**CAUSE TARIFAIRE 1999**

**COMPLÉMENT DE TÉMOIGNAGE – PIERRE DESPARS**
**SECTION 13 – ÉTUDE LEAD-LAG**

## Introduction

Le présent témoignage répond à la recommandation de M. Drazen et Mme Pearson d'inclure les frais financiers dans l'évaluation du de roulement réglementaire et, plus spécifiquement, dans l'encaisse.

À cette fin, nous commencerons par rappeler la raison d'être d'une étude sur le fonds de roulement, dont l'objectif est d'évaluer le fonds de roulement (l'encaisse) requis par une entreprise réglementée pour la réalisation de ses activités. Nous rappellerons aussi qu'il existe différentes approches méthodologiques utilisées par les entreprises réglementées aux fins d'établir ce fonds de roulement, notamment :

- La méthode du « 45 jours » ou du « 1/8 des dépenses d'opération».
- La méthode actuellement utilisée chez SCGM, qui consiste à faire une étude des délais de paiement des dépenses d'opération et des délais de perception des comptes à recevoir. Cette étude est appelée couramment étude « lead-lag » et enseignée par l'Association canadienne du gaz et couramment utilisée au Canada.
- Une étude « lead-lag » plus globale, similaire à la précédente mais qui porte en plus sur les activités d'investissement et de financement.

Nous verrons ensuite que la proposition de M. Drazen et de Mme Pearson se situe à mi-chemin

entre les deux dernières méthodes, ne retenant que la portion des activités d'investissement et de financement qui est défavorable à SCGM, à savoir le délai dans le paiement des intérêts sur la dette à long terme et dans le paiement des dividendes sur actions privilégiées. Elle est donc incorrecte en ce qu'elle ignore de considérer le délai de paiement sur la dette à court terme ainsi que le délai dans la récupération de l'amortissement. En fait, si ces derniers éléments étaient considérés, le fonds de roulement réglementaire serait plus élevé que celui calculé selon la méthode en vigueur.

Nous expliquerons ensuite pourquoi l'approche proposée par M. Drazen et Mme Pearson devrait, si elle était retenue, s'appliquer aussi notamment à la dépense d'amortissement.

**Raison d'être d'une étude sur le fonds de roulement**

L'objectif d'une telle étude est d'évaluer le fonds de roulement (l'encaisse) requis par une entreprise réglementée pour la réalisation de ses activités.

La nécessité d'un fonds de roulement vient du fait que lorsque SCGM fournit un service à ses clients, elle n'en recevra le paiement par ses clients que plus tard. Elle doit donc investir le montant nécessaire pour financer le coût de ces services en attendant d'être payée par ses clients, c'est-à-dire pendant le délai de récupération de ses revenus.

Par contre, SCGM bénéficie en même temps d'un certain délai pour payer ses propres fournisseurs, c'est-à-dire le délai de paiement de ses fournisseurs. Le délai net (« net lag ») pendant lequel SCGM doit financer le coût des services qu'elle rend correspond donc à la différence entre le délai de récupération de ses revenus et le délai de paiement de ses fournisseurs.

**Les différentes approches méthodologiques utilisées par les entreprises réglementées aux fins d'établir le fonds de roulement**

Il existe différentes approches méthodologiques utilisées par les entreprises réglementées aux fins d'établir ce fonds de roulement. Avant de les aborder, il faut cependant mentionner que toutes ces méthodes visent à identifier le fonds de roulement aussi précisément que possible mais qu'aucune n'a la prétention de le faire parfaitement. Nous citerons à cet effet l'auteur Bonbright1 :

> «None of the methods for calculating the working capital allowance will produce a result that is precisely correct. The purpose of the calculation should be to arrive at an amount that is reasonable and contains no obvious defects, and which is not so time-consuming to compute that the costs exceeds the benefit. »

**Méthode du 45 jours**

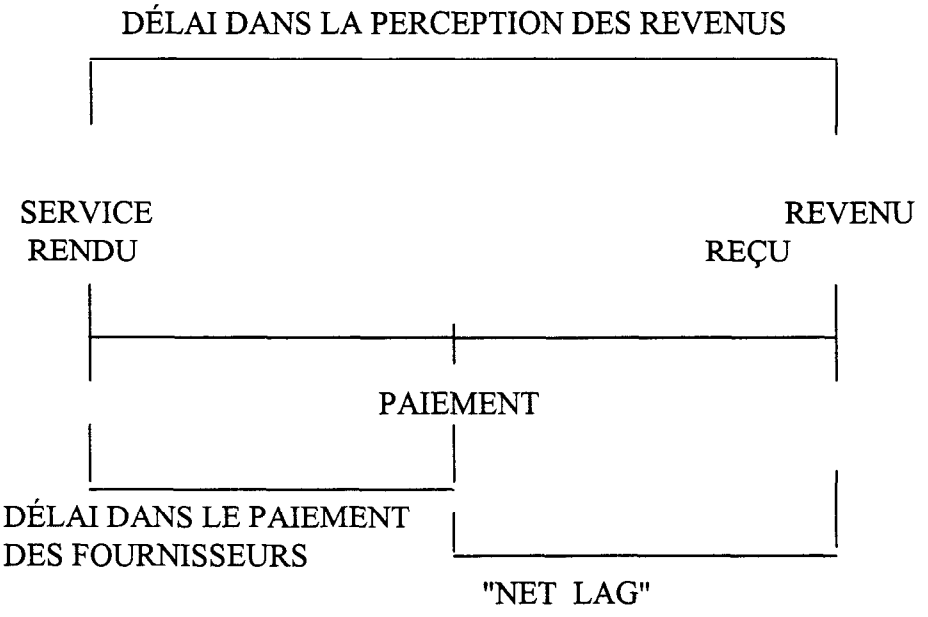
Parmi les différentes méthodes, la plus simple est certainement l'application d'un délai de 45 jours sur l'ensemble des dépenses d'opération. Le fonds de roulement réglementaire est alors égal à l'ensemble des dépenses d'opération multiplié par 45/365 (ou 1/8).

**Étude « lead-lag »**

Une méthodologie plus raffinée consiste à effectuer une étude des délais de paiement des dépenses d'opération (paiement des fournisseurs) et des délais de perception des comptes à recevoir (perception des revenus). La différence entre ces deux délais (appelée « net lag ») donne le délai moyen au cours duquel le distributeur est appelé à financer ses opérations en se constituant un fonds de roulement. Cette étude est appelée couramment étude « lead-lag ».

Le tableau ci-dessous montre schématiquement la relation entre le « net lag » et le délai de perception des revenus et le délai de paiement des fournisseurs :

1 Bonbright, Danielsen, Kamerschen, Principles of Public Utility Rates, 1988, page 243.




Il s'agit de la méthodologie utilisée par SCGM depuis la cause R3173-89, donc depuis 1990. Il s'agit aussi de la méthode la plus fréquemment utilisée chez les autres distributeurs canadiens notamment chez Consumers et Union Gas. De plus, c'est la méthode qui est enseignée dans le programme de formation sur la comptabilité réglementaire offert par l'Association canadienne du gaz (ACG).

> Il est important ici de constater qu'une telle étude se limite aux délais relatifs aux dépenses d'opération .

**Étude « lead-lag » plus globale, incluant les activités d'investissement et de financement**

Plutôt que de se limiter aux dépenses d'opération, une étude « lead-lag » peut être plus globale en portant aussi sur les délais relatifs aux activités d'investissement et de financement. Ces activités comprennent l'amortissement ainsi que le paiement des intérêts sur la dette (court et long terme) et des dividendes sur actions privilégiées. Lorsque l'on souhaite inclure ces activités, l'étude doit donc aussi inclure les délais relatifs à la récupération de l'amortissement.

**Proposition de M. Drazen et de Mme Pearson**

La proposition de M. Drazen et de Mme Pearson se situe à mi-chemin entre une étude «lead-lag » traditionnelle (ne portant que sur les dépenses d'opération) et une étude « lead-lag » plus globale. Nous disons à mi-chemin parce qu'ils recommandent de tenir compte seulement du délai de paiement de la dépense d'intérêt sur la dette à long terme et sur les dividendes sur actions privilégiées, les seuls éléments qui soient défavorables à SCGM. Ils omettent par contre de recommander de tenir compte aussi des délais dans la récupération de la dépense d'amortissement ainsi que le délai dans le paiement des intérêts sur la dette à court terme, lesquels seraient des éléments favorables pour SCGM.

**Raisons pour lesquelles l'étude « lead-lag » devrait, si l'approche globale était retenue, s'appliquer à toutes les activités d'investissement et de financement.**

Nous avons vu que l'étude « lead-lag » traditionnelle ne portait que sur les dépenses d'opération. Il en résulte néanmoins un estimé raisonnable du fonds de roulement réglementaire. C'est du moins ce qu'ont jugé plusieurs distributeurs canadiens, dont SCGM avec l'approbation de la Régie (du gaz naturel à l'époque). L'adoption d'une approche plus globale n'est pas dénuée de sens mais il faut alors inclure tous les éléments touchant les activités d'investissement et de financement, et non seulement les frais financiers sur la dette à long terme et les dividendes sur actions privilégiées.

Or la recommandation de M. Drazen et Mme Pearson omet de prendre en considération deux éléments importants des activités d'investissement et de financement :

1. Le paiement des intérêts sur la dette court terme.
2. Le délai de récupération des investissements (dépense d'amortissement) faits dans la base de tarification.

*Dette court terme*

Voyons d'abord le principe qui sous-tend l'inclusion des frais financiers sur la dette à long terme

peut être représenté graphiquement comme suit :

FRAIS FINANCIERS SUR LA DETTE À LONG TERME

REVENU
REÇU
x_____|

SERVICE PÉRIODE MOYENNE 38,48
RENDU |_____"NET LAG" – 52,77 JOURS_____|

x_____|
PAIEMENT
DES INTÉRÊTS
PÉRIODE MOYENNE 91,25 JOURS

Dans ce tableau, nous voyons un « net lag » négatif de 52,77 jours, ce qui signifie que la dépense d'intérêt sur la dette à long terme est déboursée 52,77 jours après que les revenus ont été reçus des clients.

L'on ne peut tenir compte du délai de paiement des intérêts sur la dette à long terme sans aussi prendre en considération le délai de paiement sur la dette à court terme. M. Drazen et Mme Pearson le reconnaissent d'ailleurs dans leur réponse à la question 46 de SCGM. Il existe en effet une différence importante au niveau des délais de paiement entre ces deux formes de dettes. Le graphique et le tableau ci-dessous présentent l'impact sur l'étude "Lead-Lag" de l'inclusion des frais financiers à court terme et, plus particulièrement, le crédit à terme.

Dans ce cas, l'activité de financement se fait par voie d'escompte, c'est-à-dire que si l'entreprise emprunte 100 $ pour une période déterminée, elle recevra un montant moindre au moment du prêt. À la fin de celui-ci, elle devra rembourser seulement le capital de 100 $. Ceci revient à dire que les frais financiers sont "payés d'avance". Il est important de noter que, dans un tel contexte, le montant payé au début du prêt correspond à la valeur actualisée de la charge financière.

