Daren Resources Limited
701-675 West Hastings Street, Vancouver, B.C. V6B 1N2

PRELIMINARY INVESTIGATION OF THE GISCOME RAPIDS KAOLIN PROPERTY

PRELIMINARY INVESTIGATION OF THE GISCOME RAPIDS KAOLIN PROPERTY

CLAIMS:	GOOD
TAG NOS:	~~FMC~~ 109138
MINING DIVISION:	Cariboo
NTS LOCATION:	93J/2E
LAT/LONG:	54° N/122° W 30'
OWNER:	CRYSTAL CAPITAL CORP.
OPERATOR:	DAREN RESOURCES LTD.
AUTHOR:	M. Gent
DATE:	May 7, 1996

TABLE OF CONTENTS

1. INTRODUCTION

General
Property Definition
Local Geology

2. PROJECT ACTIVITIES

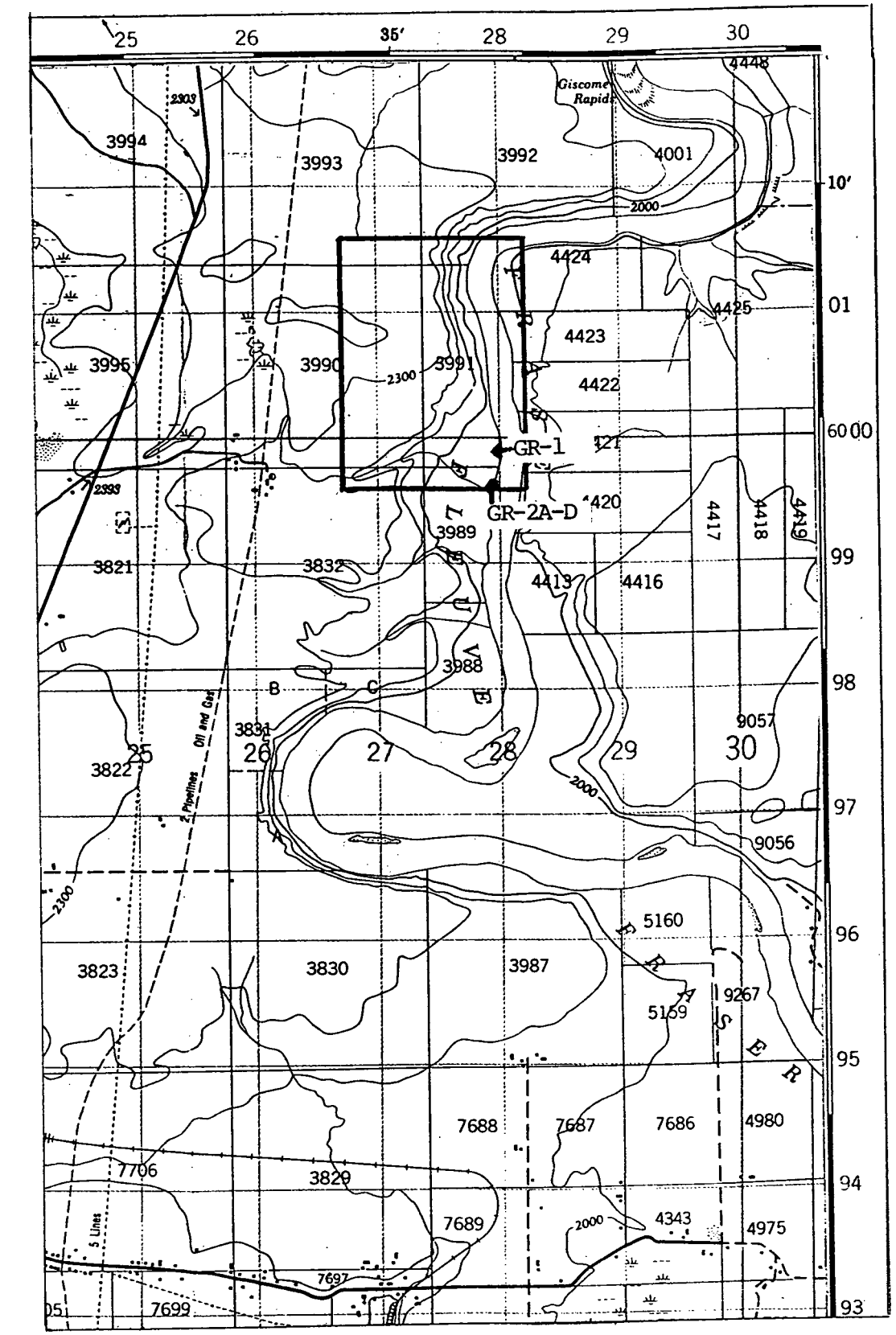
3. INTERPRETATION

4. COMMENTS

5. STATEMENT OF COSTS

6. AUTHOR'S QUALIFICATIONS

LOCATION MAP



N

Scale 1:50 000 Échelle

Miles 1 0 1 2 3 Miles

Metres 1000 0 1000 2000 3000 4000 Mètres

1. INTRODUCTION

GENERAL

The property is situated in the Fraser valley approximately 33 kilometers north of Prince George. It consists of a single claim of twelve units. Access is from the Hart Highway (97) 3.7 kilometers to the west.

[see location map]

PROPERTY DEFINITION

The claim is situated within Lot 3991. It was staked on May 7th, 1995 by Mr. Ed Montgomery.

LOCAL GEOLOGY

Metamorphic and intrusive bedrock were not observed in the area. Exposed bedrock is extremely scarce. Tertiary china clay is exposed along 760 m of the west bank of the Fraser River. It is capped to the northwest by over 60 m of coarse glacial sediments (outwash and till). It is expected that the clays may dip gently to the south. Cummings and McCameron (1952) reported the first evaluation of the clay resources in the area was in 1942 by F.F. Beale who shipped 20 tons to Vancouver from a pit within the lot. Hard augering within the area stripped in 1942 found the clays to be 35 feet thick. They appear to generally consists of a number of Tertiary fining upward sequences of sandy clay to clay.

Testing of the auger samples by the Mineral Processing and Metallurgical Division of the Department of Mines and Technical showed the clays to be refractory (cones 28 to 32½) and suitable for substituting china and ball clay in slip-cast porcelain bodies. Lambert Potteries of Vancouver is also reported to have found the clays to be satisfactory for throwing and casting whiteware. The clay was not found suitable for paper filler.

If these clay are suitable for use in modern ceramic plants there may be a relatively significant but low value market for local consumption as well as export. Provided that significant reserves are present, there is also a suitable market for refractory clays at

Abbotsford in B.C. and Medicine Hat in Alberta. With improvements since 1952 in floatation, magnetic separation, bleaching and commutation, it may now be possible to beneficiate these clays to a paper filler and possibly paper coating grade kaolin. In this case, there would be a very significant and valuable market with the paper industry in western North America.

2. PROJECT ACTIVITIES

Sampling of the Tertiary clays (May 4th to 6th, 1996) was initiated to characterize the clays and acquire preliminary indications as to their suitability for processing into filter and coater grade kaolin. Five samples from the lower and upper lower levels of clay were collected. Sample GR-1 represents 1.5 m of the lower most horizon, GR-2A the uppermost of the exposed sandy clay (0.20 m), GR-2B a bluish clay (0.75 m) with <20% sandy horizons, GR-2C a bluish white sandy clay (0.35 m) and GR-2D a bluish clay (0.50 m) grading down into a pink/beige sand clay (0.20 m).

Field work was conducted by M. Gent (Industrial Minerals Geologist) and T. Montgomery (Assistant). analytical investigations were conducted by Dr. Collin Harvey of the Dept. of Geological Sciences, Indiana University.

Analysis by Dr. C. Harvey of the Dept. of Geological Sciences, Indiana University conducted a included commutation of the samples into different grain size fractions, XRD analysis for mineral identification high intensity magnetic separation, bleaching and brightness determination The results are presented in Appendix I.

