



WESTERN RESEARCH & DEVELOPMENT LTD.

Subsidiary of Bow Valley Industries Ltd.



WESTERN RESEARCH & DEVELOPMENT LTD.

Subsidiary of Bow Valley Industries Ltd.

LABORATORY

December 4, 1974

Giant Yellowknife Mines Ltd.
Yellowknife,
Northwest Territories

Attention: H. Pawson

Dear Sir

Subject: Emission Survey Conducted on the Giant Yellowknife
Mine Roaster Stack - Our File No. 3425

We are pleased to submit the results of the Emission Study conducted on the above unit on November 21, 1974.

The average particulate concentration of the stack gas was .47 pounds per thousand pounds of stack gas.

The average sulphur dioxide emission was 40.75 long tons per day. Nitrogen oxide emissions were not detectable while average sulphur trioxide emissions were less than 1 ppm.

The test data and detailed results are included in the report, with the exception of the arsenic and trace metals analysis on the particulate. These results will be forwarded as soon as possible, under a separate covering letter.

If you should have any questions or require further information, please do not hesitate to contact us.

Yours truly

H. Paskall

AB:ab

SOURCE EMISSION SURVEY
Giant Yellowknife Mines Roaster Stack

November 21, 1974

prepared for
GIANT YELLOWKNIFE MINES LTD.

prepared by
WESTERN RESEARCH & DEVELOPMENT LTD.

I. INTRODUCTION

A stack sampling program was carried out by Western Research and Development Ltd. at the Giant Yellowknife Mine on November 21, 1974.

The purpose of the program was to determine the concentration, quantities and conditions of particulate and gaseous effluents of the roaster stack.

II. METHODS AND RESULTS

The methods and apparatus used for the tests are outlined in Appendix A. The computer outputs containing the field data and the detailed computational results are presented in Appendix B.

Two tests were conducted. Each test included stack gas velocity profile and temperature determinations, isokinetic and high volume sampling for particulates, and analyses of the stack gas for oxides of nitrogen, sulphur dioxide, sulphur trioxide, hydrogen, argon, oxygen, nitrogen, methane, carbon monoxide, carbon dioxide and water vapour.

III. SUMMARY

The results of the tests are summarized in the following three Tables. Table I contains particulate loading and stack gas flow rate parameters. Sulphur dioxide, sulphur trioxide and oxides of nitrogen concentrations and emission rates are tabulated in Table II. The results of gas chromatographic analyses are given in Table III.

TABLE I

PARTICULATE LOADING AND
STACK GAS FLOW RATESGIANT YELLOWKNIFE MINES LTD.
Roaster StackNOVEMBER 21, 1974
File No. 3425

PARAMETER	TEST 1	TEST 2	AVERAGE
Sampling Level (foot level)	75	75	75
Diameter - Sampling Level (ft)	9.0	9.0	9.0
- Stack Top (ft)	9.0	9.0	9.0
Stack Gas Temperature (°F)	175	178	176.5
Measured Velocity at Sample Level (ft/sec)	9.7	9.5	9.6
Calculated Velocity at Stack Exit (ft/sec)	9.7	9.5	9.6
Stack Gas Flow Rate (SCFS*)	499.2	486.1	492.6
Particulate Loading (lb/1000 lb of Stack Gas)	.45	.49	.47
Particulate Flow Rate (lb/hr)	59.39	62.53	60.96

*At 70°F and 29.92 inches of Hg

WR&D, Calgary, Alberta

TABLE II
STACK GAS ANALYSES
CHEMICAL ABSORPTIONS

GIANT YELLOWKNIFE MINES LTD.
Roaster Stack

NOVEMBER 21, 1974
File No. 3425

COMPONENT	TEST 1	TEST 2	AVERAGE
SO ₂ (percent wet basis)	1.30	1.29	1.29
SO ₂ (LT/D)	41.51	40.00	40.75
SO ₃ (ppm, v/v)	<1.0	<1.0	<1.0
NO _x (ppm, v/v)	0.0	0.0	0.0

WR&D, Calgary, Alberta

TABLE III.

GAS CHROMATOGRAPHIC ANALYSES

GIANT YELLOWKNIFE MINES LTD.
Roaster StackNOVEMBER 21, 1974
File No. 3425

SAMPLE:	ROASTER STACK	ROASTER STACK
TEST NO:	1	2
	(MOLE PERCENT ON DRY BASIS)	
H ₂	0.0	0.0
Ar	0.94	0.94
O ₂	19.43	19.77
N ₂	78.37	78.30
C ₁ *	0.0	0.0
CO*	0.0	0.0
CO ₂	0.10	0.09
SO ₂	1.16	0.90
TOTAL	100.00	100.00

*At or below gas chromatograph limit of detectability

WR&D, Calgary, Alberta

APPENDIX A
METHODS and PROCEDURES

I. APPARATUS AND PROCEDURE

A. Velocity Determination

An 'S' type pitot tube, which is not susceptible to particulate clogging, was used in conjunction with a variable slope inclined manometer to measure velocity head in the stack. The stack cross-section was divided into equal areas and two sets of pitot readings were taken at the centre of each of these areas, as shown in Figure 1. This was repeated for each of the ports for every test.

B. Particulate Matter Collection

The flue gases from the stack were drawn through a machined sharp-edged nozzle followed immediately by an alundum thimble filter. The particulate-free gas from the filter was then passed through the probe and into two cold condenser bottles and a drier. The gas then was drawn through an airtight diaphragm pump and metered at atmospheric pressure, as shown in Figure 2.

From the pitot traverses, the gas velocity at each sampling point to be sampled was calculated. Based on these velocities, it was possible to adjust the sampling rate in order to maintain true isokinetic sampling at each point.

C. Temperature

Stack temperatures were determined with an iron-constantan thermocouple and a portable potentiometer.

D. Water Content

The water content in the stack was determined by measuring the amount of water collected in the ice cooled impingers, where the water vapour leaving the last impinger, and absorbed by the drier, was accounted for by a computational method.

E. Gas Analyses

1. Sulphur Dioxide A hydrogen peroxide absorption with a sodium hydroxide titration to a bromocresol green end point was used in the determination of sulphur dioxide concentrations. A completely separate sampling train was used for this absorption (Figure 3).

2. Sulphur Trioxide Sulphur trioxide was determined by passing flue gas through a glass condenser at 170°F. At this temperature, and in the presence of the 10 percent water in the flue gas, any SO_3 in excess of 0.01 ppm forms sulphuric acid mist. The condensed sulphuric acid mist was then washed from the condenser and titrated to determine the sulphate concentration.

3. Oxides of Nitrogen The phenoldisulphonic acid (PDSA) method for determination of NO_x was used. The method used calibrated sample flasks containing an oxidizing medium of dilute sulphuric acid and hydrogen peroxide. The oxidation of NO to NO_2 occurs within the flask for at least 12 hours before the NO_2 concentration is determined by the PDSA spectrophotometric method.

4. Gas Chromatography Gas Chromatography was used to determine hydrogen, oxygen, argon, carbon dioxide, carbon monoxide and hydrocarbon concentrations. SO_2 was also measured in the gas samples, however, because of the nature of the sample, it was not considered representative of the average SO_2 emission.

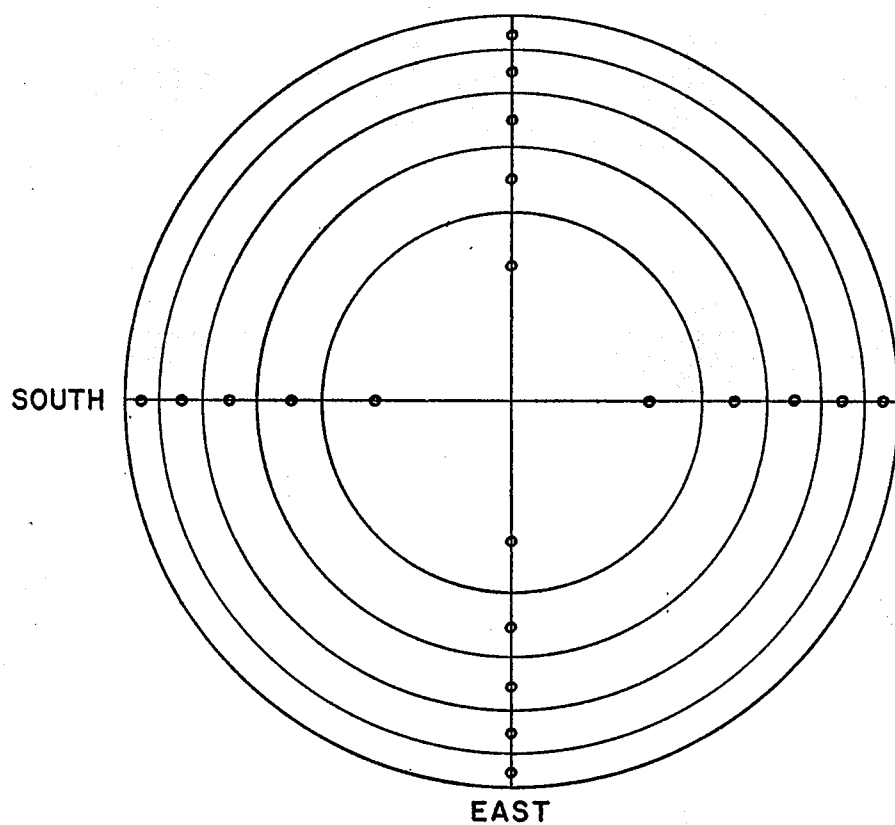


Figure 1

CROSS SECTION OF ROASTER STACK DIVIDED INTO 20 EQUAL AREAS
SHOWING LOCATION OF TRAVERSE POINTS AT CENTROID OF EACH AREA

INNER DIAMETER - 9 FEET

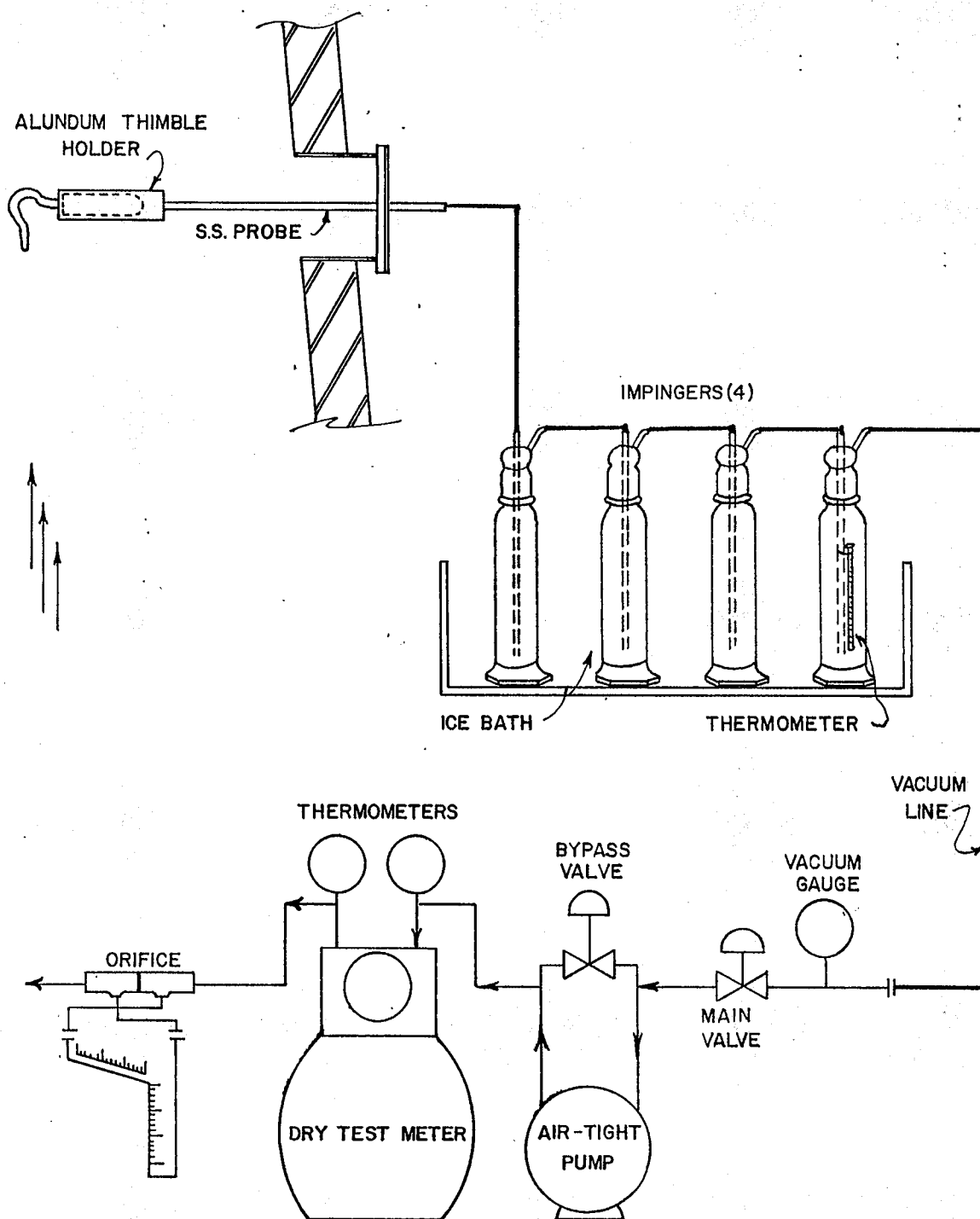


Figure 2 - PARTICULATE SAMPLING TRAIN



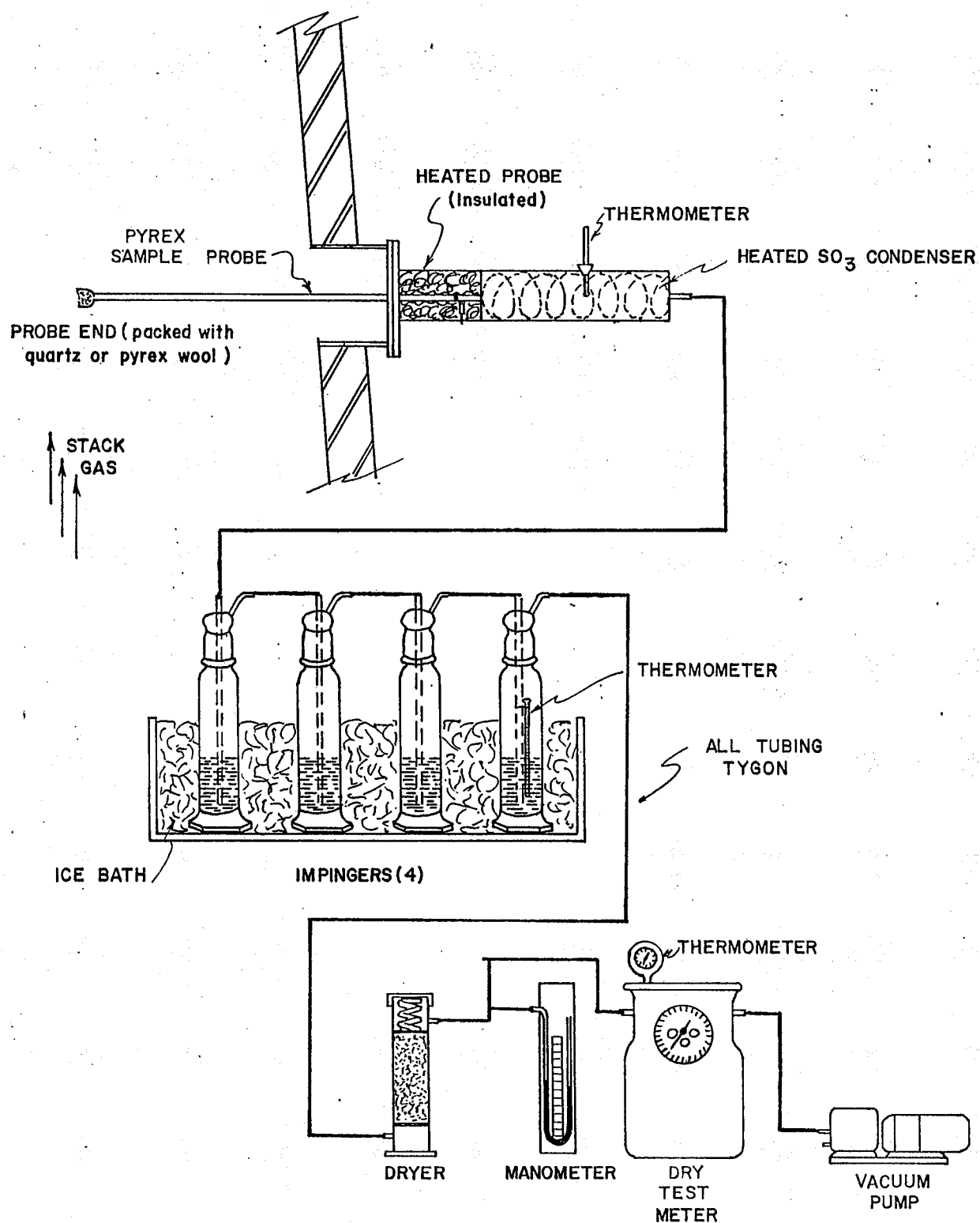


Figure 3 — SAMPLING TRAIN for DETERMINATION
of SO_2 & SO_3 IN STACK GAS

APPENDIX B

VELOCITY PROFILES AND CALCULATIONS FOR
PARTICULATE AND SULPHUR DIOXIDE CONCENTRATIONS

GIANT MINES ROASTER STACK

EMISSION CALCULATIONS

TEST NUMBER 1 PAGE 1

DATE NOV. 21, 1974

LOCATION OF SAMPLING POINT	75 FOOT LEVEL
INSIDE DIAMETER OF STACK AT SAMPLING POINT	9.00 FT.
INSIDE DIAMETER OF STACK AT TOP	9.00 FT.
BAROMETRIC PRESSURE	28.99 IN. HG
AMBIENT TEMPERATURE	25. DEG. F

CARBON DIOXIDE ANALYSIS

GAS CHROMATOGRAPHY .10 PERCENT-DRY BASIS

OXYGEN ANALYSIS

GAS CHROMATOGRAPHY 19.43 PERCENT-DRY BASIS

AVERAGE COMPOSITION OF FLUE GAS

	DRY BASIS PERCENT	WET BASIS PERCENT
O2	19.43	17.49
CO2	.10	.09
N2 *	78.37	72.42
H2O		8.70
SO2		1.30

* BY DIFFERENCE

SPECIFIC GRAVITY OF FLUE GAS-(AIR=1.00) .978

SULPHUR DIOXIDE ANALYSIS

GAS SAMPLE METERED	18.40 CU.FT.
GAS SAMPLE TEMPERATURE	506. DEG. R.
VACUUM AT METER	2.43 IN. HG.
VACUUM AT CONDENSER	2.43 IN. HG.
VOLUME OF WATER COLLECTED	32.50 CC.
VOLUME OF NAOH USED	5817.56 CC.
NORMALITY OF NAOH SOLUTION	.10 N.
VAP. PRES. OF H2O-IMPINGER TEMP.	.18 IN. OF HG.
AVERAGE SO2 CONCENTRATION	1.3010 PERCENT-WET BASIS

TOTAL VOL OF GAS SAMPLED 20.44 CU.FT. (METER CONDITIONS)

GIANT MINES ROASTER STACK

EMISSION CALCULATIONS

TEST NUMBER 1 PAGE 2

DATE NOV. 21, 1974

FLUE GAS FLOW RATE

SECTOR	PROBE TIP FROM WALL-FT.	VELOCITY HEAD - IN. H2O			
		TRAVERSE NUMBER			
		1	2	3	4
1	.231	.010	.010	.010	.010
2	.735	.015	.020	.020	.015
3	1.318	.020	.025	.020	.030
4	2.035	.025	.030	.025	.030
5	3.077	.025	.030	.030	.035
5	3.077	.030	.035	.030	.035
4	2.035	.035	.030	.030	.030
3	1.318	.030	.030	.030	.030
2	.735	.030	.030	.030	.030
1	.231	.020	.025	.020	.025
AV. SQ. ROOT		.153	.161	.155	.162

AVERAGE STATIC PRESSURE	-.35 IN. H2O
AVERAGE FLUE GAS TEMPERATURE	175. DEG.F
PITOT TUBE CALIBRATION FACTOR	.820
OVERALL AVERAGE SQUARE ROOT	.158
AVERAGE VELOCITY OF FLUE GAS	9.7 FT./SEC - MEAS.
SAMPLE LEVEL	9.7 FT/SEC - CALC.
STACK TOP	
TOTAL FLUE GAS FLOW RATE	499.2 SCFS*
	29953.3 SCFM*
	43.1 MMCFD*
	4643.9 MOLS/HR
SULPHUR DIOXIDE EMISSION RATE	6.50 SCFS*
	41.51 LT/D SO2
	20.75 LT/D SULPHUR

* VOLUMES EXPRESSED AT 70 F AND 14.7 PSIA

GIANT STEPS ROASTER STACK PARTICULATE

EMISSION CALCULATIONS

TEST NUMBER 1 PAGE 3

DATE NOV. 21, 1974

PARTICULATE LOADING DETERMINATION

SAMPLE DURATION	60.00 MIN.
GAS SAMPLE METERED	15.96 CU.FT.
GAS SAMPLE TEMPERATURE	475. DEG.R.
VACUUM AT METER	.00 IN.HG.
VACUUM AT CONDENSER	5.40 IN.HG.
VOLUME OF WATER COLLECTED	25.50 CC.
WT OF DUST BY EVAPORATION	.00000 GM.
WT OF DUST BY FILTRATION	.28738 GM.
TOTAL WT OF DUST COLLECTED	.28738 GM.
TOTAL VOL OF GAS SAMPLED	17.22 CU.FT. (METER CONDITIONS)

DUST CONCENTRATIONS & FLOWS

DUST LOADING LBS/1000 LBS.	.4515
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GRAINS/SCF (70 DEG. F + 29.92 IN.HG)	.2313
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GRAINS/CF AT FLOW CONDITIONS	.1871
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PARTICULATE MASS EMISSION LBS/HR.	59.3894
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GIANT MINES ROASTER STACK

EMISSION CALCULATIONS

TEST NUMBER 2 PAGE 1

DATE NOV. 21, 1974

LOCATION OF SAMPLING POINT	75 FOOT LEVEL
INSIDE DIAMETER OF STACK AT SAMPLING POINT	9.00 FT.
INSIDE DIAMETER OF STACK AT TOP	9.00 FT.
BAROMETRIC PRESSURE	28.99 IN. HG
AMBIENT TEMPERATURE	25. DEG.F

CARBON DIOXIDE ANALYSIS	
GAS CHROMATOGRAPHY	.09 PERCENT-DRY BASIS
OXYGEN ANALYSIS	
GAS CHROMATOGRAPHY	19.77 PERCENT-DRY BASIS

AVERAGE COMPOSITION OF FLUE GAS

	DRY BASIS PERCENT	WET BASIS PERCENT
O2	19.77	17.80
CO2	.09	.08
N2 *	78.30	72.16
H2O		8.67
SO2		1.29

* BY DIFFERENCE

SPECIFIC GRAVITY OF FLUE GAS-(AIR=1.00) .979

SULPHUR DIOXIDE ANALYSIS

GAS SAMPLE METERED	19.39 CU.FT.
GAS SAMPLE TEMPERATURE	504. DEG.R.
VACUUM AT METER	2.62 IN.HG.
VACUUM AT CONDENSER	2.62 IN.HG.
VOLUME OF WATER COLLECTED	34.00 CC.
VOLUME OF NAOH USED	6047.55 CC.
NORMALITY OF NAOH SOLUTION	.10 N.
VAP.PRES.OF H2O-IMPINGER TEMP.	.18 IN. OF HG.
AVERAGE SO2 CONCENTRATION	1.2876 PERCENT-WET BASIS
TOTAL VOL OF GAS SAMPLED	21.54 CU.FT. (METER CONDITIONS)

GIANT MINES ROASIER STACK

EMISSION CALCULATIONS

TEST NUMBER 2 PAGE 2

DATE NOV. 21, 1974

FLUE GAS FLOW RATE

SECTOR	PROBE TIP FROM WALL-FT.	VELOCITY HEAD - IN. H2O TRAVERSE NUMBER			
		1	2	3	4
1	.231	.010	.010	.010	.010
2	.735	.020	.015	.020	.020
3	1.318	.020	.020	.020	.025
4	2.035	.025	.025	.025	.030
5	3.077	.030	.025	.025	.030
5	3.077	.030	.030	.030	.030
4	2.035	.030	.030	.030	.030
3	1.318	.035	.030	.030	.030
2	.735	.030	.025	.025	.030
1	.231	.020	.020	.020	.020
AV. SQ. ROOT		.156	.150	.152	.158

AVERAGE STATIC PRESSURE

-.36 IN. H2O

AVERAGE FLUE GAS TEMPERATURE

178. DEG.F

PITOT TUBE CALIBRATION FACTOR

.820

OVERALL AVERAGE SQUARE ROOT

.154

AVERAGE VELOCITY OF FLUE GAS SAMPLE LEVEL
STACK TOP9.5 FT./SEC - MEAS.
9.5 FT/SEC - CALC.

