! " # $ % & ' ( ) * +

$ % , - . / 0 1 2 3 4

5 4 6 7 8 $ 9 : ;

< = > ?

! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 2 7 8 9 : * ; < = > ? @ A = > B C * D E
. F G H 0 1 4 5 I J = > K L 9 : A 6 2 2 M % = N 8 * O P Q R S 0

编　委　会

@　　)

A　@　)

B　　C

n 6 2 o U p q r s | - v N

2 3 n 2 * 6 2 Q M - . / 0 * T 208 n 6 2 o U p q r s ^ " f M * * • 2 3 Q # n 6 2 o U p q r s 5 t 1 yz

o U p q r ^ $ l # 6 2 \ 3 7 8 ~ • X z 6 2 Q M 4 1 2 6 2 Y 5 o U A > [# J / 0 * 2 I # o U a { p q r (u * + X ~ * O) # O P { " | p q r # * ^ t 2 yz

*) # n 6 2 o U p q r s 6 2 Q M * a 4 | Q 6 2 z

6 2 V W } # n 6 2 o U p q r s n (6 2 z 6 2 Q M | . 6 * { o U 5 o U p q r t w # • y* ~ o U 2 M \ 3 f 2 = > ~ • ! > z

1

业指导书》

Q　　x N

6 2　　N

	g U	p q r　x	p q r	

2

业指设置》

6 2 o U p q r x	
6 2 o U p q r	
J O P N	

表 分

u o 6 p q v w x y 

BDYCSY–ZW–01 T U V 0 W < X Y Z [A B o U p q r 1

BDYCSY–ZW–02 T U V 0 \ ] ^ Y Z [A B o U p q r 11

BDYCSY–ZW–03 _ V 0 \ ] ^ Y Z [A B o U p q r 17

BDYCSY–ZW–04 SF_6 0 \ ] ^ Y Z [A B o U p q r 23

BDYCSY–ZW–05 ` a E ; Y Z [A B o U p q r 29

BDYCSY–ZW–06 0 P V 8 K Z [A B o U p q r 37

BDYCSY–ZW–07 GIS t HGIS y Z [A B o U p q r 43

BDYCSY–ZW–08 b c d G e f g Y Z [A B o U p q r 51

BDYCSY–ZW–09 0 h Y ! i j : k Z [A B o U p q r 59

BDYCSY–ZW–10 l m n f A B o U p q r 67

BDYCSY–ZW–11 O o 0 P Y Z [A B o U p q r 73

BDYCSY–ZW–12 p : Z \ q X A B o U p q r 79

BDYCSY–ZW–13 r s 0 P Y Z [A B o U p q r 85

BDYCSY–ZW–14 _ V < X Y Z [A B o U p q r 91

BDYCSY–ZW–15 SF_6 E ; Y o U p q r 99

BDYCSY–ZW–16 0 P V 0 X] ^ Y A B o U p q r 105

BDYCSY–ZW–17 0 t V 0 X] ^ Y A B o U p q r 111

BDYCSY–ZW–18 u 1 [u 0 v w 8 A B o U p q r 119

TSSY–ZW–01 GIS Z \ q X A B o U p q r 147

TSSY–ZW–02 SF_6 = J Z [A B o U p q r 156

TSSY–ZW–03 0 W < X Y Z \ q X A B o U p q r 167

TSSY–ZW–04	0 W < X Y x y ^ | 0 X A B } z M { 0 w 8 A B o U p q r	175
TSSY–ZW–05	0 W < X Y ~ R < • A B o U p q r	184
TSSY–ZW–06	0 Z \ q X A B o U p q r	192
TSSY–ZW–07	0 \ ] ^ Y B o U p q r	200
TSSY–ZW–08	0 X] ^ Y B o U p q r	209
TSSY–ZW–09	T Z [A B o U p q r	219

X Y

1 % 3
2 ; 3
3 o U \ 3 3
4 > 4
5 o U • 5
6 o U a 6
7 7 8 k 6 ! B ~ • 7

1 Z [\ ]

7 o U p q r Q T U V 0 W < X Y z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s
2	DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0 0 = M * ys

3 0 1 a b



! " # $ % & ' ( ) , - . / 0 1 2 3 4

4 e j k l m

4.1 0 W < X Y Z [A 2 Q M ! Q o U e " 6 2 #

2 > p ` st v w x n n (1 2 3 > $ % 2 o * • ! e " #

4.2 ` s ^ T U V T j - 0 . 2 4 T c (U V) 1 2 0

2 o

5 01no

5.1 MNpo

`5-1 0 1 M N p o

2 x	2 4 2oV 1	+dV	DV
8K8K 8KAB 8KAB	2	1	1

{"2?(_#:=+Xz

6.9 F yz a $a

w8{|0\y${/X O *ABQ / ^B_Bu ^ /B_Bu _ ^B/Bu+X*w8| ?(_#:=*O%& '(*{|0\ D ;<Z[~•#$lz

6.10 $9:; q :; 54678$9:;!

6.10.1 ~R<•ABz2Q 35kV !uv0X)<XY*$ _XA;vh 66kV !u(0X)<XY*$ PQR| w8~RST Uz

6.10.2 Z\qXABz{<XY# : +XZ\qXAB*4u 462P0X#ABa *V4u ^|0X#ABa zW8 XoYZ^|qXABaV*4LMAB5 P8z0X){ 110kV !u(#<XY^37$ [+XZ\qXABzAB0X !|}Z[~•+Xz

6.10.3 ~R8 8K#xy^|0XAB}zM{0ABz0X){ 220kV !u(#<XY*{@>?y +X xy^|0X}zM{0ABz0X) 110kV #<XY*\2 b]^y*$+XzM{0ABz u w<XYOM_# 3# `az

6.10.4 l0Xv# s[ABz bFac$l mz

6.10.5 @" z @<XY#" * 01" ,dz

7 m .r ; n

7.1 m .

7.1.1 T^efg=J#gU* z T y|{<XY 6T)*7 $l#y a4+Xz fT * 89fPY*: !y;<"fM= Bz

7.1.2 <XY \0vw8 m 1600kVA !uv0X) "<XY*4"w #"] | Q:! #41*: w #"] | Q:! #21 1600kVA u("<XY*4"w #"] | Q:! #21 : w #"] | Q:! #11z

7.1.3 <XY# \0v 'vh -w *"|<GD| Q21 D '(v0v D }Vt7-1y)N

$$R_2 = R_1 \frac{T+t_2}{T+t_1}$$ t7-1y

V^N

R_1 R_2 '({ t_1 $t_2$tiyy#0v *

` 7-1 O P Q $ R S T U $ ~

' (K	5	10	15	20	25	30	35	40	45	50	55	60
) q A	1.2	1.5	1.8	2.3	2.8	3.4	4.1	5.1	6.2	7.5	9.2	11.2
N 1. ^ K - w ' (L r 20 i # 2 z 2. w 8 ' (u (s T ' • z												

t 3 y < X Y 0 X) 35kV ! u (* , P 8 4000kVA ! u (y * | w 8 z h " | + k *{ ' v | D Q 1.3 \ R_{60s} Q 3000MΩ y * 4 D o + * m z

t 4 y < X Y 0 X) 220kV ! u (, P 8 120MVA ! u (y * $ 5000V 0 v w 8 G p z w h " | + k *{ ' v D Q 1.3 z \ R_{60s} Q 10 000MΩ y * G p 4 D o + * m z

7.1.8 w 8 ~ R 8 8 K # 7 K e tan*d* * | w s v p $ l N

t 1 y \ < X Y 0 X) 35kV ! u (, P 8 8000kVA ! u (y * | w 8 7 K e tan*d* z

t 2 y w ~ R # tan*d* D | Q h A B # 130 1 z

t 3 y \ w 8 y # ' (h A B ' (D w s y * 4 7-2) 3 , ' (y # + X z

` 7-2 } **tan*d*** " ! ~

' (K	5	10	15	20	25	30	35	40	45	50
) q A	1.15	1.3	1.5	1.7	1.9	2.2	2.5	2.9	3.3	3.7
N 1. ^ K - w ' (L r 20 i # 2 z 2. w 8 ' (u (s T ' • z 3. + X # ' ( ) , A B ' 2 ; < 7 # L t u $ l y *	+ X v s * w E z									

7.1.9 w 8 ~ R 8 8 K # \ { | 0 \ * | w s v p $ l N

t 1 y \ < X Y 0 X) 35kV ! u (* , P 8 8000kVA ! u (y * | w 8 \ { | 0 \ z

t 2 y A B 0 X ~ • | w s 7-3 # $ l z \ 6] A B 0 X x 1min y * { / X O { | 0 \ z { | 0 \ D $; < 7-4 # $ l z

` 7-3 O P Q $ R S T U a : ; $ T n

~ R l 0 X kV	6 y 10	20 y 35	63 y 330	500
\ A B 0 X kV	10	20	40	60
N 1. ~ R l 0 X 13.8kV ! 15.75kV y * 10kV) ~ • 18kV y * 20kV) ~ • 2. *) < X Y z A ~ R 0 X) # ~ • z				

` 7-4 S T U a T $ a k $ a

l 0 X kV	A B 0 X { kV	{ v p ' (y # ~ R {	0 \ μA							
		10 i	20 i	30 i	40 i	50 i	60 i	70 i	80 i
2 y 3	5	11	17	25	39	55	83	125	178
6 y 15	10	22	33	50	77	112	166	250	356
20 y 35	20	33	50	74	111	167	250	400	570
63 y 330	40	33	50	74	111	167	250	400	570
500	60	20	30	45	67	100	150	235	330

7.2 m `

` 7-5 m `

	k 7	k a V		
		W	H	S
1	< X Y A B			|

N 7 8 k 7 ^ H N } 2 ~ 7 W N • O 7 S N 7 z

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5

X Y

1 % 13
2 ; 13
3 o U \ 3 13
4 > 14
5 o U • 15
6 o U a 15
7 7 8 k 6 ! B ~ • 16

1 Z [\ ]

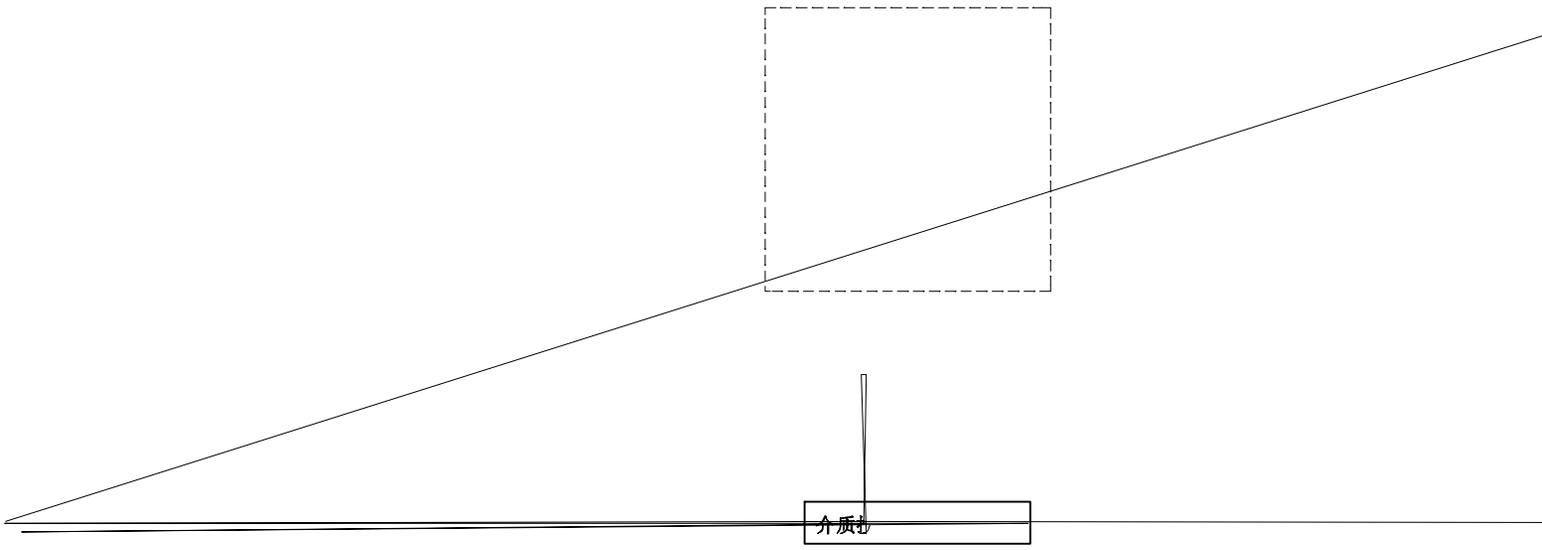
7 o U p q r Q T U V 0 \ ] ^ Y z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s
2	DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0 0 = M * ys

3 0 1 a b



c3-1 01 /d!abc

4 e f g h i j k l m

4.1 T U V 0 \ ] ^ Y Z [A B * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ T U V 0 \ ] ^ Y Z [A B " f o # n 0 1 4 5 > 6 2 o U & st N BDYCSY-ZW-02-01/01 y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o U & * > W * * 6 2 + d V , ' z

4.3 6 2 + d V * 2 k 6 * O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z ‡ o ‰ e 5 z

t ? ~ R @ t S 3 @	3	1	1
< @	2	1	1
7 K ! 0 P 8 w 8	3	1	1
N o U V J 2 3 8 $ J z			

5.2 / U q r s U s ` p t

` 5-2 @ ? / U q r s U s ` p t

	x	$ /		8	
1	0 v w A v		MΩ	1	
2	p 1 V		/	1	
3	X A < X Y		/	1	
4	~ • 0 \ ] ^ Y		/	1	
5	Z \ B >		V/A	2	
6	K w A v		/	1	
N 2 Y ! v Y v J 2 3 8 $ J z					

6 0 1 # u

A B C D 0 \ ] ^ Y N t ! y E F _ G z

6.1 w 8 0 \ ] ^ Y # 0 v z 2500V 0 v w 8 , ? ~ R 2 t ? ! u # 0 v 2500V 0 v * w 8 t ? ~ R ! u # 0 v 0 v D $ _ Q 1000MΩ z

6.2 w 8 0 P V 0 \ ] ^ Y # # 0 v * 0 v D $ Q 1000MΩ 2 u 0 v Q 1000MΩ y * | w 8 tan*d* z

6.3 0 \ ] ^ Y # 3 @ z A B : H 0 I A 0 \ ] ^ Y # , ? ~ R 8 [* p 1 t J { { 3 0 \ J (y # K * [{ w # t ? ~ R (z H 0 I # B : I [3 , ? ~ R # L1 * y) L p 1 # p 1 M 5 N e a * 3 0 O F z : P n H 0 I # B A B : * y) L p 1 # p 1 M 5 N + a * 3 0 O F z

6.4 0 \ ] ^ Y , t ? ~ R \ 0 v w 8 z

6.5 w 8] D R TA # @ t S 3 Q : z A B y 0 X T R F (r * u 0 \ & • * O 0 X * < l 0 \ *] D R | + X S Q A B z

6.6 < @ z { , ? ~ R H " 0 \ * t ? ~ R [0 \ * O , t ? ~ R 0 \ z

6.7 K K ! 0 P 8 w 8 N , ? ~ R 2 # K | D Q # 130 1 t T 0.5 1 y* 0 P 8 # D ; 0 5 1 2 t ? ~ z K #

7.2 m `

` 7-1 m `

	k 7	k a V		
		W	H	S
1	T U V 0 \ ] ^ Y A B	|		
N 7 8 k 7 ^ H N } 2 ~ 7 W N • O 7 S N 7 z				

7.3 ; n

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CK

1 > 6 2 o U &

B 8 **BDYCSY-ZW-02-01/01**

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6

	A B x	C D	)	k 6
1	A c 0	q 0	! _	
2	/ X A B < 3 ^ ' 0 X	5 " K	! ^	
3	A B 0 u D H l	5 g K	! ^	
4	A B n o a 5 > p	q 0	! ^	
5	/ X A B < 3 ^ % 6 D 3	q 0	! /	
6	/ o U > D 6 D	2	! /	
7	A B 0 u D H l	5 g K	! ^	
8	A B 5 a [u [u D b	5 g K	! _	
9		5 " K	! ^	
10	[A B 0 u y q 0	V W X Y	! /	
11	0 \ ] ^ Y t ? # n ;	5 K L	! ^	
12	E T } 0 5 > U m D V H	q 0 TDDVDQV) Tj/F1 9.1j/F5+4 9C2Tj/F5+4 9.1 2		

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > R ¥ R y

> & y 7 , (y) T j / F 9 . 1 2 7 4 n n 5 f 9 . 1 2 0 T D ! M i o y 7

X Y

1 % 19
2 ; 19
3 o U \ 3 19
4 > 20
5 o U • 21
6 o U a 21
7 7 8 k 6 ! B ~ • 22

1 Z [\ ]

7 o U p q r Q _ V 0 \ ] ^ Y z

2 B L ^ _

` 2-1 B L ^ _

1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A
2	DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0

3 0 1 a b

c3-1 01 /d!abc

交流耐压

4 e f g h i j k l m

4.1 _ V 0 \ ] ^ Y Z [A B * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ _ V 0 \ ] ^ Y Z [A B " f o # n 0 1 4 5 > 6 2 o U & st N BDYCSY-ZW-03-01/01 y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o U & * > W * * 6 2 + d V , ' z

4.3 6 2 + d V * 2 k 6 * O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z 6 b *62b o * 2 o 1]] y 4 M ( ]) T] (F 5 6 . 3 2 0 2 . 9 0 2 D

~R \0vw8	2	1	1
t?~R@tS3 @	3	1	1
< @	3	1	1
7K !0P8w8	3	1	1
Z\qXAB	4	1	1
NoUV J238$ J z			

5.2 /UqrsUs`pt

`5-2 @?/UqrsUs`pt

	x	$ /		8	
1	0vwAv		MΩ	1	
2	p1V		/	1	
3	XA<XY		/	1	
4	~•0\]^Y		/	1	
5	Z\B>		V/A	2	
6	" XY			1	
7	F\Y			1	
8	AB<XY		/	1	
N 2Y !vYv J238$ J z					

6 01#u

6.1 AB CD0\]^Y NEF_Gz

6.2 w80\]^Y# 0vz 2500V 0v w8,?~R2t?!u# 0v 2500V 0v * w8t?~R !u# 0v 0v D$_Q 1000MΩz

6.3 w80\]^Y# # 0v* 0v D$ Q 1000MΩz 2u 0v Q 1000MΩy*|w8 tan*d* z

6.4 0\]^Y# 3 @z AB: H0IA0\]^Y#,?~R8[* p1 tJ {{3 0\J(y# K* [{ w#t?~R (z H0I# B :I[3,?~R# L1 * y)

b] ^ y * | . / 6] # w 8 0 \ * w 8 0 \ t \ y , U D $; < l 0 \ t a ! y # 50 1 z

7.1.3 w 8] D R TA # @ t S 3 Q : N D 0 \ ] ^ Y # S 3 "] * | + V z

7.1.4 < @ | k " * s " w z

7.1.5 0 \ ] ^ Y q X A B 8 n f 7 J A B , Q + X * { $ l A B 0 X v 1min * D *+ (o z

7.2 ; n

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s

^ # Q/CSG 4-8.1.1 y 4-8.1.3 Q/CSG 4-8.2.1 y 4-8.2.4 m X z

1 > 6 2 o U &

N **BDYCSY-ZW-03-01/01**

2 o y 2 o u 7 = > W > W + d V

>) Q/: N 0
[1 Z 0 V W ,

4 ! " # $ % &

X Y

1 % 25
2 ; 25
3 o U \ 3 25
4 > 26
5 o U • 27
6 o U a 27
7 7 8 k 6 ! B ~ • 28

5.1 M N p o

` 5-1 0 1 M N p o

2 x	4 2 o V	+ d V	D V
0 v w 8	2	1	1
3 @	2	1	1
~ R \ 0 v w 8	2	1	1
t ? ~ R @ t S 3 @	3	1	1
< @	3	1	1
SF_6 = J 8 9 3 A B	2	1	1
Z \ q X A B	4	1	1
N o U V J 2 3 8 $ J z			

5.2 / U q r s U s ` p t

` 5-2 @ ? / U q r s U s ` p t

	x	$ /		8	
1	0 v w A v		MΩ	1	
2	p 1 V		/	1	

3 461.04 TD (2) Tj/* 0 TD17.524 TD (2) Tj/* 0 TD17.524 TD (2)lN2s &'s wAs / 1

7.1 m .

7.1.1 w 8 0 v N | w s $ 3 A h = > m z

7.1.2 $? 0 \ ] ^ Y , t ? ~ R # \ 0 v A : ! # (D $ Q 10 1 z \ b] ^ y * | . / 6] # w 8 0 \ * w 8 0 \ t \ y , U D $; < l 0 \ t b 1 y # 50 1 z

7.1.3 w 8] D R TA # @ t S 3 Q : N D 0 \ ] ^ Y # S 3 "] * | + V z

7.1.4 < @ | k " * s " w t 0 \ ] ^ Y # < (# B * { y b d + X < A B * > ? y D / b < G z { Z [A B y * 2 < A B * c M c Q * 2 3 @ * D 0 \ ] ^ Y A B Y d @ yz

7.1.5 0 \ ] ^ Y q X A B 8 n f 7 J A B , Q + X *{ $ l A B 0 X v 1min *D *+ (o z

7.2 m `

` 7-1 m `

	k 7	k a V		
		W	H	S
1	SF_6 0 \ ] ^ Y A B			
N 7 8 k 7 ^ HN } 2 ~ 7 WN • O 7 SN 7 z				

7.3 ; n

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CSG 4-7.1.1 y 4-7.1.3 Q/CSG 4-7.2.1 y 4-7.2.4 m X z

1 > 6 2 o U &

N **BDYCSY-ZW-04-01/01**

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6				
	A B x	C D	)	k 6
1	A c 0	q 0	! _	
2	/ X A B < 3 ^ ' 0 X	5 " K	! ^	
3		5 " K	! ^	
4	/ o U > D 6 D	2	! /	
5	A B 0 u D H l	5 g K	! ^	
6	/ X A B < 3 ^ % 6 D 3	q 0	! /	
7	A B n o a 5 > p	q 0	! ^	
8	[q SF_6 = J < [^ \	e f X B	! _	
9	A B 5 a [u [u D b	5 g K	! _	
10	A B 5 E ? y > D 6 D	5 " K	! /	
11	[A B 0 u y q 0	V W X Y	! /	
12	0 \ ] ^ Y t ? # n ;	V W X c 5 q r		

>) Q/: N 0
[1 Z 0 V W ,

>W/F1 9.15+3 Tf18.24 re8080 #$/F1 9.15+2 Tf18.24 080 6D/F1 9.15

4！"#$%&'

UVW:;01234

NBDYCSY-ZW-05

33 7 78{ki6!%B~•

32

31 4 >M

X Y 1 ()%x

3

1 Z [\ ]

7 o U p q r Q ` a E ; Y z

2 B L ^ _

` 2-1 B

1	GB 50150 2006 n 0 = ? > ? 2 3 0	
2	DL 408 1991 n 0 U > 2 o $ 3 t	ys

3 0 1 a b c3-1 01 /d!abc 4 efghijklm 4.1 `aE; oUe" 62#A*|}n014562>M& • qrp`stvwxnp`sy102199Tf

	A B x	C D	)	k 6
5	A B 0 u D H l	5 K L	^	A B | v Y w 8 0 u 0 X * \ ] w s A B m
6	A B 5 E ? y > D 6 D	5 K L	/	E ? y 2 o V W 6 O (P g V p M E ?