3. INTERPRETATION

The high silica content and low brightness of these clay samples indicate them to be unsuitable for use as paper fillers or coaters. the cause of the low brightness remains to identified to determine if further processing can achieve the require brightness.

The high abrasion index suggests that unless the kaolin can be separated from the quartz within the sub 20 micron size range these clays will not have any applications in the paper industry.

4. RECOMMENDATIONS

a) If these clays are to be considered for use in the pulp and paper industry, they must be studies to identify the cause of their low brightness.

b) The clay be evaluated as a source of refractory clay, especially calcine clay as access to power and transport infrastructure is available within the immediate area.

5. STATEMENT OF COSTS

4x4 vehicle rental (2 days)	600.80
Field expenses	685.51
Lab analyses	1000.00
Professional Days 5.0 @ $450	2250.00
Professional Days 3.0 @ $200	600.00
Office overhead (typing, maps, photocopies)	972.50
TOTAL	**$6133.81**

6. PROFESSIONAL QUALIFICATIONS

MALCOLM R. GENT

B.Sc. Condordia University

M.Sc. McGill University

Eighteen (18) plus years experience in the mineral exploration and mining sector, or which the past twelve have included industrial minerals.

Professional Registration

Assoc. of Professional Engineers of Sask. (in progress)

Colegis Oficial de Geologas de Espana (in progress)

Record of Employment

Sask Dept. of Energy and Mines	1989-1996	Sr. Industrial Minerals Geologist
Barringer Research Ltd.	1988-1989	Sr. Geophysicist
Self employed	1984-present	Industrial Mineral exploration and development
Petroleum Research Centre of Idaho	1983-1987	Sr. Researcher Chief Geologist
Hi-Tec Res. Management	1983	Chief Geologist
Pegasus Earth	1981-1983	Sr. Geologist
COGEMA	1978-1981	Exploration Geologic
CIDA	1977-1978	Researcher

REFERENCES

Cummings, F.M. and McCameron, J.W. 1952 - Shale Deposits of British Columbia, British Columbia Department of Mines, Bull. 30, 64p.

REPORT TO DAREN RESOURCES LTD

PRELIMINARY ASSESSMENT OF KAOLIN CLAY SAMPLES

FROM

BRITISH COLUMBIA

by

Colin C. Harvey

Ph.D. FNZIC FAIMM MSME

Consultant Industrial Clay Specialist

Associate Scientist, Department of Geological Sciences
Indiana University, Bloomington IN 47405

June 1996

PRELIMINARY ASSESSMENT OF KAOLIN CLAY SAMPLES FROM BRITISH COLUMBIA

1.0 Introduction

Five samples of brown, pale tan and grey sandy clays were submitted for preliminary mineralogical and processing testing to determine whether or not they might have potential as filler clays for the paper industry.

2.0 Methodology

The samples were examined visually, X-ray diffraction traces were run on the raw materials. The samples were then ground in a mortar and pestle to finer than 25 mesh and then mixed at low shear with the addition of a dispersant.

The samples were screen at 325 mesh (45 microns) and settled to 5 microns. Attempts to settle initially to 20 microns indicated that very fine silica was present in several of the samples. For this reason we chose 5 microns. This is typically taken to be the lower size limit for use as a filler clay since retention problems can arise in paper if the clays are too fine.

The less than 5 micron products were evaluated by the following tests:

- Recovery
- Mineral composition (by X-ray diffraction)
- Brightness - unbleached
- Brightness - magnetic separation at 2 Tesla
- Brightness - magnetic separation+peroxide (organic) leach
- Brightness - magnetic separation+hypochlorite (organic) bleach
- \- magnetic separation+hydrosulfite (Fe)leach
- Abrasion Index

Results

Results are summarized in Table 1.

X-ray diffraction data are presented as Appendix 2.

Table 1 Summary of laboratory data

Sample	Recovery at 5 um	Abrasion	Unbleached Brightness	Non-magnet brightness	Non mag & hypochlorite bleach	Non mag & peroxide bleach	Non mag plus hydrosulfite bleach
GR1	30%	>200	30.9	ND	ND	ND	ND
GR2A	22%	6	59.3	66.2	66.2	71.1	66.9
GR2B	24%	>200	57.0	ND	ND	ND	ND
GR2C	7%	6	49.6	ND	ND	ND	ND
GR2D	10%	27	42.8	ND	ND	ND	ND

4. Discussion of Results

4.1 Visual Appearance:

GR1 A brown fireclay with a high clay content.

GR2A Discolored kaolinized sandstone.

GR2B Has a brown color and relatively high clay content. In appearance it looks like a fire clay associated with coal measures. Therefore much of the discoloration is likely to be organic.

GR2C Similar in color to GR2B but much siltier in texture.

GR2D Similar in texture to GR2C but grey brown discoloration more prominent.

4.2 Mineralogy:

The X-ray diffraction data for the crude ore samples shows them all to be a mixture of quartz and kaolin with minor illite (or possibly mica?).

X-ray diffraction data for the less than 5 micron separates shows major kaolinite, minor illite and variable amounts of fine quartz (consistent with the abrasion indices).

4.3 Recoveries:

Samples GR1, GR2A and GR2B have moderate recoveries while recoveries were low from GR2C and GR2D.

At this time we have only done low shear mixing on the samples prior to separation at 5 microns. No attempt has been to optimize the grinding conditions (such as shear rate, percent solids, grinding media and grinding time). If the results on the other testing are promising then this would be investigated in greater detail.

Magnetic separation removed 5% of the GR2A <5 um product as the magnetic fraction.

4.4 Abrasion Index:

There is obviously significant fine quartz present in several of these samples (notably GR1 and GR2B with lesser amounts in GR2D). In Samples GR2A and GR2C the low abrasion indices would be acceptable for a filler clay.

4.5 Brightness:

The unbleached brightness are totally below specification for filler clays.

Since sample GR2A had the highest recovery, the lowest abrasion and the highest unbleached brightness it was selected for bleaching studies. The initial results indicate that magnetic separation alone is not likely to be successful on any of these materials. The hydrosulfite bleach has only a small effect but the peroxide bleach (hydrogen peroxide overnight) was successful in achieving 71.1% brightness. Bleaching with sodium hypochlorite gave no discernable improvement in brightness.

5.0 Conclusions and recommendations

5.1 Variability:

I have no concept of the extent of your deposit or the distribution of the various samples you have sent. One of the concerns is the very wide distribution of results we have obtained which could indicate an inconsistent and variable raw material. If these samples were taken over a small sample area then the chances of selectively mining GR2A-type material may be very low.

5.2 Abrasion Index

The high abrasion of several of your samples and the presence of very fine silica may be indicative of silica solution and deposition. This could be due to hydrothermal activity and/or perhaps silica deposition due to pH/Eh changes etc. If you choose to look at this resource in greater detail this should be investigated.

5.3 Brightness

The following comments relate to the series of bleaching tests carried out on GR2A. By using a combination of magnetic separation and 50% hydrogen peroxide it is has been possible to achieve a brightness of over 70%. Using the less powerful sodium hypochlorite we achieved no improvement. In commercial kaolin operations ozone bleaching is typically used and cannot be directly compared to peroxide. However I consider that the peroxide technique will give you an indication of the likely effectiveness of ozonation. A 70% brightness is however still well below the requirement for filler clays.

6.0 Forward Program:

6.1 Detailed sampling

A program of more detailed sampling and testing would determine whether or not there is any material which might achieve a brightness of over 80% by magnetic separation and peroxide bleaching. Although it is not possible to fully relate the brightness improvement on GR2A to other samples a useful prospecting tool would be to look for samples with a minimum unbleached brightness of 70% after fractionation at 5 microns.

