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BACKFILL PRESSURES WITHIN A REINSTATED TRENCH:

THE GATINEAU FIELD PROJECT

by

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ABSTRACT

To the backdrop of shrinking municipal budgets and aging water distribution system infrastructure, the National Research Council of Canada undertook a joint research project with the City of Gatineau, PQ, to better understand the nature of backfill pressures acting through the reinstated trench and upon buried water pipe.

This thesis first presents the general details of this joint project focusing on backfill temperature and pressure data for the period August 1994 to August 1996. These data are then analyzed leading to a description of the relationship between frost depth and backfill pressure. Contrary to experience, the trend that emerges, in the case of the Gatineau field site, is that pressure and frost depth are inversely related.

Finally, problems associated with the data and related to instrumentation are explored with the objective of developing guidelines or recommendations for the development of future field research sites.

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CHAPTER 1

INTRODUCTION

1.1 Background

In April of 1994, a group of researchers at the Infrastructure Laboratory of the National Research Council of Canada (NRC) concluded a study of water distribution and sewage collection in Canada. Questionnaires were sent out to engineers and municipal officials at some 23 different Canadian cities and municipalities (McDonald, et al., 1994). The results demonstrated that over the past 30 years or so, municipal expenditures have moved from suburban development in the 1970s, to the upgrading and expansion of water and waste water treatment facilities in the 1980s, to water supply and sewer repair and replacement programs in the 1990s. One of the realities, however, of shrinking municipal budgets and aging network infrastructure is that there are frequently insufficient funds to meet the cost of traditional approaches and methodologies to repair and replacement.

In the course of the questionnaire, respondents were asked to identify the top priorities regarding the operation of their water distribution systems. Five priorities emerged and are listed below in order from the lowest to highest:

- to be able to better and more easily detect watermain breaks;
- to eliminate settlements due to trench reinstatement;

- to better understand the causes of deterioration and breaking of the pipes in the ground;
- to reduce corrosion; and, finally, and of first priority,
- to better determine the remaining life of pipes.

The fact that Canadian municipalities spend between $4.5 and $6 billion annually in the repair or replacement of deteriorated water mains helps to further put these priorities in perspective.

In the summer of 1994, NRC and the City of Gatineau undertook a joint field research project, the objectives of which were to address several of these priorities. Broadly speaking, the Gatineau Project was an attempt to quantify, through field measurements, the forces acting through the reinstated trench, and, ultimately, on the buried water pipe. Understanding something of these forces and the associated trench backfill mechanics is part of the foundation on which trench settlements, the causes of pipe deterioration and failure, and the remaining life of pipes, may be understood. It is, in other words, a step toward developing the fundamental understanding of trench backfill mechanics necessary to approach the more complex problems embodied in the priorities above.

1.2 Objectives

There are three primary objectives to this thesis.

1. The first objective is to present the general details of the Gatineau field project and specifically the temperature and pressure data collected through the period August 1994 to August 1996.
2. The second objective is to analyze the pressure and temperature data leading to a description of the relationship between frost depth and backfill pressures.
3. The third and final objective is to explore the problems associated with the data related to instrumentation and/or its deployment and develop guidelines for consideration in the development of future field research sites.

1.3 Thesis Outline

This thesis is organized into eight chapters as follows. The first chapter presents introductory material providing the background, objectives and layout. Chapter 2 is a review of pertinent literature and focuses principally on studies that bear direct similarities to the field project considered in this thesis. Chapter 3, Project Rationale, gives a general introduction to the Gatineau Project out of which this thesis was developed and explains specifically what is used of the Gatineau Project and why. Chapter 4 is the description of the Gatineau field site and the instrumentation used there. Backfill pressure and temperature data used in this thesis are given in Chapter 5. Chapter 6 contains the analysis and discussion of data looking at backfill pressure conditions both before and after the development of frost. This chapter also contains relevant theoretical development both of Marston's theory and for the calculation of backfill pressures associated with compaction. Further, using the analysis of Chapter 6 and the consideration of problems associated with the data, Chapter 7 details guidelines for the development of future field research sites and the deployment of instrumentation. Finally, Chapter 8 presents the conclusions of the thesis and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The principal focus of this literature review is on studies that bear direct similarities to the field project considered in this thesis. More specifically, the orientation sought in the literature is toward the field measurement of frost-related forces in a trench backfill application. It should be noted that the consideration of pre-frost conditions and the use of Marston's and Boussinesq's equations is not covered extensively here, but is given theoretical treatment in Chapter 6 as part of the analysis and discussion of results. The chapter does begin, however, with a brief consideration of frost action in soils and concludes with a discussion of literature pertaining to pressures due to compaction.

2.2 Frost Action in Soils

Frost action in soils is understood to be caused by the growth of ice lenses--layers of almost pure ice--within the freezing soil mass. Typically, this accumulation of ice occurs rhythmically in layers leading to heave of the ground surface and results in increases in vertical pressure within the effected soil. The resulting forces can seriously damage buried structures, like foundation walls or buried pipes, and so must be accounted for in engineering design.

Broadly speaking, there are at least two necessary conditions--in addition to sub-zero temperatures--that must exist for ice lensing to occur. First, there needs to be a supply of available water. Second, the pore structure of the soil must be conducive to the development of the suction pressures necessary to drive the process. These are the pore structures often associated with finer grain soils such as loams, silts and clays (Townsend and Csathy, 1963).

In freezing frost-susceptible soil there develops a zone that supports the freezing point depression of the water contained within it. Unfrozen water both in the freezing point depressed zone and below it in the unfrozen soil feed the ice lensing process, which is driven by moisture suction pressure. The location where lensing takes place is above the zero-degree isotherm where the soil temperature is below zero. At a given location, the process continues until the temperature (energy) and moisture conditions no longer support the moisture transport/freezing process. As the ice lens grows, water is taken up in the process and energy related to latent heat is liberated.

In his work on the subject, almost forty years ago, Penner describes water freezing in the fine pores of a frost-susceptible soil producing an effect similar to that of water drying at these locations. As it is taken up in the lensing process, water moves towards the ice lenses, just as it moves from a wet to a dry location. In his own words, "The movement of water in soil due to a suction difference is not different from the action of dry blotting paper when brought in contact with a drop of ink" (Penner, 1958).

In Nixon's review of ground freezing and frost heave, he refers to Penner's work in discussing the capillary model of frost action. Nixon points out that early efforts to understand frost action in soils were centred around the capillary model and that Penner describes the process well. Here, suction pressures are accounted for by the capillary forces that develop as a result of the curvature of the ice-water interface associated with the growing ice lens (Nixon, 1989).

More recently, there is presented in the literature the segregation potential and discrete ice lens approaches to frost action. Konrad and Morgenstern argue that in a freezing mass of soil and at a given location within it, as the last ice lens forms the flow of water to that lens (v) is proportional to the thermal gradient (G_f) in the frozen soil. This relationship of water flow and temperature gradient is called the Segregation Potential (SP),

$$SP = v/G_f \,. \qquad \text{(Eq. 2.1)}$$

Permeability through the frozen fringe, which is that zone between the freezing isotherm and the location of active ice lensing, is taken as an average value, unchanging through the freezing process. SP is dependent, however, on overburden pressure (P), and where $\mathbf{SP_o}$ and **a** are constants for a given soil,

$$SP = SP_o^{\,(-aP)} \,. \qquad \text{(Eq. 2.2)}$$

SP is determined from step-temperature laboratory freezing tests carried out at different overburden pressures. With SP for a particular soil established, heave (h) can then be predicted from Konrad and Morgenstern's equation,

$$Dh/dt = 1.09\ SP\ Gf + 0.09n\ dX/dt, \qquad \text{(Eq. 2.3)}$$

where X = frost depth; n = porosity; and t = time (Nixon, 1989).

2.3 Backfill Pressures and Frost Penetration

In 1974 Monie and Clark published their results for a study of the loads on buried pipe related to frost. In their preliminary work they found that 62 percent of watermain breaks occurred in a two-and-one-half-month period during winter. Indeed, their findings lead the authors to assert that, "It appeared that frost penetration was related to the problem...freezing of the soil caused an expansion of the soil, thereby resulting in the imposition of vertical forces on underground pipe structures" (Monie and Clark, 1974).

Monie and Clark also note that their research of available literature was unproductive and that the problem was not treated in current external-loading tables for buried pipe. For their joint project involving, the Cast Iron Pipe Research Association (CIPRA), and the local Portland water authority, the authors chose a field site with a functioning 200-mm cast iron water main. In the course of the installation, four selected areas around the existing water main were excavated to permit the construction of piers beneath the main. At one end, these piers are anchored into competent soil well below the depth of frost for the Portland area. At the other end of the piers, load cells are installed so that the pipe rests upon these load cells, with the vertical reaction force acting through the piers. Thermocouple temperature sensors were also installed at the site. The sensor array consisted of five thermocouples spaced at 1-foot (0.3 m) intervals, housed in a 3/4-inch (19.1 mm) stainless steel tube. This array was installed at one end of the site. Figure 2.1 illustrates the principal details of the installation.

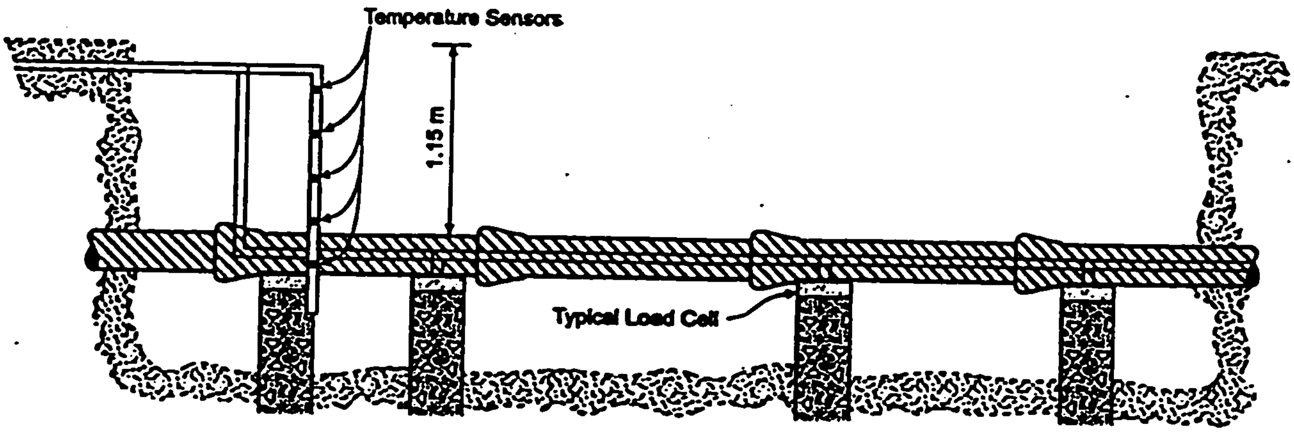


Figure 2.1: Monie and Clark's Instrumentation

For the first winter of their study, the authors conclude that the data clearly demonstrates that there was an increase in loading on the pipe with frost penetration. They report a maximum reading of 550 psf (26.3 kPa) when ground temperatures are at a low and a minimum pressure reading of just below 300 psf (14.4 kPa) when the frost is out of the ground. In the summer following the first winter's data, a decision was made to modify the instrumentation at the site. First, the authors suspected that some of the data was being affected by water contamination of the pressure cell connectors. Second, they decided to install a fifth load cell, not beneath the watermain but about 12 inches (305 mm) away from it at a depth of 4 feet (1.22 m). The cell was mounted on a rigid support, an I-beam cantilevered from one of the piers. The rationale here was that this fifth cell would provide a better indication of the magnitude of load developed in the trench. In the case of the other four cells, load developed through the trench and bearing on the pipe is transferred not just to the load cells and piers but to the bedding material supporting the pipe between the piers.

Considering data from the second winter of their study, Monie and Clark report values similar to the first period considered for the pressure cells beneath the pipe. For the fifth cell, however, recorded loads were much higher than the loads from the other pressure cells. First, the results for all five pressure cells correlate well with changes in ground temperature: as frost enters the ground, earth pressures increase. In the case of Cell 5, the pressure peaks at 1875 psf (89.8 kPa) in February--almost twice the highest reading of the other four pressure cells--and from there, as frost depth decreases, the pressure falls back toward its pre-frost condition of about 900 psf (43.1 kPa).

Harry Smith, then president of CIPRA, considers Monie and Clark's study as a starting point to his research carried out in Wheaton, Illinois. Smith's review of the Portland study concludes that,

> although of great value, [Monie and Clark's study] was suspected, nonetheless, of significant error because of the indeterminate value of pipe support by the earth beneath the pipe between the load-cell supports (Smith, 1976).

Smith's commentary ignores the significance of the fifth pressure cell in Monie and Clark's study. However, where the four primary pressure cells are concerned, his point is well made. Smith's solution to this *problem* of soil support is to locate pressure cells within the pipe itself.

In Smith's study, a 10.5 m-length of 230 mm-OD metal pipe was split longitudinally and four recording load cells were installed in the pipe oriented to read vertical pressure. The pipe/load cell assembly was then buried in a street near the CIPRA laboratory at a depth of 1.4 m. The trench used is described as a Type 3 Trench (ANSI A21.50-1976): flat bottom with backfill lightly consolidated to the top of the pipe. Temperature sensors were also installed at the site at 1-foot (0.3 m) intervals to provide a vertical temperature profile through the backfill.

Smith first reports that with no frost in the ground the loads on the pipe were approximately the prism load of the soil. Second, with the development of frost to its maximum depth of 2 feet (0.6 m), the load per linear foot of pipe (at a depth of about 3.6 feet or 1.1 m) then increases from an average of 1.78 to 3.24 kN. Smith concludes:

> What once was a suspicion is now a proven fact: CIPRA studies have clearly established the contribution of frost loading to the dynamic environment of underground pipe and thus have explained countless failures in rigid pipe and flexible pipe of inadequate strength (Smith, 1976).

Jan Molin, a Swedish research engineer, refers to both CIPRA studies as a starting point to his 1985 paper. Molin led the development of a test site in northern Sweden where two test pipelines were developed: one a 300-mm concrete pipe the other a 300-mm PVC pipe. Both were buried in narrow trenches (1 m base), and one section of concrete pipe in a wide trench (2-m base), at a depth of 2 m. To test the importance of backfill type in loading behavior, different backfill materials were also used. In sum, a 45-m long trench was constructed, which was divided into five sections:

- Section A: concrete pipe, backfilled with frozen, frost-active soil.
- Section B: concrete pipe backfilled frost-active soil.
- Section C: PVC pipe backfilled with frost-active soil surrounding fill sand.
- Section D: concrete pipe backfilled with sand.
- Section E: concrete pipe (wide trench) backfilled with frost-active soil.

For each of the four sections of concrete pipe, there are two vertical load measuring devices used. These devices utilize a load cell installed in a split cylindrical shell resembling a section of pipe. In Section C, the PVC pipe is instrumented to measure only deflection. Furthermore, the test sections are instrumented to give ground temperatures, frost heave, and the ground water level (Molin, 1985).

Reviewing his results, Molin concludes that there is an increase in load during the frost period for most of the test sections containing frost-active backfill. In Section B, which is a narrow trench backfilled with frost-active soil, the highest increase in vertical load is recorded, from a low of 25 kPa to a high of about 70 kPa. The following table summarizes the results for the test sections of concrete pipe. For the period considered, frost reached a maximum depth of about 1.25 m.

Table 2.1: Molin's Pressure Data

Section	**Trench Type and backfill**	**Pre Frost Pressure (July 1980)**	**Frost-Related Pressure (Jan./Feb. 1980)**
A	Narrow, Frozen frost active	11 kPa	35 kPa
B	Narrow, frost active	35 kPa	70 kPa
D	Narrow, sand	28 kPa	35 kPa
E	Wide, frost active	35 kPa	69 kPa

Molin continues by generalizing that, in cases where the backfill material experiences greater frost heave than the surrounding soil, there will tend to be an increase in vertical load on the pipe. Where, on the other hand, the backfill material heaves less than the surrounding soil, "it can be assumed that no load increase will occur on the pipe" (Molin, 1985). Lastly, in the case of the wide trench or embankment condition, Molin concludes that where the material is homogeneous the surface will heave uniformly and no frost heave forces will act directly on the pipe.

2.4 Pipe Strains and Frost Depth

Other studies focus directly on pipe strain and the relationship between pipe strain and earth temperature or frost depth. Fielding and Cohen's paper from 1988, for example, summarizes their study where 35, 90-degree T-rosettes were mounted directly to active 150- and 200-mm PVC water mains, buried in a 3-meter deep trench. Data was later analyzed in an effort to apply Boussinesq's equation to the problem of estimating the load transferred to pipe by penetrating frost.

In Fielding and Cohen's treatment of data and reworking of Boussinesq's equation, the distance between the lowest level of frost and the crown of the pipe replaces the depth of the crown, and the frost load on the pipe replaces the point load. The following equation is advanced:

$$W_sc = C_s P F' / L \qquad \text{(Eq. 2.4)},$$

where W_sc is the frost load (kN/m), F' is an impact factor (1.0), L is the effective length of pipe (1.0 m), and C_s is an influence coefficient and a function of the distance between the pipe crown and the frost line, the pipe diameter, and the frost load when the depth of frost is just above the pipe crown.

Theoretical values from the modified Boussinesq equation (Eq. 2.4) were then compared to field results based on axial pipe strains, which are converted to loads based on conversion factors developed at Ministry of Environment facilities using a pipe model subjected to a mid-span point load (hydraulic jack). Reviewing field and calculated values, the authors found good agreement, generally, between field and theoretical results and show increasing loads for increases in frost depth. For instance, where frost depth is at a maximum, 2.09 m, the frost load from field data is found to be 9.30 kN/m, while the calculated value is 9.360 kN/m (Fielding and Cohen, 1988).

2.5 Summary of Field Studies Concerning Backfill Pressures and Frost Penetration

The studies of Monie and Clark, Smith, and Molin bear a close resemblance to the Gatineau field project. In each case, there is an attempt to measure backfill pressures related to frost as they may act upon buried water pipe. Monie and Clark locate pressure cells directly beneath the pipe, while in their separate studies, Smith and Molin develop instrumentation to locate their pressure cells within the pipe itself. However, in each of the studies reviewed, the authors describe increases in backfill pressure related to the development of frost. And here, the results vary reflecting the differing test conditions and treatment of data.

2.6 Earth Pressures Due to Compaction

In 1968, A. J. Scala of the Australian Road Research Board presented his results on a study of pressures generated by vibrating rollers or compactors. To this time, Scala reports, little work had been published on the subject with the exception of Whiffin's study performed in 1953, which presented inconsistent results. The principal objective of Scala's investigation was to study the effects of parameters related to vibrator design, such as weight, centrifugal force, and frequency and amplitude of vibration on the pressures generated.

Scala first developed a field test facility by excavating a pit 8-ft x 4-ft x 9-inches deep (2.4-m x 1.2-m x 0.23-m) in clay which was then filled with dry drift sand. Strain gauge based- pressure transducers were installed horizontally in this pit at a depth of 2 inches (50 mm) and later at 6 inches (150 mm). It should also be noted that in the course of the testing program, a series of runs was completed for the compaction of a cohesive soil. For the five different rollers used in this study, a series of passes was completed. The rollers themselves varied in static weight from 3 to 9.1 tons (2700 to 8300 kg), and in centrifugal force from 7 to 18 tons (6350 to 16300 kg). For each of these rollers, seven passes were made over the test section without vibration. This was followed by four passes with vibration. Lastly, two final passes were made without vibration. In addition, operators controlled the speed of each pass to between 1.5 and 1.7 m.p.h. (0.67 to 0.76 m/s). Throughout the testing, readings from the pressure cells were made using an ultraviolet oscillograph directly on photographic paper.

In his discussion of the results, Scala compares the expected static plus vibrating pressure, calculated using the dead weight of the roller plus the centrifugal force to (roller) width times the diameter, to the field data. In general, theoretical and measured values are in agreement. This is also true for the non-vibrating condition, where the measured pressures were very close to the calculated values based on the weight of the roller alone. Scala concludes that, "The apparatus and methods used in this project can give quite consistent measurements in dry sand under a vibrating roller. . .[and that the] measured vibrating pressures were found to depend on the centrifugal forces" (Scala, 1968). Furthermore, in comparing the behavior of cohesionless and cohesive materials, Scala asserts that for sands and gravels, compaction does not require high-intensity vertical pressures only sufficient force to overcome interparticle friction and particle mass. For cohesive soils, higher forces are needed to break cohesive bonds and achieve plastic movement.

Subsequent studies like Appolonia, et al. (1969), and Howeedy, et al. (1976), also deal with compaction phenomena in programs similar to Scala's, but focus on the relationship of compactor-related parameters and final soil density; and like Scala, their treatment of data largely neglects, numerically, the matter of the distribution of compactive force or pressure through the soil. More recently, Seed and Duncan's paper of 1985 examines in-plane conduit thrusts and bending moments due to concentrated surface loads using finite element analysis. Significantly, for the purpose of the FE-model used, surface loads are treated as equivalent line loads based on linear-elastic analysis using Boussinesq's theory (Seed and Duncan,1985).

CHAPTER 3

PROJECT RATIONALE: FIELD RESEARCH APPROACH

3.1 Introduction

This chapter describes the research approach associated with the field data studied in this thesis. Included is a description of the joint project, as carried out by the National Research Council of Canada (NRC) and the City of Gatineau, with a definition of those components of the joint project that are the subject of this thesis.

3.2 Description of the Gatineau Field Project

In the summer of 1994, NRC and the City of Gatineau undertook a joint project to better understand the causes of watermain breaks. Certainly, with up to 175 breaks per year (1989), the City of Gatineau, like many cities and municipalities across Canada, well recognized the extent of the problem and the potential beneficial impact of research in this area.

As in many Canadian cities and municipalities, Gatineau's water mains are predominantly metallic, either ductile or cast iron, and where unprotected from aggressive environments are subject to corrosion. In a moderate or highly corroded state, metallic water mains can suffer drastic reductions in strength and are failed by forces associated with soil pressure, including frost heave and traffic loads, and by water pressure surges. Not surprisingly, then, one of the principal objectives of the Gatineau Project is the field measurement of the magnitude of the earth pressures acting through the trench and, ultimately, on the buried pipe.

The Gatineau Project has two principal components both directed at developing a better understanding of the causes of watermain breaks. First, to obtain field data indicative of the forces acting on buried water mains, engineers of the Institute for Research in Construction at the National Research Council of Canada (IRC/NRC) installed instrumentation and data acquisition systems at the City of Gatineau's water main renovation site situated on rue Carle, between 11 July and 14 July 1994.

Furthermore, it is well understood that the type of trench backfill used can influence the forces acting on buried water mains (for example, see Molin, 1985). At the rue Carle site two types of backfill are investigated. In the case of Section A, a standard granular backfill is used, while in Section B, an excavated silty-clay and granular soil mix is used as the primary backfill material (see Figure 3.1). Here, the expectation was that the data would reflect the different compaction properties and frost susceptibilities of the two backfill materials. To complete this aspect of the project, a field instrumentation package was installed consisting of thermocouple arrays, strain gauges, earth pressure plates and piezometers. The thermocouples were installed to provide vertical ground temperatures at two locations in each of the sites. This temperature data permitted the calculation of frost depth, which is correlated to the data of primary concern, the backfill pressure. In addition, it was expected that frost depth/earth pressure trends would be reflected in the pipe strains, in bending of the pipe, or in changes in its cross-sectional profile. Lastly, the piezometers were installed to record changes in pore pressure related to changes in the moisture regime related to the development of frost in the ground. Further details of the instrumentation are given in Chapter 4.

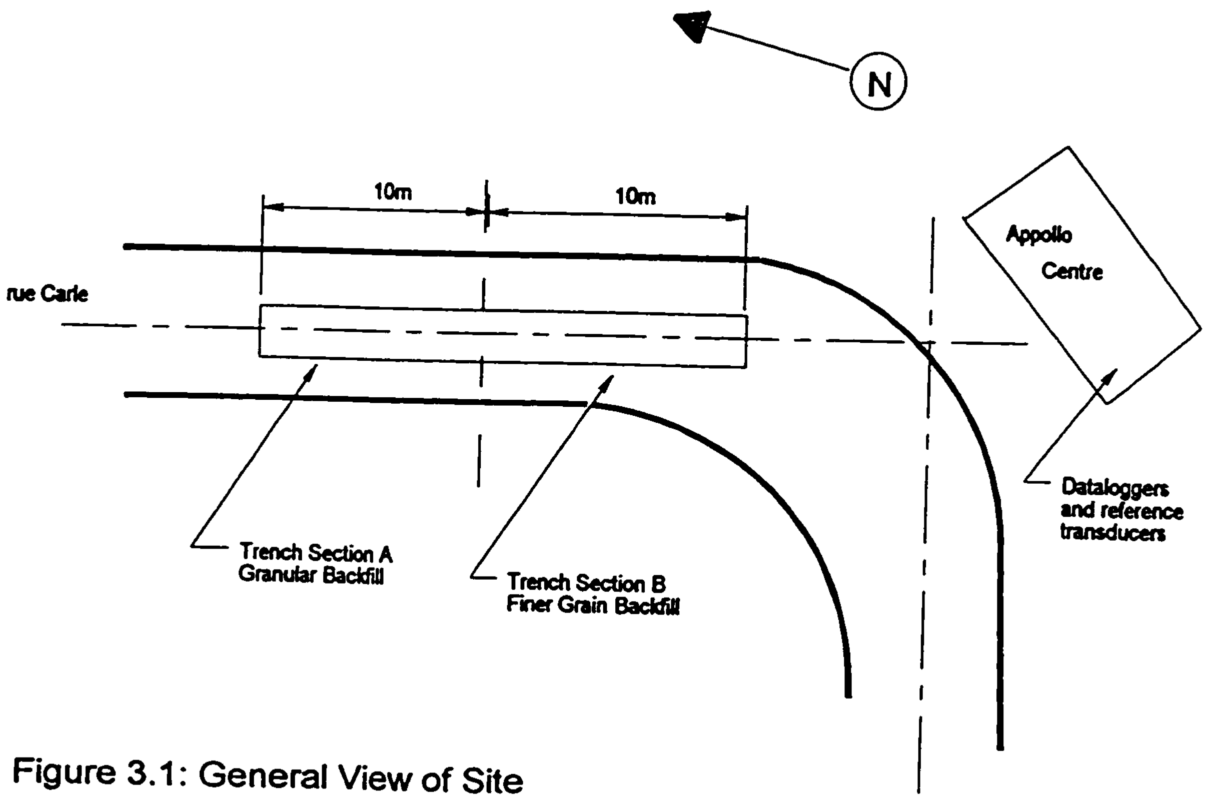


Figure 3.1: General View of Site

The second component of the NRC/Gatineau Project, which is considered here only for completeness, is the test of four non-destructive methods to determine the extent of corrosion of the buried metallic pipe. These included:

- Linear Polarization;
- Half Cell Potential ;
- Electromagnetic Induction; and
- DC Electrical Resistivity.

In the course of this portion of the study, once the non-destructive testing was completed, the water main was removed from the ground and the surface corrosion meticulously logged. The resulting corrosion map was then compared with the non-destructive test results. A more complete description of this portion of the project is found in "Comparison of Electromagnetic and Electrochemical Surveys to Locate Extensive Water Main Corrosion" (Baker, et al., 1996).

3.3 Thesis Project Field Data

Only a portion of the data collected through the NRC/Gatineau joint project is used in this thesis. As stated in Chapter 1, the focus of this study is earth pressure and those forces acting through the trench and on the buried water main. To this end, earth pressure and ground temperature are examined. Strain data from gauges mounted directly on the buried water main were also initially considered but proved unreliable because of high electrical noise levels related to stray ground currents and instrumentation problems.

Figures 3.2 and 3.3 give some indication of the difficulties associated with the strain data. For example, Figure 3.2 presents strains for two gauges, P2L4 and P2L10, where the first shows practically no response through the sampling period--the atypical response--while the other shows irregular variation (up to ±250 mE) indicative of electrical noise. Figure 3.3 provides an additional indication of the general electrical instability of the strain gauges. One of the outcomes of the non-destructive test methods to determine the extent of pipe corrosion (discussed above) was the determination that the site is characterized by high stray ground currents. Further investigation has revealed that in the case of some of the gauges there is a fluctuating electrical continuity between the pipe and the gauges themselves. Both the presence of high ground currents and the potential ground-loops are likely contributors to the problems seen in the strain gauge data. Regardless of the cause, the noise is there and it affects the majority of the 26 active gauges, making this data unreliable.

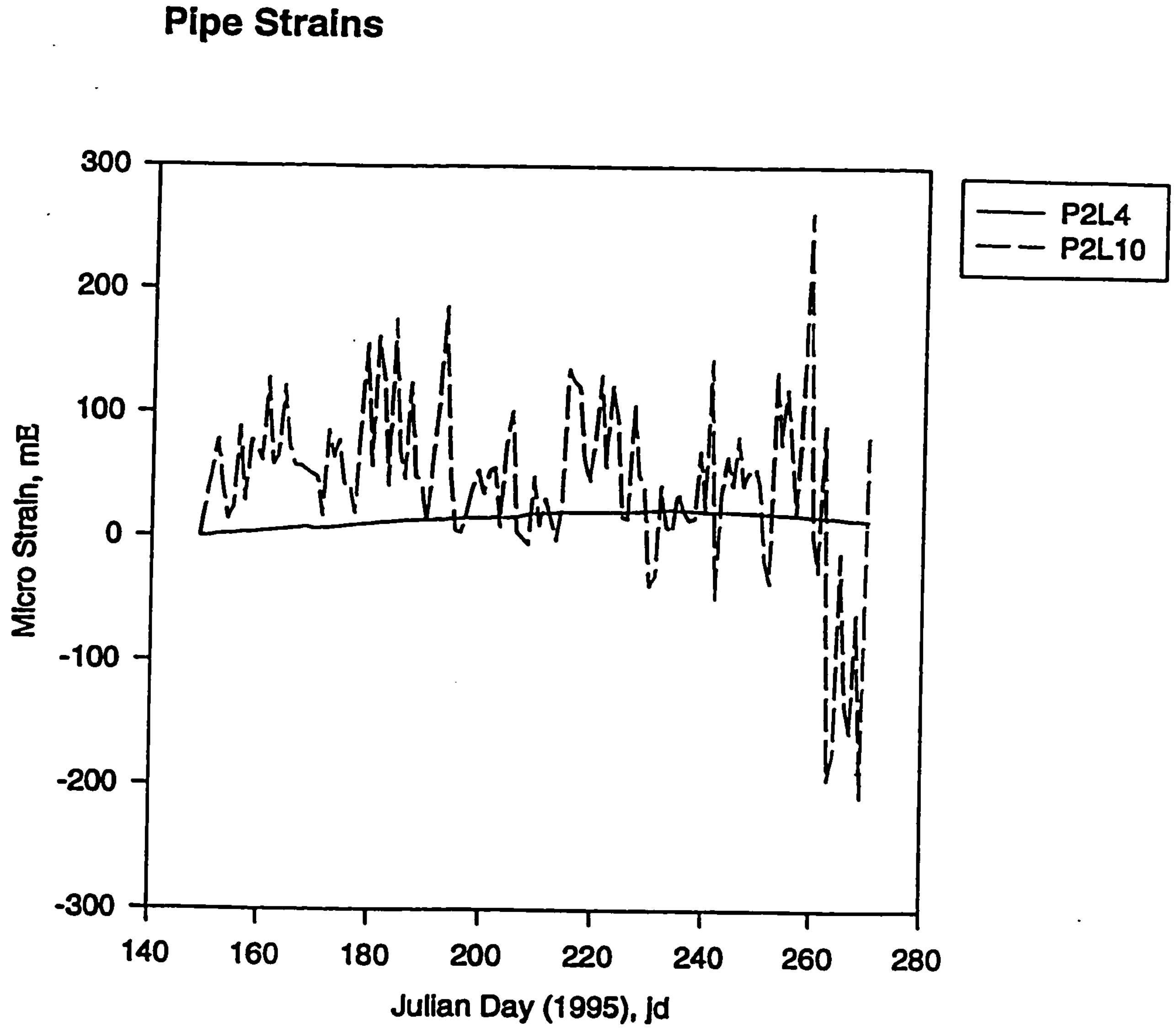


Figure 3.2: Pipe Strains (P2L4 and P2L10)

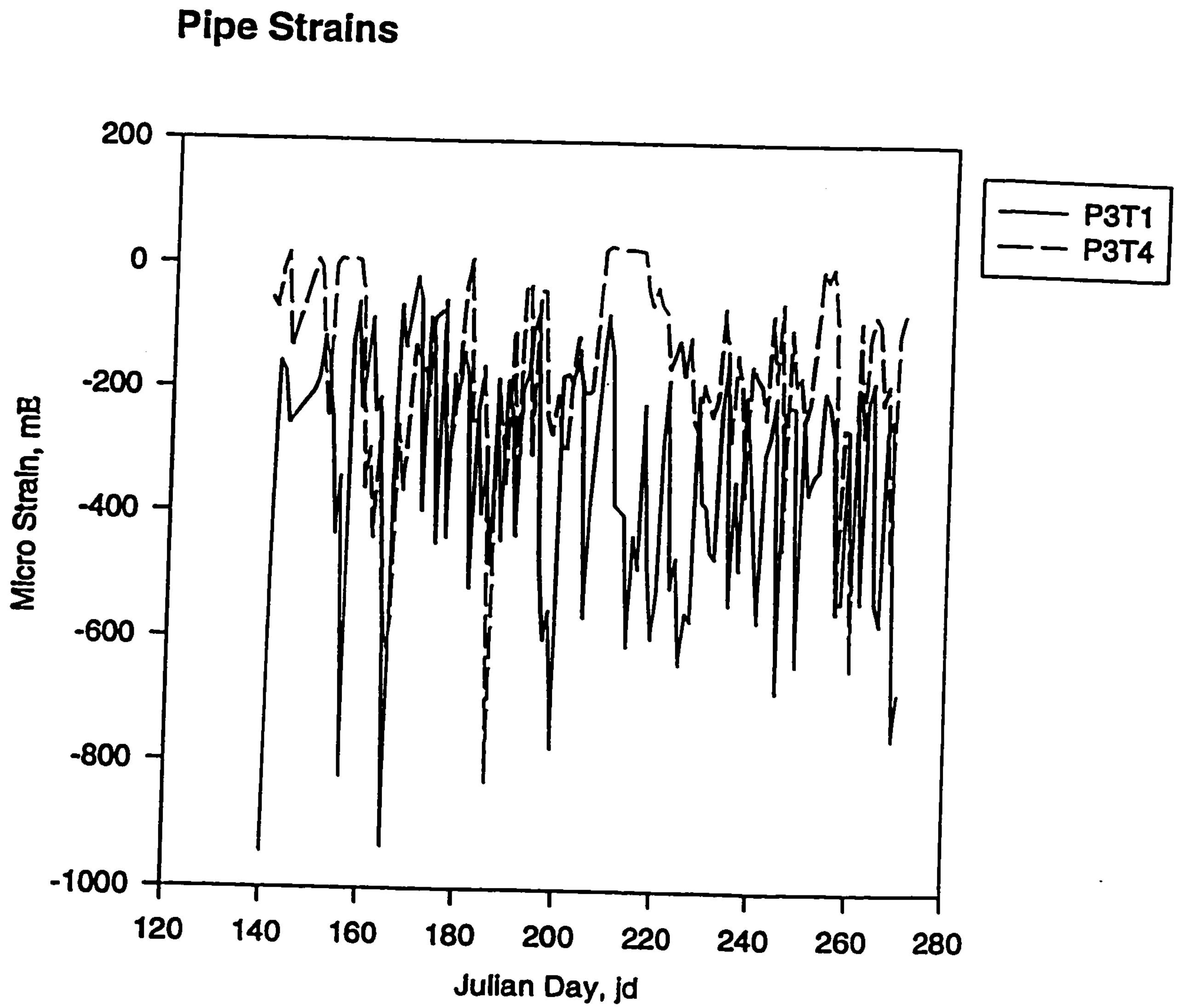


Figure 3.3: Pipe Strains (P3T1 and P3T4)

To reiterate, in the consideration of field data, the scope of this thesis project is the earth pressure and ground temperature data, which limits the focus of the work to earth pressures as they develop through the trench and act, potentially, on the buried pipe. This approach is advocated on the basis that the consideration of earth pressures alone is of vital importance to buried pipe performance-related issues. As one writer points out, "Frost loading on underground pipe can no longer be ignored in pipe design. It may exceed earth and live loads for which the pipe was designed..." (Smith, 1976). Ciottoni, in his treatment of data management and the determination of causes of water main failures, suggests that 38 percent of all breaks are attributed to frost loadings and other temperature-related effects (Ciottoni, 1983). Furthermore, these statements only support the contention of municipal engineers who have for some time reviewed their watermain break records to find break rates often peak during the coldest months of the year when frost penetration is greatest.

Despite the cause for interest and concern, Monie and Clark found that, "Research of available literature regarding related information to studies dealing directly with this problem under actual conditions was nonproductive" (Monie and Clark, 1974). The value of the present study is that it deals with direct field measurements of backfill (soil) pressures and related parameters, under actual conditions. Indeed, it is based on a *real world* or *actual* application involving a functioning water main installed using standard practices. Admittedly, this is both a strength and a weakness--a weakness if parameters outside the control and sight of the study influence the data in a significant way. It is a weakness as well if the unique aspects of the installation limit the relevance of the results to its particular circumstances alone. However, field data is of tremendous value. Its need and importance is long recognized (Selig, 1988), if only as a reality check on the more controlled forms of research in this area, such as laboratory models.

It should be noted that data collection was initiated on 16 July 1994. For a period of approximately two weeks ending about the beginning of August, the two data loggers installed at the site and the system for the remote retrieval and processing of data located at IRC offices on Montreal Road were run through a series of checks and tests. Reliable datalogging began on Julian day 217, 1994. Further discussion of the handling and processing of data is provided in Chapter 5.

CHAPTER 4

DESCRIPTION OF GATINEAU PROJECT TEST SITE AND INSTRUMENTATION

4.1 Site Description

The test site is located in the City of Gatineau close to the intersection of rue Carle and rue St-Luc (see Figure 4.1). Although the area is predominantly residential, the site is in close proximity to a public building, the Appollo Centre, which is currently used as a child care centre by day and an arts and crafts centre in the evenings. The Centre provides a convenient location to store datalogging and communication equipment for the automated acquisition and retrieval of data.

At the test site, instrumentation is concentrated over a 20-m length, which is itself divided into two sections. The first 10-m portion, Section A, is backfilled with granular backfill material, while a mixture of silty-clay and granular material is used in the second portion, Section B. The use of different backfill materials will permit the study of the influence of the type of backfill used and evaluate the impact it has on the forces acting on the pipe. The results of the grain size analysis performed on these backfill materials are found in Appendix A.

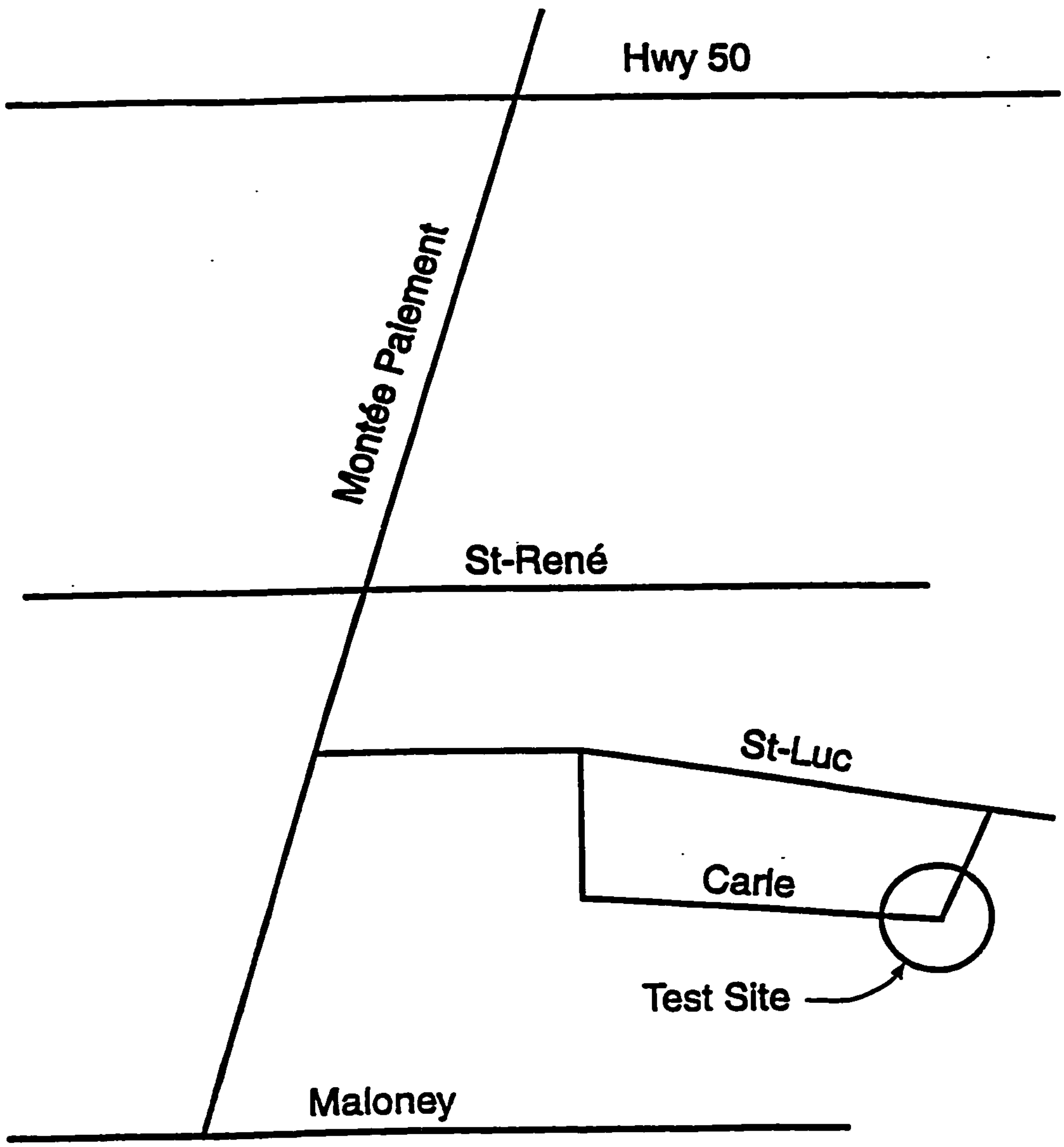


Figure 4.1: Location of the test site in the City of Gatineau, QB

On 11 July, Outabec Limited, a contractor working for the City of Gatineau, began work on the site. Following the surface location of the water line, a 2.3-m deep trench was cut along rue Carle to expose the existing 8-inch, cast iron water main over the 20 meter test section. Three 6.1-m sections of water main were removed and replaced with 8-inch ductile iron water main (Canada Pipe *3623-085CLBCL51*) equipped with strain gauges mounted earlier in July. Over the course of the next three days (12 July to 14 July), the remainder of the instrumentation was installed as detailed below.

4.1.1 Trench Geometry and Details

To excavate the existing pipe and install the instrumented water main, a trench 2.3 m in depth was cut along rue Carle. The width at the bottom of the cut was 0.9 meters. The sides of the trench were sloped to give an opening of 3.35 m at the street elevation. Prior to the installation of the pipe, a compacted 150-mm sand bed was laid. With the installation of the pipe and the routing of the instrumentation cables, additional sand was added to the trench to give a sand cover of 300 mm over the pipe. This cover was compacted and backfilling was completed some time later. Again, a granular backfill material was used in Section A, while a mixture of silty-clay and granular material was used in Section B. The native soil surrounding the trench was a silty-clay. Furthermore, it should also be noted that at the time of excavation the ground water table was located at about the 2.3 m elevation. Based on experience with conditions in the area, the position of the ground water table is placed at a depth of 2.0 to 2.3 m.

Two months following the completion of the installation, the final grade of the trench was established. First, a 100-mm granular sub-base was laid over the area of the trench and compacted using a Bomag BW-213D-2 dynamic compactor. This was carried out on 9 September 1994. Eleven days later on 20 September, asphalt was placed and compacted using an Ingersoll Rand DD32 compactor, completing all construction activities.

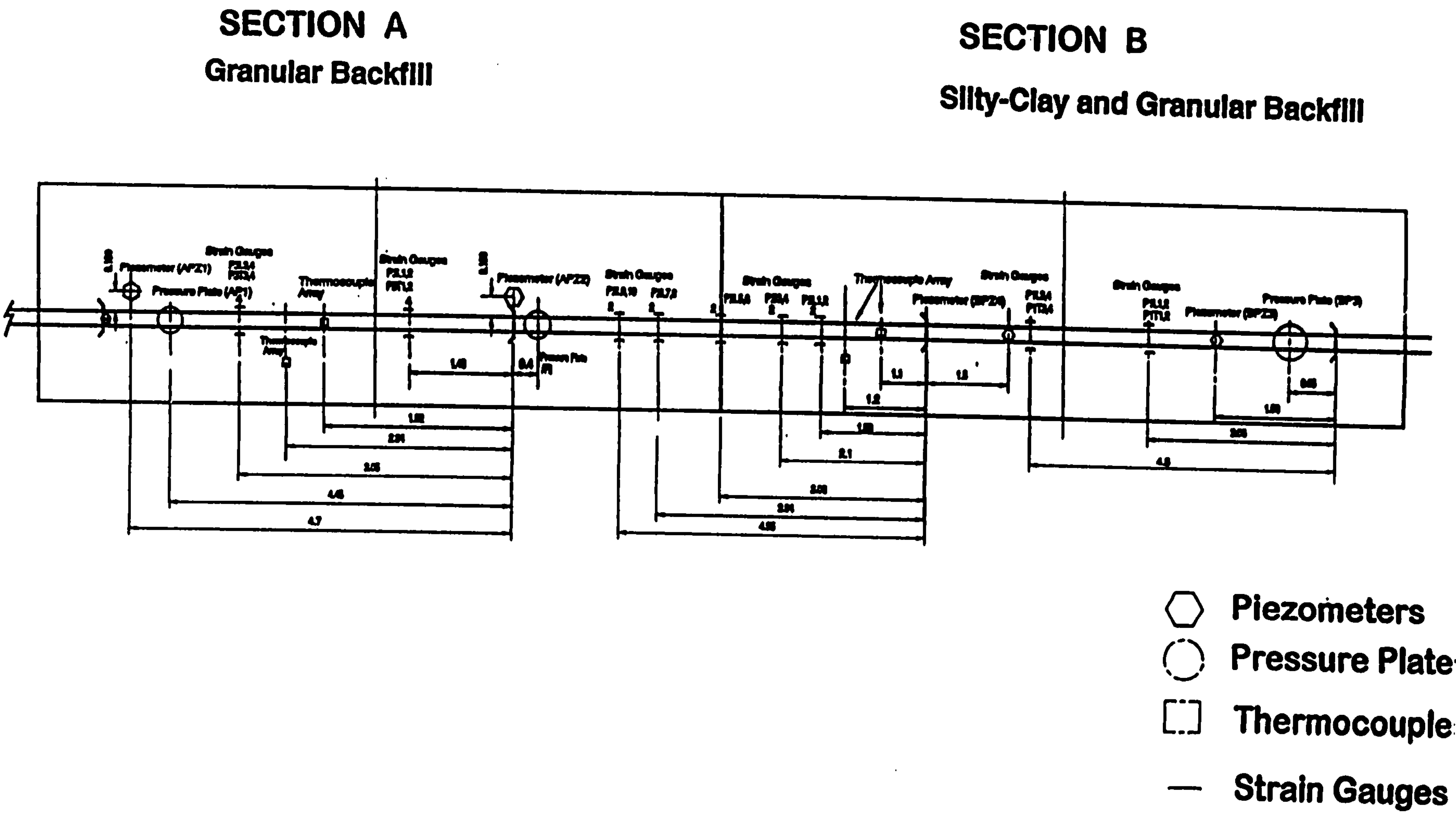
4.2 Instrumentation

The following table summarizes the sensor types and quantities used in this project. Figures 4.2, 4.3, 4.4 and 4.5 provide details of the sensor layout.

Table 4.1: Sensor Summary

[illegible]	[illegible]	[illegible]	[illegible]
Active Strain Gauges	13	13	26
Reference Gauges	2	2	4
Active Earth Pressure Cells	2	1	3
Reference Cells[1]			1
Active Piezometers	2	2	4
Reference Piez.[2]			1
Thermocouples (Soil)	24	25	49
Thermocouple (Water)			1
Thermocouples (air)			2
Thermocouples (Strain Gauge Correction)	1	1	2

[1,2] The reference piezometer and pressure plate are installed in the mechanical room of the Appollo Centre (520 rue Carle).



All Dimensions in Meters

Figure 4.2: Sensor Locations

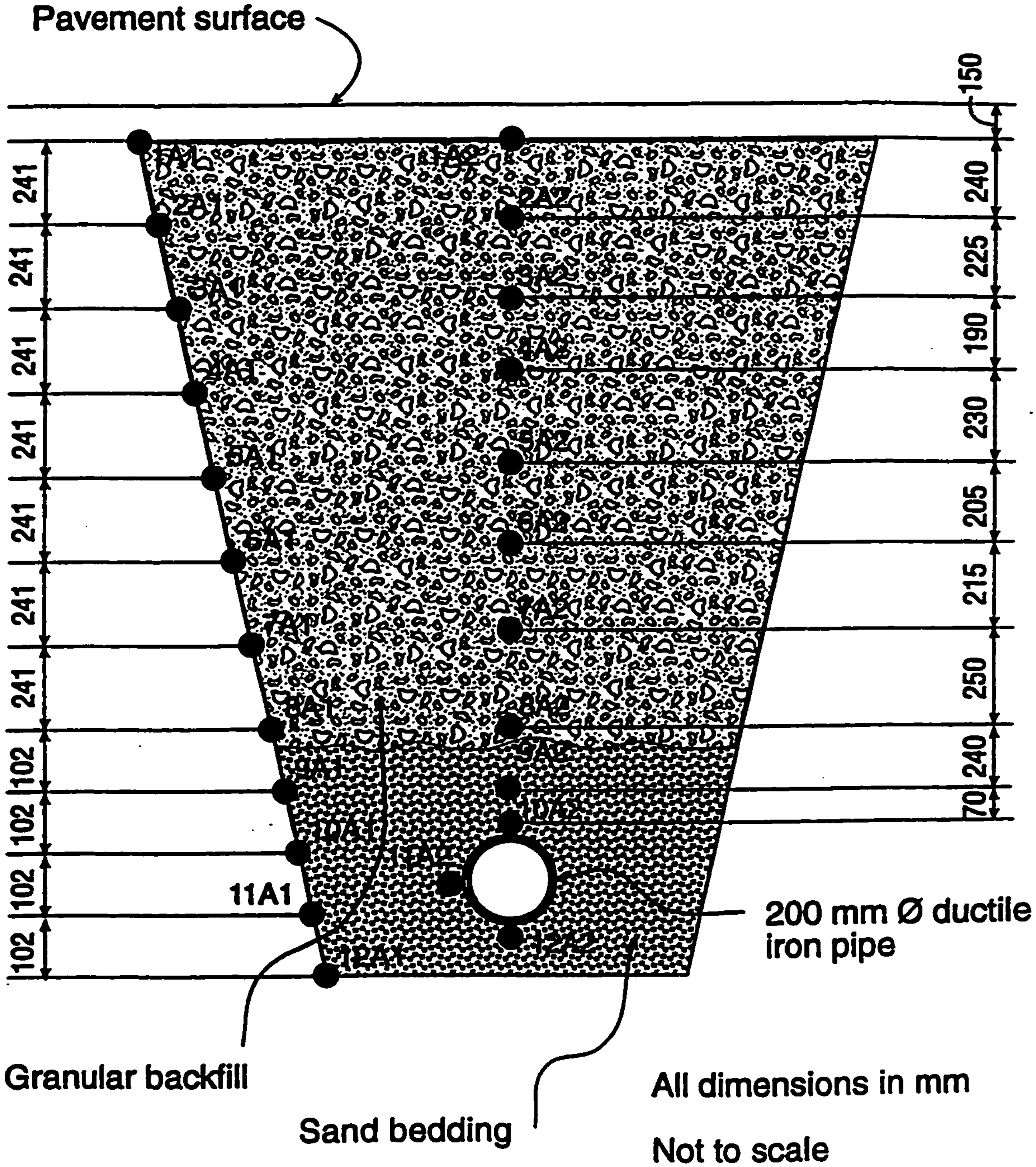


Figure 4.3: Section A: Thermocouple Locations

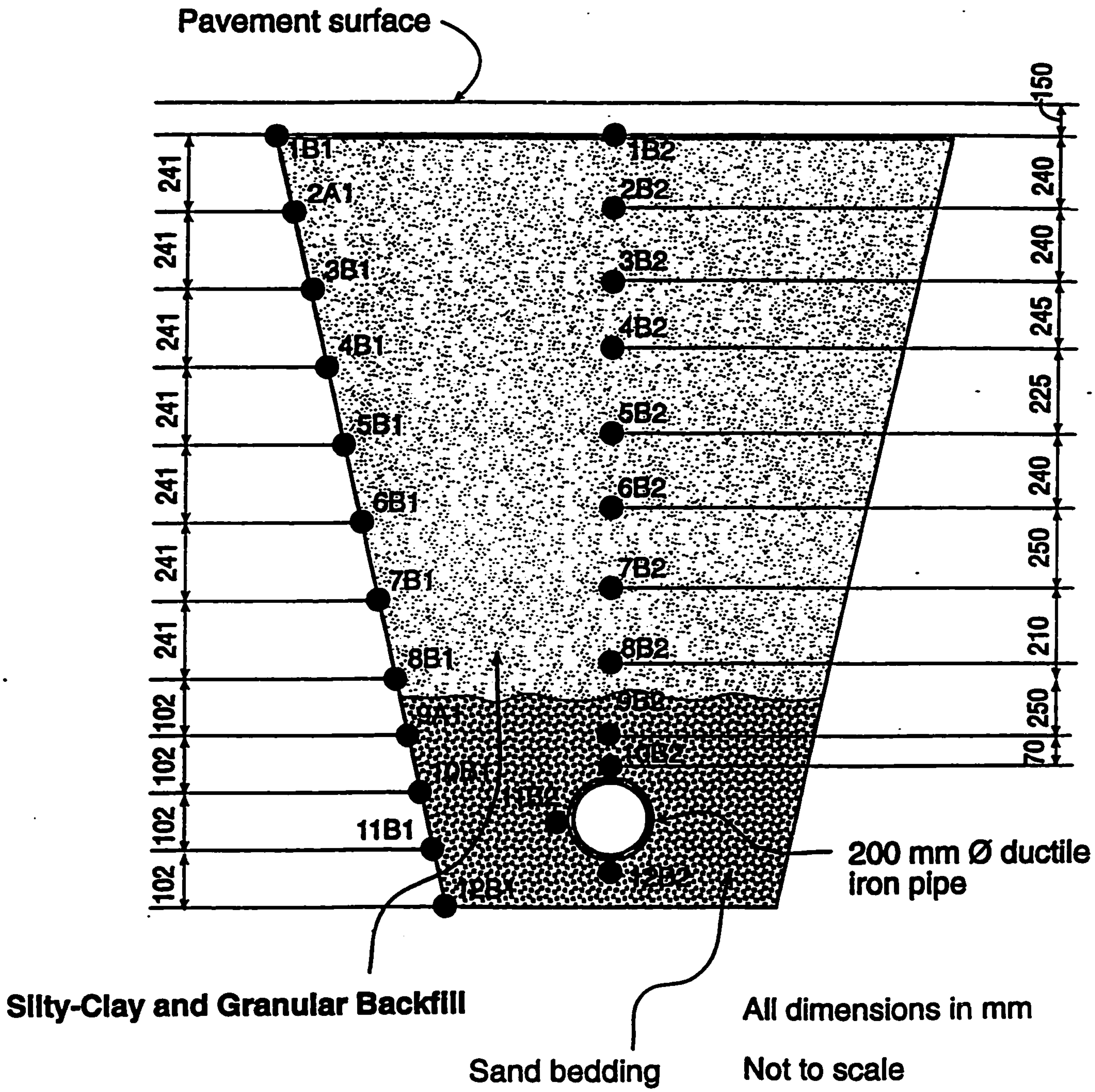
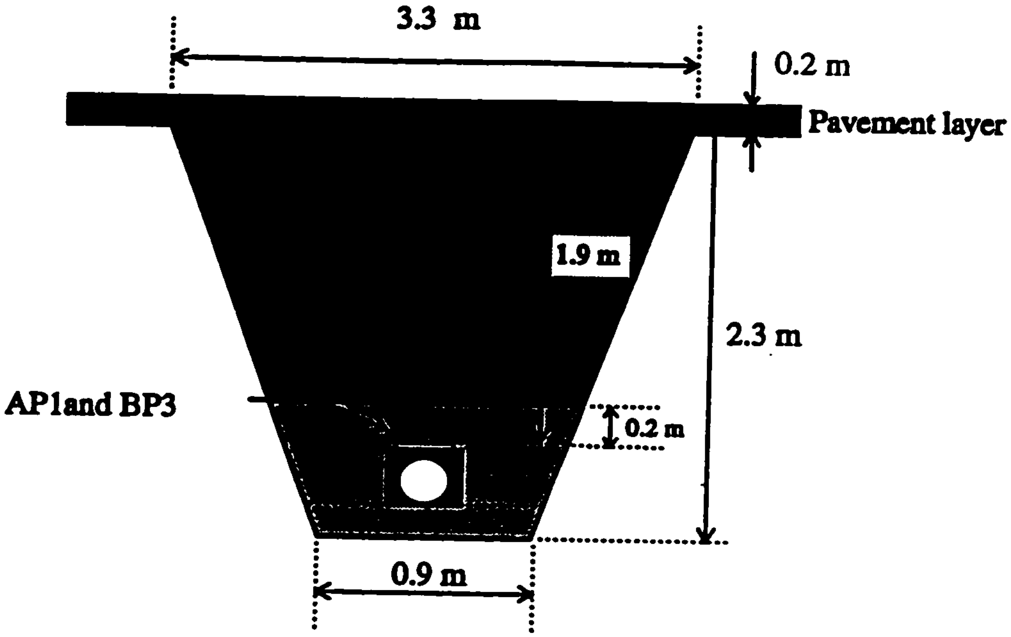
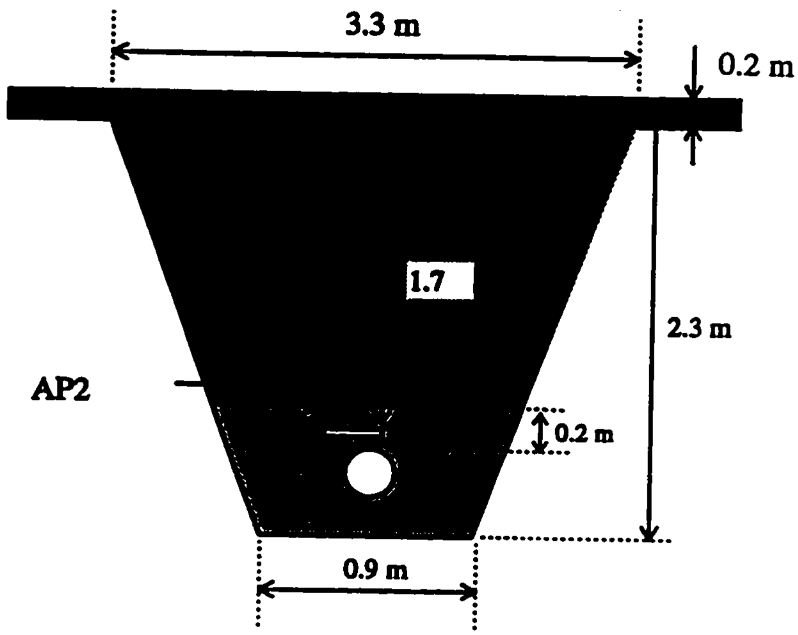


Figure 4.4: Section B: Thermocouple Locations



a) Location of Pressure Cells AP1 and BP3.



b) Location Pressure Cell BP3.

Figure 4.5: Location of Pressure Cells

4.2.1 Thermocouples

A total of 54 type-T thermocouples are installed at the site. These were prepared from 20-AWG, 12-pair copper-constantan cable supplied by Thermo Electric of Saddle Brook, New Jersey (type UP/ALPTWK-12-20-TTX). Thermo Electric rates this particular cable to a tolerance of ±0.5 °C. Of the 54 thermocouples installed, 49 are located in four vertical temperature arrays two for each of the two sections (Figures 4.3 and 4.4). These thermocouples were mounted on wood staves (2"X2"s) in order to minimize placement errors and were located in the open trench just prior to backfilling.

Thermocouples are also used to measure air temperature at the site. The first of these is located in the mechanical room, where dataloggers and the reference pressure plate and piezometer are found. The second thermocouple is installed in a Stevenson Screen mounted on the north-facing exterior wall of the Appollo Centre.

The temperature of the water in the main is also recorded. A thermocouple was installed in a custom dry-well, prepared by NRC personnel, and tapped into the wall of the water main. The two final thermocouples are associated with the reference strain gauges to permit more effective temperature compensation of pipe strains.

4.2.2 Strain Gauges

Strain gauges (26 Micro Measurements CEA-06-500UW-350) were installed on three 6.1-m lengths of pipe to monitor the mechanical performance of the pipe. With two of these pipe lengths, two transverse or circumferencial and two longitudinal gauges were installed at half, and one-quarter or three-quarter span locations. On the remaining pipe length ten longitudinal gauges were mounted at five locations on the pipe; at each location, one gauge is at the crown of the pipe (invert) with the other at the base (overt). In addition, mechanically isolated reference gauges were also installed at the site to provide data necessary for the compensation of temperature induced strains in the 26 active gauges. While all of these gauges are designed to be self-compensating for temperature induced strains, the use of a mechanically isolated reference gauge permits a more precise correction for these induced strains. Figure 4.2 details the strain gauge layout.

4.2.3 Earth Pressure Cells

Three vibrating wire pressure cells were installed to provide direct measurement of the vertical earth pressures developed in the trench and on the pipe. Based on previous field experience, Geokon 4800E-25 pressure cells were chosen for this task. These are total pressure cells incorporating a fluid-filled stainless steel diaphragm and a piezoelectric pressure transducer. They have an accuracy of 0.25% full-scale (FS) and a resolution of 0.1% FS. In addition, because they are a vibrating-wire device, these earth pressure cells are largely insensitive to the problems associated with ground loops and stray currents that plague many field installations.

Two cells, one in Section A, the other in Section B, are rigidly mounted to the pipe utilizing cast-in-place concrete pads or pedestals. The third of these cells is located in Section A about 20 cm above the pipe on a shallow bed of compacted sand (see Figure 4.5).

4.2.4 Piezometers

Four piezometers, Geokon model 4500AL, were installed: two in Section A next to the water main, and two in Section B, just below the elevation of the final grade. Here the concern is to measure the seasonal development of pore pressures in regions close to the water main and near the interface of the pavement and the subgrade. As with the earth pressure cells, the piezometers are a vibrating wire device. This particular model of transducer is designed for the 0 to 5 psi range, is unvented, and has an accuracy of 0.5% FS and a resolution of 0.025% FS (minimum).

4.2.5 Data Acquisition System

Two Campbell Scientific dataloggers are used to log and temporarily store data. The first of these, a CR-7, is used to read the thermocouple arrays to provide the ground temperature profiles in each of the test sections. The Campbell CR-7 is capable of precise temperature measurements, utilizing a 16-

bit A/D-D/A converter and a precision voltage reference. As well, an integrated platinum resistance thermometer with an accuracy of ±0.1°C is used as an internal temperature reference.

The remaining sensors, including the strain gauges, pressure cells and piezometers, are served by a Campbell CR-10 via a system of four multiplexers. While itself capable of very accurate measurements, the CR-10 is most versatile in that it can read vibrating wire sensors (pressure cells and piezometers) and, with precision bridge completion, read the current difference of the full bridge strain gauge circuitry. Like the CR-7, the CR-10 is a proven field system with a well recognized reputation for reliability. In addition, both dataloggers are equipped with modems to permit daily remote interrogation and retrieval of data. It should also be noted that both dataloggers were calibrated by Campbell Scientific (Edmonton) before deployment in the field.

4.2.6 Survey Data

In addition to the electronic data monitoring described above, surveyors with the City of Gatineau performed monthly (November to April) elevation surveys of the reinstated trench surface and surrounding area. A total of 29 survey pins were installed in the surface of the pavement. In performing the elevation survey, surveyors referenced these 29 elevation points to a temporary benchmark located on the north-east corner of the foundation of the Appollo Centre close to the site. Figure 4.6 shows the grid of survey points used relative to the reinstated trench.

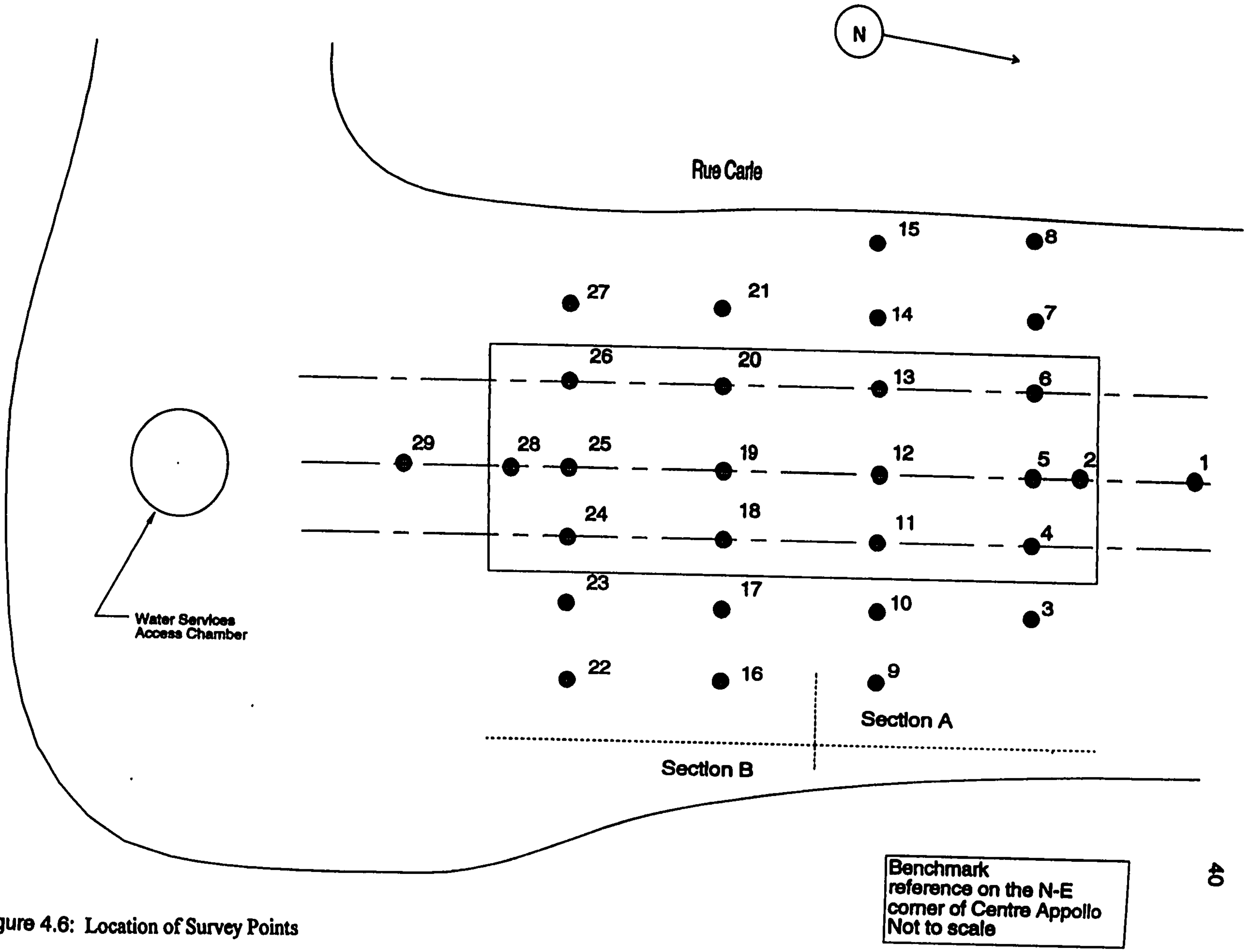


Figure 4.6: Location of Survey Points

4.3 Concluding Remarks

The joint project from which the field data used in this thesis is obtained was undertaken in response to the need to better understand the forces acting on buried water mains. To accomplish this objective, a range of instrumentation was installed measuring earth pressure, temperature, piezometric pressure and pipe strain. Furthermore, the NRC/Gatineau joint project tests four non-destructive testing methods for the determination of extent of corrosion. The focus of this thesis is earth pressure through the trench and acting on the pipe. In the chapter that follows, specific details concerning the field data used--earth pressure and ground temperature--are relayed and the data itself summarized and presented. In addition, air temperature data for the site is also presented.

CHAPTER 5

FIELD DATA

5.1 Introduction

As stated at the close of the previous chapter, Chapter 5 is concerned with the specific details of the field data used in this thesis. There are two primary objectives. First, the data itself is summarized and described and is presented graphically. Second, details of the treatment or processing of the data are discussed and presented where appropriate.

The data collection period of concern is from August 1994 to August 1996. Further, for the purpose of this presentation, this period is treated as two seasonal cycles: August 1994 to August 1995 and August 1995 to August 1996. Each sensor group--temperature and backfill pressure--is discussed and presented individually. Copies of the backfill temperature and pressure data files are presented in Appendix B and Appendix C, respectively.

5.2 Temperature Data

In each of the two sites, there are two vertical thermocouple arrays. The four arrays, then, are the following:

1. A1TC1 to A1TC12 (interface);
2. A2TC1 to A2TC12 (centre); and in Section B

3. B1TC1 to B1TC12 (interface);
4. B2TC1 to B2TC12 (centre).

In each case the layout is the same. The A1 and B1 series arrays are located at the sides of the trench and so are close to the interface of the backfill material and the native soil. The A2 and B2 series, on the other hand, are located in the centre of the trench. Further details of the placement of individual thermocouples are given in the previous chapter.

5.2.1 Section A

For the two-year period under consideration, the pattern of earth temperatures provided by the data in Figures 5.1, 5.2, 5.3 and 5.4 is much as expected. (Please note, all figures are collected at the end of this chapter.) Figures 5.1 and 5.3 show the overall variation and range of temperatures for each of the arrays: Figure 5.1 the array at the edge of the trench, Figure 5.3 the array at the centre. Figure 5.2, on the other hand, focuses on three data points in the first array: A1TC11 close to the bottom of the trench, A1TC7 mid-depth of the trench, and A1TC2 close to the surface of the backfill. The seasonal variation is well represented in the data presented here with temperatures at shallow points ranging from about 35°C in the summer months to lows of about -10°C in the winter. As well, moving from shallower points of A1TC2 and A1TC3 to deeper temperature points shows the typical buffering afforded by backfill cover so that A1TC11, for example, shows a temperature variation of between 22 °C and 5 °C--a range 17 C°--significantly less than that of A1TC2. This effect is clearly demonstrated in Figure 5.2, which presents the 24 months of data for the points A1TC2, A1TC7, and A1TC11.

The pattern is similar for the second thermocouple array in Section A, located in the centre of the trench. Once again, the seasonal variation of backfill temperature is well represented, as seen in Figures 5.3 and 5.4, and the characteristic buffering effect of the soil cover is also evident. However, the range of temperatures presented here for the centre of the trench is greater, with A2TC1, for example, moving between 38°C and -16°C. This trend is especially clear in the winter of 1995-1996 as seen in Figure 5.5, which presents two of the deeper temperature points A1TC11 and A2TC11, at approximately the same depth. Clearly, there is some indication that the backfill at the edge of the reinstated trench cools more slowly than backfill toward the centre of the reinstated cut.

The immediate explanation of the difference here is the differing thermal conductivity of the native clay, compared to the backfill material, effecting the readings at the side of the trench. In one case, the A2-series thermocouple array in the centre of the trench is entirely surrounded by backfill material. As a result, temperature variations at this location will be characterized largely by the thermal properties of the backfill. In the second case of the A1-series array, at the edge of the trench, the temperature response will be characterized both by the properties of the backfill and the native clay soil. It is reasonable, here, to expect an aggregate temperature response at the clay/backfill interface reflecting the properties of both materials. For the two winters of record, A1TC11 at the edge of the trench is the warmer of the two temperature points considered; and this is consistent with the lower thermal conductivity of the clay, compared to the granular backfill material, found at this location (Johnston, 1981, for thermal conductivities).

A second explanation for the difference in cooling discussed above is the influence of the water main and the water transported therein. In the winter months, the temperature of the water in the distribution system falls in response to the lower temperatures of the intake water at treatment facilities, and the increased cooling of water in transport at shallower locations in the water distribution network. At the test location, water temperatures approach lows of about 1°C, certainly well below ambient backfill temperatures. It is reasonable to expect some cooling of the backfill to occur.

5.2.2 Section B

As in the case of Section A and for the period under consideration, the view of the trench backfill temperatures of Section B, provided by Figures 5.6 to 5.9, is as expected and similar to that for Section A. Figures 5.6 and 5.8 provide an overview of the data covering the entire 24 month period for each of the thermocouple arrays and includes all temperature data points. Figures 5.7 and 5.9, on the other hand, cover the same period but focus on three temperature points: a shallow, mid-depth and deep location.

Again, the seasonal variation is well represented here with temperatures at shallow points ranging from about 35°C in the summer months to lows of about -10°C in the winter. Similarly, deeper temperature points again show the typical buffering afforded by the backfill cover so that B1TC12, for example, shows a temperature variation of between 22 °C and 5 °C, while B1TC1 ranges between about -13°C and 35°C. This effect is clearly demonstrated in Figure 5.7, which presents the 24 months of data for the points B1TC1, B1TC7, and B1TC12. In addition, this effect is also well represented in the data for the B2-series array, located at the centre of the trench, as seen in Figure 5.9.

As in the data for Section A, the data here presents a different temperature trend between the locations at the centre of the trench to those at the interface of backfill and the native soil. Comparing thermocouples B1TC12 and B2TC12 (again at similar elevations) the location at the centre of the trench (B2-array) experiences greater cooling through the winter months than its counterpart at the edge of the trench. As stated above, this trend may be explained by either, or by a combination of, the influence of the higher thermal conductivity of the granular backfill over the native soil, affecting the temperature response of the thermocouple locations at the edge of the trench, or the cooling effect of the water main and the water contained within it.

5.2.3 Temperature Calculations

As indicated in Chapter 4, backfill temperatures for both sections are measured using Type-T thermocouples read by a Campbell Scientific CR7. The

CR7 E-PROM is itself hard programmed with the standard calibration polynomial of the National Bureau of Standards (Monograph 125). *Raw data* returned by the datalogger is in the form of Celsius degrees and requires no further computation. The datalogger provides daily readings as averages of hourly readings.

5.3. Pressure Plate Data

Pressure readings from the three pressure cells for the period August 1994 to August 1995 are shown in Figure 5.10. For Section A (granular fill), pressure readings of the two cells AP1 (mortar base) and AP2 (sand base) are plotted together with the data for pressure cell BP1 (mortar base) located in Section B.

Initial, stable, readings for the pressure plates range between 20 and 50 kPa. Then, at approximately lapsed day 40 there is a significant pressure event of between 25 and 120 kPa. This event corresponds to the final compaction of the subgrade using a large vibratory compactor. Forward in time from this event, the pressures reflect a smaller compaction event, the compaction of the asphalt layer, and then decrease through to lapsed day 200 (February) where, following some fluctuation, AP1 and AP2 begin to increase. BP1, on the other hand, diverges from this pattern. At about day 250, it falls to near zero levels where it remains for the duration of the period.

The data for the period August 1995 to August 1996, on the other hand, shows a number of similarities to the data considered above. First, for two of the pressure plates AP1 and AP2 there is a decline in pressure to about lapsed day 200, at which point the pressure increases. In the case of the third cell, however, there is little change through the period. BP1 remains at approximately zero through the period.

The plots of AP1 and AP2 show that the earth pressures tend to decrease as backfill temperatures decrease (or at least, as we progress into the winter months), and that the pressures increase as the backfill temperatures rise in spring and summer months. Similarly, pressure readings for BP1 in Section B (mixture of native soil and granular) decrease slightly as the ground cools, but then increase--unlike the other pressure plates--as cooling continues, and presumably, the frost depth moves into the ground. These trends will be discussed in detail in Chapter 6.