4 c 1

A B < X Y X Y R , D / X Z \ ; o / X Z \ 0 u * * 2 E ; Y C " # s [s t 2 u * [s t E # + X q X A B t J A B a • S x 3 A B Z \ q X A B M * yz

7 m . r ; n

7.1 m .

7.1.1 w 8 E ; Y q # * s [y * w 8 * s [# _ 3 * w 8 s [< 3 ^ q [q # v Z y z

7.1.2 w 8 P y # 0 v * D | _ Q 1200MΩ z

7.1.3 w 8 C " q 0 ; # 0 v | w s h = > # # $ l z

7.1.4 Z \ q X A B z | { E ; Y s [! * [s t v + X Z \ q X A B \ { s [s t v + X y * A B 0 X | w s 7-1 # $ l \ { * [s t v + X y * ` a z j { E # # A B 0 X | w s h = > # # $ l * A B ^ D | ' # 3 { 0 z

` 7-1 V a T : ; $ T

l 0 X kV	3 / 2 o 0 X kV	1min 2 P q 1 0 X { * kV			
		" 2 u	"	E ; Y E #	l m E #
3	3.6	25	25	25	27
6	7.2	32	32	32	36
10	12	42	42	42	49
35	40.5	95	95	95	118
66	72.5	155	155	155	197
110	126	200	200	200	225
		230	230	230	265

7.1.5 w 8 E ; Y q # * s [y * w 8 * s [# _ 3 * w 8 s [< 3 ^ q [q # v Z y z

7.1.6 s [< 3 ^ q [q # v Z y N40.5kV u v E ; Y D | Q 2ms 40.5kV ! u (E ; Y D | Q 3ms z

7.1.7 w 8 | { E ; Y l 5 o 0 X ! | X # v + X z

7.1.8 - w | w s h = > # # $ l z

7.1.9 w 8 * s [: k ! s [[q Y : k # 0 v * D | _ Q 10MΩ \ 0 v h A B " | + k z

7.1.10 E ; Y 5 F g i # A B * | w s v p $ l N

t 1 y s [5 o # 5 o 0 X { 85 1 y 110 1 U_n y 5 F g i | 4 < F o z

t 2 y * [5 o # 5 o 0 X { Q 65 1 U_n y * | 4 < u * [\ Q 30 1 U_n y * D | * [z

7.2 m `

` 7-2 m `

	k 7	k a V		
		W	H	S
1	` a E ; Y A B	|		
N 7 8 k 7 ^ HN } 2 ~ 7 WN • O 7 SN 7 z				

7.3 ; n

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CSG 4-11.1.1 Q/CSG 4-11.2.1 y 4-11.2.2 m X z

1 > 6 2 o U &

N **BDYCSY-ZW-05-01/01**

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6

	A B x	C D	)	k 6
1	A B V W [: ^	5 g K	! ^	
2	A c 0	q 0	! _	
3	/ X A B < 3 ^ ' 0 X	5 " K	! ^	
4	A B 5 a [u [u D b	5 g K	! _	
5	A B 0 u D H l	5 g K	! ^	
6	/ o U > D 6 D	2	! /	
7	5 ? { ^ | 0	q 0	! ^	
8	A B 0 u D H l	5 g K	! ^	
9	g h Z F M *	X 2	! ^	
10	/ X A B < 3 ^ % 6 D 3	q 0	! /	
11	A B n o a 5 > p	q 0	! ^	
12		5 " K	! ^	

13 X199.2B %i 6 D

> XXF5+6 9.12 Tf 9.12 0 TD (Mx) T0pF5+4 9.12 Tf 18 0 T T8 rersF5+4 9.12 Tf 9.12 0D 4(X

^ABF1 9.12 0 TD (6D) TilF1 9.1212 Tf 9.12 0 TD (Mx) Ti; Tc (12124Tf 8.88 0 T8 re) Ti dF1 9.121

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 ⁄ 8 y \ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 ⁄ 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z

1 Z [\ ]

7 o U p q r Q 0 P V 8 K z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s
2	DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0 0 = M * ys

3 0 1 a b c3-1 01 /d!abc 4 efghijklm 4.1 0PV8KZ[AB4*62Q5M67!Q5oUe" 62#A*|}n014562>M& • qrp`stvwxnp`syn(123>I



4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	A B 5 a [u [u D b	5 K L	_	A B * | \ ` @ [u : 8 [4 < * [u b f
2	A B n o a 5 > p	V W X c	^	A B n o $ l 5 > p A ~ r s > 6 * O > >

6 0 1 # u

6.1 8 K A n < [u z

6.2 8 K # 0 v w 8 z 2500V 0 v * w 8 q 0 D 2 A 2 t u y # 0 v z

6.3 8 K # 7 K e A 0 P w 8 z 7 K w 8 v * w 8 8 K # q 0 D 2 8 K 8 K 2 7 K e A 0 P e [w 8 q 0 D 2 8 K 7 K e A 0 P [w 8 2 t u y 7 K e A 0 P z w 8 y % & A B ' 2 A ' (? (z

7 m . r ; n

7.1 m .

7.1.1 A B < 3 ^ I L _ G z

7.1.2 A B 5 b c 4 5 > 4 < [u z

7.1.3 A B [: e \ * / X : W 4 q A * O A 8 [n o * / X : K : [u : D q ~ S Z • z

7.1.4 66kV ! u (# 0 P 8 K * | w 8 X 8 K 2 w 8 8 K 2 # 0 v z 2500V 0 v w 8 * 0 v D | _ Q 1000MΩ z

7.1.5 w 8 20kV ! u (_ 8 K # 7 K e tan*d* A 0 P * | w s v p $ l N { { ' D _ Q 10 i # # v * 8 K # 7 K e tan*d* D | Q 7-1 # $ l z

` 7-1 y z } **tan***d* n

8 K D		tan*d* 3
0 P V	T U l	0.7 t 500kV 8 K 0.5 y
	U l	0.7
	l	1.0 t 66kV ! u v 0 X) 8 K 1.5 y
		1.5
	= J	1.5
	b g * s	0.7
p # 0 X q ~ x 0 X z 2 20kV ! u (0 P V) l 8 K # h * tan*d* 4 2 2.5 z b g * s 8 K # K A B * $ { _ v + X z N 0 P V 8 K # - w 0 P 8 h * s A B " * | { 0 5 1 % O z		

7.2 m `

` 7-2 m `

		k a V

7.3 ; n

7 8 B n10kV y500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CSG 4-1.1.10 Q/CSG 4-1.2.6 m X z

1 > 6 2 o U &

N BDYCSY-ZW-06-01/01

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6

	A B x	C D	)	k 6
1	A c 0	q 0	! _	o U | X " f > $ 3 ! > = > 6 * O = 7 f l D c Q u v 6 N
2	/ X A B < 3 ^ ' 0 X	5 " K	! ^	! [A B | v Y w 8 0 u 0 X * \ ] w s A B m z
3	/ X A B < 3 ^ % 6 D 3	q 0	! /	! A B * | \ ` @ [u : 8 [4 < * [u b f z
4	A B n o a 5 > p	q 0	! ^	! n ` A B 5 + d V \ ` @ A B [: z
5	A B 0 u D H l	5 g K	! ^	! A B n o $ l 5 > p A ~ r s > 6 * O > t g V + X D z
6		5 " K	! ^	! } $ l \ 3 5 o z
7	$ t { SF_6 = J	^ \	! _	! A B n ` y * | H o U V W * O 5 > p * g V S 5 o V W | 4 { V W * 3 | 4 u n ` * a 4 F X * b (| E 0 z
8	SF_6 = J { |	= x y	! 4 [1 #	! / a : T / [: * o U V W / o U y * e \ > } * z
9	/ o U > D 6 D	2	! /	! o U V W Y y > } * D e • V 2 * N e \ 2 z
10	A B 5 a [u [u D b	5 g K	! _	! } h = > j k r 5 o * e \ 2 Y z
11	A B 5 E ? y > D 6 D	5 " K	! /	! A B V W e \ # 2 > D z
12	[A B 0 u y q 0	V W X Y	! /	! A B * | ! y 2 A) * { 0 * { 0 # [u : 4 < [u z
				! A B V W f n { = } z
				! p M H N g V 6 O (P Q E @ E o U < 3 ^ R S o U $ % z
				! X 0 = 2 o & * 2 - 4 Q > 6 *] 6 D z
				! A B ' \ ` @ * \ \ ([: d) * * + y [u : d (, * + - . 2 A / e

>) Q/: N 0
[1 Z 0 V W ,

4！"#$%&'

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1 Z [\ ]

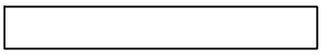
7 o U p q r Q GIS t HGIS yz

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s
2	DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0 0 = M * ys

3 0 1 a b





4 e f g h i j k l m

4.1 GIS(HGIS) Z [A B * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 >
& • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ GIS(HGIS) Z [A B " f o # n 0 1 4 5 > 6 2 o U & st N
BDYCSY-ZW-07-01/01 y* ' s - . / 0 + X (G * * \ l • 0 (4) T j Z (F) 2 T J T 0 0 5 2 5 2 f /


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CHINA SOUTHERN POWER GRID

>) Q/: N 0
[1 Z 0 V W ,

X Y

1 % 53
2 ; 53
3 o U \ 3 53
4 > 53
5 o U • 55
6 o U a 55
7 7 8 k 6 ! B ~ • 56

1 Z [\ ]

7 o U p q r Q b c d G e f g Y z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s
2	DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0 0 = M * ys

3 0 1 a b

c3-1 01 /d!abc 4 efghijklm 4.1 bcdG0fgYZ[AB4*62Q5M67!Q5oUe



4.4 e f . / 0 1 . / (M & / 0 < = S [10 10

0 1 / 0 V X 6 o

4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	A B 5 a [u [u D b	5 K L	_	A B * | \ ` @ [u : 8 [4 < * [u b f

\

A B

3	{ 0 3 B v			1	
4	>		D	1	
N 2 Y ! v Y v J 2 3 8 $ J z					

6 0 1 # u

6.1 $:

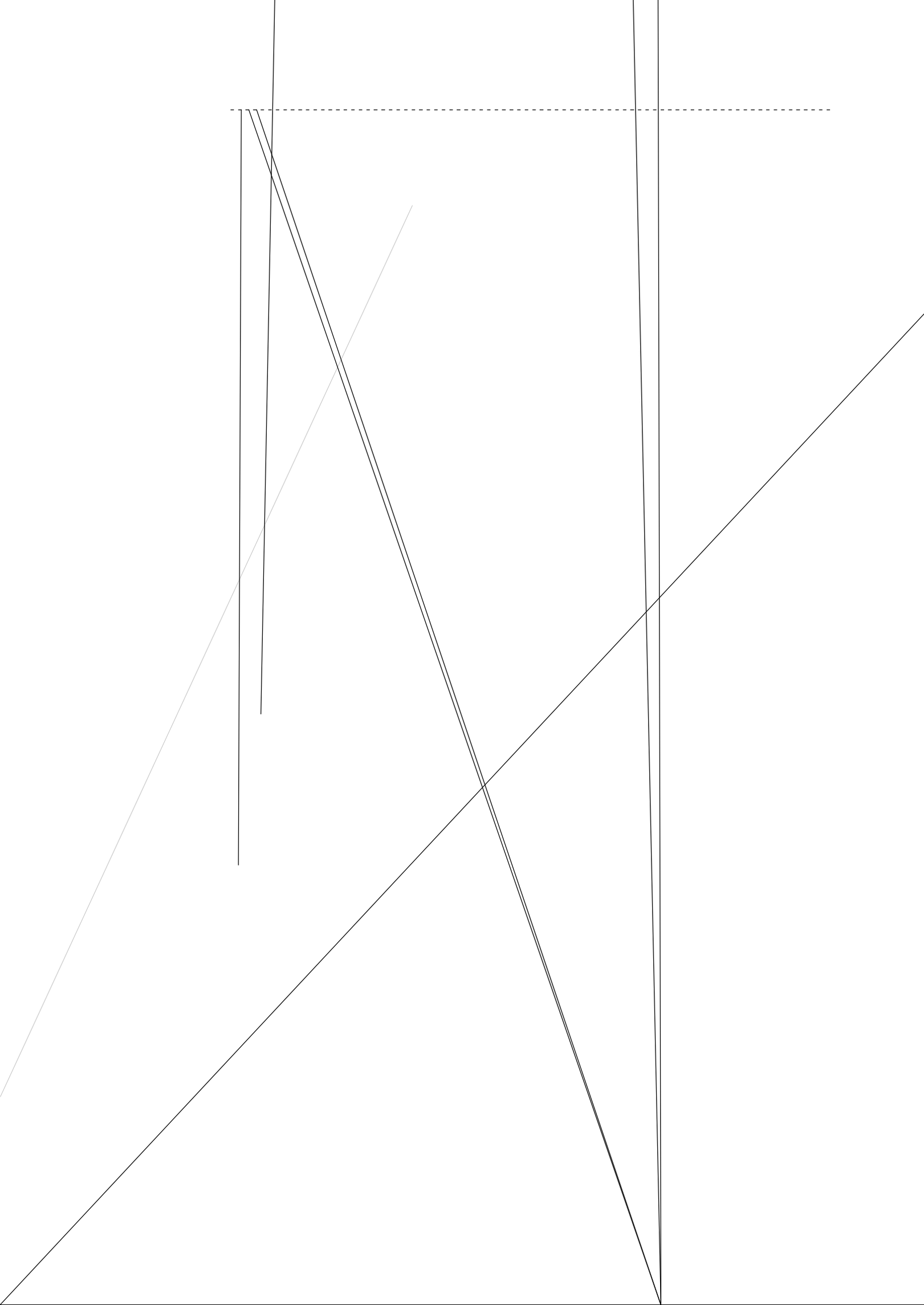
0 v w A R S f g Y 7 J A 0 # 0 v w A * J O P • 6-1 z

` 6-1 $:

	2 o O P	5 o ! 2 M
1	O { 0 v 0 v @	s * 0 v 9 : { H * A B 2 0 v 7 W + X @
2	8 [w A : A [u :	0 v # [u A f g Y # u : 8 [* } K # 8 [: [3 A f g Y w 8 M t y [(K y
3	n ` w 8 * O O % & w 8 ' 2	b F 0 v * 2500V w 8 f g Y 7 J A 0 # 0 v O 60s # w 8 O % &
4	} % w 8 * A A ; { 0 O [u	} % w 8 * A A ; { 0 O [u

6.2 a **1mA** $ T **0.75U_{1mA}** $ a :

R S N w



1 > 6 2 o U &

B 8 **BDYCSY-ZW-08-01/01**

2 o y	2 o u 7	= > W	> W	+ d V
> * ! k 6				

A B x C D) k 6

>) Q/: N 0

X Y

1	%	61
2	;	61
3	o U \ 3	61
4	>	61
5	o U •	62
6	o U a	63
7	7 8 k 6 ! B ~ •	64

	A B x	C D	)	k 6
5	[A B 0 u y q 0	V W X Y	/	X 0 = 2 o & * 2 - 4 Q > 6 *] 6 D
6	A B 0 u D H l	5 K L	^	A B | v Y w 8 0 u 0 X * \ ] w s A B m
7	A B 5 E ? y > D 6 D	5 K L	/	E ? y 2 o V W 6 O (P g V p M E ?
8	T x y	9 x y 2 o x y	^	f z T { | } T ~ ^ ? { l 7 • L
9	/ X A B < 3 ^ % 6 D 3	V W X c	/	A B n ` y * | H o U V W * O 5 >

6.6 F y z } tan*d*

6.6.1 A B y * K v / X A B : } a * D 0 h Y 5 J [q z

6.6.2 % & f A B y # ' (*) < " ' (y * D | Q # 1.3 G z w 8 2 * | H I J 8 K q : K 8 K * L M 8 K # N { | 0 \ z w 8 $ { " 2 ? (_ # : = + X z

6.7 F y z a $ a w 8 { | 0 \ y $ { / X O * w 8 | " 2 ? (_ # : = * O % & ' (* { | 0 \ D ; < Z [~ • # $ l z

6.8 V a T : ;

{ 0 h Y # : + X Z \ q X A B * 4 u 4 6 2 P 0 X # A B a * V 4 u ^ | 0 X # A B a z W 8 X o Y Z ^ | q X A B a V * 4 L M A B 5 P 8 z 0 X) { 110kV ! u (# 0 h Y ^ 3 7 $ [+ X Z \ q X A B z A B 0 X ! | } Z [~ • + X z 0 h Y Z \ q X A B y * | H 8 K TA D n ; z

6.9

6.9.1 @ = J C 0 Y > ? f * 500V 0 v @ = J C 0 Y q 7 * F v = J C 0 Y A B * @ = J C 0 Y q 7 s b f z

6.9.2 @ g b f * H 0 Z X g * g r e \ Z b f W X \ 0 g &' • ! "

6

Y 6 6 * bf g Z

t 3 y 0 h Y 0 X) 35kV ! u (, P 8 { 4000kVA ! u (y * | w 8 z h
" | + k * { ' v | D Q 1.3 \ R_{60s}

7.3 ; n

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CSG 4-3.1.1 Q/CSG 4-3.2.1 Q/CSG 4-4.1.1 y 4-4.1.10 Q/CSG 4-4.2.1 y 4-4.2.3 Q/CSG 4-5.1.1 Q/CSG 4-5.2.1 Q/CSG 4-6.1.1 Q/CSG 4-6.2.1 m X z -

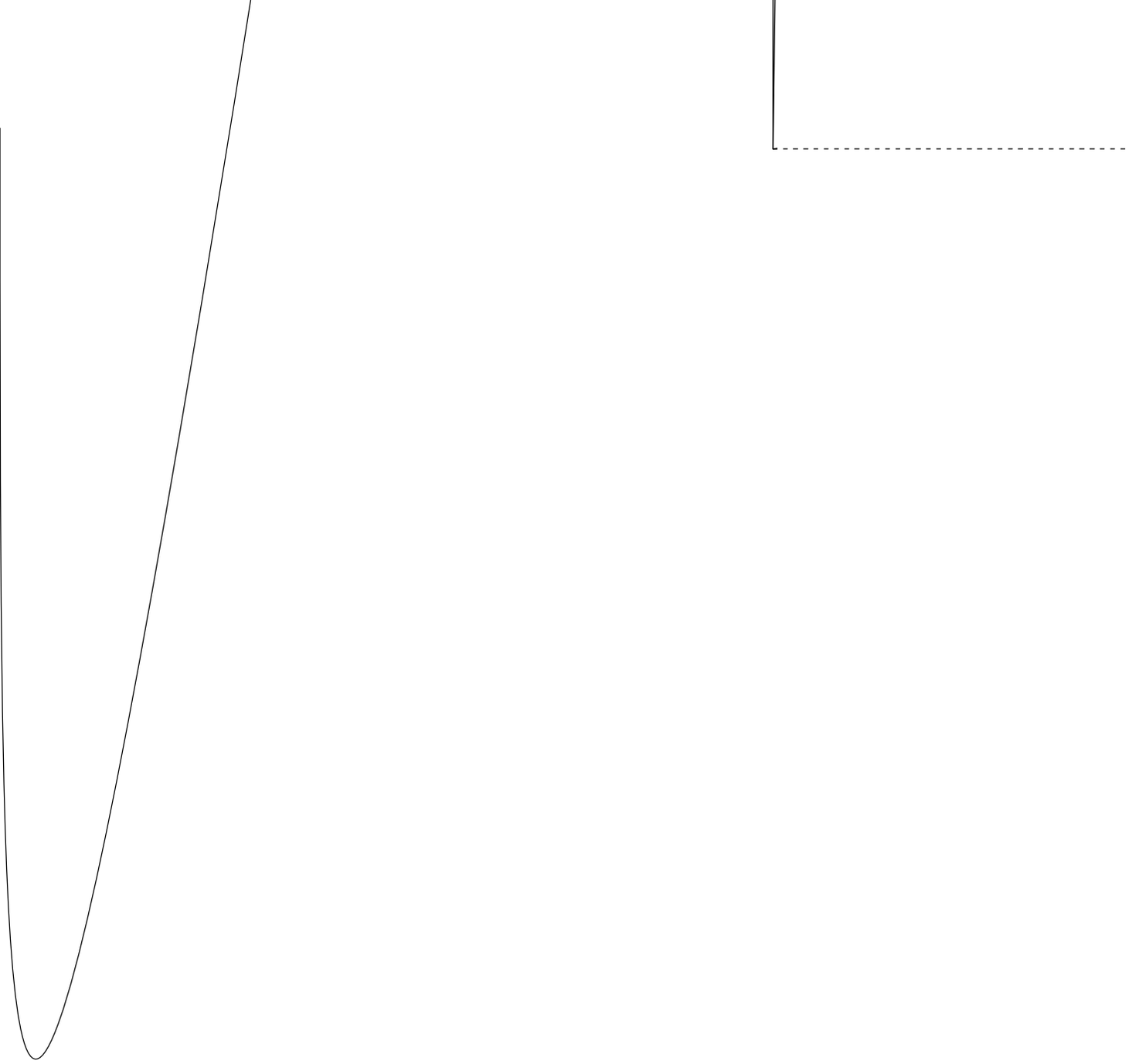
1 > 6 2 o U &

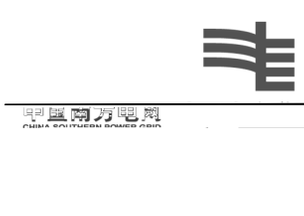
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2 o y	2 o u 7	= > W	> W	+ d V

