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SECRETARIA DOS RECURSOS HÍDRICOS – SRH; GEONORTE

**TÍTULO:**

PROJETO EXECUTIVO DA BARRAGEM MARCO

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VOLUME 3 ESTUDOS HIDROLÓGICOS

FOLHA DE DADOS - GED/SRH

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Localização da Obra

Tipo de Empreendimento:

<input checked="" type="checkbox"/> Barragem <input type="checkbox"/> Açude Rio / Riacho Barrado: <u>Riacho do Corrego</u>	<input type="checkbox"/> Adutora <input type="checkbox"/> Canal / Eixo de Transp. <input type="checkbox"/> Outro Fonte Hídrica: _____
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Bacia: Acarai  
 Sub-bacia: \_\_\_\_\_  
 Municípios: Marco  
 Distrito: \_\_\_\_\_  
 Microregião: Interior de Lamoun e Acaraí  
 Estado: Pernambuco

Lote: 00035 - Prep  Scan  Index

Projeto Nº 0002/03

Volume \_\_\_\_\_ / \_\_\_\_\_

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Outros \_\_\_\_\_



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**PROJETO EXECUTIVO DA BARRAGEM MARCO,  
EM MARCO, CEARA.  
VOLUME 3: ESTUDOS HIDROLOGICOS**

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1. ESTUDOS HIDROLOGICOS

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## 1. ESTUDOS HIDROLOGICOS

### 1.1 Introdução

#### 1.1.1 Objetivo

Os estudos hidroclimatológicos objetivaram fornecer informações relativas ao relevo, clima e recursos hídricos de superfície necessárias ao desenvolvimento do projeto, principalmente com vistas ao dimensionamento do açude e de suas possibilidades de abastecer áreas irrigáveis à jusante.

#### 1.1.2 Fisiografia e Vegetação

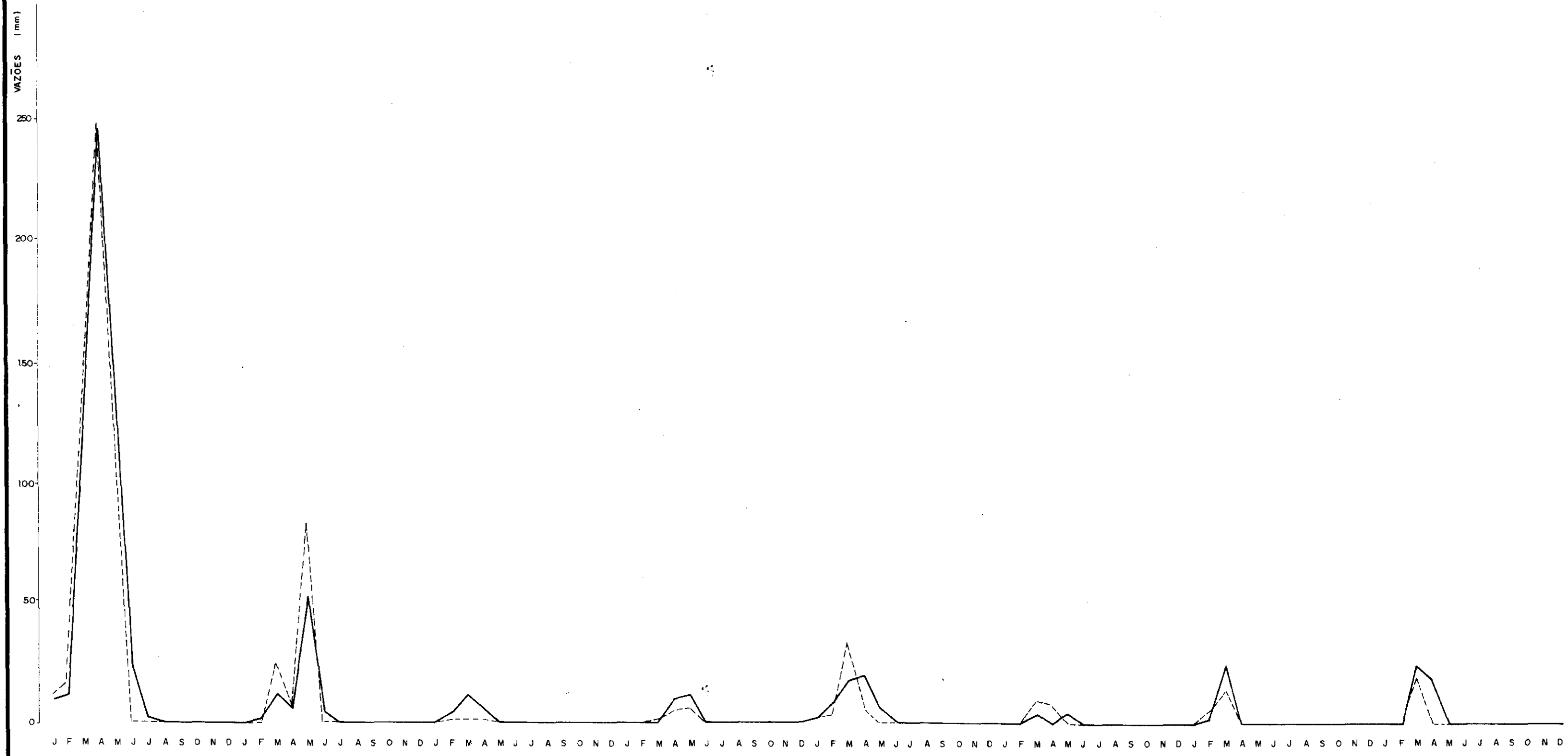
A área onde será implantada a barragem situa-se no Riacho do Côrrego, na localidade denominada "Canoas", no Município de Marco, a cerca de 4 km a sudoeste da sede do município, na Região Norte do Estado do Ceará. A sua localização pode ser vista melhor na Figura 01.

Com uma área de 155,5 km<sup>2</sup>, a bacia hidrográfica do Açude Marco se encontra situada na micro-região de Acaraú com irregulares índices pluviométricos (Veja Figura 02). O vale tem sentido oeste-leste com 26 km de comprimento. Sua nascente se encontra na Serra do Mucuripe a uma altitude de 200 metros. As declividades variam de 0,00091 a 0,002 sendo a média de 0,002 (Ver Figura 02).

A bacia apresenta características predominantes do semi-árido nordestino, com relevo do tipo R3 (Veja Figura 01), segundo a classificação de NOUVELOT,<sup>(\*)</sup> desenvolvendo-se sobre

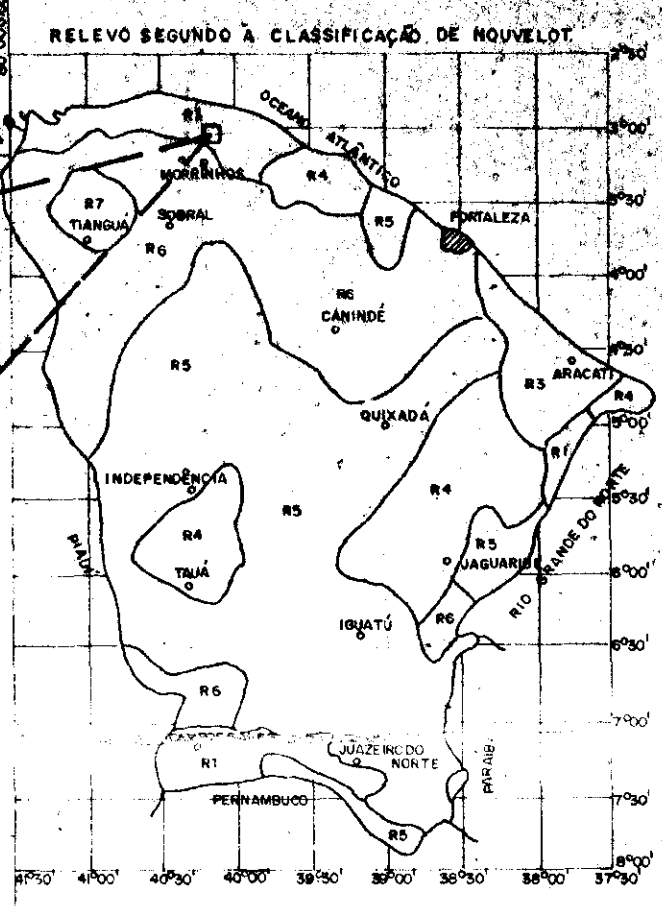
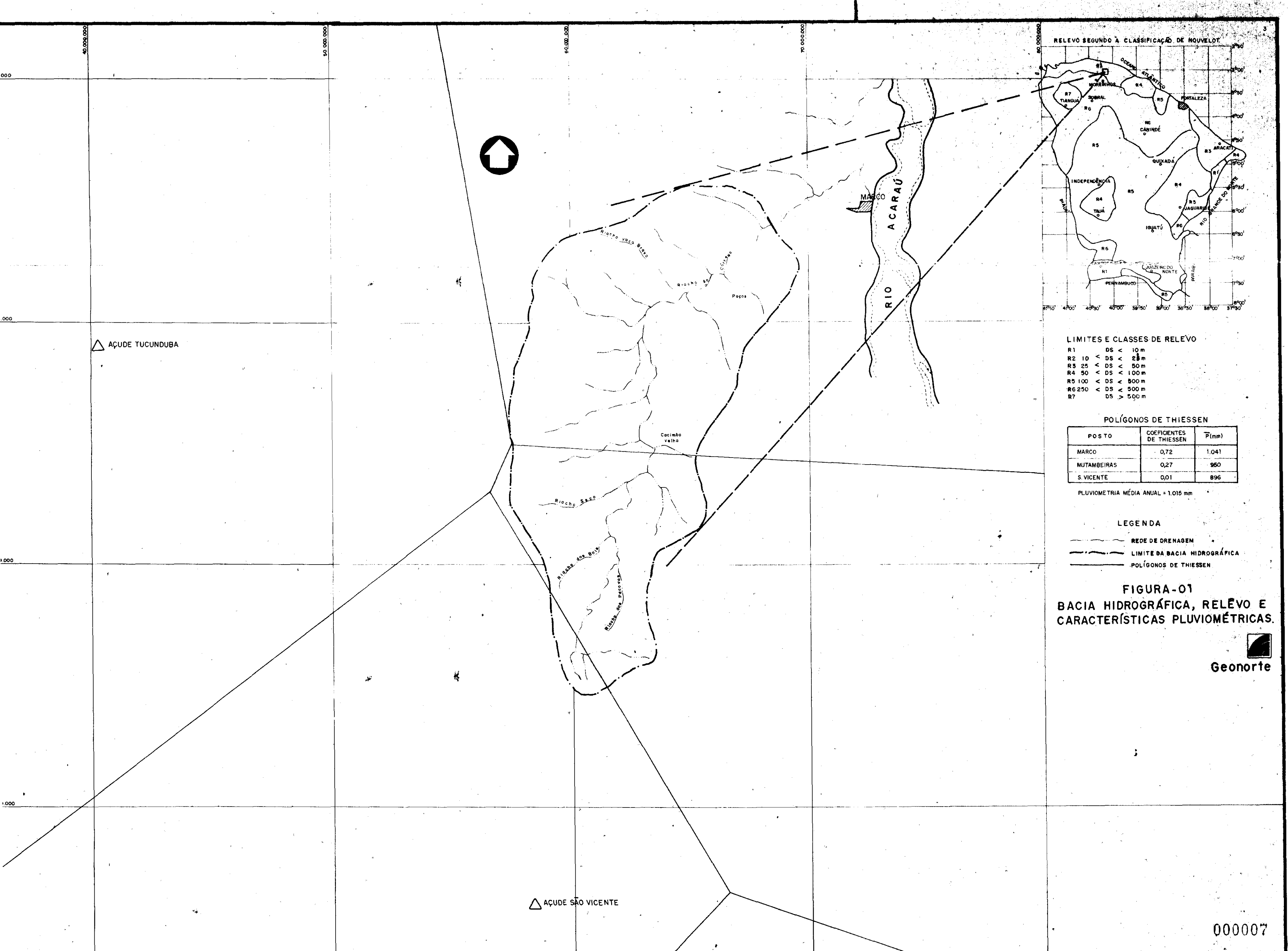
(\*) NOUVELOT, J.F. - "Planificações da Implantação de Bacias Representativas", SUDENE, 1974.

MODELO CHUVA-DEFLUVIO CN-3S  
CURVE NUMBER WITH THREE  
STEP ANTECEDENT PRECIPITATION



— VAZÕES OBSERVADAS  
- - - VAZÕES CALCULADAS

FIGURA - 13 000006  
AJUSTE DO MODELO CN-3S AO POSTO DE GROAÍRAS



**LIMITES E CLASSES DE RELEVO**

R1 DS < 10 m  
 R2 10 < DS < 20 m  
 R3 25 < DS < 50 m  
 R4 50 < DS < 100 m  
 R5 100 < DS < 500 m  
 R6 250 < DS < 500 m  
 R7 DS > 500 m

**POLÍGONOS DE THIESSEN**

POSTO	COEFICIENTES DE THIESSEN	P̄(mm)
MARCO	0,72	1.041
MUTAMBEIRAS	0,27	950
S. VICENTE	0,01	896

PLUVIOMETRIA MÉDIA ANUAL = 1.015 mm

**LEGENDA**

— REDE DE DRENAGEM  
 - - - LIMITE DA BACIA HIDROGRÁFICA  
 — POLÍGONOS DE THIESSEN

**FIGURA-01**  
**BACIA HIDROGRÁFICA, RELEVO E**  
**CARACTERÍSTICAS PLUVIOMÉTRICAS.**







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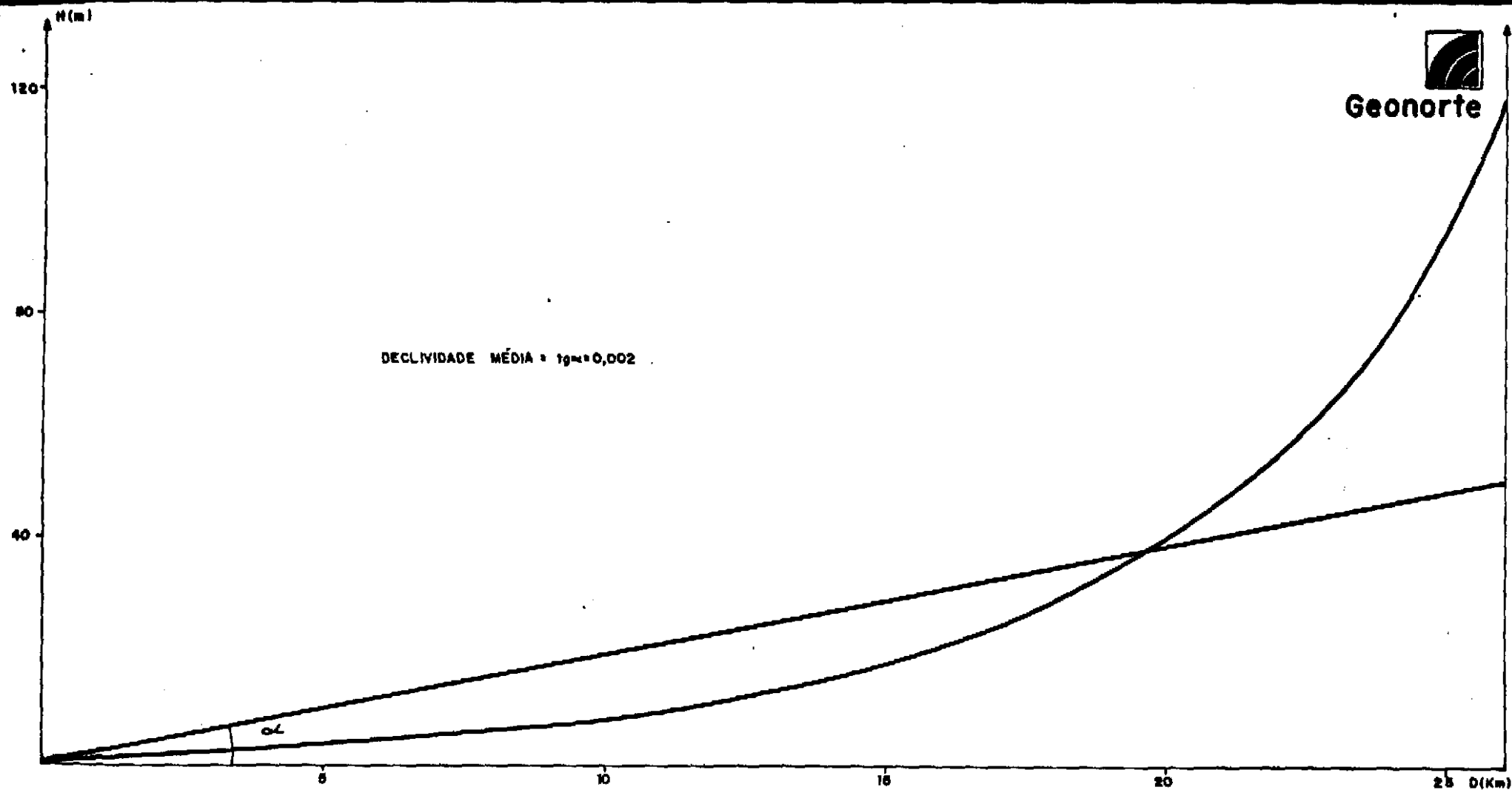


FIGURA - 02  
PERFIL DO TALVEGUE

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terrenos de formação geológica cristalina, portanto, praticamente impermeáveis, com cobertura vegetal pouco densa do tipo hiperxerófila (caatinga). As altitudes variam de 200 a 40 metros.

O relevo da região é composto por extenso pediplano, cuja monotonia de formas suavemente onduladas é interrompida pelos morros e serrotes residuais, formados por migmatitos e granitóides mais resistentes.

Os terrenos cenozóicos de cobertura constituem uma unidade morfológica correspondente a "uma ampla superfície com cotas de 20 metros no litoral, crescendo de maneira contínua e regular para o interior, atingindo valores na faixa de 100 - 110 metros na área leste de Morrinhos, formando os denominados tabuleiros costeiros, limitados quase sempre por linha de escarpas de traçado sinuosos e irregular".

Os vales são abertos, com extensas planícies de inundação, separadas por divisores d'água baixos e abaulados. Os cursos d'água são lentos, com pequena capacidade de carga, embora possam ocorrer enchentes violentas durante os períodos de elevadas médias pluviométricas.

Deve-se observar que a bacia está sujeita a um clima de alto poder evaporante provocando, conseqüentemente, um regime de escoamento superficial também de alta variabilidade, com cursos d'água intermitentes, apresentando vazões nulas por longos períodos, exatamente quando mais acentuado é o "deficit" hídrico local.

A bacia do Riacho do Córrego possui os seguintes parâmetros de caracterização física:



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- Area	A = 155,5 km <sup>2</sup>
- Comprimento do talvegue	L = 26 km
- Índice de compactidade	Kc = 1,31
- Fator de forma	Kf = 0,26
- Declividade média	Dm = 0,002
- Tipo de relevo	R3



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2. CLIMATOLOGIA

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## 2. CLIMATOLOGIA

A bacia do Riacho do Córrego apresenta apenas um tipo de climático, o tropical semi-árido que, devido a sua proximidade do oceano, sofre forte influência marítima.

A seguir, serão estudados alguns parâmetros característicos do clima da região.

### 2.1 Estudos Pluviométricos

#### 2.1.1 Objetivos

Os estudos pluviométricos visam fundamentalmente:

- Caracterizar o regime pluviométrico a nível anual e mensal, bem como o relativo às chuvas intensas na região do projeto;
- Fornecer os elementos indispensáveis aos estudos subsequentes de deflúvios e cheias.

#### 2.1.2 Dados Disponíveis

A rede pluviométrica da região é bastante densa, porém com vários postos com curta duração. Devido ao seu reduzido tamanho, a bacia hidrográfica do açude Marco não possui postos em seu interior, mas nas suas proximidades, há um total de oito postos cujas características mostradas no Quadro 1, enquanto que a disponibilidade de dados é mostrada esquematicamente na Figura 03.

Destes oito postos disponíveis, três foram selecionados para caracterizar o regime pluviométrico da região. Como pode ser visto nos polígonos de Thiessen na Figura 01, o

QUADRO 1

CARACTERÍSTICAS PRINCIPAIS DOS POSTOS PLUVIOMÉTRICOS

CÓDIGO DA ESTAÇÃO	NOME DA ESTAÇÃO	MUNICÍPIO	ESTADO	COORDENADAS		ALTITUDE (m)	PERÍODO DE OBSERVAÇÃO			
				LATTITUDE	LONGITUDE		INÍCIO		FIM	
							MES	ANO	MES	ANO
2769273	MARCO	MARCO	CEARÁ	03°08'	40°09'	40	01	1962		
2769315	TUCUMDUBA	SENADOR SÁ	CEARÁ	03°10'	40°26'	800	02	1912		
2768597	RIACHINHO	SENADOR SÁ	CEARÁ	03°15'	40°31'	70	02	1921	04	1929
2769673	MUTAMBEIRAS	SANTANA DO ACARAÚ	CEARÁ	03°20'	40°09'	50	01	1962		
2769961	SANTANA DO ACARAÚ	SANTANA DO ACARAÚ	CEARÁ	03°27'	40°12'	47	01	1912	11	1932
2769847	S. VICENTE	SANTANA DO ACARAÚ	CEARÁ	03°24'	40°16'	110	01	1920		
2860026	ALMOFALA	ACARAÚ	CEARÁ	03°02'	39°53'	15	12	1961		
2860736	AMONTADA	ITAPIPOCA	CEARÁ	03°23'	39°50'	180	02	1922		

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conjunto apresenta uma boa distribuição e uma apreciável repartição da área de influência de cada posto.

Os dados coletados e devidamente tratados foram sujeitos a uma análise complementar, que objetiva a obtenção de séries homogêneas e completas.

Para o preenchimento das falhas optou-se pelo método das vizinhanças, desenvolvido por Ven Te Chow, que se mostrou mais indicado do que o das correlações, o qual apresenta como principais desvantagens e imprecisão a nível mensal e a idéia implícita de maior confiabilidade atribuída ao posto escolhido em detrimento dos demais existentes.

No método, se X é o posto com falhas e A, B, C, I, os postos situados na vizinhança, ter-se-á:

$$P_K = M_k \cdot \frac{1}{n} \left( \frac{P_a}{M_a} + \frac{P_b}{M_b} + \dots + \frac{P_i}{M_i} \right)$$

onde:

$M_k$  = média anual

$P_K$  = pluviometria, mensal ou posto

$n$  = No. de postos da vizinhança

A vizinhança destes postos também pode ser visualizada na Figura 03.

### 2.1.3 Caracterização do Regime Pluviométrico

Analisando-se as séries mencionadas acima, constata-se claramente a irregularidade interanual do regime





pluviométrico da região.

O indicador CV anual, que indica o grau de dispersão em relação à média, mostrou pouca variação, tendo-se apresentado em torno de 0,40. A precipitação média anual da área está em torno de 1.000 mm.

#### 2.1.4 Nivel Mensal

A heterogeneidade de repartição temporal se constitui numa característica básica do regime pluviométrico da região, bem como do semi-árido nordestino.

As precipitações se concentram fortemente no primeiro semestre, sendo insignificantes os índices dos meses restantes, exceção feita, em alguns anos, no mês de dezembro.

O quadro 2 apresenta alguns indicadores de concentração de pluviometria em alguns postos representativos da região para os períodos mais chuvosos de 1 mês, 2 meses, 3 meses e 6 meses. Março é o mais chuvoso, representando em torno de um quarto da precipitação anual. O trimestre de maior pluviosidade, geralmente de fevereiro/abril, responde por cerca de dois terços desse mesmo índice. No semestre janeiro/junho a taxa de concentração supera 90%.

O Quadro 2 mostra a variação espacial do trimestre mais úmido, enquanto que a Figura 04 permite uma visualização gráfica da repartição mensal da pluviometria, através do ietograma relativo ao posto de S. Vicente representativo da bacia.

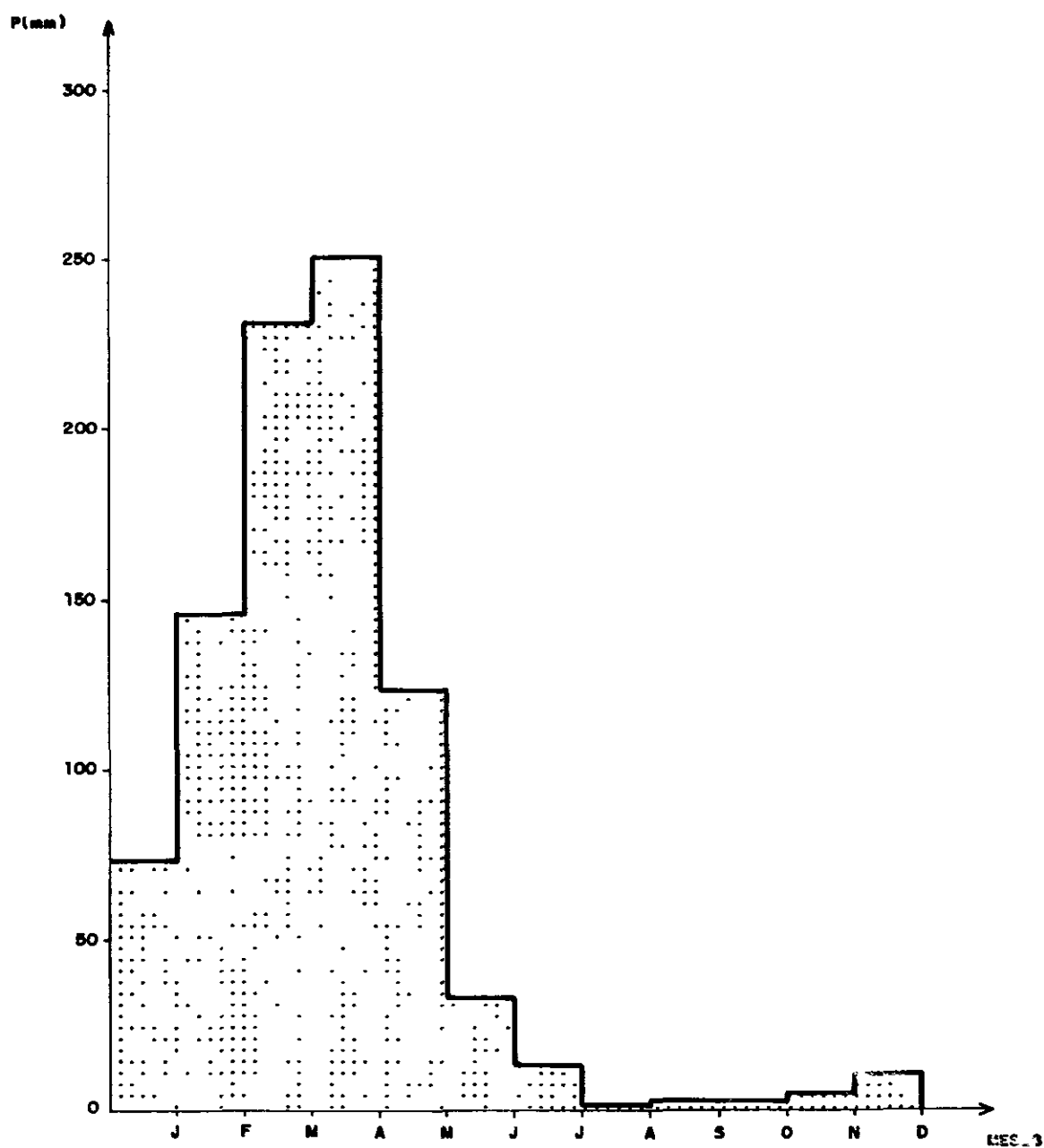
## 2.2 Chuvas Intensas na Area do Projeto

QUADRO 2

POSTOS PLUVIOMÉTRICOS - INDICADORES DE CONCENTRAÇÃO

POSTO	MES (%)	BIMESTRE (%)	TRIMESTRE (%)	SEMESTRE (%)
TUCUNDUBA	MARÇO-27,5	MARÇO-ABRIL-52,6	FEVEREIRO-ABRIL-69,9	JANEIRO-JUNHO-96,1
ALMOFALA	ABRIL-28,7	MARÇO-ABRIL-52,2	MARÇO-MAIO- 68,2	JANEIRO-JUNHO-92,4
AMONTADA	ABRIL-26,9	MARÇO-ABRIL-50,6	MARÇO-MAIO- 65,6	JANEIRO-JUNHO-93,3
MUTAMBEIRAS	MARÇO-28,5	MARÇO-ABRIL-55,7	FEVEREIRO-ABRIL-70,2	JANEIRO-JUNHO-96,7
SANTANA DO ACARAÚ	MARÇO-26,7	MARÇO-ABRIL-49,8	FEVEREIRO-ABRIL-67,7	JANEIRO-JUNHO-95,6
RIACHINHO	ABRIL-28,8	MARÇO-ABRIL-53,3	FEVEREIRO-ABRIL-72,8	JANEIRO-JUNHO-97,6
MARCO	ABRIL-26,4	MARÇO-ABRIL-51,0	FEVEREIRO-ABRIL-65,6	JANEIRO-JUNHO-94,6
S. VICENTE	ABRIL-28,1	MARÇO-ABRIL-54,0	FEVEREIRO-ABRIL-70,2	JANEIRO-JUNHO-96,0





PERÍODO DE OBSERVAÇÃO - 1920 1980

FIGURA - 04

IETOGRAMA DO POSTO DE S. VICENTE

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## 2.2.1. Dados Disponíveis

Os dados utilizados nesta fase de estudo são os de precipitação diária do posto do Açude Tucunduba, com 72 anos de observações, que se mostrou o mais adequado da região em estudo para caracterizá-la sobre este aspecto.

## 2.2.2 Caracterização do Regime de Chuvas Intensas

As precipitações diárias do posto do Açude Tucunduba foram ajustadas à lei de distribuição de probabilidade de valores extremos de Gumbel.

Em sua forma clássica, a lei de distribuição de valores extremos de Gumbel tem por função de repartição a seguinte expressão:

$$P(X < x) = F(x) = \exp [ - \exp [ - \alpha (x - \mu) ] ]$$

sendo:

$$y = \alpha (x - \mu)$$

$F(x)$  é a frequência de não ultrapassamento

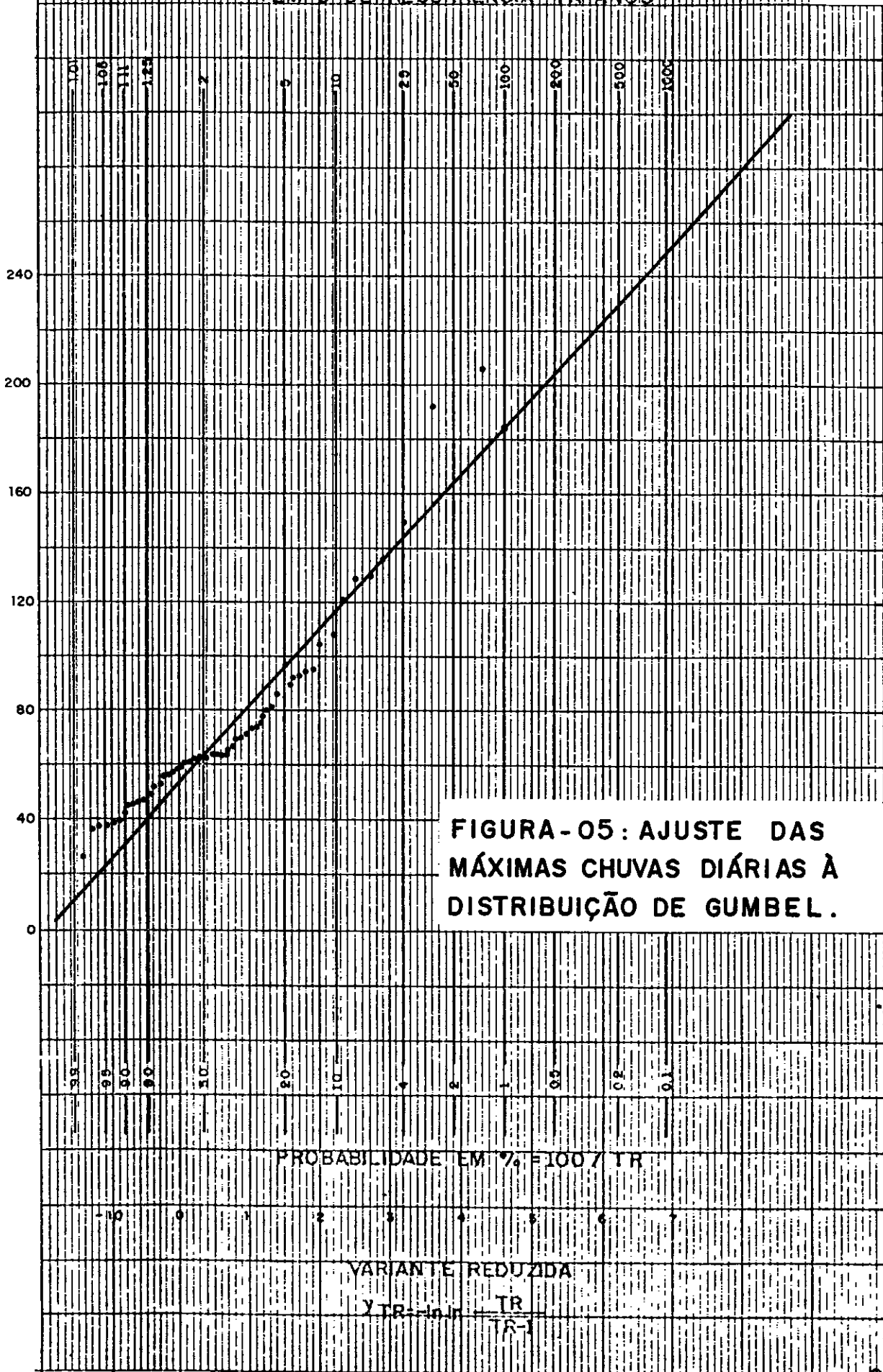
$y$  é a variável reduzida.

Os resultados são apresentados na Figura 05.

Com o objetivo de verificar a aderência da amostra à distribuição de probabilidade, empregou-se o teste de Qui-Quadrado. O teste independe da lei de distribuição utilizada e se baseia no somatório dos desvios das várias frequências teóricas e observadas dispostas em tabelas de distribuições de frequência, para um determinado número de intervalos de classes definidos em



PAPEL DE PROBABILIDADE EXTREMA GUMBEL  
TEMPO DE RECORRENCIA TR ANOS





função de um mínimo de cinco valores de frequência esperada, para cada intervalo.

$$\text{O valor de } X^2_c = \sum_{i=1}^n \frac{(f_{oi} - f_{ei})^2}{f_{ei}}, \text{ foi comparado}$$

com o valor crítico extraído da tabela de distribuição Qui-Quadrado, entrando com o grau de liberdade de distribuição em teste. Sendo a hipótese aceita para um nível de significância de 5%.

### 2.2.3 Metodologia

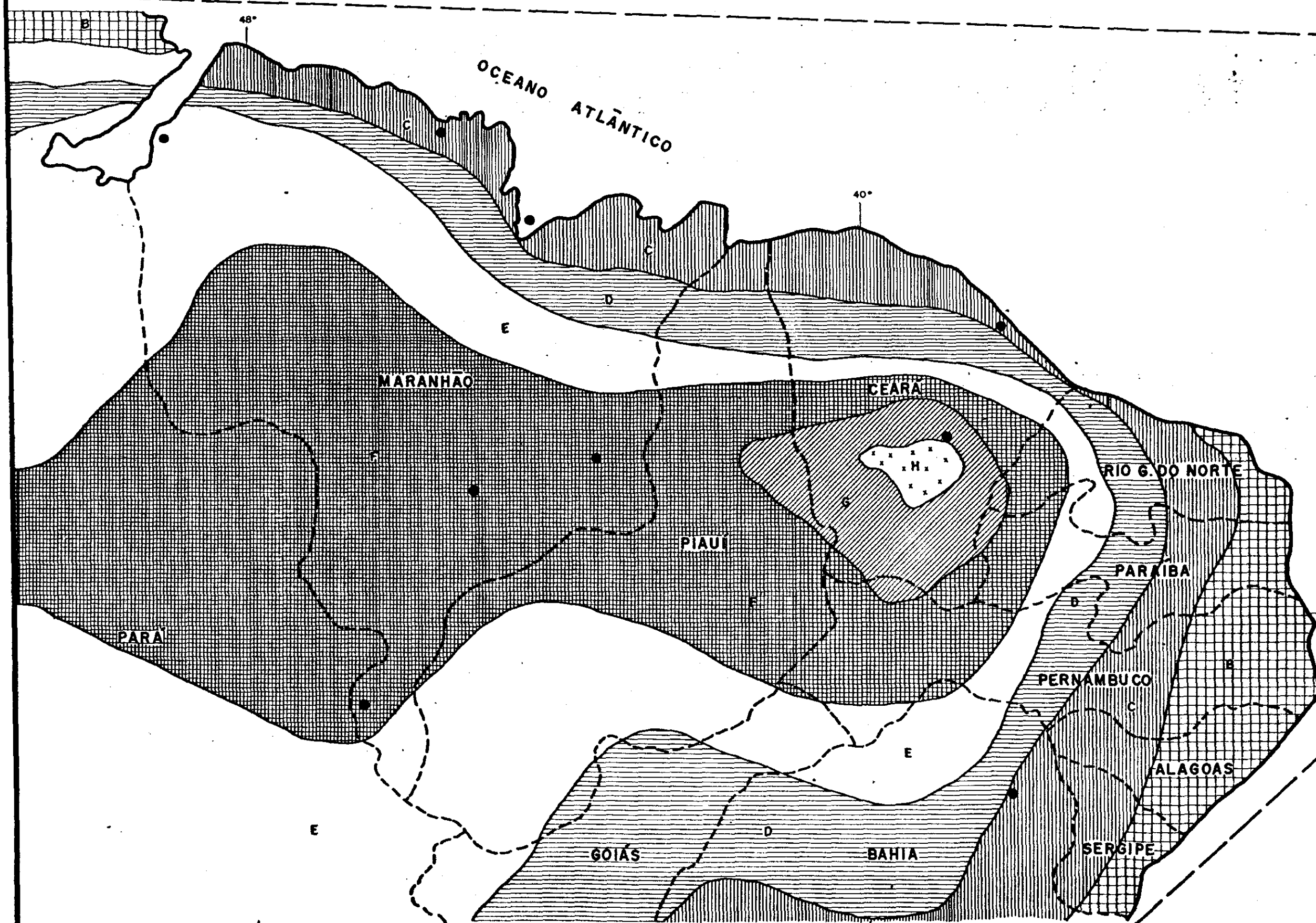
A metodologia utilizada é a das "isozonas" (\*) e descreve-se a seguir a sua aplicação:

- compilou-se os dados das máximas chuvas diárias, para o posto de Tucunduba, na área de projeto;
- calculou-se, para o posto, pelo método estatístico de Gumbel, a chuva de um dia, no tempo de recorrência previsto: 1.000 anos;
- converteu-se a chuva de um dia em chuva de 24 horas, multiplicando-se a primeira pelo fator 1,10;
- determinou-se, na Figura 06 a isozona correspondente ao projeto (Isozona C);
- na tabela da Figura 06, fixou-se, para isozona do projeto e para o tempo de recorrência

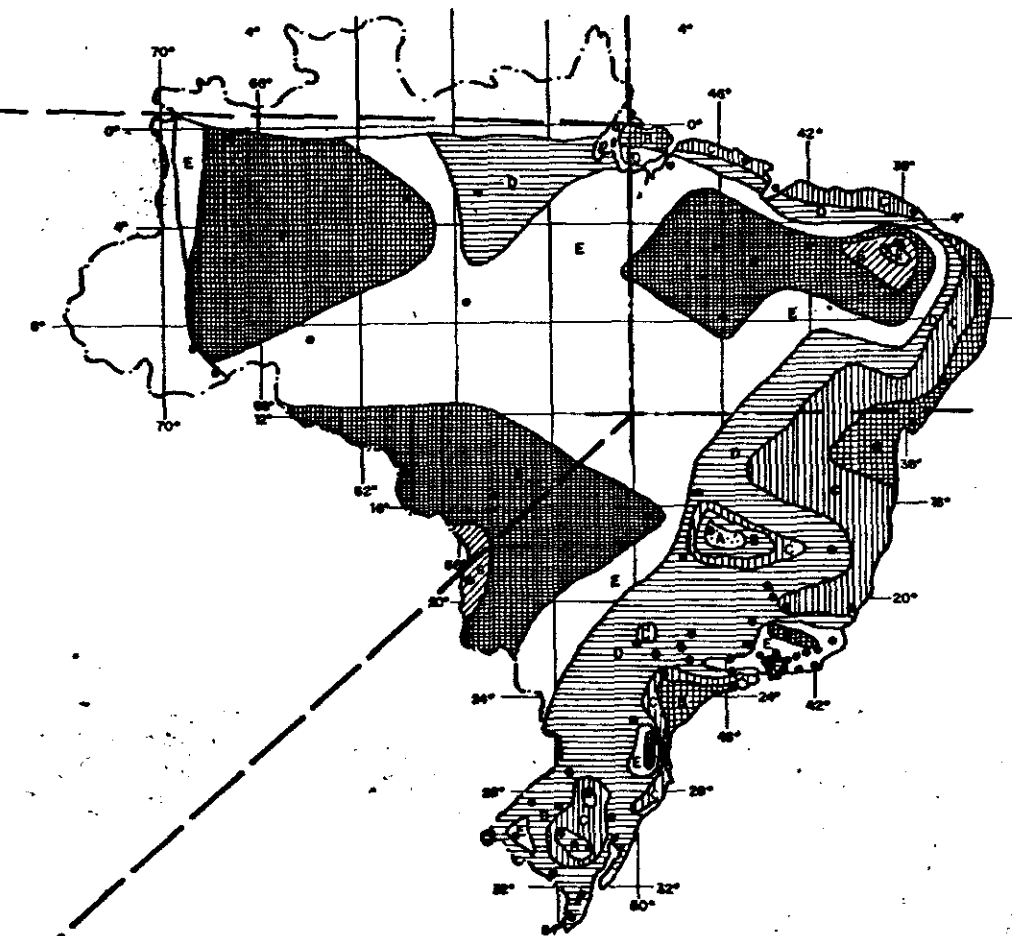
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(\*) Taborga Torrico, Jaime - Práticas Hidrológicas - 2a. Edição  
Rio de Janeiro, 1975, 120p.

ISOZONAS DO NORDESTE



ISOZONAS DO BRASIL



ISOZONAS DE IGUAL RELAÇÃO

ZONA	TEMPO DE RECORRÊNCIA EM ANOS											
	1 HORA / 24 HORAS CHUVA											5min
	5	10	15	20	25	30	50	100	1.000	10.000	5-50	100
A	36.2	35.8	35.6	35.5	35.4	35.3	35.0	34.7	33.6	32.8	7.0	6.3
B	38.1	37.8	37.6	37.4	37.3	37.2	36.9	36.6	35.4	34.3	8.4	7.6
C	40.1	39.7	39.5	39.3	39.2	39.1	38.8	38.4	37.2	36.2	9.6	8.8
D	42.0	41.6	41.4	41.2	41.1	41.0	40.7	40.3	39.0	37.9	11.2	10.0
E	44.0	43.6	43.3	43.2	43.0	42.9	42.6	42.2	40.9	39.6	12.6	11.2
F	46.0	45.5	45.3	45.1	44.9	44.8	44.5	44.1	42.7	41.3	13.9	12.4
G	47.9	47.4	47.2	47.0	46.8	46.7	46.4	45.9	44.5	43.1	15.4	13.7
H	49.9	49.4	49.1	48.9	48.8	48.6	48.3	47.8	46.3	44.8	16.7	14.9

FIGURA - 06  
ISOZONAS DE IGUAL RELAÇÃO

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- previsto, as percentagens para 6 minutos e 1 hora;
- calculou-se, com essas percentagens e a chuva de 24 horas (100%), as alturas de precipitação para 6 minutos e 1 hora.
  - delimitou-se no papel de probabilidade Figura 07, as alturas de chuva para 24 horas, 1 hora e 6 minutos de duração.
  - traçou-se as retas das precipitações de 6 minutos para 1 hora e 1 hora para 24 horas, no papel de probabilidade;
  - para qualquer tempo de duração contido entre 6 minutos e 24 horas, lê-se a altura, correspondente no gráfico do papel de probabilidades (Figura 07).

## **2.3 Estudos dos Outros Parâmetros Climatológicos**

### **2.3.1 Dados Disponíveis**

Nesta fase de estudos serão utilizados os dados da estação climatológica de Sobral. Tal estação, além de possuir uma série normal, está situada próxima a bacia hidrográfica do açude Marco, portanto, representativa do clima desta.

### **2.3.2 Evaporação**

Segundo os dados da estação de Sobral as maiores marcas de evaporação concentram-se nos meses de setembro e outubro; as menores ocorrem nos meses de março e abril. Embora



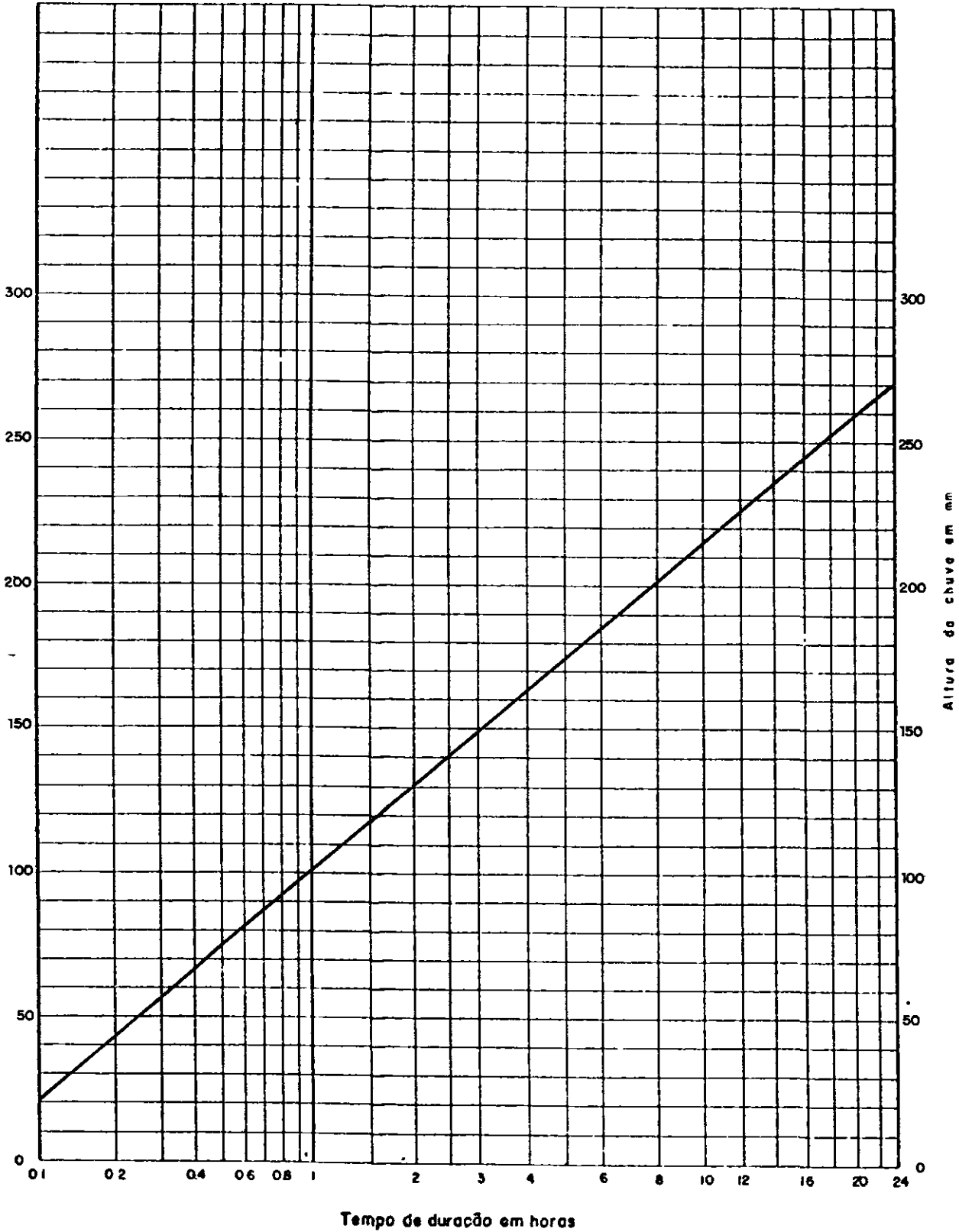
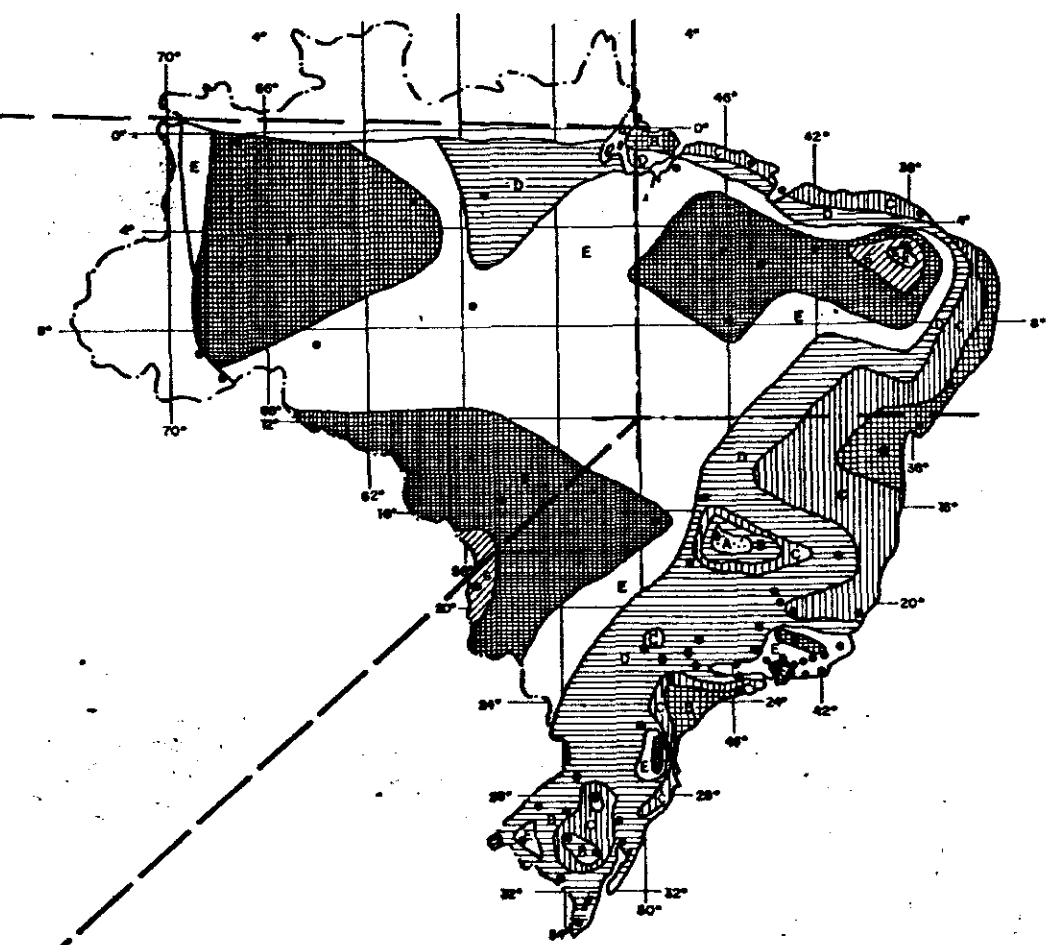
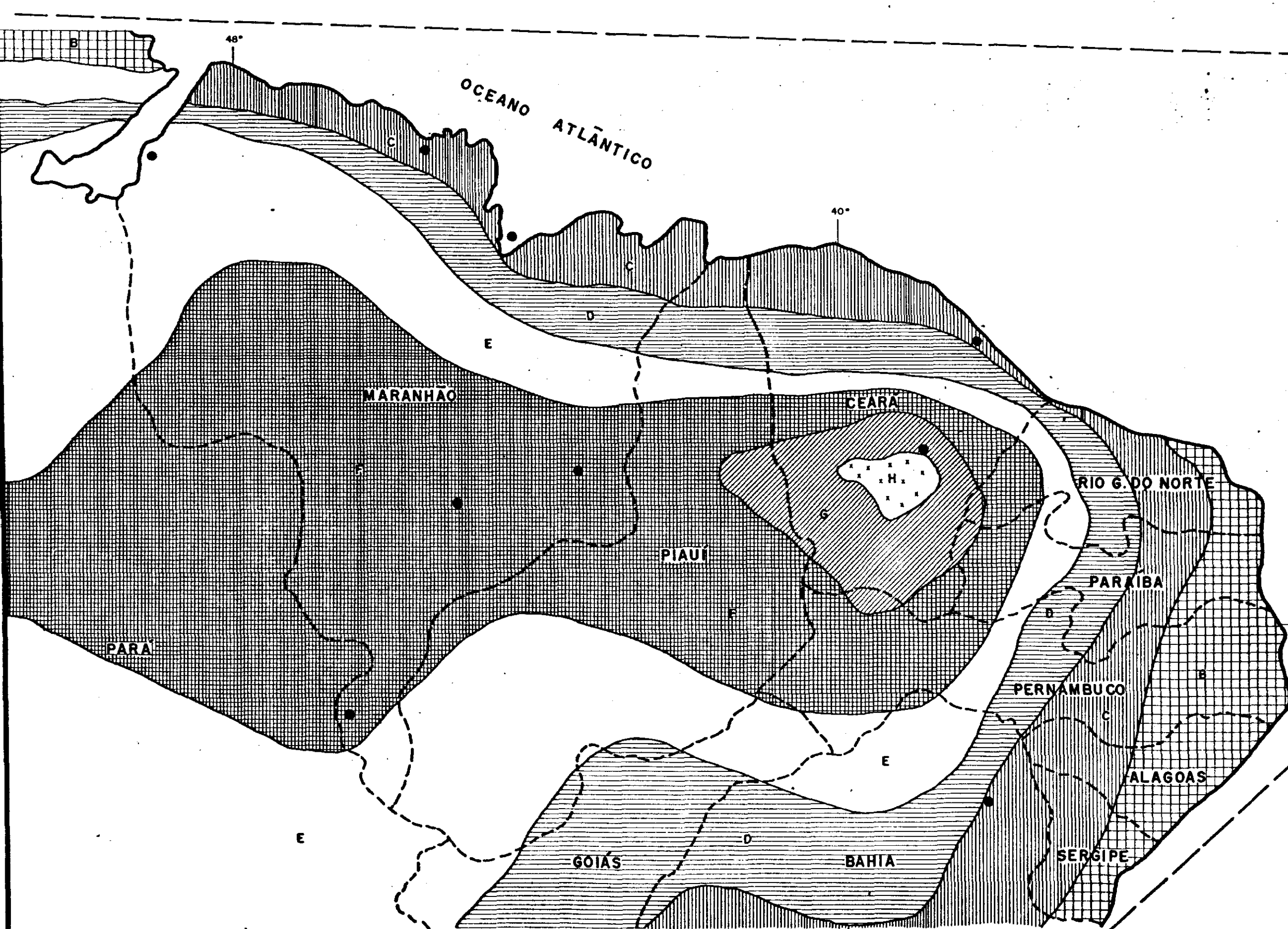


FIGURA - 07

ALTURA DE CHUVA E TEMPO DE DURAÇÃO



ISOZONAS DE IGUAL RELAÇÃO

ZONA	TEMPO DE RECORRÊNCIA EM ANOS											
	1 HORA / 24 HORAS CHUVA										5min / 24h CHUVA	
	5	10	15	20	25	30	50	100	1000	10000	5-50	100
A	36.2	35.8	35.6	35.5	35.4	35.3	35.0	34.7	33.6	32.5	7.0	6.3
B	38.1	37.8	37.5	37.4	37.3	37.2	36.9	36.6	35.4	34.3	8.4	7.6
C	40.1	39.7	39.5	39.3	39.2	39.1	38.9	38.4	37.2	36.2	9.8	8.8
D	42.0	41.6	41.4	41.2	41.1	41.0	40.7	40.3	39.0	37.8	11.2	10.0
E	44.0	43.6	43.3	43.2	43.0	42.9	42.6	42.2	40.9	39.6	12.6	11.2
F	46.0	45.5	45.3	45.1	44.9	44.8	44.5	44.1	42.7	41.3	13.9	12.4
G	47.9	47.4	47.2	47.0	46.8	46.7	46.4	45.9	44.5	43.1	15.4	13.7
H	49.9	49.4	49.1	48.9	48.8	48.6	48.3	47.8	46.3	44.8	16.7	14.9

FIGURA - 06  
ISOZONAS DE IGUAL RELAÇÃO



evapotranspiração nas práticas de irrigação, foi selecionado para efeito de análise evaporimétrica, o posto de Marco situado próximo à bacia.

O parâmetro ETP, foi calculado pela fórmula de HARGREAVES (\*), ajustada as condições do Nordeste brasileiro, cuja expressão é a seguinte:

$$ETP = MF \times 0,158 \times (100 - HM)^{1/2} \times (32 + 1,8 T),$$

onde:

MF - fator mensal tabelado dependente da latitude;

HM - umidade relativa média mensal, em %;

T - temperatura média mensal, em °C.

Os valores obtidos para a evapotranspiração potencial são mostrados no Quadro 5.

## QUADRO 5

### EVAPOTRANSPIRAÇÃO POTENCIAL-FRECHEIRINHA (mm)

MESES	JAN	FEV	MAR	ABR	MAI	JUN	JUL	AGO	SET	OUT	NOV	DEZ	TOTAL
FRECHEIRINHA	192	143	130	118	122	129	152	175	188	202	193	192	1926

Fonte: HARGREAVES, G. 1974 - Disponibilidade e deficiências de umidade para o Ceará-Brasil. Utah State University

Quanto ao déficit hídrico, a Figura 08 apresenta para o posto mencionado, curvas da precipitação média mensal, da

(\*) HARGREAVES, G. 1974 - Disponibilidade e deficiências da umidade para o Ceará - Brasil. Utah State University. Loga.

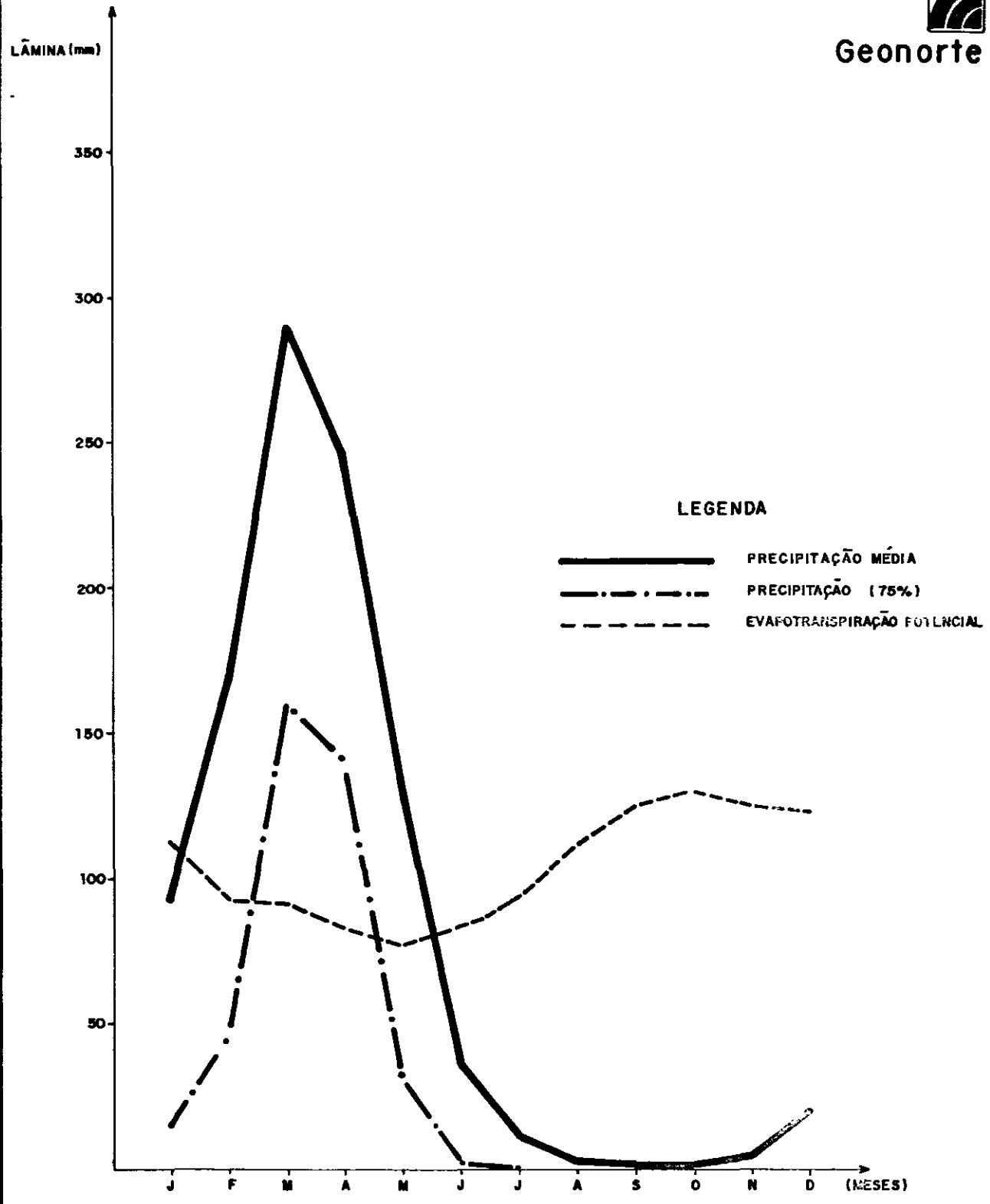


FIGURA - 08  
DÉFICIT HÍDRICO EM MARÇO



evapotranspiração e da precipitação a nível de 75% de confiabilidade, segundo as recomendações da FAO. (\*)

### 2.3.5 Temperatura

A temperatura média anual varia, aproximadamente, entre 27 C, no baixo vale, a 25°C no alto da Serra da Ibiapaba; a amplitude técnica média anual é pequena, de 2 a 3°C.

O período mais quente situa-se em outubro/novembro e o mais frio em março/abril.

A amplitude térmica diária é da ordem de 10 °C, sendo que os extremos absolutos situam-se em torno de 37 °C, as máximas e 17°C, as mínimas.

Estes valores foram obtidos indiretamente de uma análise conjunta das estações vizinhas de Sobral e Granja. A Figura 09 mostra, para estes postos, as médias das máximas e das mínimas, e as respectivas máximas e mínimas absolutas; a média compensada é apresentada apenas para Sobral, por ser o único posto com longo período de observação.

### 2.3.6 Insolação e Nebulosidade

A Figura 10 mostra os valores normais mensais de insolação para Sobral, no período compreendido entre 1920/60. Da observação dessa Figura conclui-se que o trimestre de maior insolação é o de agosto-outubro e o de menor insolação é o de fevereiro-abril.

A insolação média anual na área é da ordem de 2.650 h, o que corresponderia, em tese, a aproximadamente 60% dos

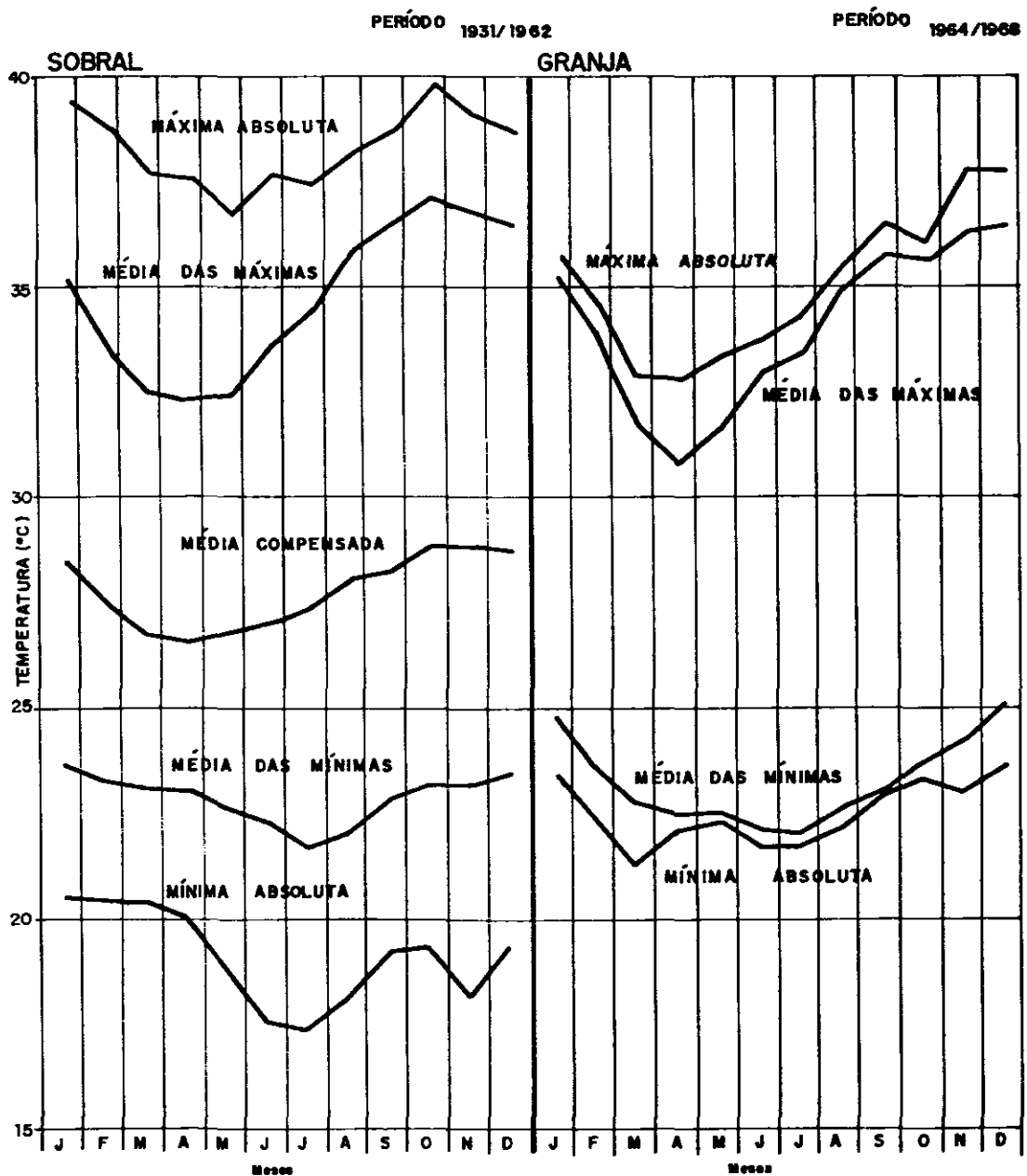
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(\*) FAO - Irrigation and Drainage Paper No. 24



FIGURA - 09

VARIAÇÃO DA TEMPERATURA EM SOBRAL E GRANJA



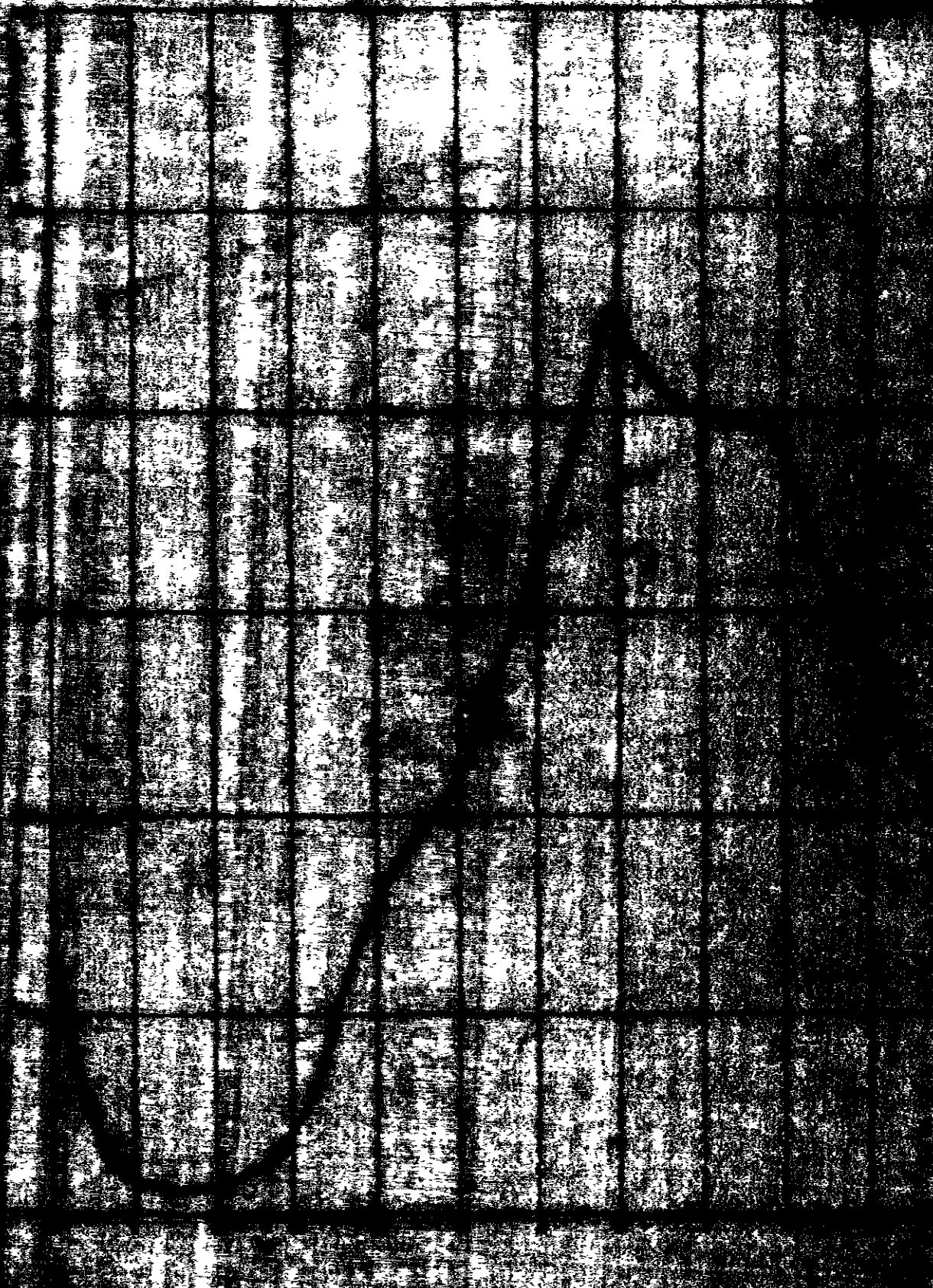


FIGURA - 10  
VARIACÃO MENSAL DA INSOLAÇÃO EM SOBRAL  
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dias do ano com luz solar direta.

A nebulosidade, definida como as décimas partes encobertas do céu, apresenta valores máximos no período de março/abril, enquanto os valores mínimos situam-se no trimestre agosto/outubro.

O Quadro 6 mostra os valores normais de nebulosidade para a estação de Sobral para o período de 1920/60.

### 2.3.7 Ventos

Os ventos na região são fracos. O Quadro 7 mostra, para o posto de Sobral, as velocidades médias para o período compreendido entre 1920 a 1942.

A direção predominante dos ventos em Sobral é NE. As calmarias são frequentes em todos os meses, e não será fator limitante ao uso de irrigação através do método de aspersão.

### QUADRO 6

#### VALORES NORMAIS DE NEBULOSIDADE

<u>M E S</u>	<u>SOBRAL (1920/60)</u>
Janeiro	5,1
Fevereiro	6,1
Março	6,4
Abril	6,3
Mai	5,2
Junho	4,3
Julho	3,6
Agosto	2,7
Setembro	2,9
Outubro	3,2
Novembro	3,7
Dezembro	4,2
<u>MEDIA</u>	<u>4,5</u>



QUADRO 7VALORES MEDIOS ANUAIS DA VELOCIDADE DOS VENTOS

POSTO	VELOCIDADE	
	(m/s)	(km/h)
Sobral	1,2	4,3

**2.3.8 Sinopse Climática**

Em síntese, o clima da bacia em estudo é caracterizado pelos seguintes indicadores (segundo a estação de Sobral):

- Pluviometria média anual..... 1.040mm
- Semestre chuvoso e índice de concentração..... Jan/Jun (93%)
- Trimestre úmido..... Mar/Mai
- Trimestre seco..... Set/Nov
- Mês de maior pluviosidade..... Março
- Temperatura média anual..... 28°C
- Média das temperaturas mínimas.... 22,8°C
- Média das temperaturas máximas.... 34,7°C
- Amplitude das médias extremas..... 11,9°C
- Umidade relativa média anual..... 69,6%
- Período de maior umidade relativa. Mar/Mai
- Período de menor umidade relativa. Set/Nov
- Insolação anual..... 2.650 horas
- Período de maior insolação..... Ago/Out
- Período de menor insolação..... Fev/Abr
- Período de maior nebulosidade..... Fev/Abr



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- Período de menor nebulosidade..... Ago/out
- Ventos de 1a. predominância..... NE
- Velocidade média dos ventos..... 1,2 m/s
- Evaporação média anual em tan-  
que classe A..... 2.500 mm
- Período de maior evaporação..... Set/Nov
- Período de menor evaporação..... Mar/Mai
- ETP Média anual..... 1.248mm



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3. ESTUDOS DOS DEFLUVIOS

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### 3. ESTUDOS DOS DEFLÚVIOS

#### 3.1. Dados Disponíveis

O Riacho do Córrego, pequeno afluente da margem esquerda do Rio Acaraú, em virtude de sua pequena bacia hidrográfica (155,5 km<sup>2</sup>) não dispõe de nenhuma estação hidrométrica, daí a inexistência de registros de vazões ao longo de seu leito de drenagem.

Portanto, tornou-se necessário empregar uma metodologia que permitisse, através do uso de dados de outras bacias hidrologicamente homogêneas, a geração de séries históricas de vazões para a seção da barragem em estudo. Tal metodologia consistiu na aplicação de um modelo chuva-deflúvio, a nível mensal a ser descrito posteriormente, cuja calibragem é obtida a partir de outras bacias de semelhante comportamento hidrológico.

A bacia hidrográfica do Rio Groairas, afluente da margem direita do Rio Acaraú apresentou relevantes semelhanças hidrológicas com a área em que está situada a bacia em estudo. O Rio Groairas possui, na cidade de mesmo nome, uma estação fluviométrica controlando uma área de drenagem de 2.759 km<sup>2</sup> e uma série histórica composta de 14 anos com dados de vazões diárias (1968 a 1981). Destes 14 anos, foram selecionadas 8 para efeito de calibração do modelo chuva-deflúvio.

#### 3.2. O Modelo Chuva x Deflúvio

Considerando as condições existentes optou-se pelo uso do modelo CN-3S em razão de:



- modelos mais sofisticados se mostraram inviáveis, visto exigirem um conhecimento aprofundado das características físicas e geométricas das bacias, incompatíveis com o nível do estudo e informações disponíveis;
- a utilização deste modelo (CN-3S) já foi desenvolvida com sucesso para estudos semelhantes em diversas bacias do semi-árido nordestino, inclusive no próprio Estado do Ceará;
- possibilidade de estimar os parâmetros essenciais do modelo tanto a partir dos estudos básicos realizados para as bacias, como dos resultados alcançados em outras aplicações para bacias de acentuada semelhança hidrológica.

O modelo chuva x deflúvio CN-3S, (\*) desenvolvido no Departamento de Hidrologia da SIRAC, para ser aplicado na geração de vazões médias mensais, para a simulação de operação de reservatórios no Nordeste, tem as seguintes características descritas a seguir:

- o CN-3S utiliza curvas semelhantes às CN (Curve Number) do Soil Conservation Service para a determinação do complexo solo-vegetação;
- os valores das curvas CN são modificados cada

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(\*) Taborga, J. e Freitas, M.A.S. - Simulação da lâmina de escoamento mensal. VII Simpósio Brasileiro de Hidrologia e Recursos Hídricos, Salvador, 1987.



mês (Variable - one step) sob o efeito da chuva do mês antecedente, obtendo-se assim, os CNV (Curve Number Variable);

- o modelo simula a parcela que infiltra no depósito subterrâneo e calcula a depleção desse depósito como escoamento básico;
- a somatória do escoamento superficial (QUP) e o escoamento básico (QLOW) fornece o escoamento calculado (QCAL);
- as perdas por evaporação e evapotranspiração estão implícitas no modelo.
- o CN-3S tem seis parâmetros de calibragem: quatro para o Q (SUP) e dois para o Q (LOW).

Os seis parâmetros de calibragem ajustam-se procurando minimizar a função erro.

$$\text{Ferro} = \sum (Q_{\text{obs}} - Q_{\text{cal}})^2$$

onde:

Ferro = função erro;

$Q_{\text{obs}}$  = vazões observadas;

$Q_{\text{cal}}$  = vazões geradas pelo modelo.

O modelo CN-3S (nos cálculos efetuados para as bacias do Nordeste), além de reproduzir com grande fidelidade as vazões observadas preserva, de forma razoável, os parâmetros estatísticos de média, desvio padrão e coeficiente de assimetria



dessas vazões. A Figura 11 mostra o Fluxograma do modelo CN-3S.

### 3.3 A Calibração do Modelo

Dada a pequena quantidade de dados de input que precisa o modelo de simulação chuva x deflúvio CN-3S, optou-se pelo emprego de uma calibração automática dos parâmetros de ajuste do modelo baseado no método univariacional, onde se procura a otimização (minimização da função erro através de tentativas) modificando um parâmetro e mantendo os demais fixos, até atingir um valor mínimo na função erro; a seguir efetua-se o mesmo procedimento para os parâmetros restantes.

O processo de ajustamento automático termina quando todos os parâmetros de calibragem mantêm-se constantes de um ciclo para o próximo, atingindo o mesmo valor na função erro.

A maior ou menor qualidade do processo de ajuste depende do vulto de cada incremento (ou decremento) adotado para os parâmetros de ajuste. A Figura 12 mostra o processo de ajustamento automático do modelo através do método univariacional.

Os parâmetros de calibragem para a bacia de Groairas com área de 2.759 km<sup>2</sup> são mostrados no Quadro 8.

A geração conseguida para este posto, através do emprego do modelo CN-3S, pode ser considerada relativamente boa, sob o ponto de vista global. A Figura 13 mostra a comparação entre as vazões observadas e calculadas.

As precipitações utilizadas como "INPUT" e as vazões observadas e geradas pelo modelo são apresentadas nos

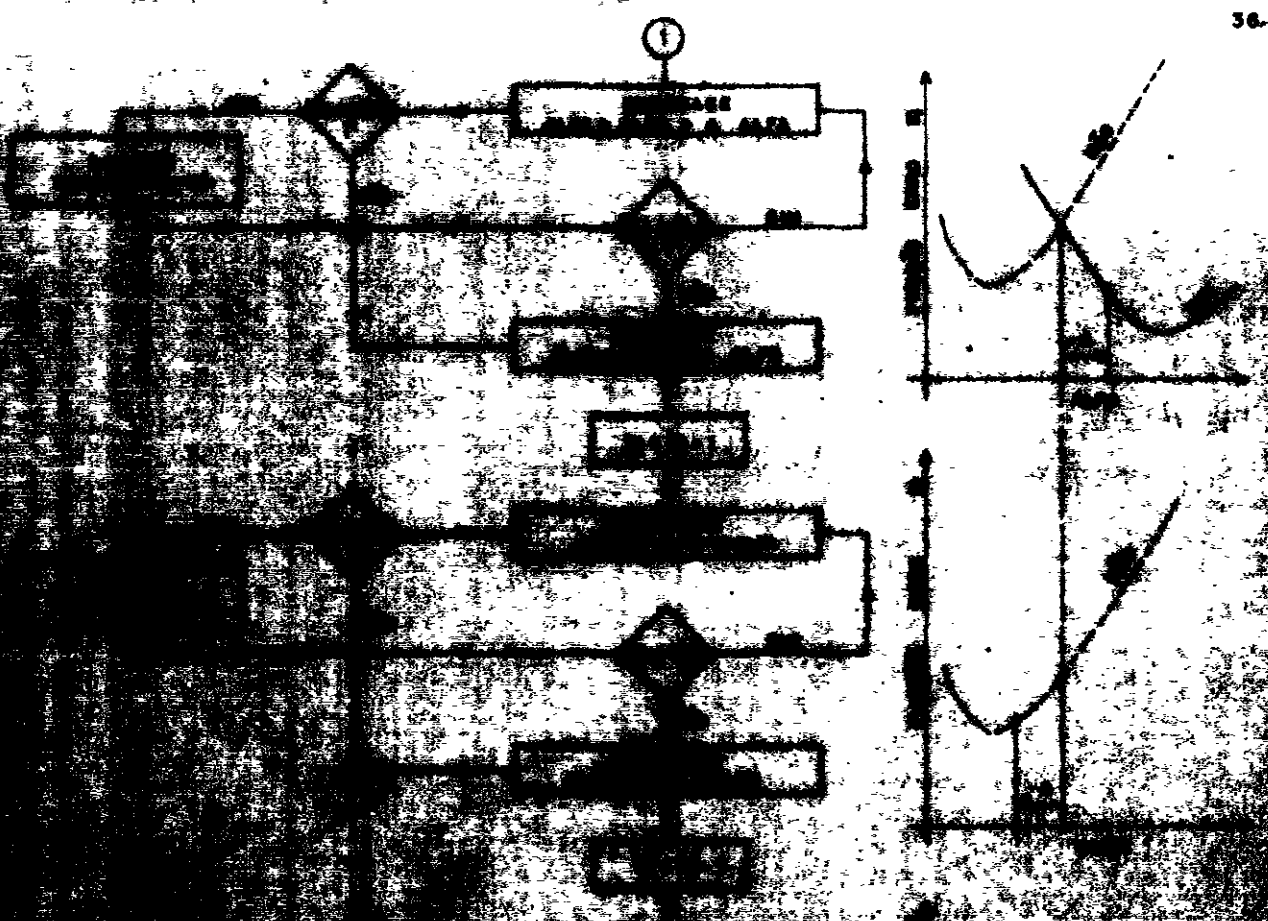


FIGURA - 11

FLUXOGRAMA DO MODELO CN-3S

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FIGURA - 12

FLUXOGRAMA DO MÉTODO UNIVARIACIONAL

QUADRO 8MODELO CHUVA-DEFLUVIO CN-3B< CURVE NUMBER WITH THREE STEP ANTECEDENT PRECIPITATION >

BACIA: GROAIRAS

AREA: 2759 km2

## PARAMETROS INICIAIS:

RO = 0.00000  
P12 = 0.00000  
P11 = 0.00000  
P10 = 0.00000

## PARAMETROS DE CALIBRAGEM:

CNI = 26.50000  
ALFA = 0.20000  
BETA = 0.00135  
KO = 0.88000  
K1 = 0.01100  
K2 = 0.95000

SOMA DOS QUADRADOS DAS DIFERENÇAS -&gt; 4031.670

SOMA DAS DIFERENÇAS ABSOLUTAS - &gt; 258.300

COEFICIENTE DE CORRELAÇÃO - &gt; 0.978

## VAZOS OBSERVADAS:

MEDIA -> 8.496  
DESVIO PADRAO -> 31.124  
ASSIMETRIA -> 6.092

## VAZOS CALCULADAS:

MEDIA -> 8.330  
DESVIO PADRAO -> 31.434  
ASSIMETRIA -> 5.922

000041



Quadros 9, 10 e 11, respectivamente.

Da análise da figura e dos quadros conclui-se que, os valores obtidos pela calibração do modelo são perfeitamente exequíveis para representar o escoamento superficial desta bacia.

### 3.4 Deflúvios Gerados

Com uma série pluviométrica composta de 67 anos com dados de pluviometria média mensal, gerou-se uma série de vazões afluentes ao Açude Marco.

As precipitações usadas, bem como as vazões geradas e os parâmetros de entrada do modelo CN-3S, encontram-se nos Quadros 12 e 13.

Da análise dos resultados, obtêm-se as conclusões seguintes, que bem caracterizam o comportamento hidrológico da região:

- a grande irregularidade do regime pluviométrico encontra-se associada uma alta irregularidade do regime de escoamento, com os deflúvios mensais variando acentuadamente e mantendo estreita conexão na repartição temporal;
- ao nível anual estas variações são também elevadas, acarretando dificuldades na determinação de parâmetros anuais característicos e, principalmente, cuidado e racionalidade no manuseio dos valores ditos médios;
- nos anos de pluviometria mais favorável, tanto



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## QUADRO 09

BACIA : GROAIRAS

AREA : 2759 KM2

PRECIPITACOES ( MM ) :

ANO	JAN	FEV	MAR	ABR	MAI	JUN	JUL	AGO	SET	OUT	NOV	DEZ	ANUAL
1	240.5	208.8	381.8	486.8	271.9	50.7	5.1	0.1	4.1	0.0	16.2	28.1	1694.1
2	60.0	143.0	228.5	146.1	312.6	34.4	39.6	0.0	3.4	2.0	0.0	16.0	985.6
3	4.1	168.5	191.8	125.9	77.8	7.2	0.7	2.4	0.4	1.8	19.4	0.0	600.0
4	127.1	126.4	136.6	147.5	145.6	38.7	39.0	0.2	0.0	0.2	2.0	72.1	835.4
5	165.0	151.9	235.2	127.7	69.3	7.5	14.8	0.0	0.2	0.0	21.0	8.0	800.6
6	56.5	90.3	197.8	162.1	102.7	27.9	1.6	0.9	0.2	0.0	11.2	3.1	654.3
7	49.3	195.3	194.0	34.7	6.2	19.0	0.4	0.0	0.2	0.0	0.0	0.6	499.7
8	31.6	35.7	249.7	30.3	25.4	1.3	0.0	8.4	0.9	0.0	3.7	32.0	419.1
IMEDI	91.8	140.0	226.9	157.6	126.4	23.3	12.7	1.5	1.2	0.5	9.2	20.0	811.1

## QUADRO 10

VAZDES OBSERVADAS ( LAMINA EM MM ) :

ANO	JAN	FEV	MAR	ABR	MAI	JUN	JUL	AGO	SET	OUT	NOV	DEZ	ANUAL
1	10.8	12.6	104.8	249.7	136.3	23.0	2.4	0.4	0.1	0.1	0.1	0.1	540.4
2	0.1	2.4	13.5	6.1	54.3	5.1	1.1	0.2	0.1	0.0	0.0	0.0	82.9
3	0.0	5.8	13.2	7.2	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	27.6
4	0.0	0.2	0.6	10.3	13.0	1.4	0.2	0.0	0.0	0.0	0.0	0.0	25.7
5	2.6	8.6	18.6	20.1	6.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	56.6
6	0.0	0.5	4.2	1.4	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2
7	0.0	2.8	24.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
8	0.0	0.0	24.8	19.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.2
IMEDI	1.7	4.1	25.5	39.4	26.9	3.8	0.5	0.1	0.0	0.0	0.0	0.0	102.0

## QUADRO 11

VAZDES CALCULADAS ( LAMINA EM MM ) :

000043

ANO	JAN	FEV	MAR	ABR	MAI	JUN	JUL	AGO	SET	OUT	NOV	DEZ	ANUAL
1	13.8	19.1	123.7	250.2	107.8	0.6	0.0	0.0	0.0	0.0	0.1	0.3	515.6
2	0.6	1.9	24.1	8.4	85.0	0.4	0.4	0.0	0.0	0.0	0.0	0.1	120.9
3	0.0	2.8	11.7	3.5	0.8	0.1	0.0	0.0	0.0	0.0	0.2	0.0	19.1
4	1.3	1.4	3.2	7.2	7.3	0.4	0.4	0.0	0.0	0.0	0.0	0.7	21.9
5	3.5	5.2	35.9	6.7	0.7	0.1	0.1	0.0	0.0	0.0	0.2	0.0	52.4
6	0.5	0.9	11.4	9.7	1.6	0.3	0.0	0.0	0.0	0.0	0.1	0.0	24.5
7	0.5	7.5	14.8	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	23.4
8	0.3	0.3	20.4	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	21.9
IMEDI	2.6	4.9	30.7	35.9	25.4	0.3	0.1	0.0	0.0	0.0	0.1	0.2	100.0



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## QUADROS 12 A

ECIPITACOES (mm):

000044

ANO	JAN	FEV	MAR	ABR	MAI	JUN	JUL	AGO	SET	OUT	NOV	DEZ	ANUAL
1	0.0	134.8	339.5	310.2	282.1	63.9	42.3	0.0	0.0	0.0	0.0	9.0	1181.8
2	224.9	117.6	106.9	223.6	63.6	34.9	4.7	13.7	2.8	0.0	0.0	0.0	792.7
3	18.0	13.0	118.8	92.5	21.1	9.8	0.1	0.3	0.0	0.0	0.0	46.2	319.8
4	104.9	239.8	396.1	238.9	43.3	24.0	0.0	0.0	0.0	0.0	15.5	29.5	1092.0
5	351.6	453.6	562.3	445.3	600.7	71.2	0.0	0.0	14.0	23.0	15.9	59.0	2596.6
6	161.6	111.3	552.3	115.1	217.3	221.4	24.8	0.0	45.5	0.0	0.0	70.7	1520.0
7	49.0	66.1	23.4	19.2	60.2	4.0	0.0	2.3	0.0	0.0	0.0	7.5	231.7
8	2.0	78.3	654.0	272.7	121.1	26.4	17.6	49.8	0.0	0.0	3.6	51.3	1276.8
9	25.1	147.5	286.0	271.9	425.2	28.8	15.6	0.0	3.0	0.3	0.4	0.6	1204.4
0	23.9	30.8	94.3	285.1	116.7	34.7	25.6	2.5	0.0	0.0	61.2	0.0	674.8
1	100.4	342.4	208.4	301.8	122.7	39.9	15.2	0.0	0.0	0.0	0.0	0.0	1130.8
2	190.1	229.3	416.7	406.8	252.1	166.5	2.0	0.0	0.0	0.0	0.0	14.5	1678.0
3	198.9	180.8	218.2	190.7	108.0	43.6	12.9	14.3	0.0	0.0	0.0	0.0	967.4
4	85.1	291.3	381.9	349.5	169.8	25.7	6.7	0.0	0.0	0.0	0.0	0.0	1310.0
5	66.8	112.0	196.7	328.5	93.4	43.9	7.9	0.0	0.0	0.0	0.0	5.2	854.4
6	106.7	67.9	225.6	257.6	49.4	25.2	0.0	0.0	0.0	0.0	0.0	0.0	732.4
7	149.8	326.9	344.0	311.7	64.5	17.4	7.8	0.0	0.0	0.0	0.0	90.7	1312.8
8	74.1	252.4	476.6	211.2	75.4	106.4	12.6	6.3	0.0	0.0	0.0	0.0	1215.0
9	139.8	292.6	260.6	193.4	71.7	29.9	4.6	0.0	2.8	0.0	0.0	0.0	995.4
0	70.0	105.7	161.6	46.1	2.0	37.7	23.4	0.0	0.0	0.0	0.0	0.0	446.5
1	170.5	245.2	202.5	323.7	84.1	10.1	7.5	0.0	2.3	0.0	0.0	15.2	1061.1
2	65.2	279.3	378.1	347.1	188.5	36.6	0.0	0.0	8.5	0.0	2.5	86.9	1392.7
3	176.7	191.6	252.3	535.0	242.9	98.0	3.2	0.0	0.0	0.0	0.0	0.0	1499.7
4	35.7	207.1	72.7	126.6	77.6	4.6	3.0	0.0	0.0	0.0	0.0	0.0	527.3
5	16.3	181.8	99.9	189.9	125.0	51.0	13.0	0.0	0.0	0.0	0.0	0.0	676.9
6	82.7	16.0	354.1	190.0	84.9	24.7	9.3	12.7	0.0	0.0	0.0	0.0	774.4
7	25.0	150.8	284.7	163.7	87.6	13.4	29.2	0.0	13.6	10.2	0.0	6.6	784.8
8	209.0	167.8	236.8	235.6	117.3	24.4	23.4	3.5	0.0	0.0	0.0	0.0	1017.8
9	15.5	57.8	220.8	133.4	19.3	40.8	7.8	0.0	0.0	0.0	0.0	0.0	495.4
0	106.1	89.1	213.0	103.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.8	563.3
1	63.5	41.6	107.6	168.9	79.8	0.0	18.2	0.0	0.0	0.0	12.8	112.3	604.7
2	63.0	105.8	303.3	212.2	99.6	12.4	0.0	0.0	0.0	0.0	0.0	72.7	869.0
3	178.9	334.7	295.0	227.2	153.0	29.0	0.0	0.0	0.0	0.0	0.0	0.0	1217.8
4	146.0	128.4	149.5	210.0	53.0	16.0	0.0	0.0	0.0	0.0	10.0	14.0	726.9
5	0.0	246.0	250.0	195.0	128.0	49.0	16.0	0.0	0.0	0.0	121.0	0.0	1005.0
6	50.0	150.0	415.0	116.0	97.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0	851.0
7	44.0	165.0	213.0	156.0	194.0	33.0	0.0	0.0	0.0	0.0	0.0	0.0	805.0
8	57.0	77.0	378.0	303.0	67.0	14.0	26.0	0.0	0.0	0.0	0.0	0.0	952.0
9	0.0	0.0	94.0	118.0	77.0	12.0	0.0	0.0	0.0	0.0	0.0	43.0	344.0
0	75.0	98.0	246.0	187.0	102.0	10.0	0.0	0.0	0.0	0.0	0.0	43.0	761.0
1	52.0	135.0	150.0	197.0	62.0	26.0	0.0	0.0	0.0	0.0	0.0	0.0	622.0
2	0.0	159.0	169.0	134.0	25.0	48.0	0.0	0.0	0.0	0.0	0.0	0.0	535.0
3	132.0	145.0	122.0	242.0	112.0	12.0	10.0	0.0	0.0	0.0	0.0	5.0	780.0
4	26.0	242.0	285.5	218.0	32.0	28.0	6.0	0.0	0.0	0.0	0.0	0.0	837.5
5	135.0	91.0	263.4	280.0	160.0	20.0	5.0	0.0	0.0	0.0	0.0	0.0	954.4
6	21.0	0.0	30.0	60.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	36.0	154.0
7	63.0	129.0	356.0	81.0	79.0	27.0	0.0	9.0	0.0	0.0	0.0	0.0	744.0
8	0.0	43.0	325.0	191.0	8.0	32.0	30.0	0.0	0.0	0.0	0.0	69.0	698.0
9	47.0	354.0	426.0	120.0	195.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1142.0
0	81.3	222.8	710.6	360.0	90.0	0.0	20.0	0.0	0.0	0.0	0.0	150.0	1634.7



# Geonorte

42.