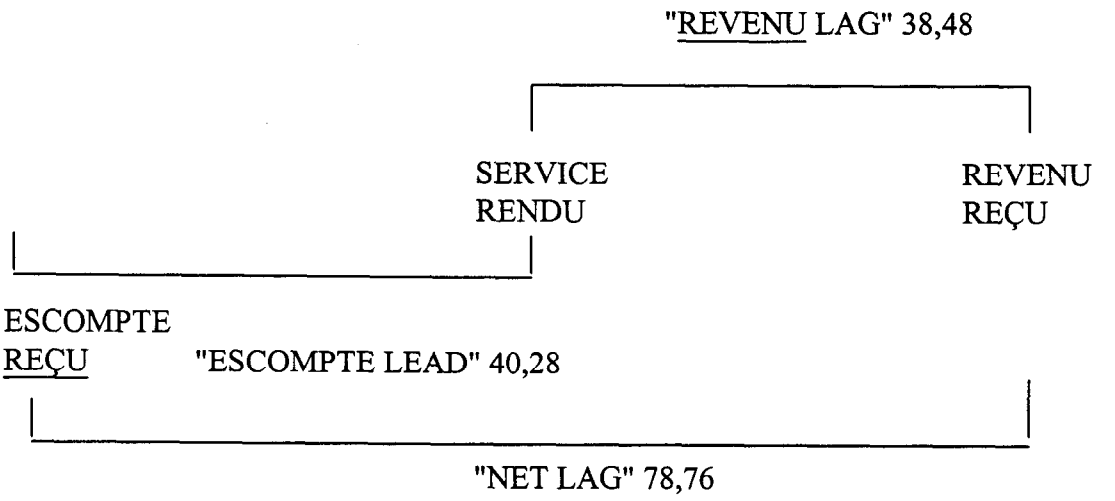



TABLEAU 1
IMPACT DE L'INCLUSION DES FRAIS FINANCIERS
(000 $)

| | Total de l'année (1) | Jours ("Lead-Lag") (2) | "Net Lag" (3) (38,48 + C2) | Effet monétaire sur le fonds de roulement (4) |
|---|---|---|---|---|
| FINANCEMENT | | | | |
| Dette long terme | 54 380 | (91,25) | (52,77) | (7 862) |
| Crédit à terme | 6 543 | 40,28 | 78,76 | 1 412 |
| Titrisation | 2 193 | (38,10) | 0,38 | 2 |
| Marché monétaire | 598 | (1,24) | 37,24 | 61 |
| Dividendes sur actions privilégiées | | | | (116) |
| | | | | (6 503) |

On constate que l'inclusion de la dette court terme dans le calcul du délai de paiement des intérêts sur la dette vient ajouter 1 475 (1 412 + 2 + 116) au fonds de roulement calculé par M. Drazen et

Mme Pearson.

**Dépense d'amortissement**

Lorsque l'on traite du fonds de roulement associé aux opérations, l'exercice, nous l'avons déjà vu, demeure assez simple. Pour offrir un service à ses clients, SCGM doit encourir certaines dépenses. D'un côté cette dépense pourra être payée plus tard par SCGM (délai de paiement des fournisseurs). De l'autre côté, le coût de ces dépenses pourra aussi n'être récupéré que plus tard des clients (délai de récupération des revenus), parce que les clients sont facturés après que les services sont rendus et qu'ils bénéficient d'un délai pour le paiement de leur facture. Le fonds de roulement correspondra au coût de la dépense ainsi supportée pendant la période correspondant à la différence entre le délai de récupération des revenus et le délai de paiement des fournisseurs.

Lorsque l'on traite du fonds de roulement associé aux activités d'investissement et de financement, la situation est similaire. Pour offrir un service à ses clients, SCGM doit investir dans certains équipements. D'un côté, le coût de financement de cet investissement pourra n'être payé que plus tard par SCGM (délai de paiement des intérêts sur la dette). De l'autre côté, l'investissement (via l'amortissement) pourra n'être récupéré que plus tard par SCGM (délai de récupération de l'amortissement).

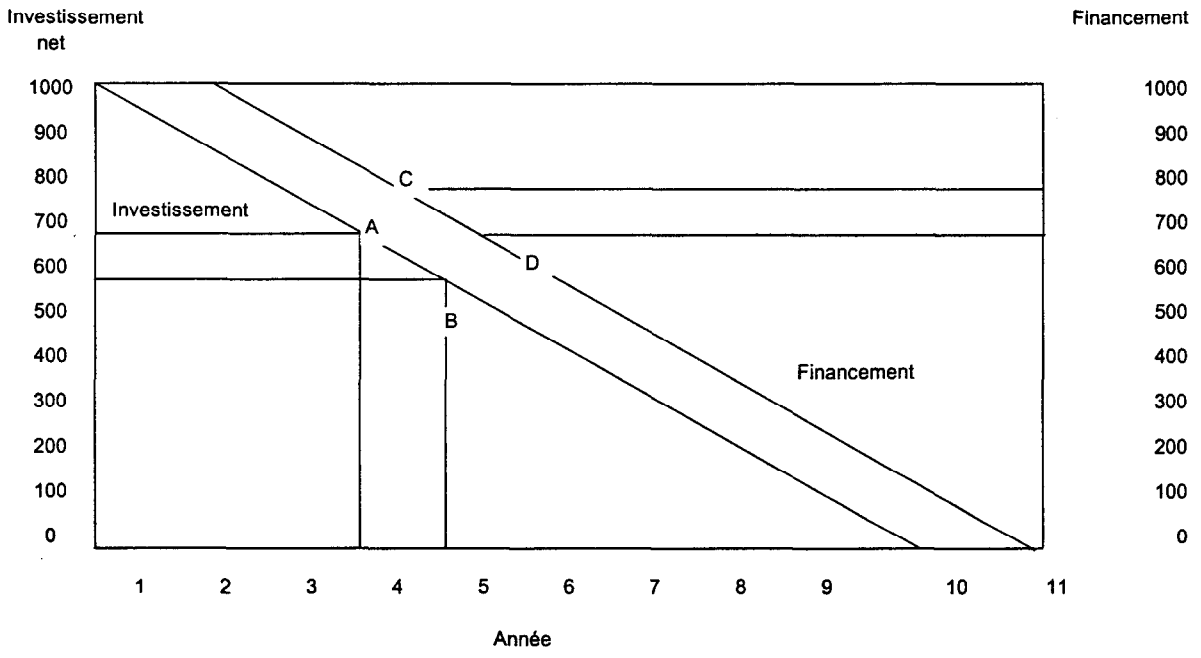
À première vue, il peut sembler surprenant de considérer, dans l'étude menant à l'établissement du fonds de roulement (encaisse), un élément qui ne requiert pas de sortie de fonds. Il est juste de dire que l'amortissement ne génère pas de déboursé.

Ce qu'il est important d'établir ici c'est la relation entre le niveau d'investissement utilisé pour l'établissement des tarifs et le coût de financement. Le niveau d'investissement est influencé directement par l'amortissement alors que le coût de financement est influencé par le niveau d'emprunt qui lui, est influencé par le moment où la charge d'amortissement est encaissé.

L'exemple simplifié qui suit et la représentation graphique qui l'accompagne montrent bien la

relation entre le niveau d'investissement, le niveau de financement et la nécessité d'un ajustement au fonds de roulement réglementaire.

Prenons l'hypothèse d'un investissement de 1000$ fait au début de la première période. Celui-ci est amorti sur 10 périodes. L'hypothèse établie quant à l'encaissement des revenus et, par conséquent, de la charge d'amortissement est d'une demi-période après la période de service (par exemple le 15 du mois suivant si une période égale un mois). La ligne de gauche représente l'évolution de l'investissement alors que la ligne de droite représente l'évolution du financement.




On constate que l'investissement est réduit plus rapidement que le financement. Ce décalage dans le temps entraîne donc une insuffisance de revenu si aucun ajustement au fond de roulement n'est effectué.

Prenons par exemple la 4e période :

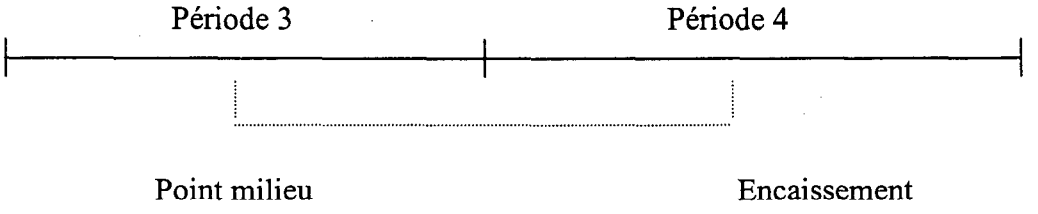
| | | |
|---|---|---|
| Investissement au début de la période 4 (Point A) | | 700 |
| Investissement en fin de période 4 (Point B) | | 600 |
| Financement au début de la période 4 (Point C) | | 800 |
| Financement en fin de période 4700 (Point D) | | |
| Frais financiers inclus dans les tarifs pour la période 4 | | |
| $\frac{(700 + 600)}{2}$ x 10 %2 | | 65 |
| Investissement moyen x coût du capital | | |
| Charge financière pour la période 4 : | | |
| Période avant encaissement 800 x 10 % x 1/2 : | 40 | |
| Période après encaissement 700 x 10 % x 1/2 : | 35 | 75 |
| Insuffisance de revenus | | (10) |

**Ajustement requis**

Nous constatons donc qu'il y a une insuffisance de revenus pour couvrir la charge financière. Afin de compenser ce manque de revenus, nous devons régulariser le fonds de roulement afin de rétablir le bon niveau d'investissement. Pour ce faire, nous devons regarder le "Lag" au niveau de l'encaissement des revenus par rapport au point milieu de la période de service.

2 À titre indicatif seulement, pour les fins de l'exemple

Dans notre exemple, l'encaissement dans la quatrième période provient de la troisième période de service :




Le délai de recouvrement "Net Lag" est d'une période

**Évaluation de l'ajustement**

| Charge d'amortissement | x | Net Lag | = | Fonds de roulement requis |
|---|---|---|---|---|
| 100 | x | 1 | = | 100 |

| | Impact sur les revenus |
|---|---|
| 100 x | 10 % = 10 |

**Sommaire**

| | |
|---|---|
| ➢ Insuffisance de revenus relié au délai de récupération de l'amortissement | (10) |
| ➢ Impact sur les revenus de l'ajustement requis au fonds de roulement | 10 |
| ➢ Effet net | 0 |

Cette exemple simple nous démontre bien l'ajustement requis au fond de roulement réglementaire afin d'établir le niveau de revenu suffisant pour couvrir la charge financière.

**Impact pour SCGM**

Appliquée aux projections budgétaire pour l'année 1998/1999 l'impact est une hausse du fonds de roulement réglementaire de 8 915 000$ comme le démontre le tableau 2 ci-dessous.

TABLEAU 2

IMPACT DE L'INCLUSION DE L'AMORTISSEMENT

(000 $)

| | Total de l'année (1) | Jours ("Lead-Lag") (2) | "Net Lag" (3) (38,48 + C2) | Effet monétaire Sur le fond De roulement (4) |
|---|---|---|---|---|
| Immobilisations | 55 419 | 0,00 | 38,48 | 5 843 |
| Frais reportés | 29 142 | 0,00 | 38,48 | 3 072 |
| | | | | 8 915 |

Nous constatons donc que l'utilisation d'une approche globale qui tiendrait compte des activités d'exploitation, de financement et d'investissement amène une révision à la hausse du fonds de roulement réglementaire de 2 412 000 $ tel que présenté dans le tableau 3 ci-dessous :

TABLEAU 3

| | |
|---|---|
| Montant selon dossier tarifaire (SCGM13 doc.2) | 8 646 |
| Frais financiers (tableau 1) | (6 503) |
| Investissement/amortissement (tableau 2) | 8 915 |
| Montant selon l'approche globale | 11 058 |

On constate donc aussi que la prise en compte de tous les éléments relatifs aux activités d'investissement et de financement engendreraient une augmentation du fonds de roulement de 2 412 000$ plutôt qu'une diminution de 8 165 000$ tel que suggéré par M. Drazen et Mme Pearson.