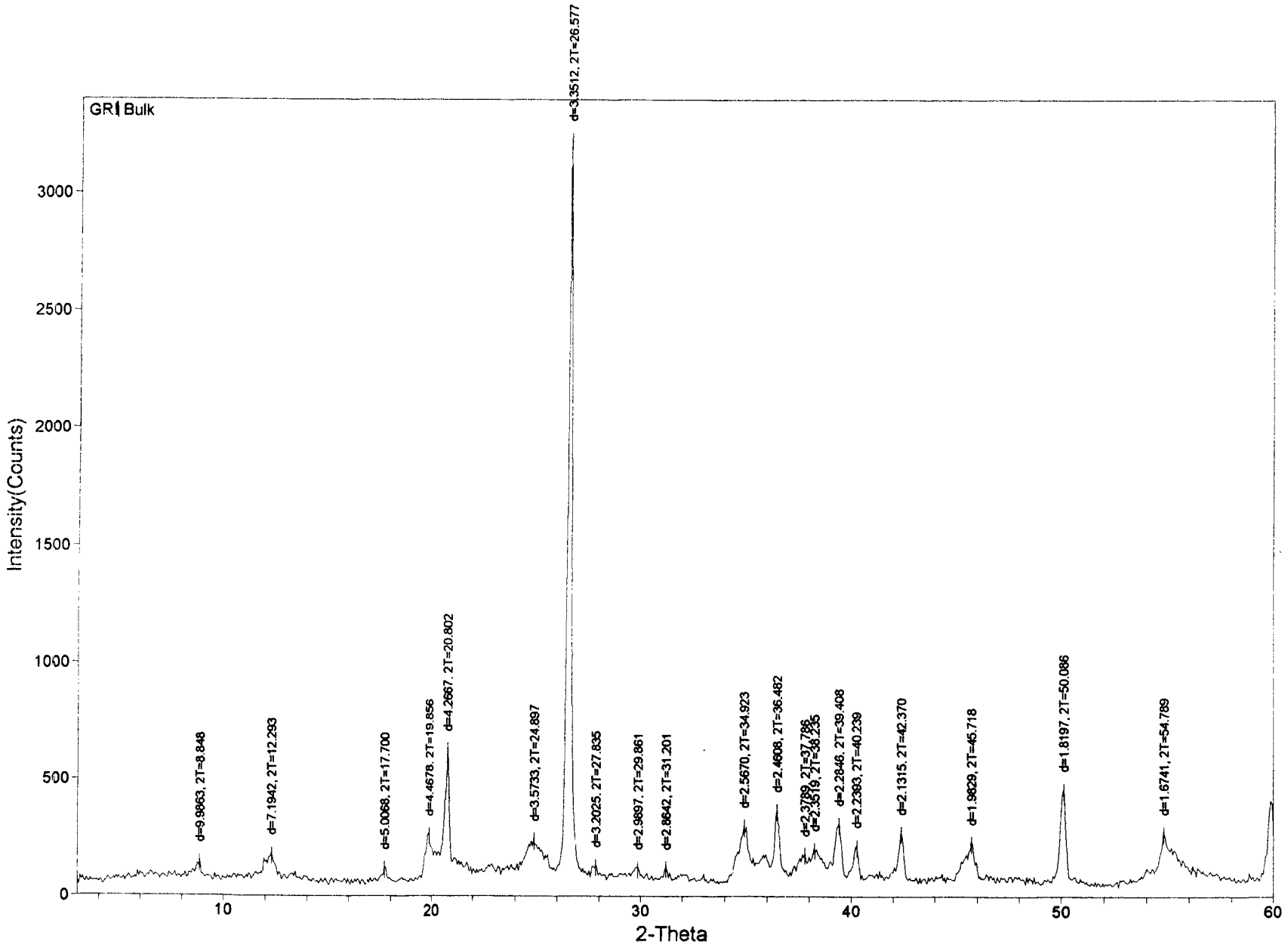
6.2 Testing

Any testing should focus on fractionation at 5 microns and measurement of unbleached brightness. If samples can be found with a minimum of 70% unbleached brightness, then bleaching techniques should be further investigated with specific focus on magnetic separation followed by ozone bleaching. All of this work could be done on a laboratory scale.

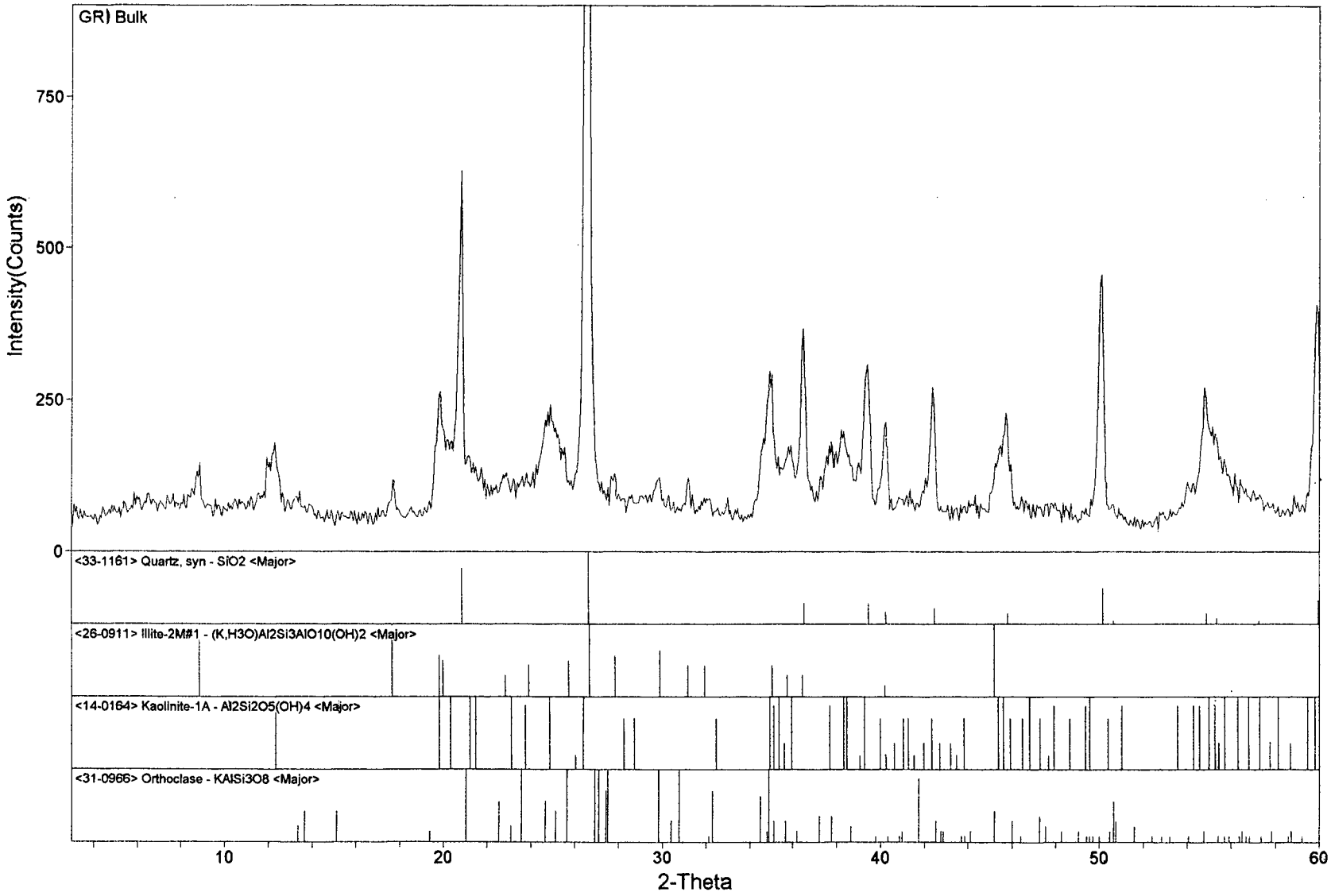
6.3 Marketing

Until you have some indication of reasonable quantities of 70% brightness unbleached clay, bleaching to 80%+ brightness clays I would not recommend any market studies.