RECIPIÇÕES (mm):

## QUADROS 12 B

ANO	JAN	FEV	MAR	ABR	MAI	JUN	JUL	AGO	SET	OUT	NOV	DEZ	ANUAL
11	132.0	107.0	623.8	506.0	113.0	0.0	33.0	29.0	0.0	0.0	0.0	144.0	1687.8
12	277.0	478.3	436.8	603.1	331.7	32.6	59.2	0.0	0.0	0.0	0.0	21.0	2239.7
13	129.0	81.4	324.2	758.7	227.1	105.3	0.0	0.0	0.0	0.0	0.0	0.0	1625.7
14	0.0	219.5	181.7	133.6	218.0	97.4	51.5	0.0	0.0	0.0	1.2	0.0	902.9
15	173.1	407.5	545.9	478.9	323.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	1936.6
16	133.3	182.1	374.3	663.7	472.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1826.1
17	94.4	170.8	177.3	207.8	82.1	0.0	44.0	0.0	0.0	0.0	0.0	0.0	776.4
18	24.0	65.8	157.1	94.5	24.6	0.0	24.1	0.0	0.0	0.0	0.0	0.0	390.1
19	25.2	117.3	226.2	122.4	153.6	43.0	31.0	0.0	0.0	0.0	0.0	0.0	718.7
20	20.0	43.5	127.7	196.0	163.2	15.0	0.0	48.3	0.0	0.0	0.0	0.0	613.7
21	196.1	179.4	393.5	331.7	146.8	70.6	15.0	8.0	0.0	0.0	0.0	0.0	1341.1
22	239.3	243.7	510.4	700.5	337.3	125.2	29.1	0.0	21.0	0.0	0.0	0.0	2206.5
23	0.0	491.0	329.4	470.6	414.7	52.0	72.0	0.0	0.0	0.0	0.0	0.0	1829.7
24	0.0	188.5	222.9	230.3	23.4	1.6	14.6	0.0	0.0	0.0	21.0	0.0	702.3
25	92.6	262.6	104.0	276.1	189.9	60.0	19.6	0.0	0.0	0.0	0.0	0.0	1004.8
26	105.0	138.1	144.9	203.4	137.1	45.1	0.0	0.0	0.0	0.0	0.0	0.0	773.6
27	37.6	119.9	127.5	181.9	61.6	47.8	0.0	0.0	0.0	0.0	0.0	0.0	576.3
MED	89.4	172.3	278.1	256.1	137.7	36.6	12.6	3.0	1.7	0.5	4.0	18.7	1010.7

000045



## QUADROS 13 A

000046

AZOES GERADAS ( em hm<sup>3</sup>/mes ):

ANO	JAN	FEV	MAR	ABR	MAI	JUN	JUL	AGO	SET	OUT	NOV	DEZ	ANUAL
1	0.00	0.59	4.67	6.68	6.98	1.56	1.04	0.57	0.31	0.17	0.09	0.09	22.75
2	1.04	1.09	1.07	2.16	1.14	0.78	0.45	0.30	0.18	0.10	0.05	0.03	8.39
3	0.09	0.11	0.58	0.73	0.49	0.31	0.17	0.09	0.05	0.02	0.01	0.21	2.86
4	0.58	1.69	10.48	4.77	1.42	0.88	0.48	0.26	0.14	0.08	0.11	0.19	21.08
5	4.05	15.28	32.41	26.58	44.63	2.02	1.11	0.61	0.39	0.32	0.24	0.39	128.03
6	0.93	1.00	20.41	1.87	3.42	3.70	1.21	0.66	0.56	0.31	0.17	0.40	34.64
7	0.44	0.53	0.39	0.30	0.43	0.25	0.14	0.08	0.04	0.02	0.01	0.04	2.67
8	0.03	0.36	23.79	7.23	1.89	1.14	0.71	0.61	0.33	0.18	0.11	0.29	36.67
9	0.27	0.80	3.24	4.55	16.16	1.56	0.93	0.51	0.29	0.16	0.09	0.05	28.61
0	0.13	0.21	0.53	2.69	1.35	0.89	0.60	0.34	0.18	0.10	0.32	0.18	7.52
1	0.54	4.74	2.47	6.93	1.76	1.14	0.69	0.38	0.21	0.11	0.06	0.03	19.06
2	0.86	1.80	12.31	16.68	7.00	2.73	1.15	0.63	0.34	0.19	0.10	0.12	43.91
3	0.94	1.32	2.23	2.14	1.44	0.98	0.60	0.39	0.21	0.11	0.06	0.03	10.45
4	0.39	2.54	9.80	11.53	2.90	1.28	0.73	0.40	0.22	0.12	0.06	0.03	30.00
5	0.31	0.67	1.24	6.20	1.52	1.03	0.60	0.33	0.18	0.10	0.05	0.05	12.28
6	0.50	0.57	1.48	3.36	1.21	0.78	0.43	0.23	0.13	0.07	0.03	0.02	8.81
7	0.67	4.33	8.58	9.15	1.63	0.97	0.57	0.31	0.17	0.09	0.05	0.43	26.95
8	0.56	1.94	16.49	4.06	1.57	1.33	0.79	0.46	0.25	0.14	0.07	0.04	27.70
9	0.64	3.03	3.98	2.61	1.37	0.88	0.50	0.28	0.16	0.09	0.05	0.02	13.61
0	0.32	0.64	1.07	0.79	0.44	0.41	0.33	0.18	0.09	0.05	0.03	0.01	4.36
1	0.76	2.00	2.08	7.73	1.59	0.91	0.53	0.29	0.17	0.09	0.05	0.09	16.29
2	0.34	2.16	9.29	11.07	3.48	1.36	0.75	0.41	0.26	0.14	0.09	0.43	29.78
3	1.02	1.45	3.41	24.30	6.42	1.80	1.00	0.55	0.30	0.16	0.09	0.05	40.55
4	0.18	1.01	0.88	1.04	0.91	0.52	0.30	0.16	0.09	0.05	0.02	0.01	5.17
5	0.08	0.84	0.90	1.37	1.29	0.93	0.57	0.31	0.17	0.09	0.05	0.02	6.62
6	0.38	0.28	4.53	2.01	1.33	0.84	0.50	0.33	0.18	0.10	0.05	0.03	10.56
7	0.12	0.73	3.01	1.64	1.27	0.76	0.54	0.30	0.22	0.16	0.09	0.08	8.92
8	0.96	1.27	2.65	3.51	1.59	0.98	0.64	0.36	0.20	0.11	0.06	0.03	12.36
9	0.08	0.30	1.17	1.22	0.75	0.59	0.36	0.19	0.10	0.06	0.03	0.01	4.86
0	0.47	0.65	1.39	1.17	0.64	0.35	0.19	0.10	0.05	0.03	0.01	0.23	5.28
1	0.41	0.41	0.70	1.13	0.97	0.53	0.37	0.20	0.11	0.06	0.09	0.54	5.52
2	0.58	0.78	3.97	2.55	1.46	0.86	0.47	0.26	0.14	0.07	0.04	0.34	11.52
3	0.98	5.58	6.52	4.28	2.00	1.15	0.63	0.35	0.19	0.10	0.05	0.03	21.86
4	0.66	0.93	1.17	1.94	1.09	0.67	0.37	0.20	0.11	0.06	0.07	0.10	7.37
5	0.05	1.21	2.63	2.18	1.54	1.06	0.65	0.36	0.19	0.10	0.59	0.32	10.88
6	0.40	0.88	9.21	1.68	1.35	0.84	0.46	0.25	0.14	0.07	0.04	0.02	15.34
7	0.20	0.84	1.54	1.46	1.97	1.05	0.58	0.31	0.17	0.09	0.05	0.02	8.28
8	0.40	0.56	6.44	6.72	1.52	0.90	0.61	0.33	0.18	0.10	0.05	0.03	17.84
9	0.01	0.00	0.42	0.75	0.75	0.46	0.25	0.14	0.07	0.04	0.02	0.20	3.11
0	0.44	0.67	1.98	1.76	1.34	0.78	0.43	0.23	0.13	0.07	0.03	0.21	8.07
1	0.34	0.78	1.09	1.59	1.08	0.71	0.39	0.21	0.11	0.06	0.03	0.01	6.40
2	0.01	0.71	1.13	1.22	0.78	0.64	0.35	0.19	0.10	0.05	0.03	0.01	5.22
3	0.59	0.96	1.07	2.58	1.39	0.82	0.49	0.27	0.14	0.08	0.04	0.04	8.47
4	0.14	1.24	3.86	3.01	1.21	0.79	0.46	0.25	0.13	0.07	0.04	0.02	11.22
5	0.61	0.73	2.50	4.80	1.90	1.08	0.61	0.34	0.18	0.10	0.05	0.03	12.93
6	0.11	0.06	0.16	0.35	0.22	0.12	0.06	0.03	0.02	0.01	0.00	0.16	1.30
7	0.36	0.77	6.09	1.39	1.11	0.73	0.40	0.26	0.14	0.07	0.04	0.02	11.38
8	0.01	0.19	3.15	1.85	0.95	0.66	0.49	0.27	0.15	0.08	0.04	0.33	8.17
9	0.39	4.79	13.97	1.90	2.84	1.03	0.56	0.31	0.17	0.09	0.05	0.02	26.12
0	0.37	1.24	35.50	15.94	1.93	1.06	0.67	0.37	0.20	0.11	0.06	0.69	58.14



# Geonorte

44.

QUADRO 13 B

VAZDES GERADAS ( em hm<sup>3</sup>/mes ):

ANO	JAN	FEV	MAR	ABR	MAI	JUN	JUL	AGO	SET	OUT	NOV	DEZ	ANUAL
51	0.96	1.00	27.17	27.53	2.21	1.17	0.79	0.56	0.31	0.17	0.09	0.68	62.64
52	2.62	17.21	20.52	41.49	16.46	1.68	1.18	0.65	0.35	0.19	0.10	0.15	102.60
53	0.65	0.72	4.57	46.19	7.00	1.89	1.03	0.57	0.31	0.17	0.09	0.05	63.24
54	0.02	0.98	1.34	1.33	2.39	1.35	0.97	0.53	0.29	0.16	0.09	0.05	9.50
55	0.79	8.55	26.44	27.74	14.73	1.54	0.84	0.46	0.25	0.14	0.07	0.04	81.59
56	0.61	1.14	8.23	39.59	28.80	1.67	0.91	0.50	0.27	0.15	0.08	0.04	81.99
57	0.44	1.00	1.33	2.06	1.26	0.69	0.57	0.31	0.17	0.09	0.05	0.02	7.99
58	0.12	0.35	0.89	0.90	0.60	0.33	0.29	0.16	0.08	0.04	0.02	0.01	3.79
59	0.11	0.58	1.47	1.26	1.37	0.94	0.65	0.36	0.19	0.10	0.06	0.03	7.12
60	0.10	0.25	0.70	1.26	1.41	0.84	0.46	0.46	0.25	0.14	0.07	0.04	5.98
61	0.89	1.28	10.02	10.12	2.18	1.41	0.84	0.50	0.27	0.15	0.08	0.04	27.78
62	1.12	2.39	20.61	50.17	17.32	2.50	1.29	0.70	0.48	0.26	0.14	0.08	97.06
63	0.04	10.05	8.40	22.42	21.75	1.79	1.30	0.71	0.39	0.21	0.11	0.06	67.23
64	0.03	0.85	1.68	2.71	1.08	0.60	0.39	0.21	0.12	0.06	0.12	0.07	7.92
65	0.44	1.95	1.22	4.08	2.30	1.27	0.78	0.43	0.23	0.13	0.07	0.03	12.93
66	0.48	0.87	1.12	1.75	1.43	0.99	0.54	0.29	0.16	0.09	0.04	0.02	7.78
67	0.18	0.63	0.91	1.31	0.99	0.75	0.41	0.22	0.12	0.06	0.03	0.02	5.63
MED	0.51	1.90	6.36	7.72	4.01	1.06	0.61	0.35	0.20	0.11	0.07	0.12	23.02

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# Geonorte

45.

do ponto de vista de quantidade como de  
distribuição temporal, os coeficientes de  
escoamento atingem valores elevados, ocorrendo o  
contrário nos anos pluviometricamente  
deficientes.



Geonorte

46.

**4. ESTUDO DE CHEIAS**

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#### 4. ESTUDO DE CHEIAS

##### 4.1 Chuva de Projeto

Para a caracterização da bacia hidrográfica do Açude Marco sob o ponto de vista de chuvas intensas, utilizou-se a série histórica das máximas chuvas diárias do posto do Açude Tucunduba, com 72 anos de observações. Este posto é o mais próximo do centro geométrico da área em estudo com disponibilidade de dados suficiente para caracterizá-la sob este aspecto. Para tal série temos:

$N = 72$  (número de anos);

$P = 71,7\text{mm}$  (precipitação média das máximas anuais);

$S = 32,9$  (desvio padrão).

No item chuvas intensas, verifica-se que as coordenadas do centro de gravidade da bacia (3 N e 40 W) correspondem a isozona C, onde as chuvas de seis minutos e uma hora de duração são 8,8% e 37,2% da chuva de 24 horas respectivamente para o período de retorno de 1.000 anos. Deve-se notar que, na realidade, a chuva diária tem duração inferior a 24 horas e, portanto, deve ser acrescida em 10%. As chuvas de projeto são mostradas a seguir:

CURVAS DE PROJETO PARA TR = 1.000 ANOS

Tempo de duração	Precipitação (mm)
6 minutos	24,0
1 hora	187,0
24 horas	272,5

A chuva pontual foi convertida em chuva para toda bacia pela seguinte equação:

$$Pa = Po \left( 1 - W \cdot \log \frac{A}{Ao} \right) \quad Pa = 0,87Po ,$$

onde:

Pa = precipitação para toda a área;

Po = precipitação pontual;

W = 0,15 (coeficiente regional para zonas áridas e semi-áridas);

A = 155,5 km<sup>2</sup> (área da bacia em estudo);

Ao = 25 km<sup>2</sup> (área base para a chuva pontual).

De onde resulta:

Tempo de duração	Precipitação para toda a bacia (mm)
6 minutos	20,9
1 hora	162,7
24 horas	237,1

O tempo de concentração foi calculado segundo a



fórmula de Kirpich.

$$T_c = 0,39 \times \left( \frac{L^2}{S} \right)^{0,385}$$

onde:

$T_c$  = 8,9 horas (Tempo de concentração);

$L$  = 26 km (Comprimento máximo do talvegue);

$S$  = 0,2% (Declividade).

#### 4.2 Relações Chuva-Deflúvio

A ausência de dados na bacia, em especial aos referentes às vazões de cheia, só permitem o uso de métodos sintéticos ou empíricos.

Métodos empíricos só devem ser usados nas bacias para as quais foram deduzidos ou para casos especiais em bacias com comprovação.

Dos métodos sintéticos possíveis, o hidrograma unitário do Soil Conservation Service dos U.S.A. se mostra aceitável, tanto face aos parâmetros e dados que exige, como pela sua satisfatória validade já constatada para as condições regionais.

Outros hidrogramas unitários, além de necessitarem muitas vezes de informações inexistentes, não têm aplicação tradicional no Nordeste.

Assim, para a conversão de chuva em deflúvio, utilizou-se o método preconizado pelo S.C.S. expresso pelas seguintes equações:



$$q_j = \left( \frac{p_j - 0,2S}{pg + 0,8S} \right)^2 \quad \text{válida para } p_j > 0,2S \\ \text{para } p_j < 0,2S \Rightarrow q_j = 0$$

$$S = 25,4 \left( \frac{1.000}{CN} - 10 \right)$$

onde:

$P_j$  = precipitação real em mm:

$q_j$  = deflúvio em mm:

$S$  = diferença potencial máxima entre  $p_j$  e  $q_j$  no início da precipitação em mm:

$CN$  = número da curva (Curver Number) do complexo solo vegetação.

Para a bacia do Açude Marco com solo areno argiloso e cobertura vegetal xerófila superior a 50% da área total e com uma altura de precipitação média da somatória dos 5 dias antecedentes do dia da máxima precipitação superior a 20,0mm, adotou-se um valor de  $CN = 70$ . De onde resulta:

$$S = 108,9\text{mm.}$$

O Hidrograma equivalente ao Hidrograma triangular do SCS, expressa-se algebricamente pela equação:

$$Q_n = Q_{n-1} + \frac{A}{1000T_c} [89,34q_n - 73,1 (q_{n-3} + q_{n-4}) + 56,89q_{n-9}]$$

onde:



$Q_n$  = vazão em m<sup>3</sup>/s;

$A$  = área da bacia em km<sup>2</sup>;

$T_c$  = tempo de concentração em horas;

$n$  = frações do tempo de concentração  
correspondente a  $\frac{1}{5} T_c$ .

#### 4.3 Hidrograma da Cheia

O hidrograma da cheia milenar afluente ao Açude Marco é mostrado no Quadro 14.

**QUADRO 14****Hidrograma da Enchente Milinar**

<b>N</b>	<b>TEMPO (horas)</b>	<b>VAZÃO AFLUENTE (m<sup>3</sup>/s)</b>
0	0,0	0
1	1,8	61,5
2	3,6	156,3
3	5,3	274,0
4	7,1	359,1
5	8,9	381,3
6	10,7	370,2
7	12,5	336,7
8	14,3	286,5
9	16,0	222,8
10	17,8	179,1
11	19,6	139,5
12	21,4	99,3
13	23,2	63,2
14	24,9	36,3
15	26,7	17,5
16	28,5	5,6
17	30,3	0,0
18	32,0	0,0
19	33,8	0,0
20	35,6	0,0
21	37,4	0,0
22	39,2	0,0
23	40,9	0,0
24	42,7	0,0
25	44,5	0,0
26	46,3	0,0
27	48,1	0,0





Geonorte

53.

5. PRE-DIMENSIONAMENTO DO IT-  
SERVATORIO

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## 5. PRE-DIMENSIONAMENTO DO RESERVATÓRIO

Com o objetivo de otimizar a relação vazão regularizável x capacidade de acumulação foi feito um pré-dimensionamento hidrológico do reservatório.

A metodologia adotada foi a da curva de massa ou diagrama de Rippl utilizando a série de vazões geradas do quadro 13. Os resultados obtidos são mostrados na curva vazão regularizável anual por capacidade de acumulação na Figura 14.

Deve-se salientar que a vazão regularizável inclui a evaporação e demais perdas sofridas pelo reservatório ao longo do tempo.

Assim, definiu-se o reservatório com capacidade de  $38,8 \times 10^6$  m<sup>3</sup>, volume este utilizado na simulação da operação do reservatório.



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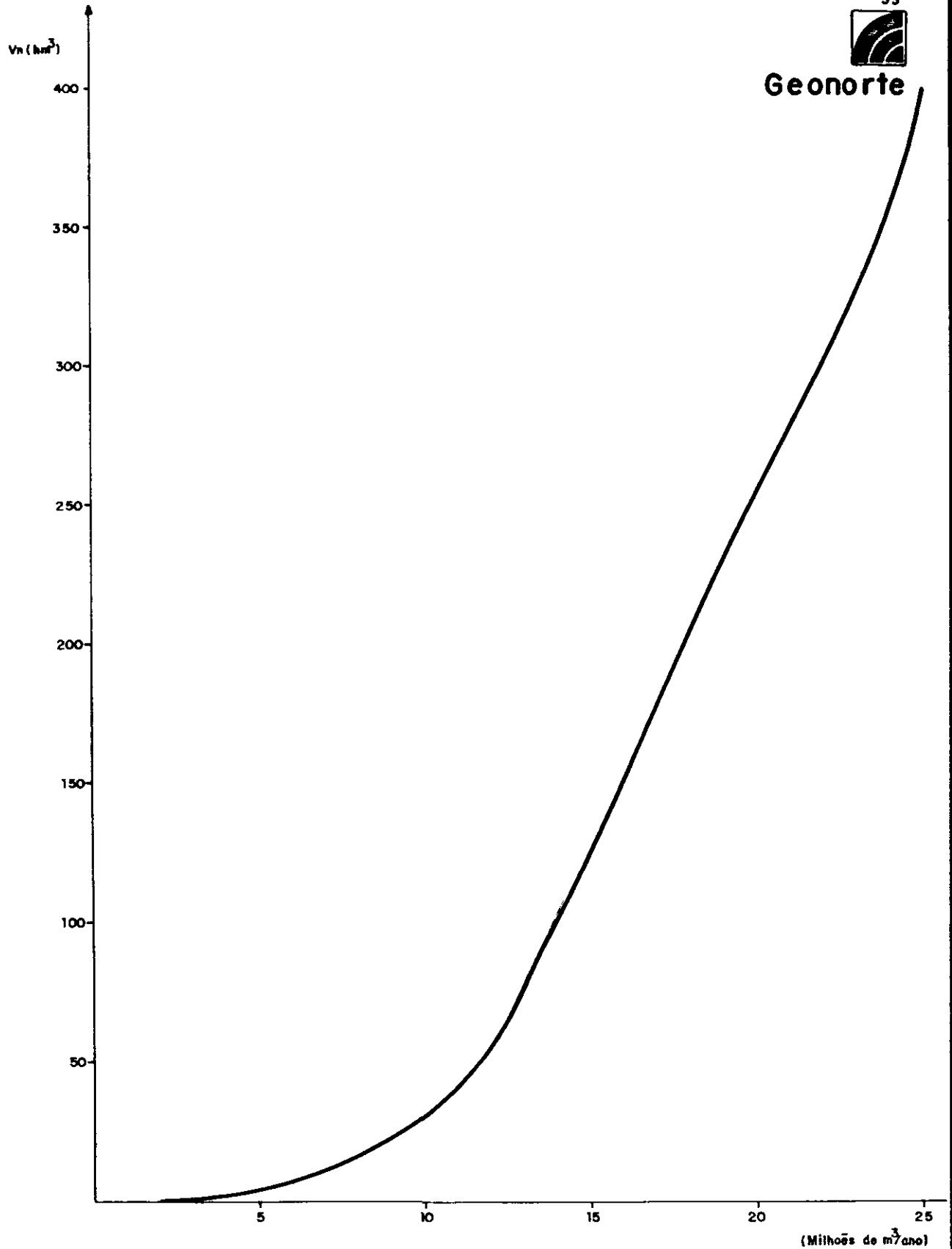


FIGURA - 14

ANÁLISE DE VAZÃO REGULARIZÁVEL  
x  
CAPACIDADE MÍNIMA DO RESERVATÓRIO

000058



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56.

6. SIMULACAO DA OPERACAO 2  
RESERVATORIO

000059



## 6. SIMULAÇÃO DA OPERAÇÃO DO RESERVATÓRIO

### 6.1 Objetivo

A simulação da operação, do reservatório objetiva estabelecer a capacidade de regularização de oferta d'água do açude, associada ao respectivo nível de garantia.

A definição da curva vazão regularizável x frequência permite obter, para qualquer volume liberado no açude, o nível de garantia correspondente, considerada uma vazão contínua.

### 6.2 Metodologia

A simulação da operação foi desenvolvida a nível mensal para o período de 1912/78 portanto, abrangendo 67 anos, a partir do seguinte balanço hidráulico do reservatório.

Variação na reserva = volume afluente ao reservatório + precipitação direta sobre o espelho d'água - perdas por evaporação - perdas por sangria - volume retirado para satisfazer as demandas.

Este balanço se traduz da equação básica:

$$V_i = V_{i-1} + C_i + V_{Pi} - V_{Ei} - S_i - Q_{ri}$$

onde:

$V_i$  - volume acumulado na barragem no mês  $i$ ;

$V_{i-1}$  - volume acumulado na barragem no mês  $i-1$ ;

$C_i$  - volume afluente á barragem, decorrente da bacia de contribuição no mês  $i$ ;



$V_{Pi}$  - volume decorrente da precipitação direta sobre o espelho d'água no mês  $i$ ;

$V_{Ei}$  - volume correspondente as perdas por evaporação;

$S_i$  - volume sangrado no mês  $i$ ;

$Q_{ri}$  - volume retirado no mês  $i$ , correspondente à vazão liberada.

O fluxograma do modelo de simulação de operação dos reservatórios é mostrado na Figura 15.

A caracterização geométrica do açude é retirada através das curvas COTA x AREA x VOLUME e da definição dos parâmetros de controle relativos ao volume máximo de acumulação e volume útil mínimo.

Os valores das contribuições mensais  $C_i$  correspondem aos deflúvios determinados para a bacia de contribuição. As alturas de chuva  $P_i$ , de pequena influência no balanço, foram tomadas relativas ao posto de maior influência, segundo os polígonos de Thiessen no reservatório, enquanto que os índices de evaporação  $E$  correspondem as observações de Tanque classe "A" corrigidos pelo valor de 0,70. A aplicação destas alturas à área média no passo fornece os volumes evaporados e precipitados no mês; Os volumes sangrados são determináveis a partir do conhecimento do volume máximo de acumulação.

O método consiste em simular a operação para diversos valores de  $Q_r$ , considerada fixa e contínua em cada processamento. Quando o estado do reservatório não permite a

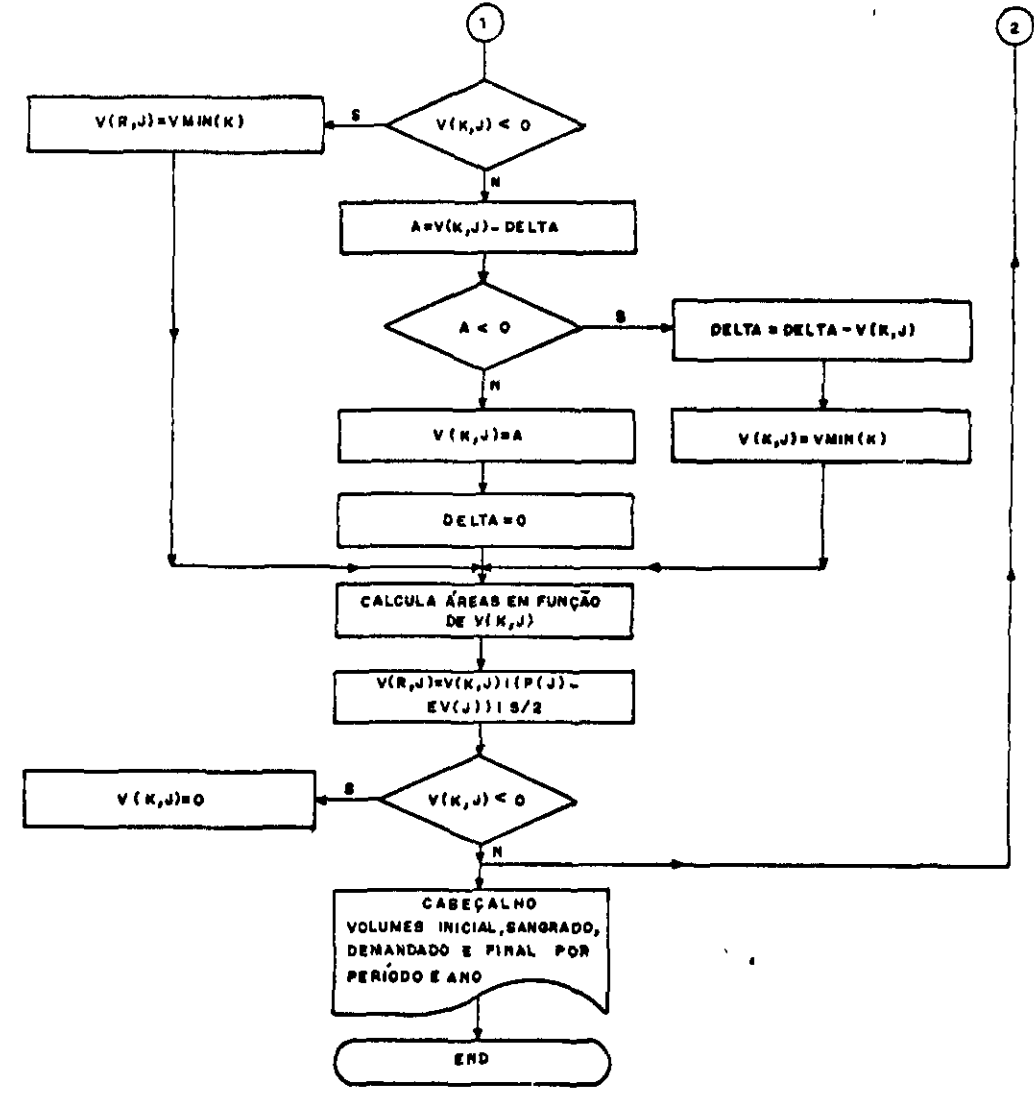
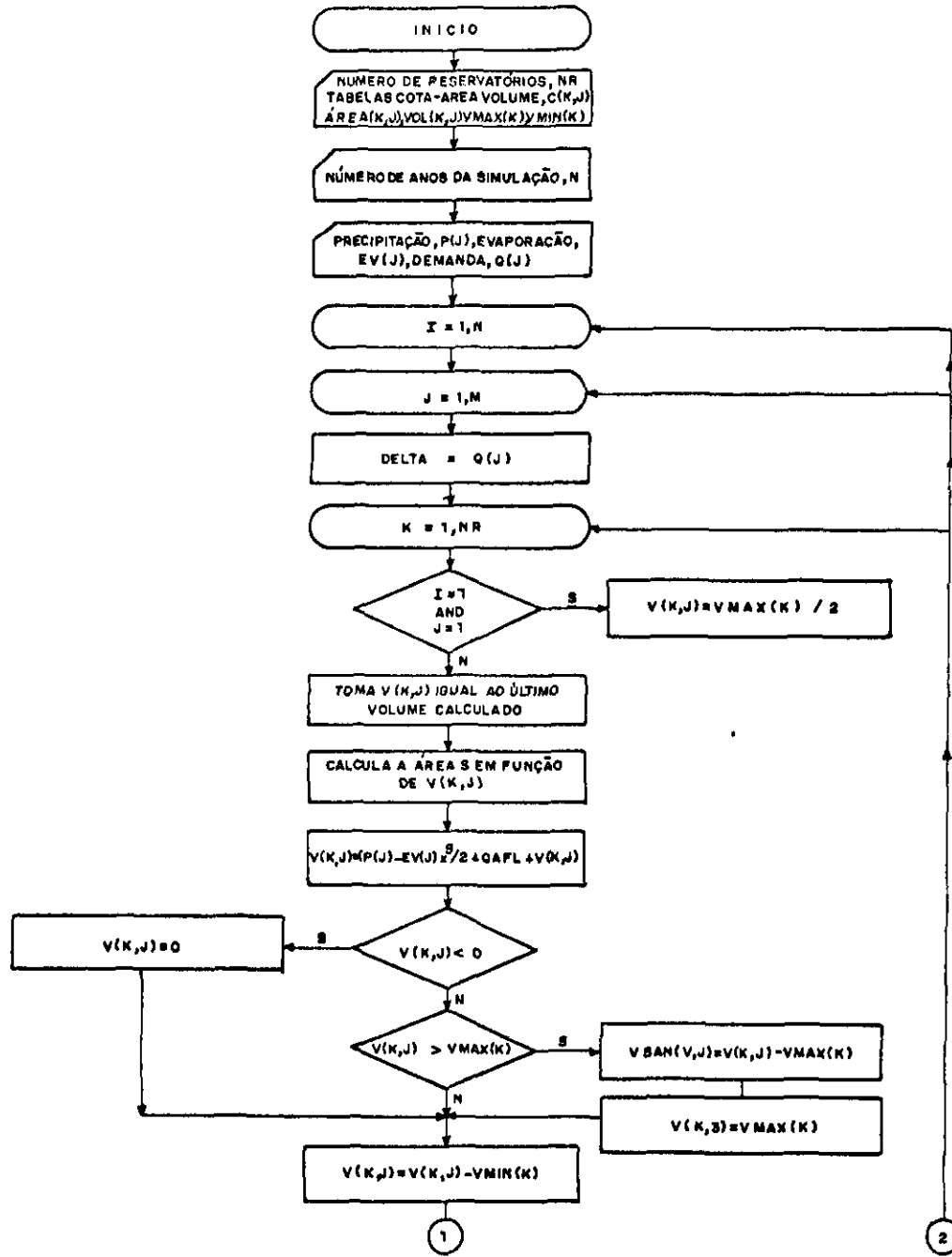


FIGURA-15  
FLUXOGRAMA DA OPERAÇÃO DE RESERVATÓRIOS



vazão  $Q_r$ , estabelecida no processamento, identifica-se o colapso no mês; a relação  $\frac{n}{m}$ , onde  $n$  representa o número de meses em que ocorre colapso, e o  $m$  (o número de meses total da série) define a frequência do colapso.

A repetição do procedimento para diferentes  $Q_r$  possibilita traçar-se a curva vazão regularizável x frequência ou nível de garantia.

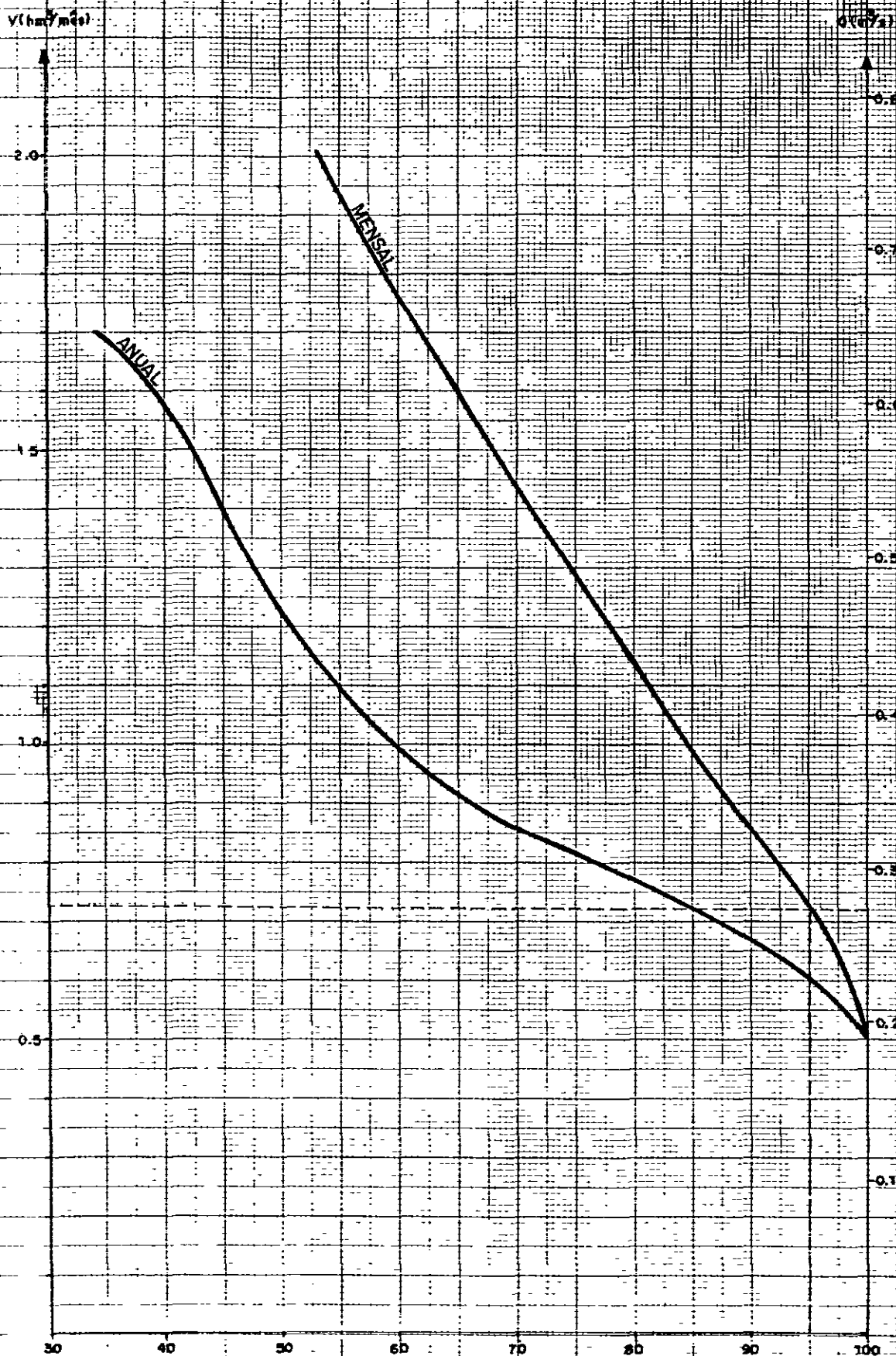
### 6.3 Análise dos Resultados

As falhas observadas foram computadas mensalmente para um incremento de demanda da ordem de 0,25 hm<sup>3</sup>/mês até atingir uma vazão regularizável de 2,0 hm<sup>3</sup>/mês. Tais resultados são mostrados na Figura 16, onde são mostradas as curvas de garantia por vazão regularizável a níveis anual e mensal.

Para um nível de regularização de 95% de garantia os resultados mostram que o açude atende a uma demanda de 0,28 m<sup>3</sup>/s, o que corresponde a aproximadamente 280 ha para irrigação.



FIGURA-16  
 CURVAS DE GARANTIA x VAZÃO REGULARIZÁVEL  
 AÇUDE MARCO



000064



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7. **ANEXO A**



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DEMANDA 0,5 hm<sup>3</sup>/mês

- No. DE MESES FALHOS = 0 - GARANTIA = 100%

- No. DE ANOS FALHOS = 0 - GARANTIA = 100%

000066



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
1	1	5.49	19.40	-0.20	0.00	0.00	0.50	-0.19	0.00	5.33	18.51	
	2	5.33	18.51	+0.06	0.59	0.00	0.50	+0.06	0.00	5.37	18.71	
	3	5.37	18.71	+0.39	4.67	0.00	0.50	+0.44	0.00	6.21	23.71	
	4	6.21	23.71	+0.55	6.68	0.00	0.50	+0.62	0.00	7.09	31.06	
	5	7.09	31.06	+0.16	6.98	0.00	0.50	+0.23	0.00	10.47	37.92	
	6	10.47	37.92	-0.21	1.56	0.47	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	1.04	0.00	0.50	-0.58	0.00	10.21	37.47	
	8	10.21	37.47	-0.83	0.57	0.00	0.50	-0.80	0.00	9.35	35.91	
	9	9.35	35.91	-0.85	0.31	0.00	0.50	-0.79	0.00	8.34	34.07	
	10	8.34	34.07	-0.86	0.17	0.00	0.50	-0.80	0.00	7.25	32.09	
	11	7.25	32.09	-0.70	0.09	0.00	0.50	-0.69	0.00	6.99	30.29	
	12	6.99	30.29	-0.61	0.09	0.00	0.50	-0.60	0.00	6.80	28.67	
2	1	6.80	28.67	-0.24	1.04	0.00	0.50	-0.25	0.00	6.81	28.72	
	2	6.81	28.72	+0.07	1.09	0.00	0.50	+0.07	0.00	6.89	29.45	
	3	6.89	29.45	+0.50	1.07	0.00	0.50	+0.51	0.00	7.08	31.02	
	4	7.08	31.02	+0.63	2.16	0.00	0.50	+0.70	0.00	8.31	34.01	
	5	8.31	34.01	+0.18	1.14	0.00	0.50	+0.19	0.00	8.87	35.03	
	6	8.87	35.03	-0.18	0.78	0.00	0.50	-0.18	0.00	8.83	34.95	
	7	8.83	34.95	-0.49	0.45	0.00	0.50	-0.47	0.00	8.27	33.95	
	8	8.27	33.95	-0.67	0.30	0.00	0.50	-0.64	0.00	7.44	32.44	
	9	7.44	32.44	-0.67	0.18	0.00	0.50	-0.65	0.00	7.06	30.80	
	10	7.06	30.80	-0.73	0.10	0.00	0.50	-0.72	0.00	6.83	28.95	
	11	6.83	28.95	-0.66	0.05	0.00	0.50	-0.65	0.00	6.62	27.19	
	12	6.62	27.19	-0.58	0.03	0.00	0.50	-0.57	0.00	6.43	25.58	
3	1	6.43	25.58	-0.23	0.09	0.00	0.50	-0.23	0.00	6.32	24.71	
	2	6.32	24.71	+0.07	0.11	0.00	0.50	+0.07	0.00	6.29	24.45	
	3	6.29	24.45	+0.45	0.58	0.00	0.50	+0.46	0.00	6.41	25.44	
	4	6.41	25.44	+0.57	0.73	0.00	0.50	+0.58	0.00	6.58	26.81	
	5	6.58	26.81	+0.14	0.49	0.00	0.50	+0.15	0.00	6.61	27.09	
	6	6.61	27.09	-0.13	0.31	0.00	0.50	-0.13	0.00	6.56	26.64	
		6.56	26.64	-0.36	0.17	0.00	0.50	-0.36	0.00	6.43	25.59	
		6.43	25.59	-0.52	0.09	0.00	0.50	-0.52	0.00	6.26	24.15	
		6.26	24.15	-0.57	0.05	0.00	0.50	-0.56	0.00	6.05	22.57	
		6.05	22.57	-0.63	0.02	0.00	0.50	-0.61	0.00	5.74	20.86	
		5.74	20.86	-0.56	0.01	0.00	0.50	-0.54	0.00	5.47	19.28	
		5.47	19.28	-0.48	0.21	0.00	0.50	-0.46	0.00	5.25	18.05	
4		5.25	18.05	-0.19	0.58	0.00	0.50	-0.19	0.00	5.20	17.75	
		5.20	17.75	+0.05	1.69	0.00	0.50	+0.06	0.00	5.43	19.05	
		5.43	19.05	+0.39	10.48	0.00	0.50	+0.50	0.00	6.95	29.92	
	4	6.95	29.92	+0.62	4.77	0.00	0.50	+0.77	0.00	9.17	35.58	
	5	9.17	35.58	+0.20	1.42	0.00	0.50	+0.22	0.00	9.91	36.91	
	6	9.91	36.91	-0.20	0.88	0.00	0.50	-0.20	0.00	9.90	36.90	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
7	7	9.90	36.90	-0.54	0.48	0.00	0.50	-0.53	0.00	9.30	35.80	
8	8	9.30	35.80	-0.76	0.26	0.00	0.50	-0.71	0.00	8.35	34.09	
9	9	8.35	34.09	-0.76	0.14	0.00	0.50	-0.70	0.00	7.35	32.28	
10	10	7.35	32.28	-0.76	0.08	0.00	0.50	-0.73	0.00	7.00	30.36	
11	11	7.00	30.36	-0.68	0.11	0.00	0.50	-0.67	0.00	6.80	28.63	
12	12	6.80	28.63	-0.59	0.19	0.00	0.50	-0.58	0.00	6.62	27.14	
5	1	6.62	27.14	-0.24	4.05	0.00	0.50	-0.25	0.00	6.98	30.20	
2	2	6.98	30.20	+0.07	15.28	6.76	0.50	+0.11	0.00	10.74	38.41	
3	3	10.74	38.41	+0.77	32.41	32.80	0.50	+0.77	0.00	12.94	39.07	
4	4	12.94	39.07	+1.15	26.58	27.99	0.50	+0.94	0.00	12.99	39.24	
5	5	12.99	39.24	+0.29	44.63	45.36	0.50	+0.23	0.00	10.80	38.53	
6	6	10.80	38.53	-0.22	2.02	1.54	0.50	-0.21	0.00	10.56	38.09	
7	7	10.56	38.09	-0.58	1.11	0.00	0.50	-0.58	0.00	10.25	37.53	
8	8	10.25	37.53	-0.84	0.61	0.00	0.50	-0.80	0.00	9.41	36.01	
9	9	9.41	36.01	-0.85	0.39	0.00	0.50	-0.80	0.00	8.44	34.24	
10	10	8.44	34.24	-0.87	0.32	0.00	0.50	-0.81	0.00	7.41	32.37	
11	11	7.41	32.37	-0.72	0.24	0.00	0.50	-0.69	0.00	7.04	30.70	
12	12	7.04	30.70	-0.61	0.39	0.00	0.50	-0.61	0.00	6.89	29.38	
6	1	6.89	29.38	-0.25	0.93	0.00	0.50	-0.25	0.00	6.88	29.31	
2	2	6.88	29.31	+0.07	1.00	0.00	0.50	+0.07	0.00	6.95	29.96	
3	3	6.95	29.96	+0.50	20.41	12.07	0.50	+0.77	0.00	12.94	39.07	
4	4	12.94	39.07	+1.15	1.87	3.28	0.50	+0.94	0.00	12.99	39.24	
5	5	12.99	39.24	+0.29	3.42	4.15	0.50	+0.23	0.00	10.80	38.53	
6	6	10.80	38.53	-0.22	3.70	3.22	0.50	-0.21	0.00	10.56	38.09	
7	7	10.56	38.09	-0.58	1.21	0.00	0.50	-0.58	0.00	10.31	37.63	
8	8	10.31	37.63	-0.84	0.66	0.00	0.50	-0.81	0.00	9.48	36.14	
9	9	9.48	36.14	-0.86	0.56	0.00	0.50	-0.82	0.00	8.59	34.53	
10	10	8.59	34.53	-0.89	0.31	0.00	0.50	-0.83	0.00	7.54	32.62	
11	11	7.54	32.62	-0.73	0.17	0.00	0.50	-0.69	0.00	7.06	30.86	
12	12	7.06	30.86	-0.61	0.40	0.00	0.50	-0.61	0.00	6.91	29.54	
7	1	6.91	29.54	-0.25	0.44	0.00	0.50	-0.25	0.00	6.84	28.99	
2	2	6.84	28.99	+0.07	0.53	0.00	0.50	+0.07	0.00	6.86	29.16	
3	3	6.86	29.16	+0.49	0.39	0.00	0.50	+0.50	0.00	6.96	30.04	
4	4	6.96	30.04	+0.62	0.30	0.00	0.50	+0.62	0.00	7.09	31.08	
5	5	7.09	31.08	+0.16	0.43	0.00	0.50	+0.16	0.00	7.12	31.32	
6	6	7.12	31.32	-0.14	0.25	0.00	0.50	-0.14	0.00	7.05	30.79	
7	7	7.05	30.79	-0.39	0.14	0.00	0.50	-0.38	0.00	6.92	29.66	
8	8	6.92	29.66	-0.56	0.08	0.00	0.50	-0.55	0.00	6.73	28.12	
9	9	6.73	28.12	-0.61	0.04	0.00	0.50	-0.60	0.00	6.53	26.45	
10	10	6.53	26.45	-0.68	0.02	0.00	0.50	-0.66	0.00	6.32	24.63	
11	11	6.32	24.63	-0.61	0.01	0.00	0.50	-0.60	0.00	6.11	22.93	
12	12	6.11	22.93	-0.53	0.04	0.00	0.50	-0.52	0.00	5.84	21.42	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	IPER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
8	1	5.84	21.42	-0.21	0.03	0.00	0.50	-0.21	0.00	5.69	20.54	
	2	5.69	20.54	+0.06	0.36	0.00	0.50	+0.06	0.00	5.68	20.51	
	3	5.68	20.51	+0.41	23.79	5.91	0.50	+0.77	0.00	12.94	39.07	
	4	12.94	39.07	+1.15	7.23	8.64	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	1.89	2.62	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.14	0.66	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	0.71	0.00	0.50	-0.57	0.00	10.04	37.15	
	8	10.04	37.15	-0.82	0.61	0.00	0.50	-0.79	0.00	9.21	35.65	
	9	9.21	35.65	-0.83	0.33	0.00	0.50	-0.78	0.00	8.23	33.86	
	10	8.23	33.86	-0.85	0.18	0.00	0.50	-0.78	0.00	7.19	31.91	
	11	7.19	31.91	-0.70	0.11	0.00	0.50	-0.68	0.00	6.98	30.14	
	12	6.98	30.14	-0.61	0.29	0.00	0.50	-0.60	0.00	6.81	28.72	
9	1	6.81	28.72	-0.25	0.27	0.00	0.50	-0.24	0.00	6.72	28.00	
	2	6.72	28.00	+0.07	0.80	0.00	0.50	+0.07	0.00	6.77	28.44	
	3	6.77	28.44	+0.49	3.24	0.00	0.50	+0.52	0.00	7.30	32.19	
	4	7.30	32.19	+0.65	4.55	0.00	0.50	+0.88	0.00	10.38	37.76	
	5	10.38	37.76	+0.23	16.16	15.35	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.56	1.08	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	0.93	0.00	0.50	-0.58	0.00	10.16	37.36	
	8	10.16	37.36	-0.83	0.51	0.00	0.50	-0.79	0.00	9.27	35.75	
	9	9.27	35.75	-0.84	0.29	0.00	0.50	-0.79	0.00	8.26	33.92	
	10	8.26	33.92	-0.85	0.16	0.00	0.50	-0.79	0.00	7.19	31.93	
	11	7.19	31.93	-0.70	0.09	0.00	0.50	-0.68	0.00	6.98	30.14	
	12	6.98	30.14	-0.61	0.05	0.00	0.50	-0.60	0.00	6.78	28.49	
10	1	6.78	28.49	-0.24	0.13	0.00	0.50	-0.24	0.00	6.68	27.63	
	2	6.68	27.63	+0.07	0.21	0.00	0.50	+0.07	0.00	6.66	27.48	
	3	6.66	27.48	+0.48	0.53	0.00	0.50	+0.48	0.00	6.78	28.48	
	4	6.78	28.48	+0.60	2.69	0.00	0.50	+0.63	0.00	7.19	31.90	
	5	7.19	31.90	+0.16	1.35	0.00	0.50	+0.17	0.00	7.79	33.07	
	6	7.79	33.07	-0.16	0.89	0.00	0.50	-0.16	0.00	7.83	33.15	
	7	7.83	33.15	-0.43	0.60	0.00	0.50	-0.42	0.00	7.42	32.40	
	8	7.42	32.40	-0.60	0.34	0.00	0.50	-0.58	0.00	7.09	31.05	
	9	7.09	31.05	-0.64	0.18	0.00	0.50	-0.63	0.00	6.89	29.46	
	10	6.89	29.46	-0.71	0.10	0.00	0.50	-0.70	0.00	6.68	27.64	
	11	6.68	27.64	-0.65	0.32	0.00	0.50	-0.64	0.00	6.50	26.18	
	12	6.50	26.18	-0.57	0.18	0.00	0.50	-0.56	0.00	6.33	24.74	
11	1	6.33	24.74	-0.23	0.54	0.00	0.50	-0.23	0.00	6.28	24.32	
	2	6.28	24.32	+0.07	4.74	0.00	0.50	+0.07	0.00	6.80	28.70	
	3	6.80	28.70	+0.49	2.47	0.00	0.50	+0.51	0.00	7.16	31.67	
	4	7.16	31.67	+0.63	6.93	0.43	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	1.76	2.49	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.14	0.66	0.50	-0.21	0.00	10.56	38.09	

000069



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	ANGRADO	RE	FINAL	DEMANDA	FINAL	FINAL	
	7	10.56	38.09	-0.58	0.69	0.00	0.50	-0.57	0.00	10.03	37.13	
	8	10.03	37.13	-0.82	0.38	0.00	0.50	-0.78	0.00	9.08	35.41	
	9	9.08	35.41	-0.82	0.21	0.00	0.50	-0.77	0.00	8.05	33.54	
	10	8.05	33.54	-0.83	0.11	0.00	0.50	-0.76	0.00	7.15	31.55	
	11	7.15	31.55	-0.69	0.06	0.00	0.50	-0.68	0.00	6.93	29.74	
	12	6.93	29.74	-0.60	0.03	0.00	0.50	-0.59	0.00	6.73	28.07	
12	1	6.73	28.07	-0.24	0.86	0.00	0.50	-0.24	0.00	6.71	27.95	
	2	6.71	27.95	+0.07	1.80	0.00	0.50	+0.07	0.00	6.89	29.39	
	3	6.89	29.39	+0.50	12.31	3.40	0.50	+0.77	0.00	12.94	39.07	
	4	12.94	39.07	+1.15	16.68	18.09	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	7.00	7.73	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	2.73	2.25	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	1.15	0.00	0.50	-0.58	0.00	10.27	37.57	
	8	10.27	37.57	-0.84	0.63	0.00	0.50	-0.81	0.00	9.44	36.06	
	9	9.44	36.06	-0.85	0.34	0.00	0.50	-0.80	0.00	8.44	34.24	
	10	8.44	34.24	-0.87	0.19	0.00	0.50	-0.81	0.00	7.34	32.25	
	11	7.34	32.25	-0.71	0.10	0.00	0.50	-0.69	0.00	7.01	30.45	
	12	7.01	30.45	-0.61	0.12	0.00	0.50	-0.60	0.00	6.82	28.86	
13	1	6.82	28.86	-0.25	0.94	0.00	0.50	-0.25	0.00	6.82	28.81	
	2	6.82	28.81	+0.07	1.32	0.00	0.50	+0.07	0.00	6.93	29.78	
	3	6.93	29.78	+0.50	2.23	0.00	0.50	+0.52	0.00	7.49	32.52	
	4	7.49	32.52	+0.66	2.14	0.00	0.50	+0.78	0.00	9.19	35.60	
	5	9.19	35.60	+0.20	1.44	0.00	0.50	+0.22	0.00	9.93	36.96	
	6	9.93	36.96	-0.20	0.98	0.00	0.50	-0.20	0.00	9.98	37.04	
	7	9.98	37.04	-0.55	0.60	0.00	0.50	-0.54	0.00	9.44	36.05	
	8	9.44	36.05	-0.77	0.39	0.00	0.50	-0.73	0.00	8.55	34.45	
	9	8.55	34.45	-0.77	0.21	0.00	0.50	-0.72	0.00	7.56	32.66	
	10	7.56	32.66	-0.78	0.11	0.00	0.50	-0.74	0.00	7.05	30.75	
	11	7.05	30.75	-0.68	0.06	0.00	0.50	-0.67	0.00	6.83	28.96	
	12	6.83	28.96	-0.59	0.03	0.00	0.50	-0.58	0.00	6.64	27.31	
14	1	6.64	27.31	-0.24	0.39	0.00	0.50	-0.24	0.00	6.57	26.72	
	2	6.57	26.72	+0.07	2.54	0.00	0.50	+0.07	0.00	6.83	28.90	
	3	6.83	28.90	+0.49	9.80	0.39	0.50	+0.77	0.00	12.94	39.07	
	4	12.94	39.07	+1.15	11.53	12.94	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	2.90	3.63	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.28	0.80	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	0.73	0.00	0.50	-0.57	0.00	10.05	37.17	
	8	10.05	37.17	-0.82	0.40	0.00	0.50	-0.78	0.00	9.11	35.47	
	9	9.11	35.47	-0.82	0.22	0.00	0.50	-0.77	0.00	8.08	33.59	
	10	8.08	33.59	-0.84	0.12	0.00	0.50	-0.77	0.00	7.15	31.61	
	11	7.15	31.61	-0.69	0.06	0.00	0.50	-0.68	0.00	6.94	29.80	
	12	6.94	29.80	-0.60	0.03	0.00	0.50	-0.59	0.00	6.74	28.13	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3 (continuacao)

ANO	PER.	AREA INICIAL	VOLUME INICIAL	(P-E)/S/2 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/S/2 FINAL	SALDO DEMANDA	AREA FINAL	VOLUME FINAL	FAI.
15	1	6.74	28.13	-0.24	0.31	0.00	0.50	-0.24	0.00	6.66	27.46	
	2	6.66	27.46	+0.07	0.67	0.00	0.50	+0.07	0.00	6.69	27.77	
	3	6.69	27.77	+0.48	1.24	0.00	0.50	+0.49	0.00	6.90	29.48	
	4	6.90	29.48	+0.61	6.20	0.00	0.50	+0.82	0.00	9.75	36.62	
	5	9.75	36.62	+0.21	1.52	0.00	0.50	+0.23	0.00	10.55	38.08	
	6	10.55	38.08	-0.21	1.03	0.10	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	0.60	0.00	0.50	-0.57	0.00	9.98	37.04	
	8	9.98	37.04	-0.81	0.33	0.00	0.50	-0.77	0.00	9.01	35.29	
	9	9.01	35.29	-0.82	0.18	0.00	0.50	-0.76	0.00	7.97	33.39	
	10	7.97	33.39	-0.82	0.10	0.00	0.50	-0.75	0.00	7.13	31.41	
	11	7.13	31.41	-0.69	0.05	0.00	0.50	-0.68	0.00	6.91	29.59	
	12	6.91	29.59	-0.60	0.05	0.00	0.50	-0.59	0.00	6.71	27.95	
16	1	6.71	27.95	-0.24	0.50	0.00	0.50	-0.24	0.00	6.66	27.47	
	2	6.66	27.47	+0.07	0.57	0.00	0.50	+0.07	0.00	6.68	27.68	
	3	6.68	27.68	+0.48	1.48	0.00	0.50	+0.49	0.00	6.92	29.63	
	4	6.92	29.63	+0.61	3.36	0.00	0.50	+0.69	0.00	8.19	33.80	
	5	8.19	33.80	+0.18	1.21	0.00	0.50	+0.19	0.00	8.79	34.88	
	6	8.79	34.88	-0.18	0.78	0.00	0.50	-0.18	0.00	8.75	34.81	
	7	8.75	34.81	-0.48	0.43	0.00	0.50	-0.46	0.00	8.19	33.79	
	8	8.19	33.79	-0.67	0.23	0.00	0.50	-0.63	0.00	7.33	32.23	
	9	7.33	32.23	-0.66	0.13	0.00	0.50	-0.64	0.00	7.03	30.55	
	10	7.03	30.55	-0.73	0.07	0.00	0.50	-0.71	0.00	6.80	28.68	
	11	6.80	28.68	-0.66	0.03	0.00	0.50	-0.65	0.00	6.59	26.91	
	12	6.59	26.91	-0.57	0.02	0.00	0.50	-0.56	0.00	6.39	25.29	
17	1	6.39	25.29	-0.23	0.67	0.00	0.50	-0.23	0.00	6.36	25.00	
	2	6.36	25.00	+0.07	4.33	0.00	0.50	+0.07	0.00	6.84	28.97	
	3	6.84	28.97	+0.49	8.58	0.00	0.50	+0.74	0.00	10.66	38.28	
	4	10.66	38.28	+0.94	9.15	9.57	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	1.63	2.36	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	0.97	0.49	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	0.57	0.00	0.50	-0.57	0.00	9.96	37.01	
	8	9.96	37.01	-0.81	0.31	0.00	0.50	-0.77	0.00	8.99	35.24	
	9	8.99	35.24	-0.81	0.17	0.00	0.50	-0.77	0.00	7.94	33.34	
	10	7.94	33.34	-0.82	0.09	0.00	0.50	-0.75	0.00	7.12	31.36	
	11	7.12	31.36	-0.69	0.05	0.00	0.50	-0.68	0.00	6.90	29.54	
	12	6.90	29.54	-0.60	0.43	0.00	0.50	-0.59	0.00	6.75	28.28	
18	1	6.75	28.28	-0.24	0.56	0.00	0.50	-0.24	0.00	6.70	27.85	
	2	6.70	27.85	+0.07	1.94	0.00	0.50	+0.07	0.00	6.89	29.43	
	3	6.89	29.43	+0.50	16.49	7.62	0.50	+0.77	0.00	12.94	39.07	
	4	12.94	39.07	+1.15	4.06	5.47	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	1.57	2.30	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.33	0.85	0.50	-0.21	0.00	10.56	38.09	

000071





Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	(SANGRADO)	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	10.56	38.09	-0.58	0.79	0.00	0.50	-0.57	0.00	10.08	37.22	
	8	10.08	37.22	-0.82	0.46	0.00	0.50	-0.78	0.00	9.17	35.58	
	9	9.17	35.58	-0.83	0.25	0.00	0.50	-0.78	0.00	8.15	33.72	
	10	8.15	33.72	-0.84	0.14	0.00	0.50	-0.77	0.00	7.17	31.74	
	11	7.17	31.74	-0.70	0.07	0.00	0.50	-0.88	0.00	6.95	29.94	
	12	6.95	29.94	-0.60	0.04	0.00	0.50	-0.59	0.00	6.75	28.28	
19	1	6.75	28.28	-0.24	0.64	0.00	0.50	-0.24	0.00	6.71	27.93	
	2	6.71	27.93	+0.07	3.03	0.00	0.50	+0.07	0.00	7.03	30.61	
	3	7.03	30.61	+0.51	3.98	0.00	0.50	+0.62	0.00	8.97	35.21	
	4	8.97	35.21	+0.79	2.61	0.00	0.50	+0.94	0.00	12.94	39.05	
	5	12.94	39.05	+0.28	1.37	1.91	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	0.88	0.40	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	0.50	0.00	0.50	-0.56	0.00	9.93	36.94	
	8	9.93	36.94	-0.81	0.28	0.00	0.50	-0.76	0.00	8.94	35.15	
	9	8.94	35.15	-0.81	0.16	0.00	0.50	-0.75	0.00	7.89	33.25	
	10	7.89	33.25	-0.82	0.09	0.00	0.50	-0.75	0.00	7.11	31.28	
	11	7.11	31.28	-0.69	0.05	0.00	0.50	-0.68	0.00	6.90	29.46	
	12	6.90	29.46	-0.60	0.02	0.00	0.50	-0.59	0.00	6.70	27.79	
20	1	6.70	27.79	-0.24	0.32	0.00	0.50	-0.24	0.00	6.62	27.13	
	2	6.62	27.13	+0.07	0.64	0.00	0.50	+0.07	0.00	6.65	27.41	
	3	6.65	27.41	+0.48	1.07	0.00	0.50	+0.49	0.00	6.83	28.95	
	4	6.83	28.95	+0.60	0.79	0.00	0.50	+0.61	0.00	7.01	30.46	
	5	7.01	30.46	+0.15	0.44	0.00	0.50	+0.15	0.00	7.04	30.71	
	6	7.04	30.71	-0.14	0.41	0.00	0.50	-0.14	0.00	7.00	30.33	
	7	7.00	30.33	-0.39	0.33	0.00	0.50	-0.38	0.00	6.89	29.40	
	8	6.89	29.40	-0.56	0.18	0.00	0.50	-0.55	0.00	6.72	27.96	
	9	6.72	27.96	-0.61	0.09	0.00	0.50	-0.60	0.00	6.52	26.35	
	10	6.52	26.35	-0.68	0.05	0.00	0.50	-0.66	0.00	6.31	24.56	
	11	6.31	24.56	-0.61	0.03	0.00	0.50	-0.60	0.00	6.10	22.88	
	12	6.10	22.88	-0.53	0.01	0.00	0.50	-0.52	0.00	5.83	21.35	
21	1	5.83	21.35	-0.21	0.76	0.00	0.50	-0.21	0.00	5.80	21.19	
	2	5.80	21.19	+0.06	2.00	0.00	0.50	+0.06	0.00	6.09	22.81	
	3	6.09	22.81	+0.44	2.08	0.00	0.50	+0.46	0.00	6.39	25.29	
	4	6.39	25.29	+0.57	7.73	0.00	0.50	+0.69	0.00	8.18	33.77	
	5	8.18	33.77	+0.18	1.59	0.00	0.50	+0.20	0.00	8.99	35.24	
	6	8.99	35.24	-0.18	0.91	0.00	0.50	-0.18	0.00	9.01	35.29	
	7	9.01	35.29	-0.50	0.53	0.00	0.50	-0.48	0.00	8.49	34.34	
	8	8.49	34.34	-0.69	0.29	0.00	0.50	-0.65	0.00	7.63	32.79	
	9	7.63	32.79	-0.69	0.17	0.00	0.50	-0.65	0.00	7.09	31.12	
	10	7.09	31.12	-0.73	0.09	0.00	0.50	-0.72	0.00	6.87	29.25	
	11	6.87	29.25	-0.67	0.05	0.00	0.50	-0.65	0.00	6.66	27.48	
	12	6.66	27.48	-0.58	0.09	0.00	0.50	-0.57	0.00	6.47	25.92	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	ISANGRADO	RETIR.	FINAL	IDERANDA	FINAL	FINAL	
22	1	6.471	25.921	-0.231	0.341	0.001	0.501	-0.231	0.001	6.401	25.301	
	2	6.401	25.301	+0.071	2.161	0.001	0.501	+0.071	0.001	6.611	27.101	
	3	6.611	27.101	+0.481	9.291	0.001	0.501	+0.691	0.001	9.991	37.051	
	4	9.991	37.051	+0.881	11.071	10.211	0.501	+0.941	0.001	12.991	39.241	
	5	12.991	39.241	+0.291	3.481	4.211	0.501	+0.231	0.001	10.801	38.531	
	6	10.801	38.531	-0.221	1.361	0.881	0.501	-0.211	0.001	10.561	38.091	
	7	10.561	38.091	-0.581	0.751	0.001	0.501	-0.571	0.001	10.061	37.191	
	8	10.061	37.191	-0.821	0.411	0.001	0.501	-0.781	0.001	9.131	35.501	
	9	9.131	35.501	-0.831	0.261	0.001	0.501	-0.771	0.001	8.111	33.661	
	10	8.111	33.661	-0.841	0.141	0.001	0.501	-0.771	0.001	7.161	31.691	
	11	7.161	31.691	-0.691	0.091	0.001	0.501	-0.681	0.001	6.951	29.901	
	12	6.951	29.901	-0.601	0.431	0.001	0.501	-0.601	0.001	6.801	28.631	
23	1	6.801	28.631	-0.241	1.021	0.001	0.501	-0.251	0.001	6.801	28.661	
	2	6.801	28.661	+0.071	1.451	0.001	0.501	+0.071	0.001	6.931	29.751	
	3	6.931	29.751	+0.501	3.411	0.001	0.501	+0.561	0.001	8.151	33.721	
	4	8.151	33.721	+0.721	24.301	19.951	0.501	+0.941	0.001	12.991	39.241	
	5	12.991	39.241	+0.291	6.421	7.151	0.501	+0.231	0.001	10.801	38.531	
	6	10.801	38.531	-0.221	1.801	1.321	0.501	-0.211	0.001	10.561	38.091	
	7	10.561	38.091	-0.581	1.001	0.001	0.501	-0.581	0.001	10.191	37.431	
	8	10.191	37.431	-0.831	0.551	0.001	0.501	-0.801	0.001	9.321	35.851	
	9	9.321	35.851	-0.841	0.301	0.001	0.501	-0.791	0.001	8.311	34.021	
	10	8.311	34.021	-0.861	0.161	0.001	0.501	-0.791	0.001	7.211	32.021	
	11	7.211	32.021	-0.701	0.091	0.001	0.501	-0.691	0.001	6.991	30.231	
	12	6.991	30.231	-0.611	0.051	0.001	0.501	-0.601	0.001	6.791	28.571	
24	1	6.791	28.571	-0.241	0.181	0.001	0.501	-0.241	0.001	6.691	27.771	
	2	6.691	27.771	+0.071	1.011	0.001	0.501	+0.071	0.001	6.771	28.421	
	3	6.771	28.421	+0.491	0.881	0.001	0.501	+0.491	0.001	6.931	29.781	
	4	6.931	29.781	+0.611	1.041	0.001	0.501	+0.631	0.001	7.151	31.561	
	5	7.151	31.561	+0.161	0.911	0.001	0.501	+0.161	0.001	7.361	32.291	
	6	7.361	32.291	-0.151	0.521	0.001	0.501	-0.151	0.001	7.211	32.011	
	7	7.211	32.011	-0.401	0.301	0.001	0.501	-0.391	0.001	7.081	31.031	
	8	7.081	31.031	-0.581	0.161	0.001	0.501	-0.571	0.001	6.901	29.541	
	9	6.901	29.541	-0.621	0.091	0.001	0.501	-0.611	0.001	6.711	27.891	
	10	6.711	27.891	-0.691	0.051	0.001	0.501	-0.681	0.001	6.491	26.071	
	11	6.491	26.071	-0.631	0.021	0.001	0.501	-0.621	0.001	6.281	24.341	
	12	6.281	24.341	-0.551	0.011	0.001	0.501	-0.541	0.001	6.081	22.771	
25	1	6.081	22.771	-0.221	0.081	0.001	0.501	-0.211	0.001	5.931	21.921	
	2	5.931	21.921	+0.061	0.841	0.001	0.501	+0.061	0.001	6.011	22.381	
	3	6.011	22.381	+0.431	0.901	0.001	0.501	+0.441	0.001	6.201	23.661	
	4	6.201	23.661	+0.551	1.371	0.001	0.501	+0.561	0.001	6.441	25.641	
	5	6.441	25.641	+0.141	1.291	0.001	0.501	+0.141	0.001	6.571	26.711	
	6	6.571	26.711	-0.131	0.931	0.001	0.501	-0.131	0.001	6.591	26.881	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km<sup>3</sup>

(cont. nuacao)

ANO	PER.	AREA INICIAL	VOLUME INICIAL	(P-E)/2 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2 FINAL	SALDO OPERANDA	AREA FINAL	VOLUME FINAL
	7	6.591	26.881	-0.361	0.571	0.001	0.501	-0.361	0.001	6.511	26.231
	8	6.511	26.231	-0.531	0.311	0.001	0.501	-0.521	0.001	6.361	24.991
	9	6.361	24.991	-0.581	0.171	0.001	0.501	-0.571	0.001	6.181	23.511
	10	6.181	23.511	-0.641	0.091	0.001	0.501	-0.621	0.001	5.921	21.841
	11	5.921	21.841	-0.571	0.051	0.001	0.501	-0.561	0.001	5.641	20.261
	12	5.641	20.261	-0.491	0.021	0.001	0.501	-0.481	0.001	5.381	18.811
26	1	5.381	18.811	-0.191	0.381	0.001	0.501	-0.191	0.001	5.291	18.311
	2	5.291	18.311	+0.061	0.281	0.001	0.501	+0.061	0.001	5.281	18.201
	3	5.281	18.201	+0.381	4.531	0.001	0.501	+0.441	0.001	6.131	23.051
	4	6.131	23.051	+0.541	2.011	0.001	0.501	+0.561	0.001	6.441	25.661
	5	6.441	25.661	+0.141	1.331	0.001	0.501	+0.141	0.001	6.571	26.781
	6	6.571	26.781	-0.131	0.841	0.001	0.501	-0.131	0.001	6.581	26.851
	7	6.581	26.851	-0.361	0.501	0.001	0.501	-0.361	0.001	6.501	26.131
	8	6.501	26.131	-0.531	0.331	0.001	0.501	-0.521	0.001	6.351	24.911
	9	6.351	24.911	-0.571	0.181	0.001	0.501	-0.561	0.001	6.171	23.451
	10	6.171	23.451	-0.641	0.101	0.001	0.501	-0.621	0.001	5.911	21.791
	11	5.911	21.791	-0.571	0.051	0.001	0.501	-0.561	0.001	5.631	20.211
	12	5.631	20.211	-0.491	0.031	0.001	0.501	-0.481	0.001	5.381	18.781
27	1	5.381	18.781	-0.191	0.121	0.001	0.501	-0.191	0.001	5.241	18.011
	2	5.241	18.011	+0.061	0.731	0.001	0.501	+0.061	0.001	5.301	18.351
	3	5.301	18.351	+0.381	3.011	0.001	0.501	+0.421	0.001	5.881	21.661
	4	5.881	21.661	+0.521	1.641	0.001	0.501	+0.551	0.001	6.221	23.871
	5	6.221	23.871	+0.141	1.271	0.001	0.501	+0.141	0.001	6.351	24.911
	6	6.351	24.911	-0.131	0.761	0.001	0.501	-0.131	0.001	6.351	24.921
	7	6.351	24.921	-0.351	0.541	0.001	0.501	-0.351	0.001	6.271	24.261
	8	6.271	24.261	-0.511	0.301	0.001	0.501	-0.511	0.001	6.131	23.051
	9	6.131	23.051	-0.551	0.221	0.001	0.501	-0.541	0.001	5.891	21.671
	10	5.891	21.671	-0.611	0.161	0.001	0.501	-0.591	0.001	5.621	20.131
	11	5.621	20.131	-0.541	0.091	0.001	0.501	-0.531	0.001	5.351	18.651
	12	5.351	18.651	-0.471	0.081	0.001	0.501	-0.451	0.001	5.121	17.311
28	1	5.121	17.311	-0.181	0.961	0.001	0.501	-0.191	0.001	5.141	17.401
	2	5.141	17.401	+0.051	1.271	0.001	0.501	+0.061	0.001	5.291	18.281
	3	5.291	18.281	+0.381	2.651	0.001	0.501	+0.411	0.001	5.811	21.221
	4	5.811	21.221	+0.511	3.511	0.001	0.501	+0.561	0.001	6.401	25.311
	5	6.401	25.311	+0.141	1.591	0.001	0.501	+0.141	0.001	6.561	26.681
	6	6.561	26.681	-0.131	0.981	0.001	0.501	-0.131	0.001	6.591	26.901
	7	6.591	26.901	-0.361	0.641	0.001	0.501	-0.361	0.001	6.521	26.321
	8	6.521	26.321	-0.531	0.361	0.001	0.501	-0.521	0.001	6.371	25.121
	9	6.371	25.121	-0.581	0.201	0.001	0.501	-0.571	0.001	6.201	23.681
	10	6.201	23.681	-0.641	0.111	0.001	0.501	-0.631	0.001	5.951	22.021
	11	5.951	22.021	-0.581	0.061	0.001	0.501	-0.561	0.001	5.671	20.441
	12	5.671	20.441	-0.491	0.031	0.001	0.501	-0.481	0.001	5.421	19



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	FAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
29	1	5.42	19.00	-0.19	0.08	0.00	0.50	-0.19	0.00	5.27	18.19	
	2	5.27	18.19	+0.06	0.30	0.00	0.50	+0.06	0.00	5.26	18.10	
	3	5.26	18.10	+0.38	1.17	0.00	0.50	+0.39	0.00	5.51	19.54	
	4	5.51	19.54	+0.49	1.22	0.00	0.50	+0.51	0.00	5.81	21.26	
	5	5.81	21.26	+0.13	0.75	0.00	0.50	-0.13	0.00	5.90	21.77	
	6	5.90	21.77	-0.12	0.59	0.00	0.50	-0.12	0.00	5.88	21.62	
	7	5.88	21.62	-0.32	0.36	0.00	0.50	-0.32	0.00	5.74	20.84	
	8	5.74	20.84	-0.47	0.19	0.00	0.50	-0.46	0.00	5.52	19.60	
	9	5.52	19.60	-0.50	0.10	0.00	0.50	-0.49	0.00	5.28	18.22	
	10	5.28	18.22	-0.55	0.06	0.00	0.50	-0.53	0.00	5.00	16.70	
	11	5.00	16.70	-0.48	0.03	0.00	0.50	-0.47	0.00	4.71	15.28	
	12	4.71	15.28	-0.41	0.01	0.00	0.50	-0.39	0.00	4.44	13.99	
30	1	4.44	13.99	-0.16	0.47	0.00	0.50	-0.16	0.00	4.37	13.64	
	2	4.37	13.64	+0.05	0.65	0.00	0.50	+0.05	0.00	4.42	13.88	
	3	4.42	13.88	+0.32	1.39	0.00	0.50	+0.34	0.00	4.74	15.43	
	4	4.74	15.43	+0.42	1.17	0.00	0.50	+0.44	0.00	5.05	16.96	
	5	5.05	16.96	+0.11	0.64	0.00	0.50	+0.11	0.00	5.12	17.32	
	6	5.12	17.32	-0.10	0.35	0.00	0.50	-0.10	0.00	5.05	16.96	
	7	5.05	16.96	-0.28	0.19	0.00	0.50	-0.27	0.00	4.88	16.11	
	8	4.88	16.11	-0.40	0.10	0.00	0.50	-0.38	0.00	4.63	14.92	
	9	4.63	14.92	-0.42	0.05	0.00	0.50	-0.40	0.00	4.37	13.65	
	10	4.37	13.65	-0.45	0.03	0.00	0.50	-0.43	0.00	4.09	12.30	
	11	4.09	12.30	-0.40	0.01	0.00	0.50	-0.38	0.00	3.80	11.03	
	12	3.80	11.03	-0.33	0.23	0.00	0.50	-0.32	0.00	3.60	10.11	
31	1	3.60	10.11	-0.13	0.41	0.00	0.50	-0.13	0.00	3.52	9.77	
	2	3.52	9.77	+0.04	0.41	0.00	0.50	+0.04	0.00	3.51	9.75	
	3	3.51	9.75	+0.25	0.70	0.00	0.50	+0.26	0.00	3.67	10.46	
	4	3.67	10.46	+0.33	1.13	0.00	0.50	+0.34	0.00	3.97	11.76	
	5	3.97	11.76	+0.09	0.97	0.00	0.50	+0.09	0.00	4.11	12.41	
	6	4.11	12.41	-0.08	0.53	0.00	0.50	-0.08	0.00	4.08	12.27	
	7	4.08	12.27	-0.22	0.37	0.00	0.50	-0.22	0.00	3.95	11.70	
	8	3.95	11.70	-0.32	0.20	0.00	0.50	-0.31	0.00	3.74	10.77	
	9	3.74	10.77	-0.34	0.11	0.00	0.50	-0.32	0.00	3.51	9.71	
	10	3.51	9.71	-0.36	0.06	0.00	0.50	-0.34	0.00	3.24	8.57	
	11	3.24	8.57	-0.31	0.09	0.00	0.50	-0.29	0.00	2.95	7.55	
	12	2.95	7.55	-0.26	0.54	0.00	0.50	-0.25	0.00	2.82	7.08	
32	1	2.82	7.08	-0.10	0.58	0.00	0.50	-0.10	0.00	2.79	6.96	
	2	2.79	6.96	+0.03	0.78	0.00	0.50	+0.03	0.00	2.88	7.30	
	3	2.88	7.30	+0.21	3.97	0.00	0.50	+0.27	0.00	3.85	11.25	
	4	3.85	11.25	+0.34	2.55	0.00	0.50	+0.39	0.00	4.45	14.03	
	5	4.45	14.03	+0.10	1.46	0.00	0.50	+0.10	0.00	4.69	15.19	
	6	4.69	15.19	-0.09	0.86	0.00	0.50	-0.09	0.00	4.72	15.36	

000075



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - BARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	AREA	VOLUME FINAL	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	4.721	15.361	-0.261	0.471	0.001	0.501	-0.261	0.001	4.611	14.811	
	8	4.611	14.811	-0.381	0.261	0.001	0.501	-0.371	0.001	4.411	13.831	
	9	4.411	13.831	-0.401	0.141	0.001	0.501	-0.391	0.001	4.171	12.691	
	10	4.171	12.691	-0.431	0.071	0.001	0.501	-0.411	0.001	3.891	11.411	
	11	3.891	11.411	-0.381	0.041	0.001	0.501	-0.361	0.001	3.621	10.221	
	12	3.621	10.221	-0.311	0.341	0.001	0.501	-0.311	0.001	3.441	9.441	
33	1	3.441	9.441	-0.121	0.981	0.001	0.501	-0.131	0.001	3.491	9.661	
	2	3.491	9.661	+0.041	5.581	0.001	0.501	+0.051	0.001	4.621	14.831	
	3	4.621	14.831	+0.331	6.521	0.001	0.501	+0.421	0.001	5.871	21.601	
	4	5.871	21.601	+0.521	4.281	0.001	0.501	+0.571	0.001	6.541	26.471	
	5	6.541	26.471	+0.141	2.001	0.001	0.501	+0.151	0.001	6.751	28.261	
	6	6.751	28.261	-0.141	1.151	0.001	0.501	-0.141	0.001	6.801	28.641	
	7	6.801	28.641	-0.371	0.631	0.001	0.501	-0.371	0.001	6.721	28.031	
	8	6.721	28.031	-0.551	0.351	0.001	0.501	-0.541	0.001	6.571	26.791	
	9	6.571	26.791	-0.591	0.191	0.001	0.501	-0.591	0.001	6.401	25.301	
	10	6.401	25.301	-0.661	0.101	0.001	0.501	-0.651	0.001	6.191	23.591	
	11	6.191	23.591	-0.601	0.051	0.001	0.501	-0.591	0.001	5.941	21.951	
	12	5.941	21.951	-0.521	0.031	0.001	0.501	-0.501	0.001	5.671	20.461	
34	1	5.671	20.461	-0.201	0.661	0.001	0.501	-0.201	0.001	5.631	20.211	
	2	5.631	20.211	+0.061	0.931	0.001	0.501	+0.061	0.001	5.731	20.761	
	3	5.731	20.761	+0.411	1.171	0.001	0.501	+0.431	0.001	5.991	22.271	
	4	5.991	22.271	+0.531	1.941	0.001	0.501	+0.551	0.001	6.341	24.801	
	5	6.341	24.801	+0.141	1.091	0.001	0.501	+0.141	0.001	6.441	25.671	
	6	6.441	25.671	-0.131	0.671	0.001	0.501	-0.131	0.001	6.431	25.581	
	7	6.431	25.581	-0.351	0.371	0.001	0.501	-0.351	0.001	6.331	24.751	
	8	6.331	24.751	-0.521	0.201	0.001	0.501	-0.511	0.001	6.171	23.421	
	9	6.171	23.421	-0.561	0.111	0.001	0.501	-0.551	0.001	5.931	21.931	
	10	5.931	21.931	-0.611	0.061	0.001	0.501	-0.591	0.001	5.641	20.281	
	11	5.641	20.281	-0.551	0.071	0.001	0.501	-0.531	0.001	5.381	18.771	
	12	5.381	18.771	-0.471	0.101	0.001	0.501	-0.451	0.001	5.141	17.451	
35	1	5.141	17.451	-0.191	0.051	0.001	0.501	-0.181	0.001	4.981	16.631	
	2	4.981	16.631	+0.051	1.211	0.001	0.501	+0.051	0.001	5.141	17.451	
	3	5.141	17.451	+0.371	2.631	0.001	0.501	+0.401	0.001	5.651	20.351	
	4	5.651	20.351	+0.501	2.181	0.001	0.501	+0.531	0.001	6.131	23.071	
	5	6.131	23.071	+0.131	1.541	0.001	0.501	+0.141	0.001	6.291	24.381	
	6	6.291	24.381	-0.131	1.061	0.001	0.501	-0.131	0.001	6.321	24.691	
	7	6.321	24.691	-0.351	0.651	0.001	0.501	-0.351	0.001	6.261	24.141	
	8	6.261	24.141	-0.511	0.361	0.001	0.501	-0.501	0.001	6.121	22.991	
	9	6.121	22.991	-0.551	0.191	0.001	0.501	-0.541	0.001	5.871	21.591	
	10	5.871	21.591	-0.611	0.101	0.001	0.501	-0.591	0.001	5.591	19.991	
	11	5.591	19.991	-0.541	0.591	0.001	0.501	-0.531	0.001	5.421	19.001	
	12	5.421	19.001	-0.471	0.321	0.001	0.501	-0.461	0.001	5.221	17.891	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
36	1	5.22	17.89	-0.19	0.40	0.00	0.50	-0.19	0.00	5.14	17.42	
	2	5.14	17.42	+0.05	0.88	0.00	0.50	+0.05	0.00	5.22	17.90	
	3	5.22	17.90	+0.38	9.21	0.00	0.50	+0.48	0.00	6.66	27.47	
	4	6.66	27.47	+0.59	1.68	0.00	0.50	+0.61	0.00	6.94	29.84	
	5	6.94	29.84	+0.15	1.35	0.00	0.50	+0.16	0.00	7.08	31.00	
	6	7.08	31.00	-0.14	0.84	0.00	0.50	-0.14	0.00	7.09	31.06	
	7	7.09	31.06	-0.39	0.46	0.00	0.50	-0.39	0.00	6.99	30.24	
	8	6.99	30.24	-0.57	0.25	0.00	0.50	-0.56	0.00	6.82	28.86	
	9	6.82	28.86	-0.62	0.14	0.00	0.50	-0.61	0.00	6.63	27.27	
	10	6.63	27.27	-0.69	0.07	0.00	0.50	-0.67	0.00	6.42	25.49	
	11	6.42	25.49	-0.62	0.04	0.00	0.50	-0.61	0.00	6.22	23.79	
	12	6.22	23.79	-0.54	0.02	0.00	0.50	-0.53	0.00	5.99	22.24	
37	1	5.99	22.24	-0.22	0.20	0.00	0.50	-0.21	0.00	5.86	21.52	
	2	5.86	21.52	+0.06	0.84	0.00	0.50	+0.06	0.00	5.94	21.98	
	3	5.94	21.98	+0.43	1.54	0.00	0.50	+0.44	0.00	6.23	23.89	
	4	6.23	23.89	+0.55	1.46	0.00	0.50	+0.57	0.00	6.48	25.97	
	5	6.48	25.97	+0.14	1.97	0.00	0.50	+0.15	0.00	6.69	27.73	
	6	6.69	27.73	-0.13	1.05	0.00	0.50	-0.13	0.00	6.72	28.01	
	7	6.72	28.01	-0.37	0.58	0.00	0.50	-0.37	0.00	6.64	27.35	
	8	6.64	27.35	-0.54	0.31	0.00	0.50	-0.53	0.00	6.49	26.09	
	9	6.49	26.09	-0.59	0.17	0.00	0.50	-0.58	0.00	6.31	24.59	
	10	6.31	24.59	-0.65	0.09	0.00	0.50	-0.64	0.00	6.10	22.89	
	11	6.10	22.89	-0.59	0.05	0.00	0.50	-0.57	0.00	5.82	21.27	
	12	5.82	21.27	-0.51	0.02	0.00	0.50	-0.49	0.00	5.56	19.80	
38	1	5.56	19.80	-0.20	0.40	0.00	0.50	-0.20	0.00	5.47	19.30	
	2	5.47	19.30	+0.06	0.56	0.00	0.50	+0.06	0.00	5.50	19.47	
	3	5.50	19.47	+0.40	6.44	0.00	0.50	+0.46	0.00	6.51	26.27	
	4	6.51	26.27	+0.58	6.72	0.00	0.50	+0.69	0.00	8.17	33.76	
	5	8.17	33.76	+0.18	1.52	0.00	0.50	+0.19	0.00	8.94	35.15	
	6	8.94	35.15	-0.18	0.90	0.00	0.50	-0.18	0.00	8.96	35.19	
	7	8.96	35.19	-0.49	0.61	0.00	0.50	-0.48	0.00	8.48	34.33	
	8	8.48	34.33	-0.69	0.33	0.00	0.50	-0.65	0.00	7.65	32.82	
	9	7.65	32.82	-0.69	0.18	0.00	0.50	-0.65	0.00	7.10	31.15	
	10	7.10	31.15	-0.73	0.10	0.00	0.50	-0.72	0.00	6.88	29.30	
	11	6.88	29.30	-0.67	0.05	0.00	0.50	-0.65	0.00	6.66	27.53	
	12	6.66	27.53	-0.58	0.03	0.00	0.50	-0.57	0.00	6.47	25.91	
39	1	6.47	25.91	-0.23	0.01	0.00	0.50	-0.23	0.00	6.35	24.96	
	2	6.35	24.96	+0.07	0.00	0.00	0.50	+0.07	0.00	6.31	24.59	
	3	6.31	24.59	+0.45	0.42	0.00	0.50	+0.46	0.00	6.41	25.42	
	4	6.41	25.42	+0.57	0.75	0.00	0.50	+0.58	0.00	6.58	26.81	
	5	6.58	26.81	+0.14	0.75	0.00	0.50	+0.15	0.00	6.64	27.36	
	6	6.64	27.36	-0.13	0.46	0.00	0.50	-0.13	0.00	6.61	27.05	



