by the field staff.

ii) There is no report which compares the staff time planned per activity with that actually used or which determines how productively and how efficiently resources have been utilized.

iii) In the actual allocation of resources by field managers, the basis used is the number of devices within a certain zone and the grouping of those devices in terms of the equipment required for their inspection. While reports do exist that show the number of devices inspected per zone, there is no comparison to the number that must be done, nor are devices grouped according to

resources and equipment required.

iv) In pinpointing problem areas, where greater emphasis should be applied, it is recognized that the basis is the performance by trade or individual trader. It is here that practically all the factors affecting the accurate delivery of weight or measures are controlled. Unfortunately, with WMIS the emphasis for pinpointing problem areas is the performance by device class with little relationship between this performance and the trade or trader involved.

v) One of the main goals of the program is to minimize the loss to dependent parties in weighing and measuring transactions (see Appendix 1). At present, however, there is no information available which indicates what percentage of the dollar value of these transactions is lost due to inaccuracy and how loss is allocated amongst the four identified groups of dependent buyers. Hence, it is almost impossible to evaluate the performance of the program.

Just from this list of some of the more fundamental forms of unavailable information required for planning and control it is easy to understand why WMIS has missed its mark. It is also understandable why the Task Force recommended that a re-analysis should be undertaken of WMIS with an emphasis towards a medium and long range planning and control tool.[6]

Even if WMIS was capable of fulfilling the current requirements for planning and control information there are still other problems inherent in its design which preclude its usefulness. Some of the more obvious flaws are:

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[6] Weights and Measures Task Force, op. cit. pp 75-77

i) A high degree of inaccuracy in the reported information. Examples abound of reports for non-existent geographic zones, non-existent inspector codes, and devices reported as inspected which are unknown to the district concerned. Even when known errors are found the system currently lacks a means for correcting the data base.

In terms of specific errors the Task Force noted that the product value reported for one class of device was out by as much as 100%, and for another class by as much as 4000%. It is understandable why, even in areas that the current system may be of some use, it is looked on with uncertainty.

Many of these problems concerning the system's accuracy have been dealt with by the ISB in the post-implementation study. Some of the remaining problems, particularly those arising from the gathering of information, shall be dealt with in this report.

ii) Another system problem is too much information being made available to the various management levels. Strange as it may seem, with WMIS's current reporting cycle of once every four weeks, too much information is being made available for planning and control. In a realistic sense

with problems of weather delaying inspections, required equipment being unavailable when planned and a considerable time period normally between a change and its effect, the four week reporting period is much too frequent. Coupling this with the fact that some of the current information is hardly ever used there is a typical management information system problem which Russel L. Ackoff has noted as "an abundance of irrelevent information".[6]

iii) One other problem displayed by WMIS is that it distributes the same information to all managers at the same level regardless of their individual management style. For example, every district inspector receives the inspector production reports, but only half of these managers use this format. The other half feel that they have their own means of evaluating inspector production and for them the reports are wasteful and act as an irritant. This displays another common fallacy in management information design and that is the concrpt that if a "manager is given the information he is thought to need , then his decision making will improve".[7] In truth, a manager should only receive that information which he understands and which is compatible with his management style.

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[6] Ackoff, Russel, L: Management Misinformation Systems; Management Science vol. 14, no. 4 pp B-147 - B-156

[7] Ackoff, Robert L; op cit

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It is apparent that in considering the current problems with WMIS, and the amount of resources that it expends, this management information system is currently unsatisfactory!

C) FUNCTIONAL INFORMATION REQUIREMENTS

Functional information is the broad classification for information that is required in:

- evaluating the strategic options of the program in light of changing socio-economic conditions;
- evaluating the performance of the program in accordance with its current objectives;
- making decisions on existing or new program policies for the attainment of the objectives;
- modifying or developing procedures for carrying out program policies, and
- identifying critical problem areas which must be dealt with through special effort.

With the organizational structure of CCA the majority of these activities are the responsibility of the Weights and Measures Division of the Bureau of Consumer Affairs. At this level long-range planning can be described as that which extends up to five years in the future with medium range planning being in the order of one-half to one year. Also though, the Regional Supervisors and District Inspectors make decisions of this type at the field level, particularly in the application of Control Inspections or Special Surveys and Studies.

Working with the program's Hierarchy of Objectives and through discussions with personnel in both the Bureau and the field, the following type of functional information was identified as being required:

1) Strategic Information

Undertaking an analysis of the strategic options of a program is an irregular activity which normally only arises due to a change or shift in the factors with which the program is involved. Consequently, it is almost impossible to predict the specific type of information which will be required. What is required though is information or "intelligence" data which is sensitive to changes in these factors. For example advance knowledge should be known of changes in trade practices, such as self-serve gas stations, or the state of Canada's device manufacturing industry in which changes might bring about a major increase in imported devices. Once intelligence data of this type has indicated a change then it would be the information as described in the following sections which would be required in analyzing the current capabilities to meet changing conditions.

2) Program Effectiveness Measures

Information with which program effectiveness is measured indicates to what degree the objective(s) are being met. Fortunately, in weighing and measuring transactions most exchanges are monetary in nature which provides a common basis for evaluation -

"dollars". In terms of the objective to obtain minimum loss to dependent parties the information which is required (either by group of dependent buyers, geographic area or trade group of seller) is the percentage of the dollars exchanged that are lost (ie Non-Equity) due to inaccurate devices or inaccurate use of these devices.

The program's second objective of minimizing transactional functions is much harder to account for as it is a very intangible issue. What is being dealt with here is the aspect of faith that the Canadian public has in the honesty of weighing and measuring so that every household does not have its own set of scales to weigh each kilogram of bacon puchased. Aside from attitudinal surveys, possibly the best indicator of this area is the ratio of complaints regarding weighing and measuring transactions to the number of transactions completed.

3) Cost/Benefit Measures

Cost/benefit measures, as program effectiveness indicators, are essential in the evaluation of the program's contributions to the department's and the government's overall objectives. Furthermore, when a common framework for analysis has been established, this form of measurement allows for comparison between various programs in the establishment of priorities. Once again, because of the monetary nature of the transaction with which this program is involved, it is possible to obtain a direct dollar comparison between costs and benefits. One thing that must be borne in mind, however,

is that not all benefits are available for objective measurement. To be more specific both the savings due to faith in the weighing and measuring practices in Canada (i.e. minimization of transactional friction) and the loss avoided through trader compliance due to the program existance (i.e. indirect benefits) are for all practical purposes beyond measurement. Nevertheless, the direct benefits due to correction of detected problems should be compared to the program costs so that the purpose noted earlier can be fulfilled.

4) Resource Utilization Information

While the responsibility for controlling the expenditures of most of the programs' resources rests with Rield Operations Services, the policy guidelines which govern the establishment of the workplan come from the Bureau of Consumer Affairs. Hence, the Bureau via the Weights and Measures Division must have information on the amount of resources which are expended per activity within the program. This permits an evaluation of the priorities for the activities in order to establish a mix which would provide the best return for resource expenditures.

5) Environment Data

In planning any of the policies of activities with which the program is going to be involved, it is essential that information be available on the scope of the basic environment that must be dealt with. Put simply, information must be available on the number and distribution of devices, the type of devices used per trade and device accuracy versus frequency of inspections. Information of this type is also necessary for the field staff to determine, once a policy or activity has been decided upon, the amount of resources required for implementation.

6) Problem Identification Information

Possibly one of the most important forms of information for both the field staff and the personnel of the Weights and Measures Division that is required on a regular basis is that which identifies the degree of compliance with the Act and Regulations. Some of the primary indicators in this area are the % of devices rejected, the frequency of certain errors, the number of retail packages that are short on quantity and the anticipated average annual dollar loss per trade or device. From information on this form it is possible to pinpoint major problem areas upon which special attention should be focused. For example, if one of the most predominant forms of error for a certain class of device is broken or missing seals then more effort would be spent on detectiong and correcting this problem.

In this section we have broadly outlined the various forms of functional information required by different management levels in the program. A more specific breakdown of this form of information requirements can be found in Appendix 2.

D. OPERATIONAL INFORMATION REQUIREMENTS

Unlike functional information, operational information deals directly with the planning and control of resources used to carry out the pre-established policies and activities of the program. In general this information is required for:

- establishing quantifiable goals for the program's activities,
- determining the resources required to achieve these goals ,
- ensuring that the resources have been used as planned and as efficiently as forecasted, and
- modifying plans to ensure that priorities are met wherever resource shortages warrant such action

Responsibility for undertaking evaluation and making decisions of these types rests almost entirely with both the headquarters and field staff of Field Operations Services. Here, as the commitment does not extend beyond a year's period, this would be the time frame for long-range planning, with medium-range planning being undertaken in reaction to shortcomings of the yearly plan on a quarterly basis. There is also a limited requirement for this form of information by the Bureau of Consumer Affairs and that would be mainly for ensuring that the "contracted" workplan is being achieved.

To determine what type of operational information is required, discussions were held with managers at all levels of Field Operations Services using the District Information Model (see Appendix 3) as a guide. Following is a breakdown of the broad categories of operational information requirements determined:

1) Operational Planning

Once the Weights and Measures Division has prepared guidelines for the various activities that the field staff is to carry out over the following year, it is up to the field managers to determine the resources that will be required and the production level that can be expected. To provide these forecasts, information is required on:

- budget allocations;
- device population broken down by class, geographic location and type of resources required to conduct an inspection,
- standard inspection times for different production units (i.e. device inspections, retail-pack inspections),
- historical information on the ratio of administrative and sick leave time to total staff time.

2) Budget Control and Resource Utilization

Budget control is normally supported with data provided by the D.S.S. Management Information Report on actual monetary expenditures versus planned expenditures. In this area though, once a manager has committed resources

he normally has little control over expenditures, particularly salary expenditures. Where the real control aspect comes in, is in terms of resources allocated and utilized between the various activities. These resource allocations have already been established and agreed to in the work-plan prior to the beginning of the fiscal year and it is necessary for the field manager to monitor the actual utilization to ensure that the plan is being carried out correctly.

3) Production Performance

Incorporated in the annual work plan is an estimate on the number of production units to be achieved per productive activity. In controlling this element, information must be provided which will answer two questions; first "has the planned number of units been achieved" and then "have they consumed the resources that were anticipated". The first question deals with the effectiveness in achieving planned production and consists of a comparison between the number of units planned and the number actually accomplished per activity. The second question is much more revealing in that it determines whether resources have been used as efficiently as they could have been. This information is required as within the different activities, production units can consume a varying amount of resources, hence it is necessary to compare the actual resources used to the standard resource that should have been used for that particular mix of production units.

4) Staff Evaluation

The information requirements for staff evaluation is a sensitive issue for two reasons: first, the introduction of WMIS did away with the preferred manual form for reporting inspector production and second there is disagreement over the usefulness of the WMIS inspector production report.