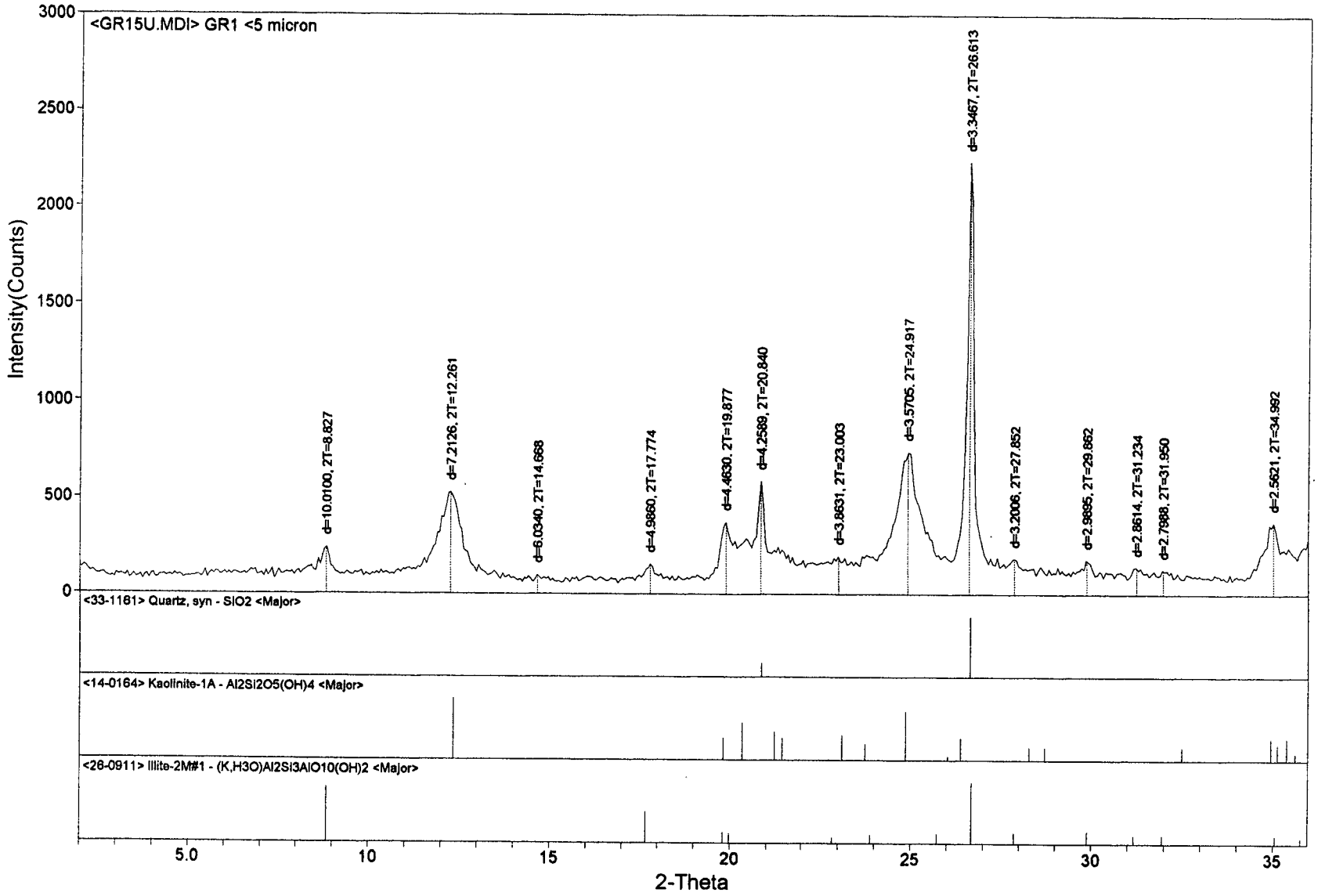
APPENDIX 2



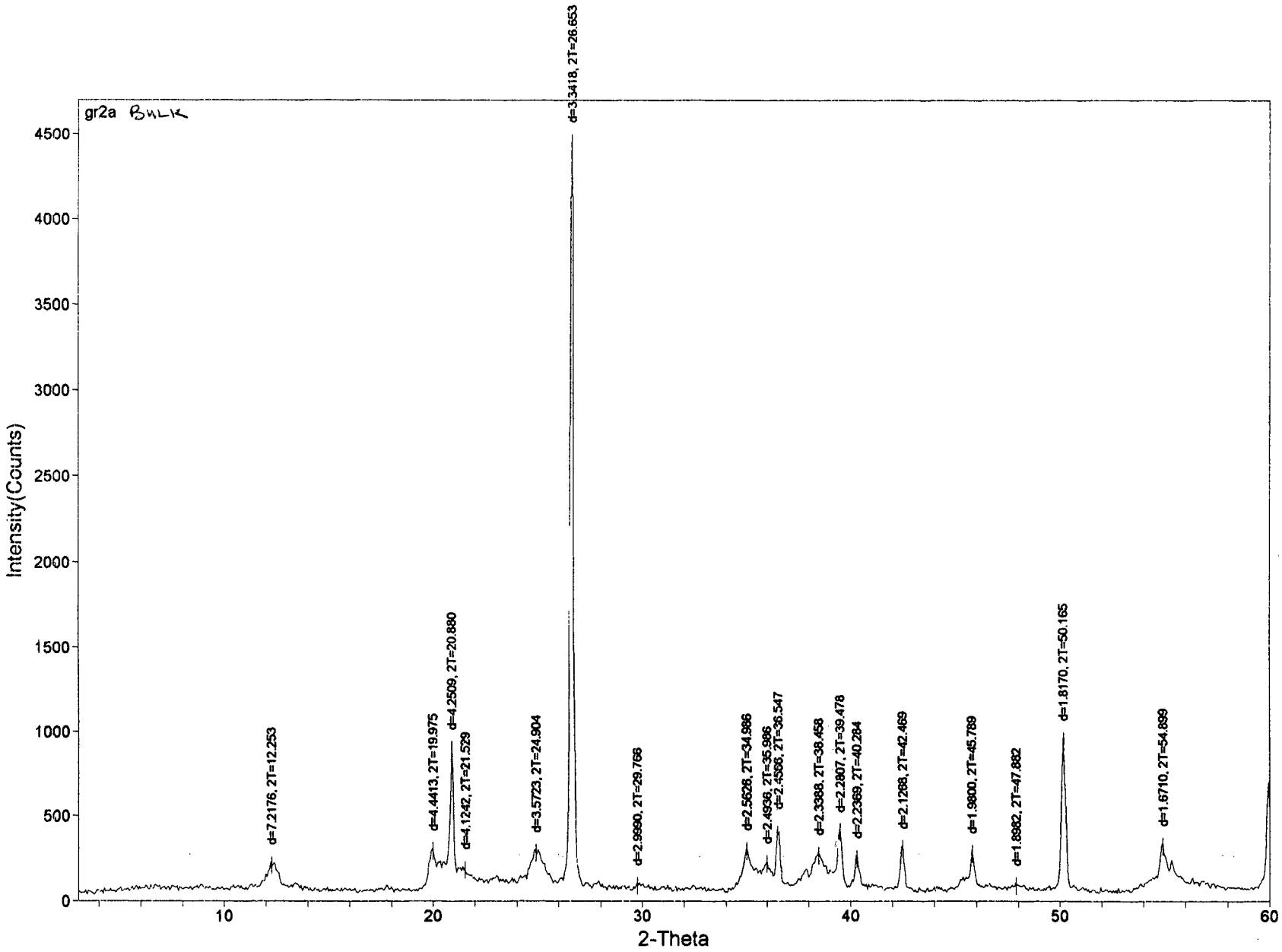
Friday, May 17, 1996 @08:04a



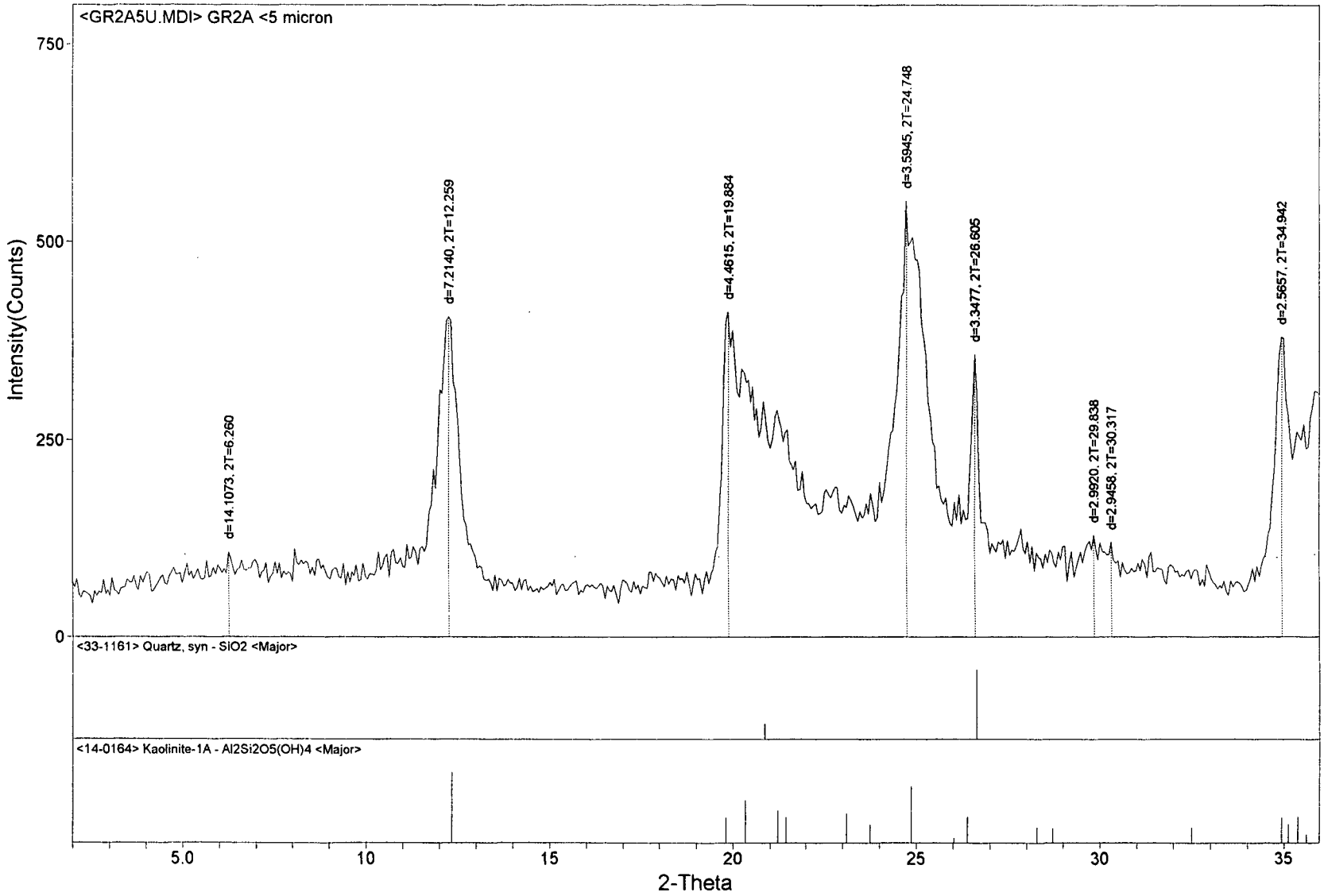