Geonorte

**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	FINAL
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	FINAL
	7	6.61	27.05	-0.36	0.25	0.00	0.50	-0.36	0.00	6.49	26.08	
	8	6.49	26.08	-0.53	0.14	0.00	0.50	-0.52	0.00	6.32	24.67	
	9	6.32	24.67	-0.57	0.07	0.00	0.50	-0.56	0.00	6.13	23.11	
	10	6.13	23.11	-0.63	0.04	0.00	0.50	-0.62	0.00	5.84	21.40	
	11	5.84	21.40	-0.57	0.02	0.00	0.50	-0.55	0.00	5.56	19.80	
	12	5.56	19.80	-0.48	0.20	0.00	0.50	-0.47	0.00	5.34	18.55	
40	1	5.34	18.55	-0.19	0.44	0.00	0.50	-0.19	0.00	5.26	18.10	
	2	5.26	18.10	+0.06	0.67	0.00	0.50	+0.06	0.00	5.31	18.38	
	3	5.31	18.38	+0.38	1.98	0.00	0.50	+0.41	0.00	5.71	20.65	
	4	5.71	20.65	+0.51	1.76	0.00	0.50	+0.53	0.00	6.11	22.95	
	5	6.11	22.95	+0.13	1.34	0.00	0.50	+0.14	0.00	6.25	24.06	
	6	6.25	24.06	-0.12	0.78	0.00	0.50	-0.13	0.00	6.25	24.09	
	7	6.25	24.09	-0.34	0.43	0.00	0.50	-0.34	0.00	6.16	23.34	
	8	6.16	23.34	-0.50	0.23	0.00	0.50	-0.49	0.00	5.96	22.07	
	9	5.96	22.07	-0.54	0.13	0.00	0.50	-0.52	0.00	5.70	20.64	
	10	5.70	20.64	-0.59	0.07	0.00	0.50	-0.57	0.00	5.42	19.05	
	11	5.42	19.05	-0.53	0.03	0.00	0.50	-0.51	0.00	5.16	17.54	
	12	5.16	17.54	-0.45	0.21	0.00	0.50	-0.44	0.00	4.93	16.36	
41	1	4.93	16.36	-0.18	0.34	0.00	0.50	-0.17	0.00	4.82	15.85	
	2	4.82	15.85	+0.05	0.78	0.00	0.50	+0.05	0.00	4.90	16.23	
	3	4.90	16.23	+0.35	1.09	0.00	0.50	+0.37	0.00	5.16	17.54	
	4	5.16	17.54	+0.46	1.59	0.00	0.50	+0.48	0.00	5.52	19.57	
	5	5.52	19.57	+0.12	1.08	0.00	0.50	+0.12	0.00	5.66	20.40	
	6	5.66	20.40	-0.11	0.71	0.00	0.50	-0.11	0.00	5.66	20.38	
	7	5.66	20.38	-0.31	0.39	0.00	0.50	-0.31	0.00	5.53	19.65	
	8	5.53	19.65	-0.45	0.21	0.00	0.50	-0.44	0.00	5.32	18.47	
	9	5.32	18.47	-0.48	0.11	0.00	0.50	-0.47	0.00	5.09	17.13	
	10	5.09	17.13	-0.53	0.06	0.00	0.50	-0.51	0.00	4.78	15.66	
	11	4.78	15.66	-0.46	0.03	0.00	0.50	-0.45	0.00	4.50	14.28	
	12	4.50	14.28	-0.39	0.01	0.00	0.50	-0.38	0.00	4.25	13.02	
42	1	4.25	13.02	-0.15	0.01	0.00	0.50	-0.15	0.00	4.07	12.23	
	2	4.07	12.23	+0.04	0.71	0.00	0.50	+0.04	0.00	4.14	12.53	
	3	4.14	12.53	+0.30	1.13	0.00	0.50	+0.31	0.00	4.40	13.77	
	4	4.40	13.77	+0.39	1.22	0.00	0.50	+0.41	0.00	4.71	15.29	
	5	4.71	15.29	+0.10	0.78	0.00	0.50	+0.11	0.00	4.81	15.77	
	6	4.81	15.77	-0.10	0.64	0.00	0.50	-0.10	0.00	4.80	15.72	
	7	4.80	15.72	-0.26	0.35	0.00	0.50	-0.26	0.00	4.66	15.05	
	8	4.66	15.05	-0.38	0.19	0.00	0.50	-0.37	0.00	4.44	13.99	
	9	4.44	13.99	-0.40	0.10	0.00	0.50	-0.39	0.00	4.20	12.80	
	10	4.20	12.80	-0.43	0.05	0.00	0.50	-0.41	0.00	3.91	11.50	
	11	3.91	11.50	-0.38	0.03	0.00	0.50	-0.36	0.00	3.64	10.29	
	12	3.64	10.29	-0.32	0.01	0.00	0.50	-0.30	0.00	3.39	9.19	



Geonorte

**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	FAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	REYR.	FINAL	DEMANDA	FINAL	FINAL	
43	1	3.39	9.19	-0.12	0.59	0.00	0.50	-0.12	0.00	3.35	9.03	
	2	3.35	9.03	+0.04	0.96	0.00	0.50	+0.04	0.00	3.47	9.56	
	3	3.47	9.56	+0.25	1.07	0.00	0.50	+0.26	0.00	3.72	10.65	
	4	3.72	10.65	+0.33	2.58	0.00	0.50	+0.38	0.00	4.33	13.43	
	5	4.33	13.43	+0.10	1.39	0.00	0.50	+0.10	0.00	4.55	14.52	
	6	4.55	14.52	-0.09	0.82	0.00	0.50	-0.09	0.00	4.58	14.65	
	7	4.58	14.65	-0.25	0.49	0.00	0.50	-0.25	0.00	4.47	14.14	
	8	4.47	14.14	-0.36	0.27	0.00	0.50	-0.35	0.00	4.28	13.19	
	9	4.28	13.19	-0.39	0.14	0.00	0.50	-0.37	0.00	4.04	12.07	
	10	4.04	12.07	-0.42	0.08	0.00	0.50	-0.40	0.00	3.76	10.84	
	11	3.76	10.84	-0.36	0.04	0.00	0.50	-0.35	0.00	3.49	9.67	
	12	3.49	9.67	-0.30	0.04	0.00	0.50	-0.29	0.00	3.25	8.61	
44	1	3.25	8.61	-0.12	0.14	0.00	0.50	-0.11	0.00	3.08	8.02	
	2	3.08	8.02	+0.03	1.24	0.00	0.50	+0.03	0.00	3.31	8.83	
	3	3.31	8.83	+0.24	3.86	0.00	0.50	+0.30	0.00	4.18	12.73	
	4	4.18	12.73	+0.37	3.01	0.00	0.50	+0.42	0.00	4.86	16.03	
	5	4.86	16.03	+0.11	1.21	0.00	0.50	+0.11	0.00	5.05	16.96	
	6	5.05	16.96	-0.10	0.79	0.00	0.50	-0.10	0.00	5.07	17.04	
	7	5.07	17.04	-0.28	0.46	0.00	0.50	-0.28	0.00	4.95	16.45	
	8	4.95	16.45	-0.40	0.25	0.00	0.50	-0.39	0.00	4.73	15.40	
	9	4.73	15.40	-0.43	0.13	0.00	0.50	-0.41	0.00	4.48	14.19	
	10	4.48	14.19	-0.46	0.07	0.00	0.50	-0.45	0.00	4.21	12.85	
	11	4.21	12.85	-0.41	0.04	0.00	0.50	-0.39	0.00	3.93	11.59	
	12	3.93	11.59	-0.34	0.02	0.00	0.50	-0.33	0.00	3.67	10.45	
45	1	3.67	10.45	-0.13	0.61	0.00	0.50	-0.13	0.00	3.64	10.29	
	2	3.64	10.29	+0.04	0.73	0.00	0.50	+0.04	0.00	3.70	10.60	
	3	3.70	10.60	+0.27	2.50	0.00	0.50	+0.30	0.00	4.28	13.17	
	4	4.28	13.17	+0.38	4.80	0.00	0.50	+0.46	0.00	5.30	18.31	
	5	5.30	18.31	+0.12	1.90	0.00	0.50	+0.12	0.00	5.58	19.95	
	6	5.58	19.95	-0.11	1.08	0.00	0.50	-0.11	0.00	5.65	20.30	
	7	5.65	20.30	-0.31	0.61	0.00	0.50	-0.31	0.00	5.56	19.79	
	8	5.56	19.79	-0.45	0.34	0.00	0.50	-0.44	0.00	5.37	18.74	
	9	5.37	18.74	-0.49	0.18	0.00	0.50	-0.47	0.00	5.15	17.46	
	10	5.15	17.46	-0.53	0.10	0.00	0.50	-0.51	0.00	4.86	16.01	
	11	4.86	16.01	-0.47	0.05	0.00	0.50	-0.45	0.00	4.58	14.64	
	12	4.58	14.64	-0.40	0.03	0.00	0.50	-0.38	0.00	4.32	13.39	
46	1	4.32	13.39	-0.16	0.11	0.00	0.50	-0.15	0.00	4.18	12.69	
	2	4.18	12.69	+0.04	0.06	0.00	0.50	+0.04	0.00	4.10	12.34	
	3	4.10	12.34	+0.29	0.16	0.00	0.50	+0.29	0.00	4.15	12.59	
	4	4.15	12.59	+0.37	0.35	0.00	0.50	+0.37	0.00	4.28	13.18	
	5	4.28	13.18	+0.09	0.22	0.00	0.50	+0.09	0.00	4.26	13.08	
	6	4.26	13.08	-0.09	0.12	0.00	0.50	-0.08	0.00	4.14	12.53	





Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 30.00

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	4.14	12.53	-0.23	0.06	0.00	0.50	-0.22	0.00	3.94	11.65	
	8	3.94	11.65	-0.32	0.03	0.00	0.50	-0.31	0.00	3.69	10.55	
	9	3.69	10.55	-0.33	0.02	0.00	0.50	-0.32	0.00	3.44	9.42	
	10	3.44	9.42	-0.36	0.01	0.00	0.50	-0.33	0.00	3.14	8.24	
	11	3.14	8.24	-0.30	0.00	0.00	0.50	-0.28	0.00	2.84	7.15	
	12	2.84	7.15	-0.25	0.16	0.00	0.50	-0.23	0.00	2.61	6.33	
47	1	2.61	6.33	-0.09	0.36	0.00	0.50	-0.09	0.00	2.52	6.00	
	2	2.52	6.00	+0.03	0.77	0.00	0.50	+0.03	0.00	2.61	6.33	
	3	2.61	6.33	+0.19	6.09	0.00	0.50	+0.29	0.00	4.11	12.40	
	4	4.11	12.40	+0.36	1.39	0.00	0.50	+0.39	0.00	4.45	14.04	
	5	4.45	14.04	+0.10	1.11	0.00	0.50	+0.10	0.00	4.62	14.85	
	6	4.62	14.85	-0.09	0.73	0.00	0.50	-0.09	0.00	4.63	14.89	
	7	4.63	14.89	-0.25	0.40	0.00	0.50	-0.25	0.00	4.50	14.29	
	8	4.50	14.29	-0.37	0.26	0.00	0.50	-0.36	0.00	4.31	13.32	
	9	4.31	13.32	-0.39	0.14	0.00	0.50	-0.38	0.00	4.06	12.20	
	10	4.06	12.20	-0.42	0.07	0.00	0.50	-0.40	0.00	3.78	10.94	
	11	3.78	10.94	-0.37	0.04	0.00	0.50	-0.35	0.00	3.52	9.77	
	12	3.52	9.77	-0.31	0.02	0.00	0.50	-0.29	0.00	3.27	8.69	
48	1	3.27	8.69	-0.12	0.01	0.00	0.50	-0.11	0.00	3.07	7.97	
	2	3.07	7.97	+0.03	0.19	0.00	0.50	+0.03	0.00	3.00	7.73	
	3	3.00	7.73	+0.22	3.15	0.00	0.50	+0.27	0.00	3.76	10.86	
	4	3.76	10.86	+0.33	1.85	0.00	0.50	+0.37	0.00	4.22	12.91	
	5	4.22	12.91	+0.09	0.95	0.00	0.50	+0.10	0.00	4.35	13.55	
	6	4.35	13.55	-0.09	0.66	0.00	0.50	-0.09	0.00	4.35	13.53	
	7	4.35	13.53	-0.24	0.49	0.00	0.50	-0.24	0.00	4.25	13.05	
	8	4.25	13.05	-0.35	0.27	0.00	0.50	-0.34	0.00	4.05	12.13	
	9	4.05	12.13	-0.37	0.15	0.00	0.50	-0.35	0.00	3.81	11.07	
	10	3.81	11.07	-0.39	0.08	0.00	0.50	-0.38	0.00	3.54	9.88	
	11	3.54	9.88	-0.34	0.04	0.00	0.50	-0.33	0.00	3.29	8.75	
	12	3.29	8.75	-0.29	0.33	0.00	0.50	-0.27	0.00	3.08	8.02	
49	1	3.08	8.02	-0.11	0.39	0.00	0.50	-0.11	0.00	2.99	7.69	
	2	2.99	7.69	+0.03	4.79	0.00	0.50	+0.04	0.00	4.03	12.05	
	3	4.03	12.05	+0.29	13.97	0.00	0.50	+0.46	0.00	6.51	26.28	
	4	6.51	26.28	+0.58	1.90	0.00	0.50	+0.60	0.00	6.82	28.85	
	5	6.82	28.85	+0.15	2.84	0.00	0.50	+0.16	0.00	7.14	31.50	
	6	7.14	31.50	-0.14	1.03	0.00	0.50	-0.14	0.00	7.17	31.74	
	7	7.17	31.74	-0.39	0.56	0.00	0.50	-0.39	0.00	7.08	31.01	
	8	7.08	31.01	-0.58	0.31	0.00	0.50	-0.57	0.00	6.92	29.68	
	9	6.92	29.68	-0.63	0.17	0.00	0.50	-0.62	0.00	6.73	28.10	
	10	6.73	28.10	-0.70	0.09	0.00	0.50	-0.68	0.00	6.52	26.31	
	11	6.52	26.31	-0.63	0.05	0.00	0.50	-0.62	0.00	6.31	24.61	
	12	6.31	24.61	-0.55	0.02	0.00	0.50	-0.54	0.00	6.13	23.04	

000080



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3

(continuacao)

ANO	PER.	AREA INICIAL	VOLUME INICIAL	(P-E)/2 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2 FINAL	SALDO DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
50	1	6.13	23.04	-0.22	0.37	0.00	0.50	-0.22	0.00	6.03	22.48	
	2	6.03	22.48	+0.06	1.24	0.00	0.50	+0.06	0.00	6.16	23.34	
	3	6.16	23.34	+0.44	35.50	20.49	0.50	+0.77	0.00	12.94	39.07	
	4	12.94	39.07	+1.15	15.94	17.35	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	1.93	2.66	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.06	0.58	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	0.67	0.00	0.50	-0.57	0.00	10.02	37.11	
	8	10.02	37.11	-0.82	0.37	0.00	0.50	-0.77	0.00	9.07	35.39	
	9	9.07	35.39	-0.82	0.20	0.00	0.50	-0.76	0.00	8.03	33.50	
	10	8.03	33.50	-0.83	0.11	0.00	0.50	-0.76	0.00	7.14	31.52	
	11	7.14	31.52	-0.69	0.06	0.00	0.50	-0.68	0.00	6.92	29.71	
	12	6.92	29.71	-0.60	0.69	0.00	0.50	-0.60	0.00	6.80	28.70	
51	1	6.80	28.70	-0.24	0.96	0.00	0.50	-0.25	0.00	6.80	28.67	
	2	6.80	28.67	+0.07	1.00	0.00	0.50	+0.07	0.00	6.88	29.31	
	3	6.88	29.31	+0.50	27.17	18.17	0.50	+0.77	0.00	12.94	39.07	
	4	12.94	39.07	+1.15	27.53	28.94	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	2.21	2.94	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.17	0.69	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	0.79	0.00	0.50	-0.57	0.00	10.08	37.22	
	8	10.08	37.22	-0.82	0.56	0.00	0.50	-0.79	0.00	9.23	35.68	
	9	9.23	35.68	-0.84	0.31	0.00	0.50	-0.78	0.00	8.23	33.87	
	10	8.23	33.87	-0.85	0.17	0.00	0.50	-0.78	0.00	7.19	31.90	
	11	7.19	31.90	-0.70	0.09	0.00	0.50	-0.68	0.00	6.97	30.11	
	12	6.97	30.11	-0.61	0.68	0.00	0.50	-0.60	0.00	6.85	29.08	
52	1	6.85	29.08	-0.25	2.62	0.00	0.50	-0.25	0.00	7.04	30.70	
	2	7.04	30.70	+0.07	17.21	9.18	0.50	+0.11	0.00	10.74	38.41	
	3	10.74	38.41	+0.77	20.52	20.91	0.50	+0.77	0.00	12.94	39.07	
	4	12.94	39.07	+1.15	41.49	42.90	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	16.46	17.19	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.68	1.20	0.50	-0.21	0.00	10.56	38.09	
	7	10.56	38.09	-0.58	1.18	0.00	0.50	-0.58	0.00	10.29	37.60	
	8	10.29	37.60	-0.81	0.65	0.00	0.50	-0.81	0.00	9.46	36.11	
	9	9.46	36.11	-0.81	0.35	0.00	0.50	-0.81	0.00	8.46	34.29	
	10	8.46	34.29	-0.81	0.19	0.00	0.50	-0.81	0.00	7.36	32.30	
	11	7.36	32.30	-0.69	0.10	0.00	0.50	-0.69	0.00	7.02	30.50	
	12	7.02	30.50	-0.61	0.15	0.00	0.50	-0.60	0.00	6.83	28.93	
53	1	6.83	28.93	-0.25	0.65	0.00	0.50	-0.25	0.00	6.79	28.59	
	2	6.79	28.59	+0.07	0.72	0.00	0.50	+0.07	0.00	6.83	28.96	
	3	6.83	28.96	+0.49	4.57	0.00	0.50	+0.58	0.00	8.36	34.10	
	4	8.36	34.10	+0.74	46.19	42.23	0.50	+0.94	0.00	12.99	39.24	
	5	12.99	39.24	+0.29	7.00	7.73	0.50	+0.23	0.00	10.80	38.53	
	6	10.80	38.53	-0.22	1.89	1.41	0.50	-0.21	0.00	10.56	38.09	

000081



SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEBANDA	FINAL	FINAL	
	7	10.561	38.091	-0.581	1.031	0.001	0.501	-0.581	0.001	10.211	37.461	
	8	10.211	37.461	-0.831	0.571	0.001	0.501	-0.801	0.001	9.351	35.901	
	9	9.351	35.901	-0.851	0.311	0.001	0.501	-0.791	0.001	8.341	34.071	
	10	8.341	34.071	-0.861	0.171	0.001	0.501	-0.801	0.001	7.241	32.081	
	11	7.241	32.081	-0.701	0.091	0.001	0.501	-0.691	0.001	6.991	30.281	
	12	6.991	30.281	-0.611	0.051	0.001	0.501	-0.601	0.001	6.791	28.621	
54	1	6.791	28.621	-0.241	0.021	0.001	0.501	-0.241	0.001	6.681	27.661	
	2	6.681	27.661	+0.071	0.981	0.001	0.501	+0.071	0.001	6.751	28.281	
	3	6.751	28.281	+0.491	1.341	0.001	0.501	+0.501	0.001	6.971	30.101	
	4	6.971	30.101	+0.621	1.331	0.001	0.501	+0.631	0.001	7.301	32.181	
	5	7.301	32.181	+0.161	2.391	0.001	0.501	+0.191	0.001	8.531	34.421	
	6	8.531	34.421	-0.171	1.351	0.001	0.501	-0.181	0.001	8.811	34.921	
	7	8.811	34.921	-0.481	0.971	0.001	0.501	-0.481	0.001	8.531	34.421	
	8	8.531	34.421	-0.701	0.531	0.001	0.501	-0.671	0.001	7.801	33.091	
	9	7.801	33.091	-0.711	0.291	0.001	0.501	-0.661	0.001	7.141	31.511	
	10	7.141	31.511	-0.741	0.161	0.001	0.501	-0.731	0.001	6.921	29.711	
	11	6.921	29.711	-0.671	0.091	0.001	0.501	-0.661	0.001	6.721	27.971	
	12	6.721	27.971	-0.581	0.051	0.001	0.501	-0.571	0.001	6.521	26.361	
55	1	6.521	26.361	-0.231	0.791	0.001	0.501	-0.241	0.001	6.501	26.181	
	2	6.501	26.181	+0.071	8.551	0.001	0.501	+0.091	0.001	8.521	34.391	
	3	8.521	34.391	+0.611	26.441	22.641	0.501	+0.771	0.001	12.941	39.071	
	4	12.941	39.071	+1.151	27.741	29.151	0.501	+0.941	0.001	12.991	39.241	
	5	12.991	39.241	+0.291	14.731	15.461	0.501	+0.231	0.001	10.801	38.531	
	6	10.801	38.531	-0.221	1.541	1.061	0.501	-0.211	0.001	10.561	38.091	
	7	10.561	38.091	-0.581	0.841	0.001	0.501	-0.571	0.001	10.111	37.271	
	8	10.111	37.271	-0.821	0.461	0.001	0.501	-0.781	0.001	9.201	35.621	
	9	9.201	35.621	-0.831	0.251	0.001	0.501	-0.781	0.001	8.171	33.761	
	10	8.171	33.761	-0.851	0.141	0.001	0.501	-0.781	0.001	7.171	31.781	
	11	7.171	31.781	-0.701	0.071	0.001	0.501	-0.681	0.001	6.961	29.971	
	12	6.961	29.971	-0.611	0.041	0.001	0.501	-0.591	0.001	6.761	28.311	
56	1	6.761	28.311	-0.241	0.611	0.001	0.501	-0.241	0.001	6.711	27.941	
	2	6.711	27.941	+0.071	1.141	0.001	0.501	+0.071	0.001	6.811	28.721	
	3	6.811	28.721	+0.491	8.231	0.001	0.501	+0.711	0.001	10.321	37.651	
	4	10.321	37.651	+0.911	39.591	39.361	0.501	+0.941	0.001	12.991	39.241	
	5	12.991	39.241	+0.291	28.801	29.531	0.501	+0.231	0.001	10.801	38.531	
	6	10.801	38.531	-0.221	1.671	1.191	0.501	-0.211	0.001	10.561	38.091	
	7	10.561	38.091	-0.581	0.911	0.001	0.501	-0.581	0.001	10.151	37.341	
	8	10.151	37.341	-0.831	0.501	0.001	0.501	-0.791	0.001	9.251	35.721	
	9	9.251	35.721	-0.841	0.271	0.001	0.501	-0.781	0.001	8.231	33.871	
	10	8.231	33.871	-0.851	0.151	0.001	0.501	-0.781	0.001	7.191	31.891	
	11	7.191	31.891	-0.701	0.081	0.001	0.501	-0.681	0.001	6.971	30.091	
	12	6.971	30.091	-0.611	0.041	0.001	0.501	-0.601	0.001	6.771	28.421	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO DEBANDA	AREA	VOLUME FINAL	IFAL.
57	1	6.771	28.421	-0.241	0.441	0.001	0.501	-0.241	0.001	6.771	27.881	1
	2	6.711	27.881	+0.071	1.001	0.001	0.501	+0.071	0.001	6.781	28.521	1
	3	6.781	28.521	+0.491	1.331	0.001	0.501	+0.501	0.001	7.001	30.341	1
	4	7.001	30.341	+0.621	2.061	0.001	0.501	+0.661	0.001	7.851	33.181	1
	5	7.851	33.181	+0.171	1.261	0.001	0.501	+0.181	0.001	8.471	34.301	1
	6	8.471	34.301	-0.171	0.691	0.001	0.501	-0.171	0.001	8.381	34.151	1
	7	8.381	34.151	-0.461	0.571	0.001	0.501	-0.451	0.001	7.921	33.311	1
	8	7.921	33.311	-0.651	0.311	0.001	0.501	-0.611	0.001	7.181	31.861	1
	9	7.181	31.861	-0.651	0.171	0.001	0.501	-0.641	0.001	6.991	30.241	1
	10	6.991	30.241	-0.721	0.091	0.001	0.501	-0.711	0.001	6.771	28.401	1
	11	6.771	28.401	-0.661	0.051	0.001	0.501	-0.641	0.001	6.561	26.651	1
	12	6.561	26.651	-0.571	0.021	0.001	0.501	-0.561	0.001	6.361	25.041	1
58	1	6.361	25.041	-0.231	0.121	0.001	0.501	-0.231	0.001	6.261	24.211	1
	2	6.261	24.211	+0.071	0.351	0.001	0.501	+0.071	0.001	6.261	24.191	1
	3	6.261	24.191	+0.451	0.891	0.001	0.501	+0.461	0.001	6.421	25.491	1
	4	6.421	25.491	+0.571	0.901	0.001	0.501	+0.581	0.001	6.601	27.031	1
	5	6.601	27.031	+0.151	0.601	0.001	0.501	+0.151	0.001	6.651	27.421	1
	6	6.651	27.421	-0.131	0.331	0.001	0.501	-0.131	0.001	6.601	26.991	1
	7	6.601	26.991	-0.361	0.291	0.001	0.501	-0.361	0.001	6.491	26.061	1
	8	6.491	26.061	-0.531	0.161	0.001	0.501	-0.521	0.001	6.321	24.671	1
	9	6.321	24.671	-0.571	0.081	0.001	0.501	-0.561	0.001	6.131	23.111	1
	10	6.131	23.111	-0.631	0.041	0.001	0.501	-0.621	0.001	5.841	21.401	1
	11	5.841	21.401	-0.571	0.021	0.001	0.501	-0.551	0.001	5.561	19.811	1
	12	5.561	19.811	-0.481	0.011	0.001	0.501	-0.471	0.001	5.311	18.371	1
59	1	5.311	18.371	-0.191	0.111	0.001	0.501	-0.191	0.001	5.171	17.601	1
	2	5.171	17.601	+0.051	0.581	0.001	0.501	+0.051	0.001	5.201	17.791	1
	3	5.201	17.791	+0.371	1.471	0.001	0.501	+0.391	0.001	5.511	19.521	1
	4	5.511	19.521	+0.491	1.261	0.001	0.501	+0.511	0.001	5.821	21.281	1
	5	5.821	21.281	+0.131	1.371	0.001	0.501	+0.131	0.001	6.021	22.411	1
	6	6.021	22.411	-0.121	0.941	0.001	0.501	-0.121	0.001	6.051	22.611	1
	7	6.051	22.611	-0.331	0.651	0.001	0.501	-0.331	0.001	5.771	20.991	1
	8	5.961	22.091	-0.491	0.361	0.001	0.501	-0.481	0.001	5.771	20.991	1
	9	5.771	20.991	-0.521	0.191	0.001	0.501	-0.511	0.001	5.531	19.651	1
	10	5.531	19.651	-0.571	0.101	0.001	0.501	-0.551	0.001	5.261	18.121	1
	11	5.261	18.121	-0.511	0.061	0.001	0.501	-0.491	0.001	4.991	16.681	1
	12	4.991	16.681	-0.431	0.031	0.001	0.501	-0.421	0.001	4.721	15.351	1
60	1	4.721	15.351	-0.171	0.101	0.001	0.501	-0.171	0.001	4.571	14.621	1
	2	4.571	14.621	+0.051	0.251	0.001	0.501	+0.051	0.001	4.541	14.461	1
	3	4.541	14.461	+0.331	0.701	0.001	0.501	+0.331	0.001	4.721	15.331	1
	4	4.721	15.331	+0.421	1.261	0.001	0.501	+0.441	0.001	5.051	16.941	1
	5	5.051	16.941	+0.111	1.411	0.001	0.501	+0.121	0.001	5.251	18.081	1
	6	5.251	18.081	-0.111	0.841	0.001	0.501	-0.111	0.001	5.281	18.211	1



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
	7	5.28	18.21	-0.29	0.46	0.00	0.50	-0.29	0.00		5.17	17.59
	8	5.17	17.59	-0.42	0.46	0.00	0.50	-0.41	0.00		5.00	16.71
	9	5.00	16.71	-0.45	0.25	0.00	0.50	-0.44	0.00		4.77	15.57
	10	4.77	15.57	-0.49	0.14	0.00	0.50	-0.48	0.00		4.50	14.24
	11	4.50	14.24	-0.44	0.07	0.00	0.50	-0.42	0.00		4.23	12.96
	12	4.23	12.96	-0.37	0.04	0.00	0.50	-0.35	0.00		3.97	11.78
61	1	3.97	11.78	-0.14	0.89	0.00	0.50	-0.14	0.00		3.99	11.88
	2	3.99	11.88	+0.04	1.28	0.00	0.50	+0.04	0.00		4.19	12.75
	3	4.19	12.75	+0.30	10.02	0.00	0.50	+0.44	0.00		6.12	23.00
	4	6.12	23.00	+0.54	10.12	0.00	0.50	+0.69	0.00		8.22	33.86
	5	8.22	33.86	+0.18	2.18	0.00	0.50	+0.20	0.00		9.36	35.92
	6	9.36	35.92	-0.19	1.41	0.00	0.50	-0.20	0.00		9.65	36.45
	7	9.65	36.45	-0.53	0.84	0.00	0.50	-0.53	0.00		9.26	35.73
	8	9.26	35.73	-0.75	0.50	0.00	0.50	-0.72	0.00		8.45	34.26
	9	8.45	34.26	-0.76	0.27	0.00	0.50	-0.71	0.00		7.50	32.55
	10	7.50	32.55	-0.78	0.15	0.00	0.50	-0.74	0.00		7.04	30.68
	11	7.04	30.68	-0.68	0.08	0.00	0.50	-0.67	0.00		6.83	28.91
	12	6.83	28.91	-0.59	0.04	0.00	0.50	-0.58	0.00		6.63	27.27
62	1	6.63	27.27	-0.24	1.12	0.00	0.50	-0.24	0.00		6.65	27.42
	2	6.65	27.42	+0.07	2.39	0.00	0.50	+0.07	0.00		6.89	29.45
	3	6.89	29.45	+0.50	20.61	11.75	0.50	+0.77	0.00		12.94	39.07
	4	12.94	39.07	+1.15	50.17	51.58	0.50	+0.94	0.00		12.99	39.24
	5	12.99	39.24	+0.29	17.32	18.05	0.50	+0.23	0.00		10.80	38.53
	6	10.80	38.53	-0.22	2.50	2.02	0.50	-0.21	0.00		10.56	38.09
	7	10.56	38.09	-0.58	1.29	0.00	0.50	-0.59	0.00		10.35	37.71
	8	10.35	37.71	-0.84	0.70	0.00	0.50	-0.81	0.00		9.54	36.25
	9	9.54	36.25	-0.86	0.48	0.00	0.50	-0.82	0.00		8.60	34.55
	10	8.60	34.55	-0.89	0.26	0.00	0.50	-0.83	0.00		7.53	32.59
	11	7.53	32.59	-0.73	0.14	0.00	0.50	-0.69	0.00		7.06	30.81
	12	7.06	30.81	-0.61	0.08	0.00	0.50	-0.60	0.00		6.86	29.17
63	1	6.86	29.17	-0.25	0.04	0.00	0.50	-0.24	0.00		6.75	28.22
	2	6.75	28.22	+0.07	10.05	0.00	0.50	+0.11	0.00		10.48	37.95
	3	10.48	37.95	+0.75	8.40	8.31	0.50	+0.77	0.00		12.94	39.07
	4	12.94	39.07	+1.15	22.42	23.83	0.50	+0.94	0.00		12.99	39.24
	5	12.99	39.24	+0.29	21.75	22.48	0.50	+0.23	0.00		10.80	38.53
	6	10.80	38.53	-0.22	1.79	1.31	0.50	-0.21	0.00		10.56	38.09
	7	10.56	38.09	-0.58	1.30	0.01	0.50	-0.59	0.00		10.35	37.71
	8	10.35	37.71	-0.84	0.71	0.00	0.50	-0.82	0.00		9.55	36.26
	9	9.55	36.26	-0.86	0.39	0.00	0.50	-0.82	0.00		8.56	34.47
	10	8.56	34.47	-0.89	0.21	0.00	0.50	-0.82	0.00		7.46	32.48
	11	7.46	32.48	-0.72	0.11	0.00	0.50	-0.69	0.00		7.04	30.67
	12	7.04	30.67	-0.61	0.06	0.00	0.50	-0.60	0.00		6.84	29.02



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)S/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)S/2 FINAL	SALDO DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
64	1	6.84	29.02	-0.25	0.03	0.00	0.50	-0.24	0.00	6.73	28.06	
	2	6.73	28.06	+0.07	0.85	0.00	0.50	+0.07	0.00	6.79	28.55	
	3	6.79	28.55	+0.49	1.68	0.00	0.50	+0.50	0.00	7.05	30.72	
	4	7.05	30.72	+0.62	2.71	0.00	0.50	+0.71	0.00	8.45	34.27	
	5	8.45	34.27	+0.19	1.08	0.00	0.50	+0.20	0.00	8.98	35.23	
	6	8.98	35.23	-0.18	0.60	0.00	0.50	-0.18	0.00	8.84	34.97	
	7	8.84	34.97	-0.49	0.39	0.00	0.50	-0.47	0.00	8.25	33.91	
	8	8.25	33.91	-0.67	0.21	0.00	0.50	-0.63	0.00	7.37	32.32	
	9	7.37	32.32	-0.67	0.12	0.00	0.50	-0.64	0.00	7.04	30.63	
	10	7.04	30.63	-0.73	0.06	0.00	0.50	-0.71	0.00	6.81	28.74	
	11	6.81	28.74	-0.66	0.12	0.00	0.50	-0.65	0.00	6.61	27.05	
	12	6.61	27.05	-0.57	0.07	0.00	0.50	-0.56	0.00	6.42	25.49	
65	1	6.42	25.49	-0.23	0.44	0.00	0.50	-0.23	0.00	6.36	24.96	
	2	6.36	24.96	+0.07	1.95	0.00	0.50	+0.07	0.00	6.55	26.55	
	3	6.55	26.55	+0.47	1.22	0.00	0.50	+0.48	0.00	6.75	28.22	
	4	6.75	28.22	+0.60	4.08	0.00	0.50	+0.66	0.00	7.78	33.06	
	5	7.78	33.06	+0.17	2.30	0.00	0.50	+0.20	0.00	8.98	35.22	
	6	8.98	35.22	-0.18	1.27	0.00	0.50	-0.19	0.00	9.20	35.63	
	7	9.20	35.63	-0.51	0.78	0.00	0.50	-0.50	0.00	8.80	34.90	
	8	8.80	34.90	-0.72	0.43	0.00	0.50	-0.68	0.00	7.99	33.43	
	9	7.99	33.43	-0.72	0.23	0.00	0.50	-0.67	0.00	7.17	31.77	
	10	7.17	31.77	-0.74	0.13	0.00	0.50	-0.73	0.00	6.95	29.93	
	11	6.95	29.93	-0.67	0.07	0.00	0.50	-0.66	0.00	6.74	28.16	
	12	6.74	28.16	-0.59	0.03	0.00	0.50	-0.58	0.00	6.54	26.53	
66	1	6.54	26.53	-0.24	0.48	0.00	0.50	-0.23	0.00	6.48	26.04	
	2	6.48	26.04	+0.07	0.87	0.00	0.50	+0.07	0.00	6.55	26.55	
	3	6.55	26.55	+0.47	1.12	0.00	0.50	+0.48	0.00	6.73	28.12	
	4	6.73	28.12	+0.60	1.75	0.00	0.50	+0.62	0.00	7.03	30.58	
	5	7.03	30.58	+0.15	1.43	0.00	0.50	+0.16	0.00	7.18	31.82	
	6	7.18	31.82	-0.14	0.99	0.00	0.50	-0.15	0.00	7.21	32.02	
	7	7.21	32.02	-0.40	0.54	0.00	0.50	-0.39	0.00	7.11	31.27	
	8	7.11	31.27	-0.58	0.29	0.00	0.50	-0.57	0.00	6.95	29.91	
	9	6.95	29.91	-0.63	0.16	0.00	0.50	-0.62	0.00	6.76	28.32	
	10	6.76	28.32	-0.70	0.09	0.00	0.50	-0.69	0.00	6.54	26.53	
	11	6.54	26.53	-0.63	0.04	0.00	0.50	-0.62	0.00	6.34	24.81	
	12	6.34	24.81	-0.55	0.02	0.00	0.50	-0.54	0.00	6.15	23.24	
67	1	6.15	23.24	-0.22	0.18	0.00	0.50	-0.22	0.00	6.03	22.48	
	2	6.03	22.48	+0.06	0.63	0.00	0.50	+0.06	0.00	6.07	22.74	
	3	6.07	22.74	+0.44	0.91	0.00	0.50	+0.45	0.00	6.24	24.03	
	4	6.24	24.03	+0.55	1.31	0.00	0.50	+0.57	0.00	6.47	25.96	
	5	6.47	25.96	+0.14	0.99	0.00	0.50	+0.14	0.00	6.57	26.73	
	6	6.57	26.73	-0.13	0.75	0.00	0.50	-0.13	0.00	6.57	26.72	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup>

(continuação)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	6.57	26.72	-0.36	0.41	0.00	0.50	-0.36	0.00	6.47	25.91	
	8	6.47	25.91	-0.53	0.22	0.00	0.50	-0.52	0.00	6.31	24.59	
	9	6.31	24.59	-0.57	0.12	0.00	0.50	-0.56	0.00	6.13	23.07	
	10	6.13	23.07	-0.63	0.06	0.00	0.50	-0.62	0.00	5.84	21.38	
	11	5.84	21.38	-0.57	0.03	0.00	0.50	-0.55	0.00	5.56	19.80	
	12	5.56	19.80	-0.48	0.02	0.00	0.50	-0.47	0.00	5.31	18.37	

000086



Geonorte

**DEMANDA 0,75 hm<sup>3</sup>/mês**

**- No. DE MESES FALHOS = 47 - GARANTIA = 44%**

**- No. DE ANOS FALHOS = 12 - GARANTIA = 82%**

000087





## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
1	1	5.491	19.401	-0.201	0.001	0.001	0.751	-0.191	0.001	5.291	18.261	
	2	5.291	18.261	+0.061	0.591	0.001	0.751	+0.061	0.001	5.281	18.211	
	3	5.281	18.211	+0.381	4.671	0.001	0.751	+0.431	0.001	6.111	22.951	
	4	6.111	22.951	+0.541	6.681	0.001	0.751	+0.611	0.001	6.961	30.031	
	5	6.961	30.031	+0.151	6.981	0.001	0.751	+0.211	0.001	9.751	36.621	
	6	9.751	36.621	-0.191	1.561	0.001	0.751	-0.201	0.001	9.981	37.041	
	7	9.981	37.041	-0.551	1.041	0.001	0.751	-0.541	0.001	9.541	36.241	
	8	9.541	36.241	-0.791	0.571	0.001	0.751	-0.741	0.001	8.591	34.531	
	9	8.591	34.531	-0.771	0.311	0.001	0.751	-0.711	0.001	7.531	32.601	
	10	7.531	32.601	-0.781	0.171	0.001	0.751	-0.741	0.001	7.021	30.501	
	11	7.021	30.501	-0.681	0.091	0.001	0.751	-0.671	0.001	6.781	28.501	
	12	6.781	28.501	-0.591	0.091	0.001	0.751	-0.581	0.001	6.561	26.671	
2	1	6.561	26.671	-0.241	1.041	0.001	0.751	-0.241	0.001	6.541	26.491	
	2	6.541	26.491	+0.071	1.091	0.001	0.751	+0.071	0.001	6.601	26.971	
	3	6.601	26.971	+0.471	1.071	0.001	0.751	+0.481	0.001	6.751	28.241	
	4	6.751	28.241	+0.601	2.161	0.001	0.751	+0.621	0.001	7.061	30.871	
	5	7.061	30.871	+0.161	1.141	0.001	0.751	+0.161	0.001	7.151	31.571	
	6	7.151	31.571	-0.141	0.781	0.001	0.751	-0.141	0.001	7.121	31.321	
	7	7.121	31.321	-0.391	0.451	0.001	0.751	-0.391	0.001	6.991	30.241	
	8	6.991	30.241	-0.581	0.301	0.001	0.751	-0.571	0.001	6.801	28.641	
	9	6.801	28.641	-0.611	0.181	0.001	0.751	-0.601	0.001	6.581	26.861	
	10	6.581	26.861	-0.681	0.101	0.001	0.751	-0.661	0.001	6.341	24.871	
	11	6.341	24.871	-0.621	0.051	0.001	0.751	-0.601	0.001	6.111	22.951	
	12	6.111	22.951	-0.531	0.031	0.001	0.751	-0.511	0.001	5.801	21.191	
3	1	5.801	21.191	-0.211	0.091	0.001	0.751	-0.201	0.001	5.611	20.121	
	2	5.611	20.121	+0.061	0.111	0.001	0.751	+0.061	0.001	5.521	19.591	
	3	5.521	19.591	+0.401	0.581	0.001	0.751	+0.401	0.001	5.631	20.221	
	4	5.631	20.221	+0.501	0.731	0.001	0.751	+0.511	0.001	5.801	21.201	
	5	5.801	21.201	+0.131	0.491	0.001	0.751	+0.131	0.001	5.801	21.201	
	6	5.801	21.201	-0.121	0.311	0.001	0.751	-0.111	0.001	5.691	20.531	
	7	5.691	20.531	-0.311	0.171	0.001	0.751	-0.301	0.001	5.471	19.331	
	8	5.471	19.331	-0.451	0.091	0.001	0.751	-0.441	0.001	5.201	17.791	
	9	5.201	17.791	-0.471	0.051	0.001	0.751	-0.451	0.001	4.891	16.171	
	10	4.891	16.171	-0.511	0.021	0.001	0.751	-0.481	0.001	4.541	14.451	
	11	4.541	14.451	-0.441	0.011	0.001	0.751	-0.421	0.001	4.211	12.861	
	12	4.211	12.861	-0.371	0.211	0.001	0.751	-0.351	0.001	3.931	11.601	
4	1	3.931	11.601	-0.141	0.581	0.001	0.751	-0.141	0.001	3.831	11.151	
	2	3.831	11.151	+0.041	1.691	0.001	0.751	+0.041	0.001	4.061	12.171	
	3	4.061	12.171	+0.291	10.481	0.001	0.751	+0.431	0.001	6.051	22.631	
	4	6.051	22.631	+0.541	4.771	0.001	0.751	+0.591	0.001	6.691	27.771	
	5	6.691	27.771	+0.151	1.421	0.001	0.751	+0.151	0.001	6.811	28.731	
	6	6.811	28.731	-0.141	0.881	0.001	0.751	-0.141	0.001	6.791	28.591	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
1	7	6.791	28.591	-0.371	0.481	0.001	0.751	-0.371	0.001	6.671	27.581	
1	8	6.671	27.581	-0.551	0.261	0.001	0.751	-0.541	0.001	6.481	26.001	
1	9	6.481	26.001	-0.581	0.141	0.001	0.751	-0.571	0.001	6.271	24.241	
1	10	6.271	24.241	-0.651	0.081	0.001	0.751	-0.631	0.001	5.991	22.281	
1	11	5.991	22.281	-0.581	0.111	0.001	0.751	-0.561	0.001	5.681	20.501	
1	12	5.681	20.501	-0.491	0.191	0.001	0.751	-0.481	0.001	5.411	18.971	
5	1	5.411	18.971	-0.191	4.051	0.001	0.751	-0.211	0.001	5.921	21.861	
1	2	5.921	21.861	+0.061	15.281	0.001	0.751	+0.101	0.001	9.711	36.551	
1	3	9.711	36.551	+0.701	32.411	30.861	0.751	+0.761	0.001	12.871	38.811	
1	4	12.871	38.811	+1.141	26.581	27.731	0.751	+0.931	0.001	12.921	38.981	
1	5	12.921	38.981	+0.281	44.631	45.101	0.751	+0.231	0.001	10.661	38.281	
1	6	10.661	38.281	-0.211	2.021	1.291	0.751	-0.211	0.001	10.421	37.841	
1	7	10.421	37.841	-0.571	1.111	0.001	0.751	-0.571	0.001	9.991	37.061	
1	8	9.991	37.061	-0.821	0.611	0.001	0.751	-0.781	0.001	9.031	35.321	
1	9	9.031	35.321	-0.811	0.391	0.001	0.751	-0.751	0.001	7.971	33.391	
1	10	7.971	33.391	-0.821	0.321	0.001	0.751	-0.751	0.001	7.131	31.381	
1	11	7.131	31.381	-0.691	0.241	0.001	0.751	-0.681	0.001	6.901	29.501	
1	12	6.901	29.501	-0.601	0.391	0.001	0.751	-0.591	0.001	6.711	27.951	
6	1	6.711	27.951	-0.241	0.931	0.001	0.751	-0.241	0.001	6.681	27.651	
1	2	6.681	27.651	+0.071	1.001	0.001	0.751	+0.071	0.001	6.721	28.041	
1	3	6.721	28.041	+0.481	20.411	10.131	0.751	+0.761	0.001	12.871	38.811	
1	4	12.871	38.811	+1.141	1.871	3.021	0.751	+0.931	0.001	12.921	38.981	
1	5	12.921	38.981	+0.281	3.421	3.891	0.751	+0.231	0.001	10.661	38.281	
1	6	10.661	38.281	-0.211	3.701	2.971	0.751	-0.211	0.001	10.421	37.841	
1	7	10.421	37.841	-0.571	1.211	0.001	0.751	-0.571	0.001	10.041	37.161	
1	8	10.041	37.161	-0.831	0.661	0.001	0.751	-0.791	0.001	9.101	35.451	
1	9	9.101	35.451	-0.821	0.561	0.001	0.751	-0.771	0.001	8.121	33.671	
1	10	8.121	33.671	-0.841	0.311	0.001	0.751	-0.771	0.001	7.151	31.621	
1	11	7.151	31.621	-0.691	0.171	0.001	0.751	-0.681	0.001	6.921	29.671	
1	12	6.921	29.671	-0.601	0.401	0.001	0.751	-0.591	0.001	6.741	28.131	
7	1	6.741	28.131	-0.241	0.441	0.001	0.751	-0.241	0.001	6.641	27.331	
1	2	6.641	27.331	+0.071	0.531	0.001	0.751	+0.071	0.001	6.631	27.251	
1	3	6.631	27.251	+0.481	0.391	0.001	0.751	+0.481	0.001	6.701	27.851	
1	4	6.701	27.851	+0.591	0.301	0.001	0.751	+0.591	0.001	6.791	28.591	
1	5	6.791	28.591	+0.151	0.431	0.001	0.751	+0.151	0.001	6.791	28.571	
1	6	6.791	28.571	-0.141	0.251	0.001	0.751	-0.131	0.001	6.701	27.801	
1	7	6.701	27.801	-0.371	0.141	0.001	0.751	-0.361	0.001	6.531	26.461	
1	8	6.531	26.461	-0.541	0.081	0.001	0.751	-0.531	0.001	6.331	24.721	
1	9	6.331	24.721	-0.571	0.041	0.001	0.751	-0.561	0.001	6.101	22.881	
1	10	6.101	22.881	-0.631	0.021	0.001	0.751	-0.611	0.001	5.751	20.921	
1	11	5.751	20.921	-0.561	0.011	0.001	0.751	-0.541	0.001	5.431	19.081	
1	12	5.431	19.081	-0.471	0.041	0.001	0.751	-0.451	0.001	5.141	17.451	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
8	1	5.141	17.451	-0.191	0.031	0.001	0.751	-0.181	0.001	4.931	16.361	
	2	4.931	16.361	+0.051	0.361	0.001	0.751	+0.051	0.001	4.871	16.071	
	3	4.871	16.071	+0.351	23.791	1.411	0.751	+0.761	0.001	12.871	38.811	
	4	12.871	38.811	+1.141	7.231	8.381	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	1.891	2.361	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	1.141	0.411	0.751	-0.211	0.001	10.421	37.841	
	7	10.421	37.841	-0.571	0.711	0.001	0.751	-0.551	0.001	9.781	36.671	
	8	9.781	36.671	-0.811	0.611	0.001	0.751	-0.761	0.001	8.831	34.961	
	9	8.831	34.961	-0.791	0.331	0.001	0.751	-0.731	0.001	7.761	33.011	
	10	7.761	33.011	-0.801	0.181	0.001	0.751	-0.741	0.001	7.071	30.901	
	11	7.071	30.901	-0.691	0.111	0.001	0.751	-0.671	0.001	6.831	28.901	
	12	6.831	28.901	-0.591	0.291	0.001	0.751	-0.581	0.001	6.631	27.271	
9	1	6.631	27.271	-0.241	0.271	0.001	0.751	-0.241	0.001	6.521	26.311	
	2	6.521	26.311	+0.071	0.801	0.001	0.751	+0.071	0.001	6.541	26.501	
	3	6.541	26.501	+0.471	3.241	0.001	0.751	+0.501	0.001	6.951	29.961	
	4	6.951	29.961	+0.621	4.551	0.001	0.751	+0.751	0.001	8.921	35.121	
	5	8.921	35.121	+0.201	16.161	12.681	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	1.561	0.831	0.751	-0.211	0.001	10.421	37.841	
	7	10.421	37.841	-0.571	0.931	0.001	0.751	-0.561	0.001	9.891	36.881	
	8	9.891	36.881	-0.821	0.511	0.001	0.751	-0.771	0.001	8.891	35.061	
	9	8.891	35.061	-0.801	0.291	0.001	0.751	-0.741	0.001	7.791	33.061	
	10	7.791	33.061	-0.811	0.161	0.001	0.751	-0.741	0.001	7.071	30.931	
	11	7.071	30.931	-0.691	0.091	0.001	0.751	-0.671	0.001	6.831	28.911	
	12	6.831	28.911	-0.591	0.051	0.001	0.751	-0.581	0.001	6.601	27.041	
10	1	6.601	27.041	-0.241	0.131	0.001	0.751	-0.231	0.001	6.471	25.941	
	2	6.471	25.941	+0.071	0.211	0.001	0.751	+0.071	0.001	6.421	25.541	
	3	6.421	25.541	+0.461	0.531	0.001	0.751	+0.461	0.001	6.511	26.251	
	4	6.511	26.251	+0.581	2.691	0.001	0.751	+0.601	0.001	6.881	29.371	
	5	6.881	29.371	+0.151	1.351	0.001	0.751	+0.151	0.001	6.991	30.271	
	6	6.991	30.271	-0.141	0.891	0.001	0.751	-0.141	0.001	6.981	30.131	
	7	6.981	30.131	-0.381	0.601	0.001	0.751	-0.381	0.001	6.871	29.221	
	8	6.871	29.221	-0.571	0.341	0.001	0.751	-0.561	0.001	6.681	27.681	
	9	6.681	27.681	-0.601	0.181	0.001	0.751	-0.591	0.001	6.471	25.921	
	10	6.471	25.921	-0.671	0.101	0.001	0.751	-0.651	0.001	6.231	23.951	
	11	6.231	23.951	-0.601	0.321	0.001	0.751	-0.591	0.001	6.001	22.321	
	12	6.001	22.321	-0.521	0.181	0.001	0.751	-0.511	0.001	5.721	20.731	
11	1	5.721	20.731	-0.211	0.541	0.001	0.751	-0.201	0.001	5.611	20.111	
	2	5.611	20.111	+0.061	4.741	0.001	0.751	+0.071	0.001	6.271	24.221	
	3	6.271	24.221	+0.451	2.471	0.001	0.751	+0.471	0.001	6.581	26.861	
	4	6.581	26.861	+0.581	6.931	0.001	0.751	+0.721	0.001	8.491	34.341	
	5	8.491	34.341	+0.191	1.761	0.001	0.751	+0.201	0.001	9.261	35.741	
	6	9.261	35.741	-0.191	1.141	0.001	0.751	-0.191	0.001	9.271	35.761	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
12	7	9.271	35.761	-0.511	0.691	0.001	0.751	-0.491	0.001	8.691	34.691	
	8	8.691	34.691	-0.721	0.381	0.001	0.751	-0.671	0.001	7.721	32.941	
	9	7.721	32.941	-0.691	0.211	0.001	0.751	-0.641	0.001	7.091	31.061	
	10	7.091	31.061	-0.731	0.111	0.001	0.751	-0.721	0.001	6.841	28.971	
	11	6.841	28.971	-0.661	0.061	0.001	0.751	-0.651	0.001	6.601	26.971	
	12	6.601	26.971	-0.571	0.031	0.001	0.751	-0.561	0.001	6.371	25.121	
12	1	6.371	25.121	-0.231	0.861	0.001	0.751	-0.231	0.001	6.331	24.771	
	2	6.331	24.771	+0.071	1.801	0.001	0.751	+0.071	0.001	6.471	25.951	
	3	6.471	25.951	+0.471	12.311	0.001	0.751	+0.761	0.001	10.911	38.731	
	4	10.911	38.731	+0.971	16.681	17.581	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	7.001	7.471	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	2.731	2.001	0.751	-0.211	0.001	10.421	37.841	
	7	10.421	37.841	-0.571	1.151	0.001	0.751	-0.571	0.001	10.011	37.101	
	8	10.011	37.101	-0.831	0.631	0.001	0.751	-0.781	0.001	9.061	35.371	
	9	9.061	35.371	-0.821	0.341	0.001	0.751	-0.751	0.001	7.971	33.391	
	10	7.971	33.391	-0.821	0.191	0.001	0.751	-0.751	0.001	7.111	31.261	
	11	7.111	31.261	-0.691	0.101	0.001	0.751	-0.671	0.001	6.871	29.251	
	12	6.871	29.251	-0.601	0.121	0.001	0.751	-0.581	0.001	6.651	27.431	
13	1	6.651	27.431	-0.241	0.941	0.001	0.751	-0.241	0.001	6.621	27.141	
	2	6.621	27.141	+0.071	1.321	0.001	0.751	+0.071	0.001	6.701	27.851	
	3	6.701	27.851	+0.481	2.231	0.001	0.751	+0.501	0.001	7.001	30.321	
	4	7.001	30.321	+0.621	2.141	0.001	0.751	+0.651	0.001	7.741	32.981	
	5	7.741	32.981	+0.171	1.441	0.001	0.751	+0.181	0.001	8.311	34.021	
	6	8.311	34.021	-0.171	0.981	0.001	0.751	-0.171	0.001	8.261	33.921	
	7	8.261	33.921	-0.451	0.601	0.001	0.751	-0.441	0.001	7.681	32.881	
	8	7.681	32.881	-0.631	0.391	0.001	0.751	-0.591	0.001	7.111	31.291	
	9	7.111	31.291	-0.641	0.211	0.001	0.751	-0.631	0.001	6.901	29.481	
	10	6.901	29.481	-0.711	0.111	0.001	0.751	-0.701	0.001	6.651	27.431	
	11	6.651	27.431	-0.651	0.061	0.001	0.751	-0.631	0.001	6.421	25.471	
	12	6.421	25.471	-0.561	0.031	0.001	0.751	-0.541	0.001	6.201	23.641	
14	1	6.201	23.641	-0.221	0.391	0.001	0.751	-0.221	0.001	6.091	22.841	
	2	6.091	22.841	+0.061	2.541	0.001	0.751	+0.071	0.001	6.331	24.761	
	3	6.331	24.761	+0.461	9.801	0.001	0.751	+0.611	0.001	8.781	34.871	
	4	8.781	34.871	+0.781	11.531	8.381	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	2.901	3.371	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	1.281	0.551	0.751	-0.211	0.001	10.421	37.841	
	7	10.421	37.841	-0.571	0.731	0.001	0.751	-0.561	0.001	9.791	36.691	
	8	9.791	36.691	-0.811	0.401	0.001	0.751	-0.751	0.001	8.731	34.781	
	9	8.731	34.781	-0.791	0.221	0.001	0.751	-0.721	0.001	7.611	32.741	
	10	7.611	32.741	-0.791	0.121	0.001	0.751	-0.741	0.001	7.031	30.591	
	11	7.031	30.591	-0.681	0.061	0.001	0.751	-0.671	0.001	6.791	28.551	
	12	6.791	28.551	-0.591	0.031	0.001	0.751	-0.581	0.001	6.561	26.661	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3 (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETR.	FINAL	DEMANDA	FINAL	FINAL	
15	1	6.561	26.661	-0.241	0.311	0.001	0.751	-0.231	0.001	6.451	25.751	
	2	6.451	25.751	+0.071	0.671	0.001	0.751	+0.071	0.001	6.461	25.811	
	3	6.461	25.811	+0.461	1.241	0.001	0.751	+0.471	0.001	6.631	27.241	
	4	6.631	27.241	+0.591	6.201	0.001	0.751	+0.701	0.001	8.291	33.971	
	5	8.291	33.971	+0.181	1.521	0.001	0.751	+0.191	0.001	8.921	35.121	
	6	8.921	35.121	-0.181	1.031	0.001	0.751	-0.181	0.001	8.881	35.041	
	7	8.881	35.041	-0.491	0.601	0.001	0.751	-0.471	0.001	8.271	33.931	
	8	8.271	33.931	-0.681	0.331	0.001	0.751	-0.631	0.001	7.311	32.201	
	9	7.311	32.201	-0.661	0.181	0.001	0.751	-0.641	0.001	7.001	30.341	
	10	7.001	30.341	-0.721	0.101	0.001	0.751	-0.711	0.001	6.751	28.251	
	11	6.751	28.251	-0.651	0.051	0.001	0.751	-0.641	0.001	6.511	26.261	
	12	6.511	26.261	-0.571	0.051	0.001	0.751	-0.551	0.001	6.291	24.441	
16	1	6.291	24.441	-0.231	0.501	0.001	0.751	-0.221	0.001	6.211	23.741	
	2	6.211	23.741	+0.071	0.571	0.001	0.751	+0.071	0.001	6.201	23.691	
	3	6.201	23.691	+0.451	1.481	0.001	0.751	+0.461	0.001	6.401	25.321	
	4	6.401	25.321	+0.571	3.361	0.001	0.751	+0.601	0.001	6.851	29.101	
	5	6.851	29.101	+0.151	1.211	0.001	0.751	+0.151	0.001	6.941	29.861	
	6	6.941	29.861	-0.141	0.781	0.001	0.751	-0.141	0.001	6.911	29.611	
	7	6.911	29.611	-0.381	0.431	0.001	0.751	-0.381	0.001	6.781	28.541	
	8	6.781	28.541	-0.561	0.231	0.001	0.751	-0.551	0.001	6.591	26.911	
	9	6.591	26.911	-0.591	0.131	0.001	0.751	-0.581	0.001	6.371	25.121	
	10	6.371	25.121	-0.661	0.071	0.001	0.751	-0.641	0.001	6.141	23.131	
	11	6.141	23.131	-0.601	0.031	0.001	0.751	-0.571	0.001	5.811	21.251	
	12	5.811	21.251	-0.511	0.021	0.001	0.751	-0.491	0.001	5.511	19.521	
17	1	5.511	19.521	-0.201	0.671	0.001	0.751	-0.201	0.001	5.431	19.051	
	2	5.431	19.051	+0.061	4.331	0.001	0.751	+0.061	0.001	6.081	22.751	
	3	6.081	22.751	+0.441	8.581	0.001	0.751	+0.511	0.001	7.141	31.531	
	4	7.141	31.531	+0.631	9.151	2.511	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	1.631	2.101	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	0.971	0.241	0.751	-0.211	0.001	10.421	37.841	
	7	10.421	37.841	-0.571	0.571	0.001	0.751	-0.551	0.001	9.701	36.541	
	8	9.701	36.541	-0.801	0.311	0.001	0.751	-0.741	0.001	8.611	34.551	
	9	8.611	34.551	-0.771	0.171	0.001	0.751	-0.711	0.001	7.471	32.491	
	10	7.471	32.491	-0.771	0.091	0.001	0.751	-0.731	0.001	7.001	30.321	
	11	7.001	30.321	-0.681	0.051	0.001	0.751	-0.661	0.001	6.751	28.281	
	12	6.751	28.281	-0.591	0.431	0.001	0.751	-0.581	0.001	6.581	26.801	
18	1	6.581	26.801	-0.241	0.561	0.001	0.751	-0.231	0.001	6.501	26.131	
	2	6.501	26.131	+0.071	1.941	0.001	0.751	+0.071	0.001	6.661	27.461	
	3	6.661	27.461	+0.481	16.491	5.631	0.751	+0.761	0.001	12.871	38.811	
	4	12.871	38.811	+1.141	4.061	5.211	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	1.571	2.041	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	1.331	0.601	0.751	-0.211	0.001	10.421	37.841	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO DEBANDA	AREA FINAL	VOLUME FINAL
	7	10.42	37.84	-0.57	0.79	0.00	0.75	-0.56	0.00	9.82	36.75
	8	9.82	36.75	-0.81	0.46	0.00	0.75	-0.76	0.00	8.79	34.89
	9	8.79	34.89	-0.79	0.25	0.00	0.75	-0.73	0.00	7.68	32.87
	10	7.68	32.87	-0.79	0.14	0.00	0.75	-0.74	0.00	7.05	30.73
	11	7.05	30.73	-0.68	0.07	0.00	0.75	-0.67	0.00	6.80	28.70
	12	6.80	28.70	-0.59	0.04	0.00	0.75	-0.58	0.00	6.58	26.82
19	1	6.58	26.82	-0.24	0.64	0.00	0.75	-0.24	0.00	6.51	26.23
	2	6.51	26.23	+0.07	3.03	0.00	0.75	+0.07	0.00	6.80	28.65
	3	6.80	28.65	+0.49	3.98	0.00	0.75	+0.53	0.00	7.70	32.91
	4	7.70	32.91	+0.68	2.61	0.00	0.75	+0.81	0.00	9.55	36.25
	5	9.55	36.25	+0.21	1.37	0.00	0.75	+0.22	0.00	10.12	37.30
	6	10.12	37.30	-0.20	0.88	0.00	0.75	-0.20	0.00	9.97	37.03
	7	9.97	37.03	-0.55	0.50	0.00	0.75	-0.52	0.00	9.24	35.71
	8	9.24	35.71	-0.76	0.28	0.00	0.75	-0.71	0.00	8.17	33.77
	9	8.17	33.77	-0.74	0.16	0.00	0.75	-0.67	0.00	7.17	31.77
	10	7.17	31.77	-0.74	0.09	0.00	0.75	-0.72	0.00	6.92	29.64
	11	6.92	29.64	-0.67	0.05	0.00	0.75	-0.66	0.00	6.67	27.62
	12	6.67	27.62	-0.58	0.02	0.00	0.75	-0.57	0.00	6.45	25.74
20	1	6.45	25.74	-0.23	0.32	0.00	0.75	-0.23	0.00	6.34	24.85
	2	6.34	24.85	+0.07	0.64	0.00	0.75	+0.07	0.00	6.34	24.87
	3	6.34	24.87	+0.46	1.07	0.00	0.75	+0.46	0.00	6.49	26.11
	4	6.49	26.11	+0.57	0.79	0.00	0.75	+0.58	0.00	6.64	27.31
	5	6.64	27.31	+0.15	0.44	0.00	0.75	+0.15	0.00	6.63	27.29
	6	6.63	27.29	-0.13	0.41	0.00	0.75	-0.13	0.00	6.56	26.69
	7	6.56	26.69	-0.36	0.33	0.00	0.75	-0.36	0.00	6.43	25.55
	8	6.43	25.55	-0.53	0.18	0.00	0.75	-0.52	0.00	6.23	23.93
	9	6.23	23.93	-0.56	0.09	0.00	0.75	-0.55	0.00	5.97	22.16
	10	5.97	22.16	-0.62	0.05	0.00	0.75	-0.59	0.00	5.64	20.25
	11	5.64	20.25	-0.55	0.03	0.00	0.75	-0.53	0.00	5.32	18.46
	12	5.32	18.46	-0.46	0.01	0.00	0.75	-0.44	0.00	5.02	16.81
21	1	5.02	16.81	-0.18	0.76	0.00	0.75	-0.18	0.00	4.95	16.46
	2	4.95	16.46	+0.05	2.00	0.00	0.75	+0.05	0.00	5.21	17.82
	3	5.21	17.82	+0.38	2.08	0.00	0.75	+0.40	0.00	5.58	19.92
	4	5.58	19.92	+0.49	7.73	0.00	0.75	+0.59	0.00	6.72	27.98
	5	6.72	27.98	+0.15	1.59	0.00	0.75	+0.15	0.00	6.85	29.12
	6	6.85	29.12	-0.14	0.91	0.00	0.75	-0.14	0.00	6.84	29.00
	7	6.84	29.00	-0.38	0.53	0.00	0.75	-0.37	0.00	6.72	28.04
	8	6.72	28.04	-0.55	0.29	0.00	0.75	-0.54	0.00	6.54	26.48
	9	6.54	26.48	-0.59	0.17	0.00	0.75	-0.58	0.00	6.33	24.73
	10	6.33	24.73	-0.65	0.09	0.00	0.75	-0.64	0.00	6.08	22.78
	11	6.08	22.78	-0.59	0.05	0.00	0.75	-0.57	0.00	5.75	20.92
	12	5.75	20.92	-0.50	0.09	0.00	0.75	-0.48	0.00	5.47	19.28

000093



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)S/21 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)S/21 FINAL	SALDO DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
22	1	5.47	19.28	-0.20	0.34	0.00	0.75	-0.19	0.00	5.32	18.48	
	2	5.32	18.48	+0.06	2.16	0.00	0.75	+0.06	0.00	5.59	20.00	
	3	5.59	20.00	+0.40	9.29	0.00	0.75	+0.49	0.00	6.89	29.44	
	4	6.89	29.44	+0.61	11.07	2.32	0.75	+0.93	0.00	12.92	38.98	
	5	12.92	38.98	+0.28	3.48	3.95	0.75	+0.23	0.00	10.66	38.28	
	6	10.66	38.28	-0.21	1.36	0.63	0.75	-0.21	0.00	10.42	37.84	
	7	10.42	37.84	-0.57	0.75	0.00	0.75	-0.56	0.00	9.80	36.71	
	8	9.80	36.71	-0.81	0.41	0.00	0.75	-0.76	0.00	8.75	34.81	
	9	8.75	34.81	-0.79	0.26	0.00	0.75	-0.72	0.00	7.64	32.80	
	10	7.64	32.80	-0.79	0.14	0.00	0.75	-0.74	0.00	7.04	30.67	
	11	7.04	30.67	-0.68	0.09	0.00	0.75	-0.67	0.00	6.80	28.66	
	12	6.80	28.66	-0.59	0.43	0.00	0.75	-0.58	0.00	6.62	27.16	
23	1	6.62	27.16	-0.24	1.02	0.00	0.75	-0.24	0.00	6.59	26.96	
	2	6.59	26.96	+0.07	1.45	0.00	0.75	+0.07	0.00	6.70	27.80	
	3	6.70	27.80	+0.48	3.41	0.00	0.75	+0.51	0.00	7.13	31.45	
	4	7.13	31.45	+0.63	24.30	17.58	0.75	+0.93	0.00	12.92	38.98	
	5	12.92	38.98	+0.28	6.42	6.89	0.75	+0.23	0.00	10.66	38.28	
	6	10.66	38.28	-0.21	1.80	1.07	0.75	-0.21	0.00	10.42	37.84	
	7	10.42	37.84	-0.57	1.00	0.00	0.75	-0.56	0.00	9.93	36.95	
	8	9.93	36.95	-0.82	0.55	0.00	0.75	-0.77	0.00	8.94	35.16	
	9	8.94	35.16	-0.80	0.30	0.00	0.75	-0.74	0.00	7.84	33.16	
	10	7.84	33.16	-0.81	0.16	0.00	0.75	-0.74	0.00	7.08	31.02	
	11	7.08	31.02	-0.69	0.09	0.00	0.75	-0.67	0.00	6.84	29.00	
	12	6.84	29.00	-0.60	0.05	0.00	0.75	-0.58	0.00	6.61	27.12	
24	1	6.61	27.12	-0.24	0.18	0.00	0.75	-0.23	0.00	6.49	26.08	
	2	6.49	26.08	+0.07	1.01	0.00	0.75	+0.07	0.00	6.54	26.48	
	3	6.54	26.48	+0.47	0.88	0.00	0.75	+0.48	0.00	6.67	27.55	
	4	6.67	27.55	+0.59	1.04	0.00	0.75	+0.60	0.00	6.84	29.03	
	5	6.84	29.03	+0.15	0.91	0.00	0.75	+0.15	0.00	6.90	29.50	
	6	6.90	29.50	-0.14	0.52	0.00	0.75	-0.14	0.00	6.84	28.99	
	7	6.84	28.99	-0.38	0.30	0.00	0.75	-0.37	0.00	6.70	27.79	
	8	6.70	27.79	-0.55	0.16	0.00	0.75	-0.55	0.00	6.49	26.11	
	9	6.49	26.11	-0.58	0.09	0.00	0.75	-0.57	0.00	6.28	24.30	
	10	6.28	24.30	-0.65	0.05	0.00	0.75	-0.63	0.00	6.00	22.31	
	11	6.00	22.31	-0.58	0.02	0.00	0.75	-0.56	0.00	5.67	20.44	
	12	5.67	20.44	-0.49	0.01	0.00	0.75	-0.47	0.00	5.37	18.73	
25	1	5.37	18.73	-0.19	0.08	0.00	0.75	-0.19	0.00	5.18	17.68	
	2	5.18	17.68	+0.05	0.84	0.00	0.75	+0.05	0.00	5.22	17.88	
	3	5.22	17.88	+0.38	0.90	0.00	0.75	+0.38	0.00	5.38	18.79	
	4	5.38	18.79	+0.48	1.37	0.00	0.75	+0.49	0.00	5.66	20.38	
	5	5.66	20.38	+0.12	1.29	0.00	0.75	+0.13	0.00	5.80	21.17	
	6	5.80	21.17	-0.12	0.93	0.00	0.75	-0.12	0.00	5.79	21.12	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	5.791	21.121	-0.321	0.571	0.001	0.751	-0.311	0.001	5.651	20.311	
	8	5.651	20.311	-0.471	0.311	0.001	0.751	-0.451	0.001	5.411	18.951	
	9	5.411	18.951	-0.491	0.171	0.001	0.751	-0.471	0.001	5.141	17.411	
	10	5.141	17.411	-0.531	0.091	0.001	0.751	-0.511	0.001	4.801	15.711	
	11	4.801	15.711	-0.471	0.051	0.001	0.751	-0.441	0.001	4.471	14.111	
	12	4.471	14.111	-0.391	0.021	0.001	0.751	-0.371	0.001	4.161	12.621	
26	1	4.161	12.621	-0.151	0.381	0.001	0.751	-0.151	0.001	4.011	11.951	
	2	4.011	11.951	+0.041	0.281	0.001	0.751	+0.041	0.001	3.921	11.571	
	3	3.921	11.571	+0.281	4.531	0.001	0.751	+0.341	0.001	4.851	15.971	
	4	4.851	15.971	+0.431	2.011	0.001	0.751	+0.461	0.001	5.261	18.121	
	5	5.261	18.121	+0.121	1.331	0.001	0.751	+0.121	0.001	5.411	18.941	
	6	5.411	18.941	-0.111	0.841	0.001	0.751	-0.111	0.001	5.381	18.811	
	7	5.381	18.811	-0.301	0.501	0.001	0.751	-0.291	0.001	5.241	17.971	
	8	5.241	17.971	-0.431	0.331	0.001	0.751	-0.421	0.001	5.001	16.701	
	9	5.001	16.701	-0.451	0.181	0.001	0.751	-0.431	0.001	4.701	15.251	
	10	4.701	15.251	-0.491	0.101	0.001	0.751	-0.461	0.001	4.371	13.651	
	11	4.371	13.651	-0.421	0.051	0.001	0.751	-0.401	0.001	4.051	12.131	
	12	4.051	12.131	-0.351	0.031	0.001	0.751	-0.331	0.001	3.731	10.721	
27	1	3.731	10.721	-0.131	0.121	0.001	0.751	-0.131	0.001	3.531	9.831	
	2	3.531	9.831	+0.041	0.731	0.001	0.751	+0.041	0.001	3.541	9.881	
	3	3.541	9.881	+0.261	3.011	0.001	0.751	+0.301	0.001	4.181	12.691	
	4	4.181	12.691	+0.371	1.641	0.001	0.751	+0.391	0.001	4.521	14.351	
	5	4.521	14.351	+0.101	1.271	0.001	0.751	+0.101	0.001	4.661	15.071	
	6	4.661	15.071	-0.091	0.761	0.001	0.751	-0.091	0.001	4.631	14.891	
	7	4.631	14.891	-0.251	0.541	0.001	0.751	-0.251	0.001	4.481	14.181	
	8	4.481	14.181	-0.371	0.301	0.001	0.751	-0.361	0.001	4.241	13.001	
	9	4.241	13.001	-0.381	0.221	0.001	0.751	-0.361	0.001	3.961	11.731	
	10	3.961	11.731	-0.411	0.161	0.001	0.751	-0.391	0.001	3.651	10.341	
	11	3.651	10.341	-0.351	0.091	0.001	0.751	-0.331	0.001	3.341	9.001	
	12	3.341	9.001	-0.291	0.081	0.001	0.751	-0.271	0.001	3.011	7.771	
28	1	3.011	7.771	-0.111	0.961	0.001	0.751	-0.111	0.001	3.011	7.761	
	2	3.011	7.761	+0.031	1.271	0.001	0.751	+0.031	0.001	3.171	8.341	
	3	3.171	8.341	+0.231	2.651	0.001	0.751	+0.261	0.001	3.741	10.741	
	4	3.741	10.741	+0.331	3.511	0.001	0.751	+0.391	0.001	4.491	14.221	
	5	4.491	14.221	+0.101	1.591	0.001	0.751	+0.101	0.001	4.701	15.261	
	6	4.701	15.261	-0.091	0.981	0.001	0.751	-0.091	0.001	4.711	15.301	
	7	4.711	15.301	-0.261	0.641	0.001	0.751	-0.251	0.001	4.581	14.681	
	8	4.581	14.681	-0.381	0.361	0.001	0.751	-0.371	0.001	4.351	13.541	
	9	4.351	13.541	-0.391	0.201	0.001	0.751	-0.371	0.001	4.071	12.231	
	10	4.071	12.231	-0.421	0.111	0.001	0.751	-0.401	0.001	3.741	10.771	
	11	3.741	10.771	-0.361	0.061	0.001	0.751	-0.341	0.001	3.431	9.381	
	12	3.431	9.381	-0.301	0.031	0.001	0.751	-0.281	0.001	3.101	8.081	





SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuação)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
29	1	3.10	8.08	-0.11	0.08	0.00	0.75	-0.10	0.00	2.85	7.20		
	2	2.85	7.20	+0.03	0.30	0.00	0.75	+0.03	0.00	2.74	6.80		
	3	2.74	6.80	+0.20	1.17	0.00	0.75	+0.21	0.00	2.97	7.63		
	4	2.97	7.63	+0.26	1.22	0.00	0.75	+0.28	0.00	3.26	8.65		
	5	3.26	8.65	+0.07	0.75	0.00	0.75	+0.07	0.00	3.30	8.79		
	6	3.30	8.79	-0.07	0.59	0.00	0.75	-0.06	0.00	3.22	8.50		
	7	3.22	8.50	-0.18	0.36	0.00	0.75	-0.17	0.00	3.01	7.76		
	8	3.01	7.76	-0.25	0.19	0.00	0.75	-0.23	0.00	2.72	6.73		
	9	2.72	6.73	-0.25	0.10	0.00	0.75	-0.22	0.00	2.38	5.61		
	10	2.38	5.61	-0.25	0.06	0.00	0.75	-0.21	0.00	1.97	4.46		
	11	1.97	4.46	-0.19	0.03	0.00	0.75	-0.16	0.00	1.59	3.39		
	12	1.59	3.39	-0.14	0.01	0.00	0.75	-0.11	0.00	1.26	2.40		
30	1	1.26	2.40	-0.05	0.47	0.00	0.42	-0.05	0.33	1.24	2.35	±	
	2	1.24	2.35	+0.01	0.65	0.00	0.62	+0.01	0.13	1.26	2.41	±	
	3	1.26	2.41	+0.09	1.39	0.00	0.75	+0.11	0.00	1.55	3.25		
	4	1.55	3.25	+0.14	1.17	0.00	0.75	+0.15	0.00	1.79	3.96		
	5	1.79	3.96	+0.04	0.64	0.00	0.75	+0.04	0.00	1.78	3.93		
	6	1.78	3.93	-0.04	0.35	0.00	0.75	-0.03	0.00	1.62	3.46		
	7	1.62	3.46	-0.09	0.19	0.00	0.75	-0.08	0.00	1.37	2.74		
	8	1.37	2.74	-0.11	0.10	0.00	0.32	-0.10	0.43	1.21	2.30	±	
	9	1.21	2.30	-0.11	0.05	0.00	0.00	-0.11	0.75	1.21	2.29	±	
	10	1.21	2.29	-0.12	0.03	0.00	0.00	-0.13	0.75	1.20	2.27	±	
	11	1.20	2.27	-0.12	0.01	0.00	0.00	-0.12	0.75	1.20	2.28	±	
	12	1.20	2.28	-0.10	0.23	0.00	0.00	-0.11	0.75	1.21	2.29	±	
31	1	1.21	2.29	-0.04	0.41	0.00	0.26	-0.05	0.49	1.24	2.35	±	
	2	1.24	2.35	+0.01	0.41	0.00	0.38	+0.01	0.37	1.26	2.41	±	
	3	1.26	2.41	+0.09	0.70	0.00	0.75	+0.09	0.00	1.31	2.55		
	4	1.31	2.55	+0.12	1.13	0.00	0.75	+0.13	0.00	1.52	3.17		
	5	1.52	3.17	+0.03	0.97	0.00	0.75	+0.04	0.00	1.62	3.46		
	6	1.62	3.46	-0.03	0.53	0.00	0.75	-0.03	0.00	1.52	3.18		
	7	1.52	3.18	-0.08	0.37	0.00	0.75	-0.08	0.00	1.34	2.64		
	8	1.34	2.64	-0.11	0.20	0.00	0.33	-0.10	0.42	1.21	2.30	±	
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	0.75	1.21	2.29	±	
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	0.75	1.20	2.27	±	
	11	1.20	2.27	-0.12	0.09	0.00	0.00	-0.12	0.75	1.20	2.28	±	
	12	1.20	2.28	-0.10	0.54	0.00	0.31	-0.11	0.44	1.21	2.29	±	
32	1	1.21	2.29	-0.04	0.58	0.00	0.43	-0.05	0.32	1.24	2.35	±	
	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	0.00	1.26	2.41	±	
	3	1.26	2.41	+0.09	3.97	0.00	0.75	+0.17	0.00	2.48	5.90		
	4	2.48	5.90	+0.22	2.55	0.00	0.75	+0.27	0.00	3.13	8.19		
	5	3.13	8.19	+0.07	1.46	0.00	0.75	+0.07	0.00	3.35	9.04		
	6	3.35	9.04	-0.07	0.86	0.00	0.75	-0.07	0.00	3.35	9.02		



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	ISANGRADO	RETIR.	FINAL	IDEMANDA	FINAL	FINAL	
	7	3.35	9.02	-0.18	0.47	0.00	0.75	-0.18	0.00	3.18	8.37	
	8	3.18	8.37	-0.26	0.26	0.00	0.75	-0.25	0.00	2.90	7.38	
	9	2.90	7.38	-0.26	0.14	0.00	0.75	-0.24	0.00	2.59	6.27	
	10	2.59	6.27	-0.27	0.07	0.00	0.75	-0.24	0.00	2.19	5.08	
	11	2.19	5.08	-0.21	0.04	0.00	0.75	-0.18	0.00	1.79	3.98	
	12	1.79	3.98	-0.16	0.34	0.00	0.75	-0.14	0.00	1.56	3.27	
33	1	1.56	3.27	-0.06	0.98	0.00	0.75	-0.06	0.00	1.59	3.39	
	2	1.59	3.39	+0.02	5.58	0.00	0.75	+0.03	0.00	3.15	8.27	
	3	3.15	8.27	+0.23	6.52	0.00	0.75	+0.32	0.00	4.57	14.59	
	4	4.57	14.59	+0.40	4.28	0.00	0.75	+0.47	0.00	5.42	19.00	
	5	5.42	19.00	+0.12	2.00	0.00	0.75	+0.12	0.00	5.68	20.49	
	6	5.68	20.49	-0.11	1.15	0.00	0.75	-0.11	0.00	5.71	20.66	
	7	5.71	20.66	-0.31	0.63	0.00	0.75	-0.31	0.00	5.58	19.92	
	8	5.58	19.92	-0.46	0.35	0.00	0.75	-0.45	0.00	5.35	18.61	
	9	5.35	18.61	-0.48	0.19	0.00	0.75	-0.46	0.00	5.08	17.10	
	10	5.08	17.10	-0.53	0.10	0.00	0.75	-0.50	0.00	4.74	15.43	
	11	4.74	15.43	-0.46	0.05	0.00	0.75	-0.44	0.00	4.41	13.83	
	12	4.41	13.83	-0.38	0.03	0.00	0.75	-0.36	0.00	4.10	12.36	
34	1	4.10	12.36	-0.15	0.66	0.00	0.75	-0.15	0.00	4.02	11.98	
	2	4.02	11.98	+0.04	0.93	0.00	0.75	+0.04	0.00	4.08	12.25	
	3	4.08	12.25	+0.29	1.17	0.00	0.75	+0.30	0.00	4.29	13.26	
	4	4.29	13.26	+0.38	1.94	0.00	0.75	+0.41	0.00	4.70	15.24	
	5	4.70	15.24	+0.10	1.09	0.00	0.75	+0.11	0.00	4.81	15.79	
	6	4.81	15.79	-0.10	0.67	0.00	0.75	-0.10	0.00	4.76	15.52	
	7	4.76	15.52	-0.26	0.37	0.00	0.75	-0.25	0.00	4.57	14.62	
	8	4.57	14.62	-0.38	0.20	0.00	0.75	-0.36	0.00	4.31	13.33	
	9	4.31	13.33	-0.39	0.11	0.00	0.75	-0.37	0.00	4.01	11.94	
	10	4.01	11.94	-0.41	0.06	0.00	0.75	-0.39	0.00	3.67	10.45	
	11	3.67	10.45	-0.36	0.07	0.00	0.75	-0.33	0.00	3.36	9.08	
	12	3.36	9.08	-0.29	0.10	0.00	0.75	-0.27	0.00	3.04	7.86	
35	1	3.04	7.86	-0.11	0.05	0.00	0.75	-0.10	0.00	2.79	6.95	
	2	2.79	6.95	+0.03	1.21	0.00	0.75	+0.03	0.00	2.93	7.47	
	3	2.93	7.47	+0.21	2.63	0.00	0.75	+0.25	0.00	3.53	9.81	
	4	3.53	9.81	+0.31	2.18	0.00	0.75	+0.35	0.00	4.00	11.90	
	5	4.00	11.90	+0.09	1.54	0.00	0.75	+0.09	0.00	4.21	12.87	
	6	4.21	12.87	-0.08	1.06	0.00	0.75	-0.09	0.00	4.24	13.01	
	7	4.24	13.01	-0.23	0.65	0.00	0.75	-0.23	0.00	4.12	12.45	
	8	4.12	12.45	-0.34	0.36	0.00	0.75	-0.33	0.00	3.88	11.39	
	9	3.88	11.39	-0.35	0.19	0.00	0.75	-0.33	0.00	3.60	10.15	
	10	3.60	10.15	-0.37	0.10	0.00	0.75	-0.35	0.00	3.29	8.78	
	11	3.29	8.78	-0.32	0.59	0.00	0.75	-0.31	0.00	3.08	7.99	
	12	3.08	7.99	-0.27	0.32	0.00	0.75	-0.25	0.00	2.81	7.05	

000097



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
36	1	2.81	7.05	-0.10	0.40	0.00	0.75	-0.10	0.00	2.66	6.50	
	2	2.66	6.50	+0.03	0.88	0.00	0.75	+0.03	0.00	2.71	6.68	
	3	2.71	6.68	+0.20	9.21	0.00	0.75	+0.34	0.00	4.79	15.68	
	4	4.79	15.68	+0.42	1.68	0.00	0.75	+0.45	0.00	5.15	17.48	
	5	5.15	17.48	+0.11	1.35	0.00	0.75	+0.12	0.00	5.30	18.31	
	6	5.30	18.31	-0.11	0.84	0.00	0.75	-0.11	0.00	5.27	18.19	
	7	5.27	18.19	-0.29	0.46	0.00	0.75	-0.28	0.00	5.12	17.32	
	8	5.12	17.32	-0.42	0.25	0.00	0.75	-0.41	0.00	4.85	15.99	
	9	4.85	15.99	-0.44	0.14	0.00	0.75	-0.42	0.00	4.55	14.53	
	10	4.55	14.53	-0.47	0.07	0.00	0.75	-0.45	0.00	4.23	12.93	
	11	4.23	12.93	-0.41	0.04	0.00	0.75	-0.39	0.00	3.89	11.43	
	12	3.89	11.43	-0.34	0.02	0.00	0.75	-0.32	0.00	3.58	10.04	
37	1	3.58	10.04	-0.13	0.20	0.00	0.75	-0.12	0.00	3.40	9.21	
	2	3.40	9.21	+0.04	0.84	0.00	0.75	+0.04	0.00	3.43	9.40	
	3	3.43	9.40	+0.25	1.54	0.00	0.75	+0.26	0.00	3.73	10.70	
	4	3.73	10.70	+0.33	1.46	0.00	0.75	+0.35	0.00	4.04	12.09	
	5	4.04	12.09	+0.09	1.97	0.00	0.75	+0.10	0.00	4.34	13.50	
	6	4.34	13.50	-0.09	1.05	0.00	0.75	-0.09	0.00	4.37	13.62	
	7	4.37	13.62	-0.24	0.58	0.00	0.75	-0.24	0.00	4.24	12.97	
	8	4.24	12.97	-0.35	0.31	0.00	0.75	-0.34	0.00	3.99	11.85	
	9	3.99	11.85	-0.36	0.17	0.00	0.75	-0.34	0.00	3.70	10.57	
	10	3.70	10.57	-0.38	0.09	0.00	0.75	-0.36	0.00	3.38	9.17	
	11	3.38	9.17	-0.33	0.05	0.00	0.75	-0.30	0.00	3.03	7.84	
	12	3.03	7.84	-0.26	0.02	0.00	0.75	-0.24	0.00	2.69	6.61	
38	1	2.69	6.61	-0.10	0.40	0.00	0.75	-0.09	0.00	2.54	6.07	
	2	2.54	6.07	+0.03	0.56	0.00	0.75	+0.03	0.00	2.49	5.93	
	3	2.49	5.93	+0.18	6.44	0.00	0.75	+0.29	0.00	4.04	12.09	
	4	4.04	12.09	+0.36	6.72	0.00	0.75	+0.47	0.00	5.40	18.88	
	5	5.40	18.88	+0.12	1.52	0.00	0.75	+0.12	0.00	5.57	19.89	
	6	5.57	19.89	-0.11	0.90	0.00	0.75	-0.11	0.00	5.56	19.82	
	7	5.56	19.82	-0.31	0.61	0.00	0.75	-0.30	0.00	5.43	19.07	
	8	5.43	19.07	-0.45	0.33	0.00	0.75	-0.44	0.00	5.20	17.77	
	9	5.20	17.77	-0.47	0.18	0.00	0.75	-0.45	0.00	4.91	16.28	
	10	4.91	16.28	-0.51	0.10	0.00	0.75	-0.48	0.00	4.58	14.64	
	11	4.58	14.64	-0.44	0.05	0.00	0.75	-0.42	0.00	4.26	13.07	
	12	4.26	13.07	-0.37	0.03	0.00	0.75	-0.35	0.00	3.94	11.64	
39	1	3.94	11.64	-0.14	0.01	0.00	0.75	-0.13	0.00	3.71	10.62	
	2	3.71	10.62	+0.04	0.00	0.00	0.75	+0.04	0.00	3.56	9.94	
	3	3.56	9.94	+0.26	0.42	0.00	0.75	+0.25	0.00	3.60	10.13	
	4	3.60	10.13	+0.32	0.75	0.00	0.75	+0.32	0.00	3.74	10.77	
	5	3.74	10.77	+0.08	0.75	0.00	0.75	+0.08	0.00	3.78	10.93	
	6	3.78	10.93	-0.08	0.46	0.00	0.75	-0.07	0.00	3.68	10.49	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3

(continuacao)

ANO	IPER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	3.68	10.49	-0.20	0.25	0.00	0.75	-0.19	0.00	3.48	9.60	
	8	3.48	9.60	-0.29	0.14	0.00	0.75	-0.27	0.00	3.20	8.43	
	9	3.20	8.43	-0.29	0.07	0.00	0.75	-0.26	0.00	2.85	7.20	
	10	2.85	7.20	-0.30	0.04	0.00	0.75	-0.27	0.00	2.49	5.93	
	11	2.49	5.93	-0.24	0.02	0.00	0.75	-0.21	0.00	2.07	4.75	
	12	2.07	4.75	-0.18	0.20	0.00	0.75	-0.16	0.00	1.75	3.86	
40	1	1.75	3.86	-0.06	0.44	0.00	0.75	-0.06	0.00	1.61	3.43	
	2	1.61	3.43	+0.02	0.67	0.00	0.75	+0.02	0.00	1.59	3.38	
	3	1.59	3.38	+0.11	1.98	0.00	0.75	+0.15	0.00	2.12	4.88	
	4	2.12	4.88	+0.19	1.76	0.00	0.75	+0.22	0.00	2.60	6.30	
	5	2.60	6.30	+0.06	1.34	0.00	0.75	+0.06	0.00	2.80	7.01	
	6	2.80	7.01	-0.06	0.78	0.00	0.75	-0.06	0.00	2.78	6.92	
	7	2.78	6.92	-0.15	0.43	0.00	0.75	-0.15	0.00	2.61	6.31	
	8	2.61	6.31	-0.21	0.23	0.00	0.75	-0.20	0.00	2.30	5.38	
	9	2.30	5.38	-0.21	0.13	0.00	0.75	-0.18	0.00	1.93	4.37	
	10	1.93	4.37	-0.20	0.07	0.00	0.75	-0.17	0.00	1.57	3.32	
	11	1.57	3.32	-0.15	0.03	0.00	0.75	-0.12	0.00	1.23	2.33	
	12	1.23	2.33	-0.11	0.21	0.00	0.03	-0.11	0.72	1.21	2.29	≠
41	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	0.56	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	0.00	1.26	2.41	≠
	3	1.26	2.41	+0.09	1.09	0.00	0.75	+0.10	0.00	1.44	2.95	
	4	1.44	2.95	+0.13	1.59	0.00	0.75	+0.16	0.00	1.83	4.07	
	5	1.83	4.07	+0.04	1.08	0.00	0.75	+0.04	0.00	1.97	4.48	
	6	1.97	4.48	-0.04	0.71	0.00	0.75	-0.04	0.00	1.93	4.37	
	7	1.93	4.37	-0.11	0.39	0.00	0.75	-0.10	0.00	1.73	3.80	
	8	1.73	3.80	-0.14	0.21	0.00	0.75	-0.12	0.00	1.46	2.99	
	9	1.46	2.99	-0.13	0.11	0.00	0.57	-0.11	0.18	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	0.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	0.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	0.75	1.21	2.29	≠
42	1	1.21	2.29	-0.05	0.01	0.00	0.00	-0.05	0.75	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.71	0.00	0.68	+0.01	0.07	1.26	2.41	≠
	3	1.26	2.41	+0.09	1.09	0.00	0.75	+0.10	0.00	1.46	2.99	
	4	1.46	2.99	+0.13	1.22	0.00	0.75	+0.15	0.00	1.71	3.73	
	5	1.71	3.73	+0.04	0.76	0.00	0.75	+0.04	0.00	1.75	3.84	
	6	1.75	3.84	-0.03	0.64	0.00	0.75	-0.03	0.00	1.69	3.66	
	7	1.69	3.66	-0.09	0.35	0.00	0.75	-0.08	0.00	1.49	3.08	
	8	1.49	3.08	-0.12	0.19	0.00	0.75	-0.10	0.00	1.21	2.30	
	9	1.21	2.30	-0.11	0.10	0.00	0.00	-0.11	0.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	0.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	0.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	0.75	1.21	2.29	≠