On the first issue, most District Inspectors found that the WMIS report could not provide the information necessary for day-to-day decisions as had the old Inspectors Daily Register. As a consequence, many districts reintroduced an unofficial version of this daily production report. At the present time though, there is no consistency in reporting and it is necessary for the districts to produce their own forms by photocopying.

On the second issue, there are a number of District Inspectors who appreciated the aggregated inspector production report prepared by WMIS as supplementary information to the daily form. Conversely, several DI's do not like this report as it does not fit with their management style and they wish that it would be eliminated.

These observations on broad information requirement categories have been listed to give some indication of the purpose for operational information. A more specific breakdown on the information being sought for operational purposes can be found in Appendix 4.

E) INFORMATION REQUIREMENTS OF SENIOR MANAGEMENT

In most management information systems, reports being distributed to senior management are simply the ultimate aggregation of functional and operational information in the same format as those prepared for lower level management. This practice is normally inappropriate as the reports required at the lower levels are broken down into many more sub-elements and covers a much broader scope than is required by senior management. At this upper level normally all that is required is an overall performance report that shows the program's performance as succinctly as possible, in one or two pages at most.

The type of information that should be included in these reports to senior management is:

1) Program Effectiveness
   - how does the program's achievement of its objective compare with previous periods?
   - for the Weights and Measures program this should include an indicator on the percentage of the monetary loss (i.e. non-equity) in transactions due to inaccurate devices or inaccurate use of devices.

2) Program Efficiency
   - what return is there for the resources spent on the program?
   - for this program this should be an indicator of the non-equity averted per dollar spent.

3) Operational Effectiveness
   - to what extent have problems been detected?

. here a possible indicator could be the percentage of devices or retail packages that were found not to be in error.

4) Operational Efficiency
   . are product units being achieved with the same amount of resources?
   . here three indicators are proposed:
      a) the number of standard units of output, as set during a previous period, per current man-day of inspection, (i.e. on measurable productive activities)
      b) the percentage of total staff time spent on un-measurable productive activities, and
      c) the percentage of total staff time spent on overhead activities.

5) Work Plan Achievement
   . have the number of production units planned for been achieved?

6) Resource Expenditures
   . how does actual resource expenditures compare to budget?

F) PROPOSED REPORTS AND INFORMATION AVAILABILITY

To fulfill the information requirements identified in the preceding sections it is proposed that the following selection of reports, and forms in which information can be made available, be developed either through modifications to the existing WMIS or the introduction of manual reports.

1) WMIS Modifications - Regular Reports

During the analysis of current information shortcomings it was found that none of the existing WMIS reports completely fulfills a specific information requirement. Consequently, the following reports are those which have

been proposed as replacements to the regular reports currently being produced by WMIS.

a) Device Distribution by Class (See figure 1)

This report on device distribution by class has been designed specifically for use by the District Inspectors and Regional Supervisors/Managers. The purpose of this report is twofold;

i) to provide a breakdown of the device class population per district, both by zone and by grouping based on resources required, which is needed in the preparation of the work-plan.

ii) to provide each district with a report on scheduled devices inspected year-to-date, using the same breakdown as in i), so that comparative information is available for control purposes on completion of zone inspections.

The purpose for breaking down the device distribution into these groups not only assists in developing the work plan but can also be indicative of why a particular group or class was not completely inspected. In many instances, not all the equipment or resources required to inspect a particular device class are under the control of the District Inspector (i.e. Heavy-duty test trucks, Railway track cars). By breaking down devices according to these groups then there is some indication of who was actually responsible for reduced production. For a complete breakdown of these device groups, along with the classes they encompass, see Appendix 5.

In the format of the report itself, for all regions except Quebec, only itinerate and intermediate devices would be reported by zone, for each of the other device groups only the district total would be reported. In the Quebec region however it has been requested that all device groups be broken down by zones. It will also be noted in the report format that each device class is broken down into mechanical (M), electronic (E) or computing electronic (C). This change is to correspond with a proposed change in the device class codes (see Part III).

The report on device distribution would be generated quarterly, throughout the fiscal year starting at the end of the first quarter, with a copy to each District Inspector and a duplicate to his Regional Supervisor/Manager.

b) Non-Scheduled Inspections by Districts (see Figure 2)

Similar in nature to the first report, this report lists from the past fiscal year and the current year-to-date the number, by class, of devices which have been inspected under other than scheduled inspections. The purposes of this report are;

i) to provide historical data, required in the preparation of the work-plan, on the workload associated with other than scheduled devices inspections, and

ii) to compare the current workload for other than scheduled inspections with the previous workload to understand deviations in the work-plan and to control discretionary inspection activities

(i.e. Control Inspections, Re-inspections, Approvals and Request Inspections).

The frequency and report distribution would be identical to that proposed for the first report.

c) Average Composite Units (see Figure 3)

The calculation of the average composite unit per class of device inspected on a scheduled basis, or per retail package inspected, is a measure of the average time taken to examine one of these items. Each composite unit corresponds to thirty (30) minutes of inspection time. As such, this information is required for two purposes:

i) to determine the resources required per device, or retail package, planned to be inspected as part of the work plan, and

ii) to determine whether operational efficiency is being maintained in terms of the inspection time per item.

To satisfy these two purposes the Average Composite Unit report has been proposed which would compare these units per class of device, and type of retail package, inspected for the past year and the year prior to that on a district, regional and national basis. This report would also note the number of records from which each average was generated in order that some indication of the statistical validity would be available.

As used for the first purpose, it is proposed

that in preparing the annual work-plan a DI would multiply the regional average figure for a particular item from the past year by the number of those items, or output units, to be inspected in the next fiscal year in order that the staff-time required can be determined. Here, the average regional figure has been suggested as this is reflective of regional conditions and there should be sufficient inspections per device class over the past year to yield statistically valid figures. In most districts there are insufficient inspections that could be used to generate valid figures for all device classes. However, in those cases where a DI feels that the district figure is valid and it is significantly different than the regional figure, then permission could be sought from the Regional Supervisor/Manager to use the district figure.

To support the second purpose this report will provide a comparison between figures for the last two years prior to the report date and also between the district, regional and national averages. This allows the manager concerned to compare his own figures over time and his own figures against the averages obtained by the region as a total or nationally.

It is proposed that this report only be prepared once per year, at the end of the second quarter, in time for preparing the work-plan. Each District Inspector would receive the report for his district with a copy going to the Regional Supervisor/Manager. At F.O.S.-H.Q. and the Weights and Measures Division,

one report would be received for each region. These reports would be identical to the reports received by the regional offices with the exception that no district figures would appear.

d) Time Utilization Summary (see Figure 4)

One of the most important management control tools is a report which compares the planned utilization of resources to the actual utilization for identified activities. It is to this end that the Time Utilization Summary has been prepared. In essence this report is similar to the Time and Financial Report currently prepared by WMIS but with the major difference being that the financial aspect has been removed. The decision to remove this information was based on the knowledge that there exists another information system which provides a financial overview and also on a medium range basis there is little the field managers can do to alter the financial expenditures, short of reallocating staff-time.

As with many of the preceeding reports, the Time Utilization Summary serves two purposes;

i) to provide historical data, required in the preparation of the work-plan, on the percentage of staff-time utilized in activities that tend to be uncontrollable (i.e. administrative time plus sick and special leave) and

ii) to provide information for the control over resource allocation by comparing planned to actual utilization and by comparing the percentage of total staff-time used per activity over dif-

ferent periods.

In this report for each period, and for the year-to-date, the planned resource allocation as provided by the agreed upon work-plan would be compared to the actual utilization and a variance percentage would be generated. Also, the percentage that each activity uses of the total available staff-time will be reported for the current period, the current year-to-date, and the previous year up to the same period.

It is proposed that this report be generated at the end of every quarter with the following distribution;

- District Inspectors - District report
- Regional Supervisors/Managers - Regional summary and a copy of the district reports for that region.
- F.O.S.-H.Q. - National summary and a copy of each regional summary.
- Consumer Standards Directorate - the same as for F.O.S.-H.Q.

e) Production Report (see Figure 5)

Basically this is a new report designed to supplement the information contained in the Time Utilization Report by comparing the actual number of output units (i.e. devices or retail packages) that have been inspected versus planned output. Also, this report will compare the actual composite units utilized for the inspection activity period to the planned composite units and to the number of composite units that

should have been utilized for the particular units inspected. The latter figure will be developed from the average composite units per class of device or retail package used in calculating the work-plan. The purposes for this report are:

i) to provide information for control purposes in ensuring that the work-plan is achieved in terms of the planned production of output units, and

ii) to provide information for control purposes in ensuring that resources have been used as efficiently as planned (i.e. that the composite units used in the inspections are comparable to the average figures used in preparing the work-plan).

As can be seen in the report layout, the number of production output units actually achieved under each of the different types of inspection are compared to the planned output for the current period and year-to-date. Also, for scheduled devices inspections there is a further breakdown into the different device groups as proposed in Appendix 5. This has been done so that for those groups where the manager has no control over the equipment required (i.e. Railway track scales) he cannot be held totally accountable for not achieving planned production. Basically these comparisons indicate whether the field has been effective in achieving the planned production.

The second emphasis of this report is the comparison of the composite units that were actually utilized to those that should have been utilized for the output

units inspected. Here there shall be two forms of comparison; first the actual versus the planned composite units utilized for the period; second, the actual composite units versus the composite units that should have been utilized based on the average composite units set as a standard for establishing the work-plan (i.e. standard composite units). This second comparison is the most important as it shows, for those devices and retail packages actually inspected, whether the field had been able to keep to the average composite units per inspection previously required i.e. whether the field has been efficient as planned.

It is proposed that this production report be issued at the end of each quarter with the same distribution as the Time Utilization Summary.

As an additional point, it will be noted that this report proposes to break down retail packs inspections into pre-packaged items and clerk-served items. This change from the current practice of only reporting pre-packaged items is in accordance with a plan of the Weights and Measures Division to introduce a regular inspection activity for clerk-served items.

f) Device Inspection - Performance by Trade and Class (see Figure 6)

Fundamental to the W&M Program as an indicator of progress towards objectives, and for identification of problem areas, are the results in terms of device inaccuracy found during the scheduled inspection activity. Furthermore, as it is recognized that device accuracy is highly dependent on the trader, it is

essential that information of this fact be made available which relates inspection results directly back to the trade group concerned. To this end, the Performance by Trade and Class report on device inspection was designed. Specifically, the purposes for this report are:

i) to provide data on detected device inaccuracy for the development of program priorities and the modification of program policies regarding device inspections, and

ii) to provide control information on the extent of inspection effort applied versus the degree of non-compliance per trade.