TOTAL FLUE GAS FLOW RATE

486.1 SCFS*
29168.4 SCFM*
42.0 MMCFD*

SULPHUR DIOXIDE EMISSION RATE

4522.2 MOLS/HR

6.26 SCFS*

40.00 LT/D SO2

20.00 LT/D SULPHUR

* VOLUMES EXPRESSED AT 70 F AND 14.7 PSIA

GIANT MINES ROASTER STACK PARTICULATE

EMISSION CALCULATIONS

TEST NUMBER 2 PAGE 3

DATE NOV. 21, 1974

PARTICULATE LOADING DETERMINATION

SAMPLE DURATION	60.00 MIN.
GAS SAMPLE METERED	15.01 CU.FT.
GAS SAMPLE TEMPERATURE	475. DEG.R.
VACUUM AT METER	.00 IN.HG.
VACUUM AT CONDENSER	2.00 IN.HG.
VOLUME OF WATER COLLECTED	23.00 CC.
WT OF DUST BY EVAPORATION	.00000 GM.
WT OF DUST BY FILTRATION	.29210 GM.
TOTAL WT OF DUST COLLECTED	.29210 GM.
TOTAL VOL OF GAS SAMPLED	16.17 CU.FT. (METER CONDITIONS)

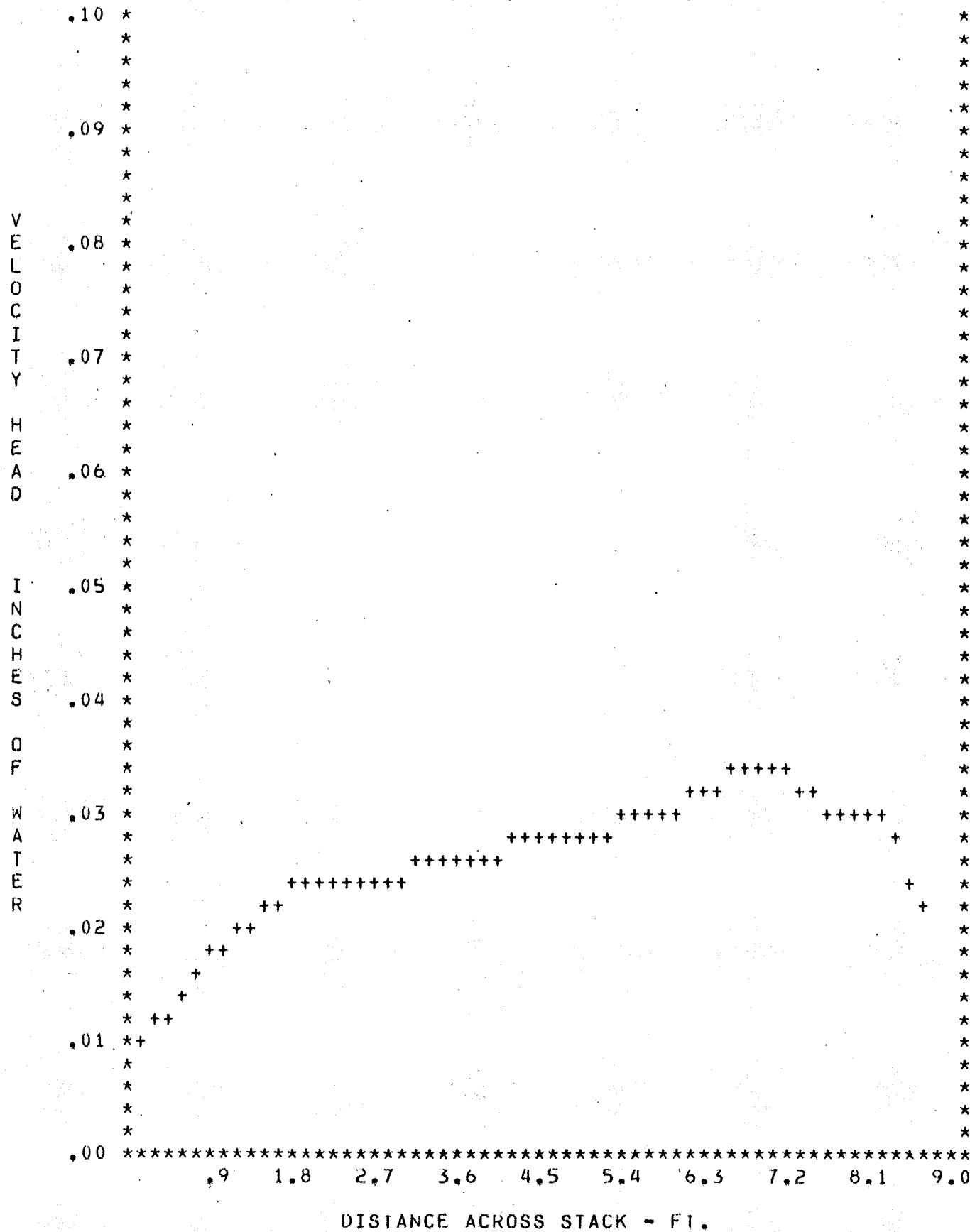
DUST CONCENTRATIONS & FLOWS

DUST LOADING LBS/1000 LBS, .4877

GRAINS/SCF (70 DEG. F + 29.92 IN.HG)	.2501
GRAINS/CF AT FLUE CONDITIONS	.2013
PARTICULATE MASS EMISSION LBS/HR.	62.5287

GIANT MINES ROASTER STACK

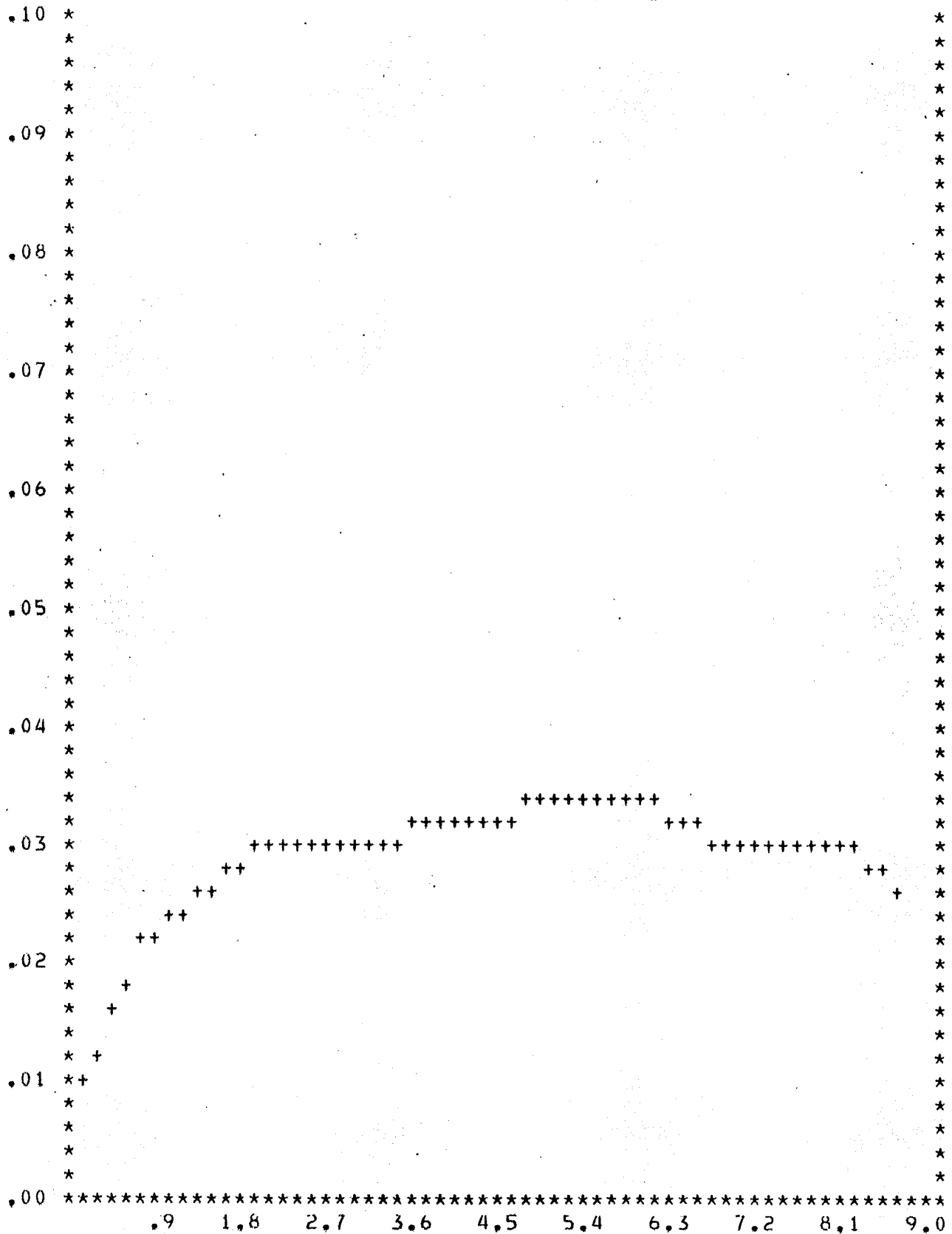
VELOCITY PROFILE 1 TEST 1



GIANT MINES ROASTER STACK

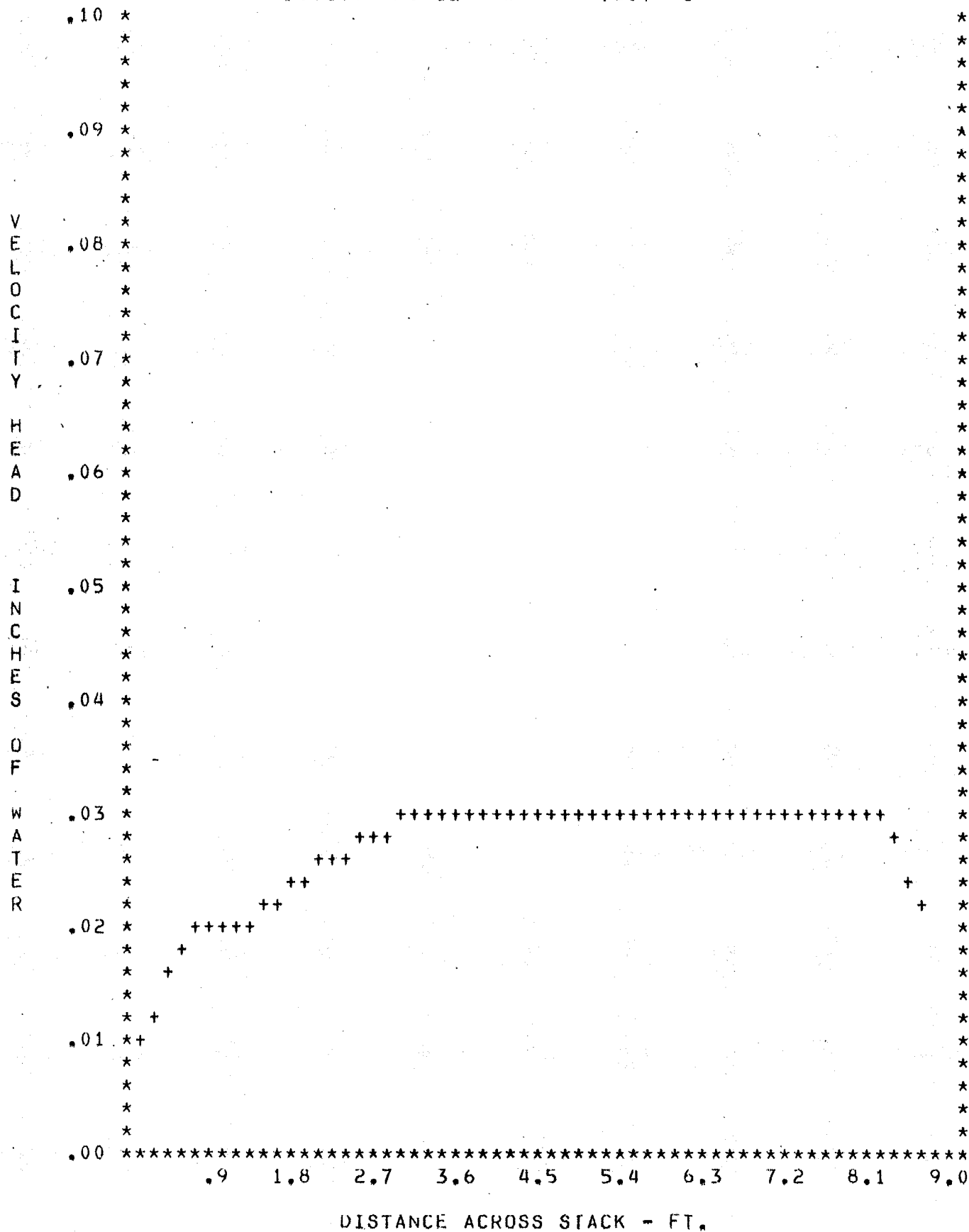
VELOCITY PROFILE 2 TEST 1

VELOCITY HEAD INCHES OF WATER



DISTANCE ACROSS STACK - FT.