## CONCLUSION

Pour terminer, j'aimerais souligner que la méthode utilisée par SCGM est conforme à la méthodologie autorisée par la Régie du gaz naturel et comparable à celle utilisée par plusieurs autres distributeurs canadiens. Cependant, si la Régie considère justifié de prendre en considération les intérêts et les dividendes sur actions privilégiées dans l'établissement du fonds de roulement réglementaire, nous soumettons qu'elle ne peut le faire qu'à la condition expresse où elle tient compte de tous les types de financement par voie de dette et de l'effet sur la structure de capital du délai de recouvrement de la charge d'amortissement.

U:\WORD\Régie\Cause 1999 - Complément de témoignage P. Despars.doc

# COMPLÉMENT DE TÉMOIGNAGE

## Section 13
## Étude Lead-Lag

SCGM – 13, Document 14
(En liasse)

Original : 1998.11.06

# Étude Lead-Lag

- But de l 'étude Lead-Lag
- Différentes approches
- Proposition de M. Drazen & Mme Pearson
- Faiblesse de la proposition
  - Dette court terme
  - Amortissement

# But de l 'étude Lead-Lag

- Évaluation du fonds de roulement requis
- Activités « à crédit »

# Différentes approches

- Méthodes du 45 jours
- Lead-Lag (exploitation)
- Lead-Lag (global)

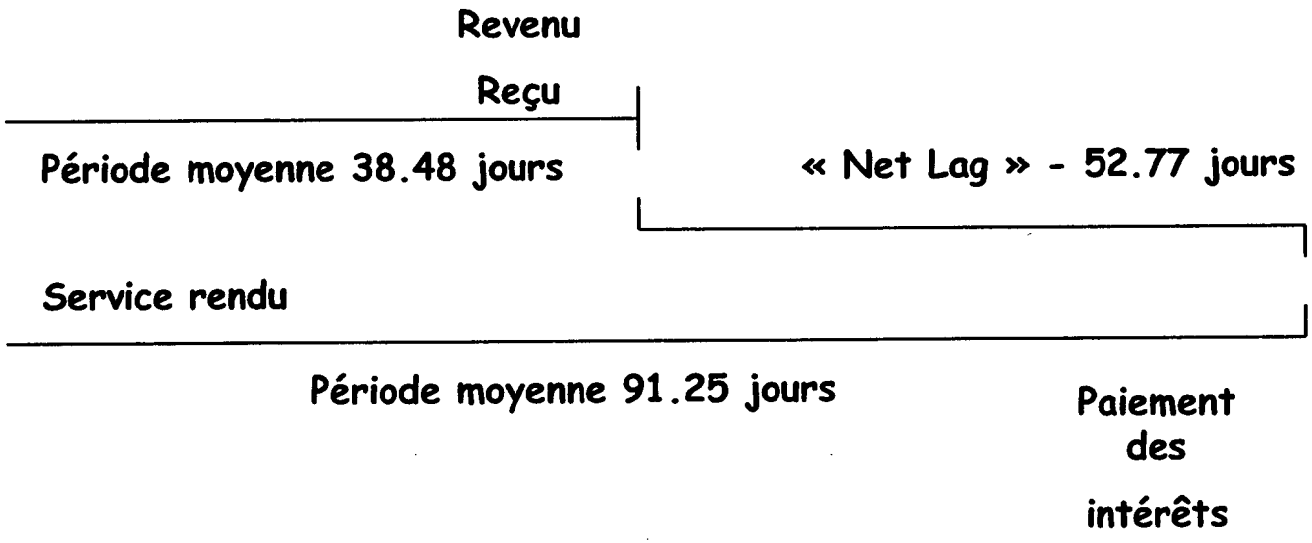
# Proposition de M. Drazen & Mme Pearson

- Frais financiers
- Dividendes sur les actions privilégiées

*Note : Graphique page suivante*

# *Graphique*

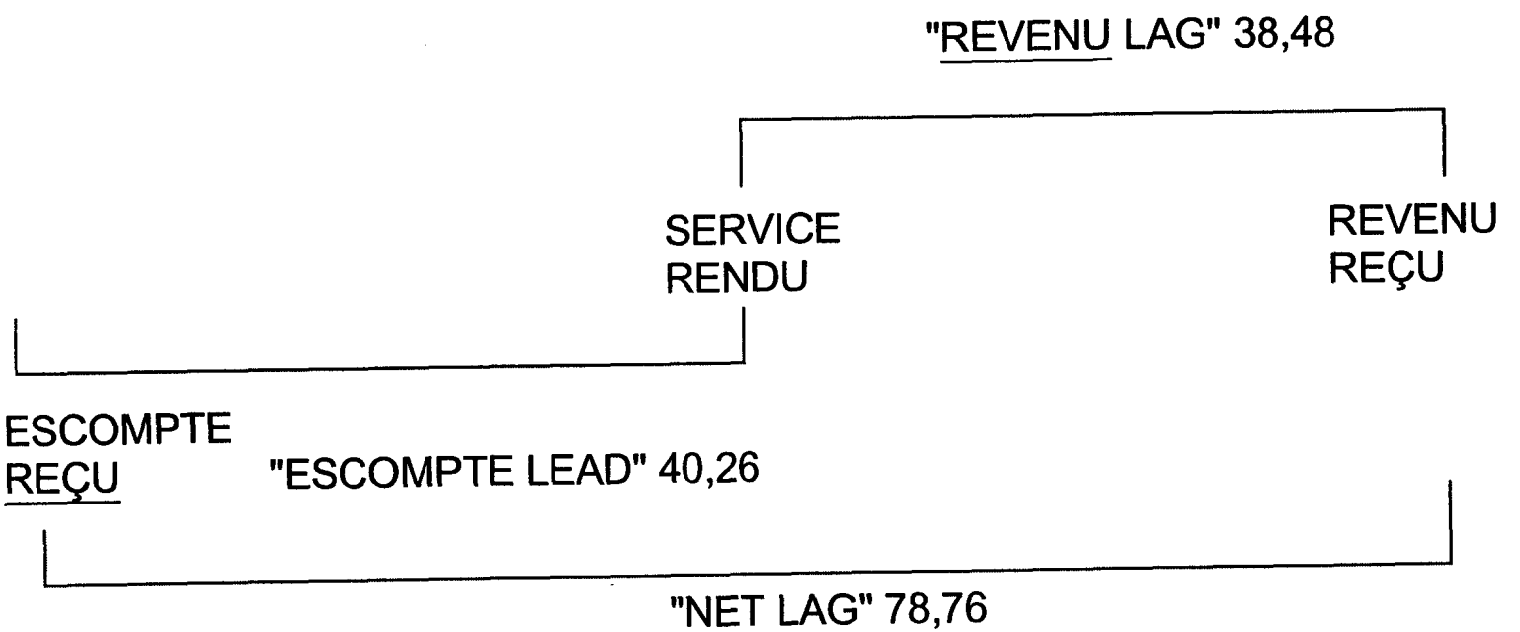
## *Proposition de M. Drazen & Mme Pearson*



# Faiblesse de la proposition

- **Dette court terme**
  - Crédit à terme
  - Titrisation
  - Marché monétaire

# Crédit à court terme



# Impact de l'inclusion des frais financiers

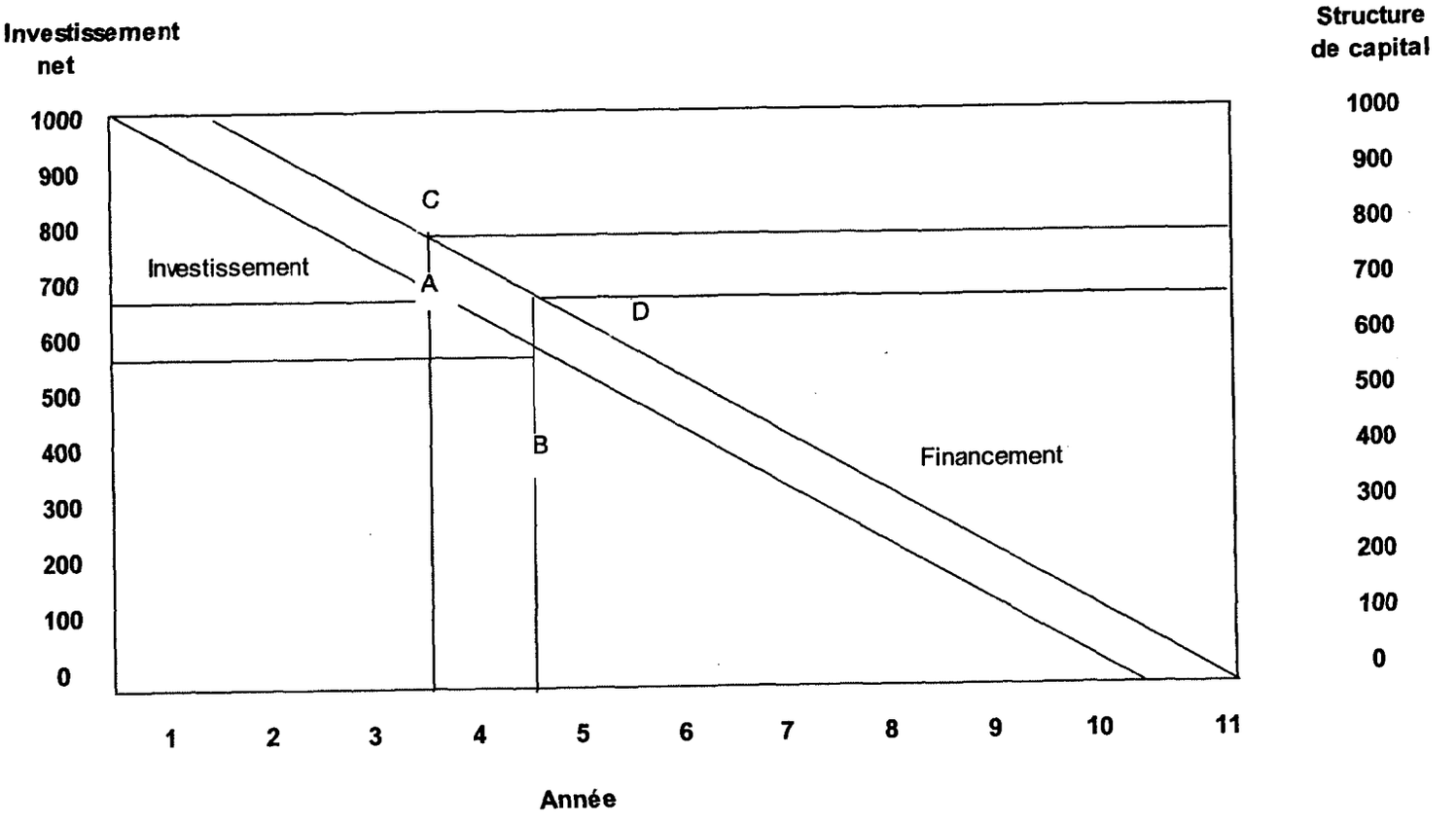
TABLEAU 1
IMPACT DE L'INCLUSION DES FRAIS FINANCIERS
(000 $)

| | Total de l'année (1) | Jours ("Lead-Lag") (2) | "Net Lag" (3) (38,48 + C2) | Effet monétaire sur le fonds de roulement (4) |
|---|---|---|---|---|
| FINANCEMENT | | | | |
| Dette long terme | 54 380 | (91,25) | (52,77) | (7 862) |
| Crédit à terme | 6 543 | 40,28 | 78,76 | 1 412 |
| Titrisation | 2 193 | (38,10) | 0,38 | 2 |
| Marché monétaire | 598 | (1,24) | 37,24 | 61 |
| Dividendes sur actions privilégiées | | | | (116) |
| | | | | (6 503) |