For each of the 59 different trade groups, during both the current period and the year-to-date, this report shall note the total number of devices inspected, the total scheduled devices inspected, the percentage of scheduled devices in error and the percentage of scheduled devices rejected. For the same two time periods, and then in average form from the previous three fiscal years, this report shall also record the average non-equity per scheduled device inspected. In addition, within each of the trade groups reported on, the same information as noted above shall be recorded for each device class where there has been ten or more scheduled inspections year-to-date and the year-to-date percentage rejected figure is equal to a greater than 10%. The combination of all of this information will not only permit identification of those trades with the greatest degree of non-compliance

but it shall also permit pinpointing of those device classes within the different trades where the greatest effort should be applied in terms of control inspections.

The last three items reported for just the trade groups (i.e. the number of total inspections per trade, the percentage of these inspections that are control or reinspections and the percentage of total inspection time devoted to the trade) indicate the extent of inspection effort directed towards a particular trade. For the program and field managers this information will indicate whether sufficient effort has been directed towards those trades which pose the greatest problems.

This report shall be made available on a quarterly basis, the same as the two preceeding reports, and it is recommended that the distribution be the same as for those reports.

g) Device Inspection: Performance by Class (see Figure 7)

Almost identical to the Performance by Trade and Class report is this report on the performance by class only for device inspections. The main difference between these reports is that the latter report will list aggregate results for all devices per class, regardless of in which trade they are found. Also, there shall be no indication of the extent of inspection effort applied as there is in the preceeding report.

The purpose of this report is to provide data on the performance of an entire class of device. From this information may come policy changes regarding

inspection activities towards a specific class of devices. As it is felt that this report is not required as frequently as the preceeding report, (i.e. it tends to be more of a general overview) it is proposed that the distribution be the same as for the preceeding report but that it shall only be prepared twice a year, at the end of the second quarter and at the end of the fiscal year.

h) Retail Pack: Performance By Trade (see Figure 8)

Serving the same purpose as the report on Performance by Trade and Class for devices inspected is the Performance by Trade report for that other major activity of the program - Retail Pack Inspections. In this report, for each trade, there is a breakdown of the number of units inspected, and results found, for both pre-packaged items and clerk-served items. In addition, information is given on the extent of inspection effort, follow-up work and enforcement undertaken by inspectors per trade. The purpose of this information is to:

i) provide data for the establishment of priorities and the modification of program policies concerning retail pack inspection activities, and

ii) to provide control information on the extent of inspection effort applied versus the degree of non-compliance per trade.

Specifically, the information to be recorded per trade, for both the current period and year-to-date, is as follows;

i) for the trade in total,
   - the number of inspections
   - the percentage of inspections that are follow-ups of previous inspections
   - the percentage of inspections that involve an enforcement action by the inspector (i.e. either verbal warning, a request to reweigh or repack, or a seizure and detention action).

ii) for both pre-packaged items and clerk-served items inspected in a particular trade,
   - the number of packages in the lots inspected (for pre-packaged items only)
   - the number of packages sampled
   - the percentage of sampled packages which were marginal, i.e. short on quantity but within the tolerance allowances
   - the percentage of packages sampled which are defective, i.e. short on quantity in excess of the tolerance allowed.

iii) finally, for the trade as a total there would be information on the estimated average non-equity per store based on the results both for pre-packaged and clerk-served items. This information would be reported for the current period, the year-to-date and as an average from the past three fiscal years.

It will be noted that there shall no longer be a WMIS report on the performance by commodity. This has arisen out of the recognition that the type of commodity has little influence on the accuracy of quantity delivered and that it is mainly the traders' actions which influence this factor.

As retail pack inspections are undertaken by both Weights and Measures inspectors and Consumer Fraud Protection inspectors it has been proposed that there be a report for each of these groups and then one combined report. Hence, a District Inspector would receive three reports per quarter; one for W&M, one for CFP and then one combined report. Similarly Regional Supervisors/Managers would receive regional summaries of each of the three reports and copies of each of the district reports. For both the Weights and Measures Div. and F.O.S.-H.Q. there would be a national summary of all three reports and a copy of each of the regional summary reports.

i) Non-Equity Report (see Figure 9)

Directed specifically at measuring the programs achievement of objectives is the Non-Equity Report. Here, using the basic indicators as proposed by the Weights and Measures Task Force[6], the report is designed to show the percentage of non-equity found in both consumer and non-consumer transactions as a result of unintentional device inaccuracy, fraudulent device inaccuracy and retail pack shortages. The stated purpose of this report is to provide relative indicators of the program's achievement of its objective to minimize loss to dependent parties.

More specifically the information that shall be reported (by region and then summarized nationally) for the current period, the year-to-date and as an

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[6]Weights and Measures Task Force Report, December 1975, Annex 12

average of the last three fiscal years is:

i) for devices used in consumer transactions and retail packages:

- the percentage that unintentional non-equity arising from device inaccuracy represents of total annual monetary transactions. Here, as defined by the Task Force, unintentional non-equity is indicated by the extent of non-equity produced by under-indicating device errors. To obtain a total indication of current non-equity the results of these over-indicating errors, found during scheduled inspections, would be weighed by the number and type of devices found throughout the region or throughout the nation.
- the percentage that fraudulent non-equity in devices represents of the total annual monetary transactions. Once again using the Task Force definition, fraudulent non-equity is the difference between the extent of non-equity due to over-indicating errors and the extent of non-equity due to under-indicating errors.
- the percentage of the annual dollar value of retail packages sold that is estimated to be lost due to shortages. This information is calculated by determining the average loss found per trade group and then extrapolating it to the annual sales of retail packages for all stores of that trade in the geographic area of concern.

. the percentage that total non-equity represents of total monetary transactions.

ii) for non-consumer transactions, which would also include dependent sellers and government buyers, the same information on device non-equity as for consumer transactions would be reported.

iii) for the total program,

. the dollar value of non-equity found during inspections
. the total dollar value of non-equity for all transactions extrapolated from the inspection results and data on the total population of devices or trade outlets.
. the percentage that total non-equity represents of total monetary exchanges for all transaction types.

As this report is required primarily to provide functional information it will not be distributed to the District Inspectors. Instead, this report will be prepared at the end of each quarter, with copies being distributed to the Weights and Measures Div., F.O.S.-H.Q., and all Regional Supervisors/ Managers.

j) Weights and Measures Performance Report (see Figure 10)

To fulfill the requirement for a condensed summary of information for senior management on the Weights and Measures program, this Performance Report has been developed. Basically, the same format of the report will be prepared for all senior managers

and it shall cover the achievement of the work-plan, operational performance and overall program performance. In addition, specific comments on the reported performance will be added to the report by subordinates before it is presented to senior management.

The specific information to be contained in this performance report is as follows;

i) Device Inspection Information, - Note: this information would remain unchanged for the entire fiscal year;
   - . total device population in Canada
   - . the number of devices that should be inspected to meet the requirements of the Regulations.
   - . the number of devices planned for scheduled inspections in accordance with the work-plan.

ii) Work-Plan Achievement - Note: this information would be reported on a year-to-date basis and would compare planned to actual with a calculation of the percentage variance.
   - . scheduled devices inspected
   - . composite units of scheduled device inspections
   - . retail packages inspected
   - . composite units of retail package inspections
   - . productive man-time utilization, i.e. total staff-time less holidays, external training, sick leave and special leave.

iii) Operational Effectiveness - Note: In this section, and those remaining, the results of the current year are compared to those from a

selected base year and an index is generated comparing these two periods.

. percentage of devices found during scheduled inspections which contain any form of error.

. percentage of retail packages inspected that are either marginal or defective.

iv) Operational Effectiveness

. man days of inspection time per composite unit of output. Here the average composite units used per device class or retail package would be those achieved during the base year.

. unmeasurable productive time (i.e. travel, investigation and enforcement, plus surveys and special studies) as a percentage of total field staff-time.

. overhead time (i.e. administrative, holiday leave, external training, internal training, sick leave and special leave) as a percentage of total field staff-time.

v) Program Effectiveness

. the percentage that total non-equity represents of total monetary transactions.

vi) Program Efficiency

. program cost per dollar of direct savings due to the non-equity eliminated as a result of discovered inaccuracies or non-compliance.

The proposed distribution of this report on a quarterly basis is as follows:

. One copy summarizing the regional results will be prepared for each Regional Director.

This report would first be issued to the Regional Supervisor/Manager for the addition of comments.

- One copy summarizing the national results will be prepared for the Bureau of Consumer Affairs. This report will be received by the Weights and Measures Div. and then shall be passed along with comments to Director, Legal Metrology and Laboratory Services. After perusal, the report would be forwarded with any additional comments to the Director General, Consumer Standards Directorate, by whom it could be presented to the ADM, Consumer Affairs.
- Another copy of the national summary would be issued to the Planning and Evaluation Branch, F.O.S.-H.Q., for comments before being presented to the ADM, Field Operations Services.

2) WMIS Modifications - Request Reports

In lieu of receiving regular reports on information that is required on an infrequent basis or that may not be required by all managers at the same level, it is proposed that certain reports be made available only on request. Basically, these reports will have already been defined in terms of content and format, but shall only be issued when they are really required. Also, to ensure confidentiality these reports, as well as any ad hoc reports, would only be issued to a manager for the areas or items for which he is responsible. To date only two such reports have been defined.

a) Device Inspection Detail Report - Errors By Class (see Figure 11)

This report is similar to the existing WMIS report of the same title and, like the original, is intended to denote the frequency of the 18 possible error types per class of device. The only change that is proposed from the original is that the errors reported be only from scheduled device inspections. Errors noted and recorded from other forms of inspections would distort the true picture in terms of expected error types per class.

b) Inspector Summary (see Figure 12)

Information on the production of an individual inspector as currently provided by WMIS has created quite a controversy in the field staff. Some district inspectors have felt that they do not require this information while others maintain it is essential for evaluation purposes, on an irregular basis. Therefore, as a solution to this difference of opinion, and so that managers who do not wish these reports are not burdened by them, it is proposed that this become another request report.

In addition to changing this report from a regular to a request basis, certain changes were also requested to the format. With the new reporting format, for each class of device that has been inspected by the inspector, both the total devices inspected and scheduled devices inspected would be reported. Also, the percentage of devices found in error and rejected for the district year-to-date

would be presented to allow a comparison between the inspector's findings and the average for the district.

In some districts inspectors are required to prepare their own work-plan which then becomes the basis for the district work-plan. Subsequently, in order to check on the achievement of these individual work-plans it was also proposed that a second section of this report show the amount of staff-time spent on various activities and the number of production units achieved. The breakdown of the activities would be the same as that used in the Time Utilization Report (see Figure 4) and the production units would be either devices inspected or retail packages inspected. The report would only record the staff-time utilized and the production units inspected for the year-to-date at the time the report was requested and would not show planned figures.