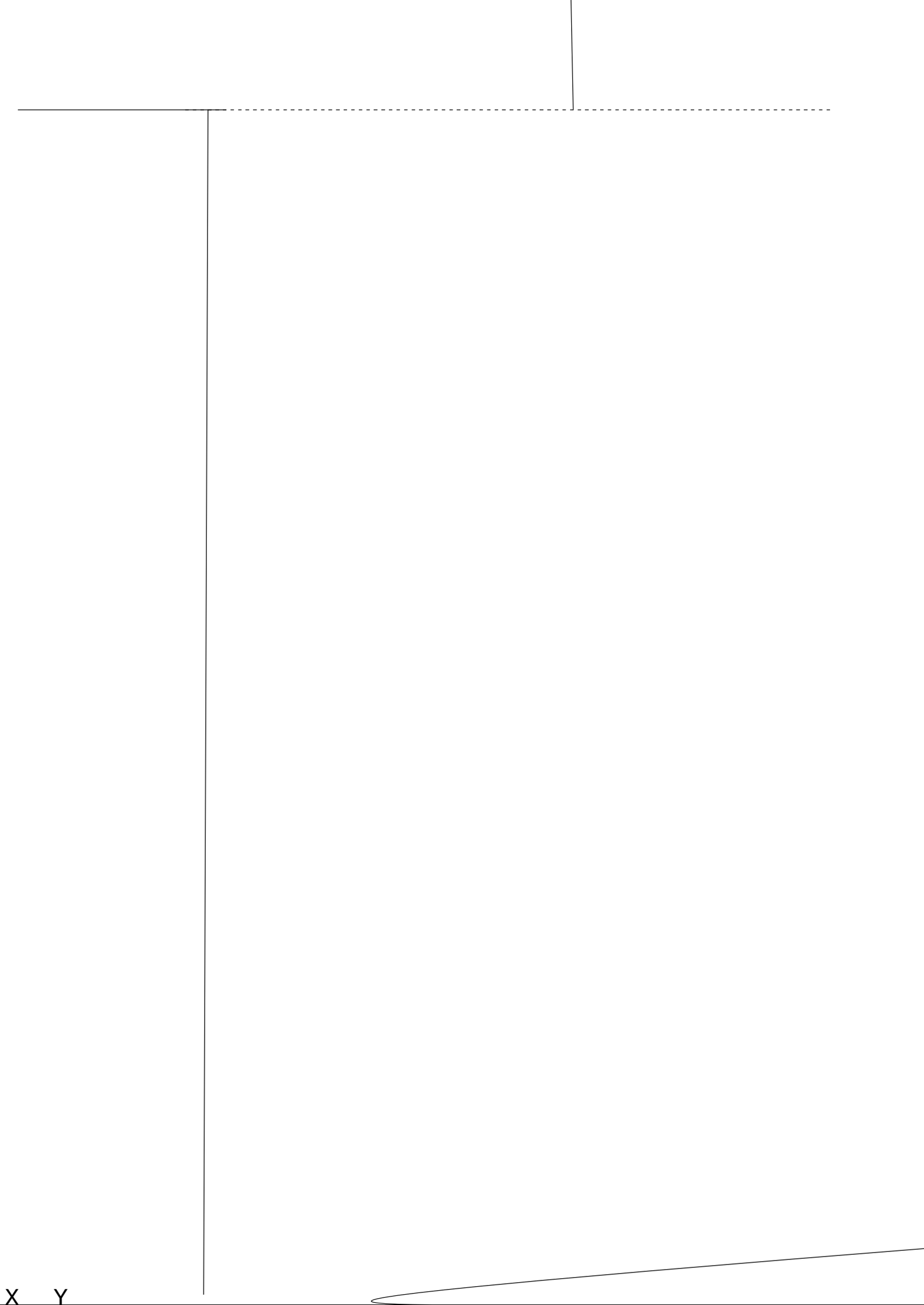
> * ! k 6

`	o * A B x	C D	)	k 6
1	A B n o a 5 > p	q 0	! ^	o U | X " f > $ 3 ! > = > 6 * O = 7 f l D c Q u v 6 N
2	/ X A B < 3 ^ % 6 D 3	q 0	! /	! A B | v Y w 8 0 u 0 X * \ ] w s A B m z
3	A c 0	q 0	! _	! { A B * 2 o V W h i j k r l * } m [: * O 5 2 o + d V * @ [: e \ 3 z
4	A B 5 a [u [u D b	5 g K	! _	! A B n o $ l 5 > p A ~ r s > 6 * O > t g V + X D z
5	8 K E ? F G D H	5 K L	! /	! A B n ` y * | H o U V W * O 5 > p * g V S 5 o V W | 4 { V W * 3 | 4 u n ` * a 4 F X * b (| E 0 z
6	/ o U > D 6 D	2	! /	! } $ l \ 3 5 o z
7	T x y	x y	! ^	! / a : T / [: * o U V W / o U y * e \ > } * z
8	A B 0 u D H l	5 g K	! ^	! o U V W Y y > } * * D e • V 2 * N e \ 2 z
9	/ X A B < 3 ^ ' 0 X	5 " K	! ^	! A B * | ! y 2 A) * { 0 * { 0 # [u : 8 [4 < * [u b f z
10		5 " K	! ^	! f z T { | } T ~ ^ ? { l 7 • L z
11	A B 5 E ? y > D 6 D	5 " K	! /	! A B V W e \ # 2 > D z
12	A B V W [: ^	5 g K	! ^	! p M H N g V 6 O (P Q E @ E o U < 3 ^ R S o U $ % z
13	[A B 0 u y q 0	V W X Y	! /	! } h = > j k r 5 o * e \ 2 Y z
				! X 0 = 2 o & * 2 - 4 Q > 6 *] 6 D z





4!"#$%&'


X
Y

1 Z [\ ]

7 o U p q r Q l m n f z

2 B L ^ _

` 2-1 B L ^ _

4

4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	A B 5 a [u [u D b	5 K L	_	A B * | \ ` @ [u : 8 [4 < * [u b f
2	A B V W [: ^	5 g K	^	{ A B 2 o V W h i j k r l * } m [: * O b 2 o + d V * @ [: e \ 3
3	A B n o a 5 > p	V W X c	^	A B n o $ l 5 > p A ~ r s > 6 * O > t g V + X D
4	[A B 0 u y q 0	V W X Y	/	X 0 = 2 o & * 2 - 4 Q > 6 *] 6 D
5	5 ? { ^ | 0	q 0	^	e \ > D
6	A B 0 u D H l	5 K L	^	A B | v Y w 8 0 u 0 X * \ ] w s A B m
7	A B 5 E ? y > D 6 D	5 K L	/	E ? y 2 o V W 6 O (P g V p M E ?
8	g h Z F M *	V W X c	^	A B \ ] g i j • + V 2 o
9	/ X A B < 3 ^ % 6 D 3	V W X c	/	A B n ` y * | H o U V W * O 5 > p * g V S 5 o V W | 4 { V W * 3 | 4 u n ` a 4 F X * b (| E 0
10	/ o U > D 6 D	V W X c	/	/ a : T / [: * o U V W / o U y * e \ > } *
11	/ X A B < 3 ^ ' 0 X	5 K L	^	} $ l \ 3 5 o
12		5 K L	^	o U V W y > } * z D e • V 2 * N e \ 2
13	F A B 6 D 3	X 5 " K	^	+ X F H " f 2 o V W * O > t V W + X D
14	A c 0	V W X c	_	A B * | ! y 2 A) * { 0 * { 0 # [u : 4 < [u

5 0 1 n o

5.1 M N p o

` 5-1 0 1 M N p o

2 x	4 2 o V	+ d V	D V
5 F g i A	3	1	1
; 0 v w 8	3	1	1
0 v w 8	3	1	1
Z \ q X A B	3	1	1
N o U V J 2 3 8 $ J z			

5.2 / U q r s U s ` p t

` 5-2 @ ? / U q r s U s ` p t

	x	$ /		8	
1	0 v		c		
2	; 0 v w A v				
3	Z \ q X A B ?		8		
N 2 Y ! v Y v J 2 3 8 $ J z					

6 0 1 # u

6.1

6.1.1 @ l m n f # , ? s t *] O } 0 5 b k E n 7 z

6.1.2 A B 2 o & d n f * V W A B # = > Z 0 > Z 0 d z

6.1.3 , ? 5 g h M * d > ? * g h + z

6.1.4 l m n f 0 = M * > ? ' * A B # z

6.2 | :

6.2.1 - . # 5 o 0 u * X Y A B 0 u I 0 u 0 X 3 l # 80 1 * 5 F g i 4 < * s z

6.2.2 - . # 5 o 0 u * X Y A B 0 u I 0 u 0 X 3 l # 110 1 * 5 F g i 4 < * s z

6.3 $:

b F w A v n ` w 8 * ~ w 8 H l * v Y p r + < G y * % & w 8 0 v z

6.4 $

6.4.1 s * 0 v 9 : { H * A B 2 0 v 7 W + X @ z

6.4.2 0 v # [u A # [u 8 [* } K # 8 [: [3 A # / X t y [(K yz

6.4.3 b F 0 v n ` w 8 * % & 60s y # w 8 z

6.4.4 } % w 8 * { 0 O [u z

6.5 T : ;

6.5.1 s 2 P q X ? : H { * [u 4 < [u z

6.5.2 A B < 3 ^ |) L v < G / 0 * A m n (/ 0 * | X * f > 6 O + X @ * @ / 0 \ l = @ A B % A B z

6.5.3 O O % & w 8 ! A B 0 X] X y z

6.5.4 } % w 8 * E n 0 u * A ; { 0 O [u z

7 m . r ; n

7.1 m .

7.1.1 w 8 l m n f q 0 ; # 0 v * $ 0 \ D Q 100A # \ X z w A ' 2 * D | ; < h = > # $ l z

7.1.2 Z \ q X A B z

` 7-1 **1min** / $ T & kV

l 0 X	3 / 2 o 0 X	l m n f			
				o J b g	
			Z [		Z [
35	40.5	100	100	100	90

` 7-1 t 9 y

l 0 X	3 / 2 o 0 X	l m n f			
				o J b g	
			Z [		Z [
66	69.0	165	165	165	148
110	126.0	265	265	265	240
220	252.0	495	495	495	440

7.1.3 @ 5 F g i : k # 3 _ F o 0 X * | w s k " # $ l z

7.1.4 5 F g i # A B | w s v p $ l N F W V 5 F g i # * s [5 o * \ 0 X = X { v p % y * |] O l m n f # [[u n f 4 < u * [A s [z

t 1 y 0 F g 5 F g i N \ 0 F g [: # 0 X { l 0 X # 80 1 y 110 1 % O y z

t 2 y X a = 5 F g i N \ = X { l = X # 85 1 y 110 1 % O y z

t 3 y t ? k : k A 0 t ? N \ : k [: # 0 X { l 0 X # 80 1 y 110 1 % O y z

7.1.5 l m n f + n f # g h 0 = ? | • \ 4 < z

7.2 m `

` 7-2 m `

	k 7	k a V		
		W	H	S
1	l m n f A B			
N 7 8 k 7 ^ H N } 2 ~ 7 W N • O 7 S N 7 z				

7.3 ; n

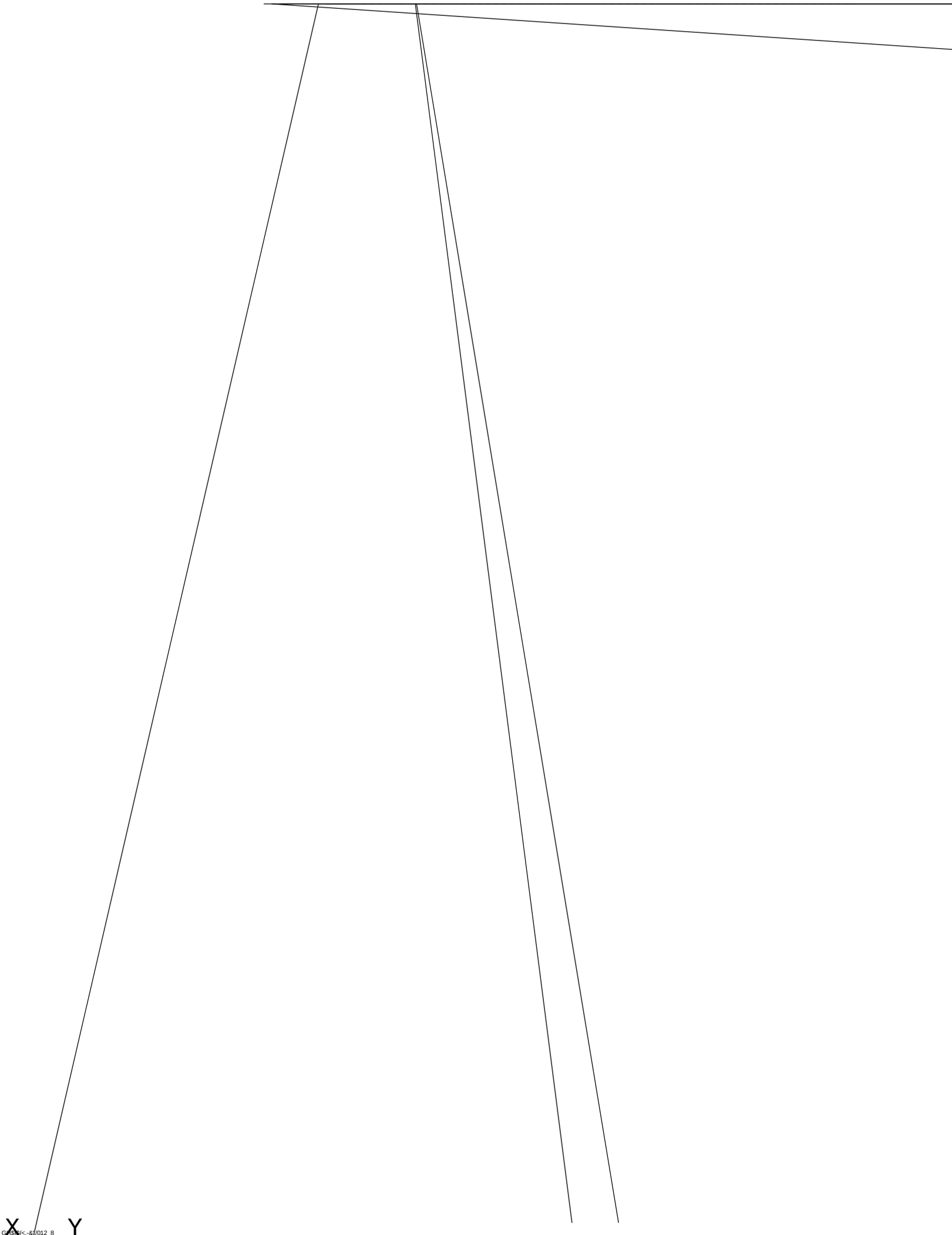
7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CSG 4-12.1.1 Q/CSG 4-14.2.1 m X z

1 > 6 2 o U &

B 8 **BDYCSY-Z**

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 ⁄ 8 y \ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 ⁄ 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z


X
Y

1 Z [\ ]

7 o U p q r Q O o 0 W 0 P Y z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s
2	DL 408

t 2 y 0 P w 8 v s J z
t 3 y w 8 y v | 9 : { z

7.1.2 0 v w A N

t 1 y A B v Y { l b 1 _ O z
t 2 y 0 v O { | > | 9 : { H z
t 3 y A B 2 0 v + X A ; n ; w A @ z
t 4 y @ A s t * N | _ G f _ z
t 5 y A B # q : | D 8 : K : z
t 6 y \ ` @ w A : A [u : # 8 [* @ 0 v # 9 [: z
t 7 y % 0 v _ * q d 0 X _ z

7.1.3 Z \ q X A B N

t 1 y 4 A B v Y { l b 1 _ O * s t e z
t 2 y A B y : = | * ? (D $ Q 85 1 z
t 3 y A B 0 u H l * q X 0 X e \ z
t 4 y 4 A B v Y O { s L H o z
t 5 y A B [: e \ n o 4 < * 0 z s L * / X : x (s L * / X : u " 5 b @ V U m z
t 6 y F X y |] < A B 0 X y] 6 1min z
t 7 y A B ' * 2 5) * { 0 z

7.1.4 s [A B N l 0 1 0 X + X @ | s * 4 5 Z s t z

7.1.5 0 P Y R ^ 4 " 0 P # 3 A 3 > * D | ; < 1.08 z

7.1.6 0 v D _ Q 2000 " Ω z

7.1.7 Z \ q X A B < 3 ^ | + m n (/ 0 * { A B $ l 0 X v A B y 1min H < z

7.1.8 O o 0 P Y R l 0 1 0 X 4 " 0 \ | : * D ; < 5 1 * 0 P Y | + (o z

7.2 m `

` 7-1 m `

	k 7	k a V
	W	H W +

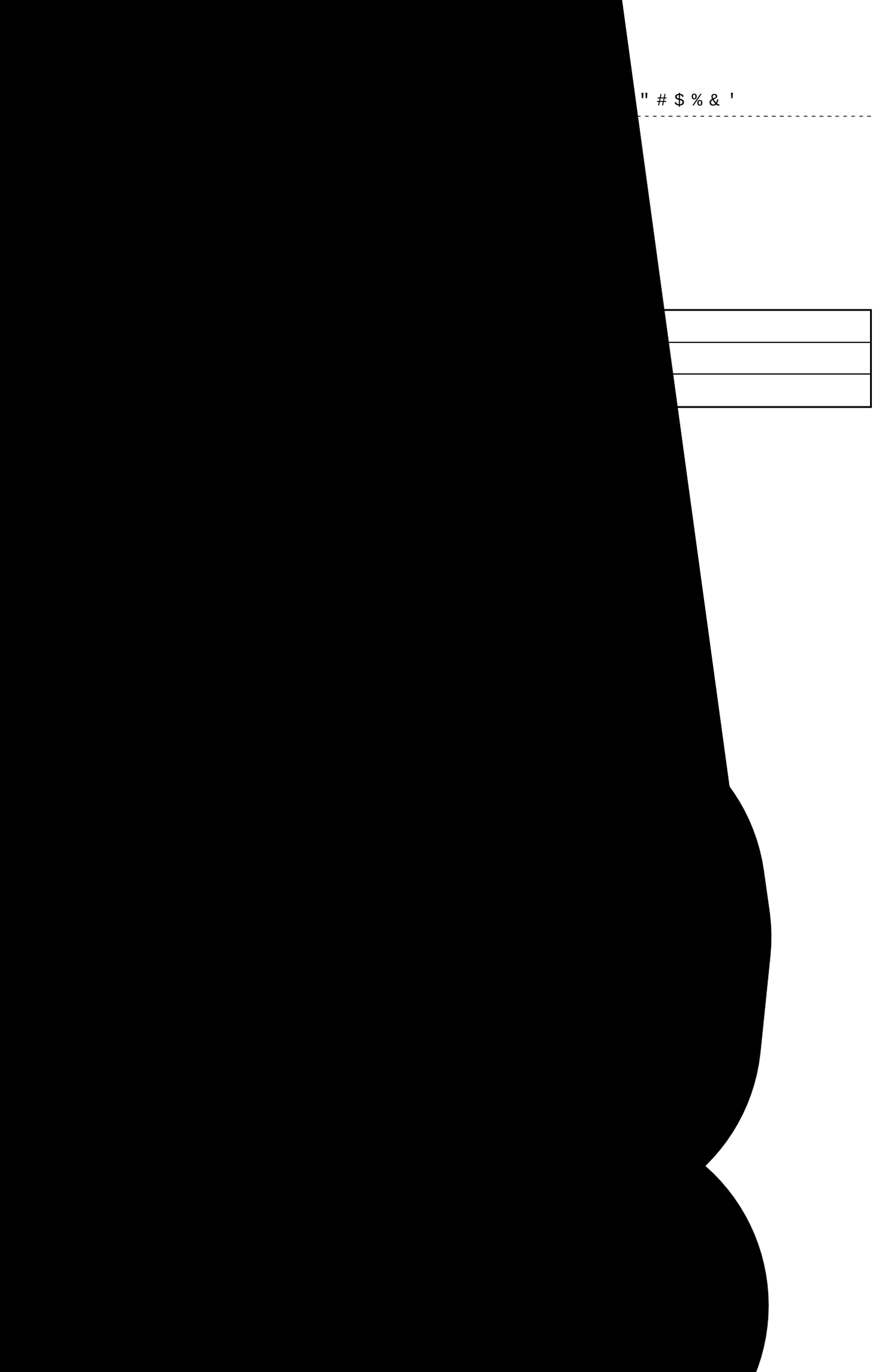
7 k

>) Q/: N 0
[1 Z 0 V W ,

.2 0 183.3624 233.76 0.

X Y

1 % 81
2 ; 81
3 o U \ 3 81
4 > 82
5 o U • 83
6 o U a 83
7 7 8 k 6 ! B ~ • 83



4 e f g h i j k l m

4.1 p : Z \ q X A B * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > &
• p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z
4.2 n p ` s ^ p : Z \ q X A B " f o # n 0 1 4 5 > 6 2 o U & st N
BDYCSY-ZW-12-01/01 y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o
U & * > W * * 6 2 + d V , ' z
4.3 6 2 + d V * 2 k 6 *O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U
V W + d > 6 2 - 3 4 o U e " A - ^ z
4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 :
= @ > L o U & * { 2 o (Z Q M] ? @ z 6 2 'M M Z M 2

5.2 / U q r s U s ` p t

` 5-2 @ ? / U q r s U s ` p t

	x	$ /		8	
1	V 0 v		V	1	
2	q X 5		8	1	
N 2 Y ! v Y v J 2 3 8 $ J z					

6 0 1 # u

6.1 $

6.1.1 E n p : # 0 u * (, E n 2 4 # , 8 : * O [u { 0 z

6.1.2 0 v { : H * 0 v # [u E A # [u " 8 * { } b K : # w 8 q : # : A K : * 0 v # w 8 L ! K G " 8 [t w A \ " y * " A [[u y z

6.1.3 [: * ~ 0 v H l * O 0 v z

6.1.4 O 0 v # * } % 0 v 2 A # # w 8 O E n [: * : 2 A + X) * { 0 z

N \ F 0 v y * N F 0 v < l r t 120r/min y* S y * 0 v p 1 | p * : [< A * ~ p 1 H l * O 0 v # z O 0 v # * N E n [< A # : * : 0 v } % Z r * 3 2 A + X) * { 0 z

6.2 V a T : ;

6.2.1 q : F X < X Y X Y 0 X 0 \ [: + X e \ 8 [* : @ [: M 5 e \ + z

6.2.2 F X | @ X Y M 5 { R z F X < 3 * | b f v] X < 3 ^ * | 8 / X ; * A z

6.2.3] < A B 0 X } . 1min * O { | 0 \ O % & * _ A B 0 X < R z 2 P Z \ q X A B * | N X Y < R * : E n A B 0 u * E n [< A # q : * w 8 A B " # 0 v z 4 " A B a " z

7 m . r ; n

7.1 m .