# Amortissement

- **Relation entre l 'investissement et le financement**
- **Niveau d 'investissement**
  - Réduit durant la période de service du montant de l 'amortissement
- **Niveau de financement**
  - Réduit après la période de service
  - À l 'encaissement des revenus

# Amortissement

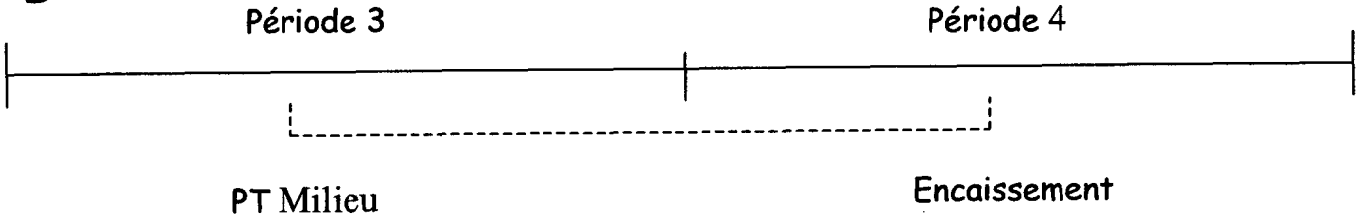


# Étude Lead-Lag
# Exemple - 4º période

- **Frais financiers inclus dans les tarifs**
  - Investissement moyen x coût du capital
    - 650 X 10% — 65
  - Charge financière
    - Période avant l 'encaissement
      - 800 x 10% x 1/2 — 40
    - Période après l 'encaissement
      - 700 x 10% x 1/2 — 35 — 75
  - Insuffisance des revenus — < 10 >

# Ajustement requis

- Régularisation du fonds de roulement




- Délai de recouvrement : 1 période
  - (' net lag )
- Charge d 'amort. x Net Lag = Ajust. de roulement

  - 100 x 1 = 100
- Sur une base annuelle (durée de l 'investissement)

  - 1000 x 1/10 = 100

# Impact sur les revenus

- **Fonds de roulement x coût du financement**
  - 100 x 10% = 10

- **Sommaire**
  - Insuffisance de revenu <10>
  - Ajustement au fonds de roulement 10
  - Revenus permettant de couvrir la charge financière - Écart ϕ

# Impact pour SCGM

TABLEAU 2

IMPACT DE L'INCLUSION DE L'AMORTISSEMENT

(000 $)

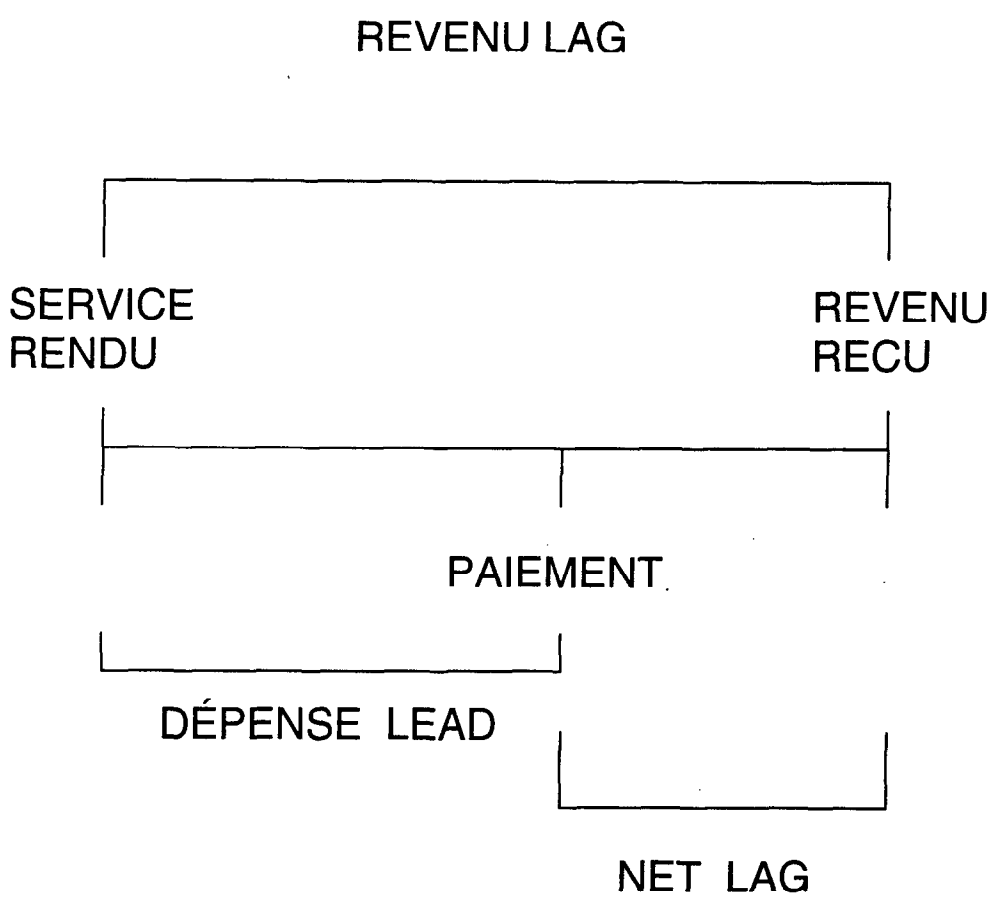
| | Total de l'année (1) | Jours ("Lead-Lag") (2) | "Net Lag" (3) (38,48 + C2) | Effet monétaire Sur le fond De roulement (4) |
|---|---|---|---|---|
| Immobilisations | 55 419 | 0,00 | 38,48 | 5 843 |
| Frais reportés | 29 142 | 0,00 | 38,48 | 3 072 |
| | | | | 8 915 |

# Sommaire

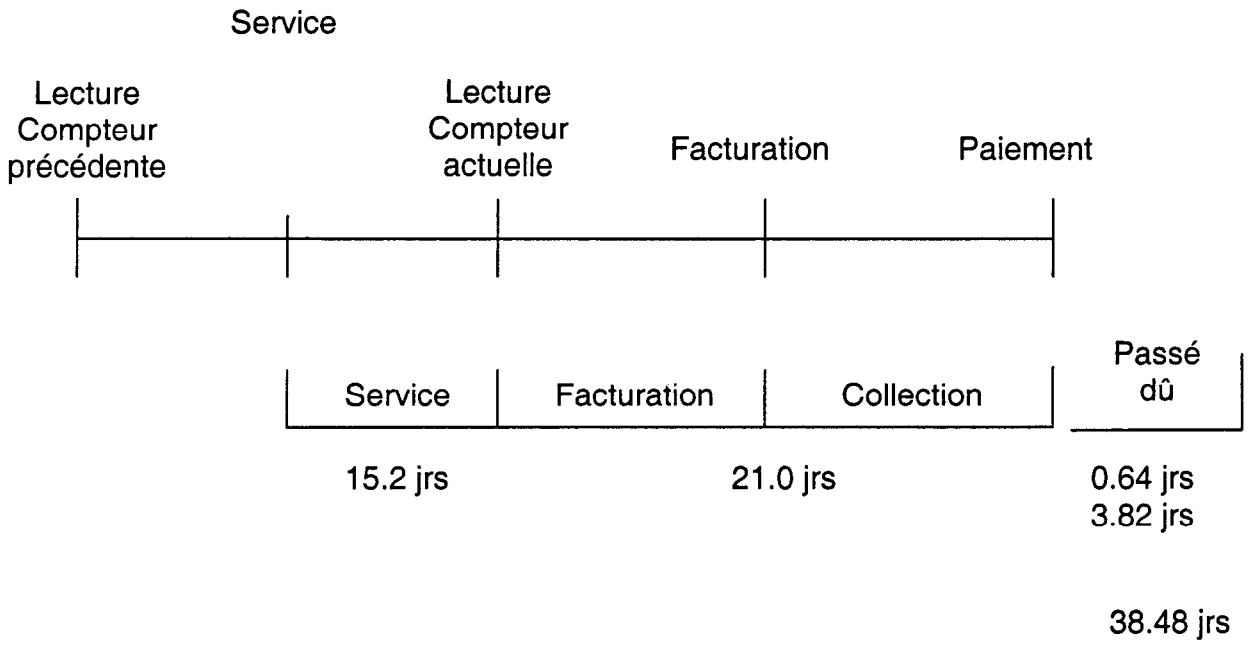
TABLEAU 3

| | |
|---|---|
| Montant selon dossier tarifaire (SCGM13 doc.2) | 8 646 |
| Frais financiers (tableau 1) | (6 503) |
| Investissement/amortissement (tableau 2) | 8 915 |
| Montant selon l'approche globale | 11 058 |