000099



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm <sup>3</sup>											(continuacao)	
ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
43	1	1.21	2.29	-0.04	0.59	0.00	0.44	-0.05	0.31	1.24	2.35	*
	2	1.24	2.35	+0.01	0.96	0.00	0.75	+0.01	0.00	1.32	2.59	
	3	1.32	2.59	+0.10	1.07	0.00	0.75	+0.11	0.00	1.50	3.11	
	4	1.50	3.11	+0.13	2.58	0.00	0.75	+0.19	0.00	2.26	5.27	
	5	2.26	5.27	+0.05	1.39	0.00	0.75	+0.06	0.00	2.52	6.01	
	6	2.52	6.01	-0.05	0.82	0.00	0.75	-0.05	0.00	2.51	5.98	
	7	2.51	5.98	-0.14	0.49	0.00	0.75	-0.13	0.00	2.32	5.45	
	8	2.32	5.45	-0.19	0.27	0.00	0.75	-0.17	0.00	2.02	4.61	
	9	2.02	4.61	-0.18	0.14	0.00	0.75	-0.16	0.00	1.69	3.66	
	10	1.69	3.66	-0.17	0.08	0.00	0.75	-0.14	0.00	1.35	2.67	
	11	1.35	2.67	-0.13	0.04	0.00	0.18	-0.12	0.57	1.20	2.28	*
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	0.75	1.21	2.29	*
44	1	1.21	2.29	-0.04	0.14	0.00	0.00	-0.05	0.75	1.24	2.35	*
	2	1.24	2.35	+0.01	1.24	0.00	0.75	+0.01	0.00	1.42	2.87	
	3	1.42	2.87	+0.10	3.86	0.00	0.75	+0.18	0.00	2.59	6.27	
	4	2.59	6.27	+0.23	3.01	0.00	0.75	+0.29	0.00	3.36	9.05	
	5	3.36	9.05	+0.07	1.21	0.00	0.75	+0.08	0.00	3.49	9.66	
	6	3.49	9.66	-0.07	0.79	0.00	0.75	-0.07	0.00	3.47	9.58	
	7	3.47	9.58	-0.19	0.46	0.00	0.75	-0.18	0.00	3.32	8.89	
	8	3.32	8.89	-0.27	0.25	0.00	0.75	-0.26	0.00	3.04	7.86	
	9	3.04	7.86	-0.27	0.13	0.00	0.75	-0.25	0.00	2.72	6.72	
	10	2.72	6.72	-0.28	0.07	0.00	0.75	-0.25	0.00	2.34	5.50	
	11	2.34	5.50	-0.23	0.04	0.00	0.75	-0.19	0.00	1.93	4.37	
	12	1.93	4.37	-0.17	0.02	0.00	0.75	-0.14	0.00	1.58	3.33	
45	1	1.58	3.33	-0.06	0.61	0.00	0.75	-0.05	0.00	1.49	3.08	
	2	1.49	3.08	+0.02	0.73	0.00	0.75	+0.02	0.00	1.49	3.09	
	3	1.49	3.09	+0.11	2.50	0.00	0.75	+0.15	0.00	2.20	5.11	
	4	2.20	5.11	+0.19	4.80	0.00	0.75	+0.30	0.00	3.49	9.65	
	5	3.49	9.65	+0.08	1.90	0.00	0.75	+0.08	0.00	3.79	10.96	
	6	3.79	10.96	-0.08	1.08	0.00	0.75	-0.08	0.00	3.83	11.14	
	7	3.83	11.14	-0.21	0.61	0.00	0.75	-0.21	0.00	3.70	10.58	
	8	3.70	10.58	-0.31	0.34	0.00	0.75	-0.29	0.00	3.47	9.58	
	9	3.47	9.58	-0.31	0.18	0.00	0.75	-0.29	0.00	3.19	8.40	
	10	3.19	8.40	-0.33	0.10	0.00	0.75	-0.30	0.00	2.83	7.12	
	11	2.83	7.12	-0.27	0.05	0.00	0.75	-0.25	0.00	2.48	5.89	
	12	2.48	5.89	-0.22	0.03	0.00	0.75	-0.19	0.00	2.08	4.77	
46	1	2.08	4.77	-0.07	0.11	0.00	0.75	-0.07	0.00	1.80	3.99	
	2	1.80	3.99	+0.02	0.06	0.00	0.75	+0.02	0.00	1.58	3.34	
	3	1.58	3.34	+0.11	0.16	0.00	0.75	+0.10	0.00	1.45	2.96	
	4	1.45	2.96	+0.13	0.35	0.00	0.75	+0.12	0.00	1.40	2.81	
	5	1.40	2.81	+0.03	0.22	0.00	0.66	+0.03	0.09	1.27	2.43	*
	6	1.27	2.43	-0.03	0.12	0.00	0.12	-0.03	0.63	1.25	2.37	*



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	1.25	2.37	-0.07	0.06	0.00	0.00	-0.07	0.75	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.03	0.00	0.00	-0.10	0.75	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.02	0.00	0.00	-0.11	0.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.01	0.00	0.00	-0.13	0.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.00	0.00	0.00	-0.12	0.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.16	0.00	0.00	-0.11	0.75	1.21	2.29	≠
47	1	1.21	2.29	-0.04	0.36	0.00	0.21	-0.05	0.54	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.77	0.00	0.74	+0.01	0.01	1.26	2.41	≠
	3	1.26	2.41	+0.09	6.09	0.00	0.75	+0.22	0.00	3.09	8.06	
	4	3.09	8.06	+0.27	1.39	0.00	0.75	+0.30	0.00	3.41	9.27	
	5	3.41	9.27	+0.07	1.11	0.00	0.75	+0.08	0.00	3.52	9.78	
	6	3.52	9.78	-0.07	0.73	0.00	0.75	-0.07	0.00	3.49	9.62	
	7	3.49	9.62	-0.19	0.40	0.00	0.75	-0.18	0.00	3.32	8.90	
	8	3.32	8.90	-0.27	0.26	0.00	0.75	-0.26	0.00	3.04	7.88	
	9	3.04	7.88	-0.27	0.14	0.00	0.75	-0.25	0.00	2.73	6.74	
	10	2.73	6.74	-0.28	0.07	0.00	0.75	-0.25	0.00	2.35	5.53	
	11	2.35	5.53	-0.23	0.04	0.00	0.75	-0.20	0.00	1.94	4.39	
	12	1.94	4.39	-0.17	0.02	0.00	0.75	-0.14	0.00	1.58	3.35	
48	1	1.58	3.35	-0.06	0.01	0.00	0.75	-0.05	0.00	1.30	2.51	
	2	1.30	2.51	+0.01	0.19	0.00	0.31	+0.01	0.44	1.26	2.41	≠
	3	1.26	2.41	+0.09	3.15	0.00	0.75	+0.15	0.00	2.18	5.06	
	4	2.18	5.06	+0.19	1.85	0.00	0.75	+0.23	0.00	2.68	6.58	
	5	2.68	6.58	+0.06	0.95	0.00	0.75	+0.06	0.00	2.77	6.90	
	6	2.77	6.90	-0.06	0.66	0.00	0.75	-0.05	0.00	2.72	6.70	
	7	2.72	6.70	-0.15	0.49	0.00	0.75	-0.14	0.00	2.56	6.15	
	8	2.56	6.15	-0.21	0.27	0.00	0.75	-0.19	0.00	2.26	5.27	
	9	2.26	5.27	-0.20	0.15	0.00	0.75	-0.18	0.00	1.90	4.29	
	10	1.90	4.29	-0.20	0.08	0.00	0.75	-0.17	0.00	1.55	3.25	
	11	1.55	3.25	-0.15	0.04	0.00	0.74	-0.12	0.01	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.33	0.00	0.10	-0.11	0.65	1.21	2.29	≠
49	1	1.21	2.29	-0.04	0.39	0.00	0.24	-0.05	0.51	1.24	2.35	≠
	2	1.24	2.35	+0.01	4.79	0.00	0.75	+0.03	0.00	2.64	6.44	
	3	2.64	6.44	+0.19	13.97	0.00	0.75	+0.40	0.00	5.64	20.25	
	4	5.64	20.25	+0.50	1.90	0.00	0.75	+0.52	0.00	6.02	22.42	
	5	6.02	22.42	+0.13	2.84	0.00	0.75	+0.14	0.00	6.33	24.78	
	6	6.33	24.78	-0.13	1.03	0.00	0.75	-0.13	0.00	6.34	24.81	
	7	6.34	24.81	-0.35	0.56	0.00	0.75	-0.34	0.00	6.23	23.92	
	8	6.23	23.92	-0.51	0.31	0.00	0.75	-0.50	0.00	4.03	22.47	
	9	6.03	22.47	-0.54	0.17	0.00	0.75	-0.52	0.00	5.74	20.82	
	10	5.74	20.82	-0.59	0.09	0.00	0.75	-0.57	0.00	5.42	18.99	
	11	5.42	18.99	-0.53	0.05	0.00	0.75	-0.50	0.00	5.11	17.26	
	12	5.11	17.26	-0.44	0.02	0.00	0.75	-0.42	0.00	4.79	15.67	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME RINIAO= 2.40

Volumes em m³

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
50	1	4.791	15.671	-0.171	0.371	0.001	0.751	-0.171	0.001	4.641	14.941	
	2	4.641	14.941	+0.051	1.241	0.001	0.751	+0.051	0.001	4.761	15.531	
	3	4.761	15.531	+0.341	35.501	12.581	0.751	+0.761	0.001	12.871	38.811	
	4	12.871	38.811	+1.141	15.941	17.091	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	1.931	2.401	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	1.061	0.331	0.751	-0.211	0.001	10.421	37.841	
	7	10.421	37.841	-0.571	0.671	0.001	0.751	-0.551	0.001	9.751	36.631	
	8	9.751	36.631	-0.801	0.371	0.001	0.751	-0.751	0.001	8.691	34.701	
	9	8.691	34.701	-0.781	0.201	0.001	0.751	-0.721	0.001	7.561	32.651	
	10	7.561	32.651	-0.781	0.111	0.001	0.751	-0.741	0.001	7.021	30.491	
	11	7.021	30.491	-0.681	0.061	0.001	0.751	-0.661	0.001	6.771	28.461	
	12	6.771	28.461	-0.591	0.691	0.001	0.751	-0.581	0.001	6.631	27.221	
51	1	6.631	27.221	-0.241	0.961	0.001	0.751	-0.241	0.001	6.591	26.961	
	2	6.591	26.961	+0.071	1.001	0.001	0.751	+0.071	0.001	6.641	27.351	
	3	6.641	27.351	+0.481	27.171	16.191	0.751	+0.761	0.001	12.871	38.811	
	4	12.871	38.811	+1.141	27.531	28.681	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	2.211	2.681	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	1.171	0.441	0.751	-0.211	0.001	10.421	37.841	
	7	10.421	37.841	-0.571	0.791	0.001	0.751	-0.561	0.001	9.821	36.751	
	8	9.821	36.751	-0.811	0.561	0.001	0.751	-0.761	0.001	8.851	34.981	
	9	8.851	34.981	-0.801	0.311	0.001	0.751	-0.731	0.001	7.761	33.011	
	10	7.761	33.011	-0.801	0.171	0.001	0.751	-0.741	0.001	7.071	30.891	
	11	7.071	30.891	-0.691	0.091	0.001	0.751	-0.671	0.001	6.821	28.871	
	12	6.821	28.871	-0.591	0.681	0.001	0.751	-0.591	0.001	6.671	27.621	
52	1	6.671	27.621	-0.241	2.621	0.001	0.751	-0.251	0.001	6.841	29.011	
	2	6.841	29.011	+0.071	17.211	7.491	0.751	+0.111	0.001	10.601	38.161	
	3	10.601	38.161	+0.761	20.521	20.641	0.751	+0.761	0.001	12.871	38.811	
	4	12.871	38.811	+1.141	41.491	42.641	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	16.461	16.931	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	1.681	0.951	0.751	-0.211	0.001	10.421	37.841	
	7	10.421	37.841	-0.571	1.181	0.001	0.751	-0.571	0.001	10.031	37.131	
	8	10.031	37.131	-0.831	0.651	0.001	0.751	-0.791	0.001	9.081	35.421	
	9	9.081	35.421	-0.821	0.351	0.001	0.751	-0.761	0.001	7.991	33.441	
	10	7.991	33.441	-0.831	0.191	0.001	0.751	-0.751	0.001	7.121	31.301	
	11	7.121	31.301	-0.691	0.101	0.001	0.751	-0.671	0.001	6.871	29.291	
	12	6.871	29.291	-0.601	0.151	0.001	0.751	-0.591	0.001	6.661	27.511	
53	1	6.661	27.511	-0.241	0.651	0.001	0.751	-0.241	0.001	6.591	26.931	
	2	6.591	26.931	+0.071	0.721	0.001	0.751	+0.071	0.001	6.601	27.041	
	3	6.601	27.041	+0.481	4.571	0.001	0.751	+0.511	0.001	7.181	31.841	
	4	7.181	31.841	+0.641	46.191	39.871	0.751	+0.931	0.001	12.921	38.981	
	5	12.921	38.981	+0.281	7.001	7.471	0.751	+0.231	0.001	10.661	38.281	
	6	10.661	38.281	-0.211	1.891	1.161	0.751	-0.211	0.001	10.421	37.841	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	10.42	37.84	-0.57	1.03	0.00	0.75	-0.56	0.00	9.95	36.98	
	8	9.95	36.98	-0.82	0.57	0.00	0.75	-0.78	0.00	8.97	35.21	
	9	8.97	35.21	-0.81	0.31	0.00	0.75	-0.75	0.00	7.87	33.21	
	10	7.87	33.21	-0.81	0.17	0.00	0.75	-0.74	0.00	7.09	31.08	
	11	7.09	31.08	-0.69	0.09	0.00	0.75	-0.67	0.00	6.85	29.06	
	12	6.85	29.06	-0.60	0.05	0.00	0.75	-0.58	0.00	6.62	27.18	
54	1	6.62	27.18	-0.24	0.02	0.00	0.75	-0.23	0.00	6.48	25.98	
	2	6.48	25.98	+0.07	0.98	0.00	0.75	+0.07	0.00	6.52	26.34	
	3	6.52	26.34	+0.47	1.34	0.00	0.75	+0.48	0.00	6.71	27.88	
	4	6.71	27.88	+0.59	1.33	0.00	0.75	+0.61	0.00	6.92	29.66	
	5	6.92	29.66	+0.15	2.39	0.00	0.75	+0.16	0.00	7.15	31.61	
	6	7.15	31.61	-0.14	1.35	0.00	0.75	-0.14	0.00	7.19	31.92	
	7	7.19	31.92	-0.40	0.97	0.00	0.75	-0.39	0.00	7.12	31.35	
	8	7.12	31.35	-0.59	0.53	0.00	0.75	-0.58	0.00	6.96	29.96	
	9	6.96	29.96	-0.63	0.29	0.00	0.75	-0.61	0.00	6.75	28.26	
	10	6.75	28.26	-0.70	0.16	0.00	0.75	-0.68	0.00	6.52	26.29	
	11	6.52	26.29	-0.63	0.09	0.00	0.75	-0.62	0.00	6.29	24.38	
	12	6.29	24.38	-0.55	0.05	0.00	0.75	-0.53	0.00	6.05	22.60	
55	1	6.05	22.60	-0.22	0.79	0.00	0.75	-0.22	0.00	5.98	22.21	
	2	5.98	22.21	+0.06	8.55	0.00	0.75	+0.07	0.00	6.98	30.14	
	3	6.98	30.14	+0.50	26.44	18.29	0.75	+0.76	0.00	12.87	38.81	
	4	12.87	38.81	+1.14	27.74	28.89	0.75	+0.93	0.00	12.92	38.98	
	5	12.92	38.98	+0.28	14.73	15.20	0.75	+0.23	0.00	10.66	38.28	
	6	10.66	38.28	-0.21	1.54	0.81	0.75	-0.21	0.00	10.42	37.84	
	7	10.42	37.84	-0.57	0.84	0.00	0.75	-0.56	0.00	9.85	36.80	
	8	9.85	36.80	-0.81	0.46	0.00	0.75	-0.76	0.00	8.82	34.93	
	9	8.82	34.93	-0.79	0.25	0.00	0.75	-0.73	0.00	7.70	32.91	
	10	7.70	32.91	-0.80	0.14	0.00	0.75	-0.74	0.00	7.05	30.76	
	11	7.05	30.76	-0.68	0.07	0.00	0.75	-0.67	0.00	6.81	28.73	
	12	6.81	28.73	-0.59	0.04	0.00	0.75	-0.58	0.00	6.58	26.85	
56	1	6.58	26.85	-0.24	0.61	0.00	0.75	-0.24	0.00	6.51	26.24	
	2	6.51	26.24	+0.07	1.14	0.00	0.75	+0.07	0.00	6.57	26.77	
	3	6.57	26.77	+0.47	8.23	0.00	0.75	+0.63	0.00	9.04	35.35	
	4	9.04	35.35	+0.80	39.59	36.94	0.75	+0.93	0.00	12.92	38.98	
	5	12.92	38.98	+0.28	28.89	29.27	0.75	+0.23	0.00	10.66	38.28	
	6	10.66	38.28	-0.21	1.67	0.94	0.75	-0.21	0.00	10.42	37.84	
	7	10.42	37.84	-0.57	0.91	0.00	0.75	-0.56	0.00	9.85	36.87	
	8	9.88	36.87	-0.82	0.50	0.00	0.75	-0.77	0.00	8.87	35.03	
	9	8.87	35.03	-0.80	0.27	0.00	0.75	-0.74	0.00	7.76	33.02	
	10	7.76	33.02	-0.80	0.15	0.00	0.75	-0.74	0.00	7.07	30.88	
	11	7.07	30.88	-0.69	0.08	0.00	0.75	-0.67	0.00	6.82	28.85	
	12	6.82	28.85	-0.59	0.04	0.00	0.75	-0.58	0.00	6.60	26.97	





Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	PER.	AREA INICIAL	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
57	1	6.60	26.97	-0.24	0.44	0.00	0.75	-0.24	0.09	6.50	26.19		
	2	6.50	26.19	+0.07	1.00	0.00	0.75	+0.07	0.00	6.55	26.57		
	3	6.55	26.57	+0.47	1.33	0.00	0.75	+0.48	0.00	6.73	28.10		
	4	6.73	28.10	+0.60	2.06	0.00	0.75	+0.62	0.00	7.04	30.63		
	5	7.04	30.63	+0.15	1.26	0.00	0.75	+0.16	0.00	7.13	31.45		
	6	7.13	31.45	-0.14	0.69	0.00	0.75	-0.14	0.00	7.09	31.10		
	7	7.09	31.10	-0.39	0.57	0.00	0.75	-0.39	0.00	6.98	30.15		
	8	6.98	30.15	-0.58	0.31	0.00	0.75	-0.57	0.00	6.79	28.56		
	9	6.79	28.56	-0.61	0.17	0.00	0.75	-0.60	0.00	6.57	26.78		
	10	6.57	26.78	-0.68	0.09	0.00	0.75	-0.66	0.00	6.33	24.77		
	11	6.33	24.77	-0.61	0.05	0.00	0.75	-0.60	0.00	6.10	22.86		
	12	6.10	22.86	-0.53	0.02	0.00	0.75	-0.51	0.00	5.78	21.09		
58	1	5.78	21.09	-0.21	0.12	0.00	0.75	-0.20	0.00	5.60	20.05		
	2	5.60	20.05	+0.06	0.35	0.00	0.75	+0.06	0.00	5.55	19.76		
	3	5.55	19.76	+0.40	0.89	0.00	0.75	+0.41	0.00	5.72	20.71		
	4	5.72	20.71	+0.51	0.90	0.00	0.75	+0.52	0.00	5.92	21.88		
	5	5.92	21.88	+0.13	0.60	0.00	0.75	+0.13	0.00	5.94	21.99		
	6	5.94	21.99	-0.12	0.33	0.00	0.75	-0.12	0.00	5.83	21.34		
	7	5.83	21.34	-0.32	0.29	0.00	0.75	-0.31	0.00	5.64	20.24		
	8	5.64	20.24	-0.46	0.16	0.00	0.75	-0.45	0.00	5.37	18.74		
	9	5.37	18.74	-0.48	0.08	0.00	0.75	-0.47	0.00	5.08	17.12		
	10	5.08	17.12	-0.53	0.04	0.00	0.75	-0.50	0.00	4.73	15.38		
	11	4.73	15.38	-0.46	0.02	0.00	0.75	-0.44	0.00	4.40	13.76		
	12	4.40	13.76	-0.38	0.01	0.00	0.75	-0.36	0.00	4.08	12.28		
59	1	4.08	12.28	-0.15	0.11	0.00	0.75	-0.14	0.00	3.87	11.35		
	2	3.87	11.35	+0.04	0.58	0.00	0.75	+0.04	0.00	3.85	11.26		
	3	3.85	11.26	+0.28	1.47	0.00	0.75	+0.29	0.00	4.14	12.55		
	4	4.14	12.55	+0.37	1.26	0.00	0.75	+0.38	0.00	4.41	13.81		
	5	4.41	13.81	+0.10	1.37	0.00	0.75	+0.10	0.00	4.57	14.63		
	6	4.57	14.63	-0.09	0.94	0.00	0.75	-0.09	0.00	4.57	14.63		
	7	4.57	14.63	-0.25	0.65	0.00	0.75	-0.25	0.00	4.45	14.03		
	8	4.45	14.03	-0.37	0.36	0.00	0.75	-0.35	0.00	4.22	12.92		
	9	4.22	12.92	-0.38	0.19	0.00	0.75	-0.36	0.00	3.93	11.62		
	10	3.93	11.62	-0.41	0.10	0.00	0.75	-0.38	0.00	3.61	10.18		
	11	3.61	10.18	-0.35	0.06	0.00	0.75	-0.33	0.00	3.30	8.81		
	12	3.30	8.81	-0.29	0.03	0.00	0.75	-0.26	0.00	2.95	7.54		
60	1	2.95	7.54	-0.11	0.10	0.00	0.75	-0.10	0.00	2.71	6.69		
	2	2.71	6.69	+0.03	0.25	0.00	0.75	+0.03	0.00	2.59	6.24		
	3	2.59	6.24	+0.19	0.70	0.00	0.75	+0.19	0.00	2.68	6.57		
	4	2.68	6.57	+0.24	1.26	0.00	0.75	+0.26	0.00	2.96	7.57		
	5	2.96	7.57	+0.07	1.41	0.00	0.75	+0.07	0.00	3.18	8.37		
	6	3.18	8.37	-0.06	0.84	0.00	0.75	-0.06	0.00	3.17	8.33		



Geonorte

**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	3.17	8.33	-0.17	0.46	0.00	0.75	-0.17	0.00	2.99	7.70	
	8	2.99	7.70	-0.25	0.46	0.00	0.75	-0.23	0.00	2.78	6.93	
	9	2.78	6.93	-0.25	0.25	0.00	0.75	-0.23	0.00	2.50	5.94	
	10	2.50	5.94	-0.26	0.14	0.00	0.75	-0.23	0.00	2.11	4.85	
	11	2.11	4.85	-0.20	0.07	0.00	0.75	-0.17	0.00	1.73	3.79	
	12	1.73	3.79	-0.15	0.04	0.00	0.75	-0.13	0.00	1.40	2.81	
61	1	1.40	2.81	-0.05	0.89	0.00	0.75	-0.05	0.00	1.41	2.84	
	2	1.41	2.84	+0.01	1.28	0.00	0.75	+0.02	0.00	1.60	3.41	
	3	1.60	3.41	+0.12	10.02	0.00	0.75	+0.30	0.00	4.26	13.09	
	4	4.26	13.09	+0.38	10.12	0.00	0.75	+0.54	0.00	6.17	23.38	
	5	6.17	23.38	+0.14	2.18	0.00	0.75	+0.14	0.00	6.37	25.08	
	6	6.37	25.08	-0.13	1.41	0.00	0.75	-0.13	0.00	6.42	25.49	
	7	6.42	25.49	-0.35	0.84	0.00	0.75	-0.35	0.00	6.34	24.87	
	8	6.34	24.87	-0.52	0.50	0.00	0.75	-0.52	0.00	6.19	23.58	
	9	6.19	23.58	-0.56	0.27	0.00	0.75	-0.54	0.00	5.94	22.00	
	10	5.94	22.00	-0.62	0.15	0.00	0.75	-0.59	0.00	5.63	20.20	
	11	5.63	20.20	-0.55	0.08	0.00	0.75	-0.53	0.00	5.32	18.45	
	12	5.32	18.45	-0.46	0.04	0.00	0.75	-0.44	0.00	5.03	16.84	
62	1	5.03	16.84	-0.18	1.12	0.00	0.75	-0.18	0.00	5.03	16.84	
	2	5.03	16.84	+0.05	2.39	0.00	0.75	+0.06	0.00	5.34	18.59	
	3	5.34	18.59	+0.38	20.61	0.79	0.75	+0.76	0.00	12.87	38.81	
	4	12.87	38.81	+1.14	50.17	51.32	0.75	+0.93	0.00	12.92	38.98	
	5	12.92	38.98	+0.28	17.32	17.79	0.75	+0.23	0.00	10.66	38.28	
	6	10.66	38.28	-0.21	2.50	1.77	0.75	-0.21	0.00	10.42	37.84	
	7	10.42	37.84	-0.57	1.29	0.00	0.75	-0.57	0.00	10.09	37.23	
	8	10.09	37.23	-0.83	0.70	0.00	0.75	-0.79	0.00	9.16	35.56	
	9	9.16	35.56	-0.82	0.48	0.00	0.75	-0.77	0.00	8.13	33.69	
	10	8.13	33.69	-0.84	0.26	0.00	0.75	-0.77	0.00	7.15	31.60	
	11	7.15	31.60	-0.69	0.14	0.00	0.75	-0.68	0.00	6.91	29.61	
	12	6.91	29.61	-0.60	0.08	0.00	0.75	-0.59	0.00	6.69	27.76	
63	1	6.69	27.76	-0.24	0.04	0.00	0.75	-0.24	0.00	6.55	26.57	
	2	6.55	26.57	+0.07	10.05	0.00	0.75	+0.10	0.00	9.42	36.03	
	3	9.42	36.03	+0.68	8.40	6.31	0.75	+0.76	0.00	12.87	38.81	
	4	12.87	38.81	+1.14	22.42	23.57	0.75	+0.93	0.00	12.92	38.98	
	5	12.92	38.98	+0.28	21.75	22.22	0.75	+0.23	0.00	10.66	38.28	
	6	10.66	38.28	-0.21	1.79	1.06	0.75	-0.21	0.00	10.42	37.84	
	7	10.42	37.84	-0.57	1.30	0.00	0.75	-0.57	0.00	10.09	37.24	
	8	10.09	37.24	-0.83	0.71	0.00	0.75	-0.79	0.00	9.17	35.58	
	9	9.17	35.58	-0.83	0.39	0.00	0.75	-0.77	0.00	8.10	33.63	
	10	8.10	33.63	-0.84	0.21	0.00	0.75	-0.76	0.00	7.14	31.49	
	11	7.14	31.49	-0.69	0.11	0.00	0.75	-0.68	0.00	6.90	29.48	
	12	6.90	29.48	-0.60	0.06	0.00	0.75	-0.59	0.00	6.67	27.60	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	VOLUME (P-E)/2 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	VOLUME (P-E)/2 FINAL	SALDO DEMANDA	AREA FINAL	VOLUME FINAL	FAL.
64	1	6.67	27.60	-0.24	0.03	0.00	0.75	-0.24	0.00	6.53	26.41	
	2	6.53	26.41	+0.07	0.85	0.00	0.75	+0.07	0.00	6.56	26.64	
	3	6.56	26.64	+0.47	1.68	0.00	0.75	+0.48	0.00	6.78	28.53	
	4	6.78	28.53	+0.60	2.71	0.00	0.75	+0.63	0.00	7.17	31.72	
	5	7.17	31.72	+0.16	1.08	0.00	0.75	+0.16	0.00	7.40	32.37	
	6	7.40	32.37	-0.15	0.60	0.00	0.75	-0.14	0.00	7.19	31.92	
	7	7.19	31.92	-0.40	0.39	0.00	0.75	-0.39	0.00	7.05	30.78	
	8	7.05	30.78	-0.58	0.21	0.00	0.75	-0.57	0.00	6.85	29.08	
	9	6.85	29.08	-0.62	0.12	0.00	0.75	-0.60	0.00	6.63	27.24	
	10	6.63	27.24	-0.69	0.06	0.00	0.75	-0.67	0.00	6.38	25.19	
	11	6.38	25.19	-0.62	0.12	0.00	0.75	-0.60	0.00	6.16	23.34	
	12	6.16	23.34	-0.54	0.07	0.00	0.75	-0.52	0.00	5.87	21.60	
65	1	5.87	21.60	-0.21	0.44	0.00	0.75	-0.21	0.00	5.75	20.87	
	2	5.75	20.87	+0.06	1.95	0.00	0.75	+0.06	0.00	5.98	22.20	
	3	5.98	22.20	+0.43	1.22	0.00	0.75	+0.44	0.00	6.18	23.54	
	4	6.18	23.54	+0.55	4.08	0.00	0.75	+0.59	0.00	6.72	28.00	
	5	6.72	28.00	+0.15	2.30	0.00	0.75	+0.15	0.00	6.94	29.85	
	6	6.94	29.85	-0.14	1.27	0.00	0.75	-0.14	0.00	6.97	30.09	
	7	6.97	30.09	-0.38	0.78	0.00	0.75	-0.38	0.00	6.88	29.36	
	8	6.88	29.36	-0.57	0.43	0.00	0.75	-0.56	0.00	6.71	27.91	
	9	6.71	27.91	-0.60	0.23	0.00	0.75	-0.59	0.00	6.50	26.20	
	10	6.50	26.20	-0.67	0.13	0.00	0.75	-0.66	0.00	6.27	24.25	
	11	6.27	24.25	-0.61	0.07	0.00	0.75	-0.59	0.00	6.01	22.37	
	12	6.01	22.37	-0.52	0.03	0.00	0.75	-0.50	0.00	5.70	20.62	
66	1	5.70	20.62	-0.21	0.48	0.00	0.75	-0.20	0.00	5.58	19.94	
	2	5.58	19.94	+0.06	0.87	0.00	0.75	+0.06	0.00	5.62	20.18	
	3	5.62	20.18	+0.40	1.12	0.00	0.75	+0.41	0.00	5.83	21.37	
	4	5.83	21.37	+0.52	1.75	0.00	0.75	+0.54	0.00	6.17	23.43	
	5	6.17	23.43	+0.14	1.43	0.00	0.75	+0.14	0.00	6.29	24.38	
	6	6.29	24.38	-0.13	0.99	0.00	0.75	-0.13	0.00	6.28	24.37	
	7	6.28	24.37	-0.35	0.54	0.00	0.75	-0.34	0.00	6.18	23.47	
	8	6.18	23.47	-0.51	0.29	0.00	0.75	-0.50	0.00	5.94	22.00	
	9	5.94	22.00	-0.54	0.16	0.00	0.75	-0.52	0.00	5.66	20.36	
	10	5.66	20.36	-0.59	0.09	0.00	0.75	-0.56	0.00	5.34	18.55	
	11	5.34	18.55	-0.52	0.04	0.00	0.75	-0.50	0.00	5.02	16.83	
	12	5.02	16.83	-0.44	0.02	0.00	0.75	-0.42	0.00	4.70	15.24	
67	1	4.70	15.24	-0.17	0.18	0.00	0.75	-0.16	0.00	4.52	14.34	
	2	4.52	14.34	+0.05	0.63	0.00	0.75	+0.05	0.00	4.51	14.32	
	3	4.51	14.32	+0.32	0.91	0.00	0.75	+0.33	0.00	4.68	15.13	
	4	4.68	15.13	+0.41	1.31	0.00	0.75	+0.43	0.00	4.96	16.54	
	5	4.96	16.54	+0.11	0.99	0.00	0.75	+0.11	0.00	5.06	17.00	
	6	5.06	17.00	-0.10	0.75	0.00	0.75	-0.10	0.00	5.02	16.80	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME INICIO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	FINAL
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
7		5.02	16.80	-0.28	0.41	0.00	0.75	-0.27	0.00	4.84	15.91	
8		4.84	15.91	-0.40	0.22	0.00	0.75	-0.38	0.00	4.57	14.60	
9		4.57	14.60	-0.41	0.12	0.00	0.75	-0.39	0.00	4.27	13.17	
10		4.27	13.17	-0.44	0.06	0.00	0.75	-0.42	0.00	3.93	11.62	
11		3.93	11.62	-0.38	0.03	0.00	0.75	-0.36	0.00	3.61	10.16	
12		3.61	10.16	-0.31	0.02	0.00	0.75	-0.29	0.00	3.30	8.82	



Geonorte

**DEMANDA 1,0 hm<sup>3</sup>/mês**

**No. DE MESES FALHOS = 199 - GARANTIA = 85%**

**No. DE ANOS FALHOS = 26 - GARANTIA = 61%**

000108



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

ANO	PER.	AREA	VOLUME INICIAL	VOLUME (P-E)/2 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	VOLUME (P-E)/2 FINAL	SALDO IDEMANDA	AREA FINAL	VOLUME (FAL.) FINAL
1	1	5.49	19.40	-0.20	0.00	0.00	1.00	-0.19	0.00	5.24	18.01
1	2	5.24	18.01	+0.06	0.59	0.00	1.00	+0.05	0.00	5.19	17.71
1	3	5.19	17.71	+0.37	4.67	0.00	1.00	+0.42	0.00	5.98	22.18
1	4	5.98	22.18	+0.53	6.68	0.00	1.00	+0.60	0.00	6.84	28.99
1	5	6.84	28.99	+0.15	6.98	0.00	1.00	+0.20	0.00	9.03	35.31
1	6	9.03	35.31	-0.18	1.56	0.00	1.00	-0.18	0.00	9.14	35.51
1	7	9.14	35.51	-0.50	1.04	0.00	1.00	-0.49	0.00	8.61	34.56
1	8	8.61	34.56	-0.71	0.57	0.00	1.00	-0.66	0.00	7.62	32.76
1	9	7.62	32.76	-0.69	0.31	0.00	1.00	-0.64	0.00	7.05	30.74
1	10	7.05	30.74	-0.73	0.17	0.00	1.00	-0.71	0.00	6.78	28.47
1	11	6.78	28.47	-0.66	0.09	0.00	1.00	-0.64	0.00	6.51	26.27
1	12	6.51	26.27	-0.57	0.09	0.00	1.00	-0.55	0.00	6.27	24.24
2	1	6.27	24.24	-0.23	1.04	0.00	1.00	-0.22	0.00	6.22	23.83
2	2	6.22	23.83	+0.07	1.09	0.00	1.00	+0.07	0.00	6.25	24.05
2	3	6.25	24.05	+0.45	1.07	0.00	1.00	+0.45	0.00	6.36	25.02
2	4	6.36	25.02	+0.56	2.16	0.00	1.00	+0.56	0.00	6.64	27.33
2	5	6.64	27.33	+0.15	1.14	0.00	1.00	+0.15	0.00	6.69	27.76
2	6	6.69	27.76	-0.13	0.78	0.00	1.00	-0.13	0.00	6.63	27.27
2	7	6.63	27.27	-0.36	0.45	0.00	1.00	-0.36	0.00	6.48	26.00
2	8	6.48	26.00	-0.53	0.30	0.00	1.00	-0.52	0.00	6.27	24.24
2	9	6.27	24.24	-0.56	0.18	0.00	1.00	-0.55	0.00	6.00	22.31
2	10	6.00	22.31	-0.62	0.10	0.00	1.00	-0.59	0.00	5.63	20.20
2	11	5.63	20.20	-0.55	0.05	0.00	1.00	-0.52	0.00	5.27	18.18
2	12	5.27	18.18	-0.46	0.03	0.00	1.00	-0.44	0.00	4.92	16.32
3	1	4.92	16.32	-0.18	0.09	0.00	1.00	-0.17	0.00	4.66	15.06
3	2	4.66	15.06	+0.05	0.11	0.00	1.00	+0.05	0.00	4.50	14.27
3	3	4.50	14.27	+0.32	0.58	0.00	1.00	+0.32	0.00	4.55	14.49
3	4	4.55	14.49	+0.40	0.73	0.00	1.00	+0.40	0.00	4.66	15.03
3	5	4.66	15.03	+0.10	0.49	0.00	1.00	+0.10	0.00	4.59	14.72
3	6	4.59	14.72	-0.09	0.31	0.00	1.00	-0.09	0.00	4.42	13.85
3	7	4.42	13.85	-0.24	0.17	0.00	1.00	-0.23	0.00	4.14	12.55
3	8	4.14	12.55	-0.34	0.09	0.00	1.00	-0.32	0.00	3.79	10.98
3	9	3.79	10.98	-0.34	0.05	0.00	1.00	-0.31	0.00	3.43	9.37
3	10	3.43	9.37	-0.35	0.02	0.00	1.00	-0.32	0.00	3.00	7.72
3	11	3.00	7.72	-0.29	0.01	0.00	1.00	-0.26	0.00	2.57	6.18
3	12	2.57	6.18	-0.22	0.21	0.00	1.00	-0.19	0.00	2.15	4.97
4	1	2.15	4.97	-0.08	0.58	0.00	1.00	-0.07	0.00	1.95	4.41
4	2	1.95	4.41	+0.02	1.69	0.00	1.00	+0.02	0.00	2.21	5.14
4	3	2.21	5.14	+0.16	10.48	0.00	1.00	+0.33	0.00	4.67	15.11
4	4	4.67	15.11	+0.41	4.77	0.00	1.00	+0.48	0.00	5.55	19.78
4	5	5.55	19.78	+0.12	1.42	0.00	1.00	+0.12	0.00	5.67	20.44
4	6	5.67	20.44	-0.11	0.88	0.00	1.00	-0.11	0.00	5.61	20.10



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km <sup>3</sup>											(continuação)	
ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	FINAL
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	5.61	20.10	-0.31	0.48	0.00	1.00	-0.30	0.00	5.41	18.97	
	8	5.41	18.97	-0.45	0.26	0.00	1.00	-0.43	0.00	5.13	17.35	
	9	5.13	17.35	-0.46	0.14	0.00	1.00	-0.44	0.00	4.77	15.59	
	10	4.77	15.59	-0.49	0.08	0.00	1.00	-0.46	0.00	4.39	13.72	
	11	4.39	13.72	-0.43	0.11	0.00	1.00	-0.40	0.00	4.02	12.00	
	12	4.02	12.00	-0.35	0.19	0.00	1.00	-0.33	0.00	3.69	10.51	
5	1	3.69	10.51	-0.13	4.05	0.00	1.00	-0.16	0.00	4.30	13.28	
	2	4.30	13.28	+0.05	15.28	0.00	1.00	+0.07	0.00	6.68	27.67	
	3	6.68	27.67	+0.48	32.41	21.76	1.00	+0.75	0.00	10.81	38.55	
	4	10.81	38.55	+0.96	26.58	27.29	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	44.63	44.79	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	2.02	1.04	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	1.11	0.00	1.00	-0.55	0.00	9.73	36.58	
	8	9.73	36.58	-0.80	0.61	0.00	1.00	-0.75	0.00	8.66	34.64	
	9	8.66	34.64	-0.78	0.39	0.00	1.00	-0.71	0.00	7.50	32.54	
	10	7.50	32.54	-0.78	0.32	0.00	1.00	-0.73	0.00	7.00	30.35	
	11	7.00	30.35	-0.68	0.24	0.00	1.00	-0.66	0.00	6.75	28.25	
	12	6.75	28.25	-0.59	0.39	0.00	1.00	-0.57	0.00	6.54	26.48	
6	1	6.54	26.48	-0.24	0.93	0.00	1.00	-0.23	0.00	6.47	25.94	
	2	6.47	25.94	+0.07	1.00	0.00	1.00	+0.07	0.00	6.49	26.08	
	3	6.49	26.08	+0.47	20.41	8.15	1.00	+0.75	0.00	10.81	38.55	
	4	10.81	38.55	+0.96	1.87	2.58	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	3.42	3.58	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	3.70	2.72	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	1.21	0.00	1.00	-0.55	0.00	9.78	36.68	
	8	9.78	36.68	-0.81	0.66	0.00	1.00	-0.75	0.00	8.73	34.78	
	9	8.73	34.78	-0.79	0.56	0.00	1.00	-0.73	0.00	7.66	32.83	
	10	7.66	32.83	-0.79	0.31	0.00	1.00	-0.74	0.00	7.03	30.61	
	11	7.03	30.61	-0.68	0.17	0.00	1.00	-0.66	0.00	6.77	28.43	
	12	6.77	28.43	-0.59	0.40	0.00	1.00	-0.58	0.00	6.56	26.67	
7	1	6.56	26.67	-0.24	0.44	0.00	1.00	-0.23	0.00	6.44	25.64	
	2	6.44	25.64	+0.07	0.53	0.00	1.00	+0.07	0.00	6.40	25.30	
	3	6.40	25.30	+0.46	0.39	0.00	1.00	+0.46	0.00	6.43	25.61	
	4	6.43	25.61	+0.57	0.30	0.00	1.00	+0.57	0.00	6.49	26.05	
	5	6.49	26.05	+0.14	0.43	0.00	1.00	+0.14	0.00	6.45	25.76	
	6	6.45	25.76	-0.13	0.25	0.00	1.00	-0.13	0.00	6.33	24.76	
	7	6.33	24.76	-0.35	0.14	0.00	1.00	-0.34	0.00	6.15	23.21	
	8	6.15	23.21	-0.51	0.08	0.00	1.00	-0.49	0.00	5.82	21.29	
	9	5.82	21.29	-0.52	0.04	0.00	1.00	-0.50	0.00	5.47	19.31	
	10	5.47	19.31	-0.57	0.02	0.00	1.00	-0.54	0.00	5.10	17.23	
	11	5.10	17.23	-0.50	0.01	0.00	1.00	-0.47	0.00	4.71	15.28	
	12	4.71	15.28	-0.41	0.04	0.00	1.00	-0.39	0.00	4.35	13.52	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuação)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
8	1	4.35	13.52	-0.16	0.03	0.00	1.00	-0.15	0.00	4.08	12.25	
	2	4.08	12.25	+0.04	0.36	0.00	1.00	+0.04	0.00	3.95	11.69	
	3	3.95	11.69	+0.28	23.79	0.00	1.00	+0.63	0.00	9.07	35.39	
	4	9.07	35.39	+0.80	7.23	4.63	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	1.89	2.05	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.14	0.16	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	0.71	0.00	1.00	-0.54	0.00	9.51	36.20	
	8	9.51	36.20	-0.78	0.61	0.00	1.00	-0.73	0.00	8.46	34.29	
	9	8.46	34.29	-0.76	0.33	0.00	1.00	-0.69	0.00	7.29	32.17	
	10	7.29	32.17	-0.75	0.18	0.00	1.00	-0.73	0.00	6.94	29.87	
	11	6.94	29.87	-0.67	0.11	0.00	1.00	-0.66	0.00	6.68	27.65	
	12	6.68	27.65	-0.58	0.29	0.00	1.00	-0.57	0.00	6.45	25.79	
9	1	6.45	25.79	-0.23	0.27	0.00	1.00	-0.23	0.00	6.31	24.60	
	2	6.31	24.60	+0.07	0.80	0.00	1.00	+0.07	0.00	6.30	24.53	
	3	6.30	24.53	+0.45	3.24	0.00	1.00	+0.48	0.00	6.68	27.70	
	4	6.68	27.70	+0.59	4.55	0.00	1.00	+0.64	0.00	7.46	32.48	
	5	7.46	32.48	+0.16	16.16	10.00	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.56	0.58	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	0.93	0.00	1.00	-0.55	0.00	9.63	36.41	
	8	9.63	36.41	-0.79	0.51	0.00	1.00	-0.74	0.00	8.52	34.39	
	9	8.52	34.39	-0.77	0.29	0.00	1.00	-0.69	0.00	7.32	32.22	
	10	7.32	32.22	-0.76	0.16	0.00	1.00	-0.73	0.00	6.95	29.89	
	11	6.95	29.89	-0.67	0.09	0.00	1.00	-0.66	0.00	6.68	27.65	
	12	6.68	27.65	-0.58	0.05	0.00	1.00	-0.57	0.00	6.43	25.56	
10	1	6.43	25.56	-0.23	0.13	0.00	1.00	-0.23	0.00	6.27	24.23	
	2	6.27	24.23	+0.07	0.21	0.00	1.00	+0.06	0.00	6.19	23.57	
	3	6.19	23.57	+0.45	0.53	0.00	1.00	+0.45	0.00	6.24	23.99	
	4	6.24	23.99	+0.55	2.69	0.00	1.00	+0.58	0.00	6.58	26.81	
	5	6.58	26.81	+0.14	1.35	0.00	1.00	+0.15	0.00	6.65	27.45	
	6	6.65	27.45	-0.13	0.89	0.00	1.00	-0.13	0.00	6.61	27.08	
	7	6.61	27.08	-0.36	0.60	0.00	1.00	-0.36	0.00	6.47	25.95	
	8	6.47	25.95	-0.53	0.34	0.00	1.00	-0.52	0.00	6.27	24.24	
	9	6.27	24.24	-0.56	0.18	0.00	1.00	-0.55	0.00	6.00	22.30	
	10	6.00	22.30	-0.62	0.10	0.00	1.00	-0.59	0.00	5.63	20.19	
	11	5.63	20.19	-0.55	0.32	0.00	1.00	-0.52	0.00	5.32	18.44	
	12	5.32	18.44	-0.46	0.18	0.00	1.00	-0.44	0.00	5.00	16.71	
11	1	5.00	16.71	-0.18	0.54	0.00	1.00	-0.18	0.00	4.83	15.90	
	2	4.83	15.90	+0.05	4.74	0.00	1.00	+0.06	0.00	5.55	19.75	
	3	5.55	19.75	+0.40	2.47	0.00	1.00	+0.42	0.00	5.95	22.04	
	4	5.95	22.04	+0.53	6.93	0.00	1.00	+0.60	0.00	6.85	29.10	
	5	6.85	29.10	+0.15	1.76	0.00	1.00	+0.15	0.00	6.98	30.16	
	6	6.98	30.16	-0.14	1.14	0.00	1.00	-0.14	0.00	6.96	30.02	

000111





Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
	7	6.96	30.02	-0.38	0.69	0.00	1.00	-0.38	0.00	6.83	28.95	
	8	6.83	28.95	-0.56	0.38	0.00	1.00	-0.55	0.00	6.63	27.21	
	9	6.63	27.21	-0.60	0.21	0.00	1.00	-0.58	0.00	6.39	25.25	
	10	6.39	25.25	-0.66	0.11	0.00	1.00	-0.64	0.00	6.13	23.05	
	11	6.13	23.05	-0.59	0.06	0.00	1.00	-0.57	0.00	5.76	20.95	
	12	5.76	20.95	-0.50	0.03	0.00	1.00	-0.48	0.00	5.42	19.00	
12	1	5.42	19.00	-0.20	0.86	0.00	1.00	-0.19	0.00	5.32	18.47	
	2	5.32	18.47	+0.06	1.80	0.00	1.00	+0.06	0.00	5.48	19.39	
	3	5.48	19.39	+0.39	12.31	0.00	1.00	+0.51	0.00	7.15	31.60	
	4	7.15	31.60	+0.63	16.68	10.11	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	7.00	7.16	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	2.73	1.75	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	1.15	0.00	1.00	-0.55	0.00	9.75	36.62	
	8	9.75	36.62	-0.80	0.63	0.00	1.00	-0.75	0.00	8.69	34.70	
	9	8.69	34.70	-0.78	0.34	0.00	1.00	-0.71	0.00	7.50	32.55	
	10	7.50	32.55	-0.78	0.19	0.00	1.00	-0.73	0.00	6.99	30.23	
	11	6.99	30.23	-0.68	0.10	0.00	1.00	-0.66	0.00	6.72	27.99	
	12	6.72	27.99	-0.58	0.12	0.00	1.00	-0.57	0.00	6.47	25.96	
13	1	6.47	25.96	-0.23	0.94	0.00	1.00	-0.23	0.00	6.41	25.43	
	2	6.41	25.43	+0.07	1.32	0.00	1.00	+0.07	0.00	6.47	25.89	
	3	6.47	25.89	+0.47	2.23	0.00	1.00	+0.48	0.00	6.73	28.06	
	4	6.73	28.06	+0.60	2.14	0.00	1.00	+0.61	0.00	7.01	30.41	
	5	7.01	30.41	+0.15	1.44	0.00	1.00	+0.16	0.00	7.10	31.16	
	6	7.10	31.16	-0.14	0.98	0.00	1.00	-0.14	0.00	7.06	30.86	
	7	7.06	30.86	-0.39	0.60	0.00	1.00	-0.38	0.00	6.92	29.69	
	8	6.92	29.69	-0.57	0.39	0.00	1.00	-0.56	0.00	6.71	27.95	
	9	6.71	27.95	-0.60	0.21	0.00	1.00	-0.59	0.00	6.48	25.96	
	10	6.48	25.96	-0.67	0.11	0.00	1.00	-0.65	0.00	6.21	23.75	
	11	6.21	23.75	-0.60	0.06	0.00	1.00	-0.58	0.00	5.88	21.63	
	12	5.88	21.63	-0.51	0.03	0.00	1.00	-0.49	0.00	5.53	19.66	
14	1	5.53	19.66	-0.20	0.39	0.00	1.00	-0.19	0.00	5.36	18.66	
	2	5.36	18.66	+0.06	2.54	0.00	1.00	+0.06	0.00	5.65	20.31	
	3	5.65	20.31	+0.41	9.80	0.00	1.00	+0.50	0.00	6.96	30.01	
	4	6.96	30.01	+0.62	11.53	3.36	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	2.90	3.06	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.28	0.30	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	0.73	0.00	1.00	-0.54	0.00	9.53	36.22	
	8	9.53	36.22	-0.79	0.40	0.00	1.00	-0.72	0.00	8.36	34.11	
	9	8.36	34.11	-0.75	0.22	0.00	1.00	-0.68	0.00	7.19	31.90	
	10	7.19	31.90	-0.74	0.12	0.00	1.00	-0.72	0.00	6.91	29.55	
	11	6.91	29.55	-0.67	0.06	0.00	1.00	-0.65	0.00	6.63	27.29	
	12	6.63	27.29	-0.58	0.03	0.00	1.00	-0.56	0.00	6.38	25.18	

000112



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
15	1	6.38	25.18	-0.23	0.31	0.00	1.00	-0.23	0.00	6.24	24.04	
	2	6.24	24.04	+0.07	0.67	0.00	1.00	+0.07	0.00	6.22	23.84	
	3	6.22	23.84	+0.45	1.24	0.00	1.00	+0.45	0.00	6.36	24.98	
	4	6.36	24.98	+0.56	6.20	0.00	1.00	+0.62	0.00	7.12	31.36	
	5	7.12	31.36	+0.16	1.52	0.00	1.00	+0.16	0.00	7.31	32.20	
	6	7.31	32.20	-0.15	1.03	0.00	1.00	-0.14	0.00	7.19	31.94	
	7	7.19	31.94	-0.40	0.60	0.00	1.00	-0.39	0.00	7.05	30.75	
	8	7.05	30.75	-0.58	0.33	0.00	1.00	-0.57	0.00	6.83	28.93	
	9	6.83	28.93	-0.61	0.18	0.00	1.00	-0.60	0.00	6.59	26.90	
	10	6.59	26.90	-0.68	0.10	0.00	1.00	-0.66	0.00	6.32	24.65	
	11	6.32	24.65	-0.61	0.05	0.00	1.00	-0.59	0.00	6.03	22.50	
	12	6.03	22.50	-0.52	0.05	0.00	1.00	-0.50	0.00	5.68	20.52	
16	1	5.68	20.52	-0.20	0.50	0.00	1.00	-0.20	0.00	5.52	19.61	
	2	5.52	19.61	+0.06	0.57	0.00	1.00	+0.06	0.00	5.47	19.30	
	3	5.47	19.30	+0.39	1.48	0.00	1.00	+0.40	0.00	5.69	20.58	
	4	5.69	20.58	+0.50	3.36	0.00	1.00	+0.55	0.00	6.24	23.99	
	5	6.24	23.99	+0.14	1.21	0.00	1.00	+0.14	0.00	6.30	24.47	
	6	6.30	24.47	-0.13	0.78	0.00	1.00	-0.13	0.00	6.24	24.00	
	7	6.24	24.00	-0.34	0.43	0.00	1.00	-0.34	0.00	6.08	22.75	
	8	6.08	22.75	-0.50	0.23	0.00	1.00	-0.48	0.00	5.77	21.00	
	9	5.77	21.00	-0.52	0.13	0.00	1.00	-0.50	0.00	5.44	19.11	
	10	5.44	19.11	-0.56	0.07	0.00	1.00	-0.54	0.00	5.08	17.08	
	11	5.08	17.08	-0.49	0.03	0.00	1.00	-0.46	0.00	4.68	15.16	
	12	4.68	15.16	-0.41	0.02	0.00	1.00	-0.38	0.00	4.32	13.39	
17	1	4.32	13.39	-0.16	0.67	0.00	1.00	-0.15	0.00	4.19	12.75	
	2	4.19	12.75	+0.04	4.33	0.00	1.00	+0.05	0.00	4.89	16.18	
	3	4.89	16.18	+0.35	8.58	0.00	1.00	+0.45	0.00	6.31	24.56	
	4	6.31	24.56	+0.56	9.15	0.00	1.00	+0.70	0.00	8.28	33.97	
	5	8.28	33.97	+0.18	1.63	0.00	1.00	+0.19	0.00	8.84	34.97	
	6	8.84	34.97	-0.18	0.97	0.00	1.00	-0.17	0.00	8.63	34.59	
	7	8.63	34.59	-0.47	0.57	0.00	1.00	-0.45	0.00	7.88	33.24	
	8	7.88	33.24	-0.65	0.31	0.00	1.00	-0.59	0.00	7.12	31.30	
	9	7.12	31.30	-0.64	0.17	0.00	1.00	-0.62	0.00	6.87	29.21	
	10	6.87	29.21	-0.71	0.09	0.00	1.00	-0.69	0.00	6.59	26.90	
	11	6.59	26.90	-0.64	0.05	0.00	1.00	-0.62	0.00	6.32	24.69	
	12	6.32	24.69	-0.55	0.43	0.00	1.00	-0.54	0.00	6.12	23.03	
18	1	6.12	23.03	-0.22	0.56	0.00	1.00	-0.22	0.00	5.97	22.15	
	2	5.97	22.15	+0.06	1.94	0.00	1.00	+0.06	0.00	6.15	23.22	
	3	6.15	23.22	+0.44	16.49	1.35	1.00	+0.75	0.00	10.81	38.55	
	4	10.81	38.55	+0.96	4.06	4.77	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	1.57	1.73	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.33	0.35	1.00	-0.21	0.00	10.28	37.59	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	IPER.	AREA	VOLUME	(P-E)S/2	VOLUME	VOLUME	VOLUME	(P-E)S/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	10.28	37.59	-0.57	0.79	0.00	1.00	-0.54	0.00	9.56	36.27	
	8	9.56	36.27	-0.79	0.46	0.00	1.00	-0.73	0.00	8.42	34.22	
	9	8.42	34.22	-0.76	0.25	0.00	1.00	-0.68	0.00	7.21	32.03	
	10	7.21	32.03	-0.75	0.14	0.00	1.00	-0.73	0.00	6.92	29.69	
	11	6.92	29.69	-0.67	0.07	0.00	1.00	-0.65	0.00	6.65	27.44	
	12	6.65	27.44	-0.58	0.04	0.00	1.00	-0.56	0.00	6.40	25.34	
19	1	6.40	25.34	-0.23	0.64	0.00	1.00	-0.23	0.00	6.30	24.52	
	2	6.30	24.52	+0.07	3.03	0.00	1.00	+0.07	0.00	6.56	26.68	
	3	6.56	26.68	+0.47	3.98	0.00	1.00	+0.50	0.00	7.04	30.64	
	4	7.04	30.64	+0.62	2.61	0.00	1.00	+0.68	0.00	8.06	33.55	
	5	8.06	33.55	+0.18	1.37	0.00	1.00	+0.18	0.00	8.46	34.28	
	6	8.46	34.28	-0.17	0.88	0.00	1.00	-0.17	0.00	8.21	33.83	
	7	8.21	33.83	-0.45	0.50	0.00	1.00	-0.42	0.00	7.45	32.45	
	8	7.45	32.45	-0.61	0.28	0.00	1.00	-0.59	0.00	7.02	30.53	
	9	7.02	30.53	-0.63	0.16	0.00	1.00	-0.62	0.00	6.77	28.45	
	10	6.77	28.45	-0.70	0.09	0.00	1.00	-0.68	0.00	6.50	26.15	
	11	6.50	26.15	-0.63	0.05	0.00	1.00	-0.61	0.00	6.24	23.96	
	12	6.24	23.96	-0.54	0.02	0.00	1.00	-0.52	0.00	5.93	21.92	
20	1	5.93	21.92	-0.21	0.32	0.00	1.00	-0.21	0.00	5.74	20.81	
	2	5.74	20.81	+0.06	0.64	0.00	1.00	+0.06	0.00	5.69	20.57	
	3	5.69	20.57	+0.41	1.07	0.00	1.00	+0.42	0.00	5.85	21.47	
	4	5.85	21.47	+0.52	0.79	0.00	1.00	+0.52	0.00	6.00	22.30	
	5	6.00	22.30	+0.13	0.44	0.00	1.00	+0.13	0.00	5.94	22.00	
	6	5.94	22.00	-0.12	0.41	0.00	1.00	-0.12	0.00	5.80	21.18	
	7	5.80	21.18	-0.32	0.33	0.00	1.00	-0.31	0.00	5.57	19.88	
	8	5.57	19.88	-0.46	0.18	0.00	1.00	-0.44	0.00	5.27	18.16	
	9	5.27	18.16	-0.47	0.09	0.00	1.00	-0.45	0.00	4.92	16.32	
	10	4.92	16.32	-0.51	0.05	0.00	1.00	-0.48	0.00	4.52	14.38	
	11	4.52	14.38	-0.44	0.03	0.00	1.00	-0.41	0.00	4.15	12.57	
	12	4.15	12.57	-0.36	0.01	0.00	1.00	-0.33	0.00	3.77	10.88	
21	1	3.77	10.88	-0.14	0.76	0.00	1.00	-0.13	0.00	3.85	10.37	
	2	3.85	10.37	+0.04	2.00	0.00	1.00	+0.04	0.00	3.90	11.45	
	3	3.90	11.45	+0.28	2.08	0.00	1.00	+0.30	0.00	4.26	13.11	
	4	4.26	13.11	+0.38	7.73	0.00	1.00	+0.50	0.00	5.72	20.72	
	5	5.72	20.72	+0.13	1.59	0.00	1.00	+0.13	0.00	5.87	21.56	
	6	5.87	21.56	-0.12	0.91	0.00	1.00	-0.12	0.00	5.81	21.24	
	7	5.81	21.24	-0.32	0.53	0.00	1.00	-0.31	0.00	5.62	20.14	
	8	5.62	20.14	-0.46	0.29	0.00	1.00	-0.45	0.00	5.33	18.52	
	9	5.33	18.52	-0.48	0.17	0.00	1.00	-0.46	0.00	5.01	16.75	
	10	5.01	16.75	-0.52	0.09	0.00	1.00	-0.49	0.00	4.62	14.83	
	11	4.62	14.83	-0.45	0.05	0.00	1.00	-0.42	0.00	4.24	13.02	
	12	4.24	13.02	-0.37	0.09	0.00	1.00	-0.34	0.00	3.88	11.39	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
22	1	3.88	11.39	-0.14	0.34	0.00	1.00	-0.13	0.00	3.67	10.46	
	2	3.67	10.46	+0.04	2.16	0.00	1.00	+0.04	0.00	3.95	11.70	
	3	3.95	11.70	+0.28	9.29	0.00	1.00	+0.41	0.00	5.71	20.68	
	4	5.71	20.68	+0.51	11.07	0.00	1.00	+0.63	0.00	7.19	31.88	
	5	7.19	31.88	+0.16	3.48	0.00	1.00	+0.19	0.00	8.70	34.71	
	6	8.70	34.71	-0.17	1.36	0.00	1.00	-0.18	0.00	8.70	34.72	
	7	8.70	34.72	-0.48	0.75	0.00	1.00	-0.46	0.00	8.05	33.54	
	8	8.05	33.54	-0.66	0.41	0.00	1.00	-0.61	0.00	7.16	31.68	
	9	7.16	31.68	-0.64	0.26	0.00	1.00	-0.63	0.00	6.92	29.66	
	10	6.92	29.66	-0.72	0.14	0.00	1.00	-0.70	0.00	6.65	27.39	
	11	6.65	27.39	-0.64	0.09	0.00	1.00	-0.63	0.00	6.38	25.21	
	12	6.38	25.21	-0.56	0.43	0.00	1.00	-0.54	0.00	6.18	23.54	
23	1	6.18	23.54	-0.22	1.02	0.00	1.00	-0.22	0.00	6.13	23.11	
	2	6.13	23.11	+0.06	1.45	0.00	1.00	+0.07	0.00	6.20	23.69	
	3	6.20	23.69	+0.45	3.41	0.00	1.00	+0.47	0.00	6.60	27.02	
	4	6.60	27.02	+0.58	24.30	13.11	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	6.42	6.58	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.80	0.82	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	1.00	0.00	1.00	-0.55	0.00	9.67	36.48	
	8	9.67	36.48	-0.80	0.55	0.00	1.00	-0.74	0.00	8.57	34.49	
	9	8.57	34.49	-0.77	0.30	0.00	1.00	-0.70	0.00	7.38	32.32	
	10	7.38	32.32	-0.76	0.16	0.00	1.00	-0.73	0.00	6.96	29.99	
	11	6.96	29.99	-0.67	0.09	0.00	1.00	-0.66	0.00	6.69	27.75	
	12	6.69	27.75	-0.58	0.05	0.00	1.00	-0.57	0.00	6.44	25.65	
24	1	6.44	25.65	-0.23	0.18	0.00	1.00	-0.23	0.00	6.28	24.37	
	2	6.28	24.37	+0.07	1.01	0.00	1.00	+0.07	0.00	6.30	24.51	
	3	6.30	24.51	+0.45	0.88	0.00	1.00	+0.46	0.00	6.40	25.30	
	4	6.40	25.30	+0.57	1.04	0.00	1.00	+0.57	0.00	6.54	26.48	
	5	6.54	26.48	+0.14	0.91	0.00	1.00	+0.14	0.00	6.56	26.68	
	6	6.56	26.68	-0.13	0.52	0.00	1.00	-0.13	0.00	6.47	25.94	
	7	6.47	25.94	-0.36	0.30	0.00	1.00	-0.35	0.00	6.30	24.53	
	8	6.30	24.53	-0.52	0.16	0.00	1.00	-0.51	0.00	6.06	22.66	
	9	6.06	22.66	-0.55	0.09	0.00	1.00	-0.52	0.00	5.71	20.69	
	10	5.71	20.69	-0.59	0.05	0.00	1.00	-0.56	0.00	5.34	18.58	
	11	5.34	18.58	-0.52	0.02	0.00	1.00	-0.49	0.00	4.98	16.59	
	12	4.98	16.59	-0.43	0.01	0.00	1.00	-0.41	0.00	4.60	14.76	
25	1	4.60	14.76	-0.17	0.08	0.00	1.00	-0.16	0.00	4.35	13.52	
	2	4.35	13.52	+0.05	0.84	0.00	1.00	+0.05	0.00	4.33	13.45	
	3	4.33	13.45	+0.31	0.90	0.00	1.00	+0.32	0.00	4.44	13.98	
	4	4.44	13.98	+0.39	1.37	0.00	1.00	+0.41	0.00	4.68	15.15	
	5	4.68	15.15	+0.10	1.29	0.00	1.00	+0.10	0.00	4.78	15.64	
	6	4.78	15.64	-0.10	0.93	0.00	1.00	-0.09	0.00	4.73	15.38	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuação)

ANO	IPER.	AREA	VOLUME INICIAL	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO DERANDA	AREA FINAL	VOLUME FINAL
	7	4.73	15.38	-0.26	0.57	0.00	1.00	-0.25	0.00	4.54	14.44	
	8	4.54	14.44	-0.37	0.31	0.00	1.00	-0.36	0.00	4.24	13.02	
	9	4.24	13.02	-0.38	0.17	0.00	1.00	-0.36	0.00	3.90	11.45	
	10	3.90	11.45	-0.40	0.09	0.00	1.00	-0.37	0.00	3.52	9.76	
	11	3.52	9.76	-0.34	0.05	0.00	1.00	-0.31	0.00	3.12	8.16	
	12	3.12	8.16	-0.27	0.02	0.00	1.00	-0.24	0.00	2.71	6.67	
26	1	2.71	6.67	-0.10	0.38	0.00	1.00	-0.09	0.00	2.47	5.86	
	2	2.47	5.86	+0.03	0.20	0.00	1.00	+0.02	0.00	2.23	5.19	
	3	2.23	5.19	+0.16	4.53	0.00	1.00	+0.24	0.00	3.37	9.12	
	4	3.37	9.12	+0.30	2.01	0.00	1.00	+0.32	0.00	3.74	10.75	
	5	3.74	10.75	+0.08	1.33	0.00	1.00	+0.08	0.00	3.85	11.25	
	6	3.85	11.25	-0.08	0.84	0.00	1.00	-0.08	0.00	3.78	10.94	
	7	3.78	10.94	-0.21	0.50	0.00	1.00	-0.20	0.00	3.58	10.03	
	8	3.58	10.03	-0.30	0.33	0.00	1.00	-0.28	0.00	3.30	8.79	
	9	3.30	8.79	-0.30	0.18	0.00	1.00	-0.27	0.00	2.91	7.40	
	10	2.91	7.40	-0.30	0.10	0.00	1.00	-0.27	0.00	2.50	5.93	
	11	2.50	5.93	-0.24	0.05	0.00	1.00	-0.20	0.00	1.99	4.54	
	12	1.99	4.54	-0.17	0.03	0.00	1.00	-0.14	0.00	1.55	3.26	
27	1	1.55	3.26	-0.06	0.12	0.00	0.92	-0.05	0.08	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.73	0.00	0.70	+0.01	0.30	1.26	2.41	≠
	3	1.26	2.41	+0.09	3.01	0.00	1.00	+0.14	0.00	2.04	4.66	
	4	2.04	4.66	+0.18	1.64	0.00	1.00	+0.21	0.00	2.41	5.68	
	5	2.41	5.68	+0.05	1.27	0.00	1.00	+0.06	0.00	2.54	6.06	
	6	2.54	6.06	-0.05	0.76	0.00	1.00	-0.05	0.00	2.42	5.72	
	7	2.42	5.72	-0.13	0.54	0.00	1.00	-0.12	0.00	2.16	5.01	
	8	2.16	5.01	-0.18	0.30	0.00	1.00	-0.15	0.00	1.79	3.98	
	9	1.79	3.98	-0.16	0.22	0.00	1.00	-0.13	0.00	1.43	2.90	
	10	1.43	2.90	-0.15	0.16	0.00	0.52	-0.13	0.48	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.09	0.00	0.00	-0.12	1.00	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.08	0.00	0.00	-0.11	1.00	1.21	2.29	≠
28	1	1.21	2.29	-0.04	0.96	0.00	0.81	-0.05	0.19	1.24	2.35	≠
	2	1.24	2.35	+0.01	1.27	0.00	1.00	+0.01	0.00	1.34	2.65	
	3	1.34	2.65	+0.10	2.65	0.00	1.00	+0.14	0.00	1.99	4.54	
	4	1.99	4.54	+0.18	3.51	0.00	1.00	+0.25	0.00	2.93	7.48	
	5	2.93	7.48	+0.06	1.59	0.00	1.00	+0.07	0.00	3.13	8.20	
	6	3.13	8.20	-0.06	0.98	0.00	1.00	-0.06	0.00	3.09	8.06	
	7	3.09	8.06	-0.17	0.64	0.00	1.00	-0.16	0.00	2.90	7.36	
	8	2.90	7.36	-0.24	0.36	0.00	1.00	-0.22	0.00	2.59	6.27	
	9	2.59	6.27	-0.23	0.20	0.00	1.00	-0.20	0.00	2.17	5.03	
	10	2.17	5.03	-0.22	0.11	0.00	1.00	-0.18	0.00	1.71	3.73	
	11	1.71	3.73	-0.17	0.06	0.00	1.00	-0.13	0.00	1.29	2.50	
	12	1.29	2.50	-0.11	0.03	0.00	0.01	-0.11	0.99	1.21	2.29	≠



Geonorte

**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
29	1	1.21	2.29	-0.04	0.08	0.00	0.00	-0.05	1.00	1.24	2.35	*
	2	1.24	2.35	+0.01	0.30	0.00	0.27	+0.01	0.73	1.26	2.41	*
	3	1.26	2.41	+0.09	1.17	0.00	1.00	+0.10	0.00	1.39	2.77	
	4	1.39	2.77	+0.12	1.22	0.00	1.00	+0.13	0.00	1.55	3.25	
	5	1.55	3.25	+0.03	0.75	0.00	1.00	+0.03	0.00	1.48	3.06	
	6	1.48	3.06	-0.03	0.59	0.00	1.00	-0.03	0.00	1.33	2.60	
	7	1.33	2.60	-0.07	0.36	0.00	0.48	-0.07	0.52	1.23	2.33	*
	8	1.23	2.33	-0.10	0.19	0.00	0.02	-0.10	0.98	1.21	2.30	*
	9	1.21	2.30	-0.11	0.10	0.00	0.00	-0.11	1.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.00	1.21	2.29	*
30	1	1.21	2.29	-0.04	0.47	0.00	0.32	-0.05	0.68	1.24	2.35	*
	2	1.24	2.35	+0.01	0.65	0.00	0.62	+0.01	0.38	1.26	2.41	*
	3	1.26	2.41	+0.09	1.39	0.00	1.00	+0.10	0.00	1.46	3.00	
	4	1.46	3.00	+0.13	1.17	0.00	1.00	+0.14	0.00	1.61	3.43	
	5	1.61	3.43	+0.04	0.64	0.00	1.00	+0.03	0.00	1.51	3.14	
	6	1.51	3.14	-0.03	0.35	0.00	1.00	-0.03	0.00	1.27	2.44	
	7	1.27	2.44	-0.07	0.19	0.00	0.16	-0.07	0.84	1.23	2.33	*
	8	1.23	2.33	-0.10	0.10	0.00	0.00	-0.10	1.00	1.21	2.30	*
	9	1.21	2.30	-0.11	0.05	0.00	0.00	-0.11	1.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.03	0.00	0.00	-0.13	1.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.01	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.23	0.00	0.00	-0.11	1.00	1.21	2.29	*
31	1	1.21	2.29	-0.04	0.41	0.00	0.26	-0.05	0.74	1.24	2.35	*
	2	1.24	2.35	+0.01	0.41	0.00	0.38	+0.01	0.62	1.26	2.41	*
	3	1.26	2.41	+0.09	0.70	0.00	0.80	+0.09	0.20	1.29	2.49	*
	4	1.29	2.49	+0.11	1.13	0.00	1.00	+0.12	0.00	1.41	2.86	
	5	1.41	2.86	+0.03	0.97	0.00	1.00	+0.03	0.00	1.42	2.89	
	6	1.42	2.89	-0.03	0.53	0.00	0.99	-0.03	0.01	1.25	2.37	*
	7	1.25	2.37	-0.07	0.37	0.00	0.28	-0.07	0.72	1.23	2.33	*
	8	1.23	2.33	-0.10	0.20	0.00	0.03	-0.10	0.97	1.21	2.30	*
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	1.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.09	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.54	0.00	0.31	-0.11	0.69	1.21	2.29	*
32	1	1.21	2.29	-0.04	0.58	0.00	0.43	-0.05	0.57	1.24	2.35	*
	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	0.25	1.26	2.41	*
	3	1.26	2.41	+0.09	3.97	0.00	1.00	+0.17	0.00	2.39	5.64	
	4	2.39	5.64	+0.21	2.55	0.00	1.00	+0.26	0.00	2.98	7.66	
	5	2.98	7.66	+0.07	1.46	0.00	1.00	+0.07	0.00	3.15	8.26	
	6	3.15	8.26	-0.06	0.86	0.00	1.00	-0.06	0.00	3.07	7.99	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
	7	3.07	7.99	-0.17	0.47	0.00	1.00	-0.16	0.00	0.00	2.84	7.13
	8	2.84	7.13	-0.23	0.26	0.00	1.00	-0.21	0.00	0.00	2.50	5.95
	9	2.50	5.95	-0.23	0.14	0.00	1.00	-0.19	0.00	0.00	2.04	4.67
	10	2.04	4.67	-0.21	0.07	0.00	1.00	-0.17	0.00	0.00	1.58	3.36
	11	1.58	3.36	-0.15	0.04	0.00	0.85	-0.12	0.15	0.00	1.20	2.28
	12	1.20	2.28	-0.10	0.34	0.00	0.11	-0.11	0.89	0.00	1.21	2.29
33	1	1.21	2.29	-0.04	0.98	0.00	0.83	-0.05	0.17	0.00	1.24	2.35
	2	1.24	2.35	+0.01	5.58	0.00	1.00	+0.03	0.00	0.00	2.79	6.98
	3	2.79	6.98	+0.20	6.52	0.00	1.00	+0.30	0.00	0.00	4.24	13.00
	4	4.24	13.00	+0.38	4.28	0.00	1.00	+0.44	0.00	0.00	5.08	17.10
	5	5.08	17.10	+0.11	2.00	0.00	1.00	+0.12	0.00	0.00	5.30	18.32
	6	5.30	18.32	-0.11	1.15	0.00	1.00	-0.11	0.00	0.00	5.29	18.26
	7	5.29	18.26	-0.29	0.63	0.00	1.00	-0.28	0.00	0.00	5.12	17.32
	8	5.12	17.32	-0.42	0.35	0.00	1.00	-0.40	0.00	0.00	4.82	15.84
	9	4.82	15.84	-0.43	0.19	0.00	1.00	-0.41	0.00	0.00	4.48	14.18
	10	4.48	14.18	-0.46	0.10	0.00	1.00	-0.44	0.00	0.00	4.11	12.38
	11	4.11	12.38	-0.40	0.05	0.00	1.00	-0.37	0.00	0.00	3.72	10.67
	12	3.72	10.67	-0.32	0.03	0.00	1.00	-0.30	0.00	0.00	3.36	9.08
34	1	3.36	9.08	-0.12	0.66	0.00	1.00	-0.12	0.00	0.00	3.22	8.50
	2	3.22	8.50	+0.03	0.93	0.00	1.00	+0.03	0.00	0.00	3.22	8.50
	3	3.22	8.50	+0.23	1.17	0.00	1.00	+0.24	0.00	0.00	3.38	9.14
	4	3.38	9.14	+0.30	1.94	0.00	1.00	+0.32	0.00	0.00	3.73	10.70
	5	3.73	10.70	+0.08	1.09	0.00	1.00	+0.08	0.00	0.00	3.78	10.95
	6	3.78	10.95	-0.08	0.67	0.00	1.00	-0.07	0.00	0.00	3.68	10.47
	7	3.68	10.47	-0.20	0.37	0.00	1.00	-0.19	0.00	0.00	3.45	9.45
	8	3.45	9.45	-0.28	0.20	0.00	1.00	-0.26	0.00	0.00	3.11	8.10
	9	3.11	8.10	-0.28	0.11	0.00	1.00	-0.25	0.00	0.00	2.71	6.68
	10	2.71	6.68	-0.28	0.06	0.00	1.00	-0.24	0.00	0.00	2.24	5.22
	11	2.24	5.22	-0.22	0.07	0.00	1.00	-0.18	0.00	0.00	1.77	3.90
	12	1.77	3.90	-0.15	0.10	0.00	1.00	-0.12	0.00	0.00	1.37	2.72
35	1	1.37	2.72	-0.05	0.05	0.00	0.32	-0.05	0.68	0.00	1.24	2.35
	2	1.24	2.35	+0.01	1.21	0.00	1.00	+0.01	0.00	0.00	1.32	2.59
	3	1.32	2.59	+0.10	2.63	0.00	1.00	+0.14	0.00	0.00	1.96	4.45
	4	1.96	4.45	+0.17	2.18	0.00	1.00	+0.22	0.00	0.00	2.53	6.03
	5	2.53	6.03	+0.06	1.54	0.00	1.00	+0.06	0.00	0.00	2.71	6.68
	6	2.71	6.68	-0.05	1.06	0.00	1.00	-0.05	0.00	0.00	2.70	6.63
	7	2.70	6.63	-0.15	0.65	0.00	1.00	-0.14	0.00	0.00	2.52	5.99
	8	2.52	5.99	-0.21	0.36	0.00	1.00	-0.18	0.00	0.00	2.15	4.96
	9	2.15	4.96	-0.19	0.19	0.00	1.00	-0.16	0.00	0.00	1.73	3.80
	10	1.73	3.80	-0.18	0.10	0.00	1.00	-0.14	0.00	0.00	1.32	2.58
	11	1.32	2.58	-0.13	0.59	0.00	0.64	-0.12	0.36	0.00	1.20	2.28
	12	1.20	2.28	-0.10	0.32	0.00	0.09	-0.11	0.91	0.00	1.21	2.29



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	IPER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	FAL.
36	1	1.24	2.29	-0.04	0.40	0.00	0.25	-0.05	0.75	1.24	2.35	*	
	2	1.24	2.35	+0.01	0.88	0.00	0.85	+0.01	0.15	1.26	2.41	*	
	3	1.26	2.41	+0.09	9.21	0.00	1.00	+0.27	0.00	3.79	10.98		
	4	3.79	10.98	+0.34	1.68	0.00	1.00	+0.36	0.00	4.10	12.35		
	5	4.10	12.35	+0.09	1.35	0.00	1.00	+0.09	0.00	4.22	12.89		
	6	4.22	12.89	-0.08	0.84	0.00	1.00	-0.08	0.00	4.15	12.56		
	7	4.15	12.56	-0.23	0.46	0.00	1.00	-0.22	0.00	3.92	11.57		
	8	3.92	11.57	-0.32	0.25	0.00	1.00	-0.30	0.00	3.61	10.20		
	9	3.61	10.20	-0.33	0.14	0.00	1.00	-0.30	0.00	3.27	8.71		
	10	3.27	8.71	-0.34	0.07	0.00	1.00	-0.30	0.00	2.84	7.14		
	11	2.84	7.14	-0.28	0.04	0.00	1.00	-0.24	0.00	2.40	5.66		
	12	2.40	5.66	-0.21	0.02	0.00	1.00	-0.17	0.00	1.91	4.30		
37	1	1.91	4.30	-0.07	0.20	0.00	1.00	-0.06	0.00	1.59	3.37		
	2	1.59	3.37	+0.02	0.84	0.00	1.00	+0.02	0.00	1.55	3.25		
	3	1.55	3.25	+0.11	1.54	0.00	1.00	+0.13	0.00	1.81	4.03		
	4	1.81	4.03	+0.16	1.46	0.00	1.00	+0.18	0.00	2.10	4.83		
	5	2.10	4.83	+0.05	1.97	0.00	1.00	+0.05	0.00	2.48	5.90		
	6	2.48	5.90	-0.05	1.05	0.00	1.00	-0.05	0.00	2.46	5.85		
	7	2.46	5.85	-0.14	0.58	0.00	1.00	-0.12	0.00	2.22	5.17		
	8	2.22	5.17	-0.18	0.31	0.00	1.00	-0.16	0.00	1.85	4.14		
	9	1.85	4.14	-0.17	0.17	0.00	1.00	-0.14	0.00	1.46	3.00		
	10	1.46	3.00	-0.15	0.09	0.00	0.54	-0.13	0.46	1.20	2.27	*	
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.00	1.20	2.28	*	
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.00	1.21	2.29	*	
38	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	0.75	1.24	2.35	*	
	2	1.24	2.35	+0.01	0.56	0.00	0.53	+0.01	0.47	1.26	2.41	*	
	3	1.26	2.41	+0.09	6.44	0.00	1.00	+0.22	0.00	3.12	8.16		
	4	3.12	8.16	+0.28	6.72	0.00	1.00	+0.40	0.00	4.56	14.56		
	5	4.56	14.56	+0.10	1.52	0.00	1.00	+0.10	0.00	4.71	15.28		
	6	4.71	15.28	-0.09	0.90	0.00	1.00	-0.09	0.00	4.65	14.99		
	7	4.65	14.99	-0.26	0.61	0.00	1.00	-0.25	0.00	4.47	14.10		
	8	4.47	14.10	-0.37	0.33	0.00	1.00	-0.35	0.00	4.18	12.71		
	9	4.18	12.71	-0.38	0.18	0.00	1.00	-0.35	0.00	3.83	11.16		
	10	3.83	11.16	-0.40	0.10	0.00	1.00	-0.37	0.00	3.46	9.50		
	11	3.46	9.50	-0.34	0.05	0.00	1.00	-0.30	0.00	3.05	7.91		
	12	3.05	7.91	-0.27	0.03	0.00	1.00	-0.24	0.00	2.64	6.44		
39	1	2.64	6.44	-0.10	0.01	0.00	1.00	-0.08	0.00	2.26	5.27		
	2	2.26	5.27	+0.02	0.00	0.00	1.00	+0.02	0.00	1.91	4.31		
	3	1.91	4.31	+0.14	0.42	0.00	1.00	+0.13	0.00	1.80	4.00		
	4	1.80	4.00	+0.16	0.75	0.00	1.00	+0.16	0.00	1.82	4.06		
	5	1.82	4.06	+0.04	0.75	0.00	1.00	+0.04	0.00	1.76	3.89		
	6	1.76	3.89	-0.04	0.46	0.00	1.00	-0.03	0.00	1.56	3.29		





## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuação)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	1.56	3.29	-0.09	0.25	0.00	1.00	-0.07	0.00	1.25	2.38	
	8	1.25	2.38	-0.10	0.14	0.00	0.02	-0.10	0.98	1.21	2.30	*
	9	1.21	2.30	-0.11	0.07	0.00	0.00	-0.11	1.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.04	0.00	0.00	-0.13	1.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.20	0.00	0.00	-0.11	1.00	1.21	2.29	*
40	1	1.21	2.29	-0.04	0.44	0.00	0.29	-0.05	0.71	1.24	2.35	*
	2	1.24	2.35	+0.01	0.67	0.00	0.64	+0.01	0.36	1.26	2.41	*
	3	1.26	2.41	+0.09	1.98	0.00	1.00	+0.12	0.00	1.67	3.60	
	4	1.67	3.60	+0.15	1.76	0.00	1.00	+0.18	0.00	2.05	4.68	
	5	2.05	4.68	+0.05	1.34	0.00	1.00	+0.05	0.00	2.20	5.12	
	6	2.20	5.12	-0.04	0.78	0.00	1.00	-0.04	0.00	2.09	4.81	
	7	2.09	4.81	-0.12	0.43	0.00	1.00	-0.10	0.00	1.81	4.02	
	8	1.81	4.02	-0.15	0.23	0.00	1.00	-0.12	0.00	1.46	2.98	
	9	1.46	2.98	-0.13	0.13	0.00	0.58	-0.11	0.42	1.21	2.29	*
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.21	0.00	0.00	-0.11	1.00	1.21	2.29	*
41	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	0.81	1.24	2.35	*
	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	0.25	1.26	2.41	*
	3	1.26	2.41	+0.09	1.09	0.00	1.00	+0.10	0.00	1.36	2.69	
	4	1.36	2.69	+0.12	1.59	0.00	1.00	+0.14	0.00	1.65	3.54	
	5	1.65	3.54	+0.04	1.08	0.00	1.00	+0.04	0.00	1.70	3.69	
	6	1.70	3.69	-0.03	0.71	0.00	1.00	-0.03	0.00	1.58	3.34	
	7	1.58	3.34	-0.09	0.39	0.00	1.00	-0.07	0.00	1.32	2.57	
	8	1.32	2.57	-0.11	0.21	0.00	0.27	-0.10	0.73	1.21	2.30	*
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	1.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.00	1.21	2.29	*
42	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.00	1.24	2.35	*
	2	1.24	2.35	+0.01	0.71	0.00	0.68	+0.01	0.32	1.26	2.41	*
	3	1.26	2.41	+0.09	1.13	0.00	1.00	+0.10	0.00	1.37	2.73	
	4	1.37	2.73	+0.12	1.22	0.00	1.00	+0.13	0.00	1.53	3.20	
	5	1.53	3.20	+0.03	0.78	0.00	1.00	+0.03	0.00	1.48	3.05	
	6	1.48	3.05	-0.03	0.64	0.00	1.00	-0.03	0.00	1.34	2.63	
	7	1.34	2.63	-0.07	0.35	0.00	0.51	-0.07	0.49	1.23	2.33	*
	8	1.23	2.33	-0.10	0.19	0.00	0.02	-0.10	0.98	1.21	2.30	*
	9	1.21	2.30	-0.11	0.10	0.00	0.00	-0.11	1.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	1.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.00	1.21	2.29	*



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	FAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
43	1	1.21	2.29	-0.04	0.59	0.00	0.44	-0.05	0.56	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.96	0.00	0.93	+0.01	0.07	1.26	2.41	≠
	3	1.26	2.41	+0.09	1.07	0.00	1.00	+0.09	0.00	1.35	2.67	
	4	1.35	2.67	+0.12	2.58	0.00	1.00	+0.17	0.00	1.99	4.54	
	5	1.99	4.54	+0.04	1.39	0.00	1.00	+0.05	0.00	2.17	5.02	
	6	2.17	5.02	-0.04	0.82	0.00	1.00	-0.04	0.00	2.07	4.76	
	7	2.07	4.76	-0.11	0.49	0.00	1.00	-0.10	0.00	1.81	4.03	
	8	1.81	4.03	-0.15	0.27	0.00	1.00	-0.12	0.00	1.47	3.03	
	9	1.47	3.03	-0.13	0.14	0.00	0.63	-0.11	0.37	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.08	0.00	0.00	-0.13	1.00	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.00	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	1.00	1.21	2.29	≠
44	1	1.21	2.29	-0.04	0.14	0.00	0.00	-0.05	1.00	1.24	2.35	≠
	2	1.24	2.35	+0.01	1.24	0.00	1.00	+0.01	0.00	1.33	2.62	
	3	1.33	2.62	+0.10	3.86	0.00	1.00	+0.17	0.00	2.43	5.75	
	4	2.43	5.75	+0.21	3.01	0.00	1.00	+0.27	0.00	3.15	8.24	
	5	3.15	8.24	+0.07	1.21	0.00	1.00	+0.07	0.00	3.24	8.59	
	6	3.24	8.59	-0.06	0.79	0.00	1.00	-0.06	0.00	3.15	8.26	
	7	3.15	8.26	-0.17	0.46	0.00	1.00	-0.16	0.00	2.90	7.38	
	8	2.90	7.38	-0.24	0.25	0.00	1.00	-0.22	0.00	2.57	6.17	
	9	2.57	6.17	-0.23	0.13	0.00	1.00	-0.20	0.00	2.12	4.88	
	10	2.12	4.88	-0.22	0.07	0.00	1.00	-0.18	0.00	1.65	3.55	
	11	1.65	3.55	-0.16	0.04	0.00	1.00	-0.12	0.00	1.22	2.31	
	12	1.22	2.31	-0.11	0.02	0.00	0.00	-0.11	1.00	1.21	2.29	≠
45	1	1.21	2.29	-0.04	0.61	0.00	0.46	-0.05	0.54	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.73	0.00	0.70	+0.01	0.30	1.26	2.41	≠
	3	1.26	2.41	+0.09	2.50	0.00	1.00	+0.13	0.00	1.85	4.13	
	4	1.85	4.13	+0.16	4.80	0.00	1.00	+0.27	0.00	3.18	8.37	
	5	3.18	8.37	+0.07	1.90	0.00	1.00	+0.08	0.00	3.44	9.42	
	6	3.44	9.42	-0.07	1.08	0.00	1.00	-0.07	0.00	3.43	9.36	
	7	3.43	9.36	-0.19	0.61	0.00	1.00	-0.18	0.00	3.24	8.60	
	8	3.24	8.60	-0.27	0.34	0.00	1.00	-0.25	0.00	2.92	7.43	
	9	2.92	7.43	-0.26	0.18	0.00	1.00	-0.24	0.00	2.55	6.11	
	10	2.55	6.11	-0.26	0.10	0.00	1.00	-0.22	0.00	2.06	4.72	
	11	2.06	4.72	-0.20	0.05	0.00	1.00	-0.16	0.00	1.60	3.41	
	12	1.60	3.41	-0.14	0.03	0.00	0.90	-0.11	0.10	1.21	2.29	≠
46	1	1.21	2.29	-0.04	0.11	0.00	0.00	-0.05	1.00	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.06	0.00	0.03	+0.01	0.97	1.26	2.41	≠
	3	1.26	2.41	+0.09	0.16	0.00	0.26	+0.09	0.74	1.29	2.49	≠
	4	1.29	2.49	+0.11	0.35	0.00	0.55	+0.11	0.45	1.30	2.51	≠
	5	1.30	2.51	+0.03	0.22	0.00	0.36	+0.03	0.64	1.27	2.43	≠
	6	1.27	2.43	-0.03	0.12	0.00	0.12	-0.03	0.88	1.25	2.37	≠