7.1.1 0 v w 8 7 8 • O 7 z S * { ? (# # v + X w 8 y * 4 { A N] 0 K z S y { [: (H * A (# K | [ ] X # / X : m [u M * * L M K 2 u # N { | * u z " 0 v < z

7.1.2 { | 0 \ < G Q 7 8 • O 7 * A B < 3 ^ * a = ? (' (N x * Q A N a = { 0 * { | 0 \ D H l * | I J _ • L + X A B z \ { | y | _ I J # 0 E r A N # x * y 4 N T \ # r G 8 K N # B z

7.1.3 \ A b g * A B | q * ' b ' * 6 \ D b * | ! y • L * : A B z

7.2 ; n

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # m X z

1 > 6 2 o U &

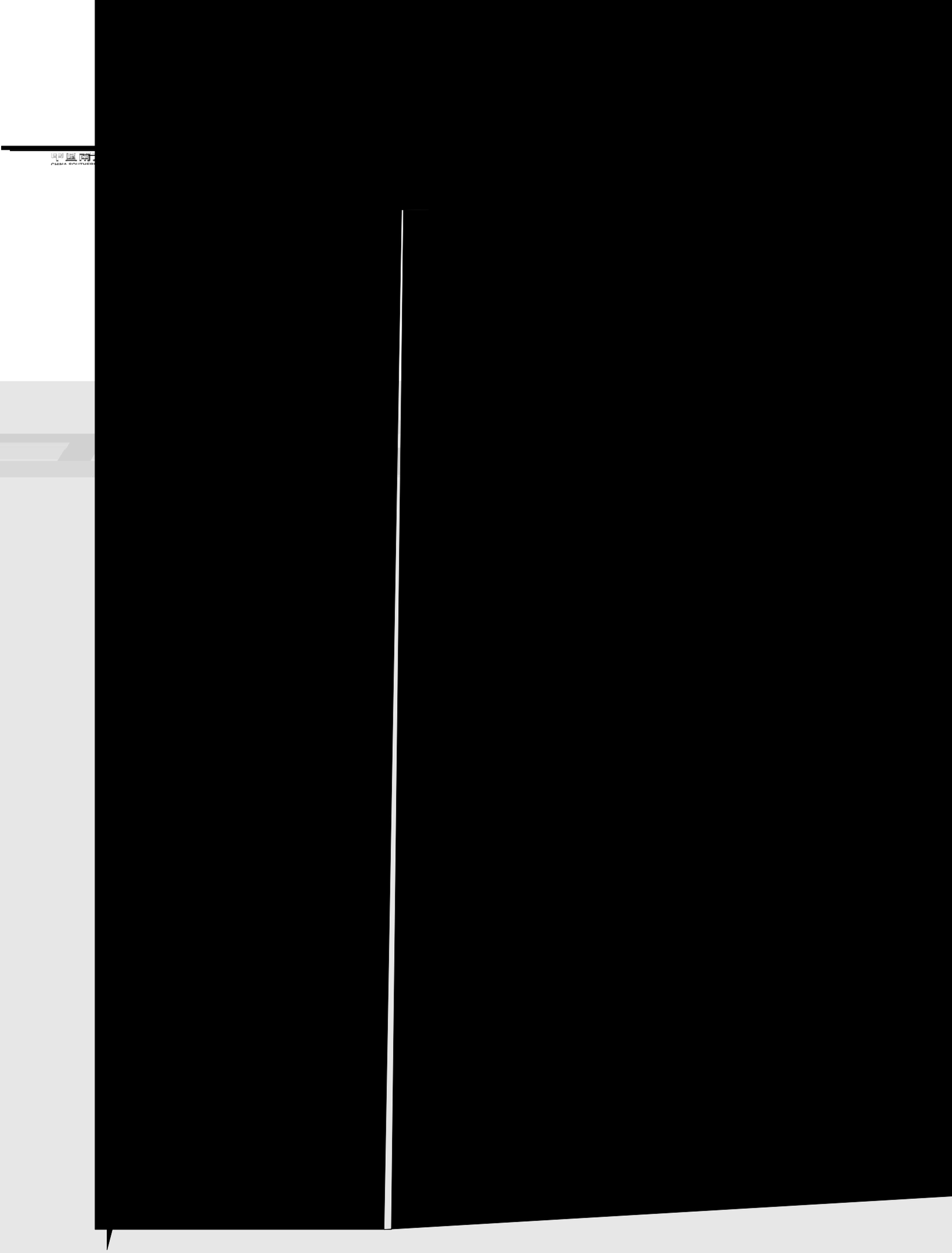
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2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6				
	A B x	C D	)	k 6
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2	/ X A B < 3 ^ % 6 D 3	q 0	! /	! A B * | \ ` @ [u : 8 [4 < * [u b f z
3	A B n o a 5 > p	q 0	! ^	! [A B | v Y w 8 0 u 0 X * \ ] w s A B m z ! { A B 2 o V W h i j k r l * } m [: * O 5 2 o + d V * @ [: e \ 3 z
4	/ o U > D 6 D	2	! /	! A B n o $ l 5 > p A ~ r s > 6 * O > t g V + X D z
5	A B 5 a [u [u D b	5 g K	! _	! A B n ` y * | H o U V W * O 5 > p * g V S 5 o V W | 4 { V W * 3 | 4 u n ` * a 4 F X * b (| E 0 z
6		5 " K	! ^	! / a : T / [: * o U V W / o U y * e \ > } * z
7	A B 5 E ? y > D 6 D	5 " K	! /	!] > [u : z ! A B * | ! y 2 A) * { 0 * { 0 # [u : 4 < [u z
8	/ X A B < 3 ^ ' 0 X	5 " K	! ^	! A B V W e \ # 2 > D z ! X 0 = 2 o & * 2 - 4 Q > 6 *] 6 D z
9	[A B 0 u y q 0	V W X Y	! /	! A B ' \ ` @ * \ \ ([: d) * * + y [u : d (, * + - . 2 A / e
10	5 ? { ^ | 0	q 0	! ^	

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6
O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' <
7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) >) > #



1 Z [\ ]

7 o U p q r Q r s 0 P Y z

1 GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s

2 DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0 0 = M * ys

3 0 1 a b

4.3 6 2 + d V * 2 k 6 * O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z

4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	A B 5 a [u [u D b	5 K L	_	A B * | \ ` @ [u : 8 [4 < * [u b f
2	A B n o a 5 > p	V W X c	^	A B n o $ l 5 > p A ~ r s > 6 * O > t g V + X D

3

6 0 1 # u

6.1 $:

0 v w A R S w 8 r s 0 P Y 0 v r s 0 P Y _ X 2 u 0 v z

` 6-1 / 0 < = 0 r /

	2 o O P	5 o ! 2 M
1	O { 0 v 0 v @	s * 0 v 9 : { H * A B 2 0 v 7 W + X @
2	8 [w A : A [u :	0 v # [u A # u : 8 [* } K # 8 [: [3 A w 8 M t y [(K y
3	s # w 8 0 X	0 v # w A 0 v 2500V J 2 u 0 v w A 0 v 1000V J
4	n ` w 8 * O O % & w 8 ' 2	b F 0 v n ` w 8 0 v * O 60s # w 8
5	} % w 8 * A A ; { 0 O [u	} % w 8 * A A ; { 0 O [u

6.2 **tand** r $ = :

` 6-2 **tand** r $ = :

	2 o O P	5 o ! 2 M
1	O { K v v Y [u	s K v : H { * v Y [u 4 < [u
2	" | # A B a 0 A B [:	| } A B [: r H v Y j k r * A B g 8 [: A B
3	n ` w 8 * O O % & w 8 ' 2	b F K v + X w 8 * O O % & w 8 ! A B 0 X
4	} % w 8 * E n K v 0 u * A A ; { 0 O [u	} % w 8 * E n K v 0 u * A A ; { 0 O [u

7 m . r ; n

7.1 m .

7.1.1 0 v w A z

t 1 y e \ O { 0 v @ 0 v s t * 0 v O { \| > * O { \| 9 : H o * A B 2 0 v + X A ; n ; w A @ z

t 2 y 8 [\| n o 4 < % w A : D b 0 v # 9 D q [^ * A B # q : \| D 8 : K : * \ ` @ w A : A [u : # 8 [* @ 0 v # 9 [: z

t 3 y] 6 \ 9 0 X H l H O y e \ * H 0 v _ * q d 0 X _ * H v p r w 8 y \| e \ z

t 4 y \ ] A d $ 0 { 0 * %) 0 0 { 0 K L 0 v " V W X B * H v r d { 0 ' * u A A ; [u z

7.1.2 tand ! 0 P 8 w A z

t 1 y H . / X : # u ! A 5 8 [# (6 @ m z v Y { \| > : H *] O . / X : # u ! A 5 8 [# (6 @ m z

t 2 y e \ + X A B [: * H / X w A : _ A 5 [u M U m < / R w A ' 2 z e [* / X : x (s * 0 z s L *] 6 e J b @ V # U m z

t 3 y H e \ [: a * e \ # A B 0 X z e [* e [10kV A B 0 X z
t 4 y z XXT Dv (XX)v XTj 4y 0 F 1 7 2 0 . 5 6 0 T o + 1 1 0 . 5 6 T f 1 0 . 5 6 0

>) Q/: N 0
[1 Z 0 V W ,

>W/F1 9.15+3 Tf18.24 re8080 #$/F1 9.15+2 Tf18.24 080 6D/F1 9.15

X Y

1 % 93
2 ; 93
3 o U \ 3 93
4 > 93
5 o U • 94
6 o U a 95
7 7 8 k 6 ! B ~ • 96

1 Z [\ ]

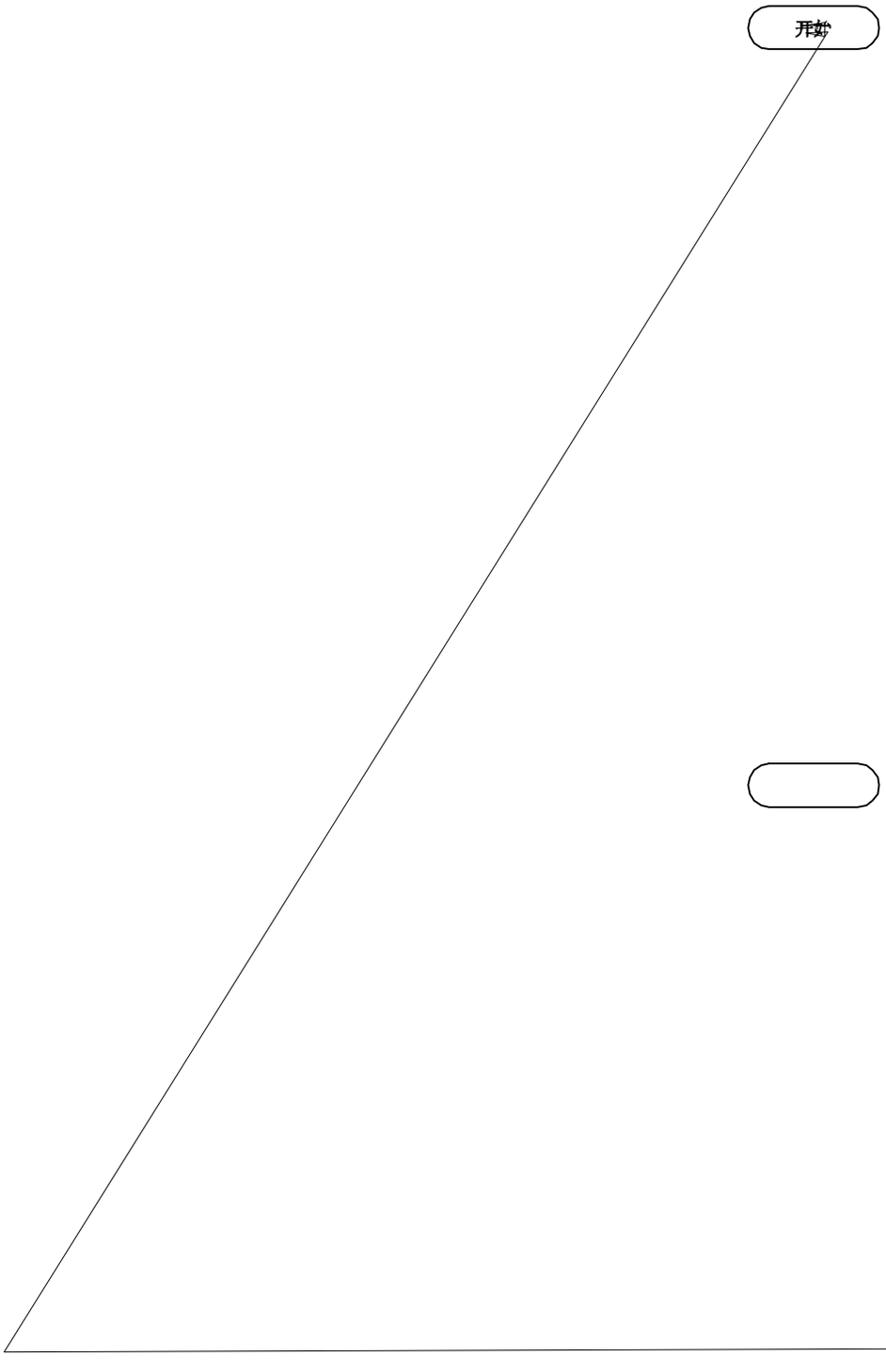
7 o U p q r Q _ V < X Y z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s
2	DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0 0 = M * ys

3 0 1 a b



V W + d > 6 2 - 3 4 o U e " A - ^ z
4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 :
= @ > L o U & * { 2 o (Z Q M] ? @ z

4-1 o U e " > & • p `

A B x C D) k 6

5.2 / U q r s U s ` p t sUs`

6.3.1 \ 0 v w A v # 8 w 8 : IB UB I– U– [{ < X Y ~ R e H " : ^ : A e H , " : (t " Y o ' + ^ 3 7 w : 0 v * b ^ 3 7 w " 0 v " D o ' * ! w " 0 v * 9 • A w : 0 v y* IB UB , R * I– U– , R * < X Y \ 0 v w A v F " w 8 / X # ~ R 4 J _ X # ~ R # " 0 v t \ 0 v y* b * [# ~ R b * [b | w A z

6.3.2 [f w A : * : n v Y 0 u n f 2 A ~ R) 0 * O r # w 8 *% & A B ' 2 A ~ R ' (z

6.4 V a T : ;

6.4.1 Z \ X Y t X j y A b w 8 ~ R # A B < X Y R s A B q 0 u P Q 50Hz * 0 X • | W 4 q [e • z

6.4.2 w ' k [u * / X ~ R _ X ~ R : A [z

6.4.3 / X # ~ R q X A B z A B < X Y / X A B : [< / X ~ R * _ X # ~ R ! C D A o , O A [[u z

6.4.4 _ X # ~ R q X A B z A B < X Y / X A B : [< _ X ~ R * / X # ~ R [u ! C D A o , O A [[u z

6.4.5 X Y 4 5 A A B < X Y / X ~ R [u z

6.4.6 w 8 %& A ~ R # A 0 v * A 2 A) * { 0 z

6.4.7 A B y * 3kV/s # F X (: H # XQ*Tf1 0 0 12 49.02 Tm0 0 0 1 Tf1 0 0 1 Tj0 T].10.56 0 TD (X) Tj 10.56 0 TD (#) Tj 10.56 0 TD (5) Tj 10.56 0 TD (+5 10.56 Tf10.56 0 TD (o) T

>) Q/: N 0
[1 Z 0 V W ,

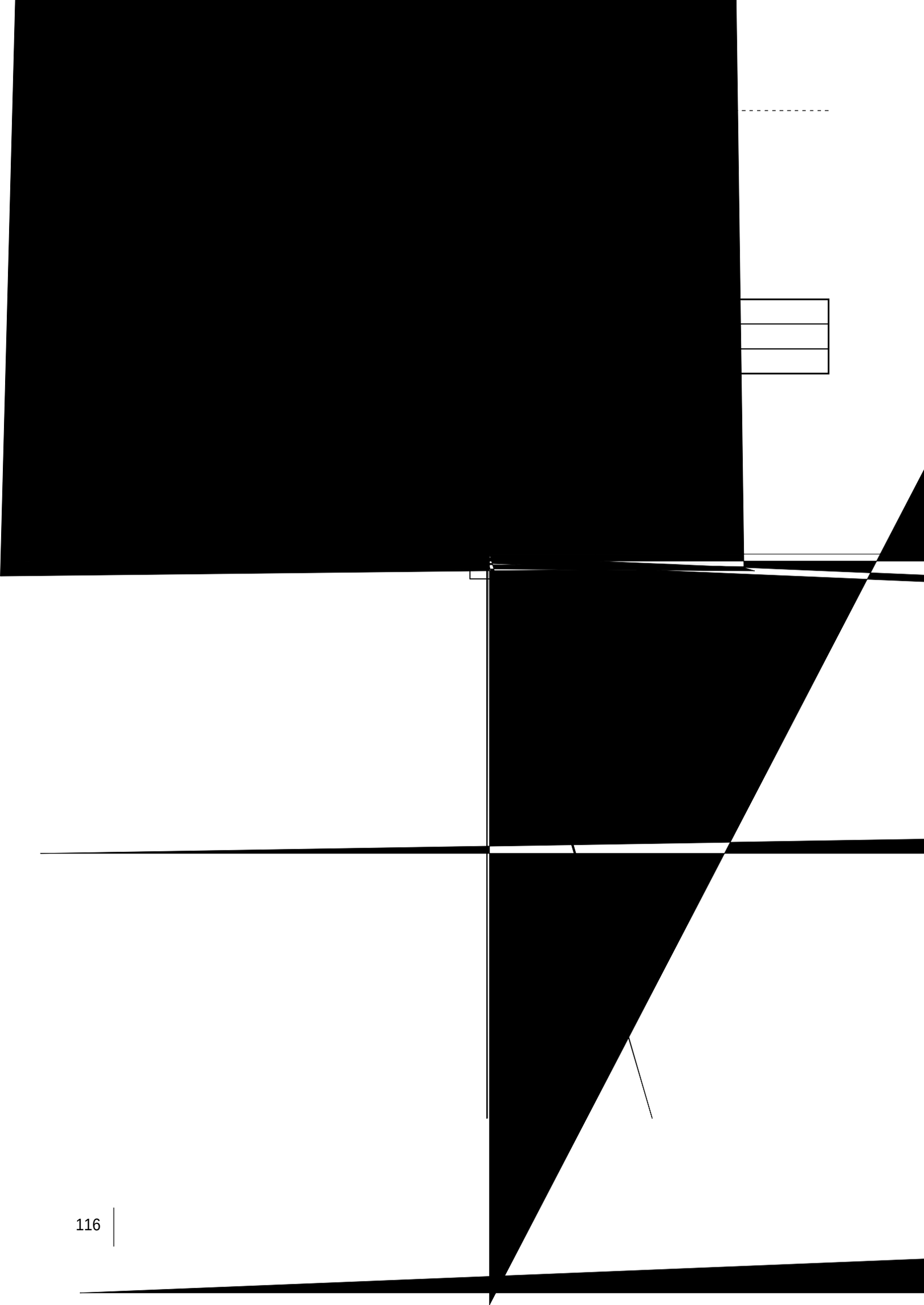
j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 zt 8 y\ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 zt 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z