Thursday, May 16, 1996 @04:46p



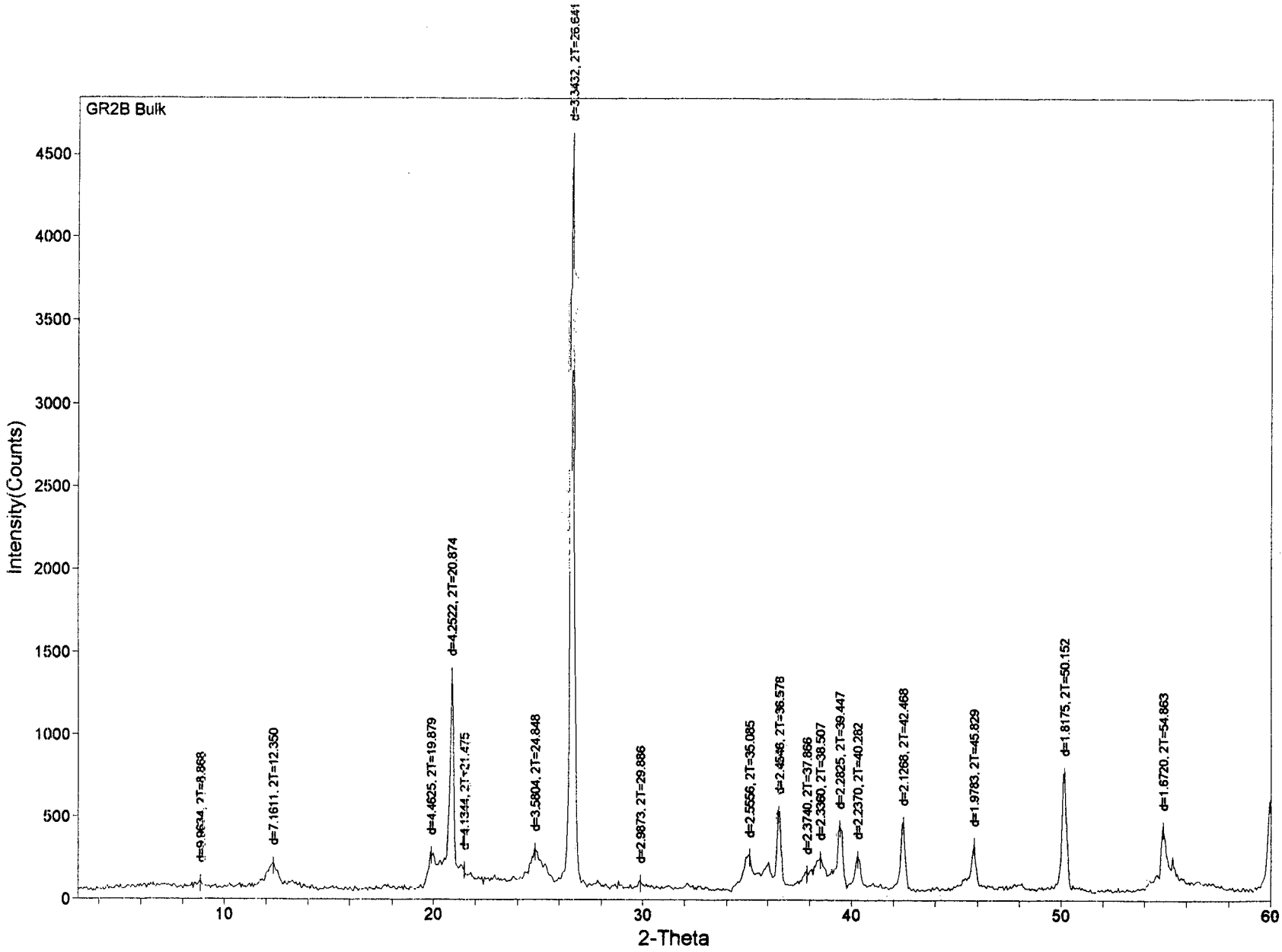
Thursday, May 30, 1996 @02:38p



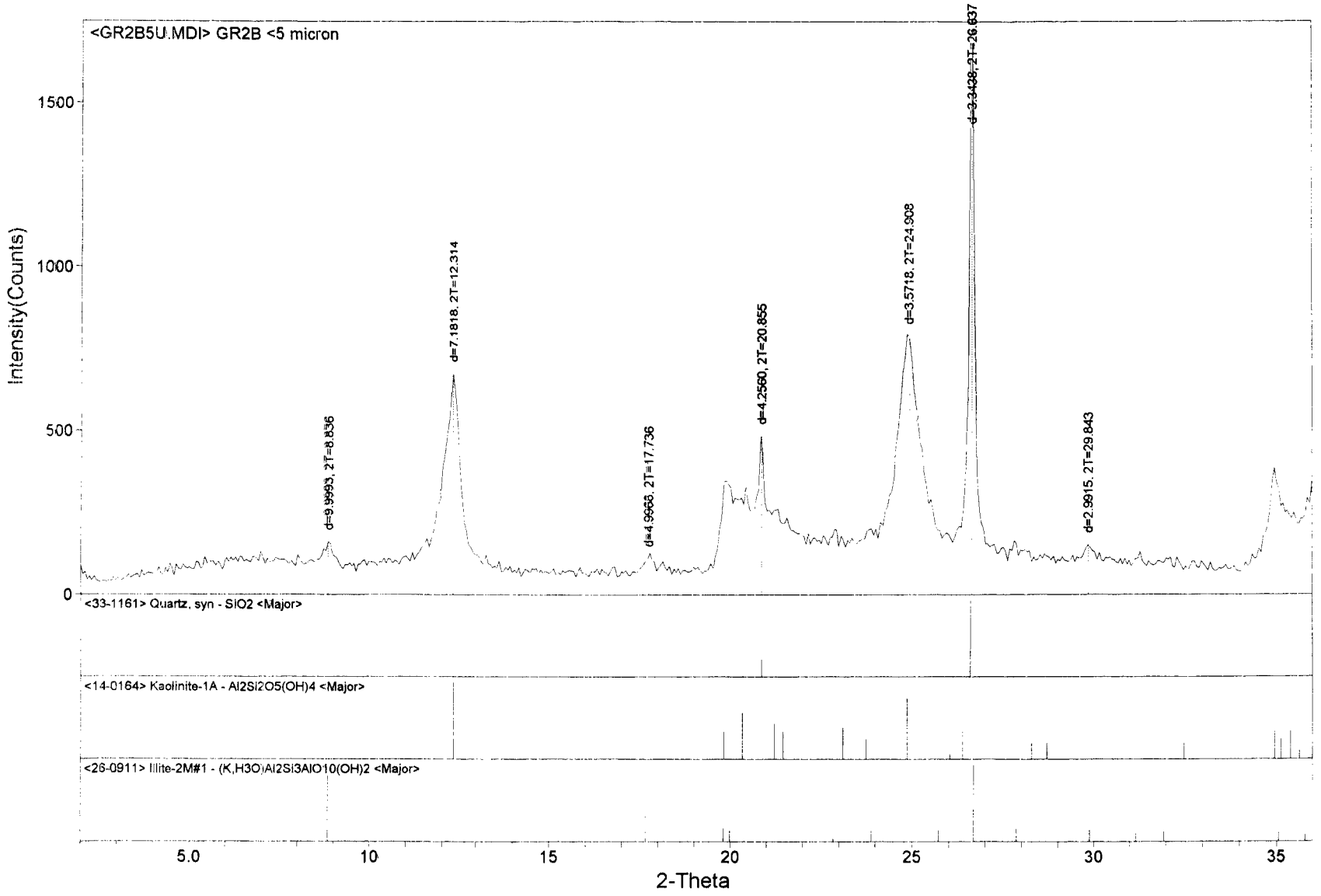