3) WMIS Modifications - Ad Hoc Reports

Ever since the implementation of WMIS it has been possible to obtain ad hoc reports or statistical computations for practically any combination of the data collected. Having this capability is extremely advantageous for it allows managers of the program to extract information that is required on only a one shot basis, or extremely infrequently, without the necessity of a pre-determined and pre-created EDP program. Up to now though the requests for ad hoc reports have been quite minimal, some of the reasons being;

i) little faith in the accuracy of the data maintained on the base,

ii) lack of a specific procedure and a specified contact for requesting these reports, and

iii) a shortage of resources within ISB necessary to prepare the programs for these ad hoc reports.

It is felt that with the changes proposed within this report, and the post-implementation report prepared by ISB, most of these problems will be overcome. There already exists a need for ad hoc reports such as;

- Percentage error and rejection rate versus period of last verification per device class.
- Percentage error and rejection rates by class of device for control and re-inspections.
- The number of devices by class which have a metric or avoirdupois indicator.
- The average inspection time, in composite units, by device class by trade.

4) Manual Reports

As noted earlier there already exists an abundance of reports, aside from those prepared by WMIS, within the program. In discussing these various reports with the different field and headquarters managers it was found that in most cases they fulfill the purpose for which they were designed. However, there were two areas in which changes should be made.

a) Inspectors Daily Register (see Figure 13)

Prior to WMIS's implementation each inspector was required to provide an account of device inspections undertaken on a daily basis, along with the fees received. This reporting format, known as the Inspectors Daily Register, was officially terminated when WMIS came on line as it is felt that this system could provide the same information. Unfortunately, experience has proven this proposal incorrect with the result that many district inspectors have re-introduced their own version of the old Inspectors Daily Register.

While the required information is now being received, albeit in a very inconsistent manner, this has still not helped in the recording of revenue collection which was modified when the old form was dropped. At that time a new receipt process was introduced along new forms for the transmittal of revenue via the mail. It has also been necessary to prohibit inspection certificates from being sent via the mail, so that should any fees or invoices sent through the mail be lost the invoices could be reconstructed from the retained certificates. This new procedure requires inspectors to hand deliver the certificates to the district office and as such goes against normal field practice as, in accordance with the Regulations a rejected device must be repaired within 10 days, the District Inspector must know almost immediately that a device has been rejected. This presents

a problem as in many cases an inspector will not return to the district office for three weeks.

To overcome the current problems with revenue recording and having a variety of different inspector daily registers it is suggested that the Inspector Daily Register (CCA-682) be formally adopted. By completing the form in duplicate and then sending one copy to the district office along with the certificates and revenue collected the following benefits would be realized:

i) the District Inspector would then receive notice of rejected devices within the required time period,

ii) if the certificates and all are lost in the mail, invoices could be reconstructed from the inspector's copy of the form,

iii) there would be no requirement for a separate receipt for the inspector as his copy of the form could be verified by the clerk handling revenue,

iv) there would no longer be any need for a separate transmittal notice (form CSGB 44) when revenue is sent through the mail, and

v) it would be easier for the inspector and the revenue clerk to reconcile the revenue received.

In addition to the advantages listed here there is also an advantage whenever an audit is undertaken of revenue collection procedures. This form would provide an audit trail through inspection numbers, certificate number and zone code.

To achieve the benefits mentioned here it would only be necessary for inspectors to record on the form;

- . date
- . zone code
- . certificate number
- . fees collected and deferred
- . trader's name (in the detail column), and
- . the breakdown of how revenue is turned over to the revenue clerk.

The remaining data on the form, or any other data, need only be provided as decided by the District Inspector or Regional Supervisor/Manager.

Therefore, it is recommended that the Finance and Administrative Division introduce this change to the current revenue collection procedures.

b) Narrative Report

A major drawback to any computerized information system is its inability to provide information based on intuition or feelings that people have about situations that are developing. This is particularly true in the Weights and Measures program where there is a lack of feedback from the field staff to the Weights and Measures Div. on new trends which seem to be developing. It is information of this type which is the "intelligence data" mentioned earlier as a requirement for strategic planning.

To overcome this shortcoming it is proposed that a quarterly narrative report be prepared on any problems or conditions which seem to be arising. Some examples of the type of information which could be included are;

i) particular makes and models of devices which are creating problems,
ii) current policies or procedures which appear inadequate, inappropriate or out-of-date,
iii) problems being experienced with particular trades or service organizations, and
iv) changes in trade practices of device usage which may cause problems.

It is suggested that these reports originate with the District Inspector and be sent along to the Regional Supervisor/Manager for summarization. This would alert the Regional Supervisor/Manager to issues that may only relate to his region. The summarized version should then be sent to the Weights and Measures Div. for identification of national problems.

At this time discussions are already being held between the Weights and Measures Div. and the field staff on the implementation of just such a report.

PART II

INFORMATION CONTROL AND CO-ORDINATION

INFORMATION CONTROL & CO-ORDINATION

There are in essence four parties involved with the management information system for the Weights and Measures program first, there are the three main user groups;

- Weights and Measures Division, Consumer Standards Directorate
- Planning and Evaluation Branch, F.O.S.
- Regional Supervisors/Managers and District Inspectors, W&M, F.O.S.

and then there is the service groups which ensures the continued EDP operation of the system, the Information Systems Group. In a situation such as this, where four fairly autonomous groups are involved with one system, it is essential that precise arrangements be made and agreed upon for all aspects of information control and co-ordination. For WMIS these arrangements would have meant to define exactly who is responsible for;

- continually analyzing the current and future information requirements of the users.
- undertaking a continuous analysis of the accuracy of information generated.
- maintaining and issuing amendments to user documentation.
- conducting user seminars and developing training programs for inspectors.
- assisting users in analyzing requirements for ad-hoc reports and determining their feasibility.
- coding requests for ad-hoc reports.
- acting as a central authority for the definition of system variables, and
- acting as a focal point between all parties for the resolution of system problems.

Unfortunately, at the time WMIS was implemented none of the four parties involved assumed responsibility for any of these functions with the result that there was no-one to ensure the continued on-going validity or effective utilization of this system.

As a result of this lack of control and co-ordination several problems have materialized,for example.

- There has never been anyone to decide upon national changes to the system with the result that some managers have made independent decisions on changes.
- When system problems have been detected by regional data control clerks they were unaware as to whose attention these problems should be brought for correction. In several cases where one party has not responded to a request by these clerks, they have had to turn to another party.
- There has never been procedures developed for requesting and preparing"ad-hoc" reports with the result that the field staff has been unaware of what information could be available.
- As noted by the Weights and Measures Task Force[7] some of the current system problems stem from a lack of ensuring the accuracy of the information defining nationally system variables and developing training programs for inspectors.

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[7] Weights and Measures Task Force, op. cit.

Late in 1975 there was some recognition of the need to undertake the functions noted when the ADM's of the Bureau of Consumer Affairs and Field Operations Services agreed to establish a position for just that purpose. At that time it was agreed that while this position could only be in one of these organizations it would be bi-functional in nature i.e. that it would serve both equally. Unfortunately this position was never classified, nor were the functions assumed by other positions, with the result that some of the system problems just continued to grow.

As a result of the current situation it is recommended that a position of Information System Co-ordinator be established in the Legal Metrology and Laboratory Services Branch, Consumer Standards Directorate, fulfilling the original agreement and assuming basically the same duties that were originally proposed (see Appendix 7). It is further recommended that the classification and staffing action for this position proceed as quickly as possible so that the candidate could become fully involved with any of the changes proposed in this report and thus become fully aware of the modified system if and when it becomes operational.

PART III

SPECIFIC CHANGES

SPECIFIC CHANGES

In order to fulfill the information requirements proposed in Part I there are specific changes that need to be made in modifying the WMIS. In addition, there are changes to the means by which data is collected and recorded that would make these tasks easier and reduce the resources currently consumed.

A. Non-Equity Data Collection

1) Devices

Non-equity information or product value data is necessary for the program to be able to determine the achievement of objectives and to set priorities. Unfortunately the current method of collection is both wasteful in terms of resources and highly inaccurate. For example it has been estimated that close to 3.5 man-years of inspection time are spent annually in collecting just this data element and for one device class the product value found is known to be out by 100%.

To overcome this situation it is proposed that product value data be gathered via a sample method from which a table of the average annual product value per class of device within each trade would be established. This table would then be used in the non-equity calculations for a three year period, during which period the table would be adjusted by known price changes. Then at the end of the three year period another sample would be undertaken to re-establish the table figures.

The sample plan would involve having about eight district offices, selected to ensure a proper representation of all trade and device classes, collecting the product value information for all device inspection over a year's period. To improve the accuracy of the collected data three changes would be involved;

- the inspectors involved in collecting this data would be specifically trained in how to determine this data,
- the product value for each class inspected would be recorded on the Device Inspection Certificate (CCA-689) rather than one value for all classes as is done currently,
- the actual product value per class in ,000's of dollars would be recorded (CCA-684) rather than pre-grouping by dollar intervals as is done now. For each class there would be space for four (4) digits allowing values from $1,000 to $9,999,000.

By implementing these proposals it is expected that the product value can be brought to within 15% of the true value and less than 2 staff-years, rather than the current 10.5, would be used over a three year period in collecting this data.

2) Retail Pack

The current non-equity or dollar loss determined from retail pack inspections represents only the loss for those products on display at the time an inspection is undertaken. This does not allow for determining loss that could have been made in that store on all the other days, nor does it permit comparing this loss to the device non-equity which is calculated for an annual period.

To overcome this problem it is proposed that the product value for all prepackaged and clerk-served items that an individual store sells be determined via a sampling plan as for device product value. Once again a table would be established for a three year period, but there it would represent the average product value for all retail packed items sold on an annual basis by a store in each trade.

The data would be collected by coding four(4) digits on the Retail Pack Inspection Report for $1,000 increments. Therefore the value recorded could range from $1,000 to $9,999,000.

B. Device Class Codes

The main purpose for the coding of devices into classes is to breakdown the device population into manageable units, which can be used in planning, on the basis of similar staff-time and resources required for an inspection. As a secondary issue, the device class code is also used to isolate certain types of devices which are of special interest to the program (i.e. Liquid Food Meters - Milk).

Using these rationales as the purpose for the device class code, it was recognized that there is an over-abundance of codes for some devices on one hand and a lack of codes for still other devices on the other. Where an over abundance exists is in the duplication of most weighing machines with a separate code for both mechanical and electronic. The differentiation of a device into mechanical or electronic is already made by the "indicator" type code which is recorded on CCA-684 so it is unnecessary to make this differentiation in the class codes. On the other hand there is no separate class codes for devices such as self-service fuel dispenser and meters with automatic temperature compensators, both of which differ considerably in the inspection time taken with the devices they are currently grouped.

As a result it is proposed that a modified device class code be adopted (see Appendix 7) which reduces the number of codes from 78 to 58. This modified class code list has been kept as close as possible to its predecessor to make it easy to learn. Along with this coding change it is proposed that the indicator coding be changed by dropping "automatic temperature compensation" and adding "computing electronic" in its place. The total effect of this change on the modified WMIS reports will mean that devices reported by class code will also be followed by an "M" for a mechanical device and "E" for an electronic device and "C" for a computing electronic device.