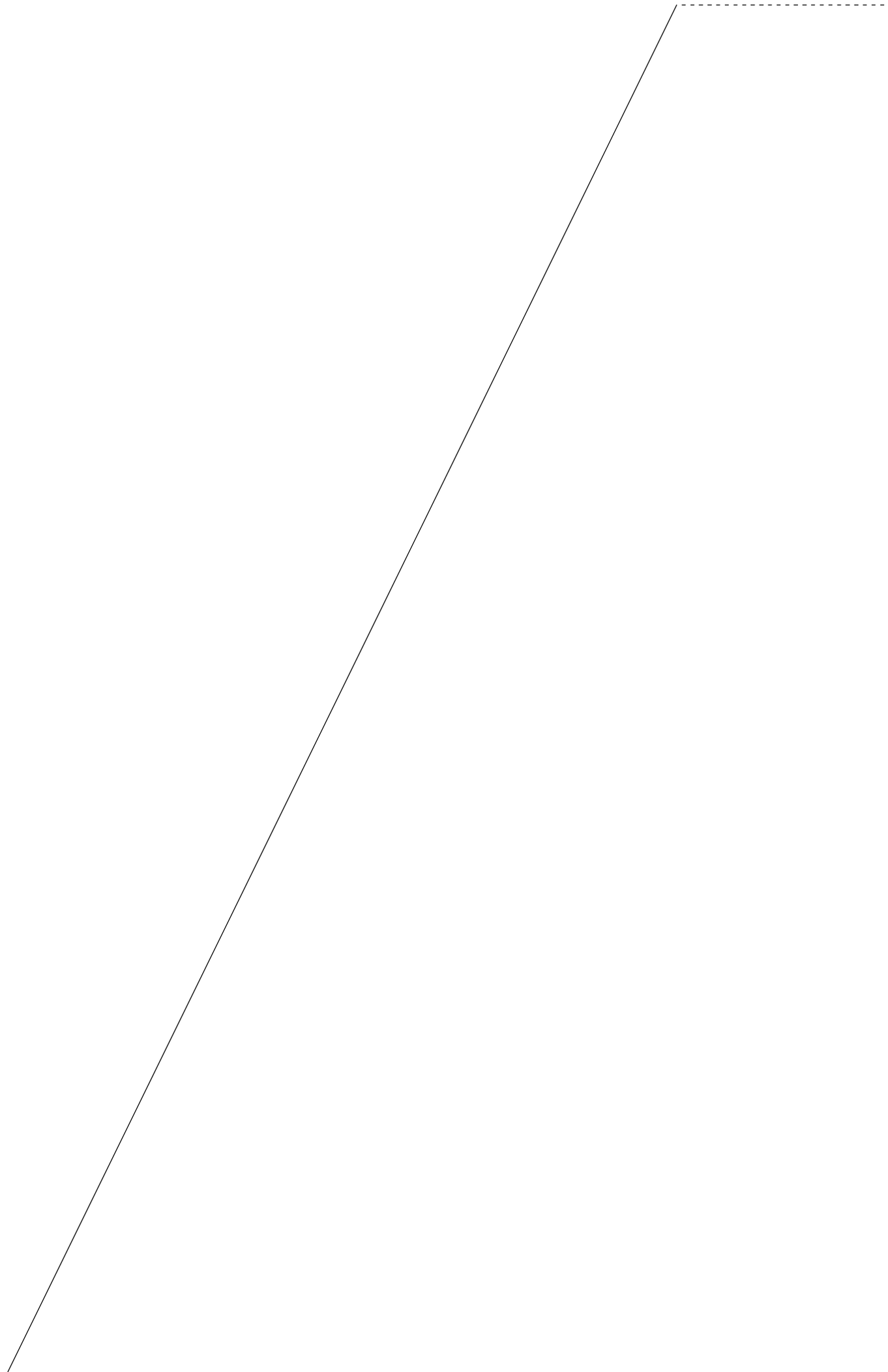


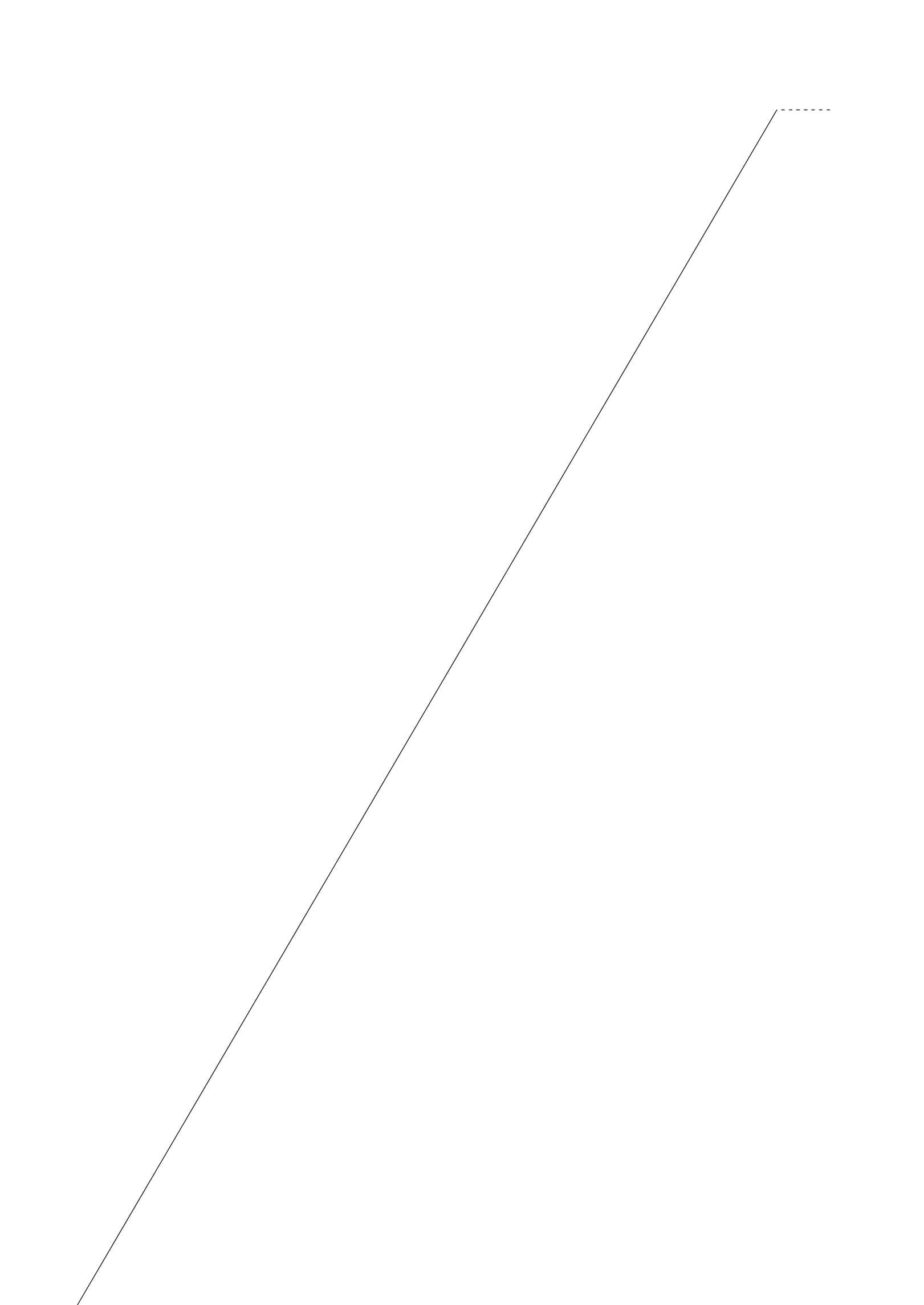
X Y

1

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1 > 6 2 o U &

N **BDYCSY-ZW-15-01/01**

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> * ! k 6				

	A B x	C D	)	k 6
1	A c 0	q 0	! _	
2	/ X A B < 3 ^ ' 0 X	5 " K	! ^	
3	5 ? { ^ | 0	q 0	! ^	
4	A B 0 u D H l	5 g K	! ^	
5	A B n o a 5 > p	q 0	! ^	
6	A B V W [: ^	5 g K	! ^	
7	g h Z F M *	X 2	! ^	
8	F A B 6 D 3	5 " K X	! ^	
9	$ t { SF_6 = J	^ \	! _	
10	SF_6 = J { |	= x y	! 4 [1 #	
11	/ X A B < 3 ^ % 6 D 3	q 0	! /	
12	/ o U > D 6 D	2	! /	
13	A B 5 a [u [u D b	5 g K	! _	
14		5 " K	! ^	
15	A B 5 E ? y > D 6 D	5 " K	! /	

>) Q/: N 0
[1 Z 0 V W ,

L 4 M * 0 = A B

$ = Q $ T U : ; 0 1 2 3 4

NBDYCSY-ZW-16

X Y

1 % 107
2 ; 107
3 o U \ 3 107
4 > 108
5 o U • 109
6 o U a 109
7 7 8 k 6 ! B ~ • 110

1 Z [\ ]

7 o U p q r Q 0 P V 0 X] ^ Y z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 >?

4 e f g h i j k l m

4.1 0 P V 0 X] ^ Y Z [A B * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ 0 P V 0 X] ^ Y Z [A B " f o # n 0 1 4 5 > 6 2 o U & st N BDYCSY-ZW-16-01/01 y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o U & * > W * * 6 2 + d V , ' z

4.3 6 2 + d V * 2 k 6 *O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z

4-1 o U e " > & • p `

A B x C D) t

< wA	2	1	1
KwA	3	1	1
t？~RqX	3	1	1
NoUV J238$ J z			

5.2 /UqrsUs`pt

`5-2 @？/UqrsUs`pt

	x	$ /		8	
1	V 0v		c	1	
2	p1V		c	1	
3	" XY			1	
4	Z\B>		c	1	
5	< wAv			1	
6	AB TV			1	
7	KwAv			1	
N 2Y !vYv J238$ J z					

6 01#u

6.1 01

6.1.1 0X]^Yd >？ '*olno*4） @+(*~ IWe\z

6.1.2 t？[:A5 [u */X :a8[dfn*+ 5 f[u %^|q0z

6.1.3 6@AB+X*AB D b V#Z \4d0t _ z

6.1.4 b #w8v ！ Bs *O{ l$_Oz

6.2 :;#u

6.2.1 w80X]^Y, t？~R# 0vN 2500V 0v w8 0v 2500V 0v w8t？~R> ！2u# 0vz

6.2.2 0X]^Yt^ 0X d y# 3 @N AB: H0IA0X]^Y^ <XY# ,？~R8[* p1 tJ {{3 0#.561 10.56 Tf42 0 TD (^)110 T

7.1.1 w 8 4] ^ Y ~ R # 0 v * | w s v p $ l N] ^ Y # 0 v * w 8 , ? ~ R 2 t ? ~ R ! 4 5 4 t ? ~ R ! 2 4 5 # 0 v 0 v D $ _ Q 1000MΩ 0 v w 8 | 2500V 0 v z

7.1.2 @] ^ Y # " [: R A "] ^ Y :w#z w s v k s NR @

~ A kv1s 8 ,

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 zt 8 y \ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 zt 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z

$ Q $ T U : ; 0 1 2 3 4 vwNB

X Y

1 % 113
2 ; 113
3 o U \ 3 113
4 > 114
5 o U • 115
6 o U a 115
7 7 8 k 6 ! B ~ • 116

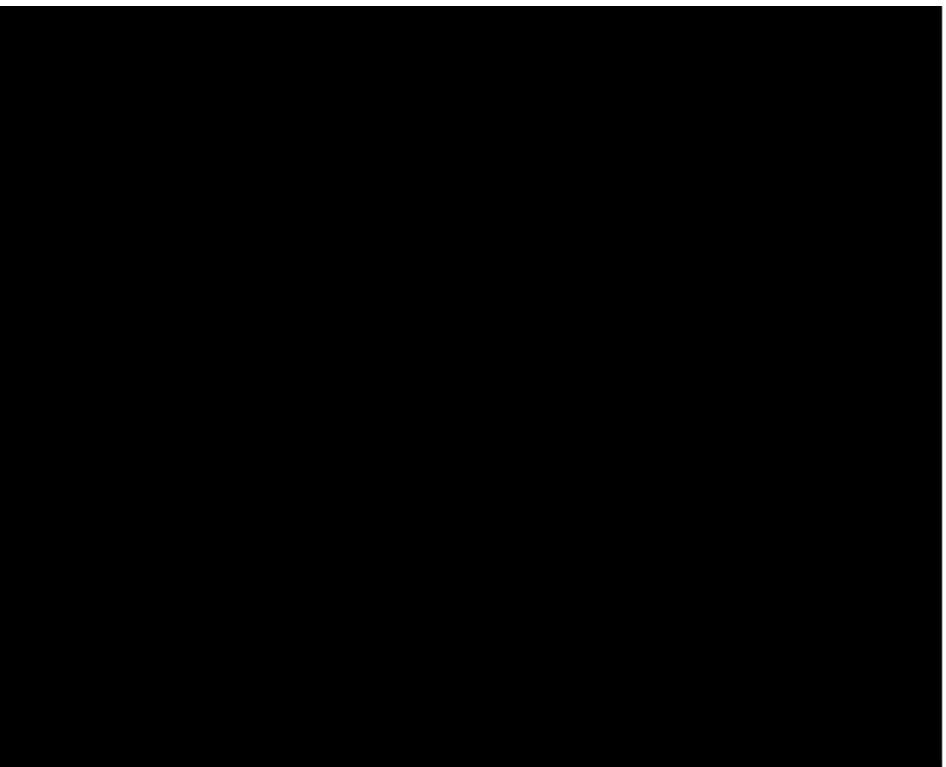
1 Z [\ ]

7 o U p q r Q 0 t V 0 X] ^ Y z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s
2	DL 408 1991 n 0 U > 2 o $ 3 t ' 0 A < 0 0 = M * ys <



4 e f g h i j k l m

4.1 0 t V 0 X] ^ Y Z [A B * 6 2 Q M ! Q o

@ t S 3 w A	2	1	1
K w A	3	1	1
t ? ~ R q X	3	1	1
N o U V J 2 3 8 $ J z			

5.2 / U q r s U s ` p t

` 5-2 @ ? / U q r s U s ` p t

	x	$ /		8	
1	0 v		c	1	
2	p 1 V		c	1	
3	" X Y			1	
4	Z \ B >		c	1	
5	< w A v			1	
6	A B TV			1	
7	K w A v			1	
N 2 Y ! v Y v J 2 3 8 $ J z					

6 0 1 # u

6.1 0 1

6.1.1 0 X] ^ Y d > ? ' * o l n o * 4) @ + (* ~ I W e \ z

6.1.2 t ? [: A 5 [u * / X : a 8 [d f n * + 5 f [u % ^ | q 0 z

6.1.3 6 @ A B + X * A B D b V # Z \ 4 d 0 t _ z

6.1.4 b # w 8 v ! O $

A B 0 X * + X K A 0 P w A z

6.2.7] ^ Y t ? ~ R Z \ q X A B z A B TV R F X ; * 6] t ? ; + X 2 u Z \ q X A B * A B 0 X 2500V A B y 1min * + { 0 o H < z

7 m . r ; n

7.1 m .

7.1.1 w 8 4] ^ Y ~ R # 0 v * | w s v p $ l N] ^ Y # 0 v * w 8 , ? ~ R 2 t ? ~ R ! 4 5 4 t ? ~ R ! 2 4 5 # 0 v 0 v D $ _ Q 1000MΩ 0 v w 8 | 2500V 0 v z

7.1.2 @] ^ Y # " [: R A "] ^ Y : # 3 * w s 5 3 m * O | * s (# ~ % A 4 5 (# w " w z

7.1.3 0 X] ^ Y ~ R # \ 0 v w 8 z , ? ~ R \ 0 v w 8 *) 3 , ' (v # * " D $ Q 101 t ? ~ R \ 0 v w 8 *) 3 , ' (v # * " D $ Q 151 z

7.1.4 < @ z w # < | * s (# " w * 2 #] ^ Y * 4 c @ * [# < z

7.1.5 0 t V 0 X] ^ Y # @ t Q : w 8 * | w s v p m N

t 1 y Q @ t Q : w 8 # v a ! * ' w 8 ' 2 A B A V A B b " t 301 y y * | * 2 # v C D M 5 e \ z

t 2 y , U / 0 v * @ t Q : w 8 7 l 0 X # 201 501 801 1001 A 1201 z 2 Q ^ 3 7 [[u # 0 X] ^ Y t N [u y * 0 X) 35kV ! u v 0 X) # 0 X] ^ Y 3 / w 8 7 1901 0 X) 66kV ! u (# 0 X] ^ Y 3 / w 8 7 1501 z

t 3 y 2 Q l 0 X w 8 7 t 1001 y * @ t 0 \ D $ Q A B A V A B # w 8 # 301 * ? $ 0 X] ^ Y S 7 # @ t 0 \ D $ " 301 z

7.2 m `

` 7-1 m `

	k 7	k a V		
		W	H	S
1	0 t V 0 X] ^ Y A B	|		

NHN 7 8 k m 8 0 . 4 8 N M f 1 2 6 3 4 2 + (G 0 . 4 8 r e f d / F 5 + 1 9 . 1 2 T f 0 . 0 T D (

1 > 6 2 o U &

N **BDYCSY-ZW-17-01/01**

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6

	A B x	C D	)	k 6
1	A c 0	q 0	! _	o U | X " f > $ 3 ! > = > 6 * O = 7 f l D c Q u v 6 N
2	A B 5 a [u [u D b *	5 g K	! _	! A B * | \ ` @ [u : 8 [4 < * [u b f z
3	A B n o a 5 > p	q 0	! ^	! [A B | v Y w 8 0 u 0 X * \ ] w s A B m z ! { A B 2 o V W h i j k r l * } m [: * O 5 2 o + d V * @ [: e \ 3 z
4	/ o U > D 6 D	2	! /	! A B n o $ l 5 > p A ~ r s > 6 * O > t g V + X D z
5	A B 0 u D H l	5 g K	! ^	! A B n ` y * | H o U V W * O 5 > p * g V S 5 o V W | 4 { V W * 3 | 4 u n ` * a 4 F X * b (| E 0 z
6		5 " K	! ^	! } $ l \ 3 5 o z
7	/ X A B < 3 ^ ' 0 X	5 " K	! ^	! / a : T / [: * o U V W / o U y * e \ > } * z
8	/ X A B < 3 ^ % 6 D 3	q 0	! /	! o U V W Y y > } * * D e • V 2 * N e \ 2 z !] > [u : z
9	A B 5 a [u [u D b	5 g K	! _	! A B * | ! y 2 A) * { 0 * { 0 # [u : 4 < [u z
10	[A B 0 u y q 0	V W X Y	! /	! A B V W e \ # 2 > D z ! p M H N g V 6 O (P Q E @ E o U < 3 ^ R S o U $ % z
				! } h = > j k r 5 o * e \ 2 Y z
				! X 0 = 2 o & * 2 - 4 Q > 6 *] 6 D z
				! A B ' \ ` @ * \ \ ([: d) * * + y [u : d (, * + - . 2 A / e

N A B x , p ^ * } b * ~ % # * j k S A B { G H & 4 q ' < z

>) Q/: N 0
7y
[1 Z 0 V W ,

X Y

1 % 121
2 ; 121
3 o U \ 3 121
4 > 121
5 o U • 122
6 o U a 123
7 7 8 k 6 ! B ~ • 125

1 Z [\ ]

7 o U p q r Q u 1 [u 0 v w 8 z

2 B L ^ _

` 2-1 B L ^ _

	x
1	DL/T 475 T T

4-1 oUe"> &• p`

	A B x	C D	)	k 6
1	AB5 a[u [u Db	5 KL	_	AB *|\` @[u:8[4<*[u bf
2	ABnoa5 > p	VWXc	^	ABno $l5 > pA~rs > 6*O>tgV+X D
3	/XAB<3^ % 6D3	VWXc	/	ABn`y*|H oUVW*O5 > p* gV S 5oVW| 4{ VW* 3 | 4un` a4FX* b(| E0
4	0:>	VWXc	_	1. ABVW0:<3^| Hf X T * f r 6 2. AB:<;• 7 R 3. :Cl50m 5gV S 4. 0\ 0X 5gV SO5 rs 5. <0 O0: Q FwA:
5	5 ?{^|0	VWXc	^	DV]>[u:

5 01no

5.1 MNpo

`5-1 0 1 M N p o

2 x	4 2oV	+dV	DV
[u10= I3wA	4	1	1
[u0vw8	3	1	1
NoUV J238$ J z			

5.2 /UqrsUs`pt

`5-2 @?/UqrsUs`pt

	x	$ /		8	
1	lm<XY			1	
2	Z\0\			1	
3	/Ov0X			1	

`5-2t9y

	x	$ /		8	
4	~•0\]^Y			1	
5	a=nf		D	1	
6	0X wA:			_	
7	0\ wA:			_	

8	0 X :			_	
9	0 \ :			_	
10	u 1 q H 0 v w A v			1	
11	6 V GPS		c	2	
N 2 Y ! v Y v J 2 3 8 $ J z					

6 0 1 # u

6.1 W % $ 9 :

6.1.1 :

t 1 y # N [u 1 d 5 3 m k o z

t 2 y : = # N : z

6.1.2 : # u

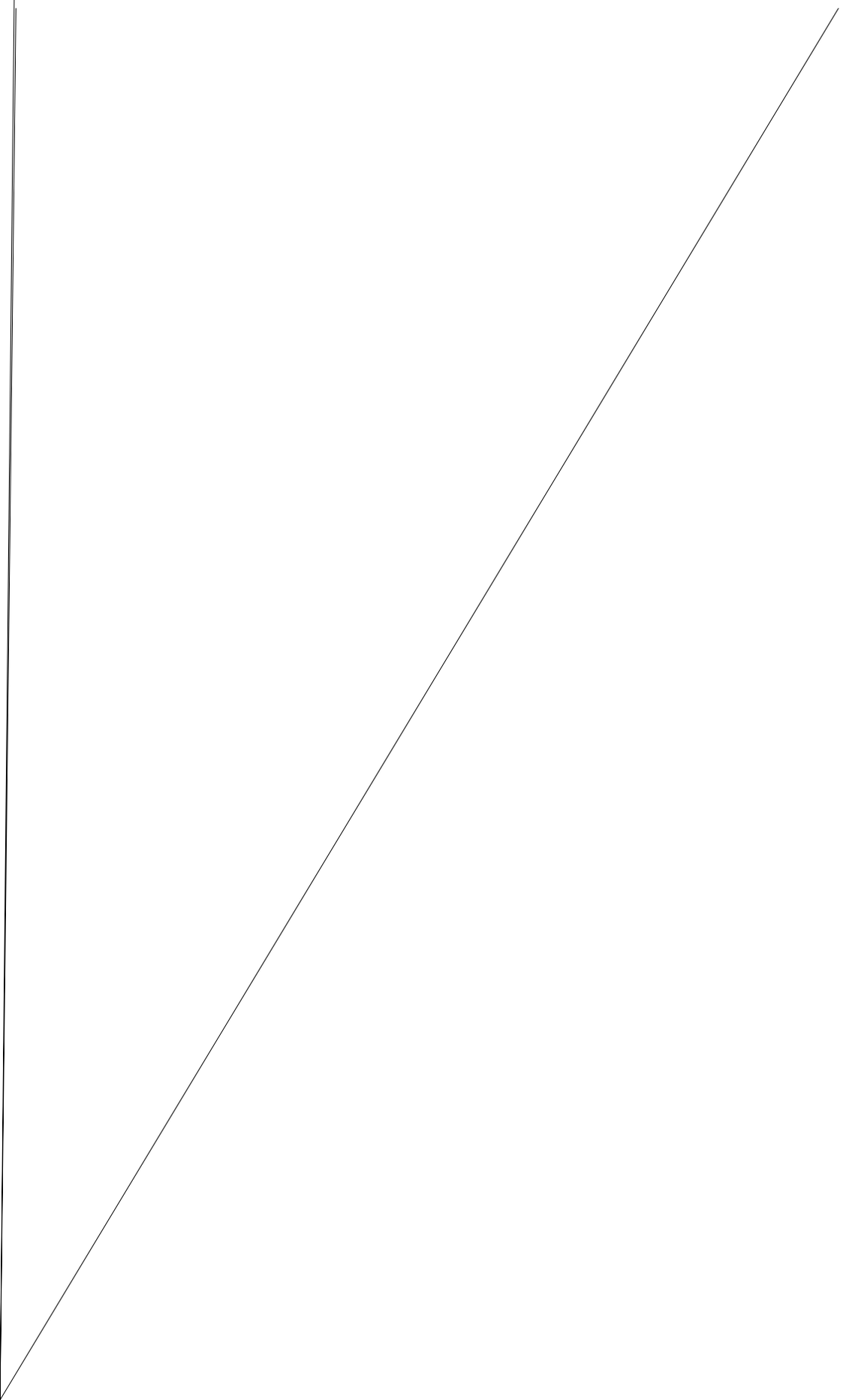
{ , D 0 X) # n u C D l j [u v : | + 7 * u 1 q H 0 v w A v w A u v \ 0 v N

t 1 y 7 l 0 = 5 [u M * | + 7 > z

t 2 y " l j [u v : > z

t 3 y j p : 5 [u v : > z

t 4 y D 0 X) # n u , < X Y [u v : | + 7 * w A < X Y | + 7 0 X) < X



7 m . r ; n

7.1 m .