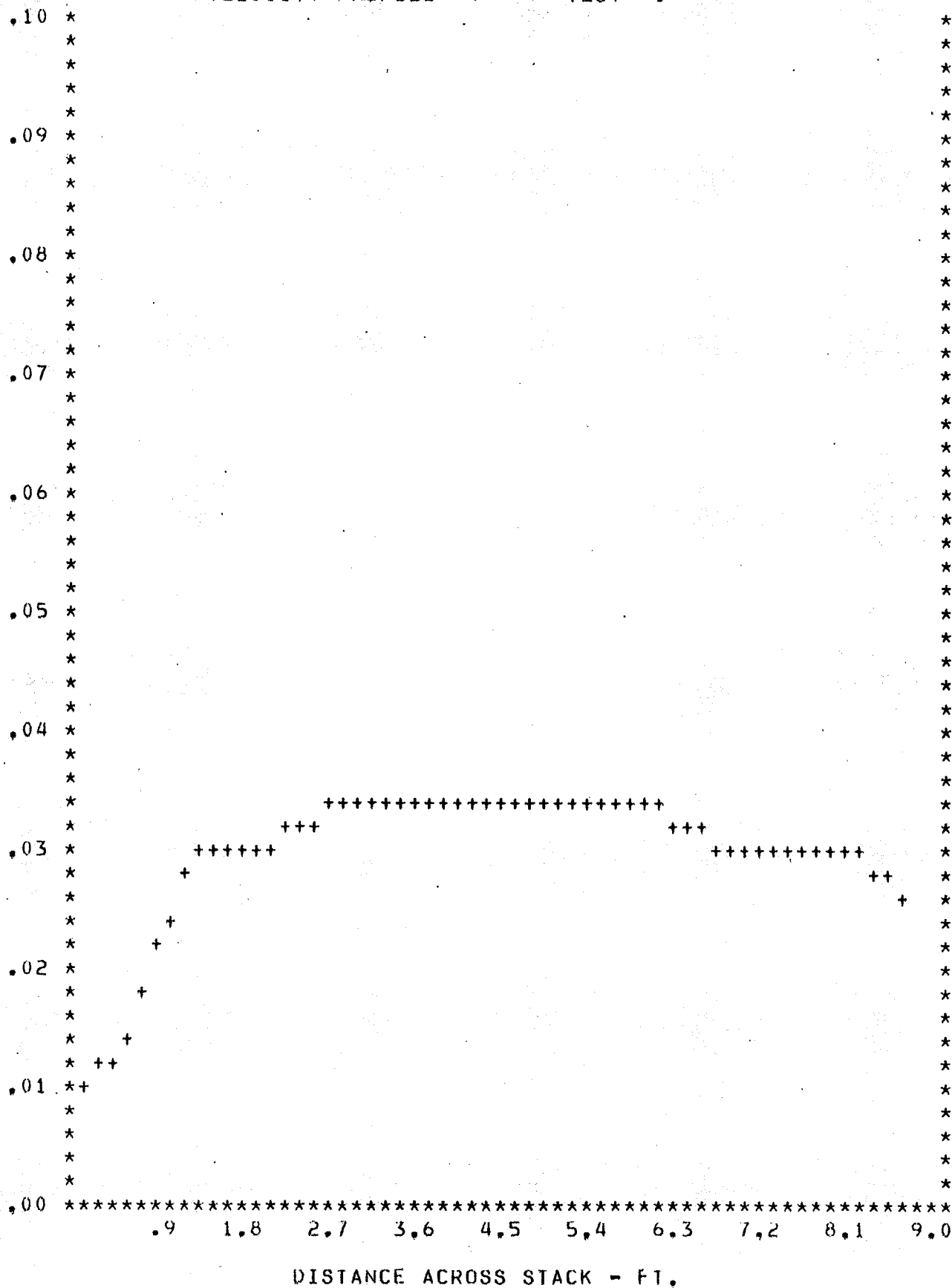
GIANT MINES ROASTER STACK VELOCITY PROFILE 3 TEST 1



GIANT MINES ROASTER STACK

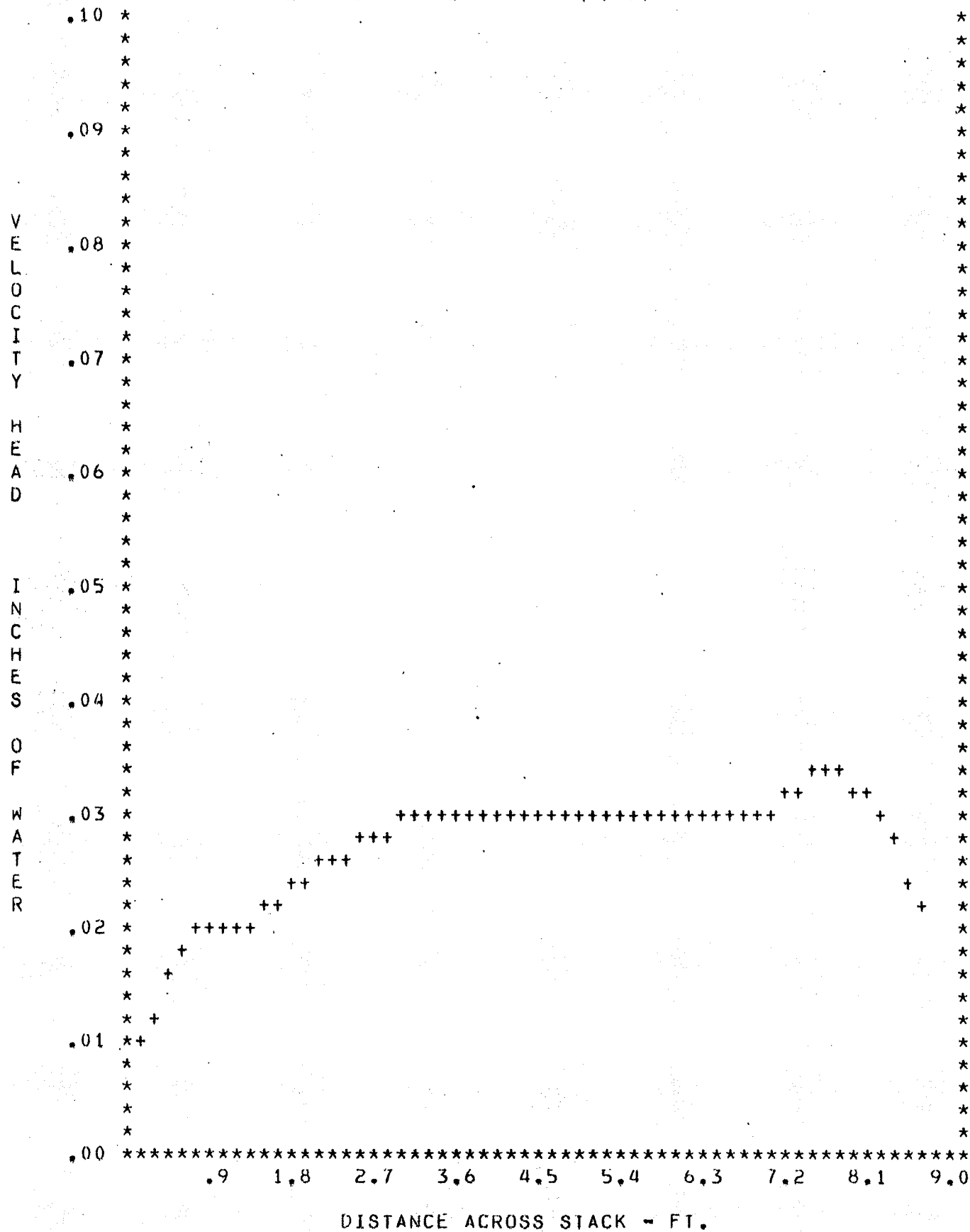
VELOCITY PROFILE 4 TEST 1

VELOCITY HEAD
INCHES OF WATER



GIANT MINES ROASTER STACK

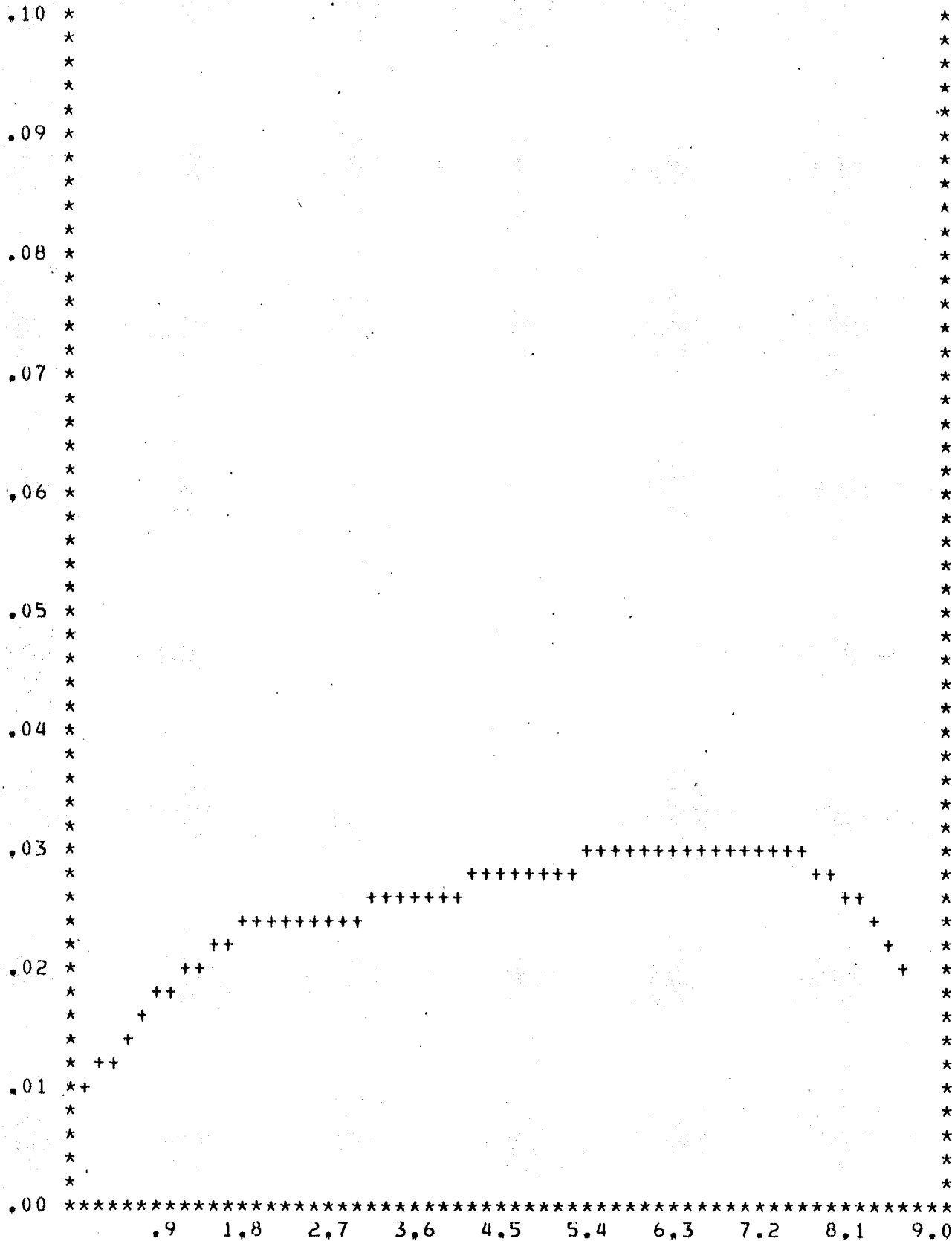
VELOCITY PROFILE 1 TEST 2



GIANT MINES ROASTER STACK

VELOCITY PROFILE 2 TEST 2

VELOCITY HEAD
INCHES OF WATER

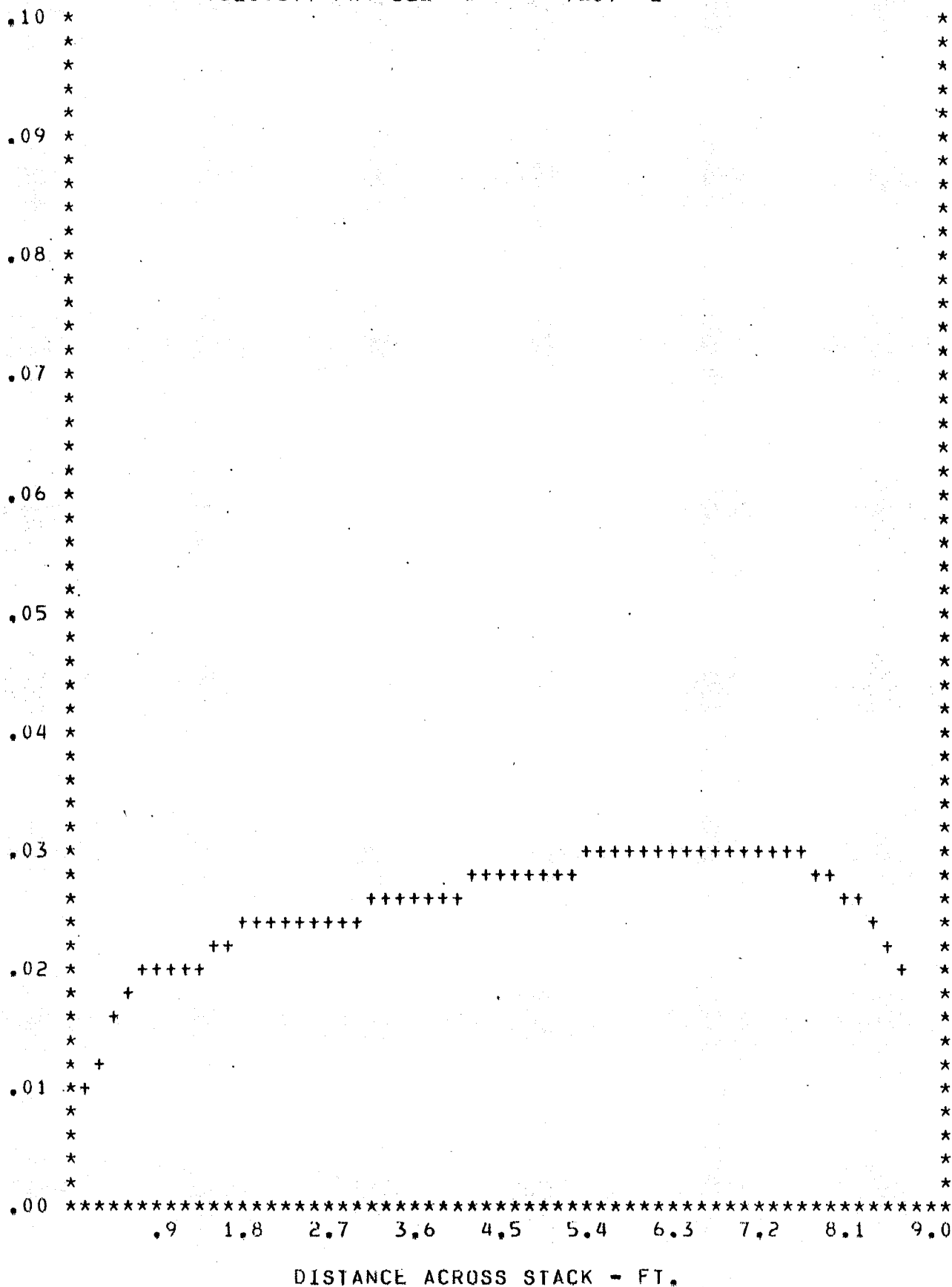


DISTANCE ACROSS STACK - FT.

GIANT MINES ROASTER STACK

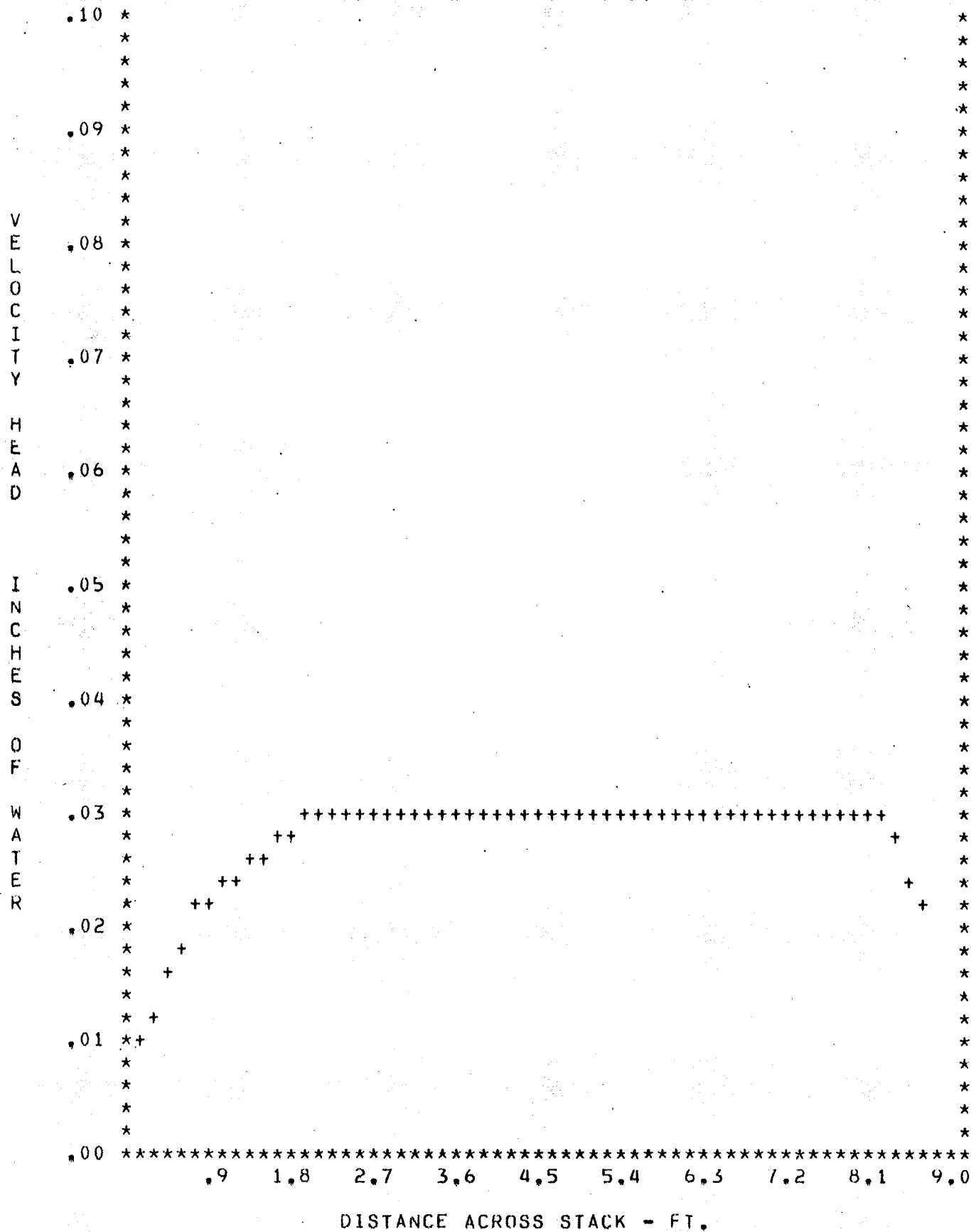
VELOCITY PROFILE 3 TEST 2

VELOCITY
HEAD
INCHES
OF
WATER



GIANT MINES ROASTER STACK

VELOCITY PROFILE 4 TEST 2



Five.

Yellowknife, Northwest Territories
Canada X1A 2M2
Telex 034-4-5514
Phone 403/873-6301

Giant
YELLOWKNIFE MINES LIMITED

July 12, 1983

Mr. L. Buffa,
Environmental Protection
Programs Directorate,
Environmental Protection Service,
Environment Canada,
OTTAWA, Ontario. K1A 1C8

Dear Sir:

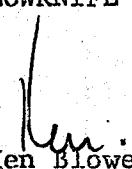
Re: Arsenic Emissions From Gold-Roasting Operations

It has been brought to our attention that regulations have been proposed under the Clean Air Act, Section 7(2).

Would it be possible to obtain a copy of the proposed regulations and any other pertinent information that would enable Giant Yellowknife Mines Limited to assess the impact these proposals might have on our operation.

Whatever information you can provide would be most helpful.

Yours truly,
GIANT YELLOWKNIFE MINES LIMITED


Ken Blower
General Manager

KB:jh

b.c.c. D.J. Emery
K.S. Morton
T. Daniels

The Mining Association of Canada



KR See page 19
Executive Offices
Suite 705, 350 Sparks Street, Ottawa, Ontario K1R 7S8
Tel: (613)233-9391
Telex 053-3732

Administration
Suite 409, 36 Toronto Street, Toronto, Ontario M5C 2C2
Tel: (416) 363-8019
Telex 06-219827

K. BLOWER

JUL - 8 1983

TORONTO, June 30th, 1983

TO: Members of the MAC Environment Committee
Industry Representatives on Effluent Committee

The attached from Environment Canada is the first notice of their regulatory agendas.

Subject to your interests, specific agendas may be requested.

Pages relating to forestry, migratory birds, etc. have been deleted from this mailing.

Enclosure

R. D. Lord
Research and Environmental Coordinator

The Mining Association of Canada



Executive Offices

Suite 705, 550 Sparks Street, Ottawa, Ontario K1R 7S8
Tel: (613) 233-9391
Telex 053-3732

Administration

Suite 409, 36 Toronto Street, Toronto, Ontario M5C 2C2
Tel: (416) 363-8019
Telex 06-219827

Ottawa

June 14, 1983

MEMORANDUM TO: Members, MAC Board of Directors
FROM: John L. Bonus, Managing Director
SUBJECT: Regulatory Agendas - May 1983 First Edition

Reference was made at the February 21st, 1983 meeting of the MAC Board of Directors to the government's intention to give early notice of proposed changes in federal regulatory activities, through the publication of regulatory Agendas.

This initiative was announced in response to expressed concerns that the government regulates by surprise, without consulting people about proposals that will affect them.

On May 31st, 1983, the President of the Treasury Board released a copy of the First Edition of the Agendas for the fourteen participating Departments and Agencies. You will note that several Departments of government of significance to the mining industry appear on the list.

Copies of regulatory Agendas may be ordered by completing the enclosed order from Supply and Services Canada.

JLB:pjm
Enclosure



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The Hon. Jean-Jacques Blais
Minister

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L'hon. Jean-Jacques Blais
ministre

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Canada



*(Extract from the Supplement to the Canada Gazette Part I
of Saturday, May 28, 1983)*

*(Extrait du supplément à la Gazette du Canada Partie I du
samedi 28 mai 1983)*

DEPARTMENT
OF THE
ENVIRONMENT

MINISTÈRE
DE
L'ENVIRONNEMENT

REGULATORY
AGENDA

ÉTAT DES PROJETS
DE RÉGLEMENTATION

May 1983

Mai 1983

ENVIRONMENT CANADA

REGULATORY AGENDA

INTRODUCTION

ABOUT THE AGENDAS

It is the policy of the Government of Canada to provide the earliest possible notice of proposed or contemplated regulatory initiatives. The government believes that providing such notice fosters constructive consultation and increases the efficiency of the regulatory process itself, resulting in improved and less burdensome regulation. Publication of Regulatory Agendas by departments of the government will help achieve these objectives.

Regulatory Agendas provide an early notice and tracking system of possible regulatory initiatives. Through the Agendas, private sector interests such as business, labour, and consumers are informed of initiatives that may affect them.

Regulatory Agendas are not intended to provide detailed information on any particular initiative. Rather, they only provide enough information so that readers can decide whether or not they wish to learn more or to become involved in the consideration and development of the initiative through the consultative process. Each entry in the Agenda lists a "Contact Person" who will be able to provide more specific information. In addition, by indicating the status of the initiative, each entry allows interested parties to know the time period available to them to provide their ideas and comments to the regulating department.

Regulatory Initiative Defined

Selection of regulatory initiatives for Agenda publication requires both a clear understanding of what regulation is, in its generic as distinct from legal sense, and what a regulatory initiative is.

In the broad generic sense, regulation is the imposition of rules on the private sector for the purpose of modifying behaviour. Such rules typically govern prices, output, rates of return, conditions of market entry and/or exit, methods of production, attributes of a product or service, disclosure of information, or conditions of service. Agendas should give notice of possible regulatory intervention through any means including both the creation and the revision of policies, programs, statutes, subordinate legislation (regulations), policy directives, guidelines and orders.

ENVIRONNEMENT CANADA

ÉTAT DES PROJETS DE RÉGLEMENTATION

INTRODUCTION

APERÇU DES ÉTATS DES PROJETS DE RÉGLEMENTATION

Le gouvernement du Canada fait publier l'avis le plus tôt possible de ses initiatives de réglementation proposées ou probables, car il veut améliorer ainsi la consultation et l'efficacité du processus de réglementation et aider à établir des règlements plus pertinents et moins gênants. La publication de ces états par des ministères fédéraux l'aidera à atteindre ces objectifs.

Ces états des projets permettent au public (gens d'affaires, main-d'œuvre, consommateurs) de savoir à l'avance quels sont les règlements envisagés par les autorités fédérales, de suivre les diverses étapes de leur préparation et de participer éventuellement à leur examen et à leur élaboration.

Les états des projets ne comportent pas de renseignements détaillés sur un règlement particulier, mais ils donnent aux lecteurs les éléments essentiels pour déterminer s'ils veulent en savoir davantage. Ils mentionnent le nom de la personne à joindre pour obtenir des précisions complémentaires sur chaque règlement et précisent le statut de chaque mesure, ce qui permet aux intéressés de savoir dans quels délais ils devront présenter leurs idées et leurs commentaires au ministère de régulation.

Définition d'une mesure de réglementation

Pour choisir les mesures à publier dans les états des projets, il faut bien comprendre ce qu'est un règlement dans son acception générique plutôt que juridique et ce qu'est une mesure de réglementation.

Dans son acception générique, un règlement est une règle imposée au secteur privé pour modifier son comportement. D'habitude des règlements portent sur les prix, les produits, les taux de rendement et les conditions d'entrée et de sortie du marché, les méthodes de production, les attributs d'un produit ou d'un service, la divulgation de renseignements ou les conditions de service. Alors les états devraient donner avis de l'intervention réglementaire possible par tous les moyens y compris la création et la révision des politiques, des programmes, des lois, de la législation complémentaire (règlements), des directives, des lignes directrices et des décrets.

Caveat and Exemptions

Regulatory Agendas are information documents only and are not promises of action or promises to legislate. They are not legally binding on the Government of Canada.

Ministers have overriding discretion regarding the inclusion of specific entries in their department's agendas. Ministers are guided, in exercising their discretion, by the following categories of exemptions:

- emergency matters
- matters that might impair federal-provincial relations
- matters that might impair international relations
- matters that might dislocate private sector markets (wind-fall gains or losses)
- matters that might impair national security
- matters that might breach Parliamentary privilege
- matters that might breach Cabinet confidentiality.

Coverage and Timing of Agendas

Beginning in May 1983, Regulatory Agendas will be published in May and November of each year as a Supplement to the *Canada Gazette* by the departments listed below. The listing is in alphabetical order in English and corresponds to the order of the departmental agendas in the Supplement.

Agriculture
Communications
Consumer and Corporate Affairs
Energy, Mines and Resources
Environment
Fisheries and Oceans
Health and Welfare
Indian Affairs and Northern Development
Labour
Transport

The federal regulatory agencies listed below have agreed to participate in the Regulatory Agenda process and will also publish agendas in May and November of each year; the National Energy Board will continue to publish its quarterly agendas. The listing is in alphabetical order in English and corresponds to the order of the agency agendas in the Supplement; agency agendas follow the departmental agendas.

Atomic Energy Control Board
Canadian Radio-television and Telecommunications Commission
Canadian Transport Commission
National Energy Board

Arrangement of Content of Agendas

Regulatory Agendas for departments consist of six sections. The *Introduction* that you are now reading forms an integral part of each department's Agenda. The second indicates the Regulatory Responsibilities. The other four provide the key to the numbering of the initiatives:

1. Possible Actions
2. Policy Reviews and Analyses

Caveat et exemptions

Les états des projets de réglementation ne sont donnés qu'à titre indicatif et ne constituent pas une promesse d'action ou un engagement formel de la part du gouvernement du Canada.

Les ministres ont cependant le pouvoir d'interdire l'inclusion de certains règlements dans les états de leurs ministères, et se guident pour cela sur les catégories suivantes d'exemptions:

- questions d'urgence
- questions qui peuvent compromettre les relations fédérales-provinciales
- questions qui peuvent être préjudiciables aux relations internationales
- questions qui peuvent désorganiser les marchés du secteur privé (gains ou pertes inattendus)
- questions qui peuvent être préjudiciables à la sécurité nationale
- questions qui peuvent porter atteinte aux privilèges du Parlement
- questions qui peuvent violer le secret professionnel du Cabinet.

Couverture et calendrier des états des projets

A partir de mai 1983, les états des projets de réglementation seront publiés en mai et novembre de chaque année dans un supplément à la *Gazette du Canada* par les ministères suivants. La liste est dressée selon l'ordre alphabétique anglais des ministères et correspond à l'ordre des états des projets de réglementation du supplément.

Agriculture
Communications
Consommation et Corporations
Énergie, Mines et Ressources
Environnement
Pêches et Océans
Santé et Bien-être social
Affaires indiennes et du Nord
Travail
Transports

Les organismes fédéraux de réglementation suivants ont accepté de participer au processus des états des projets de réglementation et publieront aussi des états en mai et novembre de chaque année. L'Office national de l'énergie publiera ses états trimestriellement. La liste est dressée selon l'ordre alphabétique anglais et correspond à l'ordre du supplément; les états des organismes suivront ceux des ministères.

Commission de contrôle de l'énergie atomique
Conseil de la radiodiffusion et des télécommunications canadiennes
Commission canadienne des transports
Office national de l'énergie

Disposition du contenu des états des projets

Les états des projets de réglementation des ministères comprennent six sections. L'*introduction* que vous voyez actuellement est une partie intégrale de l'état des projets de réglementation de chaque ministère. La deuxième dénote les responsabilités de réglementation. Les quatre autres donnent la clef au système de numérotation des initiatives:

1. Mesures possibles
2. Examens des politiques et analyses

3. Regulatory Program Evaluation Schedule

4. Completed Matters

Some departments have made arrangements with the Publishing Centre of the Department of Supply and Services to have their own Agendas printed separately and sold by the Publishing Centre.

Content of the Sections of the Agenda

The following describes the types of information that is found in the various sections of the Agenda.

The *Introduction* explains the concept and use of Regulatory Agendas. This section is included in every edition of each department's Agenda.

Regulatory Responsibilities of (name of department or sub-unit of department (e.g. branch, administration, etc.)), identifies and explains departmental regulatory activities and objectives. Departments may list statutes administered and provide any other information they consider useful to the reader.