C. Device Population Data

In order to be able to provide the device population breakdown data on a regular basis and for "ad hoc" reports it is going to be necessary to build up a data-base with this information. Unfortunately with the present data structure or the WMIS base, and the question of its accuracy, it is impossible to generate this information from this source. Therefore it shall be necessary to obtain a breakdown of the device population by class and by zone from the district inspectors on a one-shot basis.

Once the initial population information has been established, new data from the CCA-684 will be used to update the population. To accomplish this, a new code block will be added for each device class inspected. Basically there shall be only three different codes for this block; 1 - for a completely new device, 2 - for a replaced device and 3 - for a removed device. The information on a removed device would be available when an inspector returns to the establishment for a scheduled inspection and finds no device available. In this manner also, the time taken for the inspector to determine that a device has been removed would be counted for what it is , inspection time, rather than travel time as currently occurs.

D. Last Verification Code

To improve the accuracy of the information generated from the "last verification" data it is proposed that all the inspector should code in this block, during a scheduled inspection, is the actual number of months since the last inspection. Information on initial device inspection and the first inspection of a new device would come from the inspection type code and the coding for a new or replaced device.

E. Workplan Information

In order to prepare the Time Utilization Summary (see Figure 4) and the Production Report (see Figure 5) it will be necessary for each district to provide, at the beginning of the workplan year, the following information:

1) Broken down by quarter for the workplan year.

- Staff-time per activity
- The number of scheduled devices to be inspected, broken down by the device group, i.e. Itinerate, Intermediate, Truck Scales, etc.
- The number of devices planned to be checked under each of the other forms of inspection, except Approvals.
- The number of retail prepackages and clerk-served packages planned to be inspected.

2) For every device class code, plus prepackaged and clerk-served items, the average composite units of inspection time which were used in preparing the workplan.

F. Information from Grain Inspectors

In accordance with an agreement between CCA and the Canadian Grain Commission, inspectors of the Commission input data into WMIS on grain elevator inspections. The information from these inspections unfortunately is integrated with the data from W&M inspectors thereby distorting the average composite units per inspection, the device population inspected and the inspection time spent by the field staff. It is therefore proposed that the data from the Grain Commission inspectors be recorded in a separate data base so that it no longer integrated in the W&M field information.

No regular reports would be prepared from this separate base, but "ad-hoc" reports would be prepared to analyze the work done by these inspectors.

G. Non-Equity Information

To improve the accuracy of the non-equity information generated it is proposed that the actual tolerance errors for each device class be used rather than the average figures that are currently in use.

H. Other Changes to the Inspection Certificate - Form CCA-684

1) Reporting verified and non-verified devices

It is proposed that both verified and non-verified devices from one inspection be reported on the same inspection certificate. This would eliminate the duplication of information which the inspector must currently provide by preparing a separate report for both verified and non-verified results.

To facilitate this change it is proposed that certificates that have both verified and non-verified devices recorded be filed in the non-verified or rejected district file. Then once a report has been received indicating that the rejected devices have been repaired, the certificate would be moved to the regular zone file. In addition, it also recommended that the number of reporting lines for non-verified devices be changed from two to four,without a change in the certificate size.

2) As the data is no longer required, it is suggested that the "Maker Code" be eliminated.

3) In order to provide information as required on the achievement of the program 's objectives within the four identified client groups it is necessary to have information on the devices used by these groups. Therefore, it is recommended that a new code be added for each device class inspected indicating whether the device is used in a transaction for a:

- Dependent Buyer (i.e. Consumers)
- Dependent Seller
- Industrial Buyer, or
- Government

I) Changes to the Retail Pack Inspection Report - Form CCA-777

1) Clerk-served inspections

It has been suggested that the retail pack form also be used for recording clerk-served inspections, should this become a regular inspection activity. The only change necessary to accomplish this would be the addition of one coding block per line indicating whether the items inspected were prepackaged or clerk -served.

2) As they are no longer required the "Start Time" code and the "Day of Inspection" code should be removed..

3) As no information shall be required on individual commodities, it is suggested that the inspector only record items as "Assorted Meats" including fish and poultry, or "Assorted other Products". This change is already being discussed by the Weights and Measures Division and the field staff. Should this

Should this change be accepted, then the column for "No. of Packages in Lot" would have to be increased by one or more space.

4) A zone code block should be added to this form, to make filing easier and so retail pack inspections information could also be compared by zone.

5) To make this report easier for DI's to scan, the action code block should be removed and the following information indicated by check-off boxes at the bottom of the form;

- Follow-up Inspection and the Inspection Report Number from the original inspection
- Verbal Warning
- Voluntary Correction
- Seizure and Detention

6) In order for CFP inspectors to be able to advise the W&M District Inspector of the situation on all scales in a store, another two boxes should be placed on the bottom of the form. One box would report the number of scales in the store and the second box would record the number of devices with off-zero balances.

J. Changes to the Weekly Time Utilization Report - Form CCA-1098

1) Data to be Removed

a) As there is no longer any requirement for financial information, the following can be eliminated:

- Social Insurance Number
- Classification
- Taken on Strength
- Struck off Strength

b) As the time spent on Approvals and Calibrations is reported on the Inspection Certificates (684) this whole column can be removed. Time taken to clean and paint equipment prior to calibration would be reported under the "Other" column.

2) Data to be changed

The block for "Total Leave" should be broken down into a block for "Holiday Leave and External Training" and one for "Sick and Special Leave".

3) Data to be added

In order to breakdown the time spent per activity for each inspector the Inspector Code Number should be added to this form.

K. Bilingualism

To comply with the department's policy on bilingualism all of the proposed reports to be prepared by the modified WMIS would be in bilingual format.

SUMMARY & CONCLUSIONS OF MANAGEMENT INFORMATION ANALYSIS - WEIGHTS AND MEASURES PROGRAM

Summary:

The intent of this analysis or report is to identify the information that is required for the management of the W&M program which will be of practical use at all levels of management and to make proposals on how best these management information requirements could be fulfilled.

The report is intended as a vehicle to obtain a consensus from managers, at all levels in the program, as to what the final information structure should be. It lists and explains the purpose and format of a range of proposed EDP reports.

It gives recognition to such information needs as - the nature and size of the devices population; the work planned and achieved in terms of the number of production units and the utilization of staff time; the calculation of the average time required to complete device and retail pack inspections; the findings re devices and retail pack resulting from inspection activity; performance measurement.

The report does not address the data processing considerations including the feasibility of the format, structure and content of the propsoed EDP reports; the costs of implementation of the changes; the annual costs of operating the system with the changes proposed; the lead time required for the implementation of the modified data base and the various report outputs. These steps will necessarily have to be taken in order to totally assess the impact of the changes advocated and assist in making the final decisions

Conclusions:

With the existing WMIS there are reservations and different opinions held by various managers within the system about the usefulness of the reports that are produced. There is need to obtain agreement across the system as to what in fact are the relevant, meaningful and useful information requirements. In conjunction with achieving accord as to the essence of the information requirements it will be necessary to have the proposed report output critically examined as to feasibility and cost by the Information Systems Division.

Upon resolving the requirements of the information system including the nature and structure of the report output, and having a data processing services' assessment made thereof, it will be necessary to obtain senior management agreement to proceed with implementation of the changes.

DISTRICT_____

WEIGHTS & MEASURES INFORMATION SYSTEM
DEVICE INSPECTION
DEVICE DISTRIBUTION BY CLASS

QUARTER ENDING XX XX XX

TYPE - ZONE	TOTAL	CLASSES												
ITINERATE		00	01	02	03	06	08	08	08	09	60	74		
ZONE 001		M	M	M	M	M	M	E	C	E	M	M		
EST. DEVICE POP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
SCHED. DEVICE INSP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
		01	02	03	08	08	09	10	74	75	76			
ZONE 002		M	M	M	M	E	M	M	M	M	M			
EST. DEVICE POP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
SCHED. DEVICE INSP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
		00	01	02	03	06	08	08	08	09	09	10	60	74
TOTAL ITINERATE		M	M	M	M	M	M	E	C	M	E	M	M	M
EST. DEVICE POP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
SCHED. DEVICES INSP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
INTERMEDIATE		20	20	24										
ZONE 001		M	E	M										
EST. DEVICE POP.	XXXX	XXXX	XXXX	XXXX										
SCHED. DEVICES INSP.	XXXX	XXXX	XXXX	XXXX										
TOTAL INTERMEDIATE		20	20	24										
		M	E	M										
EST. DEVICE POP.	XXXX	XXXX	XXXX	XXXX										
SCHED. DEVICES INSP.	XXXX	XXXX	XXXX	XXXX										
TRUCK SCALES		30	30	31	32	34	35							
		M	E	M	M	M	M							
EST. DEVICE POP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX							
SCHED. DEVICES INSP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX							
LIVESTOCK SCALES		10	10	20	38									
		M	E	M	M									
EST. DEVICE POP.	XXXX	XXXX	XXXX	XXXX	XXXX									
SCHED. DEVICES INSP.	XXXX	XXXX	XXXX	XXXX	XXXX									
DISTRICT TOTALS		00	01	02	03	05	06	07	08	08	08	09	09	10
		M	M	M	M	M	M	M	M	E	C	M	E	M
EST. DEVICES POP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
SCHED. DEVICES INSP.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

FIGURE # 1

DISTRICT_____

WEIGHT & MEASURES INFORMATION SYSTEM

DEVICE INSPECTION

NON-SCHEDULED INSPECTIONS BY DISTRICT

QUARTER
ENDING XX XX XX

INSPECTION TYPE	TOTAL	CLASSES								
Initial - Factory		08 M	08 E	08 C	10 M	74 M	75 M	76 M		
Previous year	XXXX	XXXX	XXXX	-	XXXX	XXXX	XXXX	-		
Current Y.T.D.	XXXX	XXXX	-	XXXX	XXXX	XXXX	-	XXXX		
Initial - Field		20 M	20 E	24 M	30 M	31 E	34 M	35		
Previous year	XXXX	XXXX	XXXX	XXXX	-	XXXX	XXXX	XXXX		
Current Y.T.D.	XXXX	XXXX	-	XXXX	XXXX	XXXX	XXXX	-		
Control		08 M	08 E	08 C	09 M	09 E	10 M	74 M	75 M	77 M
Previous year	XXXX	XXXX	XXXX	XXXX	-	XXXX	XXXX	-	XXXX	XXXX
Current Y.T.D.	XXXX	XXXX	XXXX	XXXX	XXXX	-	XXXX	XXXX	XXXX	XXXX
Re-Inspections		08 M	08 E	08 C	30 M	31 M	32 M	74		
Previous Year	XXXX	XXXX	XXXX	-	-	-	XXXX	XXXX		
Current Y.T.D.	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	-	XXXX		
Request		08 C	09 M	34 M	36 M	74 M	75 M	82 M	90 M	
Previous year	XXXX	XXXX	XXXX	XXXX	-	XXXX	-	XXXX	-	
Current Y.T.D.	XXXX	-	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
Approval		31 M	32 M	50 E	51 E		79 M			
Previous Year	XXXX	-	XXXX	XXXX	-		XXXX			
Current Y.T.D.	XXXX	XXXX	XXXX	XXXX	XXXX		-			