7.1.1 m 3 # w 8 0 \ * , U m 0 \ # [u 0 v D Q 10Ω * V 4 u y # [u ? 0 \ z

7.1.2 w 8 * | f g : < 0 # [u ? # 8 [E n z

7.1.3 m L _ # R * w 8 : | W 8 4 q m Z X ^ # 9 0 : ; > z

7.1.4 w 8 0 # 0 f n \ 9 u v K z

7.1.5 [u v h w 8 ' 2 w s 5 3 m z

7.1.6 [u 1 0 = I 3 w A | w s GB 50150 2006 ^ 26.0.2 Q \ 0 v * D | Q 0.2Ω z

7.2 m `

` 7-1 m `

	k 7	k a V		
		W	H	S
1	[u 0 v w 8				
N 7 8 k 7 ^ HN } 2 ~ 7 WN • O 7 SN 7 z				

7.3 ; n

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CSG 4-20.1.1 Q/CSG 4-20.2.1 m X z

1 > 6 2 o U &

B 8 **BDYCSY-ZW-18-01/01**

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6

	A B x	C D	)	k 6
1	5 ? { ^ | 0	q 0	! ^	o U | X " f > $ 3 ! > = > 6 * O = 7 f l D c Q u v 6 N !] > [u : z ! A B * | \ ` @ [ u : 8 [ 4 < * [ u b f z ! A B n ` y * | H o U V W * O 5 > p * g V S 5 o V W | 4 { V W * 3 | 4 u n ` * a 4 F X * b ( | E 0 z ! A B n o $ l 5 > p A ~ r s > 6 * O > t g V + X D z ! A B * | \ ` @ [u : 8 [4 < * [u b f z ! A B V W 0 : < 3 ^ | H f X T * f r 6 z ! A B : < ; • 7 R z ! : C l 50m 5 g V S z ! 0 \ 0 X 5 g V S O 5 r s z ! < 0 O 0 : Q F w A :
2	A B 5 a [u [u D b	5 g K	! _	
3	/ X A B < 3 ^ % 6 D 3	q 0	! /	
4	A B n o a 5 > p			
5	A B 5 a [u [u D b	5 g K	! _	
6	A B 0 :	V W X c	! _	
7	[A B 0 u y q 0			

>) Q/: N 0
[1 Z 0 V W ,

			6 ȳ				
	# $						

M *

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6
O 2 O zt t y 2 o O P u 7 * > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' <
y y
7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) >
y \

X Y

1 % 3
2 ; 3
3 o U \ 3 3
4 > 4
5 o U • 5
6 o U a 5
7 7 8 k 6 ! B ~ • 7

1 Z [\ ]

Z [A B M q ! y b 1 u ' 0 W 5 Z 9 > ? a N # " # ` a % 0 W 5 ] O 0 W q > Z X # b 1 * M ] O 0 W 5 > h 2 o ^ D 4 M # , D = w z m 6 G , ? 5 Z [ A B 2 o * $ % Z [ A B o U * ` a 0 1 G H R S k 6 2 o U p q r z o U p q r # | } _ h ~ • X U ~ • U ~ • ` a 0 1 ~ • ! " f # = > $ % $ l z

7 o U p q r Q 110 y 500kV 0 X) @ > ? # } _ h " f A B ~ • A B s # GIS 5 # Z [A B * 7 o U p q r D Q > ? { v b A # 0 = 5 z 7 o U p q r 2 GIS Z \ q X Z [A B # 5 o - = > 7 > H Q > O P + X m # $ % * Q p q 110 y 500kV GIS # Z \ q X Z [A B 2 o z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GB 7674 1987 72.5kV ! u (= J b c 9 n f 5
2	GB 50510 2006 0 = ? > ? 2 3 0 = 5 Z [A B ~ •
3	DL/T 618 1997 = J b c 9 n f 5 Z [A B $ 3

u ! " f ~ • z

u (~ • b @ 7 * 3 @ 7 X z

3 0 1 a b

o U t 2 y \ 3 • 3-1 z

4 e f g h i j k l m

4.1 GIS q X A B 6 2 * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ GIS q X A B 6 2 " f o # n 0 1 4 5 > 6 2 o U & st N TSSY-ZW-01-01/01y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o U & * > W * * 6 2 + d V , ' z

4.3 6 2 + d V * 2 k 6 * O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z

4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	A B 5 E ? y F G D H	5 " K	_	5 Q E @ F } * \ \ F G n o
2	A B 5 E ? y D V > D 6 D	X	_	| e \ > * 5 Q E < 3 ^ { 5 E ` # e v a z 5 O F y D < * ~ H l 2 o
3	A B 5 E ? y } 0 5 > U m D V	M * } 0	_	2 o V W | h i * } 0 5] 6 @ V # > U m z E T | 5 6 O V W 5 o * E ? < 3 ^ b g V p M D
4	" } 0 l	q 0	_	A B 2 o * 2 o + d V | . R V W Z ~ I W 2 o u 7 2 o O P > 6 } 0 M A > H Q
5	/ o U > D 6 D	2	_	2 o * 2 o V W | k \ 2 o * O \ l > # / ; : z / o U > } * > } { 2 o n o ' - o l e (z @ M 5 f * b V * V H W | ~ ^ * 2 V 2 o | Q D o z y / a o U T
6	" A B / X n o	q 0	_	A B 2 o * 2 o + d V \ l 2 o % * 5 > p * D b ` # { > p $ V D * % + f V W + "
7	A B 0 u P 8	M * } 0	_	2 o 6 2 < 0 m f I W + y 6 2 0 u X 0 u P 8 / 0 * D q c 0 u n f # P 8 * \ ] A B 0 u P 8 6 @ m
8	TA t ? n ;	5 " K	_	A B V 2 TA t ? # + X @ *] O TA t ? A ; [u
9	TV t ? A ;	5 " K	_	A B V 2 TV t ? # + X @ * TV t ? n ; * , , 7 [u * / X [u
10	n f A B s t ^	5 " K	_	A B g V ' s l 3 2 n f s t + X \ \ * \ \ + a 4 n ` A B
11	c 0	q 0	_	X | ! y 5 u : * ~) * { 0 a 4 5 G 5 o 1 1 # $ q r _

5 0 1 n o

5.1 M N p o

`5-1 M N p o `

2 x	4 2 o V	+ d V	D V
A B # •	5 y 6	1	1
Z \ q X w A	5 y 6	1	1
2 o '	5 y 6	1	1
N o U V J 2 3 8 $ J z			

5.2 @ ? / U q r s U s ` p t

`5-2 @ ? / U q r s U s ` p t `

88 0.96 0.48 re f1 Tj-0.24 Tc (?) 520.08 6.963 580.0.24 Tc (r)ku4 0.96 0.48 re f1 4.56 0 TD (y) Tj88 0 TD 0 Tc (6

6.1.2 , q X A B 4 * GIS | d 4 Q A B Q z

6.1.3 A B y * GIS] X % O # b 0 \ ] ^ Y # t ? ~ R | A ; O [u * 0 t V 0 X] ^ Y # t ? ~ R | n ; O 7 [u z

6.1.4 GIS q X y * u v 5 | l m 6 * f z 6] A B 0 X N

t1y / X 0 A a : z

t2y 0 W < X Y A O o 0 h Y z

t3y 0 t V 0 X] ^ Y t A B ! . / } (0 t V 0 X] ^ Y z < P 0 u y * 0 t V 0 X] ^ Y h \ \ D / Q t " A # * V 4 u A ;

6.2.7 q X 2 GIS) * { 0 w 8 0 v O % & * ; ? A B " z

6.2.8 A B ' * (, [: E ? q X A B 5 O GIS # , t ? [:) * < A B s t z

7 m . r ; n

7.1 m .

7.1.1 A B 0 X] < / / " < X Y # K B z 7 A B # 0 X w 8 ? | < • * O b • * \ ] w 8 + z

7.1.2 A B y | 8 H * O] O X Y • Q R * 3 R Q F X z

7.1.3 A B y |] 6 2 0 u u ! A B ; # @ A * ' b (y } % A B z

7.1.4 A B ^ + (*6 C 9 F X < A B 0 X * x 3 q X y + X < R * E 0 u O [u : z

7.2 m ` G

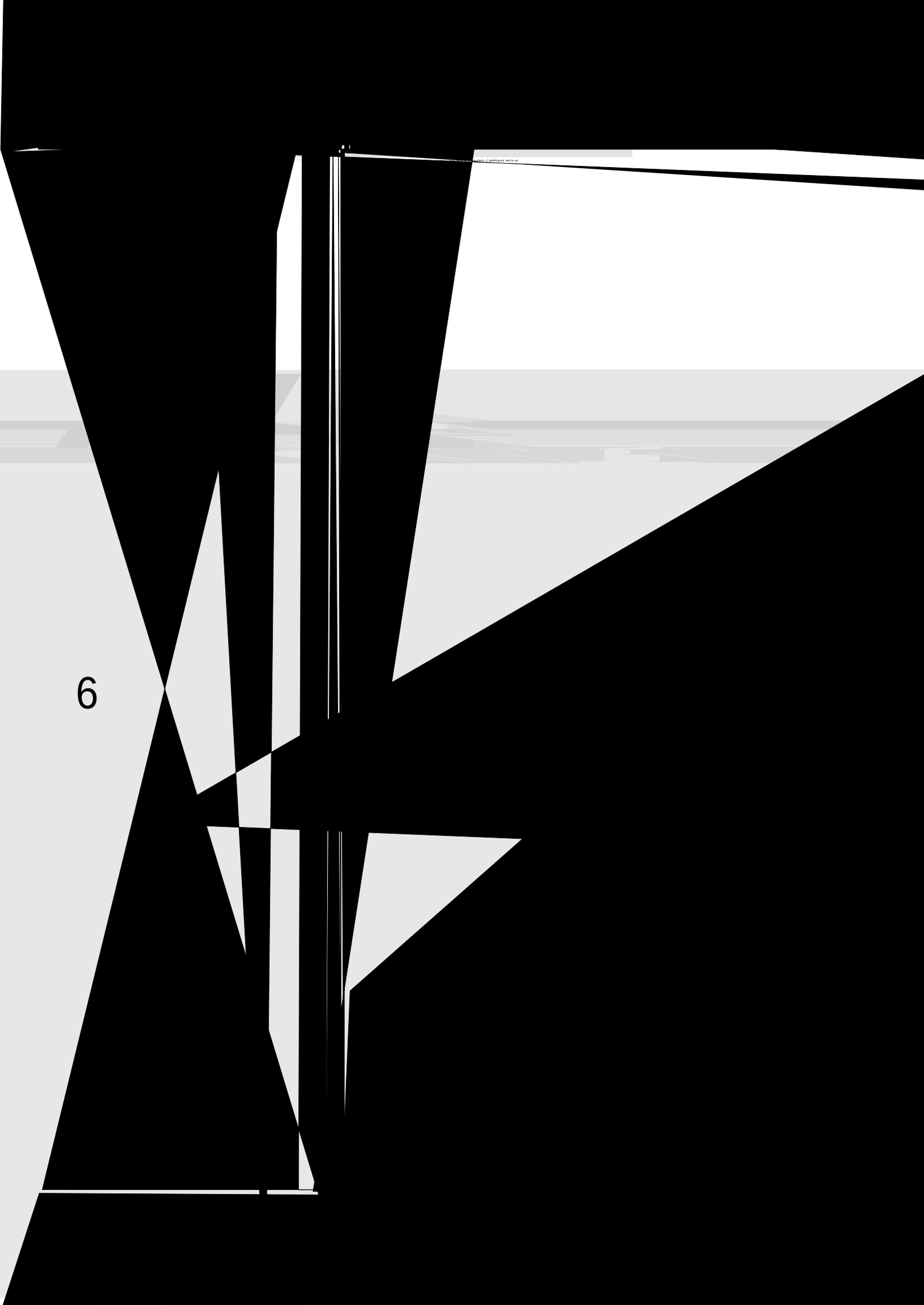
7 8 k • 7-1 z

` 7-1 m `

	k 7	k a V		
		W	H	S
1	GIS Z \ q X A B			|
N 7 8 k 7 ^ HN } 2 ~ 7 WN • O 7 SN 7 z				

7.3 ; n

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CSG 4-13.1.7 Q/CSG 4-13.2.5 m X z



X Y

1 %

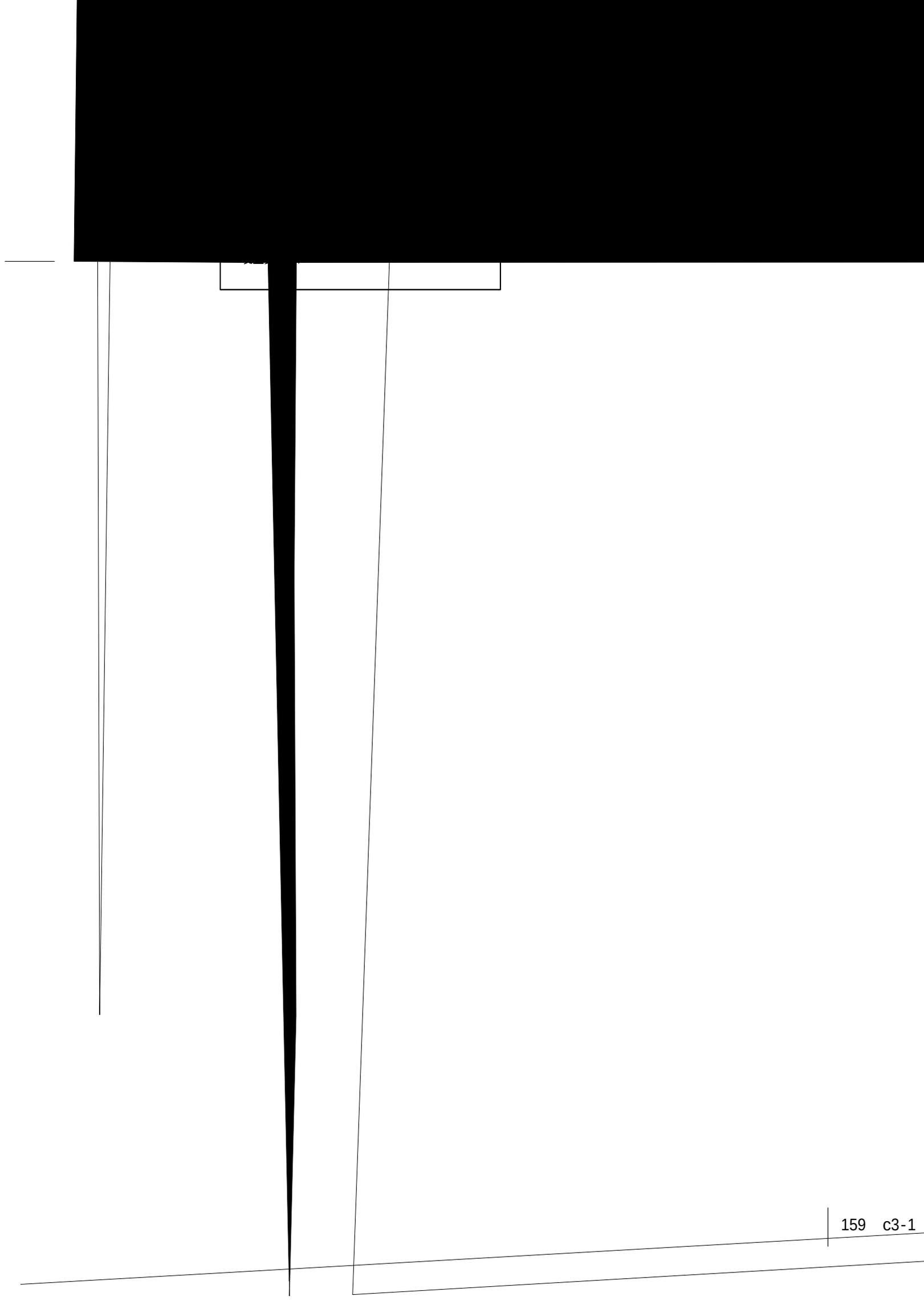
1 Z [\ ]

7 o U p q r Q 110 y 500kV 0 X) * 0 = ? > ? 2 3 0 = 5 SF_6 = J Z [A B o U z

2 B L ^ _

` 2-1 B L ^ _

	x
1	GBJ 148 1990 0 = ? > ? 2 3 0 W



4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z

4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	} 0 5 # > U m D V	q 0	_	2 o * 2 o + d V | . R V W Z ~ I W 2 o u 7 2 o O P > 6 } 0 M A > H Q
2	/ o U > D 6 D	2	_	2 o * 2 o V W | k \ 2 o * O \ l > # / ; : z / o U > } * > } { 2 o n o ' - o l e (z @ M 5 f * b V * V H W | ~ ^ * 2 V 2 o | Q D o
3	2 { O SF_6 5 o U y H D b	^ \	_	+ " { O # SF_6 5 + X A B * n b g H D M Q 15min A B V W { w < 3 ^ * H `] 6 b f
4	q I	M * } 0	_	w A K { g i j O # n f # b q 7 n f # 5 y * H % q I * y 0 0 5 J l m * V 4 5 g V D
5	= J : 8 { |	^ \	_	A B | @ } A K # 8 9 3 * @ A B 8 K [M 5 n o * % | = A B V W • Q (

2	~ r s	_	
3	> }	_	
4	P 7 V 0 u :	_	} 0 \ F o] D Y
5	' ? (3	1 c	
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7	A B 8 [[	1 D	
8	? (v t 7 v y	1	8 V 7 v # w 8 7 % { ' (20 i y | 6 @ 0 y –60 i * w 8 | D ; < 0 0.6 i z v P V ? (3 w 8 7 % | 6 @ 0 y –60 i * w 8 | D ; < 0 2 i
9	A B K	_	+ D 9 K K A : 8 , ; < * = > D M Q 1mm * O 2 y 4mm * K O = ? I J * % @ K A : A ; < K
10	X W A \ 8 k		X W w 8 0 y 1.0MPa A \ 8 k # } =
11	l 3 | v	1	[(D M Q 10μL/L
12	t = K	5m	B H @ K
13	A B % &		% & 7 PDA
14	7 ? ( )		DL/T 506 & B
15	? (' ( )		DL/T 506 & C
N 2 Y ! v Y v		J 2 3 8 $ J z	

6 0 1 # u

6.1 . / n o

` 6-1 . / n o

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
1	@	2 o + d V { Z X V W } C v + " 2 o *@ > 6 M 5 6 @ 2 o m * O > L / 4 9	> 6 M 5 6 @ 2 o m	1 y m f * 2 o V W { (+ X A B 5 o 2 y) L l # Z X / 0 A > U m

` 6-1 t 9 y

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
2	> => 6 Z 0	2 o R W p D * 2 o + d V 2 O 2 o & (# 2 o O P A > 6 * O Z ~ > 6 ! H Q	1 y 2 o e " A > 6 Z ~ M 5	

4	[AB0u	w s > m # 0 u : * 0 u : T A B u 7 P < X 0 u j * [0 u	1 y % [_ X 0 u 2 y @ 0 u 0 X M 5 < /	1 y @ 0 u M 5 [X 0 u * % Z Z X 5 2 y { [AB0u w 8 0 u 0 X M 5 w s A B m 3 y % [" \ 0 u

6.2 . / 0

6.2.1 : ;

` 6-2 : ;

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
1	A B [8 [	@ 5 [* 2 [+ X I L * \ l b I J 8 ' e t t 2 b I J 8 ' e ? { * t e b u q + X w A * 5 6 { K ! ? A B y	% [D L J * q d | =	1 y e \ [* m 8 9 b f z D 9 M k " z % C [z 2 y y 500W u (# 0 N _ [M
2	8 [A B K	s # A B 8 [K z8 [3 5 (# = J [(	w s $ % m # K	1 y A B K 4 + D 9 K K A : 8 , ; < K = > D M Q 1mm * O 2 y 4mm * K O = ? I J * % @ K A : A ; < K A C K 2 y K 8 [O | P Q : 8 , ; < Q 3 y [" 5m # v Y t = K
3	b F v Y	8 [K v Y + = # 8 [* : n v Y 0 u z v Y + " • w 8 s t	v Y @ e	1 y 0 u w s v Y m 2 y R 7 v | @ R M 5 _ G
4	? (w 8	1 y : n 5 (# } = 2 y % & X W 3 (# X W 3 y n b = ; } = w = J \ 8 w s w 8 m 4 y % & w 8 O 5 y % & w 8 ' y # X W	] O ? (w 8 # • \	1 y [A K b | = / 0 * | % A B * ! y • L { | M 2 y \ ] v Y # ^ Y M { = X W v + X w 8 3 y w 8 S Q H l * 4 % & 4 y w 8 ^ 8 H 5 # X W < G * X W v | H F F P

X W X X H W • P A 1 ? (

6	• L	1y 7 ? (#) 2y ' (? (# X e	} $ % # m + X)	1y DL/T 506 & B = X W # 7 ? ( ) 7) 3 ? (2y DL/T 506 & C ? (' ( ) w 8 X e 3 20 i y #

6.2.2 : ;

` 6-3 : ;

b 9.12 Tf 1 1 8 0 Tf D (y) Tj /F9 9.5 12 0 4.12 0 TD (D (y) Tj /F1 9.7 12 1 25 k 6.12 0 TD Y2(2) T1 546 jk/F%& 9.6 12 Tf .12 0 TD (Y Tj /F5+A 9				
1	R G	V W R G w # [} = M	R G 8	1y R G * | 5 N I L _ G 2y R G # J B D $ * J B 4 * R G 3y V W] O + " * D P / ?
2	b F v Y	8 [0 u * : n v Y n f	v Y w e	1y 0 u w s v Y m 2y @ v Y [u : b f 3y w A v Y 2 SF_6 = J b R |
3	l 8 |	C D R G M { | 8 D Q 30 10^{-6} t J B y	v Y w 8 • \	1y

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7.1 m .

` 7-1 m .