Section 1, *Possible Actions*, identifies possible corrective measures the department is considering that would address specific areas of regulatory concern. Until a corrective measure has received final legal approval, such as approval by Parliament, by Cabinet, or by a Minister, it must be considered a "possible action".

Among the information components included in this section are two that require explanation:

(a) *Legal Authority*—When applicable, this entry allows the department to cite, by reference, the statutory provision that authorizes the possible action. In practice, reference is most often made to statutes that authorize subordinate legislation.

(b) *Impact Analysis*—This entry allows departments to indicate whether Chapter 490 of the Government of Canada, Administrative Policy Manual requires a Socio-Economic Impact Analysis (SEIA) for the proposed regulation.

Section 2, *Policy Reviews and Analyses*, identifies and describes major regulatory policy reviews that have been announced as being planned or under way by the department.

Note: This section can also be used to describe planned or ongoing departmental research activities that are related to possible regulatory changes at a time when public knowledge of them would be most valuable because it would encourage private sector comment.

Section 3, *Regulatory Program Evaluation Schedule*, excerpts information from the Departmental Program Evaluation Plan, listing those program components that include regulatory activities, and providing target dates for commencement and completion of the two major steps in the Evaluation Process: the "Planning Stage" and the actual "Evaluation Study". At a minimum, this section includes program components that the department will evaluate within the next two years.

Under Treasury Board Policy Directive 1977-47, federal departments are required to carry out periodic evaluation of all departmental activities, including regulatory activities. These activities, broken down into program components, are listed in a Departmental Program Evaluation Plan, together with a tentative schedule for carrying out the evaluations over a three- to five-year cycle.

3. Cédule de l'évaluation des programmes de réglementation

4. Questions réglées

Certains ministères ont une entente avec le Centre d'édition du ministère des Approvisionnements et Services afin que leurs états soient publiés individuellement et vendus par l'entremise du Centre d'édition.

Contenu des sections de l'état des projets

Voici le type d'information qui figure dans les sections de l'état des projets.

L'*introduction* expose le concept de l'état des projets et explique comment utiliser ce document. L'introduction figure dans chaque édition de chaque état des projets du ministère.

Responsabilités de réglementation (nom du ministère ou du service du ministère (par ex. direction, administration, etc.)), mentionne les activités et les objectifs de réglementation du ministère et donne quelques explications à leur sujet. Les ministères peuvent énumérer les lois dont ils surveillent l'application et donner toute information qui peut aider le lecteur.

Section 1, *Mesures possibles*, énumère les mesures que le ministère pourrait prendre pour corriger un aspect particulier de la réglementation. Jusqu'à ce qu'une mesure corrective ait reçue l'approbation juridique finale, telle la sanction du Parlement, du Cabinet ou d'un Ministre, elle doit être considérée comme une «mesure possible».

Il y a dans cette section, deux sous-sections qui doivent être élaborées:

a) *Fondement juridique*—Ici, une citation légale est donnée pour l'autorisation statutaire de la mesure possible. En pratique, l'on cite le fondement juridique le plus souvent lorsque l'on considère la législation déléguée (un règlement).

b) *Analyse de l'impact*—Dans les cas de législation déléguée, les ministères indiquent si une analyse de l'impact socio-économique (AISE) conformément au chapitre 490 du Manuel de la politique administrative du Gouvernement du Canada est requise.

Section 2, *Examens des politiques et analyses*, énumère et décrit les principaux examens de politique de réglementation qui sont prévus ou en cours.

Note: Dans cette section, on peut décrire aussi les travaux ministériels de recherches en matière de réglementation, prévus ou en cours, au moment où il serait le plus opportun de les communiquer au secteur privé pour connaître sa réaction.

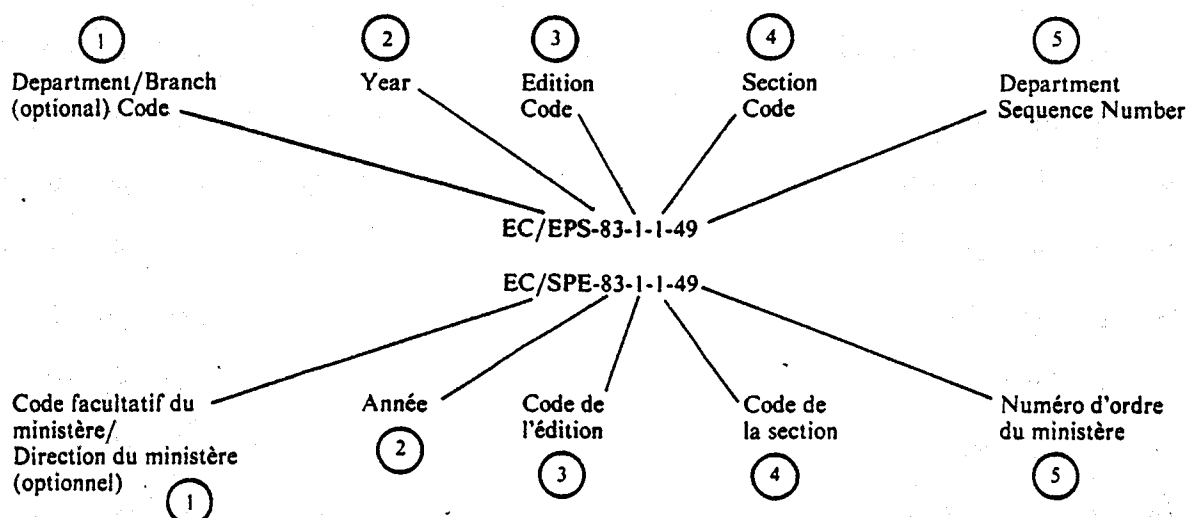
Section 3, *Cédule de l'évaluation des programmes de réglementation*, présente des renseignements extraits du plan de l'évaluation des programmes ministériels, cite les composantes des programmes qui incluent des activités de réglementation et indique les dates auxquelles doivent commencer et finir les deux principales phases du processus d'évaluation qui sont le stade de la planification et l'étude de l'évaluation. Cette section indique au moins les composantes des programmes que le ministère évaluera ou examinera dans les deux prochaines années.

Conformément à la directive 1977-47 du Conseil du Trésor, les ministères fédéraux doivent évaluer périodiquement toutes leurs activités, y compris celles de réglementation. Ces activités qui sont divisées en composantes des programmes, sont énumérées dans le plan de l'évaluation des programmes ministériels et sont accompagnées d'une cédule provisoire concernant les évaluations qui auront lieu au moins une fois tous les trois ou cinq ans.

Section 4, *Completed Matters*, identifies items from previous Agendas that have been either completed or dropped. It also includes actions that were initiated and completed between May and November or November and May editions of the Agenda. Items are listed in this section for two successive editions of the Agenda (one year) and are then deleted.

How to Use Entry Numbers

Each entry in the Agendas is assigned a number. The number illustrated below identifies the elements of the number: the first two elements are self-explanatory. The third element of the number will be either "1" for a May issue or "2" for a November issue. The fourth element identifies the type of initiative. The fifth element of the number has been assigned to initiatives in sequence: numbers assigned after the first edition of May 1983 will be assigned chronologically.



Further Information

Further information about individual regulatory initiatives is available from the "Contact Person" listed at the end of each entry. Requests for further information about the Agenda process or comments on the Agenda process should be addressed to the Office of Regulatory Reform, Treasury Board, Ottawa, Ontario K1A 0R5.

Section 4, *Questions réglées*, indique les questions qui ont figuré dans des états antérieurs, mais qui ont été réglées ou écartées entre-temps. Elle mentionne également les actions commencées et terminées entre les publications (mai et novembre ou novembre et mai) de l'état des projets. Les questions dans cette section figureront dans deux éditions successives de l'état des projets (un an) puis seront écartées.

Comment interpréter les numéros d'entrée

Chaque inscription faite dans les états des projets a un numéro. Le nombre illustré ci-dessous démontre les éléments de l'inscription: les deux premiers éléments ne demandent aucune explication. Le troisième élément sera soit «1» pour l'édition de mai ou «2» pour l'édition de novembre. Le quatrième élément démontre le type d'initiative. Le cinquième élément est assigné aux initiatives en séquence: les numéros donnés après la première édition de mai 1983 seront assignés chronologiquement.

Renseignements supplémentaires

La personne-ressource indiquée à la fin de chaque inscription peut fournir de plus amples renseignements sur des mesures de réglementation particulières. Les demandes pour de plus amples renseignements sur le processus des états des projets et les commentaires sur le processus des états devraient être adressés au Bureau de la réforme de la réglementation, Conseil du Trésor, Ottawa (Ontario) K1A 0R5.

REGULATORY RESPONSIBILITIES OF ENVIRONMENT CANADA

Environment Canada's statutory mandate is derived from the Government Organization Act (1979). This Act establishes that the duties, powers and functions of the Minister of the Environment extend to and include all matters over which Parliament has jurisdiction not otherwise federally assigned, and relating to:

- national and historic parks;
- preservation and enhancement of the quality of the natural environment, including water, air and soil quality;
- renewable resources, including forest resources, migratory birds and other non-domestic flora and fauna;
- water;
- meteorology;
- enforcement of rules and regulations arising from the advice of the International Joint Commission relating to boundary waters and questions arising between the United States and Canada which relate to the preservation and enhancement of environmental quality; and
- other federal matters relating to the natural environment which are assigned to the Minister.

The Act also specifies functions of the Minister in carrying out these responsibilities, including programs to: promote adoption of objectives or standards relating to environmental quality and pollution control; mitigate adverse environmental impacts of new federal projects; and provide Canadians with environmental information.

It gives to the Minister of the Environment broad responsibilities to influence federal departments and agencies, and to work with provincial governments and the public to preserve and enhance environmental quality. The Minister is also authorized to develop guidelines for activities of federal bodies, and enter into agreements with provincial governments or agencies.

More specific powers and duties of the Minister of the Environment are listed in the Service introductions below.

RESPONSABILITÉS EN MATIÈRE DE RÉGLEMENTATION D'ENVIRONNEMENT CANADA

Le mandat d'Environnement Canada découle de la *Loi de 1979 sur l'organisation du gouvernement*, qui stipule que les pouvoirs et fonctions du ministre de l'Environnement s'étendent à tous les domaines de compétence du Parlement non attribués par la loi à quelque autre ministère, commission ou organisme fédéraux, et liés:

- aux parcs nationaux et historiques;
- à la conservation et à l'amélioration de la qualité de l'environnement naturel, notamment la qualité de l'eau, de l'air et du sol;
- aux ressources renouvelables, notamment les ressources forestières, les oiseaux migrateurs, ainsi que la faune et la flore exotiques;
- aux eaux;
- à la météorologie;
- à l'application des règles et règlements établis sur les conseils de la Commission mixte internationale relativement aux eaux limitrophes et aux problèmes canado-américains ayant trait à la conservation et à l'amélioration de la qualité de l'environnement; et
- aux autres questions environnementales du ressort du gouvernement fédéral liées à l'environnement et attribuées au Ministre.

Cette Loi précise également les fonctions du Ministre dans l'exercice de ces responsabilités, de même que certains programmes visant à favoriser l'adoption d'objectifs ou de normes relatifs à la qualité de l'environnement et à la lutte contre la pollution, à atténuer les effets néfastes sur l'environnement de nouveaux projets fédéraux, et à fournir aux Canadiens des renseignements sur l'environnement.

Les responsabilités du ministre de l'Environnement sont vastes aux termes de cette Loi en ce qui concerne l'influence à exercer sur les ministères et les organismes fédéraux et le devoir de collaborer avec les gouvernements provinciaux et le public en vue de la conservation et de l'amélioration de la qualité de l'environnement. Le Ministre a aussi le pouvoir d'élaborer des lignes directrices à l'intention des organismes fédéraux et de conclure des ententes avec les gouvernements ou organismes provinciaux.

Les attributions et les pouvoirs précis du Ministre sont énumérés plus loin, sous la présentation de chaque service.

ATMOSPHERIC ENVIRONMENT SERVICE

REGULATORY RESPONSIBILITIES OF THE ATMOSPHERIC ENVIRONMENT SERVICE (AES)

The Government and the public are, through the Atmospheric Environment Service, to be kept informed on activities of weather modification for which a scientific basis is desired.

This responsibility derives from the Weather Modification Information Act, Chapter 59 of the Statutes of Canada, which was proclaimed on June 21, 1974.

Further information may be obtained by contacting Yvon Bernier, Meteorological Liaison Officer, Atmospheric Environment Service, Environment Canada, Ottawa, Ontario K1A 0H3, Telephone (819) 997-6655.

POSSIBLE ACTIONS

No entries at this time.

POLICY REVIEWS AND ANALYSES

No entries at this time.

REGULATORY PROGRAM EVALUATION SCHEDULES

Entry Number

EC/AES-83-1-3-1

Title

WEATHER MODIFICATION INFORMATION ACT
AND REGULATIONS

Description

The Weather Modification Information Act and Regulations require that any person engaging in weather modification activities must provide advance notice and specific details to the Assistant Deputy Minister of the Atmospheric Environment Service. The purpose is to keep the government and the public informed of these activities, to measure the extent and development of the activities, and to assist in establishing the scientific basis for weather modification. The Act does not prohibit or control the activities.

Planning Stage

Commencement and completion dates are both targeted for 1986-87. The actual dates are not yet available.

SERVICE DE L'ENVIRONNEMENT ATMOSPHÉRIQUE

RESPONSABILITÉS EN MATIÈRE DE RÈGLEMENTATION DU SERVICE DE L'ENVIRONNEMENT ATMOSPHÉRIQUE (SEA)

Par l'entremise du Service de l'environnement atmosphérique, le gouvernement et la population canadienne doivent être informés des activités visant à modifier le temps.

Cette responsabilité découle de la *Loi sur les renseignements relatifs aux modifications du temps*, chapitre 59 des Statuts du Canada, proclamée le 21 juin 1974.

Pour obtenir des renseignements additionnels à ce sujet, contacter Yvon Bernier, Agent de liaison météorologique, Service de l'environnement atmosphérique, Environnement Canada, Ottawa (Ontario) K1A 0H3, Téléphone (819) 997-6655.

MESURES POSSIBLES

Aucune entrée à ce moment-ci.

EXAMENS DES POLITIQUES ET ANALYSES

Aucune entrée à ce moment-ci.

CÉDULE DES ÉVALUATIONS DES PROGRAMMES DE RÉGLEMENTATION

Entrée

EC/SEA-83-1-3-1

Titre

LOI ET RÈGLEMENTS SUR LES
RENSEIGNEMENTS RELATIFS AUX
MODIFICATIONS DU TEMPS

Description

La Loi et les Règlements sur les renseignements relatifs aux modifications du temps exigent que toute personne voulant se livrer à des activités visant à modifier le temps au Canada en informe à l'avance le sous-ministre adjoint du Service de l'environnement atmosphérique et lui fournisse les modalités spécifiques. L'intention est de tenir le gouvernement et la population canadienne informés de ces activités, de mesurer leur étendue et leur stage de développement et d'aider à en établir les bases scientifiques. La loi n'interdit ni ne contrôle ces activités.

Étape de planification

Le début et la fin de cette étape sont prévus pour 1986-1987. Les dates précises ne sont pas encore connues.

Contact Person

Mr. J. A. Stoner, Chief, Regulations and Enforcement, Migratory Birds Branch, Canadian Wildlife Service, Environment Canada, Ottawa, Ontario K1A 0E7, Telephone (819) 997-1123.

Personne-ressource

M. J. A. Stoner, Chef, Division des règlements, Direction des oiseaux migrateurs, Service canadien de la faune, Environnement Canada, Ottawa (Ontario) K1A 0E7, Téléphone (819) 997-1123.

REGULATORY PROGRAM EVALUATION SCHEDULES

Entry Number

EC/ECS-83-1-3-7

Title

INLAND WATERS

Description

This component administers the following legislation:

1. Canada Water Act, providing for joint federal/provincial management of Canada's water resources, considering both quantitative and qualitative aspects, which involve planning, consultation, monitoring and research.
2. International River Improvements Act whose provisions control increasing, decreasing or altering the natural flow of international rivers, ensuring that the water resources of Canada shared with the United States are developed and utilized in the national interest.

Planning Stage and Program Evaluation Study Dates

Both are targeted for 1985-86. The actual dates are not yet available.

Contact Person

Mr. Bruce Waters, Acting Director, Evaluation Branch, Corporate Planning Group, Environment Canada, Ottawa, Ontario K1A 1C7, Telephone (819) 997-1853.

CÉDULE DES ÉVALUATIONS DES PROGRAMMES DE RÉGLEMENTATION

Entrée

EC/SCE-83-1-3-7

Titre

EAUX INTÉRIEURES

Description

Cette composante gère la législation suivante:

1. *Loi sur les ressources en eau du Canada*, pourvoyant à la cogestion fédérale-provinciale des ressources en eau du Canada, compte tenu des aspects quantitatifs et qualitatifs, y compris la planification, la consultation, le contrôle et la recherche.
2. *Loi sur les ouvrages destinés à l'amélioration des cours d'eau internationaux*, dont les dispositions contrôlent l'augmentation, la diminution ou le changement du débit naturel des cours d'eau internationaux, en assurant l'aménagement et l'utilisation des ressources en eau du Canada partagées avec les États-Unis selon l'intérêt national.

Dates de l'étape de planification et de l'évaluation du programme

1985-1986 dans les deux cas. Les dates précises ne sont pas encore connues.

Personne-ressource

M. Bruce Waters, Directeur intérimaire, Direction de l'évaluation, Service de Planification du Ministère, Environnement Canada, Ottawa (Ontario) K1A 1C7, Téléphone (819) 997-1853.

Entry Number

EC/ECS-83-1-3-8

Title

WILDLIFE CONSERVATION

Description

This component administers the following legislation:

1. Migratory Birds Convention Act is designed for the protection of migratory birds by the establishment of closed seasons.
2. Canada Wildlife Act has the purpose to promote wildlife research, conservation and interpretation; and to coordinate with the provinces the measures to protect Canadian wildlife, including establishing wildlife areas.

Entrée

EC/SCE-83-1-3-8

Titre

CONSERVATION DE LA FAUNE

Description

Cette composante gère la législation suivante:

1. *Loi sur la Convention concernant les oiseaux migrateurs* destinée à la protection des oiseaux migrateurs par l'établissement de saisons de chasse prohibées.
2. La *Loi sur la faune du Canada* a pour but de promouvoir la recherche, la conservation et la diffusion de connaissances sur la faune; et d'appliquer avec les provinces des mesures visant à protéger la faune canadienne, y compris la création de réserves de faune.

Further information may be obtained by contacting the EPS Regulatory Agenda Co-ordinator, Ms. S. Eros, Interagency Programs Division, Environmental Protection Service, Environment Canada, Ottawa, Ontario K1A 1C8, Telephone (819) 997-2070.

Pour obtenir des renseignements additionnels à ce sujet, contacter M^{lle} S. Eros des programmes connexes, Service de la protection de l'environnement, Environnement Canada, Ottawa (Ontario) K1A 1C8, Téléphone (819) 997-2070.

POSSIBLE ACTIONS

Entry Number

EC/EPS-83-1-1-1

Title

PHASE-DOWN OF LEAD IN MOTOR VEHICLE GASOLINE

Statement of Problem

National Health and Welfare has advised the Department to take action in reducing or eliminating lead in gasoline as a prudent step to protecting human health.

Automotive lead emissions have been decreasing since the catalyst emission control vehicle was introduced in Canada in 1975. However, this trend may reverse itself because more new vehicles using leaded gasoline are now being sold.

Possible Action

Revise the current regulation on leaded gasoline to reduce the allowable lead anywhere from 0.77 g/l (current permissible level) to an elimination of its use.

Legal Authority

Clean Air Act, S.C. 1970-71-72, c. 47, s. 14(1).

Impact Analysis

A control options report was published and distributed for comment on March 12, 1983. After a 60-day review period, public submissions will be reviewed and a decision on a revised regulation will be made.

A Socio-Economic Impact Analysis (SEIA) is being completed in accordance with Chapter 490, Government of Canada, Administrative Policy Manual.

Current Status/Future Timetable

A notice of an intent to regulate the phase-down of the lead content in motor gasoline was published March 12, 1983 in the *Canada Gazette*, Part I, Page 2246. Consultation is proceeding with comments requested by May 12, 1983. Regulations should be published in the *Canada Gazette* in 1983.

Contact Person

J. Labuda, Environmental Protection Programs Directorate, Environmental Protection Service, Environment Canada, Ottawa, Ontario K1A 1C8, Telephone (819) 997-1220.

MESURES POSSIBLES

Entrée

EC/SPE-83-1-1-1

Titre

RÉDUCTION GRADUELLE DE LA TENEUR EN PLOMB DES ESSENCES À MOTEUR

Exposé du problème

Santé nationale et Bien-être social a conseillé au Ministère de prendre, comme mesure de prudence, les mesures nécessaires pour réduire ou éliminer la teneur en plomb dans l'essence, afin de protéger la santé de l'homme.

Les émissions de plomb dans les gaz d'échappement ont diminué depuis l'arrivée au Canada, en 1975, des véhicules dotés de pots catalytiques. Toutefois, cette tendance peut se renverser car il se vend maintenant plus de véhicules neufs qui roulent à l'essence au plomb.

Mesure possible

Réviser le Règlement sur l'essence au plomb afin d'abaisser, dans la mesure jugée utile y compris jusqu'à néant, la teneur permise en plomb, qui est de 0,77 g/l.

Fondement juridique

Loi sur la lutte contre la pollution atmosphérique, S.C. 1970-71-72, c. 47, art. 14(1).

Analyse de l'impact

Une présentation des solutions possibles a été publiée et distribuée, le 12 mars 1983, pour obtenir les observations des intéressés. Après un délai de 60 jours, les observations du public seront examinées et une décision sera prise sur les révisions à apporter au Règlement.

Une analyse de l'impact socio-économique (AISE) est actuellement faite conformément au chapitre 490 du Manuel de la politique administrative du gouvernement du Canada.

Situation/calendrier

Un avis de l'intention de réglementer la diminution graduelle de la teneur en plomb dans l'essence à moteur a été publié le 12 mars 1983 dans la Partie I de la *Gazette du Canada*, p. 2246. On prend actuellement connaissance des observations demandées pour le 12 mai 1983. Le Règlement devrait être publié dans la *Gazette du Canada* en 1983.

Personne-ressource

J. Labuda, Direction générale de la protection de l'environnement, Service de la protection de l'environnement, Environnement Canada, Ottawa (Ontario) K1A 1C8, Téléphone (819) 997-1220.

Entry Number

EC/EPS-83-1-1-2

Title

1986 NEW MOTOR VEHICLE EMISSIONS
STANDARDS FOR OXIDES OF NITROGEN-NO_x,
HYDROCARBONS-HC AND CARBON
MONOXIDE-CO

Statement of Problem

Vehicular emissions have been found to impair air quality and are precursor pollutants to other environmental problems such as acid precipitation and oxidant damage.

Transport Canada, has, in its Motor Vehicle Safety Act, emission standards for new light-duty motor vehicles. The current standards have been in effect since 1975 and are subject to review for 1986. This review is now under way with a view to addressing the above-noted environmental issues.