FIGURE # 2

WEIGHT & MEASURES INFORMATION SYSTEM

RESOURCE MANAGEMENT

AVERAGE COMPOSITE UNITS

DISTRICT_____ (REGION)

YEAR ENDING Sept. 30, 1977

Device Inspection Class	.....DISTRICT..... YEAR(FY76/77) Avg. Units	Records	YEAR(FY75/76) Avg. Units	Records	.....REGIONAL..... YEAR(FY76/77) Avg. Units	Records	YEAR(FY75/76) Avg. Units	Records	....NATIONAL..... YEAR(FY76/77) Avg. Units	Records	YEAR(FY75/76) Avg. Units	Records
00 M	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX
01 M	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX
08 M	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX
08E	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX
08C	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX
17 M	-	-	-	-	-	-	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX
17 E	-	-	-	-	-	-	-	-	XX.X	XXXX	XX.X	XXXX
97M	-	-	-	-	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XX.X
Retail Pack Inspections												
Prepack	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX
Clerk Served	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX	XX.X	XXXX

FIGURE # 3

DISTRICT_____
(REGION)
(NATIONAL)

WEIGHTS & MEASURES INFORMATION SYSTEM
RESOURCE MANAGEMENT
TIME UTILIZATION SUMMARY (STAFF-DAYS)

QUARTER
ENDING XX XX XX

ACTIVITY	CURRENT PERIOD				YEAR TO DATE				PREV. Y.T.D.
	Actual	Planned	% Variance	% of Total Time	Actual	Planned	% Variance	% of Total Time	% of Total Time
Device Inspections									
Scheduled	XXXX	XXXX	XX.X	XX.X	XXXX	XXXX	XX.X	XX.X	XX.X
Initial-Factory	"	"	"	"	"	"	"	"	"
Initial-Field	"	"	"	"	"	"	"	"	"
Control/Re-inspections	"	"	"	"	"	"	"	"	"
Request	"	"	"	"	"	"	"	"	"
Approval	"	"	"	"	"	"	"	"	"
Sub-Total	XXXX	XXXX	XX.X	XX.X	XXXX	XXXX	XX.X	XX.X	XX.X
Retail Pack	"	"	"	"	"	"	"	"	"
Total Inspection	XXXX	XXXX	XX.X	XX.X	XXXX	XXXX	XX.X	XX.X	XX.X
Travel	"	"	"	"	"	"	"	"	"
Investigation & Enforcement	"	"	"	"	"	"	"	"	"
Surveys & Studies	"	"	"	"	"	"	"	"	"
Total Productive	XXXX	XXXX	XX.X	XX.X	XXXX	XXXX	XX.X	XX.X	XX.X
Administration	"	"	"	"	"	"	"	"	"
Internal Training	"	"	"	"	"	"	"	"	"
Holiday Leave & External Training	"	"	"	"	"	"	"	"	"
Sick & Special Leave	"	"	"	"	"	"	"	"	"
TOTAL TIME	XXXX	XXXX	XX.X	XX.X	XXXX	XXXX	XX.X	XX.X	XX.X

FIGURE #4

WEIGHTS & MEASURES INFORMATION SYSTEM

DISTRICT_____
(REGION)
(NATIONAL)

RESOURCE MANAGEMENT
PRODUCTION REPORT

QUARTER
ENDING XX XX XX

ACTIVITY		ACTUAL OUTPUT	% VARIANCE	PLANNED OUTPUT	PLANNED COMPOSITE UNITS	% VARIANCE	ACTUAL COMPOSITE UNITS	% VARIANCE	STANDARD COMPOSITE UNITS
Device Inspection									
Scheduled									
Itinerate	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Intermediate	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Truck Scales	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Total Scheduled	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Initial - Factory	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Initial - Field	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Control/Re-Inspect.	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Total Device Inspect.	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Retail Pack Inspect									
Prepack.	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Clerk-served	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
Total Retail Packages	Cur	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX
	YTD	XXXX	XX.X	XXXX	XXXX	XX.X	XXXX	XX.X	XXXX

FIGURE # 5

WEIGHTS & MEASURES INFORMATION SYSTEM

DISTRICT _____
(REGION)
(NATIONAL)

DEVICE INSPECTION
PERFORMANCE BY TRADE AND CLASS

QUARTER ENDING XX XX XX

TRADE CLASS	TOTAL DEVICES		SCHEDULED DEVICES		% IN ERROR (SCHED.)		% REJECTED (SCHED)		AVG.NON-EQUITY PER DEVICE			NO. OF INSPEC.	% CONTROL & RE-INSP.	% INSP TIME
	Cur	Ytd	Cur	Ytd.	Cur	Ytd.	Cur	Ytd.	Cur	Ytd.	3 yr avg.	Ytd	Ytd	Ytd
Bakeries	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX	XXXX	XX.X	XX.X
08M	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX			
08E	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX			
Groceries Chain-Sm.	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX	XXXX	XX.X	XX.X
08M	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX			
08E	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX			
Total Trades	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX	XXXX	XX.X	XX.X

FIGURE # 6

WEIGHTS & MEASURES INFORMATION SYSTEM

DEVICE INSPECTION

PERFORMANCE BY CLASS

DISTRICT_____
(REGION)
(NATIONAL)

PERIOD
ENDING XX XX XX

CLASS	TOTAL DEVICES		SCHEDULED DEVICES		% IN ERROR (SCHED)		% REJECTED (SCHED)		AVG. NON-EQUITY PER DEVICE		
	Cur	Ytd	Cur	Ytd	Cur	Ytd	Cur	Ytd	Cur	Ytd	3 yr. avg
00M	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX
08M	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX
08E	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX
08C	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX
32E	XXX	XXX	-	-	-	-	-	-	-	-	XXX
74M	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX
Total	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XXXX	XXXX	XXXX

FIGURE # 7

W&M INSPECTORS

WEIGHTS & MEASURES INFORMATION SYSTEM

DISTRICT_____
(REGION)
(NATIONAL)

RETAIL PACK
PERFORMANCE BY TRADE

QUARTER
ENDING XX XX XX

TRADE	NO. OF INSP.	% FOLLOW UP	% ENFORCE	% INSP. TIME	TYPE	PKGS IN LOT	PKGS SAMPLED	% MARGINAL	% REJECTED	AVG. ANNUAL LOSS PER STORE CUR.	YTD	3 YR AVG
Bakeries												
Cur	XXX	XX.X	XX.X	XX.X	Prepack Cur	XXX	XXX	XX.X	XX.X	XXXX	XXXX	XXXX
YTD	XXX	XX.X	XX.X	XX.X	Ytd	XXX	XXX	XX.X	XX.X			
					Clerk-served Cur		XXX	XX.X	XX.X	XXXX	XXXX	XXXX
					Ytd	-	XXX	XX.X	XX.X			
Groceries- Chain- SM												
Cur	XXX	XX.X	XX.X	XX.X	Prepack Cur	XXX	XXX	XX.X	XX.X	XXXX	XXXX	XXXX
YTD	XXX	XX.X	XX.X	XX.X	Ytd	XXX	XXX	XX.X	XX.X			
				XX.X	Clerk-served Cur	-	XXX	XX.X	XX.X	XXXX	XXXX	XXXX
					Ytd	-	XXX	XX.X	XX.X			
Total Trades												
Cur	XXX	XX.X	XX.X	XX.X	Prepack Cur	XXX	XXX	XX.X	XX.X	XXXX	XXXX	XXXX
Ytd	XXX	XX.X	XX.X		Ytd	XXX	XXX	XX.X	XX.X			
					Clerk-served Cur	-	XXX	XX.X	XX.X	XXXX	XXXX	XXXX
					Ytd	-	XXX	XX.X	XX.X			

FIGURE #8

WEIGHT AND MEASURES INFORMATION SYSTEM

NATIONAL SUMMARY — NON-EQUITY REPORT — QUARTER ENDING XX XX XX

REGION		EXPECTED PERCENTAGE NON-EQUITY							DISCOVERED NON-EQUITY	TOTAL NON-EQUITY	% NON-EQUITY PER $ SALE
		CONSUMER TRANSACTIONS				NON-CONSUMER TRANSACTIONS					
		UNINTENTIONAL	FRAUDULENT	RETAIL-PACK	TOTAL	UNINTENTIONAL	FRAUDULENT	TOTAL			
Atlantic											
	Cur	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	$XXX.XX	$XXX.XX	XX.X%
	YTD	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	$XXX.XX	$XXX.XX	XX.X%
	3 Yr AVG	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	$XXX.XX	$XXX.XX	XX.X%
Quebec											
National											
	Cur	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	$XXX.XX	$XXX.XX	XX.X%
	YTD	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	$XXX.XX	$XXX.XX	XX.X%
	3Yr Avg	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	XX.XX%	$XXX.XX	$XXX.XX	XX.X%

FIGURE # 9

REGION_____
(NATIONAL)

WEIGHTS & MEASURES INFORMATION SYSTEM
WEIGHTS & MEASURES PERFORMANCE REPORT

QUARTER ENDING XX XX XX

TOTAL DEVICE POP. XXXXXX
REQUIRED INSP. XXXXXX
PLANNED INSP. XXXXXX

Work Plan Achievement	ACTUAL YTD	PLANNED YTD	% VARIANCE	COMMENTS
Sched. Devices Insp.	XXXX	XXXX	XX.X	
Sched. Composite Units	XXXX	XXXX	XX.X	
Retail Packages Insp.	XXXX	XXXX	XX.X	
Retail Composite Units	XXXX	XXXX	XX.X	
Prod. Time Utilization	XXXX	XXXX	XX.X	

	CURRENT YTD	BASE YEAR 19xx	INDEX
Oper. Effectiveness			
% Devices in error	XX.X	XX.X	XXX
% Retail Packages in error	XX.X	XX.X	XXX
Oper. Efficiency			
Insp. Time/Composite Units	XXXX	XXXX	XXX
%Total Time as Unmeas. Prod.	XXXX	XXXX	XXX
%Total Time as Overhead	XXXX	XXXX	XXX
Program Effectiveness			
% Non-Equity/$ Sale	XXXX	XX.X	XXX
Program Efficiency			
$ Cost/$ Savings	XX.X	XX.X	XXX