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> * ! k 6				

	A B x	C D	)	k 6
1	} 0 5 # > U m D V	q 0	! _	

20.24 T(q5 9.12 Tf62042 5.76 TD -q) Tj/F5+1 9.12 Tf9.12 0 TD -0.24 Tc /MU
i

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 ⁄ 8 y \ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 ⁄ 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z

X Y

1 % 21
2 ; 21
3 o U \ 3 21
4 > 22
5 o U • 22
6 o U a 23
7 7 8 k 6 ! B ~ • 24

4 e f g h i j k l m

4.1 0 W < X Y Z \ q X A B 6 2 * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ 0 W < X Y Z \ q X A B 6 2 " f o # n 0 1 4 5 > 6 2 o U & st N TSSY-ZW-03-01/01 y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o U & * > W * * 6 2 + d V , ' z

4.3 6 2 + d V * 2 k 6 * O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z

4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	" } 0 l	q 0	_	A B 2 o * 2 o + d V | . R V W Z ~ I W 2 o u 7 2 o O P > 6 } 0 M A > H Q
2	/ o U > D 6 D	2	_	2 o * 2 o V W | k \ 2 o * O \ l > # / ; : z / o U > } * > } { 2 o n o ' - o l e (z @ M 5 f * b V * V H W | ~ ^ * 2 V 2 o | Q D o
3	" / X A B n o	q 0	_	A B 2 o * 2 o + d V \ l 2 o % * 5 > p * D b ` # { > p $ V D * % + f V W + "
4	A B 0 u P 8	M * } 0	_	2 o 6 2 < 0 m f I W + y 6 2 0 u X 0 u P 8 / 0 * D q c 0 u n f # P 8 * \ ] A B 0 u P 8 6 @ m
5	w 8 v Y a • * A B 0 X < /	5 " K	_	# 0 X w 8 ? | < • * O b • * \ ] w 8 +
6	c 0	q 0	_	X | ! y 5 u : * ~) * { 0 a 4 5 o
7	- . 2	5 K L	_	2 o V W { A B ' | + X \ ` @ * \ \ + - . 2 A / e

5 0 1 n o

5.1 M N p o

` 5-1 M N p o `

2 x	4 2 o V	+ d V	D V
A B # •	5 y 6	1	1
Z \ q X w A	5 y 6	1	1
2 o '	5 y 6	1	1

5.2 @ ? / U q r s U s ` p t

` 5-2 @ ? / U q r s U s ` p t `

	x	$ /		8	
1	A B r p			_	

2	~ r s		a	_	
3	> }		8	_	
4			c	2	
5	P 7 V 0 u :		c	2	} 0 \ F o] D Y
6	5 o y			_	
7	(: 2 ! }		8	_	
8	' ? (3		c	1	
9	2 j		D	1	
10	: Rt q : [u : y			_	
11	{ 0			_	₵

6.2.10 MAB *f AB5 0u*(,AB[:*AB' z

7 m .r ; n

7.1 m .

7.1.1 AB0X]<///" <XY#KBz7AB #0Xw8? | < •*Ob • *\]w8+ z

7.1.2 ABy|8 H *O]O XY•QR * 3RQFXz

7.1.3 ABy|]6 2 0uu!AB ;# @A *' b(y }%ABz

7.1.4 AB^ +(*6C9FX<AB0X*x3qXy + X<R* E0uO [u:z

7.2 m `G

78 k• 7-1z

`7-1 m `

	k 7	k a V		
		W	H	S
1	<XYZ\qXAB			|
N78 k7^HN}2~ 7 WN•O7 SN 7z			NN7qN	

7.3 ; n

N7 N7 N

z N g N

X~-2

7.3.1 2<XY_X~R ^X~R /X~RAB0X 7-2 # 10.56 TfAB-2

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $

1 > 6 2 o U &

N **TSSY-ZW-03-01/01**

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6				
	A B x	C D	)	k 6
1	" } 0 l	q 0	! _	o U
2	/ o U > D 6 D	2	! _	
3	" / X A B n o	q 0	! _	
4	A B 0 u P 8	M * } 0	! _	
5	w 8 v Y a • * A B 0 X < /	5 " K	! _	
6	c 0	q 0	! _	
7	- . 2 3	5 K L	! _	

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 ⁄ 8 y \ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 ⁄ 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z

X Y

1 % 29
2 ; 29
3 o U \ 3 29
4 > 30
5 o U • 30
6 o U a 31
7 7 8 k 6 ! B ~ • 32

1 Z [\ ]

Z [A B M q ! y b 1 u ' 0 W 5 Z 9 > ? a N # " # ` a % 0 W 5 ] O 0 W q > Z X # b 1 * M ] O 0 W 5 > h 2 o ^ D 4 M # , D = w z m 6 G , ? 5 Z [ A B 2 o * $ % Z [ A B o U * ` a 0 1 G H R S k 6 2 o U p q r z o U p q r # | } _ h ~ • U ~ • ` a 0 1 ~ • ! " f # = > $ % $ l z

7 o U p q r Q 110 y F5+5+26

4 e f g h i j k l m

4.1 0 W < X Y x y ^ | 0 X A B } z M { 0 w 8 A B 6 2 *6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ 0 W < X Y x y ^ | 0 X A B } z M { 0 w 8 A B 6 2 " f o # n 0 1 4 5 > 6 2 o U & st NTSSY-ZW-04-01/01y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o U & * > W * * 6 2 + d V , ' z

4.3 6 2 + d V * 2 k 6 *O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z

4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	} 0 5			


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>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6
O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6

X Y

1 % 37
2 ; 37
3 o U \ 3 37
4 > 38
5 o U • 38
6 o U a 39
7 7 8 k 6 ! B ~ • 39

4 e f g h i j k l m

4.1 < X Y ~ R < • A B 6 2 *6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ < X Y ~ R < • A B 6 2 " f o # n 0 1 4 5 > 6 2 o U & st N TSSY-ZW-05-01/01 y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o U & * > W * * 6 2 + d V , ' z

4.3 6 2 + d V * 2 k 6 *O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z

4-1 o U e " > & • p `

	A B x	C D	)	k 6
1	" } 0 l	q 0	_	A B 2 o * 2 o + d V | . R V W Z ~ I W 2 o u 7 2 o O P > 6 10

3	> }		8	_	
4			c	2	
5	P 7 V 0 u :		c	2	} 0 \ F o] D Y
6	5 o y			_	
7	(: 2 ! }		8	_	
8	' ? (3		c	1	
9	2 j		D	1	
10	: Rt q : [u : y			_	
11	< X Y ~ R < • w A v			1 y 2	
12	` % & 7		7	_	

6 0 1 # u

6.1 . / n o

6.1.1 < X Y ~ R < • w | { b \ A B Q > { ~ R) * { 0 u + X z | [: m A [: a V * F , 2 < X Y # 4 D ~ R + X w z

6.1.2 n ` A B • 2 o * s # A B v Y * O { f 5 * [A B 0 u z

6.1.3 (, < X Y / ^ _ X # ! ^ 3 7 4 M # 8 [: O] 6 @ V > U m * (, # : W 4 q m w < X Y 8 K * 2 Q 8 K : + (, # < X Y * 4 8 K o R | + X w * l | k * O | # v # w ' 2 o z

6.2 . / 0

$ l A B a 0 A B [: z

t 1 y < X Y ~ R # P R | S 3 * [n f # b f * $ { 3 / * [v w * |] O C ? w y * [n f ! • Q " # z

t 2 y w I o * b [: ! | H l 4 < * L [q 0 v z

t 3 y D I w # [u : ! | 4 < 8 [{ < X Y 4 5 (# k [u t C [u * 3 f 7 [u y * [u : | W 4 q A D | p ~ z

t 4 y ~ R < • w A q A ' z

t 5 y 2 4 ~ R + X ~ R < • w A * O 2 + X * w E z

t 6 y M A B * f v Y 0 u * (, A B [: * A B ' z

7 m . r ; n

7.1 m .

7.1.1 A B g 8 [: A ~ R " | # A B a 0 A B [: z

7.1.2 w A y < X Y 4 # 8 K : | M (, * W 8 f z 4 M _ f z A B 0 u 1 3 _ f z $ q 0 _ z

7.1.3 w 8 0 K s [u : | W 8 t 3 f < X Y # C 7 [u * [u 7 b f * / 0 \ # \ e \ z

7.1 w 4 8 y V | m 8 K * , U | Q 1 m * u z / l # w 8 ' l 2 z

7.1 2 5 b n f | 8 { { 3 * [t L , y w 8 * 8 X ~ R w 8 2 l X < X Y | { , * [+ X w 8 z

1 > 6 2 o U &

N TSSY-ZW-05-01/01

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6				
	A B x	C D	)	k 6
1	" } 0 l	q 0	! _	
2	^ | 0	q 0	! _	
3	/ o U > D 6 D	2	! _	
4	/ a 2 2	X	! _	

5 - . 2 3 5

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 ⁄t 8 y\ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 ⁄t 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z



X Y

1 % 43
2 ; 43
3 o U \ 3 43
4 > 44
5 o U • 44
6 o U a 45
7 7 8 k 6 ! B ~ • 45

1 Z [\ ]

Z [A B M q ! y b 1 u ' 0 W 5 Z 9 > ? a N # " # ` a % 0 W 5 ] O 0 W q > Z X # b 1 * M ] O 0 W 5 > h 2 o ^ D 4 M # , D = w z m 6 G , ? 5 Z [ A B 2 o * $ % Z [ A B o U * . / 0 1 G H R S k Z [ A B ~ • G o U p q r z o U p q r # | } _ h ~ • X U ~ • U ~ • ` a 0 1 ~ • ! " f # = > $ % $ l z 7 o U p q r Q 110 y 500kV 0 X) @ > ? # } _ h " f A B ~ • A B s # 0 = 5 Z [A B * 7 o U p q r D Q > ? { v b A # 0 = 5 z 7 o U p q r 2 0 Z \ q X Z [A B # 5 o - = > 7 > H Q A 7 * O P + X m # $ % * Q p q 110 y 500kV 0 # Z \ q X Z [A B 2 o z

2 B L ^ _

` 2-1 B L ^ _

x |

h4hijkhijk$h4h4hijk$hf g h i j k l m



2 < P Y Z / X A B ?

X 6.2.6 - * < A B z

6.2.9 ? w 8 ! " 0 # 0 v z

6.2.10 ; ? + X " # A B * A B z

7 m . r ; n

7.1 m .

7.1.1 A B 5 B s z

7.1.2 2 0 # o q X A B w 8 0 v y * | * { C , " (+ X z C , " (+ X A B w 8 y * " q J b c K b c 8 A t ? s , Q [u z

7.1.3 2 b c K b c 8 , [u * , b D s < 0 X] D Y # D 0 o Z \ q X A B y * D s < 0 X] D Y A [* , # 0 b c K b c 8 + y [u z

7.1.4 A B 0 X] < / / " 2 0 # K B z 7 A B # 0 X w 8 ? | < • * O b • * \ ] w 8 + z

7.1.5 2 0] X * | + X A B 5 # F X @ A B y | 8 H * O] O X Y • Q R * 3 R Q F X y % ' 0 X < z

7.1.6 A B y |] 6 2 0 u u ! A B ; # @ A * ' b (y } % A B z

7.1.7 A B ^ + (* 6 C 9 F X < A B 0 X * x 3 q X y + X < R * E 0 u O [u : z

7.2 m ` G

7 8 k • 7-1 z

` 7-1 m `

	k 7	k a V		
		W	H	S
1	0 Z \ q X A B			|
N 7 8 k 7 ^ H N } 2 ~ 7 W N • O 7 S N 7 z				

7.3 ; n

2 0 + X Z \ q X A B ^ * A B < 3 + m n { 0 (/ 0 * 6 A B H < z 0 Z \ q X A B 0 X A y 7-2 r z

` 7-2 $ V a T : ; $ T

l 0 X U_N/U t kV y	A B 0 X	y t min y
18/30 ! u v	2.5U_N t 2U_N y	5 t 60 y
21/35 y 64/110	2U_N	60
127/220	1.7U_N t 1.4U_N y	60
190/330	1.7U_N t 1.3U_N y	60
290/500	1.7U_N t 1.1U_N y	60

7 8 B n 10kV y 500kV 9 < 0 ! J 0 2 3 7 8 B $ l ~ • L 4 K N < 0 0 = A B 2 3 s ^ # Q/CSG 4-16.1.1 Q/CSG 4-16.2.1 y 4-16.2.4 m X z

1 > 6 2 o U &

B 8 TSSY-ZW-06-01/01

2 o y	2 o u 7	= > W	> W	+ d V

> * ! k 6

	A B x	C D	)	k 6
1	A B 5 E ? y F G D H	5 " K	! _	o U | X " f > $ 3 ! > = > 6 * O = 7 f l D c Q u v 6 N
2	A B 5 E ? y D V > D 6 D	X	! _	! 2 o V W | e \ > 2 o A 8 z
3	A B 5 E ? y } 0 5 > U m D V	M * } 0	! _	! 5 Q E @ F } * \ \ F G n o z
4	" } 0 l	q 0	! _	! 5 Q E < 3 ^ { 5 E ` # e v a z 5 O F y D < * ~ H l 2 o z
5	/ o U > D 6 D	2	! _	! 2 o V W | h i * } 0 5] 6 @ V # > U m z E T | 5 6 O V W 5 o * E ? < 3 ^ b g V p M D z
6	" / X A B n o	q 0	! _	! A B 2 o * 2 o + d V | . R V W Z > I W 2 o u 7 2 o O P > 6 * } 0 M A > H Q z
7	A B 0 u P 8	M * } 0	! _	! 2 o * 2 o V W | k \ 2 o * O \ l > # / ; : z / o U > } * > } { 2 o n o ' - o l e (z @ M 5 f * b V * V H W | ~ ^ * 2 V 2 o | Q D o z
8	n f A B s t ^	5 " K	! _	! A B 2 o * 2 o + d V \ l 2 o % * 5 > p * D b ` # * { > p $ V D * % + f V W + " z
9	c 0	q 0	! _	! 2 o 6 2 < 0 m f I W + y 6 2 0 u X 0 u P 8 / 0 * D q c 0 u n f # P 8 * \ ] A B 0 u P 8 6 @ m z
10	- . 2 3	5 K L	! _	! A B g V ' s l 3 2 n f [s t + X \ \ * \ \ + a 4 n ` A B z
				! X | ! y 5 u : * ~) * { 0 a 4 5 o z
				! 2 o V W { A B ' | + X \ ` @ * \ \ + - . 2 A / e

	>) Q/: N 0
	[1 Z 0 V W ,

>W/F1 9.15+3 Tf18.24 re8080 #$/F1 9.15+2 Tf18.24 080 6D/F1 9.15

$ a U ;

0 1 2 3 4

NTSSY-ZW-07

1 Z [\ ]

7 o U p q r Q ` a 0 1 G H % O @ ? 5 ! Z X ^ # 3 8 0 \ ] ^ Y t 0 \ ] ^ Y 3 8 ~ R y # B z

2 B L ^ _

` 22222

4 e f g h i j k l m

0

4.1 0 \ ] ^ Y B 6 2 * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ 0 \ ] ^ Y B 6 2 " f o # n 0 1 4 5 > 6 2 o U & st N

TSSE0.56 Tf8807D0(242)Tc[3)F5jT0E56(Tf)16T08/017B50124 0.56 Tf10.8 84 TD (Q) T Tc (sy) Ty*/F5+4 10.56 Tf

e H X z ` % & t | + y • DL/T 506 & A z

6.2.5 w t t 4 yz , U m { f g / 0 v + X B * \ ' A 0 \ ] ^ Y # ; y * . / + X w t B z 3 # w t a | ~ s (~ # => ^ $ l # w t a A m $ z k " a $ l * $; w t z

; w t N { 0 \ ] ^ Y # t ? # [, D " \ Q l + 10 y 20 G # 4 < 0 v * , ? H u 2 P Z \ 0 \ * 0 \ T R : u F < l 0 \ # 120 1 * 0 \ ! u < R * : ; ? L 4 < 0 v < # 1/2 1/5 1/10 * = * (< 3 z

2 Q ?) # 0 \ ] ^ Y * w t y C # t ? ~ R ! | A ; \ , D C ^ b D t ? ~ R y * # t ? ~ R [w t 0 v * # t ? ~ R n ; z

6.2.6 ; 3 8 0 \ ] ^ Y t 0 \ ] ^ Y # 3 8 ~ R y # • \ ( ) 0.2 0.2S) * . / • 6-1 z w E A 0 \ ] ^ Y # M 5 s * | u X # • z # X l • 6-2 z

` 6-1 $ a U '

• \ )	I_P/I_n t 1 y	1	5	20	100	120
0.2	t 0 1 y		0.75	0.35	0.2	0.2
	" t 0 y		30	15	10	10
0.2S	t 0 1 y	0.75	0.35	0.2	0.2	0.2
	" t 0 y	30	15	10	10	10

` 6-2 _

• \ )		"
0.2 0.2S	0.02	1

7 m . r ; n

7.1 m .

2 3 8 # 0 \ ] ^ Y 0 \ ] ^ Y # 3 8 ~ R * w 8 y O #] . 3 0.001 1 * "] . 3 0.01 z w E A # 0 \ ] ^ Y M 5 s * | { l + A v c + y # M 5 w s 6-1 # m z

2 w 8 ^ ; < 6-1 # m * l D ; < 1.5 G y * | ! + X * w z

7.2 m ` G

7 8 k • 7-1 z

` 7-1 m `

	k 7	k a V		
		W	H	S
1	0 \ ] ^ Y A B			|
N 7 8 k 7 ^ H N } 2 ~ 7 W N • O 7 S N 7 z				

7.3 ; n

0 \ ] ^ Y B | R JJG 1021 2007 n 0 W] ^ Y s# Q/CSG 4-7.1.3 Q/CSG 4-7.2.2 Q/CSG 4-8.1.3 Q/CSG 4-8.2.2 m + X z


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>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 ⁄ 8 y \ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 ⁄ 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z

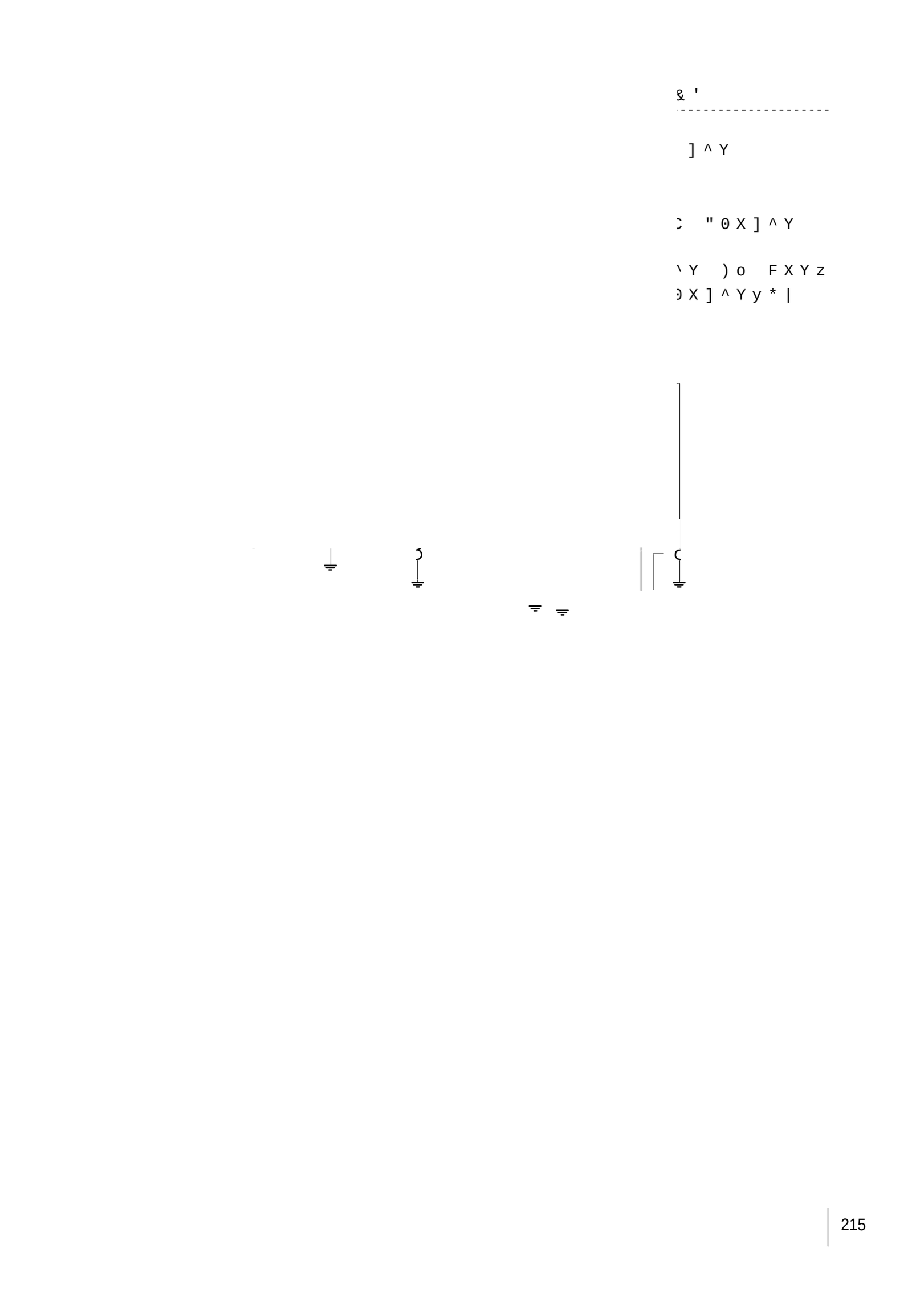
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X Y

1 % 57
2 ; 57
3 o U \ 3 57
4 > 58
5 o U • 58
6 o U a 59
7 7 8 k 6 ! B ~ • 61

4 e f g h i j k l m

4.1 0 X] ^ Y B 6 2 * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5
6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % T c 4 (` 4) T j -2 5 . 2 8 T (f 3 1 . 4 4



t3y A 2M3/X a:#/X : (,*(,y g [u: a:[uz(,
a: o* A #UmN500kV)D Q

	" t 0 y	10	10	10

* 500kV 1101 n 4 l S 2 5 1 . 5 X 9 . 1 2 T f 2 . 8 8 0 T D (y) T $ 7 T D ( ) T j / F 1 .