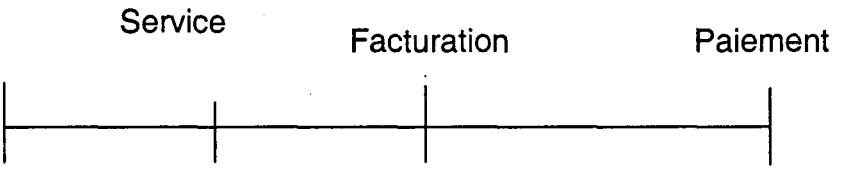
# ÉTUDE LEAD - LAG



# REVENU LAG
Délai de perception des revenus

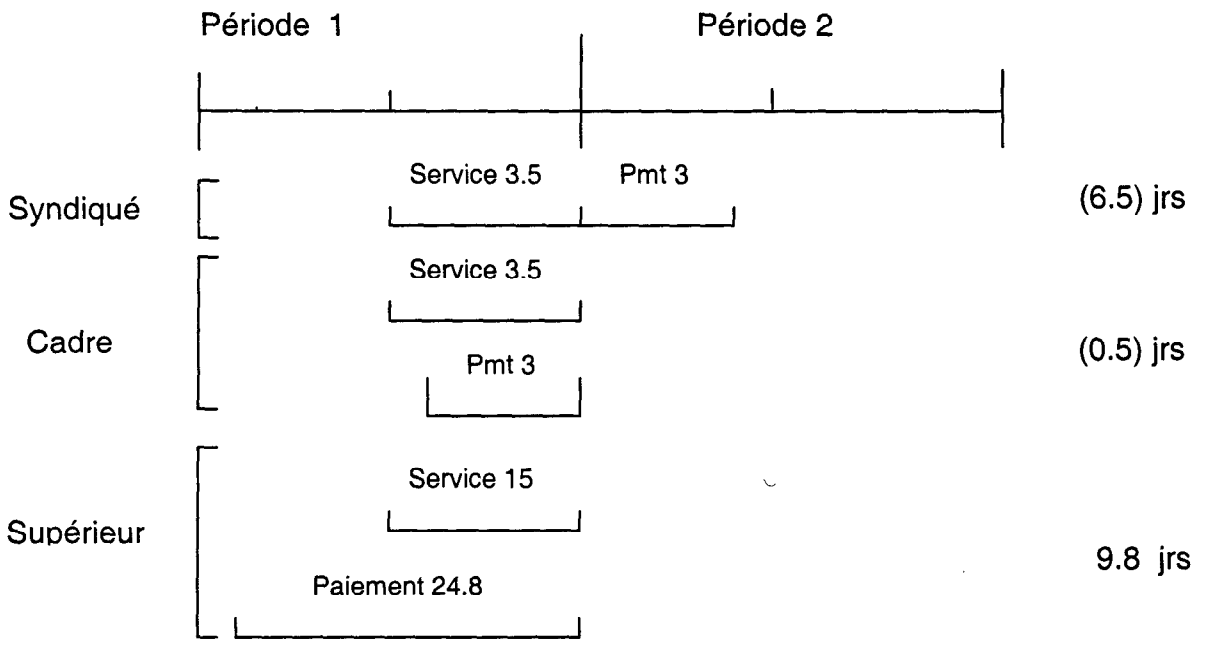


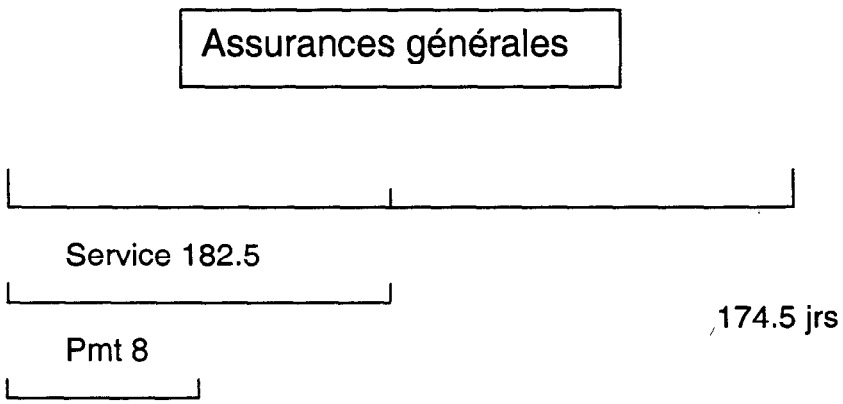
Délai de paiement des fournisseurs
Coût du gaz



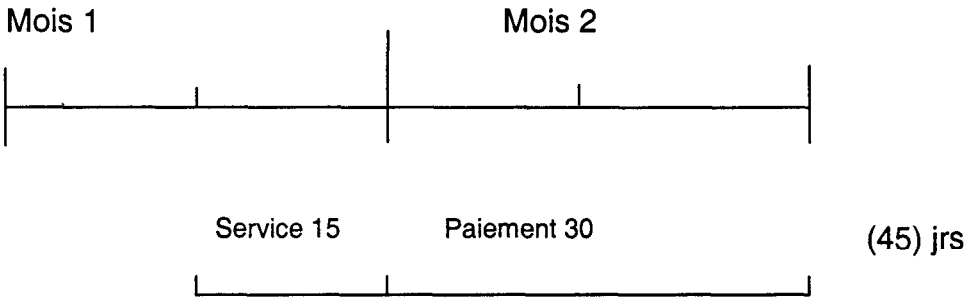

| Service | Facturation | |
|---|---|---|
| 15.2 jrs | 20.63 jrs | (35.83) jrs |

# Salaires nets




Assurances générales
Service 182.5
174.5 jrs
Pmt 8

Dépenses d'exploitation



# Taxes foncières

Service 182.5

Pmt 66

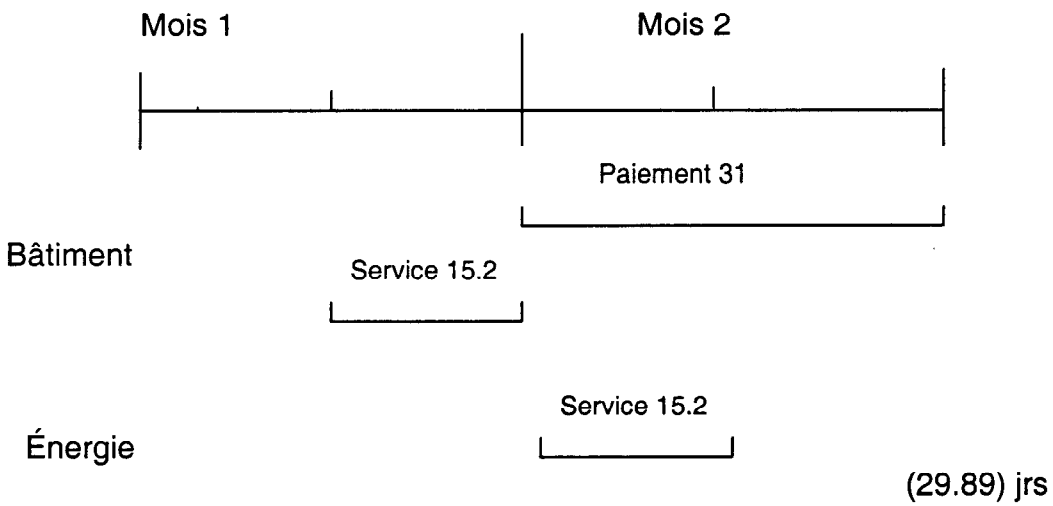
116.5 jrs

Taxes sur le capital

Service 15.2

(15.2) jrs

# Redevances


Mois 1
Mois 2
Paiement 31
Bâtiment
Service 15.2
Service 15.2
Énergie
(29.89) jrs

# RÉPONSE DE SCGM À UNE DEMANDE D'INFORMATION

**Origine** : Audience du 5 novembre 1998

**Demandeur** : Régie de l'énergie

**Engagement 33**

**Demandes : Produire le témoignage sur le Lead-Lag au dossier de Consumers en 1981**

.....

**Réponses**

**Voici ci-joint le témoignage de M. John R. Day au dossier de Consumers en 1981.**

EXHIBIT I 2.3

# THE CONSUMERS' GAS COMPANY LTD.

PREFILED TESTIMONY

OF

JOHN R. DAY

Arthur Andersen & Co.
Atlanta, Georgia
May, 1983

THE CONSUMERS' GAS COMPANY, LTD.

PREFILED TESTIMONY OF
JOHN R. DAY

Q1. Would you please state your name and address?

A1. My name is John R. Day. I live at 704 Gladstone Road, N.W., Atlanta, Georgia.

Q2. Would you please state your educational and professional background?

A2. I joined Arthur Andersen & Co. in 1974 following graduation from the University of Georgia with a Bachelor of Business Administration degree in accounting and a Master of Accountancy degree. I am a Certified Public Accountant in the State of Georgia and a member of the American Institute of Certified Public Accountants and the Georgia Society of Certified Public Accountants.

Q3. Would you briefly describe the work of Arthur Andersen & Co.?

A3. Arthur Andersen & Co. is a firm of independent public accountants with more than 130 offices located throughout the world, of which 7 are located in Canada. We have among our

clientele companies on the Toronto, Montreal, Alberta and Vancouver stock exchanges. Also, our Canadian clientele includes several gas, electric and telephone companies. In the U.S., we have as clients approximately one-third of the gas and electric companies and a substantial portion of the independent telephone companies.

Q4. What are your particular responsibilities at Arthur Andersen & Co.?

A4. I am currently a manager in the regulated industries division of the firm's Atlanta office. Substantially all of my career has been devoted to regulated industries, including gas, electric and telephone companies.

I have performed independent audits of financial statements of public utilities and have supervised work in connection with the issuance of securities of these companies. Because of this, I am familiar with transaction flows and how they are recorded in accounting systems. I have conducted and supervised lead-lag studies for working capital requirements which were filed in rate cases before various regulatory bodies including the Federal Energy Regulatory Commission, the North Carolina Utilities Commission, the Georgia Public Service Commission and the Florida Public Service Commission. I have performed reviews of financial forecasts and

forecasting systems. I have also assisted in many rate proceedings on a wide range of topics (including the ratemaking treatment of income taxes, construction work in progress, abandonment losses and pro-forma adjustments) before various Federal and state regulatory bodies.

Q5. Mr. Day, what was the nature of your assignment at Consumers' Gas Company?

A5. The Company contacted me and requested that my firm review a revenue lag study it was performing. Our initial work began in March 1983. I utilized our firm's staff from both our Atlanta and Toronto offices to assist me in the review of the Company's study.

Q6. Mr. Day, what is the purpose of your testimony?

A6. The purpose of my testimony is to state the results of our review of the revenue lag study performed by the company.

In addition, I will comment on the Company's request for an allowance for working capital, with particular reference to that portion which reflects the capital supplied to cover the net lag in the recovery of the cost of providing service from the date that service is rendered to the customer to the date the customer pays for such service. I will also explain

why I believe the Company's working capital requirement included in its initial filing is understated.

Q7. Why did the Company re-examine its revenue lag?

A7. In its decision dated January 26, 1983, in E.B.R.O. 386-I, the Ontario Energy Board stated that "it might be helpful if some form of sampling of invoices had been included in order to support the receipt lag determined by the applicant's current method." The "current method" used by Consumers' Gas to calculate its revenue lag was the accounts receivable method. In the revenue lag study I reviewed, the company reperformed a revenue lag calculation using the accounts receivable method. In addition, the company performed a revenue sampling study by randomly selecting customer accounts to satisfy the Board's request for support of the accounts receivable method.

Q8. Mr. Day, before you discuss your review of the Company's revenue lag study, please describe your understanding of the working capital allowance as it relates to a regulated utility company.

A8. The working capital allowance, in the sense that it is used in the utility rate making process, can be described as the economic input of investor capital, in excess of that used to

finance net utility plant, which is supplied to cover the lag from the time costs are incurred until payment is received through rates charged to customers. This capital includes that necessary (1) to finance gas in storage, materials and supplies, prepaid expenses, minimum bank balances, and other deferred costs, exclusive of net utility plant, which must be financed by investors pending recovery of such costs from customers, and (2) to finance the time period - or "lag" - from the date the customers receive service to the date that customers pay for service.

Q9. Is your description of working capital as it applies to a regulated utility company different from the description of working capital as it is used in the ordinary business or accounting sense?

A9. Yes. The "working capital allowance" as the term is used in the utility industry, must be differentiated from the term "working capital" as it is used in the ordinary business or accounting sense. "Working capital" as applied to non-regulated commercial enterprises and as used by financial analysts and others in evaluating the financial standing of commercial enterprises, means current assets less current liabilities which may be expressed either as an amount or as a ratio. It is used in the context of evaluating the liquidity of a commercial business at a point in time.

Q10. Please explain simply why working capital is required to finance the lag in the payment of service by utility customers.

A10. In simple terms, the customers incur an obligation to the company as the customers receive service. That obligation is priced at rates which the Board has found to cover the cost of rendering the service. If the customers were to operate on a "cash and carry basis", they would pay in cash each day as they receive service. Obviously, such a procedure is not practicable from either the customers' or the utilities' standpoint. Therefore, the company does not have the use of cash funds from the date that service is rendered to when the cash is collected: investors must supply capital to offset this delay in receipt of cash funds. On the other hand, if the company were to operate on a "cash and carry" basis, it would pay cash each day (1) to employees, vendors and others who provide labor and materials required in the production and delivery of gas service, (2) to taxing authorities, and (3) to equity and debt investors for both (a) the recovery (as depreciation) of capital previously provided and (b) a daily return for the unrecovered capital previously provided. Obviously, cash payments on a daily basis to each employee, vendor, taxing authority and investor is not practicable either. Therefore, the company has use of such

funds from the date that employees, vendors and others render service to the date that the company pays for service, and this serves to reduce the funds that the investors must supply.