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	1.25	2.37	-0.07	0.06	0.00	0.00	-0.07	1.00	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.03	0.00	0.00	-0.10	1.00	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.02	0.00	0.00	-0.11	1.00	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.01	0.00	0.00	-0.13	1.00	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.00	0.00	0.00	-0.12	1.00	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.16	0.00	0.00	-0.11	1.00	1.21	2.29	≠
47	1	1.21	2.29	-0.04	0.36	0.00	0.21	-0.05	0.79	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.77	0.00	0.74	+0.01	0.26	1.26	2.41	≠
	3	1.26	2.41	+0.09	6.09	0.00	1.00	+0.21	0.00	3.02	7.81	
	4	3.02	7.81	+0.27	1.39	0.00	1.00	+0.28	0.00	3.29	8.75	
	5	3.29	8.75	+0.07	1.11	0.00	1.00	+0.07	0.00	3.35	9.00	
	6	3.35	9.00	-0.07	0.73	0.00	1.00	-0.07	0.00	3.24	8.60	
	7	3.24	8.60	-0.18	0.40	0.00	1.00	-0.17	0.00	2.98	7.66	
	8	2.98	7.66	-0.25	0.26	0.00	1.00	-0.22	0.00	2.64	6.45	
	9	2.64	6.45	-0.24	0.14	0.00	1.00	-0.21	0.00	2.21	5.14	
	10	2.21	5.14	-0.23	0.07	0.00	1.00	-0.19	0.00	1.73	3.80	
	11	1.73	3.80	-0.17	0.04	0.00	1.00	-0.13	0.00	1.31	2.54	
	12	1.31	2.54	-0.11	0.02	0.00	0.05	-0.11	0.95	1.21	2.29	≠
48	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.00	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.19	0.00	0.16	+0.01	0.84	1.26	2.41	≠
	3	1.26	2.41	+0.09	3.15	0.00	1.00	+0.15	0.00	2.09	4.80	
	4	2.09	4.80	+0.18	1.85	0.00	1.00	+0.22	0.00	2.53	6.05	
	5	2.53	6.05	+0.06	0.95	0.00	1.00	+0.06	0.00	2.55	6.11	
	6	2.55	6.11	-0.05	0.66	0.00	1.00	-0.05	0.00	2.40	5.68	
	7	2.40	5.68	-0.13	0.49	0.00	1.00	-0.12	0.00	2.13	4.91	
	8	2.13	4.91	-0.18	0.27	0.00	1.00	-0.15	0.00	1.75	3.86	
	9	1.75	3.86	-0.16	0.15	0.00	1.00	-0.13	0.00	1.37	2.72	
	10	1.37	2.72	-0.14	0.08	0.00	0.26	-0.13	0.74	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.00	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.33	0.00	0.10	-0.11	0.90	1.21	2.29	≠
49	1	1.21	2.29	-0.04	0.39	0.00	0.24	-0.05	0.76	1.24	2.35	≠
	2	1.24	2.35	+0.01	4.79	0.00	1.00	+0.03	0.00	2.57	6.18	
	3	2.57	6.18	+0.19	13.97	0.00	1.00	+0.39	0.00	5.55	19.73	
	4	5.55	19.73	+0.49	1.90	0.00	1.00	+0.51	0.00	5.88	21.64	
	5	5.88	21.64	+0.13	2.84	0.00	1.00	+0.14	0.00	6.21	23.74	
	6	6.21	23.74	-0.12	1.03	0.00	1.00	-0.12	0.00	6.18	23.52	
	7	6.18	23.52	-0.34	0.56	0.00	1.00	-0.33	0.00	6.02	22.41	
	8	6.02	22.41	-0.50	0.31	0.00	1.00	-0.48	0.00	5.72	20.75	
	9	5.72	20.75	-0.52	0.17	0.00	1.00	-0.49	0.00	5.40	18.91	
	10	5.40	18.91	-0.56	0.09	0.00	1.00	-0.53	0.00	5.04	16.91	
	11	5.04	16.91	-0.49	0.05	0.00	1.00	-0.46	0.00	4.65	15.01	
	12	4.65	15.01	-0.40	0.02	0.00	1.00	-0.38	0.00	4.29	13.24	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADI	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
50	1	4.29	13.24	-0.15	0.37	0.00	1.00	-0.15	0.00	4.09	12.31	
	2	4.09	12.31	+0.04	1.24	0.00	1.00	+0.04	0.00	4.16	12.63	
	3	4.16	12.63	+0.30	35.50	9.63	1.00	+0.75	0.00	10.81	38.55	
	4	10.81	38.55	+0.96	15.94	16.65	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	1.93	2.09	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.06	0.08	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	0.67	0.00	1.00	-0.54	0.00	9.49	36.16	
	8	9.49	36.16	-0.78	0.37	0.00	1.00	-0.72	0.00	8.32	34.03	
	9	8.32	34.03	-0.75	0.20	0.00	1.00	-0.67	0.00	7.18	31.81	
	10	7.18	31.81	-0.74	0.11	0.00	1.00	-0.72	0.00	6.89	29.45	
	11	6.89	29.45	-0.67	0.06	0.00	1.00	-0.65	0.00	6.62	27.19	
	12	6.62	27.19	-0.58	0.69	0.00	1.00	-0.57	0.00	6.45	25.74	
51	1	6.45	25.74	-0.23	0.96	0.00	1.00	-0.23	0.00	6.39	25.24	
	2	6.39	25.24	+0.07	1.00	0.00	1.00	+0.07	0.00	6.40	25.37	
	3	6.40	25.37	+0.46	27.17	14.20	1.00	+0.75	0.00	10.81	38.55	
	4	10.81	38.55	+0.96	27.53	28.24	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	2.21	2.37	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.17	0.19	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	0.79	0.00	1.00	-0.54	0.00	9.56	36.27	
	8	9.56	36.27	-0.79	0.56	0.00	1.00	-0.73	0.00	8.48	34.31	
	9	8.48	34.31	-0.76	0.31	0.00	1.00	-0.69	0.00	7.29	32.17	
	10	7.29	32.17	-0.75	0.17	0.00	1.00	-0.73	0.00	6.94	29.86	
	11	6.94	29.86	-0.67	0.09	0.00	1.00	-0.66	0.00	6.67	27.62	
	12	6.67	27.62	-0.58	0.68	0.00	1.00	-0.57	0.00	6.50	26.15	
52	1	6.50	26.15	-0.23	2.62	0.00	1.00	-0.24	0.00	6.64	27.29	
	2	6.64	27.29	+0.07	17.21	5.77	1.00	+0.11	0.00	10.46	37.91	
	3	10.46	37.91	+0.75	20.52	20.38	1.00	+0.75	0.00	10.81	38.55	
	4	10.81	38.55	+0.96	41.49	42.20	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	16.46	16.62	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.68	0.70	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	1.18	0.00	1.00	-0.55	0.00	9.77	36.65	
	8	9.77	36.65	-0.81	0.65	0.00	1.00	-0.75	0.00	8.71	34.74	
	9	8.71	34.74	-0.78	0.35	0.00	1.00	-0.71	0.00	7.53	32.60	
	10	7.53	32.60	-0.78	0.19	0.00	1.00	-0.73	0.00	6.99	30.27	
	11	6.99	30.27	-0.68	0.10	0.00	1.00	-0.66	0.00	6.72	28.04	
	12	6.72	28.04	-0.59	0.15	0.00	1.00	-0.57	0.00	6.48	26.03	
53	1	6.48	26.03	-0.23	0.65	0.00	1.00	-0.23	0.00	6.39	25.22	
	2	6.39	25.22	+0.07	0.72	0.00	1.00	+0.07	0.00	6.37	25.05	
	3	6.37	25.05	+0.46	4.57	0.00	1.00	+0.49	0.00	6.91	29.59	
	4	6.91	29.59	+0.61	46.19	37.59	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	7.00	7.16	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.89	0.91	1.00	-0.21	0.00	10.28	37.59	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME (P-E)/2	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	AREA	VOLUME FINAL	FINAL
	7	10.28	37.59	-0.57	1.03	0.00	1.00	-0.55	0.00	9.69	36.51		
	8	9.69	36.51	-0.80	0.57	0.00	1.00	-0.74	0.00	8.60	34.53		
	9	8.60	34.53	-0.77	0.31	0.00	1.00	-0.70	0.00	7.40	32.37		
	10	7.40	32.37	-0.77	0.17	0.00	1.00	-0.73	0.00	6.97	30.04		
	11	6.97	30.04	-0.68	0.09	0.00	1.00	-0.66	0.00	6.70	27.80		
	12	6.70	27.80	-0.58	0.05	0.00	1.00	-0.57	0.00	6.44	25.70		
54	1	6.44	25.70	-0.23	0.02	0.00	1.00	-0.23	0.00	6.27	24.26		
	2	6.27	24.26	+0.07	0.98	0.00	1.00	+0.07	0.00	6.28	24.37		
	3	6.28	24.37	+0.45	1.34	0.00	1.00	+0.46	0.00	6.44	25.63		
	4	6.44	25.63	+0.57	1.33	0.00	1.00	+0.58	0.00	6.61	27.11		
	5	6.61	27.11	+0.15	2.39	0.00	1.00	+0.15	0.00	6.81	28.79		
	6	6.81	28.79	-0.14	1.35	0.00	1.00	-0.14	0.00	6.82	28.87		
	7	6.82	28.87	-0.38	0.97	0.00	1.00	-0.37	0.00	6.73	28.09		
	8	6.73	28.09	-0.56	0.53	0.00	1.00	-0.55	0.00	6.54	26.52		
	9	6.54	26.52	-0.59	0.29	0.00	1.00	-0.57	0.00	6.32	24.65		
	10	6.32	24.65	-0.65	0.16	0.00	1.00	-0.64	0.00	6.03	22.52		
	11	6.03	22.52	-0.59	0.09	0.00	1.00	-0.56	0.00	5.67	20.46		
	12	5.67	20.46	-0.49	0.05	0.00	1.00	-0.47	0.00	5.34	18.55		
55	1	5.34	18.55	-0.19	0.79	0.00	1.00	-0.19	0.00	5.23	17.95		
	2	5.23	17.95	+0.05	8.55	0.00	1.00	+0.07	0.00	6.44	25.63		
	3	6.44	25.63	+0.46	26.44	13.73	1.00	+0.75	0.00	10.81	38.55		
	4	10.81	38.55	+0.96	27.74	28.45	1.00	+0.92	0.00	10.91	38.72		
	5	10.91	38.72	+0.24	14.73	14.89	1.00	+0.23	0.00	10.52	38.03		
	6	10.52	38.03	-0.21	1.54	0.56	1.00	-0.21	0.00	10.28	37.59		
	7	10.28	37.59	-0.57	0.84	0.00	1.00	-0.54	0.00	9.58	36.32		
	8	9.58	36.32	-0.79	0.46	0.00	1.00	-0.73	0.00	8.45	34.26		
	9	8.45	34.26	-0.76	0.25	0.00	1.00	-0.69	0.00	7.24	32.07		
	10	7.24	32.07	-0.75	0.14	0.00	1.00	-0.73	0.00	6.93	29.73		
	11	6.93	29.73	-0.67	0.07	0.00	1.00	-0.65	0.00	6.66	27.48		
	12	6.66	27.48	-0.58	0.04	0.00	1.00	-0.56	0.00	6.40	25.37		
56	1	6.40	25.37	-0.23	0.61	0.00	1.00	-0.23	0.00	6.30	24.53		
	2	6.30	24.53	+0.07	1.14	0.00	1.00	+0.07	0.00	6.34	24.80		
	3	6.34	24.80	+0.46	8.23	0.00	1.00	+0.54	0.00	7.76	33.02		
	4	7.76	33.02	+0.69	39.59	34.50	1.00	+0.92	0.00	10.91	38.72		
	5	10.91	38.72	+0.24	28.80	28.96	1.00	+0.23	0.00	10.52	38.03		
	6	10.52	38.03	-0.21	1.67	0.69	1.00	-0.21	0.00	10.28	37.59		
	7	10.28	37.59	-0.57	0.91	0.00	1.00	-0.55	0.00	9.62	36.39		
	8	9.62	36.39	-0.79	0.50	0.00	1.00	-0.73	0.00	8.50	34.36		
	9	8.50	34.36	-0.77	0.27	0.00	1.00	-0.69	0.00	7.30	32.18		
	10	7.30	32.18	-0.76	0.15	0.00	1.00	-0.73	0.00	6.94	29.84		
	11	6.94	29.84	-0.67	0.08	0.00	1.00	-0.65	0.00	6.67	27.60		
	12	6.67	27.60	-0.58	0.04	0.00	1.00	-0.56	0.00	6.42	25.49		

000124



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	VAL.
57	1	6.42	25.49	-0.23	0.44	0.00	1.00	-0.23	0.00	6.30	24.47		
	2	6.30	24.47	+0.07	1.00	0.00	1.00	+0.07	0.00	6.31	24.60		
	3	6.31	24.60	+0.45	1.33	0.00	1.00	+0.45	0.00	6.46	25.85		
	4	6.46	25.85	+0.57	2.06	0.00	1.00	+0.57	0.00	6.73	28.07		
	5	6.73	28.07	+0.15	1.26	0.00	1.00	+0.15	0.00	6.80	28.63		
	6	6.80	28.63	-0.14	0.69	0.00	1.00	-0.13	0.00	6.73	28.05		
	7	6.73	28.05	-0.37	0.57	0.00	1.00	-0.36	0.00	6.59	26.88		
	8	6.59	26.88	-0.54	0.31	0.00	1.00	-0.53	0.00	6.37	25.12		
	9	6.37	25.12	-0.57	0.17	0.00	1.00	-0.56	0.00	6.14	23.16		
	10	6.14	23.16	-0.64	0.09	0.00	1.00	-0.61	0.00	5.77	21.00		
	11	5.77	21.00	-0.56	0.05	0.00	1.00	-0.53	0.00	5.41	18.96		
	12	5.41	18.96	-0.47	0.02	0.00	1.00	-0.45	0.00	5.07	17.06		
58	1	5.07	17.06	-0.18	0.12	0.00	1.00	-0.17	0.00	4.82	15.82		
	2	4.82	15.82	+0.05	0.35	0.00	1.00	+0.05	0.00	4.71	15.27		
	3	4.71	15.27	+0.34	0.89	0.00	1.00	+0.34	0.00	4.82	15.84		
	4	4.82	15.84	+0.43	0.90	0.00	1.00	+0.43	0.00	4.98	16.60		
	5	4.98	16.60	+0.11	0.60	0.00	1.00	+0.11	0.00	4.94	16.42		
	6	4.94	16.42	-0.10	0.33	0.00	1.00	-0.10	0.00	4.76	15.56		
	7	4.76	15.56	-0.26	0.29	0.00	1.00	-0.25	0.00	4.51	14.33		
	8	4.51	14.33	-0.37	0.16	0.00	1.00	-0.35	0.00	4.19	12.77		
	9	4.19	12.77	-0.38	0.08	0.00	1.00	-0.35	0.00	3.82	11.12		
	10	3.82	11.12	-0.40	0.04	0.00	1.00	-0.36	0.00	3.44	9.40		
	11	3.44	9.40	-0.33	0.02	0.00	1.00	-0.30	0.00	3.02	7.79		
	12	3.02	7.79	-0.26	0.01	0.00	1.00	-0.23	0.00	2.60	6.30		
59	1	2.60	6.30	-0.09	0.11	0.00	1.00	-0.08	0.00	2.25	5.24		
	2	2.25	5.24	+0.02	0.58	0.00	1.00	+0.02	0.00	2.11	4.86		
	3	2.11	4.86	+0.15	1.47	0.00	1.00	+0.17	0.00	2.39	5.65		
	4	2.39	5.65	+0.21	1.26	0.00	1.00	+0.23	0.00	2.62	6.35		
	5	2.62	6.35	+0.06	1.37	0.00	1.00	+0.06	0.00	2.75	6.84		
	6	2.75	6.84	-0.06	0.94	0.00	1.00	-0.05	0.00	2.71	6.67		
	7	2.71	6.67	-0.15	0.65	0.00	1.00	-0.14	0.00	2.53	6.03		
	8	2.53	6.03	-0.21	0.36	0.00	1.00	-0.18	0.00	2.16	5.00		
	9	2.16	5.00	-0.19	0.19	0.00	1.00	-0.16	0.00	1.74	3.83		
	10	1.74	3.83	-0.18	0.10	0.00	1.00	-0.14	0.00	1.33	2.61		
	11	1.33	2.61	-0.13	0.06	0.00	0.14	-0.12	0.86	1.20	2.28	*	
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.00	1.21	2.29	*	
60	1	1.21	2.29	-0.04	0.10	0.00	0.00	-0.05	1.00	1.24	2.35	*	
	2	1.24	2.35	+0.01	0.25	0.00	0.22	+0.01	0.78	1.26	2.41	*	
	3	1.26	2.41	+0.09	0.70	0.00	0.80	+0.09	0.20	1.29	2.49	*	
	4	1.29	2.49	+0.11	1.26	0.00	1.00	+0.13	0.00	1.46	2.99		
	5	1.46	2.99	+0.03	1.41	0.00	1.00	+0.04	0.00	1.62	3.47		
	6	1.62	3.47	-0.03	0.84	0.00	1.00	-0.03	0.00	1.54	3.24		



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3 (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	VOLUME (P-E)/2	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	VOLUME (P-E)/2 FINAL	SALDO DEBANDA	AREA FINAL	VOLUME FINAL	FAL.
61	7	1.54	3.24	-0.08	0.46	0.00	1.00	-0.07	0.00	1.31	2.55	
	8	1.31	2.55	-0.11	0.46	0.00	0.50	-0.10	0.50	1.21	2.30	*
	9	1.21	2.30	-0.11	0.25	0.00	0.04	-0.11	0.96	1.21	2.29	*
	10	1.21	2.29	-0.12	0.14	0.00	0.00	-0.13	1.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	1.00	1.21	2.29	*
	1	1.21	2.29	-0.04	0.89	0.00	0.74	-0.05	0.26	1.24	2.35	*
	2	1.24	2.35	+0.01	1.28	0.00	1.00	+0.01	0.00	1.35	2.66	
	3	1.35	2.66	+0.10	10.02	0.00	1.00	+0.29	0.00	4.03	12.06	
	4	4.03	12.06	+0.36	10.12	0.00	1.00	+0.52	0.00	5.95	22.06	
	5	5.95	22.06	+0.13	2.18	0.00	1.00	+0.14	0.00	6.18	23.51	
	6	6.18	23.51	-0.12	1.41	0.00	1.00	-0.12	0.00	6.20	23.67	
	7	6.20	23.67	-0.34	0.84	0.00	1.00	-0.34	0.00	6.09	22.83	
	8	6.09	22.83	-0.50	0.50	0.00	1.00	-0.49	0.00	5.83	21.34	
	9	5.83	21.34	-0.52	0.27	0.00	1.00	-0.50	0.00	5.52	19.58	
	10	5.52	19.58	-0.57	0.15	0.00	1.00	-0.55	0.00	5.17	17.61	
	11	5.17	17.61	-0.50	0.08	0.00	1.00	-0.47	0.00	4.80	15.72	
	12	4.80	15.72	-0.42	0.04	0.00	1.00	-0.39	0.00	4.43	13.95	
62	1	4.43	13.95	-0.16	1.12	0.00	1.00	-0.16	0.00	4.39	13.75	
	2	4.39	13.75	+0.05	2.39	0.00	1.00	+0.05	0.00	4.70	15.23	
	3	4.70	15.23	+0.34	20.61	0.00	1.00	+0.64	0.00	9.31	35.83	
	4	9.31	35.83	+0.82	50.17	48.02	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	17.32	17.48	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	2.50	1.52	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	1.29	0.00	1.00	-0.56	0.00	9.82	36.76	
	8	9.82	36.76	-0.81	0.70	0.00	1.00	-0.76	0.00	8.79	34.89	
	9	8.79	34.89	-0.79	0.48	0.00	1.00	-0.73	0.00	7.67	32.85	
	10	7.67	32.85	-0.79	0.26	0.00	1.00	-0.74	0.00	7.03	30.58	
	11	7.03	30.58	-0.68	0.14	0.00	1.00	-0.66	0.00	6.76	28.37	
	12	6.76	28.37	-0.59	0.08	0.00	1.00	-0.57	0.00	6.52	26.29	
63	1	6.52	26.29	-0.23	0.04	0.00	1.00	-0.23	0.00	6.34	24.87	
	2	6.34	24.87	+0.07	10.05	0.00	1.00	+0.09	0.00	8.34	34.07	
	3	8.34	34.07	+0.60	8.40	2.27	1.00	+0.75	0.00	10.81	38.55	
	4	10.81	38.55	+0.96	22.42	21.22	1.00	+0.92	0.00	10.91	38.72	
	5	10.91	38.72	+0.24	21.75	21.71	1.00	+0.23	0.00	10.52	38.03	
	6	10.52	38.03	-0.21	1.79	0.81	1.00	-0.21	0.00	10.28	37.59	
	7	10.28	37.59	-0.57	1.30	0.00	1.00	-0.56	0.00	9.83	36.77	
	8	9.83	36.77	-0.81	0.71	0.00	1.00	-0.76	0.00	8.80	34.91	
	9	8.80	34.91	-0.79	0.39	0.00	1.00	-0.72	0.00	7.63	32.78	
	10	7.63	32.78	-0.79	0.21	0.00	1.00	-0.74	0.00	7.02	30.47	
	11	7.02	30.47	-0.68	0.11	0.00	1.00	-0.66	0.00	6.75	28.23	
	12	6.75	28.23	-0.59	0.06	0.00	1.00	-0.57	0.00	6.50	26.14	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)S/2I	VOLUME	VOLUME	VOLUME	(P-E)S/2I	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
64	1	6.50	26.14	-0.23	0.03	0.00	1.00	-0.23	0.00	6.32	24.70	
	2	6.32	24.70	+0.07	0.85	0.00	1.00	+0.07	0.00	6.32	24.69	
	3	6.32	24.69	+0.46	1.68	0.00	1.00	+0.47	0.00	6.51	26.29	
	4	6.51	26.29	+0.58	2.71	0.00	1.00	+0.60	0.00	6.86	29.17	
	5	6.86	29.17	+0.15	1.08	0.00	1.00	+0.15	0.00	6.91	29.56	
	6	6.91	29.56	-0.14	0.60	0.00	1.00	-0.14	0.00	6.83	28.88	
	7	6.83	28.88	-0.39	0.39	0.00	1.00	-0.37	0.00	6.66	27.53	
	8	6.66	27.53	-0.55	0.21	0.00	1.00	-0.54	0.00	6.44	25.65	
	9	6.44	25.65	-0.58	0.12	0.00	1.00	-0.56	0.00	6.20	23.63	
	10	6.20	23.63	-0.64	0.06	0.00	1.00	-0.62	0.00	5.84	21.43	
	11	5.84	21.43	-0.57	0.12	0.00	1.00	-0.54	0.00	5.49	19.44	
	12	5.49	19.44	-0.48	0.07	0.00	1.00	-0.46	0.00	5.17	17.58	
65	1	5.17	17.58	-0.19	0.44	0.00	1.00	-0.18	0.00	4.99	16.65	
	2	4.99	16.65	+0.05	1.95	0.00	1.00	+0.05	0.00	5.19	17.71	
	3	5.19	17.71	+0.37	1.22	0.00	1.00	+0.38	0.00	5.36	18.68	
	4	5.36	18.68	+0.47	4.08	0.00	1.00	+0.53	0.00	6.08	22.77	
	5	6.08	22.77	+0.13	2.30	0.00	1.00	+0.14	0.00	6.28	24.34	
	6	6.28	24.34	-0.13	1.27	0.00	1.00	-0.13	0.00	6.28	24.36	
	7	6.28	24.36	-0.35	0.78	0.00	1.00	-0.34	0.00	6.17	23.45	
	8	6.17	23.45	-0.51	0.43	0.00	1.00	-0.50	0.00	5.92	21.87	
	9	5.92	21.87	-0.53	0.23	0.00	1.00	-0.51	0.00	5.60	20.06	
	10	5.60	20.06	-0.58	0.13	0.00	1.00	-0.55	0.00	5.25	18.05	
	11	5.25	18.05	-0.51	0.07	0.00	1.00	-0.48	0.00	4.88	16.13	
	12	4.88	16.13	-0.42	0.03	0.00	1.00	-0.40	0.00	4.51	14.34	
66	1	4.51	14.34	-0.16	0.48	0.00	1.00	-0.16	0.00	4.34	13.50	
	2	4.34	13.50	+0.05	0.67	0.00	1.00	+0.05	0.00	4.33	13.46	
	3	4.33	13.46	+0.31	1.12	0.00	1.00	+0.32	0.00	4.49	14.21	
	4	4.49	14.21	+0.40	1.75	0.00	1.00	+0.42	0.00	4.81	15.77	
	5	4.81	15.77	+0.11	1.43	0.00	1.00	+0.11	0.00	4.94	16.42	
	6	4.94	16.42	-0.10	0.99	0.00	1.00	-0.10	0.00	4.90	16.21	
	7	4.90	16.21	-0.27	0.54	0.00	1.00	-0.26	0.00	4.70	15.22	
	8	4.70	15.22	-0.39	0.29	0.00	1.00	-0.37	0.00	4.40	13.75	
	9	4.40	13.75	-0.40	0.16	0.00	1.00	-0.37	0.00	4.05	12.15	
	10	4.05	12.15	-0.42	0.09	0.00	1.00	-0.39	0.00	3.67	10.43	
	11	3.67	10.43	-0.36	0.04	0.00	1.00	-0.33	0.00	3.30	8.79	
	12	3.30	8.79	-0.29	0.02	0.00	1.00	-0.26	0.00	2.87	7.26	
67	1	2.87	7.26	-0.10	0.18	0.00	1.00	-0.09	0.00	2.59	6.25	
	2	2.59	6.25	+0.03	0.63	0.00	1.00	+0.03	0.00	2.49	5.93	
	3	2.49	5.93	+0.18	0.91	0.00	1.00	+0.18	0.00	2.58	6.20	
	4	2.58	6.20	+0.23	1.31	0.00	1.00	+0.24	0.00	2.79	6.98	
	5	2.79	6.98	+0.06	0.99	0.00	1.00	+0.06	0.00	2.82	7.09	
	6	2.82	7.09	-0.06	0.75	0.00	1.00	-0.05	0.00	2.72	6.73	





Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME ((P-E)/S/2) INICIAL	VOLUME ((P-E)/S/2) INICIAL	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	VOLUME ((P-E)/S/2) FINAL	SALDO DEBANDA	AREA FINAL	VOLUME FINAL	VOLUME FINAL
	7	2.72	6.73	-0.15	0.41	0.00	1.00	-0.14	0.00	2.47	5.85	
	8	2.47	5.85	-0.20	0.22	0.00	1.00	-0.17	0.00	2.05	4.70	
	9	2.05	4.70	-0.18	0.12	0.00	1.00	-0.15	0.00	1.62	3.48	
	10	1.62	3.48	-0.17	0.06	0.00	0.97	-0.13	0.03	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.00	1.21	2.29	*



Geonorte

DEMANDA 1,25 hm<sup>3</sup>/mês

- No. DE MESES FALHOS = 195 - GARANTIA - 76%

- No. DE ANOS FALHOS = 34 - GARANTIA - 49%

000129



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

VOLUME em Ha3

ANO	PER.	AREA	VOLUME	(P-E)/21	VOLUME	VOLUME	VOLUME	(P-E)/21	SALDO	AREA	VOLUME	FAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
1	1	5.491	19.401	-0.201	0.001	0.001	1.251	-0.191	0.001	5.201	17.761	
1	2	5.201	17.761	+0.051	0.591	0.001	1.251	+0.051	0.001	5.101	17.211	
1	3	5.101	17.211	+0.371	4.671	0.001	1.251	+0.421	0.001	5.841	21.411	
1	4	5.841	21.411	+0.521	6.681	0.001	1.251	+0.591	0.001	6.711	27.951	
1	5	6.711	27.951	+0.151	6.981	0.001	1.251	+0.181	0.001	8.311	34.011	
1	6	8.311	34.011	-0.171	1.561	0.001	1.251	-0.171	0.001	8.291	33.981	
1	7	8.291	33.981	-0.461	1.041	0.001	1.251	-0.441	0.001	7.691	32.881	
1	8	7.691	32.881	-0.631	0.571	0.001	1.251	-0.581	0.001	7.081	30.991	
1	9	7.081	30.991	-0.641	0.311	0.001	1.251	-0.621	0.001	6.821	28.801	
1	10	6.821	28.801	-0.711	0.171	0.001	1.251	-0.681	0.001	6.521	26.331	
1	11	6.521	26.331	-0.631	0.091	0.001	1.251	-0.611	0.001	6.231	23.921	
1	12	6.231	23.921	-0.541	0.091	0.001	1.251	-0.521	0.001	5.891	21.701	
2	1	5.891	21.701	-0.211	1.041	0.001	1.251	-0.211	0.001	5.781	21.071	
2	2	5.781	21.071	+0.061	1.091	0.001	1.251	+0.061	0.001	5.771	21.031	
2	3	5.771	21.031	+0.421	1.071	0.001	1.251	+0.421	0.001	5.891	21.681	
2	4	5.891	21.681	+0.521	2.161	0.001	1.251	+0.541	0.001	6.201	23.661	
2	5	6.201	23.661	+0.141	1.141	0.001	1.251	+0.141	0.001	6.221	23.821	
2	6	6.221	23.821	-0.121	0.781	0.001	1.251	-0.121	0.001	6.131	23.101	
2	7	6.131	23.101	-0.341	0.451	0.001	1.251	-0.331	0.001	5.881	21.641	
2	8	5.881	21.641	-0.481	0.301	0.001	1.251	-0.461	0.001	5.551	19.751	
2	9	5.551	19.751	-0.501	0.181	0.001	1.251	-0.471	0.001	5.191	17.711	
2	10	5.191	17.711	-0.541	0.101	0.001	1.251	-0.501	0.001	4.761	15.521	
2	11	4.761	15.521	-0.461	0.051	0.001	1.251	-0.431	0.001	4.331	13.431	
2	12	4.331	13.431	-0.381	0.031	0.001	1.251	-0.351	0.001	3.901	11.491	
3	1	3.901	11.491	-0.141	0.091	0.001	1.251	-0.131	0.001	3.581	10.051	
3	2	3.581	10.051	+0.041	0.111	0.001	1.251	+0.041	0.001	3.341	8.991	
3	3	3.341	8.991	+0.241	0.581	0.001	1.251	+0.231	0.001	3.301	8.791	
3	4	3.301	8.791	+0.291	0.731	0.001	1.251	+0.291	0.001	3.311	8.851	
3	5	3.311	8.851	+0.071	0.491	0.001	1.251	+0.071	0.001	3.141	8.231	
3	6	3.141	8.231	-0.061	0.311	0.001	1.251	-0.061	0.001	2.851	7.171	
3	7	2.851	7.171	-0.161	0.171	0.001	1.251	-0.141	0.001	2.451	5.801	
3	8	2.451	5.801	-0.201	0.091	0.001	1.251	-0.161	0.001	1.901	4.281	
3	9	1.901	4.281	-0.171	0.051	0.001	1.251	-0.131	0.001	1.391	2.781	
3	10	1.391	2.781	-0.141	0.021	0.001	0.251	-0.131	1.001	1.201	2.271	*
3	11	1.201	2.271	-0.121	0.011	0.001	0.001	-0.121	1.251	1.201	2.281	*
3	12	1.201	2.281	-0.101	0.211	0.001	0.001	-0.111	1.251	1.211	2.291	*
4	1	1.211	2.291	-0.041	0.581	0.001	0.431	-0.051	0.821	1.241	2.351	*
4	2	1.241	2.351	+0.011	1.691	0.001	1.251	+0.011	0.001	1.401	2.821	
4	3	1.401	2.821	+0.101	10.481	0.001	1.251	+0.291	0.001	4.121	12.451	
4	4	4.121	12.451	+0.361	4.771	0.001	1.251	+0.441	0.001	5.011	16.771	
4	5	5.011	16.771	+0.111	1.421	0.001	1.251	+0.111	0.001	5.091	17.161	
4	6	5.091	17.161	-0.101	0.881	0.001	1.251	-0.101	0.001	4.971	16.591	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3

(continuação)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
7	7	4.97	16.59	-0.27	0.48	0.00	1.25	-0.26	0.00	4.71	15.28	
8	8	4.71	15.28	-0.38	0.26	0.00	1.25	-0.36	0.00	4.35	13.55	
9	9	4.35	13.55	-0.39	0.14	0.00	1.25	-0.36	0.00	3.95	11.68	
10	10	3.95	11.68	-0.41	0.08	0.00	1.25	-0.37	0.00	3.51	9.73	
11	11	3.51	9.73	-0.34	0.11	0.00	1.25	-0.31	0.00	3.06	7.95	
12	12	3.06	7.95	-0.27	0.19	0.00	1.25	-0.23	0.00	2.63	6.38	
5	1	2.63	6.38	-0.09	4.05	0.00	1.25	-0.12	0.00	3.34	8.97	
2	2	3.34	8.97	+0.04	15.28	0.00	1.25	+0.06	0.00	6.13	23.10	
3	3	6.13	23.10	+0.44	32.41	17.15	1.25	+0.74	0.00	10.67	38.29	
4	4	10.67	38.29	+0.94	26.58	27.01	1.25	+0.91	0.00	10.76	38.46	
5	5	10.76	38.46	+0.24	44.63	44.52	1.25	+0.23	0.00	10.39	37.78	
6	6	10.39	37.78	-0.21	2.02	0.79	1.25	-0.21	0.00	10.15	37.34	
7	7	10.15	37.34	-0.56	1.11	0.00	1.25	-0.54	0.00	9.47	36.11	
8	8	9.47	36.11	-0.77	0.61	0.00	1.25	-0.71	0.00	8.30	33.99	
9	9	8.30	33.99	-0.75	0.39	0.00	1.25	-0.67	0.00	7.17	31.72	
10	10	7.17	31.72	-0.74	0.32	0.00	1.25	-0.72	0.00	6.88	29.32	
11	11	6.88	29.32	-0.67	0.24	0.00	1.25	-0.65	0.00	6.60	27.00	
12	12	6.60	27.00	-0.57	0.39	0.00	1.25	-0.56	0.00	6.36	25.01	
6	1	6.36	25.01	-0.23	0.93	0.00	1.25	-0.23	0.00	6.27	24.23	
2	2	6.27	24.23	+0.07	1.00	0.00	1.25	+0.07	0.00	6.25	24.11	
3	3	6.25	24.11	+0.45	20.41	6.17	1.25	+0.74	0.00	10.67	38.29	
4	4	10.67	38.29	+0.94	1.87	2.30	1.25	+0.91	0.00	10.76	38.46	
5	5	10.76	38.46	+0.24	3.42	3.31	1.25	+0.23	0.00	10.39	37.78	
6	6	10.39	37.78	-0.21	3.70	2.47	1.25	-0.21	0.00	10.15	37.34	
7	7	10.15	37.34	-0.56	1.21	0.00	1.25	-0.54	0.00	9.52	36.21	
8	8	9.52	36.21	-0.78	0.66	0.00	1.25	-0.71	0.00	8.37	34.13	
9	9	8.37	34.13	-0.75	0.56	0.00	1.25	-0.68	0.00	7.20	32.00	
10	10	7.20	32.00	-0.75	0.31	0.00	1.25	-0.72	0.00	6.91	29.59	
11	11	6.91	29.59	-0.67	0.17	0.00	1.25	-0.65	0.00	6.62	27.19	
12	12	6.62	27.19	-0.58	0.40	0.00	1.25	-0.56	0.00	6.38	25.20	
7	1	6.38	25.20	-0.23	0.44	0.00	1.25	-0.23	0.00	6.23	23.94	
2	2	6.23	23.94	+0.07	0.53	0.00	1.25	+0.06	0.00	6.16	23.35	
3	3	6.16	23.35	+0.44	0.39	0.00	1.25	+0.44	0.00	6.16	23.37	
4	4	6.16	23.37	+0.55	0.30	0.00	1.25	+0.54	0.00	6.18	23.51	
5	5	6.18	23.51	+0.14	0.43	0.00	1.25	+0.13	0.00	6.11	22.96	
6	6	6.11	22.96	-0.12	0.25	0.00	1.25	-0.12	0.00	5.89	21.72	
7	7	5.89	21.72	-0.32	0.14	0.00	1.25	-0.31	0.00	5.59	19.97	
8	8	5.59	19.97	-0.46	0.08	0.00	1.25	-0.43	0.00	5.23	17.92	
9	9	5.23	17.92	-0.47	0.04	0.00	1.25	-0.44	0.00	4.81	15.79	
10	10	4.81	15.79	-0.50	0.02	0.00	1.25	-0.46	0.00	4.36	13.60	
11	11	4.36	13.60	-0.42	0.01	0.00	1.25	-0.39	0.00	3.92	11.55	
12	12	3.92	11.55	-0.34	0.04	0.00	1.25	-0.31	0.00	3.50	9.69	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
8	1	3.50	9.69	-0.13	0.03	0.00	1.25	-0.11	0.00	3.14	8.23	
	2	3.14	8.23	+0.03	0.36	0.00	1.25	+0.03	0.00	2.91	7.40	
	3	2.91	7.40	+0.21	23.79	0.00	1.25	+0.50	0.00	7.04	30.66	
	4	7.04	30.66	+0.62	7.23	0.00	1.25	+0.89	0.00	10.59	38.15	
	5	10.59	38.15	+0.23	1.89	1.48	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.14	0.00	1.25	-0.20	0.00	10.10	37.25	
	7	10.10	37.25	-0.56	0.71	0.00	1.25	-0.52	0.00	9.21	35.64	
	8	9.21	35.64	-0.75	0.61	0.00	1.25	-0.69	0.00	8.06	33.56	
	9	8.06	33.56	-0.73	0.33	0.00	1.25	-0.65	0.00	7.11	31.27	
	10	7.11	31.27	-0.74	0.18	0.00	1.25	-0.71	0.00	6.81	28.75	
	11	6.81	28.75	-0.66	0.11	0.00	1.25	-0.64	0.00	6.52	26.31	
	12	6.52	26.31	-0.57	0.29	0.00	1.25	-0.55	0.00	6.27	24.23	
9	1	6.27	24.23	-0.23	0.27	0.00	1.25	-0.22	0.00	6.09	22.80	
	2	6.09	22.80	+0.06	0.80	0.00	1.25	+0.06	0.00	6.03	22.48	
	3	6.03	22.48	+0.43	3.24	0.00	1.25	+0.46	0.00	6.40	25.36	
	4	6.40	25.36	+0.57	4.55	0.00	1.25	+0.61	0.00	6.94	29.83	
	5	6.94	29.83	+0.15	16.16	7.35	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.56	0.33	1.25	-0.21	0.00	10.15	37.34	
	7	10.15	37.34	-0.56	0.93	0.00	1.25	-0.53	0.00	9.37	35.94	
	8	9.37	35.94	-0.76	0.51	0.00	1.25	-0.70	0.00	8.16	33.74	
	9	8.16	33.74	-0.73	0.29	0.00	1.25	-0.65	0.00	7.13	31.39	
	10	7.13	31.39	-0.74	0.16	0.00	1.25	-0.71	0.00	6.82	28.85	
	11	6.82	28.85	-0.66	0.09	0.00	1.25	-0.64	0.00	6.53	26.39	
	12	6.53	26.39	-0.57	0.05	0.00	1.25	-0.55	0.00	6.25	24.07	
10	1	6.25	24.07	-0.22	0.13	0.00	1.25	-0.22	0.00	6.03	22.51	
	2	6.03	22.51	+0.06	0.21	0.00	1.25	+0.06	0.00	5.87	21.59	
	3	5.87	21.59	+0.42	0.53	0.00	1.25	+0.42	0.00	5.89	21.71	
	4	5.89	21.71	+0.52	2.69	0.00	1.25	+0.55	0.00	6.27	24.22	
	5	6.27	24.22	+0.14	1.35	0.00	1.25	+0.14	0.00	6.31	24.60	
	6	6.31	24.60	-0.13	0.89	0.00	1.25	-0.13	0.00	6.24	23.99	
	7	6.24	23.99	-0.34	0.60	0.00	1.25	-0.34	0.00	6.06	22.66	
	8	6.06	22.66	-0.49	0.34	0.00	1.25	-0.47	0.00	5.73	20.78	
	9	5.73	20.78	-0.52	0.18	0.00	1.25	-0.49	0.00	5.36	18.70	
	10	5.36	18.70	-0.56	0.10	0.00	1.25	-0.52	0.00	4.95	16.48	
	11	4.95	16.48	-0.48	0.32	0.00	1.25	-0.45	0.00	4.57	14.61	
	12	4.57	14.61	-0.40	0.18	0.00	1.25	-0.37	0.00	4.19	12.77	
11	1	4.19	12.77	-0.15	0.54	0.00	1.25	-0.14	0.00	3.97	11.77	
	2	3.97	11.77	+0.04	4.74	0.00	1.25	+0.05	0.00	4.72	15.35	
	3	4.72	15.35	+0.34	2.47	0.00	1.25	+0.36	0.00	5.11	17.27	
	4	5.11	17.27	+0.45	6.93	0.00	1.25	+0.55	0.00	6.23	23.95	
	5	6.23	23.95	+0.14	1.76	0.00	1.25	+0.14	0.00	6.33	24.74	
	6	6.33	24.74	-0.13	1.14	0.00	1.25	-0.13	0.00	6.28	24.37	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mw3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
7		6.28	24.37	-0.35	0.69	0.00	1.25	-0.34	0.00	6.14	23.13	
8		6.14	23.13	-0.30	0.38	0.00	1.25	-0.48	0.00	5.82	21.28	
9		5.82	21.28	-0.52	0.21	0.00	1.25	-0.50	0.00	5.45	19.22	
10		5.45	19.22	-0.30	0.11	0.00	1.25	-0.53	0.00	5.05	16.98	
11		5.05	16.98	-0.40	0.06	0.00	1.25	-0.46	0.00	4.62	14.84	
12		4.62	14.84	-0.40	0.03	0.00	1.25	-0.37	0.00	4.21	12.85	
12	1	4.21	12.85	-0.15	0.86	0.00	1.25	-0.15	0.00	4.06	12.16	
	2	4.06	12.16	+0.04	1.80	0.00	1.25	+0.04	0.00	4.20	12.79	
	3	4.20	12.79	+0.30	12.31	0.00	1.25	+0.45	0.00	6.31	24.61	
	4	6.31	24.61	+0.56	16.68	3.00	1.25	+0.91	0.00	10.76	38.46	
	5	10.76	38.46	+0.24	7.00	6.87	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	2.73	1.50	1.25	-0.21	0.00	10.15	37.34	
	7	10.15	37.34	-0.56	1.15	0.00	1.25	-0.54	0.00	9.49	36.15	
	8	9.49	36.15	-0.77	0.63	0.00	1.25	-0.71	0.00	8.33	34.04	
	9	8.33	34.04	-0.75	0.34	0.00	1.25	-0.67	0.00	7.17	31.72	
	10	7.17	31.72	-0.74	0.19	0.00	1.25	-0.72	0.00	6.86	29.20	
	11	6.86	29.20	-0.67	0.10	0.00	1.25	-0.64	0.00	6.57	26.74	
	12	6.57	26.74	-0.57	0.12	0.00	1.25	-0.55	0.00	6.30	24.48	
13	1	6.30	24.48	-0.23	0.94	0.00	1.25	-0.22	0.00	6.21	23.72	
	2	6.21	23.72	+0.07	1.32	0.00	1.25	+0.07	0.00	6.23	23.92	
	3	6.23	23.92	+0.45	2.23	0.00	1.25	+0.44	0.00	6.46	25.81	
	4	6.46	25.81	+0.57	2.14	0.00	1.25	+0.57	0.00	6.70	27.86	
	5	6.70	27.86	+0.15	1.44	0.00	1.25	+0.15	0.00	6.76	28.34	
	6	6.76	28.34	-0.14	0.98	0.00	1.25	-0.13	0.00	6.70	27.81	
	7	6.70	27.81	-0.37	0.60	0.00	1.25	-0.36	0.00	6.53	26.43	
	8	6.53	26.43	-0.53	0.39	0.00	1.25	-0.52	0.00	6.30	24.51	
	9	6.30	24.51	-0.57	0.21	0.00	1.25	-0.55	0.00	6.01	22.36	
	10	6.01	22.36	-0.62	0.11	0.00	1.25	-0.59	0.00	5.59	20.01	
	11	5.59	20.01	-0.54	0.06	0.00	1.25	-0.51	0.00	5.20	17.76	
	12	5.20	17.76	-0.45	0.03	0.00	1.25	-0.42	0.00	4.79	15.66	
14	1	4.79	15.66	-0.17	0.39	0.00	1.25	-0.16	0.00	4.54	14.47	
	2	4.54	14.47	+0.05	2.54	0.00	1.25	+0.05	0.00	4.83	15.86	
	3	4.83	15.86	+0.35	9.80	0.00	1.25	+0.46	0.00	6.39	25.21	
	4	6.39	25.21	+0.57	11.53	0.00	1.25	+0.84	0.00	9.90	36.89	
	5	9.90	36.89	+0.22	2.90	1.21	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.28	0.05	1.25	-0.21	0.00	10.15	37.34	
	7	10.15	37.34	-0.56	0.73	0.00	1.25	-0.53	0.00	9.26	35.74	
	8	9.26	35.74	-0.75	0.40	0.00	1.25	-0.68	0.00	8.00	33.45	
	9	8.00	33.45	-0.72	0.22	0.00	1.25	-0.64	0.00	7.09	31.06	
	10	7.09	31.06	-0.73	0.12	0.00	1.25	-0.71	0.00	6.78	28.48	
	11	6.78	28.48	-0.66	0.06	0.00	1.25	-0.64	0.00	6.48	26.00	
	12	6.48	26.00	-0.56	0.03	0.00	1.25	-0.55	0.00	6.20	23.67	



Geonorte

**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	ISANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
15	1	6.20	23.67	-0.22	0.31	0.00	1.25	-0.22	0.00	6.00	22.29	
	2	6.00	22.29	+0.06	0.67	0.00	1.25	+0.06	0.00	5.92	21.84	
	3	5.92	21.84	+0.43	1.24	0.00	1.25	+0.43	0.00	6.06	22.68	
	4	6.06	22.68	+0.54	6.20	0.00	1.25	+0.60	0.00	6.81	28.77	
	5	6.81	28.77	+0.15	1.52	0.00	1.25	+0.15	0.00	6.88	29.34	
	6	6.88	29.34	-0.14	1.03	0.00	1.25	-0.14	0.00	6.82	28.84	
	7	6.82	28.84	-0.38	0.60	0.00	1.25	-0.37	0.00	6.65	27.45	
	8	6.65	27.45	-0.54	0.33	0.00	1.25	-0.53	0.00	6.42	25.46	
	9	6.42	25.46	-0.58	0.18	0.00	1.25	-0.56	0.00	6.15	23.25	
	10	6.15	23.25	-0.64	0.10	0.00	1.25	-0.61	0.00	5.74	20.86	
	11	5.74	20.86	-0.56	0.05	0.00	1.25	-0.53	0.00	5.34	18.58	
	12	5.34	18.58	-0.46	0.05	0.00	1.25	-0.44	0.00	4.95	16.47	
16	1	4.95	16.47	-0.18	0.50	0.00	1.25	-0.17	0.00	4.73	15.37	
	2	4.73	15.37	+0.05	0.57	0.00	1.25	+0.05	0.00	4.61	14.79	
	3	4.61	14.79	+0.33	1.48	0.00	1.25	+0.34	0.00	4.79	15.69	
	4	4.79	15.69	+0.42	3.36	0.00	1.25	+0.47	0.00	5.36	18.69	
	5	5.36	18.69	+0.12	1.21	0.00	1.25	+0.12	0.00	5.40	18.89	
	6	5.40	18.89	-0.11	0.78	0.00	1.25	-0.11	0.00	5.28	18.21	
	7	5.28	18.21	-0.29	0.43	0.00	1.25	-0.28	0.00	5.02	16.82	
	8	5.02	16.82	-0.41	0.23	0.00	1.25	-0.39	0.00	4.65	15.00	
	9	4.65	15.00	-0.42	0.13	0.00	1.25	-0.39	0.00	4.26	13.07	
	10	4.26	13.07	-0.44	0.07	0.00	1.25	-0.40	0.00	3.81	11.05	
	11	3.81	11.05	-0.37	0.03	0.00	1.25	-0.33	0.00	3.37	9.13	
	12	3.37	9.13	-0.29	0.02	0.00	1.25	-0.26	0.00	2.89	7.34	
17	1	2.89	7.34	-0.10	0.67	0.00	1.25	-0.10	0.00	2.68	6.56	
	2	2.68	6.56	+0.03	4.33	0.00	1.25	+0.04	0.00	3.50	9.71	
	3	3.50	9.71	+0.25	8.50	0.00	1.25	+0.37	0.00	5.18	17.66	
	4	5.18	17.66	+0.46	9.15	0.00	1.25	+0.57	0.00	6.55	26.59	
	5	6.55	26.59	+0.14	1.63	0.00	1.25	+0.15	0.00	6.63	27.26	
	6	6.63	27.26	-0.13	0.97	0.00	1.25	-0.13	0.00	6.57	26.72	
	7	6.57	26.72	-0.36	0.57	0.00	1.25	-0.35	0.00	6.40	25.32	
	8	6.40	25.32	-0.52	0.31	0.00	1.25	-0.51	0.00	6.16	23.35	
	9	6.16	23.35	-0.55	0.17	0.00	1.25	-0.53	0.00	5.80	21.19	
	10	5.80	21.19	-0.60	0.09	0.00	1.25	-0.57	0.00	5.39	18.86	
	11	5.39	18.86	-0.52	0.05	0.00	1.25	-0.49	0.00	4.99	16.64	
	12	4.99	16.64	-0.43	0.43	0.00	1.25	-0.41	0.00	4.65	14.98	
18	1	4.65	14.98	-0.17	0.56	0.00	1.25	-0.16	0.00	4.44	13.96	
	2	4.44	13.96	+0.05	1.94	0.00	1.25	+0.05	0.00	4.60	14.74	
	3	4.60	14.74	+0.33	16.49	0.00	1.25	+0.50	0.00	7.06	30.82	
	4	7.06	30.82	+0.62	4.06	0.00	1.25	+0.75	0.00	8.85	35.00	
	5	8.85	35.00	+0.19	1.57	0.00	1.25	+0.20	0.00	9.25	35.72	
	6	9.25	35.72	-0.18	1.33	0.00	1.25	-0.18	0.00	9.09	35.43	

000134



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 39.80

VOLUME MINIMO= 2.40

VOLUME em Hm3 (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
19	7	9.09	35.43	-0.50	0.79	0.00	1.25	-0.47	0.00	8.30	34.00	
	8	8.30	34.00	-0.68	0.46	0.00	1.25	-0.61	0.00	7.19	31.92	
	9	7.19	31.92	-0.65	0.25	0.00	1.25	-0.63	0.00	6.92	29.64	
	10	6.92	29.64	-0.72	0.14	0.00	1.25	-0.69	0.00	6.61	27.12	
	11	6.61	27.12	-0.64	0.07	0.00	1.25	-0.62	0.00	6.32	24.68	
	12	6.32	24.68	-0.55	0.04	0.00	1.25	-0.53	0.00	6.01	22.39	
19	1	6.01	22.39	-0.22	0.64	0.00	1.25	-0.21	0.00	5.83	21.35	
	2	5.83	21.35	+0.06	3.03	0.00	1.25	+0.06	0.00	6.15	23.26	
	3	6.15	23.26	+0.44	3.98	0.00	1.25	+0.47	0.00	6.59	26.90	
	4	6.59	26.90	+0.58	2.61	0.00	1.25	+0.60	0.00	6.89	29.45	
	5	6.89	29.45	+0.15	1.37	0.00	1.25	+0.15	0.00	6.94	29.87	
	6	6.94	29.87	-0.14	0.88	0.00	1.25	-0.14	0.00	6.87	29.23	
	7	6.87	29.23	-0.38	0.50	0.00	1.25	-0.37	0.00	6.69	27.73	
	8	6.69	27.73	-0.55	0.28	0.00	1.25	-0.53	0.00	6.44	25.68	
	9	6.44	25.68	-0.58	0.16	0.00	1.25	-0.56	0.00	6.17	23.45	
	10	6.17	23.45	-0.64	0.09	0.00	1.25	-0.61	0.00	5.78	21.04	
	11	5.78	21.04	-0.56	0.05	0.00	1.25	-0.53	0.00	5.37	18.75	
	12	5.37	18.75	-0.47	0.02	0.00	1.25	-0.44	0.00	4.98	16.61	
20	1	4.98	16.61	-0.18	0.32	0.00	1.25	-0.17	0.00	4.72	15.33	
	2	4.72	15.33	+0.05	0.64	0.00	1.25	+0.05	0.00	4.61	14.82	
	3	4.61	14.82	+0.33	1.07	0.00	1.25	+0.33	0.00	4.71	15.31	
	4	4.71	15.31	+0.42	0.79	0.00	1.25	+0.42	0.00	4.79	15.68	
	5	4.79	15.68	+0.11	0.44	0.00	1.25	+0.10	0.00	4.67	15.08	
	6	4.67	15.08	-0.09	0.41	0.00	1.25	-0.09	0.00	4.46	14.06	
	7	4.46	14.06	-0.25	0.33	0.00	1.25	-0.23	0.00	4.17	12.66	
	8	4.17	12.66	-0.34	0.18	0.00	1.25	-0.31	0.00	3.78	10.94	
	9	3.78	10.94	-0.34	0.09	0.00	1.25	-0.31	0.00	3.37	9.13	
	10	3.37	9.13	-0.35	0.05	0.00	1.25	-0.31	0.00	2.87	7.27	
	11	2.87	7.27	-0.28	0.03	0.00	1.25	-0.24	0.00	2.35	5.53	
	12	2.35	5.53	-0.20	0.01	0.00	1.25	-0.16	0.00	1.78	3.93	
21	1	1.78	3.93	-0.06	0.76	0.00	1.25	-0.06	0.00	1.57	3.32	
	2	1.57	3.32	+0.02	2.00	0.00	1.25	+0.02	0.00	1.84	4.11	
	3	1.84	4.11	+0.13	2.08	0.00	1.25	+0.16	0.00	2.24	5.22	
	4	2.24	5.22	+0.20	7.73	0.00	1.25	+0.35	0.00	4.08	12.26	
	5	4.08	12.26	+0.09	1.59	0.00	1.25	+0.09	0.00	4.20	12.78	
	6	4.20	12.78	-0.08	0.91	0.00	1.25	-0.08	0.00	4.08	12.27	
	7	4.08	12.27	-0.22	0.53	0.00	1.25	-0.21	0.00	3.62	11.12	
	8	3.82	11.12	-0.31	0.29	0.00	1.25	-0.29	0.00	3.47	9.56	
	9	3.47	9.56	-0.31	0.17	0.00	1.25	-0.28	0.00	3.04	7.88	
	10	3.04	7.88	-0.32	0.09	0.00	1.25	-0.27	0.00	2.56	6.13	
	11	2.56	6.13	-0.25	0.05	0.00	1.25	-0.20	0.00	1.98	4.49	
	12	1.98	4.49	-0.17	0.09	0.00	1.25	-0.13	0.00	1.47	3.02	





Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
22	1	1.47	3.02	-0.05	0.34	0.00	0.91	-0.05	0.34	1.24	2.35	*
	2	1.24	2.35	+0.01	2.16	0.00	1.25	+0.02	0.00	1.56	3.29	
	3	1.56	3.29	+0.11	9.29	0.00	1.25	+0.28	0.00	3.96	11.73	
	4	3.96	11.73	+0.35	11.07	0.00	1.25	+0.52	0.00	6.02	22.42	
	5	6.02	22.42	+0.13	3.48	0.00	1.25	+0.14	0.00	6.35	24.92	
	6	6.35	24.92	-0.13	1.36	0.00	1.25	-0.13	0.00	6.33	24.78	
	7	6.33	24.78	-0.35	0.75	0.00	1.25	-0.34	0.00	6.19	23.59	
	8	6.19	23.59	-0.50	0.41	0.00	1.25	-0.49	0.00	5.90	21.76	
	9	5.90	21.76	-0.53	0.26	0.00	1.25	-0.51	0.00	5.54	19.73	
	10	5.54	19.73	-0.57	0.14	0.00	1.25	-0.54	0.00	5.15	17.50	
	11	5.15	17.50	-0.50	0.09	0.00	1.25	-0.47	0.00	4.73	15.37	
	12	4.73	15.37	-0.41	0.43	0.00	1.25	-0.39	0.00	4.39	13.75	
23	1	4.39	13.75	-0.16	1.02	0.00	1.25	-0.16	0.00	4.28	13.21	
	2	4.28	13.21	+0.04	1.45	0.00	1.25	+0.05	0.00	4.34	13.50	
	3	4.34	13.50	+0.31	3.41	0.00	1.25	+0.35	0.00	4.92	16.32	
	4	4.92	16.32	+0.44	24.30	2.26	1.25	+0.91	0.00	10.76	38.46	
	5	10.76	38.46	+0.24	6.42	6.31	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.80	0.57	1.25	-0.21	0.00	10.15	37.34	
	7	10.15	37.34	-0.56	1.00	0.00	1.25	-0.53	0.00	9.41	36.00	
	8	9.41	36.00	-0.77	0.55	0.00	1.25	-0.70	0.00	8.21	33.84	
	9	8.21	33.84	-0.74	0.30	0.00	1.25	-0.66	0.00	7.14	31.49	
	10	7.14	31.49	-0.74	0.16	0.00	1.25	-0.72	0.00	6.83	28.95	
	11	6.83	28.95	-0.66	0.09	0.00	1.25	-0.64	0.00	6.54	26.48	
	12	6.54	26.48	-0.57	0.05	0.00	1.25	-0.55	0.00	6.26	24.16	
24	1	6.26	24.16	-0.23	0.18	0.00	1.25	-0.22	0.00	6.06	22.65	
	2	6.06	22.65	+0.06	1.01	0.00	1.25	+0.06	0.00	6.04	22.53	
	3	6.04	22.53	+0.43	0.88	0.00	1.25	+0.44	0.00	6.12	23.03	
	4	6.12	23.03	+0.54	1.04	0.00	1.25	+0.55	0.00	6.23	23.91	
	5	6.23	23.91	+0.14	0.91	0.00	1.25	+0.14	0.00	6.22	23.85	
	6	6.22	23.85	-0.12	0.52	0.00	1.25	-0.12	0.00	6.10	22.87	
	7	6.10	22.87	-0.34	0.30	0.00	1.25	-0.32	0.00	5.81	21.26	
	8	5.81	21.26	-0.47	0.16	0.00	1.25	-0.45	0.00	5.46	19.25	
	9	5.46	19.25	-0.49	0.09	0.00	1.25	-0.47	0.00	5.09	17.13	
	10	5.09	17.13	-0.53	0.05	0.00	1.25	-0.49	0.00	4.63	14.91	
	11	4.63	14.91	-0.45	0.02	0.00	1.25	-0.42	0.00	4.20	12.82	
	12	4.20	12.82	-0.37	0.01	0.00	1.25	-0.33	0.00	3.77	10.88	
25	1	3.77	10.88	-0.14	0.08	0.00	1.25	-0.13	0.00	3.45	9.45	
	2	3.45	9.45	+0.04	0.84	0.00	1.25	+0.04	0.00	3.37	9.11	
	3	3.37	9.11	+0.24	0.90	0.00	1.25	+0.24	0.00	3.40	9.24	
	4	3.40	9.24	+0.30	1.37	0.00	1.25	+0.31	0.00	3.56	9.97	
	5	3.56	9.97	+0.08	1.29	0.00	1.25	+0.08	0.00	3.61	10.17	
	6	3.61	10.17	-0.07	0.93	0.00	1.25	-0.07	0.00	3.50	9.71	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

VOLUME em  $Hm^3$  (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SAGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
26	7	3.50	9.71	-0.19	0.57	0.00	1.25	-0.18	0.00	3.26	8.65	
	8	3.26	8.65	-0.27	0.31	0.00	1.25	-0.24	0.00	2.86	7.21	
	9	2.86	7.21	-0.26	0.17	0.00	1.25	-0.22	0.00	2.39	5.65	
	10	2.39	5.65	-0.25	0.09	0.00	1.25	-0.20	0.00	1.82	4.05	
	11	1.82	4.05	-0.18	0.05	0.00	1.25	-0.13	0.00	1.31	2.54	
	12	1.31	2.54	-0.11	0.02	0.00	0.04	-0.11	1.21	1.21	2.29	*
	1	1.21	2.29	-0.04	0.38	0.00	0.23	-0.05	1.02	1.24	2.35	*
	2	1.24	2.35	+0.01	0.28	0.00	0.25	+0.01	1.00	1.26	2.41	*
	3	1.26	2.41	+0.09	4.53	0.00	1.25	+0.18	0.00	2.51	5.96	
	4	2.51	5.96	+0.22	2.01	0.00	1.25	+0.25	0.00	2.85	7.19	
	5	2.85	7.19	+0.06	1.33	0.00	1.25	+0.06	0.00	2.91	7.39	
	6	2.91	7.39	-0.06	0.84	0.00	1.25	-0.06	0.00	2.76	6.87	
	7	2.76	6.87	-0.15	0.50	0.00	1.25	-0.14	0.00	2.46	5.83	
	8	2.46	5.83	-0.20	0.33	0.00	1.25	-0.17	0.00	2.00	4.54	
	9	2.00	4.54	-0.18	0.18	0.00	1.25	-0.14	0.00	1.51	3.15	
	10	1.51	3.15	-0.16	0.10	0.00	0.70	-0.13	0.55	1.20	2.27	*
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.25	1.20	2.28	*
	12	1.20	2.27	-0.10	0.03	0.00	0.00	-0.11	1.25	1.21	2.29	*
27	1	1.21	2.29	-0.04	0.12	0.00	0.00	-0.05	1.25	1.24	2.35	*
	2	1.24	2.35	+0.01	0.73	0.00	0.70	+0.01	0.55	1.26	2.41	*
	3	1.26	2.41	+0.09	3.01	0.00	1.25	+0.14	0.00	1.94	4.40	
	4	1.94	4.40	+0.17	1.64	0.00	1.25	+0.19	0.00	2.21	5.15	
	5	2.21	5.15	+0.05	1.27	0.00	1.25	+0.05	0.00	2.26	5.27	
	6	2.26	5.27	-0.05	0.76	0.00	1.25	-0.04	0.00	2.05	4.69	
	7	2.05	4.69	-0.11	0.54	0.00	1.25	-0.10	0.00	1.72	3.77	
	8	1.72	3.77	-0.14	0.30	0.00	1.25	-0.11	0.00	1.32	2.57	
	9	1.32	2.57	-0.12	0.22	0.00	0.28	-0.11	0.97	1.21	2.29	*
	10	1.21	2.29	-0.12	0.16	0.00	0.00	-0.13	1.25	1.20	2.27	*
	11	1.20	2.27	-0.12	0.09	0.00	0.00	-0.12	1.25	1.20	2.28	*
	12	1.20	2.28	-0.10	0.08	0.00	0.00	-0.11	1.25	1.21	2.29	*
28	1	1.21	2.29	-0.04	0.96	0.00	0.81	-0.05	0.44	1.24	2.35	*
	2	1.24	2.35	+0.01	1.27	0.00	1.24	+0.01	0.01	1.26	2.41	*
	3	1.26	2.41	+0.09	2.65	0.00	1.25	+0.13	0.00	1.81	4.03	
	4	1.81	4.03	+0.18	3.51	0.00	1.25	+0.23	0.00	2.71	6.69	
	5	2.71	6.69	+0.06	1.59	0.00	1.25	+0.06	0.00	2.84	7.15	
	6	2.84	7.15	-0.06	0.98	0.00	1.25	-0.05	0.00	2.73	6.77	
	7	2.73	6.77	-0.15	0.64	0.00	1.25	-0.14	0.00	2.47	5.87	
	8	2.47	5.87	-0.20	0.36	0.00	1.25	-0.17	0.00	2.02	4.61	
	9	2.02	4.61	-0.18	0.20	0.00	1.25	-0.14	0.00	1.54	3.23	
	10	1.54	3.23	-0.16	0.11	0.00	0.78	-0.13	0.47	1.20	2.27	*
	11	1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	1.25	1.20	2.28	*
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.25	1.21	2.29	*



SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 36.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
29	1	1.211	2.291	-0.041	0.031	0.001	0.001	-0.051	1.251	1.241	2.351	*
	2	1.241	2.351	+0.011	0.301	0.001	0.271	+0.011	0.981	1.261	2.411	*
	3	1.261	2.411	+0.091	1.171	0.001	1.251	+0.091	0.001	1.301	2.521	
	4	1.301	2.521	+0.111	1.221	0.001	1.251	+0.121	0.001	1.371	2.721	
	5	1.371	2.721	+0.031	0.751	0.001	1.101	+0.031	0.151	1.271	2.431	*
	6	1.271	2.431	-0.031	0.591	0.001	0.591	-0.031	0.661	1.251	2.371	*
	7	1.251	2.371	-0.071	0.361	0.001	0.271	-0.071	0.981	1.231	2.331	*
	8	1.231	2.331	-0.101	0.191	0.001	0.021	-0.101	1.231	1.211	2.301	*
	9	1.211	2.301	-0.111	0.101	0.001	0.001	-0.111	1.251	1.211	2.291	*
	10	1.211	2.291	-0.121	0.061	0.001	0.001	-0.131	1.251	1.201	2.271	*
	11	1.201	2.271	-0.121	0.031	0.001	0.001	-0.121	1.251	1.201	2.281	*
	12	1.201	2.281	-0.101	0.011	0.001	0.001	-0.111	1.251	1.211	2.291	*
30	1	1.211	2.291	-0.041	0.471	0.001	0.321	-0.051	0.931	1.241	2.351	*
	2	1.241	2.351	+0.011	0.651	0.001	0.621	+0.011	0.631	1.261	2.411	*
	3	1.261	2.411	+0.091	1.391	0.001	1.251	+0.101	0.001	1.381	2.741	
	4	1.381	2.741	+0.121	1.171	0.001	1.251	+0.121	0.001	1.431	2.911	
	5	1.431	2.911	+0.031	0.641	0.001	1.181	+0.031	0.071	1.271	2.431	*
	6	1.271	2.431	-0.031	0.351	0.001	0.351	-0.031	0.901	1.251	2.371	*
	7	1.251	2.371	-0.071	0.191	0.001	0.101	-0.071	1.151	1.231	2.331	*
	8	1.231	2.331	-0.101	0.101	0.001	0.001	-0.101	1.251	1.211	2.301	*
	9	1.211	2.301	-0.111	0.051	0.001	0.001	-0.111	1.251	1.211	2.291	*
	10	1.211	2.291	-0.121	0.031	0.001	0.001	-0.131	1.251	1.201	2.271	*
	11	1.201	2.271	-0.121	0.011	0.001	0.001	-0.121	1.251	1.201	2.281	*
	12	1.201	2.281	-0.101	0.231	0.001	0.001	-0.111	1.251	1.211	2.291	*
31	1	1.211	2.291	-0.041	0.411	0.001	0.261	-0.051	0.991	1.241	2.351	*
	2	1.241	2.351	+0.011	0.411	0.001	0.381	+0.011	0.871	1.261	2.411	*
	3	1.261	2.411	+0.091	0.701	0.001	0.801	+0.091	0.451	1.291	2.491	*
	4	1.291	2.491	+0.111	1.131	0.001	1.251	+0.111	0.001	1.331	2.601	
	5	1.331	2.601	+0.031	0.971	0.001	1.201	+0.031	0.051	1.271	2.431	*
	6	1.271	2.431	-0.031	0.531	0.001	0.531	-0.031	0.721	1.251	2.371	*
	7	1.251	2.371	-0.071	0.371	0.001	0.281	-0.071	0.971	1.231	2.331	*
	8	1.231	2.331	-0.101	0.201	0.001	0.031	-0.101	1.221	1.211	2.301	*
	9	1.211	2.301	-0.111	0.111	0.001	0.001	-0.111	1.251	1.211	2.291	*
	10	1.211	2.291	-0.121	0.081	0.001	0.001	-0.131	1.251	1.201	2.271	*
	11	1.201	2.271	-0.121	0.001	0.001	0.001	-0.121	1.251	1.201	2.281	*
	12	1.201	2.281	-0.101	0.541	0.001	0.311	-0.111	0.941	1.211	2.291	*
32	1	1.211	2.291	-0.041	0.501	0.001	0.431	-0.051	0.821	1.241	2.351	*
	2	1.241	2.351	+0.011	0.701	0.001	0.701	+0.011	0.501	1.261	2.411	*
	3	1.261	2.411	+0.091	3.971	0.001	1.251	+0.101	0.001	2.301	5.391	
	4	2.301	5.391	+0.201	2.551	0.001	1.251	+0.241	0.001	2.841	7.131	
	5	2.841	7.131	+0.061	1.461	0.001	1.251	+0.061	0.001	2.931	7.471	
	6	2.931	7.471	-0.061	0.861	0.001	1.251	-0.061	0.001	2.791	6.971	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

volumes em m<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
	7	2.79	6.97	-0.15	0.47	0.00	1.25	-0.14	0.00	2.48	5.89		
	8	2.48	5.89	-0.20	0.26	0.00	1.25	-0.17	0.00	1.99	4.53		
	9	1.99	4.53	-0.18	0.14	0.00	1.25	-0.14	0.00	1.50	3.11		
	10	1.50	3.11	-0.16	0.07	0.00	0.62	-0.13	0.63	1.20	2.27	*	
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.25	1.20	2.28	*	
	12	1.20	2.28	-0.10	0.34	0.00	0.11	-0.11	1.14	1.21	2.29	*	
33	1	1.21	2.29	-0.04	0.98	0.00	0.83	-0.05	0.42	1.24	2.35	*	
	2	1.24	2.35	+0.01	5.58	0.00	1.25	+0.03	0.00	2.72	6.73		
	3	2.72	6.73	+0.20	6.52	0.00	1.25	+0.29	0.00	4.13	12.48		
	4	4.13	12.48	+0.37	4.23	0.00	1.25	+0.43	0.00	4.92	16.31		
	5	4.92	16.31	+0.11	2.00	0.00	1.25	+0.11	0.00	5.11	17.28		
	6	5.11	17.28	-0.10	1.15	0.00	1.25	-0.10	0.00	5.05	16.97		
	7	5.05	16.97	-0.28	0.63	0.00	1.25	-0.27	0.00	4.82	15.81		
	8	4.82	15.81	-0.39	0.35	0.00	1.25	-0.37	0.00	4.48	14.14		
	9	4.48	14.14	-0.40	0.19	0.00	1.25	-0.38	0.00	4.09	12.31		
	10	4.09	12.31	-0.42	0.10	0.00	1.25	-0.39	0.00	3.65	10.35		
	11	3.65	10.35	-0.35	0.05	0.00	1.25	-0.32	0.00	3.21	8.47		
	12	3.21	8.47	-0.28	0.03	0.00	1.25	-0.24	0.00	2.72	6.73		
34	1	2.72	6.73	-0.10	0.66	0.00	1.25	-0.09	0.00	2.50	5.95		
	2	2.50	5.95	+0.03	0.93	0.00	1.25	+0.03	0.00	2.41	5.68		
	3	2.41	5.68	+0.17	1.17	0.00	1.25	+0.18	0.00	2.50	5.95		
	4	2.50	5.95	+0.22	1.94	0.00	1.25	+0.24	0.00	2.83	7.11		
	5	2.83	7.11	+0.06	1.09	0.00	1.25	+0.06	0.00	2.82	7.07		
	6	2.82	7.07	-0.06	0.67	0.00	1.25	-0.05	0.00	2.63	6.38		
	7	2.63	6.38	-0.14	0.37	0.00	1.25	-0.13	0.00	2.24	5.23		
	8	2.24	5.23	-0.18	0.20	0.00	1.25	-0.15	0.00	1.75	3.85		
	9	1.75	3.85	-0.16	0.11	0.00	1.25	-0.12	0.00	1.27	2.44		
	10	1.27	2.44	-0.13	0.06	0.00	0.00	-0.13	1.25	1.20	2.27	*	
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.25	1.20	2.28	*	
	12	1.20	2.28	-0.10	0.10	0.00	0.00	-0.11	1.25	1.21	2.29	*	
35	1	1.21	2.29	-0.04	0.05	0.00	0.00	-0.05	1.25	1.24	2.35	*	
	2	1.24	2.35	+0.01	1.21	0.00	1.18	+0.01	0.07	1.26	2.41	*	
	3	1.26	2.41	+0.09	2.63	0.00	1.25	+0.13	0.00	1.80	4.01		
	4	1.80	4.01	+0.16	2.13	0.00	1.25	+0.19	0.00	2.27	5.30		
	5	2.27	5.30	+0.05	1.54	0.00	1.25	+0.05	0.00	2.41	5.69		
	6	2.41	5.69	-0.05	1.06	0.00	1.25	-0.05	0.00	2.31	5.40		
	7	2.31	5.40	-0.13	0.65	0.00	1.25	-0.11	0.00	2.00	4.56		
	8	2.00	4.56	-0.16	0.36	0.00	1.25	-0.13	0.00	1.59	3.38		
	9	1.59	3.38	-0.14	0.19	0.00	1.02	-0.11	0.23	1.21	2.29	*	
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.25	1.20	2.27	*	
	11	1.20	2.27	-0.12	0.59	0.00	0.34	-0.12	0.91	1.20	2.28	*	
	12	1.20	2.28	-0.10	0.32	0.00	0.09	-0.11	1.16	1.21	2.29	*	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA INICIAL	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO FINAL	DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
36	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	1.00	1.24	2.35	≠	
	2	1.24	2.35	+0.01	0.88	0.00	0.85	+0.01	0.40	1.26	2.41	≠	
	3	1.26	2.41	+0.09	9.21	0.00	1.25	+0.26	0.00	3.73	10.73		
	4	3.73	10.73	+0.33	1.68	0.00	1.25	+0.35	0.00	3.98	11.83		
	5	3.98	11.83	+0.09	1.35	0.00	1.25	+0.09	0.00	4.04	12.11		
	6	4.04	12.11	-0.08	0.84	0.00	1.25	-0.08	0.00	3.92	11.54		
	7	3.92	11.54	-0.22	0.46	0.00	1.25	-0.20	0.00	3.64	10.33		
	8	3.64	10.33	-0.30	0.25	0.00	1.25	-0.27	0.00	3.29	8.76		
	9	3.29	8.76	-0.30	0.14	0.00	1.25	-0.26	0.00	2.83	7.10		
	10	2.83	7.10	-0.29	0.07	0.00	1.25	-0.25	0.00	2.30	5.38		
	11	2.30	5.38	-0.22	0.04	0.00	1.25	-0.17	0.00	1.72	3.77		
	12	1.72	3.77	-0.15	0.02	0.00	1.24	-0.11	0.01	1.21	2.29	≠	
37	1	1.21	2.29	-0.04	0.20	0.00	0.05	-0.05	1.20	1.24	2.35	≠	
	2	1.24	2.35	+0.01	0.84	0.00	0.81	+0.01	0.44	1.26	2.41	≠	
	3	1.26	2.41	+0.09	1.54	0.00	1.25	+0.10	0.00	1.43	2.89		
	4	1.43	2.89	+0.13	1.46	0.00	1.25	+0.14	0.00	1.59	3.37		
	5	1.59	3.37	+0.03	1.97	0.00	1.25	+0.04	0.00	1.86	4.16		
	6	1.86	4.16	-0.04	1.05	0.00	1.25	-0.04	0.00	1.76	3.89		
	7	1.76	3.89	-0.10	0.58	0.00	1.25	-0.08	0.00	1.48	3.04		
	8	1.48	3.04	-0.12	0.31	0.00	0.83	-0.10	0.42	1.21	2.30	≠	
	9	1.21	2.30	-0.11	0.17	0.00	0.00	-0.11	1.25	1.21	2.29	≠	
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	1.25	1.20	2.27	≠	
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.25	1.20	2.28	≠	
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.25	1.21	2.29	≠	
38	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	1.00	1.24	2.35	≠	
	2	1.24	2.35	+0.01	0.56	0.00	0.53	+0.01	0.72	1.26	2.41	≠	
	3	1.26	2.41	+0.09	6.44	0.00	1.25	+0.22	0.00	3.05	7.91		
	4	3.05	7.91	+0.27	6.72	0.00	1.25	+0.39	0.00	4.45	14.04		
	5	4.45	11.04	+0.19	1.52	0.00	1.25	+0.10	0.00	4.55	14.50		
	6	4.55	14.50	-0.09	0.90	0.00	1.25	-0.09	0.00	4.44	13.97		
	7	4.44	13.97	-0.24	0.61	0.00	1.25	-0.23	0.00	4.21	12.86		
	8	4.21	12.86	-0.34	0.33	0.00	1.25	-0.32	0.00	3.86	11.27		
	9	3.86	11.27	-0.35	0.18	0.00	1.25	-0.32	0.00	3.47	9.54		
	10	3.47	9.54	-0.36	0.10	0.00	1.25	-0.32	0.00	3.00	7.71		
	11	3.00	7.71	-0.29	0.05	0.00	1.25	-0.25	0.00	2.51	5.97		
	12	2.51	5.97	-0.22	0.03	0.00	1.25	-0.17	0.00	1.93	4.36		
39	1	1.93	4.36	-0.07	0.01	0.00	1.25	-0.05	0.00	1.46	2.99		
	2	1.46	2.99	+0.02	0.00	0.00	0.61	+0.01	0.64	1.26	2.41	≠	
	3	1.26	2.41	+0.09	0.42	0.00	0.52	+0.09	0.73	1.29	2.49	≠	
	4	1.29	2.49	+0.11	0.75	0.00	0.95	+0.11	0.30	1.30	2.51	≠	
	5	1.30	2.51	+0.03	0.75	0.00	0.89	+0.03	0.36	1.27	2.43	≠	
	6	1.27	2.43	-0.03	0.46	0.00	0.46	-0.03	0.79	1.25	2.37	≠	



### SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/21 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/21 FINAL	SALDO DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
	7	1.25	2.37	-0.07	0.25	0.00	0.16	-0.07	1.09	1.23	2.33	#
	8	1.23	2.33	-0.10	0.14	0.00	0.00	-0.10	1.25	1.21	2.30	#
	9	1.21	2.30	-0.11	0.07	0.00	0.00	-0.11	1.25	1.21	2.29	#
	10	1.21	2.29	-0.12	0.04	0.00	0.00	-0.13	1.25	1.20	2.27	#
	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	1.25	1.20	2.28	#
	12	1.20	2.28	-0.10	0.20	0.00	0.00	-0.11	1.25	1.21	2.29	#
40	1	1.21	2.29	-0.04	0.44	0.00	0.29	-0.05	0.96	1.24	2.35	#
	2	1.24	2.35	+0.01	0.67	0.00	0.64	+0.01	0.61	1.26	2.41	#
	3	1.26	2.41	+0.09	1.98	0.00	1.25	+0.11	0.00	1.58	3.35	
	4	1.58	3.35	+0.14	1.76	0.00	1.25	+0.16	0.00	1.86	4.15	
	5	1.86	4.15	+0.04	1.34	0.00	1.25	+0.04	0.00	1.92	4.33	
	6	1.92	4.33	-0.04	0.78	0.00	1.25	-0.03	0.00	1.73	3.78	
	7	1.73	3.78	-0.09	0.43	0.00	1.25	-0.08	0.00	1.39	2.79	
	8	1.39	2.79	-0.11	0.23	0.00	0.51	-0.10	0.74	1.21	2.30	#
	9	1.21	2.30	-0.11	0.13	0.00	0.00	-0.11	1.25	1.21	2.29	#
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.25	1.20	2.27	#
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.25	1.20	2.28	#
	12	1.20	2.28	-0.10	0.21	0.00	0.00	-0.11	1.25	1.21	2.29	#
41	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	1.06	1.24	2.35	#
	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	0.50	1.26	2.41	#
	3	1.26	2.41	+0.09	1.09	0.00	1.19	+0.09	0.06	1.29	2.49	#
	4	1.29	2.49	+0.11	1.59	0.00	1.25	+0.13	0.00	1.49	3.07	
	5	1.49	3.07	+0.03	1.66	0.00	1.25	+0.03	0.00	1.45	2.97	
	6	1.45	2.97	-0.03	0.71	0.00	1.25	-0.03	0.00	1.25	2.37	#
	7	1.25	2.37	-0.07	0.39	0.00	0.30	-0.07	0.95	1.23	2.33	#
	8	1.23	2.33	-0.10	0.21	0.00	0.04	-0.10	1.21	1.21	2.30	#
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	1.25	1.21	2.29	#
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.25	1.20	2.27	#
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.25	1.20	2.28	#
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.25	1.21	2.29	#
42	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.25	1.24	2.35	#
	2	1.24	2.35	+0.01	0.71	0.00	0.68	+0.01	0.57	1.26	2.41	#
	3	1.26	2.41	+0.09	1.13	0.00	1.23	+0.09	0.02	1.29	2.49	#
	4	1.29	2.49	+0.11	1.22	0.00	1.25	+0.12	0.00	1.36	2.69	
	5	1.36	2.69	+0.03	0.78	0.00	1.10	+0.03	0.15	1.27	2.43	#
	6	1.27	2.43	-0.03	0.64	0.00	0.64	-0.03	0.61	1.25	2.37	#
	7	1.25	2.37	-0.07	0.35	0.00	0.26	-0.07	0.99	1.23	2.33	#
	8	1.23	2.33	-0.10	0.19	0.00	0.02	-0.10	1.23	1.21	2.30	#
	9	1.21	2.30	-0.11	0.10	0.00	0.00	-0.11	1.25	1.21	2.29	#
	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	1.25	1.20	2.27	#
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.25	1.20	2.28	#
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.25	1.21	2.29	#



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3 (continuação)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
43	1	1.21	2.29	-0.04	0.59	0.00	0.44	-0.05	0.81	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.96	0.00	0.93	+0.01	0.32	1.26	2.41	≠
	3	1.26	2.41	+0.09	1.07	0.00	1.17	+0.09	0.08	1.29	2.49	≠
	4	1.29	2.49	+0.11	2.58	0.00	1.25	+0.16	0.00	1.83	4.09	
	5	1.83	4.09	+0.04	1.39	0.00	1.25	+0.04	0.00	1.91	4.31	
	6	1.91	4.31	-0.04	0.82	0.00	1.25	-0.03	0.00	1.74	3.81	
	7	1.74	3.81	-0.10	0.49	0.00	1.25	-0.08	0.00	1.42	2.88	
	8	1.42	2.88	-0.12	0.27	0.00	0.63	-0.10	0.62	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.14	0.00	0.00	-0.11	1.25	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.08	0.00	0.00	-0.13	1.25	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.25	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	1.25	1.21	2.29	≠
44	1	1.21	2.29	-0.04	0.14	0.00	0.00	-0.05	1.25	1.24	2.35	≠
	2	1.24	2.35	+0.01	1.24	0.00	1.21	+0.01	0.04	1.26	2.41	≠
	3	1.26	2.41	+0.09	3.36	0.00	1.25	+0.16	0.00	2.26	5.27	
	4	2.26	5.27	+0.20	3.01	0.00	1.25	+0.25	0.00	2.93	7.49	
	5	2.93	7.49	+0.06	1.21	0.00	1.25	+0.06	0.00	2.96	7.58	
	6	2.96	7.58	-0.06	0.79	0.00	1.25	-0.06	0.00	2.80	7.00	
	7	2.80	7.00	-0.15	0.46	0.00	1.25	-0.14	0.00	2.49	5.92	
	8	2.49	5.92	-0.20	0.25	0.00	1.25	-0.17	0.00	2.00	4.55	
	9	2.00	4.55	-0.18	0.13	0.00	1.25	-0.14	0.00	1.50	3.11	
	10	1.50	3.11	-0.16	0.07	0.00	0.62	-0.13	0.63	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.25	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.25	1.21	2.29	≠
45	1	1.21	2.29	-0.04	0.61	0.00	0.46	-0.05	0.79	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.73	0.00	0.70	+0.01	0.55	1.26	2.41	≠
	3	1.26	2.41	+0.09	2.50	0.00	1.25	+0.12	0.00	1.76	3.88	
	4	1.76	3.88	+0.16	4.80	0.00	1.25	+0.26	0.00	3.03	7.85	
	5	3.03	7.85	+0.07	1.90	0.00	1.25	+0.07	0.00	3.25	8.63	
	6	3.25	8.63	-0.07	1.08	0.00	1.25	-0.06	0.00	3.17	8.33	
	7	3.17	8.33	-0.17	0.61	0.00	1.25	-0.16	0.00	2.90	7.36	
	8	2.90	7.36	-0.24	0.34	0.00	1.25	-0.21	0.00	2.52	6.00	
	9	2.52	6.00	-0.23	0.18	0.00	1.25	-0.18	0.00	1.99	4.52	
	10	1.99	4.52	-0.21	0.10	0.00	1.25	-0.16	0.00	1.47	3.01	
	11	1.47	3.01	-0.14	0.05	0.00	0.52	-0.12	0.73	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.25	1.21	2.29	≠
46	1	1.21	2.29	-0.04	0.11	0.00	0.00	-0.05	1.25	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.06	0.00	0.03	+0.01	1.22	1.26	2.41	≠
	3	1.26	2.41	+0.09	0.16	0.00	0.26	+0.09	0.99	1.29	2.49	≠
	4	1.29	2.49	+0.11	0.35	0.00	0.55	+0.11	0.70	1.30	2.51	≠
	5	1.30	2.51	+0.03	0.22	0.00	0.36	+0.03	0.89	1.27	2.43	≠
	6	1.27	2.43	-0.03	0.12	0.00	0.12	-0.03	1.13	1.25	2.37	≠



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO DEBANDA	AREA FINAL	VOLUME FINAL	IFAL.
	7	1.25	2.37	-0.07	0.06	0.00	0.00	-0.07	1.25	1.23	2.33	*
	8	1.23	2.33	-0.10	0.03	0.00	0.00	-0.10	1.25	1.21	2.30	*
	9	1.21	2.30	-0.11	0.02	0.00	0.00	-0.11	1.25	1.21	2.29	*
	10	1.21	2.29	-0.12	0.01	0.00	0.00	-0.13	1.25	1.20	2.27	*
	11	1.20	2.27	-0.12	0.00	0.00	0.00	-0.12	1.25	1.20	2.28	*
	12	1.20	2.28	-0.10	0.16	0.00	0.00	-0.11	1.25	1.21	2.29	*
47	1	1.21	2.29	-0.04	0.36	0.00	0.21	-0.05	1.04	1.24	2.35	*
	2	1.24	2.35	+0.01	0.77	0.00	0.74	+0.01	0.51	1.26	2.41	*
	3	1.26	2.41	+0.09	6.09	0.00	1.25	+0.21	0.00	2.95	7.55	
	4	2.95	7.55	+0.26	1.39	0.00	1.25	+0.27	0.00	3.14	8.23	
	5	3.14	8.23	+0.07	1.11	0.00	1.25	+0.07	0.00	3.14	8.22	
	6	3.14	8.22	-0.06	0.73	0.00	1.25	-0.06	0.00	2.96	7.58	
	7	2.96	7.58	-0.16	0.40	0.00	1.25	-0.15	0.00	2.64	6.42	
	8	2.64	6.42	-0.21	0.26	0.00	1.25	-0.18	0.00	2.17	5.03	
	9	2.17	5.03	-0.20	0.14	0.00	1.25	-0.15	0.00	1.66	3.57	
	10	1.66	3.57	-0.17	0.07	0.00	1.07	-0.13	0.18	1.20	2.27	*
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.25	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.25	1.21	2.29	*
48	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.25	1.24	2.35	*
	2	1.24	2.35	+0.01	0.19	0.00	0.16	+0.01	1.09	1.26	2.41	*
	3	1.26	2.41	+0.09	3.15	0.00	1.25	+0.14	0.00	2.00	4.54	
	4	2.00	4.54	+0.18	1.85	0.00	1.25	+0.20	0.00	2.35	5.52	
	5	2.35	5.52	+0.05	0.95	0.00	1.25	+0.05	0.00	2.28	5.32	
	6	2.28	5.32	-0.05	0.66	0.00	1.25	-0.04	0.00	2.03	4.65	
	7	2.03	4.65	-0.11	0.49	0.00	1.25	-0.09	0.00	1.69	3.68	
	8	1.69	3.68	-0.14	0.27	0.00	1.25	-0.11	0.00	1.28	2.46	
	9	1.28	2.46	-0.12	0.15	0.00	0.09	-0.11	1.16	1.21	2.29	*
	10	1.21	2.29	-0.12	0.08	0.00	0.00	-0.13	1.25	1.20	2.27	*
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.25	1.20	2.28	*
	12	1.20	2.28	-0.10	0.33	0.00	0.10	-0.11	1.15	1.21	2.29	*
49	1	1.21	2.29	-0.04	0.39	0.00	0.24	-0.05	1.01	1.24	2.35	*
	2	1.24	2.35	+0.01	4.79	0.00	1.25	+0.03	0.00	2.50	5.93	
	3	2.50	5.93	+0.18	13.97	0.00	1.25	+0.39	0.00	5.46	19.22	
	4	5.46	19.22	+0.48	1.90	0.00	1.25	+0.50	0.00	5.74	20.85	
	5	5.74	20.85	+0.13	2.84	0.00	1.25	+0.13	0.00	6.07	22.70	
	6	6.07	22.70	-0.12	1.63	0.00	1.25	-0.12	0.00	5.99	22.24	
	7	5.99	22.24	-0.33	0.56	0.00	1.25	-0.32	0.00	5.75	20.90	
	8	5.75	20.90	-0.47	0.31	0.00	1.25	-0.45	0.00	5.42	19.05	
	9	5.42	19.05	-0.49	0.17	0.00	1.25	-0.46	0.00	5.06	17.01	
	10	5.06	17.01	-0.52	0.09	0.00	1.25	-0.49	0.00	4.62	14.84	
	11	4.62	14.84	-0.45	0.05	0.00	1.25	-0.42	0.00	4.20	12.78	
	12	4.20	12.78	-0.36	0.02	0.00	1.25	-0.33	0.00	3.76	10.85	





## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.00

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
50	1	3.76	10.85	-0.14	0.37	0.00	1.25	-0.13	0.00	3.50	9.71	
	2	3.50	9.71	+0.04	1.24	0.00	1.25	+0.04	0.00	3.52	9.77	
	3	3.52	9.77	+0.25	35.50	6.73	1.25	+0.74	0.00	10.67	38.29	
	4	10.67	38.29	+0.94	15.94	16.37	1.25	+0.91	0.00	10.76	38.46	
	5	10.76	38.46	+0.24	1.93	1.82	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.06	0.00	1.25	-0.20	0.00	10.05	37.17	
	7	10.05	37.17	-0.55	0.67	0.00	1.25	-0.52	0.00	9.14	35.52	
	8	9.14	35.52	-0.75	0.37	0.00	1.25	-0.67	0.00	7.88	33.23	
	9	7.88	33.23	-0.71	0.20	0.00	1.25	-0.64	0.00	7.06	30.82	
	10	7.06	30.82	-0.73	0.11	0.00	1.25	-0.71	0.00	6.75	28.25	
	11	6.75	28.25	-0.65	0.06	0.00	1.25	-0.63	0.00	6.45	25.77	
	12	6.45	25.77	-0.56	0.09	0.00	1.25	-0.55	0.00	6.25	24.10	
51	1	6.25	24.10	-0.23	0.96	0.00	1.25	-0.22	0.00	6.16	23.36	
	2	6.16	23.36	+0.06	1.00	0.00	1.25	+0.06	0.00	6.15	23.24	
	3	6.15	23.24	+0.44	27.17	12.05	1.25	+0.74	0.00	10.67	38.29	
	4	10.67	38.29	+0.94	27.53	27.96	1.25	+0.91	0.00	10.76	38.46	
	5	10.76	38.46	+0.24	2.21	2.10	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.17	0.00	1.25	-0.20	0.00	10.11	37.28	
	7	10.11	37.28	-0.56	0.79	0.00	1.25	-0.53	0.00	9.26	35.74	
	8	9.26	35.74	-0.75	0.56	0.00	1.25	-0.69	0.00	8.09	33.61	
	9	8.09	33.61	-0.73	0.31	0.00	1.25	-0.65	0.00	7.12	31.29	
	10	7.12	31.29	-0.74	0.17	0.00	1.25	-0.71	0.00	6.81	28.76	
	11	6.81	28.76	-0.66	0.09	0.00	1.25	-0.64	0.00	6.52	26.30	
	12	6.52	26.30	-0.57	0.08	0.00	1.25	-0.56	0.00	6.31	24.61	
52	1	6.31	24.61	-0.23	2.62	0.00	1.25	-0.23	0.00	6.42	25.52	
	2	6.42	25.52	+0.07	17.21	4.00	1.25	+0.11	0.00	10.32	37.66	
	3	10.32	37.66	+0.74	20.52	20.12	1.25	+0.74	0.00	10.67	38.29	
	4	10.67	38.29	+0.94	41.49	41.92	1.25	+0.91	0.00	10.76	38.46	
	5	10.76	38.46	+0.24	16.46	16.35	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.68	0.45	1.25	-0.21	0.00	10.15	37.34	
	7	10.15	37.34	-0.56	1.18	0.00	1.25	-0.54	0.00	9.50	36.18	
	8	9.50	36.18	-0.77	0.65	0.00	1.25	-0.71	0.00	8.35	34.09	
	9	8.35	34.09	-0.75	0.35	0.00	1.25	-0.67	0.00	7.17	31.77	
	10	7.17	31.77	-0.74	0.19	0.00	1.25	-0.72	0.00	6.87	29.25	
	11	6.87	29.25	-0.67	0.10	0.00	1.25	-0.65	0.00	6.57	26.78	
	12	6.57	26.78	-0.57	0.15	0.00	1.25	-0.55	0.00	6.31	24.56	
53	1	6.31	24.56	-0.23	0.65	0.00	1.25	-0.22	0.00	6.18	23.51	
	2	6.18	23.51	+0.06	0.72	0.00	1.25	+0.06	0.00	6.13	23.11	
	3	6.13	23.11	+0.44	4.57	0.00	1.25	+0.47	0.00	6.64	27.34	
	4	6.64	27.34	+0.59	46.19	35.32	1.25	+0.91	0.00	10.76	38.46	
	5	10.76	38.46	+0.24	7.00	6.89	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.89	0.66	1.25	-0.21	0.00	10.15	37.34	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	10.15	37.34	-0.56	1.03	0.00	1.25	-0.53	0.00	9.42	36.03	
	8	9.42	36.03	-0.77	0.57	0.00	1.25	-0.70	0.00	8.24	33.88	
	9	8.24	33.88	-0.74	0.31	0.00	1.25	-0.66	0.00	7.15	31.54	
	10	7.15	31.54	-0.74	0.17	0.00	1.25	-0.72	0.00	6.84	29.01	
	11	6.84	29.01	-0.66	0.09	0.00	1.25	-0.64	0.00	6.54	26.54	
	12	6.54	26.54	-0.57	0.05	0.00	1.25	-0.55	0.00	6.27	24.22	
54	1	6.27	24.22	-0.23	0.02	0.00	1.25	-0.22	0.00	6.04	22.54	
	2	6.04	22.54	+0.06	0.98	0.00	1.25	+0.06	0.00	6.01	22.40	
	3	6.01	22.40	+0.43	1.34	0.00	1.25	+0.44	0.00	6.16	23.36	
	4	6.16	23.36	+0.55	1.33	0.00	1.25	+0.55	0.00	6.31	24.54	
	5	6.31	24.54	+0.14	2.39	0.00	1.25	+0.14	0.00	6.48	25.96	
	6	6.48	25.96	-0.13	1.35	0.00	1.25	-0.13	0.00	6.46	25.80	
	7	6.46	25.80	-0.36	0.97	0.00	1.25	-0.35	0.00	6.34	24.82	
	8	6.34	24.82	-0.52	0.53	0.00	1.25	-0.50	0.00	6.13	23.08	
	9	6.13	23.08	-0.55	0.29	0.00	1.25	-0.53	0.00	5.77	21.04	
	10	5.77	21.04	-0.60	0.16	0.00	1.25	-0.57	0.00	5.38	18.78	
	11	5.38	18.78	-0.52	0.09	0.00	1.25	-0.49	0.00	4.98	16.61	
	12	4.98	16.61	-0.43	0.05	0.00	1.25	-0.40	0.00	4.56	14.57	
55	1	4.56	14.57	-0.16	0.79	0.00	1.25	-0.16	0.00	4.40	13.79	
	2	4.40	13.79	+0.05	8.55	0.00	1.25	+0.06	0.00	5.80	21.19	
	3	5.80	21.19	+0.42	26.44	9.25	1.25	+0.74	0.00	10.67	38.29	
	4	10.67	38.29	+0.94	27.74	28.17	1.25	+0.91	0.00	10.76	38.46	
	5	10.76	38.46	+0.24	14.73	14.62	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.54	0.00	1.25	-0.21	0.00	10.15	37.34	
	7	10.15	37.34	-0.56	0.84	0.00	1.25	-0.53	0.00	9.32	35.85	
	8	9.32	35.85	-0.76	0.46	0.00	1.25	-0.69	0.00	8.09	33.61	
	9	8.09	33.61	-0.73	0.25	0.00	1.25	-0.65	0.00	7.11	31.23	
	10	7.11	31.23	-0.74	0.14	0.00	1.25	-0.71	0.00	6.80	28.68	
	11	6.80	28.68	-0.66	0.07	0.00	1.25	-0.64	0.00	6.50	26.20	
	12	6.50	26.20	-0.57	0.04	0.00	1.25	-0.55	0.00	6.22	23.87	
56	1	6.22	23.87	-0.22	0.61	0.00	1.25	-0.22	0.00	6.08	22.79	
	2	6.08	22.79	+0.06	1.14	0.00	1.25	+0.06	0.00	6.09	22.81	
	3	6.09	22.81	+0.44	8.23	0.00	1.25	+0.50	0.00	7.05	30.73	
	4	7.05	30.73	+0.62	39.59	32.14	1.25	+0.91	0.00	10.76	38.46	
	5	10.76	38.46	+0.24	28.80	28.69	1.25	+0.23	0.00	10.39	37.78	
	6	10.39	37.78	-0.21	1.67	0.44	1.25	-0.21	0.00	10.15	37.34	
	7	10.15	37.34	-0.56	0.91	0.00	1.25	-0.53	0.00	9.36	35.92	
	8	9.36	35.92	-0.76	0.50	0.00	1.25	-0.69	0.00	8.14	33.71	
	9	8.14	33.71	-0.73	0.27	0.00	1.25	-0.65	0.00	7.12	31.35	
	10	7.12	31.35	-0.74	0.15	0.00	1.25	-0.71	0.00	6.82	28.80	
	11	6.82	28.80	-0.66	0.08	0.00	1.25	-0.64	0.00	6.52	26.33	
	12	6.52	26.33	-0.57	0.04	0.00	1.25	-0.55	0.00	6.24	24.00	



SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 35.80

VOLUME RIXIMO= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	VOLUME (P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	VOLUME (P-E)/2	SALDO	AREA	VOLUME FINAL
57	1	6.24	24.00	-0.22	0.44	0.00	1.25	-0.22	0.00	6.08	22.74
	2	6.08	22.74	+0.66	1.00	0.00	1.25	+0.66	0.00	6.05	22.62
	3	6.05	22.62	+0.44	1.33	0.00	1.25	+0.44	0.00	6.19	23.58
	4	6.19	23.58	+0.55	2.06	0.00	1.25	+0.56	0.00	6.42	25.50
	5	6.42	25.50	+0.14	1.26	0.00	1.25	+0.14	0.00	6.46	25.79
	6	6.46	25.79	-0.13	0.69	0.00	1.25	-0.13	0.00	6.36	24.98
	7	6.36	24.98	-0.35	0.57	0.00	1.25	-0.34	0.00	6.19	23.60
	8	6.19	23.60	-0.50	0.31	0.00	1.25	-0.49	0.00	5.89	21.67
	9	5.89	21.67	-0.53	0.17	0.00	1.25	-0.50	0.00	5.51	19.56
	10	5.51	19.56	-0.57	0.09	0.00	1.25	-0.54	0.00	5.12	17.29
	11	5.12	17.29	-0.50	0.05	0.00	1.25	-0.46	0.00	4.68	15.13
	12	4.68	15.13	-0.41	0.02	0.00	1.25	-0.38	0.00	4.26	13.11
58	1	4.26	13.11	-0.15	0.12	0.00	1.25	-0.14	0.00	3.95	11.69
	2	3.95	11.69	+0.04	0.35	0.00	1.25	+0.04	0.00	3.77	10.87
	3	3.77	10.87	+0.27	0.89	0.00	1.25	+0.27	0.00	3.81	11.05
	4	3.81	11.05	+0.34	0.90	0.00	1.25	+0.34	0.00	3.88	11.37
	5	3.88	11.37	+0.09	0.60	0.00	1.25	+0.08	0.00	3.77	10.89
	6	3.77	10.89	-0.08	0.33	0.00	1.25	-0.07	0.00	3.53	9.82
	7	3.53	9.82	-0.19	0.29	0.00	1.25	-0.18	0.00	3.21	8.49
	8	3.21	8.49	-0.26	0.16	0.00	1.25	-0.23	0.00	2.77	6.91
	9	2.77	6.91	-0.25	0.08	0.00	1.25	-0.21	0.00	2.26	5.28
	10	2.26	5.28	-0.23	0.04	0.00	1.25	-0.18	0.00	1.68	3.65
	11	1.68	3.65	-0.16	0.02	0.00	1.11	-0.12	0.14	1.20	2.28
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.25	1.21	2.29
59	1	1.21	2.29	-0.04	0.11	0.00	0.00	-0.05	1.25	1.24	2.35
	2	1.24	2.35	+0.01	0.58	0.00	0.55	+0.01	0.70	1.26	2.41
	3	1.26	2.41	+0.09	1.47	0.00	1.25	+0.10	0.00	1.40	2.82
	4	1.40	2.82	+0.12	1.26	0.00	1.25	+0.13	0.00	1.49	3.09
	5	1.49	3.09	+0.03	1.37	0.00	1.25	+0.03	0.00	1.55	3.27
	6	1.55	3.27	-0.03	0.94	0.00	1.25	-0.03	0.00	1.43	2.90
	7	1.43	2.90	-0.08	0.65	0.00	1.07	-0.07	0.18	1.23	2.33
	8	1.23	2.33	-0.10	0.36	0.00	0.19	-0.10	1.06	1.21	2.30
	9	1.21	2.30	-0.11	0.19	0.00	0.00	-0.11	1.25	1.21	2.29
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.25	1.20	2.27
	11	1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	1.25	1.20	2.28
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.25	1.21	2.29
60	1	1.21	2.29	-0.04	0.10	0.00	0.00	-0.05	1.25	1.24	2.35
	2	1.24	2.35	+0.01	0.25	0.00	0.22	+0.01	1.03	1.26	2.41
	3	1.26	2.41	+0.09	0.70	0.00	0.80	+0.09	0.45	1.29	2.49
	4	1.29	2.49	+0.11	1.26	0.00	1.25	+0.12	0.00	1.37	2.73
	5	1.37	2.73	+0.03	1.41	0.00	1.25	+0.03	0.00	1.45	2.95
	6	1.45	2.95	-0.03	0.84	0.00	1.25	-0.03	0.00	1.29	2.49



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME INIAD= 2.40

Volumes em m³

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALEG	AREA	VOLUME FINAL
7	1	1.29	2.49	-0.07	0.46	0.00	0.46	-0.07	0.77	1.23	2.33
8	1	1.23	2.33	-0.10	0.46	0.00	0.29	-0.10	0.96	1.21	2.30
9	1	1.21	2.30	-0.11	0.25	0.00	0.04	-0.11	1.21	1.21	2.29
10	1	1.21	2.29	-0.12	0.14	0.00	0.00	-0.13	1.25	1.20	2.27
11	1	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.25	1.20	2.28
12	1	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	1.25	1.21	2.29
61	1	1.21	2.29	-0.04	0.89	0.00	0.74	-0.05	0.51	1.24	2.35
2	1	1.24	2.35	+0.01	1.28	0.00	1.25	+0.01	0.00	1.26	2.41
3	1	1.26	2.41	+0.09	10.02	0.00	1.25	+0.28	0.00	3.92	11.55
4	1	3.92	11.55	+0.35	10.12	0.00	1.25	+0.51	0.00	5.82	21.28
5	1	5.82	21.28	+0.13	2.18	0.00	1.25	+0.13	0.00	4.03	22.47
6	1	6.03	22.47	-0.12	1.41	0.00	1.25	-0.12	0.00	6.01	22.38
7	1	6.01	22.38	-0.33	0.84	0.00	1.25	-0.32	0.00	5.82	21.32
8	1	5.82	21.32	-0.47	0.50	0.00	1.25	-0.46	0.00	5.53	19.64
9	1	5.53	19.64	-0.50	0.27	0.00	1.25	-0.47	0.00	5.19	17.69
10	1	5.19	17.69	-0.54	0.15	0.00	1.25	-0.50	0.00	4.76	15.55
11	1	4.76	15.55	-0.46	0.08	0.00	1.25	-0.43	0.00	4.34	13.49
12	1	4.34	13.49	-0.38	0.04	0.00	1.25	-0.35	0.00	3.92	11.55
62	1	3.92	11.55	-0.14	1.12	0.00	1.25	-0.14	0.00	3.83	11.14
2	1	3.83	11.14	+0.04	2.39	0.00	1.25	+0.04	0.00	4.10	12.36
3	1	4.10	12.36	+0.30	20.61	0.00	1.25	+0.52	0.00	7.50	32.54
4	1	7.50	32.54	+0.66	50.17	44.57	1.25	+0.91	0.00	10.76	38.46
5	1	10.76	38.46	+0.24	17.32	17.21	1.25	+0.23	0.00	10.39	37.78
6	1	10.39	37.78	-0.21	2.50	1.27	1.25	-0.21	0.00	10.15	37.34
7	1	10.15	37.34	-0.56	1.29	0.00	1.25	-0.54	0.00	9.56	36.28
8	1	9.56	36.28	-0.78	0.70	0.00	1.25	-0.72	0.00	8.43	34.24
9	1	8.43	34.24	-0.76	0.48	0.00	1.25	-0.68	0.00	7.21	32.02
10	1	7.21	32.02	-0.75	0.26	0.00	1.25	-0.72	0.00	6.91	29.56
11	1	6.91	29.56	-0.67	0.14	0.00	1.25	-0.65	0.00	6.62	27.13
12	1	6.62	27.13	-0.58	0.09	0.00	1.25	-0.56	0.00	6.34	24.83
63	1	6.34	24.83	-0.23	0.04	0.00	1.25	-0.22	0.00	6.14	23.17
2	1	6.14	23.17	+0.06	10.55	0.00	1.25	+0.08	0.00	7.26	32.11
3	1	7.26	32.11	+0.52	8.40	2.23	1.25	+0.74	0.00	10.67	38.29
4	1	10.67	38.29	+0.94	22.42	22.65	1.25	+0.91	0.00	10.76	38.46
5	1	10.76	38.46	+0.24	21.75	21.64	1.25	+0.23	0.00	10.39	37.78
6	1	10.39	37.78	-0.21	1.79	0.56	1.25	-0.21	0.00	10.15	37.34
7	1	10.15	37.34	-0.56	1.30	0.00	1.25	-0.54	0.00	9.57	36.29
8	1	9.57	36.29	-0.70	0.71	0.00	1.25	-0.72	0.00	8.44	34.25
9	1	8.44	34.25	-0.76	0.39	0.00	1.25	-0.68	0.00	7.19	31.95
10	1	7.19	31.95	-0.74	0.21	0.00	1.25	-0.72	0.00	6.89	29.45
11	1	6.89	29.45	-0.67	0.11	0.00	1.25	-0.65	0.00	6.60	26.99
12	1	6.60	26.99	-0.57	0.06	0.00	1.25	-0.56	0.00	6.32	24.67



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME (P-E)/2	VOLUME	VOLUME	VOLUME	VOLUME (P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIE.	FINAL	DEMANDA	FINAL	FINAL	
64	1	6.32	24.67	-0.23	0.03	0.00	1.25	-0.22	0.00	6.12	23.00
	2	6.12	23.00	+0.06	0.85	0.00	1.25	+0.06	0.00	6.07	22.73
	3	6.07	22.73	+0.44	1.68	0.00	1.25	+0.45	0.00	6.25	24.04
	4	6.25	24.04	+0.55	2.71	0.00	1.25	+0.57	0.00	6.56	26.63
	5	6.56	26.63	+0.14	1.08	0.00	1.25	+0.14	0.00	6.57	26.75
	6	6.57	26.75	-0.13	0.60	0.00	1.25	-0.13	0.00	6.46	25.84
	7	6.46	25.84	-0.36	0.39	0.00	1.25	-0.35	0.00	6.27	24.27
	8	6.27	24.27	-0.51	0.21	0.00	1.25	-0.49	0.00	5.98	22.23
	9	5.98	22.23	-0.54	0.12	0.00	1.25	-0.51	0.00	5.60	20.05
	10	5.60	20.05	-0.58	0.06	0.00	1.25	-0.55	0.00	5.19	17.73
	11	5.19	17.73	-0.50	0.12	0.00	1.25	-0.47	0.00	4.78	15.62
	12	4.78	15.62	-0.42	0.07	0.00	1.25	-0.39	0.00	4.37	13.64
65	1	4.37	13.64	-0.16	0.44	0.00	1.25	-0.15	0.00	4.14	12.52
	2	4.14	12.52	+0.04	1.95	0.00	1.25	+0.05	0.00	4.30	13.31
	3	4.30	13.31	+0.31	1.22	0.00	1.25	+0.31	0.00	4.43	13.91
	4	4.43	13.91	+0.39	4.08	0.00	1.25	+0.45	0.00	5.17	17.58
	5	5.17	17.58	+0.11	2.30	0.00	1.25	+0.12	0.00	5.39	18.86
	6	5.39	18.86	-0.11	1.27	0.00	1.25	-0.11	0.00	5.36	18.66
	7	5.36	18.66	-0.29	0.78	0.00	1.25	-0.29	0.00	5.17	17.61
	8	5.17	17.61	-0.42	0.43	0.00	1.25	-0.40	0.00	4.85	15.97
	9	4.85	15.97	-0.44	0.23	0.00	1.25	-0.41	0.00	4.47	14.10
	10	4.47	14.10	-0.46	0.13	0.00	1.25	-0.43	0.00	4.04	12.09
	11	4.04	12.09	-0.39	0.07	0.00	1.25	-0.36	0.00	3.61	10.16
	12	3.61	10.16	-0.31	0.03	0.00	1.25	-0.28	0.00	3.17	8.35
66	1	3.17	8.35	-0.11	0.40	0.00	1.25	-0.11	0.00	2.90	7.36
	2	2.90	7.36	+0.03	0.87	0.00	1.25	+0.03	0.00	2.81	7.04
	3	2.81	7.04	+0.20	1.12	0.00	1.25	+0.20	0.00	2.89	7.31
	4	2.89	7.31	+0.26	1.75	0.00	1.25	+0.27	0.00	3.17	8.34
	5	3.17	8.34	+0.07	1.43	0.00	1.25	+0.07	0.00	3.26	8.66
	6	3.26	8.66	-0.07	0.99	0.00	1.25	-0.06	0.00	3.15	8.27
	7	3.15	8.27	-0.17	0.54	0.00	1.25	-0.16	0.00	2.86	7.23
	8	2.86	7.23	-0.23	0.29	0.00	1.25	-0.21	0.00	2.46	5.83
	9	2.46	5.83	-0.22	0.16	0.00	1.25	-0.18	0.00	1.92	4.34
	10	1.92	4.34	-0.20	0.09	0.00	1.25	-0.15	0.00	1.41	2.83
	11	1.41	2.83	-0.14	0.04	0.00	0.34	-0.12	0.91	1.20	2.28
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.25	1.21	2.29
67	1	1.21	2.29	-0.04	0.18	0.00	0.03	-0.05	1.22	1.24	2.35
	2	1.24	2.35	+0.01	0.63	0.00	0.60	+0.01	0.65	1.26	2.41
	3	1.26	2.41	+0.09	0.91	0.00	1.01	+0.09	0.24	1.29	2.49
	4	1.29	2.49	+0.11	1.31	0.00	1.25	+0.12	0.00	1.39	2.78
	5	1.37	2.78	+0.03	0.99	0.00	1.25	+0.03	0.00	1.32	2.58
	6	1.32	2.58	-0.03	0.75	0.00	0.91	-0.03	0.34	1.25	2.37



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - BAKCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Valores em Hm<sup>3</sup>

(continuação)

ANO	PER.	AREA	VOLUME INICIAL	(F-E)/21	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/21	SALDO DEBANDA	AREA FINAL	VOLUME FINAL	FAL.
7		1.25	2.37	-0.07	0.41	0.00	0.32	-0.07	0.93	1.23	2.33	*
8		1.23	2.33	-0.10	0.22	0.00	0.05	-0.10	1.20	1.21	2.30	*
9		1.21	2.30	-0.11	0.12	0.00	0.00	-0.11	1.25	1.21	2.29	*
10		1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.25	1.20	2.27	*
11		1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.25	1.20	2.28	*
12		1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.25	1.21	2.29	*

000149



Geonorte

**DEMANDA 1,5 hm<sup>3</sup>/mês**

- No. DE MESES FALHOS = 254 - GARANTIA = 68%
- No. DE ANOS FALHOS = 39 - GARANTIA = 42%

000150



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup>

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
1	1	5.49	19.40	-0.20	0.00	0.00	1.50	-0.19	0.00	5.16	17.52	
	2	5.16	17.52	+0.05	0.59	0.00	1.50	+0.05	0.00	5.00	16.71	
	3	5.00	16.71	+0.36	4.67	0.00	1.50	+0.41	0.00	5.71	20.65	
	4	5.71	20.65	+0.51	6.68	0.00	1.50	+0.58	0.00	6.59	26.91	
	5	6.59	26.91	+0.14	6.98	0.00	1.50	+0.16	0.00	7.59	32.70	
	6	7.59	32.70	-0.15	1.56	0.00	1.50	-0.15	0.00	7.45	32.46	
	7	7.45	32.46	-0.41	1.04	0.00	1.50	-0.39	0.00	7.10	31.19	
	8	7.10	31.19	-0.58	0.57	0.00	1.50	-0.56	0.00	6.85	29.12	
	9	6.85	29.12	-0.62	0.31	0.00	1.50	-0.60	0.00	6.57	26.72	
	10	6.57	26.72	-0.68	0.17	0.00	1.50	-0.65	0.00	6.25	24.05	
	11	6.25	24.05	-0.61	0.09	0.00	1.50	-0.58	0.00	5.85	21.46	
	12	5.85	21.46	-0.51	0.09	0.00	1.50	-0.48	0.00	5.43	19.06	
2	1	5.43	19.06	-0.20	1.04	0.00	1.50	-0.19	0.00	5.28	18.21	
	2	5.28	18.21	+0.06	1.09	0.00	1.50	+0.05	0.00	5.23	17.91	
	3	5.23	17.91	+0.38	1.07	0.00	1.50	+0.38	0.00	5.28	18.24	
	4	5.28	18.24	+0.47	2.16	0.00	1.50	+0.49	0.00	5.57	19.85	
	5	5.57	19.85	+0.12	1.14	0.00	1.50	+0.12	0.00	5.55	19.73	
	6	5.55	19.73	-0.11	0.78	0.00	1.50	-0.11	0.00	5.38	18.79	
	7	5.38	18.79	-0.30	0.45	0.00	1.50	-0.28	0.00	5.09	17.17	
	8	5.09	17.17	-0.42	0.30	0.00	1.50	-0.39	0.00	4.68	15.16	
	9	4.68	15.16	-0.42	0.18	0.00	1.50	-0.39	0.00	4.25	13.03	
	10	4.25	13.03	-0.44	0.10	0.00	1.50	-0.40	0.00	3.75	10.79	
	11	3.75	10.79	-0.36	0.05	0.00	1.50	-0.32	0.00	3.26	8.66	
	12	3.26	8.66	-0.28	0.03	0.00	1.50	-0.24	0.00	2.70	6.66	
3	1	2.70	6.66	-0.10	0.09	0.00	1.50	-0.08	0.00	2.19	5.07	
	2	2.19	5.07	+0.02	0.11	0.00	1.50	+0.02	0.00	1.71	3.73	
	3	1.71	3.73	+0.12	0.58	0.00	1.50	+0.10	0.00	1.47	3.03	
	4	1.47	3.03	+0.13	0.73	0.00	1.49	+0.11	0.01	1.30	2.51	*
	5	1.30	2.51	+0.03	0.49	0.00	0.63	+0.03	0.87	1.27	2.43	*
	6	1.27	2.43	-0.03	0.31	0.00	0.31	-0.03	1.19	1.25	2.37	*
	7	1.25	2.37	-0.07	0.17	0.00	0.08	-0.07	1.42	1.23	2.33	*
	8	1.23	2.33	-0.10	0.09	0.00	0.00	-0.10	1.50	1.21	2.30	*
	9	1.21	2.30	-0.11	0.05	0.00	0.00	-0.11	1.50	1.21	2.29	*
	10	1.21	2.29	-0.12	0.02	0.00	0.00	-0.13	1.50	1.20	2.27	*
	11	1.20	2.27	-0.12	0.01	0.00	0.00	-0.12	1.50	1.20	2.28	*
	12	1.20	2.28	-0.10	0.21	0.00	0.00	-0.11	1.50	1.21	2.29	*
4	1	1.21	2.29	-0.04	0.58	0.00	0.43	-0.05	1.07	1.24	2.35	*
	2	1.24	2.35	+0.01	1.69	0.00	1.50	+0.01	0.00	1.32	2.57	
	3	1.32	2.57	+0.09	10.48	0.00	1.50	+0.28	0.00	4.00	11.93	
	4	4.00	11.93	+0.35	4.77	0.00	1.50	+0.42	0.00	4.85	15.98	
	5	4.85	15.98	+0.11	1.42	0.00	1.50	+0.11	0.00	4.88	16.11	
	6	4.88	16.11	-0.10	0.88	0.00	1.50	-0.09	0.00	4.71	15.30	





Geonorte

**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	ISANGRADO	RETIR.	FINAL	IDENANDA	FINAL	FINAL	
	7	4.71	15.30	-0.26	0.48	0.00	1.50	-0.24	0.00	4.40	13.77	
	8	4.40	13.77	-0.36	0.26	0.00	1.50	-0.33	0.00	3.98	11.84	
	9	3.98	11.84	-0.36	0.14	0.00	1.50	-0.32	0.00	3.53	9.80	
	10	3.53	9.80	-0.36	0.08	0.00	1.50	-0.32	0.00	2.99	7.70	
	11	2.99	7.70	-0.29	0.11	0.00	1.50	-0.24	0.00	2.44	5.77	
	12	2.44	5.77	-0.21	0.19	0.00	1.50	-0.16	0.00	1.83	4.09	
5	1	1.83	4.09	-0.07	4.05	0.00	1.50	-0.10	0.00	2.65	6.47	
	2	2.65	6.47	+0.03	15.28	0.00	1.50	+0.06	0.00	5.65	20.34	
	3	5.65	20.34	+0.41	32.41	14.36	1.50	+0.73	0.00	10.52	38.03	
	4	10.52	38.03	+0.93	26.58	26.74	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	44.63	44.26	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	2.02	0.54	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	1.11	0.00	1.50	-0.52	0.00	9.20	35.63	
	8	9.20	35.63	-0.75	0.61	0.00	1.50	-0.68	0.00	7.93	33.32	
	9	7.93	33.32	-0.71	0.39	0.00	1.50	-0.64	0.00	7.06	30.85	
	10	7.06	30.85	-0.73	0.32	0.00	1.50	-0.71	0.00	6.75	28.23	
	11	6.75	28.23	-0.65	0.24	0.00	1.50	-0.63	0.00	6.44	25.69	
	12	6.44	25.69	-0.56	0.39	0.00	1.50	-0.54	0.00	6.18	23.47	
6	1	6.18	23.47	-0.22	0.93	0.00	1.50	-0.22	0.00	6.03	22.46	
	2	6.03	22.46	+0.06	1.00	0.00	1.50	+0.06	0.00	5.96	22.09	
	3	5.96	22.09	+0.43	20.41	4.13	1.50	+0.73	0.00	10.52	38.03	
	4	10.52	38.03	+0.93	1.87	2.03	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	3.42	3.05	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	3.70	2.22	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	1.21	0.00	1.50	-0.53	0.00	9.26	35.73	
	8	9.26	35.73	-0.75	0.66	0.00	1.50	-0.68	0.00	8.00	33.45	
	9	8.00	33.45	-0.72	0.56	0.00	1.50	-0.65	0.00	7.10	31.15	
	10	7.10	31.15	-0.73	0.31	0.00	1.50	-0.71	0.00	6.78	28.51	
	11	6.78	28.51	-0.66	0.17	0.00	1.50	-0.63	0.00	6.47	25.89	
	12	6.47	25.89	-0.56	0.40	0.00	1.50	-0.55	0.00	6.20	23.68	
7	1	6.20	23.68	-0.22	0.44	0.00	1.50	-0.22	0.00	5.98	22.18	
	2	5.98	22.18	+0.06	0.53	0.00	1.50	+0.06	0.00	5.83	21.34	
	3	5.83	21.34	+0.42	0.39	0.00	1.50	+0.41	0.00	5.78	21.06	
	4	5.78	21.06	+0.51	0.30	0.00	1.50	+0.50	0.00	5.75	20.87	
	5	5.75	20.87	+0.13	0.43	0.00	1.50	+0.12	0.00	5.60	20.05	
	6	5.60	20.05	-0.11	0.25	0.00	1.50	-0.11	0.00	5.34	18.58	
	7	5.34	18.58	-0.29	0.14	0.00	1.50	-0.28	0.00	4.99	16.65	
	8	4.99	16.65	-0.41	0.08	0.00	1.50	-0.38	0.00	4.54	14.45	
	9	4.54	14.45	-0.41	0.04	0.00	1.50	-0.37	0.00	4.07	12.20	
	10	4.07	12.20	-0.42	0.02	0.00	1.50	-0.38	0.00	3.55	9.93	
	11	3.55	9.93	-0.34	0.01	0.00	1.50	-0.30	0.00	3.02	7.79	
	12	3.02	7.79	-0.26	0.04	0.00	1.50	-0.22	0.00	2.46	5.85	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m³

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
8	1	2.46	5.85	-0.09	0.03	0.00	1.50	-0.07	0.00	1.88	4.22	
	2	1.88	4.22	+0.02	0.36	0.00	1.50	+0.02	0.00	1.50	3.12	
	3	1.50	3.12	+0.11	23.79	0.00	1.50	+0.46	0.00	6.48	25.98	
	4	6.48	25.98	+0.57	7.23	0.00	1.50	+0.65	0.00	7.71	32.93	
	5	7.71	32.93	+0.17	1.89	0.00	1.50	+0.18	0.00	8.12	33.67	
	6	8.12	33.67	-0.16	1.14	0.00	1.50	-0.16	0.00	7.74	32.99	
	7	7.74	32.99	-0.43	0.71	0.00	1.50	-0.39	0.00	7.13	31.38	
	8	7.13	31.38	-0.58	0.61	0.00	1.50	-0.57	0.00	6.88	29.34	
	9	6.88	29.34	-0.62	0.33	0.00	1.50	-0.60	0.00	6.59	26.95	
	10	6.59	26.95	-0.68	0.18	0.00	1.50	-0.66	0.00	6.27	24.29	
	11	6.27	24.29	-0.61	0.11	0.00	1.50	-0.58	0.00	5.89	21.71	
	12	5.89	21.71	-0.51	0.29	0.00	1.50	-0.49	0.00	5.50	19.50	
9	1	5.50	19.50	-0.20	0.27	0.00	1.50	-0.19	0.00	5.22	17.88	
	2	5.22	17.88	+0.05	0.80	0.00	1.50	+0.05	0.00	5.12	17.29	
	3	5.12	17.29	+0.37	3.24	0.00	1.50	+0.40	0.00	5.56	19.80	
	4	5.56	19.80	+0.49	4.55	0.00	1.50	+0.55	0.00	6.23	23.88	
	5	6.23	23.88	+0.14	16.16	1.38	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.56	0.08	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	0.93	0.00	1.50	-0.52	0.00	9.11	35.46	
	8	9.11	35.46	-0.74	0.51	0.00	1.50	-0.66	0.00	7.79	33.06	
	9	7.79	33.06	-0.70	0.29	0.00	1.50	-0.64	0.00	7.02	30.51	
	10	7.02	30.51	-0.73	0.16	0.00	1.50	-0.70	0.00	6.69	27.75	
	11	6.69	27.75	-0.65	0.09	0.00	1.50	-0.62	0.00	6.37	25.06	
	12	6.37	25.06	-0.55	0.05	0.00	1.50	-0.53	0.00	6.04	22.53	
10	1	6.04	22.53	-0.22	0.13	0.00	1.50	-0.21	0.00	5.72	20.73	
	2	5.72	20.73	+0.06	0.21	0.00	1.50	+0.06	0.00	5.51	19.56	
	3	5.51	19.56	+0.40	0.53	0.00	1.50	+0.39	0.00	5.48	19.38	
	4	5.48	19.38	+0.49	2.69	0.00	1.50	+0.51	0.00	5.87	21.56	
	5	5.87	21.56	+0.13	1.35	0.00	1.50	+0.13	0.00	5.89	21.67	
	6	5.89	21.67	-0.12	0.89	0.00	1.50	-0.12	0.00	5.74	20.83	
	7	5.74	20.83	-0.32	0.60	0.00	1.50	-0.30	0.00	5.47	19.31	
	8	5.47	19.31	-0.45	0.34	0.00	1.50	-0.42	0.00	5.11	17.28	
	9	5.11	17.28	0.46	0.18	0.00	1.50	-0.43	0.00	4.66	15.07	
	10	4.66	15.07	-0.48	0.10	0.00	1.50	-0.44	0.00	4.19	12.75	
	11	4.19	12.75	-0.41	0.32	0.00	1.50	-0.37	0.00	3.75	10.79	
	12	3.75	10.79	-0.33	0.18	0.00	1.50	-0.29	0.00	3.31	8.85	
11	1	3.31	8.85	-0.12	0.54	0.00	1.50	-0.11	0.00	2.98	7.66	
	2	2.98	7.66	+0.03	4.74	0.00	1.50	+0.04	0.00	3.79	10.97	
	3	3.79	10.97	+0.27	2.47	0.00	1.50	+0.29	0.00	4.13	12.51	
	4	4.13	12.51	+0.37	6.93	0.00	1.50	+0.47	0.00	5.38	18.77	
	5	5.38	18.77	+0.12	1.76	0.00	1.50	+0.12	0.00	5.46	19.27	
	6	5.46	19.27	-0.11	1.14	0.00	1.50	-0.11	0.00	5.36	18.69	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuação)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INICIAL	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
7		5.36	18.69	-0.29	0.69	0.00	1.50	-0.28	0.00	5.12	17.30		
8		5.12	17.30	-0.42	0.38	0.00	1.50	-0.39	0.00	4.73	15.37		
9		4.73	15.37	-0.43	0.21	0.00	1.50	-0.39	0.00	4.30	13.27		
10		4.30	13.27	-0.44	0.11	0.00	1.50	-0.40	0.00	3.80	11.03		
11		3.80	11.03	-0.37	0.06	0.00	1.50	-0.33	0.00	3.32	8.89		
12		3.32	8.89	-0.29	0.03	0.00	1.50	-0.25	0.00	2.77	6.88		
12	1	2.77	6.88	-0.10	0.86	0.00	1.50	-0.09	0.00	2.53	6.05		
	2	2.53	6.05	+0.03	1.80	0.00	1.50	+0.03	0.00	2.63	6.41		
	3	2.63	6.41	+0.19	12.31	0.00	1.50	+0.37	0.00	5.20	17.78		
	4	5.20	17.78	+0.46	16.68	0.00	1.50	+0.71	0.00	8.37	34.12		
	5	8.37	34.12	+0.18	7.00	2.51	1.50	+0.22	0.00	10.25	37.52		
	6	10.25	37.52	-0.20	2.73	1.25	1.50	-0.20	0.00	10.01	37.10		
	7	10.01	37.10	-0.55	1.15	0.00	1.50	-0.52	0.00	9.23	35.67		
	8	9.23	35.67	-0.75	0.63	0.00	1.50	-0.68	0.00	7.96	33.37		
	9	7.96	33.37	-0.72	0.34	0.00	1.50	-0.64	0.00	7.06	30.85		
	10	7.06	30.85	-0.73	0.19	0.00	1.50	-0.71	0.00	6.73	28.11		
	11	6.73	28.11	-0.65	0.10	0.00	1.50	-0.63	0.00	6.41	25.43		
	12	6.41	25.43	-0.56	0.12	0.00	1.50	-0.54	0.00	6.11	22.95		
13	1	6.11	22.95	-0.22	0.94	0.00	1.50	-0.22	0.00	5.94	21.95		
	2	5.94	21.95	+0.06	1.32	0.00	1.50	+0.06	0.00	5.93	21.90		
	3	5.93	21.90	+0.43	2.23	0.00	1.50	+0.44	0.00	6.18	23.50		
	4	6.18	23.50	+0.55	2.14	0.00	1.50	+0.56	0.00	6.39	25.24		
	5	6.39	25.24	+0.14	1.44	0.00	1.50	+0.14	0.00	6.42	25.46		
	6	6.42	25.46	-0.13	0.98	0.00	1.50	-0.13	0.00	6.32	24.69		
	7	6.32	24.69	-0.35	0.60	0.00	1.50	-0.34	0.00	6.13	23.10		
	8	6.13	23.10	-0.50	0.39	0.00	1.50	-0.48	0.00	5.77	21.02		
	9	5.77	21.02	-0.52	0.21	0.00	1.50	-0.49	0.00	5.37	18.72		
	10	5.37	18.72	-0.56	0.11	0.00	1.50	-0.52	0.00	4.91	16.25		
	11	4.91	16.25	-0.48	0.06	0.00	1.50	-0.44	0.00	4.42	13.90		
	12	4.42	13.90	-0.38	0.03	0.00	1.50	-0.35	0.00	3.95	11.69		
14	1	3.95	11.69	-0.14	0.39	0.00	1.50	-0.13	0.00	3.64	10.31		
	2	3.64	10.31	+0.04	2.54	0.00	1.50	+0.04	0.00	3.89	11.43		
	3	3.89	11.43	+0.28	9.80	0.00	1.50	+0.40	0.00	5.66	20.41		
	4	5.66	20.41	+0.50	11.53	0.00	1.50	+0.63	0.00	7.15	31.57		
	5	7.15	31.57	+0.16	2.90	0.00	1.50	+0.17	0.00	7.91	33.30		
	6	7.91	33.30	-0.16	1.28	0.00	1.50	-0.15	0.00	7.62	32.76		
	7	7.62	32.76	-0.42	0.73	0.00	1.50	-0.39	0.00	7.10	31.18		
	8	7.10	31.18	-0.58	0.40	0.00	1.50	-0.56	0.00	6.83	28.94		
	9	6.83	28.94	-0.61	0.22	0.00	1.50	-0.59	0.00	6.53	26.45		
	10	6.53	26.45	-0.68	0.12	0.00	1.50	-0.65	0.00	6.21	23.74		
	11	6.21	23.74	-0.60	0.06	0.00	1.50	-0.57	0.00	5.79	21.13		
	12	5.79	21.13	-0.50	0.03	0.00	1.50	-0.47	0.00	5.36	18.63		



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
15	1	5.36	18.68	-0.19	0.31	0.00	1.50	-0.18	0.00	5.08	17.12	
	2	5.08	17.12	+0.05	0.67	0.00	1.50	+0.05	0.00	4.93	16.39	
	3	4.93	16.39	+0.36	1.24	0.00	1.50	+0.36	0.00	5.03	16.84	
	4	5.03	16.84	+0.44	6.20	0.00	1.50	+0.53	0.00	6.03	22.51	
	5	6.03	22.51	+0.13	1.52	0.00	1.50	+0.13	0.00	6.08	22.80	
	6	6.08	22.80	-0.12	1.03	0.00	1.50	-0.12	0.00	5.96	22.09	
	7	5.96	22.09	-0.33	0.60	0.00	1.50	-0.32	0.00	5.69	20.54	
	8	5.69	20.54	-0.46	0.33	0.00	1.50	-0.44	0.00	5.32	18.47	
	9	5.32	18.47	-0.48	0.18	0.00	1.50	-0.45	0.00	4.90	16.22	
	10	4.90	16.22	-0.51	0.10	0.00	1.50	-0.47	0.00	4.41	13.85	
	11	4.41	13.85	-0.43	0.05	0.00	1.50	-0.39	0.00	3.93	11.58	
	12	3.93	11.58	-0.34	0.05	0.00	1.50	-0.31	0.00	3.45	9.48	
16	1	3.45	9.48	-0.12	0.50	0.00	1.50	-0.11	0.00	3.15	8.24	
	2	3.15	8.24	+0.03	0.57	0.00	1.50	+0.03	0.00	2.90	7.38	
	3	2.90	7.38	+0.21	1.48	0.00	1.50	+0.21	0.00	3.02	7.78	
	4	3.02	7.78	+0.27	3.36	0.00	1.50	+0.31	0.00	3.62	10.22	
	5	3.62	10.22	+0.08	1.21	0.00	1.50	+0.08	0.00	3.59	10.09	
	6	3.59	10.09	-0.07	0.78	0.00	1.50	-0.07	0.00	3.40	9.23	
	7	3.40	9.23	-0.19	0.43	0.00	1.50	-0.17	0.00	3.02	7.80	
	8	3.02	7.80	-0.25	0.23	0.00	1.50	-0.21	0.00	2.54	6.07	
	9	2.54	6.07	-0.23	0.13	0.00	1.50	-0.18	0.00	1.91	4.30	
	10	1.91	4.30	-0.20	0.07	0.00	1.50	-0.14	0.00	1.30	2.53	
	11	1.30	2.53	-0.13	0.03	0.00	0.03	-0.12	1.47	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.50	1.21	2.29	≠
17	1	1.21	2.29	-0.04	0.67	0.00	0.52	-0.05	0.98	1.24	2.35	≠
	2	1.24	2.35	+0.01	4.33	0.00	1.50	+0.02	0.00	2.24	5.22	
	3	2.24	5.22	+0.16	8.58	0.00	1.50	+0.30	0.00	4.19	12.76	
	4	4.19	12.76	+0.37	9.15	0.00	1.50	+0.51	0.00	5.82	21.29	
	5	5.82	21.29	+0.13	1.63	0.00	1.50	+0.13	0.00	5.89	21.67	
	6	5.89	21.67	-0.12	0.97	0.00	1.50	-0.12	0.00	5.75	20.91	
	7	5.75	20.91	-0.32	0.57	0.00	1.50	-0.30	0.00	5.48	19.36	
	8	5.48	19.36	-0.45	0.31	0.00	1.50	-0.42	0.00	5.12	17.30	
	9	5.12	17.30	-0.46	0.17	0.00	1.50	-0.43	0.00	4.67	15.08	
	10	4.67	15.08	-0.48	0.09	0.00	1.50	-0.44	0.00	4.19	12.75	
	11	4.19	12.75	-0.41	0.05	0.00	1.50	-0.37	0.00	3.69	10.52	
	12	3.69	10.52	-0.32	0.43	0.00	1.50	-0.29	0.00	3.31	8.84	
18	1	3.31	8.84	-0.12	0.56	0.00	1.50	-0.11	0.00	2.99	7.67	
	2	2.99	7.67	+0.03	1.94	0.00	1.50	+0.03	0.00	3.13	8.18	
	3	3.13	8.18	+0.23	16.49	0.00	1.50	+0.44	0.00	6.22	23.84	
	4	6.22	23.84	+0.55	4.06	0.00	1.50	+0.58	0.00	6.66	27.53	
	5	6.66	27.53	+0.15	1.57	0.00	1.50	+0.15	0.00	6.71	27.89	
	6	6.71	27.89	-0.13	1.33	0.00	1.50	-0.13	0.00	6.65	27.46	



Geonorte

**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup>

(continuação)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
	7	6.65	27.46	-0.37	0.79	0.00	1.50	-0.36	0.00	6.48	26.02	
	8	6.48	26.02	-0.53	0.46	0.00	1.50	-0.51	0.00	6.23	23.94	
	9	6.23	23.94	-0.56	0.25	0.00	1.50	-0.54	0.00	5.87	21.59	
	10	5.87	21.59	-0.61	0.14	0.00	1.50	-0.57	0.00	5.43	19.05	
	11	5.43	19.05	-0.53	0.07	0.00	1.50	-0.49	0.00	4.98	16.60	
	12	4.98	16.60	-0.43	0.04	0.00	1.50	-0.40	0.00	4.51	14.31	
19	1	4.51	14.31	-0.16	0.64	0.00	1.50	-0.15	0.00	4.27	13.13	
	2	4.27	13.13	+0.04	3.03	0.00	1.50	+0.05	0.00	4.60	14.76	
	3	4.60	14.76	+0.33	3.98	0.00	1.50	+0.37	0.00	5.23	17.94	
	4	5.23	17.94	+0.46	2.61	0.00	1.50	+0.49	0.00	5.59	20.00	
	5	5.59	20.00	+0.12	1.37	0.00	1.50	+0.12	0.00	5.61	20.12	
	6	5.61	20.12	-0.11	0.88	0.00	1.50	-0.11	0.00	5.46	19.27	
	7	5.46	19.27	-0.30	0.50	0.00	1.50	-0.29	0.00	5.19	17.68	
	8	5.19	17.68	-0.42	0.28	0.00	1.50	-0.40	0.00	4.78	15.65	
	9	4.78	15.65	-0.43	0.16	0.00	1.50	-0.40	0.00	4.34	13.48	
	10	4.34	13.48	-0.45	0.09	0.00	1.50	-0.41	0.00	3.84	11.21	
	11	3.84	11.21	-0.37	0.05	0.00	1.50	-0.33	0.00	3.36	9.06	
	12	3.36	9.06	-0.29	0.02	0.00	1.50	-0.25	0.00	2.81	7.03	
20	1	2.81	7.03	-0.10	0.32	0.00	1.50	-0.09	0.00	2.40	5.66	
	2	2.40	5.66	+0.03	0.64	0.00	1.50	+0.02	0.00	2.11	4.85	
	3	2.11	4.85	+0.15	1.07	0.00	1.50	+0.14	0.00	2.06	4.72	
	4	2.06	4.72	+0.18	0.79	0.00	1.50	+0.17	0.00	1.93	4.36	
	5	1.93	4.36	+0.04	0.44	0.00	1.50	+0.03	0.00	1.59	3.37	
	6	1.59	3.37	-0.03	0.41	0.00	1.35	-0.03	0.15	1.25	2.37	
	7	1.25	2.37	-0.07	0.33	0.00	0.24	-0.07	1.26	1.23	2.33	
	8	1.23	2.33	-0.10	0.18	0.00	0.01	-0.10	1.49	1.21	2.30	
	9	1.21	2.30	-0.11	0.09	0.00	0.00	-0.11	1.50	1.21	2.29	
	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	1.50	1.20	2.27	
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.50	1.20	2.28	
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.50	1.21	2.29	
21	1	1.21	2.29	-0.04	0.76	0.00	0.61	-0.05	0.89	1.24	2.35	
	2	1.24	2.35	+0.01	2.00	0.00	1.50	+0.01	0.00	1.42	2.88	
	3	1.42	2.88	+0.10	2.08	0.00	1.50	+0.12	0.00	1.69	3.68	
	4	1.69	3.68	+0.15	7.73	0.00	1.50	+0.32	0.00	3.66	10.38	
	5	3.66	10.38	+0.08	1.59	0.00	1.50	+0.08	0.00	3.71	10.63	
	6	3.71	10.63	-0.07	0.91	0.00	1.50	-0.07	0.00	3.55	9.90	
	7	3.55	9.90	-0.20	0.53	0.00	1.50	-0.18	0.00	3.23	8.55	
	8	3.23	8.55	-0.26	0.29	0.00	1.50	-0.23	0.00	2.76	6.85	
	9	2.76	6.85	-0.25	0.17	0.00	1.50	-0.20	0.00	2.18	5.07	
	10	2.18	5.07	-0.23	0.09	0.00	1.50	-0.17	0.00	1.55	3.26	
	11	1.55	3.26	-0.15	0.05	0.00	0.76	-0.12	0.74	1.20	2.28	
	12	1.20	2.28	-0.10	0.09	0.00	0.00	-0.11	1.50	1.21	2.29	



**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
22	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	1.31	1.24	2.35	*
	2	1.24	2.35	+0.01	2.16	0.00	1.50	+0.02	0.00	1.48	3.04	
	3	1.48	3.04	+0.11	9.29	0.00	1.50	+0.27	0.00	3.84	11.21	
	4	3.84	11.21	+0.34	11.07	0.00	1.50	+0.51	0.00	5.88	21.63	
	5	5.88	21.63	+0.13	3.48	0.00	1.50	+0.14	0.00	6.23	23.88	
	6	6.23	23.88	-0.12	1.36	0.00	1.50	-0.12	0.00	6.18	23.49	
	7	6.18	23.49	-0.34	0.75	0.00	1.50	-0.33	0.00	5.96	22.07	
	8	5.96	22.07	-0.49	0.41	0.00	1.50	-0.46	0.00	5.60	20.03	
	9	5.60	20.03	-0.50	0.26	0.00	1.50	-0.48	0.00	5.21	17.81	
	10	5.21	17.81	-0.54	0.14	0.00	1.50	-0.50	0.00	4.73	15.41	
	11	4.73	15.41	-0.46	0.09	0.00	1.50	-0.42	0.00	4.27	13.12	
	12	4.27	13.12	-0.37	0.43	0.00	1.50	-0.34	0.00	3.87	11.34	
23	1	3.87	11.34	-0.14	1.02	0.00	1.50	-0.13	0.00	3.70	10.58	
	2	3.70	10.58	+0.04	1.45	0.00	1.50	+0.04	0.00	3.71	10.61	
	3	3.71	10.61	+0.27	3.41	0.00	1.50	+0.30	0.00	4.26	13.09	
	4	4.26	13.09	+0.38	24.30	0.00	1.50	+0.85	0.00	10.02	37.11	
	5	10.02	37.11	+0.22	6.42	4.95	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.80	0.32	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	1.00	0.00	1.50	-0.52	0.00	9.15	35.53	
	8	9.15	35.53	-0.75	0.55	0.00	1.50	-0.67	0.00	7.84	33.16	
	9	7.84	33.16	-0.71	0.30	0.00	1.50	-0.64	0.00	7.03	30.62	
	10	7.03	30.62	-0.73	0.16	0.00	1.50	-0.70	0.00	6.70	27.85	
	11	6.70	27.85	-0.65	0.09	0.00	1.50	-0.63	0.00	6.38	25.16	
	12	6.38	25.16	-0.56	0.05	0.00	1.50	-0.53	0.00	6.05	22.62	
24	1	6.05	22.62	-0.22	0.18	0.00	1.50	-0.21	0.00	5.75	20.88	
	2	5.75	20.88	+0.06	1.01	0.00	1.50	+0.06	0.00	5.68	20.51	
	3	5.68	20.51	+0.41	0.88	0.00	1.50	+0.41	0.00	5.72	20.70	
	4	5.72	20.70	+0.51	1.04	0.00	1.50	+0.51	0.00	5.81	21.25	
	5	5.81	21.25	+0.13	0.91	0.00	1.50	+0.13	0.00	5.75	20.92	
	6	5.75	20.92	-0.12	0.52	0.00	1.50	-0.11	0.00	5.54	19.71	
	7	5.54	19.71	-0.30	0.30	0.00	1.50	-0.29	0.00	5.23	17.92	
	8	5.23	17.92	-0.43	0.16	0.00	1.50	-0.40	0.00	4.80	15.75	
	9	4.80	15.75	-0.43	0.09	0.00	1.50	-0.40	0.00	4.35	13.51	
	10	4.35	13.51	-0.45	0.05	0.00	1.50	-0.41	0.00	3.84	11.20	
	11	3.84	11.20	-0.37	0.02	0.00	1.50	-0.33	0.00	3.35	9.02	
	12	3.35	9.02	-0.29	0.01	0.00	1.50	-0.25	0.00	2.80	6.99	
25	1	2.80	6.99	-0.10	0.08	0.00	1.50	-0.08	0.00	2.30	5.39	
	2	2.30	5.39	+0.02	0.84	0.00	1.50	+0.02	0.00	2.08	4.77	
	3	2.08	4.77	+0.15	0.90	0.00	1.50	+0.14	0.00	1.97	4.46	
	4	1.97	4.46	+0.17	1.37	0.00	1.50	+0.18	0.00	2.04	4.68	
	5	2.04	4.68	+0.04	1.29	0.00	1.50	+0.04	0.00	2.00	4.56	
	6	2.00	4.56	-0.04	0.93	0.00	1.50	-0.04	0.00	1.77	3.91	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
7	1	1.77	3.91	-0.10	0.57	0.00	1.50	-0.08	0.00	1.40	2.80	2.80
8	1	1.40	2.80	-0.11	0.31	0.00	0.60	-0.10	0.90	1.21	2.30	2.30
9	1	1.21	2.30	-0.11	0.17	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
10	1	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	1.50	1.20	2.27	2.27
11	1	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.50	1.20	2.28	2.28
12	1	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
26	1	1.21	2.29	-0.04	0.38	0.00	0.23	-0.05	1.27	1.24	2.35	2.35
2	1	1.24	2.35	+0.01	0.28	0.00	0.25	+0.01	1.25	1.26	2.41	2.41
3	1	1.26	2.41	+0.09	4.53	0.00	1.50	+0.17	0.00	2.41	5.70	5.70
4	1	2.41	5.70	+0.21	2.01	0.00	1.50	+0.23	0.00	2.70	6.66	6.66
5	1	2.70	6.66	+0.06	1.33	0.00	1.50	+0.06	0.00	2.69	6.61	6.61
6	1	2.69	6.61	-0.05	0.84	0.00	1.50	-0.05	0.00	2.46	5.85	5.85
7	1	2.46	5.85	-0.14	0.50	0.00	1.50	-0.11	0.00	2.01	4.60	4.60
8	1	2.01	4.60	-0.16	0.33	0.00	1.50	-0.13	0.00	1.51	3.14	3.14
9	1	1.51	3.14	-0.14	0.18	0.00	0.78	-0.11	0.72	1.21	2.29	2.29
10	1	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.50	1.20	2.27	2.27
11	1	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.50	1.20	2.28	2.28
12	1	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
27	1	1.21	2.29	-0.04	0.12	0.00	0.00	-0.05	1.50	1.24	2.35	2.35
2	1	1.24	2.35	+0.01	0.73	0.00	0.70	+0.01	0.80	1.26	2.41	2.41
3	1	1.26	2.41	+0.09	3.01	0.00	1.50	+0.13	0.00	1.85	4.14	4.14
4	1	1.85	4.14	+0.16	1.64	0.00	1.50	+0.17	0.00	2.02	4.62	4.62
5	1	2.02	4.62	+0.04	1.27	0.00	1.50	+0.04	0.00	1.97	4.48	4.48
6	1	1.97	4.48	-0.04	0.76	0.00	1.50	-0.03	0.00	1.69	3.67	3.67
7	1	1.69	3.67	-0.09	0.54	0.00	1.50	-0.07	0.00	1.31	2.54	2.54
8	1	1.31	2.54	-0.11	0.30	0.00	0.33	-0.10	1.17	1.21	2.30	2.30
9	1	1.21	2.30	-0.11	0.22	0.00	0.01	-0.11	1.49	1.21	2.29	2.29
10	1	1.21	2.29	-0.12	0.16	0.00	0.00	-0.13	1.50	1.20	2.27	2.27
11	1	1.20	2.27	-0.12	0.09	0.00	0.00	-0.12	1.50	1.20	2.28	2.28
12	1	1.20	2.28	-0.10	0.05	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
28	1	1.21	2.29	-0.04	0.94	0.00	0.81	-0.05	0.69	1.24	2.35	2.35
2	1	1.24	2.35	+0.01	1.27	0.00	1.24	+0.01	0.26	1.26	2.41	2.41
3	1	1.26	2.41	+0.09	2.65	0.00	1.50	+0.12	0.00	1.72	3.78	3.78
4	1	1.72	3.78	+0.15	3.51	0.00	1.50	+0.22	0.00	2.56	6.16	6.16
5	1	2.56	6.16	+0.06	1.59	0.00	1.50	+0.06	0.00	2.62	6.36	6.36
6	1	2.62	6.36	-0.05	0.98	0.00	1.50	-0.05	0.00	2.43	5.74	5.74
7	1	2.43	5.74	-0.13	0.64	0.00	1.50	-0.11	0.00	2.03	4.63	4.63
8	1	2.03	4.63	-0.17	0.36	0.00	1.50	-0.13	0.00	1.53	3.20	3.20
9	1	1.53	3.20	-0.14	0.20	0.00	0.86	-0.11	0.64	1.21	2.29	2.29
10	1	1.21	2.29	-0.12	0.11	0.00	0.00	-0.13	1.50	1.20	2.27	2.27
11	1	1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	1.50	1.20	2.28	2.28
12	1	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.50	1.21	2.29	2.29



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME INICIAL= 2.40

Volumes em m<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	VOLUME (P-E)/2 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	VOLUME (P-E)/2 FINAL	SALEO DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
29	1	1.211	2.291	-0.041	0.081	0.001	0.001	-0.051	1.501	1.241	2.351	±
	2	1.241	2.351	+0.011	0.301	0.001	0.271	+0.011	1.231	1.261	2.411	±
	3	1.261	2.411	+0.091	1.171	0.001	1.271	+0.091	0.231	1.291	2.491	±
	4	1.291	2.491	+0.111	1.221	0.001	1.421	+0.111	0.081	1.301	2.511	±
	5	1.301	2.511	+0.031	0.751	0.001	0.891	+0.031	0.611	1.271	2.431	±
	6	1.271	2.431	-0.031	0.591	0.001	0.591	-0.031	0.911	1.251	2.371	±
	7	1.251	2.371	-0.071	0.361	0.001	0.271	-0.071	1.231	1.231	2.331	±
	8	1.231	2.331	-0.101	0.191	0.001	0.021	-0.101	1.481	1.211	2.301	±
	9	1.211	2.301	-0.111	0.101	0.001	0.001	-0.111	1.501	1.211	2.291	±
	10	1.211	2.291	-0.121	0.061	0.001	0.001	-0.131	1.501	1.201	2.271	±
	11	1.201	2.271	-0.121	0.031	0.001	0.001	-0.121	1.501	1.201	2.281	±
	12	1.201	2.281	-0.101	0.011	0.001	0.001	-0.111	1.501	1.211	2.291	±
30	1	1.211	2.291	-0.041	0.471	0.001	0.321	-0.051	1.181	1.241	2.351	±
	2	1.241	2.351	+0.011	0.651	0.001	0.621	+0.011	0.881	1.261	2.411	±
	3	1.261	2.411	+0.091	1.391	0.001	1.491	+0.091	0.011	1.291	2.491	±
	4	1.291	2.491	+0.111	1.171	0.001	1.371	+0.111	0.131	1.301	2.511	±
	5	1.301	2.511	+0.031	0.641	0.001	0.781	+0.031	0.721	1.271	2.431	±
	6	1.271	2.431	-0.031	0.351	0.001	0.351	-0.031	1.151	1.251	2.371	±
	7	1.251	2.371	-0.071	0.191	0.001	0.101	-0.071	1.401	1.231	2.331	±
	8	1.231	2.331	-0.101	0.101	0.001	0.001	-0.101	1.501	1.211	2.301	±
	9	1.211	2.301	-0.111	0.051	0.001	0.001	-0.111	1.501	1.211	2.291	±
	10	1.211	2.291	-0.121	0.031	0.001	0.001	-0.131	1.501	1.201	2.271	±
	11	1.201	2.271	-0.121	0.011	0.001	0.001	-0.121	1.501	1.201	2.281	±
	12	1.201	2.281	-0.101	0.231	0.001	0.001	-0.111	1.501	1.211	2.291	±
31	1	1.211	2.291	-0.041	0.411	0.001	0.261	-0.051	1.241	1.241	2.351	±
	2	1.241	2.351	+0.011	0.411	0.001	0.381	+0.011	1.121	1.261	2.411	±
	3	1.261	2.411	+0.091	0.701	0.001	0.801	+0.091	0.701	1.291	2.491	±
	4	1.291	2.491	+0.111	1.131	0.001	1.331	+0.111	0.171	1.301	2.511	±
	5	1.301	2.511	+0.031	0.971	0.001	1.111	+0.031	0.391	1.271	2.431	±
	6	1.271	2.431	-0.031	0.531	0.001	0.531	-0.031	0.971	1.251	2.371	±
	7	1.251	2.371	-0.071	0.371	0.001	0.281	-0.071	1.221	1.231	2.331	±
	8	1.231	2.331	-0.101	0.201	0.001	0.031	-0.101	1.471	1.211	2.301	±
	9	1.211	2.301	-0.111	0.111	0.001	0.001	-0.111	1.501	1.211	2.291	±
	10	1.211	2.291	-0.121	0.061	0.001	0.001	-0.131	1.501	1.201	2.271	±
	11	1.201	2.271	-0.121	0.091	0.001	0.001	-0.121	1.501	1.201	2.281	±
	12	1.201	2.281	-0.101	0.541	0.001	0.311	-0.111	1.191	1.211	2.291	±
32	1	1.211	2.291	-0.041	0.581	0.001	0.431	-0.051	1.071	1.241	2.351	±
	2	1.241	2.351	+0.011	0.781	0.001	0.751	+0.011	0.751	1.261	2.411	±
	3	1.261	2.411	+0.091	3.971	0.001	1.501	+0.151	0.001	2.211	5.131	1
	4	2.211	5.131	+0.201	2.551	0.001	1.501	+0.231	0.001	2.691	6.611	1
	5	2.691	6.611	+0.061	1.461	0.001	1.501	+0.061	0.001	2.711	6.691	1
	6	2.711	6.691	-0.051	0.861	0.001	1.501	-0.051	0.001	2.501	5.941	1





## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	2.50	5.94	-0.14	0.47	0.00	1.50	-0.11	0.00	2.04	4.66	
	8	2.04	4.66	-0.17	0.26	0.00	1.50	-0.13	0.00	1.51	3.13	
	9	1.51	3.13	-0.14	0.14	0.00	0.73	-0.11	0.77	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.50	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.50	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.34	0.00	0.11	-0.11	1.39	1.21	2.29	≠
33	1	1.21	2.29	-0.04	0.98	0.00	0.83	-0.05	0.67	1.24	2.35	≠
	2	1.24	2.35	+0.01	5.58	0.00	1.50	+0.03	0.00	2.65	6.48	
	3	2.65	6.48	+0.19	6.52	0.00	1.50	+0.28	0.00	4.01	11.97	
	4	4.01	11.97	+0.36	4.28	0.00	1.50	+0.41	0.00	4.76	15.52	
	5	4.76	15.52	+0.10	2.00	0.00	1.50	+0.11	0.00	4.90	16.23	
	6	4.90	16.23	-0.10	1.15	0.00	1.50	-0.10	0.00	4.79	15.69	
	7	4.79	15.69	-0.26	0.63	0.00	1.50	-0.25	0.00	4.51	14.30	
	8	4.51	14.30	-0.37	0.35	0.00	1.50	-0.34	0.00	4.12	12.44	
	9	4.12	12.44	-0.37	0.19	0.00	1.50	-0.34	0.00	3.67	10.43	
	10	3.67	10.43	-0.38	0.10	0.00	1.50	-0.34	0.00	3.16	8.31	
	11	3.16	8.31	-0.31	0.05	0.00	1.50	-0.26	0.00	2.60	6.29	
	12	2.60	6.29	-0.23	0.03	0.00	1.50	-0.18	0.00	1.95	4.42	
34	1	1.95	4.42	-0.07	0.66	0.00	1.50	-0.06	0.00	1.62	3.45	
	2	1.62	3.45	+0.02	0.93	0.00	1.50	+0.01	0.00	1.43	2.91	
	3	1.43	2.91	+0.10	1.17	0.00	1.50	+0.10	0.00	1.39	2.79	
	4	1.39	2.79	+0.12	1.94	0.00	1.50	+0.14	0.00	1.63	3.49	
	5	1.63	3.49	+0.04	1.09	0.00	1.50	+0.03	0.00	1.51	3.15	
	6	1.51	3.15	-0.03	0.67	0.00	1.39	-0.03	0.11	1.25	2.37	≠
	7	1.25	2.37	-0.07	0.37	0.00	0.28	-0.07	1.22	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.20	0.00	0.03	-0.10	1.47	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	1.50	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.50	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.50	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.10	0.00	0.00	-0.11	1.50	1.21	2.29	≠
35	1	1.21	2.29	-0.04	0.05	0.00	0.00	-0.05	1.50	1.24	2.35	≠
	2	1.24	2.35	+0.01	1.21	0.00	1.18	+0.01	0.32	1.26	2.41	≠
	3	1.26	2.41	+0.09	2.63	0.00	1.50	+0.12	0.00	1.72	3.75	
	4	1.72	3.75	+0.15	2.18	0.00	1.50	+0.18	0.00	2.08	4.76	
	5	2.08	4.76	+0.05	1.54	0.00	1.50	+0.05	0.00	2.12	4.90	
	6	2.12	4.90	-0.04	1.06	0.00	1.50	-0.04	0.00	1.94	4.38	
	7	1.94	4.38	-0.11	0.65	0.00	1.50	-0.09	0.00	1.57	3.33	
	8	1.57	3.33	-0.13	0.36	0.00	1.16	-0.10	0.34	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.19	0.00	0.00	-0.11	1.50	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.50	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.59	0.00	0.34	-0.12	1.16	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.32	0.00	0.09	-0.11	1.41	1.21	2.29	≠



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)

RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volume, em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	SALDO	AREA	VOLUME	IFAL.	
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIF.	FINAL	DEMANDA	FINAL	FINAL	
36	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	1.25	1.24	2.35	*
	2	1.24	2.35	+0.01	0.88	0.00	0.85	+0.01	0.65	1.26	2.41	*
	3	1.26	2.41	+0.09	9.21	0.00	1.50	+0.26	0.00	3.68	10.47	
	4	3.68	10.47	+0.33	1.68	0.00	1.50	+0.34	0.00	3.87	11.32	
	5	3.87	11.32	+0.09	1.35	0.00	1.50	+0.08	0.00	3.87	11.34	
	6	3.87	11.34	-0.00	0.84	0.00	1.50	-0.07	0.00	3.69	10.52	
	7	3.69	10.52	-0.20	0.46	0.00	1.50	-0.19	0.00	3.37	9.09	
	8	3.37	9.09	-0.27	0.25	0.00	1.50	-0.24	0.00	2.89	7.33	
	9	2.89	7.33	-0.26	0.14	0.00	1.50	-0.22	0.00	2.34	5.49	
	10	2.34	5.49	-0.24	0.07	0.00	1.50	-0.18	0.00	1.68	3.64	
	11	1.68	3.64	-0.16	0.04	0.00	1.12	-0.12	0.38	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.50	1.21	2.29	*
37	1	1.21	2.29	-0.04	0.20	0.00	0.05	-0.05	1.45	1.24	2.35	*
	2	1.24	2.35	+0.01	0.84	0.00	0.81	+0.01	0.69	1.26	2.41	*
	3	1.26	2.41	+0.09	1.54	0.00	1.50	+0.09	0.00	1.34	2.64	
	4	1.34	2.64	+0.12	1.46	0.00	1.50	+0.12	0.00	1.41	2.84	
	5	1.41	2.84	+0.03	1.97	0.00	1.50	+0.03	0.00	1.59	3.37	
	6	1.59	3.37	-0.03	1.05	0.00	1.50	-0.03	0.00	1.42	2.86	
	7	1.42	2.86	-0.08	0.58	0.00	0.97	-0.07	0.53	1.23	2.33	*
	8	1.23	2.33	-0.10	0.31	0.00	0.14	-0.10	1.36	1.21	2.30	*
	9	1.21	2.30	-0.11	0.17	0.00	0.00	-0.11	1.50	1.21	2.29	*
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	1.50	1.20	2.27	*
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.50	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.50	1.21	2.29	*
38	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	1.25	1.24	2.35	*
	2	1.24	2.35	+0.01	0.56	0.00	0.53	+0.01	0.97	1.26	2.41	*
	3	1.26	2.41	+0.09	6.44	0.00	1.50	+0.21	0.00	2.98	7.65	
	4	2.98	7.65	+0.26	6.72	0.00	1.50	+0.38	0.00	4.35	13.52	
	5	4.35	13.52	+0.10	1.52	0.00	1.50	+0.10	0.00	4.39	13.73	
	6	4.39	13.73	-0.09	0.90	0.00	1.50	-0.08	0.00	4.23	12.96	
	7	4.23	12.96	-0.23	0.61	0.00	1.50	-0.22	0.00	3.93	11.61	
	8	3.93	11.61	-0.32	0.33	0.00	1.50	-0.29	0.00	3.53	9.83	
	9	3.53	9.83	-0.32	0.18	0.00	1.50	-0.28	0.00	3.05	7.91	
	10	3.05	7.91	-0.32	0.10	0.00	1.50	-0.27	0.00	2.49	5.93	
	11	2.49	5.93	-0.24	0.05	0.00	1.50	-0.18	0.00	1.82	4.05	
	12	1.82	4.05	-0.16	0.03	0.00	1.50	-0.11	0.00	1.22	2.31	
39	1	1.22	2.31	-0.04	0.01	0.00	0.00	-0.05	1.50	1.24	2.35	*
	2	1.24	2.35	+0.01	0.00	0.00	0.00	+0.01	1.50	1.26	2.41	*
	3	1.26	2.41	+0.09	0.42	0.00	0.52	+0.09	0.98	1.29	2.49	*
	4	1.29	2.49	+0.11	0.75	0.00	0.95	+0.11	0.55	1.30	2.51	*
	5	1.30	2.51	+0.03	0.75	0.00	0.89	+0.03	0.61	1.27	2.43	*
	6	1.27	2.43	-0.03	0.46	0.00	0.46	-0.03	1.04	1.25	2.37	*



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	AREA	VOLUME INICIAL	FINAL
									DEMANDA			
1	7	1.25	2.37	-0.07	0.25	0.00	0.16	-0.07	1.34	1.23	2.33	2.33
1	8	1.23	2.33	-0.10	0.14	0.00	0.00	-0.10	1.50	1.21	2.30	2.30
1	9	1.21	2.30	-0.11	0.07	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
1	10	1.21	2.29	-0.12	0.04	0.00	0.00	-0.13	1.50	1.20	2.27	2.27
1	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	1.50	1.20	2.28	2.28
1	12	1.20	2.28	-0.10	0.20	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
40	1	1.21	2.29	-0.04	0.44	0.00	0.29	-0.05	1.21	1.24	2.35	2.35
1	2	1.24	2.35	+0.01	0.67	0.00	0.64	+0.01	0.86	1.26	2.41	2.41
1	3	1.26	2.41	+0.09	1.98	0.00	1.50	+0.10	0.00	1.49	3.09	3.09
1	4	1.49	3.09	+0.13	1.76	0.00	1.50	+0.14	0.00	1.67	3.63	3.63
1	5	1.67	3.63	+0.04	1.34	0.00	1.50	+0.04	0.00	1.64	3.54	3.54
1	6	1.64	3.54	-0.03	0.78	0.00	1.50	-0.03	0.00	1.38	2.76	2.76
1	7	1.38	2.76	-0.08	0.43	0.00	0.71	-0.07	0.79	1.23	2.33	2.33
1	8	1.23	2.33	-0.10	0.23	0.00	0.06	-0.10	1.44	1.21	2.30	2.30
1	9	1.21	2.30	-0.11	0.13	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
1	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.50	1.20	2.27	2.27
1	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.50	1.20	2.28	2.28
1	12	1.20	2.28	-0.10	0.21	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
41	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	1.31	1.24	2.35	2.35
1	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	0.75	1.26	2.41	2.41
1	3	1.26	2.41	+0.09	1.09	0.00	1.19	+0.09	0.31	1.29	2.49	2.49
1	4	1.29	2.49	+0.11	1.59	0.00	1.50	+0.12	0.00	1.40	2.82	2.82
1	5	1.40	2.82	+0.03	1.08	0.00	1.50	+0.03	0.00	1.28	2.45	2.45
1	6	1.28	2.45	-0.03	0.71	0.00	0.74	-0.03	0.76	1.25	2.37	2.37
1	7	1.25	2.37	-0.07	0.39	0.00	0.30	-0.07	1.20	1.23	2.33	2.33
1	8	1.23	2.33	-0.10	0.21	0.00	0.04	-0.10	1.46	1.21	2.30	2.30
1	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
1	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.50	1.20	2.27	2.27
1	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.50	1.20	2.28	2.28
1	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
42	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.50	1.24	2.35	2.35
1	2	1.24	2.35	+0.01	0.71	0.00	0.68	+0.01	0.82	1.26	2.41	2.41
1	3	1.26	2.41	+0.09	1.13	0.00	1.23	+0.09	0.27	1.29	2.49	2.49
1	4	1.29	2.49	+0.11	1.22	0.00	1.42	+0.11	0.08	1.30	2.51	2.51
1	5	1.30	2.51	+0.03	0.78	0.00	0.92	+0.03	0.58	1.27	2.43	2.43
1	6	1.27	2.43	-0.03	0.64	0.00	0.64	-0.03	0.86	1.25	2.37	2.37
1	7	1.25	2.37	-0.07	0.35	0.00	0.26	-0.07	1.24	1.23	2.33	2.33
1	8	1.23	2.33	-0.10	0.19	0.00	0.02	-0.10	1.48	1.21	2.30	2.30
1	9	1.21	2.30	-0.11	0.10	0.00	0.00	-0.11	1.50	1.21	2.29	2.29
1	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	1.50	1.20	2.27	2.27
1	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.50	1.20	2.28	2.28
1	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.50	1.21	2.29	2.29



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	LAFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
43	1	1.211	2.291	-0.041	0.591	0.001	0.441	-0.051	1.061	1.241	2.351	*
	2	1.241	2.351	+0.011	0.961	0.001	0.931	+0.011	0.571	1.261	2.411	*
	3	1.261	2.411	+0.071	1.071	0.001	1.171	+0.091	0.331	1.291	2.491	*
	4	1.291	2.491	+0.111	2.581	0.001	1.501	+0.151	0.001	1.741	3.831	
	5	1.741	3.831	+0.041	1.391	0.001	1.501	+0.041	0.001	1.731	3.801	
	6	1.731	3.801	-0.031	0.821	0.001	1.501	-0.031	0.001	1.481	3.061	
	7	1.481	3.061	-0.081	0.491	0.001	1.071	-0.071	0.431	1.231	2.331	*
	8	1.231	2.331	-0.101	0.271	0.001	0.101	-0.101	1.401	1.211	2.301	*
	9	1.211	2.301	-0.111	0.141	0.001	0.001	-0.111	1.501	1.211	2.291	*
	10	1.211	2.291	-0.121	0.081	0.001	0.001	-0.131	1.501	1.201	2.271	*
	11	1.201	2.271	-0.121	0.041	0.001	0.001	-0.121	1.501	1.201	2.281	*
	12	1.201	2.281	-0.101	0.041	0.001	0.001	-0.111	1.501	1.211	2.291	*
44	1	1.211	2.291	-0.041	0.141	0.001	0.001	-0.051	1.501	1.241	2.351	*
	2	1.241	2.351	+0.011	1.241	0.001	1.211	+0.011	0.291	1.261	2.411	*
	3	1.261	2.411	+0.091	3.861	0.001	1.501	+0.151	0.001	2.171	5.021	
	4	2.171	5.021	+0.191	3.011	0.001	1.501	+0.241	0.001	2.791	6.961	
	5	2.791	6.961	+0.061	1.211	0.001	1.501	+0.061	0.001	2.741	6.791	
	6	2.741	6.791	-0.051	0.791	0.001	1.501	-0.051	0.001	2.511	5.971	
	7	2.511	5.971	-0.141	0.461	0.001	1.501	-0.111	0.001	2.051	4.681	
	8	2.051	4.681	-0.171	0.251	0.001	1.501	-0.131	0.001	1.511	3.141	
	9	1.511	3.141	-0.141	0.131	0.001	0.731	-0.111	0.771	1.211	2.291	*
	10	1.211	2.291	-0.121	0.071	0.001	0.001	-0.131	1.501	1.201	2.271	*
	11	1.201	2.271	-0.121	0.041	0.001	0.001	-0.121	1.501	1.201	2.281	*
	12	1.201	2.281	-0.101	0.021	0.001	0.001	-0.111	1.501	1.211	2.291	*
45	1	1.211	2.291	-0.041	0.611	0.001	0.461	-0.051	1.041	1.241	2.351	*
	2	1.241	2.351	+0.011	0.731	0.001	0.701	+0.011	0.801	1.261	2.411	*
	3	1.261	2.411	+0.091	2.501	0.001	1.501	+0.121	0.001	1.671	3.621	
	4	1.671	3.621	+0.151	4.801	0.001	1.501	+0.251	0.001	2.891	7.321	
	5	2.891	7.321	+0.061	1.901	0.001	1.501	+0.071	0.001	3.041	7.851	
	6	3.041	7.851	-0.061	1.081	0.001	1.501	-0.061	0.001	2.891	7.311	
	7	2.891	7.311	-0.141	0.611	0.001	1.501	-0.141	0.001	2.551	6.121	
	8	2.551	6.121	-0.211	0.341	0.001	1.501	-0.171	0.001	2.011	4.581	
	9	2.011	4.581	-0.181	0.181	0.001	1.501	-0.131	0.001	1.441	2.951	
	10	1.441	2.951	-0.151	0.101	0.001	0.501	-0.131	1.001	1.201	2.271	*
	11	1.201	2.271	-0.121	0.051	0.001	0.001	-0.121	1.501	1.201	2.281	*
	12	1.201	2.281	-0.101	0.031	0.001	0.001	-0.111	1.501	1.211	2.291	*
46	1	1.211	2.291	-0.041	0.111	0.001	0.001	-0.051	1.501	1.241	2.351	*
	2	1.241	2.351	+0.011	0.061	0.001	0.031	+0.011	1.471	1.261	2.411	*
	3	1.261	2.411	+0.091	0.161	0.001	0.261	+0.091	1.241	1.291	2.491	*
	4	1.291	2.491	+0.111	0.351	0.001	0.551	+0.111	0.951	1.301	2.511	*
	5	1.301	2.511	+0.031	0.221	0.001	0.361	+0.031	1.141	1.271	2.431	*
	6	1.271	2.431	-0.031	0.121	0.001	0.121	-0.031	1.381	1.251	2.371	*



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(F-E)/21	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/21	SALDO IDEARANDA	AREA FINAL	VOLUME FINAL	IFAL.
	7	1.25	2.37	-0.07	0.06	0.00	0.00	-0.07	1.50	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.03	0.00	0.00	-0.10	1.50	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.02	0.00	0.00	-0.11	1.50	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.01	0.00	0.00	-0.13	1.50	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.00	0.00	0.00	-0.12	1.50	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.16	0.00	0.00	-0.11	1.50	1.21	2.29	≠
47	1	1.21	2.29	-0.04	0.36	0.00	0.21	-0.05	1.29	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.77	0.00	0.74	+0.01	0.76	1.26	2.41	≠
	3	1.26	2.41	+0.09	6.09	0.00	1.50	+0.20	0.00	2.88	7.30	
	4	2.88	7.30	+0.26	1.39	0.00	1.50	+0.26	0.00	2.99	7.70	
	5	2.99	7.70	+0.07	1.11	0.00	1.50	+0.06	0.00	2.92	7.44	
	6	2.92	7.44	-0.06	0.73	0.00	1.50	-0.05	0.00	2.68	6.56	
	7	2.68	6.56	-0.15	0.40	0.00	1.50	-0.12	0.00	2.23	5.19	
	8	2.23	5.19	-0.18	0.26	0.00	1.50	-0.14	0.00	1.67	3.62	
	9	1.67	3.62	-0.15	0.14	0.00	1.21	-0.11	0.29	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.50	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.50	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.50	1.21	2.29	≠
48	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.50	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.19	0.00	0.16	+0.01	1.34	1.26	2.41	≠
	3	1.26	2.41	+0.09	3.15	0.00	1.50	+0.13	0.00	1.90	4.29	
	4	1.90	4.29	+0.17	1.85	0.00	1.50	+0.18	0.00	2.16	4.99	
	5	2.16	4.99	+0.05	0.95	0.00	1.50	+0.04	0.00	1.99	4.53	
	6	1.99	4.53	-0.04	0.66	0.00	1.50	-0.03	0.00	1.67	3.62	
	7	1.67	3.62	-0.09	0.49	0.00	1.50	-0.07	0.00	1.28	2.45	
	8	1.28	2.45	-0.10	0.27	0.00	0.21	-0.10	1.29	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.15	0.00	0.00	-0.11	1.50	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.08	0.00	0.00	-0.13	1.50	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.50	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.33	0.00	0.10	-0.11	1.40	1.21	2.29	≠
49	1	1.21	2.29	-0.04	0.39	0.00	0.24	-0.05	1.26	1.24	2.35	≠
	2	1.24	2.35	+0.01	4.79	0.00	1.50	+0.03	0.00	2.41	5.68	
	3	2.41	5.68	+0.17	13.97	0.00	1.50	+0.38	0.00	5.37	18.71	
	4	5.37	18.71	+0.47	1.90	0.00	1.50	+0.49	0.00	5.60	20.07	
	5	5.60	20.07	+0.12	2.84	0.00	1.50	+0.13	0.00	5.88	21.66	
	6	5.88	21.66	-0.12	1.03	0.00	1.50	-0.12	0.00	5.76	20.96	
	7	5.76	20.96	-0.32	0.56	0.00	1.50	-0.30	0.00	5.49	19.40	
	8	5.49	19.40	-0.45	0.31	0.00	1.50	-0.42	0.00	5.12	17.34	
	9	5.12	17.34	-0.46	0.17	0.00	1.50	-0.43	0.00	4.67	15.12	
	10	4.67	15.12	-0.48	0.09	0.00	1.50	-0.44	0.00	4.20	12.78	
	11	4.20	12.78	-0.41	0.05	0.00	1.50	-0.37	0.00	3.70	10.56	
	12	3.70	10.56	-0.32	0.02	0.00	1.50	-0.29	0.00	3.21	8.47	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DERANDA	FINAL	FINAL	
50	1	3.21	8.47	-0.12	0.37	0.00	1.50	-0.10	0.00	2.83	7.12	
	2	2.83	7.12	+0.03	1.24	0.00	1.50	+0.03	0.00	2.78	6.92	
	3	2.78	6.92	+0.20	35.50	3.82	1.50	+0.73	0.00	10.52	38.03	
	4	10.52	38.03	+0.93	15.94	16.10	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	1.93	1.56	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.06	0.00	1.50	-0.20	0.00	9.78	36.68	
	7	9.78	36.68	-0.54	0.67	0.00	1.50	-0.50	0.00	8.75	34.82	
	8	8.75	34.82	-0.71	0.37	0.00	1.50	-0.63	0.00	7.39	32.34	
	9	7.39	32.34	-0.66	0.20	0.00	1.50	-0.63	0.00	6.93	29.75	
	10	6.93	29.75	-0.72	0.11	0.00	1.50	-0.69	0.00	6.59	26.95	
	11	6.59	26.95	-0.64	0.06	0.00	1.50	-0.62	0.00	6.27	24.25	
	12	6.27	24.25	-0.55	0.69	0.00	1.50	-0.53	0.00	6.01	22.37	
51	1	6.01	22.37	-0.22	0.96	0.00	1.50	-0.21	0.00	5.84	21.40	
	2	5.84	21.40	+0.06	1.00	0.00	1.50	+0.06	0.00	5.77	21.02	
	3	5.77	21.02	+0.42	27.17	9.81	1.50	+0.73	0.00	10.52	38.03	
	4	10.52	38.03	+0.93	27.53	27.69	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	2.21	1.84	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.17	0.00	1.50	-0.20	0.00	9.84	36.79	
	7	9.84	36.79	-0.54	0.79	0.00	1.50	-0.50	0.00	8.87	35.03	
	8	8.87	35.03	-0.72	0.56	0.00	1.50	-0.65	0.00	7.60	32.72	
	9	7.60	32.72	-0.68	0.31	0.00	1.50	-0.64	0.00	6.99	30.21	
	10	6.99	30.21	-0.72	0.17	0.00	1.50	-0.70	0.00	6.66	27.46	
	11	6.66	27.46	-0.65	0.09	0.00	1.50	-0.62	0.00	6.33	24.79	
	12	6.33	24.79	-0.55	0.68	0.00	1.50	-0.54	0.00	6.10	22.88	
52	1	6.10	22.88	-0.22	2.62	0.00	1.50	-0.22	0.00	6.19	23.55	
	2	6.19	23.55	+0.06	17.21	2.03	1.50	+0.11	0.00	10.18	37.41	
	3	10.18	37.41	+0.73	20.52	19.86	1.50	+0.73	0.00	10.52	38.03	
	4	10.52	38.03	+0.93	41.49	41.65	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	16.46	16.09	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.68	0.20	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	1.18	0.00	1.50	-0.52	0.00	9.24	35.70	
	8	9.24	35.70	-0.75	0.65	0.00	1.50	-0.68	0.00	7.98	33.42	
	9	7.98	33.42	-0.72	0.35	0.00	1.50	-0.64	0.00	7.07	30.91	
	10	7.07	30.91	-0.73	0.19	0.00	1.50	-0.71	0.00	6.74	28.16	
	11	6.74	28.16	-0.65	0.10	0.00	1.50	-0.63	0.00	6.42	25.48	
	12	6.42	25.48	-0.56	0.15	0.00	1.50	-0.54	0.00	6.12	23.03	
53	1	6.12	23.03	-0.22	0.65	0.00	1.50	-0.21	0.00	5.90	21.74	
	2	5.90	21.74	+0.06	0.72	0.00	1.50	+0.06	0.00	5.78	21.09	
	3	5.78	21.09	+0.42	4.57	0.00	1.50	+0.45	0.00	6.36	25.03	
	4	6.36	25.03	+0.56	46.19	32.98	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	7.00	6.63	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.89	0.41	1.50	-0.20	0.00	10.01	37.10	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	ISANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	10.01	37.10	-0.55	1.03	0.00	1.50	-0.52	0.00	9.16	35.56	
	8	9.16	35.56	-0.75	0.57	0.00	1.50	-0.67	0.00	7.87	33.21	
	9	7.87	33.21	-0.71	0.31	0.00	1.50	-0.64	0.00	7.04	30.67	
	10	7.04	30.67	-0.73	0.17	0.00	1.50	-0.70	0.00	6.71	27.91	
	11	6.71	27.91	-0.65	0.09	0.00	1.50	-0.63	0.00	6.39	25.22	
	12	6.39	25.22	-0.56	0.05	0.00	1.50	-0.53	0.00	6.06	22.68	
54	1	6.06	22.68	-0.22	0.02	0.00	1.50	-0.21	0.00	5.73	20.78	
	2	5.73	20.78	+0.06	0.98	0.00	1.50	+0.06	0.00	5.66	20.37	
	3	5.66	20.37	+0.41	1.34	0.00	1.50	+0.41	0.00	5.77	21.03	
	4	5.77	21.03	+0.51	1.33	0.00	1.50	+0.52	0.00	5.92	21.89	
	5	5.92	21.89	+0.13	2.39	0.00	1.50	+0.13	0.00	6.13	23.04	
	6	6.13	23.04	-0.12	1.35	0.00	1.50	-0.12	0.00	6.06	22.65	
	7	6.06	22.65	-0.33	0.97	0.00	1.50	-0.32	0.00	5.85	21.46	
	8	5.85	21.46	-0.48	0.53	0.00	1.50	-0.46	0.00	5.51	19.56	
	9	5.51	19.56	-0.50	0.29	0.00	1.50	-0.47	0.00	5.13	17.38	
	10	5.13	17.38	-0.53	0.16	0.00	1.50	-0.49	0.00	4.65	15.02	
	11	4.65	15.02	-0.45	0.09	0.00	1.50	-0.41	0.00	4.19	12.74	
	12	4.19	12.74	-0.36	0.05	0.00	1.50	-0.33	0.00	3.71	10.60	
55	1	3.71	10.60	-0.13	0.79	0.00	1.50	-0.13	0.00	3.49	9.63	
	2	3.49	9.63	+0.04	8.55	0.00	1.50	+0.05	0.00	5.01	16.77	
	3	5.01	16.77	+0.36	26.44	4.77	1.50	+0.73	0.00	10.52	38.03	
	4	10.52	38.03	+0.93	27.74	27.90	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	14.73	14.36	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.54	0.06	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	0.84	0.00	1.50	-0.51	0.00	9.06	35.37	
	8	9.06	35.37	-0.74	0.46	0.00	1.50	-0.66	0.00	7.72	32.94	
	9	7.72	32.94	-0.69	0.25	0.00	1.50	-0.64	0.00	7.00	30.35	
	10	7.00	30.35	-0.72	0.14	0.00	1.50	-0.70	0.00	6.67	27.57	
	11	6.67	27.57	-0.65	0.07	0.00	1.50	-0.62	0.00	6.34	24.87	
	12	6.34	24.87	-0.55	0.04	0.00	1.50	-0.53	0.00	6.00	22.33	
56	1	6.00	22.33	-0.22	0.61	0.00	1.50	-0.21	0.00	5.77	21.01	
	2	5.77	21.01	+0.06	1.14	0.00	1.50	+0.06	0.00	5.73	20.77	
	3	5.73	20.77	+0.41	8.23	0.00	1.50	+0.48	0.00	6.77	28.40	
	4	6.77	28.40	+0.60	39.59	29.79	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	28.80	28.43	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.67	0.19	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	0.91	0.00	1.50	-0.52	0.00	9.10	35.44	
	8	9.10	35.44	-0.74	0.50	0.00	1.50	-0.66	0.00	7.77	33.04	
	9	7.77	33.04	-0.70	0.27	0.00	1.50	-0.64	0.00	7.02	30.47	
	10	7.02	30.47	-0.73	0.15	0.00	1.50	-0.70	0.00	6.68	27.69	
	11	6.68	27.69	-0.65	0.08	0.00	1.50	-0.62	0.00	6.36	25.00	
	12	6.36	25.00	-0.55	0.04	0.00	1.50	-0.53	0.00	6.02	22.45	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	FINAL
57	1	6.02	22.45	-0.22	0.44	0.00	1.50	-0.21	0.00	5.76	20.97		
	2	5.76	20.97	+0.06	1.00	0.00	1.50	+0.06	0.00	5.70	20.59		
	3	5.70	20.59	+0.41	1.33	0.00	1.50	+0.41	0.00	5.81	21.24		
	4	5.81	21.24	+0.51	2.06	0.00	1.50	+0.53	0.00	6.09	22.85		
	5	6.09	22.85	+0.13	1.26	0.00	1.50	+0.13	0.00	6.10	22.87		
	6	6.10	22.87	-0.12	0.69	0.00	1.50	-0.12	0.00	5.91	21.82		
	7	5.91	21.82	-0.33	0.57	0.00	1.50	-0.31	0.00	5.64	20.26		
	8	5.64	20.26	-0.46	0.31	0.00	1.50	-0.44	0.00	5.27	18.17		
	9	5.27	18.17	-0.47	0.17	0.00	1.50	-0.44	0.00	4.84	15.92		
	10	4.84	15.92	-0.50	0.09	0.00	1.50	-0.46	0.00	4.35	13.55		
	11	4.35	13.55	-0.42	0.05	0.00	1.50	-0.38	0.00	3.86	11.30		
	12	3.86	11.30	-0.34	0.02	0.00	1.50	-0.30	0.00	3.39	9.18		
58	1	3.39	9.18	-0.12	0.12	0.00	1.50	-0.11	0.00	2.96	7.57		
	2	2.96	7.57	+0.03	0.35	0.00	1.50	+0.03	0.00	2.65	6.48		
	3	2.65	6.48	+0.19	0.89	0.00	1.50	+0.18	0.00	2.59	6.24		
	4	2.59	6.24	+0.23	0.90	0.00	1.50	+0.22	0.00	2.55	6.09		
	5	2.55	6.09	+0.06	0.60	0.00	1.50	+0.05	0.00	2.27	5.30		
	6	2.27	5.30	-0.05	0.33	0.00	1.50	-0.04	0.00	1.82	4.04		
	7	1.82	4.04	-0.10	0.29	0.00	1.50	-0.08	0.00	1.35	2.66		
	8	1.35	2.66	-0.11	0.16	0.00	0.31	-0.10	1.19	1.21	2.30	*	
	9	1.21	2.30	-0.11	0.08	0.00	0.00	-0.11	1.50	1.21	2.29	*	
	10	1.21	2.29	-0.12	0.04	0.00	0.00	-0.13	1.50	1.20	2.27	*	
	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	1.50	1.20	2.28	*	
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.50	1.21	2.29	*	
59	1	1.21	2.29	-0.04	0.11	0.00	0.00	-0.05	1.50	1.24	2.35	*	
	2	1.24	2.35	+0.01	0.58	0.00	0.55	+0.01	0.95	1.26	2.41	*	
	3	1.26	2.41	+0.09	1.47	0.00	1.50	+0.09	0.00	1.32	2.57		
	4	1.32	2.57	+0.12	1.26	0.00	1.50	+0.11	0.00	1.31	2.56		
	5	1.31	2.56	+0.03	1.37	0.00	1.50	+0.03	0.00	1.29	2.48		
	6	1.29	2.48	-0.03	0.94	0.00	1.00	-0.03	0.50	1.25	2.37	*	
	7	1.25	2.37	-0.07	0.65	0.00	0.56	-0.07	0.94	1.23	2.33	*	
	8	1.23	2.33	-0.10	0.36	0.00	0.19	-0.10	1.31	1.21	2.30	*	
	9	1.21	2.30	-0.11	0.19	0.00	0.00	-0.11	1.50	1.21	2.29	*	
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.50	1.20	2.27	*	
	11	1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	1.50	1.20	2.28	*	
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.50	1.21	2.29	*	
60	1	1.21	2.29	-0.04	0.10	0.00	0.00	-0.05	1.50	1.24	2.35	*	
	2	1.24	2.35	+0.01	0.25	0.00	0.22	+0.01	1.28	1.26	2.41	*	
	3	1.26	2.41	+0.09	0.70	0.00	0.80	+0.09	0.70	1.29	2.49	*	
	4	1.29	2.49	+0.11	1.26	0.00	1.46	+0.11	0.04	1.30	2.51	*	
	5	1.30	2.51	+0.03	1.41	0.00	1.50	+0.03	0.00	1.29	2.48		
	6	1.29	2.48	-0.03	0.84	0.00	0.89	-0.03	0.61	1.25	2.37	*	





## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/21	VOLUME	VOLUME	VOLUME	(P-E)/21	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	1.25	2.37	-0.07	0.46	0.00	0.37	-0.07	1.13	1.23	2.33	*
	8	1.23	2.33	-0.10	0.46	0.00	0.29	-0.10	1.21	1.21	2.30	*
	9	1.21	2.30	-0.11	0.25	0.00	0.04	-0.11	1.46	1.21	2.29	*
	10	1.21	2.29	-0.12	0.14	0.00	0.00	-0.13	1.50	1.20	2.27	*
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.50	1.20	2.28	*
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	1.50	1.21	2.29	*
61	1	1.21	2.29	-0.04	0.89	0.00	0.74	-0.05	0.76	1.24	2.35	*
	2	1.24	2.35	+0.01	1.28	0.00	1.25	+0.01	0.25	1.26	2.41	*
	3	1.26	2.41	+0.09	10.02	0.00	1.50	+0.27	0.00	3.86	11.30	
	4	3.86	11.30	+0.34	10.12	0.00	1.50	+0.50	0.00	5.73	20.76	
	5	5.73	20.76	+0.13	2.18	0.00	1.50	+0.13	0.00	5.89	21.69	
	6	5.89	21.69	-0.12	1.41	0.00	1.50	-0.12	0.00	5.83	21.37	
	7	5.83	21.37	-0.32	0.84	0.00	1.50	-0.31	0.00	5.61	20.08	
	8	5.61	20.08	-0.46	0.50	0.00	1.50	-0.44	0.00	5.27	18.18	
	9	5.27	18.18	-0.47	0.27	0.00	1.50	-0.45	0.00	4.86	16.03	
	10	4.86	16.03	-0.50	0.15	0.00	1.50	-0.46	0.00	4.39	13.72	
	11	4.39	13.72	-0.43	0.08	0.00	1.50	-0.39	0.00	3.90	11.48	
	12	3.90	11.48	-0.34	0.04	0.00	1.50	-0.30	0.00	3.43	9.38	
62	1	3.43	9.38	-0.12	1.12	0.00	1.50	-0.12	0.00	3.29	8.76	
	2	3.29	8.76	+0.03	2.39	0.00	1.50	+0.04	0.00	3.51	9.72	
	3	3.51	9.72	+0.25	20.61	0.00	1.50	+0.49	0.00	6.91	29.57	
	4	6.91	29.57	+0.61	50.17	41.56	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	17.32	16.95	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	2.50	1.02	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	1.29	0.00	1.50	-0.53	0.00	9.30	35.81	
	8	9.30	35.81	-0.76	0.70	0.00	1.50	-0.69	0.00	8.06	33.56	
	9	8.06	33.56	-0.73	0.48	0.00	1.50	-0.65	0.00	7.10	31.17	
	10	7.10	31.17	-0.73	0.26	0.00	1.50	-0.71	0.00	6.78	28.49	
	11	6.78	28.49	-0.66	0.14	0.00	1.50	-0.63	0.00	6.46	25.83	
	12	6.46	25.83	-0.56	0.08	0.00	1.50	-0.54	0.00	6.16	23.31	
63	1	6.16	23.31	-0.22	0.04	0.00	1.50	-0.21	0.00	5.84	21.42	
	2	5.84	21.42	+0.06	10.05	0.00	1.50	+0.07	0.00	6.97	30.10	
	3	6.97	30.10	+0.50	8.40	0.20	1.50	+0.73	0.00	10.52	38.03	
	4	10.52	38.03	+0.93	22.42	22.58	1.50	+0.90	0.00	10.62	38.20	
	5	10.62	38.20	+0.23	21.75	21.38	1.50	+0.22	0.00	10.25	37.52	
	6	10.25	37.52	-0.20	1.79	0.31	1.50	-0.20	0.00	10.01	37.10	
	7	10.01	37.10	-0.55	1.30	0.00	1.50	-0.53	0.00	9.31	35.82	
	8	9.31	35.82	-0.76	0.71	0.00	1.50	-0.69	0.00	8.07	33.58	
	9	8.07	33.58	-0.73	0.39	0.00	1.50	-0.65	0.00	7.09	31.10	
	10	7.09	31.10	-0.73	0.21	0.00	1.50	-0.71	0.00	6.76	28.37	
	11	6.76	28.37	-0.66	0.11	0.00	1.50	-0.63	0.00	6.44	25.69	
	12	6.44	25.69	-0.56	0.06	0.00	1.50	-0.54	0.00	6.14	23.15	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/21	VOLUME	VOLUME	VOLUME	(P-E)/21	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
64	1	6.14	23.15	-0.22	0.03	0.00	1.50	-0.21	0.00	5.81	21.25	
	2	5.81	21.25	+0.06	0.85	0.00	1.50	+0.06	0.00	5.72	20.72	
	3	5.72	20.72	+0.41	1.68	0.00	1.50	+0.42	0.00	5.90	21.73	
	4	5.90	21.73	+0.52	2.71	0.00	1.50	+0.55	0.00	6.24	24.01	
	5	6.24	24.01	+0.14	1.08	0.00	1.50	+0.14	0.00	6.22	23.86	
	6	6.22	23.86	-0.12	0.60	0.00	1.50	-0.12	0.00	6.07	22.71	
	7	6.07	22.71	-0.33	0.39	0.00	1.50	-0.32	0.00	5.76	20.95	
	8	5.76	20.95	-0.47	0.21	0.00	1.50	-0.44	0.00	5.37	18.75	
	9	5.37	18.75	-0.48	0.12	0.00	1.50	-0.45	0.00	4.94	16.43	
	10	4.94	16.43	-0.51	0.06	0.00	1.50	-0.47	0.00	4.45	14.01	
	11	4.45	14.01	-0.43	0.12	0.00	1.50	-0.39	0.00	3.98	11.80	
	12	3.98	11.80	-0.35	0.07	0.00	1.50	-0.31	0.00	3.51	9.72	
65	1	3.51	9.72	-0.13	0.44	0.00	1.50	-0.12	0.00	3.19	8.41	
	2	3.19	8.41	+0.03	1.95	0.00	1.50	+0.03	0.00	3.33	8.93	
	3	3.33	8.93	+0.24	1.22	0.00	1.50	+0.24	0.00	3.37	9.13	
	4	3.37	9.13	+0.30	4.08	0.00	1.50	+0.36	0.00	4.10	12.37	
	5	4.10	12.37	+0.09	2.30	0.00	1.50	+0.09	0.00	4.31	13.35	
	6	4.31	13.35	-0.09	1.27	0.00	1.50	-0.08	0.00	4.23	12.95	
	7	4.23	12.95	-0.23	0.78	0.00	1.50	-0.22	0.00	3.97	11.78	
	8	3.97	11.78	-0.32	0.43	0.00	1.50	-0.30	0.00	3.59	10.08	
	9	3.59	10.08	-0.32	0.23	0.00	1.50	-0.29	0.00	3.13	8.20	
	10	3.13	8.20	-0.32	0.13	0.00	1.50	-0.28	0.00	2.58	6.23	
	11	2.58	6.23	-0.25	0.07	0.00	1.50	-0.19	0.00	1.93	4.36	
	12	1.93	4.36	-0.17	0.03	0.00	1.50	-0.12	0.00	1.33	2.60	
66	1	1.33	2.60	-0.05	0.48	0.00	0.63	-0.05	0.87	1.24	2.35	*
	2	1.24	2.35	+0.01	0.87	0.00	0.84	+0.01	0.66	1.26	2.41	*
	3	1.26	2.41	+0.09	1.12	0.00	1.22	+0.09	0.28	1.29	2.49	*
	4	1.29	2.49	+0.11	1.75	0.00	1.50	+0.13	0.00	1.46	2.98	
	5	1.46	2.98	+0.03	1.43	0.00	1.50	+0.03	0.00	1.45	2.97	
	6	1.45	2.97	-0.03	0.99	0.00	1.50	-0.03	0.00	1.26	2.41	
	7	1.26	2.41	-0.07	0.54	0.00	0.48	-0.07	1.02	1.23	2.33	*
	8	1.23	2.33	-0.10	0.29	0.00	0.12	-0.10	1.38	1.21	2.30	*
	9	1.21	2.30	-0.11	0.16	0.00	0.00	-0.11	1.50	1.21	2.29	*
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	1.50	1.20	2.27	*
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.50	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.50	1.21	2.29	*
67	1	1.21	2.29	-0.04	0.18	0.00	0.03	-0.05	1.47	1.24	2.35	*
	2	1.24	2.35	+0.01	0.63	0.00	0.60	+0.01	0.90	1.26	2.41	*
	3	1.26	2.41	+0.09	0.91	0.00	1.01	+0.09	0.49	1.29	2.49	*
	4	1.29	2.49	+0.11	1.31	0.00	1.50	+0.11	0.00	1.30	2.53	
	5	1.30	2.53	+0.03	0.99	0.00	1.15	+0.03	0.35	1.27	2.43	*
	6	1.27	2.43	-0.03	0.75	0.00	0.75	-0.03	0.75	1.25	2.37	*



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/21 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/21 FINAL	SALDO IDEANDO	AREA FINAL	VOLUME FINAL	FAL.
	7	1.25	2.37	-0.07	0.41	0.00	0.32	-0.07	1.18	1.23	2.33	*
	8	1.23	2.33	-0.10	0.22	0.00	0.05	-0.10	1.45	1.21	2.30	*
	9	1.21	2.30	-0.11	0.12	0.00	0.00	-0.11	1.50	1.21	2.29	*
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.50	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.50	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.50	1.21	2.29	*

000170



Geonorte

DEMANDA 2,0 hm<sup>3</sup>/mês

- No. DE MESES FALHOS = 374 - GARANTIA - 53%
- No. DE ANOS FALHOS = 54 - GARANTIA - 19%

000171



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
1	1	5.49	19.40	-0.20	0.00	0.00	1.75	-0.19	0.00	5.11	17.27	
1	2	5.11	17.27	+0.05	0.59	0.00	1.75	+0.05	0.00	4.90	16.21	
1	3	4.90	16.21	+0.35	4.67	0.00	1.75	+0.40	0.00	5.57	19.88	
1	4	5.57	19.88	+0.49	6.68	0.00	1.75	+0.57	0.00	6.46	25.87	
1	5	6.46	25.87	+0.14	6.98	0.00	1.75	+0.16	0.00	7.13	31.40	
1	6	7.13	31.40	-0.14	1.56	0.00	1.75	-0.14	0.00	7.07	30.92	
1	7	7.07	30.92	-0.39	1.04	0.00	1.75	-0.38	0.00	6.89	29.44	
1	8	6.89	29.44	-0.56	0.57	0.00	1.75	-0.54	0.00	6.62	27.16	
1	9	6.62	27.16	-0.60	0.31	0.00	1.75	-0.57	0.00	6.31	24.55	
1	10	6.31	24.55	-0.65	0.17	0.00	1.75	-0.62	0.00	5.89	21.69	
1	11	5.89	21.69	-0.57	0.09	0.00	1.75	-0.53	0.00	5.40	18.93	
1	12	5.40	18.93	-0.47	0.09	0.00	1.75	-0.44	0.00	4.93	16.36	
2	1	4.93	16.36	-0.18	1.04	0.00	1.75	-0.17	0.00	4.71	15.30	
2	2	4.71	15.30	+0.05	1.09	0.00	1.75	+0.05	0.00	4.60	14.74	
2	3	4.60	14.74	+0.33	1.07	0.00	1.75	+0.33	0.00	4.59	14.72	
2	4	4.59	14.72	+0.41	2.16	0.00	1.75	+0.42	0.00	4.85	15.96	
2	5	4.85	15.96	+0.11	1.14	0.00	1.75	+0.10	0.00	4.76	15.56	
2	6	4.76	15.56	-0.10	0.78	0.00	1.75	-0.09	0.00	4.53	14.40	
2	7	4.53	14.40	-0.25	0.45	0.00	1.75	-0.23	0.00	4.16	12.62	
2	8	4.16	12.62	-0.34	0.30	0.00	1.75	-0.31	0.00	3.69	10.53	
2	9	3.69	10.53	-0.33	0.18	0.00	1.75	-0.29	0.00	3.17	8.33	
2	10	3.17	8.33	-0.33	0.10	0.00	1.75	-0.27	0.00	2.54	6.08	
2	11	2.54	6.08	-0.25	0.05	0.00	1.75	-0.18	0.00	1.79	3.96	
2	12	1.79	3.96	-0.16	0.03	0.00	1.43	-0.11	0.32	1.21	2.29	*
3	1	1.21	2.29	-0.04	0.09	0.00	0.00	-0.05	1.75	1.24	2.35	*
3	2	1.24	2.35	+0.01	0.11	0.00	0.08	+0.01	1.67	1.26	2.41	*
3	3	1.26	2.41	+0.09	0.58	0.00	0.68	+0.09	1.07	1.29	2.49	*
3	4	1.29	2.49	+0.11	0.73	0.00	0.93	+0.11	0.82	1.30	2.51	*
3	5	1.30	2.51	+0.03	0.49	0.00	0.63	+0.03	1.12	1.27	2.43	*
3	6	1.27	2.43	-0.03	0.31	0.00	0.31	-0.03	1.44	1.25	2.37	*
3	7	1.25	2.37	-0.07	0.17	0.00	0.08	-0.07	1.67	1.23	2.33	*
3	8	1.23	2.33	-0.10	0.09	0.00	0.00	-0.10	1.75	1.21	2.30	*
3	9	1.21	2.30	-0.11	0.05	0.00	0.00	-0.11	1.75	1.21	2.29	*
3	10	1.21	2.29	-0.12	0.02	0.00	0.00	-0.13	1.75	1.20	2.27	*
3	11	1.20	2.27	-0.12	0.01	0.00	0.00	-0.12	1.75	1.20	2.28	*
3	12	1.20	2.28	-0.10	0.21	0.00	0.00	-0.11	1.75	1.21	2.29	*
4	1	1.21	2.29	-0.04	0.58	0.00	0.43	-0.05	1.32	1.24	2.35	*
4	2	1.24	2.35	+0.01	1.69	0.00	1.66	+0.01	0.09	1.26	2.41	*
4	3	1.26	2.41	+0.09	10.48	0.00	1.75	+0.28	0.00	3.91	11.51	
4	4	3.91	11.51	+0.35	4.77	0.00	1.75	+0.41	0.00	4.71	15.29	
4	5	4.71	15.29	+0.10	1.42	0.00	1.75	+0.10	0.00	4.68	15.16	
4	6	4.68	15.16	-0.09	0.88	0.00	1.75	-0.09	0.00	4.47	14.11	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km3

(continuação)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)S/2I	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)S/2I	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
	7	4.47	14.11	-0.25	0.48	0.00	1.75	-0.23	0.00	4.10	12.37	
	8	4.10	12.37	-0.33	0.26	0.00	1.75	-0.30	0.00	3.62	10.24	
	9	3.62	10.24	-0.33	0.14	0.00	1.75	-0.28	0.00	3.08	8.02	
	10	3.08	8.02	-0.32	0.08	0.00	1.75	-0.26	0.00	2.44	5.77	
	11	2.44	5.77	-0.24	0.11	0.00	1.75	-0.17	0.00	1.71	3.72	
	12	1.71	3.72	-0.15	0.19	0.00	1.36	-0.11	0.39	1.21	2.29	
5	1	1.21	2.29	-0.04	4.05	0.00	1.75	-0.07	0.00	1.97	4.47	
	2	1.97	4.47	+0.02	15.28	0.00	1.75	+0.06	0.00	5.25	18.08	
	3	5.25	18.08	+0.38	32.41	12.07	1.75	+0.72	0.00	10.38	37.77	
	4	10.38	37.77	+0.92	26.58	26.47	1.75	+0.88	0.00	10.47	37.93	
	5	10.47	37.93	+0.23	44.63	43.99	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	2.02	0.29	1.75	-0.20	0.00	9.87	36.85	
	7	9.87	36.85	-0.54	1.11	0.00	1.75	-0.51	0.00	8.94	35.16	
	8	8.94	35.16	-0.73	0.61	0.00	1.75	-0.64	0.00	7.56	32.65	
	9	7.56	32.65	-0.68	0.39	0.00	1.75	-0.63	0.00	6.96	29.97	
	10	6.96	29.97	-0.72	0.32	0.00	1.75	-0.69	0.00	6.62	27.13	
	11	6.62	27.13	-0.64	0.24	0.00	1.75	-0.62	0.00	6.28	24.36	
	12	6.28	24.36	-0.55	0.39	0.00	1.75	-0.52	0.00	5.93	21.93	
6	1	5.93	21.93	-0.21	0.93	0.00	1.75	-0.21	0.00	5.71	20.69	
	2	5.71	20.69	+0.06	1.00	0.00	1.75	+0.06	0.00	5.60	20.06	
	3	5.60	20.06	+0.40	20.41	2.07	1.75	+0.72	0.00	10.38	37.77	
	4	10.38	37.77	+0.92	1.87	1.76	1.75	+0.88	0.00	10.47	37.93	
	5	10.47	37.93	+0.23	3.42	2.78	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	3.70	1.97	1.75	-0.20	0.00	9.87	36.85	
	7	9.87	36.85	-0.54	1.21	0.00	1.75	-0.51	0.00	9.00	35.26	
	8	9.00	35.26	-0.73	0.66	0.00	1.75	-0.65	0.00	7.63	32.78	
	9	7.63	32.78	-0.69	0.56	0.00	1.75	-0.64	0.00	6.99	30.27	
	10	6.99	30.27	-0.72	0.31	0.00	1.75	-0.70	0.00	6.65	27.41	
	11	6.65	27.41	-0.64	0.17	0.00	1.75	-0.62	0.00	6.31	24.56	
	12	6.31	24.56	-0.55	0.40	0.00	1.75	-0.53	0.00	5.97	22.14	
7	1	5.97	22.14	-0.21	0.44	0.00	1.75	-0.21	0.00	5.66	20.41	
	2	5.66	20.41	+0.06	0.53	0.00	1.75	+0.06	0.00	5.47	19.31	
	3	5.47	19.31	+0.39	0.39	0.00	1.75	+0.38	0.00	5.37	18.72	
	4	5.37	18.72	+0.48	0.30	0.00	1.75	+0.46	0.00	5.28	18.21	
	5	5.28	18.21	+0.12	0.43	0.00	1.75	+0.11	0.00	5.08	17.11	
	6	5.08	17.11	-0.10	0.25	0.00	1.75	-0.10	0.00	4.74	15.42	
	7	4.74	15.42	-0.26	0.14	0.00	1.75	-0.24	0.00	4.30	13.31	
	8	4.30	13.31	-0.35	0.08	0.00	1.75	-0.31	0.00	3.79	10.97	
	9	3.79	10.97	-0.34	0.04	0.00	1.75	-0.30	0.00	3.25	8.62	
	10	3.25	8.62	-0.34	0.02	0.00	1.75	-0.28	0.00	2.60	6.28	
	11	2.60	6.28	-0.25	0.01	0.00	1.75	-0.18	0.00	1.84	4.10	
	12	1.84	4.10	-0.16	0.04	0.00	1.58	-0.11	0.17	1.21	2.29	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
8	1	1.21	2.29	-0.04	0.03	0.00	0.00	-0.05	1.75	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.36	0.00	0.33	+0.01	1.42	1.26	2.41	≠
	3	1.26	2.41	+0.09	23.79	0.00	1.75	+0.45	0.00	6.36	25.00	
	4	6.36	25.00	+0.56	7.23	0.00	1.75	+0.63	0.00	7.16	31.67	
	5	7.16	31.67	+0.16	1.89	0.00	1.75	+0.16	0.00	7.27	32.12	
	6	7.27	32.12	-0.15	1.14	0.00	1.75	-0.14	0.00	7.11	31.23	
	7	7.11	31.23	-0.39	0.71	0.00	1.75	-0.38	0.00	6.89	29.41	
	8	6.89	29.41	-0.56	0.61	0.00	1.75	-0.54	0.00	6.62	27.17	
	9	6.62	27.17	-0.60	0.33	0.00	1.75	-0.57	0.00	6.31	24.58	
	10	6.31	24.58	-0.65	0.18	0.00	1.75	-0.62	0.00	5.90	21.73	
	11	5.90	21.73	-0.57	0.11	0.00	1.75	-0.53	0.00	5.41	18.99	
	12	5.41	18.99	-0.47	0.29	0.00	1.75	-0.44	0.00	4.98	16.61	
9	1	4.98	16.61	-0.18	0.27	0.00	1.75	-0.17	0.00	4.61	14.79	
	2	4.61	14.79	+0.05	0.80	0.00	1.75	+0.05	0.00	4.43	13.93	
	3	4.43	13.93	+0.32	3.24	0.00	1.75	+0.35	0.00	4.87	16.09	
	4	4.87	16.09	+0.43	4.55	0.00	1.75	+0.48	0.00	5.56	19.80	
	5	5.56	19.80	+0.12	16.16	0.00	1.75	+0.19	0.00	8.59	34.52	
	6	8.59	34.52	-0.17	1.56	0.00	1.75	-0.17	0.00	8.30	33.99	
	7	8.30	33.99	-0.46	0.93	0.00	1.75	-0.42	0.00	7.36	32.30	
	8	7.36	32.30	-0.60	0.51	0.00	1.75	-0.57	0.00	6.95	29.89	
	9	6.95	29.89	-0.63	0.29	0.00	1.75	-0.60	0.00	6.62	27.20	
	10	6.62	27.20	-0.69	0.16	0.00	1.75	-0.66	0.00	6.27	24.27	
	11	6.27	24.27	-0.61	0.09	0.00	1.75	-0.58	0.00	5.84	21.42	
	12	5.84	21.42	-0.51	0.05	0.00	1.75	-0.47	0.00	5.37	18.74	
10	1	5.37	18.74	-0.19	0.13	0.00	1.75	-0.18	0.00	5.01	16.74	
	2	5.01	16.74	+0.05	0.21	0.00	1.75	+0.05	0.00	4.71	15.31	
	3	4.71	15.31	+0.34	0.53	0.00	1.75	+0.33	0.00	4.60	14.75	
	4	4.60	14.75	+0.41	2.69	0.00	1.75	+0.43	0.00	4.96	16.53	
	5	4.96	16.53	+0.11	1.35	0.00	1.75	+0.11	0.00	4.93	16.35	
	6	4.93	16.35	-0.10	0.89	0.00	1.75	-0.09	0.00	4.71	15.29	
	7	4.71	15.29	-0.26	0.60	0.00	1.75	-0.24	0.00	4.37	13.64	
	8	4.37	13.64	-0.36	0.34	0.00	1.75	-0.33	0.00	3.92	11.55	
	9	3.92	11.55	-0.35	0.18	0.00	1.75	-0.31	0.00	3.42	9.31	
	10	3.42	9.31	-0.35	0.10	0.00	1.75	-0.30	0.00	2.80	7.01	
	11	2.80	7.01	-0.27	0.32	0.00	1.75	-0.22	0.00	2.19	5.09	
	12	2.19	5.09	-0.19	0.18	0.00	1.75	-0.14	0.00	1.53	3.19	
11	1	1.53	3.19	-0.05	0.54	0.00	1.28	-0.05	0.47	1.24	2.35	≠
	2	1.24	2.35	+0.01	4.74	0.00	1.75	+0.02	0.00	2.30	5.38	
	3	2.30	5.38	+0.17	2.47	0.00	1.75	+0.19	0.00	2.65	6.45	
	4	2.65	6.45	+0.23	6.93	0.00	1.75	+0.35	0.00	4.07	12.22	
	5	4.07	12.22	+0.09	1.76	0.00	1.75	+0.09	0.00	4.11	12.41	
	6	4.11	12.41	-0.08	1.14	0.00	1.75	-0.08	0.00	3.94	11.64	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
12	7	3.94	11.64	-0.22	0.69	0.00	1.75	-0.20	0.00	3.61	10.16	
	8	3.61	10.16	-0.29	0.38	0.00	1.75	-0.26	0.00	3.14	8.24	
	9	3.14	8.24	-0.28	0.21	0.00	1.75	-0.24	0.00	2.57	6.18	
	10	2.57	6.18	-0.27	0.11	0.00	1.75	-0.20	0.00	1.83	4.07	
	11	1.83	4.07	-0.18	0.06	0.00	1.56	-0.12	0.19	1.20	2.28	*
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.75	1.21	2.29	*
12	1	1.21	2.29	-0.04	0.86	0.00	0.71	-0.05	1.04	1.24	2.35	*
	2	1.24	2.35	+0.01	1.80	0.00	1.75	+0.01	0.00	1.27	2.43	
	3	1.27	2.43	+0.09	12.31	0.00	1.75	+0.31	0.00	4.32	13.39	
	4	4.32	13.39	+0.38	16.68	0.00	1.75	+0.60	0.00	6.88	29.30	
	5	6.88	29.30	+0.15	7.00	0.00	1.75	+0.19	0.00	8.80	34.90	
	6	8.80	34.90	-0.18	2.73	0.00	1.75	-0.18	0.00	9.14	35.52	
	7	9.14	35.52	-0.50	1.15	0.00	1.75	-0.50	0.00	8.27	33.94	
	8	8.27	33.94	-0.67	0.63	0.00	1.75	-0.59	0.00	7.15	31.56	
	9	7.15	31.56	-0.64	0.34	0.00	1.75	-0.62	0.00	6.83	28.88	
	10	6.83	28.88	-0.71	0.19	0.00	1.75	-0.68	0.00	6.47	25.94	
	11	6.47	25.94	-0.63	0.10	0.00	1.75	-0.60	0.00	6.13	23.06	
	12	6.13	23.06	-0.53	0.12	0.00	1.75	-0.50	0.00	5.66	20.39	
13	1	5.66	20.39	-0.20	0.94	0.00	1.75	-0.20	0.00	5.45	19.18	
	2	5.45	19.18	+0.06	1.32	0.00	1.75	+0.06	0.00	5.39	18.87	
	3	5.39	18.87	+0.39	2.23	0.00	1.75	+0.40	0.00	5.62	20.13	
	4	5.62	20.13	+0.50	2.14	0.00	1.75	+0.51	0.00	5.86	21.53	
	5	5.86	21.53	+0.13	1.44	0.00	1.75	+0.13	0.00	5.85	21.48	
	6	5.85	21.48	-0.12	0.98	0.00	1.75	-0.11	0.00	5.68	20.48	
	7	5.68	20.48	-0.31	0.60	0.00	1.75	-0.30	0.00	5.37	18.72	
	8	5.37	18.72	-0.44	0.39	0.00	1.75	-0.41	0.00	4.96	16.51	
	9	4.96	16.51	-0.45	0.21	0.00	1.75	-0.41	0.00	4.47	14.11	
	10	4.47	14.11	-0.46	0.11	0.00	1.75	-0.42	0.00	3.93	11.60	
	11	3.93	11.60	-0.38	0.06	0.00	1.75	-0.34	0.00	3.39	9.19	
	12	3.39	9.19	-0.29	0.03	0.00	1.75	-0.25	0.00	2.78	6.93	
14	1	2.78	6.93	-0.10	0.39	0.00	1.75	-0.08	0.00	2.30	5.38	
	2	2.30	5.38	+0.02	2.54	0.00	1.75	+0.03	0.00	2.58	6.22	
	3	2.58	6.22	+0.19	9.80	0.00	1.75	+0.33	0.00	4.61	14.79	
	4	4.61	14.79	+0.41	11.53	0.00	1.75	+0.56	0.00	6.42	25.54	
	5	6.42	25.54	+0.14	2.90	0.00	1.75	+0.14	0.00	6.60	26.97	
	6	6.60	26.97	-0.13	1.28	0.00	1.75	-0.13	0.00	6.51	26.24	
	7	6.51	26.24	-0.36	0.73	0.00	1.75	-0.35	0.00	6.30	24.51	
	8	6.30	24.51	-0.51	0.40	0.00	1.75	-0.49	0.00	5.97	22.16	
	9	5.97	22.16	-0.54	0.22	0.00	1.75	-0.50	0.00	5.52	19.58	
	10	5.52	19.58	-0.57	0.12	0.00	1.75	-0.53	0.00	5.03	16.85	
	11	5.03	16.85	-0.49	0.06	0.00	1.75	-0.44	0.00	4.49	14.23	
	12	4.49	14.23	-0.39	0.03	0.00	1.75	-0.35	0.00	3.97	11.77	





SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em hm<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	FINAL
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
15	1	3.97	11.77	-0.14	0.31	0.00	1.75	-0.13	0.00	3.58	10.05	
	2	3.58	10.05	+0.04	0.67	0.00	1.75	+0.04	0.00	3.36	9.05	
	3	3.36	9.05	+0.24	1.24	0.00	1.75	+0.24	0.00	3.35	9.01	
	4	3.35	9.01	+0.30	6.20	0.00	1.75	+0.39	0.00	4.48	14.15	
	5	4.48	14.15	+0.10	1.52	0.00	1.75	+0.10	0.00	4.47	14.12	
	6	4.47	14.12	-0.09	1.03	0.00	1.75	-0.09	0.00	4.29	13.22	
	7	4.29	13.22	-0.24	0.60	0.00	1.75	-0.22	0.00	3.93	11.62	
	8	3.93	11.62	-0.32	0.33	0.00	1.75	-0.29	0.00	3.48	9.59	
	9	3.48	9.59	-0.31	0.18	0.00	1.75	-0.27	0.00	2.92	7.43	
	10	2.92	7.43	-0.30	0.10	0.00	1.75	-0.24	0.00	2.25	5.24	
	11	2.25	5.24	-0.22	0.05	0.00	1.75	-0.15	0.00	1.52	3.17	
	12	1.52	3.17	-0.13	0.05	0.00	0.69	-0.11	1.06	1.21	2.29	*
16	1	1.21	2.29	-0.04	0.50	0.00	0.35	-0.05	1.40	1.24	2.35	*
	2	1.24	2.35	+0.01	0.57	0.00	0.54	+0.01	1.21	1.26	2.41	*
	3	1.26	2.41	+0.09	1.48	0.00	1.58	+0.09	0.17	1.29	2.49	*
	4	1.29	2.49	+0.11	3.36	0.00	1.75	+0.17	0.00	1.94	4.38	
	5	1.94	4.38	+0.04	1.21	0.00	1.75	+0.04	0.00	1.77	3.92	
	6	1.77	3.92	-0.04	0.78	0.00	1.75	-0.03	0.00	1.42	2.89	
	7	1.42	2.89	-0.08	0.43	0.00	0.84	-0.07	0.91	1.23	2.33	*
	8	1.23	2.33	-0.10	0.23	0.00	0.06	-0.10	1.69	1.21	2.30	*
	9	1.21	2.30	-0.11	0.13	0.00	0.00	-0.11	1.75	1.21	2.29	*
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.75	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.75	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.75	1.21	2.29	*
17	1	1.21	2.29	-0.04	0.67	0.00	0.52	-0.05	1.23	1.24	2.35	*
	2	1.24	2.35	+0.01	4.33	0.00	1.75	+0.02	0.00	2.15	4.97	
	3	2.15	4.97	+0.15	8.58	0.00	1.75	+0.29	0.00	4.07	12.24	
	4	4.07	12.24	+0.36	9.15	0.00	1.75	+0.49	0.00	5.68	20.50	
	5	5.68	20.50	+0.12	1.63	0.00	1.75	+0.12	0.00	5.70	20.63	
	6	5.70	20.63	-0.11	0.97	0.00	1.75	-0.11	0.00	5.53	19.62	
	7	5.53	19.62	-0.30	0.57	0.00	1.75	-0.29	0.00	5.21	17.85	
	8	5.21	17.85	-0.42	0.31	0.00	1.75	-0.40	0.00	4.77	15.59	
	9	4.77	15.59	-0.43	0.17	0.00	1.75	-0.39	0.00	4.28	13.19	
	10	4.28	13.19	-0.44	0.09	0.00	1.75	-0.39	0.00	3.73	10.69	
	11	3.73	10.69	-0.36	0.05	0.00	1.75	-0.32	0.00	3.16	8.31	
	12	3.16	8.31	-0.28	0.43	0.00	1.75	-0.24	0.00	2.65	6.48	
18	1	2.65	6.48	-0.10	0.56	0.00	1.75	-0.08	0.00	2.20	5.12	
	2	2.20	5.12	+0.02	1.94	0.00	1.75	+0.02	0.00	2.29	5.35	
	3	2.29	5.35	+0.16	16.49	0.00	1.75	+0.41	0.00	5.71	20.66	
	4	5.71	20.66	+0.51	4.06	0.00	1.75	+0.55	0.00	6.24	24.03	
	5	6.24	24.03	+0.14	1.57	0.00	1.75	+0.14	0.00	6.25	24.12	
	6	6.25	24.12	-0.13	1.33	0.00	1.75	-0.12	0.00	6.17	23.45	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	6.17	23.45	-0.34	0.79	0.00		-0.33	0.00	5.91	21.82	
	8	5.91	21.82	-0.48	0.46	0.00	1.75	-0.46	0.00	5.52	19.60	
	9	5.52	19.60	-0.50	0.25	0.00	1.75	-0.47	0.00	5.09	17.13	
	10	5.09	17.13	-0.53	0.14	0.00	1.75	-0.48	0.00	4.55	14.52	
	11	4.55	14.52	-0.44	0.07	0.00	1.75	-0.40	0.00	4.02	12.00	
	12	4.02	12.00	-0.35	0.04	0.00	1.75	-0.31	0.00	3.49	9.63	
19	1	3.49	9.63	-0.13	0.64	0.00	1.75	-0.11	0.00	3.15	8.28	
	2	3.15	8.28	+0.03	3.03	0.00	1.75	+0.04	0.00	3.49	9.63	
	3	3.49	9.63	+0.25	3.98	0.00	1.75	+0.29	0.00	4.11	12.40	
	4	4.11	12.40	+0.36	2.61	0.00	1.75	+0.39	0.00	4.45	14.01	
	5	4.45	14.01	+0.10	1.37	0.00	1.75	+0.10	0.00	4.41	13.82	
	6	4.41	13.82	-0.09	0.88	0.00	1.75	-0.08	0.00	4.20	12.78	
	7	4.20	12.78	-0.23	0.50	0.00	1.75	-0.21	0.00	3.81	11.09	
	8	3.81	11.09	-0.31	0.28	0.00	1.75	-0.28	0.00	3.35	9.03	
	9	3.35	9.03	-0.30	0.16	0.00	1.75	-0.26	0.00	2.77	6.88	
	10	2.77	6.88	-0.29	0.09	0.00	1.75	-0.22	0.00	2.06	4.71	
	11	2.06	4.71	-0.20	0.05	0.00	1.75	-0.14	0.00	1.35	2.68	
	12	1.35	2.68	-0.12	0.02	0.00	0.18	-0.11	1.57	1.21	2.29  *	
20	1	1.21	2.29	-0.04	0.32	0.00	0.17	-0.05	1.58	1.24	2.35  *	
	2	1.24	2.35	+0.01	0.64	0.00	0.61	+0.01	1.14	1.26	2.41  *	
	3	1.26	2.41	+0.09	1.07	0.00	1.17	+0.09	0.58	1.29	2.49  *	
	4	1.29	2.49	+0.11	0.79	0.00	0.99	+0.11	0.76	1.30	2.51  *	
	5	1.30	2.51	+0.03	0.44	0.00	0.58	+0.03	1.17	1.27	2.43  *	
	6	1.27	2.43	-0.03	0.41	0.00	0.41	-0.03	1.34	1.25	2.37  *	
	7	1.25	2.37	-0.07	0.33	0.00	0.24	-0.07	1.51	1.23	2.33  *	
	8	1.23	2.33	-0.10	0.18	0.00	0.01	-0.10	1.74	1.21	2.30  *	
	9	1.21	2.30	-0.11	0.09	0.00	0.00	-0.11	1.75	1.21	2.29  *	
	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	1.75	1.20	2.27  *	
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.75	1.20	2.28  *	
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.75	1.21	2.29  *	
21	1	1.21	2.29	-0.04	0.76	0.00	0.61	-0.05	1.14	1.24	2.35  *	
	2	1.24	2.35	+0.01	2.00	0.00	1.75	+0.01	0.00	1.34	2.63	
	3	1.34	2.63	+0.10	2.08	0.00	1.75	+0.11	0.00	1.52	3.16	
	4	1.52	3.16	+0.13	7.73	0.00	1.75	+0.30	0.00	3.48	9.58	
	5	3.48	9.58	+0.08	1.59	0.00	1.75	+0.08	0.00	3.47	9.57	
	6	3.47	9.57	-0.07	0.91	0.00	1.75	-0.07	0.00	3.24	8.60	
	7	3.24	8.60	-0.18	0.53	0.00	1.75	-0.16	0.00	2.81	7.04	
	8	2.81	7.04	-0.23	0.29	0.00	1.75	-0.19	0.00	2.22	5.17	
	9	2.22	5.17	-0.20	0.17	0.00	1.75	-0.14	0.00	1.54	3.24	
	10	1.54	3.24	-0.16	0.09	0.00	0.77	-0.13	0.98	1.20	2.27  *	
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.75	1.20	2.28  *	
	12	1.20	2.28	-0.10	0.09	0.00	0.00	-0.11	1.75	1.21	2.29  *	

000177



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	AREA	VOLUME FINAL	IFAL.
22	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	1.56	1.24	2.35	*
	2	1.24	2.35	+0.01	2.16	0.00	1.75	+0.01	0.00	1.39	2.79	
	3	1.39	2.79	+0.10	9.29	0.00	1.75	+0.26	0.00	3.73	10.70	
	4	3.73	10.70	+0.33	11.07	0.00	1.75	+0.50	0.00	5.74	20.85	
	5	5.74	20.85	+0.13	3.48	0.00	1.75	+0.13	0.00	6.09	22.84	
	6	6.09	22.84	-0.12	1.36	0.00	1.75	-0.12	0.00	5.98	22.20	
	7	5.98	22.20	-0.33	0.75	0.00	1.75	-0.32	0.00	5.69	20.56	
	8	5.69	20.56	-0.46	0.41	0.00	1.75	-0.44	0.00	5.30	18.32	
	9	5.30	18.32	-0.48	0.26	0.00	1.75	-0.44	0.00	4.84	15.91	
	10	4.84	15.91	-0.50	0.14	0.00	1.75	-0.46	0.00	4.31	13.34	
	11	4.31	13.34	-0.42	0.09	0.00	1.75	-0.37	0.00	3.77	10.89	
	12	3.77	10.89	-0.33	0.43	0.00	1.75	-0.30	0.00	3.33	8.95	
23	1	3.33	8.95	-0.12	1.02	0.00	1.75	-0.11	0.00	3.07	7.98	
	2	3.07	7.98	+0.03	1.45	0.00	1.75	+0.03	0.00	3.01	7.75	
	3	3.01	7.75	+0.22	3.41	0.00	1.75	+0.25	0.00	3.54	9.88	
	4	3.54	9.88	+0.31	24.30	0.00	1.75	+0.67	0.00	7.98	33.41	
	5	7.98	33.41	+0.18	6.42	1.21	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	1.80	0.07	1.75	-0.20	0.00	9.87	36.85	
	7	9.87	36.85	-0.54	1.00	0.00	1.75	-0.50	0.00	8.88	35.05	
	8	8.88	35.05	-0.72	0.55	0.00	1.75	-0.64	0.00	7.47	32.49	
	9	7.47	32.49	-0.67	0.30	0.00	1.75	-0.63	0.00	6.93	29.74	
	10	6.93	29.74	-0.72	0.16	0.00	1.75	-0.69	0.00	6.57	26.74	
	11	6.57	26.74	-0.64	0.09	0.00	1.75	-0.61	0.00	6.22	23.84	
	12	6.22	23.84	-0.54	0.05	0.00	1.75	-0.51	0.00	5.78	21.08	
24	1	5.78	21.08	-0.21	0.18	0.00	1.75	-0.20	0.00	5.44	19.11	
	2	5.44	19.11	+0.06	1.01	0.00	1.75	+0.06	0.00	5.33	18.48	
	3	5.33	18.48	+0.38	0.88	0.00	1.75	+0.38	0.00	5.31	18.37	
	4	5.31	18.37	+0.47	1.04	0.00	1.75	+0.47	0.00	5.35	18.60	
	5	5.35	18.60	+0.12	0.91	0.00	1.75	+0.11	0.00	5.24	17.99	
	6	5.24	17.99	-0.10	0.52	0.00	1.75	-0.10	0.00	4.97	16.56	
	7	4.97	16.56	-0.27	0.30	0.00	1.75	-0.25	0.00	4.56	14.58	
	8	4.56	14.58	-0.37	0.16	0.00	1.75	-0.34	0.00	4.08	12.28	
	9	4.08	12.28	-0.37	0.09	0.00	1.75	-0.33	0.00	3.55	9.92	
	10	3.55	9.92	-0.37	0.05	0.00	1.75	-0.31	0.00	2.95	7.54	
	11	2.95	7.54	-0.29	0.02	0.00	1.75	-0.23	0.00	2.27	5.30	
	12	2.27	5.30	-0.20	0.01	0.00	1.75	-0.14	0.00	1.54	3.22	
25	1	1.54	3.22	-0.06	0.08	0.00	0.85	-0.05	0.90	1.24	2.35	*
	2	1.24	2.35	+0.01	0.84	0.00	0.81	+0.01	0.94	1.26	2.41	*
	3	1.26	2.41	+0.09	0.90	0.00	1.00	+0.09	0.75	1.0	2.49	*
	4	1.29	2.49	+0.11	1.37	0.00	1.57	+0.11	0.18	1.30	2.51	*
	5	1.30	2.51	+0.03	1.29	0.00	1.43	+0.03	0.32	1.27	2.43	*
	6	1.27	2.43	-0.03	0.93	0.00	0.93	-0.03	0.82	1.25	2.37	*

000178



SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME (P-E)S/2I	VOLUME (P-E)S/2I	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)S/2I	SALDO	AREA	VOLUME IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL
	7	1.25	2.37	-0.07	0.57	0.00	0.48	-0.07	1.27	1.23	2.33
	8	1.23	2.33	-0.10	0.31	0.00	0.14	-0.10	1.61	1.21	2.30
	9	1.21	2.30	-0.11	0.17	0.00	0.00	-0.11	1.75	1.21	2.29
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	1.75	1.20	2.27
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.75	1.20	2.28
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.75	1.21	2.29
26	1	1.21	2.29	-0.04	0.38	0.00	0.23	-0.05	1.52	1.24	2.35
	2	1.24	2.35	+0.01	0.28	0.00	0.25	+0.01	1.50	1.26	2.41
	3	1.26	2.41	+0.09	4.53	0.00	1.75	+0.16	0.00	2.32	5.45
	4	2.32	5.45	+0.21	2.01	0.00	1.75	+0.22	0.00	2.56	6.13
	5	2.56	6.13	+0.06	1.33	0.00	1.75	+0.05	0.00	2.46	5.82
	6	2.46	5.82	-0.05	0.84	0.00	1.75	-0.04	0.00	2.10	4.82
	7	2.10	4.82	-0.12	0.50	0.00	1.75	-0.09	0.00	1.59	3.37
	8	1.59	3.37	-0.13	0.33	0.00	1.17	-0.10	0.58	1.21	2.30
	9	1.21	2.30	-0.11	0.18	0.00	0.00	-0.11	1.75	1.21	2.29
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.75	1.20	2.27
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.75	1.20	2.28
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.75	1.21	2.29
27	1	1.21	2.29	-0.04	0.12	0.00	0.00	-0.05	1.75	1.24	2.35
	2	1.24	2.35	+0.01	0.73	0.00	0.70	+0.01	1.05	1.26	2.41
	3	1.26	2.41	+0.09	3.01	0.00	1.75	+0.12	0.00	1.76	3.89
	4	1.76	3.89	+0.16	1.64	0.00	1.75	+0.16	0.00	1.83	4.09
	5	1.83	4.09	+0.04	1.27	0.00	1.75	+0.04	0.00	1.69	3.69
	6	1.69	3.69	-0.03	0.76	0.00	1.75	-0.03	0.00	1.34	2.64
	7	1.34	2.64	-0.07	0.54	0.00	0.70	-0.07	1.05	1.23	2.33
	8	1.23	2.33	-0.10	0.30	0.00	0.13	-0.10	1.62	1.21	2.30
	9	1.21	2.30	-0.11	0.22	0.00	0.01	-0.11	1.74	1.21	2.29
	10	1.21	2.29	-0.12	0.16	0.00	0.00	-0.13	1.75	1.20	2.27
	11	1.20	2.27	-0.12	0.09	0.00	0.00	-0.12	1.75	1.20	2.28
	12	1.20	2.28	-0.10	0.08	0.00	0.00	-0.11	1.75	1.21	2.29
28	1	1.21	2.29	-0.04	0.96	0.00	0.81	-0.05	0.94	1.24	2.35
	2	1.24	2.35	+0.01	1.27	0.00	1.24	+0.01	0.51	1.26	2.41
	3	1.26	2.41	+0.09	2.65	0.00	1.75	+0.12	0.00	1.64	3.52
	4	1.64	3.52	+0.14	3.51	0.00	1.75	+0.20	0.00	2.39	5.63
	5	2.39	5.63	+0.05	1.59	0.00	1.75	+0.05	0.00	2.37	5.57
	6	2.37	5.57	-0.05	0.98	0.00	1.75	-0.04	0.00	2.06	4.71
	7	2.06	4.71	-0.11	0.64	0.00	1.75	-0.09	0.00	1.60	3.40
	8	1.60	3.40	-0.13	0.36	0.00	1.23	-0.10	0.52	1.21	2.30
	9	1.21	2.30	-0.11	0.20	0.00	0.00	-0.11	1.75	1.21	2.29
	10	1.21	2.29	-0.12	0.11	0.00	0.00	-0.13	1.75	1.20	2.27
	11	1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	1.75	1.20	2.28
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.75	1.21	2.29



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3 (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
29	1	1.211	2.291	-0.041	0.081	0.001	0.001	-0.051	1.751	1.241	2.351	*
	2	1.241	2.351	+0.011	0.301	0.001	0.271	+0.011	1.481	1.261	2.411	*
	3	1.261	2.411	+0.091	1.171	0.001	1.271	+0.091	0.481	1.291	2.491	*
	4	1.291	2.491	+0.111	1.221	0.001	1.421	+0.111	0.331	1.301	2.511	*
	5	1.301	2.511	+0.031	0.751	0.001	0.891	+0.031	0.861	1.271	2.431	*
	6	1.271	2.431	-0.031	0.591	0.001	0.591	-0.031	1.161	1.251	2.371	*
	7	1.251	2.371	-0.071	0.361	0.001	0.271	-0.071	1.481	1.231	2.331	*
	8	1.231	2.331	-0.101	0.191	0.001	0.021	-0.101	1.731	1.211	2.301	*
	9	1.211	2.301	-0.111	0.101	0.001	0.001	-0.111	1.751	1.211	2.291	*
	10	1.211	2.291	-0.121	0.061	0.001	0.001	-0.131	1.751	1.201	2.271	*
	11	1.201	2.271	-0.121	0.031	0.001	0.001	-0.121	1.751	1.201	2.281	*
	12	1.201	2.281	-0.101	0.011	0.001	0.001	-0.111	1.751	1.211	2.291	*
30	1	1.211	2.291	-0.041	0.471	0.001	0.321	-0.051	1.431	1.241	2.351	*
	2	1.241	2.351	+0.011	0.651	0.001	0.621	+0.011	1.131	1.261	2.411	*
	3	1.261	2.411	+0.091	1.391	0.001	1.491	+0.091	0.261	1.291	2.491	*
	4	1.291	2.491	+0.111	1.171	0.001	1.371	+0.111	0.381	1.301	2.511	*
	5	1.301	2.511	+0.031	0.641	0.001	0.781	+0.031	0.971	1.271	2.431	*
	6	1.271	2.431	-0.031	0.351	0.001	0.351	-0.031	1.401	1.251	2.371	*
	7	1.251	2.371	-0.071	0.191	0.001	0.101	-0.071	1.651	1.231	2.331	*
	8	1.231	2.331	-0.101	0.101	0.001	0.001	-0.101	1.751	1.211	2.301	*
	9	1.211	2.301	-0.111	0.051	0.001	0.001	-0.111	1.751	1.211	2.291	*
	10	1.211	2.291	-0.121	0.031	0.001	0.001	-0.131	1.751	1.201	2.271	*
	11	1.201	2.271	-0.121	0.011	0.001	0.001	-0.121	1.751	1.201	2.281	*
	12	1.201	2.281	-0.101	0.231	0.001	0.001	-0.111	1.751	1.211	2.291	*
31	1	1.211	2.291	-0.041	0.411	0.001	0.261	-0.051	1.491	1.241	2.351	*
	2	1.241	2.351	+0.011	0.411	0.001	0.381	+0.011	1.371	1.261	2.411	*
	3	1.261	2.411	+0.091	0.701	0.001	0.801	+0.091	0.951	1.291	2.491	*
	4	1.291	2.491	+0.111	1.131	0.001	1.331	+0.111	0.421	1.301	2.511	*
	5	1.301	2.511	+0.031	0.971	0.001	1.111	+0.031	0.641	1.271	2.431	*
	6	1.271	2.431	-0.031	0.531	0.001	0.531	-0.031	1.221	1.251	2.371	*
	7	1.251	2.371	-0.071	0.371	0.001	0.281	-0.071	1.471	1.231	2.331	*
	8	1.231	2.331	-0.101	0.201	0.001	0.031	-0.101	1.721	1.211	2.301	*
	9	1.211	2.301	-0.111	0.111	0.001	0.001	-0.111	1.751	1.211	2.291	*
	10	1.211	2.291	-0.121	0.061	0.001	0.001	-0.131	1.751	1.201	2.271	*
	11	1.201	2.271	-0.121	0.091	0.001	0.001	-0.121	1.751	1.201	2.281	*
	12	1.201	2.281	-0.101	0.541	0.001	0.311	-0.111	1.441	1.211	2.291	*
32	1	1.211	2.291	-0.041	0.581	0.001	0.431	-0.051	1.321	1.241	2.351	*
	2	1.241	2.351	+0.011	0.781	0.001	0.751	+0.011	1.001	1.261	2.411	*
	3	1.261	2.411	+0.091	3.971	0.001	1.751	+0.151	0.001	2.111	4.871	*
	4	2.111	4.871	+0.191	2.551	0.001	1.751	+0.221	0.001	2.541	6.081	*
	5	2.541	6.081	+0.061	1.461	0.001	1.751	+0.051	0.001	2.481	5.901	*
	6	2.481	5.901	-0.051	0.861	0.001	1.751	-0.041	0.001	2.131	4.921	*



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	ISANGRADO	RETIR.	FINAL	IDEMANDA	FINAL	FINAL	
	7	2.13	4.92	-0.12	0.47	0.00	1.75	-0.09	0.00	1.61	3.43	
	8	1.61	3.43	-0.13	0.26	0.00	1.16	-0.10	0.59	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.14	0.00	0.00	-0.11	1.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.34	0.00	0.11	-0.11	1.64	1.21	2.29	≠
33	1	1.21	2.29	-0.04	0.98	0.00	0.83	-0.05	0.92	1.24	2.35	≠
	2	1.24	2.35	+0.01	5.58	0.00	1.75	+0.03	0.00	2.58	6.22	
	3	2.58	6.22	+0.19	6.52	0.00	1.75	+0.28	0.00	3.90	11.46	
	4	3.90	11.46	+0.34	4.28	0.00	1.75	+0.40	0.00	4.60	14.73	
	5	4.60	14.73	+0.10	2.00	0.00	1.75	+0.10	0.00	4.69	15.18	
	6	4.69	15.18	-0.09	1.15	0.00	1.75	-0.09	0.00	4.53	14.40	
	7	4.53	14.40	-0.25	0.63	0.00	1.75	-0.23	0.00	4.20	12.80	
	8	4.20	12.80	-0.34	0.35	0.00	1.75	-0.31	0.00	3.74	10.75	
	9	3.74	10.75	-0.34	0.19	0.00	1.75	-0.30	0.00	3.23	8.55	
	10	3.23	8.55	-0.33	0.10	0.00	1.75	-0.28	0.00	2.60	6.29	
	11	2.60	6.29	-0.25	0.05	0.00	1.75	-0.19	0.00	1.85	4.15	
	12	1.85	4.15	-0.16	0.03	0.00	1.62	-0.11	0.13	1.21	2.29	≠
34	1	1.21	2.29	-0.04	0.66	0.00	0.51	-0.05	1.24	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.93	0.00	0.90	+0.01	0.85	1.26	2.41	≠
	3	1.26	2.41	+0.09	1.17	0.00	1.27	+0.09	0.48	1.29	2.49	≠
	4	1.29	2.49	+0.11	1.94	0.00	1.75	+0.12	0.00	1.43	2.92	
	5	1.43	2.92	+0.03	1.09	0.00	1.64	+0.03	0.11	1.27	2.43	≠
	6	1.27	2.43	-0.03	0.67	0.00	0.67	-0.03	1.08	1.25	2.37	≠
	7	1.25	2.37	-0.07	0.37	0.00	0.28	-0.07	1.47	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.20	0.00	0.03	-0.10	1.72	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	1.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.10	0.00	0.00	-0.11	1.75	1.21	2.29	≠
35	1	1.21	2.29	-0.04	0.05	0.00	0.00	-0.05	1.75	1.24	2.35	≠
	2	1.24	2.35	+0.01	1.21	0.00	1.18	+0.01	0.57	1.26	2.41	≠
	3	1.26	2.41	+0.09	2.63	0.00	1.75	+0.11	0.00	1.63	3.50	
	4	1.63	3.50	+0.14	2.18	0.00	1.75	+0.16	0.00	1.88	4.23	
	5	1.88	4.23	+0.04	1.54	0.00	1.75	+0.04	0.00	1.84	4.11	
	6	1.84	4.11	-0.04	1.06	0.00	1.75	-0.03	0.00	1.58	3.35	
	7	1.58	3.35	-0.09	0.65	0.00	1.51	-0.07	0.24	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.36	0.00	0.19	-0.10	1.56	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.19	0.00	0.00	-0.11	1.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.59	0.00	0.34	-0.12	1.41	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.32	0.00	0.09	-0.11	1.66	1.21	2.29	≠



**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm <sup>3</sup>											(continuacao)	
ANO	IPER.	AREA	VOLUME INICIAL	(P-E)/2 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2 FINAL	SALDO DEBANDA	AREA FINAL	VOLUME FINAL	IFAL.
36	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	1.50	1.24	2.35	*
	2	1.24	2.35	+0.01	0.88	0.00	0.85	+0.01	0.90	1.26	2.41	*
	3	1.26	2.41	+0.09	9.21	0.00	1.75	+0.26	0.00	3.62	10.22	
	4	3.62	10.22	+0.32	1.68	0.00	1.75	+0.33	0.00	3.75	10.80	
	5	3.75	10.80	+0.08	1.35	0.00	1.75	+0.08	0.00	3.70	10.56	
	6	3.70	10.56	-0.07	0.84	0.00	1.75	-0.07	0.00	3.46	9.51	
	7	3.46	9.51	-0.19	0.46	0.00	1.75	-0.17	0.00	3.04	7.86	
	8	3.04	7.86	-0.25	0.25	0.00	1.75	-0.21	0.00	2.48	5.90	
	9	2.48	5.90	-0.22	0.14	0.00	1.75	-0.16	0.00	1.77	3.90	
	10	1.77	3.90	-0.18	0.07	0.00	1.39	-0.13	0.36	1.20	2.27	*
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.75	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.75	1.21	2.29	*
37	1	1.21	2.29	-0.04	0.20	0.00	0.05	-0.05	1.70	1.24	2.35	*
	2	1.24	2.35	+0.01	0.84	0.00	0.81	+0.01	0.94	1.26	2.41	*
	3	1.26	2.41	+0.09	1.5	0.00	1.64	+0.09	0.11	1.29	2.49	*
	4	1.29	2.49	+0.11	1.46	0.00	1.66	+0.11	0.09	1.30	2.51	*
	5	1.30	2.51	+0.03	1.97	0.00	1.75	+0.03	0.00	1.39	2.79	
	6	1.39	2.79	-0.03	1.05	0.00	1.41	-0.03	0.34	1.25	2.37	*
	7	1.25	2.37	-0.07	0.58	0.00	0.49	-0.07	1.26	1.23	2.33	*
	8	1.23	2.33	-0.10	0.31	0.00	0.14	-0.10	1.61	1.21	2.30	*
	9	1.21	2.30	-0.11	0.17	0.00	0.00	-0.11	1.75	1.21	2.29	*
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	1.75	1.20	2.27	*
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.75	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.75	1.21	2.29	*
38	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	1.50	1.24	2.35	*
	2	1.24	2.35	+0.01	0.56	0.00	0.53	+0.01	1.22	1.26	2.41	*
	3	1.26	2.41	+0.09	6.44	0.00	1.75	+0.21	0.00	2.91	7.40	
	4	2.91	7.40	+0.26	6.72	0.00	1.75	+0.37	0.00	4.24	13.00	
	5	4.24	13.00	+0.09	1.52	0.00	1.75	+0.09	0.00	4.23	12.95	
	6	4.23	12.95	-0.08	0.90	0.00	1.75	-0.08	0.00	4.01	11.94	
	7	4.01	11.94	-0.22	0.61	0.00	1.75	-0.20	0.00	3.65	10.37	
	8	3.65	10.37	-0.30	0.33	0.00	1.75	-0.27	0.00	3.19	8.39	
	9	3.19	8.39	-0.29	0.18	0.00	1.75	-0.24	0.00	2.60	6.29	
	10	2.60	6.29	-0.27	0.10	0.00	1.75	-0.20	0.00	1.86	4.17	
	11	1.86	4.17	-0.18	0.05	0.00	1.64	-0.12	0.11	1.20	2.28	*
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.75	1.21	2.29	*
39	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.75	1.24	2.35	*
	2	1.24	2.35	+0.01	0.00	0.00	0.00	+0.01	1.75	1.26	2.41	*
	3	1.26	2.41	+0.09	0.42	0.00	0.52	+0.09	1.23	1.29	2.49	*
	4	1.29	2.49	+0.11	0.75	0.00	0.95	+0.11	0.80	1.30	2.51	*
	5	1.30	2.51	+0.03	0.75	0.00	0.89	+0.03	0.86	1.27	2.43	*
	6	1.27	2.43	-0.03	0.46	0.00	0.46	-0.03	1.29	1.25	2.37	*



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	1.25	2.37	-0.07	0.25	0.00	0.16	-0.07	1.59	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.14	0.00	0.00	-0.10	1.75	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.07	0.00	0.00	-0.11	1.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.04	0.00	0.00	-0.13	1.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	1.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.20	0.00	0.00	-0.11	1.75	1.21	2.29	≠
40	1	1.21	2.29	-0.04	0.44	0.00	0.29	-0.05	1.46	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.67	0.00	0.64	+0.01	1.11	1.26	2.41	≠
	3	1.26	2.41	+0.09	1.98	0.00	1.75	+0.10	0.00	1.41	2.83	
	4	1.41	2.83	+0.12	1.76	0.00	1.75	+0.13	0.00	1.49	3.10	
	5	1.49	3.10	+0.03	1.34	0.00	1.75	+0.03	0.00	1.38	2.75	
	6	1.38	2.75	-0.03	0.78	0.00	1.10	-0.03	0.65	1.25	2.37	≠
	7	1.25	2.37	-0.07	0.43	0.00	0.34	-0.07	1.41	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.23	0.00	0.06	-0.10	1.69	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.13	0.00	0.00	-0.11	1.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.21	0.00	0.00	-0.11	1.75	1.21	2.29	≠
41	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	1.56	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	1.00	1.26	2.41	≠
	3	1.26	2.41	+0.09	1.09	0.00	1.19	+0.09	0.56	1.29	2.49	≠
	4	1.29	2.49	+0.11	1.59	0.00	1.75	+0.11	0.00	1.31	2.56	
	5	1.31	2.56	+0.03	1.08	0.00	1.27	+0.03	0.48	1.27	2.43	≠
	6	1.27	2.43	-0.03	0.71	0.00	0.71	-0.03	1.04	1.25	2.37	≠
	7	1.25	2.37	-0.07	0.39	0.00	0.30	-0.07	1.45	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.21	0.00	0.04	-0.10	1.71	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	1.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.75	1.21	2.29	≠
42	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.75	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.71	0.00	0.68	+0.01	1.07	1.26	2.41	≠
	3	1.26	2.41	+0.09	1.13	0.00	1.23	+0.09	0.52	1.29	2.49	≠
	4	1.29	2.49	+0.11	1.22	0.00	1.42	+0.11	0.33	1.30	2.51	≠
	5	1.30	2.51	+0.03	0.78	0.00	0.92	+0.03	0.83	1.27	2.43	≠
	6	1.27	2.43	-0.03	0.64	0.00	0.64	-0.03	1.11	1.25	2.37	≠
	7	1.25	2.37	-0.07	0.35	0.00	0.26	-0.07	1.49	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.19	0.00	0.02	-0.10	1.73	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.10	0.00	0.00	-0.11	1.75	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	1.75	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.75	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	1.75	1.21	2.29	≠





## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	AREA	VOLUME FINAL	IFAL.
		INICIAL	INICIAL	INICIAL	INICIAL	INICIAL	INICIAL	INICIAL	INICIAL	FINAL	FINAL	FINAL
43	1	1.21	2.29	-0.04	0.59	0.00	0.44	-0.05	1.31	1.24	2.35	1
	2	1.24	2.35	+0.01	0.96	0.00	0.93	+0.01	0.82	1.26	2.41	1
	3	1.26	2.41	+0.09	1.07	0.00	1.17	+0.09	0.58	1.29	2.49	1
	4	1.29	2.49	+0.11	2.58	0.00	1.75	+0.14	0.00	1.66	3.58	1
	5	1.66	3.58	+0.04	1.39	0.00	1.75	+0.03	0.00	1.56	3.29	1
	6	1.56	3.29	-0.03	0.82	0.00	1.68	-0.03	0.07	1.25	2.37	1
	7	1.25	2.37	-0.07	0.49	0.00	0.40	-0.07	1.35	1.23	2.33	1
	8	1.23	2.33	-0.10	6.27	0.00	0.10	-0.10	1.65	1.21	2.30	1
	9	1.21	2.30	-0.11	0.14	0.00	0.00	-0.11	1.75	1.21	2.29	1
	10	1.21	2.29	-0.12	0.08	0.00	0.00	-0.13	1.75	1.20	2.27	1
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.75	1.20	2.28	1
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	1.75	1.21	2.29	1
44	1	1.21	2.29	-0.04	0.14	0.00	0.00	-0.05	1.75	1.24	2.35	1
	2	1.24	2.35	+0.01	1.24	0.00	1.21	+0.01	0.54	1.26	2.41	1
	3	1.26	2.41	+0.09	3.86	0.00	1.75	+0.15	0.00	2.07	4.76	1
	4	2.07	4.76	+0.18	3.01	0.00	1.75	+0.23	0.00	2.64	6.43	1
	5	2.64	6.43	+0.06	1.21	0.00	1.75	+0.06	0.00	2.52	6.00	1
	6	2.52	6.00	-0.05	0.79	0.00	1.75	-0.04	0.00	2.14	4.95	1
	7	2.14	4.95	-0.12	0.46	0.00	1.75	-0.09	0.00	1.62	3.45	1
	8	1.62	3.45	-0.13	0.25	0.00	1.17	-0.10	0.58	1.21	2.30	1
	9	1.21	2.30	-0.11	0.13	0.00	0.00	-0.11	1.75	1.21	2.29	1
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.75	1.20	2.27	1
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.75	1.20	2.28	1
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.75	1.21	2.29	1
45	1	1.21	2.29	-0.04	0.61	0.00	0.46	-0.05	1.29	1.24	2.35	1
	2	1.24	2.35	+0.01	0.73	0.00	0.70	+0.01	1.05	1.26	2.41	1
	3	1.26	2.41	+0.09	2.50	0.00	1.75	+0.11	0.00	1.59	3.37	1
	4	1.59	3.37	+0.14	4.80	0.00	1.75	+0.24	0.00	2.74	6.79	1
	5	2.74	6.79	+0.06	1.90	0.00	1.75	+0.06	0.00	2.82	7.06	1
	6	2.82	7.06	-0.06	1.08	0.00	1.75	-0.05	0.00	2.60	6.29	1
	7	2.60	6.29	-0.14	0.61	0.00	1.75	-0.12	0.00	2.12	4.88	1
	8	2.12	4.88	-0.17	0.34	0.00	1.75	-0.13	0.00	1.52	3.17	1
	9	1.52	3.17	-0.14	0.18	0.00	0.82	-0.11	0.93	1.21	2.29	1
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.75	1.20	2.27	1
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	1.75	1.20	2.28	1
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.75	1.21	2.29	1
46	1	1.21	2.29	-0.04	0.11	0.00	0.00	-0.05	1.75	1.24	2.35	1
	2	1.24	2.35	+0.01	0.06	0.00	0.03	+0.01	1.72	1.26	2.41	1
	3	1.26	2.41	+0.09	0.16	0.00	0.26	+0.09	1.49	1.29	2.49	1
	4	1.29	2.49	+0.11	0.35	0.00	0.55	+0.11	1.20	1.30	2.51	1
	5	1.30	2.51	+0.03	0.22	0.00	0.36	+0.03	1.39	1.27	2.43	1
	6	1.27	2.43	-0.03	0.12	0.00	0.12	-0.03	1.63	1.25	2.37	1



## RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em M<sup>3</sup>

(continuação)

ANO	IPER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	1.25	2.37	-0.07	0.06	0.00	0.00	-0.07	1.75	1.23	2.33	±
	8	1.23	2.33	-0.10	0.03	0.00	0.00	-0.10	1.75	1.21	2.30	±
	9	1.21	2.30	-0.11	0.02	0.00	0.00	-0.11	1.75	1.21	2.29	±
	10	1.21	2.29	-0.12	0.01	0.00	0.00	-0.13	1.75	1.20	2.27	±
	11	1.20	2.27	-0.12	0.00	0.00	0.00	-0.12	1.75	1.20	2.28	±
	12	1.20	2.28	-0.10	0.16	0.00	0.00	-0.11	1.75	1.21	2.29	±
47	1	1.21	2.29	-0.04	0.36	0.00	0.21	-0.05	1.54	1.24	2.35	±
	2	1.24	2.35	+0.01	0.77	0.00	0.74	+0.01	1.01	1.26	2.41	±
	3	1.26	2.41	+0.09	6.09	0.00	1.75	+0.20	0.00	2.81	7.04	
	4	2.81	7.04	+0.25	1.39	0.00	1.75	+0.25	0.00	2.85	7.18	
	5	2.85	7.18	+0.06	1.11	0.00	1.75	+0.06	0.00	2.70	6.66	
	6	2.70	6.66	-0.05	0.73	0.00	1.75	-0.05	0.00	2.35	5.54	
	7	2.35	5.54	-0.13	0.40	0.00	1.75	-0.10	0.00	1.79	3.96	
	8	1.79	3.96	-0.15	0.26	0.00	1.67	-0.10	0.00	1.21	2.30	±
	9	1.21	2.30	-0.11	0.14	0.00	0.00	-0.11	1.75	1.21	2.29	±
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	1.75	1.20	2.27	±
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.75	1.20	2.28	±
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.75	1.21	2.29	±
48	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	1.75	1.24	2.35	±
	2	1.24	2.35	+0.01	0.19	0.00	0.16	+0.01	1.59	1.26	2.41	±
	3	1.26	2.41	+0.09	3.15	0.00	1.75	+0.13	0.00	1.81	4.03	
	4	1.81	4.03	+0.16	1.85	0.00	1.75	+0.17	0.00	1.97	4.46	
	5	1.97	4.46	+0.04	0.95	0.00	1.75	+0.04	0.00	1.71	3.74	
	6	1.71	3.74	-0.03	0.66	0.00	1.75	-0.03	0.00	1.32	2.59	
	7	1.32	2.59	-0.07	0.49	0.00	0.61	-0.07	1.14	1.23	2.33	±
	8	1.23	2.33	-0.10	0.27	0.00	0.10	-0.10	1.65	1.21	2.30	±
	9	1.21	2.30	-0.11	0.15	0.00	0.00	-0.11	1.75	1.21	2.29	±
	10	1.21	2.29	-0.12	0.08	0.00	0.00	-0.13	1.75	1.20	2.27	±
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.75	1.20	2.28	±
	12	1.20	2.28	-0.10	0.33	0.00	0.10	-0.11	1.65	1.21	2.29	±
49	1	1.21	2.29	-0.04	0.39	0.00	0.24	-0.05	1.51	1.24	2.35	±
	2	1.24	2.35	+0.01	4.79	0.00	1.75	+0.02	0.00	2.32	5.43	
	3	2.32	5.43	+0.17	13.97	0.00	1.75	+0.38	0.00	5.27	18.19	
	4	5.27	18.19	+0.47	1.90	0.00	1.75	+0.48	0.00	5.47	19.29	
	5	5.47	19.29	+0.12	2.84	0.00	1.75	+0.12	0.00	5.70	20.62	
	6	5.70	20.62	-0.11	1.03	0.00	1.75	-0.11	0.00	5.54	19.68	
	7	5.54	19.68	-0.30	0.56	0.00	1.75	-0.29	0.00	5.22	17.89	
	8	5.22	17.89	-0.43	0.31	0.00	1.75	-0.40	0.00	4.78	15.63	
	9	4.78	15.63	-0.43	0.17	0.00	1.75	-0.39	0.00	4.29	13.23	
	10	4.29	13.23	-0.44	0.09	0.00	1.75	-0.40	0.00	3.73	10.73	
	11	3.73	10.73	-0.36	0.05	0.00	1.75	-0.32	0.00	3.17	8.35	
	12	3.17	8.35	-0.28	0.02	0.00	1.75	-0.23	0.00	2.55	6.12	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3

(continuação)

ANO	PER.	AREA	VOLUME	(P-E)S/2I	VOLUME	VOLUME	VOLUME	(P-E)S/2I	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	ISANGRADO	RETIR.	FINAL	IDEMANDA	FINAL	FINAL	
50	1	2.55	6.12	-0.09	0.37	0.00	1.75	-0.07	0.00	2.01	4.57	
	2	2.01	4.57	+0.02	1.24	0.00	1.75	+0.02	0.00	1.84	4.10	
	3	1.84	4.10	+0.13	35.50	0.93	1.75	+0.72	0.00	10.38	37.77	
	4	10.38	37.77	+0.92	15.94	15.83	1.75	+0.88	0.00	10.47	37.93	
	5	10.47	37.93	+0.23	1.93	1.29	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	1.06	0.00	1.75	-0.19	0.00	9.51	36.19	
	7	9.51	36.19	-0.52	0.67	0.00	1.75	-0.47	0.00	8.36	34.11	
	8	8.36	34.11	-0.68	0.37	0.00	1.75	-0.59	0.00	7.13	31.46	
	9	7.13	31.46	-0.64	0.20	0.00	1.75	-0.62	0.00	6.80	28.65	
	10	6.80	28.65	-0.70	0.11	0.00	1.75	-0.67	0.00	6.44	25.63	
	11	6.44	25.63	-0.62	0.06	0.00	1.75	-0.60	0.00	6.07	22.72	
	12	6.07	22.72	-0.53	0.69	0.00	1.75	-0.50	0.00	5.70	20.63	
51	1	5.70	20.63	-0.21	0.96	0.00	1.75	-0.20	0.00	5.49	19.43	
	2	5.49	19.43	+0.06	1.00	0.00	1.75	+0.06	0.00	5.38	18.80	
	3	5.38	18.80	+0.39	27.17	7.55	1.75	+0.72	0.00	10.38	37.77	
	4	10.38	37.77	+0.92	27.53	27.42	1.75	+0.88	0.00	10.47	37.93	
	5	10.47	37.93	+0.23	2.21	1.57	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	1.17	0.00	1.75	-0.19	0.00	9.57	36.29	
	7	9.57	36.29	-0.53	0.79	0.00	1.75	-0.48	0.00	8.48	34.33	
	8	8.48	34.33	-0.69	0.56	0.00	1.75	-0.61	0.00	7.18	31.84	
	9	7.18	31.84	-0.65	0.31	0.00	1.75	-0.62	0.00	6.86	29.13	
	10	6.86	29.13	-0.71	0.17	0.00	1.75	-0.68	0.00	6.50	26.16	
	11	6.50	26.16	-0.63	0.09	0.00	1.75	-0.60	0.00	6.15	23.26	
	12	6.15	23.26	-0.54	0.68	0.00	1.75	-0.51	0.00	5.79	21.15	
52	1	5.79	21.15	-0.21	2.62	0.00	1.75	-0.21	0.00	5.87	21.60	
	2	5.87	21.60	+0.06	17.21	0.07	1.75	+0.10	0.00	10.04	37.15	
	3	10.04	37.15	+0.72	20.52	19.60	1.75	+0.72	0.00	10.38	37.77	
	4	10.38	37.77	+0.92	41.49	41.38	1.75	+0.88	0.00	10.47	37.93	
	5	10.47	37.93	+0.23	16.46	15.82	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	1.68	0.00	1.75	-0.20	0.00	9.85	36.80	
	7	9.85	36.80	-0.54	1.18	0.00	1.75	-0.51	0.00	8.95	35.18	
	8	8.95	35.18	-0.73	0.65	0.00	1.75	-0.65	0.00	7.59	32.70	
	9	7.59	32.70	-0.68	0.35	0.00	1.75	-0.63	0.00	6.96	29.99	
	10	6.96	29.99	-0.72	0.19	0.00	1.75	-0.69	0.00	6.60	27.01	
	11	6.60	27.01	-0.64	0.10	0.00	1.75	-0.61	0.00	6.25	24.11	
	12	6.25	24.11	-0.54	0.15	0.00	1.75	-0.52	0.00	5.85	21.45	
53	1	5.85	21.45	-0.21	0.65	0.00	1.75	-0.20	0.00	5.58	19.94	
	2	5.58	19.94	+0.06	0.72	0.00	1.75	+0.06	0.00	5.42	19.02	
	3	5.42	19.02	+0.39	4.57	0.00	1.75	+0.43	0.00	6.06	22.66	
	4	6.06	22.66	+0.54	46.19	30.59	1.75	+0.88	0.00	10.47	37.93	
	5	10.47	37.93	+0.23	7.00	6.36	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	1.89	0.16	1.75	-0.20	0.00	9.87	36.85	



**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	9.87	36.85	-0.54	1.03	0.00	1.75	-0.50	0.00	8.90	35.08	
	8	8.90	35.08	-0.73	0.57	0.00	1.75	-0.64	0.00	7.50	32.54	
	9	7.50	32.54	-0.67	0.31	0.00	1.75	-0.63	0.00	6.94	29.79	
	10	6.94	29.79	-0.72	0.17	0.00	1.75	-0.69	0.00	6.58	26.80	
	11	6.58	26.80	-0.64	0.09	0.00	1.75	-0.61	0.00	6.23	23.90	
	12	6.23	23.90	-0.54	0.05	0.00	1.75	-0.51	0.00	5.79	21.14	
54	1	5.79	21.14	-0.21	0.02	0.00	1.75	-0.20	0.00	5.42	19.01	
	2	5.42	19.01	+0.06	0.98	0.00	1.75	+0.06	0.00	5. .	18.35	
	3	5.30	18.35	+0.38	1.34	0.00	1.75	+0.38	0.00	5.36	18.70	
	4	5.36	18.70	+0.47	1.33	0.00	1.75	+0.48	0.00	5.46	19.23	
	5	5.46	19.23	+0.12	2.39	0.00	1.75	+0.12	0.00	5.61	20.12	
	6	5.61	20.12	-0.11	1.35	0.00	1.75	-0.11	0.00	5.50	19.49	
	7	5.50	19.49	-0.30	0.97	0.00	1.75	-0.29	0.00	5.26	18.12	
	8	5.26	18.12	-0.43	0.53	0.00	1.75	-0.40	0.00	4.87	16.07	
	9	4.87	16.07	-0.44	0.29	0.00	1.75	-0.40	0.00	4.40	13.76	
	10	4.40	13.76	-0.46	0.16	0.00	1.75	-0.41	0.00	3.86	11.31	
	11	3.86	11.31	-0.37	0.09	0.00	1.75	-0.33	0.00	3.33	8.94	
	12	3.33	8.94	-0.29	0.05	0.00	1.75	-0.24	0.00	2.72	6.71	
55	1	2.72	6.71	-0.10	0.79	0.00	1.75	-0.09	0.00	2.36	5.57	
	2	2.36	5.57	+0.02	8.55	0.00	1.75	+0.04	0.00	4.12	12.44	
	3	4.12	12.44	+0.30	26.44	0.37	1.75	+0.72	0.00	10.38	37.77	
	4	10.38	37.77	+0.92	27.74	27.63	1.75	+0.88	0.00	10.47	37.93	
	5	10.47	37.93	+0.23	14.73	14.09	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	1.54	0.00	1.75	-0.20	0.00	9.77	36.66	
	7	9.77	36.66	-0.54	0.84	0.00	1.75	-0.49	0.00	8.70	34.72	
	8	8.70	34.72	-0.71	0.46	0.00	1.75	-0.62	0.00	7.26	32.10	
	9	7.26	32.10	-0.65	0.25	0.00	1.75	-0.63	0.00	6.88	29.32	
	10	6.88	29.32	-0.71	0.14	0.00	1.75	-0.68	0.00	6.52	26.32	
	11	6.52	26.32	-0.63	0.07	0.00	1.75	-0.61	0.00	6.17	23.40	
	12	6.17	23.40	-0.54	0.04	0.00	1.75	-0.50	0.00	5.71	20.65	
56	1	5.71	20.65	-0.21	0.61	0.00	1.75	-0.20	0.00	5.44	19.11	
	2	5.44	19.11	+0.06	1.14	0.00	1.75	+0.06	0.00	5.35	18.61	
	3	5.35	18.61	+0.39	8.23	0.00	1.75	+0.46	0.00	6.47	25.94	
	4	6.47	25.94	+0.57	39.59	27.30	1.75	+0.88	0.00	10.47	37.93	
	5	10.47	37.93	+0.23	28.80	28.16	1.75	+0.22	0.00	10.11	37.27	
	6	10.11	37.27	-0.20	1.67	0.00	1.75	-0.20	0.00	9.84	36.79	
	7	9.84	36.79	-0.54	0.91	0.00	1.75	-0.50	0.00	8.80	34.91	
	8	8.80	34.91	-0.72	0.50	0.00	1.75	-0.63	0.00	7.37	32.31	
	9	7.37	32.31	-0.66	0.27	0.00	1.75	-0.63	0.00	6.90	29.54	
	10	6.90	29.54	-0.71	0.15	0.00	1.75	-0.69	0.00	6.54	26.54	
	11	6.54	26.54	-0.63	0.08	0.00	1.75	-0.61	0.00	6.20	23.63	
	12	6.20	23.63	-0.54	0.04	0.00	1.75	-0.51	0.00	5.75	20.87	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	IPER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
57	1	5.75	20.87	-0.21	0.44	0.00	1.75	-0.20	0.00	5.44	19.16	
	2	5.44	19.16	+0.06	1.00	0.00	1.75	+0.06	0.00	5.33	18.52	
	3	5.33	18.52	+0.38	1.33	0.00	1.75	+0.38	0.00	5.39	18.87	
	4	5.39	18.87	+0.48	2.06	0.00	1.75	+0.49	0.00	5.62	20.14	
	5	5.62	20.14	+0.12	1.26	0.00	1.75	+0.12	0.00	5.57	19.90	
	6	5.57	19.90	-0.11	0.69	0.00	1.75	-0.11	0.00	5.35	18.62	
	7	5.35	18.62	-0.29	0.57	0.00	1.75	-0.28	0.00	5.03	16.87	
	8	5.03	16.87	-0.41	0.31	0.00	1.75	-0.38	0.00	4.58	14.64	
	9	4.58	14.64	-0.41	0.17	0.00	1.75	-0.37	0.00	4.08	12.27	
	10	4.08	12.27	-0.42	0.09	0.00	1.75	-0.37	0.00	3.53	9.81	
	11	3.53	9.81	-0.34	0.05	0.00	1.75	-0.29	0.00	2.93	7.48	
	12	2.93	7.48	-0.26	0.02	0.00	1.75	-0.20	0.00	2.26	5.29	
58	1	2.26	5.29	-0.08	0.12	0.00	1.75	-0.06	0.00	1.64	3.52	
	2	1.64	3.52	+0.02	0.35	0.00	1.49	+0.01	0.26	1.26	2.41	*
	3	1.26	2.41	+0.09	0.89	0.00	0.99	+0.09	0.76	1.29	2.49	*
	4	1.29	2.49	+0.11	0.90	0.00	1.10	+0.11	0.65	1.30	2.51	*
	5	1.30	2.51	+0.03	0.60	0.00	0.74	+0.03	1.01	1.27	2.43	*
	6	1.27	2.43	-0.03	0.33	0.00	0.33	-0.03	1.42	1.25	2.37	*
	7	1.25	2.37	-0.07	0.29	0.00	0.20	-0.07	1.55	1.23	2.33	*
	8	1.23	2.33	-0.10	0.16	0.00	0.00	-0.10	1.75	1.21	2.30	*
	9	1.21	2.30	-0.11	0.08	0.00	0.00	-0.11	1.75	1.21	2.29	*
	10	1.21	2.29	-0.12	0.04	0.00	0.00	-0.13	1.75	1.20	2.27	*
	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	1.75	1.20	2.28	*
	12	1.20	2.28	-0.10	0.01	0.00	0.00	0.11	1.75	1.21	2.29	*
59	1	1.21	2.29	-0.04	0.11	0.00	0.00	-0.05	1.75	1.24	2.35	*
	2	1.24	2.35	+0.01	0.58	0.00	0.55	+0.01	1.20	1.26	2.41	*
	3	1.26	2.41	+0.09	1.47	0.00	1.57	+0.09	0.18	1.29	2.49	*
	4	1.29	2.49	+0.11	1.26	0.00	1.46	+0.11	0.29	1.30	2.51	*
	5	1.30	2.51	+0.03	1.37	0.00	1.51	+0.03	0.24	1.27	2.43	*
	6	1.27	2.43	-0.03	0.94	0.00	0.94	-0.03	0.81	1.25	2.37	*
	7	1.25	2.37	-0.07	0.65	0.00	0.56	-0.07	1.19	1.23	2.33	*
	8	1.23	2.33	-0.10	0.36	0.00	0.19	-0.10	1.56	1.21	2.30	*
	9	1.21	2.30	-0.11	0.19	0.00	0.00	-0.11	1.75	1.21	2.29	*
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	1.75	1.20	2.27	*
	11	1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	1.75	1.20	2.28	*
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.75	1.21	2.29	*
60	1	1.21	2.29	-0.04	0.10	0.00	0.00	-0.05	1.75	1.24	2.35	*
	2	1.24	2.35	+0.01	0.25	0.00	0.22	+0.01	1.53	1.26	2.41	*
	3	1.26	2.41	+0.09	0.70	0.00	0.80	+0.09	0.95	1.29	2.49	*
	4	1.29	2.49	+0.11	1.26	0.00	1.46	+0.11	0.29	1.30	2.51	*
	5	1.30	2.51	+0.03	1.41	0.00	1.55	+0.03	0.20	1.27	2.43	*
	6	1.27	2.43	-0.03	0.84	0.00	0.84	-0.03	0.91	1.25	2.37	*