5.3.1 Calculation of Earth Pressures

As stated elsewhere, the pressure plates used at the Gatineau field site are vibrating wire devices. Raw data is stored by the CR10 datalogger in the form of frequency squared (f^2). The basic equation to convert frequency to pressure is the following:

$$P=C_f[(r_o-r_n)1000]+K(T_n-T_o) \qquad \text{(Eq. 5.1)}$$

where P is the pressure in psi, C_f is the calibration factor, r_o is the zero pressure reading, r_n is the raw reading, K is a thermal multiplier, T_n is the plate temperature at the time of the reading, and T_o is the temperature of the plate at the time of the initial reading. This equation zeros readings to an initial value to account for an offset, or can be used to reference subsequent readings to a particular datum. In addition, it accounts for apparent changes in pressure due to thermal effects within the cell itself. As well, the readings in psi are later converted to kPa.

One further correction, however, must be applied to the data. The pressure cells are sealed to ambient pressure and as a result readings must be corrected for changes in barometric pressure. This is carried out by using a reference pressure plate RP1 located in the same room as the data logger. The reference plate is, of course, not subject to changes in soil pressure. Once RP1 readings are corrected for temperature induced pressure variations, its readings are used to correct for changes in barometric pressure in the three pressure plates installed in the trench.

An additional complication must be accounted for in the treatment of the data. There is a break in datalogging between the zero reading, taken 12 July, 1994, and the start of continuous datalogging, 5 August, 1994. To cope with this absence of data and account for changes in barometric pressure in the period, two additional pieces of data are required: the barometric pressures the day the zero readings were made (100.5 kPa) and the day continuous datalogging began (99.9 kPa). The corrections discussed above, together with the principal calculation, were carried out in an Excel™ spreadsheet workspace.

In addition, it should be noted that the raw data used for these calculations were daily values. The CR10 was programmed to take a complete set of readings every 30 seconds. Every 4 hours, at 0:00, 4:00, 8:00, 12:00, 16:00 and 20:00 hrs, a reading is stored for each sensor read by the datalogger. Five minutes before the data is to be stored, the datalogger begins to capture readings for a total of ten data points. It then averages the ten and places the result in a final storage location. In other words, there are six five-minute averages stored for each sensor per day. Because of the size of the data files and the relatively unchanging nature of the data, one data point per day, the 12:00 hrs average, was used for the calculation and the purposes of this study.

5.4 Air Temperature Data

As indicated earlier, air temperature data for the site was also recorded for much of the period and is represented in Figure 5.12, with the data collected in Appendix D. This gives some indication of the thermal boundary conditions over the trench and adjacent areas. It should be noted, however, that recording of the data did not begin until 5 August 1994.

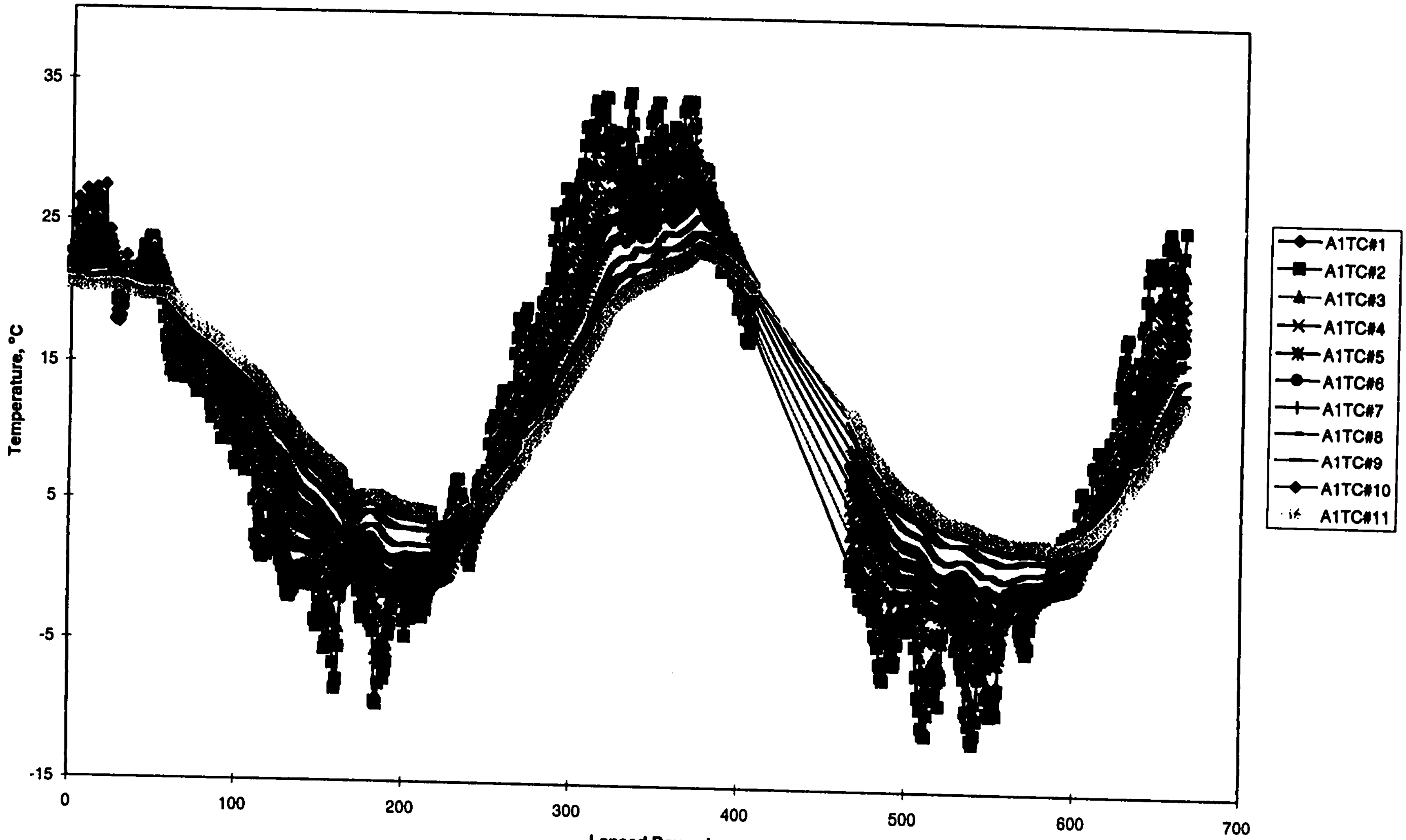


Figure 5.1: **Backfill Temperatures Section A, A1TC1 to A1TC11 (August 1994-August 1996)**

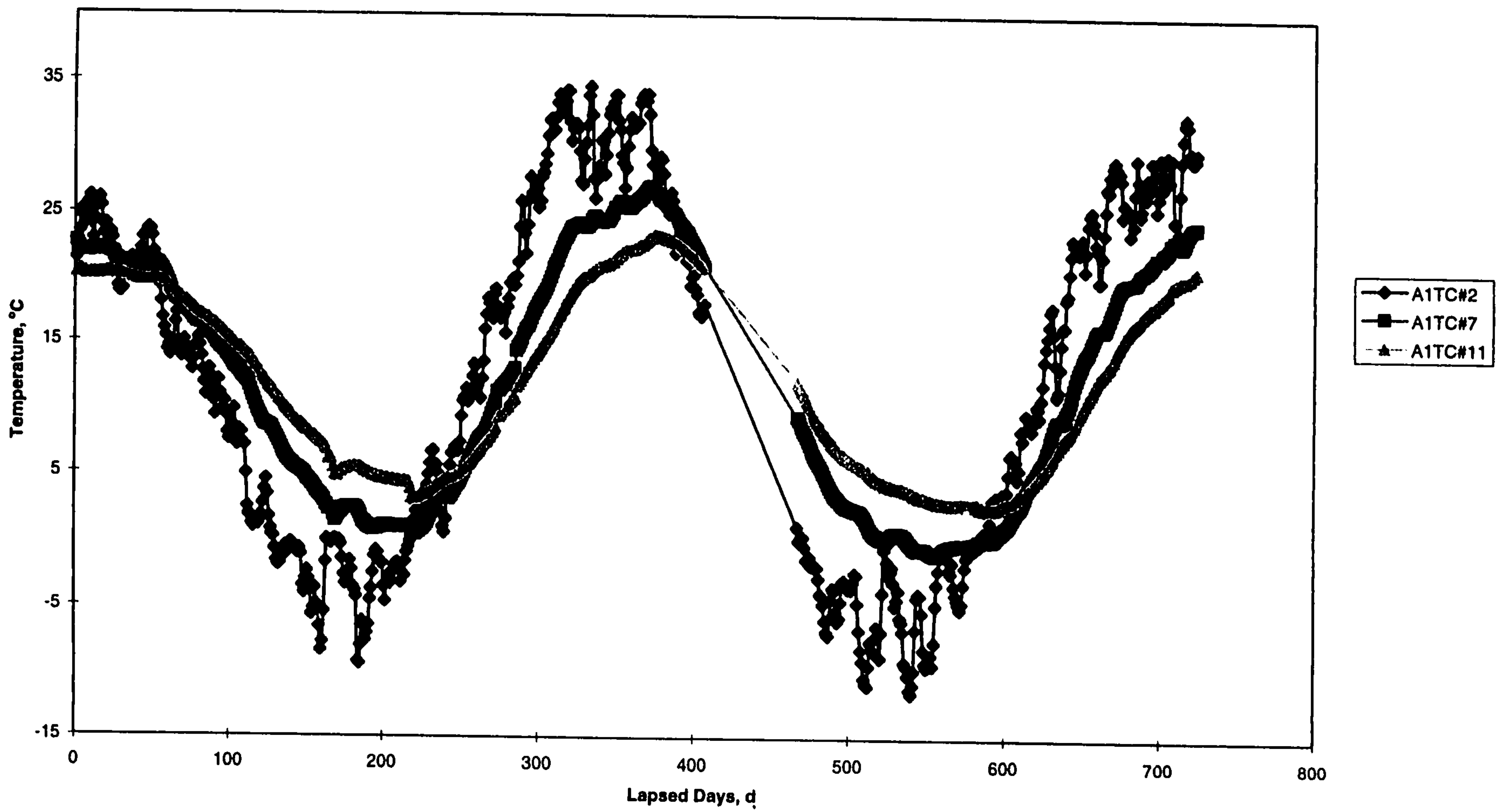


Figure 5.2: **Backfill Temperatures Section A, A1TC2,7,11 (August 1994-August 1996)**

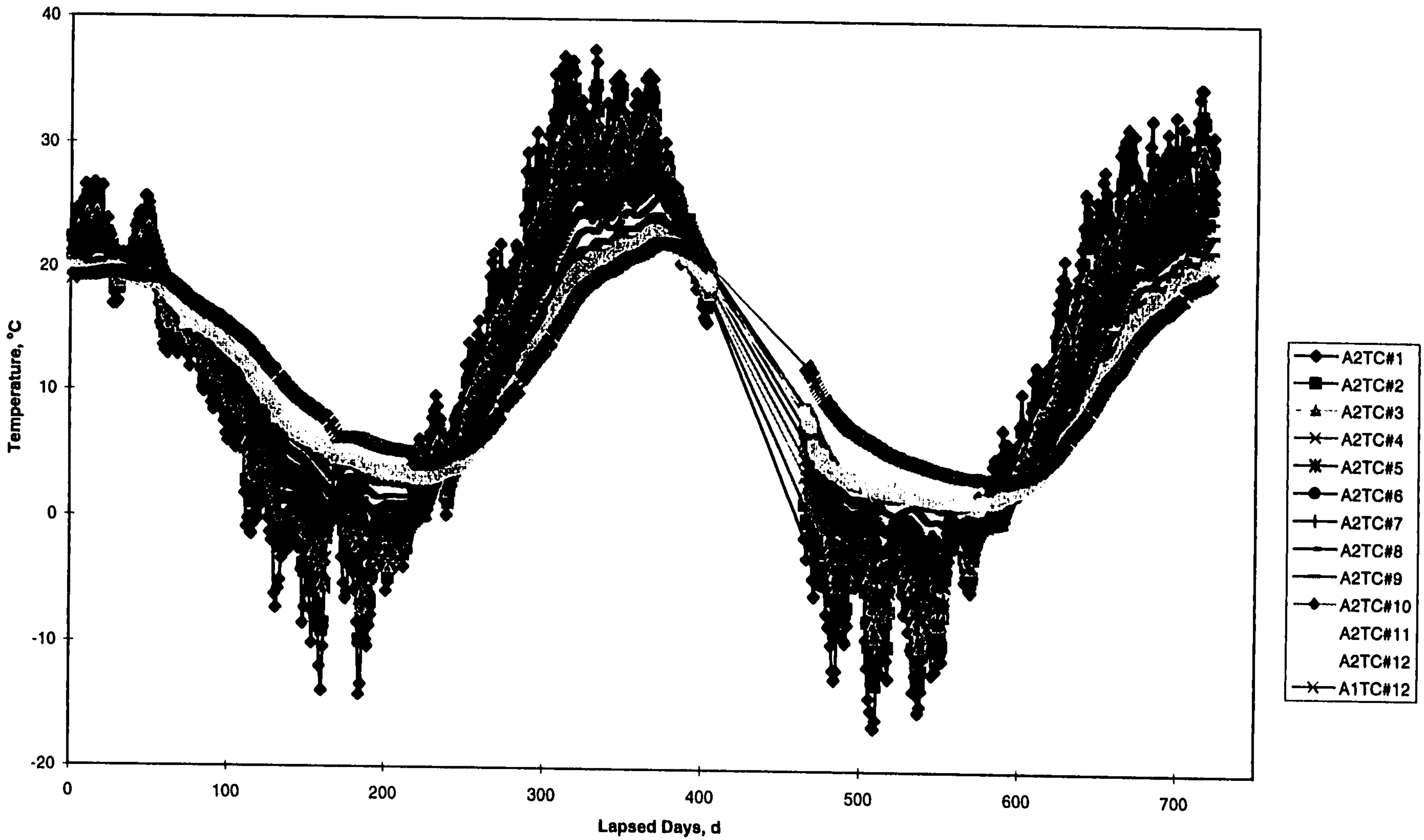


Figure 5.3: **Backfill Temperatures Section A, A2TC1 to A2TC12 (August 1994-August 1996)**

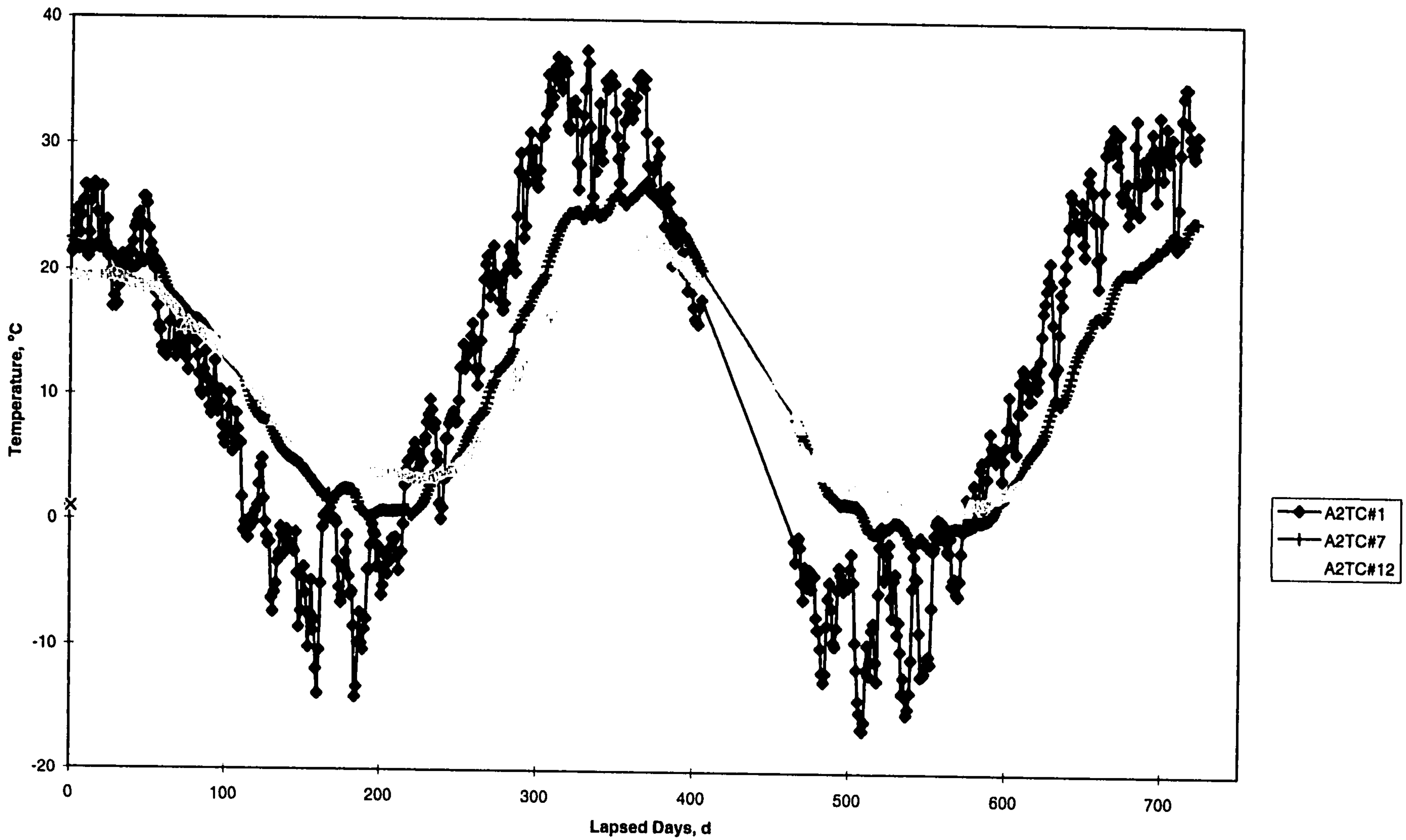


Figure 5.4: **Backfill Temperatures Section A, A2TC1,7,12 (August 1994-August 1996)**

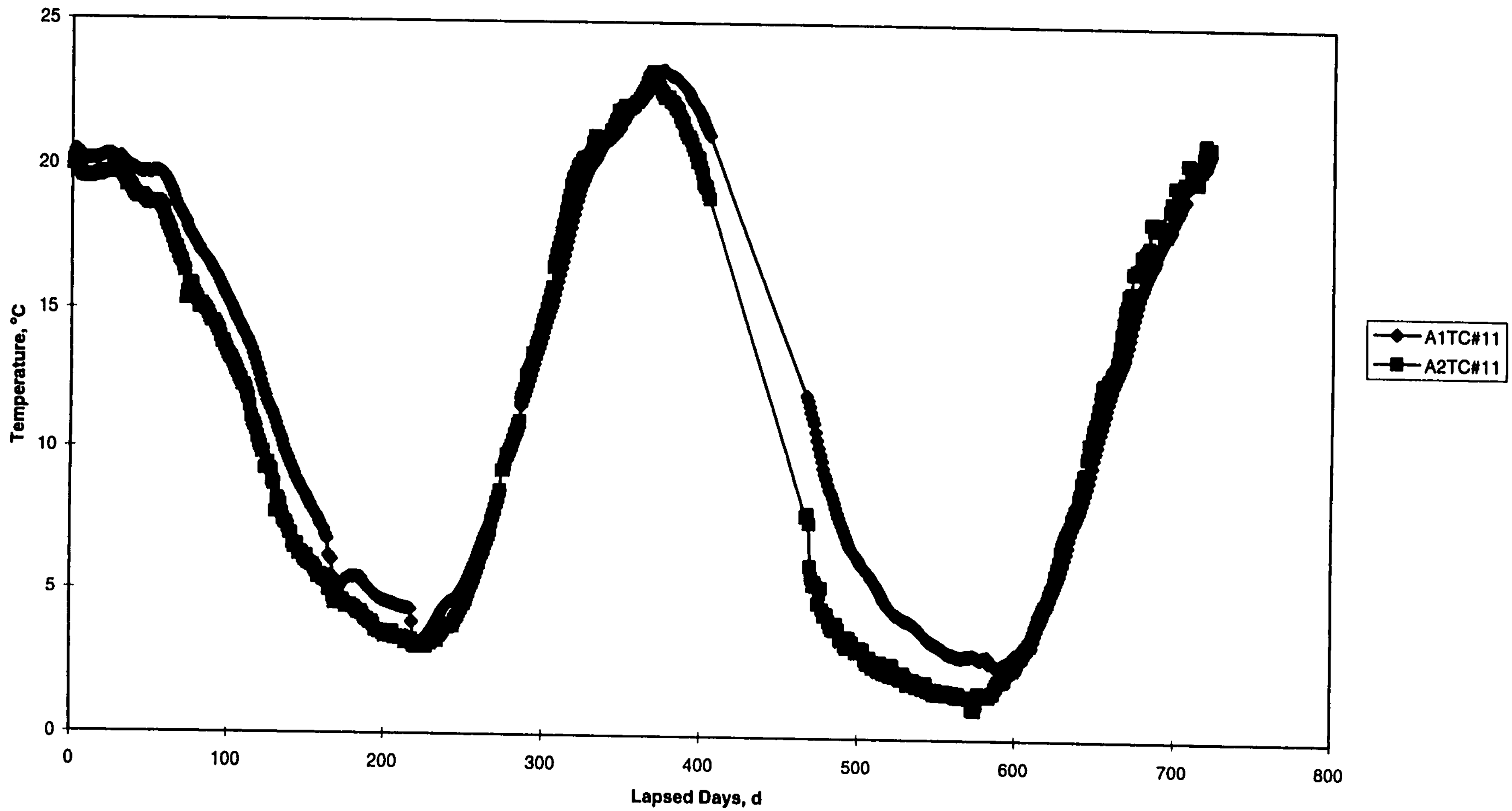


Figure 5.5: **Backfill Temperatures Section A, A1TC11 and A2TC11 (August 1994-August 1996)**

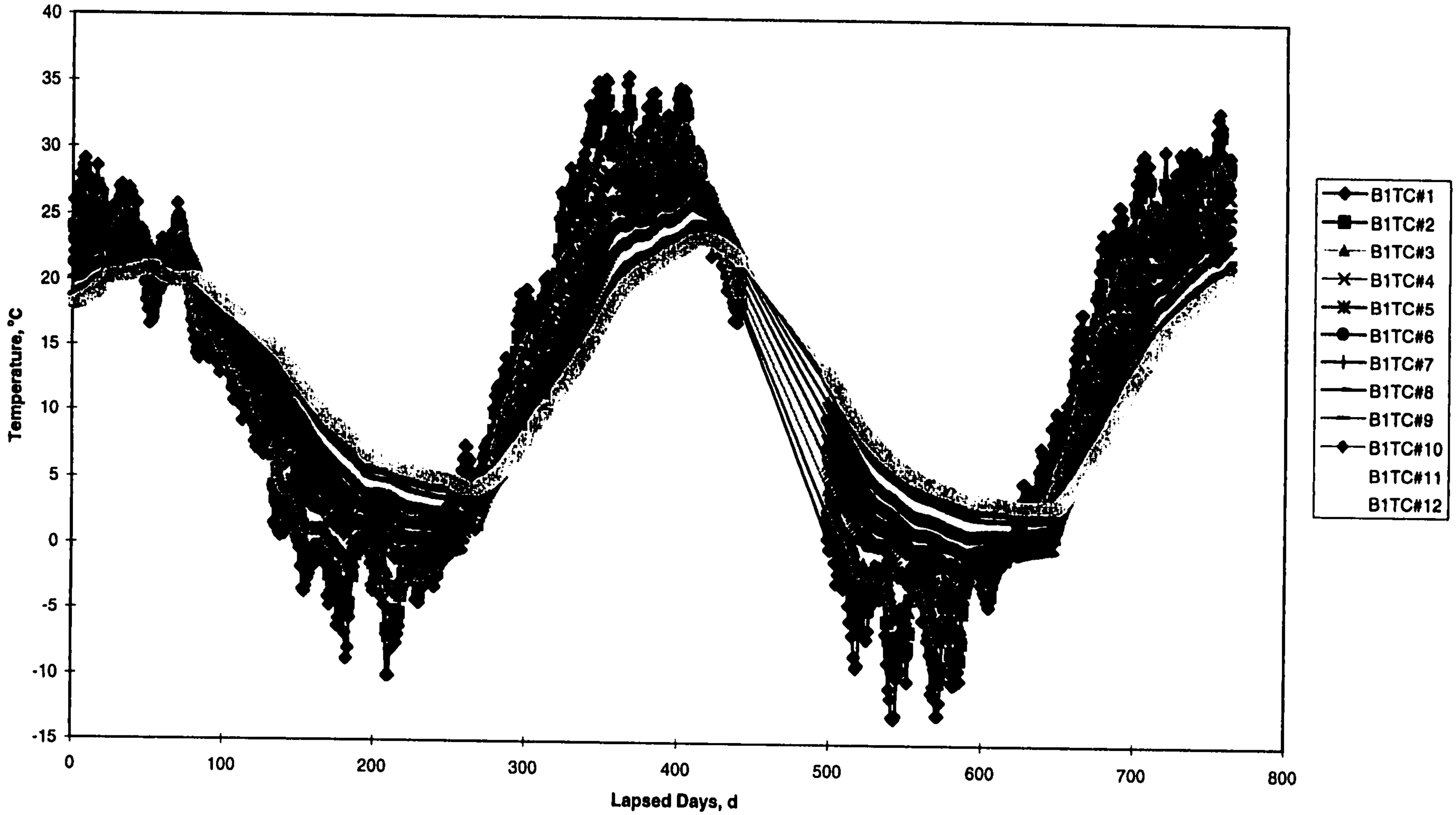


Figure 5.6: **Backfill Temperatures Section B, B1TC1 to B1TC12 (August 1994-August 1996)**

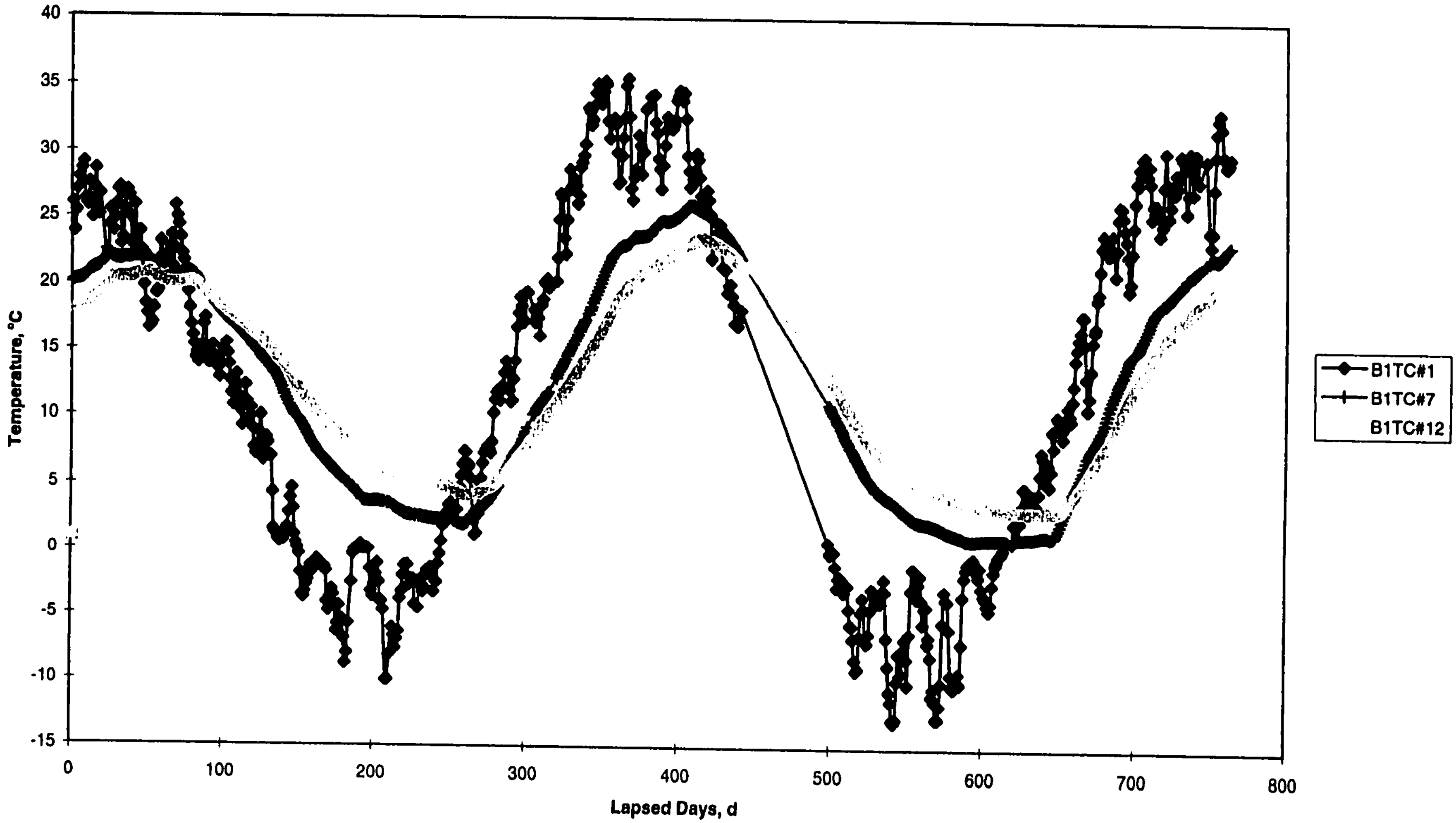


Figure 5.7: **Backfill Temperatures Section B, B1TC1,7,12 (August 1994-August 1996)**

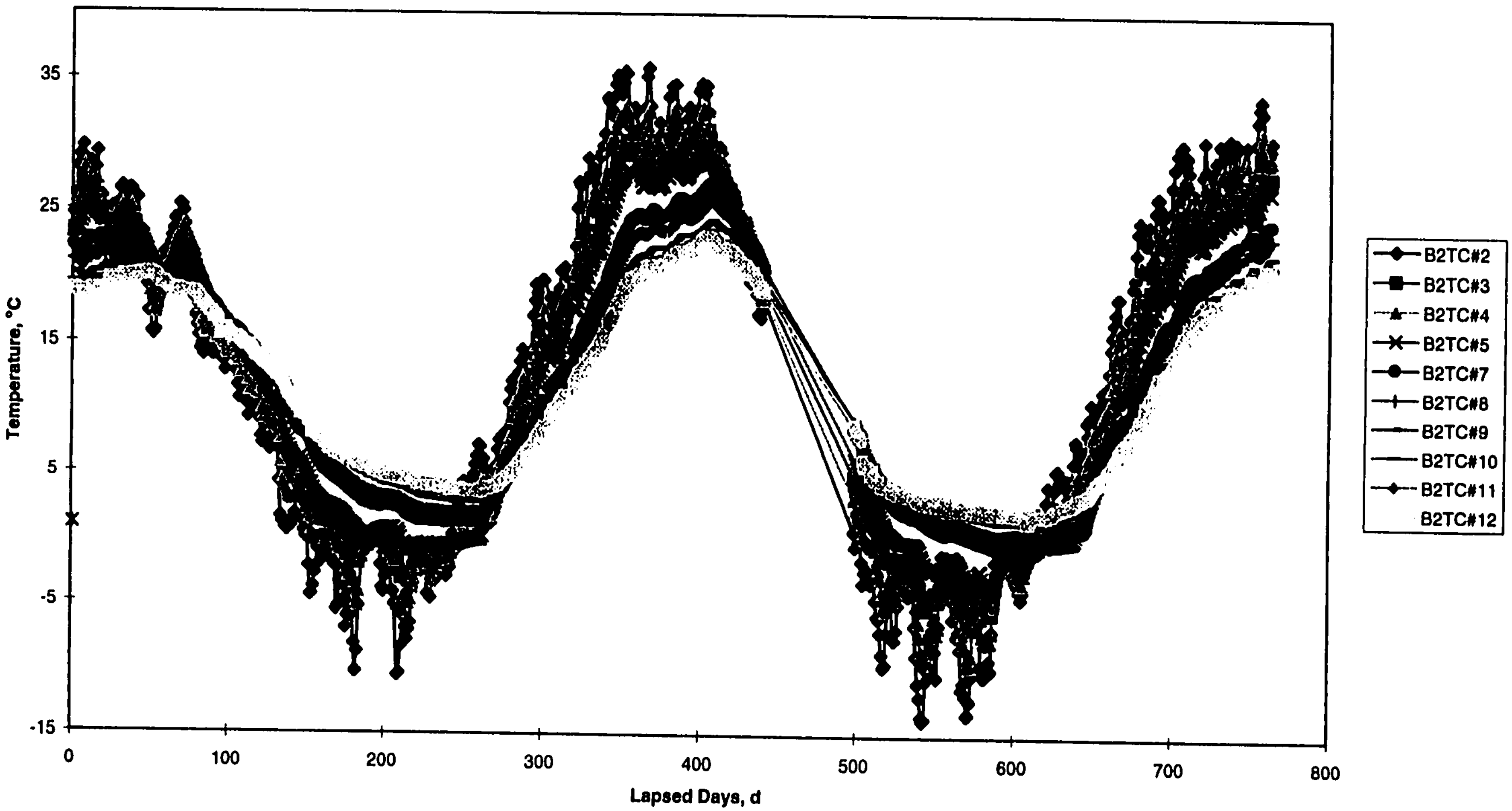


Figure 5.8: Backfill Temperatures Section B, B2TC2 to B2TC12 (August 1994-August 1996)

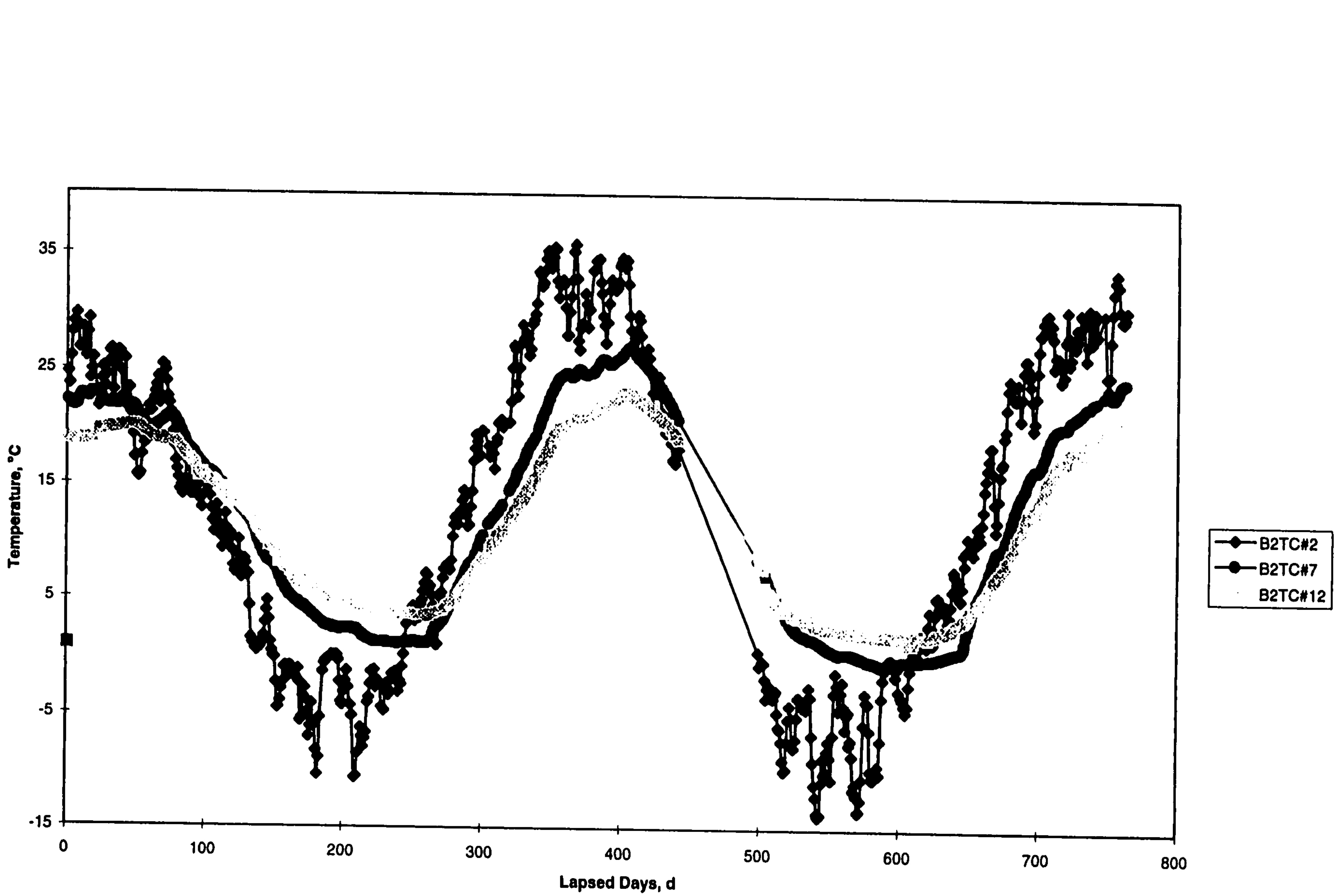


Figure 5.9: **Backfill Temperatures Section B, B2TC2,7,12 (August 1994-August 1996)**

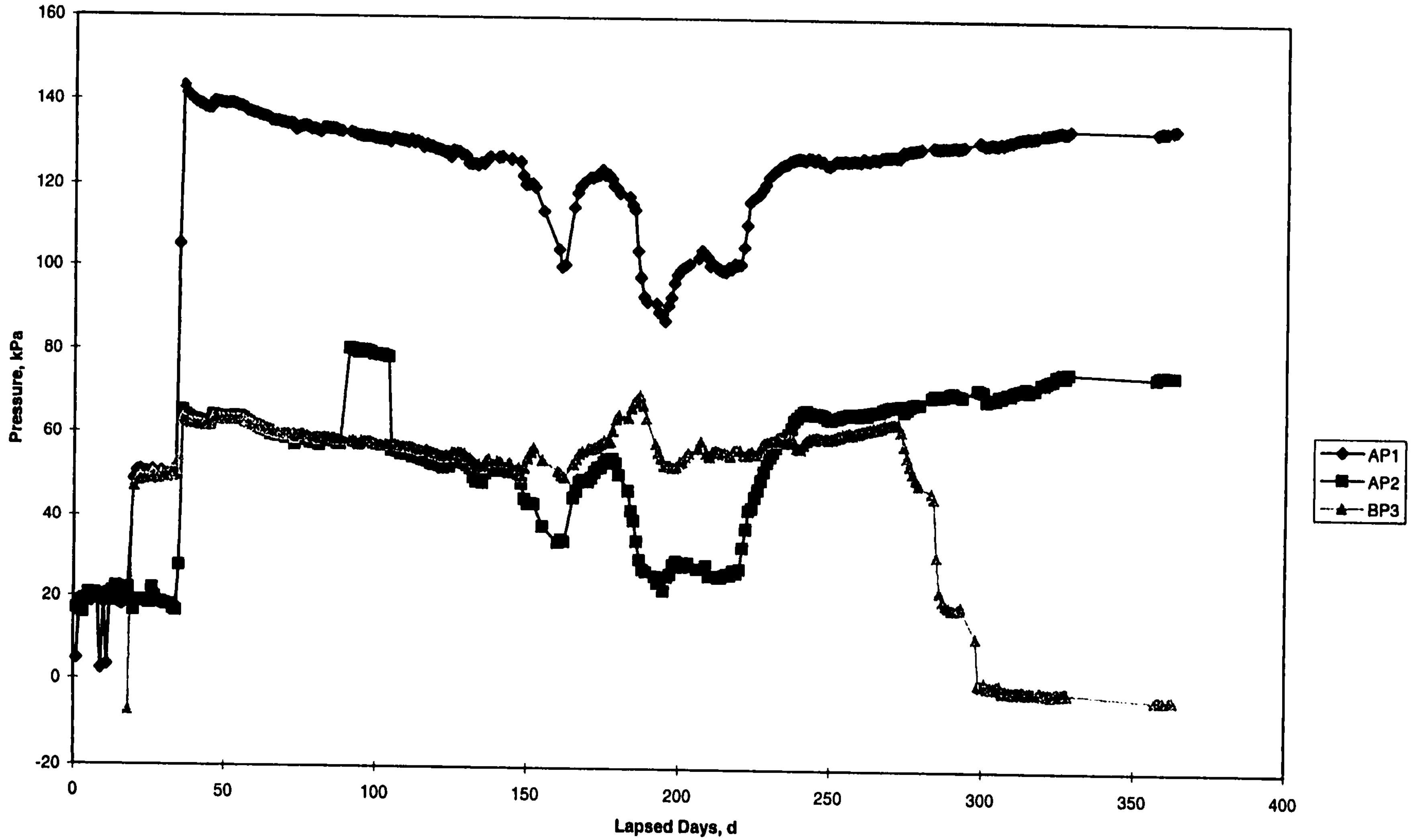


Figure 5.10: **Earth Pressures (August 1994-August 1995)**

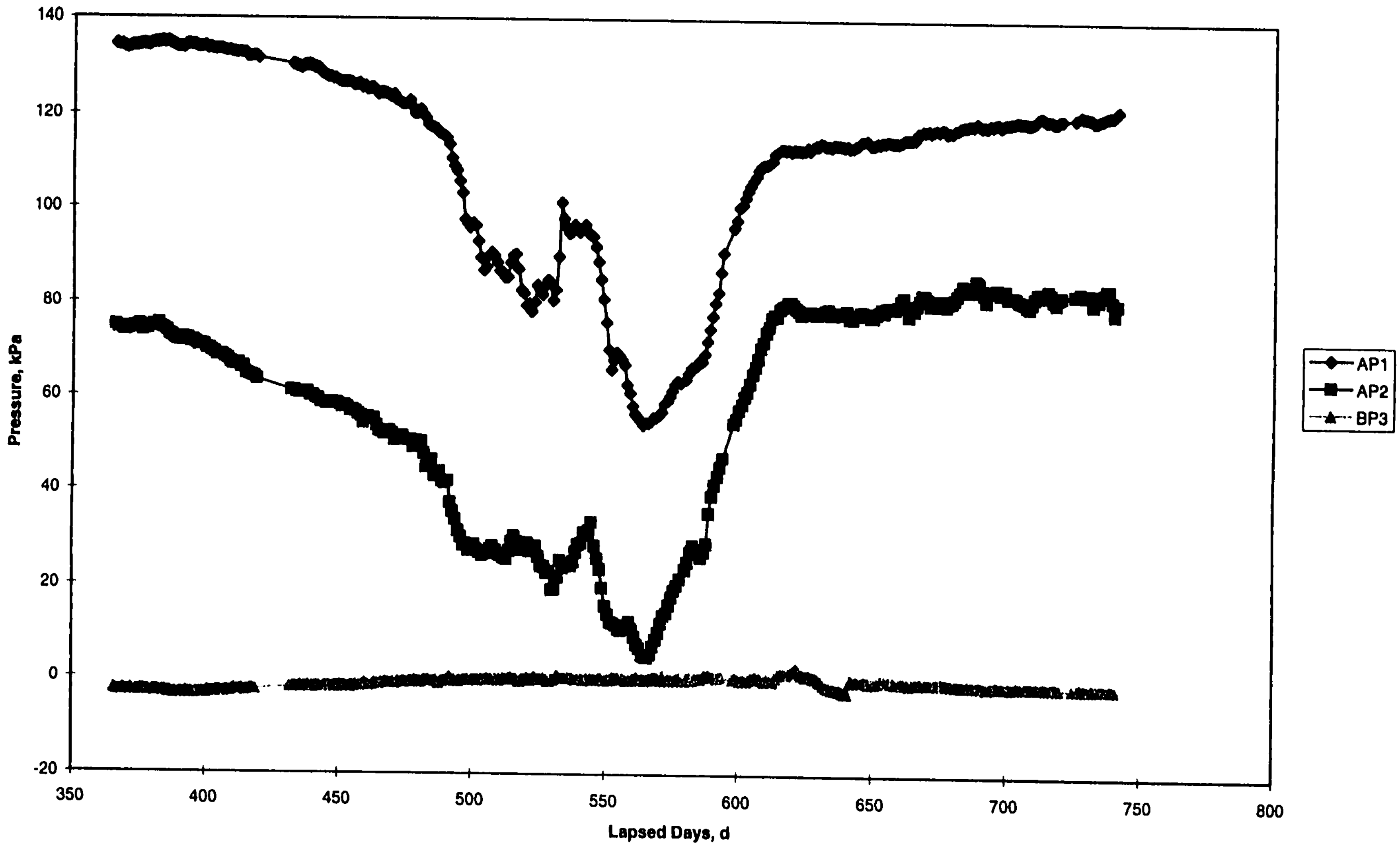


Figure 5.11: **Earth Pressures (August 1995-August 1996)**

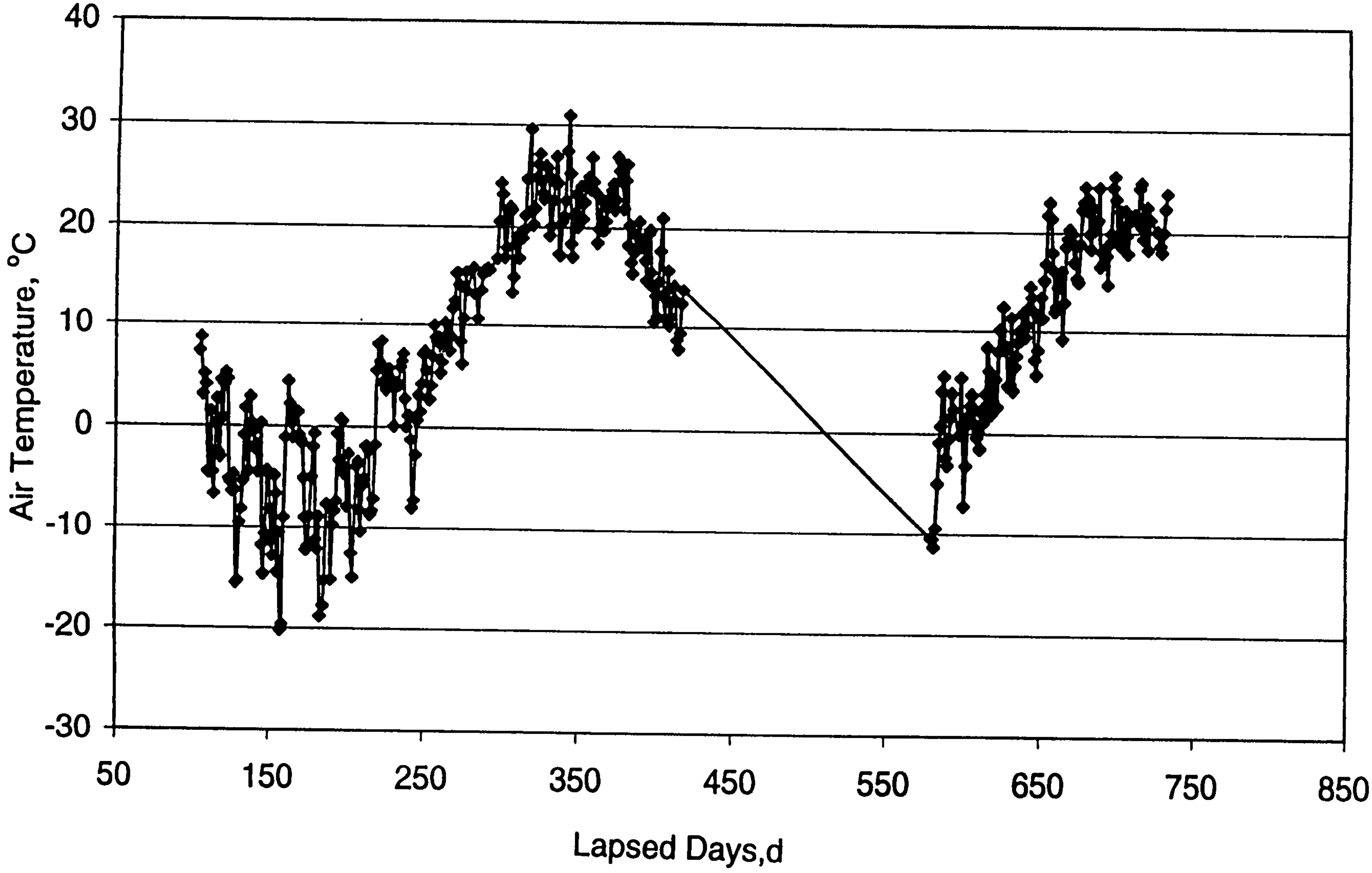


Figure 5.12: Air Temperature Data

CHAPTER 6

ANALYSIS AND DISCUSSION OF DATA

6.1 Introduction

The treatment of data in this chapter focuses on the backfill pressure. First, the case of loads prior to the development of ground frost is considered. Here, three earth pressure conditions or states are considered: immediately after backfilling the trench; following the mechanical compaction of the subgrade; and after the compaction of the asphalt overlay. The second case considered is the pressure response associated with the development of frost. Here, the relationship between the depth of frost in the backfill and changes in backfill pressure are explored.

6.2 Data Overview

Figures 6.1 through 6.7, collected at the end of this chapter, provide a more focused view of the data. Figures 6.1 and 6.5 give a general overview of the pressure data alone: Figure 6.1 for the period August 1994 to August 1995; and Figure 6.5 for the 12 months following, August 1995 to August 1996. Beginning with Figure 6.2, the data is plotted for each of the pressure cells, AP1, AP2 and BP3, together with frost depth. The latter, it should be noted, is calculated using a linear interpolation of the temperature data for the ATC2 and BTC2 thermocouple arrays, which lie closest to the pressure cells. Figure 6.2 presents data for AP1, Figure 6.3 for AP2 and Figure 6.4 for BP3, all for the first

12 months of data. Figures 6.6 and 6.7 continue the presentation for AP1 and AP2 for the following 12 months of data. BP3 data for August 1995 to August 1996 is not plotted because the sensor is clearly unresponsive for the period.

Stable, initial readings for the pressure plates range between 20 and 50 kPa. This is followed by a significant pressure event of between 25 and 120 kPa. This event corresponds to the final compaction of the subgrade using a large vibratory compactor. From this event, the pressures reflect a smaller compaction event, the compaction of the asphalt layer, and then decrease through to lapsed day 190 where, following some fluctuation, AP1 and AP2 begin to increase. BP3, on the other hand, diverges from this pattern and later falls to near zero levels where it remains. Furthermore, the data for the period August 1995 to August 1996 shows a number of similarities to the first 12 months of data. For AP1 and AP2 there is a decline in pressure to about lapsed day 560, at which point the pressure increases. BP2 remains largely unchanged, at near zero levels.

6.3 Backfill Pressures Before Compaction

The theoretical calculation of pressure within the backfill mass prior to compaction is carried out using Marston's Theory. As Spangler points out, Anson Marston, the first dean of engineering at Iowa State University and director of the Engineering Research Institute, developed his theory in the early part of the twentieth century to determine the earth pressure loads applied to buried conduits (Spangler, 1982).

In consideration of the final load, we begin with the weight of the backfill material as placed in the trench. This load is modified by an arching action which occurs through the backfill to the sides of the trench and the relatively undisturbed native soil found there. In some cases, a portion of the load of the backfill is transferred to the native soil, resulting in a reduction of pressures through the trench. In other cases, the effect is just the opposite, where load from the side prisms of the trench walls is transferred to the backfill resulting in an increase in pressure beyond that associated with the weight of the backfill.

The typical trench-backfill situation, which covers conditions like that experienced in the Gatineau Project, falls into the case of what Marston called a *ditch conduit.* This is defined as an installation "in a relatively narrow ditch dug in passive or undisturbed soil and which is then covered with earth backfill" (Spangler, 1982). Here, the backfill tends to consolidate and settle downward. Similarly, the pipe or conduit installed in the bottom of the trench settles into the bedding material it rests upon. The settlement of the backfill and the bedding material causes the prism of soil within the trench and above the pipe to move down relative to the native soil at the sides of the trench. Frictional forces develop at the sides of the trench acting upward. Together with lateral forces acting through the backfill, the shear forces at the sides of the trench contribute to an arching action that partially supports the backfill resulting in a decrease in pressure. In his development of the load equation for these conditions, Marston assumes that there is no cohesion between the backfill and the native soil at the sides of the trench. The shearing forces developed there, along the sides of the trench, are equal, then, to the active lateral pressure exerted by the backfill against the sides of the trench multiplied by the tangent of the angle of friction between the two materials, that is, the native soil and the backfill. With a trench of width B_d, consider a horizontal element of soil of height dh, as presented in the free-body diagram in Figure 6.8. The sum of the forces acting on that element are,

$$(V+dV)+2(K\mu'*V/B_d*dh)=V+\gamma Bd*dh, \qquad \text{(Eq.6.1)}$$

where V is the vertical pressure on the horizontal plane at the top of the element, (N/lin.meter), V+dV is the vertical pressure at the base of the element, K is the ratio of active lateral unit pressure to vertical unit pressure, μ' is the coefficient of friction between the fill material and the sides of the trench, γ is the unit weight of the backfill and B_d is the width of the trench. The expression $2(K\mu'*V/B_d*dh)$, then, is for the upward shear forces acting at the sides of the element, given that the element has a tendency to move downward in relation to the native soil at the sides of the trench cut. In words, the reaction force on the element plus twice the upward shear forces acting on the element are equal to the pressure on the top of the element added to the weight of the element itself. The equation above is a linear differential equation with the solution,

$$V=\gamma Bd^2(1-\exp(-2K\mu'(h/B_d))/2K\mu', \qquad \text{(Eq. 6.2)}$$

where h is the distance from the ground surface to the horizontal plane under consideration.

This calculation was carried out for the conditions at the Gatineau site and the results together with the initial measured values are summarized in the following table.

Table 6.1: Initial Backfill Pressures

	Section A: Coarse Backfill Material	**Section B: Mixture of Coarse and Fine Backfill**
Unit weight of Backfill (γ)	17.3 kN/m^3	17.3 kN/m^3
Width of Trench (Bd) at Cell elevation	1.2 m	1.2 m
Depth to Pressure Cell (h)	1.9 m for AP1 1.7 m for AP2	1.9 m
Friction Coefficient (μ)[1]	0.33	0.35
Rankine's Ratio (K)[2]	0.5	0.5
Measured Initial Pressure	AP1: 50 kPa AP2: 20 kPa	BP3: 49 kPa
Calculated Pressure	AP1: 31 kPa AP2: 28 kPa	BP3: 30 kPa

[1,2] These values are estimated in consultation with Moser, 1990.

In the case of AP1 and BP3, which have a mortar base cast on the pipe itself, there is reasonable agreement between the measured and calculated values, the latter underestimating the former. For AP1 and BP3, the difference between calculated and measured values is about 40 percent. In the case of AP2, the difference in values is similar to the other two cells, however, the calculated value overestimates the measured value.

6.4 Backfill Pressures Following Compaction

Following the installation of the instrumentation and the initial backfilling of the site, the pavement subgrade was prepared and compacted on 9 September

1994. Later, on 20 September 1994, the final asphalt layer was placed and compacted. The date of the compaction of the subgrade corresponds to a significant increase in pressure as seen in the data. AP1 sustains an increase of 91 kPa jumping from 50 to 141 kPa. AP2 also shows approximately a threefold increase in pressure moving from 20 to 64 kPa. And finally, BP3 increases from 49 to 63 kPa at the time of compaction.

At this point in the discussion, the distinction must be made between maximum compactive stress and residual vertical stresses due to compaction. The live loads associated with both vibratory and static (non-vibratory) compactors produce earth pressure transients or peaks that are not reflected in the data. The dataloggers and their programming does not support these transient high-frequency events. What is captured in the data is the recoverable or residual increases in the horizontal pressure induced by the compaction events. Further, this assertion is both suggested in the data and supported by previous field studies like that of Seed and Duncan who in their 1985 study focus specifically on load effects related to compaction events.

Table 6.2 summarizes the specifications of the compactors used by the contractor.

Table 6.2: Compactor Specifications

Specification	Bomag BW312-D2 (Used for subgrade)	Ingersol-Rand D-32 (Used for asphalt)
Drum foot-print	Sheep's foot	Smooth
Mass of front drum Mf	6310 kg	1550 kg
Mass of rear drum Mr	4469 kg	1650 kg
Distance axle to axle	3.1 m	3.0 m
Width of drum, 2d	2.1 m	1.3 m
Compaction type	Vibratory/kneading	Kneading
Frequency of vibration	30 Hz	66.7 Hz
Amplitude of vibration	1.72 mm	0.31 mm
Centrifugal force	232.2 kN	33.4 kN

Calculation of theoretical pressures due to compaction may be carried out using a solution based on Boussinesq's equation for an elastic half space subject to a finite line load (Kuraoka, 1996). Starting with the Boussinesq solution for change in vertical earth pressure due to a point load,

$$\Delta\sigma_z = (3F_p z^3)/2\pi(x^2 + y^2 + z^2)^{5/2}, \qquad \text{(Eq. 6.3)}$$

where x and y give the horizontal distance to the point of interest, z gives the depth and F_p is the point load. To treat the condition of a line load, which is the case here and is applied over a length of 2d, the equation above (Eq. 6.3) is integrated with the substitution of Q for the point load F_p. This gives the following equation:

$$\Delta\sigma_z = (Q z^3 d/\pi a)[(1/3\sqrt{R^3}) + 2/(a\sqrt{R})], \qquad \text{(Eq. 6.4)}$$

where $a = x^2 + z^2$ and $R = x^2 + z^2 + d^2$, with z corresponding to depth to the point of interest, and x the horizontal distance, with y = 0.

As suggested by Seed and Duncan (1985), and summarized in client report NRC/CNRC A-7015.1, this equation may be used to calculate the increases in pressure due to compaction. Following Scala (1968) and Howeedy and Bazaraa (1975), the calculation is based on the force generated by the front drum of the compactor and is the sum of the centrifugal force and a portion of the static weight of the machine. The results of the calculations for the changes in backfill pressure related to compaction of the subgrade and for the compaction of the asphalt layer are summarized in the following two tables.

Table 6.3: Measured and Calculated Pressures Associated with Compaction of Subgrade

	Measured Pressure Before Compaction (kPa)	Measured Pressure After Compaction (kPa)	Calculated Pressure Increase $\Delta\sigma_z$ (kPa)z=1.5m	Calculated Pressure Increase $\Delta\sigma_z$ (kPa)z=1.7m
AP1 (Section A, mortar base)	50	141	38	31
AP2 (Section A, sand base)	20	64	38	31
BP3 (Section B, mortar base)	49	63	38	31

Table 6.4: Measured and Calculated Pressures Associated with Compaction of the Asphalt Layer

	Measured Pressure Before Compaction (kPa)	Measured Pressure After Compaction (kPa)	Calculated Pressure Increase $\Delta\sigma_z$ (kPa)z=1.7m	Calculated Pressure Increase $\Delta\sigma_z$ (kPa)z=1.9m
AP1 (Section A, mortar base)	138	141	1.9	1.5
AP2 (Section A, sand base)	63	64	1.9	1.5
BP3 (Section B, mortar base)	62	63	1.9	1.5

In the compaction of the subgrade, the calculated value for increase in pressure underestimates the measured value for AP1 (141-50 = 91 kPa) and AP2 (44 kPa), while in the case of BP3, the calculated value overestimates the measured value (14 kPa). On the other hand, the calculated values for compaction of the asphalt layer show reasonable agreement for the measured pressure values underestimating AP1 but overestimating the values for AP2 and BP3. The results for AP2 and BP3 are not unreasonable, however, considering that the calculated increase in pressure is a maximum based on the compactive effort.

6.5 Backfill Pressures and Frost Depth

In planning the Gatineau Project, considerable discussion occurred surrounding the backfill pressure response of frost entering the ground. The typical associations here are of frost heave and increases in earth pressure. In the case of backfill, however, the consideration is not of a homogeneous mass of soil, or an application that may be idealized as such. A backfilled trench is a *composite structure* composed of a backfilled space containing one material surrounded by another material of typically very different properties. Certainly, this is the case at the Gatineau site as reflected in the data.

In Section A, sustained frost first enters the backfill material at about lapsed day (Ld.) 128, or 8 December 1994 (see Appendix E for data sheets). With some variation in depth, frost develops and reaches a first local maximum of 0.624 m on Ld. 134. Following a brief warming trend, the frost depth moves to a second local maximum of 1.14 m about 12 January, or Ld. 160. Once again, warming takes place and there is a reduction in the frost depth to approximately 0.76 m. On Ld. 176 this warming trend turns around and the frost depth increases and moves to its maximum depth of 1.42 m, peaking on 13 January (Ld. 193). From here, the frost depth rolls off this peak to about 1.28 m to 1.29 m, which is maintained for 10 days or so and then it abruptly decreases and is out of the ground by 16 March.

Beginning with AP1, considering the principal peaks and valleys of the frost-depth record in relation to the pressure data yields a number of unexpected observations. The overall correspondence of frost depth and pressure demonstrates in this instance an inverse relationship between the two. The second local maximum in frost depth about 12 January corresponds to a local minimum in backfill pressure. From the highs in pressure associated with the two compaction events, backfill pressure decreases steadily at a rate of about 0.2 kPa/day. At about Ld. 140, following the first local maximum in the frost depth, the backfill pressure starts to decline rapidly and reaches a local minimum of 100.3 kPa on Ld. 160, which corresponds to the second local maximum in frost depth. From Ld. 160, backfill pressure increases again and achieves a local maximum of 124 kPa on Ld. 173, which is closely matched by a local minimum in the frost depth two days later on Ld. 175. From its local maximum on day 173, the backfill pressure declines to its overall minimum of 87.6 kPa on Ld. 194. This pressure low is closely related in time to the overall maximum in frost depth, which occurs on Ld. 193, the day before the minimum in pressure is recorded.

Following this overall high in frost depth and low in backfill pressure, frost depth decreases and pressure increases. On 15 March, Ld. 223, the frost moves quickly out of the backfill, and there is a corresponding increase in pressure to 133 kPa or about 96 percent of its high 10 days after the second compaction event (compaction of the asphalt layer). The AP1 data for 1995-96, as seen in Figure 6.2, demonstrates a similar pattern with counterpoints of local maximums in frost depth for local minimums in backfill pressure. These correspondences are seen for Ld 520, 540 and about 560.

This inverse correlation of frost depth and backfill pressure is again apparent with pressure cell AP2 (see Figure 6.3). The first local maximum in frost depth seen at Ld. 140 is accompanied by a local minimum in backfill pressure at Ld. 134. From these maximums and minimums, the frost depth decreases and pressure recovers until Ld. 146 where pressure falls at an increased rate as frost depth moves towards its second local maximum. Frost depth peaks here at Ld. 160 and backfill pressure reaches a low of 33.9 kPa at Ld. 159. Once again, frost depth and pressure depart their respective highs and lows and as the frost moves out of the backfill, pressure increases and peaks at Ld. 177 two days after the low in frost depth on Ld. 175. From this point, frost depth and pressure move to their respective overall low and high for the period. Pressure bottoms out at 22.4 kPa on Ld. 194, approximately when frost depth reaches a maximum on Ld. 193. Following this point, pressure increases as frost depth decreases, and there is some relative stability in both readings leading to the point where frost depth suddenly collapses at about Ld. 223 and pressures rise dramatically. Similarly, the AP2 data for 1995-96, as seen in Figure 6.4, again demonstrates the same pattern with counterpoints in local maximums in frost depth for local minimums in backfill pressure. These correspondences are seen for Ld 510, 530 and about 560.

The pressure and frost depth data for BP3 does not support the pattern seen in pressure cells AP1 and AP2. In Section B, sustained frost enters the backfill later than in Section A. Here in Section B, frost develops on Ld. 147 (21 days later) and quickly achieves a local maximum on Ld. 154 at a depth of 0.66 m. Frost depth then decreases slightly to Ld. 160, where it starts to increase again to a second local maximum of 1.06 m on Ld. 182. From here, it decreases to 0.88 m by Ld. 197 and later builds to its overall maximum on Ld. 211 of 1.3 m. Frost depth declines from this high to Ld. 221, where it increases slightly, but then declines to Ld. 253 where it collapses. The first peak in backfill pressure just precedes the first local maximum in frost depth by three days. The following low in frost depth on Ld. 160 is accompanied by a low in pressure on Ld. 161 of 49.9 kPa. Similarly, the high in frost depth on Ld. 182 is followed closely by a high in pressure on Ld. 186--its highest level at 69.6 kPa. Both pressure and frost depth fall from their highs to corresponding lows on Ld. 197, then both move to highs on Ld. 211 which ends their correspondence. From Ld. 211 forward, pressure and frost depth diverge so that a decreasing trend in frost depth is accompanied by an increasing trend in backfill pressure. At Ld. 253 the frost leaves the ground, but pressure continues to build to about Ld. 269, where it collapses suddenly. As stated elsewhere, BP3 data for 1995-96 does not offer any help in explaining these trends. For the second twelve months of concern, the pressure transducer seems unresponsive and there is cause to deem it unreliable.

6.6 General Discussion

6.6.1 Backfill Pressures Prior to the Development of Frost

Most of the discussion will centre around the relationship between backfill pressure and frost depth. For the so-called pressures before compaction, Marston's equation yields calculated values that are low but show reasonable agreement with the measured values for AP1 and BP3, the two pressure cells rigidly mounted to the water main using a cast-in-place cement pad. For AP2, however, the calculated value is high. One explanation of this overestimation, in the case of AP2, is that Marston's approach tends to yield the highest possible value for earth pressure for the conditions of interest. This pressure will only be realized when applied to an ideally rigid structure. In the case of AP1 and BP3, the foundation providing the reaction force is the pressure plate resting on a cement pad cast upon the ductile iron water main. AP2, on the other hand, is buried within the backfill resting on a shallow bed of sand. Accepting that the foundation of AP1 and BP3 is of higher stiffness than that of AP2 provides one explanation of the difference in how

Marston's equation estimates AP1 and BP3, and AP2.

In attempting to account for increases in backfill pressure due to compaction, the approach presented here uses Boussinesq's equation. Nevertheless, the results are less than satisfactory. In the compaction of the subgrade, the calculated pressure for AP1 significantly underestimates the measured value, while for BP3 the pressure is overestimated. For AP2, however, the calculated value is within 14 percent of the measured value. In addition, for the compaction of the asphalt layer, measured values for AP2 and BP3 are overestimated, while the value for AP1 is underestimated.

In the case of the calculated pressures overestimating the measured values, one immediate explanation may be inconsistency in the use of compaction equipment (Kuraoka, 1996). As well, and as stated above, the theoretical calculation yields a maximum value and potential state of stress from which significant stress relief may occur before a reading is made. In the case of underestimating measured values, the rigid foundation, for example AP1 in the case of compaction of the subgrade, may play a role in producing a high reading, since a disproportionate amount of the load is transferred to the plate as the less stiff soil surrounding the plate strains.

6.6.2 Backfill Pressures with the Development of Frost

Considering the data for Section A, the relationship between backfill pressure and frost depth seems clearly demonstrated. Frost depth and backfill pressure appear inversely related. Yet, moving on to Section B and pressure cell BP3, the trend for most of the data is just the reverse. Here, the more typical expectation is upheld: as frost moves into the ground, pressures increase. But is this data reliable? First, there is no redundancy in the instrumentation. Section B contains only one pressure cell. Second, there is at best only twelve months of data to base the trend on. Third, the trend is not sustained throughout the entire period (August 1994 to August 1995). If there were an acceptable level of certainty regarding this trend in Section B, this would, perhaps, offer insight into the response of the different backfill materials. Section B contains a finer-grain backfill and likely has different frost heave properties. However, there is no basis to make this argument or to explore it any further.

Accepting the trend observed in Section A, any explanation must take into consideration the differences between the backfill material and the native soil surrounding it. The soil native to the site is a clay (silty). This was observed at the time of excavation and verified by geotechnical records held by the City of Gatineau. The backfill material used in Section A was a granular material as described in Chapter 4. Clearly, these two materials have at least the potential to respond very differently to the development of frost. Certainly, that silty-clays have a higher frost susceptibility than sands and gravels is well documented (Townsend and Csathy, 1963). If there were direct evidence to demonstrate that frost heave of the soil adjacent to the trench was greater than that of the backfill material, then a basis would emerge for arguing that the trend seen above in the data is related to the difference in the frost heave potential of the two materials, that is, of the backfill and the native soil.

In this argument, as the native soil expands and heaves it carries the less frost susceptible backfill with it. As well, interface friction along the inclined trench wall is enhanced by arching through the backfill. As the native soil moves upward, the backfill is carried with it and an unloading effect, as seen in the data, occurs. This process is represented in the Figure 6.9. Survey data offers direct evidence that differential heave did occur between the trench surface and the adjacent areas. Comparing elevation data obtained from the City of Gatineau for the winter of 1994-95 and considering survey points above the pressure plates AP1 and AP2 (points 9 to 15, see Figure 4.6) the area adjacent to the trench heaved in the order of 0.0437 to 0.1002 mm, while the surface of the trench only heaved by 0.0139 to 0.0189 mm for the period 25 November 1994 to 23 February 1995. Similar data was not available for the period 1995-96.

It should also be noted that the moisture content of the native soil and the backfill materials is at least supportive of the argument proposed above. Based on testing and experience with soils in this area, the water content of the silty-clay is estimated to be about 35 to 50 percent, while the backfill materials are estimated to be 10 to 20 percent.