Friday, May 17, 1996 @08:03a



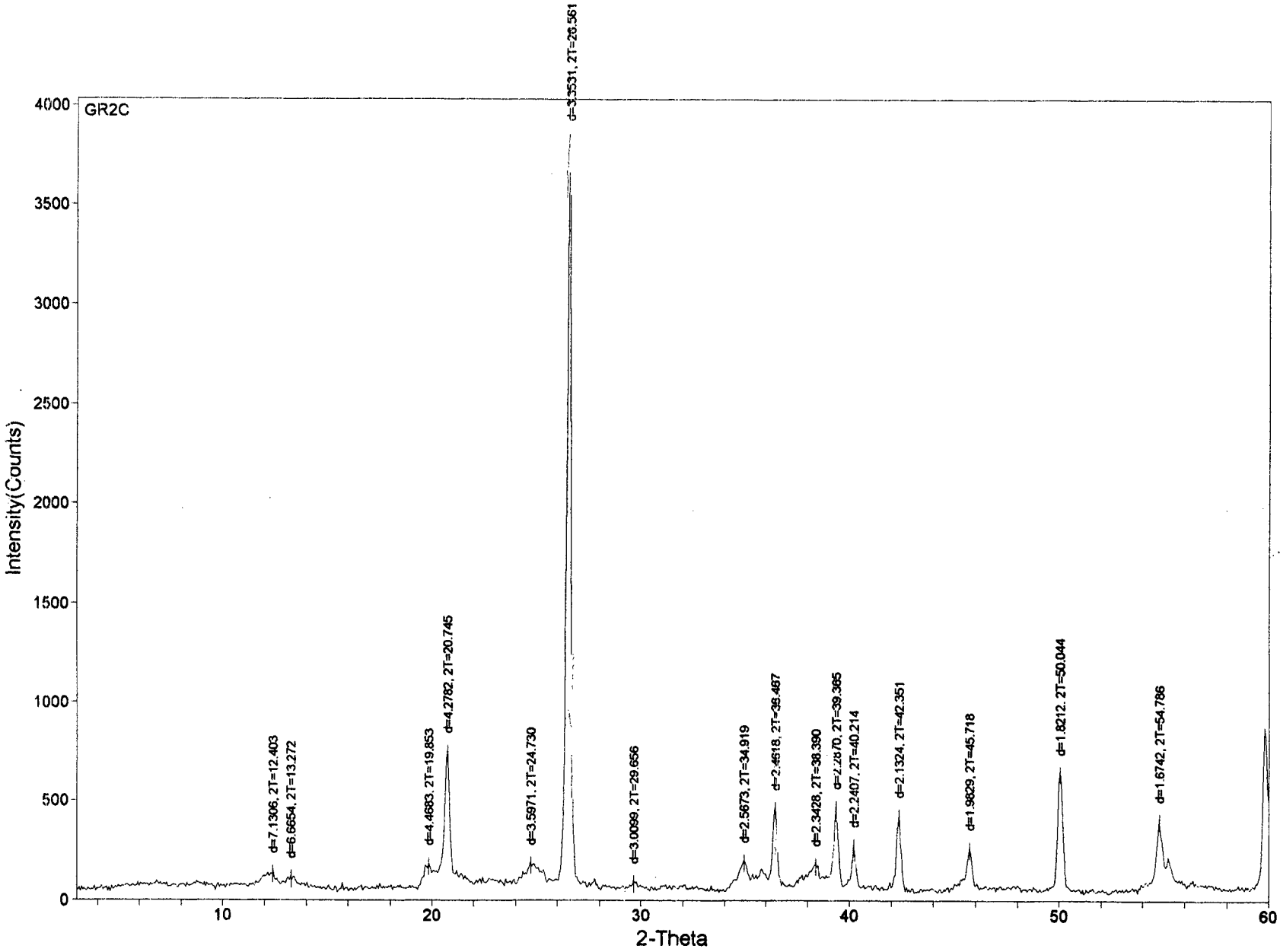
Thursday, May 30, 1996 @03:05p



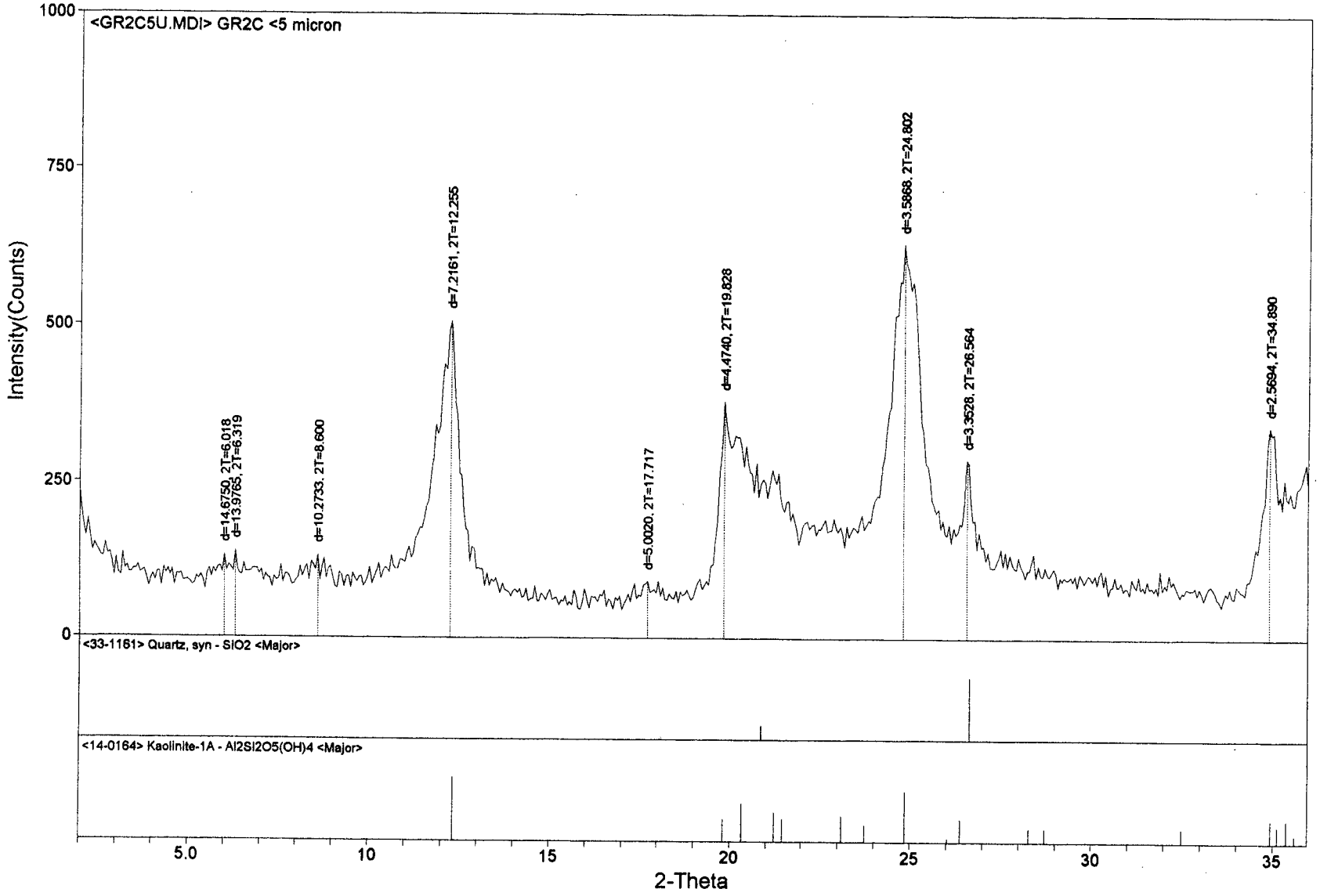
Friday, May 17, 1996 @08:02a