Possible Action

Three possible control actions are under review:

1. no change in the standards
(HC-2.0, CO-25.0, NO_x-3.1)
2. intermediate level of control
(HC-1.5, CO-15.0, NO_x-2.0)
3. 90-95% control (similar to U.S.)
(HC-0.41, CO-7.0, NO_x-1.0)

Legal Authority

Motor Vehicle Safety Act (Transport Canada).

Impact Analysis

A Socio-Economic Impact Analysis (SEIA), in accordance with Chapter 490, Government of Canada, Administrative Policy Manual, is required and by agreement between Transport Canada and Environment Canada; it is being prepared by Environment Canada. To aid in the evaluation of the impact of a change in the standard, four major areas are being examined:

1. Effect of change on air quality.
2. Effect of pollutants.
3. Technology involved.
4. Economics.

Current Status/Future Timetable

A notice of intent to prepare a Socio-Economic Impact Analysis (SEIA) was published in the *Canada Gazette*, Part I on February 20, 1982 and September 18, 1982.

A control options report will be completed by July, 1983. If a more stringent regulation is decided, it should be announced by September, 1983.

Contact Person

V. Shantora, Environmental Protection Programs Directorate, Environmental Protection Service, Environment Canada, Ottawa, Ontario K1A 1C8, Telephone (819) 997-1612.

Entrée

EC/SPE-83-1-1-2

Titre

NOUVELLES NORMES DE DÉGAGEMENT POUR
LES VÉHICULES AUTOMOBILES CONCERNANT
LES OXYDES D'AZOTE (NO_x), LES
HYDROCARBURES (HC) ET LE MONOXYDE DE
CARBONE (CO)—1986

Exposé du problème

Les gaz d'échappement se sont révélés nuisibles à la qualité de l'air et contiennent des polluants qui sont à l'origine d'autres problèmes écologiques tels que les précipitations acides et les dommages causés par les oxydants.

Transports Canada a, dans sa *Loi sur la sécurité des véhicules automobiles*, des normes de dégagement concernant les nouveaux véhicules à moteur léger. Les normes actuelles sont en vigueur depuis 1975 et devraient être révisées pour 1986. Cette révision est actuellement en cours en vue de régler les questions écologiques susmentionnées.

Mesure possible

Trois options sont examinées:

1. Aucune modification des normes
(HC-2.0; CO-25.0; NO_x-3.1)
2. Prescrire une épuration modérée
(HC-1.5; CO-15.0; NO_x-2.0)
3. Épuration de 90 à 95 %
(similaire aux normes américaines)
(HC-0.41; CO-7.0; NO_x-1.0)

Fondement juridique

Loi sur la sécurité des véhicules automobiles (Transports Canada).

Analyse de l'impact

Une analyse de l'impact socio-économique (AISE) est exigée, conformément au chapitre 490 du Manuel de la politique administrative du gouvernement du Canada et, suite à un accord entre Transports Canada et Environnement Canada; elle est actuellement préparée par ce dernier. Pour aider à évaluer les incidences d'une modification des normes, quatre questions importantes sont examinées:

1. L'effet de cette modification sur la qualité de l'air.
2. L'effet des polluants.
3. Les techniques nécessaires.
4. Les facteurs économiques.

Situation/calendrier

Un avis d'intention de préparer une AISE a été publié dans la Partie I de la *Gazette du Canada*, le 20 février et le 18 septembre 1982.

Les solutions possibles pourront être présentées d'ici juillet 1983. Si le règlement doit être rendu plus strict, il devrait être annoncé d'ici septembre 1983.

Personne-ressource

V. Shantora, Direction générale de la protection de l'environnement, Service de la protection de l'environnement, Environnement Canada, Ottawa (Ontario) K1A 1C8, Téléphone (819) 997-1612.

Entry Number

EC/EPS-83-1-1-3

*Title*TRANSPORTATION OF DANGEROUS GOODS
REGULATION (WASTES)*Statement of Problem*

Currently, dangerous wastes are disposed of in ways which are not always environmentally acceptable. Enforcement is required to ensure that dangerous wastes are delivered to proper disposal facilities.

Possible Action

Decision has already been made to regulate the movement of dangerous wastes.

Legal Authority

Transport of Dangerous Goods Act.

Impact Analysis

Refer to SEIA conducted for these regulations.

Current Status/Future Timetable

Unit I has been published in the *Canada Gazette*, Part I. Units II and III will be published shortly. The official comment period for Unit I terminated on 18 February 1983 and comments are being incorporated in Unit I. Unit I should be published in *Canada Gazette*, Part II in the late fall of 1983.

Contact Person

D. S. Hay, Environmental Protection Programs Directorate, Environmental Protection Service, Environment Canada, Ottawa, Ontario K1A 1C8, Telephone (819) 997-3352.

Entry Number

EC/EPS-83-1-1-4

*Title*CHLOROBIPHENYL (PCB) REGULATION NO. 2
(PRODUCT) CONTROL*Statement of Problem*

PCBs are a significant danger to health and the environment and are currently scheduled under the Environmental Contaminants Act. The use of PCBs is currently controlled under the Chlorobiphenyl Regulation No. 1. It is further required to control commercial activities of products that contain PCB.

Possible Action

The Department could provide further protection to Canadians from PCB by proposing a regulation to control importation, manufacture and sale of specified products that contain a specified concentration of PCB.

Legal Authority

Environmental Contaminants Act, ss. 18(e).

Entrée

EC/SPE-83-1-1-3

*Titre*RÈGLEMENT SUR LE TRANSPORT DES
MARCHANDISES DANGEREUSES (DÉCHETS)*Exposé du problème*

Actuellement, les déchets dangereux ne sont pas toujours éliminés de façon écologique. La coercition est nécessaire pour s'assurer qu'ils sont acheminés vers les installations convenables d'élimination.

Mesure possible

Il a déjà été décidé de réglementer le transport des déchets dangereux.

Fondement juridique

Loi sur le transport des marchandises dangereuses.

Analyse de l'impact

Consulter l'AISE réalisée pour ce règlement.

Situation/calendrier

La section I de ce règlement a été publiée dans la Partie I de la *Gazette du Canada*. Les sections II et III seront publiées d'ici peu. Le délai officiel accordé pour communiquer ses observations concernant la section I a pris fin le 18 février 1983, et il est actuellement pris compte de ces observations pour la révision de cette section. La version finale devrait être publiée dans la Partie II de la *Gazette du Canada*, à la fin de l'automne de 1983.

Personne-ressource

D. S. Hay, Direction générale de la protection de l'environnement, Service de la protection de l'environnement, Environnement Canada, Ottawa (Ontario) K1A 1C8, Téléphone (819) 997-3352.

Entrée

EC/SPE-83-1-1-4

*Titre*RÈGLEMENT N° 2 SUR LES BIPHÉNYLES
CHLORÉS (BPC) (PRODUITS)*Exposé du problème*

Les BPC constituent un danger notable pour la santé et l'environnement et figurent en annexe à la *Loi sur les contaminants de l'environnement*. Leur utilisation tombe actuellement sous le coup du Règlement n° 1 sur les biphényles chlorés. Il est en outre exigé de réglementer la commercialisation de produits qui contiennent des BPC.

Mesure possible

Le Ministère pourrait protéger davantage les Canadiens des BPC par un règlement contrôlant l'importation, la fabrication et la vente de produits précis d'une teneur donnée en BPC.

Fondement juridique

Loi sur les contaminants de l'environnement, ss. 18(e).

Impact Analysis

A Socio-Economic Impact Analysis (SEIA) is being carried out in accordance with Chapter 490 of the Government of Canada, Administrative Policy Manual.

Current Status/Future Timetable

The proposed regulation and the SEIA summary are scheduled for publication in the *Canada Gazette*, Part I in July 1983.

Contact Person

J. R. Monteith, Environmental Protection Programs Directorate, Environmental Protection Service, Environment Canada, Ottawa, Ontario K1A 1C8, Telephone (819) 997-1640.

Entry Number

EC/EPS-83-1-1-5

Title

CHLOROBIPHENYL (PCB) REGULATION NO. 3
(RELEASE) CONTROL

Statement of Problem

PCBs are a significant danger to health and the environment and are currently scheduled under the Environmental Contaminants Act. The use of PCBs is currently controlled under the Chlorobiphenyl Regulation No. 1. It is further required to control the release of PCBs into the environment.

Possible Action

The Department could provide further protection to Canadians from PCBs by proposing a regulation to control the willful release of this class of substance.

Legal Authority

Environmental Contaminants Act, ss. 18(a), 18(b), 18(d).

Impact Analysis

A Socio-Economic Impact Analysis (SEIA) is being carried out in accordance with Chapter 490 of the Government of Canada, Administrative Policy Manual.

Current Status/Future Timetable

The proposed regulation and the SEIA summary are scheduled for publication in the *Canada Gazette*, Part I in July 1983.

Contact Person

J. R. Monteith, Environmental Protection Programs Directorate, Environmental Protection Service, Environment Canada, Ottawa, Ontario K1A 1C8, Telephone (819) 997-1640.

Analyse de l'impact

Une analyse de l'impact socio-économique (AISE) est actuellement réalisée conformément au chapitre 490 du Manuel de la politique administrative du gouvernement du Canada.

Situation/calendrier

La publication du projet de règlement et du résumé de l'AISE est prévue pour juillet 1983 dans la Partie I de la *Gazette du Canada*.

Personne-ressource

J. R. Monteith, Direction générale de la protection de l'environnement, Service de la protection de l'environnement, Environnement Canada, Ottawa (Ontario) K1A 1C8, Téléphone (819) 997-1640.

Entrée

EC/SPE-83-1-1-5

Titre

RÈGLEMENT N° 3 SUR LES BIPHÉNYLES
CHLORÉS (BPC) (REJETS)

Exposé du problème

Les BPC constituent un danger notable pour la santé et l'environnement et figurent en annexe à la *Loi sur les contaminants de l'environnement*. Leur utilisation tombe actuellement sous le coup du Règlement n° 1 sur les biphényles chlorés. En outre, on se propose de limiter les rejets de BPC dans l'environnement.

Mesure possible

Le Ministère pourrait protéger davantage les Canadiens des BPC par un règlement sur le rejet délibéré de cette catégorie de substances.

Fondement juridique

Loi sur les contaminants de l'environnement, ss. 18a), b) et d).

Analyse de l'impact

Une analyse de l'impact socio-économique (AISE) est actuellement réalisée conformément au chapitre 490 du Manuel de la politique administrative du gouvernement du Canada.

Situation/calendrier

La publication du projet de règlement et du résumé de l'AISE est prévue pour juillet 1983 dans la Partie I de la *Gazette du Canada*.

Personne-ressource

J. R. Monteith, Direction générale de la protection de l'environnement, Service de la protection de l'environnement, Environnement Canada, Ottawa (Ontario) K1A 1C8, Téléphone (819) 997-1640.

Entry Number

EC/EPS-83-1-1-6

Title

ARSENIC EMISSIONS FROM GOLD-ROASTING OPERATIONS

Statement of Problem

The roasting of gold-bearing ores has been identified as a major source of arsenic emissions to the atmosphere.

Possible Action

Arsenic has been declared a hazardous pollutant to human health and thereby may be regulated under the Clean Air Act.

Legal Authority

Clean Air Act, s. 7(2).

Impact Analysis

Socio-Economic Impact Analysis (SEIA) and proposed regulation were published in the *Canada Gazette*, Part I, October 13, 1979.

Current Status/Future Timetable

Comments received on the Socio-Economic Impact Analysis and the proposed regulations are under review.

As a result of this review the proposed regulations may be finalized or abandoned. Review is scheduled for completion by March 1984.

Contact Person

L. Buffa, Environmental Protection Programs Directorate, Environmental Protection Service, Environment Canada, Ottawa, Ontario K1A 1C8, Telephone (819) 997-2270.

Entrée

EC/SPE-83-1-1-6

Titre

ÉMISSIONS D'ARSENIC PAR LES INSTALLATIONS DE GRILLAGE DES MINÉRAIS AURIFÈRES

Exposé du problème

Le grillage des minerais aurifères s'est révélé une source importante d'émissions d'arsenic.

Mesure possible

L'arsenic a été déclaré un polluant dangereux pour la santé et il tombe donc sous le coup de la *Loi sur la lutte contre la pollution atmosphérique*.

Fondement juridique

Loi sur la lutte contre la pollution atmosphérique, art. 7(2).

Analyse de l'impact

L'analyse de l'impact socio-économique (AISE) et le projet de règlement ont été publiés dans la *Gazette du Canada*, Partie I, le 13 octobre 1979.

Situation/calendrier

Les observations reçues sur l'AISE et le projet de règlement sont maintenant étudiés.

A la suite de cet examen, le projet de règlement peut être achevé ou abandonné. La révision devrait se terminer d'ici mars 1984.

Personne-ressource

L. Buffa, Direction générale de la protection de l'environnement, Service de la protection de l'environnement, Environnement Canada, Ottawa (Ontario) K1A 1C8, Téléphone (819) 997-2270.

Entry Number

EC/EPS-83-1-1-7

Title

REVIEW OF THE METAL MINING LIQUID EFFLUENT REGULATIONS (MMLER)

Statement of Problem

The current MMLER do not address problems related to cyanide wastes from gold and silver mines. In addition, the current MMLER control only dissolved Radium 226 but not total Radium 226 and other radionuclides.

Possible Action

Technology for treatment of cyanide wastes has advanced substantially since the MMLER were passed in 1977. The current MMLER could be amended to apply to gold and silver mines using cyanidation. Likewise, technology advances now permit the setting of limits for *total* Radium 226 and possibly other radionuclides.

Legal Authority

Fisheries Act, s. 33.

Entrée

EC/SPE-83-1-1-7

Titre

RÉVISION DU RÈGLEMENT SUR LES EFFLUENTS LIQUIDES DES MINES DE MÉTAUX

Exposé du problème

Dans sa version actuelle, le Règlement est sans effet contre les problèmes dus aux cyanures provenant des mines d'or et d'argent. Il vise le radium 226 dissous, mais non le radium 226 total et les autres radionucléides.

Mesure possible

Les techniques de traitement des cyanures se sont considérablement perfectionnées depuis la promulgation du Règlement en 1977. Ce dernier pourrait être modifié de façon à viser les mines d'or et d'argent qui recourent à la cyanuration. De même, les progrès techniques permettent maintenant d'établir des limites pour le radium 226 *total* et peut-être aussi d'autres radionucléides.

Fondement juridique

Loi sur les pêcheries, art. 33.

Current Status/Future Timetable

1. A Technical Advisory Group consisting of representatives of Industry and Government has been formed. It met twice in 1982.
2. Further meetings are planned for this fiscal year.
3. Prepare the rationale for revisions report which should be completed by the spring of 1984.

Contact Person

J. L. Betts, Environmental Protection Programs Directorate, Environmental Protection Service, Environment Canada, Ottawa, Ontario K1A 1C8, Telephone (819) 997-3060.

Situation/calendrier

1. Un groupe consultatif technique constitué de représentants de l'industrie et du gouvernement a été formé. Il s'est réuni deux fois en 1982.
2. D'autres réunions sont prévues pour la présente année financière.
3. Préparation d'un exposé des motifs de révision d'ici le printemps de 1984.

Personne-ressource

J. L. Betts, Direction générale de la protection de l'environnement, Service de la protection de l'environnement, Environnement Canada, Ottawa (Ontario) K1A 1C8, Téléphone (819) 997-3060.

POLICY REVIEWS AND ANALYSES

No entries at this time.

EXAMENS DES POLITIQUES ET ANALYSES

Aucune entrée à ce moment-ci.

REGULATORY PROGRAM EVALUATION
SCHEDULES*Entry Number*

EC/EPS-83-1-3-9

Title

AIR POLLUTION CONTROL

Because of a reorganization, the discharge of these legislative/regulatory responsibilities may in the future be included in a new component.

Description

This program component is engaged in formulating and setting air quality objectives, requesting the information on emission of air pollutants, prescribing national emission standards for stationary sources where there is a significant danger to health or where international obligations are violated, and regulating the composition of fuels. In addition, National Emission Guidelines for all sources, stationary or otherwise, are published and data gathered to monitor the quality of ambient air in major population centres. Enabling legislative basis is provided by the Clean Air Act.

Planning Stage and Program Evaluation Study Dates

Both targeted for 1984-85. The actual dates are not yet available.

Contact Person

Mr. Bruce Waters, Acting Director, Evaluation Branch, Corporate Planning Group, Environment Canada, Ottawa, Ontario K1A 1C7, Telephone (819) 997-1853.

CÉDULE DES ÉVALUATIONS DES
PROGRAMMES DE RÉGLEMENTATION*Entrée*

EC/SPE-83-1-3-9

Titre

LUTTE CONTRE LA POLLUTION
ATMOSPHÉRIQUE

A cause de la réorganisation, ces attributions législatives et réglementaires pourront figurer dans un nouvel élément.

Description

Cet élément de programme concerne l'élaboration et l'établissement d'objectifs de la qualité de l'air, la demande d'information sur l'émission de polluants atmosphériques, à la prescription de normes nationales de dégagement concernant les sources fixes où il existe un danger significatif pour la santé et où les obligations internationales ne sont pas respectées et, enfin, la réglementation de la composition des combustibles. De plus, des lignes directrices nationales concernant les dégagements sont publiées à l'égard de toutes les sources, fixes ou autres, et des données sont recueillies pour contrôler la qualité de l'air ambiant dans les principaux centres habités. La *Loi sur la lutte contre la pollution atmosphérique* constitue le fondement juridique habilitant.

Dates de l'étape de planification et de l'évaluation du programme

1984-1985 dans les deux cas. Les dates précises ne sont pas encore connues.

Personne-ressource

M. Bruce Waters, Directeur intérimaire, Direction de l'évaluation, Service de planification du Ministère, Environnement Canada, Ottawa (Ontario) K1A 1C7, Téléphone (819) 997-1853.

Entry Number

EC/EPS-83-1-3-10

Title

WATER POLLUTION CONTROL

Because of a reorganization, the discharge of these legislative/regulatory responsibilities may in the future be included in a new component.

Description

This program component is concerned with developing prevention and control measures to protect the quality of water by prohibiting or limiting discharge of toxic chemicals, effluents and other pollutants. Regulations are promulgated, permits issued and guidelines provided.

The enabling legislative basis is provided by: Canada Water Act—Part II; Water Quality Management—Part III; Regulating Nutrient Inputs—(Phosphorus Concentration); Environmental Contaminants Act; Fisheries Act—Sections 33, 33.1 to 34; Ocean Dumping Control Act.

Planning Stage and Program Evaluation Study Dates

Both targeted for 1984-85. The actual dates are not yet available.

Contact Person

Mr. Bruce Waters, Acting Director, Evaluation Branch, Corporate Planning Group, Environment Canada, Ottawa, Ontario K1A 1C7, Telephone (819) 997-1853.

Entry Number

EC/EPS-83-1-3-11

Title

CONTAMINANTS CONTROL

Because of a reorganization, the discharge of these legislative/regulatory responsibilities may in the future be included in a new component.

Description

This program component is engaged in formulating and updating the regulations preventing and controlling the entry of harmful quantities of contaminants into the environment. This entails studying toxic and other chemicals, their production, transport, storage and harmful effect of their presence. Consideration is given to technology and management procedures involved. Enabling Legislation—Environmental Contaminants Act.

Planning Stage and Program Evaluation Study Dates

Both targeted for 1986-87. The actual dates are not yet available.

Entrée

EC/SPE-83-1-3-10

Titre

LUTTE CONTRE LA POLLUTION DE L'EAU

A cause de la réorganisation, ces attributions législatives et réglementaires pourront figurer dans un nouvel élément.

Description

Cet élément de programme concerne l'élaboration de mesures préventives et curatives visant à protéger la qualité des eaux, en interdisant ou en limitant les rejets de matières chimiques toxiques, d'effluents et d'autres polluants. Des règlements sont promulgués, des permis délivrés et des lignes directrices publiées.

Le fondement législatif habilitant est la *Loi sur les ressources en eau du Canada*, Partie II; la gestion de la qualité de l'eau—Partie III; la réglementation de l'apport d'éléments nutritifs—(concentration de phosphore); la *Loi sur les contaminants de l'environnement*; la *Loi sur les pêcheries*—articles 33, 33.1 à 34; la *Loi sur l'immersion de déchets en mer*.

Dates de l'étape de planification et de l'évaluation du programme

1984-1985 dans les deux cas. Les dates précises ne sont pas encore connues.

Personne-ressource

M. Bruce Waters, Directeur intérimaire, Direction de l'évaluation, Service de planification du Ministère, Environnement Canada, Ottawa (Ontario) K1A 1C7, Téléphone (819) 997-1853.

Entrée

EC/SPE-83-1-3-11

Titre

CONTRÔLE DES CONTAMINANTS

A cause de la réorganisation, ces attributions législatives et réglementaires pourront figurer dans un nouvel élément.

Description

Cet élément de programme concerne l'élaboration et la mise à jour des règlements permettant d'empêcher et de contrôler l'introduction, dans l'environnement, de contaminants en quantités nocives. Ceci nécessite l'étude des produits chimiques toxiques et autres, de leur production, de leur transport, de leur entreposage et des effets nocifs de leur présence. Les techniques et les méthodes de gestion sont examinées. La loi habilitante est celle des contaminants de l'environnement.

Dates de l'étape de planification et de l'évaluation du programme

1986-1987 dans les deux cas. Les dates précises ne sont pas encore connues.

Contact Person

Mr. Bruce Waters, Acting Director, Evaluation Branch, Corporate Planning Group, Environment Canada, Ottawa, Ontario K1A 1C7, Telephone (819) 997-1853.

Personne-ressource

M. Bruce Waters, Directeur intérimaire, Direction de l'évaluation, Service de planification du Ministère, Environnement Canada, Ottawa (Ontario) K1A 1C7, Téléphone (819) 997-1853.

Entry Number

EC/EPS-83-1-3-12

Title

WASTE MANAGEMENT

Because of a reorganization, the discharge of these legislative/regulatory responsibilities may in the future be included in a new component.

Description

This component is engaged in evaluation of various hazardous waste treatment and disposal technologies, updating of guidelines for the management of institutional wastes; and development of guidelines for landfilling of hazardous wastes. Maximum quantities of waste dumped into the oceans are also prescribed and a permit system is administered by EPS.

Enabling Legislation—an indirect involvement in several mandates such as Canada Water Act (Leaching) and Environmental Contaminants Act.

Planning Stage and Program Evaluation Study Dates

Both targeted for 1983-84. The actual dates are not yet available.

Contact Person

Mr. Bruce Waters, Acting Director, Evaluation Branch, Corporate Planning Group, Environment Canada, Ottawa, Ontario K1A 1C7, Telephone (819) 997-1853.

Entrée

EC/SPE-83-1-3-12

Titre

GESTION DES DÉCHETS

A cause de la réorganisation, ces attributions législatives et réglementaires pourront figurer dans un nouvel élément.

Description

Cet élément porte sur l'évaluation des diverses techniques de traitement et d'élimination des déchets dangereux, la mise à jour des lignes directrices concernant la gestion des déchets des établissements publics et l'élaboration de lignes directrices concernant l'enfouissement des déchets dangereux. L'immersion de déchets en mer est aussi limitée en quantité et un système de permis est régi par le SPE.