Therefore, the working capital allowance is simply that amount of capital investment which is needed because it is not practical for either the customer or the company to operate on a daily "cash and carry" basis. The allowance which must be financed (and, therefore, must be included in rate base) can be considered to consist of two elements, (1) the daily cost of rendering service to the customer, as determined by the Board, times the average number of days that the payment for such service is postponed after the service is rendered, (2) less the offsetting daily benefit of postponing payments to employees, vendors, taxing authorities and others after the service is received.

Q11. Is your description of utility working capital the same as cash working capital?

A11. No, it is not. Although on occasion the working capital allowance, or a portion thereof, is referred to as cash working capital, this limited concept fails to consider that capital is required to finance the entire cost of service and that investment is required in capital cost items which may not contemporaneously result in cash transactions.

Eventually, of course, all the utility's revenue requirements involve transactions which relate to cash -- the collection of cash from customers, the cash investment of stockholders (including the reinvestment of stockholders' earnings which would otherwise represent a cash outflow for dividends), the cash investment of debt holders, and the cash expenditures for utility plant as well as for current operating expenses, interest and dividends. For rate setting purposes, the relevant concern is the amount of investor supplied capital required to finance the entire cost of service until it is collected from customers, not just those costs paid concurrently in cash. Additional investment is needed to finance expenditures, inventories, prepayments and other deferred costs. In addition, minimum cash balances are required because no business can operate with a zero bank balance since cash inflows and outflows cannot be precisely forecasted on a day-to-day basis.

The capital needed to finance inventories, deferrals and the lag in the collection of cost of service from customers can be offset to the extent that the company can properly delay payment for labor, goods and services beyond the date that such labor, goods and services are utilized in providing service to customers.

Q12. Would you please explain the formula and lead/lag methods of calculating a working capital requirement?

A12. First, it is important to recognize that the purpose of any method of determining working capital is to arrive at an amount that is a reasonable proxy for invested capital; the method should not contain obvious defects or be so time-consuming to compute as to offset the perceived benefits.

The most commonly used method for computing a working capital allowance is by use of a time-tested formula that involves the inclusion in rate base of 45 days allowance of annual operating and maintenance expenses after certain proforma adjustments. Additional amounts are added to the rate base for materials, supplies and gas inventories. Variations in this method include the addition of deferrals, prepayments and minimum cash balances or reduction for accrued taxes. The formula method is relatively simple, can be adjusted for the effects of known changes in operating expenses, and has the merit of not involving enormous detail and extensive time commitments by companies, intervenors, Board staff and the Board.

The "lead/lag" method is used either as a test of the formula or as a means of determining the allowance. The "lead/lag" method involves a study of the time lag between the date when the customer receives service from the company and the date

when the customer pays for such service. This is referred to as the revenue or receipts lag. This time lag represents a measurement factor that can be applied to the revenue requirement to determine the amount of capital that is needed to finance this delay in cash collection.

The capital needed to finance this delay in cash collection from customers can be offset to the extent that the company can properly delay disbursements for labor, goods and services beyond the date that such labor, goods and services are utilized in providing service to customers. These offsetting disbursement lags must also be measured.

Q13. Did your assignment encompass examining the company's calculations of disbursement lags?

A13. No, it did not. The company is using the disbursement lags which were filed in its last case. For this reason, I was not asked to review these calculations.

Q14. What are the components of the revenue lag?

A14. There are three identifiable and measurable components: service lag, billing lag and payment lag. The service lag represents the number of days from the

time service was provided to the end of the service period. For gas consumption it is assumed that service was rendered ratably during the period between meter readings so that the mid-point of the meter reading period can be used as the average date that gas service was rendered during the period. The same assumption is made for rental charges since the rental fee applies to service rendered ratably during the period.

The billing lag represents the number of days from the meter reading date to the billing date.

The payment lag represents the number of days from the billing date to the date payment was received or the account was written off.

Q15. Please explain the accounts receivable method and the sampling method of calculating the revenue lag.

A15. With the accounts receivable method, the payment lag is calculated by first computing the average time from the date revenue is billed until receipt of payments from customers. This is done by obtaining the daily balance for customer accounts receivable and dividing by average daily revenue. To this is added the average time from when service was provided until the revenue is billed. The result is the total average revenue lag. The accounts receivable

method is the method the Company used to calculate the revenue lag of 49.6 days as explained by Mr. F.D. Rewbotham in his testimony.

An alternate method is the sampling approach, whereby a random sample of customer accounts is made. For each account, the time from when service is provided to the date payments are received from customers is measured to derive an estimate of the revenue lag for the entire population of customers.

Either method should give a reasonable estimate of the average revenue lag.

Q16. Before proceeding with a more detailed discussion, please summarize for the Board your conclusion resulting from your review of the Company's revenue lag study which was based on the sampling method.

A16. In my opinion, the Company's sampling methodology and its application was a reasonable and appropriate approach to measuring the lag from when service is provided to the customer to when payment for such service is received. I believe the 50.2 days result from the sampling approach is a valid and properly supported measure of the revenue lag experienced by the Company.

Q17. Please describe your review of the Company's study.

A17. We first reviewed the Company's customer accounting systems to obtain an understanding of how transactions of various types flow through the systems and are eventually recorded in the accounts.

Next, we reviewed the Company's methodology for performing the revenue lag study and the detailed study itself, the results of which are included in the testimony of Mr. Rewbotham. In reviewing the detailed sampling lag study, we verified that the customer accounts were randomly selected, performed tests of clerical accuracy of the schedules that listed the detailed transactions and revenue lags for each customer, verified that the information on the schedules agreed with the customer master file, traced transaction flows through the customer accounting systems and evaluated the logic of the steps performed in the study.

Q18. How were merchandise installment sales handled in the study?

A18. The company sells various appliances (barbeques, stoves, etc.) and, for those financed, bills its customers on an installment basis each month for the principal and interest on the sale. The unbilled principal on these sales is included as a separate component of working capital entitled

"Accounts Receivable - Merchandise Finance Plan Net of Unearned Finance Charges" as shown on Exhibit L1.1.1. Therefore, for purposes of the revenue lag study, we were concerned only with the period from when the installment amount is billed, at which time it is recorded in the customer account receivable system and removed from "Accounts Receivable - Merchandise Finance Plan Net of Unearned Finance Charges".

Q19. How were late payment penalties considered in the revenue lag study?

A19. The actual charge for the late payment appears on the subsequent month's bill (i.e., a late fee for October will appear in November's charges). The service lag for the late payment charges is the period from the prior month's due date to the current month's reading date. The billing and payment lags were measured in the same manner described above for gas consumption.

Q20. How is the effect of the equal billing plan considered in the study?

A20. The balances in equal billing plan customers' accounts (which are applicable only to residential heating service) were picked up as of October 1, 1981, the beginning of the study

period. The balance in the account was weighted by the number of days from October 1, to the next billing or payment date, whichever came first. Each time there was a subsequent payment or additional billing to the account, the balance in the account was recomputed and the number of days since the previous billing or payment was calculated. This was done through September 30, 1982, the end of the study period, in order to consider the full-year effect of the equal billing plan. In this manner, the Company calculated the weighted average number of days revenue included in the accounts selected.

Q21. Did you also review the Company's updated calculation of the revenue lag which was based on the accounts receivable methodology?

A21. Yes. As discussed by Mr. Rewbotham, the Company calculated a revenue lag of 49.6 days using the accounts receivable method for the period ending September 30, 1982.

Q22. What were your conclusions resulting from your review of this calculation?

A22. In my opinion, the Company's accounts receivable methodology and its application was a reasonable and appropriate approach to measuring the lag from when service is provided to the

customer to when payment for such service is received. I believe the 49.6 days result from the accounts receivable approach is also a valid and properly supported measure of the revenue lag experienced by the Company.

As I previously explained, both the sampling method and the accounts receivable method result in estimates of the revenue lag; therefore, it is reasonable that the revenue lags calculated using each method are approximately the same, but not exactly equal.

Q23. When the Company personnel calculated the daily accounts receivable balance, did they properly consider read but unbilled accounts which are recorded in the general ledger at month end?

A23. Yes. At month-end, the Company records in the general ledger the accounts receivable and revenue related to meters read but unbilled. The actual bills are recorded during the normal cycle billing process the first six to eight days of the following month. We verified that the Company did not double count these billings when the daily accounts receivable balances were calculated.

Q24. You previously stated that you believed the Company's requested working capital requirement was understated. Please explain why you believe this.

A24. The basic objective of the working capital allowance is to provide a means for customers to pay a fair cost for service and to provide a means for compensating investor supplied capital. When excessive reliance is placed on a narrow definition of "cash" working capital, the claim is sometimes made that the effect of the delay in collecting depreciation expense, for example, may not be included in the working capital allowance since depreciation does not require a current cash outlay. When this narrow view of "cash" working capital is adopted, the investor will not receive a return on his full cash investment.

Using depreciation expense as an example, depreciation expense occurs because a cash expenditure for plant was made in prior years. Investors supplied the cash funding for investment in new plant. The depreciation provision merely reflects the recovery of such prior cash expenditures from customers receiving service from the plant.

Q25. How is the investor compensated for the cash expenditures invested in plant until such amounts are recovered from customers?

A25. The investor is compensated by inclusion of such plant in rate base. As this capital is recovered through depreciation, rate base is reduced. However, rate base is reduced by the recorded accumulated depreciation which is greater than the depreciation received in cash from customers. Depreciation expense is recorded on the books and the accumulated

depreciation is increased as the plant renders service to customers, not when the customer pays for service. Depreciation will not be collected in cash from customers until an average of 50.2 days after service is rendered. Unless this 50.2 day revenue lag is included in rate base, a portion of investor supplied capital will not have an opportunity to earn a return.

Q26. Mr. Day, can you please illustrate your point regarding the recovery of depreciation in cash from customers?

A26. Please refer to my Attachment I which consists of three pages. Page One shows the cash purchase of an asset for $1,000 on October 1, 1982. It also shows the accrual of depreciation over the asset's two-year life until the asset is retired on September 30, 1984. While the example shows a two-year life for simplicity, the concept that I am illustrating is the same no matter what the service life. At any time between October 1, 1982 and the asset's retirement on September 30, 1984, the rate base would be the gross cost of the asset, which is $1,000, less the accumulated depreciation recorded on the books on an accrual basis as service is rendered. Thus, the rate base will decline over the two year life of the property.

Q27. Please describe Page 2 of your Attachment I.

A27. Page 2 shows the cash collection of the recorded depreciation. The asset is placed in service on October 1, 1982, and started rendering service to customers on that date. The cash collections from customers do not begin, on the average until November 19, 1982, which is about 50.2 days after the plant was placed in service and included in the rate base. Because the cash is collected after service is rendered, there is a 50.2-day lag in the collection of recorded depreciation. By September 30, 1984, the plant will be fully depreciated, will not be rendering service to customers, and will be excluded from rate base. However, cash collections related to prior service will continue for 50.2 days beyond the date of retirement.

Q28. Please describe Page 3 of your Attachment I.

A28. Assuming that the 12-months ended September 30, 1983, is the test period, the rate base at September 30, 1983 would be the gross cost of the plant of $1,000 less the accumulated depreciation of $500, producing a rate base of $500. On the other hand, as shown on Page 2 of my Attachment I, the cash collections are made 50.2 days after service is rendered. Therefore, at the end of the test period, only $431 ($500 x $\frac{365 - 50.2}{365}$) of cash has been collected. The

investors' remaining investment not yet collected in cash is $569 ($1,000 less $431). However, an accrual determination of the net plant allowed in rate base would be $500 rather than $569. It is this additional $69 of investor supplied capital that must be compensated for through the working capital allowance. An acceptable alternative would be to allow net utility plant of $569 in rate base.