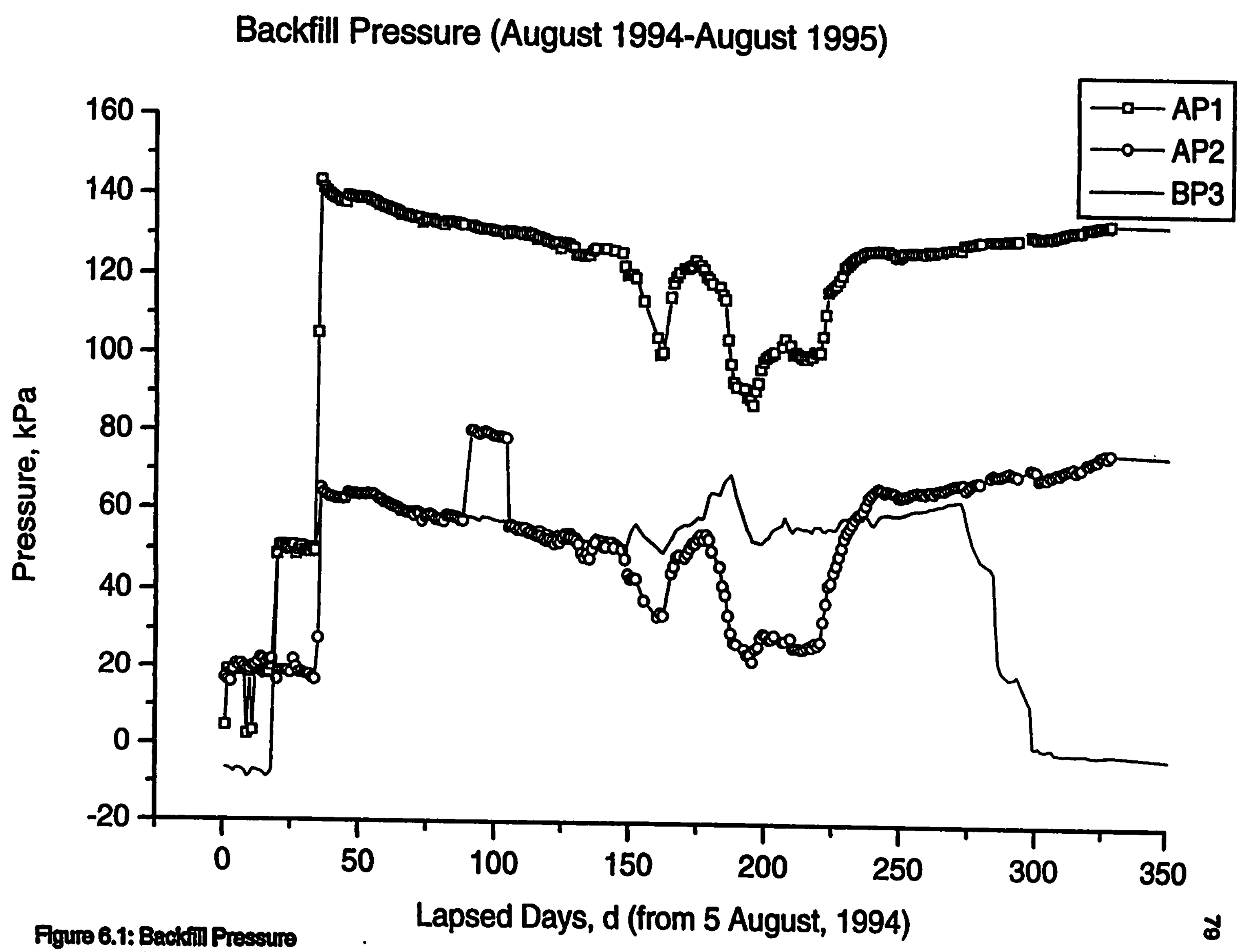


Figure 6.1: Backfill Pressure
(August 1994-August 1995)

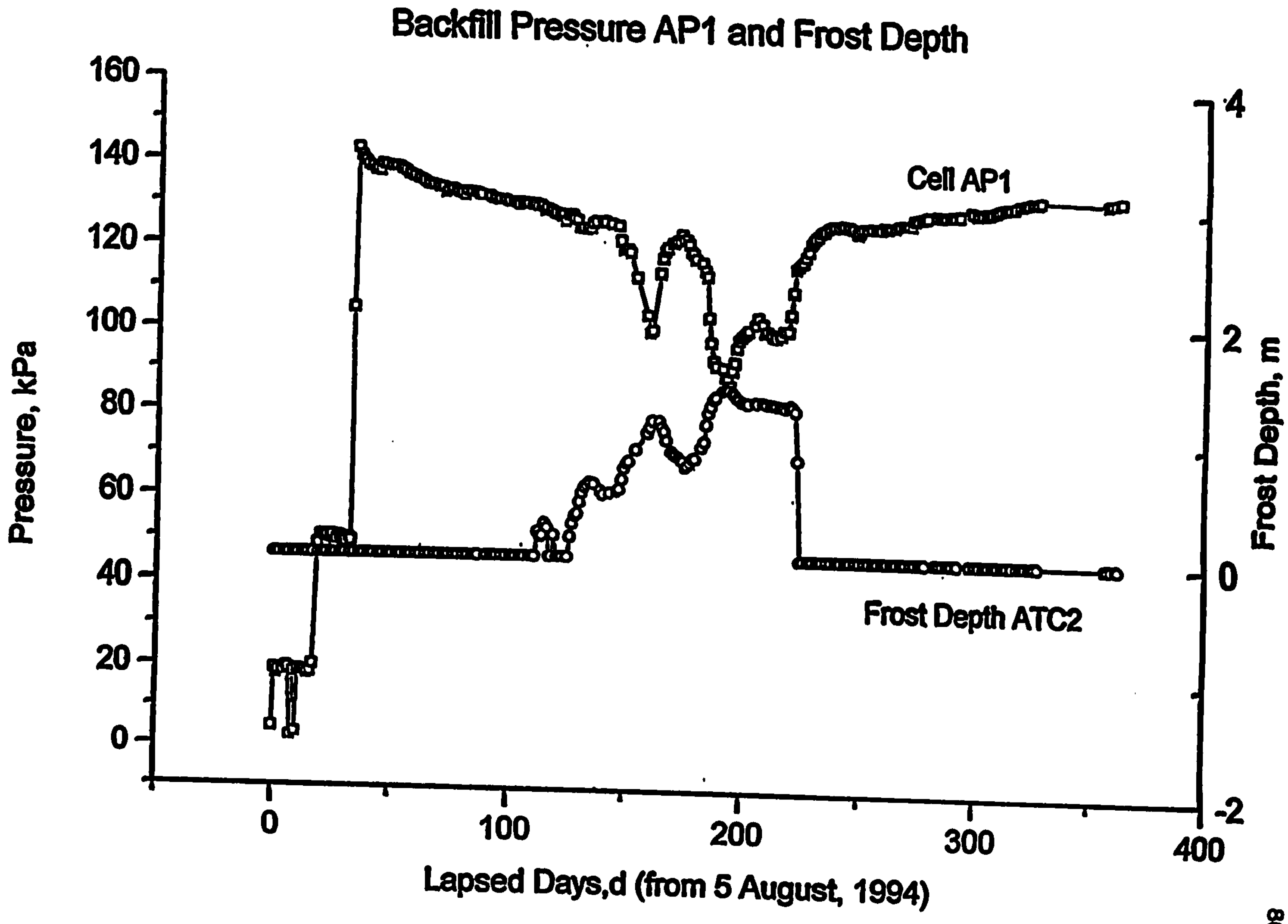


Figure 6.2: Backfill Pressure AP1 and Frost Depth
(From August 1994)

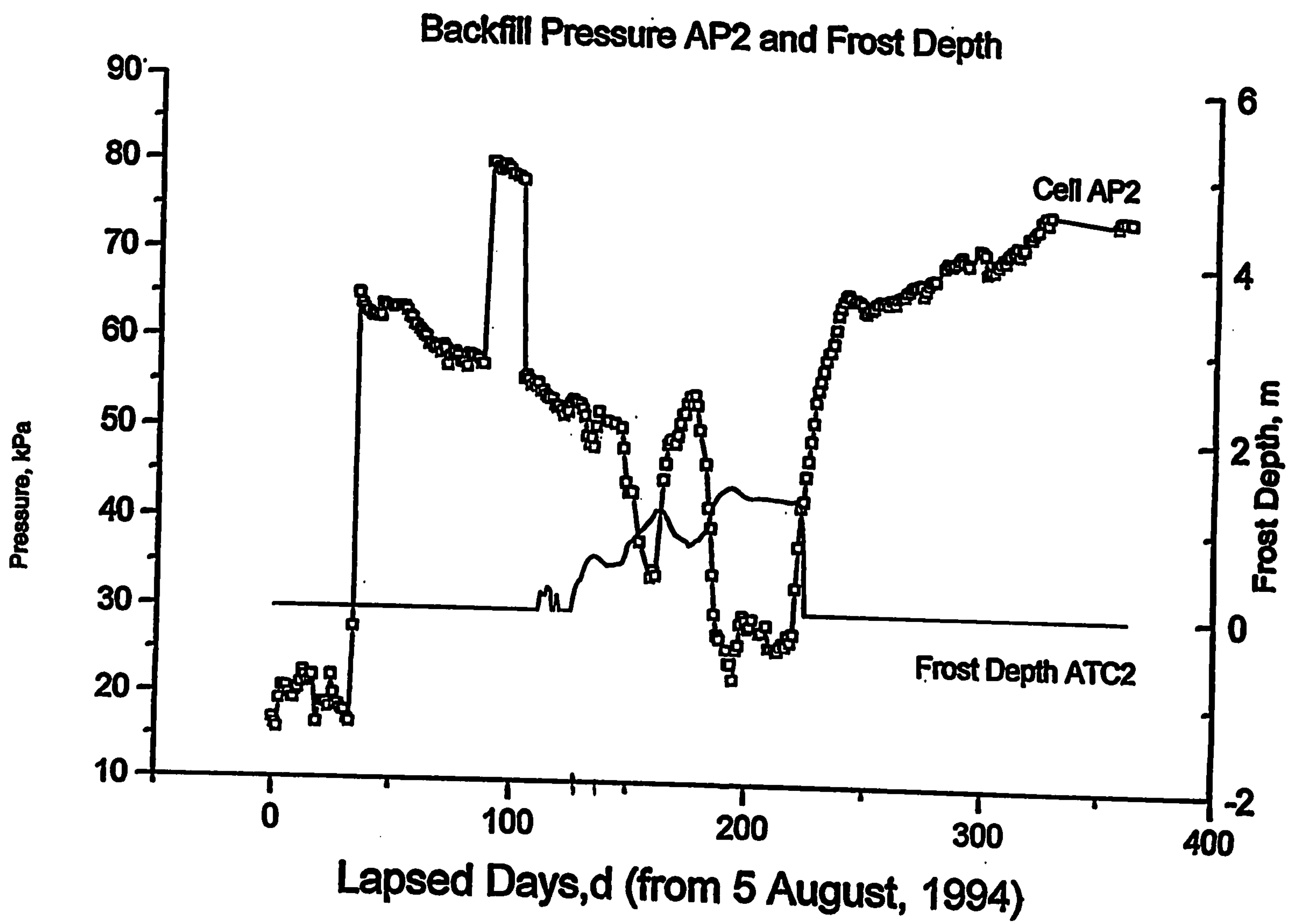


Figure 6.3: Backfill Pressure AP2 and Frost Depth
(From August 1994)

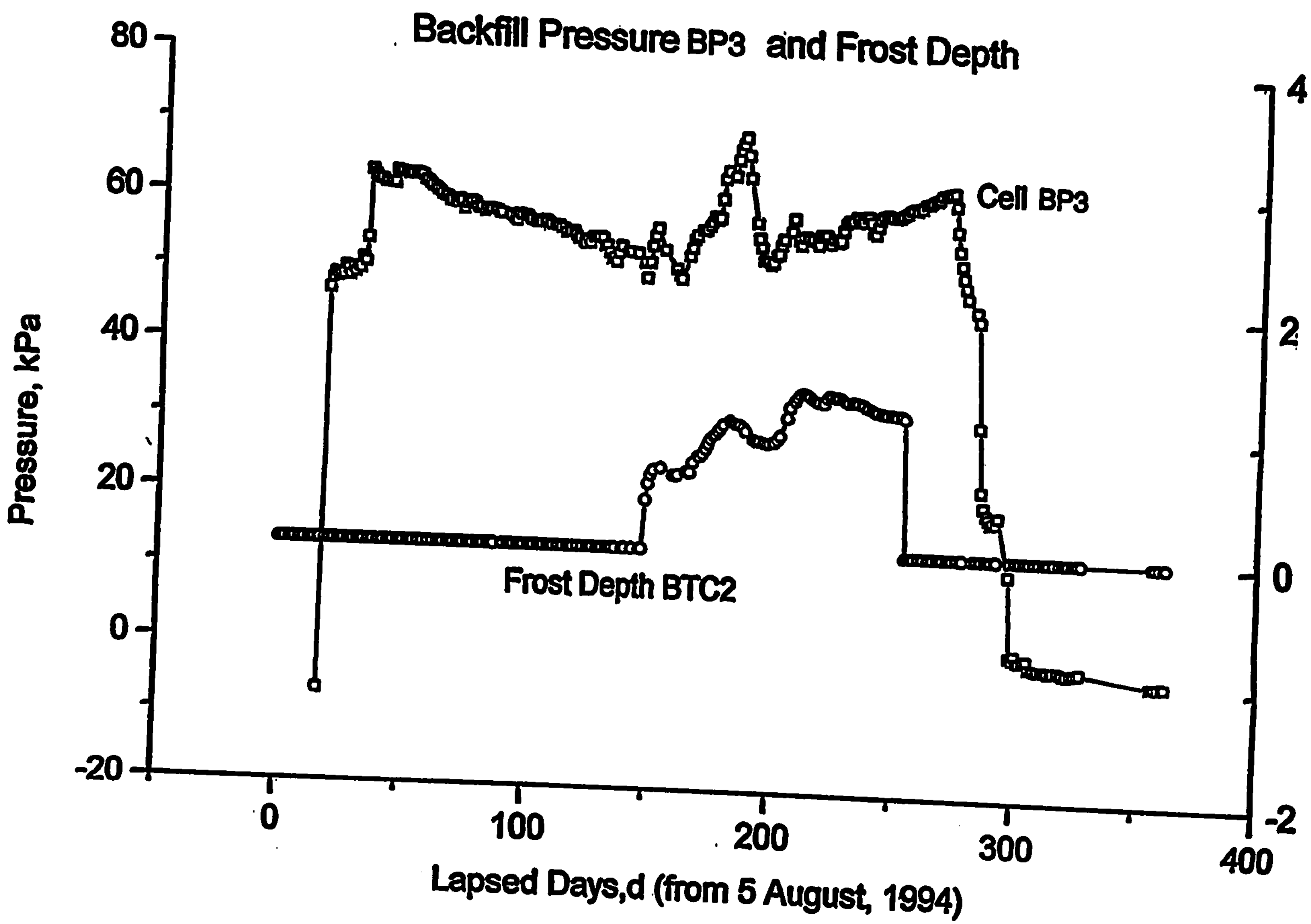


Figure 6.4: Backfill Pressure BP3 and Frost Depth
(From August 1994)

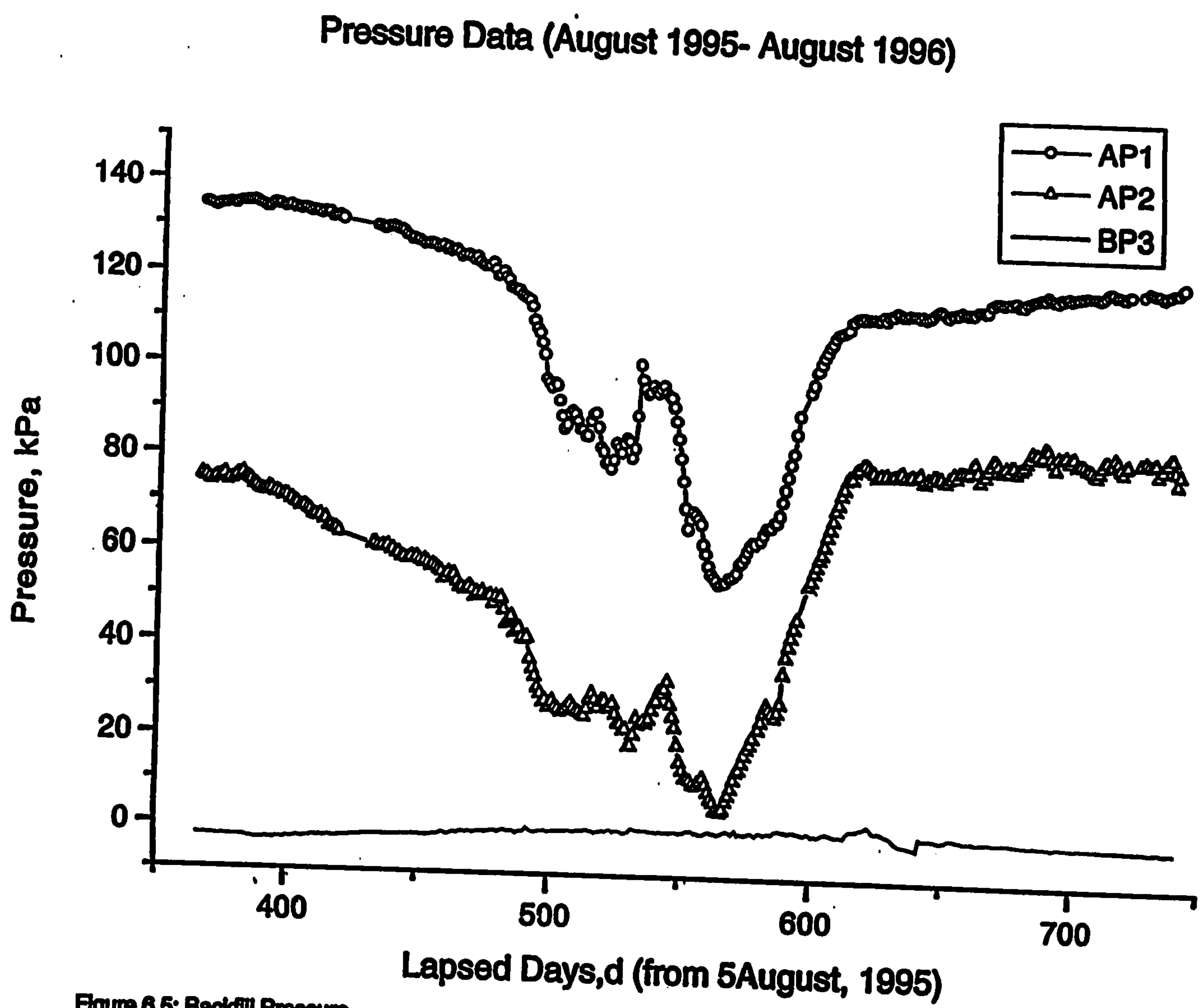


Figure 6.5: Backfill Pressure
(August 1995-August 1996)

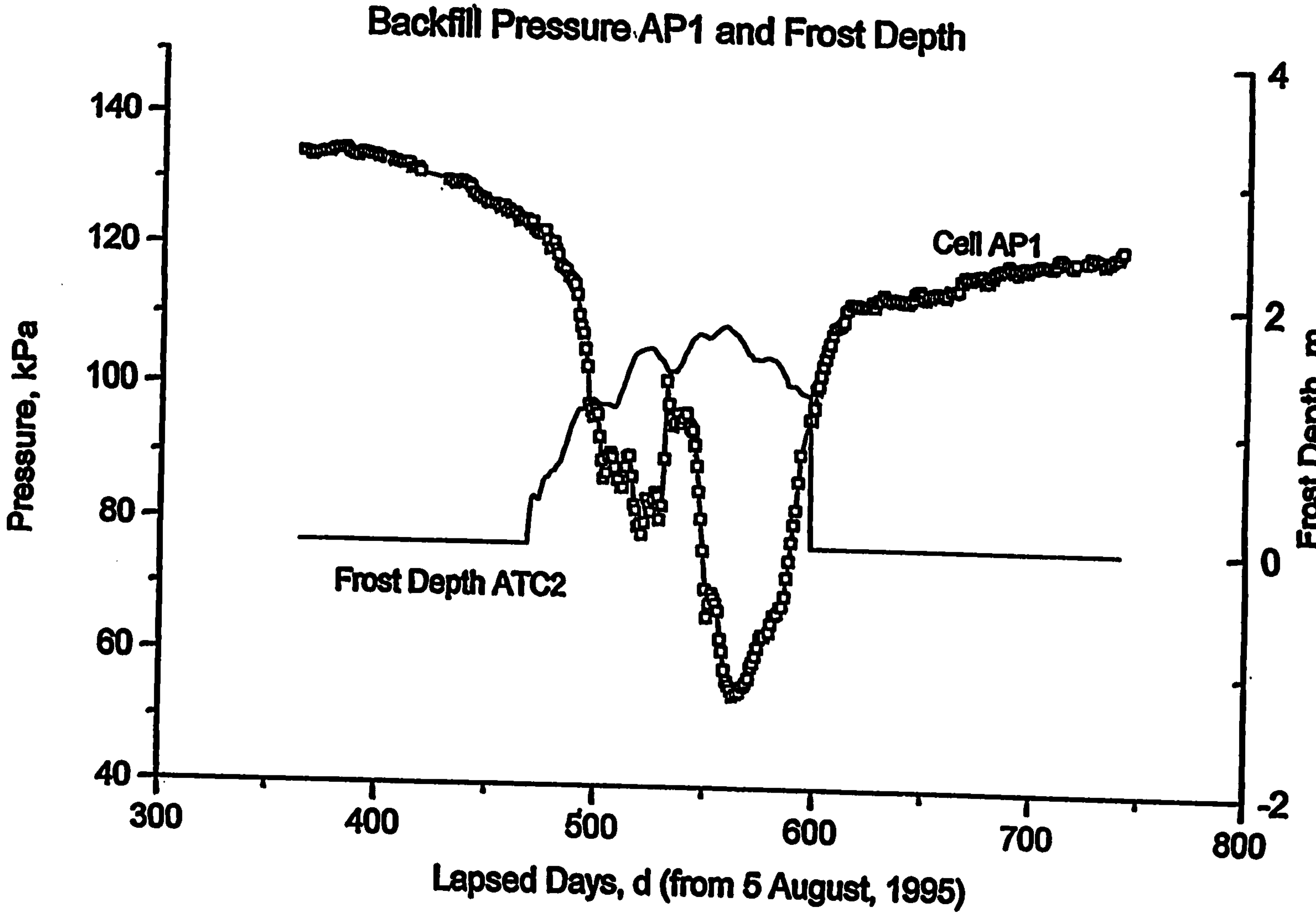


Figure 6.6: Backfill Pressure AP1 and Frost Depth
(From August 1995)

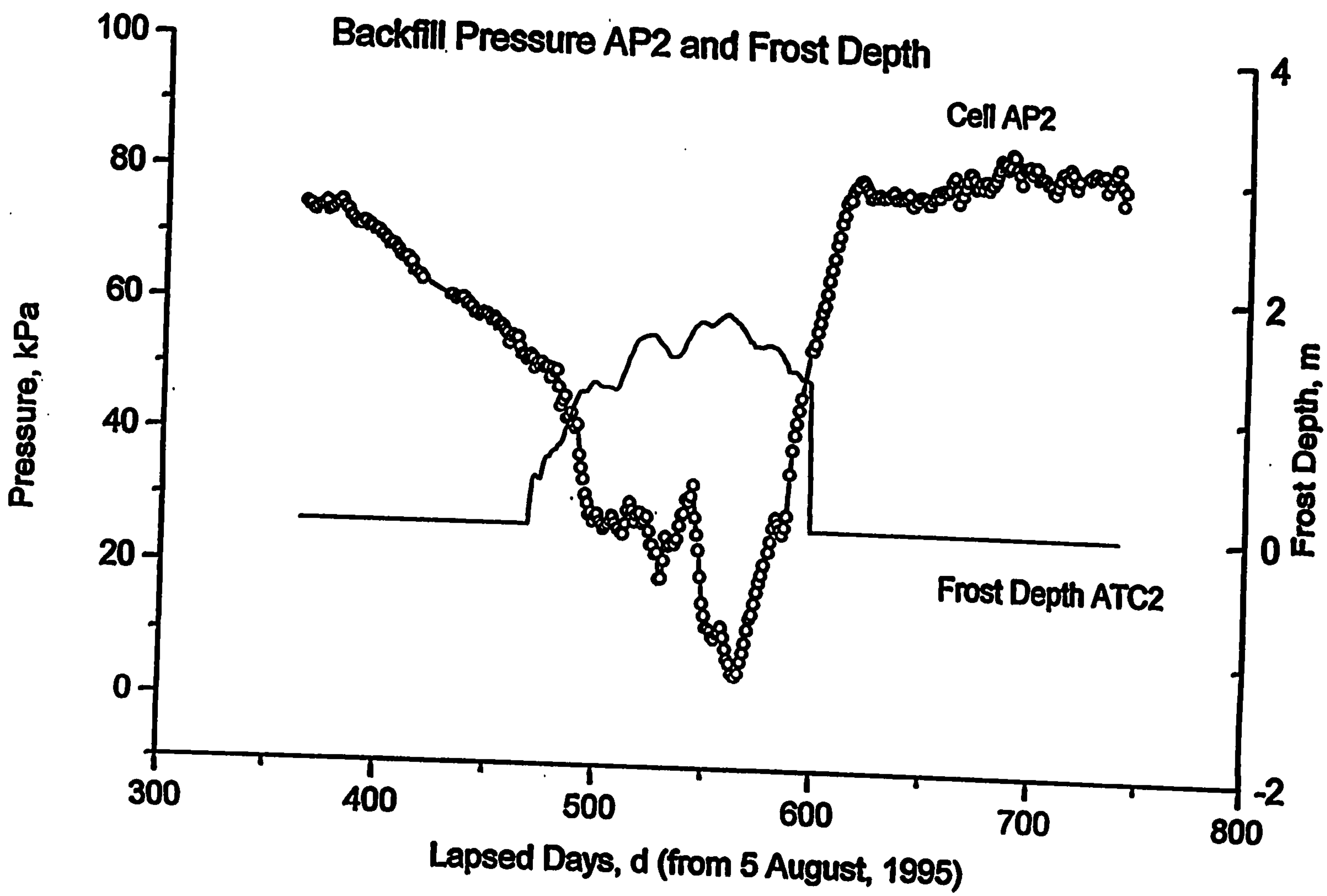


Figure 6.7: Backfill Pressure AP2 and Frost Depth
(From August, 1995)

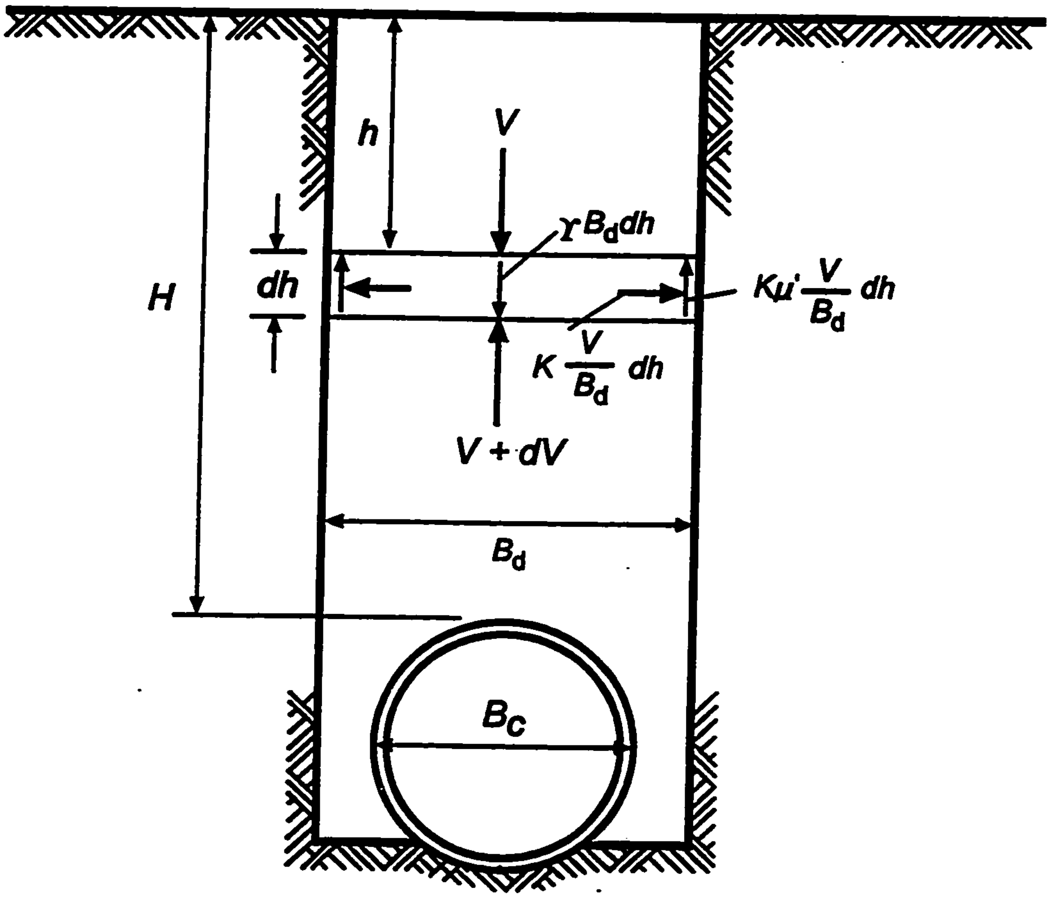


Figure 6.8: Trench Free-Body Diagram for Marston

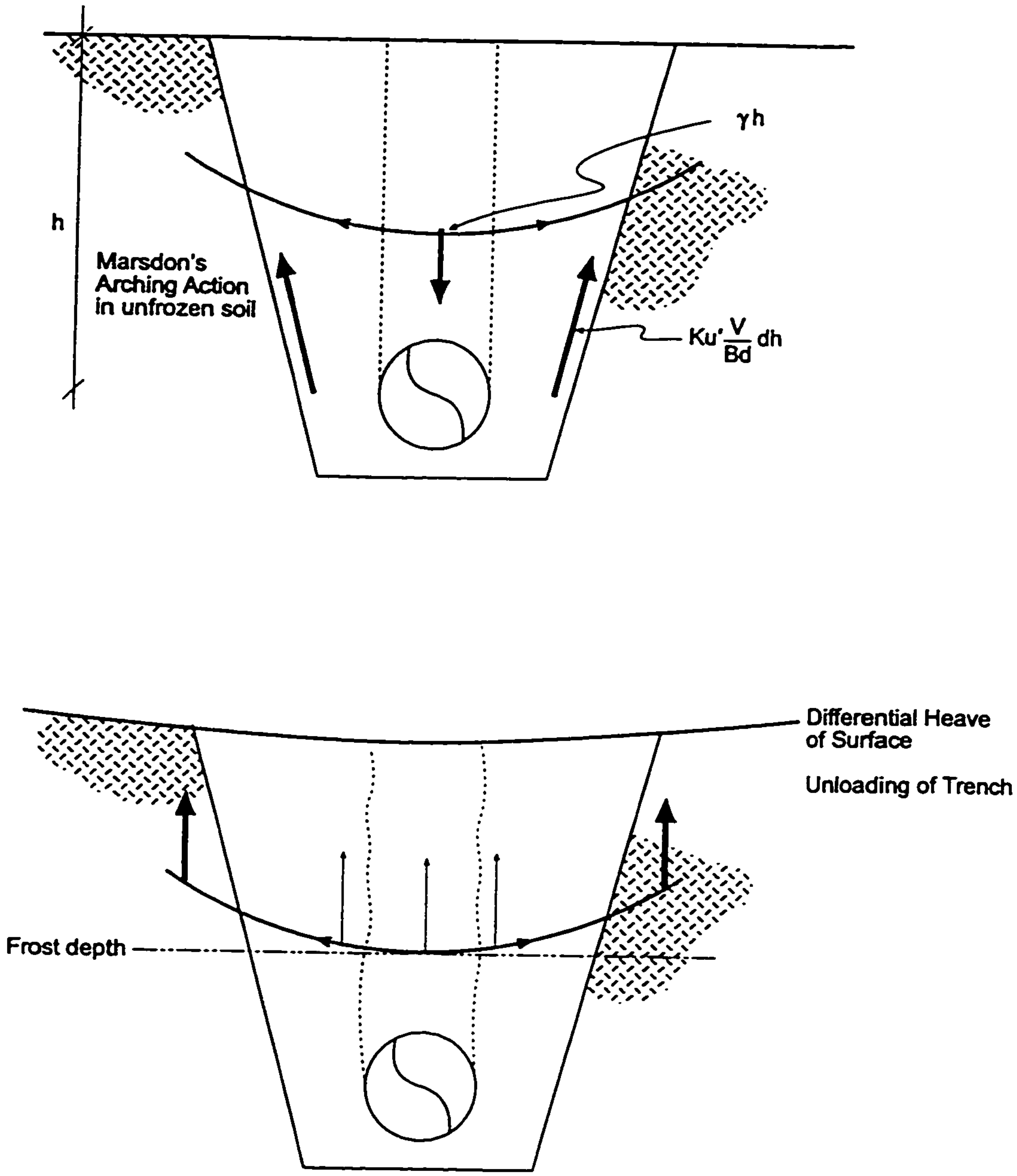


Figure 6.9: Loading and Unloading of the Trench

CHAPTER 7

GUIDELINES FOR THE DEVELOPMENT OF FIELD SITES

7.1 General Considerations

In the course of the Gatineau Project and, specifically, in the development of this thesis project, the treatment of the data and the consideration of details particular to this project have been suggestive of guidelines for the development of future field sites and the deployment of instrumentation at those sites. This is not an exhaustive treatment of the subject but is, hopefully, a constructive response to certain issues that arose.

To begin, calculation of theoretical earth pressures using Marston's equation relied on laboratory compacted samples verified against *typical* literature values for the backfill materials used to reinstate the trench. This is a second-best approach compared to laboratory and *in situ* field testing of materials. Clearly, the Gatineau Project, like this thesis project, would have been well served by such testing.

As a matter of course, soil testing must be thoroughly considered in the planning and development of projects and, where practical, included in the test regime. In project planning and the resulting work plans, all phases of the project need to be represented. Furthermore, in detailing methods of data analysis at the initial stage of the project, secondary testing needs like, for example, the *in situ* density testing of compacted backfill, could be recognized and specified as a project requirement.

In the context of the larger project, that is, the Gatineau Project itself, the greatest failure in instrumentation is the strain gauge data. Throughout the project, attempts were made to analyze and correct the instability found in the pipe strain data and seen in the plots provided here in Chapter 3. Indeed, programming was checked, wiring to the datalogger was verified, and at one point the datalogger itself was replaced. Grounding was analyzed for ground loops and a variety of tests and options were explored to correct the problem without success. Certainly, the long-term measurement of strains on metallic pipe is problematic. One Utah State researcher[1], consulted in the planning phase of the project, reported that his group had in fact abandoned the direct strain measurement of buried pipes and resorted to the use of a mole or PIG device to measure pipe deflection and out-of-roundness to calculate strains and stresses. In considering all factors, the solution to this problem is not to be found in advocating a particular guideline. Rather, a recommendation is made to establish a strategic research initiative to develop a project or series of projects to build a core competency in this area.

A third general issue presenting itself is the treatment of *zeros*. The measurement of earth pressure using the closed-circuit vibrating wire pressure plates requires that a zero reading be taken prior to loading. Ideally, this reading should be made with the system that will take readings throughout the course of

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[1]Telephone interview with A.P. Moser of Utah State University 1994.

the project. From a logistical point of view, however, this is difficult. Sensors are placed, lead wire is run sometimes for 50 m or more though a conduit, while a contractor pushes to complete his or her portion of the work--backfilling of the trench, for example. Once cables are in place, connections must be made to the data-acquisition system, and an operating system and/or program must be installed, initiated, and tested. Very often, conditions in the ground have changed in the period following installation and before data acquisition is initiated. It is difficult, then, in some circumstances, to perform the initial readings of buried sensors with the data logging equipment itself. In the case of the pressure plates AP1, AP2 and BP1, a Geokon 5400 readout device was used for this purpose. Even where this solution is considered acceptable, the space in time between installation and the commencement of data logging is sometimes marked by significant events that go unrecorded.

Again returning to the case of the pressure cells, initial readings with the Geokon box were made. The initial backfilling events--the placing of the backfill--is not represented in the data for no data was collected. Seeing these events reflected in the data would assist in establishing the initial earth pressure condition in the trench. As it is, the data was examined for stable conditions accepting that for some initial period of time settling of the backfill could and would occur. Attention needs to be given in the design of project timetables and project instrumentation systems to allow for the full operation of the data acquisition system prior to significant loading events or changes in the conditions characterizing the time of installation—the initial conditions.

7.2 Limitations in the Instrumentation Plan

In the course of this thesis, the examination and treatment of the data has also pointed out the limitations of the instrumentation plan used and been suggestive of what should be included were a similar field project undertaken. First, while backfill temperatures are captured, the temperature condition of the native soil surrounding the trench is poorly defined. Given the importance of frost action in the native soil to the behavior of the trench, areas adjacent to the trench should be instrumented so as to properly define their temperature profiles. While the A1 and B1 series arrays at the sides of the trench do reflect the thermal response of the native soil, two additional arrays set away from the trench would have provided a more accurate profile of frost depth where frost heave was taking place.

A second area of concern is the moisture conditions in both the backfill and the native soil. One of the shortcomings of the project is how little soil moisture data was collected. If the scope of the Gatineau Project had allowed it, moisture sensors such as TDR could have been installed at different elevations both in the backfill and in the native soil so as to provide moisture profiles of the soil and backfill materials. This information would have likely proved important in the consideration of frost-related behavior at the site.

The third issue that emerges from the treatment of the data is planned redundancy in the design of the instrumentation. In any field project, instrumentation--especially that buried in the ground--is frequently subjected to harsh environmental conditions: broad swings in temperature, high humidity, complete submersion in water, and so on. The development of an instrumentation system must take into account a high probability of sensor failure. In this project, the choice of a single pressure cell for Section B was a risk that did not pay off. When this sensor failed, as it appears to do in the latter part of the first season, the project objective of evaluating the difference in performance of the two backfill materials was severely compromised. Nevertheless, should this sensor have appeared to function normally, the problem would remain that there is no additional source of data to verify or test the results, as there is in Section A. In the development of project instrumentation, redundancy must be built into the instrumentation plan, both to provide for the failure of sensors and to give some basis to verify the results of one sensor to the other.

CHAPTER 8

CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

Prior to the development of frost and in aid of verifying the initial backfill pressures, Marston's equation is used and, in general, gives reasonable results for the initial (stable) pressure conditions presented in the data. Considering backfill pressures due to compaction of the subgrade and pavement, Boussinesq's equation is used less successfully but at least yields results that are within the order of magnitude of the field data.

The consideration of backfill pressure and frost depth carried out in the preceding chapters demonstrates the complexity of trench backfill behavior. The reinstated trench is not simply a homogeneous mass of soil or backfill material placed in the ground. Rather, it is a composite structure, with behavior characterized by the nature of the elements surrounding it--native soil, pavement, climatic factors, even the pipe itself--and the properties of the material contained within it. As well, it is characterized by the complex interaction of those elements.

This complexity of constitution and behavior is reflected in the changing backfill pressure and the development of frost. Clearly, in the case of Section A, the trend is clear: pressure and frost depth are inversely related. As the frost moves deeper into the ground, pressures within the backfill decline. Conversely, pressures increase as frost depth decreases. The immediate explanation of this phenomena relates to the higher frost susceptibility of the native soil surrounding the backfill. As the native silty-clay heaves, passive uplift occurs through the backfill unloading the trench and presumably the metallic water main contained within it.

8.2 Recommendations

The first recommendation made here is a restatement of the recommendation found in Chapter 7, that is, to establish a strategic research initiative to develop a project or series of projects to build a core competency in the area of the direct measurement of strains on buried metallic water pipe. This initiative must focus on dealing with the problems of signal quality and stability and lead to the development of a best practice guide for such instrumentation. This technical effort could also be undertaken as part of an effort to develop formal guidelines for field sites and the deployment of instrumentation and data-logging equipment. (There are plans to carry out this work at the National Research Council's Institute for Research in Construction as part of the Institute's initiative to create an ISO 9001 quality system.)

A second recommendation is that, further study undertaken should include more extensive modeling of trench mechanics as related to static, compaction and frost loading, where attention is given to the backfilled trench as a *composite structure*. In the matter of frost heave, for example, there is a well-developed understanding of the principles of frost action, and models describing ground movement and changes in pressure have been successfully developed and applied to a variety of frost-heave applications. With these principles as a starting point, specific attention needs to be given to the context of the constructed trench, leading to a theoretical understanding of frost-related, trench backfill mechanics. This understanding will, in turn, be a starting point to the optimization of trench design and would facilitate processes like the selection of appropriate backfill materials for particular applications.

Lastly, a program of field studies should be developed and maintained to continue to gather data and information reflecting conditions of current municipal practice for the construction and installation of water mains. These studies are an essential counterpoint to laboratory and computer studies and will help insure the relevance of overall research in this area of inquiry.

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APPENDIX A: GRAIN SIZE ANALYSES OF BACKFILL MATERIALS

Sieve Analyses

Page 1

Project:	Sample No. Two.	Date: Sept. 29 1994

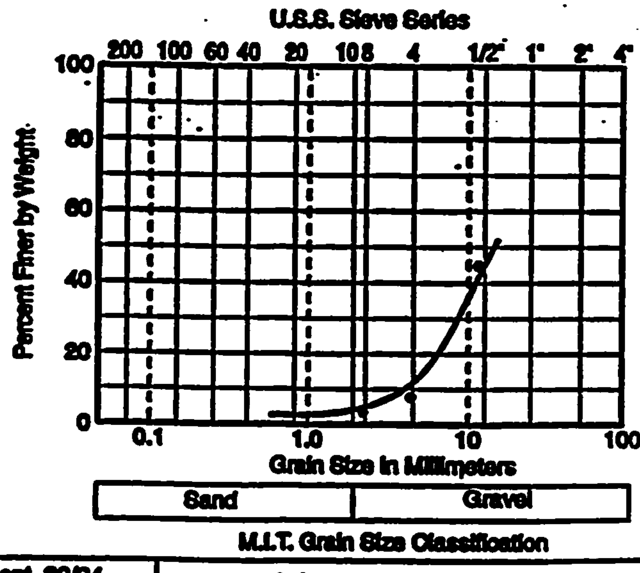
Description of sample and Grains: Gravel

Remarks:

Wt. of Sample + Tare	= ______ gram	Evaporating Dish No.	
Wt. of Tare	= ______ gram	Size of Largest Stone = ______ mm	
Initial Wt. of Sample	= 1000.0 gram	Drying Oven:	In ____ Out ____
Final Wt. of Sample	= 990.0 gram	Rotap:	In ____ Out ____

Sieve No (U.S.S.)	Total Wt. Retained + Tare (gram)	Tare (gram)	Total Wt. Retained (gram)	Total Wt. Passing (gram)	Percent Passing	Sieve Opening (mm)
1/2			531.1	458.9	46.4	12.7
4			380.0	78.9	7.9	4.78
8			42.0	36.9	3.7	2.38
16			10.7	26.2	2.6	2.00
30			3.7	22.5	2.3	0.84
50			2.2	20.3	2.0	0.42
						0.25
100			18.6	1.7	0.02	0.149
200			0.1	1.6	0.01	0.074
Pan			1.6			

Grain Size Distribution Curve



Tested : ______	Date : Sept. 29/94		Infrastructure Laboratory
Plotted : ______	Date : Sept. 29/94		Institute for Research in Construction
Computed : ______	Date : Sept. 29/94		National Research Council
Checked : ______	Date : ______		Ottawa, Canada

Sieve Analyses

Page 1

Project:	Sample No. Two.	Date: Sept. 29/1994

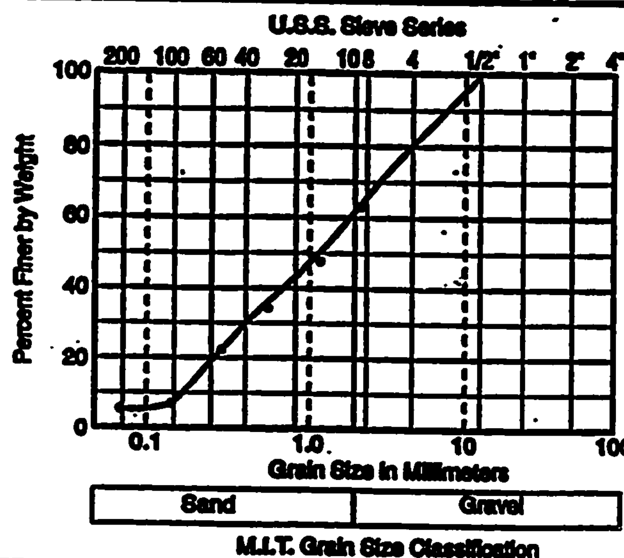
Description of sample and Grains: Native backfill soil

Remarks:

Wt. of Sample + Tare	= ______ gram	Evaporating Dish No.	______
Wt. of Tare	= ______ gram	Size of Largest Stone =	______ mm
Initial Wt. of Sample	= 1000.0 gram	Drying Oven:	In ______ Out ______
Final Wt. of Sample	= 991.7 gram	Rotap:	In ______ Out ______

Sieve No (U.S.S.)	Total Wt. Retained + Tare (gram)	Tare (gram)	Total Wt. Retained (gram)	Total Wt. Passing (gram)	Percent Passing	Sieve Opening (mm)
1/2						12.7
4			225.4	766.3	77.3	4.76
8			132.9	633.4	63.9	2.38
16			156.2	477.2	48.1	2.00
30			128.1	349.1	35.2	0.84
50			123.7	225.4	22.7	0.42
						0.25
100			154.5	70.9	7.1	0.149
200			3.3	67.6	6.8	0.074
Pan			67.6			

Grain Size Distribution Curve



Tested	: ______	Date : Sept. 29/94	Infrastructure Laboratory
Plotted	: ______	Date : Sept. 29/94	Institute for Research in Construction
Computed	: ______	Date : Sept. 29/94	National Research Council
Checked	: ______	Date : ______	Ottawa, Canada

Sieve Analyses

PROJECT:

SAMPLE NO. ONE | DATE: Sept. 29 /84

DESCRIPTION OF SAMPLE AND GRAINS: Gatineau Bedding Soil

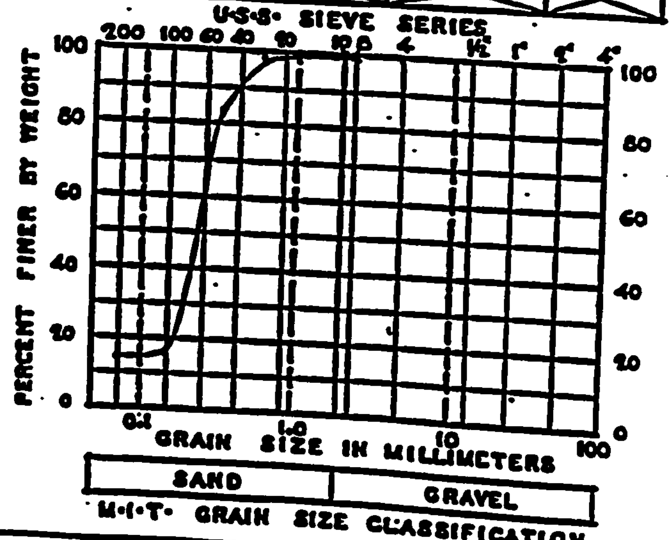
REMARKS:

WT. OF SAMPLE + TARE = ______ GM.
WT. OF TARE = ______ GM.
INITIAL WT. OF SAMPLE = 1000.0 GM.
FINAL WT. OF SAMPLE = 995.5 GM.

EVAPORATING DISH NO. ______
SIZE OF LARGEST STONE = ______ MM.
DRYING OVEN: IN ______ OUT ______
ROTAP: IN ______ OUT ______

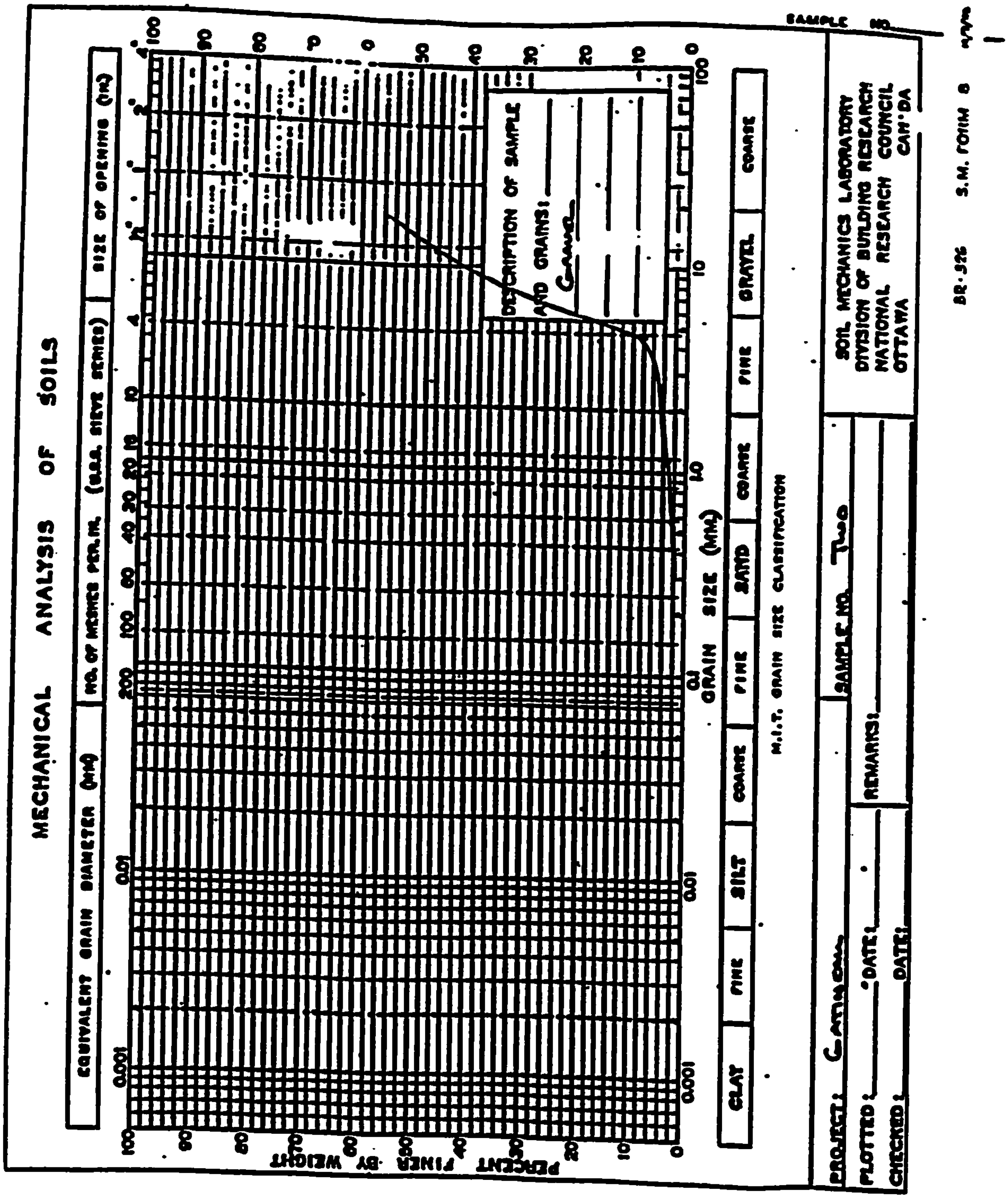
SIEVE NO (U.S.S.)	TOTAL WT. RETAINED + TARE (GM.)	TARE (GM.)	TOTAL WT. RETAINED (GM.)	TOTAL WT. PASSING (GM.)	PERCENT PASSING	SIEVE OPENING (MM.)
½			—			
4						12.7
8			1.0	994.5	99.8	4.76
16			0.6	993.9	99.8	2.38
30			1.0	992.9	99.7	2.00
50			3.5	989.4	99.4	0.84
			160.6	828.8	83.3	0.42
100						0.25
200			666.6	162.2	16.3	0.149
PAN			12.8	149.4	15.0	0.074
			149.4	X	X	X

GRAIN SIZE DISTRIBUTION CURVE



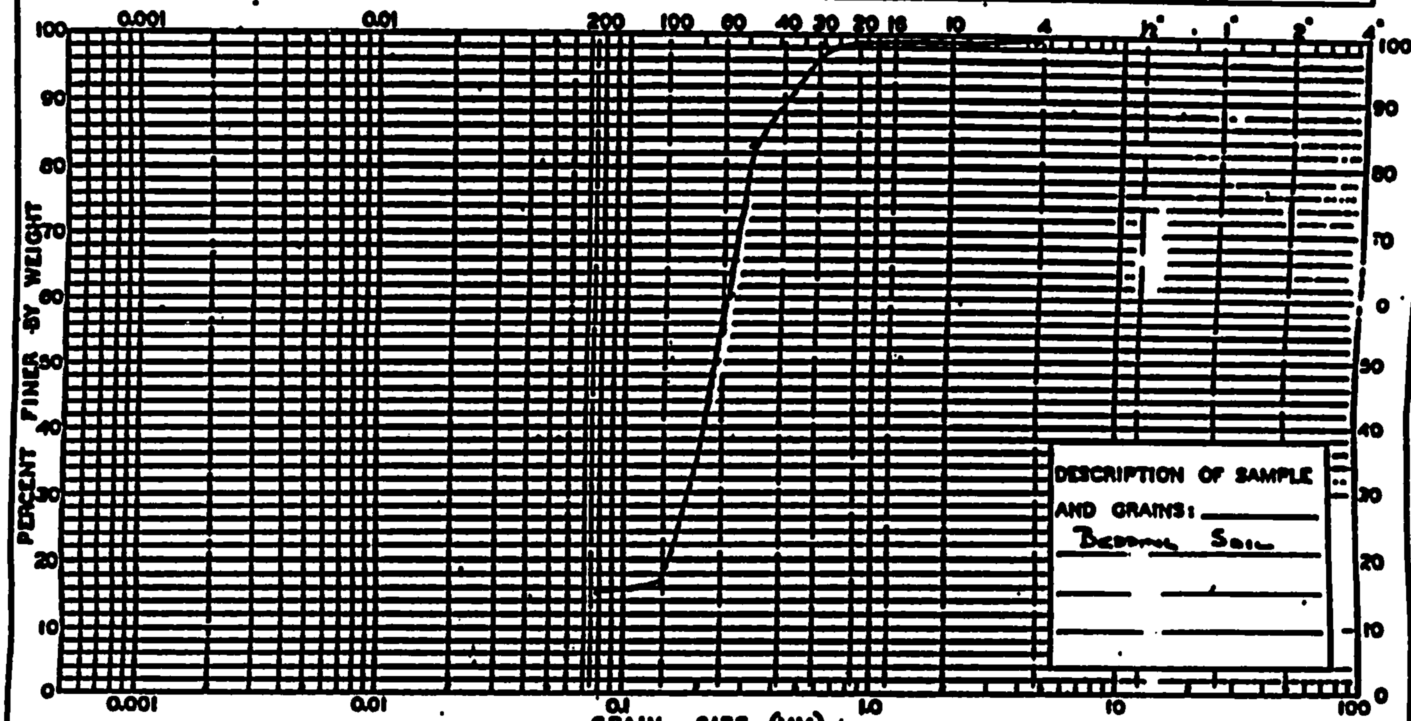
TESTED: Sykes DATE: ______
PLOTTED: Sykes DATE: ______
COMPUTED: Sykes DATE: ______
CHECKED: ______ DATE: ______

SOIL MECHANICS LABORATORY
DIVISION OF BUILDING RESEARCH
NATIONAL RESEARCH COUNCIL
OTTAWA CANADA


MECHANICAL ANALYSIS OF SOILS
EQUIVALENT GRAIN DIAMETER (MM)
NO. OF MESHES PER IN. (U.S.S. SIEVE SERIES)
SIZE OF OPENING (IN)
PERCENT FINER BY WEIGHT
GRAIN SIZE (MM)
CLAY
FINE
SILT
COARSE
FINE
SAND
COARSE
FINE
GRAVEL
COARSE
M.I.T. GRAIN SIZE CLASSIFICATION
DESCRIPTION OF SAMPLE AND GRAINS:
PROJECT:
SAMPLE NO. Two
PLOTTED:
DATE:
CHECKED:
DATE:
REMARKS:
SOIL MECHANICS LABORATORY
DIVISION OF BUILDING RESEARCH
NATIONAL RESEARCH COUNCIL
OTTAWA CAN'DA
SAMPLE NO.
BR-326
S.M. FORM 8

MECHANICAL ANALYSIS OF SOILS

EQUIVALENT GRAIN DIAMETER (MM)	NO. OF MESHES PER IN. (U.S.S. SIEVE SERIES)	SIZE OF OPENING (IN.)



CLAY	FINE	SILT	COARSE	FINE	SAND	COARSE	FINE	GRAVEL	COARSE

M.I.T. GRAIN SIZE CLASSIFICATION

PROJECT: Gatineau

SAMPLE NO. One

PLOTTED: ______ DATE: ______

CHECKED: ______ DATE: ______

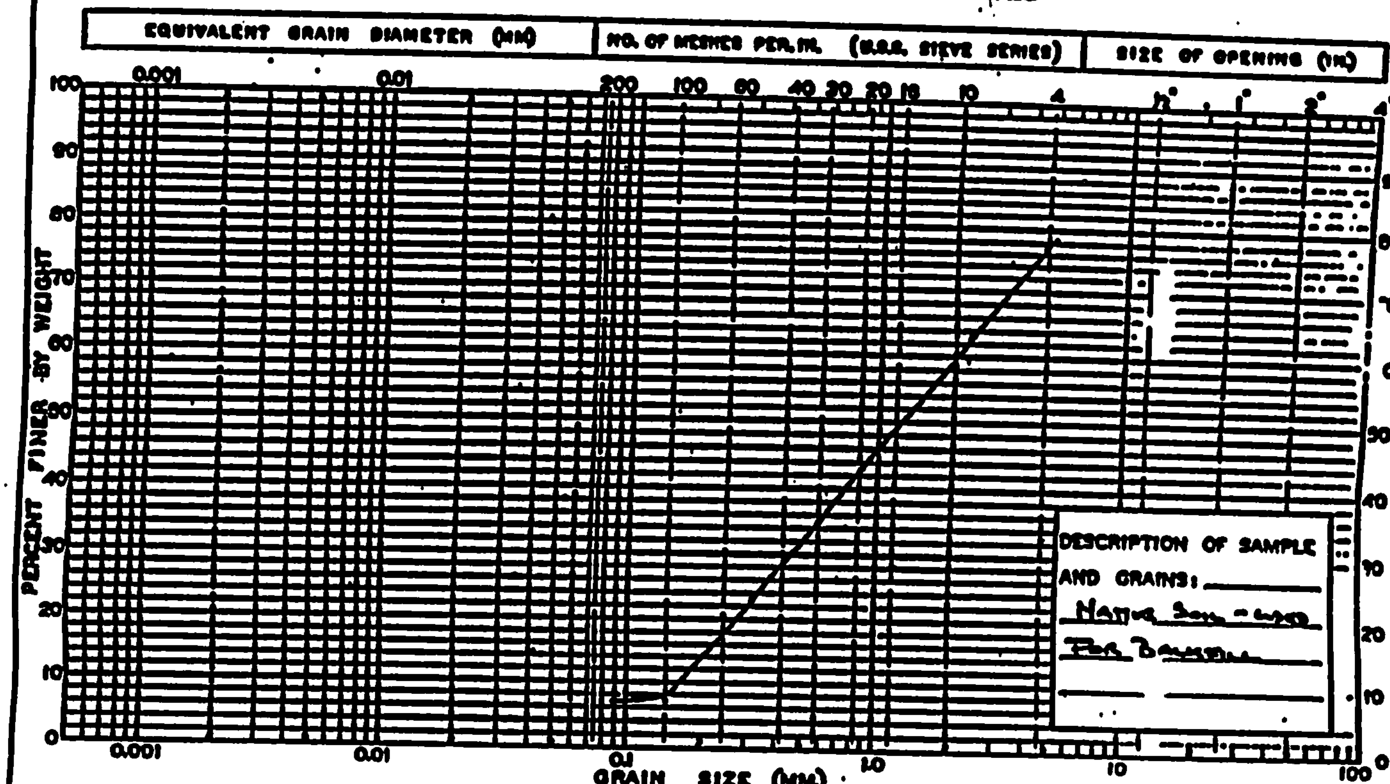
REMARKS: ______

SOIL MECHANICS LABORATORY
DIVISION OF BUILDING RESEARCH
NATIONAL RESEARCH COUNCIL
OTTAWA CANADA

SAMPLE NO. ______

BR-326 S.M. FORM 8

MECHANICAL ANALYSIS OF SOILS



CLAY	FINE	SILT	COARSE	FINE	SAND	COARSE	FINE	GRAVEL	COARSE

M.I.T. GRAIN SIZE CLASSIFICATION

silt and clay fraction noted

PROJECT: [illegible] SAMPLE NO. Three

PLOTTED: DATE: REMARKS:

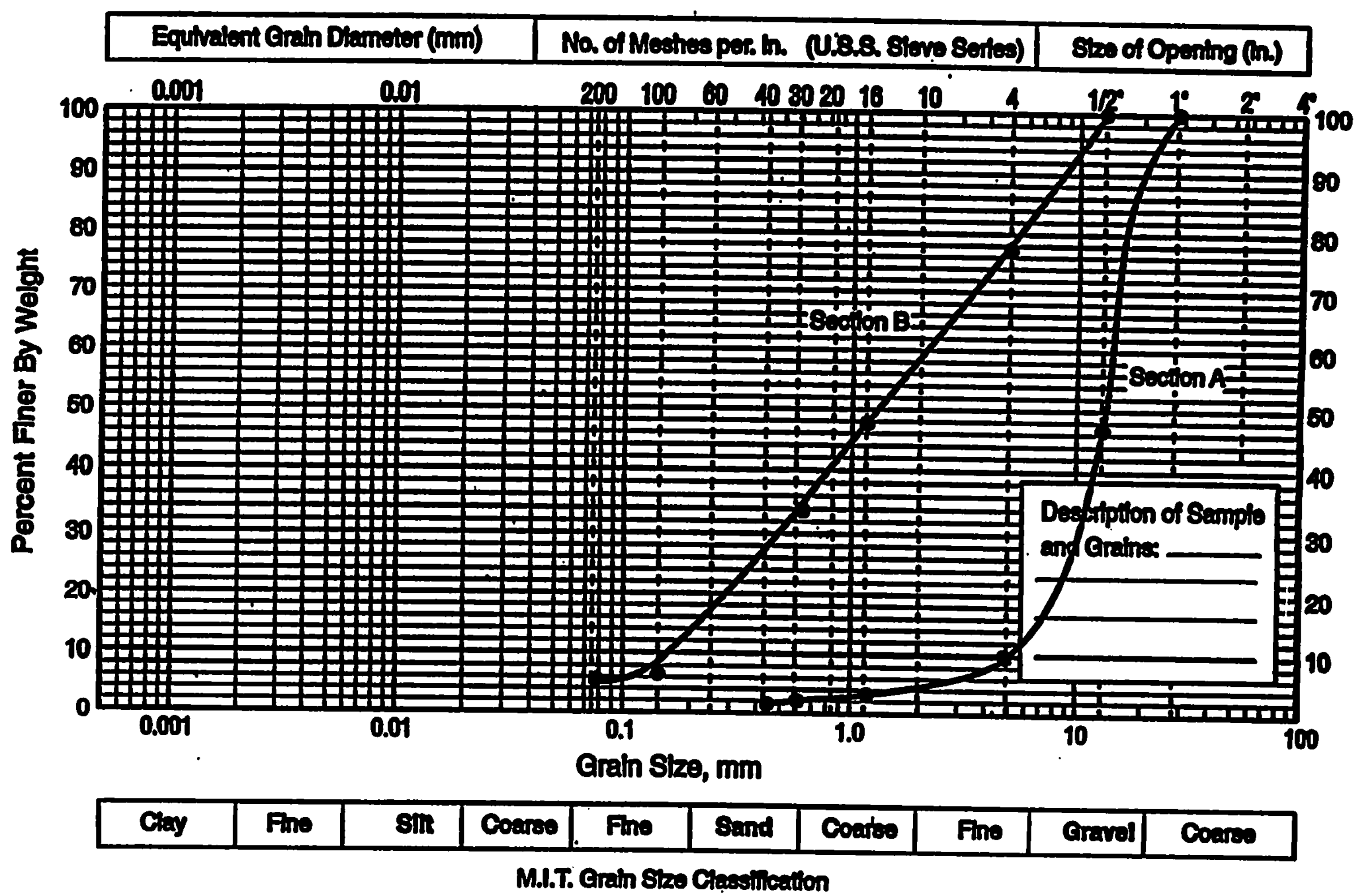
CHECKED: DATE:

SOIL MECHANICS LABORATORY
DIVISION OF BUILDING RESEARCH
NATIONAL RESEARCH COUNCIL
OTTAWA CANADA

SAMPLE NO. (2)

BR-326 S.M. FORM 8

Mechanical Analyses of Backfill Materials



APPENDIX B: BACKFILL TEMPERATURE DATA

ATC1_DLY
Gatineau Project Data
Backfill Temperatures in °C

YEAR	J DAY	A1TC#1	A1TC#2	A1TC#3	A1TC#4	A1TC#5	A1TC#6	A1TC#7	A1TC#8	A1TC#9	A1TC#10	A1TC#11
1994	217	22.63	21.38	21.56	22.07	22.42	22.52	22.63	22.35	21.83	20.64	20.27
1994	218	23.18	21.74	21.62	21.94	22.29	22.4	22.38	22.11	21.65	20.69	20.46
1994	219	25.3	23.45	22.48	22.17	22.2	22.19	22.13	21.84	21.43	20.59	20.44
1994	220	26.46	24.7	23.43	22.69	22.33	22.12	21.95	21.61	21.24	20.53	20.42
1994	221	25.35	25.16	24.16	23.24	22.58	22.18	21.87	21.47	21.09	20.45	20.35
1994	222	23.73	23.92	23.81	23.36	22.78	22.29	21.88	21.4	20.98	20.37	20.31
1994	223	25.05	24.06	23.6	23.23	22.78	22.32	21.88	21.36	20.91	20.3	20.25
1994	224	26.14	24.9	24.01	23.35	22.8	22.31	21.86	21.34	20.87	20.26	20.14
1994	225	27.09	25.71	24.54	23.66	22.93	22.36	21.87	21.31	20.83	20.22	20.14
1994	226	26.98	26.12	24.98	24	23.13	22.47	21.91	21.31	20.8	20.21	20.16
1994	227	21.54	23.95	24.54	24.08	23.3	22.6	21.98	21.34	20.8	20.19	20.15
1994	228	23.53	22.9	23.26	23.43	23.15	22.62	22.04	21.39	20.82	20.19	20.16
1994	229	25.9	24.39	23.62	23.24	22.91	22.48	22	21.39	20.84	20.2	20.17
1994	230	26.55	25.3	24.26	23.51	22.93	22.43	21.94	21.36	20.83	20.21	20.18
1994	231	27.2	25.7	24.63	23.8	23.07	22.48	21.94	21.35	20.82	20.2	20.16
1994	232	26.67	25.99	25.01	24.08	23.24	22.58	21.99	21.37	20.83	20.21	20.19
1994	233	24.91	25.37	24.94	24.21	23.39	22.69	22.06	21.41	20.85	20.22	20.2
1994	234	23.24	23.91	24.2	23.97	23.4	22.75	22.13	21.46	20.88	20.25	20.22
1994	235	23.41	23.26	23.47	23.48	23.19	22.7	22.14	21.49	20.91	20.27	20.25
1994	236	27.42	24.04	23.26	23.15	22.92	22.52	22.06	21.48	20.94	20.3	20.27
1994	237	22.34	23.39	23.46	23.17	22.83	22.44	21.99	21.44	20.93	20.32	20.29
1994	238	22.5	22.74	22.95	22.93	22.72	22.35	21.93	21.4	20.92	20.32	20.31
1994	239	24.15	23.31	22.92	22.78	22.56	22.24	21.85	21.36	20.9	20.33	20.31
1994	240	21.57	22.88	23.05	22.81	22.51	22.16	21.78	21.31	20.87	20.32	20.32
1994	241	20.69	21.35	22.13	22.44	22.39	22.09	21.73	21.26	20.85	20.31	20.31
1994	242	20.43	21.15	21.7	21.99	22.08	21.78	21.56	21.21	20.86	20.33	20.27
1994	243	17.91	20.33	21.32	21.64	21.71	21.48	21.28	21.04	20.8	20.35	20.19
1994	244	18.44	19.16	20.25	21.02	21.41	21.37	21.23	20.95	20.75	20.33	20.21
1994	245	17.77	18.79	19.82	20.54	21.04	21.13	21.09	20.87	20.7	20.32	20.2
1994	246	18.09	18.79	19.52	20.16	20.7	20.88	20.91	20.75	20.63	20.28	20.19
1994	247	19.21	18.95	19.36	19.91	20.44	20.64	20.72	20.62	20.54	20.23	20.24
1994	248	20.8	19.98	19.78	19.93	20.28	20.45	20.55	20.49	20.45	20.18	20.19
1994	249	22.31	21.1	20.43	20.2	20.28	20.36	20.43	20.36	20.35	20.11	20.13
1994	250	20.14	21.07	20.9	20.57	20.42	20.37	20.36	20.27	20.27	20.04	20.07
1994	251		20.25	20.43	20.5	20.49	20.42	20.36	20.23	20.2	19.97	20.01
1994	252		20.96	20.47	20.43	20.45	20.39	20.33	20.19	20.15	19.91	19.95
1994	253		21.42	21.15	20.73	20.51	20.39	20.3	20.15	20.11	19.87	19.92
1994	254		20.88	20.98	20.83	20.63	20.45	20.31	20.13	20.07	19.83	19.89
1994	255		20.75	20.86	20.8	20.66	20.49	20.33	20.13	20.05	19.8	19.86
1994	256		21.38	21.14	20.87	20.68	20.51	20.35	20.13	20.04	19.77	19.83
1994	257		21.21	21.09	20.96	20.76	20.55	20.37	20.13	20.02	19.74	19.79
1994	258		21.57	21.32	21.07	20.82	20.58	20.39	20.13	20.01	19.72	19.76
1994	259		22.13	21.75	21.33	20.95	20.66	20.42	20.14	20	19.7	19.73
1994	260		23.01	22.26	21.64	21.13	20.78	20.49	20.17	20.01	19.69	19.72
1994	261		21.23	21.83	21.72	21.3	20.91	20.58	20.22	20.02	19.69	19.71
1994	262		21.44	21.14	21.28	21.2	20.94	20.64	20.27	20.05	19.7	19.71
1994	263		23.6	22.56	21.72	21.21	20.9	20.63	20.29	20.07	19.71	19.73
1994	264		23.7	22.92	22.19	21.51	21.05	20.69	20.31	20.08	19.72	19.73
1994	265		23.6	23.04	22.41	21.74	21.22	20.8	20.36	20.1	19.72	19.71
1994	266		23.05	23	22.5	21.87	21.35	20.9	20.43	20.13	19.72	19.7
1994	267		21.9	22.3	22.25	21.87	21.43	20.99	20.5	20.17	19.74	19.72
1994	268		21.36	21.81	21.9	21.72	21.39	21.01	20.55	20.22	19.77	19.75
1994	269		20.75	21.36	21.56	21.52	21.29	20.98	20.55	20.24	19.79	19.76
1994	270		20.21	20.8	21.16	21.28	21.15	20.9	20.52	20.24	19.8	19.75
1994	271		19.27	20.31	20.8	21.01	20.96	20.79	20.46	20.22	19.79	19.73
1994	272		18.01	19.37	20.21	20.67	20.74	20.65	20.38	20.18	19.77	19.71
1994	273		16.72	18.47	19.56	20.24	20.45	20.46	20.26	20.12	19.74	19.68
1994	274		15.91	17.57	18.84	19.75	20.11	20.23	20.12	20.04	19.7	19.64
1994	275		15.34	17.08	18.3	19.27	19.74	19.96	19.94	19.94	19.63	19.59
1994	276		14.27	16.15	17.64	18.79	19.37	19.68	19.75	19.81	19.54	19.5
1994	277		14.59	15.95	17.17	18.31	18.98	19.38	19.52	19.65	19.42	19.39
1994	278		13.87	15.45	16.78	17.95	18.63	19.08	19.29	19.48	19.29	19.27
1994	279		14.08	15.29	16.44	17.58	18.3	18.8	19.06	19.31	19.15	19.15
1994	280		14.81	15.3	16.25	17.31	18.02	18.54	18.83	19.13	19.01	19.03
1994	281		16.4	16.16	16.49	17.2	17.81	18.31	18.62	18.95	18.87	18.88
1994	282		17.11	17	16.98	17.33	17.75	18.16	18.44	18.78	18.72	18.73
1994	283		14.86	16.24	16.95	17.43	17.78	18.09	18.31	18.63	18.57	18.58
1994	284		13.89	15.39	16.44	17.22	17.68	18.02	18.22	18.52	18.46	18.5
1994	285		13.75	14.92	15.98	16.91	17.47	17.87	18.11	18.41	18.35	18.4
1994	286		14.25	14.95	15.78	16.65	17.25	17.69	17.97	18.29	18.24	18.3
1994	287		15.02	15.29	15.81	16.52	17.07	17.52	17.82	18.16	18.12	18.19
1994	288		14.44	15.28	15.88	16.49	16.97	17.39	17.68	18.02	18	18.11
1994	289		13.91	14.89	15.68	16.39	16.88	17.28	17.56	17.9	17.87	18
1994	290		13.61	14.67	15.47	16.23	16.74	17.16	17.43	17.76	17.71	17.83

1994	291		13.46	14.45	15.26	16.05	16.59	17.01	17.29	17.61	17.56	17.69
1994	292		12.77	14.03	15	15.86	16.42	16.86	17.15	17.48	17.45	17.59
1994	293		13.48	13.9	14.72	15.82	16.23	16.71	17.01	17.37	17.37	17.51
1994	294		14.57	14.55	14.9	15.53	16.07	16.55	16.88	17.26	17.27	17.42
1994	295		14.57	14.8	15.12	15.59	16.03	16.44	16.75	17.13	17.16	17.31
1994	296		15.2	15.12	15.28	15.64	16.01	16.38	16.66	17.02	17.04	17.21
1994	297		14.6	15.12	15.41	15.73	16.03	16.34	16.59	16.92	16.94	17.12
1994	298		13.77	14.69	15.24	15.7	16.02	16.31	16.53	16.83	16.84	17.02
1994	299		12.7	14.02	14.89	15.54	15.93	16.25	16.46	16.76	16.76	16.94
1994	300		11.81	13.36	14.43	15.27	15.77	16.14	16.38	16.69	16.7	16.88
1994	301		10.86	12.51	13.85	14.92	15.54	15.99	16.28	16.6	16.63	16.81
1994	302		11.87	12.57	13.52	14.56	15.26	15.79	16.14	16.5	16.55	16.74
1994	303		12.82	12.98	13.58	14.41	15.05	15.59	15.98	16.38	16.45	16.66
1994	304		12.23	13.17	13.74	14.39	14.94	15.45	15.83	16.25	16.34	16.56
1994	305		11.41	12.65	13.52	14.31	14.86	15.35	15.72	16.13	16.23	16.46
1994	306		10.38	11.92	13.1	14.08	14.72	15.23	15.61	16.03	16.13	16.36
1994	307		9.34	11.08	12.54	13.75	14.5	15.07	15.49	15.93	16.04	16.29
1994	308		10.64	11.27	12.25	13.4	14.22	14.87	15.34	15.82	15.96	16.21
1994	309		11.95	11.91	12.42	13.29	14.03	14.67	15.18	15.69	15.85	16.1
1994	310		10.96	11.97	12.62	13.33	13.95	14.54	15.03	15.55	15.73	15.98
1994	311		9.71	11.2	12.3	13.23	13.88	14.45	14.91	15.42	15.61	15.85
1994	312		9.81	10.87	11.93	12.98	13.71	14.32	14.81	15.31	15.5	15.72
1994	313		10.36	10.98	11.82	12.79	13.53	14.17	14.68	15.2	15.38	15.61
1994	314		9.29	10.8	11.77	12.69	13.4	14.03	14.54	15.07	15.27	15.51
1994	315		7.95	9.8	11.25	12.46	13.25	13.9	14.41	14.95	15.17	15.42
1994	316		7.45	9.26	10.74	12.09	12.99	13.71	14.27	14.83	15.06	15.31
1994	317		7.78	9.01	10.36	11.74	12.71	13.5	14.11	14.7	14.94	15.2
1994	318		8.54	9.23	10.27	11.51	12.46	13.28	13.92	14.55	14.81	15.09
1994	319		9.78	9.89	10.48	11.44	12.3	13.09	13.75	14.4	14.68	14.96
1994	320		8.33	9.73	10.61	11.49	12.24	12.96	13.59	14.25	14.55	14.83
1994	321		7.04	8.86	10.2	11.34	12.16	12.87	13.48	14.12	14.43	14.71
1994	322		7.08	8.43	9.75	11.04	11.96	12.73	13.37	14.02	14.33	14.6
1994	323		8.15	8.67	9.63	10.81	11.75	12.55	13.22	13.89	14.22	14.5
1994	324		8.02	8.94	9.76	10.75	11.61	12.39	13.07	13.76	14.1	14.38
1994	325		7.14	8.56	9.63	10.68	11.51	12.27	12.94	13.63	13.97	14.26
1994	326		7.03	8.23	9.35	10.51	11.38	12.15	12.82	13.51	13.86	14.14
1994	327		4.915	7.46	9.01	10.3	11.21	12.01	12.69	13.39	13.74	14.03
1994	328		2.378	5.732	8.06	9.84	10.95	11.83	12.54	13.26	13.63	13.92
1994	329		1.813	4.584	7.03	9.16	10.52	11.56	12.36	13.13	13.52	13.81
1994	330		1.715	4.13	6.381	8.54	10.02	11.2	12.11	12.95	13.37	13.7
1994	331		1.122	3.638	5.878	8.04	9.57	10.82	11.82	12.73	13.2	13.55
1994	332		0.958	3.191	5.376	7.57	9.15	10.47	11.53	12.49	13	13.37
1994	333		1.188	3.075	5.059	7.17	8.77	10.12	11.23	12.25	12.8	13.19
1994	334		1.347	3.066	4.886	6.876	8.43	9.79	10.94	12	12.59	13
1994	335		1.12	2.962	4.739	6.646	8.16	9.51	10.67	11.76	12.39	12.81
1994	336		1.406	2.848	4.55	6.43	7.93	9.26	10.43	11.54	12.19	12.63
1994	337		1.753	3.057	4.536	6.267	7.71	9.03	10.19	11.32	11.99	12.43
1994	338		2.664	3.395	4.607	6.181	7.55	8.83	9.99	11.11	11.81	12.25
1994	339		3.717	4.032	4.889	6.208	7.46	8.68	9.81	10.93	11.62	12.07
1994	340		4.473	4.642	5.27	6.349	7.45	8.59	9.67	10.76	11.46	11.91
1994	341		3.33	4.641	5.505	6.512	7.5	8.54	9.56	10.6	11.28	11.71
1994	342		1.624	3.681	5.15	6.463	7.5	8.51	9.47	10.48	11.13	11.56
1994	343		0.787	2.863	4.583	6.182	7.35	8.41	9.39	10.38	11.02	11.43
1994	344		0.356	2.298	4.079	5.831	7.12	8.25	9.27	10.28	10.91	11.32
1994	345		0.214	1.955	3.681	5.485	6.846	8.05	9.11	10.15	10.79	11.2
1994	346		-0.647	1.548	3.348	5.174	6.57	7.81	8.91	9.98	10.64	11.04
1994	347		-1.542	1.066	2.955	4.853	6.296	7.58	8.71	9.81	10.48	10.88
1994	348		-1.845	0.598	2.529	4.511	6.007	7.33	8.5	9.61	10.28	10.69
1994	349		-1.767	0.376	2.205	4.169	5.698	7.07	8.26	9.41	10.11	10.53
1994	350		-1.429	0.237	1.98	3.886	5.411	6.803	8.03	9.21	9.95	10.38
1994	351		-1.215	0.222	1.852	3.67	5.167	6.562	7.81	9.02	9.78	10.22
1994	352		-0.68	0.249	1.778	3.516	4.972	6.353	7.6	8.83	9.61	10.05
1994	353		-0.483	0.302	1.736	3.395	4.805	6.16	7.4	8.63	9.42	9.87
1994	354		-0.958	0.331	1.714	3.308	4.671	5.995	7.22	8.45	9.26	9.73
1994	355		-0.608	0.332	1.686	3.238	4.567	5.862	7.07	8.3	9.11	9.6
1994	356		-0.22	0.359	1.66	3.167	4.464	5.736	6.927	8.15	8.97	9.46
1994	357		-0.283	0.44	1.662	3.11	4.373	5.622	6.797	8.01	8.83	9.33
1994	358		-0.425	0.508	1.68	3.071	4.296	5.518	6.675	7.88	8.7	9.21
1994	359		-0.669	0.502	1.675	3.035	4.229	5.425	6.563	7.76	8.57	9.08
1994	360		-0.751	0.445	1.635	2.985	4.161	5.334	6.451	7.63	8.43	8.94
1994	361		-0.949	0.353	1.567	2.919	4.085	5.244	6.347	7.52	8.32	8.83
1994	362		-0.654	0.294	1.494	2.844	4.007	5.159	6.257	7.42	8.23	8.74
1994	363		-1.059	0.29	1.464	2.777	3.923	5.065	6.153	7.31	8.11	8.62
1994	364		-3.482	-0.148	1.301	2.687	3.839	4.971	6.051	7.2	8	8.51
1994	365		-3.97	-0.95	0.886	2.462	3.698	4.867	5.956	7.11	7.91	8.42
1995	1		-2.927	-1.152	0.536	2.167	3.484	4.716	5.843	7.02	7.82	8.33
1995	2		-2.327	-1.001	0.41	1.961	3.278	4.54	5.699	6.896	7.71	8.22
1995	3		-2.95	-1.137	0.342	1.838	3.124	4.38	5.55	6.768	7.61	8.12
1995	4		-3.808	-1.504	0.186	1.706	2.991	4.246	5.418	6.645	7.5	8.01