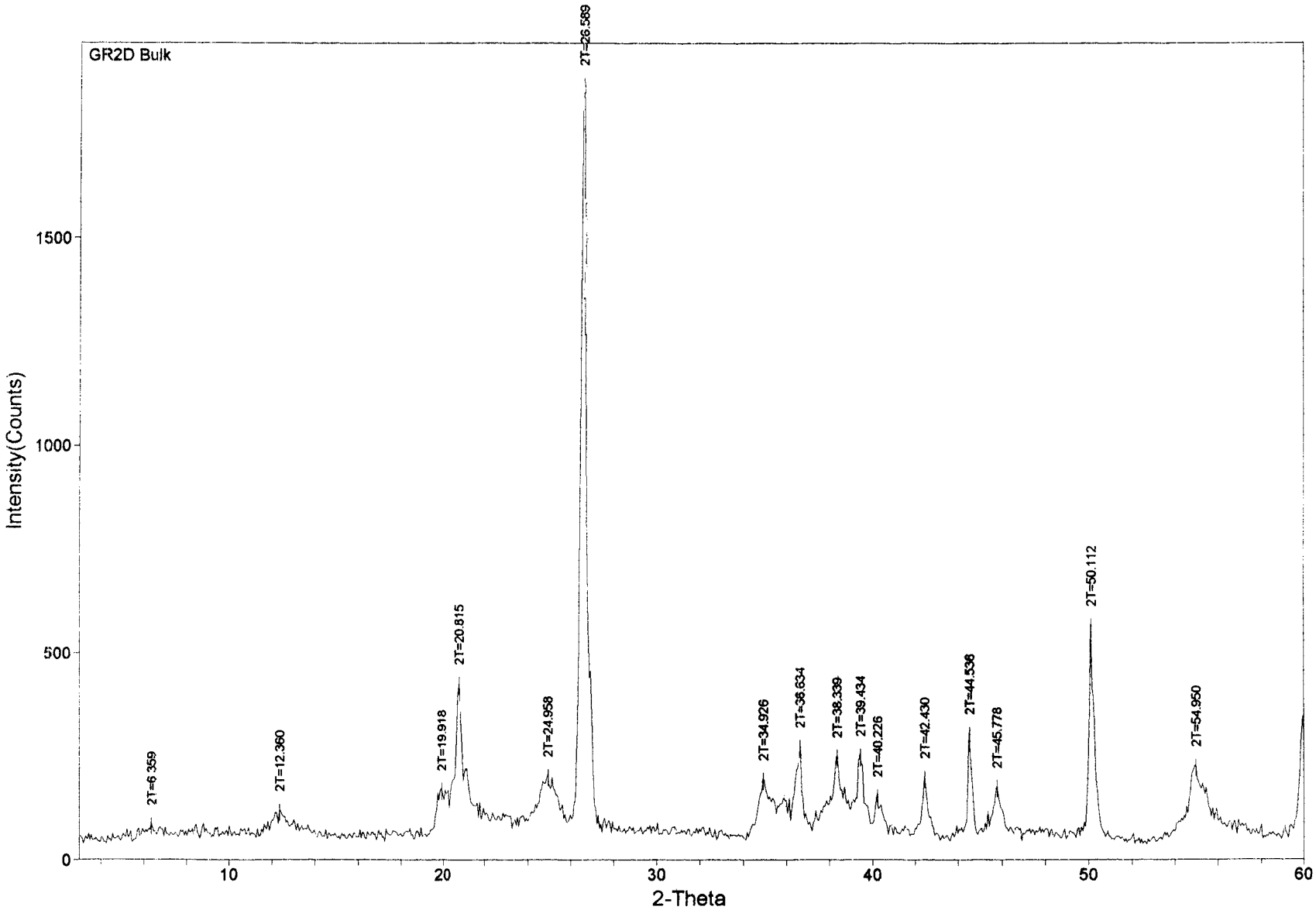
Monday, Jun 03, 1996 @11:52a



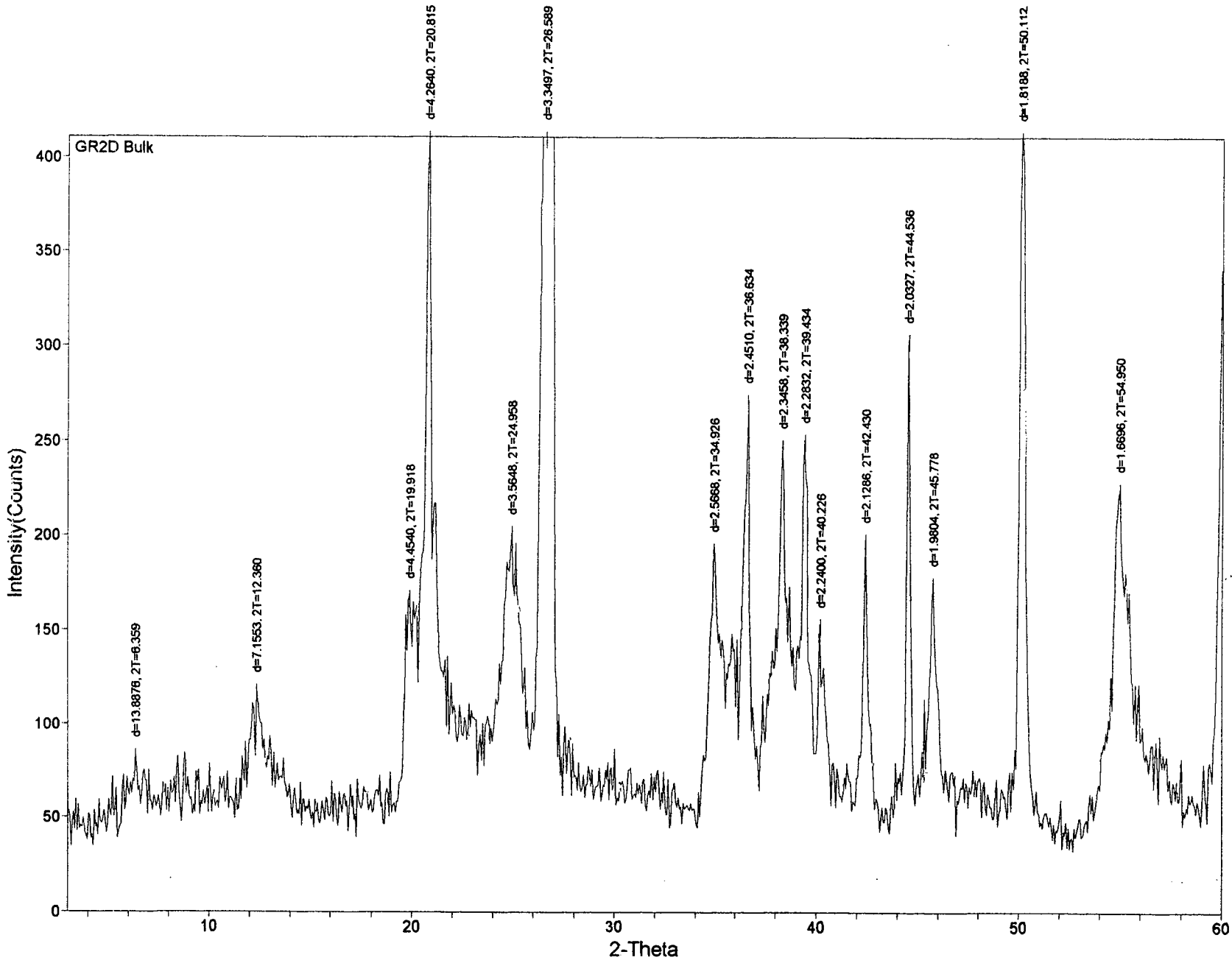
Friday, May 17, 1996 @08:02a