Q29. Are there other components of cost of service that should be considered in the lead/lag study when calculating working capital?

A29. Yes. The return to investors is a component of the total cost of service upon which revenue requirements are based. The lag in collection of this component of the revenue requirement should also be included in the working capital requirement. My Attachment No. II shows the breakout of the total return to investors after the requested rate increase.

Q30. How many lag days should be assigned to these components of the return to the investors?

A30. The delay in collecting these components of the cost of service is the revenue lag of 50.2 days.

The delay in payment of debt interest and preference share dividends beyond the period that such capital renders service to the customer represents investor supplied capital. Many believe that reflecting this delay as a reduction in the working capital allowance is inappropriate. When such a delay is reflected, it should be reflected either through the working capital study or rate of return. The lag days for long-term debt is 90 days, which represents the number of days from the mid-point of the semi-annual interest period to the date interest is paid. The number of lag days on unfunded debt (short-term debt) is 15. The Company's procedure is to roll-over short-term debt every 30 days; therefore, 15 days represents the time from the mid-point of the period until the interest is paid.

The lag days for preference share dividends is 45 days which is based on the number of days from the mid-point of the quarterly dividend period to the date the dividends are paid.

Q31. Should there be any lag days assigned to that portion of the cost of service represented by return to common shareholders?

A31. No. This is because investors are entitled to their return on capital employed as the service is rendered to customers. Therefore, there is no lag, as there is when vendors and

taxing authorities delay required payment days beyond when service is rendered.

Q32. Is there a lag which should be reflected in the working capital study because dividends to the common shareholder are only paid periodically?

A32. No. The common shareholder is entitled to the return on equity investment as service is rendered. He or she, in theory, could take out earnings daily as dividends or could reinvest the entire amount daily. To the extent the common shareholder does the latter, he or she has made an additional investment and is also entitled to a return the next day. To the extent that the common equity investor receives reinvested earnings as periodic cash dividends, the common shareholder is no longer entitled to a return on such reinvested earnings. For accounting purposes, retained earnings are reduced when common dividends are declared. However, for purposes of computing the common shareholder's invested capital, such dividends payable are effectively a part of common shareholders' investment until the common investor receives his or her dividends in cash.

Q33. Mr. Day, do you have an attachment which quantifies the understatement of the Company's requested working capital?

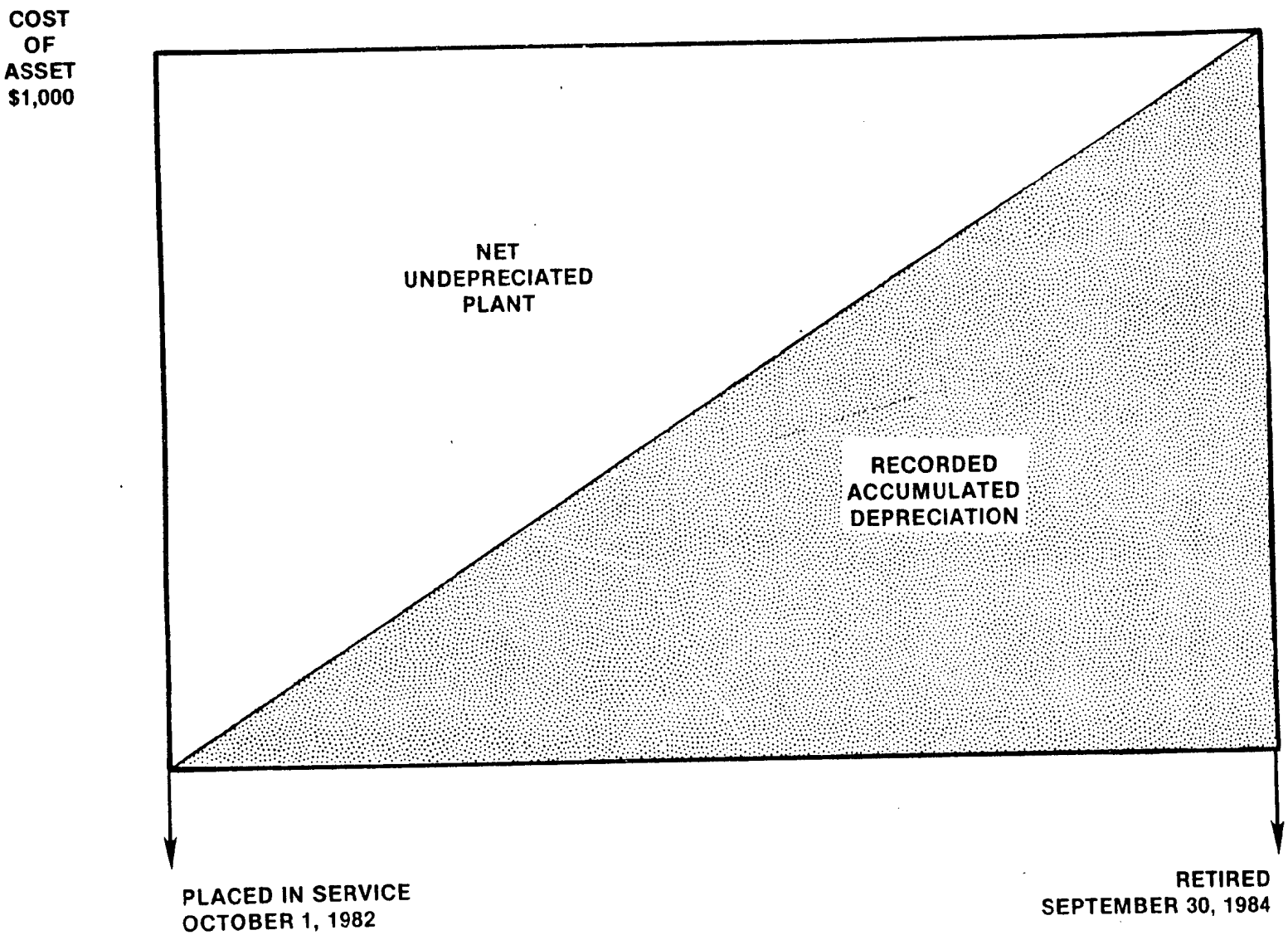
A33. Yes, my Attachment III shows the components of the cost of service which should be included in the working capital requirement that were excluded by the Company. This attachment also includes the additional income taxes associated with the requested increase in revenues. My analysis shows that the Company understated its working capital requirement by $9,900,000.

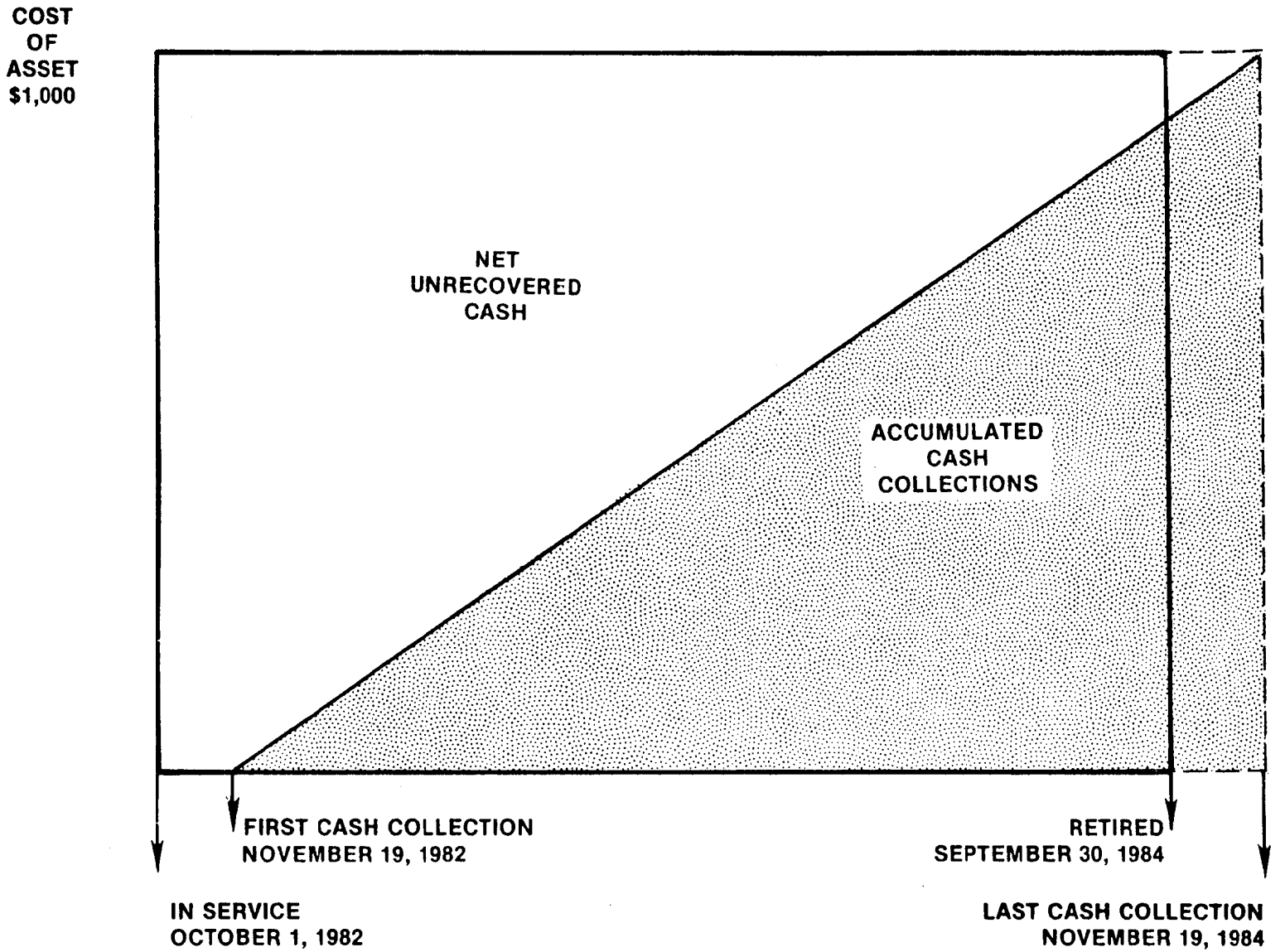
Q34. What disbursement lag did you use for income taxes on your Attachment III?