1995	5		-5.623	-2.261	-0.067	1.518	2.833	4.104	5.287	6.524	7.39	7.9
1995	6		-5.155	-2.662	-0.401	1.259	2.633	3.95	5.16	6.416	7.3	7.81
1995	7		-3.653	-2.225	-0.531	1.057	2.429	3.773	5.013	6.297	7.2	7.72
1995	8		-4.814	-2.383	-0.577	0.95	2.277	3.606	4.856	6.159	7.09	7.61
1995	9		-5.073	-2.824	-0.77	0.837	2.162	3.481	4.726	6.037	6.98	7.51
1995	10		-6.582	-3.295	-0.977	0.683	2.015	3.339	4.589	5.905	6.859	7.38
1995	11		-8.39	-4.337	-1.395	0.487	1.854	3.198	4.458	5.786	6.752	7.28
1995	12		-7.75	-4.733	-1.819	0.225	1.649	3.041	4.331	5.683	6.672	7.2
1995	13		-5.419	-3.978	-1.872	0.008	1.421	2.851	4.181	5.567	6.581	7.12
1995	15		-1.655	-1.733	-1.073	-0.005	1.227	2.566	3.882	5.301	6.363	6.912
1995	16		-0.004	-0.871	-0.701	0.072	1.23	2.492	3.755	4.996	6.17	6.786
1995	17		-0.051	-0.535	-0.593	0.174	1.179	2.234	3.276	4.311	5.467	6.171
1995	18		-0.145	-0.447	-0.506	0.244	1.21	2.215	3.272	4.434	5.458	6.071
1995	19		-0.207	-0.402	-0.433	0.3	1.269	2.275	3.337	4.506	5.475	6.047
1995	21		-0.053	-0.335	-0.356	0.366	1.09	1.831	2.243	2.928	4.668	5.424
1995	22		0.002	-0.29	-0.272	0.363	0.884	1.426	1.827	2.594	4.105	4.874
1995	23		-0.048	-0.264	-0.212	0.444	0.991	1.583	2.18	3.038	4.135	4.793
1995	24		-0.078	-0.242	-0.164	0.526	1.118	1.771	2.474	3.386	4.345	4.928
1995	25		-0.071	-0.233	-0.122	0.602	1.232	1.929	2.692	3.635	4.525	5.064
1995	26		-0.341	-0.231	-0.072	0.673	1.332	2.058	2.855	3.811	4.664	5.17
1995	27		-1.399	-0.232	-0.011	0.744	1.421	2.164	2.975	3.936	4.77	5.242
1995	28		-2.635	-0.369	0.043	0.812	1.502	2.253	3.071	4.035	4.872	5.305
1995	29		-3.314	-1.013	0.054	0.859	1.571	2.333	3.153	4.117	4.966	5.351
1995	30		-2.912	-1.43	-0.041	0.837	1.597	2.387	3.215	4.177	5.011	5.384
1995	31		-2.308	-1.366	-0.166	0.776	1.577	2.403	3.251	4.221	5.046	5.415
1995	32		-1.557	-1.092	-0.212	0.735	1.553	2.403	3.269	4.251	5.085	5.437
1995	33		-2.255	-1.161	-0.223	0.714	1.531	2.389	3.264	4.254	5.089	5.438
1995	34		-3.553	-1.815	-0.331	0.675	1.513	2.382	3.263	4.259	5.09	5.44
1995	35		-3.825	-2.182	-0.533	0.573	1.456	2.358	3.254	4.261	5.072	5.446
1995	36		-4.29	-2.382	-0.736	0.457	1.374	2.308	3.227	4.249	5.037	5.437
1995	38		-9.26	-5.567	-2.146	-0.012	1.097	2.145	3.124	4.184	4.971	5.401
1995	39		-9.41	-6.233	-2.904	-0.35	0.794	1.964	3.024	4.134	4.94	5.418
1995	40		-8.04	-6.025	-3.285	-0.623	0.498	1.732	2.871	4.048	4.891	5.394
1995	42		-6.142	-4.91	-3.101	-0.955	0.161	1.381	2.564	3.827	4.75	5.27
1995	43		-6.576	-4.813	-3.011	-1.029	0.061	1.257	2.434	3.713	4.666	5.193
1995	44		-7.65	-5.564	-3.336	-1.155	-0.024	1.157	2.325	3.611	4.587	5.126
1995	45		-7.08	-5.577	-3.557	-1.33	-0.144	1.053	2.231	3.527	4.516	5.052
1995	46		-6.436	-5.18	-3.482	-1.423	-0.24	0.951	2.135	3.447	4.453	5
1995	47		-4.503	-4.289	-3.191	-1.439	-0.298	0.867	2.048	3.371	4.393	4.942
1995	48		-3.705	-3.422	-2.647	-1.313	-0.312	0.805	1.968	3.29	4.327	4.879
1995	49		-2.436	-2.616	-2.206	-1.162	-0.28	0.795	1.925	3.232	4.274	4.83
1995	50		-1.184	-1.645	-1.659	-0.968	-0.232	0.804	1.904	3.19	4.226	4.779
1995	51		-0.793	-1.204	-1.27	-0.778	-0.18	0.825	1.894	3.155	4.177	4.727
1995	52		-0.901	-1.03	-1.047	-0.645	-0.129	0.862	1.9	3.134	4.143	4.689
1995	53		-1.581	-1.083	-0.937	-0.563	-0.079	0.9	1.912	3.121	4.113	4.656
1995	54		-1.744	-1.359	-0.985	-0.518	-0.018	0.943	1.934	3.122	4.1	4.635
1995	56		-1.749	-1.285	-0.952	-0.486	0.061	0.997	1.962	3.119	4.074	4.6
1995	57		-3.506	-2.137	-1.194	-0.493	0.097	1.023	1.976	3.12	4.064	4.585
1995	59		-4.617	-3.538	-2.107	-0.739	0.123	1.052	1.995	3.122	4.046	4.557
1995	60		-3.305	-2.991	-2.093	-0.833	0.08	1.03	1.984	3.112	4.033	4.543
1995	61		-2.659	-2.396	-1.8	-0.802	0.041	1.003	1.964	3.095	4.015	4.519
1995	62		-3.294	-2.542	-1.734	-0.763	0.029	0.983	1.941	3.072	3.994	4.497
1995	63		-3.143	-2.61	-1.811	-0.784	0.023	0.978	1.932	3.061	3.985	4.493
1995	64		-2.404	-2.219	-1.686	-0.777	0.011	0.967	1.92	3.049	3.973	4.478
1995	65		-1.938	-1.881	-1.489	-0.713	0.018	0.962	1.906	3.032	3.951	4.45
1995	66		-1.787	-1.668	-1.324	-0.646	0.034	0.962	1.897	3.012	3.928	4.426
1995	67		-1.691	-1.565	-1.22	-0.59	0.054	0.968	1.892	3	3.91	4.405
1995	68		-2.091	-1.62	-1.173	-0.555	0.068	0.971	1.885	2.983	3.888	4.382
1995	69		-3.187	-2.174	-1.332	-0.557	0.083	0.978	1.883	2.973	3.876	4.366
1995	70		-2.475	-2.094	-1.454	-0.608	0.09	0.982	1.883	2.967	3.87	4.361
1995	71		-2.718	-2.182	-1.469	-0.613	0.092	0.985	1.885	2.967	3.866	4.353
1995	72		-1.604	-1.716	-1.347	-0.6	0.099	0.99	1.885	2.963	3.854	4.338
1995	73		-0.898	-1.228	-1.086	-0.53	0.11	0.992	1.88	2.953	3.841	4.321
1995	74		-0.496	-0.957	-0.91	-0.47	0.123	0.993	1.874	2.94	3.826	4.308
1995	75		-0.06	-0.752	-0.782	-0.419	0.139	0.952	1.687	2.333	3.255	3.845
1995	76		0.394	-0.588	-0.653	-0.368	0.098	0.668	0.922	1.299	2.485	3.15
1995	77		0.946	-0.48	-0.595	-0.35	0.021	0.438	0.679	1.224	2.398	3.063
1995	78		1.484	-0.42	-0.557	-0.349	0.016	0.454	0.77	1.331	2.362	2.995
1995	79		2.107	-0.341	-0.515	-0.351	0.034	0.529	0.948	1.57	2.452	3.032
1995	80		2.746	0.056	-0.431	-0.353	0.066	0.605	1.081	1.737	2.566	3.118
1995	81		2.074	0.478	-0.266	-0.325	0.133	0.67	1.147	1.814	2.633	3.173
1995	82		2.414	0.678	-0.196	-0.259	0.249	0.76	1.243	1.923	2.702	3.23
1995	83		2.68	1.025	-0.073	-0.201	0.372	0.864	1.354	2.032	2.782	3.291
1995	84		2.601	1.151	0.133	-0.118	0.524	0.989	1.47	2.14	2.855	3.344
1995	85		3.614	1.676	0.496	0.082	0.695	1.135	1.597	2.253	2.935	3.403
1995	86		4.053	2.199	0.949	0.405	0.906	1.299	1.73	2.367	3.028	3.471
1995	87		4.846	2.756	1.387	0.775	1.168	1.502	1.888	2.49	3.175	3.545
1995	88		5.717	3.51	1.947	1.209	1.47	1.731	2.067	2.626	3.316	3.629
1995	89		6.598	4.203	2.529	1.681	1.813	1.992	2.265	2.775	3.438	3.724

1995	90		6.666	4.74	3.131	2.191	2.182	2.275	2.482	2.937	3.567	3.824
1995	91		5.533	4.457	3.37	2.603	2.54	2.568	2.709	3.108	3.677	3.93
1995	92		5.594	4.384	3.436	2.829	2.794	2.818	2.929	3.281	3.784	4.036
1995	93		4.942	4.462	3.64	3.049	2.993	3.014	3.112	3.439	3.898	4.137
1995	94		3.861	3.682	3.428	3.151	3.15	3.183	3.274	3.587	4.011	4.237
1995	95		2.061	2.907	3.104	3.082	3.183	3.278	3.395	3.71	4.116	4.324
1995	96		1.006	1.958	2.509	2.841	3.11	3.302	3.475	3.811	4.223	4.414
1995	97		0.567	1.265	1.968	2.527	2.942	3.248	3.502	3.883	4.307	4.49
1995	98		1.526	1.374	1.756	2.271	2.748	3.141	3.477	3.916	4.363	4.545
1995	99		3.793	2.436	2.108	2.273	2.658	3.056	3.435	3.922	4.398	4.585
1995	100		4.349	3.311	2.765	2.569	2.75	3.056	3.412	3.913	4.412	4.606
1995	101		5.557	4.186	3.345	2.921	2.951	3.153	3.448	3.929	4.432	4.634
1995	102		6.464	5.044	3.993	3.347	3.22	3.314	3.536	3.978	4.466	4.663
1995	103		6.582	5.357	4.459	3.773	3.535	3.527	3.669	4.058	4.53	4.723
1995	104		6.935	5.724	4.83	4.118	3.823	3.751	3.828	4.165	4.607	4.79
1995	105		6.938	6.044	5.177	4.434	4.092	3.969	3.992	4.285	4.693	4.868
1995	106		6.662	5.965	5.324	4.684	4.339	4.184	4.163	4.416	4.794	4.961
1995	107		7.28	6.116	5.442	4.857	4.534	4.375	4.332	4.557	4.903	5.063
1995	108		9.28	7.19	5.949	5.117	4.73	4.548	4.486	4.691	5.009	5.165
1995	109		10.46	8.46	6.809	5.606	5.039	4.76	4.646	4.818	5.111	5.263
1995	110		10.79	8.76	7.35	6.134	5.444	5.051	4.847	4.961	5.218	5.366
1995	111		11.43	9.79	8.06	6.619	5.826	5.353	5.075	5.126	5.342	5.482
1995	112		10.45	9.32	8.24	7.05	6.232	5.684	5.326	5.313	5.485	5.615
1995	113		11.07	9.58	8.4	7.28	6.51	5.967	5.575	5.512	5.64	5.757
1995	114		11.36	9.96	8.73	7.56	6.77	6.215	5.802	5.708	5.803	5.906
1995	115		12.37	10.57	9.14	7.87	7.05	6.463	6.021	5.897	5.964	6.054
1995	116		13.27	11.26	9.66	8.26	7.36	6.728	6.245	6.087	6.125	6.204
1995	117		13.06	11.74	10.18	8.69	7.71	7.01	6.479	6.278	6.286	6.353
1995	118		11.58	11.08	10.17	8.98	8.03	7.31	6.725	6.478	6.453	6.504
1995	119		10.81	10.6	9.95	9.02	8.21	7.54	6.956	6.684	6.624	6.665
1995	120		10.68	10.11	9.65	8.95	8.28	7.69	7.14	6.874	6.807	6.824
1995	121		12.19	10.67	9.74	8.94	8.32	7.79	7.29	7.04	6.968	6.977
1995	122		13.48	11.46	10.19	9.15	8.44	7.9	7.41	7.17	7.11	7.12
1995	123		15.98	13	11.01	9.55	8.68	8.07	7.55	7.31	7.24	7.25
1995	124		17.1	14.18	11.98	10.18	9.09	8.33	7.74	7.45	7.37	7.38
1995	125		18.39	15.4	12.93	10.86	9.58	8.68	7.98	7.63	7.52	7.52
1995	126		17.97	15.84	13.65	11.53	10.11	9.09	8.28	7.85	7.7	7.7
1995	127		16.85	15.54	13.87	11.99	10.58	9.5	8.61	8.1	7.89	7.88
1995	128		16.77	15.27	13.84	12.22	10.91	9.85	8.93	8.37	8.11	8.06
1995	129		18.69	16.03	14.13	12.43	11.17	10.13	9.21	8.62	8.34	8.3
1995	130		19.12	17.15	14.92	12.88	11.49	10.4	9.47	8.86	8.55	8.51
1995	134		17.64	15.91	14.45	13.14	12.12	11.23	10.36	9.73	9.35	9.28
1995	134		17.64	15.91	14.45	13.14	12.12	11.23	10.36	9.73	9.35	9.28
1995	135		16.77	15.9	14.72	13.37	12.29	11.37	10.5	9.89	9.51	9.43
1995	136		16.96	15.64	14.63	13.46	12.44	11.54	10.66	10.05	9.68	9.59
1995	137		17.2	16.32	14.95	13.6	12.56	11.67	10.82	10.21	9.84	9.76
1995	138		15.67	15.19	14.67	13.7	12.72	11.83	10.98	10.37	10.01	9.91
1995	139		17.71	15.94	14.72	13.64	12.75	11.94	11.12	10.53	10.17	10.06
1995	140		18.37	16.63	15.21	13.88	12.89	12.05	11.24	10.67	10.31	10.2
1995	141		19.59	17.4	15.7	14.19	13.11	12.22	11.39	10.81	10.44	10.34
1995	142		19.4	17.78	16.18	14.58	13.4	12.44	11.56	10.96	10.59	10.48
1995	143		19.97	18.22	16.54	14.9	13.69	12.68	11.77	11.13	10.76	10.63
1995	144		19.36	18.15	16.76	15.2	13.97	12.93	11.98	11.31	10.91	10.78
1995	149		20.14	20.04	18.91	17.14	15.61	14.3	13.13	12.28	11.75	11.59
1995	150		21.23	19.49	18.39	17.05	15.77	14.57	13.4	12.52	11.95	11.76
1995	151		23.92	20.92	18.89	17.16	15.86	14.72	13.6	12.73	12.14	11.95
1995	152		25.93	22.56	19.91	17.68	16.16	14.93	13.78	12.92	12.32	12.13
1995	153		25.81	23.37	20.81	18.35	16.63	15.26	14.02	13.12	12.52	12.32
1995	154		23.47	22.77	21.02	18.84	17.09	15.65	14.32	13.34	12.71	12.51
1995	155		21.88	21.24	20.38	18.86	17.35	15.97	14.62	13.59	12.9	12.69
1995	156		24.09	21.86	20.29	18.74	17.39	16.14	14.84	13.83	13.11	12.89
1995	157		26.1	23.1	20.91	18.98	17.53	16.28	15.02	14.04	13.32	13.1
1995	158		27.75	24.45	21.8	19.49	17.85	16.51	15.21	14.23	13.51	13.29
1995	159		26.56	24.77	22.49	20.09	18.29	16.83	15.45	14.42	13.69	13.47
1995	160		26.2	24.42	22.54	20.42	18.68	17.18	15.74	14.65	13.89	13.65
1995	161		27	24.74	22.73	20.64	18.95	17.47	16.02	14.88	14.1	13.83
1995	162		26.86	25.25	23.15	20.95	19.22	17.73	16.27	15.11	14.31	14.03
1995	163		25.46	24.36	22.99	21.14	19.49	18	16.52	15.34	14.52	14.23
1995	164		25.95	24.31	22.85	21.14	19.61	18.2	16.75	15.56	14.73	14.42
1995	165		27.75	25.16	23.16	21.25	19.73	18.36	16.94	15.76	14.92	14.61
1995	166		28.07	25.78	23.7	21.59	19.96	18.56	17.12	15.94	15.11	14.79
1995	167		28.68	26.32	24.15	21.96	20.25	18.8	17.33	16.13	15.29	14.97
1995	168		29.48	26.89	24.62	22.33	20.57	19.07	17.56	16.34	15.48	15.16
1995	169		30.85	27.76	25.2	22.76	20.92	19.36	17.81	16.57	15.68	15.36
1995	170		32.1	28.75	25.94	23.28	21.32	19.69	18.09	16.81	15.9	15.57
1995	171		32.17	29.43	26.67	23.87	21.78	20.06	18.39	17.06	16.13	15.79
1995	172		31.18	29.14	26.9	24.32	22.23	20.45	18.73	17.35	16.37	16.02
1995	173		31.32	29.14	26.98	24.56	22.56	20.8	19.05	17.64	16.62	16.26
1995	174		32.26	29.58	27.24	24.81	22.84	21.09	19.35	17.92	16.87	16.5

1995	175		33.36	30.39	27.77	25.17	23.15	21.38	19.63	18.2	17.11	16.73
1995	176		34.02	30.99	28.31	25.61	23.52	21.69	19.92	18.46	17.35	16.97
1995	177		33.64	31.34	28.79	26.05	23.91	22.03	20.22	18.72	17.59	17.2
1995	178		33.01	31.08	28.91	26.37	24.26	22.38	20.53	19	17.83	17.44
1995	179		32.65	30.88	28.91	26.54	24.53	22.68	20.82	19.28	18.08	17.67
1995	180		33.44	31.02	28.94	26.66	24.72	22.93	21.11	19.56	18.33	17.91
1995	181		34.3	31.71	29.34	26.89	24.93	23.15	21.39	19.81	18.56	18.15
1995	182		34.24	32.04	29.71	27.21	25.2	23.4	21.63	20.05	18.79	18.39
1995	183		31.95	31.31	29.68	27.43	25.47	23.66	21.88	20.29	19.03	18.61
1995	184		30.5	29.97	29	27.3	25.57	23.87	22.12	20.52	19.25	18.83
1995	185		31.39	29.9	28.63	27.05	25.51	23.95	22.29	20.73	19.45	19.03
1995	186		31.8	30.41	28.8	27.02	25.48	23.99	22.4	20.9	19.64	19.21
1995	187		31.77	30.2	28.77	27.07	25.54	24.06	22.5	21.04	19.8	19.37
1995	188		31.46	30.27	28.84	27.11	25.6	24.14	22.6	21.17	19.93	19.52
1995	189		29.73	29.74	28.7	27.12	25.65	24.22	22.7	21.29	20.06	19.66
1995	190		27.49	28.14	27.9	26.87	25.61	24.27	22.8	21.41	20.19	19.79
1995	191		27.23	27.14	27.05	26.38	25.38	24.21	22.85	21.51	20.3	19.91
1995	192		29.1	27.75	26.92	26.03	25.11	24.06	22.82	21.56	20.4	20
1995	193		30.38	28.6	27.28	26.04	25.01	23.96	22.77	21.59	20.47	20.08
1995	194		31.68	29.4	27.75	26.24	25.06	23.95	22.76	21.61	20.53	20.14
1995	195		33.92	30.71	28.47	26.59	25.24	24.04	22.81	21.66	20.6	20.21
1995	196		34.6	31.98	29.46	27.15	25.56	24.22	22.91	21.74	20.69	20.31
1995	197		32.45	31.62	29.81	27.65	25.97	24.5	23.1	21.87	20.8	20.43
1995	198		27.67	29.38	29.07	27.67	26.19	24.74	23.31	22.02	20.93	20.55
1995	199		26.18	27.19	27.59	27.06	26.03	24.82	23.47	22.18	21.06	20.67
1995	200		27.65	26.98	26.85	26.42	25.66	24.68	23.49	22.28	21.17	20.78
1995	201		28.62	28.01	27.1	26.21	25.4	24.5	23.42	22.3	21.23	20.84
1995	202		27.83	27.19	26.84	26.13	25.32	24.42	23.36	22.29	21.27	20.89
1995	203		30.56	28.38	27.08	26.05	25.21	24.34	23.32	22.29	21.3	20.92
1995	204		30.46	29.42	27.83	26.34	25.29	24.33	23.29	22.28	21.31	20.95
1995	205		28.02	27.96	27.5	26.48	25.44	24.43	23.33	22.3	21.34	20.98
1995	206		29.45	28.16	27.27	26.3	25.4	24.46	23.38	22.35	21.39	21.03
1995	207		31.12	29.05	27.62	26.37	25.39	24.45	23.39	22.39	21.45	21.09
1995	208		32.52	30.1	28.24	26.66	25.53	24.51	23.43	22.43	21.5	21.14
1995	209		32.94	30.89	28.91	27.08	25.78	24.66	23.52	22.49	21.55	21.2
1995	210		32.83	30.97	29.24	27.44	26.07	24.87	23.65	22.58	21.62	21.27
1995	211		33.37	31.38	29.56	27.72	26.32	25.07	23.82	22.7	21.72	21.36
1995	213		33.96	32.17	30.26	28.31	26.83	25.5	24.15	22.97	21.94	21.57
1995	213		33.96	32.17	30.26	28.31	26.83	25.5	24.15	22.97	21.94	21.57
1995	214		32.05	31.44	30.23	28.53	27.08	25.71	24.34	23.12	22.06	21.69
1995	215		31.37	30.07	29.93	28.49	27.18	25.88	24.51	23.26	22.18	21.8
1995	216		29.46	29.79	29.38	28.32	27.16	25.96	24.63	23.38	22.29	21.9
1995	217		28.87	29.23	28.83	27.98	27.02	25.94	24.68	23.47	22.39	22
1995	218		26.97	27.68	27.99	27.58	26.81	25.85	24.68	23.51	22.46	22.08
1995	219		28.49	27.78	27.52	27.11	26.5	25.69	24.63	23.53	22.51	22.13
1995	220		30.13	28.65	27.75	26.98	26.3	25.54	24.54	23.52	22.54	22.17
1995	221		31.35	29.54	28.24	27.13	26.28	25.47	24.48	23.49	22.55	22.19
1995	222		32.28	30.34	28.79	27.41	26.41	25.5	24.48	23.48	22.55	22.21
1995	223		32.09	30.83	29.28	27.74	26.6	25.61	24.52	23.51	22.58	22.24
1995	224		31.52	30.38	29.27	27.93	26.8	25.75	24.61	23.57	22.63	22.28
1995	225		31.56	30.52	29.34	28.01	26.9	25.87	24.71	23.64	22.69	22.34
1995	226		31.81	30.53	29.37	28.08	26.99	25.97	24.8	23.72	22.76	22.4
1995	227		31.93	30.61	29.45	28.16	27.07	26.04	24.88	23.79	22.83	22.47
1995	228		33.36	31.34	29.76	28.29	27.16	26.12	24.96	23.87	22.9	22.54
1995	229		33.77	31.92	30.22	28.57	27.33	26.24	25.05	23.94	22.97	22.62
1995	230		34.06	32.23	30.55	28.85	27.55	26.4	25.16	24.03	23.05	22.7
1995	231		33.8	32.38	30.81	29.1	27.77	26.57	25.3	24.14	23.15	22.79
1995	232		33.55	32.24	30.86	29.26	27.95	26.74	25.44	24.26	23.25	22.9
1995	233		34.06	32.44	30.95	29.37	28.08	26.89	25.58	24.38	23.37	23
1995	234		32.54	32.25	31.05	29.51	28.21	27.01	25.7	24.49	23.47	23.1
1995	235		29.89	30.59	30.36	29.38	28.27	27.12	25.82	24.6	23.57	23.2
1995	236		28.74	29.51	29.54	28.95	28.11	27.12	25.89	24.68	23.66	23.29
1995	237		27.29	28.24	28.68	28.45	27.83	27	25.88	24.73	23.71	23.35
1995	238		27.25	27.86	28.08	27.93	27.48	26.79	25.81	24.73	23.73	23.37
1995	239		27.45	27.44	27.62	27.53	27.16	26.56	25.68	24.68	23.71	23.36
1995	240		28.24	27.8	27.56	27.27	26.89	26.34	25.52	24.59	23.66	23.32
1995	241		29.38	28.3	27.69	27.19	26.73	26.18	25.38	24.5	23.6	23.27
1995	242		29.12	28.56	27.93	27.24	26.68	26.08	25.26	24.41	23.54	23.22
1995	243		28.03	28.36	27.93	27.26	26.66	26.03	25.19	24.35	23.49	23.18
1995	244		26.4	27.06	27.33	27.07	26.59	25.98	25.14	24.31	23.46	23.16
1995	245		26.07	26.57	26.82	26.71	26.37	25.85	25.07	24.27	23.43	23.14
1995	246		25.39	26.26	26.49	26.41	26.14	25.69	24.97	24.22	23.39	23.11
1995	247		24.99	25.33	25.88	26.06	25.9	25.52	24.85	24.16	23.34	23.07
1995	248		26.63	26.1	25.89	25.79	25.63	25.32	24.7	24.08	23.28	23.02
1995	249		26.05	26.05	25.96	25.75	25.51	25.16	24.56	23.98	23.21	22.96
1995	250		25.42	25.99	25.9	25.66	25.41	25.05	24.44	23.89	23.14	22.9
1995	251		22	24	25.1	25.4	25.27	24.95	24.35	23.81	23.08	22.85
1995	252		23.03	23.62	24.34	24.83	24.93	24.75	24.23	23.74	23.01	22.79
1995	253		23.17	23.71	24.15	24.49	24.61	24.5	24.05	23.63	22.92	22.72

1995	254		23.07	23.5	23.94	24.26	24.37	24.28	23.87	23.51	22.83	22.64
1995	255		23.67	23.66	23.86	24.07	24.17	24.08	23.7	23.38	22.72	22.54
1995	256		24.35	24.16	24.02	24	24.02	23.91	23.54	23.25	22.6	22.43
1995	257		22.97	23.72	23.96	23.99	23.94	23.79	23.41	23.11	22.49	22.33
1995	258		21.41	22.62	23.41	23.76	23.81	23.68	23.3	23.01	22.38	22.24
1995	259		21.29	22.26	22.94	23.39	23.56	23.52	23.17	22.92	22.29	22.17
1995	260		21.23	22.05	22.64	23.09	23.31	23.32	23.02	22.81	22.19	22.09
1995	261		19.45	21.01	22.14	22.78	23.06	23.11	22.86	22.68	22.08	21.98
1995	262		20.15	20.86	21.69	22.38	22.76	22.88	22.68	22.54	21.97	21.88
1995	263		20.29	21.11	21.64	22.15	22.5	22.65	22.49	22.39	21.87	21.77
1995	264		19.23	20.42	21.32	21.95	22.3	22.45	22.31	22.24	21.76	21.65
1995	265		18.79	20.08	20.97	21.65	22.06	22.24	22.13	22.09	21.64	21.52
1995	266		17.37	19.09	20.41	21.31	21.8	22.02	21.95	21.93	21.54	21.4
1995	267		17.21	18.69	19.9	20.88	21.47	21.77	21.75	21.77	21.43	21.26
1995	268		17.09	18.4	19.53	20.52	21.14	21.5	21.53	21.6	21.3	21.13
1995	269		17.38	18.21	19.24	20.2	20.84	21.23	21.31	21.41	21.17	20.99
1995	270		18.02	18.52	19.21	19.99	20.58	20.98	21.08	21.22	21.02	20.84
1995	328		1.14	3.286	5.098	6.833	8.2	9.39	10.39	11.39	11.9	12.09
1995	329		0.142	2.464	4.544	6.488	7.94	9.17	10.19	11.18	11.71	11.9
1995	330		0.151	2.055	4.036	6.07	7.62	8.91	9.97	10.96	11.5	11.69
1995	331		0.417	2.041	3.807	5.738	7.29	8.61	9.71	10.72	11.27	11.47
1995	332		0.401	2.002	3.679	5.511	7.02	8.33	9.44	10.48	11.06	11.27
1995	333		-0.294	1.672	3.466	5.299	6.783	8.06	9.2	10.24	10.84	11.06
1995	334		-1.32	1.206	3.128	5.033	6.536	7.84	8.95	9.97	10.55	10.75
1995	335		-1.294	0.744	2.708	4.709	6.258	7.58	8.68	9.69	10.25	10.45
1995	336		-1.048	0.692	2.47	4.397	5.948	7.28	8.39	9.4	9.97	10.17
1995	337		-1.733	0.484	2.272	4.155	5.676	7	8.11	9.14	9.72	9.93
1995	338		-1.534	0.307	2.053	3.915	5.424	6.744	7.86	8.89	9.49	9.7
1995	339		-1.784	0.239	1.9	3.692	5.174	6.477	7.58	8.61	9.23	9.45
1995	340		-1.917	0.032	1.717	3.487	4.948	6.24	7.35	8.39	9.02	9.24
1995	341		-1.84	-0.041	1.581	3.306	4.741	6.03	7.14	8.2	8.86	9.08
1995	342		-2.718	-0.18	1.434	3.128	4.542	5.819	6.926	7.99	8.64	8.87
1995	343		-3.852	-0.632	1.152	2.911	4.339	5.616	6.716	7.78	8.44	8.67
1995	344		-4.009	-1.172	0.79	2.614	4.089	5.395	6.509	7.58	8.25	8.58
1995	345		-4.665	-1.617	0.466	2.307	3.812	5.151	6.291	7.38	8.08	8.42
1995	346		-5.911	-2.257	0.121	1.993	3.525	4.895	6.063	7.18	7.89	8.24
1995	347		-6.784	-2.957	-0.274	1.646	3.214	4.626	5.826	6.97	7.7	8.05
1995	348		-7.04	-3.462	-0.649	1.312	2.908	4.351	5.584	6.762	7.52	7.88
1995	349		-5.744	-3.396	-0.939	1.016	2.62	4.085	5.346	6.558	7.35	7.72
1995	350		-4.301	-2.808	-0.965	0.815	2.363	3.827	5.108	6.351	7.18	7.55
1995	351		-3.411	-2.307	-0.861	0.732	2.192	3.616	4.893	6.161	7.02	7.41
1995	352		-3.623	-2.1	-0.768	0.697	2.081	3.452	4.705	5.975	6.857	7.25
1995	353		-5.205	-2.682	-0.893	0.654	1.999	3.326	4.548	5.806	6.692	7.09
1995	354		-5.986	-3.324	-1.142	0.539	1.894	3.209	4.412	5.658	6.545	6.948
1995	355		-5.691	-3.465	-1.333	0.376	1.745	3.073	4.277	5.523	6.415	6.823
1995	356		-4.455	-3.126	-1.379	0.233	1.589	2.921	4.132	5.386	6.287	6.701
1995	357		-3.001	-2.382	-1.197	0.171	1.471	2.78	3.987	5.248	6.161	6.581
1995	358		-2.821	-1.985	-0.992	0.191	1.422	2.68	3.865	5.126	6.06	6.493
1995	359		-2.997	-1.951	-0.924	0.219	1.405	2.62	3.777	5.029	5.974	6.415
1995	360		-3.271	-2.021	-0.925	0.233	1.393	2.578	3.71	4.946	5.887	6.331
1995	361		-3.445	-2.183	-0.986	0.226	1.376	2.541	3.652	4.874	5.812	6.257
1995	362		-3.218	-2.145	-1.007	0.202	1.347	2.498	3.594	4.8	5.729	6.173
1995	363		-3.485	-2.205	-1.02	0.18	1.312	2.45	3.533	4.725	5.643	6.088
1995	364		-2.941	-2.092	-1.021	0.155	1.278	2.403	3.472	4.652	5.565	6.007
1995	365		-2.274	-1.78	-0.917	0.155	1.25	2.359	3.416	4.587	5.499	5.94
1996	1		-2.443	-1.574	-0.799	0.169	1.23	2.316	3.358	4.52	5.433	5.875
1996	2		-4.591	-2.22	-0.911	0.174	1.218	2.282	3.309	4.459	5.368	5.806
1996	3		-6.677	-3.492	-1.384	0.082	1.18	2.25	3.269	4.409	5.314	5.749
1996	4		-8.17	-4.409	-1.83	-0.117	1.045	2.171	3.209	4.346	5.239	5.67
1996	5		-9.02	-5.234	-2.339	-0.319	0.835	2.029	3.11	4.266	5.16	5.585
1996	6		-10.34	-6.134	-2.896	-0.575	0.583	1.837	2.973	4.162	5.075	5.504
1996	7		-10.76	-6.791	-3.464	-0.957	0.331	1.633	2.818	4.051	4.993	5.429
1996	8		-10.92	-7.24	-3.941	-1.333	0.071	1.407	2.64	3.924	4.897	5.339
1996	9		-9.39	-7.03	-4.207	-1.66	-0.174	1.163	2.439	3.772	4.78	5.233
1996	10		-7.57	-6.086	-4.019	-1.818	-0.338	0.946	2.237	3.612	4.657	5.121
1996	11		-8.04	-5.806	-3.822	-1.862	-0.45	0.772	2.049	3.444	4.524	4.996
1996	12		-8.29	-6.12	-3.979	-1.957	-0.537	0.655	1.912	3.308	4.406	4.886
1996	13		-7.21	-5.819	-3.986	-2.05	-0.627	0.554	1.801	3.195	4.303	4.789
1996	14		-6.378	-5.21	-3.737	-2.047	-0.698	0.464	1.702	3.099	4.225	4.715
1996	15		-6.964	-5.101	-3.574	-2.005	-0.734	0.401	1.62	3.007	4.136	4.628
1996	16		-8.74	-6.003	-3.894	-2.088	-0.777	0.357	1.56	2.931	4.055	4.544
1996	17		-6.794	-5.931	-4.14	-2.239	-0.851	0.306	1.509	2.875	3.997	4.484
1996	18		-3.732	-4.251	-3.528	-2.158	-0.896	0.236	1.438	2.808	3.932	4.42
1996	19		-0.442	-1.568	-2.474	-1.806	-0.812	0.223	1.39	2.744	3.867	4.355
1996	20		-0.096	-0.837	-1.541	-1.327	-0.64	0.268	1.384	2.7	3.812	4.295
1996	21		-1.387	-0.784	-1.144	-0.982	-0.476	0.344	1.412	2.688	3.795	4.287
1996	22		-2.511	-1.473	-1.075	-0.802	-0.371	0.437	1.475	2.711	3.778	4.264
1996	23		-2.102	-1.789	-1.28	-0.773	-0.31	0.528	1.532	2.722	3.735	4.215
1996	24		-1.751	-1.658	-1.301	-0.778	-0.279	0.595	1.576	2.725	3.695	4.169

1996	25		-2.972	-1.942	-1.314	-0.76	-0.26	0.636	1.599	2.716	3.655	4.122
1996	26		-4.736	-3.133	-1.767	-0.847	-0.239	0.675	1.625	2.721	3.638	4.098
1996	27		-4.297	-3.534	-2.218	-1.05	-0.24	0.697	1.644	2.723	3.62	4.075
1996	28		-3.577	-2.975	-2.133	-1.135	-0.265	0.685	1.641	2.716	3.604	4.055
1996	29		-5.629	-3.865	-2.348	-1.172	-0.286	0.665	1.627	2.703	3.589	4.042
1996	30		-5.971	-4.632	-2.868	-1.374	-0.327	0.648	1.619	2.691	3.564	4.015
1996	31		-6.726	-5.008	-3.167	-1.579	-0.431	0.583	1.576	2.653	3.516	3.966
1996	32		-9.09	-6.485	-3.843	-1.863	-0.563	0.487	1.511	2.605	3.472	3.919
1996	33		-9.35	-7.35	-4.617	-2.293	-0.769	0.36	1.428	2.555	3.434	3.882
1996	34		-10.08	-7.82	-5.022	-2.593	-1.016	0.182	1.297	2.474	3.38	3.834
1996	35		-11.17	-8.64	-5.528	-2.875	-1.23	0.02	1.164	2.384	3.325	3.786
1996	36		-11.46	-9.18	-6.031	-3.194	-1.449	-0.12	1.046	2.294	3.266	3.738
1996	37		-10.77	-9.04	-6.257	-3.476	-1.668	-0.26	0.923	2.193	3.194	3.666
1996	38		-9.74	-8.52	-6.197	-3.639	-1.834	-0.378	0.806	2.098	3.126	3.607
1996	39		-6.598	-6.774	-5.582	-3.593	-1.916	-0.472	0.705	2.01	3.06	3.548
1996	40		-4.101	-4.715	-4.413	-3.187	-1.842	-0.535	0.623	1.926	2.99	3.483
1996	41		-3.801	-3.825	-3.538	-2.686	-1.634	-0.523	0.579	1.854	2.921	3.417
1996	42		-3.93	-3.702	-3.211	-2.377	-1.445	-0.466	0.582	1.821	2.881	3.379
1996	43		-5.268	-4.093	-3.132	-2.214	-1.331	-0.421	0.594	1.805	2.85	3.346
1996	44		-8.11	-5.907	-3.816	-2.337	-1.326	-0.396	0.606	1.792	2.821	3.313
1996	45		-9.18	-7.2	-4.757	-2.793	-1.52	-0.435	0.606	1.779	2.797	3.285
1996	46		-9.41	-7.68	-5.344	-3.238	-1.775	-0.525	0.571	1.759	2.772	3.256
1996	47		-9.38	-7.86	-5.669	-3.524	-1.948	-0.612	0.51	1.722	2.744	3.227
1996	48		-9.12	-7.81	-5.777	-3.66	-2.056	-0.693	0.44	1.671	2.706	3.193
1996	49		-8.55	-7.44	-5.684	-3.703	-2.13	-0.768	0.372	1.615	2.666	3.156
1996	50		-9.32	-7.81	-5.769	-3.739	-2.184	-0.834	0.306	1.557	2.624	3.119
1996	51		-7.56	-7.12	-5.672	-3.784	-2.242	-0.884	0.258	1.513	2.585	3.08
1996	52		-4.715	-5.26	-4.826	-3.543	-2.212	-0.922	0.207	1.461	2.536	3.032
1996	53		-3.09	-3.716	-3.774	-3.043	-2.015	-0.888	0.181	1.425	2.5	2.994
1996	54		-2.025	-2.776	-3.003	-2.548	-1.74	-0.789	0.193	1.407	2.47	2.967
1996	55		-1.018	-1.911	-2.398	-2.154	-1.495	-0.679	0.227	1.409	2.448	2.938
1996	56		-0.91	-1.561	-1.972	-1.831	-1.282	-0.573	0.272	1.423	2.437	2.924
1996	57		-0.753	-1.337	-1.692	-1.589	-1.112	-0.49	0.316	1.432	2.424	2.916
1996	58		-0.629	-1.173	-1.499	-1.416	-0.987	-0.42	0.372	1.453	2.411	2.895
1996	59		-0.633	-1.05	-1.335	-1.27	-0.881	-0.367	0.416	1.461	2.393	2.88
1996	60		-1.094	-1.081	-1.243	-1.17	-0.811	-0.33	0.455	1.475	2.382	2.857
1996	61		-1.937	-1.405	-1.226	-1.079	-0.737	-0.284	0.502	1.499	2.385	2.851
1996	62		-2.236	-1.745	-1.332	-1.04	-0.686	-0.251	0.541	1.514	2.38	2.836
1996	63		-1.425	-1.491	-1.349	-1.041	-0.661	-0.225	0.582	1.536	2.388	2.838
1996	64		-3.238	-2.118	-1.425	-1.017	-0.636	-0.196	0.63	1.569	2.402	2.843
1996	66		-3.837	-2.952	-2.008	-1.225	-0.671	-0.162	0.699	1.612	2.419	2.866
1996	67		-4.284	-3.366	-2.252	-1.344	-0.716	-0.155	0.718	1.627	2.424	2.869
1996	68		-4.591	-3.526	-2.395	-1.441	-0.755	-0.135	0.737	1.647	2.436	2.875
1996	69		-4.964	-3.985	-2.675	-1.562	-0.801	-0.125	0.742	1.656	2.444	2.88
1996	70		-4.546	-3.927	-2.804	-1.687	-0.863	-0.127	0.735	1.655	2.448	2.888
1996	71		-3.076	-3.119	-2.591	-1.713	-0.904	-0.134	0.727	1.654	2.448	2.883
1996	72		-1.758	-2.229	-2.152	-1.576	-0.872	-0.142	0.713	1.642	2.434	2.871
1996	73		-1.051	-1.635	-1.761	-1.386	-0.793	-0.14	0.711	1.625	2.404	2.836
1996	74		-0.753	-1.249	-1.445	-1.204	-0.704	-0.126	0.717	1.61	2.373	2.804
1996	75		-0.592	-1.043	-1.24	-1.064	-0.633	-0.113	0.727	1.602	2.347	2.776
1996	76		-0.528	-0.909	-1.099	-0.96	-0.579	-0.099	0.739	1.602	2.345	2.778
1996	77		-0.509	-0.83	-1.001	-0.885	-0.534	-0.081	0.76	1.621	2.369	2.807
1996	78		-0.453	-0.766	-0.924	-0.821	-0.493	-0.06	0.784	1.641	2.388	2.828
1996	79		-0.361	-0.71	-0.865	-0.771	-0.46	-0.036	0.811	1.661	2.413	2.84
1996	80		-0.226	-0.651	-0.813	-0.729	-0.434	-0.003	0.847	1.679	2.459	2.846
1996	84		-0.053	-0.424	-0.596	-0.56	-0.327	0.146	0.859	1.55	2.266	2.646
1996	84		-0.053	-0.424	-0.596	-0.56	-0.327	0.146	0.859	1.55	2.266	2.646
1996	85		0.204	-0.405	-0.559	-0.53	-0.307	0.169	0.87	1.561	2.275	2.635
1996	86		0.802	-0.367	-0.509	-0.5	-0.288	0.196	0.867	1.48	2.338	2.6
1996	87		0.222	-0.324	-0.456	-0.467	-0.269	0.19	0.807	1.402	2.303	2.532
1996	88		0.261	-0.297	-0.431	-0.425	-0.241	0.191	0.799	1.413	2.292	2.51
1996	89		0.86	-0.268	-0.409	-0.388	-0.231	0.211	0.818	1.441	2.286	2.499
1996	90		1.56	-0.243	-0.39	-0.361	-0.234	0.232	0.847	1.476	2.313	2.519
1996	91		2.654	-0.136	-0.362	-0.351	-0.257	0.247	0.87	1.507	2.346	2.549
1996	92		3.19	0.499	-0.281	-0.343	-0.278	0.261	0.884	1.53	2.379	2.582
1996	93		2.62	0.799	-0.141	-0.296	-0.261	0.315	0.905	1.547	2.4	2.606
1996	94		3.43	1.397	0.021	-0.244	-0.203	0.43	0.985	1.593	2.422	2.626
1996	95		3.126	1.617	0.259	-0.189	-0.134	0.566	1.089	1.663	2.463	2.659
1996	96		3.47	1.776	0.473	-0.127	-0.033	0.693	1.197	1.744	2.515	2.708
1996	97		3.198	1.922	0.699	-0.063	0.083	0.798	1.293	1.825	2.575	2.76
1996	98		3.679	2.239	0.931	0.032	0.208	0.91	1.395	1.917	2.653	2.834
1996	99		2.65	1.95	1.03	0.192	0.344	1.008	1.485	2.004	2.746	2.913
1996	100		2.814	1.748	0.978	0.317	0.452	1.085	1.546	2.047	2.772	2.932
1996	101		3.838	2.33	1.243	0.474	0.576	1.167	1.594	2.08	2.791	2.946
1996	102		5.129	3.108	1.687	0.719	0.755	1.29	1.668	2.14	2.83	2.969
1996	103		6.546	3.934	2.229	1.041	0.992	1.443	1.768	2.216	2.889	3.021
1996	104		6.64	4.763	2.927	1.48	1.303	1.644	1.901	2.31	2.967	3.094
1996	105		5.109	4.19	3.029	1.826	1.641	1.899	2.084	2.444	3.058	3.164
1996	106		5.298	3.943	2.914	1.95	1.856	2.105	2.262	2.581	3.13	3.238

1996	107		6.175	4.599	3.23	2.152	2.037	2.259	2.404	2.701	3.217	3.324
1996	108		4.839	4.207	3.358	2.427	2.262	2.424	2.546	2.821	3.306	3.405
1996	109		5.499	3.983	3.213	2.502	2.412	2.573	2.676	2.928	3.39	3.49
1996	110		8.46	5.662	3.866	2.735	2.555	2.685	2.777	3.03	3.48	3.581
1996	111		7.77	6.239	4.652	3.302	2.897	2.882	2.894	3.121	3.567	3.662
1996	112		8.53	6.267	4.869	3.689	3.249	3.145	3.068	3.245	3.657	3.749
1996	113		9.67	7.39	5.54	4.099	3.557	3.409	3.26	3.396	3.767	3.847
1996	114		9.63	7.76	6.079	4.61	3.949	3.706	3.464	3.548	3.886	3.961
1996	115		8.89	7.5	6.261	4.984	4.308	4.013	3.694	3.726	4.024	4.088
1996	116		9.16	7.82	6.471	5.232	4.582	4.276	3.917	3.907	4.176	4.228
1996	117		8.48	7.48	6.517	5.458	4.832	4.516	4.126	4.087	4.331	4.374
1996	118		9.1	7.63	6.582	5.593	5.014	4.719	4.322	4.265	4.487	4.519
1996	119		9.58	7.97	6.837	5.8	5.203	4.894	4.49	4.412	4.632	4.652
1996	120		10.4	8.64	7.26	6.085	5.426	5.073	4.654	4.553	4.761	4.783
1996	121		10.17	8.96	7.67	6.432	5.7	5.278	4.827	4.696	4.888	4.904
1996	122		9.47	8.46	7.67	6.668	5.965	5.507	5.019	4.854	5.017	5.038
1996	123		10.86	9.12	7.91	6.82	6.14	5.706	5.2	5.014	5.153	5.166
1996	124		11.95	9.78	8.37	7.13	6.378	5.903	5.371	5.168	5.298	5.304
1996	125		13.81	11.02	9.11	7.57	6.685	6.134	5.557	5.328	5.448	5.445
1996	126		14.81	12.03	9.95	8.15	7.1	6.435	5.775	5.501	5.595	5.59
1996	127		15.64	12.87	10.71	8.75	7.57	6.792	6.034	5.698	5.759	5.743
1996	128		16.5	13.67	11.43	9.35	8.06	7.18	6.327	5.922	5.943	5.922
1996	129		17.64	14.56	12.17	9.96	8.57	7.59	6.645	6.166	6.147	6.112
1996	130		17.94	15.5	13	10.61	9.1	8.02	6.981	6.426	6.361	6.316
1996	131		15.89	14.85	13.2	11.12	9.61	8.46	7.34	6.711	6.598	6.539
1996	132		13.59	13.67	12.8	11.24	9.93	8.84	7.69	7.01	6.846	6.767
1996	133		11.17	12.01	11.95	11.02	10.01	9.07	7.97	7.28	7.09	6.999
1996	134		11.5	11.2	11.13	10.59	9.88	9.15	8.16	7.52	7.32	7.22
1996	135		13.23	11.85	11.1	10.35	9.73	9.12	8.26	7.69	7.51	7.4
1996	136		15.07	12.8	11.53	10.45	9.74	9.13	8.32	7.81	7.66	7.55
1996	137		16.4	14.27	12.41	10.84	9.93	9.24	8.41	7.91	7.77	7.68
1996	138		16.4	14.25	12.8	11.28	10.26	9.46	8.57	8.05	7.91	7.81
1996	139		18.55	15.72	13.54	11.68	10.57	9.71	8.77	8.22	8.06	7.95
1996	140		18.9	16.29	14.23	12.24	10.99	10.01	9	8.44	8.21	8.1
1996	141		20.61	17.47	15.01	12.79	11.42	10.35	9.25	8.65	8.38	8.26
1996	142		22.03	18.43	15.83	13.43	11.92	10.73	9.54	8.88	8.57	8.44
1996	143		23.24	19.85	16.89	14.15	12.47	11.15	9.86	9.13	8.78	8.63
1996	144		22.84	20.15	17.57	14.87	13.07	11.62	10.23	9.41	9.01	8.85
1996	145		22.45	20.19	17.91	15.37	13.59	12.09	10.61	9.71	9.26	9.08
1996	146		22.29	20.21	18.11	15.73	14	12.49	10.99	10.01	9.52	9.31
1996	147		22.23	20.28	18.28	16.01	14.35	12.86	11.33	10.32	9.8	9.58
1996	148		22.25	20.26	18.4	16.25	14.64	13.19	11.65	10.62	10.08	9.86
1996	149		23.32	20.76	18.66	16.48	14.9	13.47	11.96	10.91	10.33	10.11
1996	150		22.56	21.04	19.06	16.81	15.2	13.75	12.23	11.16	10.57	10.33
1996	151		20.84	20.02	18.8	16.97	15.45	14.03	12.51	11.42	10.81	10.56
1996	152		22.31	20.16	18.64	16.92	15.56	14.23	12.76	11.67	11.04	10.79
1996	153		24.39	21.4	19.18	17.12	15.7	14.4	12.96	11.89	11.26	11.01
1996	154		25.17	22.32	19.93	17.58	16.01	14.62	13.17	12.1	11.47	11.22
1996	155		25.39	23.04	20.6	18.1	16.41	14.93	13.42	12.33	11.7	11.46
1996	156		24.66	22.7	20.77	18.49	16.8	15.28	13.72	12.59	11.94	11.69
1996	157		24.03	22.71	20.89	18.72	17.1	15.59	14.01	12.86	12.18	11.92
1996	158		22.94	21.84	20.6	18.8	17.31	15.86	14.28	13.11	12.41	12.14
1996	159		22.47	21.84	20.52	18.78	17.4	16.03	14.49	13.33	12.6	12.32
1996	160		19.97	20.38	19.93	18.66	17.45	16.16	14.67	13.52	12.79	12.51
1996	161		19.97	19.49	19.17	18.28	17.32	16.2	14.8	13.69	12.97	12.68
1996	162		21.95	20.27	19.18	18.05	17.16	16.16	14.86	13.82	13.12	12.83
1996	163		23.71	21.32	19.68	18.18	17.16	16.15	14.9	13.92	13.24	12.96
1996	164		25.5	22.42	20.38	18.54	17.35	16.25	14.98	14.01	13.36	13.08
1996	165		27.2	24.09	21.44	19.1	17.68	16.45	15.11	14.13	13.48	13.21
1996	166		26.97	24.32	22.08	19.72	18.13	16.75	15.32	14.29	13.63	13.35
1996	167		28.19	25.23	22.69	20.21	18.54	17.09	15.58	14.5	13.81	13.52
1996	168		27.78	25.49	23.21	20.72	18.97	17.44	15.87	14.74	14.03	13.74
1996	169		28.81	25.93	23.55	21.1	19.35	17.79	16.18	15.01	14.27	13.98
1996	170		29.19	26.56	24.1	21.53	19.73	18.13	16.49	15.29	14.53	14.23
1996	171		28.74	26.69	24.46	21.94	20.13	18.48	16.8	15.58	14.79	14.48
1996	172		28.08	26.44	24.53	22.21	20.47	18.81	17.12	15.87	15.04	14.73
1996	173		28.43	26.24	24.46	22.34	20.7	19.09	17.4	16.13	15.29	14.95
1996	174		27.89	26.75	24.79	22.54	20.89	19.31	17.65	16.37	15.5	15.17
1996	175		25.08	24.86	24.18	22.56	21.08	19.52	17.88	16.6	15.74	15.41
1996	176		26	24.97	23.81	22.31	21.03	19.64	18.08	16.83	15.96	15.63
1996	177		25.38	24.52	23.6	22.21	21.01	19.7	18.22	17.01	16.16	15.82
1996	178		25.7	24.46	23.45	22.1	20.98	19.74	18.32	17.15	16.31	15.97
1996	179		25.52	24.88	23.62	22.11	20.98	19.78	18.39	17.26	16.44	16.11
1996	180		23.67	23.42	23.09	22.03	21	19.84	18.48	17.39	16.59	16.26
1996	181		25.28	24.1	23.02	21.82	20.9	19.84	18.55	17.5	16.72	16.4
1996	182		24.37	23.71	22.98	21.83	20.89	19.85	18.6	17.6	16.83	16.52
1996	183		26.81	24.32	23.02	21.78	20.87	19.87	18.65	17.69	16.93	16.64
1996	184		29.37	26.16	23.93	22.08	20.98	19.92	18.71	17.77	17.03	16.74
1996	185		27.82	26.63	24.73	22.65	21.3	20.1	18.82	17.86	17.13	16.85

1996	186		25.16	25.23	24.42	22.86	21.57	20.34	19	18.01	17.28	17
1996	187		25.63	24.58	23.85	22.68	21.61	20.5	19.19	18.2	17.46	17.18
1996	188		27.11	25.31	24	22.62	21.61	20.56	19.3	18.35	17.6	17.32
1996	189		27.27	25.91	24.41	22.81	21.7	20.63	19.4	18.46	17.72	17.45
1996	190		26.52	25.34	24.35	22.96	21.84	20.76	19.52	18.57	17.83	17.56
1996	191		27.96	26.16	24.61	23.04	21.92	20.86	19.63	18.68	17.93	17.66
1996	192		27.13	26.08	24.82	23.26	22.09	20.98	19.74	18.78	18.02	17.74
1996	193		27.52	25.92	24.76	23.33	22.22	21.13	19.86	18.88	18.11	17.83
1996	194		29.21	26.9	25.16	23.48	22.34	21.23	19.96	18.98	18.18	17.91
1996	195		29.12	27.43	25.68	23.82	22.57	21.37	20.07	19.07	18.24	17.97
1996	196		28.36	27.21	25.81	24.07	22.81	21.55	20.2	19.16	18.32	18.04
1996	198		25.55	25.45	25.06	24	22.96	21.79	20.48	19.41	18.56	18.27
1996	199		26.52	25.34	24.69	23.73	22.87	21.81	20.57	19.54	18.69	18.4
1996	200		29.46	26.77	25.12	23.73	22.82	21.79	20.61	19.64	18.81	18.52
1996	201		29.45	27.88	25.99	24.15	22.98	21.86	20.67	19.7	18.88	18.61
1996	202		27.25	26.73	25.85	24.41	23.24	22.04	20.78	19.81	19	18.73
1996	203		28.26	26.76	25.65	24.34	23.29	22.18	20.93	19.95	19.14	18.86
1996	204		29.54	27.5	25.97	24.45	23.35	22.26	21.04	20.07	19.25	18.96
1996	205		29.65	28.21	26.49	24.73	23.53	22.38	21.13	20.14	19.31	19.02
1996	206		27.85	27.19	26.32	24.91	23.71	22.52	21.25	20.23	19.39	19.1
1996	211		29.42	28.06	26.75	25.26	24.06	22.99	21.75	20.74	19.88	19.58
1996	211		29.42	28.06	26.75	25.26	24.06	22.99	21.75	20.74	19.88	19.58
1996	213		24.75	26.02	26.14	25.28	24.25	23.22	21.96	20.93	20.07	19.77
1996	213		24.75	26.02	26.14	25.28	24.25	23.22	21.96	20.93	20.07	19.77
1996	214		23.55	24.65	25.09	24.74	24.01	23.2	22.03	21.04	20.18	19.89
1996	215		23.89	23.93	24.29	24.17	23.67	23.04	22.01	21.09	20.26	19.97
1996	216		26.83	25.02	24.35	23.86	23.37	22.84	21.92	21.1	20.3	20.02
1996	217		29.3	26.73	25.18	24.05	23.32	22.73	21.84	21.07	20.31	20.05
1996	218		30.93	28.14	26.17	24.55	23.52	22.79	21.82	21.06	20.33	20.07
1996	219		32.08	29.31	27.1	25.15	23.88	22.97	21.91	21.09	20.35	20.09
1996	220		32.51	30.08	27.87	25.75	24.3	23.24	22.05	21.16	20.37	20.11
1996	221		31.98	30.38	28.38	26.27	24.71	23.52	22.24	21.28	20.45	20.17
1996	222		29.87	29.21	28.17	26.51	25.04	23.82	22.45	21.42	20.54	20.26
1996	223		29.97	29.09	27.96	26.47	25.15	24	22.64	21.59	20.69	20.39
1996	224		29.29	28.6	27.73	26.43	25.21	24.12	22.79	21.75	20.85	20.55
1996	225		29.26	28.52	27.59	26.35	25.21	24.19	22.92	21.89	20.99	20.69
1996	226		29.35	28.35	27.46	26.29	25.21	24.24	23.01	22	21.1	20.8
1996	227		29.88	28.59	27.51	26.28	25.23	24.28	23.07	22.08	21.18	20.87

ATC2_DLY
Gatineau Project Data
Backfill Temperatures in oC.

YEAR	J DAY	A2TC#1	A2TC#2	A2TC#3	A2TC#4	A2TC#5	A2TC#6	A2TC#7	A2TC#8	A2TC#9	A2TC#10	A2TC#11	A2TC#12
1994	217	21.32	20.49	20.98	21.73	22.38	22.46	22.44	22.12	21.34	20.41	19.96	19.5
1994	218	21.85	20.71	20.89	21.53	22.08	22.14	22.13	21.74	21.15	20.36	19.96	19.56
1994	219	23.62	22.41	21.79	21.76	21.93	21.84	21.83	21.45	20.95	20.24	19.88	19.53
1994	220	24.71	23.45	22.6	22.27	22.1	21.78	21.65	21.23	20.75	20.11	19.78	19.48
1994	221	24.36	24.21	23.34	22.81	22.4	21.88	21.59	21.09	20.61	20.01	19.69	19.43
1994	222	22.8	23.18	23.15	22.96	22.64	22.03	21.62	21.06	20.52	19.94	19.63	19.39
1994	223	24.22	23.36	22.98	22.82	22.62	22.07	21.65	21.04	20.47	19.89	19.58	19.36
1994	224	25.39	24.27	23.39	22.96	22.64	22.06	21.64	21.02	20.42	19.86	19.55	19.34
1994	225	26.63	25.16	23.94	23.32	22.8	22.12	21.64	21	20.39	19.84	19.53	19.32
1994	226	26.55	25.65	24.42	23.71	23.06	22.26	21.7	21.02	20.38	19.83	19.53	19.32
1994	227	21	23.64	24.09	23.79	23.24	22.42	21.8	21.06	20.39	19.83	19.52	19.32
1994	228	22.8	22.42	22.86	23.08	23.02	22.43	21.87	21.12	20.42	19.86	19.53	19.32
1994	229	25.33	23.89	23.12	22.89	22.73	22.24	21.8	21.13	20.44	19.87	19.56	19.35
1994	230	26.16	24.85	23.73	23.2	22.77	22.17	21.73	21.08	20.43	19.88	19.57	19.36
1994	231	26.78	25.27	24.12	23.51	22.98	22.25	21.73	21.07	20.42	19.87	19.57	19.37
1994	232	26.44	25.65	24.52	23.82	23.16	22.37	21.79	21.09	20.42	19.88	19.57	19.38
1994	233	24.46	25.03	24.5	23.96	23.34	22.52	21.89	21.14	20.45	19.9	19.6	19.4
1994	234	21.72	23.31	23.76	23.68	23.32	22.59	21.97	21.21	20.5	19.93	19.63	19.43
1994	235	21.67	22.23	22.84	23.05	23.03	22.49	21.97	21.24	20.54	19.96	19.65	19.45
1994	236	26.52	23	22.52	22.63	22.65	22.23	21.86	21.21	20.55	19.99	19.67	19.47
1994	237	21.63	22.67	22.75	22.66	22.54	22.11	21.77	21.16	20.54	20	19.7	19.5
1994	238	21.93	22.17	22.32	22.4	22.41	22	21.69	21.09	20.51	19.99	19.7	19.51
1994	239	23.69	22.77	22.31	22.25	22.23	21.87	21.6	21.04	20.48	19.98	19.7	19.51
1994	240	21.04	22.43	22.5	22.36	22.2	21.78	21.5	20.96	20.45	19.96	19.69	19.52
1994	241	19.78	20.82	21.62	21.95	22.08	21.72	21.45	20.92	20.41	19.94	19.67	19.51
1994	242	19.42	20.42	21.1	21.46	21.68	21.37	21.24	20.85	20.44	20.06	19.83	19.65
1994	243	16.96	19.62	20.63	20.99	21.22	21	21.02	20.78	20.54	20.14	19.96	19.73
1994	244	17.81	18.51	19.58	20.3	20.86	20.86	20.96	20.76	20.46	20.03	19.86	19.63
1994	245	16.95	18.18	19.21	19.86	20.46	20.56	20.81	20.59	20.36	19.96	19.8	19.6
1994	246	17.16	18.15	18.93	19.52	20.15	20.3	20.61	20.41	20.24	19.91	19.76	19.57
1994	247	18.64	18.25	18.72	19.27	19.89	20.06	20.4	20.24	20.12	19.83	19.69	19.52
1994	248	19.99	19.3	19.11	19.32	19.74	19.86	20.22	20.08	20	19.75	19.63	19.47
1994	249	21.15	20.22	19.67	19.62	19.8	19.79	20.09	19.94	19.89	19.66	19.54	19.43
1994	250	19.25	20.3	20.11	19.98	19.98	19.84	20.04	19.85	19.79	19.53	19.43	19.36
1994	251	20.95	19.7	19.76	19.92	20.07	19.91	20.06	19.79	19.62	19.35	19.26	19.21
1994	252	20.57	20.21	19.94	19.96	20.05	19.9	20.03	19.77	19.66	19.45	19.37	19.31
1994	253	21.33	20.96	20.41	20.22	20.15	19.93	20.02	19.75	19.6	19.36	19.26	19.2
1994	254	21.2	20.91	20.58	20.43	20.32	20.03	20.06	19.74	19.55	19.27	19.17	19.11
1994	255	21.29	20.96	20.66	20.53	20.42	20.12	20.1	19.74	19.5	19.18	19.06	19.01
1994	256	22.12	21.56	20.93	20.68	20.51	20.18	20.14	19.75	19.46	19.1	18.96	18.91
1994	257	23.28	21.67	20.98	20.79	20.62	20.25	20.17	19.74	19.41	19.04	18.9	18.85
1994	258	23.66	22.43	21.52	21.1	20.76	20.33	20.2	19.75	19.4	19.01	18.86	18.81
1994	259	24.19	23.04	22.03	21.48	21	20.47	20.28	19.77	19.39	18.99	18.84	18.79
1994	260	24.45	23.71	22.52	21.86	21.28	20.66	20.39	19.84	19.42	19.02	18.87	18.81
1994	261	20.86	21.94	22.11	21.91	21.49	20.85	20.52	19.92	19.46	19.04	18.89	18.83
1994	262	23.6	21.55	21.27	21.36	21.29	20.85	20.58	19.97	19.47	18.99	18.82	18.76
1994	263	25.73	24.09	22.5	21.76	21.28	20.79	20.58	20	19.48	18.95	18.76	18.69
1994	264	25.69	24.46	23.18	22.39	21.69	20.99	20.64	20.01	19.45	18.89	18.71	18.65
1994	265	25.16	24.3	23.33	22.89	22	21.22	20.78	20.07	19.45	18.86	18.67	18.61
1994	266	23.22	23.72	23.25	22.74	22.12	21.35	20.87	20.11	19.43	18.81	18.62	18.55
1994	267	22.01	22.43	22.53	22.42	22.08	21.42	20.97	20.2	19.5	18.88	18.68	18.61
1994	268	21.4	21.83	22	22.02	21.86	21.36	21.01	20.28	19.56	18.88	18.68	18.61
1994	269	20.31	21.16	21.52	21.64	21.59	21.21	20.94	20.26	19.55	18.87	18.67	18.6
1994	270	20.01	20.44	20.89	21.16	21.27	21	20.63	20.2	19.54	18.91	18.7	18.61
1994	271	18.06	19.57	20.38	20.73	20.93	20.75	20.66	20.11	19.49	18.87	18.65	18.57
1994	272	16.96	18.27	19.43	20.06	20.49	20.45	20.46	19.98	19.43	18.87	18.65	18.57
1994	273	15.36	17.13	18.57	19.36	19.97	20.06	20.22	19.82	19.33	18.76	18.55	18.49
1994	274	15.01	16.25	17.67	18.61	19.4	19.67	19.94	19.63	19.2	18.66	18.45	18.36
1994	275	13.64	15.69	17.17	18.06	18.67	19.24	19.62	19.41	19.06	18.48	18.28	18.23
1994	276	13.2	14.56	16.25	17.36	18.35	18.81	19.28	19.14	18.81	18.22	18.03	17.98
1994	277	13.59	14.86	15.99	16.88	17.83	18.36	18.93	18.86	18.59	18.08	17.9	17.86
1994	278	12.93	14.11	15.51	16.5	17.47	17.99	18.59	18.59	18.4	17.98	17.77	17.72
1994	279	13.46	14.3	15.33	16.18	17.1	17.65	18.29	18.33	18.21	17.81	17.64	17.59
1994	280	15.66	14.91	15.33	16.03	16.87	17.36	18.03	18.1	18.01	17.62	17.45	17.41
1994	281	17.67	16.56	16.16	16.37	16.85	17.21	17.81	17.89	17.83	17.46	17.29	17.26
1994	282	16.94	17.4	17.02	16.95	17.09	17.23	17.68	17.71	17.62	17.27	17.13	17.1
1994	283	13.83	15.25	16.36	16.86	17.24	17.31	17.65	17.6	17.52	17.23	17.11	17.09
1994	284	12.91	14.25	15.52	16.3	16.96	17.21	17.6	17.54	17.41	17.05	16.91	16.89
1994	285	13.46	14.04	15.02	15.81	16.58	16.96	17.45	17.43	17.28	16.88	16.74	16.72
1994	286	14.4	14.6	15.03	15.63	16.32	16.71	17.25	17.27	17.15	16.78	16.64	16.62
1994	287	15.39	15.26	15.34	15.7	16.22	16.54	17.06	17.1	16.98	16.6	16.46	16.45
1994	288	13.92	14.76	15.36	15.79	16.24	16.46	16.93	16.95	16.83	16.46	16.31	16.3
1994	289	13.48	14.19	14.98	15.57	16.13	16.36	16.83	16.79	16.4	15.34	15.31	15.34
1994	290	12.9	13.94	14.76	15.35	15.94	16.22	16.65	16.55	16.2	15.65	15.55	15.55
1994	291	12.72	13.74	14.53	15.13	15.74	16.04	16.49	16.46	16.27	15.91	15.8	15.79
1994	292	11.88	13.02	14.11	14.84	15.52	15.86	16.35	16.37	16.26	15.95	15.86	15.86
1994	293	14.25	13.56	13.92	14.55	15.27	15.67	16.22	16.29	16.21	15.91	15.8	15.8
1994	294	15.25	14.73	14.55	14.78	15.22	15.52	16.06	16.14	16.04	15.64	15.52	15.52
1994	295	14.84	14.75	14.82	15.04	15.36	15.52	15.97	16.01	15.88	15.5	15.4	15.4

1994	296	15.63	15.3	15.1	15.2	15.45	15.56	15.93	15.93	15.78	15.4	15.3	15.3
1994	297	14.01	14.79	15.13	15.34	15.56	15.6	15.92	15.87	15.65	15.13	15.06	15.06
1994	298	12.82	13.99	14.71	15.13	15.51	15.6	15.9	15.81	15.56	15.11	15.04	15.06
1994	299	11.6	12.96	14.09	14.74	15.3	15.49	15.84	15.78	15.69	15.25	15.16	15.16
1994	300	10.19	11.89	13.4	14.29	14.97	15.28	15.73	15.72	15.54	15.17	15.07	15.07
1994	301	9.86	10.95	12.53	13.59	14.54	15	15.56	15.61	15.46	15.1	14.99	14.99
1994	302	11.86	11.91	12.54	13.27	14.14	14.88	15.33	15.46	15.38	15.04	14.94	14.94
1994	303	13.28	12.84	12.93	13.38	14.02	14.46	15.11	15.28	15.23	14.92	14.82	14.82
1994	304	11.18	12.47	13.16	13.58	14.07	14.38	14.96	15.12	15.07	14.76	14.66	14.67
1994	305	10.15	11.59	12.67	13.34	13.99	14.32	14.87	15	14.93	14.62	14.54	14.55
1994	306	8.97	10.57	11.99	12.88	13.73	14.16	14.75	14.89	14.86	14.62	14.54	14.55
1994	307	8.4	9.54	11.21	12.32	13.36	13.93	14.61	14.81	14.82	14.62	14.54	14.55
1994	308	10.67	10.73	11.3	12.03	12.98	13.61	14.4	14.67	14.72	14.51	14.43	14.43
1994	309	12.55	12.02	11.91	12.29	12.95	13.46	14.22	14.51	14.61	14.4	14.32	14.33
1994	310	9.97	11.27	12.06	12.54	13.08	13.44	14.1	14.37	14.46	14.27	14.2	14.21
1994	311	8.55	9.97	11.33	12.19	12.98	13.4	14.04	14.27	14.3	14.05	13.99	13.99
1994	312	9.32	9.98	10.95	11.77	12.65	13.19	13.89	14.13	14.14	13.84	13.78	13.8
1994	313	10.26	10.47	11.02	11.66	12.45	12.98	13.71	13.98	14.04	13.87	13.81	13.82
1994	314	7.45	9.58	10.88	11.61	12.37	12.84	13.56	13.85	13.91	13.68	13.63	13.64
1994	315	6.485	8.13	9.89	11.03	12.09	12.68	13.43	13.72	13.79	13.58	13.52	13.54
1994	316	5.977	7.63	9.34	10.49	11.88	12.39	13.24	13.58	13.67	13.45	13.38	13.39
1994	317	7.22	7.86	9.06	10.1	11.27	12.07	12.99	13.39	13.51	13.31	13.26	13.27
1994	318	8.8	8.63	9.28	10.07	11.06	11.81	12.75	13.18	13.37	13.25	13.2	13.21
1994	319	10.04	9.87	9.91	10.35	11.08	11.68	12.58	13.01	13.24	13.12	13.08	13.1
1994	320	6.732	8.6	9.82	10.5	11.19	11.67	12.46	12.86	13.1	12.99	12.96	12.98
1994	321	5.39	7.25	8.96	10.01	11	11.6	12.4	12.77	13	12.88	12.84	12.86
1994	322	6.455	7.21	8.51	9.53	10.64	11.37	12.26	12.67	12.87	12.74	12.71	12.73
1994	323	8.43	8.24	8.72	9.45	10.42	11.14	12.07	12.52	12.76	12.62	12.58	12.6
1994	324	7.15	8.23	9.02	9.64	10.42	11.03	11.91	12.35	12.6	12.5	12.47	12.5
1994	325	5.925	7.36	8.65	9.49	10.36	10.95	11.79	12.21	12.44	12.32	12.29	12.32
1994	326	6.068	7.23	8.32	9.2	10.16	10.82	11.66	12.11	12.35	12.28	12.26	12.29
1994	327	1.801	5.288	7.63	8.82	9.92	10.62	11.52	11.97	12.22	12.16	12.14	12.17
1994	328	-0.841	2.75	5.954	7.76	9.36	10.31	11.33	11.82	12.08	11.96	11.92	11.95
1994	329	-0.195	2.039	4.778	6.659	8.54	9.78	11.01	11.62	11.93	11.85	11.81	11.84
1994	330	-0.201	1.939	4.297	6.01	7.86	9.2	10.58	11.31	11.69	11.55	11.5	11.52
1994	331	-1.414	1.287	3.798	5.511	7.34	8.7	10.15	10.94	11.33	11.15	11.1	11.13
1994	332	-0.645	1.01	3.292	4.984	6.846	8.24	9.74	10.58	11.02	10.95	10.92	10.95
1994	333	0.01	1.322	3.181	4.085	6.453	7.83	9.36	10.26	10.79	10.81	10.81	10.85
1994	334	0.211	1.545	3.21	4.567	6.199	7.51	9.02	9.97	10.56	10.64	10.65	10.7
1994	335	-0.176	1.411	3.147	4.465	6.021	7.27	8.75	9.71	10.31	10.33	10.37	10.43
1994	336	0.699	1.561	3.034	4.314	5.846	7.07	8.52	9.46	10.06	10.13	10.17	10.22
1994	337	1.146	1.92	3.202	4.321	5.719	6.875	8.3	9.24	9.87	9.99	10.04	10.1
1994	338	2.81	2.797	3.537	4.446	5.696	6.766	8.14	9.06	9.68	9.79	9.83	9.9
1994	339	4.184	3.86	4.172	4.805	5.809	6.732	8.02	8.9	9.54	9.76	9.84	9.92
1994	340	4.843	4.668	4.795	5.261	6.055	6.813	7.98	8.8	9.31	9.17	9.25	9.33
1994	341	1.677	3.695	4.836	5.507	6.285	6.927	7.97	8.68	9.19	9.31	9.37	9.45
1994	342	-0.189	2.037	3.94	5.084	6.197	6.944	7.98	8.67	9.19	9.38	9.45	9.52
1994	343	-1.298	1.099	3.123	4.467	5.834	6.767	7.91	8.63	9.13	9.21	9.25	9.32
1994	344	-1.904	0.448	2.492	3.915	5.419	6.489	7.74	8.51	9.03	9.13	9.17	9.23
1994	345	-1.777	0.199	2.06	3.465	5.019	6.171	7.51	8.34	8.84	8.82	8.82	8.87
1994	346	-6.229	-0.729	1.624	3.06	4.662	5.847	7.23	8.06	8.61	8.66	8.69	8.75
1994	347	-7.3	-1.976	1.086	2.622	4.288	5.534	6.954	7.79	8.11	7.62	7.72	7.81
1994	348	-5.764	-2.521	0.446	2.113	3.863	5.187	6.637	7.51	8.06	8.15	8.19	8.27
1994	349	-5.101	-2.392	0.096	1.697	3.479	4.833	6.351	7.3	7.92	8.05	8.12	8.19
1994	350	-3.342	-1.866	-0.073	1.425	3.159	4.518	6.074	7.06	7.77	7.9	7.95	8.03
1994	351	-2.662	-1.521	-0.069	1.319	2.952	4.272	5.829	6.846	7.54	7.6	7.65	7.72
1994	352	-0.596	-0.744	0.006	1.289	2.832	4.097	5.619	6.62	7.3	7.39	7.45	7.54
1994	353	-1.216	-0.518	0.119	1.31	2.751	3.946	5.421	6.404	7.1	7.28	7.36	7.45
1994	354	-2.726	-1.065	0.233	1.359	2.719	3.847	5.278	6.252	7.01	7.25	7.32	7.4
1994	355	-1.26	-0.769	0.272	1.374	2.699	3.789	5.185	6.136	6.881	7.13	7.17	7.23
1994	356	-0.791	-0.475	0.319	1.372	2.658	3.717	5.083	6.012	6.717	6.861	6.962	7.06
1994	357	-1.061	-0.453	0.361	1.382	2.623	3.647	4.966	5.896	6.631	6.861	6.953	7.04
1994	358	-1.783	-0.554	0.43	1.397	2.598	3.586	4.901	5.788	6.455	6.52	6.596	6.696
1994	359	-2.183	-0.767	0.438	1.404	2.574	3.533	4.809	5.647	6.251	6.359	6.454	6.559
1994	360	-2.271	-0.814	0.395	1.371	2.533	3.474	4.724	5.565	6.22	6.463	6.578	6.688
1994	361	-2.525	-0.998	0.306	1.308	2.475	3.412	4.656	5.504	6.215	6.48	6.583	6.688
1994	362	-0.99	-0.67	0.273	1.25	2.416	3.355	4.6	5.434	6.059	6.143	6.228	6.327
1994	363	-4.239	-1.119	0.265	1.219	2.351	3.265	4.491	5.305	5.962	6.198	6.308	6.431
1994	364	-8.52	-3.828	-0.254	0.967	2.236	3.182	4.407	5.214	5.868	6.132	6.255	6.372
1994	365	-7.25	-4.401	-1.189	0.489	1.945	3.016	4.31	5.156	5.837	6.002	6.102	6.213
1995	1	-4.532	-3.233	-1.374	0.131	1.625	2.78	4.153	5.024	5.683	5.867	6.002	6.111
1995	2	-3.759	-2.519	-1.166	0.011	1.424	2.565	3.966	4.893	5.668	6.024	6.153	6.268
1995	3	-5.819	-3.267	-1.341	-0.058	1.31	2.416	3.808	4.755	5.528	5.803	5.927	6.04
1995	4	-7.42	-4.182	-1.808	-0.254	1.171	2.288	3.676	4.622	5.425	5.771	5.907	6.026
1995	5	-10.1	-6.086	-2.767	-0.677	0.941	2.113	3.531	4.492	5.323	5.721	5.871	5.996
1995	6	-7.45	-5.696	-3.262	-1.294	0.631	1.894	3.361	4.39	5.269	5.697	5.842	5.972
1995	7	-4.855	-3.952	-2.645	-1.343	0.396	1.67	3.197	4.247	5.16	5.597	5.747	5.878
1995	8	-8.82	-5.191	-2.782	-1.341	0.279	1.502	3.011	4.071	5.006	5.469	5.634	5.769
1995	9	-7.93	-6.541	-3.348	-1.712	0.149	1.391	2.89	3.947	4.877	5.292	5.447	5.589
1995	10	-11.9	-7.13	-3.941	-2.04	-0.054	1.22	2.731	3.793	4.744	5.258	5.426	5.584
1995	11	-13.67	-9.12	-5.257	-2.859	-0.372	1.014	2.566	3.671	4.71	5.323	5.51	5.661
1995	12	-10.39	-8.53	-5.731	-3.527	-0.869	0.754	2.406	3.566	4.632	5.231	5.41	5.561
1995	13	-6.043	-5.772	-4.696	-3.306	-1.241	0.47	2.191	3.416	4.53	5.137	5.322	5.476
1995	15	-0.571	-1.236	-1.752	-1.544	-0.742	0.342	1.915	3.134	4.367	5.263	5.458	5.645