FIGURE # 10

DEPARTMENT OF CONSUME[illegible] CORPORATE AFFAIRS

WEIGHTS & ME[illegible]RES SYSTEM

DEVICE INSPECTION
DETAIL REPORT - ERRORS BY CLASS

ATLANTIC REGION PERIOD ENDING PAGE 1

	NO ERROR	OVER -IND 1TOL	OVER -IND 2TOL	OVER -IND 3TOL	OVER -IND 4TOL	NON-CONF LOCN	OFF-ZERO BAL-	CORN SECT TEST	-APP HIND	ERRAT INDIC	NOT WEIGH CAP	UNDER -IND 1TOL	UNDER -IND 2TOL	UNDER -IND 3TOL	UNDER -IND 4TOL	FAULT INST	FAULT INTER LOCK	MISS BROKEN SEAL	OTHER ERROR
CLASS 00																			
CUR	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
YTD	764	2	4	0	0	0	0	0	0	0	0	9	0	0	1	0	0	0	10
01																			
CUR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
YTD	34	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	4
02																			
CUR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
YTD	195	90	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
05																			
CUR	1	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0
YTD	484	3	1	0	0	0	34	22	25	2	0	3	4	0	0	0	0	0	5
06																			
CUR	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
YTD	101	8	1	0	0	0	11	0	2	2	0	1	0	0	0	0	0	0	0
07																			
CUR	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
YTD	8	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
08 M																			
CUR	28	0	2	1	0	0	6	0	1	1	1	0	0	0	1	0	0	0	0
YTD	963	47	9	7	3	2	86	1	22	11	3	13	5	7	8	0	0	0	42
08E																			
CUR	14	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
YTD	152	2	1	2	3	0	8	3	19	3	2	2	0	1	5	1	0	0	5
08CE																			
CUR	11	1	1	0	0	0	9	1	1	0	0	0	0	0	0	0	0	0	2
YTD	339	23	7	4	7	0	57	7	19	2	0	4	4	0	2	0	0	0	23
.																			
.																			
.																			
88																			
CUR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
YTD	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL ALL CLASSES																			
CUR	149	14	11	1	1	0	28	11	6	3	1	3	1	1	5	0	0	6	5
YTD	2229	353	122	45	49	3	241	141	143	53	5	133	76	27	94	29	1	105	173

FIGURE # 11

WEIGHTS & MEASURES INFORMATION SYSTEM

INSPECTOR SUMMARY

DISTRICT _____ INSPECTOR _____

PERIOD ENDING XX XX XX

DEVICE CLASS	TOTAL DEVICES		SCHEDULED DEVICE		% IN ERROR		% AVG DISTRICT	% REJECTED		% AVG DISTRICT
	Cur	YTD	Cur	YTD	Cur	YTD	YTD	Cur	YTD	YTD
00M	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
08E	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
08C	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
33E	XXX	XXX	-	-	-	-	XX.X	-	-	XX.X
74M	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
Total	XXX	XXX	XXX	XXX	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X

ACTIVITY	STAFF DAYS UTILIZED YTD	PRODUCTION UNITS YTD
Device Inspection		
Scheduled	XXXX	XXXX
Initial Factory	-	-
Initial Field	XXXX	XXXX
Control/Re-inspections	XXXX	XXXX
Request	-	-
Approval	-	-
Retail Pack	XXXX	XXXX
Travel	XXXX	
Investigation & Enforcement	XXXX	
Surveys & Studies	XXXX	
Administration	XXXX	
Internal Training	-	
Holiday Leave & External Training	XXXX	
Sick & Special Leave	XXXX	

FIGURE # 12

Field Operations Service
Weights and Measures

Service des opérations extérieures
Poids et mesures

INSPECTORS' DAILY REGISTER
JOURNAL DES INSPECTEURS

Inspector – *Inspector* | District | Month – *Mois* | PAGE OF *DE*

Date		Certificate No. *N° du certificat*	Action Code * *Code d'action* V	A	R	S	Insp. CODE *d'ins.*	Calls *Visites*	Fees – *Droits* Collected *Perçus*		Deferred *Différés*		Zone *Total*		DETAILS	Time – *Temps* Arrival *Arrivée*	Departure *Départ*	Mode of Travel *Moyen de transport*	Mileage – *Millage* Miles *Milles*	Cost per mile *Coût le mille*
TOTAL																				
B.F. *RAPPORTÉ*																				
GRAND TOTAL																				

FIGURE # 13

* Codes V – Vérified – *Vérifié*
A – Adjusted & Verified *Ajusté & vérifié*
R – Non-verified *Non-vérifié*
S – Re-Inspection

CCA-682 (12-74)