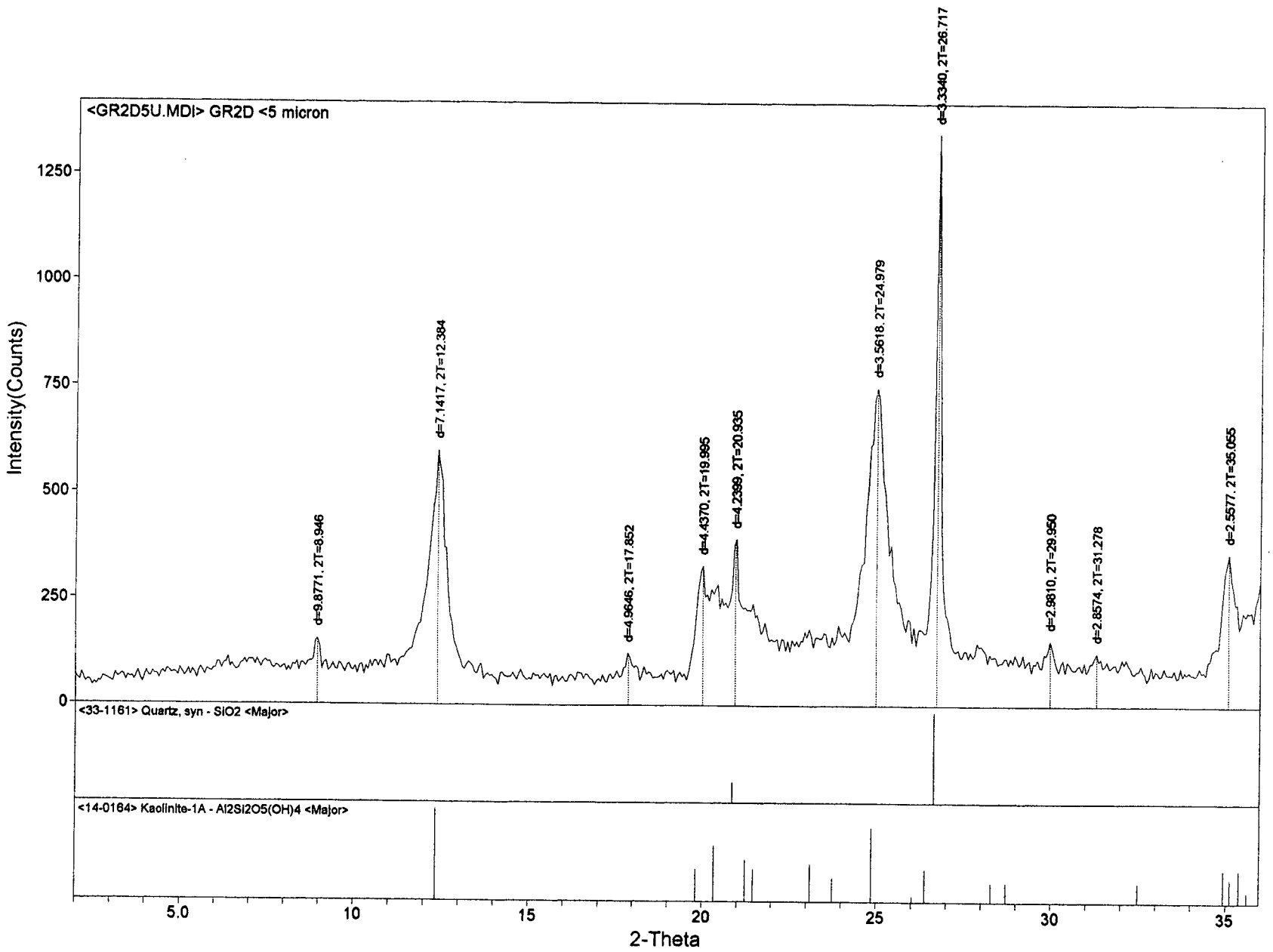
Thursday, May 30, 1996 @02:35p



Friday, May 17, 1996 @08:00a



Friday, May 17, 1996 @08:02a



Thursday, May 30, 1996 @02:34p