1995	16	0.324	-0.12	-0.595	-0.777	-0.451	0.431	1.928	3.114	4.364	5.07	5.258	5.42
1995	17	0.498	-0.096	-0.306	-0.368	-0.188	0.549	1.875	2.942	4.035	4.732	4.982	5.168
1995	18	0.055	-0.109	-0.223	-0.28	-0.088	0.663	1.924	2.949	4.016	4.736	4.944	5.148
1995	19	0.529	-0.096	-0.189	-0.221	0.058	0.831	2.041	3.049	4.144	4.842	5.061	5.253
1995	21	0.865	0.067	-0.169	-0.179	0.297	0.869	1.831	1.883	2.839	4.403	4.721	4.899
1995	22	0.1	-0.071	-0.152	-0.145	0.248	0.569	1.322	1.915	3.067	4.233	4.51	4.797
1995	23	0.04	-0.097	-0.137	-0.125	0.316	0.675	1.562	2.304	3.395	4.393	4.604	4.839
1995	24	0.05	-0.091	-0.132	-0.122	0.436	0.872	1.832	2.608	3.562	4.416	4.631	4.853
1995	25	-0.232	-0.093	-0.136	-0.108	0.549	1.032	2.029	2.797	3.694	4.416	4.632	4.83
1995	26	-3.271	-0.177	-0.147	-0.061	0.662	1.155	2.159	2.912	3.71	4.276	4.492	4.699
1995	27	-6.347	-1.1	-0.155	-0.013	0.753	1.257	2.257	3.002	3.8	4.431	4.615	4.812
1995	28	-8.514	-2.539	-0.233	0.089	0.849	1.352	2.346	3.077	3.822	4.295	4.498	4.698
1995	29	-6.019	-3.099	-0.773	0.131	0.931	1.441	2.42	3.12	3.797	4.188	4.391	4.549
1995	30	-3.909	-2.518	-1.08	0.027	0.909	1.476	2.467	3.154	3.824	4.261	4.453	4.617
1995	31	-2.544	-1.835	-0.971	-0.09	0.832	1.45	2.477	3.18	3.848	4.225	4.415	4.586
1995	32	-1.212	-1.145	-0.731	-0.117	0.769	1.419	2.465	3.182	3.852	4.256	4.437	4.596
1995	33	-4.444	-2.015	-0.865	-0.139	0.753	1.376	2.422	3.144	3.796	4.169	4.362	4.521
1995	34	-5.956	-3.373	-1.619	-0.303	0.696	1.347	2.404	3.129	3.799	4.2	4.366	4.556
1995	35	-5.669	-3.65	-2.085	-0.691	0.548	1.268	2.368	3.105	3.771	4.13	4.315	4.467
1995	36	-8.43	-4.36	-2.464	-1.082	0.362	1.133	2.277	3.039	3.715	4.075	4.251	4.408
1995	38	-14.14	-9.83	-6.612	-3.936	-0.518	0.696	2.026	2.867	3.582	3.959	4.171	4.395
1995	39	-13.34	-10	-7.38	-6.023	-1.8	0.208	1.753	2.721	3.513	3.93	4.136	4.321
1995	40	-9.74	-8.63	-7.12	-6.368	-2.62	-0.238	1.424	2.513	3.443	3.991	4.205	4.407
1995	42	-7.32	-6.502	-5.83	-4.529	-2.611	-0.697	1.001	2.149	3.214	3.868	4.103	4.336
1995	43	-9.8	-7.01	-6.503	-4.288	-2.504	-0.82	0.837	1.998	3.086	3.732	3.989	4.272
1995	44	-10.33	-8.06	-6.305	-4.778	-2.704	-0.92	0.73	1.89	2.976	3.653	3.94	4.295
1995	45	-8.69	-7.47	-6.29	-5.001	-2.992	-1.125	0.589	1.783	2.906	3.627	3.921	4.232
1995	46	-7.86	-6.872	-5.879	-4.79	-3.018	-1.281	0.434	1.668	2.828	3.582	3.85	4.213
1995	47	-3.904	-4.837	-4.824	-4.227	-2.845	-1.321	0.327	1.571	2.75	3.515	3.813	4.205
1995	48	-3.941	-4.043	-3.626	-3.374	-2.359	-1.195	0.268	1.491	2.705	3.54	3.849	4.221
1995	49	-1.97	-2.858	-2.982	-2.741	-1.947	-1.004	0.306	1.471	2.65	3.418	3.722	4.158
1995	50	-0.342	-1.211	-1.679	-1.958	-1.498	-0.812	0.356	1.454	2.568	3.285	3.554	3.998
1995	51	-0.912	-1.172	-1.365	-1.399	-1.083	-0.63	0.414	1.446	2.621	3.241	3.553	3.99
1995	52	-1.158	-1.109	-1.158	-1.122	-0.823	-0.491	0.494	1.475	2.516	3.201	3.492	3.933
1995	53	-3.709	-2.364	-1.575	-1.161	-0.899	-0.405	0.566	1.506	2.513	3.186	3.481	3.913
1995	54	-2.118	-2.242	-1.678	-1.453	-0.775	-0.349	0.646	1.553	2.539	3.221	3.519	3.941
1995	56	-3.669	-2.15	-1.479	-1.133	-0.666	-0.314	0.72	1.596	2.541	3.15	3.432	3.873
1995	57	-6.947	-3.936	-2.548	-1.679	-0.757	-0.287	0.75	1.606	2.507	3.067	3.352	3.795
1995	59	-6.177	-4.698	-4.002	-2.991	-1.488	-0.312	0.793	1.639	2.537	3.111	3.392	3.811
1995	60	-2.675	-3.382	-3.241	-2.697	-1.524	-0.363	0.779	1.633	2.527	3.115	3.406	3.825
1995	61	-2.794	-2.65	-2.459	-2.103	-1.264	-0.379	0.745	1.606	2.51	3.105	3.388	3.807
1995	62	-4.26	-3.319	-2.573	-1.965	-1.107	-0.362	0.73	1.59	2.514	3.141	3.458	3.882
1995	63	-3.292	-3.155	-2.645	-2.079	-1.136	-0.346	0.742	1.602	2.543	3.198	3.5	3.916
1995	64	-2.18	-2.32	-2.183	-1.851	-1.065	-0.345	0.739	1.59	2.476	3.011	3.29	3.735
1995	65	-1.455	-1.71	-1.72	-1.524	-0.929	-0.32	0.736	1.566	2.444	3.033	3.33	3.757
1995	66	-1.699	-1.569	-1.465	-1.277	-0.778	-0.295	0.738	1.564	2.451	3.03	3.315	3.748
1995	67	-1.33	-1.498	-1.378	-1.16	-0.677	-0.268	0.749	1.562	2.425	2.964	3.267	3.696
1995	68	-2.89	-2.044	-1.507	-1.149	-0.629	-0.259	0.744	1.548	2.414	3.013	3.306	3.724
1995	69	-3.975	-3.008	-2.093	-1.451	-0.678	-0.241	0.758	1.561	2.434	3.035	3.321	3.718
1995	70	-2.569	-2.242	-1.973	-1.582	-0.813	-0.233	0.775	1.576	2.444	3.013	3.284	3.7
1995	71	-2.495	-2.509	-2.044	-1.56	-0.795	-0.222	0.787	1.569	2.377	2.865	3.114	3.53
1995	72	-0.265	-1.135	-1.447	-1.318	-0.741	-0.198	0.803	1.57	2.372	2.869	3.165	3.58
1995	73	2.786	-0.341	-0.742	-0.848	-0.557	-0.175	0.815	1.58	2.366	2.907	3.183	3.598
1995	74	3.966	-0.068	-0.51	-0.595	-0.408	-0.161	0.824	1.581	2.364	2.914	3.185	3.592
1995	75	4.645	0.74	-0.373	-0.449	-0.291	-0.125	0.809	1.362	2.109	2.834	3.229	3.621
1995	76	4.823	1.218	-0.298	-0.349	-0.195	-0.113	0.526	0.825	1.691	2.541	3.032	3.466
1995	77	5.008	2.028	-0.167	-0.183	-0.097	-0.12	0.425	0.803	1.73	2.555	2.999	3.429
1995	78	5.462	2.66	0.156	-0.027	0.042	-0.085	0.5	0.953	1.849	2.55	2.965	3.362
1995	79	6.129	3.154	0.618	-0.036	0.053	-0.016	0.663	1.179	2.022	2.603	2.968	3.351
1995	80	5.504	3.614	1.279	-0.011	0.067	0.071	0.781	1.335	2.153	2.665	3.016	3.394
1995	81	3.927	2.664	1.276	0.178	0.09	0.15	0.865	1.417	2.217	2.703	3.022	3.365
1995	82	5.005	2.836	1.357	0.425	0.113	0.259	0.982	1.524	2.281	2.709	3.007	3.361
1995	83	4.501	3.132	1.813	0.876	0.257	0.422	1.1	1.637	2.341	2.711	2.967	3.336
1995	84	4.608	3.07	1.997	1.364	0.922	0.75	1.278	1.758	2.406	2.732	2.996	3.337
1995	85	6.194	4.067	2.604	1.863	1.414	1.095	1.501	1.904	2.506	2.817	3.103	3.443
1995	86	6.585	4.866	3.288	2.514	1.929	1.47	1.758	2.079	2.604	2.834	3.066	3.426
1995	87	7.8	5.518	3.936	3.095	2.436	1.879	2.058	2.28	2.712	2.869	3.12	3.422
1995	88	8.42	6.443	4.755	3.768	2.966	2.297	2.373	2.507	2.854	2.955	3.163	3.447
1995	89	9.64	7.36	5.464	4.405	3.502	2.73	2.699	2.742	3.002	3.06	3.256	3.523
1995	90	8.81	7.51	6.012	4.996	4.022	3.152	3.019	2.97	3.138	3.122	3.313	3.567
1995	91	7.26	6.471	5.751	5.123	4.366	3.523	3.336	3.203	3.244	3.066	3.189	3.366
1995	92	7.74	6.508	5.615	5.055	4.462	3.737	3.585	3.414	3.398	3.235	3.372	3.568
1995	93	5.263	6.03	5.676	5.148	4.566	3.878	3.757	3.591	3.544	3.312	3.431	3.616
1995	94	4.718	4.751	4.796	4.718	4.496	3.957	3.869	3.723	3.642	3.372	3.487	3.664
1995	95	1.362	2.672	3.902	4.18	4.226	3.869	3.92	3.804	3.732	3.456	3.562	3.729
1995	96	0.147	1.634	2.836	3.378	3.77	3.675	3.899	3.863	3.827	3.548	3.665	3.842
1995	97	1.024	1.091	1.992	2.646	3.248	3.365	3.766	3.842	3.85	3.569	3.664	3.854
1995	98	3.255	2.141	2.067	2.399	2.88	3.06	3.56	3.755	3.771	3.569	3.669	3.86
1995	99	6.466	4.367	3.067	2.815	2.9	2.937	3.444	3.664	3.722	3.586	3.689	3.884
1995	100	6.517	4.909	3.935	3.517	3.263	3.071	3.436	3.621	3.709	3.661	3.77	3.951
1995	101	7.7	6.08	4.735	4.105	3.689	3.331	3.584	3.671	3.707	3.621	3.714	3.886
1995	102	8.03	6.96	5.569	4.77	4.162	3.648	3.752	3.775	3.808	3.611	3.9	4.075
1995	103	8.36	6.97	5.822	5.184	4.607	4.009	4.005	3.949	3.952	3.931	4.006	4.152
1995	104	8.66	7.26	6.142	5.509	4.934	4.314	4.259	4.153	4.091	4.028	4.091	4.215

1995	105	7.83	7.24	6.398	5.798	5.222	4.582	4.488	4.337	4.231	4.18	4.222	4.321
1995	106	7.86	6.936	6.297	5.672	5.425	4.822	4.717	4.633	4.383	4.291	4.321	4.415
1995	107	9.65	7.49	6.427	5.958	5.554	4.997	4.914	4.72	4.546	4.444	4.465	4.545
1995	108	12.19	9.43	7.43	6.502	5.926	5.195	5.079	4.871	4.655	4.481	4.505	4.578
1995	109	12.19	10.73	8.69	7.43	6.409	5.546	5.308	5.031	4.798	4.626	4.647	4.713
1995	110	13.98	10.96	9	7.95	6.976	6.008	5.626	5.257	4.949	4.776	4.787	4.849
1995	111	12.14	11.8	10.04	8.71	7.5	6.421	5.956	5.506	5.136	4.945	4.943	4.994
1995	112	12.24	10.64	9.56	8.8	7.92	6.666	6.325	5.801	5.362	5.141	5.12	5.153
1995	113	13.23	11.26	9.78	8.92	8.06	7.12	6.614	6.073	5.576	5.29	5.259	5.281
1995	114	13.52	11.75	10.21	9.26	8.35	7.37	6.861	6.303	5.773	5.467	5.429	5.445
1995	115	14.67	12.88	10.8	9.69	8.66	7.66	7.11	6.532	5.985	5.665	5.623	5.621
1995	116	15.74	13.56	11.45	10.23	9.1	7.99	7.36	6.767	6.186	5.847	5.78	5.786
1995	117	13.62	13.4	11.94	10.75	9.56	8.36	7.66	7.01	6.377	6.05	5.96	5.929
1995	118	12.11	11.76	11.25	10.63	9.79	8.69	7.99	7.27	6.597	6.251	6.145	6.096
1995	119	10.81	10.96	10.75	10.31	9.71	8.8	8.2	7.51	6.803	6.407	6.304	6.258
1995	120	12.03	10.74	10.22	9.92	9.53	8.8	8.32	7.67	6.969	6.536	6.434	6.382
1995	121	14.28	12.23	10.74	10.05	9.49	8.78	8.38	7.79	7.13	6.724	6.62	6.569
1995	122	16.44	13.46	11.5	10.55	9.74	8.9	8.46	7.89	7.26	6.862	6.775	6.717
1995	123	19.36	16.01	12.98	11.46	10.24	9.19	8.64	8.03	7.4	7.03	6.935	6.868
1995	124	20.56	17.18	14.19	12.62	11.01	9.69	8.94	8.24	7.56	7.18	7.09	7.04
1995	125	21.27	18.53	15.4	13.53	11.79	10.26	9.36	8.53	7.81	7.5	7.43	7.37
1995	126	19.65	18.12	15.86	14.23	12.62	10.89	9.82	8.89	8.09	7.73	7.63	7.55
1995	127	17.93	16.98	15.56	14.36	12.92	11.37	10.27	9.27	8.36	7.97	7.86	7.76
1995	128	18.82	16.83	15.28	14.25	13.06	11.67	10.64	9.62	8.66	8.21	8.09	7.98
1995	129	22.03	18.7	15.89	14.57	13.24	11.89	10.91	9.92	8.95	8.44	8.3	8.19
1995	130	19.77	18.31	17.1	15.42	13.76	12.23	11.17	10.17	9.18	8.67	8.52	8.38
1995	134	19.12	17.67	15.81	14.71	13.7	12.63	11.67	10.97	9.98	9.4	9.24	9.1
1995	134	19.12	17.67	15.81	14.71	13.7	12.63	11.67	10.97	9.98	9.4	9.24	9.1
1995	135	17.54	16.87	15.85	14.97	13.97	12.81	11.98	11.06	10.12	9.59	9.43	9.27
1995	136	19.27	16.97	15.6	14.85	14.03	12.95	12.15	11.26	10.37	9.93	9.79	9.65
1995	137	16.8	17.46	16.3	15.23	14.17	13.05	12.27	11.4	10.49	9.98	9.82	9.66
1995	138	17.37	15.63	15.19	14.84	14.24	13.22	12.44	11.56	10.64	10.12	9.96	9.8
1995	139	20.01	17.88	15.93	14.95	14.14	13.2	12.52	11.69	10.79	10.27	10.1	9.94
1995	140	20.59	18.47	16.61	15.51	14.46	13.36	12.62	11.8	10.94	10.46	10.33	10.16
1995	141	22.01	19.77	17.39	16.04	14.83	13.63	12.81	11.96	11.11	10.66	10.55	10.41
1995	142	21.58	19.66	17.83	16.58	15.29	13.97	13.06	12.17	11.3	10.87	10.69	10.51
1995	143	21.47	20.19	18.24	16.94	15.64	14.3	13.34	12.4	11.5	11.06	10.89	10.69
1995	144	20.62	19.5	18.15	17.11	15.93	14.6	13.61	12.63	11.68	11.19	11.01	10.82
1995	149	19.93	20.3	20.08	19.27	17.99	16.38	15.07	13.85	12.69	12.08	11.87	11.64
1995	150	24.37	21.19	19.44	18.63	17.73	16.46	15.32	14.13	12.9	12.21	12.02	11.81
1995	151	27.94	23.99	20.82	19.22	17.84	16.48	15.42	14.29	13.1	12.41	12.21	11.98
1995	152	29.36	26.01	22.43	20.36	18.49	16.83	15.62	14.47	13.36	12.67	12.7	12.49
1995	153	27.55	26.05	23.3	21.31	19.29	17.4	16.01	14.77	13.61	12.99	12.8	12.56
1995	154	22.68	23.61	22.73	21.44	19.77	17.92	16.43	15.09	13.81	13.11	12.9	12.64
1995	155	23.63	21.86	21.18	20.58	19.61	18.11	16.74	15.37	14.01	13.23	13.01	12.77
1995	156	27.01	24.04	21.72	20.51	19.37	18.02	16.84	15.56	14.29	13.68	13.47	13.25
1995	157	29.57	26.02	22.91	21.21	19.67	18.15	16.96	15.74	14.48	13.72	13.48	13.21
1995	158	30.98	27.72	24.24	22.19	20.3	18.53	17.19	15.92	14.64	13.93	13.71	13.44
1995	159	27.97	26.86	24.67	22.91	20.99	19.05	17.55	16.18	14.86	14.12	13.86	13.58
1995	160	28.28	26.47	24.36	22.92	21.29	19.45	17.93	16.49	15.08	14.29	14.04	13.75
1995	161	29.61	27.15	24.62	23.08	21.47	19.7	18.22	16.78	15.32	14.52	14.3	14.03
1995	162	27.34	27.14	25.13	23.51	21.79	19.97	18.48	17.04	15.58	14.74	14.49	14.19
1995	163	26.72	25.57	24.27	23.24	21.92	20.22	18.75	17.29	15.79	14.93	14.65	14.33
1995	164	28.07	25.98	24.13	23.03	21.81	20.27	18.91	17.5	15.99	15.11	14.83	14.51
1995	165	30.72	27.86	24.95	23.36	21.91	20.34	19.03	17.66	16.18	15.33	15.06	14.75
1995	166	30.72	28.34	25.66	24	22.32	20.6	19.2	17.83	16.37	15.54	15.29	14.99
1995	167	31.28	28.95	26.21	24.49	22.74	20.93	19.46	18.05	16.58	15.78	15.54	15.23
1995	168	32.5	29.75	26.79	24.98	23.15	21.29	19.75	18.3	16.82	16.03	15.81	15.53
1995	170	35.61	32.29	28.6	26.4	24.22	22.13	20.44	18.91	17.44	16.75	16.53	16.2
1995	171	34.26	32.34	29.28	27.14	24.87	22.66	20.86	19.27	17.75	16.99	16.75	16.39
1995	172	33.12	31.32	29	27.29	25.29	23.14	21.3	19.64	18.04	17.24	16.99	16.63
1995	173	33.8	31.61	29.03	27.34	25.46	23.45	21.65	19.98	18.32	17.45	17.2	16.86
1995	174	35.36	32.51	29.48	27.63	25.7	23.7	21.94	20.27	18.58	17.66	17.41	17.07
1995	175	36.21	33.54	30.25	28.19	26.09	24.01	22.22	20.54	18.85	17.96	17.72	17.4
1995	176	37.01	34.14	30.81	28.73	26.55	24.41	22.55	20.84	19.15	18.25	17.98	17.6
1995	177	35.71	34.05	31.22	29.22	27.01	24.81	22.9	21.15	19.42	18.51	18.2	17.77
1995	178	34.83	33.37	31.04	29.32	27.3	25.17	23.26	21.48	19.74	18.83	18.53	18.09
1995	179	34.36	32.9	30.8	29.26	27.42	25.4	23.55	21.78	20.01	19.05	18.79	18.41
1995	180	36.18	33.53	30.86	29.25	27.47	25.56	23.78	22.04	20.26	19.27	19.01	18.63
1995	181	36.64	34.41	31.51	29.65	27.7	25.74	23.98	22.26	20.54	19.62	19.36	18.96
1995	182	35.77	34.4	31.83	30.02	28.03	26.03	24.22	22.51	20.8	19.86	19.58	19.13
1995	183	31.59	32.23	31.2	29.93	28.21	26.29	24.48	22.75	21	19.98	19.65	19.24
1995	184	31.25	30.56	29.84	29.11	27.94	26.34	24.65	22.96	21.17	20.11	19.81	19.42
1995	185	33.31	31.4	29.7	28.7	27.56	26.16	24.65	23.07	21.34	20.24	20.01	19.69
1995	186	32.68	31.99	30.2	28.91	27.52	26.07	24.62	23.12	21.47	20.39	20.1	19.72
1995	187	33.51	31.9	30.03	28.87	27.57	26.12	24.66	23.17	21.54	20.46	20.1	19.65
1995	188	32.6	31.67	30.1	28.94	27.6	26.15	24.7	23.23	21.63	20.59	20.25	19.78
1995	189	28.67	30.09	29.63	28.77	27.57	26.18	24.76	23.3	21.73	20.69	20.32	19.84
1995	190	26.51	27.67	28.06	27.86	27.2	26.07	24.77	23.36	21.76	20.63	20.31	19.94
1995	191	28.51	27.27	27.03	26.91	26.56	25.72	24.63	23.33	21.78	20.65	20.34	19.99
1995	192	31.03	29.11	27.54	26.82	26.17	25.35	24.39	23.22	21.77	20.71	20.37	20
1995	193	32.37	30.43	28.37	27.27	26.25	25.24	24.24	23.1	21.73	20.74	20.45	20.11
1995	194	34.44	31.68	29.14	27.8	26.53	25.35	24.23	23.07	21.76	20.85	20.58	20.23
1995	195	37.55	33.82	30.39	28.61	26.98	25.59	24.35	23.14	21.9	21.07	20.86	20.55

1995	196	36.56	34.74	31.88	29.67	27.87	26.02	24.59	23.31	22.1	21.32	21.07	20.67
1995	197	31.46	32.7	31.42	30	28.22	26.51	24.86	23.57	22.25	21.37	21.08	20.65
1995	198	24.57	27.82	29.28	29.06	28.09	26.7	25.22	23.8	22.36	21.36	21	20.6
1995	199	25.97	28.19	27.06	27.35	27.19	26.38	25.23	23.92	22.47	21.41	21.02	20.62
1995	200	29.75	27.82	28.61	28.64	28.4	25.83	24.97	23.84	22.43	21.29	20.95	20.61
1995	201	28.02	28.81	27.78	27	28.23	25.61	24.88	23.64	22.34	21.26	20.95	20.64
1995	202	28.98	27.84	27.03	28.7	28.17	25.43	24.54	23.52	22.29	21.33	20.97	20.62
1995	203	33.34	30.56	28.13	27.04	28.11	25.3	24.43	23.44	22.25	21.29	20.98	20.66
1995	204	29.52	30.85	29.17	27.88	26.54	25.44	24.42	23.4	22.25	21.36	21.05	20.72
1995	205	28.82	28.08	27.79	27.43	26.65	25.64	24.54	23.44	22.28	21.36	21.08	20.73
1995	206	31.22	29.42	27.93	27.19	28.4	25.53	24.56	23.49	22.35	21.55	21.25	20.92
1995	208	36.15	32.44	29.74	28.29	28.9	25.7	24.61	23.53	22.42	21.59	21.3	20.96
1995	209	34.46	32.95	30.55	29.01	27.42	26.02	24.8	23.64	22.52	21.74	21.46	21.1
1995	210	34.8	32.8	30.66	29.32	27.82	26.37	25.05	23.82	22.66	21.85	21.58	21.22
1995	211	35.57	33.52	31.13	29.67	28.12	26.64	25.3	24.01	22.78	21.9	21.64	21.33
1995	213	34.85	34.09	31.93	30.42	28.78	27.19	25.77	24.4	23.11	22.22	21.95	21.61
1995	213	34.85	34.09	31.93	30.42	28.78	27.19	25.77	24.4	23.11	22.22	21.95	21.61
1995	214	32.64	32.22	31.28	30.32	28.97	27.43	26.01	24.61	23.27	22.33	21.98	21.55
1995	215	30.74	31.49	30.77	29.95	28.83	27.47	26.15	24.76	23.38	22.4	22.03	21.62
1995	216	29.03	29.44	29.56	29.26	28.63	27.36	26.19	24.86	23.49	22.49	22.12	21.73
1995	217	27.07	28.92	28.98	28.64	28.06	27.12	26.1	24.86	23.5	22.46	22.06	21.72
1995	218	27.08	28.86	27.46	27.88	27.52	26.81	25.93	24.79	23.46	22.4	22.02	21.69
1995	219	29.93	28.38	27.5	27.24	26.95	26.37	25.68	24.65	23.41	22.39	22.03	21.7
1995	220	31.89	30.02	28.33	27.56	26.86	26.15	25.46	24.5	23.38	22.4	22.06	21.75
1995	221	33.31	31.27	29.2	28.13	27.11	26.19	25.38	24.41	23.31	22.39	22.08	21.79
1995	222	34.13	32.2	30	28.74	27.49	26.38	25.44	24.42	23.31	22.44	22.15	21.85
1995	223	32.46	32.15	30.51	29.27	27.91	26.64	25.59	24.5	23.38	22.56	22.24	21.91
1995	224	33.05	31.57	30.14	29.23	28.11	26.86	25.78	24.63	23.46	22.61	22.27	21.92
1995	225	32.16	31.57	30.26	29.31	28.18	26.97	25.91	24.76	23.56	22.69	22.36	22.01
1995	226	32.78	31.67	30.21	29.3	28.22	27.05	26.01	24.86	23.64	22.75	22.45	22.13
1995	227	33.82	31.86	30.29	29.36	28.29	27.11	26.09	24.94	23.72	22.84	22.52	22.19
1995	228	35.32	33.26	31	29.72	28.46	27.2	26.16	25.02	23.8	22.92	22.62	22.29
1995	229	35.31	33.67	31.55	30.21	28.8	27.41	26.3	25.12	23.9	23.06	22.76	22.39
1995	230	35.86	33.98	31.87	30.64	29.11	27.86	26.48	25.26	24.01	23.17	22.93	22.63
1995	231	34.86	33.69	32.01	30.78	29.37	27.9	26.68	25.43	24.17	23.35	23.09	22.76
1995	232	34.56	33.38	31.86	30.78	29.5	28.08	26.87	25.6	24.3	23.42	23.16	22.86
1995	233	35.3	33.84	32	30.84	29.58	28.19	27.01	25.74	24.41	23.51	23.25	22.95
1995	234	31.08	32.46	31.85	30.92	29.7	28.31	27.13	25.86	24.53	23.61	23.31	22.97
1995	235	28.53	29.71	30.24	30.1	29.46	28.32	27.22	25.96	24.59	23.57	23.26	22.96
1995	236	27.12	28.51	29.12	29.17	28.86	28.02	27.14	25.96	24.59	23.53	23.17	22.87
1995	237	26.37	26.99	27.87	28.22	28.2	27.65	26.92	25.85	24.49	23.3	22.98	22.74
1995	238	26.35	27.18	27.5	27.61	27.57	27.2	26.61	25.64	24.31	23.09	22.77	22.57
1995	239	26.08	27.28	27.1	27.17	27.13	26.79	26.29	25.4	24.14	22.95	22.63	22.43
1995	240	26.61	28.02	27.41	27.17	26.89	26.48	26	25.16	23.98	22.89	22.55	22.35
1995	241	30.31	29.1	27.86	27.34	26.86	26.35	25.8	24.97	23.83	22.76	22.45	22.28
1995	242	29.21	28.91	28.14	27.82	26.99	26.34	25.7	24.85	23.73	22.69	22.41	22.25
1995	243	26.41	28.01	27.98	27.6	27.02	26.35	25.66	24.78	23.7	22.79	22.44	22.23
1995	244	26	26.33	26.78	26.93	26.76	26.24	25.62	24.76	23.69	22.77	22.42	22.21
1995	245	25.68	26.02	26.31	26.42	26.33	25.99	25.48	24.68	23.61	22.61	22.28	22.11
1995	246	23.7	25.4	25.98	26.09	26.01	25.75	25.29	24.54	23.52	22.61	22.26	22.06
1995	247	25.85	24.84	25.1	25.47	25.61	25.48	25.08	24.4	23.44	22.56	22.2	21.99
1995	248	26.78	26.46	25.76	25.54	25.34	25.18	24.85	24.23	23.3	22.38	22.06	21.89
1995	249	25.68	25.76	25.68	25.6	25.36	25.06	24.68	24.06	23.18	22.36	22.03	21.84
1995	250	23.02	25.25	25.56	25.5	25.26	24.99	24.57	23.95	23.07	22.25	21.98	21.79
1995	251	20.62	21.86	23.75	24.59	24.91	24.83	24.45	23.84	22.96	22.09	21.77	21.62
1995	252	22.69	22.75	23.29	23.82	24.24	24.41	24.22	23.69	22.82	21.97	21.65	21.5
1995	253	22.36	23.02	23.4	23.69	23.92	24.05	23.93	23.48	22.69	21.91	21.57	21.41
1995	254	22.78	22.85	23.19	23.5	23.73	23.79	23.7	23.27	22.48	21.63	21.31	21.17
1995	255	23.84	23.45	23.33	23.45	23.56	23.58	23.48	23.07	22.31	21.53	21.2	21.05
1995	256	24.01	24.26	23.83	23.66	23.54	23.48	23.31	22.89	22.16	21.36	21.07	20.94
1995	257	21.62	22.94	23.47	23.61	23.56	23.42	23.2	22.75	22.06	21.36	21.07	20.93
1995	258	20.36	21.22	22.41	22.99	23.29	23.31	23.1	22.66	21.98	21.29	20.96	20.84
1995	259	20.03	21.12	22.01	22.5	22.87	23.03	22.94	22.55	21.85	21.12	20.81	20.67
1995	260	19.9	21.11	21.79	22.2	22.55	22.75	22.72	22.36	21.71	20.94	20.65	20.53
1995	261	18.53	19.45	20.86	21.66	22.21	22.46	22.47	22.16	21.51	20.78	20.48	20.35
1995	262	19.77	19.99	20.66	21.23	21.79	22.13	22.22	21.97	21.3	20.46	20.22	20.13
1995	263	18.86	20.3	20.91	21.25	21.8	21.87	21.97	21.78	21.19	20.55	20.36	20.25
1995	264	18.48	19.26	20.29	20.91	21.41	21.68	21.77	21.6	21.03	20.3	20.03	19.93
1995	265	17.15	18.65	19.97	20.56	21.09	21.42	21.55	21.39	20.82	20.13	19.86	19.77
1995	266	16.22	17.33	19.01	19.96	20.73	21.15	21.33	21.19	20.59	19.69	19.51	19.44
1995	267	15.97	17.24	18.61	19.46	20.26	20.79	21.06	20.95	20.41	19.66	19.42	19.34
1995	268	15.8	17.07	18.32	19.11	19.91	20.47	20.77	20.74	20.28	19.59	19.35	19.27
1995	269	17.21	17.31	18.11	18.83	19.59	20.17	20.5	20.51	20.1	19.37	19.13	19.06
1995	270	17.81	18.08	18.42	18.85	19.4	19.91	20.23	20.26	19.86	19.18	18.96	18.9
1995	328	-1.349	1.277	3.505	4.843	6.299	7.37	8.4	9.06	9.23	8.59	8.86	8.78
1995	329	-3.039	0.022	2.624	4.219	5.902	7.1	8.2	8.9	8.91	7.89	8	8.11
1995	330	-1.277	-0.167	2.064	3.628	5.412	6.725	7.91	8.62	8.6	7.8	7.72	7.83
1995	331	-1.096	0.057	1.962	3.349	5.036	6.342	7.57	8.34	8.46	7.76	7.83	7.93
1995	332	-1.844	0.096	1.921	3.219	4.806	6.057	7.26	8.09	8.23	7.36	7.48	7.59
1995	333	-4.846	-0.576	1.641	3.011	4.604	5.828	7.03	7.78	7.56	5.807	5.958	6.097
1995	334	-6.021	-1.923	1.161	2.646	4.312	5.542	6.685	7.29	6.954	5.443	5.588	5.716
1995	335	-3.369	-1.912	0.607	2.177	3.937	5.204	6.352	6.961	6.624	5.166	5.303	5.427
1995	336	-3.772	-1.532	0.487	1.904	3.582	4.841	6.011	6.666	6.494	5.298	5.426	5.551
1995	337	-5.053	-2.551	0.212	1.862	3.325	4.557	5.723	6.399	6.265	5.114	5.265	5.4

1995	338	-3.679	-2.208	-0.013	1.381	3.048	4.387	5.461	6.128	5.87	4.487	4.837	4.778
1995	339	-5.156	-2.585	-0.088	1.229	2.824	4.031	5.185	5.855	5.743	4.861	5.019	5.149
1995	340	-4.124	-2.551	-0.292	1.02	2.802	3.795	4.898	5.74	5.808	5.078	5.222	5.348
1995	341	-4.128	-2.398	-0.384	0.874	2.415	3.593	4.77	5.51	5.436	4.31	4.459	4.602
1995	342	-7.43	-3.712	-0.823	0.731	2.251	3.4	4.545	5.255	5.157	4.085	4.229	4.371
1995	343	-8.38	-5.211	-1.482	0.371	2.007	3.189	4.341	5.089	5.083	4.155	4.311	4.456
1995	344	-8.49	-5.44	-2.098	-0.063	1.857	2.918	4.128	4.893	4.954	4.12	4.275	4.425
1995	345	-9.9	-6.311	-2.723	-0.478	1.302	2.613	3.879	4.684	4.74	3.861	4.019	4.17
1995	346	-11.89	-7.88	-3.703	-1.171	0.827	2.287	3.602	4.442	4.539	3.692	3.846	3.997
1995	347	-12.84	-8.91	-4.67	-2.023	0.515	1.943	3.317	4.211	4.372	3.586	3.743	3.899
1995	348	-11.93	-9.1	-5.268	-2.723	0.087	1.582	3.022	3.979	4.264	3.683	3.829	3.975
1995	349	-8.1	-7.25	-4.929	-2.86	-0.302	1.24	2.748	3.77	4.105	3.554	3.701	3.846
1995	350	-5.914	-5.375	-3.941	-2.575	-0.582	0.959	2.478	3.571	4.109	3.777	3.955	4.126
1995	351	-4.82	-4.176	-3.137	-2.11	-0.589	0.829	2.298	3.39	3.9	3.551	3.748	3.945
1995	352	-6.713	-4.82	-2.86	-1.821	-0.486	0.781	2.169	3.219	3.691	3.232	3.41	3.596
1995	353	-8.44	-6.372	-3.822	-2.13	-0.515	0.749	2.075	3.079	3.546	3.181	3.348	3.524
1995	354	-9.72	-7.33	-4.486	-2.718	-0.732	0.655	1.986	2.987	3.475	3.19	3.36	3.517
1995	355	-8.27	-6.899	-4.65	-3.002	-0.993	0.488	1.857	2.863	3.375	3.039	3.201	3.367
1995	356	-5.173	-5.244	-4.058	-2.842	-1.137	0.318	1.707	2.747	3.249	2.94	3.103	3.273
1995	357	-3.439	-3.44	-2.968	-2.243	-1.005	0.231	1.586	2.646	3.297	3.264	3.448	3.649
1995	358	-3.994	-3.261	-2.442	-1.776	-0.765	0.26	1.549	2.598	3.275	3.281	3.47	3.675
1995	359	-4.44	-3.458	-2.387	-1.84	-0.835	0.32	1.559	2.577	3.186	3.111	3.282	3.434
1995	360	-5.257	-3.823	-2.486	-1.85	-0.587	0.369	1.556	2.55	3.199	3.139	3.307	3.486
1995	361	-5.056	-4.036	-2.885	-1.759	-0.587	0.389	1.561	2.525	3.095	2.956	3.112	3.285
1995	362	-4.742	-3.738	-2.598	-1.743	-0.583	0.399	1.549	2.479	2.999	2.825	2.98	3.152
1995	363	-4.998	-4.056	-2.678	-1.78	-0.573	0.39	1.518	2.43	2.936	2.8	2.949	3.116
1995	364	-3.541	-3.282	-2.446	-1.685	-0.573	0.381	1.494	2.407	2.965	2.906	3.088	3.282
1995	365	-2.351	-2.437	-2	-1.444	-0.501	0.366	1.481	2.391	2.955	2.932	3.103	3.3
1996	1	-4.579	-2.785	-1.789	-1.235	-0.417	0.392	1.465	2.367	2.911	2.866	3.008	3.177
1996	2	-9.42	-5.553	-2.795	-1.586	-0.416	0.398	1.447	2.341	2.925	2.899	3.085	3.275
1996	3	-11.8	-8.01	-4.469	-2.58	-0.699	0.368	1.43	2.302	2.768	2.573	2.725	2.905
1996	4	-14.12	-9.82	-5.802	-3.536	-1.255	0.162	1.321	2.211	2.656	2.464	2.609	2.778
1996	5	-15.1	-11.02	-6.923	-4.499	-1.985	-0.155	1.118	2.06	2.577	2.429	2.574	2.744
1996	6	-16.4	-12.57	-8.14	-5.465	-2.87	-0.478	0.905	1.942	2.586	2.636	2.8	2.991
1996	7	-16.52	-12.96	-8.85	-6.247	-3.37	-1.007	0.665	1.784	2.469	2.483	2.652	2.859
1996	8	-15.83	-13.06	-9.31	-6.811	-3.977	-1.624	0.34	1.558	2.28	2.29	2.455	2.647
1996	9	-11.66	-10.99	-8.82	-6.869	-4.367	-2.128	-0.002	1.309	2.167	2.338	2.498	2.68
1996	10	-8.63	-8.65	-7.53	-6.22	-4.308	-2.38	-0.291	1.073	2.041	2.321	2.487	2.676
1996	11	-12.08	-9.59	-7.25	-5.794	-4.047	-2.391	-0.482	0.895	1.894	2.221	2.386	2.567
1996	12	-11.02	-9.65	-7.49	-5.946	-4.086	-2.421	-0.586	0.777	1.799	2.173	2.338	2.518
1996	13	-8.37	-8.14	-6.918	-5.727	-4.07	-2.469	-0.641	0.723	1.851	2.45	2.641	2.856
1996	14	-7.86	-7.18	-6.11	-5.173	-3.803	-2.398	-0.705	0.678	1.765	2.27	2.451	2.675
1996	15	-10.96	-8	-6.009	-4.89	-3.54	-2.26	-0.728	0.601	1.657	2.107	2.269	2.463
1996	16	-12.51	-10.02	-7.12	-5.441	-3.661	-2.265	-0.746	0.552	1.608	2.141	2.303	2.488
1996	17	-5.494	-7.23	-6.729	-5.631	-3.978	-2.435	-0.785	0.548	1.608	2.1	2.247	2.42
1996	18	-1.703	-3.629	-4.541	-4.39	-3.528	-2.35	-0.824	0.507	1.584	2.128	2.281	2.456
1996	19	-0.207	-1.413	-2.827	-3.078	-2.69	-1.939	-0.744	0.48	1.527	2.045	2.202	2.388
1996	20	-1.94	-0.236	-1.261	-1.898	-1.895	-1.498	-0.629	0.487	1.594	2.334	2.552	2.799
1996	21	-4.413	-2.136	-1.552	-1.467	-1.315	-1.081	-0.469	0.605	1.694	2.284	2.508	2.752
1996	22	-4.132	-3.492	-2.581	-1.913	-1.267	-0.897	-0.364	0.695	1.645	1.973	2.154	2.345
1996	23	-2.364	-2.6	-2.416	-2.017	-1.371	-0.881	-0.292	0.762	1.644	1.998	2.157	2.326
1996	24	-1.564	-1.95	-1.972	-1.763	-1.275	-0.843	-0.225	0.837	1.679	2.027	2.179	2.351
1996	25	-5.786	-3.348	-2.226	-1.669	-1.148	-0.767	-0.093	0.886	1.675	1.976	2.12	2.285
1996	26	-7.39	-5.454	-3.644	-2.434	-1.352	-0.742	0.028	0.953	1.683	1.921	2.057	2.202
1996	27	-4.423	-4.799	-3.998	-2.997	-1.762	-0.868	0.135	1.02	1.774	2.106	2.268	2.449
1996	28	-3.907	-3.347	-3.048	-2.614	-1.777	-0.951	0.146	1.052	1.804	2.104	2.249	2.406
1996	29	-6.7	-6.026	-4.016	-2.822	-1.7	-0.903	0.119	1.061	1.751	1.97	2.137	2.323
1996	30	-7.7	-6.511	-4.944	-3.583	-2.086	-1.009	0.101	1.04	1.671	1.739	1.885	2.045
1996	31	-10.12	-7.39	-5.377	-3.937	-2.397	-1.199	0.023	0.991	1.666	1.862	1.986	2.143
1996	32	-13.5	-10.09	-7.02	-4.864	-2.865	-1.44	-0.091	0.916	1.603	1.778	1.915	2.076
1996	33	-12.22	-10.27	-7.94	-5.875	-3.603	-1.858	-0.256	0.833	1.577	1.798	1.92	2.058
1996	34	-13.72	-11.07	-8.47	-6.365	-4.125	-2.293	-0.481	0.71	1.552	1.869	2.049	2.224
1996	35	-15.23	-12.31	-9.4	-7.09	-4.644	-2.671	-0.724	0.567	1.478	1.821	1.984	2.172
1996	36	-14.75	-12.64	-10.02	-7.74	-5.183	-3.057	-1.019	0.445	1.357	1.69	1.841	2.02
1996	37	-13.45	-11.91	-9.9	-7.94	-5.548	-3.412	-1.316	0.287	1.267	1.685	1.818	1.972
1996	38	-10.81	-10.61	-9.29	-7.73	-5.628	-3.617	-1.552	0.149	1.207	1.696	1.831	1.983
1996	39	-4.992	-6.874	-7.29	-6.711	-5.29	-3.607	-1.69	0.037	1.152	1.698	1.847	2.018
1996	40	-2.457	-4.007	-4.927	-5.02	-4.364	-3.227	-1.668	-0.057	1.061	1.617	1.761	1.922
1996	41	-4.18	-3.914	-3.921	-3.836	-3.38	-2.641	-1.461	-0.087	1.05	1.711	1.881	2.067
1996	42	-4.305	-3.977	-3.725	-3.429	-2.852	-2.199	-1.219	-0.041	1.092	1.772	1.951	2.155
1996	43	-6.56	-5.727	-4.214	-3.419	-2.626	-1.973	-1.085	-0.02	1.012	1.545	1.697	1.877
1996	44	-12.16	-9.04	-6.271	-4.491	-2.943	-1.978	-1.011	0.019	1.015	1.576	1.719	1.89
1996	45	-12.06	-10.06	-7.65	-5.709	-3.731	-2.346	-1.089	0.057	1.024	1.542	1.684	1.85
1996	46	-11.85	-10.17	-8.12	-6.352	-4.372	-2.799	-1.293	0.029	1.011	1.52	1.657	1.817
1996	47	-11.32	-10	-8.26	-6.659	-4.754	-3.123	-1.484	-0.037	0.956	1.436	1.581	1.751
1996	48	-10.62	-9.65	-8.18	-6.74	-4.951	-3.336	-1.654	-0.123	0.946	1.549	1.726	1.923
1996	49	-10.51	-9.09	-7.8	-6.587	-4.984	-3.446	-1.775	-0.217	0.897	1.514	1.693	1.901
1996	50	-11.06	-9.89	-8.2	-6.714	-4.997	-3.472	-1.836	-0.298	0.806	1.366	1.548	1.735
1996	51	-8.539	-7.57	-7.3	-6.445	-5.006	-3.518	-1.879	-0.349	0.783	1.407	1.564	1.745
1996	52	-2.008	-4.202	-5.183	-5.198	-4.449	-3.332	-1.87	-0.395	0.75	1.4	1.555	1.736
1996	53	-0.775	-2.332	-3.38	-3.734	-3.506	-2.843	-1.701	-0.401	0.73	1.401	1.551	1.724
1996	54	0.135	-1.469	-2.332	-2.704	-2.636	-2.251	-1.396	-0.312	0.771	1.44	1.614	1.808
1996	55	0.457	-0.794	-1.642	-2.019	-2.03	-1.804	-1.151	-0.242	0.798	1.485	1.671	1.873
1996	56	0.358	-0.497	-1.198	-1.525	-1.56	-1.445	-0.945	-0.17	0.836	1.474	1.664	1.871

1996	57	0.266	-0.416	-0.927	-1.179	-1.196	-1.143	-0.782	-0.081	0.865	1.392	1.667	1.745
1996	58	-0.296	-0.417	-0.814	-1.003	-0.968	-0.874	-0.651	-0.053	0.864	1.395	1.548	1.73
1996	59	-0.081	-0.366	-0.866	-0.829	-0.785	-0.8	-0.53	0.031	0.966	1.486	1.632	1.794
1996	60	-1.163	-0.519	-0.677	-0.773	-0.683	-0.731	-0.482	0.073	0.936	1.362	1.521	1.713
1996	61	-2.01	-1.164	-0.872	-0.759	-0.689	-0.644	-0.427	0.149	0.936	1.306	1.467	1.661
1996	62	-2.164	-1.699	-1.228	-0.914	-0.691	-0.582	-0.366	0.236	1.006	1.425	1.609	1.836
1996	63	-1.012	-1.001	-1.081	-0.971	-0.646	-0.568	-0.314	0.332	1.056	1.405	1.586	1.815
1996	64	-4.736	-2.797	-1.646	-1.111	-0.686	-0.565	-0.32	0.356	1.01	1.293	1.46	1.677
1996	66	-4.276	-3.431	-2.624	-1.644	-1.166	-0.711	-0.236	0.461	1.066	1.341	1.485	1.678
1996	67	-4.241	-3.699	-2.919	-2.213	-1.363	-0.829	-0.238	0.512	1.081	1.314	1.457	1.646
1996	68	-5.433	-4.09	-3.115	-2.366	-1.552	-0.936	-0.245	0.523	1.102	1.333	1.505	1.744
1996	69	-5.6	-4.784	-3.703	-2.773	-1.739	-1.009	-0.231	0.546	1.126	1.349	1.502	1.709
1996	70	-4.366	-4.39	-3.7	-2.927	-1.913	-1.094	-0.231	0.564	1.137	1.334	1.493	1.711
1996	71	-2.172	-2.829	-2.916	-2.616	-1.893	-1.149	-0.278	0.544	1.12	1.316	1.432	1.59
1996	72	-0.473	-1.376	-1.953	-1.966	-1.573	-1.039	-0.282	0.52	0.996	1.005	1.066	1.167
1996	73	1.273	-0.569	-1.228	-1.407	-1.192	-0.863	-0.263	0.464	0.92	0.964	1.043	1.137
1996	74	2.066	-0.364	-0.663	-0.976	-0.876	-0.703	-0.222	0.483	0.911	0.965	1.044	1.138
1996	75	1.45	-0.245	-0.366	-0.658	-0.639	-0.599	-0.206	0.474	0.941	1.16	1.249	1.353
1996	76	0.394	-0.211	-0.309	-0.466	-0.406	-0.451	-0.165	0.542	1.136	1.457	1.619	1.803
1996	77	0.847	-0.2	-0.28	-0.361	-0.259	-0.339	-0.11	0.614	1.179	1.422	1.579	1.769
1996	78	1.925	-0.103	-0.258	-0.311	-0.183	-0.277	-0.044	0.675	1.209	1.433	1.586	1.769
1996	79	3.17	0.336	-0.251	-0.291	-0.141	-0.243	0.036	0.715	1.237	1.473	1.669	1.866
1996	80	2.193	0.725	-0.257	-0.203	-0.11	-0.241	0.087	0.725	1.239	1.456	1.646	1.671
1996	84	1.63	0.51	-0.126	-0.195	-0.074	-0.207	0.266	0.813	1.304	1.466	1.572	1.731
1996	84	1.63	0.51	-0.126	-0.195	-0.074	-0.207	0.266	0.813	1.304	1.466	1.572	1.731
1996	85	4.466	1.706	-0.09	-0.176	-0.075	-0.208	0.267	0.836	1.294	1.401	1.493	1.625
1996	86	4.99	2.976	0.66	-0.143	-0.09	-0.22	0.295	0.819	1.287	1.518	1.603	1.727
1996	87	1.399	1.589	0.656	-0.037	-0.06	-0.203	0.317	0.832	1.324	1.526	1.613	1.741
1996	88	1.935	1.002	0.436	0.033	-0.051	-0.149	0.377	0.86	1.34	1.545	1.632	1.764
1996	89	3.733	1.904	0.759	0.159	-0.022	-0.092	0.436	0.941	1.43	1.675	1.765	1.931
1996	90	5.272	3.07	1.463	0.5	0.002	-0.033	0.497	1.003	1.513	1.788	1.897	2.048
1996	91	7.33	4.472	2.316	1.018	0.049	0.056	0.552	1.056	1.574	1.86	1.996	2.15
1996	92	6.242	5.164	3.249	1.753	0.561	0.257	0.636	1.113	1.633	1.902	2.017	2.173
1996	93	5.98	4.224	2.919	1.967	1.24	0.699	0.841	1.206	1.666	1.867	2.008	2.175
1996	94	6.193	4.781	3.271	2.275	1.584	1.052	1.087	1.366	1.749	1.944	2.061	2.218
1996	95	5.071	4.379	3.369	2.573	1.959	1.399	1.339	1.529	1.858	2.018	2.114	2.254
1996	96	5.966	4.649	3.429	2.719	2.231	1.719	1.623	1.75	2.025	2.175	2.266	2.4
1996	97	5.275	4.404	3.527	2.907	2.443	1.935	1.823	1.922	2.15	2.249	2.331	2.457
1996	98	5.267	4.958	3.636	3.098	2.61	2.116	1.999	2.073	2.248	2.283	2.367	2.487
1996	99	3.604	3.781	3.453	3.078	2.758	2.286	2.15	2.194	2.34	2.372	2.45	2.563
1996	100	5.173	3.81	3.086	2.79	2.645	2.287	2.18	2.174	2.309	2.324	2.406	2.531
1996	101	6.221	4.762	3.593	3.001	2.677	2.286	2.197	2.237	2.365	2.413	2.487	2.602
1996	102	7.71	5.94	4.302	3.452	2.923	2.421	2.291	2.334	2.473	2.494	2.56	2.671
1996	103	10.29	7.37	5.131	4.061	3.339	2.702	2.481	2.464	2.597	2.614	2.676	2.786
1996	104	7.98	7.66	6.049	4.87	3.91	3.084	2.733	2.662	2.726	2.729	2.766	2.867
1996	105	6.367	6.097	5.516	4.92	4.28	3.478	3.045	2.862	2.857	2.78	2.842	2.943
1996	106	7.74	6.304	5.284	4.741	4.302	3.653	3.275	3.063	2.99	2.849	2.897	2.961
1996	107	7.46	7.2	5.901	5.048	4.428	3.762	3.412	3.237	3.116	2.979	3.009	3.067
1996	108	5.713	5.758	5.437	5.032	4.606	3.946	3.564	3.357	3.227	3.081	3.106	3.153
1996	109	8.99	6.283	5.147	4.767	4.525	3.999	3.66	3.443	3.297	3.151	3.179	3.23
1996	110	11.45	9.27	6.736	5.494	4.726	4.072	3.748	3.57	3.414	3.222	3.248	3.29
1996	111	9.02	8.65	7.31	6.254	5.324	4.428	3.946	3.709	3.491	3.23	3.26	3.304
1996	112	12.45	9.3	7.3	6.368	5.647	4.789	4.242	3.914	3.621	3.319	3.357	3.403
1996	113	12.14	10.66	8.46	7.13	6.066	5.09	4.49	4.125	3.806	3.542	3.563	3.589
1996	114	11.5	10.53	8.8	7.84	6.58	5.504	4.799	4.365	4.013	3.749	3.761	3.761
1996	115	11.05	9.66	8.49	7.7	6.87	5.844	5.109	4.625	4.221	3.924	3.929	3.942
1996	116	9.96	9.99	8.77	7.85	7.02	6.066	5.37	4.876	4.442	4.118	4.12	4.129
1996	117	10.03	9.19	8.37	7.77	7.15	6.266	5.593	5.094	4.63	4.267	4.267	4.271
1996	118	11.19	9.82	8.47	7.76	7.17	6.362	5.748	5.27	4.776	4.367	4.361	4.36
1996	119	12.16	10.33	8.8	7.99	7.32	6.501	5.895	5.425	4.931	4.506	4.498	4.494
1996	120	12.52	11.24	9.47	8.44	7.6	6.704	6.062	5.58	5.064	4.62	4.612	4.604
1996	121	10.97	10.96	9.77	8.82	7.93	6.965	6.254	5.73	5.162	4.686	4.68	4.672
1996	122	11.65	10.1	9.19	8.65	8.07	7.19	6.472	5.911	5.296	4.811	4.799	4.787
1996	123	13.13	11.49	9.77	8.86	8.13	7.28	6.615	6.072	5.458	5.012	4.998	4.984
1996	124	15.12	12.51	10.37	9.31	8.43	7.49	6.779	6.234	5.637	5.214	5.195	5.178
1996	125	17.02	14.3	11.52	10.06	8.89	7.8	7.01	6.422	5.801	5.324	5.302	5.281
1996	126	17.83	15.22	12.46	10.9	9.53	8.25	7.3	6.636	5.969	5.531	5.502	5.478
1996	127	18.9	16.13	13.27	11.63	10.15	8.75	7.67	6.914	6.202	5.767	5.747	5.714
1996	128	19.79	17.06	14.1	12.37	10.77	9.27	8.09	7.24	6.467	6.023	5.972	5.932
1996	129	21.14	18.12	14.95	13.12	11.41	9.81	8.53	7.6	6.741	6.248	6.202	6.163
1996	130	19.33	18.51	15.85	13.95	12.09	10.37	8.98	7.97	7.07	6.635	6.58	6.532
1996	131	16.11	16.39	15.22	14.02	12.54	10.89	9.44	8.36	7.37	6.873	6.816	6.765
1996	132	12.31	13.85	13.94	13.39	12.46	11.1	9.77	8.69	7.64	7.05	6.974	6.915
1996	133	10.09	11.27	12.19	12.28	11.96	11.01	9.91	8.93	7.87	7.19	7.12	7.06
1996	134	12.7	11.57	11.33	11.34	11.28	10.66	9.87	9.04	8.03	7.29	7.21	7.15
1996	135	15.29	13.42	11.96	11.37	10.99	10.4	9.73	9.04	8.11	7.42	7.34	7.26
1996	136	18.64	15.36	12.95	11.93	11.17	10.4	9.69	9.04	8.2	7.52	7.45	7.4
1996	137	17.66	16.8	14.42	12.93	11.7	10.64	9.77	9.1	8.31	7.61	7.74	7.66
1996	138	19.78	16.56	14.39	13.28	12.2	11.04	10.03	9.28	8.47	7.92	7.85	7.78
1996	139	21.02	18.84	15.8	14.1	12.65	11.36	10.31	9.5	8.63	8.09	8.03	7.97
1996	140	22.22	19.2	16.41	14.81	13.29	11.86	10.63	9.74	8.82	8.19	8.12	8.07
1996	141	23.97	21	17.59	15.66	13.9	12.35	11.01	10.01	9.02	8.48	8.42	8.37
1996	142	26.61	22.36	18.56	16.53	14.62	12.91	11.42	10.34	9.28	8.69	8.59	8.52
1996	143	26.15	23.65	19.96	17.65	15.44	13.54	11.9	10.71	9.64	9.1	8.99	8.9

1996	144	25.28	23.13	20.24	18.28	16.19	14.21	12.43	11.14	9.97	9.38	9.27	9.17
1996	145	24.46	22.63	20.23	18.53	16.64	14.74	12.93	11.54	10.2	9.45	9.33	9.23
1996	146	24.14	22.48	20.21	18.64	16.91	15.1	13.33	11.94	10.62	9.89	9.89	9.78
1996	147	23.87	22.47	20.28	18.76	17.12	15.4	13.67	12.31	11.03	10.5	10.39	10.27
1996	148	24.36	22.37	20.22	18.83	17.29	15.66	13.98	12.64	11.29	10.48	10.36	10.22
1996	149	25.95	23.43	20.68	19.08	17.48	15.86	14.23	12.91	11.56	10.8	10.63	10.45
1996	150	22.67	22.78	20.98	19.46	17.82	16.16	14.48	13.16	11.8	11.09	10.93	10.78
1996	151	21.73	20.87	19.94	19.08	17.87	16.38	14.75	13.43	12.07	11.28	11.13	10.98
1996	152	25.23	22.29	20.01	18.86	17.7	16.4	14.9	13.64	12.27	11.51	11.41	11.29
1996	153	27.85	24.82	21.24	19.5	17.93	16.51	15.02	13.81	12.51	11.82	11.72	11.61
1996	154	28.37	25.52	22.27	20.36	18.51	16.86	15.25	14.03	12.82	12.24	12.14	12.03
1996	155	26.89	25.77	23.02	21.09	19.11	17.33	15.61	14.35	13.18	12.64	12.52	12.39
1996	156	26.86	24.84	22.67	21.2	19.51	17.78	16.02	14.69	13.39	12.7	12.6	12.49
1996	157	24.49	24.34	22.88	21.27	19.88	18.06	16.33	14.98	13.58	12.7	12.56	12.41
1996	158	24.78	23.3	21.89	20.91	19.67	18.21	16.55	15.18	13.66	12.7	12.56	12.42
1996	159	21.46	22.69	21.83	20.81	19.56	18.22	16.67	15.34	13.87	12.98	12.74	12.51
1996	160	19.13	20.06	20.31	20.02	19.31	18.18	16.74	15.47	13.98	12.96	12.78	12.62
1996	161	21.71	20.14	19.46	19.17	18.73	17.91	16.88	15.5	14.05	13.09	12.98	12.86
1996	162	24.44	22.14	20.19	19.27	18.48	17.64	16.53	15.49	14.16	13.22	13.04	12.87
1996	163	26.82	24.09	21.29	19.9	18.7	17.66	16.48	15.46	14.18	13.27	13.11	12.96
1996	164	29.79	25.82	22.41	20.72	19.19	17.91	16.59	15.52	14.29	13.51	13.36	13.24
1996	165	29.76	27.55	24.01	21.88	19.9	18.34	16.84	15.69	14.49	13.77	13.64	13.51
1996	166	30.42	27.33	24.33	22.52	20.61	18.9	17.23	15.96	14.73	14.09	13.97	13.83
1996	167	30.88	28.45	25.17	23.16	21.13	19.37	17.64	16.3	15.08	14.54	14.42	14.29
1996	168	29.69	27.96	25.4	23.63	21.67	19.86	18.06	16.66	15.46	14.93	14.81	14.67
1996	169	31.75	28.92	25.78	23.94	22.02	20.24	18.46	17.06	15.83	15.37	15.23	15.08
1996	170	31.34	29.31	26.4	24.49	22.48	20.64	18.84	17.42	16.16	15.54	15.36	15.19
1996	171	30.08	28.85	26.53	24.81	22.86	21.06	19.22	17.76	16.48	15.92	15.76	15.56
1996	172	29	28.14	26.28	24.82	23.1	21.36	19.57	18.09	16.7	15.87	15.71	15.53
1996	173	31.25	28.37	26.02	24.67	23.15	21.54	19.82	18.32	16.86	15.98	15.84	15.69
1996	174	26.69	28.13	26.57	25.06	23.33	21.69	20.01	18.54	17.22	16.75	16.57	16.34
1996	175	28.12	25.03	24.72	24.24	23.24	21.84	20.25	18.82	17.5	16.73	16.52	16.3
1996	176	26.29	26.06	24.77	23.86	22.85	21.68	20.3	18.97	17.64	16.81	16.64	16.47
1996	177	26.34	25.4	24.33	23.61	22.7	21.59	20.29	19.01	17.85	16.78	16.61	16.42
1996	178	27.48	25.71	24.28	23.47	22.55	21.49	20.26	19.03	17.73	16.86	16.66	16.49
1996	179	24.29	25.71	24.7	23.88	22.57	21.46	20.24	19.06	17.84	17.31	17.14	16.93
1996	180	25.2	23.72	23.31	23.03	22.43	21.46	20.29	19.16	17.99	17.21	17.01	16.8
1996	181	25.64	25.36	23.92	23.02	22.17	21.29	20.25	19.17	18.01	17.32	17.17	17.01
1996	182	25.52	24.35	23.53	22.95	22.19	21.27	20.22	19.18	18.09	17.44	17.26	17.09
1996	183	30.52	26.81	24.12	23.04	22.13	21.23	20.22	19.22	18.17	17.45	17.33	17.22
1996	184	32.43	29.52	25.95	24.12	22.59	21.36	20.26	19.25	18.22	17.62	17.47	17.31
1996	185	27.57	28.12	26.49	24.98	23.32	21.83	20.5	19.41	18.56	18.43	18.29	18.1
1996	186	25	25.5	25.23	24.57	23.49	22.17	20.83	19.7	18.63	18.48	18.31	18.1
1996	187	27.41	25.63	24.48	23.91	23.17	22.16	21	19.89	18.89	18.29	18.09	17.9
1996	188	29.27	27.18	25.13	24.08	23.08	22.06	21	19.94	18.96	18.45	18.28	18.1
1996	189	27.54	27.46	25.76	24.55	23.32	22.18	21.05	20.01	19.03	18.35	18.18	18.02
1996	190	28.72	26.52	25.19	24.43	23.46	22.35	21.17	20.09	19.07	18.45	18.28	18.11
1996	191	29.37	28.16	25.99	24.73	23.52	22.39	21.25	20.15	19.04	18.24	18.13	18.02
1996	192	27.83	27.29	25.96	24.98	23.78	22.56	21.35	20.22	19.1	18.33	18.2	18.05
1996	193	29.86	27.52	25.75	24.84	23.81	22.68	21.47	20.32	19.11	18.18	17.99	17.82
1996	194	31.43	29.26	26.68	25.28	23.96	22.76	21.53	20.36	19.06	18.04	17.86	17.71
1996	195	30.3	29.32	27.23	25.83	24.35	22.99	21.65	20.41	19.06	18.16	17.89	17.84
1996	196	29.44	28.65	27.07	25.93	24.59	23.24	21.83	20.55	19.24	18.39	18.12	17.84
1996	198	26.09	25.71	25.36	25.03	24.36	23.34	22.11	20.91	19.74	18.99	18.74	18.51
1996	199	29.1	26.58	25.21	24.64	23.99	23.15	22.08	20.98	19.9	19.24	19	18.73
1996	200	32.7	29.53	26.57	25.19	24.04	23.07	22.03	20.99	19.89	19.05	18.79	18.54
1996	201	29.23	29.82	27.67	26.15	24.6	23.31	22.1	21.01	20.06	19.75	19.55	19.23
1996	202	27.86	27.23	26.55	25.89	24.84	23.62	22.35	21.24	20.31	19.77	19.55	19.29
1996	203	30.23	28.17	26.49	25.63	24.69	23.65	22.49	21.38	20.32	19.5	19.28	19.06
1996	204	31.86	29.58	27.25	26.01	24.8	23.69	22.53	21.38	20.14	19.1	18.89	18.71
1996	205	29.42	29.72	27.94	26.58	25.15	23.87	22.6	21.39	20.17	19.44	19.24	19.02
1996	206	29.21	27.85	26.98	26.31	25.29	24.08	22.77	21.55	20.4	19.67	19.41	19.18
1996	211	30.96	29.69	27.99	26.89	25.67	24.46	23.21	22.01	20.79	19.91	19.7	19.49
1996	211	30.96	29.69	27.99	26.89	25.67	24.46	23.21	22.01	20.79	19.91	19.7	19.49
1996	213	23.03	24.79	25.91	26.03	25.56	24.61	23.44	22.29	21.2	20.53	20.34	20.12
1996	213	23.03	24.79	25.91	26.03	25.56	24.61	23.44	22.29	21.2	20.53	20.34	20.12
1996	214	22.36	23.82	24.63	24.84	24.8	24.26	23.37	22.33	21.22	20.41	20.2	19.99
1996	215	25.47	24.02	23.86	24.03	24.1	23.78	23.12	22.22	21.17	20.37	20.16	19.94
1996	216	29.83	26.9	24.89	24.23	23.83	23.42	22.83	22.04	21.1	20.34	20.14	19.94
1996	217	32.54	29.45	26.58	25.22	24.19	23.43	22.7	21.92	21.07	20.45	20.25	20.02
1996	218	34.25	31.18	28.02	26.34	24.86	23.77	22.8	21.93	21.04	20.24	20.07	19.91
1996	219	34.97	32.25	29.16	27.36	25.64	24.26	23.04	21.97	20.83	19.86	19.7	19.57
1996	220	34.94	32.79	29.96	28.16	26.33	24.77	23.37	22.16	21.05	20.33	20.21	20.06
1996	221	32.14	32.28	30.31	28.66	26.89	25.25	23.74	22.42	21.19	20.39	20.16	19.94
1996	222	31.13	29.97	29.12	28.31	27.06	25.58	24.07	22.69	21.45	20.77	20.56	20.31
1996	223	30.36	30.06	28.94	28.03	26.89	25.62	24.25	22.92	21.75	21.16	20.95	20.72
1996	224	29.92	29.28	28.41	27.72	26.78	25.63	24.36	23.13	21.96	21.25	21.02	20.79
1996	225	29.52	29.28	28.3	27.54	26.63	25.59	24.41	23.22	22.01	21.13	20.89	20.66
1996	226	30.44	29.27	28.1	27.36	26.54	25.54	24.41	23.24	22	21.02	20.8	20.6
1996	227	31.22	29.78	28.31	27.44	26.52	25.51	24.39	23.23	21.98	21.11	20.9	20.69

BTC1_DLY
Gatineau Project Data
Backfill Temperatures in °C

YEAR	J DAY	B1TC#1	B1TC#2	B1TC#3	B1TC#4	B1TC#5	B1TC#6	B1TC#7	B1TC#8	B1TC#9	B1TC#10	B1TC#11	B1TC#12
1994	195	26	23.98	23.51	23.33	22.46	21.26	20.15	19.16	18.82	18.37	18.11	18.13
1994	196	23.86	23.63	23.48	23.09	22.32	21.25	20.2	19.22	18.86	18.4	18.13	18.16
1994	197	25.36	24.3	23.56	22.95	22.19	21.22	20.23	19.28	18.92	18.45	18.19	18.21
1994	198	26.99	25.54	24.07	23	22.16	21.21	20.25	19.34	18.97	18.51	18.25	18.27
1994	199	27.93	26.63	24.75	23.25	22.21	21.22	20.27	19.38	19.01	18.57	18.32	18.33
1994	200	27.22	26.63	25.2	23.58	22.35	21.27	20.31	19.42	19.05	18.62	18.37	18.39
1994	201	28.59	26.93	25.29	23.8	22.52	21.36	20.37	19.48	19.11	18.67	18.43	18.44
1994	202	29.09	28.25	25.99	24.05	22.67	21.47	20.44	19.54	19.16	18.73	18.5	18.51
1994	203	28.25	26.84	26.11	24.43	22.9	21.6	20.53	19.6	19.22	18.79	18.56	18.57
1994	204	25.87	26.07	25.61	24.48	23.11	21.77	20.65	19.69	19.3	18.86	18.63	18.64
1994	205	25.78	25.72	25.27	24.38	23.19	21.94	20.79	19.8	19.4	18.95	18.71	18.72
1994	206	27.52	26.32	25.22	24.27	23.19	22.05	20.9	19.91	19.5	19.05	18.81	18.81
1994	207	25.85	26.36	25.51	24.31	23.19	22.12	20.98	19.99	19.59	19.14	18.9	18.9
1994	208	24.87	25	24.98	24.29	23.24	22.18	21.05	20.08	19.67	19.22	19.02	18.98
1994	209	27.21	26.02	24.95	24.14	23.21	22.23	21.12	20.16	19.75	19.3	19.12	19.06
1994	210	26.58	27.07	25.44	24.22	23.21	22.25	21.17	20.24	19.82	19.38	19.2	19.13
1994	211	25.34	26.7	25.91	24.46	23.28	22.29	21.22	20.3	19.88	19.45	19.28	19.23
1994	212	25.08	24.98	25.04	24.45	23.38	22.39	21.28	20.35	19.93	19.49	19.41	19.45
1994	213	26.67	26	25.06	24.27	23.37	22.46	21.35	20.42	20	19.66	19.49	19.51
1994	217	21.86	21.47	22.25	23.02	23.17	23.09	22.42	21.7	21.31	20.54	20.11	20.12
1994	218	22.13	21.58	22.06	22.77	23.05	22.89	22.33	21.54	21.21	20.58	20.21	20.32
1994	219	24.28	23.23	22.58	22.63	22.86	22.69	22.21	21.42	21.11	20.55	20.24	20.39
1994	220	25.44	24.3	23.29	22.81	22.76	22.53	22.07	21.37	21.05	20.54	20.26	20.4
1994	221	25.37	25.08	23.98	23.1	22.78	22.43	21.96	21.25	20.99	20.53	20.27	20.42
1994	222	23.87	24.08	23.9	23.33	22.87	22.4	21.89	21.18	20.94	20.52	20.27	20.42
1994	223	24.82	24.17	23.73	23.31	22.91	22.41	21.86	21.15	20.91	20.51	20.27	20.42
1994	224	25.87	24.98	24.03	23.35	22.92	22.4	21.84	21.13	20.89	20.51	20.27	20.42
1994	225	26.98	25.82	24.5	23.53	22.97	22.41	21.82	21.12	20.88	20.52	20.28	20.42
1994	226	27.2	26.33	24.96	23.79	23.07	22.43	21.82	21.12	20.87	20.51	20.29	20.43
1994	227	22.88	24.63	24.84	23.99	23.2	22.49	21.83	21.12	20.87	20.5	20.3	20.44
1994	228	23.35	23.29	23.79	23.77	23.25	22.55	21.86	21.14	20.88	20.5	20.32	20.45
1994	229	25.5	24.54	23.85	23.5	23.15	22.57	21.89	21.17	20.9	20.51	20.34	20.46
1994	230	26.43	25.45	24.34	23.57	23.1	22.54	21.9	21.18	20.91	20.52	20.36	20.48
1994	231	26.93	25.85	24.69	23.75	23.13	22.53	21.9	21.2	20.93	20.54	20.39	20.5
1994	232	26.53	26.14	25.04	23.96	23.22	22.56	21.9	21.21	20.94	20.57	20.45	20.52
1994	233	24.88	25.32	24.94	24.1	23.32	22.61	21.92	21.23	20.96	20.58	20.56	20.55
1994	234	23.05	23.94	24.36	24.02	23.37	22.66	21.96	21.26	20.97	20.6	20.6	20.58
1994	235	22.75	23.18	23.69	23.73	23.32	22.68	21.99	21.28	20.99	20.63	20.63	20.61
1994	236	25.84	23.69	23.4	23.42	23.16	22.65	22.01	21.31	21.01	20.64	20.65	20.62
1994	237	22.56	23.4	23.55	23.34	23.07	22.61	22	21.32	21.03	20.7	20.68	20.66
1994	238	22.43	22.79	23.14	23.18	22.99	22.57	21.99	21.34	21.05	20.72	20.72	20.69
1994	239	23.83	23.27	23.05	23	22.88	22.52	21.98	21.35	21.07	20.73	20.74	20.71
1994	240	22.42	23.18	23.23	22.99	22.8	22.46	21.95	21.35	21.08	20.74	20.76	20.74
1994	241	20.52	21.68	22.59	22.84	22.74	22.41	21.92	21.34	21.08	20.75	20.77	20.76
1994	242	19.85	21.02	21.92	22.32	22.44	22.34	21.93	21.4	21.15	20.81	20.78	20.75
1994	243	18.48	19.94	21.22	21.9	22.16	22.18	21.99	21.56	21.38	21	20.91	20.9
1994	244	17.73	18.81	20.35	21.55	22.03	22.09	21.9	21.55	21.35	21	20.98	21
1994	245	16.66	18.15	19.79	21.1	21.74	21.93	21.8	21.47	21.31	20.99	20.99	21
1994	246	16.79	17.93	19.33	20.65	21.42	21.73	21.67	21.41	21.27	20.99	20.98	21
1994	247	17.06	17.74	19.01	20.32	21.12	21.52	21.53	21.32	21.19	20.94	20.94	20.97
1994	248	18.14	18.35	19.04	20.08	20.85	21.3	21.37	21.22	21.11	20.88	20.89	20.91
1994	249	-6999	18.69	18.99	19.76	20.4	20.94	21.14	21.09	21	20.81	20.83	20.85
1994	250	19.27	19.46	19.27	19.55	19.93	20.35	20.68	20.79	20.78	20.66	20.72	20.75
1994	251	19.48	19.33	19.35	19.66	19.9	20.19	20.45	20.58	20.59	20.5	20.59	20.61
1994	252	21.72	20.04	19.61	19.76	19.93	20.15	20.34	20.44	20.46	20.39	20.48	20.5
1994	253	23.14	22.3	20.86	20.14	20.01	20.14	20.27	20.34	20.36	20.29	20.39	20.41
1994	254	21.72	21.57	21.13	20.61	20.25	20.19	20.24	20.27	20.28	20.2	20.34	20.33
1994	255	21.4	21.29	21.05	20.76	20.44	20.3	20.25	20.22	20.23	20.13	20.28	20.26
1994	256	21.98	21.66	21.19	20.82	20.56	20.39	20.28	20.19	20.19	20.09	20.23	20.21
1994	257	21.68	21.46	21.34	21	20.72	20.48	20.32	20.19	20.18	20.05	20.18	20.18
1994	258	22	21.73	21.42	21.04	20.78	20.55	20.36	20.19	20.17	20.03	20.15	20.15
1994	259	22.69	22.27	21.71	21.18	20.86	20.6	20.39	20.19	20.17	20.01	20.12	20.13
1994	260	23.56	22.94	22.08	21.38	20.98	20.67	20.43	20.2	20.17	20	20.11	20.11
1994	261	21.2	21.93	22.06	21.59	21.11	20.75	20.47	20.21	20.17	20	20.09	20.1
1994	262	22.62	21.47	21.49	21.47	21.18	20.83	20.52	20.23	20.18	19.99	20.07	20.08
1994	263	25.8	24.4	22.58	21.57	21.18	20.87	20.56	20.25	20.19	20	20.07	20.09
1994	264	24.98	24.29	23.17	22.07	21.36	20.92	20.59	20.27	20.2	20	20.07	20.08
1994	265	24.4	24.02	23.26	22.34	21.57	21.03	20.64	20.29	20.21	20.01	20.07	20.08
1994	266	23.45	23.64	23.22	22.46	21.73	21.15	20.7	20.31	20.23	20.01	20.07	20.07
1994	267	22.21	22.61	22.77	22.41	21.82	21.24	20.77	20.34	20.24	20.03	20.09	20.11
1994	268	21.69	22.08	22.34	22.22	21.81	21.31	20.84	20.38	20.28	20.06	20.1	20.13
1994	269	21	21.58	21.97	22	21.73	21.33	20.88	20.42	20.32	20.08	20.12	20.15
1994	270	20.46	20.93	21.5	21.74	21.62	21.3	20.9	20.45	20.35	20.12	20.14	20.17
1994	271	19.37	20.33	21.1	21.47	21.46	21.25	20.9	20.47	20.37	20.15	20.15	20.18
1994	272	18.17	19.24	20.43	21.12	21.28	21.16	20.87	20.48	20.38	20.16	20.17	20.19
1994	273	16.89	18.27	19.74	20.69	21.04	21.05	20.82	20.46	20.37	20.15	20.17	20.2
1994	274	16.09	17.34	18.96	20.18	20.75	20.89	20.75	20.42	20.36	20.15	20.17	20.19
1994	275	15.37	16.84	18.42	19.68	20.41	20.7	20.65	20.37	20.33	20.12	20.16	20.19
1994	276	14.34	15.79	17.68	19.2	20.07	20.49	20.53	20.33	20.29	20.1	20.13	20.14