Lois habilitantes: plusieurs attributions indirectes, par ex., de la *Loi sur les ressources en eau du Canada* (lixiviation) et de la *Loi sur les contaminants de l'environnement*.

Dates de l'étape de planification et de l'évaluation du programme

1983-1984 dans les deux cas. Les dates précises ne sont pas encore connues.

Personne-ressource

M. Bruce Waters, Directeur intérimaire, Direction de l'évaluation, Service de planification du Ministère, Environnement Canada, Ottawa (Ontario) K1A 1C7, Téléphone (819) 997-1853.

COMPLETED MATTERS

No entries at this time.

QUESTIONS RÉGLÉES

Aucune entrée à ce moment-ci.

PARKS CANADA

REGULATORY RESPONSIBILITIES OF PARKS CANADA (PC)

The objective of Parks Canada is to protect for all time those places which are significant examples of Canada's natural and cultural heritage and also to encourage public understanding, appreciation and enjoyment of this heritage in ways which leave it unimpaired for future generations.

In meeting this objective, Parks Canada administers the National Parks Act, the Historic Sites and Monuments Act, the National Battlefields Act and Canal Regulations.

PARCS CANADA

RESPONSABILITÉS EN MATIÈRE DE RÉGLEMENTATION DE PARCS CANADA (PC)

Le mandat de Parcs Canada est de protéger constamment les lieux qui constituent des exemples marquants du patrimoine naturel et culturel du Canada et aussi d'inciter le public à comprendre, à estimer ce patrimoine et à en jouir de façon à le transmettre intact aux générations à venir.

A cette fin, Parcs Canada exécute la *Loi sur les parcs nationaux*, la *Loi sur les lieux et monuments historiques*, la *Loi sur les champs de bataille nationaux* et le *Règlement sur les canaux*.

RECEIVED
JUL 7 1983

To K.S. Morton
Copies To A.C. Hall; Cottrell; K. Blower; T. Evans (EPS)
From C.Q. Olesen
Subject Re: STACK TESTS 1981

Date December 14, 1981
Ref.

With fifteen attempts at stack sampling, ten of these were a complete test. The five samples which do not appear are due to equipment failures, power failures and uncontrollable roaster shutdowns. As previously stated in other reports compliance testing for arsenical dusts are to be within 90-110% isokenetic sampling and with a total arsenic emission limit rate of 20 mg/m³ maximum. This was originally gazetted but, then retracted as difficulties resulted from other mines not being able to come within those limits and political reasons.

From the summerized sheets you will note that the March 16th sample was the only sample not within the isokenetic limits and that all samples were below the 20 mg/m³ limit.

C.Q. Olesen

December 30/81
m/w

DATE	March 16/81	May 27/81
TEST #		
Baghouse Inlet Temperature	220 °F	220 °F
Status of Shaking Cycle During Test	0%	15%
Ambient Temperature	16 °F	61 °F
Dry Gas Volume Sampled	2.369 M ³	1.973 M ³
Moisture Content	6.14%	6.89%
Stack Gas Temperature	185 °F	193 °F
Stack Gas Velocity	3.283 M/sec	3.477 M/sec
Stack Gas Volumetric Flowrate	886.8 M ³ /min	907.48 M ³ /min
Total Particulate Weight	7.3 mg	7.7 mg
Total Arsenic Weight	14.58 mg	13.29 mg
As to Filter and Probe	0.41 mg	.29 mg
As to Impingers	14.17 mg	13.00 mg
As Particulate Emission Rate	0.173 mg/M ³	0.147 mg/M ³
As Vapour Emission Rate	5.982 mg/M ³	6.589 mg/M ³
Total As Emission Rate	6.155 mg/M ³	6.736 mg/M ³
Particulate Emission Rate	3.082 mg/M ³	3.303 mg/M ³
% Isokinetic	<u>81.53%</u>	99.43%
Baghouse Particulate Removal Efficiency	99.96%	99.94%
Baghouse Arsenic Removal Efficiency	99.92%	99.89%
Baghouse Pressure During Test (in. H ₂ O)	1.3 - 2.0	1.4-2.0-1.7
Comments		

DATE .	May 28/81	June 24/81
TEST #		
Baghouse Inlet Temperature	220 °F	220 °F
Status of Shaking Cycle During Test	50%	0%
Ambient Temperature	51%	58 °F
Dry Gas Volume Sampled	2.309 M ³	2.638 M ³
Moisture Content	7.46%	6.46%
Stack Gas Temperature	197 °F	197 °F
Stack Gas Velocity	3.367 M/sec	3.946 M/sec
Stack Gas Volumetric Flowrate	874.3 M ³ /min	1022.45 M ³ /min
Total Particulate Weight	6.9 mg	40.3 mg
Total Arsenic Weight	13.66 mg	11.76 mg
As to Filter and Probe	.66 mg	3.00 mg
As to Impingers	13.0 mg	8.76 mg
As Particulate Emission Rate	0.323 mg/M ³	1.118 mg/M ³
As Vapour Emission Rate	6.376 mg/M ³	3.265 mg/M ³
Total As Emission Rate	6.699 mg/M ³	4.383 mg/M ³
Particulate Emission Rate	3.384 mg/M ³	15.28 mg/M ³
% Isokinetic	100.66%	98.37%
Baghouse Particulate Removal Efficiency	99.96%	99.81%
Baghouse Arsenic Removal Efficiency	99.91%	99.91%
Baghouse Pressure During Test (in. H ₂ O)	1.9-2.2-1.2-1.6	1.4-1.8
Comments		

DATE	July 14/81	July 31/81
TEST #		
Baghouse Inlet Temperature	220 °F	225 °F
Status of Shaking Cycle During Test	Info not available	45 %
Ambient Temperature	70 °F	19.2 °C
Dry Gas Volume Sampled	2.010 M ³	2.082 M ³
Moisture Content	6.57%	5.84 %
Stack Gas Temperature	193 °F	185 °F
Stack Gas Velocity	3.992 M/sec.	3.580 M/sec
Stack Gas Volumetric Flowrate	1052.9 M ³ /min	972.5 M ³ /min
Total Particulate Weight	39.9 mg	Ø
Total Arsenic Weight	11.073 mg	12.083 mg
As to Filter and Probe	4.33 mg	Ø
As to Impingers	6.740 mg	Ø
As Particulate Emission Rate	2.156 mg/M ³	Ø
As Vapour Emission Rate	3.353 mg/M ³	Ø
Total As Emission Rate	5.509 mg/M ³	5.804 mg/M ³
Particulate Emission Rate	19.85 mg/M ³	Ø
% Isokinetic	97.05%	97.95 %
Baghouse Particulate Removal Efficiency	99.81%	Ø
Baghouse Arsenic Removal Efficiency	99.92%	99.91 %
Baghouse Pressure During Test (in. H ₂ O)	1.6-1.2-1.9	1.9-2.0-1.2-1.5
Comments		

DATE ,	August 7/81	August 20/81
TEST #		Compliance #1
Baghouse Inlet Temperature	225 °F	225 °F
Status of Shaking Cycle During Test	100 %	28.13 %
Ambient Temperature	25.6 °C	20-23 °C
Dry Gas Volume Sampled	2.600 M ³	2.995 M ³
Moisture Content	6.09 %	7.63 %
Stack Gas Temperature	191 °F	166 °F
Stack Gas Velocity	3.870 M/sec	3.329 M/sec
Stack Gas Volumetric Flowrate	1024.6 M ³ /min	883.5 M ³ /min
Total Particulate Weight	209.2 mg	Ø/
Total Arsenic Weight	47.790 mg	56.573 mg
As to Filter and Probe	47.125 mg	Ø
As to Impingers	0.665 mg	Ø
As Particulate Emission Rate	18.125 mg/M ³	Ø
As Vapour Emission Rate	.256 mg/M ³	Ø
Total As Emission Rate	18.381 mg/M ³	18.890 mg/M ³
Particulate Emission Rate	80.46 mg/M ³	Ø
% Isokinetic	96.75 %	96.93 %
Baghouse Particulate Removal Efficiency	99.28 %	Ø
Baghouse Arsenic Removal Efficiency	99.72 %	99.71 %
Baghouse Pressure During Test (in. H ₂ O)	2.4-2.9-2.4	1.9-2.0-1.0
Comments		1.2-1.4

DATE	August 21/81	August 25/81
TEST #	Compliance #2	Compliance #3
Baghouse Inlet Temperature	225 °F	225 °f
Status of Shaking Cycle During Test	9.7 %	33.3%
Ambient Temperature	20-24 °C	20 °C
Dry Gas Volume Sampled	2.778 M ³	2.777 M ³
Moisture Content	6.92 %	7.77 %
Stack Gas Temperature	175 °F	178 °F
Stack Gas Velocity	3.147 M/sec	3.194 M/sec
Stack Gas Volumetric Flowrate	835.4 M ³ /min	849.7 M ³ /min
Total Particulate Weight	Ø	Ø
Total Arsenic Weight	25.734 mg	39.184 mg
As to Filter and Probe	Ø	Ø
As to Impingers	Ø	Ø
As Particulate Emission Rate	Ø	Ø
As Vapour Emission Rate	Ø	Ø
Total As Emission Rate	9.263 mg/M ³	14.11 mg/M ³
Particulate Emission Rate	Ø	Ø
% Isokinetic	98.14 %	99.46 %
Baghouse Particulate Removal Efficiency	Ø	Ø
Baghouse Arsenic Removal Efficiency	99.84 %	99.81 %
Baghouse Pressure During Test (in. H ₂ O)	1.8-2.0-1.6 1.4-1.6	1.4-1.8 1.9-2.0-1.4
Comments		

To K. Morton ✓

Date August 3/1981

Copies To W.A. Moore, A.C. Hall, R. Kent (EPS), Cottrell, Ref. File

From C. Q. Olesen

Subject Stack sampling test results June 23 & 24, July 14 1981.

The roaster off gas stack was sampled on June 23, June 24, and July 14 with the following results excluding June 23 due to power failure.

Total Arsenic Emission rate	June 24	July 14
	4.383 mg/m ³	5.509 mg/m ³
	(14.47 lb/day)	(18.41 lb/day)
Total Particulate emission rate	15.28 mg/m ³	19.85 mg/m ³
	(49.58 lb/day)	66.34 lb/day
Stack gas volumetric rate	36106 CFM	37184 CFM
	(1022.4 SCM)	(1052.9 SCM)

The baghouse shaker was in operation 0 % of the test period for June 24, and 16.67 % of the sampling period for July 14. Between 74.5 % & 60.9 % of the arsenic collected was found to be in vapor form, Isokenitic sampling conditions of 98.37 % and 97.05 % were respectively achieved for each of the test periods.

DATE	June 2 1981	
TEST #	6-24-81	
Baghouse Inlet Temperature	220	
Status of Shaking Cycle During Test	0%	
Ambient Temperature	58%	
Dry Gas Volume Sampled	93.170	
Moisture Content	6.46%	
Stack Gas Temperature	657 ⁰ R	
Stack Gas Velocity	12.947 ft/s (3.946 M/s)	
Stack Gas Volumetric Flowrate	36106 CFM (1022.45 SCM)	
Total Particulate Weight	40.3 mg.	
Total Arsenic Weight	11.76 mg.	
As to Filter and Probe	3.00 mg.	
As to Impingers	8.76 mg.	
As Particulate Emission Rate	1.118 mg/M ³	
As Vapour Emission Rate	3.265 mg/M ³	
Total As Emission Rate	4.383 mg/M ³ (14.47 lb/day)	
Particulate Emission Rate	15.28 mg/M ³ (49.58 lb/day)	
% Isokinetic	98.37%	
Baghouse Particulate Removal Efficiency	99.81	
Baghouse Arsenic Removal Efficiency.	99.91	
Baghouse Pressure During Test (in. H ₂ O)	1.4-1.8	
Comments		

DATE	7-14-81	
TEST #	July 14/1981	
Baghouse Inlet Temperature	220° F	
Status of Shaking Cycle During Test		
Ambient Temperature	70° F	
Dry Gas Volume Sampled	71.000 ft ³	
Moisture Content	(2.010 M ³	
	6.57%	
Stack Gas Temperature	653° R	
Stack Gas Velocity	13,097 ft/s	
Stack Gas Volumetric Flowrate	(3.992 M/s	
	37184 CFM	
Total Particulate Weight	1052.9 SCM	
Total Arsenic Weight	39.9 mg.	
As to Filter and Probe	11.073 mg.	
As to Impingers	4.333 mg.	
	6.740 mg.	
As Particulate Emission Rate	2.156 mg/M ³	
As Vapour Emission Rate	3.353 mg/M ³	
Total As Emission Rate	5.509 mg/M ³	
	(18.41 lb/day	
Particulate Emission Rate	19.85 mg/M ³	
	66.34 lb/day	
% Isokinetic	97.05%	
Baghouse Particulate Removal Efficiency	99.81%	
Baghouse Arsenic Removal Efficiency	99.92%	
Baghouse Pressure During Test (in. H ₂ O)	1.6-1.2-1.9	
Comments		

To K. Morton

Date

Copies To

Ref.

From C. Q. Olesen

Subject Stack sampling test results--May 27 & 28 1981.

The Giant Stack was sampled on two days in May the 27th. and 28th. with the following results:

	May 27.1981	May 28/1981
Total Arsenic Emissions Rate	6.736 mg/SCM	6.699 mg/SCM
	19.4 lbs/day	16.4 lbs/day
Total Particulate Emission Rate	3.303 mg/SCM	3.384 mg/SCM
	11.2 lb/day	8.3 lbs/day
Stack Gas Volumetric Flowrate	907.5 SCM/min.	874.3 SCM/min.

In both sampling periods the baghouse shaker was in operation 15% of test time for the 27th. and 50% for the 28th. Low particulate emissions indicate that the baghouse is in good condition as 98% and 93% respectively of arsenic is in the vapor form.

Isokenitic sampling in both sample periods was excellent, as shown by the resultant figures 99.43% and 100.66% respectively. Therefore, these test could qualify for compliance tests under E.P.S. guidelines.

C. Q. Olesen

cc. W.A. Moore ✓
A.C. Hall
R. Kent (EPS)
Cottrell
File

DATE: May 27/1981

TEST #

Baghouse Inlet Temperature
Status of Shaking Cycle During Test

220⁰ F

15%

Ambient Temperature
Dry Gas Volume Sampled
Moisture Content

61⁰ F

1.973 SCM

6.89%

Stack Gas Temperature
Stack Gas Velocity
Stack Gas Volumetric Flowrate

193⁰ F

3.477 m/sec.

907.48 SCM/min.

Total Particulate Weight
Total Arsenic Weight
As to Filter and Probe
As to Impingers

7.7 mg.

13.29 mg.

.29 mg.

13.00 mg.

As Particulate Emission Rate
As Vapour Emission Rate
Total As Emission Rate

.147 mg/SCM

6.589 mg/SCM

6.736 mg/SCM

Particulate Emission Rate

(19.4 lb/day)

3.303 mg/SCM

(11.2 lb/day)

% Isokinetic

99.43

Baghouse Particulate Removal Efficiency
Baghouse Arsenic Removal Efficiency

99.94%

99.89%

Baghouse Pressure During Test (in. H₂O)

1.4-2.0-1.7

Comments

DATE : May 28/1981

TEST #

Baghouse Inlet Temperature	220
Status of Shaking Cycle During Test	50%
Ambient Temperature	51 ⁰ F
Dry Gas Volume Sampled	2.309 SCM
Moisture Content	7.46%
Stack Gas Temperature	197 ⁰
Stack Gas Velocity	3.367 m/sec.
Stack Gas Volumetric Flowrate	874.3 SCM/min.
Total Particulate Weight	6.9 mg.
Total Arsenic Weight	13.66 mg.
As to Filter and Probe	.66 mg.
As to Impingers	13.0 mg.
As Particulate Emission Rate	.323 mg/SCM
As Vapour Emission Rate	6.376 mg/SCM
Total As Emission Rate	6.699 mg/SCM
Particulate Emission Rate	(16.4 lb/day) 3.384 mg/SCM (8.3 lb/day)
% Isokinetic	100.66
Baghouse Particulate Removal Efficiency	99.96%
Baghouse Arsenic Removal Efficiency	99.91%
Baghouse Pressure During Test (in. H ₂ O)	1.9-2.2-1.2-1.6
Comments	

May 27, 1981

PERTINENT DATA #1

Liquid in impingers	<u>395</u>	ml final
	<u>300</u>	ml initial
	<u>95</u>	ml net

Silicagel	<u>212</u>	g final
	<u>200</u>	g initial
	<u>12</u>	g net

Total Volume of Excess Water 107 ml
(ml net + g net)

Stack Conditions:

Roaster Conditions:

Cottrell Conditions:

Baghouse Conditions: Inlet Temp: °F
Pressure Drops: 1.4-2.0-1.7 IN H₂O
Shaking Cycle: 15 %

PERTINENT DATA #2

Particulate Loading

Weight of filter	<u>.3845</u>	g final
	<u>.3820</u>	g initial
	<u>.0025</u>	g net
Acetone washings	<u>1.4300</u>	g final
	<u>1.4248</u>	g initial
	<u>.0052</u>	g net
Total Particulate Weight	<u>7.7</u>	mg

Arsenic Loading
Particulate

Total particulate weight	<u>7.7</u>	mg
Diluted volume	<u></u>	ml
SDDC concentration	<u></u>	ppm
Total As in particulate	<u>.290</u>	mg

Vapour

Total excess water diluted volume	<u></u>	ml
SDDC concentration	<u></u>	ppm
Total As in vapour	<u>13</u>	mg

CALCULATIONS FOR STACK TEST

Dry Gas Volume

$$V = 17.95 \left(\frac{V_m}{T_m} \right) \left(P_{bar} + \frac{\Delta H}{13.6} \right)$$

$$V_{in} M^3 = V \times .028316$$

$$\begin{aligned} V_m &= 71.045 \text{ ft}^3 \\ T_m &= 539 \text{ } ^\circ R \\ P_{bar}^2 &= 29.32 \text{ IN Hg} \\ \Delta H &= 1.70 \text{ IN H}_2\text{O} \\ V &= 69.687 \text{ ft}^3 \\ V &= 1.973 \text{ M}^3 \end{aligned}$$

Volume of Water Vapour

$$V_w (\text{ft}^3) = (.0480) V_{ic}$$

$$V_w (M^3) = (.00136) V_{ic}$$

$$\begin{aligned} V_{ic} &= 1.07 \text{ ml} \\ V_w &= 5.136 \text{ ft}^3 \\ V_w &= .146 \text{ M}^3 \end{aligned}$$

Moisture Content

$$B_{w0} = \frac{V_w}{V + V_w}$$

$$\begin{aligned} V_w &= 69.687 \text{ ft}^3 \\ V &= 5.136 \text{ ft}^3 \\ B_{w0} &= .0689 \end{aligned}$$

Stack Gas Velocity

$$U_{s \text{ ft/s}} = K_p C_p (\Delta P)^{\frac{1}{2}} \left(\frac{T_s}{P_s M_s} \right)^{\frac{1}{2}}$$

$$(\Delta P)^{\frac{1}{2}} \left(\frac{T_s}{P_s} \right)^{\frac{1}{2}}$$

$$U_s \text{ IN Meters} = U_{s \text{ ft/s}} \times .3048$$

$$\begin{aligned} \Delta P &= .033 \\ K_p &= 85.33 \text{ ft/s} \\ C_p &= .833 \\ M_s &= 28.53 \\ P_s &= 29.32 \text{ IN Hg} \\ T_s &= 653 \text{ } ^\circ R \\ U_s &= 11.408 \text{ ft/s} \\ U_s &= 11.408 \text{ M/S} \end{aligned}$$

Volumetric Flow Rate

$$Q_s = U_s (A_{vg}) (60) A_s (1 - B_{w0}) \left(\frac{T_{ref}}{T_s (avg)} \right) \left(\frac{P_s}{P_{ref}} \right)$$

$$Q_s (\text{ft}^3/\text{min}) = 67196.791 (U_s (avg)) (1 - B_{w0}) \left(\frac{P_s}{T_s (avg)} \right)$$

$$Q_s (\text{ft}^3/\text{min}) =$$

$$Q_s (M^3/\text{min}) = Q_s (\text{ft}^3/\text{min}) \times .028316$$

$$\begin{aligned} A_s &= 62.4 \text{ ft}^2 \\ T_{ref} &= 537 \text{ } ^\circ R \\ P_{ref} &= 29.92 \text{ IN Hg} \\ U_s &= 11.408 \text{ ft/s} \\ B_{w0} &= .0689 \\ T_s (avg) &= 653 \text{ } ^\circ R \\ P_s &= 29.32 \text{ IN Hg} \\ Q_s &= 32048 \text{ ft}^3/\text{min} \\ Q_s &= 907.48 \text{ M}^3/\text{min} \end{aligned}$$

Total Particulate Rate

$$C_p = \frac{Mn}{1000} \left(\frac{1}{V} \right)$$

$$C_p = \frac{Mn}{V}$$

$$\begin{aligned} Mn &= 7.7 \\ V &= 69.687 \\ C_p &= .0001105 \end{aligned} \quad \begin{aligned} & \\ & \\ & \end{aligned} \quad \begin{aligned} & \text{mg} \\ & \text{ft}^3 \\ & \text{gr/scf} \end{aligned}$$

$$\begin{aligned} Mn &= 7.7 \\ V &= 1.973 \\ C_p &= 3.027 \end{aligned} \quad \begin{aligned} & \\ & \\ & \end{aligned} \quad \begin{aligned} & \text{mg} \\ & \text{M}^3 \\ & \text{mg/m}^3 \end{aligned}$$

Total As Rate

$$C_{as} = \frac{MASV + MASP}{1000} \left(\frac{1}{V} \right)$$

$$\begin{aligned} MASV &= 13 \\ MASP &= .29 \\ V &= 69.687 \\ C_{as} &= .000191 \end{aligned} \quad \begin{aligned} & \\ & \\ & \\ & \end{aligned} \quad \begin{aligned} & \text{mg} \\ & \text{mg} \\ & \text{ft}^3 \\ & \text{gr/scf} \end{aligned}$$

$$C_{as} = \frac{MASV + MASP}{V}$$

$$\begin{aligned} MASV &= 13 \\ MASP &= .29 \\ V &= 1.973 \\ C_{as} &= 6.736 \end{aligned} \quad \begin{aligned} & \\ & \\ & \\ & \end{aligned} \quad \begin{aligned} & \text{mg} \\ & \text{mg} \\ & \text{M}^3 \\ & \text{mg/m}^3 \end{aligned}$$

Percent Isokinetic

$$I = \frac{1.667 \left[(.00267) V_{ic} + \frac{V_m}{T_m} \left(P_{bar} + \frac{A_H}{13.6} \right) \right] T_s}{\theta U_s P_s A_n}$$

$$\begin{aligned} A_n &= .001364 & \text{ft}^2 \\ V_{ic} &= 107 & \text{ml} \\ V_m &= 71.054 & \text{ft}^3 \\ T_m &= 539 & \text{R}^\circ \\ P_{bar} &= 29.32 & \text{IN Hg} \\ A_H &= 1.70 & \text{IN H}_2\text{O} \\ T_s &= 653 & \text{R}^\circ \\ \theta &= 100 & \text{MINS} \\ P_s &= 29.32 & \text{IN Hg} \\ U_s &= 11.408 & \text{fps} \\ \%7 &= 99.43 & \end{aligned}$$

Emission Rate

$$\begin{aligned} G &= C (0.002205) Q_s (60) 24 \\ &= C (Q_s) 3.175 \end{aligned}$$

$$\begin{aligned} G &= & \text{lb/day} \\ C &= & \text{g/scf} \\ Q_s &= & \text{ft}^3/\text{min} \\ 0.002205 &= .g \text{ to lb} \\ 60 &= \text{min/hr} \\ 24 &= \text{hr/day} \end{aligned}$$

SYMBOLS

V	=	Dry Gas Volume (Std. Conditions)
V _m	=	Gas Volume (Meter Conditions)
T _m	=	Gas Temperature
V _{ic}	=	Excess Water in Impingers & Gel
V _w	=	Volume of Excess Water
B _w	=	Moisture Content
A _P	=	Average Velocity head of Stack Gas
P _s	=	Average Stack Gas Pressure
T _s	=	Average Stack Gas Temperature
M _s	=	Molecular Weight of Stack Gas
V _s	=	Stack Gas Velocity
A _s	=	Cross-sectional area of Stack
Q _s	=	Volumetric Flowrate
M _n	=	Amount of Particulate or Arsenic
C _p	=	Concentration of Particulate
C _{asp}	=	Concentration of Arsenic in Particulate
C _{asv}	=	Concentration of Arsenic in Vapour
M _{asp}	=	Weight of Arsenic in Particulate
M _{asv}	=	Weight of Arsenic in Vapour
A _n	=	Cross-sectional area of Nozzle
θ	=	Sampling Time
I	=	Percent Isokinetic
G	=	Emission Rate

Plant Giant ..
 Run Number _____
 Location Stack
 Date May 27, 1981
 Operator Robinson, Olesen
 Sample Case No. _____
 Monitor Unit No. _____

Very Important - Fill in Blanks
 Read and record at the start of
 each test point.