Geonorte

**SIMULACAO DE OPERACAO DE RESERVATORIO(S)**  
**RESERVATORIO - MARCO**

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	FAL.
	7	1.25	2.37	-0.07	0.46	0.00	0.37	-0.07	1.38		1.23	2.33	#
	8	1.23	2.33	-0.10	0.46	0.00	0.29	-0.10	1.46		1.21	2.30	#
	9	1.21	2.30	-0.11	0.25	0.00	0.04	-0.11	1.71		1.21	2.29	#
	10	1.21	2.29	-0.12	0.14	0.00	0.00	-0.13	1.75		1.20	2.27	#
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.75		1.20	2.28	#
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	1.75		1.21	2.29	#
61	1	1.21	2.29	-0.04	0.89	0.00	0.74	-0.05	1.01		1.24	2.35	#
	2	1.24	2.35	+0.01	1.28	0.00	1.25	+0.01	0.50		1.26	2.41	#
	3	1.26	2.41	+0.09	10.02	0.00	1.75	+0.27	0.00		3.80	11.04	
	4	3.80	11.04	+0.34	10.12	0.00	1.75	+0.49	0.00		5.63	20.24	
	5	5.63	20.24	+0.12	2.18	0.00	1.75	+0.13	0.00		5.75	20.92	
	6	5.75	20.92	-0.12	1.41	0.00	1.75	-0.11	0.00		5.65	20.35	
	7	5.65	20.35	-0.31	0.84	0.00	1.75	-0.30	0.00		5.39	18.83	
	8	5.39	18.83	-0.44	0.50	0.00	1.75	-0.41	0.00		5.00	16.73	
	9	5.00	16.73	-0.45	0.27	0.00	1.75	-0.41	0.00		4.52	14.38	
	10	4.52	14.38	-0.47	0.15	0.00	1.75	-0.42	0.00		4.00	11.89	
	11	4.00	11.89	-0.39	0.08	0.00	1.75	-0.34	0.00		3.46	9.49	
	12	3.46	9.49	-0.30	0.04	0.00	1.75	-0.26	0.00		2.86	7.23	
62	1	2.86	7.23	-0.10	1.12	0.00	1.75	-0.10	0.00		2.63	6.40	
	2	2.63	6.40	+0.03	2.39	0.00	1.75	+0.03	0.00		2.82	7.09	
	3	2.82	7.09	+0.20	20.61	0.00	1.75	+0.47	0.00		6.56	26.63	
	4	6.56	26.63	+0.58	50.17	38.58	1.75	+0.88	0.00		10.47	37.93	
	5	10.47	37.93	+0.23	17.32	16.68	1.75	+0.22	0.00		10.11	37.27	
	6	10.11	37.27	-0.20	2.50	0.77	1.75	-0.20	0.00		9.87	36.85	
	7	9.87	36.85	-0.54	1.29	0.00	1.75	-0.51	0.00		9.04	35.33	
	8	9.04	35.33	-0.74	0.70	0.00	1.75	-0.66	0.00		7.69	32.89	
	9	7.69	32.89	-0.69	0.48	0.00	1.75	-0.64	0.00		7.00	30.29	
	10	7.00	30.29	-0.72	0.26	0.00	1.75	-0.70	0.00		6.65	27.38	
	11	6.65	27.38	-0.64	0.14	0.00	1.75	-0.62	0.00		6.30	24.51	
	12	6.30	24.51	-0.55	0.08	0.00	1.75	-0.52	0.00		5.90	21.77	
63	1	5.90	21.77	-0.21	0.04	0.00	1.75	-0.20	0.00		5.53	19.65	
	2	5.53	19.65	+0.06	10.05	0.00	1.75	+0.07	0.00		6.73	28.08	
	3	6.73	28.08	+0.48	8.40	0.00	1.75	+0.65	0.00		9.33	35.86	
	4	9.33	35.86	+0.83	22.42	20.30	1.75	+0.88	0.00		10.47	37.93	
	5	10.47	37.93	+0.23	21.75	21.11	1.75	+0.22	0.00		10.11	37.27	
	6	10.11	37.27	-0.20	1.79	0.06	1.75	-0.20	0.00		9.87	36.85	
	7	9.87	36.85	-0.54	1.30	0.00	1.75	-0.51	0.00		9.04	35.34	
	8	9.04	35.34	-0.74	0.71	0.00	1.75	-0.66	0.00		7.70	32.91	
	9	7.70	32.91	-0.69	0.39	0.00	1.75	-0.64	0.00		6.99	30.22	
	10	6.99	30.22	-0.72	0.21	0.00	1.75	-0.69	0.00		6.63	27.26	
	11	6.63	27.26	-0.64	0.11	0.00	1.75	-0.62	0.00		6.28	24.36	
	12	6.28	24.36	-0.55	0.06	0.00	1.75	-0.52	0.00		5.88	21.61	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
64	1	5.88	21.61	-0.21	0.03	0.00	1.75	-0.20	0.00	5.50	19.48	
	2	5.50	19.48	+0.06	0.85	0.00	1.75	+0.06	0.00	5.36	18.69	
	3	5.36	18.69	+0.39	1.68	0.00	1.75	+0.39	0.00	5.49	19.40	
	4	5.49	19.40	+0.49	2.71	0.00	1.75	+0.51	0.00	5.83	21.35	
	5	5.83	21.35	+0.13	1.08	0.00	1.75	+0.13	0.00	5.76	20.93	
	6	5.76	20.93	-0.12	0.60	0.00	1.75	-0.11	0.00	5.51	19.56	
	7	5.51	19.56	-0.30	0.39	0.00	1.75	-0.29	0.00	5.17	17.61	
	8	5.17	17.61	-0.42	0.21	0.00	1.75	-0.39	0.00	4.70	15.26	
	9	4.70	15.26	-0.42	0.12	0.00	1.75	-0.39	0.00	4.20	12.82	
	10	4.20	12.82	-0.44	0.06	0.00	1.75	-0.39	0.00	3.64	10.31	
	11	3.64	10.31	-0.35	0.12	0.00	1.75	-0.31	0.00	3.08	8.02	
	12	3.08	8.02	-0.27	0.07	0.00	1.75	-0.22	0.00	2.47	5.85	
65	1	2.47	5.85	-0.09	0.44	0.00	1.75	-0.07	0.00	1.94	4.38	
	2	1.94	4.38	+0.02	1.95	0.00	1.75	+0.02	0.00	2.02	4.62	
	3	2.02	4.62	+0.15	1.22	0.00	1.75	+0.14	0.00	1.93	4.37	
	4	1.93	4.37	+0.17	4.08	0.00	1.75	+0.24	0.00	2.83	7.12	
	5	2.83	7.12	+0.06	2.30	0.00	1.75	+0.07	0.00	3.02	7.80	
	6	3.02	7.80	-0.06	1.27	0.00	1.75	-0.06	0.00	2.85	7.20	
	7	2.85	7.20	-0.16	0.78	0.00	1.75	-0.14	0.00	2.50	5.93	
	8	2.50	5.93	-0.20	0.43	0.00	1.75	-0.16	0.00	1.89	4.25	
	9	1.89	4.25	-0.17	0.23	0.00	1.75	-0.12	0.00	1.27	2.44	
	10	1.27	2.44	-0.13	0.13	0.00	0.04	-0.13	1.71	1.20	2.27	*
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	1.75	1.20	2.28	*
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	1.75	1.21	2.29	*
66	1	1.21	2.29	-0.04	0.48	0.00	0.33	-0.05	1.42	1.24	2.35	*
	2	1.24	2.35	+0.01	0.87	0.00	0.84	+0.01	0.91	1.26	2.41	*
	3	1.26	2.41	+0.09	1.12	0.00	1.22	+0.09	0.53	1.29	2.49	*
	4	1.29	2.49	+0.11	1.75	0.00	1.75	+0.12	0.00	1.37	2.72	
	5	1.37	2.72	+0.03	1.43	0.00	1.75	+0.03	0.00	1.28	2.46	
	6	1.28	2.46	-0.03	0.99	0.00	1.03	-0.03	0.72	1.25	2.37	*
	7	1.25	2.37	-0.07	0.54	0.00	0.45	-0.07	1.30	1.23	2.33	*
	8	1.23	2.33	-0.10	0.29	0.00	0.12	-0.10	1.63	1.21	2.30	*
	9	1.21	2.30	-0.11	0.16	0.00	0.00	-0.11	1.75	1.21	2.29	*
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	1.75	1.20	2.27	*
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	1.75	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.75	1.21	2.29	*
67	1	1.21	2.29	-0.	0.18	0.00	0.03	-0.05	1.72	1.24	2.35	*
	2	1.24	2.35	+0.01	0.63	0.00	0.60	+0.01	1.15	1.26	2.41	*
	3	1.26	2.41	+0.09	0.91	0.00	1.01	+0.09	0.74	1.29	2.49	*
	4	1.29	2.49	+0.11	1.31	0.00	1.51	+0.11	0.24	1.30	2.51	*
	5	1.30	2.51	+0.03	0.99	0.00	1.13	+0.03	0.62	1.27	2.43	*
	6	1.27	2.43	-0.03	0.75	0.00	0.75	-0.03	1.00	1.25	2.37	*



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	AREA	VOLUME FINAL	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	IDERANDA	FINAL	FINAL	
	7	1.25	2.37	-0.07	0.41	0.00	0.32	-0.07	1.43	1.23	2.33	*
	8	1.23	2.33	-0.10	0.22	0.00	0.05	-0.10	1.70	1.21	2.30	*
	9	1.21	2.30	-0.11	0.12	0.00	0.00	-0.11	1.75	1.21	2.29	*
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	1.75	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	1.75	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	1.75	1.21	2.29	*





Geonorte

**DEMANDA 1,75 hm<sup>3</sup>/mês**

**- No. DE MESES FALHOS = 325 - GARANTIA = 60%**

**- No. DE ANOS FALHOS = 44 - GARANTIA = 34%**

000192



SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

ANO	PER.	AREA	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	SALDO	AREA	VOLUME	VAL.
		INICIAL	INICIAL	(P-E)S/21	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL
1	1	5.49	19.40	-0.20	0.00	0.00	2.00	-0.18	0.00	5.06	17.02
	2	5.06	17.02	+0.05	0.59	0.00	2.00	+0.05	0.00	4.80	15.71
	3	4.80	15.71	+0.35	4.67	0.00	2.00	+0.39	0.00	5.44	19.11
	4	5.44	19.11	+0.48	6.68	0.00	2.00	+0.56	0.00	6.34	24.83
	5	6.34	24.83	+0.14	6.98	0.00	2.00	+0.15	0.00	6.97	30.10
	6	6.97	30.10	-0.14	1.56	0.00	2.00	-0.14	0.00	6.89	29.39
	7	6.89	29.39	-0.38	1.04	0.00	2.00	-0.37	0.00	6.68	27.68
	8	6.68	27.68	-0.54	0.57	0.00	2.00	-0.53	0.00	6.38	25.18
	9	6.38	25.18	-0.57	0.31	0.00	2.00	-0.55	0.00	6.01	22.36
	10	6.01	22.36	-0.62	0.17	0.00	2.00	-0.58	0.00	5.48	19.33
	11	5.48	19.33	-0.53	0.09	0.00	2.00	-0.49	0.00	4.94	16.40
	12	4.94	16.40	-0.43	0.09	0.00	2.00	-0.39	0.00	4.38	13.68
2	1	4.38	13.68	-0.16	1.04	0.00	2.00	-0.15	0.00	4.11	12.41
	2	4.11	12.41	+0.04	1.09	0.00	2.00	+0.04	0.00	3.93	11.58
	3	3.93	11.58	+0.28	1.07	0.00	2.00	+0.27	0.00	3.84	11.21
	4	3.84	11.21	+0.34	2.16	0.00	2.00	+0.35	0.00	4.03	12.06
	5	4.03	12.06	+0.09	1.14	0.00	2.00	+0.08	0.00	3.88	11.37
	6	3.88	11.37	-0.08	0.78	0.00	2.00	-0.07	0.00	3.57	10.00
	7	3.57	10.00	-0.20	0.45	0.00	2.00	-0.17	0.00	3.10	8.08
	8	3.10	8.08	-0.25	0.30	0.00	2.00	-0.21	0.00	2.49	5.92
	9	2.49	5.92	-0.22	0.18	0.00	2.00	-0.16	0.00	1.71	3.72
	10	1.71	3.72	-0.18	0.10	0.00	1.24	-0.13	0.76	1.20	2.27
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	2.00	1.20	2.28
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	2.00	1.21	2.29
3	1	1.21	2.29	-0.04	0.09	0.00	0.00	-0.05	2.00	1.24	2.35
	2	1.24	2.35	+0.01	0.11	0.00	0.08	+0.01	1.92	1.26	2.41
	3	1.26	2.41	+0.09	0.58	0.00	0.68	+0.09	1.32	1.29	2.49
	4	1.29	2.49	+0.11	0.73	0.00	0.93	+0.11	1.07	1.30	2.51
	5	1.30	2.51	+0.03	0.49	0.00	0.63	+0.03	1.37	1.27	2.43
	6	1.27	2.43	-0.03	0.31	0.00	0.31	-0.03	1.69	1.25	2.37
	7	1.25	2.37	-0.07	0.17	0.00	0.08	-0.07	1.92	1.23	2.33
	8	1.23	2.33	-0.10	0.09	0.00	0.00	-0.10	2.00	1.21	2.30
	9	1.21	2.30	-0.11	0.05	0.00	0.00	-0.11	2.00	1.21	2.29
	10	1.21	2.29	-0.12	0.02	0.00	0.00	-0.13	2.00	1.20	2.27
	11	1.20	2.27	-0.12	0.01	0.00	0.00	-0.12	2.00	1.20	2.28
	12	1.20	2.28	-0.10	0.21	0.00	0.00	-0.11	2.00	1.21	2.29
4	1	1.21	2.29	-0.04	0.58	0.00	0.43	-0.05	1.57	1.24	2.35
	2	1.24	2.35	+0.01	1.69	0.00	1.66	+0.01	0.34	1.26	2.41
	3	1.26	2.41	+0.09	10.48	0.00	2.00	+0.27	0.00	3.85	11.26
	4	3.85	11.26	+0.34	4.77	0.00	2.00	+0.40	0.00	4.60	14.77
	5	4.60	14.77	+0.10	1.42	0.00	2.00	+0.10	0.00	4.52	14.39
	6	4.52	14.39	-0.09	0.88	0.00	2.00	-0.09	0.00	4.26	13.09



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3 (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DERANDA	AREA FINAL	VOLUME FINAL
5	7	4.26	13.09	-0.23	0.48	0.00	2.00	-0.21	0.00	3.82	11.13	
	8	3.82	11.13	-0.31	0.26	0.00	2.00	-0.27	0.00	3.30	8.80	
	9	3.30	8.80	-0.30	0.14	0.00	2.00	-0.24	0.00	2.63	6.40	
	10	2.63	6.40	-0.27	0.08	0.00	2.00	-0.19	0.00	1.80	4.01	
	11	1.80	4.01	-0.18	0.11	0.00	1.55	-0.12	0.45	1.20	2.28	
	12	1.20	2.28	-0.10	0.19	0.00	0.00	-0.11	2.00	1.21	2.29	
5	1	1.21	2.29	-0.04	4.05	0.00	2.00	-0.07	0.00	1.88	4.23	
	2	1.88	4.23	+0.02	15.28	0.00	2.00	+0.05	0.00	5.17	17.58	
	3	5.17	17.58	+0.37	32.41	11.56	2.00	+0.71	0.00	10.24	37.51	
	4	10.24	37.51	+0.91	26.58	26.20	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	44.63	43.73	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	2.02	0.04	2.00	-0.20	0.00	9.74	36.60	
	7	9.74	36.60	-0.54	1.11	0.00	2.00	-0.49	0.00	8.68	34.69	
	8	8.68	34.69	-0.71	0.61	0.00	2.00	-0.61	0.00	7.20	31.97	
	9	7.20	31.97	-0.65	0.39	0.00	2.00	-0.62	0.00	6.85	29.09	
	10	6.85	29.09	-0.71	0.32	0.00	2.00	-0.68	0.00	6.48	26.02	
	11	6.48	26.02	-0.63	0.24	0.00	2.00	-0.60	0.00	6.12	23.03	
	12	6.12	23.03	-0.53	0.39	0.00	2.00	-0.50	0.00	5.66	20.39	
6	1	5.66	20.39	-0.20	0.93	0.00	2.00	-0.20	0.00	5.40	18.92	
	2	5.40	18.92	+0.06	1.00	0.00	2.00	+0.05	0.00	5.25	18.03	
	3	5.25	18.03	+0.38	20.41	0.02	2.00	+0.71	0.00	10.24	37.51	
	4	10.24	37.51	+0.91	1.87	1.49	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	3.42	2.52	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	3.70	1.72	2.00	-0.20	0.00	9.74	36.60	
	7	9.74	36.60	-0.54	1.21	0.00	2.00	-0.50	0.00	8.73	34.78	
	8	8.73	34.78	-0.71	0.66	0.00	2.00	-0.62	0.00	7.26	32.11	
	9	7.26	32.11	-0.65	0.56	0.00	2.00	-0.63	0.00	6.89	29.39	
	10	6.89	29.39	-0.71	0.31	0.00	2.00	-0.68	0.00	6.52	26.30	
	11	6.52	26.30	-0.63	0.17	0.00	2.00	-0.60	0.00	6.15	23.24	
	12	6.15	23.24	-0.53	0.40	0.00	2.00	-0.50	0.00	5.70	20.60	
7	1	5.70	20.60	-0.21	0.44	0.00	2.00	-0.19	0.00	5.35	18.64	
	2	5.35	18.64	+0.06	0.53	0.00	2.00	+0.05	0.00	5.11	17.28	
	3	5.11	17.28	+0.37	0.39	0.00	2.00	+0.35	0.00	4.93	16.39	
	4	4.93	16.39	+0.44	0.30	0.00	2.00	+0.41	0.00	4.76	15.54	
	5	4.76	15.54	+0.10	0.43	0.00	2.00	+0.10	0.00	4.48	14.17	
	6	4.48	14.17	-0.09	0.25	0.00	2.00	-0.08	0.00	4.08	12.25	
	7	4.08	12.25	-0.22	0.14	0.00	2.00	-0.20	0.00	3.56	9.97	
	8	3.56	9.97	-0.29	0.08	0.00	2.00	-0.25	0.00	2.94	7.51	
	9	2.94	7.51	-0.26	0.04	0.00	2.00	-0.20	0.00	2.19	5.08	
	10	2.19	5.08	-0.23	0.02	0.00	2.00	-0.15	0.00	1.37	2.73	
	11	1.37	2.73	-0.13	0.01	0.00	0.21	-0.12	1.79	1.20	2.28	
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	2.00	1.21	2.29	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m³

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	VOLUME (P-E)/2	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	VOLUME (P-E)/2 FINAL	SALDO DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
8	1	1.21	2.29	-0.04	0.03	0.00	0.00	-0.05	2.00	1.24	2.35	*
	2	1.24	2.35	+0.01	0.36	0.00	0.33	+0.01	1.67	1.26	2.41	*
	3	1.26	2.41	+0.09	23.79	0.00	2.00	+0.45	0.00	6.33	24.75	
	4	6.33	24.75	+0.56	7.23	0.00	2.00	+0.62	0.00	7.10	31.16	
	5	7.10	31.16	+0.16	1.89	0.00	2.00	+0.16	0.00	7.12	31.36	
	6	7.12	31.36	-0.14	1.14	0.00	2.00	-0.14	0.00	6.99	30.22	
	7	6.99	30.22	-0.38	0.71	0.00	2.00	-0.37	0.00	6.74	28.17	
	8	6.74	28.17	-0.55	0.61	0.00	2.00	-0.53	0.00	6.44	25.70	
	9	6.44	25.70	-0.58	0.33	0.00	2.00	-0.56	0.00	6.10	22.90	
	10	6.10	22.90	-0.63	0.18	0.00	2.00	-0.59	0.00	5.57	19.86	
	11	5.57	19.86	-0.54	0.11	0.00	2.00	-0.50	0.00	5.04	16.93	
	12	5.04	16.93	-0.44	0.29	0.00	2.00	-0.40	0.00	4.52	14.38	
9	1	4.52	14.38	-0.16	0.27	0.00	2.00	-0.15	0.00	4.10	12.34	
	2	4.10	12.34	+0.04	0.80	0.00	2.00	+0.04	0.00	3.84	11.22	
	3	3.84	11.22	+0.28	3.24	0.00	2.00	+0.30	0.00	4.25	13.04	
	4	4.25	13.04	+0.38	4.55	0.00	2.00	+0.43	0.00	4.94	16.39	
	5	4.94	16.39	+0.11	1.16	0.00	2.00	+0.15	0.00	7.06	30.82	
	6	7.06	30.82	-0.14	1.56	0.00	2.00	-0.14	0.00	6.97	30.10	
	7	6.97	30.10	-0.30	0.93	0.00	2.00	-0.37	0.00	6.75	28.27	
	8	6.75	28.27	-0.55	0.51	0.00	2.00	-0.53	0.00	6.44	25.70	
	9	6.44	25.70	-0.58	0.29	0.00	2.00	-0.56	0.00	6.09	22.85	
	10	6.09	22.85	-0.63	0.16	0.00	2.00	-0.59	0.00	5.56	19.80	
	11	5.56	19.80	-0.54	0.09	0.00	2.00	-0.50	0.00	5.03	16.85	
	12	5.03	16.85	-0.44	0.05	0.00	2.00	-0.39	0.00	4.46	14.07	
10	1	4.46	14.07	-0.16	0.13	0.00	2.00	-0.15	0.00	4.00	11.89	
	2	4.00	11.89	+0.04	0.21	0.00	2.00	+0.04	0.00	3.61	10.18	
	3	3.61	10.18	+0.26	0.53	0.00	2.00	+0.24	0.00	3.39	9.21	
	4	3.39	9.21	+0.30	2.69	0.00	2.00	+0.32	0.00	3.69	10.52	
	5	3.69	10.52	+0.08	1.35	0.00	2.00	+0.08	0.00	3.58	10.03	
	6	3.58	10.03	-0.07	0.89	0.00	2.00	-0.07	0.00	3.30	8.78	
	7	3.30	8.78	-0.18	0.60	0.00	2.00	-0.16	0.00	2.81	7.05	
	8	2.81	7.05	-0.23	0.34	0.00	2.00	-0.18	0.00	2.15	4.98	
	9	2.15	4.98	-0.19	0.18	0.00	2.00	-0.13	0.00	1.41	2.83	
	10	1.41	2.83	-0.15	0.10	0.00	0.39	-0.13	1.61	1.20	2.27	*
	11	1.20	2.27	-0.12	0.32	0.00	0.07	-0.12	1.93	1.20	2.28	*
	12	1.20	2.28	-0.10	0.18	0.00	0.00	-0.11	2.00	1.21	2.29	*
11	1	1.21	2.29	-0.04	0.54	0.00	0.39	-0.05	1.61	1.24	2.35	*
	2	1.24	2.35	+0.01	4.74	0.00	2.00	+0.02	0.00	2.21	5.13	
	3	2.21	5.13	+0.16	2.47	0.00	2.00	+0.18	0.00	2.50	5.93	
	4	2.50	5.93	+0.22	6.93	0.00	2.00	+0.34	0.00	3.89	11.42	
	5	3.89	11.42	+0.09	1.76	0.00	2.00	+0.08	0.00	3.87	11.35	
	6	3.87	11.35	-0.08	1.14	0.00	2.00	-0.07	0.00	3.65	10.34	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km<sup>3</sup>

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
1	7	3.65	10.34	-0.20	0.69	0.00	2.00	-0.18	0.00	3.26	8.65	
1	8	3.26	9.65	-0.27	0.38	0.00	2.00	-0.22	0.00	2.67	6.54	
1	9	2.67	6.54	-0.24	0.21	0.00	2.00	-0.18	0.00	1.92	4.33	
1	10	1.92	4.33	-0.20	0.11	0.00	1.84	-0.13	0.16	1.20	2.27	*
1	11	1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	2.00	1.20	2.28	*
1	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	2.00	1.21	2.29	*
12	1	1.21	2.29	-0.04	0.86	0.00	0.71	-0.05	1.29	1.24	2.35	*
1	2	1.24	2.35	+0.01	1.80	0.00	1.77	+0.01	0.23	1.26	2.41	*
1	3	1.26	2.41	+0.09	12.31	0.00	2.00	+0.30	0.00	4.26	13.12	
1	4	4.26	13.12	+0.38	16.68	0.00	2.00	+0.60	0.00	6.81	28.77	
1	5	6.81	28.77	+0.15	7.00	0.00	2.00	+0.18	0.00	8.36	34.10	
1	6	8.36	34.10	-0.17	2.73	0.00	2.00	-0.17	0.00	8.57	34.49	
1	7	8.57	34.49	-0.47	1.15	0.00	2.00	-0.43	0.00	7.61	32.74	
1	8	7.61	32.74	-0.62	0.63	0.00	2.00	-0.57	0.00	6.98	30.17	
1	9	6.98	30.17	-0.63	0.34	0.00	2.00	-0.60	0.00	6.63	27.28	
1	10	6.63	27.28	-0.69	0.19	0.00	2.00	-0.66	0.00	6.26	24.13	
1	11	6.26	24.13	-0.61	0.10	0.00	2.00	-0.57	0.00	5.78	21.05	
1	12	5.78	21.05	-0.50	0.12	0.00	2.00	-0.47	0.00	5.28	18.20	
13	1	5.28	18.20	-0.19	0.94	0.00	2.00	-0.18	0.00	5.01	16.77	
1	2	5.01	16.77	+0.05	1.32	0.00	2.00	+0.05	0.00	4.89	16.20	
1	3	4.89	16.20	+0.35	2.23	0.00	2.00	+0.36	0.00	5.09	17.14	
1	4	5.09	17.14	+0.45	2.14	0.00	2.00	+0.46	0.00	5.27	18.19	
1	5	5.27	18.19	+0.12	1.44	0.00	2.00	+0.11	0.00	5.22	17.86	
1	6	5.22	17.86	-0.10	0.98	0.00	2.00	-0.10	0.00	4.98	16.64	
1	7	4.98	16.64	-0.27	0.60	0.00	2.00	-0.26	0.00	4.59	14.71	
1	8	4.59	14.71	-0.37	0.39	0.00	2.00	-0.34	0.00	4.11	12.38	
1	9	4.11	12.38	-0.37	0.21	0.00	2.00	-0.33	0.00	3.55	9.90	
1	10	3.55	9.90	-0.37	0.11	0.00	2.00	-0.31	0.00	2.89	7.33	
1	11	2.89	7.33	-0.28	0.06	0.00	2.00	-0.21	0.00	2.12	4.90	
1	12	2.12	4.90	-0.18	0.03	0.00	2.00	-0.12	0.00	1.34	2.62	
14	1	1.34	2.62	-0.05	0.39	0.00	0.56	-0.05	1.44	1.24	2.35	*
1	2	1.24	2.35	+0.01	2.54	0.00	2.00	+0.02	0.00	1.44	2.92	
1	3	1.44	2.92	+0.10	9.80	0.00	2.00	+0.27	0.00	3.82	11.10	
1	4	3.82	11.10	+0.34	11.53	0.00	2.00	+0.51	0.00	5.85	21.47	
1	5	5.85	21.47	+0.13	2.90	0.00	2.00	+0.13	0.00	6.06	22.64	
1	6	6.06	22.64	-0.12	1.28	0.00	2.00	-0.12	0.00	5.89	21.68	
1	7	5.89	21.68	-0.32	0.73	0.00	2.00	-0.31	0.00	5.55	19.77	
1	8	5.55	19.77	-0.45	0.40	0.00	2.00	-0.42	0.00	5.12	17.30	
1	9	5.12	17.30	-0.46	0.22	0.00	2.00	-0.42	0.00	4.58	14.64	
1	10	4.58	14.64	-0.47	0.12	0.00	2.00	-0.42	0.00	3.99	11.86	
1	11	3.99	11.86	-0.39	0.06	0.00	2.00	-0.34	0.00	3.39	9.20	
1	12	3.39	9.20	-0.29	0.03	0.00	2.00	-0.24	0.00	2.71	6.69	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 35.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
15	1	2.71	6.69	-0.10	0.31	0.00	2.00	-0.08	0.00	2.10	4.83	
	2	2.10	4.83	+0.02	0.67	0.00	2.00	+0.02	0.00	1.64	3.54	
	3	1.64	3.54	+0.12	1.24	0.00	2.00	+0.10	0.00	1.46	3.00	
	4	1.46	3.00	+0.13	6.20	0.00	2.00	+0.26	0.00	2.96	7.58	
	5	2.96	7.58	+0.07	1.52	0.00	2.00	+0.06	0.00	2.86	7.23	
	6	2.86	7.23	-0.06	1.03	0.00	2.00	-0.05	0.00	2.56	6.15	
	7	2.56	6.15	-0.14	0.60	0.00	2.00	-0.11	0.00	1.98	4.50	
	8	1.98	4.50	-0.16	0.33	0.00	2.00	-0.11	0.00	1.31	2.56	
	9	1.31	2.56	-0.12	0.18	0.00	0.22	-0.11	1.78	1.21	2.29	
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	2.00	1.20	2.27	
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	2.00	1.20	2.28	
	12	1.20	2.28	-0.10	0.05	0.00	0.00	-0.11	2.00	1.21	2.29	
16	1	1.21	2.29	-0.04	0.50	0.00	0.35	-0.05	1.65	1.24	2.35	
	2	1.24	2.35	+0.01	0.57	0.00	0.54	+0.01	1.46	1.26	2.41	
	3	1.26	2.41	+0.09	1.48	0.00	1.58	+0.09	0.42	1.29	2.49	
	4	1.29	2.49	+0.11	3.36	0.00	2.00	+0.16	0.00	1.84	4.12	
	5	1.84	4.12	+0.04	1.21	0.00	2.00	+0.03	0.00	1.60	3.41	
	6	1.60	3.41	-0.03	0.78	0.00	1.76	-0.03	0.24	1.25	2.37	
	7	1.25	2.37	-0.07	0.43	0.00	0.34	-0.07	1.66	1.23	2.33	
	8	1.23	2.33	-0.10	0.23	0.00	0.06	-0.10	1.94	1.21	2.30	
	9	1.21	2.30	-0.11	0.13	0.00	0.00	-0.11	2.00	1.21	2.29	
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	2.00	1.20	2.27	
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	2.00	1.20	2.28	
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	2.00	1.21	2.29	
17	1	1.21	2.29	-0.04	0.67	0.00	0.52	-0.05	1.48	1.24	2.35	
	2	1.24	2.35	+0.01	4.33	0.00	2.00	+0.02	0.00	2.06	4.72	
	3	2.06	4.72	+0.15	8.58	0.00	2.00	+0.28	0.00	3.96	11.73	
	4	3.96	11.73	+0.35	9.15	0.00	2.00	+0.48	0.00	5.54	19.71	
	5	5.54	19.71	+0.12	1.63	0.00	2.00	+0.12	0.00	5.52	19.58	
	6	5.52	19.58	-0.11	0.97	0.00	2.00	-0.11	0.00	5.30	18.34	
	7	5.30	18.34	-0.29	0.57	0.00	2.00	-0.27	0.00	4.92	16.34	
	8	4.92	16.34	-0.40	0.31	0.00	2.00	-0.37	0.00	4.42	13.88	
	9	4.42	13.88	-0.40	0.17	0.00	2.00	-0.35	0.00	3.86	11.30	
	10	3.86	11.30	-0.40	0.09	0.00	2.00	-0.35	0.00	3.26	8.65	
	11	3.26	8.65	-0.32	0.05	0.00	2.00	-0.25	0.00	2.55	6.12	
	12	2.55	6.12	-0.22	0.43	0.00	2.00	-0.17	0.00	1.86	4.17	
18	1	1.86	4.17	-0.07	0.56	0.00	2.00	-0.05	0.00	1.33	2.61	
	2	1.33	2.61	+0.01	1.94	0.00	2.00	+0.01	0.00	1.32	2.58	
	3	1.32	2.58	+0.10	16.49	0.00	2.00	+0.37	0.00	5.16	17.53	
	4	5.16	17.53	+0.46	4.06	0.00	2.00	+0.50	0.00	5.69	20.54	
	5	5.69	20.54	+0.13	1.57	0.00	2.00	+0.12	0.00	5.66	20.36	
	6	5.66	20.36	-0.11	1.33	0.00	2.00	-0.11	0.00	5.50	19.47	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S)

### RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)S/2	VOLUME	VOLUME	VOLUME	(P-E)S/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	IAFLUENTE	ISANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	5.50	19.47	-0.30	0.79	0.00	2.00	-0.29	0.00	5.18	17.67	
	8	5.18	17.67	-0.42	0.46	0.00	2.00	-0.39	0.00	4.71	15.31	
	9	4.71	15.31	-0.42	0.25	0.00	2.00	-0.38	0.00	4.19	12.76	
	10	4.19	12.76	-0.43	0.14	0.00	2.00	-0.38	0.00	3.59	10.08	
	11	3.59	10.08	-0.35	0.07	0.00	2.00	-0.29	0.00	2.94	7.51	
	12	2.94	7.51	-0.26	0.04	0.00	2.00	-0.20	0.00	2.20	5.10	
19	1	2.20	5.10	-0.08	0.64	0.00	2.00	-0.06	0.00	1.66	3.60	
	2	1.66	3.60	+0.02	3.03	0.00	2.00	+0.02	0.00	2.04	4.67	
	3	2.04	4.67	+0.15	3.98	0.00	2.00	+0.20	0.00	2.80	6.99	
	4	2.80	6.99	+0.25	2.61	0.00	2.00	+0.27	0.00	3.11	8.12	
	5	3.11	8.12	+0.07	1.37	0.00	2.00	+0.06	0.00	2.97	7.62	
	6	2.97	7.62	-0.06	0.83	0.00	2.00	-0.05	0.00	2.63	6.39	
	7	2.63	6.39	-0.14	0.50	0.00	2.00	-0.11	0.00	2.03	4.63	
	8	2.03	4.63	-0.17	0.28	0.00	2.00	-0.11	0.00	1.34	2.63	
	9	1.34	2.63	-0.12	0.16	0.00	0.27	-0.11	1.73	1.21	2.29	*
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	2.00	1.21	2.29	*
20	1	1.21	2.29	-0.04	0.32	0.00	0.17	-0.05	1.83	1.24	2.35	*
	2	1.24	2.35	+0.01	0.64	0.00	0.61	+0.01	1.39	1.26	2.41	*
	3	1.26	2.41	+0.09	1.07	0.00	1.17	+0.09	0.83	1.29	2.49	*
	4	1.29	2.49	+0.11	0.79	0.00	0.99	+0.11	1.01	1.30	2.51	*
	5	1.30	2.51	+0.03	0.44	0.00	0.58	+0.03	1.42	1.27	2.43	*
	6	1.27	2.43	-0.03	0.41	0.00	0.41	-0.03	1.59	1.25	2.37	*
	7	1.25	2.37	-0.07	0.33	0.00	0.24	-0.07	1.76	1.23	2.33	*
	8	1.23	2.33	-0.10	0.18	0.00	0.01	-0.10	1.99	1.21	2.30	*
	9	1.21	2.30	-0.11	0.09	0.00	0.00	-0.11	2.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	2.00	1.21	2.29	*
21	1	1.21	2.29	-0.04	0.76	0.00	0.61	-0.05	1.39	1.24	2.35	*
	2	1.24	2.35	+0.01	2.00	0.00	1.97	+0.01	0.03	1.26	2.41	*
	3	1.26	2.41	+0.09	2.08	0.00	2.00	+0.10	0.00	1.35	2.68	
	4	1.35	2.68	+0.12	7.73	0.00	2.00	+0.29	0.00	3.30	8.81	
	5	3.30	8.81	+0.07	1.59	0.00	2.00	+0.07	0.00	3.23	8.55	
	6	3.23	8.55	-0.06	0.91	0.00	2.00	-0.06	0.00	2.89	7.34	
	7	2.89	7.34	-0.16	0.53	0.00	2.00	-0.13	0.00	2.37	5.57	
	8	2.37	5.57	-0.19	0.29	0.00	2.00	-0.14	0.00	1.64	3.53	
	9	1.64	3.53	-0.15	0.17	0.00	1.16	-0.11	0.84	1.21	2.29	*
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.09	0.00	0.00	-0.11	2.00	1.21	2.29	*



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	AREA	VOLUME FINAL
									DEMANDA		
22	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	1.81	1.24	2.35
	2	1.24	2.35	+0.01	2.16	0.00	2.00	+0.01	0.00	1.31	2.54
	3	1.31	2.54	+0.09	9.29	0.00	2.00	+0.26	0.00	3.61	10.18
	4	3.61	10.18	+0.32	11.07	0.00	2.00	+0.49	0.00	5.60	20.06
	5	5.60	20.06	+0.12	3.48	0.00	2.00	+0.13	0.00	5.91	21.79
	6	5.91	21.79	-0.12	1.36	0.00	2.00	-0.12	0.00	5.75	20.92
	7	5.75	20.92	-0.32	0.75	0.00	2.00	-0.30	0.00	5.43	19.05
	8	5.43	19.05	-0.44	0.41	0.00	2.00	-0.41	0.00	4.98	16.61
	9	4.98	16.61	-0.45	0.26	0.00	2.00	-0.41	0.00	4.45	14.01
	10	4.45	14.01	-0.46	0.14	0.00	2.00	-0.41	0.00	3.86	11.28
	11	3.86	11.28	-0.37	0.09	0.00	2.00	-0.32	0.00	3.26	8.67
	12	3.26	8.67	-0.28	0.43	0.00	2.00	-0.24	0.00	2.68	6.58
23	1	2.68	6.58	-0.10	1.02	0.00	2.00	-0.08	0.00	2.31	5.42
	2	2.31	5.42	+0.02	1.45	0.00	2.00	+0.02	0.00	2.13	4.91
	3	2.13	4.91	+0.15	3.41	0.00	2.00	+0.19	0.00	2.71	6.67
	4	2.71	6.67	+0.24	24.30	0.00	2.00	+0.61	0.00	6.94	29.82
	5	6.94	29.82	+0.15	6.42	0.00	2.00	+0.19	0.00	8.62	34.58
	6	8.62	34.58	-0.17	1.80	0.00	2.00	-0.17	0.00	8.32	34.04
	7	8.32	34.04	-0.46	1.00	0.00	2.00	-0.41	0.00	7.29	32.16
	8	7.29	32.16	-0.59	0.55	0.00	2.00	-0.57	0.00	6.91	29.55
	9	6.91	29.55	-0.62	0.30	0.00	2.00	-0.60	0.00	6.56	26.63
	10	6.56	26.63	-0.68	0.16	0.00	2.00	-0.65	0.00	6.18	23.47
	11	6.18	23.47	-0.60	0.09	0.00	2.00	-0.56	0.00	5.66	20.40
	12	5.66	20.40	-0.49	0.05	0.00	2.00	-0.46	0.00	5.15	17.50
24	1	5.15	17.50	-0.19	0.18	0.00	2.00	-0.17	0.00	4.72	15.33
	2	4.72	15.33	+0.05	1.01	0.00	2.00	+0.05	0.00	4.53	14.43
	3	4.53	14.43	+0.33	0.88	0.00	2.00	+0.31	0.00	4.44	13.95
	4	4.44	13.95	+0.39	1.04	0.00	2.00	+0.38	0.00	4.40	13.77
	5	4.40	13.77	+0.10	0.91	0.00	2.00	+0.09	0.00	4.21	12.87
	6	4.21	12.87	-0.08	0.52	0.00	2.00	-0.08	0.00	3.85	11.23
	7	3.85	11.23	-0.21	0.30	0.00	2.00	-0.19	0.00	3.37	9.13
	8	3.37	9.13	-0.27	0.16	0.00	2.00	-0.23	0.00	2.74	6.78
	9	2.74	6.78	-0.25	0.09	0.00	2.00	-0.18	0.00	1.96	4.44
	10	1.96	4.44	-0.20	0.05	0.00	1.89	-0.13	0.11	1.20	2.27
	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	2.00	1.20	2.28
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	2.00	1.21	2.29
25	1	1.21	2.29	-0.04	0.08	0.00	0.00	-0.05	2.00	1.24	2.35
	2	1.24	2.35	+0.01	0.84	0.00	0.81	+0.01	1.19	1.26	2.41
	3	1.26	2.41	+0.09	0.90	0.00	1.00	+0.09	1.00	1.29	2.49
	4	1.29	2.49	+0.11	1.37	0.00	1.57	+0.11	0.43	1.30	2.51
	5	1.30	2.51	+0.03	1.29	0.00	1.43	+0.03	0.57	1.27	2.43
	6	1.27	2.43	-0.03	0.93	0.00	0.93	-0.03	1.07	1.25	2.37





## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Ha3

(continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	AREA	VOLUME FINAL	IFAL.
7		1.25	2.37	-0.07	0.57	0.00	0.48	-0.07	1.52	1.23	2.33	*
8		1.23	2.33	-0.10	0.31	0.00	0.14	-0.10	1.86	1.21	2.30	*
9		1.21	2.30	-0.11	0.17	0.00	0.00	-0.11	2.00	1.21	2.29	*
10		1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	2.00	1.20	2.27	*
11		1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	2.00	1.20	2.28	*
12		1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	2.00	1.21	2.29	*
26	1	1.21	2.29	-0.04	0.38	0.00	0.23	-0.05	1.77	1.24	2.35	*
2		1.24	2.35	+0.01	0.28	0.00	0.25	+0.01	1.75	1.26	2.41	*
3		1.26	2.41	+0.09	4.53	0.00	2.00	+0.16	0.00	2.23	5.19	
4		2.23	5.19	+0.20	2.01	0.00	2.00	+0.20	0.00	2.38	5.60	
5		2.38	5.60	+0.05	1.33	0.00	2.00	+0.05	0.00	2.17	5.03	
6		2.17	5.03	-0.04	0.84	0.00	2.00	-0.03	0.00	1.73	3.79	
7		1.73	3.79	-0.10	0.50	0.00	1.80	-0.07	0.20	1.23	2.33	*
8		1.23	2.33	-0.10	0.33	0.00	0.16	-0.10	1.84	1.21	2.30	*
9		1.21	2.30	-0.11	0.18	0.00	0.00	-0.11	2.00	1.21	2.29	*
10		1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	2.00	1.20	2.27	*
11		1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	2.00	1.20	2.28	*
12		1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	2.00	1.21	2.29	*
27	1	1.21	2.29	-0.04	0.12	0.00	0.00	-0.05	2.00	1.24	2.35	*
2		1.24	2.35	+0.01	0.73	0.00	0.70	+0.01	1.30	1.26	2.41	*
3		1.26	2.41	+0.09	3.01	0.00	2.00	+0.12	0.00	1.68	3.63	
4		1.68	3.63	+0.15	1.64	0.00	2.00	+0.14	0.00	1.65	3.56	
5		1.65	3.56	+0.04	1.27	0.00	2.00	+0.03	0.00	1.43	2.90	
6		1.43	2.90	-0.03	0.76	0.00	1.23	-0.03	0.77	1.25	2.37	*
7		1.25	2.37	-0.07	0.54	0.00	0.45	-0.07	1.55	1.23	2.33	*
8		1.23	2.33	-0.10	0.30	0.00	0.13	-0.10	1.87	1.21	2.30	*
9		1.21	2.30	-0.11	0.22	0.00	0.01	-0.11	1.99	1.21	2.29	*
10		1.21	2.29	-0.12	0.16	0.00	0.00	-0.13	2.00	1.20	2.27	*
11		1.20	2.27	-0.12	0.09	0.00	0.00	-0.12	2.00	1.20	2.28	*
12		1.20	2.28	-0.10	0.08	0.00	0.00	-0.11	2.00	1.21	2.29	*
28	1	1.21	2.29	-0.04	0.96	0.00	0.81	-0.05	1.19	1.24	2.35	*
2		1.24	2.35	+0.01	1.27	0.00	1.24	+0.01	0.76	1.26	2.41	*
3		1.26	2.41	+0.09	2.65	0.00	2.00	+0.11	0.00	1.55	3.26	
4		1.55	3.26	+0.14	3.51	0.00	2.00	+0.19	0.00	2.20	5.10	
5		2.20	5.10	+0.05	1.59	0.00	2.00	+0.05	0.00	2.08	4.78	
6		2.08	4.78	-0.04	0.98	0.00	2.00	-0.03	0.00	1.69	3.69	
7		1.69	3.69	-0.09	0.64	0.00	1.83	-0.07	0.17	1.23	2.33	*
8		1.23	2.33	-0.10	0.36	0.00	0.19	-0.10	1.81	1.21	2.30	*
9		1.21	2.30	-0.11	0.20	0.00	0.00	-0.11	2.00	1.21	2.29	*
10		1.21	2.29	-0.12	0.11	0.00	0.00	-0.13	2.00	1.20	2.27	*
11		1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	2.00	1.20	2.28	*
12		1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	2.00	1.21	2.29	*



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - ARCO

VOLUME MAXIMO= 38.80

VOLUME INICIAL= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
29	1	1.21	2.29	-0.04	0.08	0.00	0.00	-0.05	2.00	1.24	2.35	*
	2	1.24	2.35	+0.01	0.30	0.00	0.27	+0.01	1.73	1.26	2.41	*
	3	1.26	2.41	+0.09	1.17	0.00	1.27	+0.09	0.73	1.29	2.49	*
	4	1.29	2.49	+0.11	1.22	0.00	1.42	+0.11	0.58	1.30	2.51	*
	5	1.30	2.51	+0.03	0.75	0.00	0.89	+0.03	1.11	1.27	2.43	*
	6	1.27	2.43	-0.03	0.59	0.00	0.59	-0.03	1.41	1.25	2.37	*
	7	1.25	2.37	-0.07	0.36	0.00	0.27	-0.07	1.73	1.23	2.33	*
	8	1.23	2.33	-0.10	0.19	0.00	0.02	-0.10	1.98	1.21	2.30	*
	9	1.21	2.30	-0.11	0.10	0.00	0.00	-0.11	2.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	2.00	1.21	2.29	*
30	1	1.21	2.29	-0.04	0.47	0.00	0.32	-0.05	1.68	1.24	2.35	*
	2	1.24	2.35	+0.01	0.65	0.00	0.62	+0.01	1.38	1.26	2.41	*
	3	1.26	2.41	+0.09	1.39	0.00	1.49	+0.09	0.51	1.29	2.49	*
	4	1.29	2.49	+0.11	1.17	0.00	1.37	+0.11	0.63	1.30	2.51	*
	5	1.30	2.51	+0.03	0.64	0.00	0.78	+0.03	1.22	1.27	2.43	*
	6	1.27	2.43	-0.03	0.35	0.00	0.35	-0.03	1.65	1.25	2.37	*
	7	1.25	2.37	-0.07	0.19	0.00	0.10	-0.07	1.90	1.23	2.33	*
	8	1.23	2.33	-0.10	0.10	0.00	0.00	-0.10	2.00	1.21	2.30	*
	9	1.21	2.30	-0.11	0.05	0.00	0.00	-0.11	2.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.03	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.01	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.23	0.00	0.00	-0.11	2.00	1.21	2.29	*
31	1	1.21	2.29	-0.04	0.41	0.00	0.26	-0.05	1.74	1.24	2.35	*
	2	1.24	2.35	+0.01	0.41	0.00	0.38	+0.01	1.62	1.26	2.41	*
	3	1.26	2.41	+0.09	0.70	0.00	0.80	+0.09	1.20	1.29	2.49	*
	4	1.29	2.49	+0.11	1.13	0.00	1.33	+0.11	0.67	1.30	2.51	*
	5	1.30	2.51	+0.03	0.97	0.00	1.11	+0.03	0.89	1.27	2.43	*
	6	1.27	2.43	-0.03	0.53	0.00	0.53	-0.03	1.47	1.25	2.37	*
	7	1.25	2.37	-0.07	0.37	0.00	0.28	-0.07	1.72	1.23	2.33	*
	8	1.23	2.33	-0.10	0.20	0.00	0.03	-0.10	1.97	1.21	2.30	*
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	2.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.09	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.54	0.00	0.31	-0.11	1.69	1.21	2.29	*
32	1	1.21	2.29	-0.04	0.58	0.00	0.43	-0.05	1.57	1.24	2.35	*
	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	1.25	1.26	2.41	*
	3	1.26	2.41	+0.09	3.97	0.00	2.00	+0.14	0.00	2.02	4.62	
	4	2.02	4.62	+0.18	2.55	0.00	2.00	+0.20	0.00	2.36	5.55	
	5	2.36	5.55	+0.05	1.46	0.00	2.00	+0.05	0.00	2.20	5.11	
	6	2.20	5.11	-0.04	0.86	0.00	2.00	-0.04	0.00	1.76	3.89	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/21	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/21	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL
7	1.761	3.891	-0.101	0.471	0.001	1.861	-0.071	0.141	1.231	2.331	*	
8	1.231	2.331	-0.101	0.261	0.001	0.091	-0.101	1.911	1.211	2.301	*	
9	1.211	2.301	-0.111	0.141	0.001	0.001	-0.111	2.001	1.211	2.291	*	
10	1.211	2.291	-0.121	0.071	0.001	0.001	-0.131	2.001	1.201	2.271	*	
11	1.201	2.271	-0.121	0.041	0.001	0.001	-0.121	2.001	1.201	2.281	*	
12	1.201	2.281	-0.101	0.341	0.001	0.111	-0.111	1.891	1.211	2.291	*	
33	1	1.211	2.291	-0.041	0.981	0.001	0.631	-0.051	1.171	1.241	2.351	*
2	1.241	2.351	+0.011	5.531	0.001	2.001	+0.031	0.001	2.511	5.971		
3	2.511	5.971	+0.181	6.521	0.001	2.001	+0.271	0.001	3.781	10.941		
4	3.781	10.941	+0.331	4.281	0.001	2.001	+0.391	0.001	4.431	13.941		
5	4.431	13.941	+0.101	2.001	0.001	2.001	+0.101	0.001	4.471	14.141		
6	4.471	14.141	-0.091	1.151	0.001	2.001	-0.091	0.001	4.261	13.111		
7	4.261	13.111	-0.231	0.631	0.001	2.001	-0.221	0.001	3.861	11.291		
8	3.861	11.291	-0.311	0.351	0.001	2.001	-0.281	0.001	3.361	9.051		
9	3.361	9.051	-0.301	0.191	0.001	2.001	-0.251	0.001	2.711	6.691		
10	2.711	6.691	-0.281	0.101	0.001	2.001	-0.211	0.001	1.911	4.301		
11	1.911	4.301	-0.191	0.051	0.001	1.771	-0.121	0.231	1.201	2.281	*	
12	1.201	2.281	-0.101	0.031	0.001	0.001	-0.111	2.001	1.211	2.291	*	
34	1	1.211	2.291	-0.041	0.661	0.001	0.511	-0.051	1.491	1.241	2.351	*
2	1.241	2.351	+0.011	0.931	0.001	0.901	+0.011	1.101	1.261	2.411	*	
3	1.261	2.411	+0.091	1.171	0.001	1.271	+0.091	0.731	1.291	2.491	*	
4	1.291	2.491	+0.111	1.941	0.001	2.001	+0.121	0.001	1.351	2.661		
5	1.351	2.661	+0.031	1.091	0.001	1.381	+0.031	0.621	1.271	2.431	*	
6	1.271	2.431	-0.031	0.671	0.001	0.671	-0.031	1.331	1.251	2.371	*	
7	1.251	2.371	-0.071	0.371	0.001	0.281	-0.071	1.721	1.231	2.331	*	
8	1.231	2.331	-0.101	0.201	0.001	0.031	-0.101	1.971	1.211	2.301	*	
9	1.211	2.301	-0.111	0.111	0.001	0.001	-0.111	2.001	1.211	2.291	*	
10	1.211	2.291	-0.121	0.061	0.001	0.001	-0.131	2.001	1.201	2.271	*	
11	1.201	2.271	-0.121	0.071	0.001	0.001	-0.121	2.001	1.201	2.281	*	
12	1.201	2.281	-0.101	0.101	0.001	0.001	-0.111	2.001	1.211	2.291	*	
35	1	1.211	2.291	-0.041	0.051	0.001	0.001	-0.051	2.001	1.241	2.351	*
2	1.241	2.351	+0.011	1.211	0.001	1.181	+0.011	0.821	1.261	2.411	*	
3	1.261	2.411	+0.091	2.631	0.001	2.001	+0.111	0.001	1.541	3.241		
4	1.541	3.241	+0.141	2.181	0.001	2.001	+0.151	0.001	1.701	3.711		
5	1.701	3.711	+0.041	1.541	0.001	2.001	+0.031	0.001	1.571	3.321		
6	1.571	3.321	-0.031	1.061	0.001	1.951	-0.031	0.051	1.251	2.371	*	
7	1.251	2.371	-0.071	0.651	0.001	0.561	-0.071	1.441	1.231	2.331	*	
8	1.231	2.331	-0.101	0.361	0.001	0.191	-0.101	1.811	1.211	2.301	*	
9	1.211	2.301	-0.111	0.191	0.001	0.001	-0.111	2.001	1.211	2.291	*	
10	1.211	2.291	-0.121	0.101	0.001	0.001	-0.131	2.001	1.201	2.271	*	
11	1.201	2.271	-0.121	0.591	0.001	0.341	-0.121	1.661	1.201	2.281	*	
12	1.201	2.281	-0.101	0.321	0.001	0.091	-0.111	1.911	1.211	2.291	*	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Mm3 (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)/2	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/2	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	FAL.
36	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	1.75	1.24	2.35	±	
	2	1.24	2.35	+0.01	0.88	0.00	0.85	+0.01	1.15	1.26	2.41	±	
	3	1.26	2.41	+0.09	9.21	0.00	2.00	+0.25	0.00	3.56	9.97		
	4	3.56	9.97	+0.32	1.68	0.00	2.00	+0.32	0.00	3.63	10.28		
	5	3.63	10.28	+0.08	1.35	0.00	2.00	+0.08	0.00	3.52	9.78		
	6	3.52	9.78	-0.07	0.84	0.00	2.00	-0.06	0.00	3.21	8.49		
	7	3.21	8.49	-0.18	0.46	0.00	2.00	-0.15	0.00	2.69	6.62		
	8	2.69	6.62	-0.22	0.25	0.00	2.00	-0.17	0.00	1.98	4.49		
	9	1.98	4.49	-0.18	0.14	0.00	2.00	-0.11	0.00	1.23	2.33		
	10	1.23	2.33	-0.13	0.07	0.00	0.00	-0.13	2.00	1.20	2.27	±	
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	2.00	1.20	2.28	±	
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	2.00	1.21	2.29	±	
37	1	1.21	2.29	-0.04	0.20	0.00	0.05	-0.05	1.95	1.24	2.35	±	
	2	1.24	2.35	+0.01	0.84	0.00	0.81	+0.01	1.19	1.26	2.41	±	
	3	1.26	2.41	+0.09	1.54	0.00	1.64	+0.09	0.36	1.29	2.49	±	
	4	1.29	2.49	+0.11	1.46	0.00	1.66	+0.11	0.34	1.30	2.51	±	
	5	1.30	2.51	+0.03	1.97	0.00	2.00	+0.03	0.00	1.31	2.54		
	6	1.31	2.54	-0.07	1.05	0.00	1.16	-0.03	0.84	1.25	2.37	±	
	7	1.25	2.37	-0.07	0.58	0.00	0.49	-0.07	1.51	1.23	2.33	±	
	8	1.23	2.33	-0.10	0.31	0.00	0.14	-0.10	1.86	1.21	2.30	±	
	9	1.21	2.30	-0.11	0.17	0.00	0.00	-0.11	2.00	1.21	2.29	±	
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	2.00	1.20	2.27	±	
	11	1.20	2.27	-0.12	0.05	0.00	0.00	-0.12	2.00	1.20	2.28	±	
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	2.00	1.21	2.29	±	
38	1	1.21	2.29	-0.04	0.40	0.00	0.25	-0.05	1.75	1.24	2.35	±	
	2	1.24	2.35	+0.01	0.56	0.00	0.53	+0.01	1.47	1.26	2.41	±	
	3	1.26	2.41	+0.09	6.44	0.00	2.00	+0.20	0.00	2.84	7.14		
	4	2.84	7.14	+0.25	6.72	0.00	2.00	+0.36	0.00	4.13	12.47		
	5	4.13	12.47	+0.09	1.52	0.00	2.00	+0.09	0.00	4.06	12.17		
	6	4.06	12.17	-0.08	0.90	0.00	2.00	-0.08	0.00	3.78	10.92		
	7	3.78	10.92	-0.21	0.61	0.00	2.00	-0.19	0.00	3.37	9.13		
	8	3.37	9.13	-0.28	0.33	0.00	2.00	-0.23	0.00	2.79	6.95		
	9	2.79	6.95	-0.25	0.18	0.00	2.00	-0.19	0.00	2.05	4.69		
	10	2.05	4.69	-0.21	0.10	0.00	2.00	-0.14	0.00	1.27	2.44		
	11	1.27	2.44	-0.12	0.05	0.00	0.00	-0.12	2.00	1.20	2.28	±	
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	2.00	1.21	2.29	±	
39	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	2.00	1.24	2.35	±	
	2	1.24	2.35	+0.01	0.00	0.00	0.00	+0.01	2.00	1.26	2.41	±	
	3	1.26	2.41	+0.09	0.42	0.00	0.52	+0.09	1.48	1.27	2.49	±	
	4	1.29	2.49	+0.11	0.75	0.00	0.95	+0.11	1.05	1.30	2.51	±	
	5	1.30	2.51	+0.03	0.75	0.00	0.89	+0.03	1.11	1.27	2.43	±	
	6	1.27	2.43	-0.03	0.46	0.00	0.46	-0.03	1.54	1.25	2.37	±	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 30.80

VOLUME MINIMO= 2.40

Volumes em Hm <sup>3</sup>										(continuação)	
ANO	PER.	AREA	VOLUME INICIAL	(P-E)/21 INICIAL	VOLUME AFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)/21 FINAL	SALDO DEMANDA	AREA FINAL	VOLUME FINAL
40	7	1.25	2.37	-0.07	0.25	0.00	0.16	-0.07	1.84	1.23	2.33
	8	1.23	2.33	-0.10	0.14	0.00	0.00	-0.10	2.00	1.21	2.30
	9	1.21	2.30	-0.11	0.07	0.00	0.00	-0.11	2.00	1.21	2.29
	10	1.21	2.29	-0.12	0.04	0.00	0.00	-0.13	2.00	1.20	2.27
	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	2.00	1.20	2.28
	12	1.20	2.28	-0.10	0.20	0.00	0.00	-0.11	2.00	1.21	2.29
	1	1.21	2.29	-0.04	0.44	0.00	0.29	-0.05	1.71	1.24	2.35
	2	1.24	2.35	+0.01	0.67	0.00	0.64	+0.01	1.36	1.26	2.41
	3	1.26	2.41	+0.09	1.98	0.00	2.00	+0.09	0.00	1.32	2.58
	4	1.32	2.58	+0.12	1.76	0.00	2.00	+0.11	0.00	1.32	2.57
	5	1.32	2.57	+0.03	1.34	0.00	1.54	+0.03	0.46	1.27	2.43
	6	1.27	2.43	-0.03	0.78	0.00	0.78	-0.03	1.22	1.25	2.37
	7	1.25	2.37	-0.07	0.43	0.00	0.34	-0.07	1.66	1.23	2.33
	8	1.23	2.33	-0.10	0.23	0.00	0.06	-0.10	1.94	1.21	2.30
	9	1.21	2.30	-0.11	0.13	0.00	0.00	-0.11	2.00	1.21	2.29
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	2.00	1.20	2.27
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	2.00	1.20	2.28
	12	1.20	2.28	-0.10	0.21	0.00	0.00	-0.11	2.00	1.21	2.29
41	1	1.21	2.29	-0.04	0.34	0.00	0.19	-0.05	1.81	1.24	2.35
	2	1.24	2.35	+0.01	0.78	0.00	0.75	+0.01	1.25	1.26	2.41
	3	1.26	2.41	+0.09	1.09	0.00	1.19	+0.09	0.81	1.29	2.49
	4	1.29	2.49	+0.11	1.59	0.00	1.79	+0.11	0.21	1.30	2.51
	5	1.30	2.51	+0.03	1.08	0.00	1.22	+0.03	0.78	1.27	2.43
	6	1.27	2.43	-0.03	0.71	0.00	0.71	-0.03	1.29	1.25	2.37
	7	1.25	2.37	-0.07	0.39	0.00	0.30	-0.07	1.70	1.23	2.33
	8	1.23	2.33	-0.10	0.21	0.00	0.04	-0.10	1.96	1.21	2.30
	9	1.21	2.30	-0.11	0.11	0.00	0.00	-0.11	2.00	1.21	2.29
	10	1.21	2.29	-0.12	0.06	0.00	0.00	-0.13	2.00	1.20	2.27
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	2.00	1.20	2.28
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	2.00	1.21	2.29
42	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	2.00	1.24	2.35
	2	1.24	2.35	+0.01	0.71	0.00	0.68	+0.01	1.32	1.26	2.41
	3	1.26	2.41	+0.09	1.13	0.00	1.23	+0.09	0.77	1.29	2.49
	4	1.29	2.49	+0.11	1.22	0.00	1.42	+0.11	0.58	1.30	2.51
	5	1.30	2.51	+0.03	0.78	0.00	0.92	+0.03	1.08	1.27	2.43
	6	1.27	2.43	-0.03	0.64	0.00	0.64	-0.03	1.36	1.25	2.37
	7	1.25	2.37	-0.07	0.35	0.00	0.26	-0.07	1.74	1.23	2.33
	8	1.23	2.33	-0.10	0.19	0.00	0.02	-0.10	1.98	1.21	2.30
	9	1.21	2.30	-0.11	0.10	0.00	0.00	-0.11	2.00	1.21	2.29
	10	1.21	2.29	-0.12	0.05	0.00	0.00	-0.13	2.00	1.20	2.27
	11	1.20	2.27	-0.12	0.03	0.00	0.00	-0.12	2.00	1.20	2.28
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	2.00	1.21	2.29



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME INICIAL	(P-E)S/2I	VOLUME INFLUENTE	VOLUME SANGRADO	VOLUME RETIR.	(P-E)S/2I	SALDO	DEMANDA	AREA FINAL	VOLUME FINAL	IFAL.
43	1	1.211	2.291	-0.041	0.591	0.001	0.441	-0.051	1.561	1.241	2.351	±	
	2	1.241	2.351	+0.011	0.961	0.001	0.931	+0.011	1.071	1.261	2.411	±	
	3	1.261	2.411	+0.091	1.071	0.001	1.171	+0.091	0.831	1.291	2.491	±	
	4	1.291	2.491	+0.111	2.581	0.001	2.001	+0.131	0.001	1.571	3.321		
	5	1.571	3.321	+0.031	1.391	0.001	2.001	+0.031	0.001	1.391	2.771		
	6	1.391	2.771	-0.031	0.821	0.001	1.171	-0.031	0.831	1.251	2.371	±	
	7	1.251	2.371	-0.071	0.491	0.001	0.401	-0.071	1.601	1.231	2.331	±	
	8	1.231	2.331	-0.101	0.271	0.001	0.101	-0.101	1.901	1.211	2.301	±	
	9	1.211	2.301	-0.111	0.141	0.001	0.001	-0.111	2.001	1.211	2.291	±	
	10	1.211	2.291	-0.121	0.081	0.001	0.001	-0.131	2.001	1.201	2.271	±	
	11	1.201	2.271	-0.121	0.041	0.001	0.001	-0.121	2.001	1.201	2.281	±	
	12	1.201	2.281	-0.101	0.041	0.001	0.001	-0.111	2.001	1.211	2.291	±	
44	1	1.211	2.291	-0.041	0.141	0.001	0.001	-0.051	2.001	1.241	2.351	±	
	2	1.241	2.351	+0.011	1.241	0.001	1.211	+0.011	0.791	1.261	2.411	±	
	3	1.261	2.411	+0.091	3.861	0.001	2.001	+0.141	0.001	1.981	4.501		
	4	1.981	4.501	+0.181	3.011	0.001	2.001	+0.211	0.001	2.481	5.901		
	5	2.481	5.901	+0.051	1.211	0.001	2.001	+0.051	0.001	2.241	5.221		
	6	2.241	5.221	-0.041	0.791	0.001	2.001	-0.041	0.001	1.771	3.921		
	7	1.771	3.921	-0.101	0.461	0.001	1.891	-0.071	0.111	1.231	2.331	±	
	8	1.231	2.331	-0.101	0.251	0.001	0.081	-0.101	1.921	1.211	2.301	±	
	9	1.211	2.301	-0.111	0.131	0.001	0.001	-0.111	2.001	1.211	2.291	±	
	10	1.211	2.291	-0.121	0.071	0.001	0.001	-0.131	2.001	1.201	2.271	±	
	11	1.201	2.271	-0.121	0.041	0.001	0.001	-0.121	2.001	1.201	2.281	±	
	12	1.201	2.281	-0.101	0.021	0.001	0.001	-0.111	2.001	1.211	2.291	±	
45	1	1.211	2.291	-0.041	0.611	0.001	0.461	-0.051	1.541	1.241	2.351	±	
	2	1.241	2.351	+0.011	0.731	0.001	0.701	+0.011	1.301	1.261	2.411	±	
	3	1.261	2.411	+0.091	2.501	0.001	2.001	+0.111	0.001	1.501	3.111		
	4	1.501	3.111	+0.131	4.801	0.001	2.001	+0.221	0.001	2.591	6.271		
	5	2.591	6.271	+0.061	1.901	0.001	2.001	+0.061	0.001	2.601	6.281		
	6	2.601	6.281	0.051	1.081	0.001	2.001	-0.051	0.001	2.251	5.261		
	7	2.251	5.261	-0.121	0.611	0.001	2.001	-0.091	0.001	1.681	3.651		
	8	1.681	3.651	-0.141	0.341	0.001	1.461	-0.101	0.541	1.211	2.301	±	
	9	1.211	2.301	-0.111	0.181	0.001	0.001	-0.111	2.001	1.211	2.291	±	
	10	1.211	2.291	-0.121	0.101	0.001	0.001	-0.131	2.001	1.201	2.271	±	
	11	1.201	2.271	-0.121	0.051	0.001	0.001	-0.121	2.001	1.201	2.281	±	
	12	1.201	2.281	-0.101	0.031	0.001	0.001	-0.111	2.001	1.211	2.291	±	
46	1	1.211	2.291	-0.041	0.111	0.001	0.001	-0.051	2.001	1.241	2.351	±	
	2	1.241	2.351	+0.011	0.061	0.001	0.031	+0.011	1.971	1.261	2.411	±	
	3	1.261	2.411	+0.091	0.161	0.001	0.261	+0.091	1.741	1.291	2.491	±	
	4	1.291	2.491	+0.111	0.351	0.001	0.551	+0.111	1.451	1.301	2.511	±	
	5	1.301	2.511	+0.031	0.221	0.001	0.361	+0.031	1.641	1.271	2.431	±	
	6	1.271	2.431	-0.031	0.121	0.001	0.121	-0.031	1.881	1.251	2.371	±	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S)

RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km3

(continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
	7	1.25	2.37	-0.07	0.06	0.00	0.00	-0.07	2.00	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.03	0.00	0.00	-0.10	2.00	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.02	0.00	0.00	-0.11	2.00	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.01	0.00	0.00	-0.13	2.00	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.00	0.00	0.00	-0.12	2.00	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.16	0.00	0.00	-0.11	2.00	1.21	2.29	≠
47	1	1.21	2.29	-0.04	0.36	0.00	0.21	-0.05	1.79	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.77	0.00	0.74	+0.01	1.26	1.26	2.41	≠
	3	1.26	2.41	+0.09	6.09	0.00	2.00	+0.19	0.00	2.74	6.79	
	4	2.74	6.79	+0.24	1.39	0.00	2.00	+0.23	0.00	2.70	6.65	
	5	2.70	6.65	+0.06	1.11	0.00	2.00	+0.05	0.00	2.48	5.88	
	6	2.48	5.88	-0.05	0.73	0.00	2.00	-0.04	0.00	1.99	4.52	
	7	1.99	4.52	-0.11	0.40	0.00	2.00	-0.08	0.00	1.37	2.73	
	8	1.37	2.73	-0.11	0.26	0.00	0.48	-0.10	1.52	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.14	0.00	0.00	-0.11	2.00	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.07	0.00	0.00	-0.13	2.00	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	2.00	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	2.00	1.21	2.29	≠
48	1	1.21	2.29	-0.04	0.01	0.00	0.00	-0.05	2.00	1.24	2.35	≠
	2	1.24	2.35	+0.01	0.19	0.00	0.16	+0.01	1.84	1.26	2.41	≠
	3	1.26	2.41	+0.09	3.15	0.00	2.00	+0.12	0.00	1.72	3.78	
	4	1.72	3.78	+0.15	1.85	0.00	2.00	+0.15	0.00	1.78	3.93	
	5	1.78	3.93	+0.04	0.95	0.00	2.00	+0.03	0.00	1.45	2.95	
	6	1.45	2.95	-0.03	0.66	0.00	1.18	-0.03	0.82	1.25	2.37	≠
	7	1.25	2.37	-0.07	0.49	0.00	0.40	-0.07	1.60	1.23	2.33	≠
	8	1.23	2.33	-0.10	0.27	0.00	0.10	-0.10	1.90	1.21	2.30	≠
	9	1.21	2.30	-0.11	0.15	0.00	0.00	-0.11	2.00	1.21	2.29	≠
	10	1.21	2.29	-0.12	0.08	0.00	0.00	-0.13	2.00	1.20	2.27	≠
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	2.00	1.20	2.28	≠
	12	1.20	2.28	-0.10	0.33	0.00	0.10	-0.11	1.90	1.21	2.29	≠
49	1	1.21	2.29	-0.04	0.39	0.00	0.24	-0.05	1.76	1.24	2.35	≠
	2	1.24	2.35	+0.01	4.79	0.00	2.00	+0.02	0.00	2.23	5.18	
	3	2.23	5.18	+0.16	13.97	0.00	2.00	+0.37	0.00	5.18	17.68	
	4	5.18	17.68	+0.46	1.90	0.00	2.00	+0.46	0.00	5.33	18.50	
	5	5.33	18.50	+0.12	2.84	0.00	2.00	+0.12	0.00	5.52	19.58	
	6	5.52	19.58	-0.11	1.03	0.00	2.00	-0.11	0.00	5.31	18.39	
	7	5.31	18.39	-0.29	0.56	0.00	2.00	-0.27	0.00	4.93	16.39	
	8	4.93	16.39	-0.40	0.31	0.00	2.00	-0.37	0.00	4.43	13.93	
	9	4.43	13.93	-0.40	0.17	0.00	2.00	-0.36	0.00	3.87	11.34	
	10	3.87	11.34	-0.40	0.09	0.00	2.00	-0.35	0.00	3.27	8.69	
	11	3.27	8.69	-0.32	0.05	0.00	2.00	-0.26	0.00	2.57	6.16	
	12	2.57	6.16	-0.22	0.02	0.00	2.00	-0.16	0.00	1.73	3.80	



## SIMULACAO DE OPERACAO DE RESERVATORIO(S) RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Hm <sup>3</sup>											(continuacao)	
ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
50	1	1.73	3.80	-0.06	0.37	0.00	1.71	-0.05	0.29	1.24	2.35	*
	2	1.24	2.35	+0.01	1.24	0.00	1.21	+0.01	0.79	1.26	2.41	*
	3	1.26	2.41	+0.09	35.50	0.00	2.00	+0.68	0.00	9.78	36.68	
	4	9.78	36.68	+0.87	15.94	14.69	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	1.93	1.03	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	1.06	0.00	2.00	-0.19	0.00	9.24	35.69	
	7	9.24	35.69	-0.51	0.67	0.00	2.00	-0.45	0.00	7.97	33.40	
	8	7.97	33.40	-0.65	0.37	0.00	2.00	-0.58	0.00	7.03	30.54	
	9	7.03	30.54	-0.63	0.20	0.00	2.00	-0.61	0.00	6.66	27.50	
	10	6.66	27.50	-0.69	0.11	0.00	2.00	-0.66	0.00	6.27	24.27	
	11	6.27	24.27	-0.61	0.06	0.00	2.00	-0.57	0.00	5.79	21.15	
	12	5.79	21.15	-0.50	0.69	0.00	2.00	-0.48	0.00	5.39	18.86	
51	1	5.39	18.86	-0.19	0.96	0.00	2.00	-0.19	0.00	5.14	17.44	
	2	5.14	17.44	+0.05	1.00	0.00	2.00	+0.05	0.00	4.97	16.54	
	3	4.97	16.54	+0.36	27.17	5.27	2.00	+0.71	0.00	10.24	37.51	
	4	10.24	37.51	+0.91	27.53	27.15	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	2.21	1.31	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	1.17	0.00	2.00	-0.19	0.00	9.30	35.80	
	7	9.30	35.80	-0.51	0.79	0.00	2.00	-0.46	0.00	8.09	33.62	
	8	8.09	33.62	-0.66	0.56	0.00	2.00	-0.58	0.00	7.07	30.94	
	9	7.07	30.94	-0.64	0.31	0.00	2.00	-0.61	0.00	6.72	28.00	
	10	6.72	28.00	-0.70	0.17	0.00	2.00	-0.66	0.00	6.34	24.81	
	11	6.34	24.81	-0.61	0.09	0.00	2.00	-0.58	0.00	5.89	21.70	
	12	5.89	21.70	-0.51	0.68	0.00	2.00	-0.48	0.00	5.48	19.39	
52	1	5.48	19.39	-0.20	2.62	0.00	2.00	-0.20	0.00	5.52	19.61	
	2	5.52	19.61	+0.06	17.21	0.00	2.00	+0.09	0.00	8.84	34.97	
	3	8.84	34.97	+0.64	20.52	17.33	2.00	+0.71	0.00	10.24	37.51	
	4	10.24	37.51	+0.91	41.49	41.11	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	16.46	15.56	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	1.68	0.00	2.00	-0.19	0.00	9.57	36.30	
	7	9.57	36.30	-0.53	1.18	0.00	2.00	-0.49	0.00	8.56	34.47	
	8	8.56	34.47	-0.70	0.65	0.00	2.00	-0.61	0.00	7.18	31.82	
	9	7.18	31.82	-0.65	0.35	0.00	2.00	-0.62	0.00	6.83	28.90	
	10	6.83	28.90	-0.71	0.19	0.00	2.00	-0.68	0.00	6.45	25.71	
	11	6.45	25.71	-0.63	0.10	0.00	2.00	-0.60	0.00	6.05	22.59	
	12	6.05	22.59	-0.53	0.15	0.00	2.00	-0.49	0.00	5.54	19.72	
53	1	5.54	19.72	-0.20	0.65	0.00	2.00	-0.19	0.00	5.24	17.98	
	2	5.24	17.98	+0.05	0.72	0.00	2.00	+0.05	0.00	5.02	16.81	
	3	5.02	16.81	+0.36	4.57	0.00	2.00	+0.40	0.00	5.62	20.14	
	4	5.62	20.14	+0.50	46.19	28.03	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	7.00	6.10	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	1.89	0.00	2.00	-0.20	0.00	9.69	36.51	





## SIMULACAO DE OPERACAO DE RESERVATORIO(S)

RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em m<sup>3</sup>

(continuação)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	ISANGRADO	RETIR.	FINAL	DERANDA	FINAL	FINAL	
	7	9.69	36.51	-0.53	1.03	0.00	2.00	-0.49	0.00	8.59	34.52	
	8	8.59	34.52	-0.70	0.57	0.00	2.00	-0.60	0.00	7.17	31.79	
	9	7.17	31.79	-0.65	0.31	0.00	2.00	-0.62	0.00	6.82	28.83	
	10	6.82	28.83	-0.71	0.17	0.00	2.00	-0.67	0.00	6.43	25.62	
	11	6.43	25.62	-0.62	0.09	0.00	2.00	-0.59	0.00	6.03	22.49	
	12	6.03	22.49	-0.52	0.05	0.00	2.00	-0.49	0.00	5.51	19.53	
54	1	5.51	19.53	-0.20	0.02	0.00	2.00	-0.18	0.00	5.09	17.17	
	2	5.09	17.17	+0.05	0.98	0.00	2.00	+0.05	0.00	4.91	16.25	
	3	4.91	16.25	+0.35	1.34	0.00	2.00	+0.35	0.00	4.91	16.29	
	4	4.91	16.29	+0.43	1.33	0.00	2.00	+0.43	0.00	4.95	16.49	
	5	4.95	16.49	+0.11	2.39	0.00	2.00	+0.11	0.00	5.08	17.10	
	6	5.08	17.10	-0.10	1.35	0.00	2.00	-0.10	0.00	4.91	16.25	
	7	4.91	16.25	-0.27	0.97	0.00	2.00	-0.26	0.00	4.59	14.69	
	8	4.59	14.69	-0.37	0.53	0.00	2.00	-0.34	0.00	4.13	12.51	
	9	4.13	12.51	-0.37	0.29	0.00	2.00	-0.33	0.00	3.59	10.10	
	10	3.59	10.10	-0.37	0.16	0.00	2.00	-0.32	0.00	2.96	7.57	
	11	2.96	7.57	-0.29	0.09	0.00	2.00	-0.22	0.00	2.21	5.15	
	12	2.21	5.15	-0.19	0.05	0.00	2.00	-0.13	0.00	1.42	2.88	
55	1	1.42	2.88	-0.05	0.79	0.00	1.22	-0.05	0.78	1.24	2.35	*
	2	1.24	2.35	+0.01	8.55	0.00	2.00	+0.03	0.00	3.33	8.95	
	3	3.33	8.95	+0.24	26.44	0.00	2.00	+0.58	0.00	8.42	34.22	
	4	8.42	34.22	+0.75	27.74	23.90	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	14.73	13.83	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	1.54	0.00	2.00	-0.19	0.00	9.50	36.17	
	7	9.50	36.17	-0.52	0.84	0.00	2.00	-0.47	0.00	8.31	34.01	
	8	8.31	34.01	-0.68	0.46	0.00	2.00	-0.58	0.00	7.11	31.21	
	9	7.11	31.21	-0.64	0.25	0.00	2.00	-0.61	0.00	6.74	28.21	
	10	6.74	28.21	-0.70	0.14	0.00	2.00	-0.67	0.00	6.36	24.98	
	11	6.36	24.98	-0.62	0.07	0.00	2.00	-0.58	0.00	5.92	21.85	
	12	5.92	21.85	-0.51	0.04	0.00	2.00	-0.48	0.00	5.40	18.90	
56	1	5.40	18.90	-0.19	0.61	0.00	2.00	-0.18	0.00	5.09	17.13	
	2	5.09	17.13	+0.05	1.14	0.00	2.00	+0.05	0.00	4.93	16.38	
	3	4.93	16.38	+0.36	8.23	0.00	2.00	+0.44	0.00	6.17	23.40	
	4	6.17	23.40	+0.55	39.59	24.74	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	28.80	27.90	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	1.67	0.00	2.00	-0.19	0.00	9.57	36.29	
	7	9.57	36.29	-0.53	0.91	0.00	2.00	-0.48	0.00	8.41	34.20	
	8	8.41	34.20	-0.69	0.50	0.00	2.00	-0.59	0.00	7.13	31.43	
	9	7.13	31.43	-0.64	0.27	0.00	2.00	-0.62	0.00	6.77	28.44	
	10	6.77	28.44	-0.70	0.15	0.00	2.00	-0.67	0.00	6.39	25.22	
	11	6.39	25.22	-0.62	0.08	0.00	2.00	-0.59	0.00	5.96	22.09	
	12	5.96	22.09	-0.52	0.04	0.00	2.00	-0.48	0.00	5.44	19.13	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

VOLUME em Ha3											(continuacao)	
ANO	PER	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL
		INICIAL	INICIAL	INICIAL	AFLUENTE	SABRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
57	1	5.44	19.13	-0.20	0.44	0.00	2.00	-0.18	0.00	5.10	17.19	
	2	5.10	17.19	+0.05	1.00	0.00	2.00	+0.05	0.00	4.92	16.30	
	3	4.92	16.30	+0.35	1.33	0.00	2.00	+0.35	0.00	4.92	16.33	
	4	4.92	16.33	+0.44	2.06	0.00	2.00	+0.44	0.00	5.11	17.27	
	5	5.11	17.27	+0.11	1.26	0.00	2.00	+0.11	0.00	5.01	16.75	
	6	5.01	16.75	-0.10	0.69	0.00	2.00	-0.09	0.00	4.70	15.25	
	7	4.70	15.25	-0.26	0.57	0.00	2.00	-0.24	0.00	4.31	13.32	
	8	4.31	13.32	-0.35	0.31	0.00	2.00	-0.31	0.00	3.79	10.96	
	9	3.79	10.96	-0.34	0.17	0.00	2.00	-0.30	0.00	3.22	8.50	
	10	3.22	8.50	-0.33	0.09	0.00	2.00	-0.27	0.00	2.51	5.99	
	11	2.51	5.99	-0.24	0.05	0.00	2.00	-0.17	0.00	1.67	3.62	
	12	1.67	3.62	-0.15	0.02	0.00	1.10	-0.11	0.90	1.21	2.29	*
58	1	1.21	2.29	-0.04	0.12	0.00	0.00	-0.05	2.00	1.24	2.35	*
	2	1.24	2.35	+0.01	0.35	0.00	0.32	+0.01	1.68	1.26	2.41	*
	3	1.26	2.41	+0.09	0.89	0.00	0.99	+0.09	1.01	1.29	2.49	*
	4	1.29	2.49	+0.11	0.90	0.00	1.10	+0.11	0.90	1.30	2.51	*
	5	1.30	2.51	+0.03	0.60	0.00	0.74	+0.03	1.26	1.27	2.43	*
	6	1.27	2.43	-0.03	0.33	0.00	0.33	-0.03	1.67	1.25	2.37	*
	7	1.25	2.37	-0.07	0.29	0.00	0.20	-0.07	1.80	1.23	2.33	*
	8	1.23	2.33	-0.10	0.16	0.00	0.00	-0.10	2.00	1.21	2.30	*
	9	1.21	2.30	-0.11	0.08	0.00	0.00	-0.11	2.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.04	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.02	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.01	0.00	0.00	-0.11	2.00	1.21	2.29	*
59	1	1.21	2.29	-0.04	0.11	0.00	0.00	-0.05	2.00	1.24	2.35	*
	2	1.24	2.35	+0.01	0.58	0.00	0.55	+0.01	1.45	1.26	2.41	*
	3	1.26	2.41	+0.09	1.47	0.00	1.57	+0.09	0.43	1.29	2.49	*
	4	1.29	2.49	+0.11	1.26	0.00	1.46	+0.11	0.54	1.30	2.51	*
	5	1.30	2.51	+0.03	1.37	0.00	1.51	+0.03	0.49	1.27	2.43	*
	6	1.27	2.43	-0.03	0.94	0.00	0.94	-0.03	1.06	1.25	2.37	*
	7	1.25	2.37	-0.07	0.65	0.00	0.56	-0.07	1.44	1.23	2.33	*
	8	1.23	2.33	-0.10	0.36	0.00	0.19	-0.10	1.81	1.21	2.30	*
	9	1.21	2.30	-0.11	0.19	0.00	0.00	-0.11	2.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.10	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.06	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	2.00	1.21	2.29	*
60	1	1.21	2.29	-0.04	0.10	0.00	0.00	-0.05	2.00	1.24	2.35	*
	2	1.24	2.35	+0.01	0.25	0.00	0.22	+0.01	1.78	1.26	2.41	*
	3	1.26	2.41	+0.09	0.70	0.00	0.80	+0.09	1.20	1.29	2.49	*
	4	1.29	2.49	+0.11	1.26	0.00	1.46	+0.11	0.54	1.30	2.51	*
	5	1.30	2.51	+0.03	1.41	0.00	1.55	+0.03	0.45	1.27	2.43	*
	6	1.27	2.43	-0.03	0.84	0.00	0.84	-0.03	1.16	1.25	2.37	*



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.80

VOLUME MINIMO= 2.40

Volumes em Km3 (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)/2	VOLUME	VOLUME	VOLUME	(P-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	INFLUENTE	SANGRADO	RETR.	FINAL	DEBANDA	FINAL	FINAL	
61	7	1.25	2.37	-0.07	0.46	0.00	0.37	-0.07	1.63	1.23	2.33	*
	8	1.23	2.33	-0.10	0.46	0.00	0.29	-0.10	1.71	1.21	2.30	*
	9	1.21	2.30	-0.11	0.25	0.00	0.04	-0.11	1.96	1.21	2.29	*
	10	1.21	2.29	-0.12	0.14	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.04	0.00	0.00	-0.11	2.00	1.21	2.29	*
	1	1.21	2.29	-0.04	0.89	0.00	0.74	-0.05	1.26	1.24	2.35	*
	2	1.24	2.35	+0.01	1.28	0.00	1.25	+0.01	0.75	1.26	2.41	*
	3	1.26	2.41	+0.09	10.02	0.00	2.00	+0.27	0.00	3.75	10.79	
	4	3.75	10.79	+0.33	10.12	0.00	2.00	+0.48	0.00	5.54	19.72	
	5	5.54	19.72	+0.12	2.18	0.00	2.00	+0.12	0.00	5.62	20.15	
	6	5.62	20.15	-0.11	1.41	0.00	2.00	-0.11	0.00	5.48	19.34	
	7	5.48	19.34	-0.30	0.84	0.00	2.00	-0.29	0.00	5.17	17.59	
	8	5.17	17.59	-0.42	0.50	0.00	2.00	-0.39	0.00	4.71	15.28	
	9	4.71	15.28	-0.42	0.27	0.00	2.00	-0.38	0.00	4.19	12.74	
	10	4.19	12.74	-0.43	0.15	0.00	2.00	-0.38	0.00	3.59	10.08	
	11	3.59	10.08	-0.35	0.08	0.00	2.00	-0.29	0.00	2.94	7.52	
	12	2.94	7.52	-0.26	0.04	0.00	2.00	-0.20	0.00	2.20	5.10	
62	1	2.20	5.10	-0.08	1.12	0.00	2.00	-0.07	0.00	1.83	4.08	
	2	1.83	4.08	+0.02	2.39	0.00	2.00	+0.02	0.00	1.98	4.51	
	3	1.98	4.51	+0.14	20.61	0.00	2.00	+0.44	0.00	6.20	23.70	
	4	6.20	23.70	+0.55	50.17	35.62	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	17.32	16.42	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	2.50	0.52	2.00	-0.20	0.00	9.74	36.60	
	7	9.74	36.60	-0.54	1.29	0.00	2.00	-0.50	0.00	8.78	34.86	
	8	8.78	34.86	-0.72	0.70	0.00	2.00	-0.62	0.00	7.32	32.22	
	9	7.32	32.22	-0.66	0.48	0.00	2.00	-0.63	0.00	6.89	29.41	
	10	6.89	29.41	-0.71	0.26	0.00	2.00	-0.68	0.00	6.51	26.28	
	11	6.51	26.28	-0.63	0.14	0.00	2.00	-0.60	0.00	6.14	23.18	
	12	6.14	23.18	-0.53	0.08	0.00	2.00	-0.50	0.00	5.63	20.23	
63	1	5.63	20.23	-0.20	0.04	0.00	2.00	-0.19	0.00	5.22	17.88	
	2	5.22	17.88	+0.05	10.05	0.00	2.00	+0.07	0.00	6.49	26.05	
	3	6.49	26.05	+0.47	8.40	0.00	2.00	+0.55	0.00	8.01	33.47	
	4	8.01	33.47	+0.71	22.42	17.00	2.00	+0.87	0.00	10.33	37.67	
	5	10.33	37.67	+0.23	21.75	20.85	2.00	+0.22	0.00	9.97	37.02	
	6	9.97	37.02	-0.20	1.79	0.00	2.00	-0.19	0.00	9.63	36.41	
	7	9.63	36.41	-0.53	1.30	0.00	2.00	-0.49	0.00	8.68	34.69	
	8	8.68	34.69	-0.71	0.71	0.00	2.00	-0.62	0.00	7.24	32.07	
	9	7.24	32.07	-0.65	0.39	0.00	2.00	-0.62	0.00	6.86	29.19	
	10	6.86	29.19	-0.71	0.21	0.00	2.00	-0.68	0.00	6.48	26.01	
	11	6.48	26.01	-0.63	0.11	0.00	2.00	-0.60	0.00	6.10	22.89	
	12	6.10	22.89	-0.53	0.06	0.00	2.00	-0.49	0.00	5.58	19.93	



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.00

VOLUME MINIMO= 2.40

VOLUME = m<sup>3</sup> (continuacao)

ANO	PER.	AREA	VOLUME	(P-E)S/2	VOLUME	VOLUME	VOLUME	(P-E)S/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	AFLUENTE	SANGRADO	RETIR.	FINAL	DEMANDA	FINAL	FINAL	
64	1	5.58	19.93	-0.20	0.03	0.00	2.00	-0.19	0.00	5.16	17.57	
	2	5.16	17.57	+0.05	0.85	0.00	2.00	+0.05	0.00	4.96	16.53	
	3	4.96	16.53	+0.36	1.68	0.00	2.00	+0.36	0.00	5.04	16.92	
	4	5.04	16.92	+0.45	2.71	0.00	2.00	+0.46	0.00	5.34	18.54	
	5	5.34	18.54	+0.12	1.08	0.00	2.00	+0.11	0.00	5.21	17.85	
	6	5.21	17.85	-0.10	0.60	0.00	2.00	-0.10	0.00	4.91	16.25	
	7	4.91	16.25	-0.27	0.39	0.00	2.00	-0.25	0.00	4.47	14.12	
	8	4.47	14.12	-0.36	0.21	0.00	2.00	-0.33	0.00	3.94	11.64	
	9	3.94	11.64	-0.35	0.12	0.00	2.00	-0.31	0.00	3.37	9.10	
	10	3.37	9.10	-0.35	0.06	0.00	2.00	-0.28	0.00	2.67	6.52	
	11	2.67	6.52	-0.26	0.12	0.00	2.00	-0.19	0.00	1.87	4.20	
	12	1.87	4.20	-0.16	0.07	0.00	1.70	-0.11	0.30	1.21	2.29	*
65	1	1.21	2.29	-0.04	0.44	0.00	0.29	-0.05	1.71	1.24	2.35	*
	2	1.24	2.35	+0.01	1.95	0.00	1.92	+0.01	0.08	1.26	2.41	*
	3	1.26	2.41	+0.09	1.22	0.00	1.32	+0.09	0.68	1.29	2.49	*
	4	1.29	2.49	+0.11	4.08	0.00	2.00	+0.18	0.00	2.11	4.87	
	5	2.11	4.87	+0.05	2.30	0.00	2.00	+0.05	0.00	2.25	5.26	
	6	2.25	5.26	-0.05	1.27	0.00	2.00	-0.04	0.00	1.96	4.45	
	7	1.96	4.45	-0.11	0.78	0.00	2.00	-0.08	0.00	1.47	3.04	
	8	1.47	3.04	-0.12	0.43	0.00	0.95	-0.10	1.05	1.21	2.30	*
	9	1.21	2.30	-0.11	0.23	0.00	0.02	-0.11	1.98	1.21	2.29	*
	10	1.21	2.29	-0.12	0.13	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.07	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.03	0.00	0.00	-0.11	2.00	1.21	2.29	*
66	1	1.21	2.29	-0.04	0.48	0.00	0.33	-0.05	1.67	1.24	2.35	*
	2	1.24	2.35	+0.01	0.87	0.00	0.84	+0.01	1.16	1.26	2.41	*
	3	1.26	2.41	+0.09	1.12	0.00	1.22	+0.09	0.78	1.29	2.49	*
	4	1.29	2.49	+0.11	1.75	0.00	1.95	+0.11	0.05	1.30	2.51	*
	5	1.30	2.51	+0.03	1.43	0.00	1.57	+0.03	0.43	1.27	2.43	*
	6	1.27	2.43	-0.03	0.99	0.00	0.99	-0.03	1.01	1.25	2.37	*
	7	1.25	2.37	-0.07	0.54	0.00	0.45	-0.07	1.55	1.23	2.33	*
	8	1.23	2.33	-0.10	0.29	0.00	0.12	-0.10	1.88	1.21	2.30	*
	9	1.21	2.30	-0.11	0.16	0.00	0.00	-0.11	2.00	1.21	2.29	*
	10	1.21	2.29	-0.12	0.09	0.00	0.00	-0.13	2.00	1.20	2.27	*
	11	1.20	2.27	-0.12	0.04	0.00	0.00	-0.12	2.00	1.20	2.28	*
	12	1.20	2.28	-0.10	0.02	0.00	0.00	-0.11	2.00	1.21	2.29	*
67	1	1.21	2.29	-0.04	0.18	0.00	0.03	-0.05	1.97	1.24	2.35	*
	2	1.24	2.35	+0.01	0.63	0.00	0.60	+0.01	1.40	1.26	2.41	*
	3	1.26	2.41	+0.07	0.91	0.00	1.01	+0.09	0.99	1.29	2.49	*
	4	1.29	2.49	+0.11	1.31	0.00	1.51	+0.11	0.49	1.30	2.51	*
	5	1.30	2.51	+0.03	0.99	0.00	1.13	+0.03	0.87	1.27	2.43	*
	6	1.27	2.43	-0.03	0.75	0.00	0.75	-0.03	1.25	1.25	2.37	*



Geonorte

SIMULACAO DE OPERACAO DE RESERVATORIO(S)  
RESERVATORIO - MARCO

VOLUME MAXIMO= 38.86

VOLUME MINIMO= 2.40

VOLUME DE H2O (continuação)

ANO	FEV.	AREA	VOLUME	(F-E)/2	VOLUME	VOLUME	VOLUME	(F-E)/2	SALDO	AREA	VOLUME	IFAL.
		INICIAL	INICIAL	INICIAL	(AFLUENTE)	(SANGRADO)	(RETIR.)	FINAL	DEBANDA	FINAL	FINAL	
1	1	1.251	2.371	-0.071	0.411	0.001	0.321	-0.071	1.681	1.231	2.331	* 1
1	1	1.231	2.331	-0.101	0.221	0.001	0.051	-0.101	1.951	1.211	2.301	* 1
1	1	1.211	2.301	-0.111	0.121	0.001	0.001	-0.111	2.001	1.211	2.291	* 1
1	1	1.211	2.291	-0.121	0.061	0.001	0.001	-0.121	2.001	1.201	2.271	* 1
1	1	1.201	2.271	-0.121	0.031	0.001	0.001	-0.121	2.001	1.201	2.281	* 1
1	1	1.201	2.281	-0.101	0.021	0.001	0.001	-0.111	2.001	1.211	2.291	* 1