1994	276	14.34	15.79	17.88	19.2	20.07	20.49	20.53	20.33	20.29	20.1	20.13	20.14
1994	277	14.73	15.8	17.25	18.7	19.7	20.24	20.37	20.24	20.21	20.04	20.09	20.1
1994	278	13.97	15.18	16.85	18.33	19.36	19.98	20.2	20.13	20.12	19.96	20.03	20.04
1994	279	14.28	15.18	16.54	17.96	19.03	19.72	20.01	20	20.01	19.88	19.96	19.97
1994	280	15.26	15.39	16.39	17.69	18.74	19.46	19.81	19.86	19.89	19.79	19.89	19.88
1994	281	16.93	16.59	16.8	17.59	18.5	19.22	19.61	19.71	19.77	19.68	19.79	19.78
1994	282	17.42	17.47	17.4	17.74	18.39	19.02	19.42	19.56	19.63	19.57	19.69	19.68
1994	283	14.96	16.09	17.2	17.86	18.37	18.88	19.25	19.4	19.49	19.45	19.58	19.57
1994	284	13.98	15.17	16.57	17.62	18.29	18.78	19.12	19.27	19.37	19.34	19.48	19.46
1994	285	13.93	14.77	16.07	17.28	18.1	18.66	19	19.15	19.26	19.23	19.37	19.35
1994	286	14.48	14.95	15.91	17.01	17.88	18.49	18.86	19.03	19.14	19.13	19.27	19.25
1994	287	15.3	15.46	16	16.87	17.68	18.32	18.72	18.91	19.03	19.02	19.17	19.15
1994	288	14.46	15.21	16.04	16.84	17.55	18.16	18.57	18.78	18.91	18.91	19.06	19.04
1994	289	13.91	14.7	15.76	16.71	17.44	18.02	18.43	18.66	18.8	18.8	18.96	18.94
1994	290	13.6	14.47	15.52	16.52	17.29	17.89	18.29	18.54	18.68	18.69	18.85	18.84
1994	291	13.55	14.32	15.31	16.33	17.13	17.74	18.15	18.41	18.55	18.58	18.74	18.73
1994	292	12.86	13.82	15.03	16.14	16.96	17.59	18.01	18.29	18.43	18.46	18.63	18.61
1994	293	13.9	13.94	14.78	15.9	16.78	17.44	17.87	18.16	18.31	18.34	18.52	18.5
1994	294	15	14.86	15.1	15.82	16.61	17.27	17.72	18.04	18.19	18.23	18.41	18.39
1994	295	14.8	14.97	15.34	15.9	16.53	17.13	17.58	17.91	18.07	18.12	18.31	18.29
1994	296	15.48	15.38	15.51	15.95	16.49	17.03	17.45	17.79	17.96	18.01	18.2	18.18
1994	297	14.69	15.19	15.62	16.04	16.48	16.95	17.34	17.67	17.85	17.91	18.1	18.08
1994	298	13.8	14.59	15.38	16	16.47	16.9	17.25	17.57	17.74	17.81	18	17.99
1994	299	12.66	13.74	14.93	15.83	16.4	16.84	17.17	17.47	17.65	17.71	17.91	17.89
1994	300	11.66	12.96	14.39	15.54	16.25	16.75	17.08	17.39	17.56	17.62	17.82	17.8
1994	301	10.76	11.99	13.72	15.16	16.04	16.62	16.99	17.3	17.47	17.53	17.74	17.72
1994	302	11.99	12.42	13.46	14.77	15.77	16.46	16.87	17.2	17.39	17.45	17.66	17.64
1994	303	13.07	13.06	13.63	14.62	15.55	16.28	16.74	17.1	17.29	17.36	17.57	17.55
1994	304	12.18	13.04	13.82	14.62	15.41	16.11	16.59	17	17.19	17.27	17.49	17.47
1994	305	11.36	12.38	13.53	14.53	15.32	15.98	16.46	16.88	17.08	17.17	17.4	17.37
1994	306	10.32	11.55	13.04	14.3	15.18	15.86	16.34	16.77	16.98	17.07	17.3	17.28
1994	307	9.23	10.56	12.4	13.94	14.97	15.72	16.23	16.67	16.89	16.99	17.22	17.2
1994	308	10.77	11.16	12.18	13.57	14.71	15.55	16.1	16.57	16.79	16.89	17.13	17.11
1994	309	12.27	12.1	12.48	13.46	14.49	15.35	15.94	16.44	16.67	16.79	17.04	17.03
1994	310	11.01	11.86	12.7	13.52	14.36	15.17	15.78	16.31	16.55	16.67	16.93	16.92
1994	311	9.67	10.84	12.25	13.42	14.28	15.04	15.63	16.17	16.43	16.55	16.82	16.8
1994	312	9.84	10.62	11.86	13.15	14.14	14.92	15.5	16.06	16.31	16.44	16.7	16.68
1994	313	10.48	10.89	11.79	12.96	13.96	14.79	15.38	15.94	16.2	16.33	16.6	16.58
1994	314	9	10.4	11.73	12.86	13.81	14.64	15.24	15.82	16.08	16.21	16.49	16.47
1994	315	7.66	9.13	11.03	12.59	13.66	14.49	15.11	15.69	15.96	16.11	16.38	16.37
1994	316	7.17	8.6	10.47	12.18	13.42	14.33	14.97	15.57	15.85	16	16.27	16.26
1994	317	7.76	8.6	10.11	11.81	13.14	14.14	14.82	15.45	15.73	15.89	16.17	16.15
1994	318	8.72	9.07	10.13	11.58	12.88	13.93	14.66	15.32	15.61	15.78	16.06	16.04
1994	319	10.01	10	10.48	11.53	12.7	13.73	14.48	15.18	15.48	15.67	15.95	15.93
1994	320	8.09	9.36	10.57	11.61	12.61	13.56	14.31	15.03	15.34	15.54	15.82	15.8
1994	321	6.737	8.23	9.99	11.44	12.52	13.44	14.17	14.89	15.21	15.42	15.71	15.69
1994	322	7	7.95	9.51	11.1	12.34	13.31	14.05	14.77	15.1	15.3	15.6	15.58
1994	323	8.36	8.56	9.46	10.87	12.12	13.14	13.9	14.64	14.98	15.18	15.49	15.47
1994	324	7.96	8.73	9.69	10.82	11.95	12.97	13.75	14.51	14.85	15.06	15.38	15.36
1994	325	6.972	8.12	9.48	10.75	11.85	12.83	13.61	14.38	14.73	14.95	15.27	15.25
1994	326	6.997	7.88	9.17	10.56	11.72	12.69	13.47	14.25	14.61	14.83	15.16	15.14
1994	327	4.342	6.636	8.74	10.34	11.55	12.55	13.34	14.12	14.48	14.71	15.04	15.02
1994	328	1.571	4.344	7.49	9.83	11.31	12.39	13.19	13.99	14.36	14.59	14.93	14.91
1994	329	1.296	3.373	6.341	9.06	10.91	12.18	13.05	13.87	14.25	14.47	14.83	14.8
1994	330	1.287	3.104	5.734	8.39	10.43	11.87	12.85	13.72	14.11	14.35	14.71	14.69
1994	331	0.81	2.657	5.253	7.87	9.97	11.53	12.61	13.55	13.96	14.21	14.58	14.56
1994	332	0.633	2.311	4.797	7.41	9.56	11.2	12.36	13.37	13.8	14.07	14.45	14.42
1994	333	0.694	2.184	4.466	7.02	9.17	10.87	12.1	13.18	13.63	13.92	14.31	14.28
1994	334	1.064	2.331	4.297	6.687	8.8	10.53	11.83	12.96	13.44	13.75	14.15	14.13
1994	335	0.763	2.215	4.203	6.451	8.48	10.21	11.55	12.74	13.24	13.57	13.98	13.95
1994	336	1.354	2.245	4.016	6.229	8.22	9.94	11.29	12.52	13.03	13.39	13.82	13.79
1994	337	1.706	2.617	4.104	6.06	7.95	9.65	11.02	12.29	12.82	13.2	13.64	13.61
1994	338	2.83	3.198	4.251	5.966	7.73	9.39	10.76	12.06	12.61	13	13.46	13.44
1994	339	3.918	4.02	4.657	6.024	7.6	9.17	10.52	11.82	12.39	12.8	13.27	13.25
1994	340	4.654	4.701	5.121	6.189	7.55	9.01	10.31	11.61	12.18	12.61	13.08	13.06
1994	341	3.115	4.319	5.318	6.368	7.56	8.88	10.12	11.4	11.98	12.41	12.9	12.89
1994	342	1.112	2.884	4.757	6.309	7.58	8.82	9.99	11.23	11.81	12.24	12.72	12.71
1994	343	0.509	2.074	4.074	5.979	7.46	8.74	9.87	11.08	11.65	12.07	12.56	12.54
1994	344	0.107	1.587	3.583	5.616	7.25	8.61	9.76	10.95	11.51	11.92	12.41	12.39
1994	345	-0.326	1.211	3.171	5.237	6.953	8.43	9.62	10.82	11.38	11.78	12.26	12.25
1994	346	-1.757	0.622	2.683	4.862	6.631	8.17	9.41	10.64	11.21	11.63	12.11	12.11
1994	347	-3.474	-0.197	2.104	4.499	6.367	7.96	9.23	10.47	11.05	11.47	11.96	11.95
1994	348	-3.67	-0.972	1.58	4.093	6.1	7.74	9.05	10.32	10.91	11.33	11.82	11.8
1994	349	-3.26	-1.129	1.273	3.746	5.796	7.49	8.85	10.15	10.74	11.17	11.67	11.65
1994	350	-2.713	-1.069	1.109	3.494	5.521	7.25	8.64	9.98	10.58	11.02	11.52	11.49
1994	351	-2.342	-0.896	1.065	3.311	5.289	7.02	8.44	9.81	10.42	10.86	11.37	11.34
1994	352	-1.604	-0.657	1.069	3.183	5.092	6.807	8.23	9.63	10.25	10.71	11.22	11.19
1994	353	-1.237	-0.439	1.11	3.091	4.924	6.606	8.03	9.45	10.07	10.54	11.06	11.03
1994	354	-1.678	-0.439	1.124	3.019	4.785	6.431	7.84	9.27	9.9	10.38	10.9	10.87
1994	355	-1.489	-0.474	1.098	2.951	4.669	6.28	7.68	9.1	9.74	10.23	10.76	10.72
1994	356	-0.927	-0.482	1.035	2.868	4.552	6.134	7.51	8.94	9.59	10.08	10.61	10.58
1994	357	-0.805	-0.329	1.084	2.802	4.442	5.998	7.36	8.79	9.44	9.93	10.47	10.44
1994	358	-0.865	-0.193	1.145	2.768	4.352	5.871	7.22	8.64	9.29	9.79	10.33	10.3
1994	359	-1.094	-0.149	1.167	2.741	4.276	5.761	7.09	8.5	9.15	9.65	10.19	10.17

1994	360	-1.251	-0.198	1.132	2.696	4.198	5.653	6.959	8.36	9.01	9.51	10.06	10.03
1994	361	-1.45	-0.285	1.073	2.636	4.118	5.552	6.837	8.23	8.88	9.38	9.92	9.9
1994	362	-1.312	-0.417	0.992	2.568	4.035	5.462	6.728	8.11	8.75	9.26	9.8	9.77
1994	363	-1.646	-0.579	0.843	2.439	3.909	5.343	6.605	7.98	8.62	9.12	9.67	9.65
1994	364	-4.031	-1.299	0.584	2.301	3.801	5.221	6.475	7.85	8.49	8.99	9.54	9.52
1994	365	-4.717	-2.428	0.168	2.072	3.668	5.109	6.361	7.73	8.38	8.88	9.42	9.4
1995	1	-3.659	-2.281	0.064	1.916	3.527	4.99	6.255	7.63	8.27	8.77	9.31	9.29
1995	2	-3.071	-1.935	0.02	1.815	3.403	4.87	6.141	7.51	8.16	8.66	9.2	9.18
1995	3	-3.519	-1.914	-0.005	1.739	3.29	4.747	6.017	7.39	8.04	8.54	9.08	9.06
1995	4	-4.289	-2.261	-0.074	1.666	3.192	4.635	5.903	7.28	7.93	8.43	8.97	8.95
1995	5	-6.32	-3.177	-0.206	1.572	3.09	4.522	5.788	7.17	7.81	8.32	8.86	8.85
1995	6	-5.738	-3.541	-0.391	1.469	2.991	4.421	5.686	7.07	7.72	8.22	8.77	8.76
1995	7	-4.336	-5.065	-0.554	1.349	2.879	4.316	5.582	6.965	7.62	8.13	8.67	8.67
1995	8	-5.428	-3.102	-0.653	1.23	2.755	4.196	5.465	6.853	7.51	8.02	8.57	8.57
1995	9	-5.405	-3.431	-0.767	1.13	2.653	4.091	5.361	6.754	7.41	7.93	8.48	8.48
1995	10	-6.851	-3.899	-0.908	1.015	2.536	3.973	5.244	6.648	7.31	7.83	8.38	8.38
1995	11	-8.74	-5.098	-1.132	0.911	2.431	3.865	5.138	6.55	7.21	7.73	8.28	8.28
1995	12	-7.97	-5.485	-1.507	0.804	2.334	3.769	5.043	6.461	7.12	7.64	8.2	8.2
1995	13	-5.707	-4.627	-1.749	0.665	2.222	3.668	4.948	6.371	7.03	7.56	8.11	8.11
1995	15	-2.508	-2.533	-1.852	0.392	1.968	3.446	4.738	6.181	6.839	7.37	7.93	7.93
1995	16	-0.319	-0.796	-1.409	0.066	1.692	3.265	4.583	6.062	6.73	7.27	7.83	7.84
1995	17	0	-0.189	-0.836	-0.016	1.615	3.119	4.404	5.871	6.549	7.12	7.72	7.73
1995	18	0	-0.125	-0.564	-0.021	1.584	3.031	4.302	5.758	6.436	6.993	7.59	7.61
1995	19	0.01	-0.112	-0.421	0.078	1.594	2.984	4.231	5.676	6.348	6.892	7.48	7.5
1995	21	0.429	-0.109	-0.259	0.121	1.472	2.847	3.997	5.432	6.09	6.693	7.25	7.27
1995	22	0.09	-0.095	-0.168	0.244	1.443	2.725	3.808	5.207	5.853	6.58	7.07	7.07
1995	23	0.082	-0.069	-0.083	0.376	1.501	2.699	3.751	5.121	5.771	6.445	6.924	6.919
1995	24	0.092	-0.032	-0.015	0.473	1.553	2.69	3.724	5.067	5.713	6.326	6.819	6.8
1995	25	0.067	-0.005	0.044	0.546	1.597	2.69	3.71	5.023	5.663	6.244	6.737	6.682
1995	26	0.052	0.012	0.097	0.622	1.635	2.693	3.696	4.977	5.612	6.217	6.657	6.586
1995	27	-1.483	-0.007	0.157	0.697	1.683	2.704	3.693	4.941	5.568	6.186	6.584	6.544
1995	28	-3.201	-0.677	0.206	0.763	1.724	2.719	3.695	4.915	5.538	6.131	6.533	6.539
1995	29	-3.583	-1.49	0.164	0.815	1.764	2.74	3.701	4.893	5.515	6.084	6.487	6.497
1995	30	-2.666	-1.5	0.098	0.833	1.792	2.758	3.706	4.873	5.492	6.043	6.447	6.467
1995	31	-1.901	-1.212	0.019	0.821	1.801	2.765	3.707	4.858	5.468	6.005	6.401	6.428
1995	32	-1.05	-0.847	-0.025	0.811	1.801	2.768	3.706	4.841	5.447	5.971	6.362	6.39
1995	33	-2.52	-1.234	-0.054	0.794	1.784	2.753	3.685	4.805	5.409	5.927	6.32	6.348
1995	34	-4.018	-2.18	-0.127	0.769	1.772	2.738	3.672	4.784	5.383	5.893	6.283	6.312
1995	35	-4.023	-2.49	-0.297	0.727	1.752	2.724	3.656	4.764	5.362	5.863	6.253	6.28
1995	36	-4.67	-2.695	-0.525	0.662	1.717	2.702	3.634	4.741	5.336	5.831	6.221	6.247
1995	38	-10	-6.632	-2.145	0.398	1.588	2.623	3.571	4.68	5.271	5.764	6.151	6.178
1995	39	-10	-7.11	-3.04	0.147	1.471	2.564	3.542	4.654	5.246	5.735	6.116	6.143
1995	40	-8.11	-6.519	-3.475	-0.118	1.313	2.482	3.495	4.622	5.212	5.703	6.091	6.115
1995	42	-6.041	-5.115	-3.279	-0.522	1.002	2.26	3.351	4.524	5.121	5.617	6.002	6.026
1995	43	-6.644	-5.122	-3.206	-0.659	0.874	2.149	3.258	4.455	5.058	5.561	5.953	5.978
1995	44	-7.6	-5.925	-3.575	-0.793	0.765	2.046	3.168	4.387	4.995	5.511	5.914	5.949
1995	45	-6.954	-5.791	-3.751	-0.954	0.663	1.952	3.093	4.331	4.945	5.457	5.85	5.863
1995	46	-6.316	-5.321	-3.622	-1.07	0.586	1.883	3.028	4.277	4.9	5.419	5.825	5.846
1995	47	-3.787	-4.008	-3.21	-1.131	0.512	1.812	2.966	4.227	4.855	5.378	5.787	5.809
1995	48	-3.218	-3.172	-2.614	-1.074	0.445	1.738	2.897	4.169	4.802	5.331	5.743	5.764
1995	49	-2.004	-2.341	-2.201	-0.991	0.41	1.683	2.838	4.119	4.756	5.291	5.709	5.729
1995	50	-1.201	-1.655	-1.812	-0.901	0.393	1.637	2.788	4.07	4.712	5.25	5.671	5.695
1995	51	-1.209	-1.413	-1.535	-0.827	0.388	1.602	2.739	4.019	4.663	5.206	5.63	5.655
1995	52	-1.15	-1.291	-1.382	-0.757	0.394	1.583	2.704	3.979	4.624	5.166	5.593	5.616
1995	53	-2.728	-1.938	-1.381	-0.708	0.399	1.564	2.67	3.937	4.582	5.124	5.553	5.576
1995	54	-2.212	-2.043	-1.545	-0.673	0.416	1.558	2.65	3.908	4.551	5.092	5.521	5.543
1995	56	-2.316	-1.623	-1.269	-0.634	0.435	1.535	2.602	3.84	4.478	5.016	5.446	5.473
1995	57	-4.249	-2.829	-1.577	-0.61	0.441	1.531	2.584	3.814	4.45	4.984	5.416	5.439
1995	59	-4.522	-3.825	-2.448	-0.681	0.455	1.526	2.564	3.774	4.404	4.931	5.358	5.381
1995	60	-2.76	-2.836	-2.257	-0.769	0.427	1.511	2.544	3.746	4.371	4.896	5.325	5.348
1995	61	-2.292	-2.2	-1.89	-0.779	0.394	1.485	2.52	3.717	4.337	4.858	5.282	5.305
1995	62	-3.252	-2.566	-1.85	-0.759	0.371	1.458	2.49	3.685	4.303	4.821	5.244	5.264
1995	63	-2.945	-2.59	-1.935	-0.761	0.365	1.444	2.471	3.663	4.28	4.794	5.216	5.234
1995	64	-2.036	-2.027	-1.767	-0.761	0.356	1.428	2.451	3.641	4.252	4.765	5.187	5.207
1995	65	-1.588	-1.658	-1.575	-0.725	0.352	1.415	2.432	3.618	4.226	4.735	5.156	5.177
1995	66	-1.564	-1.523	-1.43	-0.69	0.352	1.403	2.41	3.589	4.194	4.702	5.124	5.146
1995	67	-1.358	-1.44	-1.345	-0.658	0.361	1.395	2.393	3.56	4.166	4.671	5.091	5.113
1995	68	-1.937	-1.579	-1.294	-0.633	0.366	1.385	2.373	3.532	4.135	4.639	5.06	5.084
1995	69	-3.276	-2.355	-1.472	-0.613	0.371	1.38	2.357	3.51	4.111	4.612	5.035	5.056
1995	70	-2.407	-2.069	-1.595	-0.618	0.378	1.376	2.347	3.492	4.093	4.595	5.019	5.044
1995	71	-2.521	-2.209	-1.612	-0.616	0.383	1.378	2.343	3.482	4.083	4.582	5.004	5.027
1995	72	-1.059	-1.424	-1.441	-0.612	0.389	1.381	2.339	3.474	4.071	4.567	4.989	5.01
1995	73	-0.338	-0.875	-1.203	-0.588	0.392	1.377	2.332	3.46	4.056	4.547	4.969	4.992
1995	74	0.644	-0.478	-1.025	-0.568	0.394	1.371	2.318	3.442	4.035	4.525	4.949	4.974
1995	75	1.862	-0.432	-0.855	-0.54	0.403	1.372	2.315	3.435	4.027	4.512	4.936	4.96
1995	76	2.343	-0.268	-0.733	-0.5	0.421	1.383	2.317	3.43	4.027	4.504	4.933	4.95
1995	77	2.469	-0.135	-0.643	-0.469	0.436	1.388	2.314	3.422	4.026	4.497	4.936	4.963
1995	78	2.831	0.327	-0.575	-0.446	0.443	1.396	2.324	3.442	4.042	4.501	4.918	4.943
1995	79	3.411	0.918	-0.523	-0.438	0.448	1.41	2.368	3.46	4.022	4.543	4.886	4.907
1995	80	3.594	1.475	-0.47	-0.412	0.473	1.425	2.39	3.454	3.979	4.504	4.845	4.871
1995	81	2.563	1.089	-0.419	-0.38	0.477	1.422	2.39	3.426	3.901	4.441	4.795	4.815
1995	82	3.021	1.275	-0.375	-0.361	0.454	1.382	2.293	3.337	3.817	4.343	4.737	4.73
1995	83	3.175	1.646	-0.31	-0.337	0.451	1.335	2.201	3.251	3.739	4.249	4.675	4.638
1995	84	3.078	1.661	-0.218	-0.3	0.46	1.304	2.133	3.196	3.667	4.179	4.625	4.561

1995	85	4.295	2.397	-0.022	-0.249	0.477	1.281	2.075	3.115	3.587	4.104	4.567	4.499
1995	86	4.762	2.949	0.507	-0.182	0.497	1.265	2.025	3.04	3.511	4.011	4.504	4.445
1995	87	5.635	3.634	1.229	0	0.546	1.264	1.985	2.982	3.436	3.945	4.443	4.391
1995	88	6.474	4.56	2.194	0.58	0.694	1.292	1.956	2.939	3.365	3.89	4.379	4.348
1995	89	7.42	5.409	3.02	1.268	0.984	1.384	1.958	2.904	3.313	3.835	4.265	4.303
1995	90	7.37	5.876	3.702	1.87	1.326	1.537	2.011	2.897	3.286	3.797	4.139	4.255
1995	91	6.198	5.345	3.879	2.358	1.692	1.74	2.114	2.925	3.289	3.775	4.099	4.23
1995	92	6.397	5.349	3.913	2.631	2.004	1.971	2.261	2.989	3.316	3.774	4.089	4.217
1995	93	5.457	5.35	4.149	2.905	2.274	2.188	2.421	3.074	3.372	3.805	4.103	4.233
1995	94	4.365	4.247	3.848	3.165	2.595	2.412	2.549	3.141	3.408	3.831	4.124	4.248
1995	95	2.333	3.156	3.405	3.134	2.753	2.609	2.693	3.206	3.452	3.837	4.142	4.264
1995	96	1.156	2.102	2.674	2.882	2.782	2.753	2.864	3.335	3.565	3.883	4.202	4.309
1995	97	1.276	1.476	2.029	2.57	2.724	2.839	3.001	3.456	3.68	3.969	4.27	4.366
1995	98	2.712	2.254	2.047	2.369	2.625	2.864	3.095	3.563	3.782	4.053	4.342	4.435
1995	99	5.1	3.749	2.622	2.463	2.604	2.875	3.157	3.649	3.915	4.122	4.412	4.496
1995	100	5.446	4.503	3.37	2.828	2.718	2.91	3.204	3.714	4.023	4.191	4.497	4.556
1995	101	6.589	5.481	4.001	3.224	2.929	3.012	3.266	3.776	4.09	4.252	4.588	4.614
1995	102	7.33	6.389	4.741	3.692	3.207	3.163	3.362	3.849	4.157	4.315	4.646	4.669
1995	103	7.57	6.676	5.381	4.287	3.59	3.369	3.465	3.905	4.199	4.356	4.697	4.715
1995	104	7.8	6.895	5.618	4.643	3.916	3.606	3.613	3.98	4.256	4.389	4.741	4.76
1995	105	7.59	7.07	5.884	4.929	4.193	3.836	3.785	4.093	4.352	4.458	4.807	4.821
1995	106	7.33	6.819	5.911	5.139	4.443	4.056	3.961	4.216	4.459	4.534	4.883	4.899
1995	107	8.15	7.1	5.993	5.286	4.647	4.264	4.141	4.352	4.582	4.617	4.972	4.981
1995	108	10.26	8.54	6.617	5.54	4.841	4.452	4.311	4.487	4.703	4.712	5.07	5.072
1995	109	11.25	9.9	7.59	6.039	5.113	4.645	4.478	4.62	4.827	4.816	5.165	5.167
1995	110	11.81	10.07	8.07	6.586	5.491	4.889	4.655	4.752	4.95	5.007	5.268	5.265
1995	111	12.03	11.18	8.91	7.09	5.865	5.162	4.854	4.899	5.08	5.218	5.374	5.398
1995	112	11.16	10.3	8.93	7.55	6.279	5.464	5.074	5.055	5.22	5.335	5.486	5.513
1995	113	11.94	10.75	9.11	7.78	6.595	5.765	5.31	5.225	5.371	5.457	5.605	5.634
1995	114	12.31	11.22	9.48	8.07	6.873	6.035	5.546	5.407	5.53	5.597	5.752	5.761
1995	115	13.25	11.94	9.92	8.39	7.16	6.293	5.776	5.596	5.697	5.743	5.893	5.897
1995	116	14.19	12.68	10.47	8.79	7.47	6.555	6.002	5.784	5.865	5.884	6.036	6.032
1995	117	13.57	12.97	11.01	9.23	7.81	6.826	6.228	5.969	6.034	6.04	6.181	6.172
1995	118	11.96	11.83	10.84	9.54	8.16	7.11	6.463	6.156	6.206	6.194	6.325	6.321
1995	119	11.08	11.23	10.51	9.57	8.39	7.39	6.706	6.353	6.386	6.35	6.473	6.467
1995	120	11.2	10.75	10.11	9.48	8.51	7.61	6.934	6.553	6.569	6.512	6.628	6.619
1995	121	12.83	11.69	10.3	9.45	8.57	7.77	7.13	6.747	6.751	6.675	6.786	6.777
1995	122	14.21	12.6	10.81	9.66	8.68	7.91	7.3	6.925	6.922	6.839	6.94	6.929
1995	123	16.87	14.58	11.79	10.06	8.89	8.06	7.46	7.09	7.06	6.995	7.09	7.08
1995	124	17.94	15.74	12.84	10.72	9.23	8.27	7.63	7.25	7.23	7.14	7.23	7.22
1995	125	19.13	17.02	13.85	11.41	9.67	8.54	7.82	7.41	7.39	7.29	7.37	7.36
1995	126	18.47	17.12	14.51	12.09	10.16	8.87	8.05	7.58	7.55	7.43	7.5	7.5
1995	127	17.21	16.48	14.59	12.54	10.62	9.23	8.31	7.77	7.72	7.58	7.65	7.65
1995	128	17.31	16.22	14.47	12.74	10.98	9.58	8.59	7.98	7.91	7.75	7.81	7.81
1995	129	19.46	17.4	14.85	12.95	11.25	9.88	8.86	8.21	8.11	7.93	7.99	7.98
1995	130	19.45	18.45	15.75	13.41	11.55	10.16	9.12	8.43	8.32	8.12	8.16	8.15
1995	134	18.19	17.06	15.16	13.72	12.38	11.2	10.16	9.37	9.19	8.9	8.91	8.9
1995	134	18.19	17.06	15.16	13.72	12.38	11.2	10.16	9.37	9.19	8.9	8.91	8.9
1995	135	17.19	16.74	15.39	13.97	12.54	11.35	10.34	9.56	9.38	9.09	9.09	9.08
1995	136	17.62	16.53	15.24	14.06	12.71	11.53	10.52	9.75	9.57	9.28	9.27	9.26
1995	137	17.56	17.36	15.7	14.2	12.83	11.69	10.69	9.94	9.75	9.45	9.44	9.43
1995	138	16.15	15.69	15.17	14.3	13	11.85	10.87	10.11	9.92	9.63	9.61	9.6
1995	139	18.54	17.14	15.38	14.23	13.07	12	11.04	10.29	10.1	9.79	9.78	9.75
1995	140	18.96	17.75	15.94	14.49	13.2	12.13	11.19	10.45	10.26	9.96	9.94	9.91
1995	141	20.26	18.67	16.45	14.8	13.4	12.28	11.35	10.61	10.42	10.12	10.09	10.06
1995	142	20.07	18.89	16.94	15.19	13.65	12.47	11.52	10.77	10.57	10.27	10.24	10.21
1995	143	20.5	19.4	17.31	15.52	13.92	12.68	11.69	10.93	10.73	10.42	10.39	10.36
1995	144	19.84	19.05	17.45	15.81	14.2	12.9	11.88	11.09	10.88	10.57	10.54	10.52
1995	149	20.32	20.6	19.6	17.79	15.76	14.14	12.93	11.97	11.72	11.36	11.31	11.29
1995	150	22.07	20.49	19.01	17.69	16	14.44	13.18	12.18	11.91	11.53	11.47	11.46
1995	151	24.9	22.49	19.74	17.79	16.12	14.66	13.42	12.39	12.11	11.72	11.64	11.63
1995	152	26.87	24.35	20.93	18.33	16.38	14.86	13.63	12.59	12.3	11.9	11.82	11.8
1995	153	26.52	24.95	21.88	19.04	16.81	15.13	13.84	12.79	12.49	12.08	11.99	11.97
1995	154	23.57	23.62	21.91	19.53	17.26	15.45	14.08	12.98	12.67	12.25	12.16	12.13
1995	155	22.37	21.79	20.97	19.53	17.57	15.78	14.35	13.2	12.87	12.44	12.33	12.3
1995	156	24.92	23.11	21.04	19.39	17.68	16.04	14.61	13.42	13.09	12.64	12.52	12.48
1995	157	27.05	24.7	21.85	19.65	17.83	16.23	14.83	13.65	13.3	12.84	12.7	12.66
1995	158	28.71	26.23	22.88	20.2	18.12	16.44	15.04	13.86	13.5	13.04	12.89	12.84
1995	159	27.39	26.18	23.56	20.82	18.51	16.71	15.26	14.05	13.69	13.22	13.07	13
1995	160	27.17	25.86	23.59	21.19	18.92	17.03	15.51	14.26	13.89	13.41	13.24	13.18
1995	161	27.97	26.26	23.79	21.44	19.23	17.34	15.77	14.48	14.09	13.6	13.42	13.38
1995	162	27.49	26.67	24.26	21.77	19.52	17.63	16.03	14.71	14.3	13.79	13.6	13.57
1995	163	26.11	25.38	23.9	21.96	19.81	17.91	16.3	14.93	14.51	13.98	13.78	13.76
1995	164	26.75	25.5	23.74	21.94	19.96	18.16	16.55	15.16	14.71	14.18	13.96	13.95
1995	165	28.9	26.81	24.18	22.07	20.12	18.37	16.79	15.38	14.92	14.38	14.17	14.15
1995	166	29.26	27.5	24.85	22.44	20.34	18.56	17	15.59	15.13	14.57	14.36	14.33
1995	167	29.79	28.04	25.34	22.84	20.63	18.79	17.22	15.79	15.33	14.78	14.55	14.52
1995	168	30.68	28.69	25.84	23.24	20.95	19.05	17.44	16	15.53	14.96	14.74	14.71
1995	170	33.36	30.83	27.44	24.22	21.67	19.61	17.91	16.42	15.94	15.34	15.11	15.09
1995	171	33.1	31.26	28.13	24.82	22.11	19.94	18.17	16.64	16.14	15.54	15.31	15.29
1995	172	32.12	30.68	28.24	25.27	22.55	20.29	18.45	16.88	16.36	15.75	15.49	15.48
1995	173	32.48	30.82	28.32	25.5	22.9	20.64	18.76	17.12	16.6	15.97	15.67	15.67
1995	174	33.54	31.45	28.63	25.74	23.2	20.96	19.05	17.36	16.84	16.19	15.88	15.87
1995	175	34.52	32.35	29.19	26.12	23.51	21.26	19.34	17.63	17.09	16.41	16.09	16.09

1995	176	35.16	32.91	29.7	26.56	23.87	21.56	19.63	17.89	17.33	16.64	16.28	16.31
1995	177	34.81	33.16	30.16	27.01	24.25	21.88	19.91	18.14	17.58	16.87	16.5	16.53
1995	178	34.13	32.79	30.23	27.34	24.62	22.21	20.21	18.4	17.82	17.1	16.74	16.75
1995	179	33.66	32.45	30.17	27.52	24.91	22.51	20.51	18.66	18.07	17.33	16.97	16.97
1995	180	34.6	32.73	30.19	27.64	25.14	22.8	20.8	18.92	18.32	17.56	17.19	17.2
1995	181	35.38	33.53	30.65	27.87	25.35	23.05	21.07	19.18	18.57	17.79	17.41	17.44
1995	182	35.15	33.7	31.01	28.2	25.62	23.3	21.32	19.43	18.82	18.02	17.63	17.66
1995	183	32.41	32.35	30.84	28.41	25.89	23.56	21.57	19.67	19.05	18.24	17.84	17.89
1995	184	31.12	30.81	30.05	28.26	26.04	23.8	21.82	19.92	19.26	18.45	18.05	18.11
1995	185	32.19	31.06	29.74	27.97	26.04	23.98	22.05	20.15	19.5	18.66	18.25	18.33
1995	186	32.48	31.66	29.98	27.93	26.02	24.08	22.24	20.37	19.73	18.87	18.45	18.55
1995	187	32.62	31.44	29.79	27.98	26.08	24.18	22.39	20.57	19.91	19.06	18.66	18.76
1995	188	32.19	31.41	29.82	28.02	26.14	24.28	22.54	20.75	20.09	19.28	18.85	18.95
1995	189	30.06	30.51	29.61	28.02	26.2	24.38	22.67	20.91	20.28	19.46	19.03	19.14
1995	190	27.69	28.48	28.59	27.75	26.2	24.47	22.8	21.07	20.45	19.63	19.2	19.31
1995	191	27.81	27.59	27.66	27.22	26.04	24.5	22.91	21.21	20.61	19.79	19.35	19.48
1995	192	29.79	28.72	27.64	26.85	25.8	24.46	22.98	21.34	20.75	19.94	19.51	19.63
1995	193	31.14	29.8	28.14	26.86	25.67	24.39	23.01	21.44	20.87	20.06	19.65	19.78
1995	194	32.64	30.82	28.71	27.09	25.69	24.37	23.03	21.52	20.95	20.19	19.78	19.91
1995	195	35.06	32.45	29.59	27.47	25.82	24.4	23.07	21.59	21.03	20.31	19.9	20.02
1995	196	35.58	33.71	30.71	28.07	26.06	24.51	23.13	21.66	21.13	20.4	20	20.13
1995	197	32.74	32.74	30.95	28.6	26.44	24.69	23.24	21.74	21.22	20.5	20.11	20.24
1995	198	27.33	29.34	29.79	28.58	26.69	24.9	23.38	21.83	21.33	20.6	20.22	20.35
1995	199	26.41	27.19	28	27.9	26.64	25.05	23.55	21.95	21.45	20.72	20.33	20.45
1995	200	28.12	27.48	27.34	27.21	26.35	25.04	23.66	22.07	21.58	20.84	20.45	20.56
1995	201	28.78	28.78	27.78	26.98	26.08	24.95	23.69	22.16	21.68	20.95	20.56	20.68
1995	202	28.51	27.73	27.37	26.9	25.97	24.88	23.69	22.23	21.77	21.05	20.66	20.78
1995	203	31.36	29.63	27.87	26.82	25.86	24.82	23.69	22.28	21.83	21.13	20.75	20.87
1995	204	30.56	30.41	28.73	27.14	25.89	24.77	23.67	22.31	21.88	21.2	20.83	20.95
1995	205	28.39	28.31	28.09	27.26	26.01	24.8	23.68	22.33	21.92	21.26	20.9	21.01
1995	206	30.07	29.05	27.96	27.08	26	24.85	23.71	22.37	21.97	21.31	20.95	21.07
1995	208	33.31	31.45	29.2	27.46	26.08	24.87	23.77	22.45	22.06	21.42	21.06	21.18
1995	209	33.47	32.13	29.9	27.9	26.28	24.95	23.81	22.49	22.11	21.46	21.12	21.24
1995	210	33.53	32.1	30.16	28.26	26.54	25.09	23.88	22.54	22.16	21.52	21.17	21.29
1995	211	34.24	32.73	30.56	28.54	26.77	25.25	23.99	22.61	22.22	21.58	21.24	21.36
1995	213	34.39	33.37	31.27	29.15	27.25	25.6	24.24	22.79	22.38	21.73	21.38	21.51
1995	213	34.39	33.37	31.27	29.15	27.25	25.6	24.24	22.79	22.38	21.73	21.38	21.51
1995	214	32.33	32.09	31.04	29.34	27.47	25.78	24.39	22.9	22.48	21.81	21.47	21.59
1995	215	31.54	31.61	30.67	29.26	27.59	25.95	24.54	23.02	22.59	21.91	21.56	21.68
1995	216	29.62	30.04	29.93	29.06	27.62	26.07	24.67	23.14	22.7	22	21.66	21.77
1995	217	28.85	29.59	29.38	28.7	27.53	26.13	24.77	23.25	22.8	22.11	21.76	21.88
1995	218	27.27	27.68	28.34	28.28	27.37	26.12	24.84	23.35	22.9	22.21	21.86	21.96
1995	219	29.1	28.42	28.03	27.79	27.12	26.06	24.87	23.43	23	22.31	21.95	22.05
1995	220	30.64	29.55	28.41	27.68	26.92	25.95	24.87	23.49	23.07	22.39	22.03	22.13
1995	221	31.81	30.51	28.97	27.82	26.86	25.87	24.84	23.52	23.12	22.45	22.09	22.2
1995	222	32.73	31.36	29.55	28.1	26.93	25.85	24.82	23.54	23.15	22.5	22.15	22.25
1995	223	32.34	31.71	30.05	28.42	27.07	25.89	24.83	23.56	23.19	22.54	22.2	22.3
1995	224	32.02	31.12	29.93	28.61	27.24	25.98	24.87	23.6	23.22	22.58	22.24	22.35
1995	225	31.85	31.29	30.04	28.68	27.35	26.07	24.93	23.64	23.27	22.63	22.3	22.4
1995	226	32.16	31.31	30.03	28.74	27.44	26.15	25.01	23.69	23.32	22.68	22.35	22.45
1995	227	32.52	31.42	30.11	28.81	27.51	26.23	25.08	23.76	23.38	22.74	22.41	22.5
1995	228	34	32.46	30.55	28.95	27.59	26.3	25.15	23.82	23.44	22.8	22.47	22.57
1995	229	34.33	32.99	31.05	29.25	27.74	26.39	25.22	23.89	23.51	22.86	22.53	22.63
1995	230	34.71	33.34	31.4	29.54	27.94	26.51	25.3	23.96	23.58	22.93	22.6	22.71
1995	231	34.21	33.32	31.64	29.8	28.14	26.66	25.4	24.04	23.66	23	22.68	22.78
1995	232	33.95	33.08	31.62	29.96	28.32	26.81	25.52	24.13	23.74	23.08	22.75	22.85
1995	233	34.56	33.37	31.71	30.05	28.46	26.96	25.64	24.23	23.83	23.17	22.84	22.94
1995	234	32.59	32.86	31.79	30.18	28.59	27.08	25.76	24.33	23.93	23.26	22.93	23.04
1995	235	29.85	30.69	30.87	30.04	28.67	27.2	25.88	24.44	24.03	23.35	23.02	23.12
1995	236	28.66	29.55	29.97	29.58	28.57	27.27	25.98	24.54	24.12	23.44	23.11	23.22
1995	237	27.43	28.2	29.06	29.05	28.35	27.25	26.04	24.63	24.21	23.53	23.2	23.3
1995	238	27.59	28.2	28.63	28.52	28.06	27.15	26.05	24.7	24.29	23.61	23.28	23.38
1995	239	28.06	27.9	28.21	28.14	27.78	27.01	26.02	24.74	24.34	23.67	23.34	23.44
1995	240	28.73	28.47	28.29	27.91	27.53	26.85	25.95	24.75	24.36	23.72	23.4	23.5
1995	241	30	29.2	28.53	27.85	27.38	26.71	25.88	24.73	24.36	23.75	23.43	23.53
1995	242	29.56	29.33	28.82	27.94	27.31	26.61	25.8	24.71	24.35	23.76	23.45	23.55
1995	243	28.2	28.92	28.8	27.97	27.3	26.55	25.74	24.67	24.34	23.76	23.47	23.57
1995	244	26.79	27.32	27.97	27.78	27.25	26.5	25.69	24.65	24.32	23.75	23.47	23.57
1995	245	26.59	27.02	27.51	27.41	27.07	26.43	25.65	24.62	24.3	23.74	23.47	23.57
1995	246	25.56	26.64	27.22	27.13	26.86	26.32	25.59	24.59	24.28	23.74	23.47	23.57
1995	247	25.61	25.7	26.51	26.77	26.65	26.18	25.51	24.55	24.26	23.72	23.46	23.55
1995	248	27.18	26.93	26.7	26.48	26.4	26.02	25.42	24.51	24.21	23.7	23.44	23.54
1995	249	26.44	26.62	26.76	26.47	26.25	25.87	25.31	24.45	24.16	23.67	23.42	23.52
1995	250	25.39	26.46	26.7	26.41	26.14	25.74	25.2	24.37	24.11	23.63	23.4	23.49
1995	251	22.1	23.71	25.56	26.15	26.01	25.64	25.11	24.31	24.06	23.59	23.36	23.45
1995	252	23.39	23.87	24.84	25.59	25.72	25.49	25.02	24.24	24	23.54	23.33	23.41
1995	253	23.5	24.1	24.75	25.25	25.4	25.29	24.89	24.17	23.93	23.49	23.29	23.37
1995	254	23.37	23.84	24.55	25.01	25.16	25.08	24.75	24.08	23.86	23.44	23.24	23.32
1995	255	24.03	24.14	24.51	24.81	24.94	24.89	24.6	23.98	23.77	23.37	23.18	23.26
1995	256	24.66	24.81	24.75	24.73	24.78	24.71	24.45	23.87	23.68	23.3	23.12	23.2
1995	257	23.01	23.96	24.59	24.69	24.66	24.56	24.3	23.75	23.58	23.21	23.05	23.13
1995	258	21.48	22.55	23.86	24.45	24.52	24.43	24.18	23.64	23.48	23.13	22.97	23.05
1995	259	21.37	22.35	23.4	24.05	24.29	24.28	24.06	23.54	23.4	23.05	22.89	22.97
1995	260	21.32	22.23	23.13	23.74	24.04	24.1	23.92	23.44	23.3	22.97	22.82	22.9

1995	261	19.57	20.89	22.5	23.42	23.8	23.91	23.78	23.33	23.21	22.88	22.73	22.81
1995	262	20.12	20.85	22.03	23	23.51	23.7	23.61	23.2	23.09	22.78	22.65	22.74
1995	263	20.21	21.23	22.06	22.73	23.23	23.48	23.45	23.08	22.99	22.69	22.57	22.64
1995	264	19.35	20.35	21.63	22.5	23.01	23.26	23.27	22.95	22.86	22.59	22.47	22.55
1995	265	18.71	20.01	21.26	22.17	22.74	23.05	23.09	22.81	22.74	22.49	22.38	22.46
1995	266	17.27	18.69	20.54	21.79	22.47	22.83	22.91	22.67	22.62	22.38	22.28	22.37
1995	267	17.18	18.45	20.04	21.32	22.15	22.59	22.73	22.53	22.48	22.27	22.17	22.26
1995	268	17.06	18.25	19.7	20.95	21.84	22.34	22.53	22.38	22.34	22.15	22.07	22.15
1995	269	17.6	18.21	19.45	20.63	21.53	22.08	22.32	22.21	22.21	22.03	21.95	22.04
1995	270	18.25	18.72	19.53	20.42	21.25	21.82	22.11	22.05	22.06	21.9	21.83	21.91
1995	328	0.694	2.363	4.415	6.366	8.08	9.65	10.99	12.28	12.72	13.34	13.4	13.51
1995	329	-0.072	1.637	3.912	6.072	7.88	9.46	10.79	12.07	12.51	13.12	13.18	13.29
1995	330	-0.145	1.325	3.494	5.732	7.63	9.25	10.59	11.87	12.31	12.91	12.98	13.11
1995	331	0.037	1.338	3.303	5.449	7.38	9.02	10.37	11.66	12.1	12.7	12.79	12.92
1995	332	0.019	1.351	3.21	5.246	7.12	8.78	10.15	11.45	11.89	12.49	12.59	12.72
1995	333	-1.092	0.96	3.017	5.064	6.899	8.55	9.92	11.23	11.68	12.28	12.39	12.53
1995	334	-2.719	0.279	2.803	4.81	6.679	8.33	9.7	11.02	11.48	12.07	12.2	12.33
1995	335	-1.989	-0.052	2.193	4.496	6.438	8.11	9.49	10.82	11.27	11.87	12	12.13
1995	336	-1.91	-0.067	2.012	4.227	6.173	7.87	9.26	10.59	11.05	11.65	11.8	11.93
1995	337	-2.9	-0.408	1.826	4.008	5.925	7.62	9.03	10.37	10.83	11.43	11.58	11.71
1995	338	-2.156	-0.516	1.638	3.798	5.7	7.39	8.8	10.15	10.61	11.21	11.38	11.5
1995	339	-3.09	-0.775	1.489	3.587	5.461	7.14	8.55	9.9	10.37	10.97	11.16	11.3
1995	340	-2.702	-0.999	1.278	3.389	5.249	6.923	8.33	9.7	10.17	10.76	10.94	11.05
1995	341	-2.565	-0.995	1.158	3.226	5.064	6.721	8.13	9.49	9.97	10.56	10.76	10.88
1995	342	-4.396	-1.574	1.007	3.053	4.865	6.506	7.91	9.29	9.77	10.37	10.58	10.69
1995	343	-5.614	-2.644	0.694	2.851	4.672	6.304	7.71	9.09	9.57	10.17	10.4	10.5
1995	344	-5.715	-2.992	0.405	2.609	4.465	6.1	7.51	8.89	9.38	9.98	10.21	10.32
1995	345	-6.696	-3.594	0.155	2.371	4.246	5.89	7.3	8.69	9.18	9.79	10.03	10.13
1995	346	-8.26	-4.63	-0.222	2.127	4.022	5.675	7.1	8.5	8.99	9.6	9.85	9.95
1995	347	-9.1	-5.48	-0.866	1.858	3.789	5.458	6.894	8.31	8.81	9.42	9.67	9.77
1995	348	-8.93	-5.819	-1.474	1.567	3.543	5.24	6.693	8.12	8.63	9.24	9.49	9.6
1995	349	-6.488	-4.922	-1.732	1.289	3.294	5.016	6.489	7.94	8.44	9.06	9.32	9.42
1995	350	-4.637	-3.709	-1.545	1.069	3.052	4.787	6.28	7.75	8.26	8.88	9.14	9.25
1995	351	-3.501	-2.877	-1.279	0.945	2.852	4.571	6.077	7.56	8.09	8.71	8.96	9.06
1995	352	-4.355	-2.863	-1.14	0.877	2.696	4.371	5.872	7.38	7.91	8.54	8.82	8.92
1995	353	-6.517	-4.092	-1.489	0.804	2.567	4.201	5.689	7.2	7.74	8.37	8.67	8.77
1995	354	-6.968	-4.83	-1.909	0.686	2.442	4.053	5.525	7.04	7.58	8.22	8.52	8.61
1995	355	-6.325	-4.716	-2.084	0.541	2.305	3.907	5.371	6.885	7.43	8.07	8.38	8.47
1995	356	-4.468	-3.856	-1.988	0.407	2.16	3.757	5.219	6.732	7.28	7.92	8.24	8.34
1995	357	-2.798	-2.64	-1.563	0.325	2.03	3.611	5.072	6.585	7.14	7.78	8.11	8.21
1995	358	-2.895	-2.319	-1.265	0.321	1.939	3.479	4.927	6.446	7.01	7.65	7.99	8.08
1995	359	-3.212	-2.406	-1.204	0.333	1.884	3.372	4.802	6.314	6.881	7.52	7.87	7.97
1995	360	-3.758	-2.637	-1.249	0.324	1.837	3.283	4.689	6.193	6.763	7.4	7.75	7.85
1995	361	-3.89	-2.893	-1.397	0.286	1.784	3.205	4.59	6.08	6.65	7.29	7.64	7.74
1995	362	-3.551	-2.742	-1.415	0.241	1.724	3.125	4.495	5.97	6.538	7.18	7.53	7.63
1995	363	-3.881	-2.933	-1.461	0.205	1.664	3.046	4.403	5.867	6.435	7.07	7.42	7.52
1995	364	-2.918	-2.507	-1.402	0.171	1.61	2.972	4.318	5.765	6.332	6.957	7.31	7.41
1995	365	-2.048	-1.963	-1.19	0.164	1.564	2.902	4.232	5.667	6.229	6.85	7.21	7.3
1996	1	-3.026	-1.966	-1.027	0.183	1.527	2.832	4.143	5.563	6.125	6.74	7.1	7.2
1996	2	-6.552	-3.736	-1.449	0.166	1.5	2.772	4.063	5.467	6.027	6.637	6.999	7.1
1996	3	-8.72	-5.657	-2.333	0.069	1.445	2.719	3.994	5.383	5.938	6.542	6.905	7
1996	4	-10.67	-6.945	-2.974	-0.077	1.352	2.647	3.919	5.296	5.852	6.448	6.812	6.908
1996	5	-11.4	-7.83	-3.647	-0.325	1.242	2.562	3.842	5.217	5.765	6.361	6.723	6.817
1996	6	-12.82	-8.96	-4.338	-0.646	1.11	2.462	3.754	5.133	5.679	6.271	6.633	6.726
1996	7	-12.99	-9.42	-4.916	-1.003	0.979	2.355	3.661	5.046	5.591	6.179	6.542	6.632
1996	8	-12.74	-9.62	-5.337	-1.368	0.848	2.246	3.568	4.959	5.504	6.088	6.449	6.539
1996	9	-9.87	-8.43	-5.308	-1.695	0.715	2.132	3.47	4.869	5.418	5.999	6.36	6.449
1996	10	-7.8	-6.808	-4.688	-1.833	0.585	2.014	3.367	4.778	5.326	5.909	6.271	6.358
1996	11	-9.43	-7.14	-4.506	-1.865	0.448	1.884	3.248	4.674	5.222	5.81	6.174	6.262
1996	12	-9.28	-7.52	-4.833	-2.008	0.337	1.773	3.144	4.578	5.131	5.72	6.085	6.173
1996	13	-7.47	-6.669	-4.666	-2.111	0.237	1.674	3.048	4.488	5.043	5.632	6.002	6.087
1996	14	-6.729	-5.867	-4.231	-2.087	0.137	1.575	2.951	4.395	4.953	5.544	5.917	6.005
1996	15	-8.18	-6.124	-4.097	-2.047	0.04	1.474	2.846	4.295	4.855	5.452	5.831	5.924
1996	16	-10.13	-7.6	-4.71	-2.19	-0.048	1.386	2.756	4.21	4.772	5.37	5.752	5.838
1996	17	-8.295	-6.456	-4.791	-2.36	-0.127	1.319	2.687	4.139	4.701	5.297	5.68	5.764
1996	18	-2.878	-3.941	-3.721	-2.215	-0.225	1.239	2.609	4.057	4.624	5.217	5.605	5.692
1996	19	-1.22	-2.333	-2.723	-1.839	-0.28	1.16	2.526	3.977	4.544	5.133	5.529	5.614
1996	20	-1.262	-1.743	-2.058	-1.486	-0.266	1.094	2.447	3.897	4.464	5.05	5.45	5.537
1996	21	-3.142	-2.335	-1.849	-1.238	-0.21	1.062	2.386	3.819	4.389	4.975	5.384	5.492
1996	22	-3.493	-2.943	-2.06	-1.15	-0.162	1.059	2.353	3.777	4.345	4.917	5.329	5.421
1996	23	-2.391	-2.546	-2.063	-1.145	-0.135	1.058	2.33	3.732	4.3	4.862	5.273	5.372
1996	24	-1.792	-2.079	-1.849	-1.086	-0.122	1.051	2.306	3.692	4.253	4.807	5.22	5.314
1996	25	-3.641	-2.436	-1.739	-1.011	-0.112	1.032	2.271	3.639	4.193	4.743	5.155	5.258
1996	26	-5.504	-3.824	-2.196	-1.023	-0.095	1.028	2.252	3.604	4.155	4.694	5.102	5.203
1996	27	-4.313	-3.925	-2.628	-1.2	-0.101	1.026	2.235	3.571	4.115	4.647	5.055	5.152
1996	28	-4.166	-3.383	-2.483	-1.298	-0.141	1.003	2.208	3.528	4.067	4.594	5	5.103
1996	29	-6.981	-4.774	-2.841	-1.358	-0.179	0.972	2.177	3.488	4.027	4.545	4.949	5.053
1996	30	-6.537	-5.289	-3.419	-1.587	-0.217	0.95	2.156	3.461	3.993	4.502	4.903	5.004
1996	31	-8	-5.798	-3.704	-1.814	-0.29	0.91	2.12	3.42	3.947	4.455	4.854	4.962
1996	32	-10.96	-7.74	-4.574	-2.116	-0.376	0.859	2.077	3.375	3.901	4.408	4.8	4.909
1996	33	-10.45	-8.29	-5.385	-2.517	-0.472	0.816	2.04	3.339	3.863	4.368	4.759	4.866
1996	34	-11.37	-8.78	-5.753	-2.792	-0.599	0.754	1.989	3.29	3.816	4.322	4.714	4.824
1996	35	-12.7	-9.72	-6.291	-3.073	-0.735	0.687	1.936	3.243	3.772	4.279	4.672	4.78
1996	36	-12.7	-10.16	-6.791	-3.4	-0.882	0.623	1.885	3.202	3.733	4.242	4.638	4.744

1996	37	-11.69	-9.78	-6.925	-3.696	-1.052	0.55	1.83	3.155	3.69	4.202	4.594	4.705
1996	38	-9.99	-9.01	-6.754	-3.864	-1.219	0.478	1.775	3.114	3.652	4.165	4.56	4.664
1996	39	-5.422	-6.511	-5.819	-3.776	-1.35	0.403	1.718	3.068	3.61	4.123	4.519	4.622
1996	40	-2.961	-4.185	-4.398	-3.284	-1.371	0.322	1.649	3.012	3.554	4.073	4.472	4.575
1996	41	-3.582	-3.664	-3.54	-2.75	-1.268	0.253	1.579	2.946	3.496	4.018	4.42	4.525
1996	42	-3.704	-3.622	-3.259	-2.431	-1.148	0.21	1.524	2.891	3.445	3.969	4.372	4.477
1996	43	-5.914	-4.363	-3.248	-2.256	-1.067	0.181	1.475	2.84	3.394	3.92	4.329	4.43
1996	44	-9.37	-6.662	-4.145	-2.372	-1.042	0.162	1.439	2.793	3.349	3.876	4.288	4.396
1996	45	-10.2	-7.94	-5.216	-2.868	-1.171	0.133	1.406	2.75	3.305	3.83	4.239	4.345
1996	46	-10.34	-8.34	-5.817	-3.367	-1.374	0.092	1.372	2.713	3.266	3.789	4.198	4.302
1996	47	-10.28	-8.53	-6.178	-3.716	-1.539	0.039	1.335	2.672	3.229	3.749	4.155	4.263
1996	48	-9.82	-8.42	-6.305	-3.905	-1.664	-0.022	1.293	2.639	3.193	3.713	4.123	4.222
1996	49	-9.24	-7.92	-6.141	-3.963	-1.762	-0.083	1.248	2.596	3.152	3.674	4.085	4.187
1996	50	-10.06	-8.46	-6.304	-4.015	-1.846	-0.147	1.194	2.549	3.109	3.632	4.045	4.146
1996	51	-7.02	-7.21	-6.046	-4.065	-1.916	-0.205	1.155	2.512	3.075	3.598	4.01	4.111
1996	52	-3.363	-4.818	-4.933	-3.764	-1.938	-0.284	1.098	2.462	3.024	3.55	3.963	4.058
1996	53	-1.868	-3.133	-3.726	-3.19	-1.811	-0.349	1.048	2.417	2.981	3.507	3.919	4.011
1996	54	-1.229	-2.3	-2.944	-2.665	-1.604	-0.383	1.006	2.371	2.935	3.463	3.877	3.975
1996	55	-0.841	-1.783	-2.433	-2.274	-1.419	-0.383	0.975	2.335	2.9	3.425	3.841	3.929
1996	56	-0.659	-1.303	-2.006	-1.964	-1.253	-0.358	0.96	2.306	2.868	3.389	3.806	3.897
1996	57	-0.583	-1.017	-1.696	-1.714	-1.117	-0.327	0.947	2.27	2.828	3.343	3.763	3.861
1996	58	-0.507	-0.621	-1.433	-1.517	-1.005	-0.289	0.958	2.264	2.816	3.315	3.727	3.818
1996	59	-0.431	-0.586	-1.237	-1.347	-0.902	-0.251	0.965	2.244	2.787	3.277	3.689	3.792
1996	60	-0.703	-0.621	-1.148	-1.228	-0.835	-0.23	0.964	2.225	2.758	3.234	3.637	3.729
1996	61	-1.393	-0.821	-1.069	-1.11	-0.748	-0.186	0.965	2.223	2.747	3.216	3.618	3.715
1996	62	-1.8	-1.159	-1.08	-1.029	-0.686	-0.158	0.991	2.207	2.723	3.187	3.587	3.687
1996	63	-1.09	-1.06	-1.155	-0.992	-0.645	-0.137	0.996	2.194	2.705	3.158	3.549	3.641
1996	64	-2.698	-1.549	-1.157	-0.939	-0.588	-0.102	1.013	2.197	2.706	3.153	3.549	3.645
1996	66	-3.252	-2.436	-1.7	-1.024	-0.542	-0.065	1.022	2.177	2.676	3.118	3.51	3.609
1996	67	-3.525	-2.77	-1.936	-1.124	-0.559	-0.059	1.02	2.168	2.663	3.096	3.483	3.571
1996	68	-4.005	-2.974	-2.073	-1.196	-0.558	-0.031	1.039	2.177	2.671	3.1	3.489	3.581
1996	69	-4.414	-3.526	-2.379	-1.299	-0.578	-0.017	1.046	2.174	2.666	3.092	3.48	3.576
1996	70	-3.888	-3.407	-2.53	-1.433	-0.619	-0.01	1.046	2.167	2.654	3.079	3.466	3.562
1996	71	-2.421	-2.508	-2.307	-1.487	-0.664	-0.005	1.052	2.169	2.653	3.072	3.455	3.543
1996	72	-1.399	-1.743	-1.935	-1.4	-0.672	-0.004	1.052	2.161	2.645	3.061	3.445	3.539
1996	73	-0.853	-1.286	-1.632	-1.268	-0.651	-0.008	1.05	2.155	2.638	3.049	3.429	3.513
1996	74	-0.567	-0.979	-1.387	-1.133	-0.6	0	1.051	2.151	2.629	3.04	3.42	3.506
1996	75	-0.231	-0.736	-1.211	-1.019	-0.552	0.006	1.05	2.145	2.619	3.029	3.412	3.495
1996	76	-0.071	-0.452	-1.064	-0.926	-0.511	0.013	1.048	2.133	2.608	3.013	3.396	3.488
1996	77	-0.02	-0.344	-0.915	-0.857	-0.483	0.019	1.047	2.125	2.599	2.999	3.38	3.471
1996	78	0.294	-0.264	-0.781	-0.79	-0.454	0.028	1.048	2.123	2.591	2.989	3.371	3.457
1996	79	0.989	-0.127	-0.69	-0.73	-0.429	0.034	1.051	2.118	2.587	2.98	3.354	3.445
1996	80	0.974	-0.06	-0.498	-0.673	-0.406	0.043	1.05	2.118	2.581	2.971	3.35	3.431
1996	84	0.82	0.098	-0.147	-0.382	-0.275	0.101	1.105	2.12	2.539	2.959	3.251	3.319
1996	84	0.82	0.098	-0.147	-0.382	-0.275	0.101	1.105	2.12	2.539	2.959	3.251	3.319
1996	85	2.281	0.208	-0.145	-0.353	-0.253	0.111	1.105	2.114	2.531	2.943	3.235	3.291
1996	86	3.177	1.019	-0.138	-0.325	-0.229	0.123	1.112	2.11	2.509	2.931	3.221	3.266
1996	87	1.206	0.708	-0.122	-0.303	-0.208	0.135	1.119	2.098	2.449	2.911	3.201	3.239
1996	88	1.127	0.495	-0.1	-0.279	-0.19	0.15	1.12	2.087	2.474	2.902	3.19	3.213
1996	89	2.406	1.054	-0.078	-0.252	-0.17	0.167	1.12	2.079	2.476	2.892	3.184	3.197
1996	90	3.607	1.828	-0.041	-0.227	-0.155	0.185	1.121	2.076	2.476	2.878	3.177	3.182
1996	91	4.991	2.759	0.058	-0.204	-0.139	0.203	1.124	2.073	2.472	2.863	3.166	3.169
1996	92	5.004	3.429	0.387	-0.178	-0.125	0.218	1.132	2.075	2.475	2.858	3.161	3.16
1996	93	4.059	2.617	0.645	-0.135	-0.107	0.237	1.145	2.078	2.482	2.869	3.163	3.163
1996	94	4.704	3.18	0.983	-0.093	-0.09	0.253	1.154	2.074	2.485	2.875	3.164	3.17
1996	95	4.128	3.078	1.194	-0.043	-0.074	0.266	1.163	2.074	2.491	2.883	3.164	3.179
1996	96	4.531	3.141	1.285	-0.007	-0.066	0.275	1.168	2.077	2.491	2.886	3.157	3.179
1996	97	4.046	3.068	1.428	0.032	-0.059	0.279	1.168	2.073	2.489	2.882	3.149	3.176
1996	98	4.512	3.531	1.671	0.085	-0.044	0.292	1.175	2.079	2.494	2.878	3.155	3.177
1996	99	3.224	2.944	1.72	0.102	-0.032	0.303	1.186	2.087	2.48	2.901	3.156	3.183
1996	100	3.636	2.692	1.515	0.135	-0.009	0.326	1.213	2.11	2.467	2.913	3.165	3.193
1996	101	4.646	3.351	1.761	0.176	0.018	0.359	1.241	2.121	2.471	2.914	3.171	3.192
1996	102	6.02	4.332	2.261	0.246	0.052	0.394	1.265	2.129	2.48	2.92	3.177	3.205
1996	103	7.7	5.358	2.818	0.378	0.063	0.417	1.288	2.142	2.49	2.94	3.192	3.221
1996	104	7.29	6.064	3.552	0.751	0.072	0.439	1.306	2.153	2.501	2.973	3.211	3.245
1996	105	5.539	4.95	3.436	1.116	0.084	0.462	1.329	2.163	2.513	2.99	3.216	3.25
1996	106	6.053	4.838	3.207	1.188	0.092	0.477	1.335	2.156	2.502	2.993	3.217	3.259
1996	107	6.804	5.788	3.664	1.388	0.1	0.487	1.319	2.13	2.477	2.976	3.218	3.257
1996	108	5.193	4.922	3.84	1.809	0.119	0.481	1.258	2.039	2.399	2.929	3.184	3.216
1996	109	6.367	4.801	3.437	1.784	0.136	0.496	1.219	1.956	2.334	2.868	3.139	3.183
1996	110	9.27	7.09	4.23	1.921	0.162	0.541	1.234	1.963	2.338	2.853	3.125	3.167
1996	111	8.06	7.11	4.934	2.462	0.265	0.649	1.29	2.001	2.375	2.865	3.134	3.175
1996	112	9.42	7.27	5.035	2.851	1.029	0.929	1.416	2.046	2.413	2.888	3.155	3.209
1996	113	10.35	8.65	5.918	3.389	1.758	1.331	1.636	2.135	2.487	2.93	3.185	3.237
1996	114	10.13	8.8	6.457	4.043	2.421	1.77	1.904	2.279	2.603	3.003	3.25	3.3
1996	115	9.37	8.25	6.551	4.532	3.001	2.218	2.205	2.464	2.757	3.108	3.336	3.379
1996	116	9.33	8.65	6.829	4.878	3.466	2.637	2.51	2.659	2.929	3.234	3.445	3.496
1996	117	8.76	8.05	6.776	5.193	3.882	3.027	2.816	2.877	3.121	3.38	3.571	3.626
1996	118	9.64	8.45	6.902	5.414	4.215	3.386	3.118	3.135	3.326	3.539	3.71	3.756
1996	119	10.29	8.94	7.26	5.708	4.518	3.698	3.396	3.382	3.521	3.703	3.859	3.913
1996	120	11.05	9.82	7.83	6.077	4.83	3.995	3.661	3.607	3.723	3.871	4.014	4.061
1996	121	10.46	9.92	8.26	6.505	5.179	4.295	3.922	3.824	3.928	4.039	4.167	4.218
1996	122	10.03	9.14	8.08	6.768	5.519	4.608	4.184	4.043	4.129	4.212	4.332	4.37
1996	123	11.52	10.23	8.46	6.946	5.767	4.891	4.441	4.257	4.327	4.383	4.491	4.524

1996	124	12.7	10.99	8.99	7.31	6.044	5.151	4.684	4.467	4.525	4.559	4.655	4.689
1996	125	14.58	12.51	9.86	7.79	6.373	5.421	4.92	4.67	4.719	4.732	4.818	4.853
1996	126	15.47	13.48	10.76	8.43	6.791	5.723	5.164	4.873	4.934	4.905	4.983	5.016
1996	127	16.19	14.3	11.54	9.07	7.27	6.069	5.429	5.086	5.147	5.083	5.148	5.177
1996	128	16.81	14.94	12.22	9.69	7.76	6.448	5.717	5.309	5.35	5.261	5.321	5.341
1996	129	18.01	15.87	12.93	10.28	8.26	6.843	6.023	5.54	5.56	5.447	5.494	5.52
1996	130	18.03	16.72	13.79	10.93	8.76	7.25	6.341	5.782	5.78	5.639	5.675	5.702
1996	131	15.83	15.5	13.8	11.45	9.28	7.68	6.675	6.042	6.012	5.845	5.866	5.922
1996	132	13.27	13.84	13.2	11.55	9.66	8.06	7.02	6.314	6.256	6.065	6.06	6.123
1996	133	10.86	11.79	12.1	11.3	9.83	8.41	7.34	6.588	6.511	6.291	6.276	6.326
1996	134	11.79	11.41	11.27	10.83	9.8	8.62	7.62	6.859	6.765	6.527	6.499	6.533
1996	135	13.81	12.68	11.5	10.62	9.7	8.73	7.83	7.11	7.01	6.756	6.715	6.737
1996	136	15.99	14.04	12.15	10.8	9.73	8.81	7.99	7.32	7.22	6.963	6.914	6.92
1996	137	16.85	15.64	13.26	11.26	9.91	8.93	8.14	7.5	7.4	7.15	7.1	7.1
1996	138	17.16	15.37	13.52	11.75	10.24	9.13	8.31	7.68	7.58	7.34	7.28	7.27
1996	139	19.29	17.34	14.49	12.19	10.56	9.37	8.5	7.86	7.76	7.51	7.45	7.45
1996	140	19.75	17.78	15.2	12.81	10.96	9.65	8.72	8.05	7.94	7.69	7.62	7.61
1996	141	21.5	19.25	16.12	13.41	11.4	9.97	8.95	8.24	8.13	7.87	7.8	7.79
1996	142	23.17	20.33	16.99	14.1	11.89	10.32	9.21	8.45	8.32	8.05	7.98	7.98
1996	143	24.06	21.82	18.19	14.89	12.43	10.71	9.49	8.67	8.52	8.23	8.15	8.13
1996	144	23.49	21.73	18.77	15.63	13.03	11.14	9.81	8.91	8.74	8.43	8.33	8.31
1996	145	22.94	21.52	19	16.13	13.56	11.59	10.15	9.16	8.96	8.63	8.52	8.49
1996	146	22.71	21.42	19.1	16.46	14	12.01	10.51	9.44	9.21	8.85	8.72	8.69
1996	147	22.74	21.52	19.25	16.73	14.37	12.4	10.87	9.73	9.47	9.09	8.94	8.92
1996	148	22.78	21.43	19.32	16.96	14.68	12.75	11.21	10.02	9.75	9.33	9.17	9.23
1996	149	24.1	22.21	19.65	17.19	14.96	13.07	11.53	10.31	10.02	9.58	9.41	9.47
1996	150	22.83	22.23	20.09	17.55	15.26	13.37	11.82	10.59	10.28	9.82	9.63	9.7
1996	151	21.12	20.72	19.6	17.7	15.56	13.68	12.12	10.87	10.54	10.07	9.87	9.93
1996	152	23.07	21.35	19.47	17.64	15.72	13.96	12.41	11.14	10.8	10.31	10.12	10.17
1996	153	25.34	23.09	20.24	17.87	15.88	14.18	12.68	11.4	11.06	10.56	10.36	10.41
1996	154	26.26	24.13	21.13	18.38	16.17	14.41	12.92	11.65	11.3	10.79	10.57	10.64
1996	155	26.17	24.77	21.88	18.96	16.56	14.7	13.17	11.89	11.54	11.02	10.73	10.87
1996	156	25.46	24.11	21.92	19.38	16.98	15.02	13.44	12.14	11.78	11.26	10.96	11.1
1996	157	24.51	23.97	22.02	19.61	17.3	15.35	13.73	12.39	12.01	11.5	11.2	11.32
1996	158	23.71	22.93	21.59	19.69	17.56	15.65	14.02	12.66	12.27	11.74	11.44	11.55
1996	159	22.58	22.8	21.54	19.67	17.7	15.9	14.29	12.91	12.51	11.97	11.68	11.78
1996	160	19.99	20.7	20.63	19.52	17.81	16.1	14.53	13.16	12.76	12.2	11.91	12.01
1996	161	20.58	20.11	19.79	19.06	17.75	16.25	14.75	13.39	12.99	12.43	12.14	12.23
1996	162	22.79	21.5	20.05	18.86	17.63	16.3	14.92	13.61	13.21	12.65	12.36	12.45
1996	163	24.7	22.94	20.76	19.04	17.64	16.34	15.04	13.79	13.4	12.84	12.57	12.64
1996	164	26.58	24.18	21.56	19.45	17.81	16.43	15.16	13.94	13.57	13.03	12.76	12.83
1996	165	28.06	26.02	22.8	20.05	18.1	16.58	15.29	14.09	13.72	13.19	12.94	13
1996	166	27.95	25.96	23.37	20.7	18.52	16.81	15.46	14.24	13.88	13.35	13.11	13.15
1996	167	29.16	27.07	24.05	21.2	18.92	17.1	15.66	14.41	14.04	13.51	13.28	13.31
1996	168	28.64	27.1	24.53	21.73	19.34	17.41	15.9	14.59	14.22	13.68	13.48	13.48
1996	169	29.9	27.76	24.89	22.13	19.73	17.74	16.16	14.8	14.41	13.86	13.65	13.65
1996	170	30.06	28.33	25.48	22.58	20.11	18.07	16.44	15.03	14.62	14.06	13.84	13.84
1996	171	29.42	28.21	25.76	23	20.5	18.4	16.72	15.26	14.84	14.28	14.03	14.04
1996	172	28.65	27.75	25.73	23.26	20.84	18.73	17.02	15.51	15.06	14.49	14.23	14.23
1996	173	29.36	27.61	25.57	23.37	21.1	19.03	17.32	15.78	15.3	14.7	14.44	14.44
1996	174	28.07	28	26	23.56	21.3	19.3	17.59	16.03	15.53	14.91	14.65	14.65
1996	175	25.41	25.3	24.96	23.55	21.51	19.54	17.85	16.27	15.77	15.13	14.87	14.86
1996	176	26.37	25.94	24.68	23.24	21.52	19.72	18.09	16.51	16.01	15.35	15.08	15.06
1996	177	25.91	25.36	24.42	23.13	21.52	19.84	18.29	16.73	16.23	15.56	15.3	15.29
1996	178	26.38	25.47	24.31	23.02	21.51	19.93	18.45	16.93	16.43	15.77	15.51	15.49
1996	179	25.63	25.84	24.57	23.04	21.52	20	18.58	17.1	16.62	15.98	15.7	15.68
1996	180	24.19	23.91	23.75	22.95	21.57	20.09	18.7	17.26	16.79	16.14	15.88	15.85
1996	181	25.65	25.12	23.87	22.72	21.5	20.14	18.82	17.41	16.95	16.32	16.06	16.03
1996	182	24.82	24.4	23.75	22.71	21.48	20.17	18.91	17.55	17.1	16.48	16.22	16.19
1996	183	27.79	25.67	23.92	22.66	21.47	20.22	18.99	17.68	17.23	16.63	16.36	16.34
1996	184	30.36	27.96	25.12	23.01	21.55	20.26	19.06	17.79	17.36	16.77	16.5	16.49
1996	185	28.06	27.74	25.9	23.62	21.82	20.37	19.15	17.89	17.47	16.89	16.63	16.62
1996	186	25.49	25.77	25.29	23.81	22.11	20.56	19.27	18	17.59	17.02	16.76	16.74
1996	187	26.33	25.42	24.67	23.59	22.21	20.73	19.43	18.14	17.73	17.16	16.9	16.83
1996	188	27.95	26.5	24.97	23.52	22.21	20.83	19.57	18.28	17.87	17.3	17.03	16.97
1996	189	27.77	27.09	25.48	23.74	22.29	20.91	19.68	18.42	18.01	17.43	17.16	17.14
1996	190	27.26	26.2	25.26	23.89	22.44	21.03	19.8	18.54	18.14	17.56	17.27	17.28
1996	191	28.75	27.49	25.67	23.96	22.54	21.15	19.93	18.67	18.26	17.69	17.38	17.41
1996	192	27.75	27.12	25.86	24.22	22.69	21.27	20.04	18.79	18.38	17.8	17.5	17.54
1996	193	28.48	27.09	25.76	24.31	22.84	21.41	20.17	18.91	18.5	17.92	17.61	17.65
1996	194	30.19	28.46	26.34	24.47	22.95	21.53	20.29	19.02	18.61	18.03	17.72	17.77
1996	195	29.9	28.81	26.89	24.85	23.16	21.67	20.41	19.14	18.71	18.14	17.83	17.88
1996	196	29.11	28.37	26.94	25.11	23.4	21.84	20.55	19.25	18.83	18.25	17.94	17.99
1996	198	25.88	25.9	25.84	25	23.65	22.16	20.83	19.5	19.05	18.47	18.15	18.2
1996	199	27.2	26.12	25.47	24.7	23.57	22.23	20.95	19.62	19.17	18.58	18.26	18.31
1996	200	30.42	28.26	26.16	24.68	23.5	22.25	21.04	19.74	19.29	18.7	18.37	18.42
1996	201	29.6	29.08	27.14	25.12	23.62	22.29	21.1	19.83	19.39	18.81	18.49	18.54
1996	202	27.27	27.12	26.63	25.34	23.84	22.4	21.18	19.92	19.5	18.92	18.6	18.61
1996	203	28.65	27.51	26.4	25.21	23.91	22.53	21.29	20.03	19.61	19.03	18.71	18.7
1996	204	30.29	28.65	26.86	25.3	23.96	22.61	21.4	20.14	19.72	19.15	18.82	18.81
1996	205	29.87	29.27	27.49	25.61	24.09	22.71	21.49	20.24	19.82	19.25	18.92	18.92
1996	206	28.13	27.67	27.06	25.78	24.28	22.84	21.6	20.34	19.92	19.35	19.02	19.01
1996	211	29.79	28.91	27.58	26.1	24.68	23.32	22.1	20.84	20.39	19.83	19.48	19.5
1996	211	29.79	28.91	27.58	26.1	24.68	23.32	22.1	20.84	20.39	19.83	19.48	19.5