Ambient temperature, °F 60.8
 Barometric pressure, in. Hg 29.32
 Assumed moisture % _____
 Heater box setting, °F _____
 Pitobe tip dia. in. _____
 Pitobe length, ft. _____
 Pitobe heater setting _____

Point	Clock Time	Dry Gas Meter ft ³	Pitot, in. H ₂ O P	Orifice H, in. H ₂ O		Dry gas temperature °F		Pump Vacuum in. Hg Gauge	Sample Case Temp- erature °F	Impinger Temp- erature °F	Stack Pressure in. Hg	Stack Temp- erature °F
				Desired	Actual							
3	11.16	171.001	.015	.80	.80	65°		3.8	75	40	29.32	155
4	11.21	173.04	.016	.835	.83	65°		3.8	130	40		170
5	.26	175.600	.022	1.12	1.12	70°		4.2	170	40		185
6	.31	178.495	.027	1.36	1.36	70°		4.6	190	40		195
7	.36	181.690	.030	1.50	1.50	70°		5.0	206	42		200
8	.41	184.70	.035	1.76	1.76	75°		5.7	215	45		200
9	.46	188.74	.033	1.66	1.66	75°		5.2	220	45		200
10	.51	191.50	.045	2.29	2.30	80°		6.0	225	45		200
11	11.56	196.42	.040	2.03	2.05	80°		6.0	222	47		200
12	12.01	200.330	.040	2.03	2.05	80°		6.0	220	48		200
12	12.06	204.30	.040	2.03	2.05	80°		6.0	225	50		200
11	.11	208.318	.042	2.13	2.13	80°		6.2	220	50		200
10	.16	212.175	.042	2.16	2.15	85°		6.2	225	52		200
9	.21	216.20	.040	2.01	2.00	85°		6.0	235	54		200

Comments:

Figure 36. Suggested Particulate Field Data Form

Plant Giant .
 Run Number _____
 Location Stack
 Date May 27.1981
 Operator Robinson,Olesen
 Sample Case No. _____
 Monitor Unit No. _____

Very Important - Fill in Blanks
 Read and record at the start of
 each test point.

Ambient temperature, °F 60.8
 Barometric pressure, in. Hg 29.32
 Assumed moisture % _____
 Heater box setting, °F _____
 Pitobe tip dia. in. _____
 Pitobe length, ft. _____
 Pitobe heater setting _____

Point	Clock Time	Dry Gas Meter ft ³	Pitot, in. H ₂ O P	Orifice H, in. H ₂ O		Dry gas temperature OF		Pump Vacuum in. Hg Gauge	Sample Case Temp- erature OF	Impinger Temp- erature OF	Stack Pressure in. Hg	Stack Temp- erature OF
				Desired	Actual							
8	12.26	220.20	.035	1.80	1.80	85°		5.8	220	53		200
7	12.31	223.925	.037	1.90	1.90	85°		6.0	225	55		200
6	12.36	227.765	.035	1.80	1.80	85°		5.8	222	56		200
5	12.41	231.550	.034	1.75	1.75	85°		5.6	220	58		200
4	12.46	235.245	.028	1.47	1.47	85°		5.0	215	62		185
3	12.51	238.650	.027	1.47	1.47	87°		5.0	212	62		165
	12.56	242.055										

Comments:

Figure 36. Suggested Particulate Field Data Form

% Isokeniticity at each sample point May 27/1981

VM	Ts	P bar + ΔH	Us	Tm	
2.039	615	29.39	7.464	525	83.88
2.560	630	29.38	7.802	525	82.21
2.895	645	29.40	9.257	530	99.84
3.195	655	29.42	10.335	530	99.71
1.380	660	29.43	10.935	530	41.27
5.050	660	29.45	11.811	535	138.59
2.760	660	29.44	11.469	535	77.99
4.920	660	29.49	13.393	540	118.14
3.910	660	29.47	12.627	540	99.52
3.970	660	29.47	12.627	540	101.05
4.018	660	29.47	12.627	540	102.27
3.857	660	29.48	12.939	540	95.83
4.025	660	29.48	12.939	545	123.09
4.000	660	29.47	12.627	545	100.86
3.725	660	29.45	11.811	545	100.37
3.840	660	29.46	12.144	545	100.65
3.785	660	29.45	11.811	545	101.98
3.695	660	29.45	11.641	545	100.99
3.405	645	29.45	10.444	545	101.32
3.405	625	29.43	10.095	547	101.19

May 28, 1981

PERTINENT DATA #1

Liquid in impingers	<u>412</u>	ml final
	<u>300</u>	ml initial
	<u>112</u>	ml net

Silicagel	<u>224.5</u>	g final
	<u>200</u>	g initial
	<u>24.5</u>	g net

Total Volume of Excess Water 137 ml
(ml net + g net)

Stack Conditions: good, sunny but cool 51° F.
Pbar - 29.51

Roaster Conditions: good

Cottrell Conditions: good

Baghouse Conditions: Inlet Temp: 225 °F
Pressure Drops: 1.9-2.2- IN H₂O
1.2-1.6
Shaking Cycle: 50 % of time
complete cycle

PERTINENT DATA #2

Particulate Loading

Weight of filter	<u>.3850</u>	g final
	<u>.3839</u>	g initial
	<u>.0011</u>	g net
Acetone washings	<u>1.4326</u>	g final
	<u>1.4268</u>	g initial
	<u>.0058</u>	g net
Total Particulate Weight	<u>6.9</u>	mg

Arsenic Loading

Particulate

Total particulate weight	<u>6.9</u>	mg
Diluted volume	<u></u>	ml
SDDC concentration	<u></u>	ppm
Total As in particulate	<u>.660</u>	mg

Vapour

Total excess water diluted volume	<u></u>	ml
SDDC concentration	<u></u>	ppm
Total As in vapour	<u>13.0</u>	mg

CALCULATIONS FOR STACK TEST

Dry Gas Volume

$$V = 17.95 \left(\frac{V_m}{T_m} \right) \left(P_{bar} + \frac{\Delta H}{13.6} \right)$$

$$\frac{(17.95) (81.73) (29.62)}{533}$$

$$V_{in} M^3 = V \times .028316$$

Volume of Water Vapour

$$V_w (ft^3) = (.0480) V_{ic}$$

$$V_w (M^3) = (.00136) V_{ic}$$

Moisture Content

$$B_{w_o} = \frac{V_w}{V + V_w}$$

Stack Gas Velocity

$$U_{s_{ft/s}} = K_p C_p (AP)^{\frac{1}{2}} \left(\frac{T_s}{P_s M_s} \right)^{\frac{1}{2}}$$

$$U_s \text{ IN Meters} = U_{s_{ft/s}} \times .3048$$

Volumetric Flow Rate

$$Q_s = U_s (Avg) (60) A_s (1 - B_{w_o}) \left(\frac{T_{ref}}{T_s (avg)} \right) \left(\frac{P_s}{P_{ref}} \right)$$

$$Q_s (ft^3/min) = 67196.791 (U_s (avg)) (1 - B_{w_o}) \left(\frac{P_s}{T_s (avg)} \right)$$

$$Q_s (ft^3/min) = 30877$$

$$Q_s (M^3/min) = Q_s (ft^3/min) \times .028316 \quad 874.3$$

$$\begin{aligned} V_m &= 81.73 \text{ ft}^3 \\ T_m &= 533 \text{ } ^\circ R \\ P_{bar}^2 &= 29.51 \text{ IN Hg} \\ \Delta H &= 1.55 \text{ IN H}_2\text{O} \\ V &= 81.527 \text{ ft}^3 \\ V &= 2.309 \text{ M}^3 \end{aligned}$$

$$\begin{aligned} V_{ic} &= 137 \text{ ml} \\ V_w &= 6.576 \text{ ft}^3 \\ V_w &= .186 \text{ M}^3 \end{aligned}$$

$$\begin{aligned} V_w &= 6.576 \text{ ft}^3 \\ V &= 81.527 \text{ ft}^3 \\ B_{w_o} &= .0746 \end{aligned}$$

$$\begin{aligned} \Delta P &= .031 \\ K_p &= 85.33 \text{ ft/s} \\ C_p &= .833 \\ M_s &= 28.53 \\ P_s &= 29.51 \text{ IN Hg} \\ T_s &= 657 \text{ } ^\circ R \\ U_s &= 11.055 \text{ ft/s} \\ &= 3.367 \text{ M/S} \end{aligned}$$

$$\begin{aligned} A_s &= 62.4 \text{ ft}^2 \\ T_{ref} &= 537 \text{ } ^\circ R \\ P_{(ref)} &= 29.92 \text{ IN Hg} \\ U_s &= 11.055 \text{ ft/s} \\ B_{w_o} &= .0746 \\ T_s (avg) &= 657 \text{ } ^\circ R \\ P_s &= 29.51 \text{ IN Hg} \\ Q_s &= 30877 \text{ ft}^3/min \\ Q_s &= 874.3 \text{ M}^3/min \end{aligned}$$

Total Particulate Rate

$$C_p = \frac{Mn}{1000} \left(\frac{1}{V} \right)$$

$$C_p = \frac{Mn}{V}$$

$$\begin{aligned} Mn &= 6.9 \text{ mg} \\ V &= 81.527 \text{ ft}^3 \\ C_p &= .0000846 \text{ gr/scf} \end{aligned}$$

$$\begin{aligned} Mn &= 6.9 \text{ mg} \\ V &= 2.039 \text{ M}^3 \\ C_p &= 3.384 \text{ mg/m}^3 \end{aligned}$$

Total As Rate

$$Cas = \frac{MASV + MASP}{1000} \left(\frac{1}{V} \right)$$

$$\begin{aligned} MASV &= 13.0 \text{ mg} \\ MASP &= .66 \text{ mg} \\ V &= 81.527 \text{ ft}^3 \\ Cas &= .0001676 \text{ gr/scf} \end{aligned}$$

$$Cas = \frac{MASV + MASP}{V}$$

$$\begin{aligned} MASV &= 13.0 \text{ mg} \\ MASP &= .66 \text{ mg} \\ V &= 2.039 \text{ M}^3 \\ Cas &= 6.699 \text{ mg/m}^3 \end{aligned}$$

Percent Isokinetic

$$I = \frac{1.667 \left[(.00267) Vic + \frac{Vm}{Tm} (Pbar + \frac{AH}{13.6}) \right] Ts}{\theta Us Ps An}$$

$$\begin{aligned} An &= .001364 \text{ ft}^2 \\ Vic &= 137 \text{ ml} \\ Vm &= 81.73 \text{ ft}^3 \\ Tm &= 533 \text{ R}^\circ \\ Pbar &= 29.51 \text{ IN Hg} \\ AH &= 1.55 \text{ IN H}_2\text{O} \\ Ts &= 657 \text{ R}^\circ \\ \theta &= 120 \text{ MINS} \\ Ps &= 29.51 \text{ IN Hg} \\ Us &= 11.055 \text{ fps} \\ \%7 &= 100.66 \end{aligned}$$

Emission Rate

$$\begin{aligned} G &= C (0.002205) Qs (60) 24 \\ &= C (Qs) 3.175 \end{aligned}$$

$$\begin{aligned} G &= \text{lb/day} \\ C &= \text{g/scf} \\ Qs &= \text{ft}^3/\text{mi} \\ 0.002205 &= \text{g to lb} \\ 60 &= \text{min/hr} \\ 24 &= \text{hr/day} \end{aligned}$$

SYMBOLS

V	=	Dry Gas Volume (Std. Conditions)
V _m	=	Gas Volume (Meter Conditions)
T _m	=	Gas Temperature
V _{ic}	=	Excess Water in Impingers & Gel
V _w	=	Volume of Excess Water
B _w	=	Moisture Content
AP	=	Average Velocity head of Stack Gas
P _s	=	Average Stack Gas Pressure
T _s	=	Average Stack Gas Temperature
M _s	=	Molecular Weight of Stack Gas
V _s	=	Stack Gas Velocity
A _s	=	Cross-sectional area of Stack
Q _s	=	Volumetric Flowrate
M _n	=	Amount of Particulate or Arsenic
C _p	=	Concentration of Particulate
C _{asp}	=	Concentration of Arsenic in Particulate
C _{asv}	=	Concentration of Arsenic in Vapour
M _{asp}	=	Weight of Arsenic in Particulate
M _{asv}	=	Weight of Arsenic in Vapour
A _n	=	Cross-sectional area of Nozzle
θ	=	Sampling Time
I	=	Percent Isokinetic
G	=	Emission Rate

Plant Giant

Run Number 90⁰

Location Stack

Date May 28/1981

Operator Robinson, Olesen, Evans

Sample Case No.

Monitor Unit No.

Time: 12:00

Very Important - Fill in Blanks

Read and record at the start of
each test point.

Ambient temperature, °F 51⁰

Barometric pressure, in. Hg 29.51

Assumed moisture % 6.5

Heater box setting, °F Nil

Pitobe tip dia. in. .5

Pitobe length, ft. 10 ft.

Pitobe heater setting High

Point	Clock Time	Dry Gas Meter ft ³	Pitot, in. H ₂ O P	Orifice H, in. H ₂ O		Dry gas temperature of		Pump Vacuum in. Hg Gauge	Sample Case Temp- erature of	Impinger Temp- erature of	Stack Pressure in. Hg	Stack Temp- erature of
				Desired	Actual							
3	0	294.233	.018	.900	.900	70 ⁰		4.2	130	40 ⁰	29.51	200
4	3	295.810	.022	1.090	1.090	70 ⁰		4.5	130	40 ⁰		200
5	6	297.530	.024	1.200	1.200	70 ⁰		4.8	150	40 ⁰		200
6	9	299.325	.030	1.500	1.500	70 ⁰		5.5	155	40 ⁰		200
7	12	301.330	.030	1.500	1.500	70 ⁰		5.5	170	40 ⁰		200
8	15	303.348	.030	1.500	1.500	70 ⁰		5.3	200	40 ⁰		200
9	18	305.460	.032	1.600	1.600	70 ⁰		5.8	230	42 ⁰		200
10	21	307.400	.032	1.600	1.600	70 ⁰		5.8	235	44 ⁰		200
11	24	309.480	.035	1.740	1.740	70 ⁰		6.2	215	45 ⁰		200
12	27	311.660	.032	1.610	1.610	75 ⁰		5.8	215	45 ⁰		200
12	30	313.730	.032	1.610	1.610	75 ⁰		5.8	235	45 ⁰		200
11	33	315.880	.032	1.610	1.610	75 ⁰		5.8	240	45 ⁰		200
10	36	317.890	.032	1.610	1.610	75 ⁰		5.8	230	45 ⁰		200
9	39	319.800	.032	1.610	1.610	75 ⁰		5.8	225	45 ⁰		200

Comments:

Figure 36. Suggested Particulate Field Data Form

Plant GiantRun Number 90⁰Location StackDate May 28/1981Operator Robinson, Olesen, EvansSample Case No. Monitor Unit No. Time: 12:00Very Important - Fill in BlanksRead and record at the start of
each test point.Ambient temperature, °F 51⁰Barometric pressure, in. Hg 29.51Assumed moisture % 6.5Heater box setting, °F NilPitobe tip dia. in. .5Pitobe length, ft. 10 ft.Pitobe heater setting High

Point	Clock Time	Dry Gas Meter ft ³	Pitot, in. H ₂ O P	Orifice H, in. H ₂ O		Dry gas temperature °F		Pump Vacuum in. Hg Gauge	Sample Case Temp- erature °F	Impinger Temp- erature °F	Stack Pressure in. Hg	Stack Temp- erature °F
				Desired	Actual							
8	42	322.070	.032	1.610	1.610	75 ⁰		5.8	225	45 ⁰		200
7	45	324.160	.032	1.610	1.610	75 ⁰		5.8	225	44 ⁰		200
6	48	326.265	.032	1.610	1.610	75 ⁰		5.6	245	45 ⁰		200
5	51	328.380	.030	1.510	1.510	75 ⁰		5.5	250	45 ⁰		200
4	54	330.390	.030	1.510	1.510	75 ⁰		5.5	235	45 ⁰		200
3	57	332.425	.026	1.310	1.310	75 ⁰		5.2	215	44 ⁰		200
	60	334.327										

Comments:

Figure 36. Suggested Particulate Field Data Form

Plant Giant

Run Number 180°

Very Important - Fill in Blanks

Location Stack

Read and record at the start of

Date May 28/1981

each test point.

Operator Robinson, Olesen, Evans

Sample Case No. _____

Monitor Unit No. _____

Time: 10:45-11:45

Ambient temperature, °F 51°

Barometric pressure, in. Hg 29.51

Assumed moisture % 6.5

Heater box setting, °F Nil

Pitobe tip dia. in. .5

Pitobe length, ft. 10 FT.

Pitobe heater setting High

Point	Clock Time	Dry Gas Meter ft ³	Pitot, in. H ₂ O P	Orifice H, in. H ₂ O		Dry gas temperature OF		Pump Vacuum in. Hg Gauge	Sample Case Temp- erature OF	Impinger Temp- erature, OF	Stack Pressure, in. Hg	Stack Temp- erature OF
				Desired	Actual							
3	0	252.264	.014	.750	.750	60°		4:0	160	38°	29.51	145
4	3	253.680	.017	.880	.880	60°		4:0	200	40°		165
5	6	255.220	.022	1.080	1.080	60°		4.5	225	40°		200
6	9	256.900	.025	1.240	1.240	65°		4.9	230	40°		200
7	12	258.705	.028	1.380	1.380	65°		5.2	235	45°		200
8	15	260.625	.032	1.590	1.590	70°		5.6	230	45°		200
9	18	262.670	.038	1.890	1.890	70°		6.2	225	45°		200
10	21	264.910	.040	1.990	1.990	70°		6.4	235	47°		200
11	24	267.300	.035	1.760	1.760	75°		6.0	235	45°		200
12	27	269.470	.035	1.760	1.760	75°		6.0	235	45°		200
12	30	271.570	.035	1.760	1.760	75°		6.0	235	50°		200
11	33	273.765	.040	2.010	2.010	75°		7.0	235	50°		200
10	36	276.130	.045	2.270	2.270	75°		7.5	230	50°		200
9	39	278.535	.040	2.030	2.030	80°		7.0	230	55°		200

Comments:

Figure 36. Suggested Particulate Field Data Form

Plant Giant

Run Number 180⁰

Location Stack

Date May28/1981

Operator Robinson, Olesen, Evans

Sample Case No.

Monitor Unit No.

Time: 10:45-11:45

Very Important - Fill in Blanks

Read and record at the start of
each test point.

Ambient temperature, ⁰F 51⁰

Barometric pressure, in. Hg 29.51

Assumed moisture % 6.5

Heater box setting, ⁰F Nil

Pitobe tip dia. in. .5

Pitobe length, ft. 10 ft.

Pitobe heater setting High

Point	Clock Time	Dry Gas Meter ft ³	Pitot, in. H ₂ O P	Orifice H, in. H ₂ O		Dry gas temperature OF		Pump Vacuum in. Hg Gauge	Sample Case Temp- erature OF	Impinger Temp- erature, OF	Stack Pressure in. Hg	Stack Temp- erature OF
				Desired	Actual							
8	42	280.935	.037	1.880	1.880	80 ⁰		6.5	230	50 ⁰		200
7	45	283.220	.035	1.780	1.780	80 ⁰		6.5	230	50 ⁰		200
6	48	285.425	.035	1.780	1.780	80 ⁰		6.0	230	50 ⁰		200
5	51	287.640	.035	1.780	1.780	80 ⁰		6.0	220	50 ⁰		200
4	54	289.860	.025	1.270	1.270	80 ⁰		6.0	225	50 ⁰		200
3	57	292.050	.025	1.320	1.320	80 ⁰		5.0	227	50 ⁰		175
	60	293.900										

Comments:

Figure 36. Suggested Particulate Field Data Form

Isokenitcity at each sample point *בנקות/51*

VM	Ts	P bar $\Delta H/13.6$	Us	Tm	
1.4160	605	29.5651	7.129	520	101.07
1.5400	625	29.5747	7.985	520	102.07
1.6800	660	29.5894	9.3345	520	100.64
1.8050	660	29.6012	9.9506	525	100.51
1.9200	660	29.6115	10.5307	525	101.06
2.0450	660	29.6269	11.2580	530	99.78
2.2400	660	29.6490	12.2680	530	100.37
2.3900	660	29.6563	12.5867	530	104.41
2.1700	660	29.6394	11.7737	535	100.34
2.1000	660	29.6394	11.7737	535	97.11
2.1950	660	29.6394	11.7737	535	101.50
2.3650	660	29.6578	12.5867	535	102.36
2.4050	660	29.6769	13.3503	535	98.20
2.4000	660	29.6593	12.5867	540	102.92
2.2850	660	29.6482	12.1056	540	101.85
2.2050	660	29.6409	11.7737	540	101.02
2.2150	660	29.6409	11.7737	540	101.48
2.2200	660	29.6409	11.7737	540	101.71
2.1900	660	29.6034	9.9506	540	118.57
1.8500	635	29.6071	9.7603	540	98.26
90					
1.577	660	29.58	8.443	530	102.45
1.720	660	29.59	9.3341	530	101.10
1.795	660	29.60	9.7491	530	101.05
2.005	660	29.62	10.8999	530	101.03
2.018	660	29.62	10.8999	530	101.68
2.112	660	29.62	10.8999	530	106.42
1.94	660	29.63	11.2575	530	94.68
2.08	660	29.63	11.2575	530	97.61
2.18	660	29.64	11.7732	530	101.77
2.07	660	29.63	11.2575	535	100.09
2.15	660	29.63	11.2575	535	103.95
2.01	660	29.63	11.2575	535	97.18
2.27	660	29.63	11.2575	535	109.76
2.09	660	29.63	11.2575	535	101.05
2.105	660	29.63	11.2575	535	101.78
2.115	660	29.63	11.2575	535	102.26
2.01	660	29.62	10.8999	535	100.34
2.035	660	29.62	10.8999	535	101.59
1.902	660	29.61	10.1474	535	101.95

To K.S. Morton

Date June 18, 1981

Copies To L.J. Connell, A.C. Hall, W.A. Moore

Ref.