REMITTANCE *REMISE*

Date

Cash – *Espèces*		
Cheques		
M.D. – *Mandat*		
Def. – *Diff.*		
TOTAL		

DISTRICT OFFICE – *BUREAU DE DISTRICT*

Date received – *reçue* _____

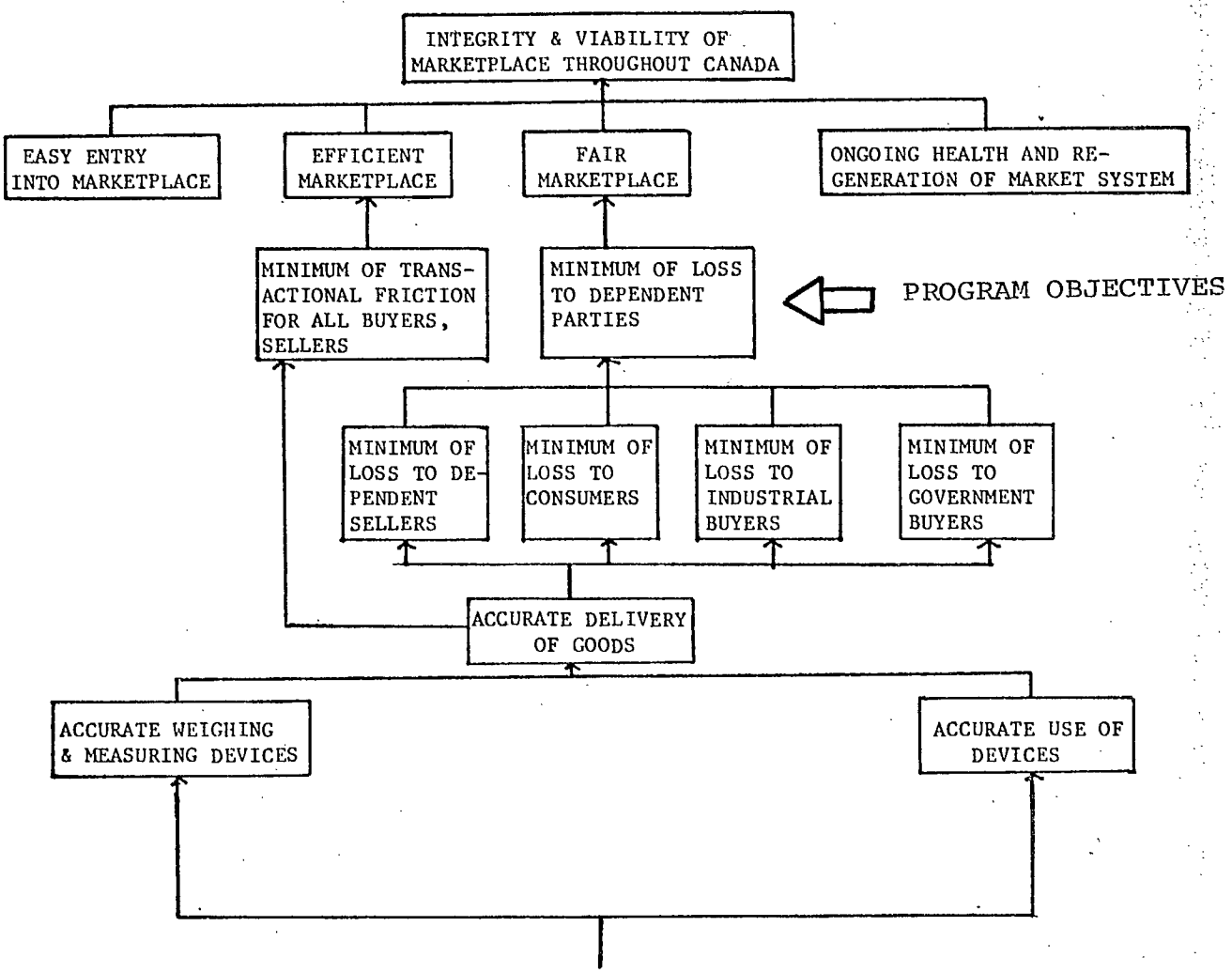
Rem. – *Ver.* _____

Form. – *Ver.* _____

Inspector – *Inspecteur*

WEIGHTS & MEASURES

HIERARCHY OF OBJECTIVES

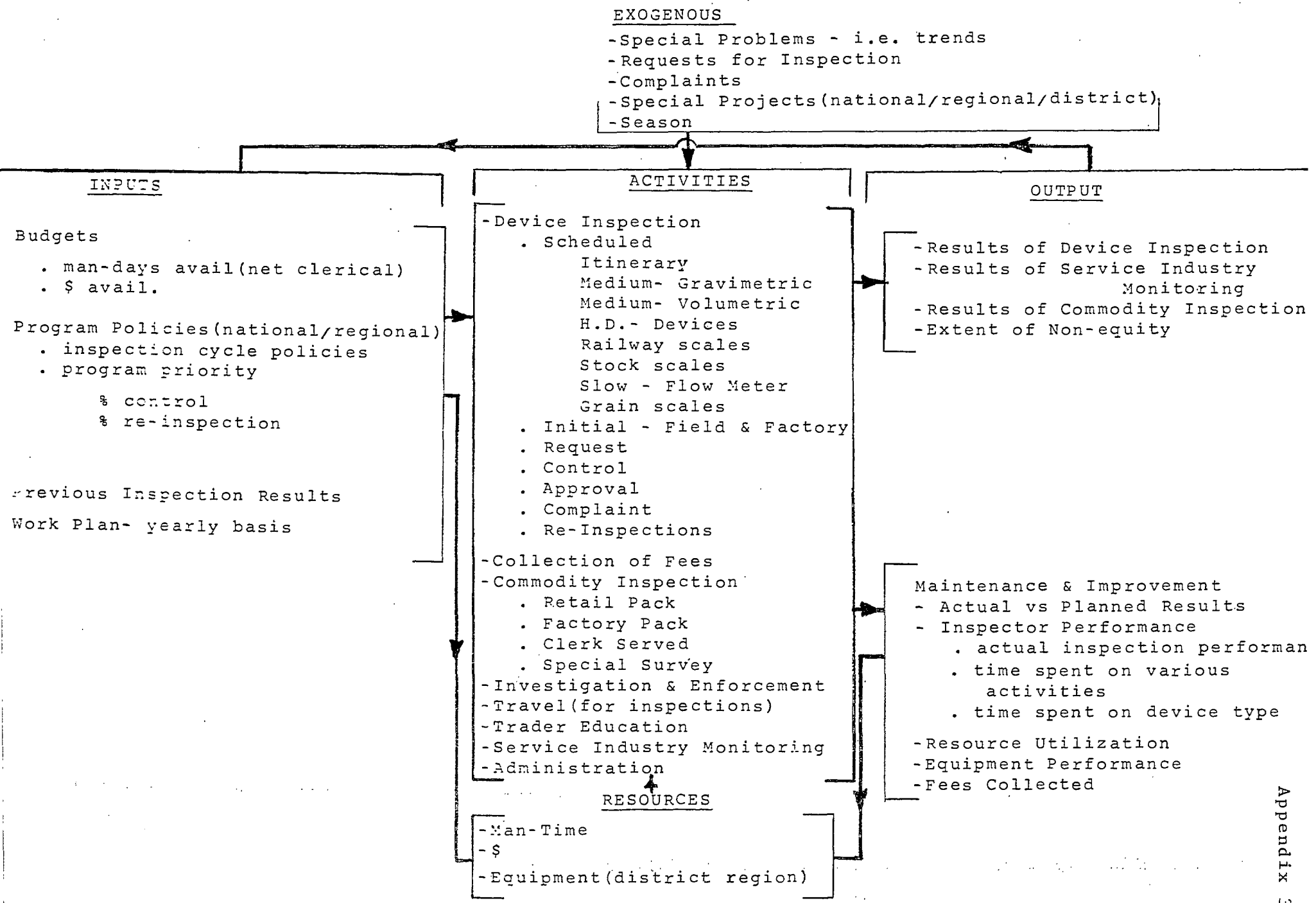


PROGRAM ACTIVITIES

FUNCTIONAL INFORMATION REQUIREMENTS

	INFORMATION	FREQUENCY
A	Program Effectiveness Measures	
1.	Percentage, non-equity in consumer and non-consumer transactions associated with unintentional errors, fraudulent practices and retail shortages.	Quarterly and ad hoc
2.	As in 1 but by the 4 client groups	Ad hoc
3.	As in 1 but by region and district	Ad hoc
4.	No. of complaints received by W&M field staff and Consumer Services	Ad hoc
B	Cost/Benefit Measures	
1.	Total program cost compared to total discovered non-equity	Quarterly and ad hoc
2.	Program cost per inspection activity	Ad hoc
3.	Discovered non-equity per inspection type	Ad hoc
C	Resource Utilization	
1.	Resources utilized per activity	Quarterly
2.	Percentage of staff time used per activity	Quarterly
3.	Average composite units per device class and per retail package	Quarterly
D	Environment Data	
1.	Device population by class per region and district	Ad hoc
2.	Device population by class per trade group	Ad hoc
3.	Number of establishments per trade group by region and district	Ad hoc
4.	Percentage of each device class that is metric by region and district	Ad hoc
5.	Percentage of each class per indicator type	Ad hoc
E	Problem Identification	
1.	Percentage errors and rejection by class, by region and district	Semi-annual and ad hoc
2.	Percentage errors and rejections by trade group	Quarterly and ad hoc
3.	Percentage of error and rejections by class within trade group	Quarterly and ad hoc
4.	Average non-equity per class or per trade or per class within trade	Quarterly and ad hoc
5.	Ratio of error types found per class or per trade or per class within trade	Ad hoc
6.	Percentage errors and rejections versus time since last verification	Request

DISTRICT INFORMATION MODEL (Operational and Functional Control Information)



Appendix 3

OPERATIONAL INFORMATION REQUIREMENTS

INFORMATION	FREQUENCY
A. Operational Planning	
1. Device population by class by zone within a district	Annual
2. Average composite units inspection time per class of device and per retail package on a district and regional basis.	Annual
3. Percentage of staff time utilized for administrative duties and in sick leave for the previous year.	Annual
4. Number of devices by class inspected under other than scheduled inspection for the previous year	Annual
B. Production Performance	
1. Planned time utilization per activity versus actual utilization by district, region and national.	Quarterly
2. Planned units of production versus actual units of production	Quarterly
3. Actual composite units utilized versus standard composite that should have been utilized for the device class and retail packages inspected	Quarterly and ad hoc
C. Staff Evaluation	
1. Number of devices inspected and the results found by inspector	Request
2. Time utilized per activity by inspector	Request
3. Zones and establishments visited per inspector along with devices inspected.	Weekly

DEVICE GROUPS

The following is a breakdown of the various device classes encompassed per group.

Group	Classes
1. Itinerate	- classes 00,01,05,06,07,08,09,54,55,60 61,63,74,75, & 76
	- all devices of class 10 that are not used in livestock i.e. trade code 52.
	- all devices of classes 16,36,37, & 38 not used in the grain trade or livestock i.e. trade codes 32 and 52
2. Intermediate	- All of class 20 not used in the livestock trade i.e. trade code 52
	- All of class 24 not used in the grain trade or livestock i.e. trade codes 32 and 52
3. Truck Scales	- classes 30,31,32,33,34 and 35
4. Livestock Scale	- all of classes 10,20,36,37 and 38 used in the livestock trade i.e. trade code 52.
5. Railway Track Scales	- classes 50,51 and 52
6. Grain Elevators	- all of classes 16,24,36,37 and 38 used in the grain trade i.e. trade code 32
7. Loading Rack Meters	- classes 77,78,79,80 and 81.
8. Truck Meters - Petroleum Products	- classes 82,83,84,85,86,87
9. Milk and Food Meters	- Classes 90 and 91
10. Propane - LPG Meters	- Class 88
11. Slow Flow Meters	- Class 73
12. Test Equipment & others	- Classes 02,03,64,67, and 99

Note: The class codes used in these groups are those from the proposed Modified Device Class Codes of Appendix 7.

DESCRIPTION OF DUTIES

INFORMATION SYSTEM COORDINATOR

Summary:

Under the general direction of the Director, Legal Metrology and Laboratory Services, plans and coordinates the effective implementation of specified changes to the Weights and Measures Information System for program and operations management, manages and evaluates the on-going development of the system, ensures the efficient operation of the system and provides advice and assistance to all users on the systems' characteristics.

The Weights and Measures Information System is an automated data collection and report generating system which will serve as the basis for program evaluation and planning, and resource requirement monitoring and forecasting for the approximate 250 man-year activity. The annual cost of operating the system is approximately 50,000 dollars. Reports are generated on the efficiency and effectiveness of the program and provided to two levels of field management and three headquarters offices responsible for 1) planning consumer programs; 2) Weights and Measures Program design; 3) Field Operations planning, monitoring, and control. Data bases containing approximately 400,000 records per year describing device inspections, store-packaged goods inspections and inspector time utilization data are maintained for analysis by all levels of management.

Duties:

Plans and coordinates the establishment and implementation of specified changes to the Weights and Measures Information System in order to permit the full utilization of all pertinent data for both program and operations management:

- by analyzing the operating characteristics of current systems and the usefulness of the data to management levels;
- by identifying the future information needs of the users;
- by conducting a critical examination of the possible systems alternatives to satisfy these needs and developing optimum benefit/cost models;
- by initiating discussions with all users to develop a rational plan for implementation and to maintain a user involvement and commitment; and
- by determining implications of changes in the activities, report requirements, etc., on the operations of the system.

Manages current operations and ensures the on-going development of the system:

- by ensuring through continuous evaluation that the information received is accurately transcribed or inputted to the system to maintain a high credibility level and enhance the usefulness of the reports;
- by issuing amendments to user documentation where errors are detected;
- by initiating and developing, in close cooperation with users, training courses for all levels of staff in relation to identified needs;
- by arranging and/or conducting seminars and training activities to facilitate system implementation and use; and
- by acting as a technical coordinator between the user staff and Departmental and commercial data processing personnel.

Ensures the efficient operation of the system:

- by assisting user managers and analysts in developing the required format and content of special or "ad hoc" reports from the systems' data bases;
- by coding requests for ad hoc reports in the special report generating language of the data base management system to produce the required reports;
- by minimizing the costs of data base access by ensuring regular reports are acceptable to management, by combining wherever possible, multiple requests for common data, and by determining when it may be advantageous to recommend the production of a new report on a regular basis, based on frequency of requests.

Provides advice and assistance to all users on the systems' characteristics:

- by maintaining close working relationships with the various users and promoting their involvement with the system at all times;
- by developing and maintaining excellent communications with field management and headquarters operations and program management staff;
- by promoting the acquisition of systems expertise among all users; and
- by identifying areas for future systems development and promoting user involvement in any subsequent development.

MODIFIED DEVICE CLASS CODES

TYPE	CAPACITY	CODE
WEIGHTS		
Trade Weights	0-10 lb	00
Trade Weights	over 10 lb.	01
Test Weights	All capacities	02
Roller Test chains	" "	03
WEIGHING MACHINES		
Small Capacity		
Equal Arm	All capacities	05
Spring	" "	06
Steelyard	" "	07
Multiple lever	0-30 lb	08
	31-1000 lb.	09
	1001-2000 lb	10
Pre-determined Weigher	0-2000 lb	16
Medium Capacity		
Multiple Lever	2001-20,000 lb	20
Pre-determined Weigher	over 2000 lb.	24
Large Capacity		
Multiple Lever Vehicle-Permanent	20001-60000 lb	30
	60001-100000 lb	31
	over 100000 lb	32
Multiple Lever Vehicle Non-Perm.	20001-60000 lb	33
	60001-100000 lb	34
	over 100000 lb	35
Multiple Lever Hopper, Tank Platform	20001-60000 lb	36
	60001-100000 lb	37
	over 100000 lb	38
Railway Track Static		
-Track only		50
-Combination		51
-In Motion		52
Conveyor	0-500 tons per hour	54
Conveyor	over 500 tons per hour	55
MEASURES OF LENGTH		
Linear Measures - Static		60
Linear Measures - Mech.		61

TYPE	CAPACITY	CODE
MEASURES OF VOLUME		
Static Volumetric Meas.	All capacities	64
Volumetric Provers & Test Meas.	" "	67
Mobile Tanks	0-500 gal	68
	501-2000 gal	69
	2001-6000 gal	70
	over 6000 gal	71
Visible & Self Measure Pump	All capacities	72
Slow Flow Meters	" "	73
Fuel Dispensers	single product	74
	blending	75
	self-serve	76
Meters Not Vehicle mounted	0-85 gpm	77
	86-250 gpm	78
	251-600 gpm	79
	over 600 gpm	80
	ATC's all capacities	81
Meters Vehicle mounted	0-85 gpm	82
	86-250 gpm	83
	251-600 gpm	84
	over 600 gpm	85
	gravity meters	86
	ATC's	87
Liquified Gas Meters	All capacities	88
Liquified Food Meters		
-Milk	" "	90
-Others	" "	91
ATC-Liquid Meter other than Petroleum	" "	92
Chemical Meters	" "	93
Linear Volumetric Device	" "	95
MEASURES OF AREA		
Area Measuring Device	All capacities	97