1996	213	24.44	25.74	26.54	26.07	24.87	23.52	22.29	21.03	20.57	20.02	19.67	19.7
1996	213	24.44	25.74	26.54	26.07	24.87	23.52	22.29	21.03	20.57	20.02	19.67	19.7
1996	214	23.36	24.44	25.36	25.46	24.72	23.57	22.36	21.13	20.67	20.12	19.77	19.8
1996	215	24.36	24.1	24.57	24.64	24.42	23.5	22.43	21.22	20.77	20.22	19.86	19.9
1996	216	27.65	26.03	24.95	24.55	24.13	23.38	22.42	21.29	20.85	20.31	19.96	19.99
1996	217	30.15	28.09	26.04	24.79	24.04	23.26	22.38	21.33	20.91	20.38	20.04	20.07
1996	218	31.9	29.68	27.18	25.35	24.19	23.24	22.35	21.35	20.96	20.44	20.11	20.14
1996	219	32.84	30.8	28.18	25.99	24.49	23.33	22.37	21.38	20.99	20.49	20.17	20.2
1996	220	33.29	31.52	28.95	26.61	24.86	23.52	22.45	21.42	21.04	20.54	20.22	20.25
1996	221	32.29	31.58	29.44	27.16	25.26	23.76	22.58	21.49	21.09	20.59	20.28	20.31
1996	222	30.12	29.72	28.92	27.41	25.6	24.02	22.74	21.57	21.16	20.65	20.34	20.34
1996	223	30.1	29.71	28.66	27.3	25.74	24.22	22.89	21.67	21.25	20.73	20.41	20.4
1996	224	29.39	29.07	28.34	27.22	25.8	24.35	23.03	21.79	21.36	20.82	20.5	20.48
1996	225	29.32	29.01	28.16	27.09	25.81	24.45	23.16	21.91	21.47	20.92	20.59	20.58
1996	226	29.57	28.9	28.01	27	25.81	24.52	23.26	22.03	21.58	21.02	20.68	20.68
1996	227	30.01	29.17	28.06	26.98	25.8	24.57	23.35	22.13	21.67	21.11	20.77	20.79

BTC2_DLY												
Gatineau Project Data												
Backfill Temperatures °C												
YEAR	J DAY	B2TC#2	B2TC#3	B2TC#4	B2TC#5	B2TC#6	B2TC#7	B2TC#8	B2TC#9	B2TC#10	B2TC#11	B2TC#12
1994	195	24.65	23.2	23.65	23.46	25.43	22.2	21.15	20.08	19.47	19.17	18.98
1994	196	23.62	23.43	23.5	23.28	22.77	22.11	21.13	20.08	19.41	19.1	18.9
1994	197	26.02	23.53	24.22	23.15	24.42	21.96	21.06	20.02	19.34	19.02	18.81
1994	198	28.14	24.17	25.63	23.24	26.25	21.83	20.95	19.93	19.25	18.91	18.71
1994	199	28.99	25.05	27.01	23.59	28.01	21.75	20.84	19.82	19.17	18.83	18.64
1994	200	28.26	25.58	27.08	24	29.35	21.74	20.76	19.75	19.16	18.85	18.66
1994	201	29.73	25.72	27.31	24.26	27.5	21.81	20.76	19.73	19.14	18.84	18.68
1994	202	28.72	26.61	28.32	24.67	29.78	21.91	20.79	19.74	19.17	18.89	18.73
1994	203	26.72	26.86	27.26	25.43	26.37	22.27	21	19.85	19.21	18.9	18.72
1994	204	26.82	26.23	26.6	25.32	25.34	22.54	21.24	20.01	19.3	18.95	18.73
1994	205	26.73	25.87	26.28	25.1	24.1	22.66	21.4	20.12	19.37	19.01	18.77
1994	206	28.45	25.73	26.64	24.9	24.95	22.67	21.46	20.19	19.44	19.06	18.83
1994	207	26.56	25.99	26.91	24.86	22.99	22.61	21.46	20.22	19.49	19.12	18.98
1994	208	26	25.5	25.64	24.8	21.8	22.58	21.45	20.23	19.5	19.13	18.98
1994	209	28.03	25.36	26.31	24.56	22.7	22.53	21.43	20.23	19.52	19.15	18.97
1994	210	29.3	25.72	27.17	24.57	23.79	22.48	21.41	20.23	19.54	19.17	18.98
1994	211	24.09	25.59	25.02	24.95	21.7	22.57	21.5	20.31	19.58	19.22	18.97
1994	212	24.89	24.55	24.13	24.65	21.57	22.83	21.71	20.45	19.68	19.34	18.98
1994	213	25.86	24.85	25.18	24.36	25.2	22.79	21.71	20.45	19.69	19.38	18.92
1994	217	21.7	21.76	20.95	22.77	18.77	22.98	22.38	21.42	20.61	20.22	19.56
1994	218	22.04	21.61	21.1	22.49	18.87	22.76	22.21	21.31	20.57	20.23	19.66
1994	219	24.07	22.03	22.53	22.33	21.88	22.46	21.94	21.12	20.47	20.17	19.7
1994	220	25.09	22.68	23.6	22.51	24.12	22.22	21.69	20.94	20.38	20.11	19.71
1994	221	24.93	23.34	24.48	22.79	24.65	22.05	21.52	20.81	20.34	20.09	19.74
1994	222	23.37	23.35	23.66	23.01	22.25	21.97	21.41	20.71	20.27	20.05	19.74
1994	223	24.39	23.14	23.54	22.96	22.64	21.95	21.34	20.65	20.22	20.01	19.73
1994	224	25.41	23.31	24.16	22.94	24.15	21.92	21.31	20.61	20.19	19.99	19.73
1994	225	26.49	23.68	24.87	23.06	25.87	21.89	21.27	20.58	20.18	19.98	19.76
1994	226	26.64	24.09	25.38	23.27	25.95	21.89	21.25	20.57	20.2	19.99	19.82
1994	227	22.27	24.09	24.28	23.45	20.06	21.92	21.25	20.56	20.19	20	19.86
1994	228	23.08	23.2	22.85	23.26	20.22	21.97	21.27	20.57	20.18	19.98	19.84
1994	229	25.1	23.09	23.68	22.97	23.57	21.97	21.29	20.58	20.19	19.98	19.85
1994	230	25.91	23.47	24.5	22.99	25.18	21.91	21.28	20.59	20.21	20.01	19.88
1994	231	26.46	23.8	24.9	23.14	25.52	21.89	21.26	20.6	20.22	20.03	19.9
1994	232	26.44	24.14	25.34	23.33	26.52	21.9	21.27	20.6	20.23	20.04	19.92
1994	233	24.77	24.23	24.94	23.5	26.69	21.95	21.29	20.61	20.25	20.06	19.94
1994	234	22.52	23.82	23.79	23.49	24.62	22.01	21.33	20.64	20.28	20.08	19.97
1994	235	21.9	23.12	22.69	23.22	22.05	22.05	21.37	20.67	20.29	20.09	19.97
1994	236	25.77	22.67	22.7	22.84	25.49	22.03	21.38	20.69	20.32	20.12	20
1994	237	21.68	22.76	22.79	22.74	23.04	22	21.37	20.71	20.34	20.13	20.02
1994	238	22.04	22.44	22.3	22.57	23.37	21.95	21.35	20.71	20.34	20.14	20.02
1994	239	23.29	22.37	22.58	22.39	26.14	21.88	21.31	20.7	20.34	20.15	20.04
1994	240	21.18	22.45	22.49	22.35	25.26	21.8	21.26	20.69	20.36	20.17	20.06
1994	241	19.97	21.92	21.29	22.2	23.19	21.75	21.22	20.68	20.35	20.16	20.05
1994	242	19.26	21.37	20.84	21.84	21.6	21.71	21.24	20.72	20.42	20.25	20.11
1994	243	17.27	20.74	19.95	21.38	19.45	21.69	21.37	20.99	20.63	20.42	20.15
1994	244	17.31	19.89	18.83	20.93	19.07	21.55	21.26	20.89	20.53	20.33	20.08
1994	245	15.74	19.3	18.11	20.44	17.98	21.32	21.1	20.76	20.41	20.22	20.02
1994	246	15.56	18.71	17.62	19.9	18.2	21.04	20.91	20.65	20.36	20.19	19.99
1994	247	15.81	18.29	17.18	19.51	18.53	20.76	20.7	20.51	20.24	20.08	19.91
1994	248	17.49	18.15	17.53	19.2	19.83	20.49	20.48	20.34	20.11	19.97	19.82
1994	249	19.04	18.44	18.41	19.09	21.17	20.22	20.25	20.14	19.89	19.78	19.68
1994	250	18.5	18.81	19.01	19.13	20.69	19.93	19.99	19.92	19.65	19.58	19.54
1994	251	19.45	18.87	18.87	19.2	21.76	19.74	19.74	19.64	19.43	19.4	19.38
1994	252	20.12	19.19	19.49	19.29	21.63	19.64	19.61	19.64	19.54	19.52	19.49
1994	253	21.7	19.67	20.58	19.5	20.06	19.59	19.53	19.54	19.43	19.4	19.38
1994	254	21.26	20.1	20.77	19.81	19.14	19.61	19.48	19.46	19.34	19.31	19.29
1994	255	21.29	20.28	20.85	20.03	19.22	19.68	19.48	19.39	19.23	19.19	19.18
1994	256	22.03	20.47	21.18	20.19	22.02	19.76	19.49	19.34	19.14	19.09	19.08
1994	257	22.37	20.66	21.28	20.35	21.76	19.82	19.51	19.31	19.1	19.04	19.02
1994	258	22.98	20.95	21.82	20.53	21.5	19.9	19.55	19.3	19.06	19	18.98
1994	259	23.55	21.33	22.35	20.76	22.06	19.98	19.59	19.3	19.05	18.98	18.96
1994	260	24.28	21.69	22.85	21.03	24.5	20.09	19.65	19.33	19.08	19.02	18.99
1994	261	21.97	21.87	22.43	21.28	19.79	20.21	19.73	19.37	19.11	19.03	19
1994	262	22.55	21.49	21.67	21.27	23.43	20.32	19.8	19.38	19.06	18.97	18.94
1994	263	25.36	21.84	23.23	21.27	23.89	20.4	19.87	19.4	19.03	18.92	18.88
1994	264	25.28	22.47	23.81	21.63	23.73	20.47	19.91	19.38	18.94	18.85	18.82
1994	265	24.85	22.77	23.88	21.94	23.41	20.57	19.95	19.35	18.88	18.79	18.76
1994	266	23.87	22.85	23.73	22.11	33.15	20.68	19.99	19.34	18.85	18.77	18.74
1994	267	22.54	22.61	22.94	22.15	33.61	20.8	20.09	19.42	18.96	18.84	18.78
1994	268	21.97	22.26	22.41	22.02	24.92	20.9	20.19	19.47	18.92	18.8	18.75
1994	269	21.23	21.93	21.94	21.83	22.02	20.92	20.24	19.48	18.9	18.79	18.74
1994	270	20.64	21.52	21.31	21.6	21.8	20.89	20.25	19.51	18.94	18.81	18.75
1994	271	19.52	21.13	20.81	21.32	22.5	20.8	20.23	19.49	18.9	18.77	18.71

1994	272	18.25	20.56	19.84	20.98	28.9	20.69	20.17	19.48	18.94	18.79	18.73
1994	273	16.99	19.92	18.98	20.55	32.5	20.54	20.09	19.42	18.87	18.72	18.66
1994	274	16.21	19.23	18.08	20.07	33.45	20.36	19.97	19.32	18.76	18.62	18.56
1994	275	15.45	18.68	17.56	19.58	31.65	20.13	19.83	19.2	18.6	18.46	18.4
1994	276	14.42	18.04	16.62	19.1	31.22	19.86	19.62	18.99	18.34	18.2	18.15
1994	277	14.76	17.51	16.37	18.59	34.84	19.57	19.4	18.8	18.21	18.07	18.02
1994	278	13.97	17.11	15.84	18.2	35.6	19.26	19.16	18.64	18.09	17.94	17.9
1994	279	14.28	16.73	15.65	17.81	35.55	18.98	18.93	18.46	17.94	17.8	17.75
1994	280	15.26	16.52	15.65	17.51	34.51	18.71	18.69	18.27	17.76	17.61	17.56
1994	281	16.97	16.7	16.5	17.36	30.56	18.45	18.46	18.08	17.57	17.43	17.4
1994	282	17.47	17.13	17.35	17.43	30.27	18.23	18.23	17.86	17.39	17.27	17.25
1994	283	15	17.14	16.58	17.52	32.09	18.07	18.04	17.74	17.36	17.27	17.25
1994	284	14.01	16.65	15.73	17.34	31.96	17.97	17.91	17.58	17.17	17.07	17.06
1994	285	13.97	16.18	15.23	17.01	33.29	17.84	17.77	17.43	16.99	16.9	16.89
1994	286	14.52	15.94	15.23	16.73	33.8	17.67	17.62	17.31	16.88	16.8	16.79
1994	287	15.34	15.92	15.54	16.56	35.71	17.48	17.46	17.15	16.72	16.62	16.62
1994	288	14.51	15.96	15.5	16.5	36.04	17.31	17.29	17	16.58	16.47	16.47
1994	289	13.95	15.75	15.07	16.39	37.67	17.16	17.1	16.5	15.48	15.47	15.53
1994	290	13.63	15.52	14.84	16.21	36.8	16.99	16.85	16.33	15.78	15.71	15.72
1994	291	13.54	15.3	14.64	16.01	35.36	16.81	16.73	16.41	16.03	15.96	15.95
1994	292	12.83	15.05	14.23	15.81	34.51	16.66	16.63	16.41	16.08	16.02	16.02
1994	293	13.86	14.78	14.09	15.58	34.52	16.53	16.54	16.36	16.02	15.94	15.95
1994	294	15.01	14.91	14.77	15.46	36.43	16.38	16.41	16.17	15.73	15.66	15.68
1994	295	14.84	15.13	15.02	15.51	36.29	16.25	16.26	16.02	15.6	15.55	15.56
1994	296	15.48	15.25	15.29	15.56	37	16.15	16.13	15.9	15.51	15.45	15.47
1994	297	14.67	15.38	15.29	15.63	36.92	16.08	16.03	15.74	15.25	15.22	15.25
1994	298	13.82	15.23	14.84	15.61	35.8	16.03	15.93	15.64	15.22	15.19	15.23
1994	299	12.73	14.91	14.22	15.47	35.6	15.97	15.87	15.66	15.34	15.3	15.32
1994	300	11.65	14.46	13.51	15.22	35.73	15.9	15.82	15.62	15.26	15.22	15.24
1994	301	10.72	13.88	12.61	14.87	34.77	15.79	15.75	15.54	15.18	15.13	15.14
1994	302	11.95	13.51	12.65	14.5	33.64	15.64	15.65	15.48	15.14	15.08	15.09
1994	303	13.01	13.52	13.07	14.31	35.83	15.45	15.51	15.37	15.01	14.96	14.97
1994	304	12.16	13.66	13.25	14.27	35.89	15.27	15.35	15.22	14.86	14.81	14.82
1994	305	11.3	13.47	12.74	14.19	37.3	15.13	15.2	15.07	14.73	14.7	14.72
1994	306	10.28	13.09	12.05	13.98	39.68	15.01	15.08	15	14.74	14.7	14.71
1994	307	9.27	12.61	11.27	13.7	35.73	14.9	15	14.95	14.71	14.67	14.67
1994	308	10.8	12.29	11.43	13.37	38.38	14.74	14.88	14.86	14.57	14.54	14.55
1994	309	12.27	12.4	12.06	13.21	36.6	14.56	14.74	14.74	14.48	14.43	14.43
1994	310	11.02	12.63	12.18	13.24	26.02	14.39	14.58	14.59	14.32	14.28	14.29
1994	311	9.67	12.36	11.41	13.18	19.6	14.27	14.43	14.4	14.08	14.05	14.07
1994	312	9.92	11.99	11.08	12.96	24.71	14.15	14.29	14.24	13.87	13.86	13.9
1994	313	10.53	11.85	11.17	12.74	35.19	14	14.15	14.16	13.94	13.92	13.94
1994	314	9.09	11.79	10.98	12.63	36.25	13.85	14.02	14.04	13.76	13.74	13.77
1994	315	7.72	11.29	9.92	12.4	36.54	13.71	13.89	13.92	13.67	13.64	13.66
1994	316	7.22	10.76	9.36	12.03	32.33	13.55	13.76	13.79	13.51	13.48	13.5
1994	317	7.77	10.36	9.11	11.66	32.71	13.35	13.6	13.64	13.38	13.36	13.38
1994	318	8.71	10.25	9.36	11.41	34.69	13.14	13.42	13.53	13.33	13.31	13.33
1994	319	10	10.42	10.02	11.32	35.26	12.94	13.25	13.4	13.21	13.19	13.22
1994	320	8.1	10.57	9.86	11.35	33.25	12.77	13.08	13.25	13.07	13.07	13.11
1994	321	6.717	10.16	8.93	11.22	33.77	12.65	12.94	13.13	12.95	12.94	12.98
1994	322	6.957	9.69	8.48	10.91	38.27	12.52	12.81	12.98	12.81	12.81	12.85
1994	323	8.31	9.54	8.75	10.66	39.06	12.36	12.69	12.87	12.69	12.68	12.72
1994	324	7.91	9.67	9.03	10.58	36.5	12.18	12.53	12.73	12.56	12.57	12.61
1994	325	6.919	9.53	8.62	10.5	38.84	12.03	12.37	12.57	12.4	12.41	12.45
1994	326	6.97	9.26	8.3	10.33	39.98	11.91	12.24	12.48	12.35	12.37	12.42
1994	327	4.333	8.95	7.56	10.12	40.06	11.76	12.1	12.36	12.24	12.26	12.31
1994	328	1.577	8.03	5.73	9.7	38.85	11.61	11.97	12.21	12.04	12.04	12.09
1994	329	1.178	6.974	4.514	9.03	40.06	11.4	11.82	12.07	11.91	11.92	11.97
1994	330	1.223	6.283	4.06	8.36	36.3	11.09	11.6	11.85	11.59	11.58	11.64
1994	331	0.689	5.782	3.605	7.84	31.46	10.72	11.29	11.51	11.2	11.19	11.25
1994	332	0.539	5.295	3.168	7.36	34.17	10.35	10.97	11.26	11.02	11.01	11.07
1994	333	0.788	4.959	3.033	6.958	38.42	9.99	10.67	11.04	10.88	10.91	10.97
1994	334	1.129	4.761	3.057	6.629	38.04	9.64	10.37	10.83	10.73	10.76	10.82
1994	335	0.858	4.628	2.989	6.388	35.4	9.33	10.08	10.58	10.41	10.47	10.55
1994	336	1.344	4.438	2.866	6.171	39.4	9.05	9.8	10.3	10.21	10.26	10.34
1994	337	1.756	4.425	3.139	5.989	39.93	8.78	9.54	10.12	10.06	10.13	10.23
1994	338	2.866	4.513	3.521	5.907	38.61	8.56	9.32	9.91	9.87	9.94	10.02
1994	339	3.979	4.788	4.178	5.928	38.83	8.36	9.11	9.76	9.85	9.96	10.04
1994	340	4.732	5.164	4.8	6.068	38.55	8.23	8.95	9.47	9.24	9.37	9.47
1994	341	3.159	5.401	4.779	6.224	38.72	8.12	8.76	9.35	9.4	9.51	9.58
1994	342	1.232	5.081	3.777	6.203	39.35	8.07	8.68	9.33	9.48	9.59	9.65
1994	343	0.516	4.503	2.925	5.927	36.89	8.01	8.62	9.23	9.28	9.37	9.43
1994	344	0.089	4.019	2.385	5.583	37.06	7.9	8.52	9.12	9.18	9.27	9.33
1994	345	-0.034	3.637	2.052	5.251	37.3	7.73	8.39	8.93	8.85	8.91	8.98
1994	346	-2.206	3.283	1.518	4.937	34.42	7.51	8.19	8.73	8.72	8.8	8.86
1994	347	-4.446	2.686	0.557	4.562	30.7	7.28	7.95	8.22	7.74	7.87	7.99
1994	348	-4.41	2.08	-0.066	4.101	33.72	7.01	7.7	8.24	8.21	8.31	8.39
1994	349	-3.804	1.733	-0.229	3.689	35.29	6.723	7.5	8.1	8.13	8.23	8.3
1994	350	-2.756	1.533	-0.232	3.39	37.53	6.444	7.28	7.96	7.96	8.05	8.13

1994	351	-2.236	1.414	-0.167	3.173	41.25	6.191	7.04	7.71	7.63	7.74	7.85
1994	352	-0.883	1.344	-0.035	3.012	45.13	5.953	6.809	7.48	7.45	7.56	7.67
1994	353	-0.79	1.295	0.05	2.873	45.28	5.72	6.572	7.28	7.37	7.48	7.58
1994	354	-1.879	1.269	0.006	2.772	42.56	5.529	6.387	7.2	7.37	7.47	7.57
1994	355	-1.204	1.243	0.019	2.695	45.01	5.381	6.247	7.11	7.32	7.41	7.49
1994	356	-0.775	1.212	0.079	2.615	44.56	5.24	6.094	6.874	6.958	7.09	7.22
1994	357	-0.817	1.195	0.108	2.549	45.08	5.107	5.942	6.774	6.925	7.05	7.18
1994	358	-1.139	1.179	0.108	2.489	45.59	4.987	5.805	6.561	6.557	6.897	6.842
1994	359	-1.597	1.16	0.076	2.436	46.38	4.868	5.642	6.346	6.419	6.569	6.712
1994	360	-1.685	1.124	0.037	2.379	44.63	4.753	5.525	6.333	6.553	6.714	6.846
1994	361	-1.918	1.079	-0.012	2.319	42.85	4.665	5.453	6.324	6.542	6.689	6.813
1994	362	-1.051	1.048	0.027	2.273	43.68	4.597	5.369	6.127	6.171	6.311	6.461
1994	363	-2.186	1.009	0.002	2.205	46.12	4.487	5.242	6.056	6.296	6.447	6.585
1994	364	-5.564	0.936	-0.481	2.143	39.77	4.396	5.146	5.963	6.23	6.387	6.522
1994	365	-5.29	0.816	-0.923	2.062	39.59	4.327	5.09	5.917	6.044	6.202	6.358
1995	1	-3.431	0.689	-0.873	1.959	42.6	4.258	5.001	5.771	5.943	6.111	6.259
1995	2	-2.678	0.591	-0.718	1.851	44.29	4.163	4.929	5.806	6.099	6.268	6.406
1995	3	-3.774	0.499	-0.928	1.747	43.19	4.062	4.848	5.69	5.897	6.051	6.192
1995	4	-4.783	0.338	-1.418	1.64	42.59	3.967	4.751	5.612	5.87	6.028	6.172
1995	5	-7	0.079	-2.388	1.486	40.96	3.865	4.651	5.534	5.831	5.999	6.14
1995	6	-6.068	-0.225	-2.968	1.317	44.76	3.773	4.583	5.496	5.797	5.964	6.106
1995	7	-4.079	-0.41	-2.35	1.168	45.75	3.666	4.492	5.409	5.707	5.868	6.013
1995	8	-6.138	-0.492	-2.547	1.054	40.06	3.536	4.369	5.291	5.6	5.769	5.911
1995	9	-5.943	-0.701	-3.071	0.964	41.79	3.436	4.274	5.18	5.435	5.583	5.734
1995	10	-8.22	-0.931	-3.608	0.837	34.91	3.317	4.149	5.083	5.45	5.612	5.762
1995	11	-10.39	-1.405	-4.939	0.692	35.36	3.209	4.062	5.077	5.473	5.652	5.801
1995	12	-8.86	-1.944	-5.328	0.526	39.14	3.12	3.989	4.992	5.371	5.544	5.695
1995	13	-5.319	-1.999	-4.204	0.372	41.8	3.02	3.907	4.908	5.269	5.44	5.594
1995	15	-1.273	-1.057	-1.527	0.247	43.48	2.797	3.716	4.865	5.443	5.629	5.778
1995	16	-0.522	-0.761	-0.976	0.275	44.77	2.721	3.649	4.781	5.223	5.404	5.563
1995	17	-0.252	-0.71	-0.712	0.304	44.12	2.668	3.563	4.621	5.013	5.222	5.368
1995	18	-0.173	-0.668	-0.593	0.299	40.82	2.618	3.495	4.56	5.013	5.234	5.379
1995	19	-0.127	-0.6	-0.512	0.299	42.99	2.591	3.483	4.617	5.076	5.288	5.42
1995	21	0.107	-0.379	-0.024	0.267	43	2.527	3.415	4.51	4.898	5.094	5.207
1995	22	0.103	-0.222	0.086	0.266	42.82	2.474	3.384	4.407	4.71	4.906	5.015
1995	23	0.099	-0.157	0.138	0.311	44.03	2.435	3.306	4.342	4.765	4.962	5.072
1995	24	0.131	-0.118	0.147	0.383	44.33	2.412	3.255	4.304	4.743	4.945	5.047
1995	25	0.143	-0.099	0.142	0.476	42.62	2.403	3.208	4.256	4.693	4.895	5.006
1995	26	-0.264	-0.082	0.127	0.536	40.71	2.39	3.154	4.138	4.523	4.725	4.845
1995	27	-2.142	-0.073	0.109	0.565	40.79	2.383	3.125	4.158	4.653	4.86	4.976
1995	28	-3.905	-0.068	-0.235	0.593	40.29	2.391	3.117	4.105	4.501	4.705	4.817
1995	29	-4.189	-0.054	-0.809	0.628	39.86	2.4	3.095	4.014	4.363	4.569	4.689
1995	30	-3.024	-0.036	-0.948	0.666	41	2.408	3.082	4.014	4.426	4.638	4.752
1995	31	-2.076	-0.031	-0.789	0.698	41.61	2.417	3.085	4.013	4.374	4.582	4.697
1995	32	-1.157	-0.035	-0.548	0.729	43.76	2.427	3.084	4.004	4.396	4.604	4.716
1995	33	-2.663	-0.068	-0.729	0.726	42.44	2.412	3.059	3.95	4.344	4.551	4.662
1995	34	-4.163	-0.094	-1.375	0.735	40.76	2.412	3.052	3.956	4.354	4.565	4.683
1995	35	-4.239	-0.184	-1.708	0.733	40.78	2.414	3.048	3.917	4.26	4.469	4.6
1995	36	-5.162	-0.346	-1.907	0.695	44.54	2.389	3.017	3.873	4.227	4.436	4.573
1995	38	-10.64	-1.71	-5.238	0.501	40.67	2.336	2.962	3.795	4.13	4.363	4.544
1995	39	-10.51	-2.634	-5.834	0.239	41.38	2.289	2.936	3.765	4.087	4.302	4.47
1995	40	-8.49	-3.144	-5.635	0.004	41.19	2.207	2.903	3.783	4.171	4.39	4.558
1995	42	-6.195	-3.022	-4.501	-0.407	41.96	1.963	2.737	3.684	4.08	4.302	4.486
1995	43	-6.987	-2.924	-4.391	-0.583	42.78	1.843	2.636	3.602	3.97	4.208	4.434
1995	44	-7.93	-3.233	-5.123	-0.708	35.97	1.77	2.571	3.52	3.889	4.144	4.42
1995	45	-7.17	-3.418	-5.131	-0.872	32.49	1.673	2.465	3.445	3.812	4.095	4.368
1995	46	-6.625	-3.36	-4.824	-1.008	42.04	1.6	2.409	3.411	3.804	4.071	4.372
1995	47	-3.988	-3.037	-3.912	-1.066	46.61	1.543	2.355	3.359	3.787	4.054	4.367
1995	48	-3.515	-2.456	-3.057	-0.989	43.28	1.478	2.295	3.34	3.802	4.085	4.388
1995	49	-2.331	-2.064	-2.403	-0.883	44.18	1.435	2.253	3.273	3.671	3.935	4.299
1995	50	-1.238	-1.649	-1.686	-0.765	44.19	1.393	2.189	3.158	3.498	3.753	4.115
1995	51	-1.257	-1.336	-1.336	-0.653	42.47	1.35	2.125	3.101	3.503	3.781	4.16
1995	52	-1.106	-1.17	-1.171	-0.569	44.14	1.325	2.089	3.058	3.438	3.701	4.068
1995	53	-2.596	-1.139	-1.479	-0.516	41.86	1.304	2.054	3.026	3.426	3.69	4.057
1995	54	-1.974	-1.249	-1.607	-0.495	42.94	1.301	2.043	3.027	3.464	3.74	4.109
1995	56	-2.258	-1.025	-1.234	-0.469	43.02	1.276	2.009	2.976	3.383	3.639	4.006
1995	57	-4.364	-1.296	-2.167	-0.46	41.07	1.269	1.988	2.916	3.286	3.547	3.918
1995	59	-4.666	-2.231	-3.413	-0.679	42.16	1.271	1.982	2.93	3.314	3.578	3.946
1995	60	-2.801	-2.09	-2.683	-0.775	40.92	1.266	1.978	2.915	3.32	3.586	3.942
1995	61	-2.305	-1.719	-2.04	-0.741	42.07	1.239	1.953	2.9	3.327	3.589	3.953
1995	62	-3.273	-1.62	-2.167	-0.684	39.8	1.219	1.939	2.926	3.39	3.674	4.037
1995	63	-2.943	-1.688	-2.243	-0.682	41.62	1.221	1.946	2.95	3.417	3.695	4.052
1995	64	-1.996	-1.554	-1.846	-0.672	42.65	1.219	1.932	2.855	3.197	3.458	3.838
1995	65	-1.414	-1.338	-1.455	-0.615	43.25	1.204	1.904	2.837	3.255	3.542	3.924
1995	66	-1.459	-1.174	-1.278	-0.559	43.08	1.19	1.896	2.841	3.232	3.498	3.862
1995	67	-1.265	-1.088	-1.205	-0.513	44.2	1.186	1.881	2.798	3.182	3.447	3.814
1995	68	-2.091	-1.059	-1.321	-0.489	43.71	1.171	1.858	2.789	3.236	3.508	3.865
1995	69	-3.003	-1.19	-1.738	-0.478	41.03	1.171	1.859	2.809	3.255	3.521	3.869
1995	70	-2.024	-1.281	-1.617	-0.502	39.64	1.182	1.871	2.809	3.2	3.461	3.827

1995	71	-2.349	-1.266	-1.7	-0.496	40.58	1.188	1.858	2.721	3.033	3.276	3.635
1995	72	-0.815	-1.151	-1.231	-0.48	42.94	1.191	1.849	2.717	3.078	3.343	3.711
1995	73	0.238	-0.919	-0.728	-0.434	43.38	1.189	1.849	2.725	3.085	3.349	3.722
1995	74	1.516	-0.74	-0.348	-0.397	42.19	1.189	1.845	2.724	3.098	3.356	3.719
1995	75	2.822	-0.589	-0.168	-0.345	41.29	1.208	1.86	2.764	3.153	3.426	3.787
1995	76	3.294	-0.505	-0.062	-0.314	44.38	1.218	1.858	2.749	3.097	3.386	3.795
1995	77	3.373	-0.437	0.031	-0.285	41.85	1.236	1.882	2.789	3.095	3.383	3.732
1995	78	3.667	-0.381	0.182	-0.254	35.75	1.266	1.933	2.858	3.037	3.344	3.643
1995	79	4.201	-0.361	0.523	-0.231	38.08	1.314	2.012	2.863	3.014	3.293	3.611
1995	80	4.304	-0.34	0.955	-0.212	41.89	1.331	1.972	2.767	3.032	3.258	3.615
1995	81	3.086	-0.308	0.874	-0.189	45.96	1.312	1.908	2.726	3.015	3.212	3.569
1995	82	3.478	-0.281	0.939	-0.177	46.27	1.282	1.862	2.701	3.013	3.21	3.529
1995	83	3.502	-0.259	1.142	-0.169	46.16	1.264	1.846	2.698	3.001	3.2	3.503
1995	84	3.344	-0.233	1.139	-0.154	44.13	1.258	1.845	2.709	2.985	3.191	3.482
1995	85	4.476	-0.212	1.504	-0.147	45.67	1.243	1.847	2.757	3.078	3.303	3.584
1995	86	4.815	-0.194	1.812	-0.143	44.82	1.236	1.852	2.777	3.066	3.284	3.563
1995	87	5.605	-0.168	2.191	-0.133	44.06	1.241	1.842	2.772	3.085	3.292	3.543
1995	88	6.321	-0.099	2.813	-0.125	42.54	1.251	1.838	2.777	3.091	3.302	3.548
1995	89	7.17	0.209	3.379	-0.122	42.22	1.254	1.827	2.787	3.16	3.373	3.601
1995	90	7.01	0.763	3.842	-0.119	45.05	1.246	1.805	2.787	3.196	3.43	3.66
1995	91	5.815	1.475	3.754	-0.081	46.5	1.279	1.795	2.744	3.126	3.296	3.465
1995	92	6.098	2.106	3.998	0.111	44.95	1.422	1.842	2.786	3.254	3.459	3.653
1995	93	5.249	2.734	4.388	1.396	44.07	1.648	1.983	2.88	3.32	3.501	3.683
1995	94	4.343	2.935	3.757	2.288	44.68	1.962	2.167	2.97	3.372	3.548	3.728
1995	95	2.259	2.868	3.13	2.546	45.5	2.271	2.38	3.079	3.492	3.642	3.803
1995	96	1.122	2.471	2.279	2.56	40.27	2.542	2.615	3.227	3.53	3.689	3.865
1995	97	1.133	2.021	1.585	2.413	41.6	2.718	2.798	3.34	3.565	3.705	3.876
1995	98	2.593	1.922	1.951	2.273	41.63	2.809	2.922	3.423	3.587	3.726	3.891
1995	99	5.111	2.335	3.114	2.357	44.08	2.859	3.003	3.491	3.637	3.771	3.928
1995	100	5.522	3.033	4.039	2.7	43.44	2.922	3.063	3.561	3.73	3.867	4.012
1995	101	6.764	3.635	4.933	3.107	39.87	3.052	3.148	3.594	3.703	3.821	3.954
1995	102	7.54	4.309	5.843	3.569	40.62	3.226	3.26	3.723	3.892	4.018	4.153
1995	103	7.59	4.796	6.069	4.041	42.49	3.452	3.43	3.867	4.033	4.155	4.264
1995	104	7.9	5.169	6.409	4.423	43.2	3.71	3.63	3.999	4.132	4.244	4.338
1995	105	7.7	5.504	6.699	4.755	42.78	3.962	3.829	4.15	4.294	4.371	4.439
1995	106	7.46	5.656	6.587	5.027	41.04	4.214	4.037	4.29	4.402	4.453	4.508
1995	107	8.3	5.781	6.752	5.223	39.9	4.451	4.243	4.456	4.546	4.598	4.647
1995	108	10.39	6.247	7.82	5.471	41.98	4.659	4.429	4.571	4.586	4.653	4.708
1995	109	11.45	7.06	9.14	5.934	36.67	4.866	4.605	4.721	4.713	4.778	4.831
1995	110	12.07	7.64	9.45	6.467	40.11	5.112	4.797	4.872	4.884	4.938	4.983
1995	111	12.27	8.35	10.55	6.952	39.5	5.398	5.016	5.052	5.056	5.098	5.133
1995	112	11.48	8.59	10.01	7.42	39.72	5.713	5.271	5.255	5.246	5.274	5.293
1995	113	12.21	8.76	10.3	7.68	39.77	6.024	5.525	5.447	5.393	5.42	5.434
1995	114	12.72	9.11	10.79	7.97	38.1	6.309	5.789	5.647	5.555	5.592	5.61
1995	115	13.59	9.54	11.4	8.31	36.72	6.58	6.051	5.868	5.765	5.785	5.786
1995	116	14.53	10.04	12.06	8.7	37.43	6.854	6.291	6.064	5.914	5.934	5.935
1995	117	13.89	10.56	12.54	9.12	37.57	7.13	6.527	6.276	6.139	6.129	6.107
1995	118	12.28	10.58	11.77	9.44	36.88	7.43	6.786	6.492	6.338	6.305	6.263
1995	119	11.34	10.36	11.24	9.51	36.59	7.7	7.04	6.69	6.492	6.461	6.419
1995	120	11.44	10.05	10.69	9.47	36.76	7.92	7.27	6.868	6.626	6.582	6.533
1995	121	13.05	10.11	11.26	9.45	36.49	8.09	7.46	7.05	6.804	6.769	6.728
1995	122	14.42	10.52	12.02	9.62	36.19	8.21	7.62	7.22	6.963	6.92	6.874
1995	123	17.09	11.26	13.57	9.97	36.4	8.36	7.76	7.37	7.11	7.09	7.06
1995	124	18.22	12.21	14.79	10.56	36.08	8.56	7.93	7.53	7.27	7.26	7.25
1995	125	19.44	13.12	16.02	11.21	35.35	8.83	8.14	7.77	7.6	7.59	7.56
1995	126	18.81	13.85	16.46	11.87	36.73	9.17	8.41	8.01	7.83	7.8	7.75
1995	127	17.54	14.1	16.13	12.35	36.82	9.55	8.71	8.26	8.07	8.02	7.96
1995	128	17.61	14.09	15.83	12.6	36.74	9.93	9.04	8.52	8.3	8.25	8.18
1995	129	19.76	14.35	16.59	12.82	36.34	10.26	9.36	8.78	8.51	8.46	8.39
1995	130	19.72	15.09	17.72	13.23	34.91	10.54	9.64	9.04	8.74	8.68	8.58
1995	134	18.43	14.74	16.48	13.59	35.2	11.53	10.63	9.88	9.48	9.39	9.29
1995	134	18.43	14.74	16.48	13.59	35.2	11.53	10.63	9.88	9.48	9.39	9.29
1995	135	17.49	15.02	16.49	13.82	34.24	11.67	10.79	10.05	9.68	9.58	9.46
1995	136	17.94	14.98	16.25	13.95	33.84	11.84	10.97	10.33	10.02	9.95	9.84
1995	137	17.79	15.29	17	14.07	34.13	12	11.14	10.45	10.06	9.99	9.87
1995	138	16.39	15.07	15.76	14.22	32.76	12.17	11.31	10.6	10.22	10.12	10.01
1995	139	18.76	15.08	16.57	14.17	30.03	12.32	11.46	10.74	10.34	10.25	10.14
1995	140	19.13	15.54	17.23	14.38	30.68	12.43	11.6	10.92	10.58	10.48	10.36
1995	141	20.48	15.96	17.95	14.66	31.02	12.58	11.75	11.1	10.78	10.69	10.59
1995	142	20.34	16.45	18.39	15.02	31.09	12.76	11.92	11.27	10.96	10.84	10.71
1995	143	20.71	16.81	18.82	15.34	30.47	12.97	12.1	11.45	11.15	11.04	10.91
1995	144	20.08	17.02	18.7	15.63	29.91	13.2	12.3	11.61	11.28	11.16	11.03
1995	149	20.52	19.16	20.58	17.52	27.96	14.43	13.38	12.55	12.16	12.01	11.84
1995	150	22.31	18.69	20.03	17.51	29.34	14.74	13.64	12.72	12.27	12.15	12.01
1995	151	25.22	19.12	21.52	17.59	29.79	14.95	13.87	12.93	12.48	12.35	12.19
1995	152	27.17	20.09	23.19	18.06	31.49	15.14	14.06	13.25	12.95	12.84	12.69
1995	153	26.87	21.02	24.09	18.73	29.99	15.42	14.34	13.48	13.07	12.94	12.78
1995	154	23.88	21.32	23.46	19.26	27	15.76	14.59	13.63	13.18	13.03	12.84
1995	155	22.8	20.75	21.85	19.37	26.51	16.09	14.85	13.79	13.28	13.12	12.95

1995	156	25.26	20.63	22.51	19.27	27.9	16.34	15.1	14.1	13.73	13.59	13.44
1995	157	27.32	21.2	23.75	19.52	28.93	16.53	15.35	14.29	13.77	13.61	13.42
1995	158	29	22.05	25.1	19.99	30.41	16.73	15.54	14.48	14	13.85	13.67
1995	159	27.79	22.78	25.55	20.58	25.91	16.99	15.77	14.69	14.19	14.01	13.8
1995	160	27.51	22.97	25.31	20.99	26.23	17.3	16.02	14.88	14.35	14.17	13.95
1995	161	28.22	23.15	25.54	21.25	26.42	17.62	16.3	15.11	14.57	14.42	14.22
1995	162	27.76	23.54	26.04	21.55	25.91	17.91	16.59	15.36	14.79	14.61	14.38
1995	163	26.36	23.45	25.13	21.79	24.84	18.18	16.85	15.56	14.96	14.76	14.52
1995	164	26.91	23.27	25	21.8	25.36	18.43	17.1	15.78	15.15	14.95	14.71
1995	165	29.05	23.52	25.85	21.89	25.71	18.62	17.32	16	15.38	15.19	14.97
1995	166	29.4	24.09	26.62	22.2	25.11	18.81	17.53	16.22	15.6	15.42	15.2
1995	167	29.92	24.55	27.13	22.57	24.94	19.03	17.74	16.45	15.84	15.67	15.46
1995	168	30.86	25	27.72	22.94	26.57	19.28	17.96	16.69	16.1	15.94	15.75
1995	170	33.58	26.31	29.61	23.86	31.87	19.86	18.51	17.3	16.84	16.67	16.44
1995	171	33.31	27.04	30.27	24.44	30.53	20.21	18.84	17.59	17.09	16.9	16.63
1995	172	32.3	27.31	29.97	24.92	26.56	20.58	19.15	17.85	17.31	17.13	16.88
1995	173	32.63	27.42	30	25.19	25.9	20.96	19.49	18.11	17.5	17.33	17.11
1995	174	33.67	27.69	30.45	25.45	27.56	21.28	19.8	18.36	17.72	17.54	17.31
1995	175	34.65	28.2	31.24	25.8	29.55	21.57	20.1	18.65	18.04	17.86	17.63
1995	176	35.3	28.72	31.8	26.23	30.7	21.88	20.4	18.95	18.33	18.12	17.83
1995	177	35.05	29.21	32.23	26.67	29.78	22.2	20.7	19.21	18.6	18.35	18.03
1995	178	34.36	29.43	32.09	27.03	27.47	22.54	21.01	19.53	18.9	18.67	18.34
1995	179	33.87	29.46	31.83	27.25	26.09	22.86	21.33	19.79	19.12	18.93	18.66
1995	180	34.78	29.49	31.93	27.4	27.45	23.16	21.64	20.04	19.34	19.15	18.88
1995	181	35.59	29.85	32.61	27.61	28.55	23.4	21.92	20.36	19.7	19.51	19.21
1995	182	35.47	30.23	32.96	27.93	28.67	23.66	22.2	20.63	19.94	19.73	19.4
1995	183	32.84	30.28	32.3	28.19	25.26	23.92	22.45	20.81	20.04	19.79	19.47
1995	184	31.38	29.67	30.88	28.14	22.18	24.16	22.68	20.97	20.16	19.93	19.64
1995	185	32.34	29.23	30.7	27.89	23.32	24.32	22.88	21.16	20.31	20.14	19.91
1995	186	32.68	29.31	31.2	27.81	24.55	24.41	23.03	21.33	20.46	20.24	19.96
1995	187	32.89	29.32	31.05	27.86	26.8	24.48	23.13	21.43	20.53	20.24	19.88
1995	188	32.57	29.39	31.16	27.9	26.61	24.56	23.21	21.53	20.67	20.39	20.04
1995	189	30.52	29.31	30.69	27.93	23.01	24.65	23.29	21.65	20.77	20.46	20.08
1995	190	28.11	28.61	29.04	27.75	20.02	24.73	23.37	21.68	20.7	20.44	20.15
1995	191	28.12	27.75	27.95	27.29	20.85	24.73	23.41	21.71	20.7	20.45	20.19
1995	192	30.14	27.51	28.51	26.9	22.76	24.65	23.4	21.75	20.76	20.49	20.22
1995	193	31.46	27.82	29.41	26.84	23.37	24.54	23.35	21.77	20.82	20.58	20.32
1995	194	32.89	28.26	30.22	27	25.35	24.47	23.31	21.83	20.94	20.71	20.45
1995	195	35.26	28.92	31.5	27.3	29.6	24.49	23.32	21.94	21.18	21	20.79
1995	196	35.86	29.86	32.83	27.81	29.74	24.57	23.4	22.11	21.44	21.23	20.92
1995	197	33.01	30.29	32.52	28.32	24.99	24.76	23.53	22.21	21.49	21.22	20.88
1995	198	27.65	29.63	30.12	28.4	19.64	24.98	23.67	22.25	21.46	21.16	20.84
1995	199	26.87	28.19	27.86	27.87	19.75	25.14	23.8	22.3	21.43	21.13	20.83
1995	200	28.71	27.44	27.72	27.23	21.96	25.12	23.86	22.3	21.33	21.05	20.79
1995	201	29.14	27.59	28.71	26.95	21.99	24.99	23.82	22.28	21.32	21.07	20.83
1995	202	28.94	27.37	27.9	26.87	22.58	24.86	23.75	22.29	21.39	21.09	20.8
1995	203	31.69	27.56	29.13	26.75	24.74	24.76	23.68	22.25	21.35	21.09	20.85
1995	204	30.84	28.22	30.11	26.97	24.21	24.69	23.62	22.26	21.44	21.17	20.9
1995	205	28.81	27.97	28.62	27.12	22.92	24.68	23.59	22.23	21.42	21.16	20.9
1995	206	30.37	27.72	28.84	26.95	24.83	24.7	23.6	22.3	21.61	21.36	21.09
1995	209	33.68	29.19	31.47	27.57	27.38	24.78	23.69	22.47	21.82	21.59	21.32
1995	210	33.78	29.51	31.54	27.92	27.75	24.92	23.79	22.57	21.93	21.7	21.43
1995	211	34.5	29.85	32.08	28.19	27.37	25.09	23.92	22.65	21.97	21.77	21.53
1995	213	34.65	30.52	32.78	28.77	27.47	25.46	24.22	22.94	22.29	22.08	21.81
1995	213	34.65	30.52	32.78	28.77	27.47	25.46	24.22	22.94	22.29	22.08	21.81
1995	214	32.7	30.52	32.05	28.99	24.18	25.66	24.4	23.08	22.43	22.12	21.77
1995	215	31.76	30.23	31.55	28.97	22.24	25.85	24.56	23.19	22.47	22.18	21.86
1995	216	29.81	29.71	30.3	28.83	22.21	25.97	24.7	23.27	22.5	22.22	21.92
1995	217	29.04	29.17	29.78	28.51	21.75	26.02	24.77	23.28	22.47	22.17	21.89
1995	218	27.46	28.38	28.16	28.15	20.25	25.99	24.77	23.26	22.4	22.1	21.84
1995	219	29.26	27.89	28.32	27.68	21.03	25.89	24.73	23.24	22.4	22.11	21.85
1995	220	30.89	28.05	29.15	27.49	22.79	25.74	24.67	23.25	22.43	22.16	21.92
1995	221	32.07	28.48	30.03	27.58	24.25	25.62	24.6	23.25	22.44	22.2	21.97
1995	222	32.9	28.97	30.77	27.81	25.3	25.59	24.56	23.26	22.51	22.27	22.05
1995	223	32.55	29.42	31.26	28.1	25.02	25.62	24.58	23.31	22.61	22.36	22.1
1995	224	32.37	29.48	30.91	28.31	25.77	25.71	24.63	23.38	22.71	22.42	22.13
1995	225	32.06	29.58	31.06	28.41	24.68	25.81	24.71	23.43	22.73	22.47	22.21
1995	226	32.25	29.58	30.97	28.48	25.57	25.91	24.79	23.5	22.79	22.56	22.33
1995	227	32.72	29.63	31.06	28.5	26.85	25.99	24.87	23.58	22.88	22.65	22.4
1995	228	34.13	29.94	31.84	28.6	28.03	26.07	24.96	23.67	22.97	22.75	22.51
1995	229	34.4	30.38	32.39	28.86	27.26	26.16	25.04	23.78	23.13	22.89	22.62
1995	230	34.75	30.71	32.72	29.14	27.46	26.29	25.15	23.89	23.24	23.06	22.85
1995	231	34.24	30.96	32.82	29.39	26.39	26.45	25.29	24.03	23.42	23.22	22.99
1995	232	33.96	31	32.64	29.56	26.14	26.62	25.44	24.15	23.47	23.29	23.08
1995	233	34.54	31.07	32.8	29.66	27.74	26.77	25.58	24.25	23.57	23.38	23.17
1995	234	32.58	31.19	32.66	29.79	24.39	26.91	25.71	24.37	23.66	23.43	23.19
1995	235	29.84	30.59	30.97	29.72	21.38	27.04	25.82	24.4	23.58	23.36	23.15
1995	236	28.6	29.77	29.82	29.33	20.65	27.09	25.9	24.41	23.54	23.27	23.06
1995	237	27.35	28.93	28.53	28.84	17.93	27.04	25.89	24.32	23.3	23.06	22.9

1995	238	27.5	28.35	28.27	28.33	17.62	26.9	25.81	24.18	23.1	22.86	22.72
1995	239	27.95	27.93	27.87	27.94	20.14	26.7	25.67	24.07	22.96	22.72	22.59
1995	240	28.6	27.84	28.23	27.67	20.19	26.49	25.51	23.96	22.91	22.65	22.51
1995	241	29.87	27.93	28.71	27.56	21.81	26.29	25.35	23.84	22.8	22.57	22.44
1995	242	29.44	28.16	29	27.58	21.33	26.14	25.21	23.75	22.74	22.53	22.41
1995	243	28.13	28.16	28.81	27.6	20.31	26.04	25.11	23.73	22.84	22.56	22.4
1995	244	26.81	27.64	27.54	27.45	20.91	25.97	25.05	23.7	22.81	22.53	22.37
1995	245	26.52	27.17	27.1	27.12	19.81	25.88	24.99	23.6	22.64	22.39	22.26
1995	246	25.51	26.84	26.76	26.82	18.06	25.75	24.88	23.54	22.66	22.36	22.2
1995	247	25.58	26.27	25.81	26.48	19.64	25.59	24.77	23.49	22.62	22.32	22.15
1995	248	27	26.2	26.55	26.17	21.46	25.41	24.64	23.35	22.42	22.17	22.04
1995	249	26.22	26.24	26.43	26.1	20.47	25.23	24.49	23.27	22.43	22.14	21.99
1995	250	25.2	26.14	26.33	25.98	19.32	25.08	24.36	23.16	22.32	22.07	21.94
1995	251	22.03	25.45	24.32	25.74	18.57	24.95	24.23	23.03	22.12	21.87	21.76
1995	252	23.21	24.67	23.91	25.18	19.95	24.79	24.09	22.88	22.01	21.75	21.63
1995	253	23.28	24.47	24.03	24.8	20.32	24.55	23.93	22.78	21.95	21.67	21.54
1995	254	23.16	24.25	23.77	24.54	21.29	24.32	23.74	22.6	21.71	21.43	21.31
1995	255	23.87	24.14	23.91	24.32	21.99	24.09	23.54	22.43	21.58	21.29	21.18
1995	256	24.58	24.28	24.46	24.21	22.75	23.89	23.35	22.27	21.43	21.16	21.06
1995	257	23.01	24.27	24.04	24.19	20.59	23.72	23.18	22.18	21.43	21.16	21.04
1995	258	21.46	23.76	22.89	23.98	16.99	23.58	23.05	22.08	21.34	21.06	20.94
1995	259	21.29	23.26	22.51	23.61	16.08	23.43	22.92	21.92	21.14	20.88	20.77
1995	260	21.26	22.95	22.29	23.29	17.44	23.24	22.76	21.77	20.96	20.72	20.63
1995	261	19.74	22.49	21.32	22.99	21.82	23.02	22.56	21.59	20.8	20.56	20.47
1995	262	20.47	22.04	21.16	22.58	28.96	22.8	22.37	21.39	20.55	20.35	20.28
1995	263	20.38	21.97	21.43	22.33	26.12	22.56	22.18	21.34	20.69	20.51	20.42
1995	264	19.5	21.67	20.71	22.12	31.16	22.34	22	21.15	20.37	20.13	20.06
1995	265	18.82	21.32	20.37	21.82	32.32	22.13	21.79	20.92	20.19	19.97	19.9
1995	266	17.38	20.77	19.28	21.49	24.66	21.91	21.59	20.69	19.78	19.6	19.57
1995	267	17.2	20.23	18.87	21.04	22.72	21.65	21.35	20.49	19.71	19.5	19.45
1995	268	17.03	19.84	18.56	20.65	21.07	21.38	21.13	20.35	19.62	19.42	19.37
1995	269	17.56	19.51	18.36	20.31	20.51	21.1	20.91	20.15	19.39	19.2	19.16
1995	270	18.27	19.44	18.72	20.06	20.72	20.83	20.66	19.94	19.2	19.03	19
1995	328	0.628	4.814	3.096	6.268	35.91	8.51	9.06	9.23	8.69	8.84	8.9
1995	329	-0.53	4.305	2.263	5.959	31.84	8.32	8.88	8.84	7.96	8.12	8.2
1995	330	-0.41	3.8	1.768	5.578	34.5	8.09	8.62	8.52	7.65	7.82	7.91
1995	331	-0.139	3.513	1.685	5.232	38.03	7.81	8.37	8.43	7.83	7.97	8.04
1995	332	-0.253	3.342	1.626	4.974	38.9	7.55	8.14	8.2	7.44	7.6	7.7
1995	333	-1.631	3.133	1.287	4.751	33.99	7.29	7.83	7.38	5.841	6.025	6.18
1995	334	-3.363	2.725	0.602	4.469	32.85	6.966	7.36	6.823	5.522	5.688	5.843
1995	335	-2.466	2.274	0.111	4.109	38.59	6.644	7.03	6.494	5.246	5.404	5.559
1995	336	-2.157	1.994	0.041	3.752	42.27	6.307	6.73	6.412	5.425	5.564	5.704
1995	337	-3.259	1.795	-0.134	3.48	37.24	6.007	6.456	6.193	5.216	5.381	5.547
1995	338	-2.517	1.614	-0.257	3.249	38.73	5.737	6.176	5.753	4.575	4.737	4.915
1995	339	-3.375	1.444	-0.359	3.006	28.07	5.433	5.875	5.658	4.993	5.12	5.241
1995	340	-2.905	1.334	-0.466	2.854	23.91	5.234	5.757	5.881	5.115	5.291	5.455
1995	341	-2.696	1.205	-0.483	2.676	39.91	5.041	5.545	5.367	4.418	4.568	4.753
1995	342	-4.613	1.066	-0.731	2.518	38.03	4.823	5.296	5.095	4.197	4.337	4.515
1995	343	-5.898	0.878	-1.589	2.356	37.62	4.623	5.104	5.05	4.251	4.401	4.601
1995	344	-6.087	0.535	-2.257	2.118	38.54	4.439	4.934	4.938	4.235	4.392	4.591
1995	345	-7.18	0.193	-3.003	1.842	38.64	4.247	4.76	4.727	3.969	4.116	4.318
1995	346	-8.88	-0.164	-4.051	1.581	37.27	4.032	4.56	4.553	3.806	3.947	4.148
1995	347	-9.81	-0.706	-4.998	1.327	36.62	3.818	4.376	4.413	3.7	3.839	4.049
1995	348	-9.66	-1.29	-5.477	1.051	37.65	3.612	4.199	4.354	3.795	3.929	4.122
1995	349	-7.16	-1.65	-4.95	0.773	39.69	3.416	4.042	4.213	3.672	3.805	3.993
1995	350	-5.197	-1.603	-3.832	0.551	40.73	3.212	3.894	4.289	3.916	4.068	4.285
1995	351	-4.034	-1.407	-3.044	0.416	42.23	3.033	3.742	4.088	3.691	3.863	4.096
1995	352	-5.037	-1.[illegible]93	-2.875	0.331	40.74	2.859	3.564	3.88	3.373	3.526	3.764
1995	353	-7.19	-1.57	-3.848	0.262	38.56	2.703	3.389	3.737	3.31	3.459	3.686
1995	354	-7.74	-1.949	-4.684	0.163	39.98	2.573	3.255	3.655	3.322	3.467	3.679
1995	355	-6.962	-2.174	-4.714	0.047	43.75	2.461	3.149	3.557	3.18	3.334	3.559
1995	356	-5.024	-2.169	-4.067	-0.077	45.18	2.341	3.032	3.443	3.101	3.254	3.48
1995	357	-3.285	-1.821	-2.966	-0.169	44.78	2.221	2.937	3.539	3.448	3.617	3.853
1995	358	-3.272	-1.503	-2.468	-0.187	43.07	2.136	2.879	3.528	3.464	3.643	3.879
1995	359	-3.524	-1.403	-2.441	-0.178	41.81	2.078	2.821	3.405	3.269	3.41	3.623
1995	360	-4.052	-1.414	-2.589	-0.174	43.23	2.03	2.761	3.426	3.314	3.469	3.68
1995	361	-4.123	-1.531	-2.818	-0.201	44.61	1.986	2.7	3.285	3.12	3.262	3.481
1995	362	-3.897	-1.569	-2.774	-0.239	44.06	1.928	2.615	3.158	2.99	3.127	3.34
1995	363	-4.264	-1.602	-2.921	-0.258	42.43	1.873	2.545	3.093	2.95	3.091	3.303
1995	364	-3.286	-1.583	-2.665	-0.287	42.95	1.821	2.493	3.121	3.059	3.217	3.449
1995	365	-2.379	-1.397	-2.188	-0.286	43.62	1.78	2.454	3.108	3.094	3.252	3.483
1996	1	-3.189	-1.226	-1.987	-0.265	40.69	1.738	2.411	3.051	3.026	3.159	3.363
1996	2	-6.611	-1.472	-3.149	-0.266	37.58	1.711	2.374	3.082	3.067	3.219	3.452
1996	3	-8.94	-2.255	-5.002	-0.363	37.38	1.694	2.333	2.899	2.727	2.866	3.063
1996	4	-11.03	-2.909	-6.369	-0.522	36.46	1.633	2.25	2.783	2.627	2.755	2.955
1996	5	-12.06	-3.586	-7.43	-0.762	37.03	1.564	2.18	2.725	2.597	2.727	2.925
1996	6	-13.53	-4.265	-8.61	-1.073	35.41	1.482	2.125	2.8	2.818	2.96	3.163
1996	7	-13.79	-4.846	-9.19	-1.407	35.16	1.405	2.072	2.721	2.661	2.806	3.029
1996	8	-13.64	-5.286	-9.54	-1.742	36.9	1.322	1.989	2.584	2.469	2.611	2.824

1996	9	-10.83	-5.38	-8.8	-2.041	38.32	1.23	1.903	2.552	2.514	2.648	2.845
1996	10	-8.7	-4.891	-7.31	-2.174	43.27	1.138	1.824	2.511	2.52	2.66	2.863
1996	11	-10.09	-4.594	-7.14	-2.178	38.22	1.043	1.739	2.435	2.42	2.554	2.745
1996	12	-9.81	-4.786	-7.46	-2.265	38.64	0.97	1.669	2.379	2.368	2.506	2.7
1996	13	-7.98	-4.666	-6.833	-2.333	41.06	0.903	1.618	2.473	2.676	2.828	3.044
1996	14	-7.14	-4.25	-5.976	-2.282	41.39	0.851	1.588	2.401	2.477	2.631	2.867
1996	15	-8.57	-4.05	-5.954	-2.22	39.18	0.773	1.503	2.266	2.326	2.456	2.661
1996	16	-10.54	-4.507	-7.21	-2.311	36.78	0.713	1.433	2.229	2.343	2.482	2.68
1996	17	-6.558	-4.72	-6.692	-2.483	43.4	0.665	1.394	2.206	2.287	2.421	2.612
1996	18	-2.859	-3.771	-4.3	-2.354	44.9	0.599	1.337	2.175	2.322	2.46	2.659
1996	19	-1.127	-2.773	-2.641	-1.974	45.62	0.536	1.28	2.119	2.247	2.391	2.612
1996	20	-2.128	-2.115	-2.013	-1.615	45.68	0.49	1.238	2.234	2.601	2.801	3.067
1996	21	-4.384	-2.073	-2.828	-1.428	43.36	0.461	1.231	2.235	2.549	2.745	3.009
1996	22	-4.326	-2.32	-3.427	-1.367	41.3	0.506	1.254	2.123	2.164	2.347	2.596
1996	23	-2.77	-2.288	-2.934	-1.398	43.15	0.512	1.23	2.076	2.186	2.351	2.559
1996	24	-1.875	-1.99	-2.282	-1.321	43.57	0.513	1.22	2.075	2.21	2.376	2.589
1996	25	-4.027	-1.835	-2.423	-1.237	41.7	0.495	1.194	2.038	2.18	2.331	2.529
1996	26	-6.061	-2.228	-3.755	-1.222	40.29	0.511	1.196	2.01	2.095	2.252	2.437
1996	27	-4.746	-2.656	-4.085	-1.394	42.75	0.52	1.202	2.093	2.301	2.484	2.703
1996	28	-4.506	-2.543	-3.466	-1.504	43.68	0.512	1.214	2.107	2.311	2.474	2.651
1996	29	-7.45	-2.772	-4.494	-1.541	38.57	0.496	1.204	2.038	2.163	2.356	2.578
1996	30	-7.05	-3.312	-5.246	-1.742	40.55	0.486	1.176	1.935	1.909	2.086	2.281
1996	31	-8.42	-3.592	-5.582	-1.978	41.13	0.436	1.128	1.939	2.048	2.205	2.381
1996	32	-11.44	-4.263	-7.17	-2.235	37.56	0.398	1.093	1.893	1.956	2.116	2.304
1996	33	-10.92	-5.061	-8	-2.609	41.83	0.361	1.063	1.882	1.983	2.129	2.294
1996	34	-11.95	-5.407	-8.37	-2.871	39.35	0.311	1.029	1.917	2.109	2.279	2.469
1996	35	-13.35	-5.878	-9.25	-3.116	38.34	0.27	1.005	1.89	2.033	2.204	2.411
1996	36	-13.33	-6.35	-9.79	-3.412	39.11	0.225	0.958	1.792	1.892	2.052	2.259
1996	37	-12.33	-6.538	-9.58	-3.686	39.18	0.169	0.894	1.746	1.881	2.021	2.196
1996	38	-10.45	-6.441	-8.93	-3.853	42.26	0.119	0.849	1.726	1.889	2.03	2.208
1996	39	-5.632	-5.718	-6.845	-3.807	46.25	0.065	0.808	1.71	1.898	2.053	2.254
1996	40	-2.889	-4.415	-4.449	-3.377	47.33	-0.005	0.754	1.652	1.824	1.971	2.158
1996	41	-3.587	-3.49	-3.568	-2.851	44.8	-0.075	0.695	1.665	1.952	2.111	2.31
1996	42	-3.781	-3.158	-3.509	-2.497	43.65	-0.113	0.677	1.694	2.005	2.183	2.41
1996	43	-6.132	-3.074	-3.978	-2.305	45.86	-0.139	0.653	1.591	1.779	1.935	2.143
1996	44	-9.71	-3.755	-5.965	-2.376	45.63	-0.161	0.611	1.554	1.814	1.954	2.137
1996	45	-10.44	-4.709	-7.34	-2.788	39.15	-0.177	0.591	1.519	1.744	1.892	2.089
1996	46	-10.5	-5.292	-7.79	-3.251	39.53	-0.207	0.571	1.501	1.719	1.867	2.061
1996	47	-10.27	-5.641	-7.98	-3.603	39.85	-0.25	0.54	1.449	1.635	1.786	1.992
1996	48	-9.83	-5.775	-7.9	-3.798	41.57	-0.296	0.512	1.488	1.776	1.949	2.17
1996	49	-9.29	-5.707	-7.55	-3.875	45.64	-0.357	0.489	1.477	1.763	1.933	2.153
1996	50	-10.03	-5.774	-7.88	-3.912	41.85	-0.418	0.444	1.388	1.61	1.76	1.961
1996	51	-7.06	-5.654	-7.06	-3.958	46.16	-0.468	0.401	1.36	1.626	1.777	1.976
1996	52	-3.268	-4.782	-5.042	-3.718	43.91	-0.527	0.361	1.334	1.61	1.768	1.976
1996	53	-1.612	-3.65	-3.245	-3.187	44.64	-0.565	0.335	1.33	1.605	1.771	1.983
1996	54	-0.83	-2.854	-2.301	-2.675	43.97	-0.582	0.309	1.343	1.668	1.852	2.081
1996	55	-0.234	-2.284	-1.635	-2.251	44.66	-0.541	0.318	1.389	1.717	1.919	2.153
1996	56	-0.06	-1.86	-1.125	-1.935	49.48	-0.491	0.34	1.415	1.72	1.94	2.18
1996	57	0.026	-1.566	-0.767	-1.717	43.07	-0.46	0.339	1.353	1.626	1.809	2.011
1996	58	0.084	-1.333	-0.632	-1.486	41.87	-0.378	0.374	1.359	1.587	1.787	2.001
1996	59	0.062	-1.203	-0.583	-1.363	39.41	-0.352	0.381	1.381	1.698	1.848	1.994
1996	60	0.005	-1.083	-0.538	-1.23	33.36	-0.305	0.399	1.345	1.535	1.741	1.961
1996	61	-0.627	-1.004	-0.616	-1.131	39.39	-0.266	0.408	1.313	1.507	1.701	1.923
1996	62	-1.358	-1.04	-1.043	-1.066	38.34	-0.247	0.408	1.349	1.649	1.85	2.085
1996	63	-0.654	-1.066	-1.004	-1.003	29.67	-0.205	0.443	1.359	1.557	1.782	2.051
1996	64	-2.637	-1.095	-1.467	-0.973	47.02	-0.183	0.446	1.319	1.512	1.716	1.966
1996	66	-3.133	-1.586	-2.38	-1.065	39.05	-0.157	0.446	1.304	1.522	1.695	1.911
1996	67	-3.404	-1.766	-2.682	-1.127	31.87	-0.137	0.458	1.298	1.452	1.642	1.875
1996	68	-3.939	-1.9	-2.851	-1.195	44.2	-0.114	0.48	1.337	1.523	1.736	2.005
1996	69	-4.499	-2.174	-3.44	-1.287	47.72	-0.11	0.489	1.345	1.557	1.739	1.971
1996	70	-3.932	-2.343	-3.426	-1.419	42.48	-0.112	0.488	1.319	1.525	1.705	1.947
1996	71	-2.182	-2.166	-2.602	-1.46	42.25	-0.096	0.501	1.313	1.466	1.62	1.826
1996	72	-0.848	-1.792	-1.745	-1.395	44.24	-0.107	0.476	1.149	1.162	1.267	1.396
1996	73	-0.253	-1.428	-1.193	-1.233	40.19	-0.095	0.446	1.078	1.083	1.198	1.331
1996	74	0.372	-1.158	-0.657	-1.094	43.03	-0.09	0.434	1.066	1.094	1.21	1.336
1996	75	0.691	-0.852	-0.059	-0.967	49.23	-0.084	0.435	1.138	1.324	1.457	1.584
1996	76	0.332	-0.635	-0.033	-0.873	50.41	-0.089	0.487	1.367	1.671	1.871	2.073
1996	77	0.53	-0.369	0.004	-0.771	44.58	-0.081	0.535	1.39	1.612	1.808	2.018
1996	78	1.132	-0.26	0.014	-0.679	41.9	-0.074	0.55	1.391	1.609	1.809	2.025
1996	79	2.144	-0.212	0.034	-0.594	39.11	-0.062	0.563	1.401	1.619	1.76	1.896
1996	80	2.163	-0.206	0.05	-0.538	40.16	-0.052	0.577	1.413	1.61	1.757	1.894
1996	84	1.226	-0.192	0.212	-0.399	43.09	-0.009	0.629	1.425	1.659	1.789	1.921
1996	84	1.226	-0.192	0.212	-0.399	43.09	-0.009	0.629	1.425	1.659	1.789	1.921
1396	85	3.035	-0.178	0.494	-0.353	40.52	0.011	0.631	1.368	1.548	1.686	1.808
1996	86	4.201	-0.167	1.108	-0.314	46.03	0.025	0.659	1.466	1.69	1.823	1.929
1996	87	1.818	-0.176	0.875	-0.321	44.64	0.023	0.687	1.501	1.718	1.835	1.936
1996	88	1.484	-0.158	0.519	-0.298	40.65	0.046	0.694	1.479	1.708	1.826	1.932
1996	89	2.718	-0.14	0.824	-0.282	40.5	0.067	0.712	1.551	1.839	1.98	2.114
1996	90	3.935	-0.121	1.358	-0.258	40.64	0.091	0.755	1.636	1.956	2.094	2.223

1996	91	5.387	-0.101	2.016	-0.249	40.15	0.112	0.797	1.696	2.056	2.205	2.337
1996	92	5.466	-0.042	2.7	-0.228	39.73	0.15	0.851	1.758	2.053	2.215	2.357
1996	93	4.56	0.059	2.219	-0.203	44.45	0.198	0.89	1.783	2.053	2.222	2.383
1996	94	5.057	0.339	2.558	-0.197	43.21	0.229	0.909	1.799	2.105	2.268	2.412
1996	95	4.391	0.641	2.588	-0.182	41.98	0.266	0.933	1.834	2.162	2.306	2.435
1996	96	4.77	0.795	2.577	-0.167	30.29	0.304	0.959	1.893	2.278	2.417	2.539
1996	97	4.284	0.973	2.632	-0.158	22.7	0.343	0.988	1.938	2.313	2.457	2.586
1996	98	4.728	1.136	2.906	-0.139	20.38	0.386	1.022	1.973	2.348	2.49	2.618
1996	99	3.309	1.186	2.478	-0.113	18.6	0.424	1.068	2.041	2.42	2.571	2.693
1996	100	3.754	1.058	2.175	-0.076	26.44	0.481	1.145	2.121	2.382	2.556	2.681
1996	101	4.731	1.213	2.66	-0.069	29.34	0.507	1.169	2.138	2.459	2.621	2.74
1996	102	6.039	1.573	3.392	-0.019	42.67	0.533	1.193	2.179	2.603	2.744	2.85
1996	103	7.74	2.06	4.212	0.152	42.2	0.577	1.242	2.247	2.679	2.822	2.937
1996	104	7.4	2.718	5.11	0.465	44.22	0.612	1.283	2.313	2.776	2.911	3.026
1996	105	5.76	2.831	4.53	0.811	48	0.649	1.318	2.357	2.811	2.956	3.084
1996	106	6.199	2.683	4.307	0.958	46.16	0.678	1.343	2.372	2.868	2.99	3.104
1996	107	6.904	2.92	4.996	1.115	45.92	0.691	1.347	2.417	3.024	3.107	3.198
1996	108	5.279	3.013	4.478	1.366	46.27	0.705	1.368	2.458	3.085	3.173	3.27
1996	109	6.302	2.833	4.175	1.472	46.78	0.766	1.412	2.498	3.189	3.26	3.34
1996	110	9.23	3.455	5.924	1.866	39.59	1.027	1.55	2.575	3.217	3.296	3.378
1996	111	8.25	4.357	6.575	2.655	41.12	1.476	1.785	2.669	3.192	3.295	3.391
1996	112	9.53	4.74	6.646	3.29	43.02	2.006	2.117	2.834	3.299	3.4	3.485
1996	113	10.61	5.549	8	3.879	38.19	2.479	2.462	3.06	3.514	3.6	3.674
1996	114	10.47	6.229	8.43	4.544	39.76	2.933	2.822	3.331	3.773	3.828	3.881
1996	115	9.75	6.545	8.2	5.066	41.03	3.391	3.184	3.59	3.944	3.998	4.052
1996	116	9.81	6.825	8.59	5.42	39.11	3.819	3.541	3.849	4.153	4.203	4.248
1996	117	9.21	6.936	8.21	5.739	39.35	4.202	3.876	4.084	4.318	4.359	4.393
1996	118	10.08	7.05	8.43	5.94	42.64	4.533	4.167	4.276	4.395	4.447	4.487
1996	119	10.67	7.34	8.83	6.191	41.64	4.821	4.429	4.485	4.558	4.603	4.63
1996	120	11.55	7.8	9.61	6.509	37.37	5.087	4.667	4.657	4.666	4.71	4.734
1996	121	11.06	8.25	9.96	6.894	35.2	5.342	4.882	4.801	4.741	4.789	4.817
1996	122	10.47	8.26	9.33	7.18	36.23	5.618	5.112	4.967	4.864	4.914	4.936
1996	123	11.93	8.46	10.02	7.32	37.77	5.861	5.335	5.161	5.075	5.117	5.137
1996	124	13.06	8.9	10.66	7.62	37.48	6.087	5.557	5.373	5.278	5.319	5.335
1996	125	14.87	9.56	11.86	8.03	34.91	6.327	5.775	5.546	5.377	5.413	5.423
1996	126	15.81	10.36	12.86	8.58	35.14	6.591	5.986	5.722	5.599	5.615	5.614
1996	127	16.75	11.08	13.71	9.16	35.43	6.903	6.233	5.957	5.849	5.866	5.865
1996	128	17.59	11.8	14.53	9.76	35.1	7.26	6.528	6.208	6.078	6.092	6.087
1996	129	18.66	12.5	15.36	10.35	31.01	7.65	6.851	6.462	6.302	6.31	6.305
1996	130	18.69	13.27	16.28	10.97	29.09	8.04	7.19	6.792	6.688	6.685	6.674
1996	131	16.45	13.53	15.62	11.5	29.58	8.47	7.55	7.08	6.923	6.923	6.913
1996	132	13.73	13.16	14.29	11.66	35.57	8.87	7.91	7.35	7.1	7.1	7.09
1996	133	11.27	12.32	12.45	11.47	38.8	9.18	8.23	7.59	7.27	7.26	7.24
1996	134	12.09	11.5	11.65	11.05	38.29	9.37	8.48	7.79	7.38	7.36	7.33
1996	135	14.02	11.44	12.4	10.8	35.95	9.44	8.63	7.94	7.51	7.49	7.46
1996	136	16.16	11.87	13.45	10.88	27.92	9.47	8.73	8.07	7.6	7.59	7.56
1996	137	17.08	12.7	14.97	11.23	24.86	9.53	8.81	8.24	7.9	7.88	7.85
1996	138	17.34	13.11	14.88	11.68	26.66	9.69	8.95	8.41	8	7.99	7.96
1996	139	19.57	13.79	16.44	12.06	28.03	9.92	9.13	8.57	8.18	8.16	8.13
1996	140	20.16	14.54	17.12	12.63	30.74	10.16	9.33	8.73	8.26	8.25	8.22
1996	141	22.07	15.34	18.41	13.2	32.7	10.46	9.55	8.91	8.56	8.55	8.52
1996	142	23.73	16.2	19.45	13.86	31.81	10.79	9.81	9.14	8.77	8.73	8.7
1996	143	24.54	17.24	20.89	14.59	29	11.18	10.14	9.48	9.17	9.13	9.09
1996	144	23.86	17.92	21.07	15.32	26.33	11.62	10.5	9.78	9.44	9.4	9.35
1996	145	23.21	18.23	20.96	15.83	22.69	12.08	10.86	9.95	9.52	9.46	9.41
1996	146	22.92	18.38	20.86	16.17	21.32	12.51	11.25	10.39	10.06	10.01	9.96
1996	147	22.89	18.51	20.9	16.44	23.2	12.91	11.66	10.82	10.58	10.52	10.45
1996	148	22.87	18.62	20.82	16.67	23.67	13.28	12.04	11.05	10.56	10.48	10.41
1996	149	24.22	18.85	21.33	16.88	24.16	13.59	12.35	11.34	10.85	10.75	10.65
1996	150	22.94	19.27	21.67	17.21	18.55	13.88	12.64	11.59	11.16	11.06	10.96
1996	151	21.14	19.05	20.5	17.41	18.62	14.18	12.96	11.86	11.33	11.24	11.16
1996	152	23.02	18.83	20.6	17.36	23.58	14.44	13.2	12.08	11.6	11.53	11.47
1996	153	25.29	19.33	21.94	17.53	25.78	14.64	13.44	12.38	11.92	11.85	11.8
1996	154	26.28	20.09	23.02	17.97	24.99	14.86	13.7	12.72	12.33	12.27	12.21
1996	155	26.29	20.81	23.82	18.51	26.43	15.14	13.99	13.1	12.74	12.66	12.58
1996	156	25.6	21.07	23.47	18.97	24.63	15.49	14.28	13.27	12.79	12.73	12.67
1996	157	24.87	21.22	23.5	19.24	22.67	15.82	14.58	13.43	12.79	12.7	12.61
1996	158	24.16	21.07	22.8	19.4	22.49	16.11	14.81	13.5	12.76	12.68	12.62
1996	159	22.86	21.01	22.7	19.43	20.09	16.33	15.03	13.72	13.04	12.87	12.72
1996	160	20.32	20.43	21.04	19.36	18.84	16.51	15.22	13.84	13.01	12.9	12.81
1996	161	20.96	19.7	20.21	19	21.18	16.62	15.35	13.95	13.17	13.09	13.02
1996	162	23.11	19.68	21.06	18.76	25.22	16.63	15.46	14.11	13.28	13.17	13.08
1996	163	25.29	20.2	22.33	18.87	27.65	16.63	15.5	14.16	13.34	13.25	13.16
1996	164	27.18	20.94	23.53	19.24	29.46	16.68	15.56	14.31	13.6	13.52	13.44
1996	165	28.54	21.94	25.16	19.78	29.08	16.81	15.68	14.5	13.87	13.79	13.71
1996	166	28.57	22.61	25.45	20.41	27.74	17.05	15.86	14.73	14.2	14.11	14.02
1996	167	29.59	23.22	26.34	20.9	26.04	17.35	16.1	15.05	14.65	14.56	14.48
1996	168	28.99	23.74	26.55	21.42	22.92	17.69	16.42	15.4	15.03	14.94	14.86
1996	169	30.14	24.07	26.95	21.81	25.23	18.06	16.76	15.76	15.46	15.36	15.27