From B. Cross

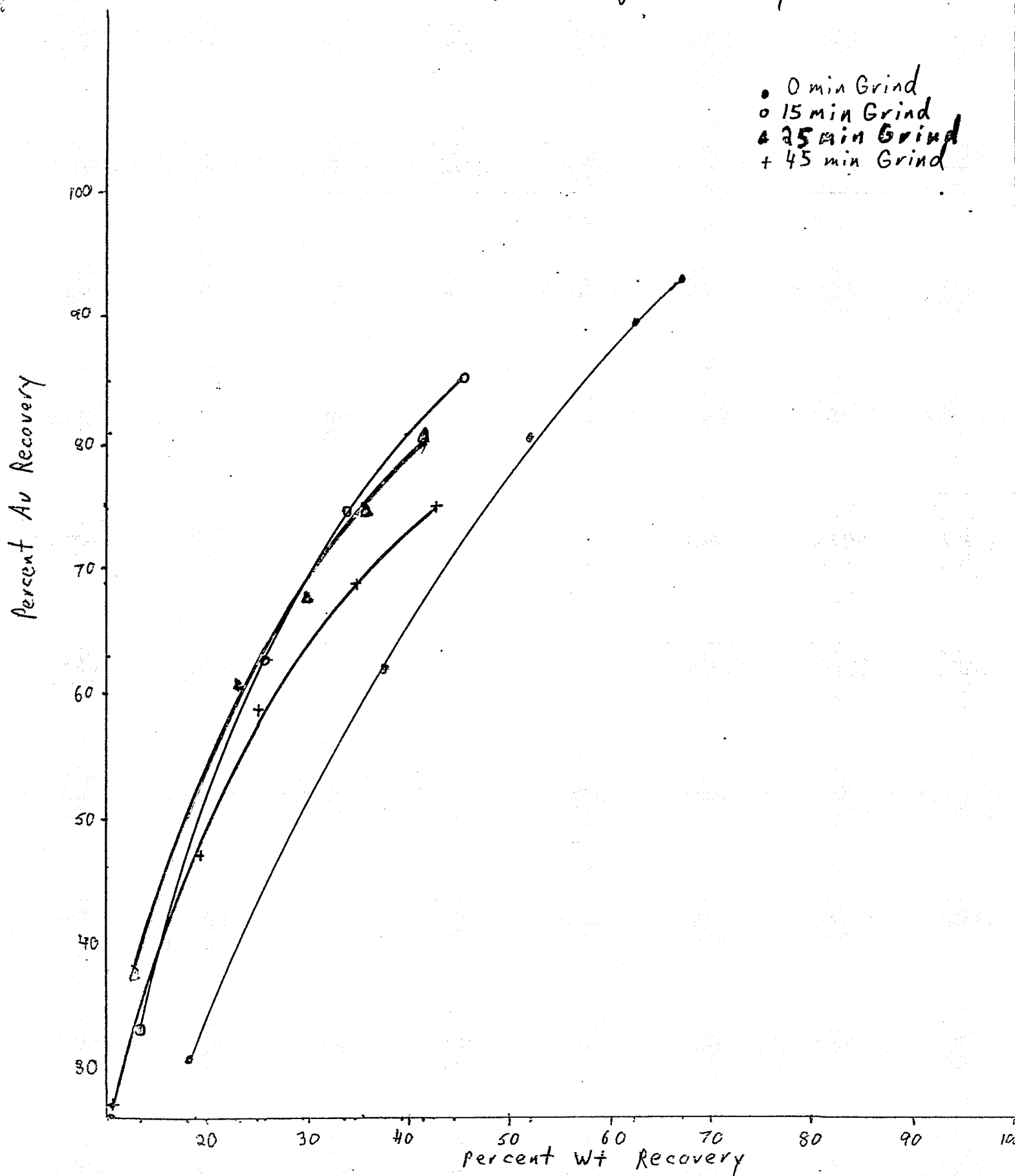
Subject Preliminary Concentrate Cleaning tests evaluating regrinding

Samples of mill produced flotation concentrate were used in a series of four cleaning tests. Regrinding prior to the cleaning flotation ^{was evaluated with respective grind times} of 0, 15, 25 and 45 minutes. Grade recovery and weight vs. recovery graphs are attached. A short grind appears beneficial to cleaning. Total gold recovery was disappointing but likely can be cured with higher reagent dosage. Reagents used in this test were 0.10 lb/ton (of concentrate) CuSO_4 and 0.2 lb/ton Xanthate.

BC:wt

Tests 81-34 to 81-37

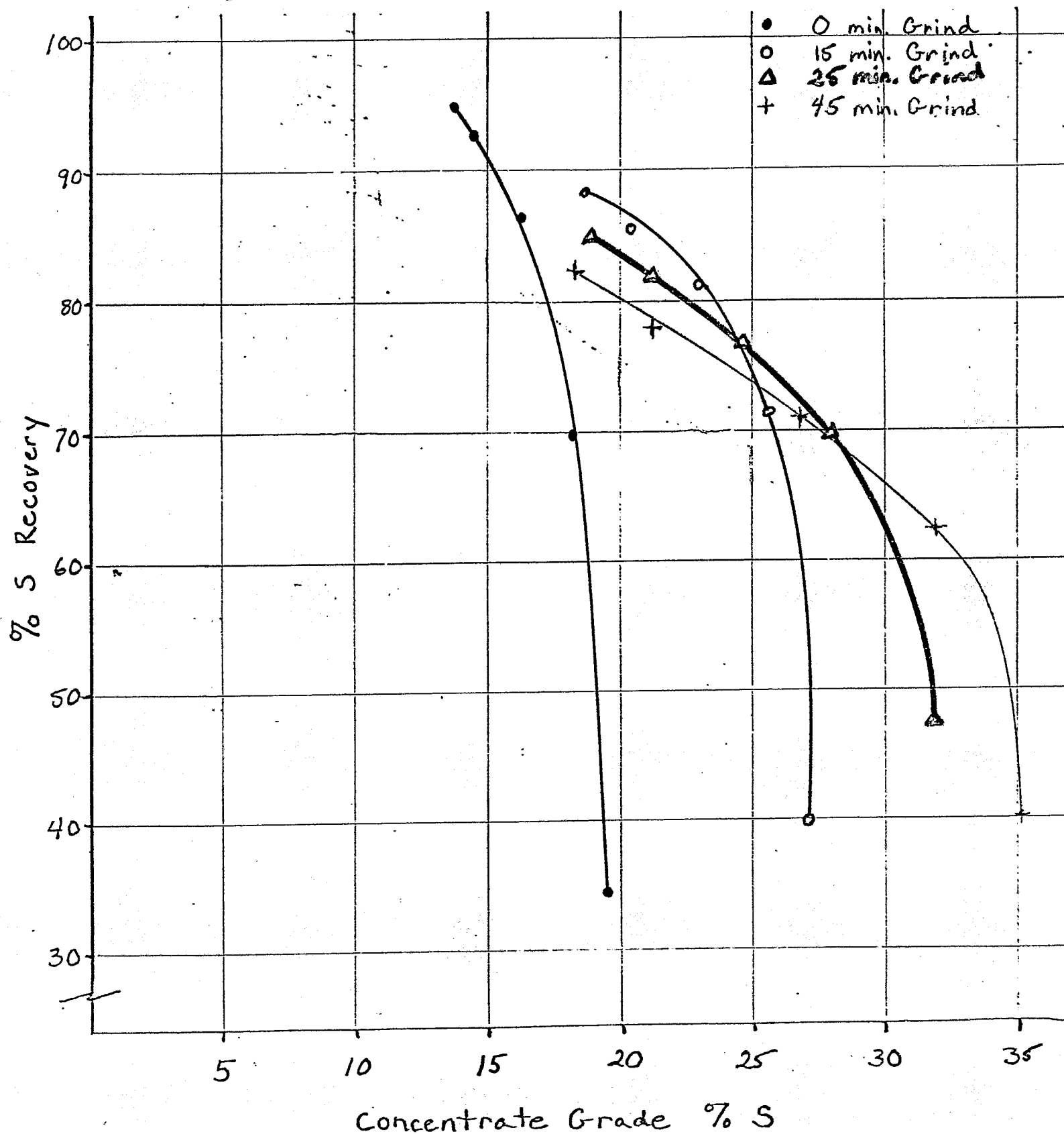
Concentrate Cleaning Av Recovery vs Weight Recovery



TESTS 81-34 to 81-37

CONCENTRATE CLEANING

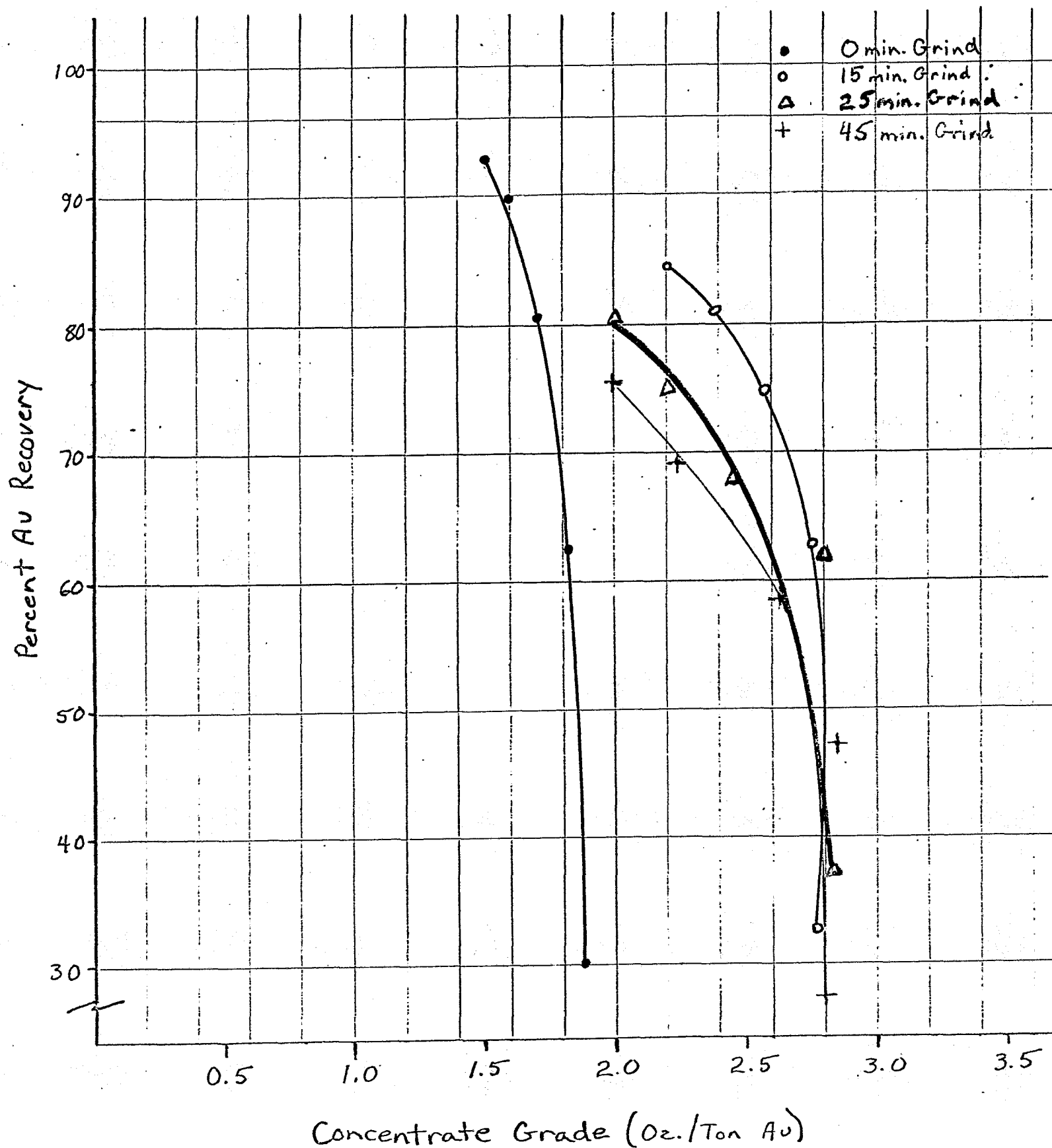
GRIND TIMES EFFECT ON S GRADE-RECOVERY CURVE



TESTS 81-34 to 81-37

CONCENTRATE

CLEANING GRIND TIME EFFECT ON A_v GRADE-RECOVERY CURVE



Test 81-36

Flotation Test work -Concentrate Cleaning

Flotation Product	Flotation Time	Cumulative Wt%	Cumulative Concentrate Grade			Cumulative % Recovery		
			Au oz/ton	S Wt%	As Wt%	Au	S	As
Conc. #1	.5	14.00	2.84	31.84	3.45	37.70	47.56	25.12
Conc. #2	1.5	23.28	2.78	28.09	3.81	61.37	69.76	46.18
Conc. #3	3.5	29.22	2.45	24.64	3.86	67.96	76.80	58.71
Conc. #4	8.5	35.92	2.21	21.37	3.55	75.32	81.90	66.30
Conc. #5	13.5	41.86	2.02	19.08	3.34	80.16	85.18	72.79
Final Tailings		58.14	.36	2.39	.90			
Calc. Head		100.00	1.05	9.37	1.92			
Assayed Head			1.08	9.93	5.93			

Test 81-37

Conc. #1	.5	10.71	2.80	35.21	7.74	26.65	40.13	24.63
Conc. #2	1.5	18.50	2.87	31.72	7.58	47.21	62.42	41.66
Conc. #3	3.5	24.99	2.64	26.72	7.54	58.63	71.03	55.99
Conc. #4	8.5	34.41	2.26	21.32	6.51	69.00	78.03	66.50
Conc. #5	13.5	42.53	2.00	18.21	5.58	75.49	82.39	70.48
Final Tailings		57.47	.48	2.88	1.73			
Calc. Head		100.00	1.13	9.40	3.37			
Assayed Head		1.08	9.93	5.93				

Test 81-34

Natural PH

Flotation Test work - Concentrate Cleaning

Flotation Product	Flotation Time	Cumulative Wt%	Cumulative Concentrate Grade			Cumulative % Recovery		
			Au oz/ton	S Wt%	As Wt%	Au	S	As
Conc. #1	.5	17.72	1.89	19.27	9.39	30.45	34.71	28.50
Conc. #2	1.5	37.47	1.84	18.33	9.39	62.76	69.80	60.26
Conc. #3	3.5	52.03	1.71	16.36	9.07	80.76	86.53	80.85
Conc. #4	8.5	62.41	1.58	14.61	8.40	89.82	92.70	89.80
Conc. #5	13.5	67.35	1.52	13.86	8.05	92.87	94.85	92.84
Final Tailings		32.66	.24	1.55	1.28			
Calc. Head		100.00	1.10	9.84	5.84			
Assayed Head			1.08	9.93	5.93			

Test 81-35

Conc. #1	.5	13.71	2.76	27.38	12.47	32.70	39.79	23.35
Conc. #2	1.5	26.39	2.76	25.60	11.78	62.94	71.60	42.46
Conc. #3	3.5	33.63	2.57	22.84	10.85	74.77	81.40	49.81
Conc. #4	8.5	39.58	2.37	20.45	9.95	81.14	85.78	53.78
Conc. #5	13.5	44.37	2.21	18.78	9.07	84.62	88.33	54.96
Final Tailings		55.63	.32	1.98	5.93			
Calc. Head		100.00	1.16	9.44	7.32			
Assayed Head			1.08	9.93	5.93			

To Kent Morton

Date

Copies To

Ref.

From L.J. Connell

Subject Stack Sampling Test Results- March 16/1981

The Giant stack was sampled on March 16th/1981 with the following results;

Total Arsenic Emission Rate:	6.155 mg./S.C.M. 17.3 lbs./day
Total Particulate Emission Rate:	3.082 mg./S.C.M. 8.7 lbs./day
Stack Gas Volumetric Flowrate:	886.8 S.C.M./ min.

The baghouse shaker mechanism was not in operation during the test period.

The low particulate emission rate indicates that little solid material is passing through the baghouse. Of the total arsenic reporting to the stack 97% was in the form of vapour, indicative of good baghouse performance.

Sampling Isokineticity was only 81.5% thus this test would not qualify as a compliance test under the E.P.S. guidelines.

L.J. Connell

c.c W.A. Moore
A.C. Hall
Cottrell
C.Q. Olesen

DATE		
TEST #.		
Baghouse Inlet Temperature	220° F	
Status of Shaking Cycle During Test	No Shaking Cycle	
Ambient Temperature	16° F	
Dry Gas Volume Sampled	2.3686 m/sec	
Moisture Content	6.14 %	
Stack Gas Temperature	185° F	
Stack Gas Velocity	3.2825 m/sec	
Stack Gas Volumetric Flowrate	886.8 S.C.M.	
Total Particulate Weight	7.3 mg.	
Total Arsenic Weight	14.58 mg.	
As to Filter and Probe	0.41 mg.	
As to Impingers	14.17 mg.	
As Particulate Emission Rate	0.173 mg/SCM	
As Vapour Emission Rate	5.982 mg/SCM	
Total As Emission Rate	6.155 mg/SCM (17.331 lb./day)	
Particulate Emission Rate	3.082 mg/SCM (8.677 lb./day)	
% Isokinetic	81.53 %	
Baghouse Particulate Removal Efficiency	99.96%	
Baghouse Arsenic Removal Efficiency	99.92%	
Baghouse Pressure During Test (in. H ₂ O)	1.3-2.0	
Comments		

March 16 1981
Stack Test

PERTINENT DATA #1

Liquid in impingers	<u>300</u>	ml final
	<u>200</u>	ml initial
	<u>100</u>	ml net

Silicagel	<u>213</u>	g final
	<u>199</u>	g initial
	<u>14</u>	g net.

Total Volume of Excess Water 114 ml
(ml net + g net)

Stack Conditions: Good. Cold and Sunny

Roaster Conditions: Good

Cottrell Conditions: Good

Baghouse Conditions: Inlet Temp: 220 °F
Pressure Drops: 1.3-2.0 IN H₂O
Shaking Cycle: 0 %

PERTINENT DATA #2

Particulate Loading

Weight of filter	<u>382.4</u>	mg final
	<u>379.2</u>	mg initial
	<u>3.2</u>	mg net
Acetone washings	<u>78.4</u>	mg final
	<u>74.3</u>	mg initial
	<u>4.1</u>	mg net
Total Particulate Weight	<u>7.3</u>	mg

Arsenic Loading

Particulate

Total particulate weight	<u>7.3</u>	mg
Diluted volume	<u>No Dilution</u>	ml
SDDC concentration	<u></u>	ppm
Total As in particulate	<u>.41</u>	mg

Vapour

Total excess water diluted volume	<u>100</u>	ml
SDDC concentration	<u></u>	ppm
Total As in vapour	<u>14.17</u>	mg

CALCULATIONS FOR STACK TEST

Dry Gas Volume

$$V = 17.95 \left(\frac{V_m}{T_m} \right) \left(P_{bar} + \frac{AH}{13.6} \right)$$

$$V_{in} M^3 = V \times .028316$$

Volume of Water Vapour

$$V_w (ft^3) = (.0480) V_{ic}$$

$$V_{w(M^3)} = (.00136) V_{ic}$$

Moisture Content

$$B_{w_o} = \frac{V_w}{V + V_w}$$

Stack Gas Velocity

$$U_{s_{ft/s}} = K_p C_p (\Delta P)^{\frac{1}{2}} \left(\frac{T_s}{P_s M_s} \right)^{\frac{1}{2}}$$

$$= 13.579049 (\Delta P)^{\frac{1}{2}} \left(\frac{T_s}{P_s} \right)^{\frac{1}{2}}$$

$$U_s \text{ IN Meters} = U_{s_{ft/s}} \times .3048$$

Volumetric Flow Rate

$$Q_s = U_s (Avg) (60) A_s (1 - B_{w_o}) \left(\frac{T_{ref}}{T_s (avg)} \right) \left(\frac{P_s}{P_{ref}} \right)$$

$$Q_s (ft^3/min) = 67196.791 (U_s (avg)) (1 - B_{w_o}) \left(\frac{P_s}{T_s (avg)} \right)$$

$$Q_s (ft^3/min) =$$

$$Q_s (M^3/min) = Q_s (ft^3/min) \times .028316$$

$$\begin{aligned} V_m &= 77.80 \text{ ft}^3 \\ T_m &= 498 \text{ } ^\circ R \\ P_{bar}^2 &= 29.76 \text{ IN Hg} \\ AH &= .07 \text{ IN H}_2\text{O} \\ V &= 83.6504 \text{ ft}^3 \\ V &= 2.3686 \text{ M}^3 \end{aligned}$$

$$\begin{aligned} V_{ic} &= 114 \text{ ml} \\ V_w &= 5.472 \text{ ft}^3 \\ V_w &= .155 \text{ M}^3 \end{aligned}$$

$$\begin{aligned} V_w &= 5.472 \text{ ft}^3 \\ V &= 83.6504 \text{ ft}^3 \\ B_{w_o} &= .0614 \end{aligned}$$

$$\begin{aligned} \Delta P &= .029 \\ K_p &= 85.33 \text{ ft/s} \\ C_p &= .85 \\ M_s &= 28.53 \\ P_s &= 29.74 \text{ IN Hg} \\ T_s &= 645 \text{ } ^\circ R \\ U_s &= 10.769 \text{ ft/s} \\ &= 3.2825 \text{ M/S} \end{aligned}$$

$$\begin{aligned} A_s &= 62.4 \text{ ft}^2 \\ T_{ref} &= 537 \text{ } ^\circ R \\ P_{ref} &= 29.92 \text{ IN Hg} \\ U_s &= 10.7695 \text{ ft/s} \\ B_{w_o} &= .0614 \\ T_s (avg) &= 645.33 \text{ } ^\circ R \\ P_s &= 29.74 \text{ IN Hg} \\ Q_s &= 31319 \text{ ft}^3/\text{min} \\ Q_s &= 886.8 \text{ M}^3/\text{min} \end{aligned}$$