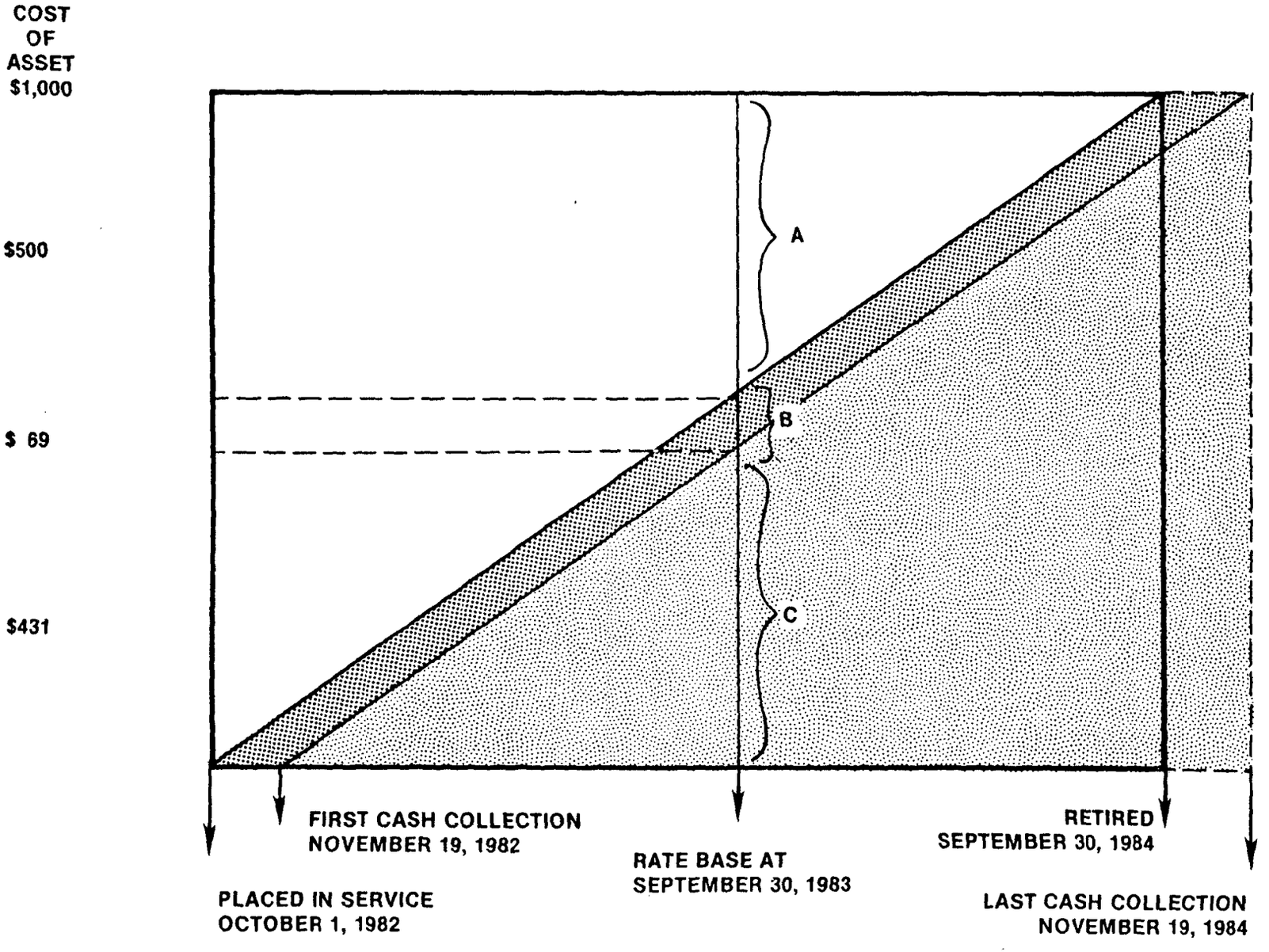
A34. The disbursements lag of 15.8 days was calculated by the Company and reflected in the net disbursement lag on Exhibit L.1.6.1. As my Attachment III, line 6 shows, during a twelve month period, the company pays its income taxes an average of 34.4 days before the company collects income taxes from customers. The investors must supply this capital for the period prior to recovery from customers.

Q35. Does this conclude your testimony?

A35. Yes, it does.


COST
OF
ASSET
$1,000
NET
UNDEPRECIATED
PLANT
RECORDED
ACCUMULATED
DEPRECIATION
PLACED IN SERVICE
OCTOBER 1, 1982
RETIRED
SEPTEMBER 30, 1984


COST
OF
ASSET
$1,000
NET
UNRECOVERED
CASH
ACCUMULATED
CASH
COLLECTIONS
FIRST CASH COLLECTION
NOVEMBER 19, 1982
RETIRED
SEPTEMBER 30, 1984
IN SERVICE
OCTOBER 1, 1982
LAST CASH COLLECTION
NOVEMBER 19, 1984




A. Net plant allowed in rate base.
B. Depreciation that has reduced rate base but not yet collected from customer.
C. Accumulated depreciation which has been collected in cash from customer.

THE CONSUMERS' GAS COMPANY, LTD.
RETURN FOR INVESTORS
9-30-84

J.R. Day
Attachment II

| Line | | Col. 1<br>Capital Structure<br>(A) | Col. 2<br>Cost Rate<br>%<br>(A) | Col. 3<br>Rate Base<br>($ Millions) | Col. 4<br>Return<br>($ Millions) |
|---|---|---|---|---|---|
| 1 | Long Term Debt | 49.12 | 12.09 | 607.1 | 73.4 |
| 2 | Unfunded Debt | 1.78 | 10.30 | 22.0 | 2.2 |
| 3 | Preference Shares | 9.80 | 11.48 | 121.1 | 14.0 |
| 4 | Deferred Taxes | 2.91 | -- | 36.0 | -- |
| 5 | Common Equity | 36.39 | 16.25 | 449.8 | 73.0 |
| 6 | | 100.00 | | (A) 1,236.0 | (B) 162.6 |

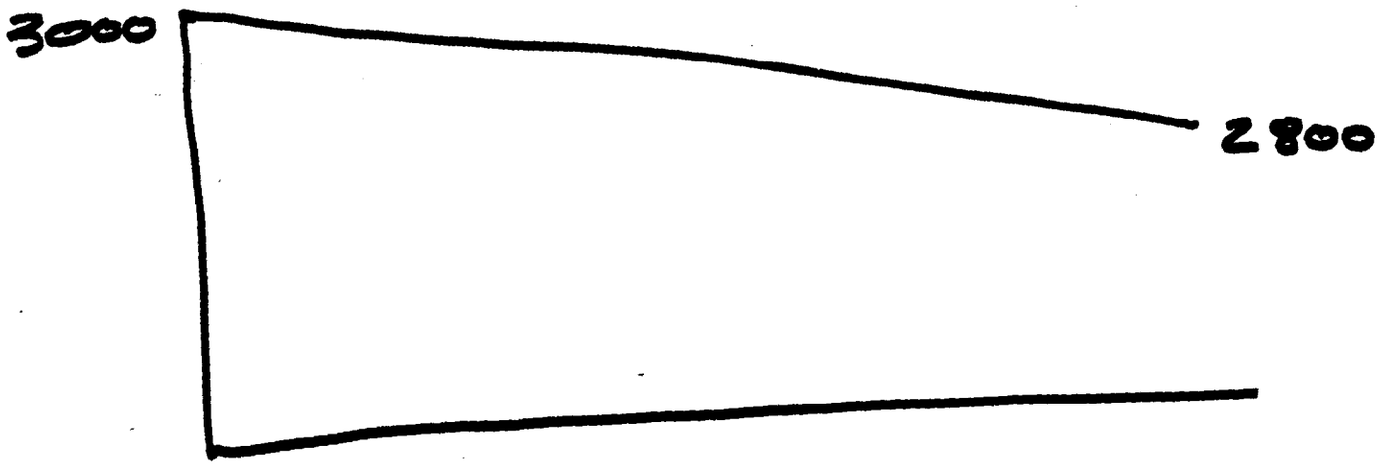
(A) Source - Exhibit 01.1.2
(B) Source - Exhibit 01.1.1 (Adjusted Net Income, $148,400,000 plus the deficiency, $14,200,000)

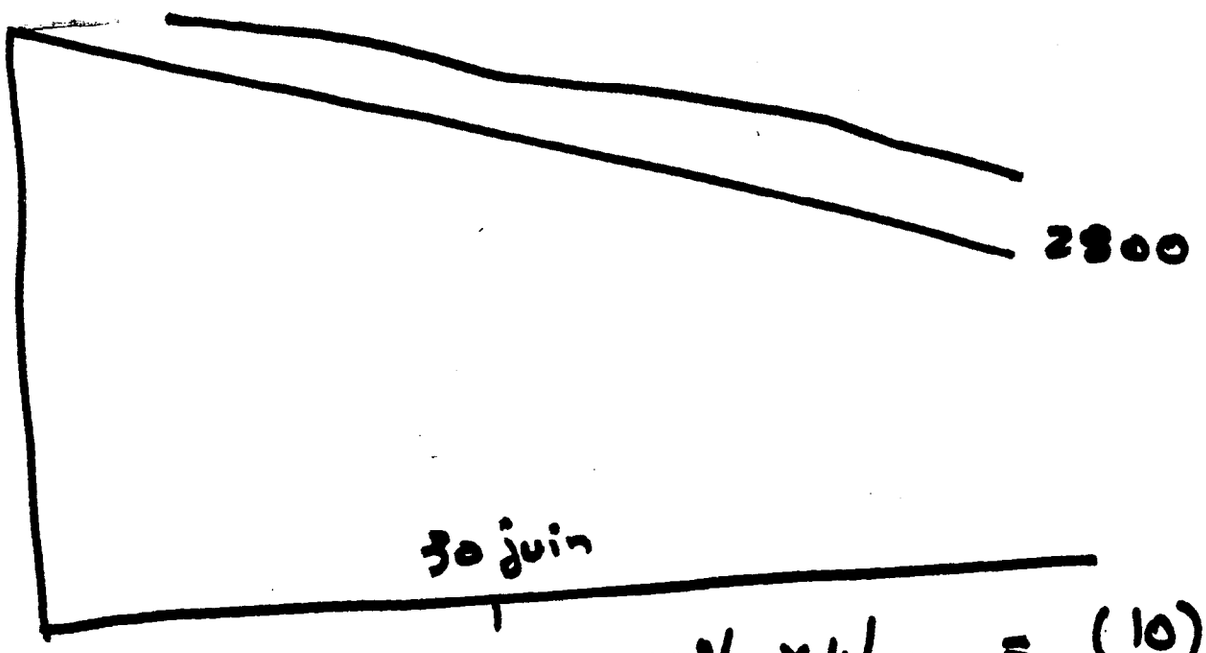
THE CONSUMERS' GAS COMPANY, LTD.
ADDITIONAL WORKING CAPITAL ALLOWANCE
9/30/84

J.R. Day
Attachment III

| Line | | Col. 1<br>Cost of Service Amount ($ millions) | Col. 2<br>Revenue Lag Days | Col. 3<br>Expense Lag Days | Col. 4<br>Net Lag Days | Col. 5<br>% of Year Col. 4 ÷ 365) | Col. 6<br>Working Capital Requirement ($ millions) |
|---|---|---|---|---|---|---|---|
| 1 | Depreciation and Depletion | 44.0 (A) | 50.2 | -- | 50.2 | 13.75 | 6.1 |
| 2 | Long term Debt Return | 73.4 (B) | 50.2 | 90.0 | (39.8) | (10.90) | (8.0) |
| 3 | Unfunded Debt Return | 2.2 (B) | 50.2 | 15.0 | 35.2 | 9.64 | 0.2 |
| 4 | Preference Shares Return | 14.0 (B) | 50.2 | 45.0 | 5.2 | 1.42 | 0.2 |
| 5 | Common Equity Return | 73.0 (B) | 50.2 | -- | 50.2 | 13.75 | 10.0 |
| 6 | Income Taxes on Additional Return of $14.2 million | 14.3 (C) | 50.2 | 15.8 | 34.4 | 9.42 | 1.4 |
| 7 | Understatment of Working Capital Requirement | | | | | | $9.9 |

(A) Source - Exhibit L2.1.1
(B) Source - J.R. Day Attachment II
(C) Source - Exhibit 01.1.1 ($28,500,000 less $14,200,000)




200 x 10% x 6/12 = (10)

SCGM-13
DOC-16
Page 1 de 2

FM 3000 * 10% = 300 *

REV 2900 x 10% = 290 *

10 *.

REV: 2900 x 10% = 290

FF: 2900* x 10% = 290

* délai récupération

SCCM-13
Doc-16
Page 262