1996	170	30.28	24.58	27.54	22.23	25.2	18.42	17.12	16.06	15.64	15.52	15.4
1996	171	29.64	24.92	27.61	22.64	24.66	18.77	17.45	16.39	16.01	15.89	15.77
1996	172	28.85	25	27.31	22.92	25.13	19.13	17.78	16.57	15.95	15.84	15.74
1996	173	29.43	24.92	27.01	23.06	26.73	19.43	18.04	16.71	16.06	15.96	15.87
1996	174	28.27	25.2	27.55	23.22	22.83	19.68	18.31	17.13	16.84	16.69	16.53
1996	175	25.71	24.67	25.53	23.29	20.46	19.93	18.61	17.38	16.78	16.62	16.49
1996	176	26.65	24.27	25.69	23.03	19.31	20.1	18.83	17.54	16.87	16.75	16.65
1996	177	26.13	24.09	25.24	22.94	20.67	20.18	18.97	17.57	16.85	16.72	16.61
1996	178	26.56	23.95	25.22	22.83	19.51	20.24	19.07	17.69	16.92	16.79	16.68
1996	179	25.9	24.09	25.64	22.82	17.86	20.27	19.15	17.87	17.4	17.27	17.12
1996	180	24.54	23.65	24.17	22.78	17.68	20.34	19.27	18.01	17.28	17.12	17
1996	181	25.84	23.51	24.82	22.56	20.84	20.38	19.34	18.05	17.41	17.29	17.19
1996	182	25	23.52	24.37	22.55	22.8	20.38	19.4	18.16	17.51	17.38	17.26
1996	183	28.03	23.55	25.05	22.49	25.96	20.39	19.44	18.24	17.55	17.46	17.38
1996	184	30.57	24.39	26.98	22.74	26.57	20.41	19.47	18.3	17.72	17.61	17.51
1996	185	28.43	25.18	27.47	23.28	23.14	20.5	19.56	18.68	18.54	18.41	18.27
1996	186	26	24.97	26.13	23.55	20.65	20.72	19.76	18.9	18.58	18.42	18.26
1996	187	26.53	24.45	25.4	23.44	21.61	20.93	19.94	18.88	18.35	18.19	18.06
1996	188	28.15	24.5	26.08	23.35	23.6	21.02	20.02	18.98	18.52	18.4	18.27
1996	189	28.04	24.91	26.78	23.5	20.19	21.09	20.12	19.04	18.43	18.3	18.2
1996	190	27.48	24.88	26.11	23.67	21.83	21.18	20.19	19.09	18.52	18.4	18.29
1996	191	29.09	25.09	27.03	23.72	22.3	21.28	20.26	19.03	13.33	18.25	18.18
1996	192	28.06	25.37	27.01	23.95	19.6	21.36	20.32	19.11	18.42	18.32	18.23
1996	193	28.7	25.33	26.82	24.05	20.94	21.46	20.4	19.08	18.23	18.1	18
1996	194	30.38	25.68	27.83	24.18	22.93	21.55	20.45	19.02	18.11	17.98	17.89
1996	195	30.17	26.19	28.37	24.5	24.6	21.64	20.5	19.05	18.23	18.02	17.85
1996	196	29.47	26.35	28.17	24.76	25.09	21.77	20.61	19.21	18.45	18.25	18.04
1996	198	26.43	25.69	26.3	24.75	23.51	22.07	20.99	19.71	19.05	18.87	18.72
1996	199	27.64	25.29	26.18	24.48	25.22	22.16	21.12	19.92	19.32	19.13	18.93
1996	200	30.75	25.64	27.63	24.43	26.58	22.2	21.2	19.9	19.12	18.91	18.74
1996	201	30.1	26.45	28.74	24.78	25.8	22.22	21.24	20.16	19.87	19.68	19.41
1996	202	27.87	26.37	27.49	25.06	21.81	22.36	21.39	20.36	19.84	19.65	19.45
1996	203	28.94	26.11	27.39	25	23.24	22.51	21.49	20.31	19.59	19.4	19.23
1996	204	30.48	26.34	28.16	25.04	23.72	22.58	21.5	20.09	19.16	19	18.87
1996	205	30.11	26.84	28.89	25.28	23.41	22.62	21.5	20.16	19.53	19.37	19.19
1996	206	28.51	26.72	27.82	25.46	22.94	22.72	21.62	20.38	19.72	19.52	19.35
1996	211	30.3	27.19	28.84	25.82	22.3	23.17	22.07	20.75	19.98	19.82	19.67
1996	211	30.3	27.19	28.84	25.82	22.3	23.17	22.07	20.75	19.98	19.82	19.67
1996	213	24.91	26.6	26.6	25.85	19.15	23.39	22.33	21.2	20.62	20.47	20.31
1996	213	24.91	26.6	26.6	25.85	19.15	23.39	22.33	21.2	20.62	20.47	20.31
1996	214	23.88	25.56	25.21	25.34	18.53	23.45	22.44	21.22	20.49	20.33	20.18
1996	215	24.98	24.81	24.61	24.79	18.88	23.39	22.45	21.2	20.45	20.29	20.13
1996	216	28.04	24.86	25.8	24.47	21.71	23.24	22.38	21.18	20.43	20.26	20.12
1996	217	30.47	25.6	27.49	24.6	24.65	23.09	22.3	21.2	20.54	20.38	20.22
1996	218	32.19	26.54	28.95	25.05	26.7	23.06	22.25	21.15	20.34	20.21	20.09
1996	219	33.18	27.43	30.08	25.62	27.48	23.12	22.19	20.86	19.95	19.83	19.74
1996	220	33.72	28.18	30.88	26.19	28.65	23.26	22.24	21.08	20.42	20.33	20.23
1996	221	32.8	28.73	31.25	26.7	28.67	23.49	22.39	21.15	20.48	20.3	20.14
1996	222	30.72	28.58	29.94	26.99	26.5	23.75	22.58	21.37	20.83	20.67	20.48
1996	223	30.62	28.34	29.77	26.95	21.99	23.97	22.79	21.64	21.22	21.05	20.86
1996	224	29.82	28.1	29.2	26.91	19.28	24.14	23.01	21.86	21.29	21.11	20.94
1996	225	29.71	27.9	29.05	26.81	19.8	24.26	23.15	21.87	21.16	20.98	20.81
1996	226	30.02	27.75	28.86	26.73	22.85	24.32	23.22	21.89	21.07	20.91	20.76
1996	227	30.61	27.8	29.14	26.7	22.11	24.35	23.25	21.89	21.17	21	20.85

APPENDIX C: PRESSURE PLATE DATA

Gatineau Field Site		1994 to 1996				
Backfill pressure cell data corrected for temperature and BP.						
READINGS UNSTABLE UNTIL JD236.						
Year	J-day	Hour	RP4	AP1	AP2	BP3
			(Kpa)	(Kpa)	(Kpa)	(Kpa)
1994	217	2400	-49.4382	-	-	-
1994	218	2400	-41.3154	-	-	-
1994	219	2400	-38.407	-	-	-
1994	220	2400	-36.5989	-	-	-
1994	221	2400	-37.0883	-	-	-
1994	222	2400	-36.6637	-	-	-
1994	223	2400	-36.0929	-	-	-
1994	224	2400	-34.7573	-	-	-
1994	225	2400	-31.7935	-	-	-
1994	226	2400	-31.6051	-	-	-
1994	227	2400	-33.0813	-	-	-
1994	228	2400	-33.2725	-	-	-
1994	229	2400	-32.8873	-	-	-
1994	230	2400	-32.3136	-	-	-
1994	231	2400	-31.4025	-	-	-
1994	232	2400	-30.0612	-	-	-
1994	233	2400	-30.3452	-	-	-
1994	234	2400	-31.9629	-	-	-
1994	236	2400	-0.21322	48.82051	16.58109	47.07313
1994	237	2400	-0.00445	50.69698	18.96635	48.45688
1994	238	2400	0.515178	50.95068	18.9846	49.17396
1994	239	2400	0.517883	50.42269	18.9318	48.66713
1994	240	2400	1.37051	50.44085	18.84607	48.7785
1994	241	2400	0.599166	50.14767	18.37482	48.9255
1994	242	2400	0.179871	50.83983	22.09487	50.14686
1994	243	2400	0.403488	48.89047	19.98292	49.63675
1994	244	2400	-0.43429	49.77522	18.55464	48.93425
1994	245	2400	-1.00267	50.57179	18.69358	49.83798
1994	246	2400	-1.24115	49.67684	18.26795	49.35792
1994	247	2400	-1.00267	49.50368	18.07469	50.06877
1994	248	2400	0.13598	49.37965	17.98457	49.88982
1994	249	2400	0.982672	50.21969	17.052	51.38876
1994	250	2400	0.743785	49.63675	16.68988	50.83042
1994	251	2400	0.541503	105.2336	27.74626	54.1945
1994	252	2400	0.083043	143.2889	65.17044	63.44661
1994	253	2400	-0.34246	141.5174	64.04182	62.79663
1994	254	2400	-0.29412	140.6235	63.51128	62.38412
1994	255	2400	0.498964	139.9886	63.08941	62.13036
1994	256	2400	0.603079	139.3914	62.95171	62.16032
1994	257	2400	-0.16745	138.9388	62.69967	61.8721
1994	258	2400	0.151919	138.6697	62.53095	61.80235
1994	259	2400	1.187803	138.1457	62.57988	61.75237
1994	260	2400	0.683023	138.0012	62.51375	61.69357

1994	261	2400	0.574851	137.9019	62.53419	61.71381
1994	262	2400	0.146115	139.5701	64.04078	63.48068
1994	263	2400	-0.12936	139.2843	63.83681	63.26179
1994	264	2400	-0.43833	139.1958	63.71726	63.32669
1994	265	2400	-0.33272	139.0912	63.70858	63.21563
1994	266	2400	-0.21603	138.9003	63.51801	62.99979
1994	267	2400	0.099532	139.1429	63.6621	63.18035
1994	268	2400	0.547043	139.061	63.5837	63.01956
1994	269	2400	0.798482	138.8497	63.74073	63.07403
1994	270	2400	1.584674	138.4182	63.66917	63.25694
1994	271	2400	1.963873	138.2718	63.62901	63.0034
1994	272	2400	1.051836	137.8839	63.24784	62.88187
1994	273	2400	0.027295	137.3258	62.5944	62.36397
1994	274	2400	0.374078	137.0725	62.32144	62.19072
1994	275	2400	-0.22834	136.794	61.67193	61.81602
1994	276	2400	-0.43912	136.6277	61.50486	61.49596
1994	277	2400	-0.1839	136.2854	61.12653	61.32481
1994	278	2400	-0.19389	136.07	60.78367	60.98896
1994	279	2400	-0.61089	135.9065	60.48989	60.7877
1994	280	2400	-0.52988	135.5424	60.27029	60.4374
1994	281	2400	0.347597	135.0338	59.51109	60.17818
1994	282	2400	0.338957	134.8982	59.46767	60.13507
1994	283	2400	-1.28353	134.8509	59.2397	59.75026
1994	284	2400	-1.75535	134.6262	59.12793	59.55354
1994	285	2400	-1.53308	134.4945	59.11673	59.43027
1994	286	2400	-1.11	134.2161	58.56809	59.36026
1994	287	2400	-1.68932	134.2455	59.31288	59.79471
1994	288	2400	-1.64691	134.0787	58.95504	59.5213
1994	289	2400	-1.32227	132.9264	57.17998	58.64258
1994	290	2400	-0.67193	133.3863	58.191	59.23311
1994	291	2400	0.024697	133.6759	58.48895	59.50459
1994	292	2400	0.563126	133.8103	58.64529	59.592
1994	293	2400	0.458066	133.5434	58.28106	59.34097
1994	294	2400	0.011225	133.0513	57.59358	58.83893
1994	295	2400	0.23026	132.9421	57.4811	58.71028
1994	296	2400	0.612282	132.7445	57.43828	58.72501
1994	297	2400	0.549353	132.4132	57.05773	58.38241
1994	298	2400	0.044442	133.2647	58.45766	58.72012
1994	299	2400	-0.36121	133.2333	58.37114	58.71836
1994	300	2400	-0.34218	133.1766	58.2806	58.66084
1994	301	2400	0.055247	133.1021	58.09417	58.61711
1994	302	2400	0.113988	132.9505	57.91909	58.47125
1994	303	2400	-0.23144	132.6728	57.38962	58.19122
1994	304	2400	0.513839	132.4578	57.3404	58.16793
1994	307	2400	0.056731	132.3838	80.35836	58.08181
1994	308	2400	0.737469	132.0631	80.28874	57.90273
1994	309	2400	-0.02971	131.711	79.76658	57.65167
1994	310	2400	0.652761	131.5933	79.41888	57.3016
1994	311	2400	-0.57299	131.439	79.80319	58.12411
1994	312	2400	0.86439	131.5391	80.04793	58.0142
1994	313	2400	-0.07939	131.485	79.77755	58.01358

1994	314	2400	-0.98036	131.3758	79.48424	57.8651
1994	315	2400	-1.45435	131.1183	79.06096	57.57526
1994	316	2400	-0.48924	130.9654	78.95271	57.38008
1994	317	2400	-0.66816	130.8875	78.76881	57.24481
1994	318	2400	0.340166	130.8985	78.8131	57.12258
1994	319	2400	-1.09948	130.7288	78.56111	57.31475
1994	320	2400	-1.43626	130.3394	78.37838	57.09123
1994	321	2400	-0.49936	131.0593	55.8286	57.42827
1994	322	2400	1.03914	130.9443	56.1668	57.38113
1994	323	2400	-0.55445	130.7103	55.69661	57.09908
1994	324	2400	-0.74796	130.5973	55.07219	56.85288
1994	325	2400	1.848558	130.5007	55.29153	56.86123
1994	326	2400	1.230079	130.2294	54.94695	56.69049
1994	327	2400	0.216487	130.7384	55.39492	56.73758
1994	328	2400	1.511229	130.032	54.44899	56.46795
1994	329	2400	0.552728	130.337	54.55165	56.36554
1994	330	2400	-1.39359	129.9217	54.09543	55.91676
1994	331	2400	0.141927	129.12	53.80434	55.83067
1994	332	2400	2.148733	129.5473	53.60848	55.99241
1994	333	2400	0.383111	129.23	53.54243	56.05595
1994	334	2400	-0.36677	129.0668	52.94449	55.49932
1994	335	2400	0.308301	128.6491	52.60707	55.12391
1994	336	2400	0.06105	128.5082	52.76376	55.03163
1994	337	2400	0.161791	128.2778	52.33455	54.73962
1994	338	2400	-0.38418	127.8815	51.82538	54.4289
1994	339	2400	0.915017	127.9696	52.52691	54.97532
1994	340	2400	0.086574	126.8135	52.18283	54.55827
1994	341	2400	-0.41496	128.2949	53.21681	55.37154
1994	342	2400	-1.16132	128.1024	53.58854	55.4154
1994	343	2400	0.0759	127.9639	53.19642	55.3642
1994	344	2400	1.317848	127.292	53.24303	55.46081
1994	345	2400	-1.13715	126.9999	53.01023	55.23458
1994	346	2400	-1.53944	125.3235	52.55419	54.26812
1994	347	2400	-1.5177	125.1357	51.74268	54.28112
1994	348	2400	-1.61263	125.2941	49.54439	53.29367
1994	349	2400	-1.51	124.9124	48.61012	52.41644
1994	350	2400	-0.51624	125.3443	49.36517	52.58958
1994	351	2400	0.723014	125.2576	48.3054	52.00263
1994	352	2400	0.213651	126.3029	50.58364	53.17173
1994	353	2400	-0.50314	126.8282	52.24166	54.15905
1994	356	2400	-0.14826	126.7261	51.28661	53.4903
1994	357	2400	-0.1654	126.8567	51.22946	53.42157
1994	360	2400	-0.58929	126.3731	51.01979	53.26953
1994	363	2400	-1.59493	125.8348	50.55642	52.01944
1994	364	2400	-1.34349	122.4247	48.23343	49.90151
1994	365	2400	0.183258	120.3019	44.47306	52.06562
1995	1	2400	1.40995	120.4836	43.34914	54.33086
1995	2	2400	0.647796	120.5176	43.55633	55.81581
1995	3	2400	0.747855	119.7182	43.37831	56.80768
1995	6	2400	1.728373	113.822	37.92335	53.89034
1995	11	2400	-0.42753	104.5197	33.94872	51.30322

1995	12	2400	0.999281	100.2939	34.80407	50.41202
1995	13	2400	0.027007	100.8196	34.22418	49.90154
1995	16	2400	0.263871	114.8246	44.84661	53.11681
1995	17	2400	-0.74042	118.4794	46.60517	54.22646
1995	18	2400	-0.24469	120.1138	48.7656	55.54266
1995	19	2400	0.909621	120.9992	49.2741	56.03134
1995	21	2400	2.092422	122.0521	48.8211	56.75732
1995	22	2400	1.319056	122.0475	49.76743	56.71928
1995	23	2400	1.007932	122.499	51.08667	56.90576
1995	24	2400	0.542855	122.7605	52.12224	57.39822
1995	25	2400	0.307474	123.9961	52.23477	57.97809
1995	26	2400	0.343803	122.7399	53.41907	58.72488
1995	27	2400	-0.23835	122.8485	54.13894	58.29403
1995	28	2400	-0.68452	121.8782	53.20552	58.56573
1995	29	2400	0.200392	120.1892	54.27926	61.1061
1995	30	2400	1.327827	119.5896	53.2204	63.88971
1995	31	2400	2.662822	118.3975	50.43578	64.94514
1995	34	2400	0.70449	117.5397	46.66366	64.3191
1995	35	2400	2.972199	115.6506	41.83515	66.54853
1995	36	2400	1.765766	114.3822	39.60498	67.92248
1995	37	2400	1.277726	104.2225	34.46581	68.72979
1995	38	2400	1.008183	98.02541	29.9028	69.55752
1995	39	2400	1.14877	93.4209	27.48401	67.16429
1995	40	2400	1.526879	92.23181	27.08175	64.18127
1995	43	2400	0.354464	91.74546	25.82436	58.10287
1995	44	2400	0.072882	89.70014	24.26568	55.93882
1995	45	2400	-0.86506	89.07982	24.17794	54.69384
1995	46	2400	1.946175	87.60544	22.38748	52.93504
1995	47	2400	-0.45698	91.29911	25.76344	52.86245
1995	48	2400	-0.53961	93.2617	26.38154	52.69857
1995	49	2400	-0.26413	96.80399	28.79885	52.34153
1995	50	2400	0.164746	98.68258	29.68472	52.70507
1995	51	2400	1.89094	99.64414	29.18977	53.59927
1995	52	2400	0.487214	100.212	28.24335	53.87858
1995	53	2400	0.501393	100.6139	28.46114	55.1704
1995	54	2400	1.781561	101.1544	29.33389	55.89656
1995	57	2400	-1.79103	102.6482	27.84306	57.04512
1995	58	2400	-0.20419	104.4992	27.84514	58.80971
1995	60	2400	-0.38689	102.9117	28.65655	55.89914
1995	61	2400	-1.26654	100.7431	26.05224	55.22719
1995	62	2400	-1.03629	101.1442	26.03363	56.29163
1995	63	2400	-1.29529	100.5026	26.0231	56.4107
1995	64	2400	-0.02971	99.9879	25.65869	56.14125
1995	65	2400	-0.55379	99.61131	25.77597	55.9189
1995	66	2400	1.630994	99.5704	26.27603	56.04912
1995	67	2400	0.106951	100.4614	26.69525	55.74164
1995	68	2400	-0.997	100.2128	26.28197	55.28746
1995	69	2400	-1.14094	101.2954	27.46463	56.67093
1995	70	2400	-1.06695	101.0872	26.8184	56.66688
1995	71	2400	-0.83144	101.1851	27.74975	56.72648
1995	72	2400	-0.78997	105.3199	33.09816	55.65368

1995	73	2400	-0.36838	110.8768	37.70874	55.54185
1995	74	2400	0.42888	116.532	42.09403	56.20504
1995	75	2400	0.615775	117.2878	42.80753	56.15913
1995	76	2400	-0.12085	117.906	45.47002	55.79811
1995	77	2400	-0.23836	118.4209	47.22568	56.03246
1995	78	2400	0.321234	119.5419	49.47006	57.49838
1995	79	2400	2.076483	120.853	51.50345	58.47065
1995	80	2400	2.599762	122.6647	53.81599	58.85135
1995	81	2400	1.958201	123.2771	55.22649	58.6711
1995	82	2400	1.178757	123.9999	56.23096	58.96628
1995	83	2400	0.485192	124.549	57.35596	59.41874
1995	84	2400	0.340166	125.1616	58.57761	59.20501
1995	84	2400	0.340166	125.1616	58.57761	59.20501
1995	85	2400	-0.18567	125.5727	59.4582	58.81594
1995	86	2400	-0.07008	125.7344	59.57379	58.73346
1995	87	2400	0.146654	126.3522	60.49138	59.48091
1995	88	2400	0.670603	126.6388	62.00415	59.49249
1995	89	2400	1.15863	126.9742	63.75443	58.76173
1995	90	2400	0.584855	127.0136	64.6069	57.49607
1995	91	2400	0.396608	126.8561	65.33313	57.14532
1995	92	2400	0.077515	126.6746	65.93831	58.24309
1995	93	2400	1.507435	127.1995	66.20567	59.21638
1995	94	2400	0.681683	127.1003	65.82211	59.63132
1995	95	2400	-0.08643	126.6974	65.32234	59.68913
1995	96	2400	0.493424	127.035	65.6241	59.86628
1995	97	2400	0.246174	126.4487	65.42635	59.69671
1995	98	2400	1.204005	126.3729	65.26138	59.52956
1995	99	2400	-0.35555	125.6591	64.98854	59.59344
1995	100	2400	-1.07396	125.3626	64.24561	59.49439
1995	101	2400	-0.17596	125.8817	64.03023	59.57469
1995	102	2400	1.421688	126.5018	64.37606	59.86514
1995	103	2400	1.564022	126.565	64.40893	60.05867
1995	104	2400	1.049526	126.415	64.65963	60.29021
1995	105	2400	1.384151	126.7149	65.09389	60.63934
1995	106	2400	0.292493	126.4561	65.1649	60.77248
1995	107	2400	0.129638	126.4733	65.42966	60.85583
1995	108	2400	1.39602	126.6244	65.15065	60.678
1995	109	2400	1.142835	126.5331	65.36947	61.02041
1995	110	2400	0.377978	126.4031	65.00737	60.98052
1995	111	2400	2.300113	127.161	65.57759	61.43849
1995	112	2400	0.868303	126.8005	65.66166	61.59096
1995	113	2400	0.741094	126.6431	65.15676	61.57699
1995	114	2400	1.109343	127.0282	65.80322	61.8796
1995	115	2400	0.991455	127.0516	65.98831	62.02847
1995	116	2400	0.223223	126.9527	66.06478	62.12777
1995	117	2400	1.102187	127.3967	66.06881	62.36717
1995	118	2400	0.856552	127.4859	66.53377	62.78002
1995	119	2400	0.468452	127.5465	66.79115	62.85874
1995	120	2400	0.402149	127.5921	67.0925	62.97438
1995	121	2400	0.749601	127.6461	67.25033	63.09431
1995	122	2400	1.073697	127.5906	67.25606	63.17242

1995	123	2400	0.632659	127.5228	67.39223	63.25112
1995	124	2400	0.868841	128.7771	67.45441	61.46451
1995	125	2400	1.028729	128.7376	66.23629	57.96719
1995	126	2400	0.300331	129.0196	66.88895	55.26013
1995	127	2400	-0.19337	129.0942	67.50687	53.28533
1995	128	2400	0.021886	129.2227	67.89454	51.53205
1995	129	2400	0.726651	129.3817	68.01201	50.15001
1995	130	2400	1.438165	129.559	68.01613	48.7054
1995	134	2400	1.793994	129.9058	69.56453	46.85143
1995	134	2400	1.793994	129.9058	69.56453	46.85143
1995	135	2400	1.100165	129.8471	70.11792	45.54105
1995	136	2400	1.255327	129.6871	69.83377	31.29049
1995	137	2400	2.098369	129.8254	69.742	22.65218
1995	138	2400	1.89094	129.7963	69.91022	20.49285
1995	139	2400	1.722282	129.7983	70.08908	19.4484
1995	140	2400	1.490419	129.936	70.46727	18.91718
1995	141	2400	1.147155	130.0353	70.74812	18.26973
1995	142	2400	0.108303	129.8838	70.24394	18.46774
1995	143	2400	1.033587	129.9441	70.10075	18.43082
1995	144	2400	0.309509	130.1688	69.84564	19.19466
1995	149	2400	1.590215	131.1658	71.58671	11.4305
1995	150	2400	1.081391	130.9455	71.42566	0.701664
1995	151	2400	0.644134	130.5342	71.08965	0.422737
1995	152	2400	0.347058	130.5385	68.91315	0.946149
1995	153	2400	0.557849	130.7969	69.13077	0.04701
1995	154	2400	0.352179	130.7005	69.23118	-0.04957
1995	155	2400	0.212011	130.6413	69.2182	-0.07099
1995	156	2400	0.868303	131.0047	69.9696	0.148809
1995	157	2400	1.580499	130.7313	69.80577	0.342
1995	158	2400	1.288544	131.0602	70.23538	-0.79824
1995	159	2400	-0.13922	131.2939	70.61855	-0.88583
1995	160	2400	-0.21822	131.3768	70.35612	-0.96872
1995	161	2400	0.772696	131.6836	70.98555	-1.07955
1995	162	2400	1.180779	131.9279	71.23345	-1.09923
1995	163	2400	0.999149	132.0709	71.55305	-1.0337
1995	164	2400	1.003206	132.156	71.60369	-0.99154
1995	165	2400	0.099795	132.322	71.99028	-1.15294
1995	166	2400	-0.57094	132.2758	71.10605	-1.23906
1995	167	2400	-0.54312	132.3194	71.65776	-1.17314
1995	168	2400	-0.05671	132.5	71.80972	-1.1063
1995	170	2400	0.940697	133.1245	73.23173	-1.04078
1995	171	2400	-0.11018	133.1069	73.08376	-1.28109
1995	172	2400	-0.35433	133.2581	73.58543	-1.44755
1995	173	2400	-0.2328	133.3581	73.90011	-1.47281
1995	174	2400	0.318436	133.5354	74.06804	-1.56805
1995	175	2400	0.569205	133.8137	75.07761	-1.44382
1995	176	2400	0.38596	133.8334	75.22993	-1.40889
1995	177	2400	-0.51219	133.6665	75.57647	-1.35021
1995	178	2400	-0.46722	133.667	74.84144	-1.31155
1995	179	2400	-0.03982	134.0999	75.68694	-1.18834
1995	208	2400	-0.0224	133.7764	74.69931	-2.71279

1995	209	2400	0.572041	134.0288	75.20506	-2.63253
1995	210	2400	0.103458	134.0424	75.33524	-2.73614
1995	211	2400	-0.26803	134.0633	75.34521	-2.78708
1995	213	2400	-0.28127	134.3915	75.23909	-2.57007
1995	214	2400	-0.62049	134.5817	75.17201	-2.61048
1995	215	2400	0.063479	134.6199	75.51057	-2.51743
1995	216	2400	0.347872	134.3544	74.91868	-2.47201
1995	217	2400	0.467375	134.3829	74.93215	-2.409
1995	218	2400	-0.39971	134.2207	74.43313	-2.619
1995	219	2400	-0.62981	134.1636	74.55391	-2.71828
1995	220	2400	-0.4051	133.8435	73.91067	-2.52591
1995	221	2400	0.26739	133.6393	73.77898	-2.59449
1995	222	2400	0.606203	133.8744	74.18736	-2.67136
1995	223	2400	1.192135	134.0939	74.44692	-2.55036
1995	224	2400	0.605796	134.1216	74.61643	-2.70317
1995	225	2400	0.399864	134.1901	74.73182	-2.72421
1995	226	2400	0.720716	134.3407	75.07331	-2.77946
1995	227	2400	0.520324	134.3532	73.78683	-2.60764
1995	228	2400	0.195691	134.2479	74.02702	-2.65855
1995	229	2400	0.229722	134.2295	74.16701	-2.74716
1995	230	2400	-0.23832	134.5181	74.61214	-2.76624
1995	231	2400	0.049982	134.7656	74.94897	-2.75555
1995	232	2400	0.775413	134.7438	74.94055	-2.83251
1995	233	2400	0.599861	134.8967	75.37673	-2.79325
1995	234	2400	-0.19634	134.9106	74.46868	-2.7523
1995	235	2400	0.900719	134.8988	74.2439	-2.77094
1995	236	2400	-0.16204	134.9921	73.87356	-2.86909
1995	237	2400	-0.29316	134.6362	73.08185	-3.05281
1995	238	2400	0.291824	134.3507	72.74456	-3.13549
1995	239	2400	-0.29181	134.1142	72.23251	-3.29378
1995	240	2400	0.421869	133.8548	71.91013	-3.34626
1995	241	2400	-0.25873	133.7919	71.82838	-3.36495
1995	242	2400	0.404315	133.7717	71.75048	-3.33483
1995	243	2400	1.510546	134.241	72.29434	-3.26755
1995	244	2400	0.616996	134.4228	72.09321	-3.07049
1995	245	2400	0.029173	134.2345	71.4284	-3.27013
1995	246	2400	-0.21255	134.2608	71.66735	-3.23089
1995	247	2400	-0.21322	133.9908	71.30644	-3.37204
1995	248	2400	-0.50004	133.8805	70.81428	-2.98246
1995	249	2400	0.817663	133.9151	70.92974	-3.06867
1995	250	2400	-0.1291	134.0436	70.83028	-3.10007
1995	251	2400	0.11924	133.625	70.13066	-3.23454
1995	252	2400	0.128693	133.6998	70.06313	-2.76015
1995	253	2400	-0.64994	133.5478	69.55208	-2.98261
1995	254	2400	-0.40525	133.4076	69.28778	-2.99715
1995	255	2400	0.802	133.5455	68.69951	-2.76606
1995	256	2400	1.588193	133.5459	68.69979	-2.71852
1995	257	2400	-0.43807	133.2756	68.70959	-2.80012
1995	258	2400	-1.08504	133.0334	68.225	-2.91843
1995	259	2400	0.722857	133.1389	67.86468	-2.70659
1995	260	2400	0.198633	132.9257	67.16577	-2.72241

1995	261	2400	-0.58889	132.8494	66.80375	-2.60422
1995	262	2400	-0.2297	132.6878	66.69455	-2.34687
1995	263	2400	0.024052	132.8315	66.88176	-2.46922
1995	264	2400	0.410801	132.7049	65.99897	-2.47347
1995	265	2400	0.3268	132.6914	66.19358	-2.36774
1995	266	2400	-0.95594	131.9654	64.80664	-2.62642
1995	267	2400	-0.48641	131.9233	64.57886	-2.47261
1995	268	2400	0.393497	132.0199	64.3101	-2.26038
1995	269	2400	0.880041	132.0498	64.10186	-2.46177
1995	270	2400	0.200392	131.5851	63.57027	-2.45777
1995	283	2400	0.041593	130.3267	61.14474	-1.90232
1995	284	2400	0.294791	130.1875	61.22906	-1.87361
1995	285	2400	0.335571	129.9306	60.72465	-1.89025
1995	286	2400	0.806858	129.6686	60.58395	-1.88483
1995	287	2400	2.35993	130.0295	60.73239	-1.79458
1995	288	2400	2.482413	130.1404	60.67488	-1.80534
1995	289	2400	0.174737	130.2168	60.88774	-1.85505
1995	290	2400	0.261167	130.0233	60.0182	-1.78499
1995	291	2400	-0.51787	129.7467	60.09615	-1.90936
1995	292	2400	-0.31815	129.5691	59.47737	-1.85831
1995	293	2400	0.580129	129.2663	59.35095	-1.74793
1995	294	2400	1.390086	128.5339	58.58488	-1.74949
1995	295	2400	0.34543	128.2249	58.5612	-1.69629
1995	296	2400	0.052806	127.8166	58.27	-1.65239
1995	297	2400	0.83481	127.7732	58.47312	-1.70753
1995	298	2400	0.408766	127.4714	58.64979	-1.64114
1995	299	2400	0.801186	127.5008	58.45339	-1.70734
1995	300	2400	2.365878	127.0426	58.50361	-1.5789
1995	301	2400	2.353182	126.795	58.03298	-1.63694
1995	302	2400	0.123428	126.8158	57.60328	-1.56767
1995	303	2400	-0.72502	126.7736	57.95934	-1.72671
1995	304	2400	-1.02278	126.7716	57.54846	-1.6807
1995	305	2400	-0.53139	126.5306	56.77334	-1.76185
1995	306	2400	1.292575	126.1355	57.01934	-1.72609
1995	307	2400	0.930405	126.218	56.73709	-1.604
1995	308	2400	0.073051	126.4432	56.17553	-1.55175
1995	309	2400	0.137608	125.6765	55.71787	-1.51323
1995	310	2400	0.692069	125.9438	54.28334	-1.4096
1995	311	2400	1.975072	125.3602	55.12684	-1.0052
1995	312	2400	0.820631	125.4259	55.42402	-1.31766
1995	313	2400	-0.71801	125.5407	55.00076	-1.44125
1995	314	2400	0.622392	124.9878	55.1257	-1.30444
1995	315	2400	2.97178	124.2969	53.6904	-1.00677
1995	316	2400	0.133012	124.573	52.58827	-1.05595
1995	317	2400	-0.02458	124.5482	52.3055	-1.02569
1995	318	2400	0.878294	124.4863	51.88417	-0.75761
1995	319	2400	1.825583	124.0824	52.26259	-0.81063
1995	320	2400	0.10019	123.7391	52.57082	-0.84966
1995	321	2400	-0.80632	124.1599	52.0434	-0.80846
1995	322	2400	-0.26131	123.0676	50.52495	-0.78808
1995	323	2400	-0.36285	122.5926	51.35864	-0.95967

1995	324	2400	1.378335	122.313	50.90954	-0.71216
1995	325	2400	1.693779	122.2325	51.38053	-0.7221
1995	326	2400	0.714888	122.409	50.60167	-0.62675
1995	327	2400	-0.10074	122.9811	50.57177	-0.73364
1995	328	2400	-1.1415	121.4524	50.6748	-0.65185
1995	329	2400	0.385659	120.1693	49.06816	-0.52713
1995	330	2400	0.767825	120.3495	50.47332	-0.45975
1995	331	2400	1.965751	121.0893	49.98311	-0.36061
1995	332	2400	-0.61957	119.9797	50.29614	-0.77813
1995	333	2400	-0.33775	119.3211	47.71721	-0.47467
1995	334	2400	1.240452	117.8517	44.77789	-0.29353
1995	335	2400	1.806414	117.4663	45.64177	-0.28181
1995	336	2400	-0.48899	117.2581	46.36791	-0.57003
1995	337	2400	0.844658	116.9603	42.91588	-0.47391
1995	338	2400	-0.53989	116.1692	43.26525	-0.39996
1995	339	2400	0.787363	115.7891	43.78914	-0.97913
1995	340	2400	0.87815	115.5247	41.75109	-0.472
1995	341	2400	-0.05227	115.024	41.46174	-0.41728
1995	342	2400	-1.02226	113.6124	41.9526	-0.32784
1995	343	2400	0.71259	110.6592	37.3811	0.421704
1995	344	2400	1.404121	108.9928	35.42846	-0.18591
1995	345	2400	0.217802	107.9501	33.73509	-0.44913
1995	346	2400	-1.40077	105.7074	31.36094	-0.55948
1995	347	2400	-1.65249	103.2202	30.07523	-0.33153
1995	348	2400	0.54082	97.79601	28.32279	-0.24918
1995	349	2400	-0.17677	96.89229	28.71801	-0.22189
1995	350	2400	-0.4802	96.11205	27.28611	-0.20589
1995	351	2400	-1.10962	97.03761	28.1127	-0.33055
1995	352	2400	-0.61093	96.48276	28.43709	-0.33659
1995	353	2400	0.845327	93.1541	27.34378	-0.27773
1995	354	2400	1.749552	89.6817	26.82163	-0.26593
1995	355	2400	1.629511	87.00244	26.22926	-0.12163
1995	356	2400	0.906785	87.77381	26.565	-0.14843
1995	357	2400	0.804285	90.33748	26.95923	-0.12201
1995	358	2400	0.939726	90.81298	27.43749	-0.12829
1995	359	2400	1.404121	90.18797	28.10589	-0.02022
1995	360	2400	1.43181	88.66406	27.20897	-0.10376
1995	361	2400	0.476145	86.93275	26.42175	-0.25969
1995	362	2400	-0.19568	86.67588	26.21227	-0.0941
1995	363	2400	-0.21944	85.57669	25.796	0.042394
1995	364	2400	0.239556	85.56848	25.50941	-0.07118
1995	365	2400	0.343264	88.7114	27.1041	0.069458
1996	1	2400	-0.01595	90.23171	29.14983	0.21521
1996	2	2400	0.329335	90.47271	30.29002	-0.08613
1996	3	2400	0.475043	87.35007	29.12887	-0.05724
1996	4	2400	0.018343	82.9473	27.375	-0.47098
1996	5	2400	-1.45682	82.1155	28.45387	-0.19173
1996	6	2400	-1.60253	79.53654	28.87982	-0.20803
1996	7	2400	-0.18503	79.90878	28.77137	0.144223
1996	8	2400	1.496748	78.34127	27.17826	-0.17439
1996	9	2400	1.602491	80.22101	27.60676	0.171289

1996	10	2400	-0.16031	83.90457	28.29867	0.390797
1996	11	2400	-0.08023	82.98302	26.01324	-0.11401
1996	12	2400	1.482844	81.91839	24.06787	0.082317
1996	13	2400	1.144845	83.9035	23.93348	0.027461
1996	14	2400	0.346232	85.04769	22.64801	-0.05686
1996	15	2400	-1.91069	84.37968	22.90053	-0.4302
1996	16	2400	0.849647	80.71253	19.09655	-0.2303
1996	17	2400	-0.00797	82.89955	19.19763	-0.08517
1996	18	2400	1.46206	90.09225	21.71624	0.732617
1996	19	2400	1.076684	101.4057	25.21174	0.420859
1996	20	2400	-1.20615	98.00903	23.82758	0.316094
1996	21	2400	-0.67304	96.07198	24.15804	0.302684
1996	22	2400	0.624007	94.93654	24.59044	0.214904
1996	23	2400	1.214666	95.41415	24.18221	0.220435
1996	24	2400	1.402913	96.73062	25.01162	0.218229
1996	25	2400	-1.18457	95.74572	27.0601	0.000236
1996	26	2400	-0.48331	95.30375	28.59143	0.012084
1996	27	2400	2.018819	96.08132	28.94689	0.058313
1996	28	2400	-1.22238	96.76487	31.03787	-0.19738
1996	29	2400	1.186701	95.23514	30.61439	0.118861
1996	30	2400	0.715965	94.79833	31.535	-0.0441
1996	31	2400	-0.2755	94.30211	33.24147	-0.00797
1996	32	2400	0.094374	92.22975	28.32924	-0.06244
1996	33	2400	-0.94313	89.09392	25.72629	-0.02286
1996	34	2400	-1.21645	85.25906	23.41536	0.035958
1996	35	2400	-0.933	80.94767	19.54474	0.104345
1996	36	2400	-0.3703	76.10756	15.74938	-0.16405
1996	37	2400	-0.86642	70.28893	13.98099	-0.06926
1996	38	2400	1.465566	66.03765	12.1935	-0.05148
1996	39	2400	2.769773	67.99813	12.02183	0.37842
1996	40	2400	1.412773	69.64027	11.72775	0.39976
1996	41	2400	2.376132	68.87286	10.80336	0.514383
1996	42	2400	2.047585	68.12313	10.51424	0.013015
1996	43	2400	0.900969	67.0124	11.37026	0.060806
1996	44	2400	1.226391	62.75059	11.59164	-0.20445
1996	45	2400	1.356305	60.90839	12.31768	-0.22227
1996	46	2400	0.551206	58.18522	10.82695	-0.12867
1996	47	2400	1.016822	56.45616	9.110724	0.102808
1996	48	2400	2.400434	55.80613	7.522442	0.341257
1996	49	2400	0.243456	55.09659	6.811984	0.068339
1996	50	2400	0.110588	54.14654	5.153546	0.08924
1996	51	2400	0.348385	54.51384	4.804906	-0.21464
1996	52	2400	0.154203	54.61913	4.710303	-0.0576
1996	53	2400	0.436036	54.8752	5.339987	0.033298
1996	54	2400	1.851369	55.64425	7.147441	0.414031
1996	55	2400	2.833108	55.80774	8.51704	0.540513
1996	56	2400	1.148507	56.23882	10.00795	0.296297
1996	57	2400	0.145013	56.88652	11.98623	-0.02358
1996	58	2400	2.047717	58.69339	13.72959	0.850559
1996	59	2400	0.90567	59.32059	14.3173	-0.19831
1996	60	2400	0.808867	60.28935	15.91955	0.024257

1996	61	2400	0.913389	61.55641	17.60921	-0.01871
1996	62	2400	1.985853	62.83592	19.06469	-0.14017
1996	63	2400	0.330174	63.48208	20.09185	0.037759
1996	64	2400	-0.23929	63.22234	21.50546	0.404404
1996	66	2400	-0.50603	63.86849	23.41069	-0.21283
1996	67	2400	0.559858	65.22941	24.97796	0.409136
1996	68	2400	0.733531	66.40471	27.08443	0.342629
1996	69	2400	-1.28246	66.55067	28.52726	-0.0418
1996	70	2400	-1.9	66.84722	27.66165	0.332056
1996	71	2400	-0.84669	67.76803	26.80649	0.289713
1996	72	2400	-0.12615	67.78526	26.0713	0.303004
1996	73	2400	0.745545	69.33007	27.14118	0.878265
1996	74	2400	1.673808	72.18627	28.96915	0.975908
1996	75	2400	1.36619	74.72691	35.36504	1.012455
1996	76	2400	0.45359	77.56017	38.98418	0.745819
1996	77	2400	1.102043	80.28341	41.30754	0.80987
1996	78	2400	0.806701	82.5657	43.14905	0.452966
1996	79	2400	1.374673	86.96575	45.17342	0.719679
1996	80	2400	2.277545	91.04524	47.07455	0.784925
1996	84	2400	0.220913	96.30139	54.42505	0.113396
1996	84	2400	0.220913	96.30139	54.42505	0.113396
1996	85	2400	1.507698	97.9096	55.44788	0.556276
1996	86	2400	-0.68775	100.6355	57.33765	0.355424
1996	87	2400	-1.54687	101.1102	58.65469	-0.19012
1996	88	2400	-0.38352	102.5824	60.23081	0.111937
1996	89	2400	-0.34409	104.0411	61.26384	-0.17526
1996	90	2400	-0.01662	105.1316	63.05311	0.042133
1996	91	2400	0.543788	106.3247	65.08882	0.410852
1996	92	2400	0.529345	107.1768	66.71418	0.587346
1996	93	2400	0.771475	108.5092	68.47207	0.546573
1996	94	2400	0.46169	109.3196	70.70159	0.37824
1996	95	2400	0.320696	109.4936	71.93269	0.170129
1996	96	2400	-0.57624	109.683	74.003	-0.1972
1996	97	2400	0.203466	109.9691	75.29957	0.126991
1996	98	2400	0.065989	110.4177	77.15549	-0.08364
1996	99	2400	0.098261	112.0381	77.79879	-0.16217
1996	100	2400	0.473547	112.2885	77.56208	0.612133
1996	101	2400	1.76427	112.8821	79.06112	1.292851
1996	102	2400	1.695262	113.002	79.54879	1.352976
1996	103	2400	0.716923	112.7645	79.7186	1.439641
1996	104	2400	1.277463	112.9468	80.43828	1.341416
1996	105	2400	0.004057	112.6139	80.56686	1.736739
1996	106	2400	1.566044	112.8483	80.01669	1.85182
1996	107	2400	2.177618	112.824	79.34643	2.001603
1996	108	2400	0.945411	112.7954	78.90466	2.567259
1996	109	2400	0.440487	112.646	77.97721	1.944766
1996	110	2400	0.911499	112.8359	78.11107	1.222337
1996	111	2400	1.733087	113.3053	78.47025	0.990727
1996	112	2400	-0.03985	112.7613	78.14912	1.200554
1996	113	2400	1.080577	113.4468	78.51903	1.040372
1996	114	2400	1.361989	113.7612	78.06594	0.7132

1996	115	2400	1.114608	113.7462	78.11186	0.477866
1996	116	2400	2.970033	114.3961	78.34289	0.308475
1996	117	2400	2.474982	114.1432	78.38471	-0.0758
1996	118	2400	0.343001	113.7795	78.78248	-0.72398
1996	119	2400	-0.32261	113.7828	79.03643	-1.21725
1996	120	2400	0.723659	113.6115	77.99598	-1.43854
1996	121	2400	1.528626	113.9966	77.97119	-1.63101
1996	122	2400	1.252071	113.9007	78.22156	-1.74127
1996	123	2400	0.573775	113.863	78.40798	-1.84726
1996	124	2400	0.372293	113.8049	78.10232	-1.99325
1996	125	2400	0.112886	113.5706	78.36023	-2.17229
1996	126	2400	-0.42417	113.7668	78.78689	-2.38978
1996	127	2400	-0.86209	113.3871	77.21136	-2.57524
1996	128	2400	-0.44658	113.421	77.0952	0.203703
1996	129	2400	-0.35097	113.7772	77.8419	-0.23011
1996	130	2400	0.02916	114.1676	77.80523	-0.21983
1996	131	2400	1.046677	114.6984	78.43364	-0.15706
1996	132	2400	1.294216	114.9731	78.54137	-0.15045
1996	133	2400	1.05844	115.0759	78.26602	-0.16416
1996	134	2400	0.131529	114.6117	78.12864	-0.23125
1996	135	2400	-0.51545	114.0278	77.36871	-0.41478
1996	136	2400	-0.43295	113.9707	77.42166	-0.54858
1996	137	2400	0.149201	114.4226	78.16578	-0.49174
1996	138	2400	0.373777	114.3642	78.4745	-0.34056
1996	139	2400	1.393723	114.7001	79.15149	0.032908
1996	140	2400	2.522116	114.5889	78.52623	0.163414
1996	141	2400	2.240559	114.9322	79.4609	0.071045
1996	142	2400	1.699319	114.6785	79.49956	-0.0478
1996	143	2400	0.761064	114.552	79.45427	-0.22956
1996	144	2400	0.107345	114.6061	79.33077	-0.20259
1996	145	2400	-0.71667	114.4491	79.77351	-0.52263
1996	146	2400	-0.28954	114.8119	80.95717	-0.42049
1996	147	2400	0.038338	115.2687	81.62003	-0.44027
1996	148	2400	0.15528	115.2564	79.74336	-0.42571
1996	149	2400	-0.11237	115.2309	77.73001	-0.48914
1996	150	2400	-0.24229	115.2252	79.00024	-0.77847
1996	151	2400	-0.16503	115.4204	78.96918	-0.56073
1996	152	2400	-0.27508	116.6953	80.10821	-0.52359
1996	153	2400	-0.62956	116.68	81.12872	-0.62997
1996	154	2400	0.058609	117.1779	82.28579	-0.45893
1996	155	2400	0.608344	117.0857	82.19576	-0.48469
1996	156	2400	0.72056	117.297	81.44071	-0.5241
1996	157	2400	-0.04444	116.9864	80.06197	-0.61848
1996	158	2400	0.268585	117.1099	80.23442	-0.52899
1996	159	2400	0.249404	117.3284	80.9048	-0.58347
1996	160	2400	-0.04876	117.1377	80.12874	-0.54028
1996	161	2400	0.050771	117.4734	81.06194	-0.56245
1996	162	2400	0.595792	117.4497	81.09926	-0.43794
1996	163	2400	0.768507	116.7072	79.9493	-0.51869
1996	164	2400	0.837922	116.8899	80.61798	-0.62747
1996	165	2400	1.085172	116.8056	80.7779	-0.68682

1996	166	2400	0.702336	117.3719	81.33882	-0.71342
1996	167	2400	-0.0898	117.4649	82.2761	-0.85868
1996	168	2400	0.088045	117.9384	83.09289	-0.86051
1996	169	2400	0.147061	118.1664	84.37774	-0.90683
1996	170	2400	0.246987	118.132	83.89728	-0.93196
1996	171	2400	0.605652	118.414	83.98719	-0.91706
1996	172	2400	1.414939	118.4038	83.14002	-0.84737
1996	173	2400	1.217514	118.4067	83.56975	-0.88888
1996	174	2400	1.446528	118.9974	85.42762	-0.97814
1996	175	2400	0.377834	118.521	85.01984	-1.06197
1996	176	2400	1.181987	118.2157	83.26396	-0.92978
1996	177	2400	0.074535	118.2919	82.52946	-1.10455
1996	178	2400	-0.17069	118.0163	81.04604	-1.04412
1996	179	2400	-0.25173	118.6164	83.45582	-1.28269
1996	180	2400	-0.24982	118.4181	83.15712	-1.14607
1996	181	2400	1.032773	118.7576	83.32651	-1.05887
1996	182	2400	1.406431	118.8534	83.68939	-1.00242
1996	183	2400	1.08315	118.2796	82.54121	-1.03211
1996	184	2400	1.494069	118.6684	83.26848	-1.11806
1996	185	2400	1.592237	118.8084	83.508	-1.15274
1996	186	2400	1.162543	118.8032	81.77467	-1.18123
1996	187	2400	1.138109	118.9876	81.90512	-1.16367
1996	188	2400	0.411458	119.0597	82.00827	-1.27189
1996	189	2400	1.72714	119.2855	81.78515	-1.16556
1996	190	2400	1.737407	119.1752	81.18748	-1.11424
1996	191	2400	1.145934	119.1309	81.03659	-1.15678
1996	192	2400	0.096684	119.0943	80.76862	-1.20667
1996	193	2400	-0.38161	118.9873	80.06922	-1.1983
1996	194	2400	0.043759	118.8512	79.77296	-1.1548
1996	195	2400	0.990378	119.0588	80.79075	-1.16461
1996	196	2400	0.566763	119.442	81.75543	-1.18032
1996	197	2400	1.071806	120.0427	82.80719	-1.18758
1996	198	2400	0.677088	120.3134	82.85138	-1.21009
1996	199	2400	0.165835	120.0236	82.20756	-1.24433
1996	200	2400	1.065871	119.5779	82.09141	-1.23793
1996	201	2400	1.118796	119.6771	83.55403	-1.30631
1996	202	2400	1.076126	119.5431	82.78417	-1.3055
1996	203	2400	0.610917	119.1846	81.35499	-1.29075
1996	204	2400	0.858718	119.1244	80.69652	-1.22637
1996	205	2400	0.774179	119.6676	81.79233	-1.30326
1996	206	2400	0.80754	119.7794	82.12629	-1.3013
1996	211	2400	-0.15367	119.9171	82.49258	-1.38968
1996	211	2400	-0.15367	119.9171	82.49258	-1.38968
1996	213	2400	0.643189	120.6468	83.0126	-1.37066
1996	213	2400	0.643189	120.6468	83.0126	-1.37066
1996	214	2400	0.56851	120.4348	82.49927	-1.35745
1996	215	2400	0.145301	120.2704	82.32343	-1.38913
1996	216	2400	-0.19188	120.1397	82.38134	-1.49459
1996	217	2400	-0.31179	120.1174	82.70202	-1.50299
1996	218	2400	-0.38053	119.5054	80.38396	-1.43499
1996	219	2400	-0.23293	119.4895	81.59002	-1.47283

1996	220	2400	0.259564	119.8103	81.3917	-1.40327
1996	221	2400	0.650764	119.9601	82.4578	-1.40656
1996	222	2400	0.225928	120.2408	82.88921	-1.5244
1996	223	2400	-0.31288	120.5484	83.79134	-1.5375
1996	224	2400	-0.20026	120.5995	83.76314	-1.55812
1996	225	2400	0.384057	120.6477	81.18699	-1.47925
1996	226	2400	0.203372	121.2326	78.40491	-1.45276
1996	227	2400	-0.10816	121.7105	80.49154	-1.57175

APPENDIX D: AIR TEMPERATURE DATA

Air Temperature for the Site Area					
YEAR	J DAY	ELAPSED DAY	Air Temp		
		(since Aug 5, 1994)	oC		
1994	322	105	7.33		
1994	323	106	8.68		
1994	324	107	3.037		
1994	325	108	5.001		
1994	326	109	3.987		
1994	327	110	-4.411		
1994	328	111	-4.503		
1994	329	112	1.424		
1994	330	113	-4.49		
1994	331	114	-6.569		
1994	332	115	0.299		
1994	333	116	2.59		
1994	334	117	-2.556		
1994	335	118	-2.949		
1994	336	119	4.438		
1994	337	120	0.792		
1994	338	121	3.978		
1994	339	122	5.166		
1994	340	123	4.525		
1994	341	124	-5.114		
1994	342	125	-5.426		
1994	343	126	-6.308		
1994	344	127	-4.654		
1994	345	128	-6.197		
1994	346	129	-15.6		
1994	347	130	-15.36		
1994	348	131	-9.5		
1994	349	132	-8.12		
1994	350	133	-5.305		
1994	351	134	-0.843		
1994	352	135	1.763		
1994	353	136	-4.496		
1994	354	137	-4.35		
1994	355	138	2.803		
1994	356	139	0.348		
1994	357	140	-0.491		
1994	358	141	-2.147		
1994	359	142	-1.741		
1994	360	143	-4.393		
1994	361	144	-4.203		
1994	362	145	0.289		
1994	363	146	-11.79		
1994	364	147	-14.71		
1994	365	148	-10.66		
1995	1	149	-4.249		
1995	2	150	-4.678		
1995	3	151	-8.14		

1995	4	152	-11.41		
1995	5	153	-12.85		
1995	6	154	-4.786		
1995	7	155	-6.554		
1995	8	156	-14.53		
1995	9	157	-10.51		
1995	10	158	-20.17		
1995	11	159	-19.64		
1995	12	160	-8.95		
1995	13	161	-1.051		
1995	15	163	4.326		
1995	16	164	2.177		
1995	17	165	0.356		
1995	18	166	-1.057		
1995	19	167	1.133		
1995	21	169	1.413		
1995	22	170	-0.789		
1995	23	171	-1.263		
1995	24	172	-1.613		
1995	25	173	-5.014		
1995	26	174	-8.94		
1995	27	175	-12.29		
1995	28	176	-11.85		
1995	29	177	-8.84		
1995	30	178	-4.9		
1995	31	179	-1.963		
1995	32	180	-0.668		
1995	33	181	-11.23		
1995	34	182	-12.15		
1995	35	183	-8.85		
1995	36	184	-18.83		
1995	38	186	-17.8		
1995	39	187	-15.34		
1995	40	188	-7.59		
1995	42	190	-7.88		
1995	43	191	-15.24		
1995	44	192	-9.71		
1995	45	193	-8.26		
1995	46	194	-7.3		
1995	47	195	-0.645		
1995	48	196	-3.248		
1995	49	197	0.752		
1995	50	198	0.565		
1995	51	199	-4.566		
1995	52	200	-4.059		
1995	53	201	-7.79		
1995	54	202	-2.638		
1995	56	204	-12.59		
1995	57	205	-15.01		
1995	59	207	-3.815		
1995	60	208	-3.345		
1995	61	209	-8.12		

1995	62	210	-10.33		
1995	63	211	-5.679		
1995	64	212	-5.001		
1995	65	213	-1.864		
1995	66	214	-1.868		
1995	67	215	-2.337		
1995	68	216	-8.62		
1995	69	217	-8.22		
1995	70	218	-7.04		
1995	71	219	-1.737		
1995	72	220	5.434		
1995	73	221	8.06		
1995	74	222	6.318		
1995	75	223	8.35		
1995	76	224	4.361		
1995	77	225	4.046		
1995	78	226	3.568		
1995	79	227	5.069		
1995	80	228	5.673		
1995	81	229	4.602		
1995	82	230	4.298		
1995	83	231	0.123		
1995	84	232	3.813		
1995	85	233	4.265		
1995	86	234	3.922		
1995	87	235	5.771		
1995	88	236	6.369		
1995	89	237	7.16		
1995	90	238	2.711		
1995	91	239	0.052		
1995	92	240	1.076		
1995	93	241	1.14		
1995	94	242	-1.186		
1995	95	243	-7.91		
1995	96	244	-7.15		
1995	97	245	-2.651		
1995	98	246	0.634		
1995	99	247	3.06		
1995	100	248	1.516		
1995	101	249	4.141		
1995	102	250	7.15		
1995	103	251	7.41		
1995	104	252	5.452		
1995	105	253	2.798		
1995	106	254	2.693		
1995	107	255	3.981		
1995	108	256	6.892		
1995	109	257	9.98		
1995	110	258	8.78		
1995	111	259	8.33		
1995	112	260	8.81		
1995	113	261	5.257		

1995	114	262	6.3		
1995	115	263	8.08		
1995	116	264	10.25		
1995	117	265	8.06		
1995	118	266	9.21		
1995	119	267	7.46		
1995	120	268	8.86		
1995	121	269	11.73		
1995	122	270	12.52		
1995	123	271	15.37		
1995	124	272	15.41		
1995	125	273	14.21		
1995	126	274	8.35		
1995	127	275	6.168		
1995	128	276	10.67		
1995	129	277	15.5		
1995	130	278	13.62		
1995	134	282	15.93		
1995	134	282	15.93		
1995	135	283	13.24		
1995	136	284	13.21		
1995	137	285	10.68		
1995	138	286	13.49		
1995	139	287	13.65		
1995	140	288	15.27		
1995	141	289	15.68		
1995	142	290	15.57		
1995	143	291	15.89		
1995	144	292	15.7		
1995	149	297	16.87		
1995	150	298	20.55		
1995	151	299	24.25		
1995	152	300	23.14		
1995	153	301	20.35		
1995	154	302	16.97		
1995	155	303	17.95		
1995	156	304	21.31		
1995	157	305	21.94		
1995	158	306	21.64		
1995	159	307	13.46		
1995	160	308	15		
1995	161	309	18.36		
1995	162	310	19.19		
1995	163	311	16.9		
1995	164	312	19.52		
1995	165	313	18.92		
1995	166	314	19.71		
1995	167	315	21.11		
1995	168	316	24.7		
1995	170	318	29.62		
1995	171	319	21.65		
1995	172	320	20.24		

1995	173		321	21.8		
1995	174		322	24.81		
1995	175		323	26.17		
1995	176		324	27.16		
1995	177		325	24.48		
1995	178		326	23.31		
1995	179		327	22.73		
1995	180		328	26.03		
1995	181		329	25.77		
1995	182		330	24.95		
1995	183		331	19.19		
1995	184		332	20.09		
1995	185		333	22.6		
1995	186		334	24.32		
1995	187		335	26.92		
1995	188		336	24.32		
1995	189		337	17.36		
1995	190		338	17.21		
1995	191		339	20.55		
1995	192		340	21.04		
1995	193		341	22.59		
1995	194		342	27.48		
1995	195		343	30.96		
1995	196		344	25.25		
1995	197		345	18.39		
1995	198		346	17.08		
1995	199		347	21.34		
1995	200		348	23.23		
1995	201		349	20.09		
1995	202		350	22.91		
1995	203		351	24.01		
1995	204		352	20.83		
1995	205		353	22.43		
1995	206		354	24.15		
1995	208		356	24.92		
1995	209		357	23.71		
1995	210		358	26.88		
1995	211		359	24.44		
1995	213		361	23.33		
1995	213		361	23.33		
1995	214		362	18.52		
1995	215		363	19.92		
1995	216		364	22.81		
1995	217		365	19.76		
1995	218		366	19.75		
1995	219		367	20.61		
1995	220		368	21.92		
1995	221		369	22.23		
1995	222		370	22.99		
1995	223		371	23.6		
1995	224		372	24.28		
1995	225		373	21.79		

1995	226	374	22.71		
1995	227	375	26.94		
1995	228	376	25.58		
1995	229	377	26.45		
1995	230	378	24.39		
1995	231	379	21.85		
1995	232	380	24.64		
1995	233	381	26.21		
1995	234	382	18.3		
1995	235	383	20.27		
1995	236	384	16.58		
1995	237	385	15.47		
1995	238	386	17.53		
1995	239	387	19.32		
1995	240	388	18.04		
1995	241	389	20.61		
1995	242	390	18.68		
1995	243	391	18.08		
1995	244	392	18.77		
1995	245	393	16.82		
1995	246	394	14.81		
1995	247	395	19.49		
1995	248	396	19.83		
1995	249	397	15.59		
1995	250	398	14.19		
1995	251	399	10.53		
1995	252	400	13.23		
1995	253	401	11.07		
1995	254	402	14.7		
1995	255	403	17.75		
1995	256	404	20.98		
1995	257	405	13.16		
1995	258	406	10.87		
1995	259	407	13.75		
1995	260	408	15.79		
1995	261	409	10.21		
1995	262	410	11.06		
1995	263	411	12.71		
1995	264	412	14.29		
1995	265	413	12.8		
1995	266	414	8.74		
1995	267	415	7.85		
1995	268	416	9.41		
1995	269	417	12.44		
1995	270	418	13.88		
1996	66	580	-10.39		
1996	67	581	-10.49		
1996	68	582	-11.32		
1996	69	583	-9.37		
1996	70	584	-4.849		
1996	71	585	-0.876		
1996	72	586	0.734		

1996	73	587	4.014		
1996	74	588	5.45		
1996	75	589	-2.332		
1996	76	590	-3.077		
1996	77	591	-0.475		
1996	78	592	1.531		
1996	79	593	3.835		
1996	80	594	2.301		
1996	84	598	-0.08		
1996	84	598	-0.08		
1996	85	599	5.367		
1996	86	600	0.699		
1996	87	601	-7.12		
1996	88	602	-3.101		
1996	89	603	0.952		
1996	90	604	1.801		
1996	91	605	2.698		
1996	92	606	3.684		
1996	93	607	2.475		
1996	94	608	0.855		
1996	95	609	-0.345		
1996	96	610	0.152		
1996	97	611	-1.455		
1996	98	612	2.068		
1996	99	613	1.052		
1996	100	614	2.572		
1996	101	615	3.809		
1996	102	616	8.37		
1996	103	617	6.049		
1996	104	618	1.878		
1996	105	619	3.16		
1996	106	620	5.011		
1996	107	621	5.255		
1996	108	622	2.609		
1996	109	623	8.03		
1996	110	624	10.14		
1996	111	625	8.24		
1996	112	626	12.45		
1996	113	627	8.15		
1996	114	628	8.48		
1996	115	629	4.593		
1996	116	630	4.774		
1996	117	631	11.34		
1996	118	632	4.143		
1996	119	633	6.485		
1996	120	634	7.55		
1996	121	635	8.88		
1996	122	636	9.96		
1996	123	637	9.13		
1996	124	638	11.76		
1996	125	639	11.98		
1996	126	640	9.41		

1996	127	641	10.59		
1996	128	642	12.39		
1996	129	643	14.58		
1996	130	644	13.46		
1996	131	645	12.1		
1996	132	646	7.21		
1996	133	647	5.697		
1996	134	648	8.12		
1996	135	649	11.24		
1996	136	650	13.51		
1996	137	651	11.31		
1996	138	652	15.25		
1996	139	653	16.9		
1996	140	654	21.7		
1996	141	655	22.9		
1996	142	656	21.35		
1996	143	657	18		
1996	144	658	16.25		
1996	145	659	12		
1996	146	660	12.5		
1996	147	661	14.59		
1996	148	662	15.49		
1996	149	663	16.15		
1996	150	664	9.22		
1996	151	665	12.94		
1996	152	666	18.61		
1996	153	667	19.41		
1996	154	668	20.32		
1996	155	669	20.04		
1996	156	670	19.89		
1996	157	671	17.05		
1996	158	672	18.72		
1996	159	673	15.45		
1996	160	674	15.09		
1996	161	675	18.86		
1996	162	676	22.24		
1996	163	677	22.92		
1996	164	678	24.45		
1996	165	679	22.2		
1996	166	680	23.24		
1996	167	681	19.95		
1996	168	682	18.37		
1996	169	683	22.45		
1996	170	684	20.25		
1996	171	685	20.97		
1996	172	686	21.22		
1996	173	687	24.38		
1996	174	688	16.65		
1996	175	689	18.1		
1996	176	690	17.03		
1996	177	691	18.52		
1996	178	692	17.71		

1996	179	693	14.85		
1996	180	694	18.96		
1996	181	695	19.97		
1996	182	696	24.41		
1996	183	697	25.48		
1996	184	698	23.22		
1996	185	699	19.33		
1996	186	700	18.97		
1996	187	701	22.12		
1996	188	702	20.49		
1996	189	703	18.49		
1996	190	704	22.16		
1996	191	705	19.74		
1996	192	706	17.95		
1996	193	707	21.67		
1996	194	708	21.34		
1996	195	709	21.43		
1996	196	710	21.79		
1996	198	712	21.16		
1996	199	713	24.33		
1996	200	714	24.87		
1996	201	715	20.56		
1996	202	716	19.42		
1996	203	717	21.75		
1996	204	718	22.48		
1996	205	719	18.35		
1996	206	720	21.27		
1996	211	725	20.17		
1996	211	725	20.17		
1996	213	727	18.71		
1996	213	727	18.71		
1996	214	728	18.08		
1996	215	729	20.08		
1996	216	730	22.36		
1996	217	731	23.81		

APPENDIX E: FROST DEPTH DATA

ATC2 related frost depth		Lapsed day from 5 August, 1994		
Date	Frost Depth (m)			
112	0.206207185			
113	0.17094897			
114	0.172542056			
115	0.275642355			
116	0.243534743			
119	0.176616257			
126	0.170377358			
127	0.279870564			
128	0.344285714			
129	0.36582996			
130	0.459708882			
131	0.535199216			
132	0.581177958			
133	0.606318328			
134	0.624259012			
135	0.623134978			
136	0.6132			
137	0.572967033			
138	0.57461094			
139	0.556210375			
140	0.524603275			
141	0.51221223			
142	0.516676829			
143	0.533215768			
144	0.541488834			
145	0.56220092			
146	0.549862142			
147	0.571918353			
148	0.65452498			
149	0.749630513			
150	0.788461794			
151	0.803224299			
152	0.814751462			
153	0.845996491			
154	0.901236094			
155	0.959607792			
156	0.982625072			
157	0.995388889			
158	1.016585169			
159	1.043689168			
160	1.090021645			
161	1.144762785			
162	1.183687902			
163	1.175322878			
164	1.139824263			
165	1.089337349			
166	1.058398184			
167	0.98718638			
168	0.891491597			

169	0.889860051			
170	0.870192744			
171	0.855286738			
172	0.842808219			
173	0.824677419			
174	0.808903394			
175	0.761589404			
176	0.777466814			
177	0.800365854			
178	0.827451193			
179	0.834701987			
180	0.840840807			
181	0.87475976			
182	0.933272801			
183	0.97734072			
184	1.122327303			
185	1.21876494			
186	1.270788207			
187	1.328253828			
188	1.346397103			
189	1.359878788			
190	1.38111727			
191	1.400591837			
192	1.412339189			
193	1.415615174			
194	1.404904507			
195	1.389469178			
196	1.369741379			
197	1.347172589			
198	1.329491264			
199	1.31541206			
200	1.305290135			
201	1.299503375			
202	1.300705882			
203	1.30834063			
204	1.312495552			
205	1.311272894			
206	1.308373162			
207	1.308427122			
208	1.305151515			
209	1.301398838			
210	1.296656834			
211	1.295518445			
212	1.291866867			
213	1.289697421			
214	1.287304262			
215	1.282182182			
216	1.278005051			
217	1.275142132			
218	1.26877409			
219	1.278020344			

220	1.28733945			
221	1.271239316			
222	1.245066274			
223	0.837435897			
469	0.273290175			
470	0.388275074			
471	0.406842223			
472	0.378155844			
473	0.378123711			
474	0.448457375			
475	0.530296693			
476	0.560782056			
477	0.560728083			
478	0.597736156			
479	0.616771879			
480	0.62769552			
481	0.657286585			
482	0.67299682			
483	0.702422452			
484	0.766958985			
485	0.812128655			
486	0.866764045			
487	0.933374643			
488	0.988329393			
489	1.027879004			
490	1.075149157			
491	1.113246293			
492	1.120151622			
493	1.11363457			
494	1.118524525			
495	1.143190339			
496	1.172451047			
497	1.195195876			
498	1.201686893			
499	1.188			
500	1.171308901			
501	1.162204017			
502	1.158294057			
503	1.156705703			
504	1.156978193			
505	1.158128931			
506	1.150789177			
507	1.140667491			
508	1.139766585			
509	1.169297095			
510	1.216563162			
511	1.266178319			
512	1.314309472			
513	1.369488636			
514	1.417780041			
515	1.455381388			

516	1.508335777			
517	1.543149232			
518	1.560361132			
519	1.572485337			
520	1.582440347			
521	1.591945071			
522	1.598682589			
523	1.602224306			
524	1.609770849			
525	1.606960784			
526	1.595905018			
527	1.564171322			
528	1.540930123			
529	1.524259962			
530	1.507966102			
531	1.478748723			
532	1.447161818			
533	1.426061815			
534	1.426385597			
535	1.429965753			
536	1.435436937			
537	1.450953355			
538	1.477591857			
539	1.513769513			
540	1.555965575			
541	1.593062548			
542	1.629009563			
543	1.660240175			
544	1.683101117			
545	1.699643891			
546	1.717236136			
547	1.723364116			
548	1.713684907			
549	1.709651163			
550	1.70038835			
551	1.692565445			
552	1.699515885			
553	1.713942598			
554	1.732614593			
555	1.751750449			
556	1.769782609			
557	1.778992933			
558	1.78779476			
559	1.790092838			
560	1.774141274			
561	1.760846154			
562	1.74555666			
563	1.725549683			
564	1.71887132			
565	1.691185383			
566	1.672699115			

567	1.640329861			
568	1.607570481			
569	1.576517028			
570	1.573343195			
572	1.537053073			
573	1.534333333			
574	1.534752604			
575	1.529324324			
576	1.527641509			
577	1.539549878			
578	1.542905237			
579	1.543018742			
580	1.533723404			
581	1.530735294			
582	1.51334512			
583	1.492983425			
584	1.470299026			
585	1.427258065			
586	1.397972561			
587	1.334090909			
588	1.334090909			
589	1.330343434			
590	1.333663366			
591	1.323932692			
592	1.300903042			
593	1.277320755			
594	1.253386792			

BTC2 related frost depth		Lapsed day from 5 August, 1994		
Date	Frost Depth (m)			
148	0.39489549			
149	0.53257734			
150	0.60339137			
151	0.63753495			
152	0.65859582			
153	0.66220397			
154	0.65587819			
155	0.63621827			
156	0.61577381			
157	0.62923926			
158	0.626287			
159	0.6078911			
160	0.60209514			
161	0.60930072			
162	0.61914286			
163	0.62486469			
164	0.63269478			
165	0.62401391			
166	0.62978154			
167	0.71316514			
168	0.76003738			
169	0.76693022			
170	0.76438503			
171	0.78932726			
172	0.82784169			
173	0.86715444			
174	0.90783074			
175	0.93346008			
176	0.94660414			
177	0.96972973			
178	0.99348133			
179	1.02575107			
180	1.05208502			
181	1.06469844			
182	1.05738113			
183	1.0402761			
184	1.03254438			
185	1.03042916			
186	1.02516685			
187	1.00700464			
188	0.97735656			
189	0.95048077			
190	0.92799401			
191	0.91373913			
192	0.90485437			
193	0.90074451			
194	0.89814675			
195	0.89281525			
196	0.88653846			

197	0.8845679			
198	0.88530759			
199	0.89426952			
200	0.90051267			
201	0.92014722			
202	0.94978386			
203	1.04901628			
204	1.08128263			
205	1.0997141			
206	1.18414768			
207	1.2177535			
208	1.24			
209	1.26788998			
210	1.2893865			
211	1.30020698			
212	1.29643697			
213	1.2866566			
214	1.2737025			
215	1.25974538			
216	1.24720697			
217	1.23892308			
218	1.23505011			
219	1.23169628			
220	1.23036437			
221	1.27062051			
222	1.28606075			
223	1.28337879			
224	1.27612191			
225	1.27560694			
226	1.27413009			
227	1.26566795			
228	1.25660949			
229	1.24795174			
230	1.24434337			
231	1.2420376			
232	1.24606888			
233	1.24432304			
234	1.24075404			
235	1.23102896			
236	1.22265448			
237	1.20885383			
238	1.20043081			
239	1.1918146			
240	1.18188158			
241	1.17326214			
242	1.1673234			
243	1.16169887			
244	1.15944483			
245	1.15778786			
246	1.15344193			
247	1.15182014			

248	1.15081218			
249	1.14743086			
250	1.14451308			
251	1.14344477			
252	1.14271795			
253	1.12918382			
489	0.43554243			
490	0.43517906			
491	0.40828947			
492	0.42231506			
493	0.52414668			
494	0.59356116			
495	0.6196624			
496	0.6255232			
497	0.64701918			
498	0.66365313			
499	0.67878258			
500	0.69342778			
501	0.70010367			
502	0.72856632			
503	0.78780503			
504	0.82805337			
505	0.86020494			
506	0.89614613			
507	0.95313576			
508	0.99898548			
509	1.02821915			
510	1.04244429			
511	1.04865606			
512	1.05414101			
513	1.06782205			
514	1.08263494			
515	1.09523863			
516	1.1156038			
517	1.13464854			
518	1.13944468			
519	1.13866135			
520	1.13868421			
521	1.14503429			
522	1.15404246			
523	1.15932426			
524	1.16671252			
525	1.16783156			
526	1.16482776			
527	1.16592817			
528	1.18647059			
529	1.21869142			
530	1.26052451			
531	1.30578082			
532	1.34517425			
533	1.37858355			

534	1.40574442			
535	1.42163647			
536	1.43133188			
537	1.44307673			
538	1.45326638			
539	1.45690393			
540	1.46344805			
541	1.47446759			
542	1.48648983			
543	1.49060616			
544	1.48536255			
545	1.47593824			
546	1.47041821			
547	1.45762413			
548	1.45864921			
549	1.45293893			
550	1.44995958			
551	1.44551645			
552	1.45687565			
553	1.46555556			
554	1.47068729			
555	1.4831149			
556	1.50149959			
557	1.5159324			
558	1.53044108			
559	1.54210874			
560	1.55092735			
561	1.55968655			
562	1.56851881			
563	1.57531974			
564	1.58177428			
565	1.5913834			
566	1.61045455			
567	1.62003797			
568	1.62685606			
569	1.63379534			
570	1.63839844			
571	1.64587404			
572	1.6564557			
573	1.66693069			
574	1.67861702			
575	1.69183295			
576	1.70309551			
577	1.71462838			
578	1.72183333			
579	1.72717172			
580	1.72225844			
581	1.71407942			
582	1.71090113			
583	1.69555851			
584	1.69084584			

585	1.68098011			
586	1.67287834			
587	1.66919084			
588	1.65643519			
589	1.65109698			
591	1.64467662			
592	1.63835294			
593	1.63030303			
594	1.62856427			
595	1.6292			
596	1.62376884			
597	1.62854202			
598	1.62687616			
599	1.6260687			
600	1.62398844			
601	1.62244792			
602	1.61761364			
603	1.61490385			
604	1.610832			
605	1.60736089			
606	1.59296238			
607	1.59296238			
608	1.57519231			
609	1.55386431			
610	1.55723837			
611	1.52447674			
612	1.49593123			
613	1.46223496			
614	1.43797784			
615	1.39555556			
616	1.34805486			
617	1.32659624			
618	1.2990625			
619	1.27373673			
620	1.25453094			
621	1.22973333			
622	1.20310987			
623	1.16685817			
624	1.15869792			
625	1.11686594			

IMAGE EVALUATION TEST TARGET (QA-3)

150mm

6″

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