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6
O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' <
7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) >

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X Y

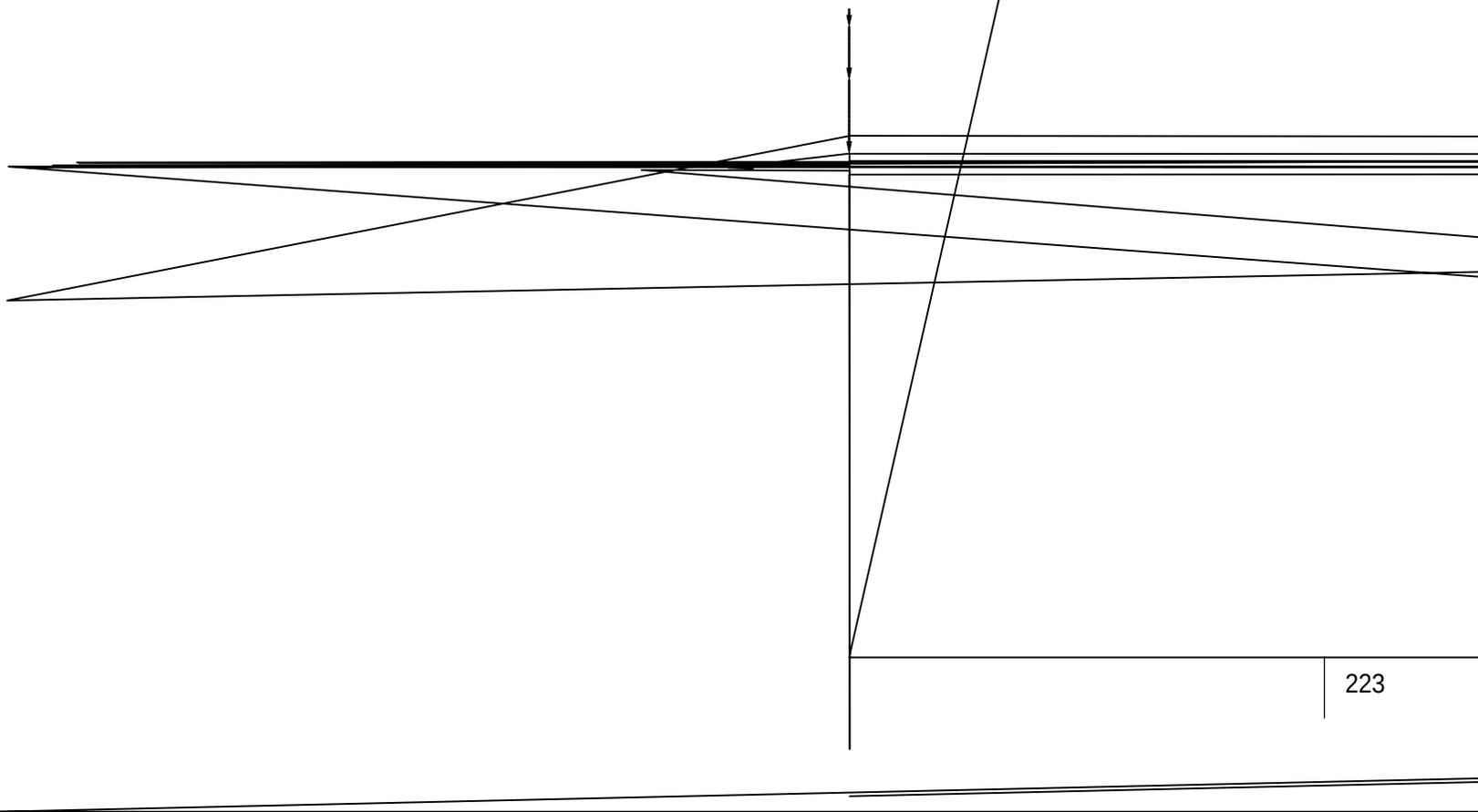
1 % 65
2 ; 65
3 o U \ 3 66
4 > 67
5 o U • 69
6 o U a 71
7 7 8 k 6 ! B ~ • 90

1 Z [\ ]

T M) T 0 = 5 ^ = # 7 > , * b I J A] D C ~ R !

3 0 1 a b

o U t 2 y \ 3 • 3-1 z c3-1 01 /d!abc



4 e f g h i j k l m

4.1 T Z [A B 6 2 * 6 2 Q M ! Q o U e " 6 2 # * | } n 0 1 4 5 6 2 > & • p ` st v w x n p ` sy n (1 2 3 > $ % 2 o * • ! e " # * z

4.2 n p ` s ^ T Z [A B 6 2 " f o # n 0 1 4 5 > 6 2 o U & st N TSSY-ZW-09-01/01 y* ' s - . / 0 + X (G * * \ l) * = > W > 6 2 o U & * > W * * 6 2 + d V , ' z

4.3 6 2 + d V * 2 k 6 * O { - . / (2 J o U V W + X > Z 0 * [1 Z 0 # o U V W + d > 6 2 - 3 4 o U e " A - ^ z

4.4 > 6 2 o U & 5 6 2 + d V 6 b * 2 o O P u 7 D < y 4 8 9 10 : * ; < 10 : = @ > L o U & * { 2 o (Z Q M] ? @ z

5.1 M N p o

` 5-1 M N p o `

2 x	4 2 o V	+ d V	D V
•	< M 2	1	
	< M 2	1	1
% &	< M 2	1	
A B • t 1 Q y	< M 1	1	
T A B t 1 Q y	< M 1	1	
A B % & *	< M 1	1	
N o U V J 2 3 8 $ J z			

5.2 @ ? / U q r s U s ` p t

` 5-2 @ ? / U q r s U s ` p t `

2 Y ! v Y v					
	x	$ /		8	
1	~ r s	m $	D	_	
2	>	m $	2	_	
3	> } A / 2 t y	m $	# t y	_	/ a o U y
4	K 2	m $		, 8	
5	' ? (3	~ •	c	1	
[redacted]				_	
7	g b c 250mL (g t y A V W O Q 20 y 100mL Y b c H } k K t q T y Y M	m $	D t y	_	

8

` 5-2 t 9 y

	x	$ /		8	
24	A	t t & • A y t t & • A y d G t * y t * * " 2 8 (1.19 y T t * y t * y t t A ! | + X _ *_ ' (100 i y 110 i		–	
25	8 7 v	{ ' y –60 i		1	
26	j	{ ' y 300 i		1	

t 4 y) T 0 # 8 K + X T # A B y * 4 GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [
0 / . 5 6 T f 0 0 / F 1 9 . 1 2 5 0 5 0

` 6-3t 9 y

	2 o 0 P	5 o ! 2 M	7 8 k 7	k 6
7	3) * w 8 ' 2	6 ? 8 9 w l # 0 X #) > : ! *o : ! 0 X	D # 0 D * w E A B ' 2	D A B a m # A B 0 D * 0 X ' 2 b (N 1 y GB/T 507 M C 0 2 y DL/T 429.9 a M : 0 3 y GB/T 7595 2000 ^ # A B m : 0 w l 4 y 3 C D • s 0 w # 0 X > # (• ~ • # &
2 o '				
1	@ 4 Q A B ' 2	% & O ,	w 8 • \	@ 4 Q A B Q M 5 = % & M 5 • \ * 2 o + d V ! 4 A B V W { A B % & (, \ \
2	I J 2 o	I J 0 ! T	0 A T J G	I J 0 A T * 2 A # A B ' 2 D s *| ! I J # T 3 .
3	0 T # ? {	C ? 2 o *T " J G # T t 0 { T ^ y	0 M U " { J G # T ^	J G T U " 0
4	I L ' 2 o	I L A B 2 o h # / e * A B # } T f 8 9 / ? {	f z x y	d # + 0 E F e ~ ^ 3 x y e ~ • * } T f 8 9 ? {
o U ^ 4 q # (o ! 2 0				
1	0 X A B	w A (	1 y + , # M 5 w s m 2 y + , ? T Y M 5 I J _ 3 y + , A B T M 5 1 ? D s R 4 y 0 F * 0 U L m 5 y = @ + X A B	

6.2.3 g U * t • 6-4 yz

` 6-4 ) * 7 j `

	2 o 0 P	5 o ! 2 M	7 8 k 7	k 6
A B • 2 o				
1	@ ; T	A B V W @ ; M 5 $ %	1 y R 9 ~ , % & I 2 y w s m 3 y { b 1 _ O	1 y @ R 9 ~ , % & 2 y @ M 5 w s m 3 y @ y
2	@ O • v Y	1 y n g N @ g U v 4 8 [0 [u : u ! 4 = ; 8 [M 5 • \ b f z y 7 + # 7 Q z 2 y : n = = a = } ! 4 L X } * X W 9 < 8 / Q v Y 2 o y X W z 3 y w v Y 4 = ; H X } * 4 = ; X W \ 8 w s v Y 2 o m	1 y = J + { | 2 y = J X W e 3 y X W \ 8 w s v Y 2 o m	1 y : n 4 = J | | @ 4 = J } L X } u ! 4 = ; 8 [M \ \ + = J { | 2 y @ \ \ = J X W 9 < 8 / Q v Y 2 o y X W 3 y @ \ \ v Y 4 = ; X W \ 8 w s v Y 2 o m

` 6-4t 9y

	2oOP	5o!2M	78 k7	k 6
4	vY~l	vY#~lN 4~l8 z 1mL YD•\ d 4 R*Y(#~• s=J 1mLt 0.5mLy+X~lzT 3#gU (%&4R*#{NBA$_{i*s}$t {/ h$_{i*s}$yz~lvY|{vYZX20H l," ## v+X*<M=*5 o2?*2?~l#=*3|{:! #021uO* :! o vY~ l#'2zC?AB!|~lvY	vY~Y ~~	

6.2.4 T ^ N = 8 * t • 6-5 y

` 6-5 O 9 7 j `

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
		A B • 2 o		
1	@ ; T	A B V W @ ; M 5 $ %	1 y R 9 ~ , % & I 2 y w s m 3 y { b 1 _ O	1 y @ R 9 ~ , % & 2 y @ M 5 w s m 3 y @ y
2	@ O • v Y	1 y n g N @ g U v 4 8 [0 [u : u ! 4 = ; 8 [M 5 • \ b f z y 7 + # 7 Q z 2 y : n = = a = } ! 4 L X } * X W 9 < 8 / Q v Y 2 o y X W z 3 y w v Y 4 = ; H X } * 4 = ; X W \ 8 w s v Y 2 o m z 7 + # 7 Q t y y	1 y = J + { | 2 y = J X W e 3 y X W \ 8 w s v Y 2 o m	1 y : n 4 = J | | @ 4 = J } L X } u ! 4 = ; 8 [M \ \ + = J { | 2 y @ \ \ = J X W 9 < 8 / Q v Y 2 o y X W 3 y @ \ \ v Y 4 = ; X W \ 8 w s v Y 2 o m
3	n b A B v Y	1 y \ \ d : n 4 = J : n v Y 0 u n f * n b 9 g * : n 4 ' (k Y F ' n f * 5 l @ s { TCD FID ! : q ; r G Y ' (z 1 s { T(F F ; q n y \ G Y - . 2 9 4 - 1 8 . 2 4 - 1 1 . 7 6 = c (y \ ) T j / F 5 + 3 9 . 1 2 6 1		

` 6-5t 9y

	2oOP	5o!2M	78 k7	k 6
3	r : =	1yA= Y#• N 5mL YC* M8AT YBO=1y2 ? * " 0.5mL AT*8(@ 9 * " 1 *1 (z YO#a=AAT t * A T)6 YO= Ddc? a=z 2yr : =N Y A T Z &^ * ^#: =H< 1 r 3 YCO t| eX r yz{'v{ 2min*•\%& JBt•\< 0.1mLy* u gU*	1y YCd M8AT Y BO= 2yr : = eX r	1y\\ YCd M8AT YBO=Ows m 2y\\r : =d eX r
4	vY~l	vY#~lN 4~l8 z 1mL YD•\ d 4R*Y(#~• s=J 1mL t 0.5mLy+X~lzT 3#g U (%&4R*#{NBAit {/hi*syz~lvY|{vYZX 20Hl," ## v+X*< M=*5o ?* ?~l#=* 3|{:! #021uO* : ! o vY~l#'2zC?A B!|~lvY	vY~lZX 20Hl," ## v+X
5	*	A * N 1mL YD T YC^•\ =1mL t 0.5mLy*+X* z+ y5 o 3+1 1 1 z T 3#gU (%&4R*#{ NBAit {/hiyz * | vY~l , + Y* " + JB	1y+ y5ows m 2y * vY ~l , + YA " + JB	1y+ y5o 3+1 1 1 2y\\ * | vY ~l , + Y* " + JB
6	'2* 3)	GV3)T^4* R*Y(t 5gU2o y		
7	%&* '2	{gU2o N)L * d =tO2y =tN2y,dG tCOy tdG tCO2y# {/0*% &4=JR*N8* GV3)T ^N=8		
8	* !wE	}GB/T 7252n<XYT^ef=J* AwEq6s DL/T 722n<XYT^ef=J* Aw Eq6s+X* wE		
A B '				
1	@AB %&	ABVW @AB %&M 5•\ Iz2o+dV!AB VW{AB%&(, \\	1y ?=*AB '2# D;< ./ 2yAB %& •\ I	1y @\\ ?=*AB' 2# ws m 2y @O\\AB % &•\ I

` 6-5t 9 y

	2 o 0 P	5 o ! 2 M	7 8 k 7	k 6	<Tf 87

2 o O P 5 o ! 2 M 7 8 k 7 k 6 78 78

` 6-6 t 9 y

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
o U ^ 4 q # (o ! 2 0				

2 x D 3 m * 4 q M 5 Q N W v w D \

1 a I w l w 8 9 a = # N W y 3
) ' 2 D 6 @ 71 y 72mN/m # m

` 6-7t 9 y

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
A B '				
1	@ 4 Q A B % &	% & O ,	w 8 • \ I	@ 4 Q A B Q M 5 = % & M 5 • \ * 2 o + d V ! 4 A B V W { A B % & (, \ \
2	A B ' * f v Y 0 u * v Y O I L A B	1 y N f 0 t 4 5 Y n f * : f v Y 0 u n f 2 y I L A B 3 y Y {	v Y 0 u f	@ \ \ v Y 0 u d f
o U ^ 4 q # (o ! 2 0				
1	v Y A A e * T *	1 y v Y n b x y D : 2 y " A T w l y x , _	= @ 7 0 f | * ~ v Y : = @ w l	

6.2.7 m 7 w 8 t • 6-8 yz

` 6-8 . `

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
A B • 2 o				
1	@ ; T	A B V W @ ; M 5 $ %	1 y R 9 ~ , I I 2 y { b 1 _ O	1 y @ R 9 ~ , I | I 2 y ; | ! y
2	@ O • v Y	1 y @ # m 7 w l v 0 u : M 5 d 8 [f 2 y @ = L X } ! K M 5 8 [f	1 y A B v Y | 4 < [u 2 y = { |	1 y A B V W | N @ [u / 0 : n v Y 0 u 2 y \ \ K 8 9 b f
A B 2 o				
1	*	1 y T A T 1 y 2 ? z 2 y A " T * ^ A ? 6 3 s ~ % • *: (I J _ # * " ' (3 * { + w A v z 3 y : n v Y 0 u n f A 7 = n f * 5 s # m 7 ' (z 4 y A B n `] (! (F * O D E + X 4 5 z < _ m 7 20 i y * F ' (k { C * X F / 2 y 3 i * O D E + X 4 5 z 5 y v Y 7 Y = 7 * O < I 3 [• * 3 y 4mm z 6 y A ' (3 x _ m 7 10 i y * 2 Q m 7 / Q 104 i A C F / 2 i 7 , ? * 2 Q _ Q 104 i A C F / 1 i 7 , ? * < m % * % & w l ' 2	1 y] 6 T J G 2 y < I w s m 3 y A B < 3 = \ R	1 y A T T _ G 2 y < I 3 [• * 3 y 4mm 3 y A B | { H Y O + X * O f g A * f z = \ R

` 6-8t 9 y

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
A B '				
1	@ 4 Q A B % &	% & O ,	w 8 • \ I	@ 4 Q A B Q M 5 = % & M 5 • \ * 2 o + d V ! 4 A B V W { A B % & (, \ \
2	A B ' * f v Y 0 u * = u v Y O I L A B	1y A B T O # T 3 g } T t } y O * l _ ~ ^ • L z A B T { z 2 y f v Y 0 u z 3 y f = L X } n f ! = K # n f z 4 y I L A B	= L X } n f ! = K # n f d f	@ \ \ = L X } n f ! = K # n f d f
o U ^ 4 q # (o ! 2 0				
1	m 7 t # y w l t i y	1 y m 7 v } % 4 5 2 y 7 Y 3 y 7 Y < g z	1y @ m 7 v } % 4 5 7 Y # O o • L * e = @ T A B 2 y @ = X W M 5 = d M 5 a = \ N z * @ k O o • L = @ T A B	

6.2.8 w l t • 6-9 yz

` 6-9 / • 2
342 T 390 f 127j /F5+2 9.12 Tf 9.17TD (L) Tj P75.6 5 29.04 0.48 re f 104.64 +2 9.12 Tf 9.1610 TD (Y) TS 0 TD ( ) T2 Tf 9.12 0 TD (K) Tj /F5+2 9.12 Tf 9.196 0.48 re f 0 TD ( ) T2 Tf 9.12 0 TD (K)0.56 0 TD 2M75.6 549.36 29.04 06 0 TD (o) Tj /F5+12 Tf 9.167TD ( ) Tj%

6.2.9 9 e 3 A B t • 6-10 yz

` 6-10 0 / : ;

	2 o O P	5 o ! 2 M	7 8 k 7	k 6
A B • 2 o				
1	@ ; T	A B V W @ ; M 5 $ %	1 y R 9 ~ , I I 2 y { b 1 _ O	1 y @ R 9 ~ , I | I 2 y ; | ! y
2	• 4 C v Y Y A	1 y Z • * | | g K N + X I * E d 9 * 3 9 G * _ 2 y @ A B 9 t pH 6.0 y 7.0 * 0 q Q Q 3μS/cm y A 4 C A pH p r pH ~ • e | | w s 7 8 m O { b 1 _ O 3 y @ 9] Z v 0 u 8 [:	1 y Y w s m 2 y A w s m	1 y \ \ Z • * | | g K w s m 2 y \ \ A B 9 A 4 C A pH p r pH ~ • e | w s m { b 1 _ O
3	pH p r J k t • 6-11 y	1 y J J k a • 4 ^ 2 y 2 y J k f # pH p r | { 8 # O g A O *] ? { L] •	pH p r w s m	I pH y] " e
4	pH ~ • e | J k t • 6-12 y	1 y 0.2mol/L t e | J k Nx 40.846g t * e Q 8 , 9 t t ? 9 y* " 1000mL P 8 * , 9 t t ? 9 y e f <) (2 y 0.2mol/L t e | J k N x 27.218g t * e Q 8 , 9 t t ? 9 y* " 1000mL P 8 * , 9 t t ? 9 y e f <) (3 y 0.1mol/L J k N 8 B 8 16.8mL Y " 1000mL P 8 * , 9 t t ? 9 y e f <) (t S e | Y (0.2mol/L y* g ~ + 9 + 9 d # " Y (# ~ • ` e | + X ~ l * : e f 0.1mol/L 4 y 0.1mol/L d G e | J k N + x 8g d G { " g ^ *] " 50 y 60mL 9 e f * " 1000mL P 8 *] 2 y 3mL 10 1 # A G h e | u [\ * : 9 e f <) (* 7 i I z (s I | t S e | Y (0.2mol/L y* t d # " Y (# ~ • e | + X ~ l * : e f 0.1mol/L 5 y (3 y > E (e | J k pH D # pH ~ • e |	pH ~ • e | w s m	m J k pH ~ • e |

` 6-10 t 9 y

	2 o 0 P	5 o ! 2 M	7 8 k 7	k 6
A B 2 o				
1	9 e 3 A B t g • g y	1 y 8 50mL A T Q 250mL Z • O *] " J B N < # 9 *] t k y < 70 y 80 i * O { S ' (v 2 F 5min t { { 9] Z v (o l 2 F 5min y 2 y Z • ^ # | J " * | | O * ~ * s O < { ' * 10mL 9 |] " g K ^ * * pH3.6 y 5.4 % # D pH ~ • e | 10mL *] " # g K ^ * y { (4 g K ^] " 0.25mL p r t D pH ~ • e | J g ! y* 2 { " g • + X g * % & pH 3 y \ T # pH Q 5.4 y * 6 j / P o p r	1 y k] ' (A Z y 2 y * | | 8 9 f	1 y m 5 o ! 2 M m + X 5 o 2 y \ \ * | | D | | * y , l E _ G O = @ @ (8 9 t a b c y
2	9 e 3 A B t g 3 g y	1 y 7 1 5 o a 1 y 2 y Z • ^ # | J " * | | O * ~ * s O < { ' * 10mL 9 |] " g K ^ * y] " 0.3mL p r * 2 { " g 3 # g & g & + X g * % & pH 3 y \ T # pH Q 5.4 y * 4 o p r	1 y k] ' (A Z y 2 y * | | 8 9 f	1 y m 5 o ! 2 M m + X 5 o 2 y \ \ * | | D | | * y , l E _ G O = @ @ (8 9 t a b c y

A B ' \| 5 R B \| R B @ ` R

` 6-11 **pH** 2 1 p

p r x	< g %	J k a
	3.8 y 5.4 M y	0.1g 7.5mL0.02mol/L d G , Q i * , 9 e f < 250mL z I pH 4.5 y 5.4 N g * p r I pH 5.4
P	5.2 y 6.8 M y P	0.1g P e Q 9.25mL0.02mol/L d G ^ * , 9 e f < 250mL z I pH 6.0
t y	6.0 y 7.6 M y	0.1g e Q 8.0mL0.02mol/L d G ^ * , 9 e f < 250mL z I pH 6.0 N g * p r I pH 7.0

` 6-12 n 2 0 3 `

pH	0.1mol/L mL	0.2mol/L t mL	0.1mol/L d G mL	0.2mol/L t mL	e f < J B mL
3.6	6.3	25			100
3.8	2.9	25			100
4.0	0.1	25			100
4.2		25	3.0		100
4.4		25	6.6		100
4.6		25	11.1		100
4.8		25	16.5		100
5.0		25	22.6		100
5.2		25	28.8		100
5.4		25	34.1		100
5.6		25	38.8		100
5.8		25	42.3		100
6.0			5.6	25	100
6.2			8.1	25	100
6.4			11.6	25	100
6.6			16.4	25	100
6.8			22.4	25	100
7.0			29.1	25	100

6.2.10 x y (w 8 z

t 1 y * V W + " J G { | W _ G I k t l b ' (O (_ G y* z 5 o y D R z

t 2 y T t = N ? b T # t a b 9 y { " d " _ G 9 # ; I Y O t U " 2/3 y* n b Z F t = 1 y 3min * : E F _ G z

t 3 y w A N w A v J 5 o v Y h + X Y Z s z n g * I 5 v Y 5 o | * F - v Y X W < s % t M k \ yz , U k w y 30s 1 ? w A z = * w A 3 ? * : ! o A B ' 2 z

t 4 y I v Y U v w A T * X W w S < R * ? (I | A t I | y* k X W + X I 2y3 ? * 7 I | B t _ G I | y I 2y3 ? * (a I J k X W N

3min _ v Y z
t5y w A ' 2) \ l z T ^ # • s , U 3 C D N • m • • D $
6 • z v Y w l # M 4 C • s # 1 z T ^ * 0 # w A ' 2
2 } n _ AS1638 I J (*) ~ • t • 6-13 y* \ l T # NAS) * O 3) 100mL T
^ o 5μm # z H 2 } ~ • y m C , * 0 % # D q ; < ~ • ^ " | *
0 # c * 5 6) • L z

` 6-13 NAS O 4 5 7 6 n

*) t /100mL y	p q * μm				
	5 y 15	15 y 25	25 y 50	50 y 100	>100
00	125	22	4	1	0
0	250	44	8	2	0
1	500	89	16	3	1
2	1000	178	32	6	1
3	2000	356	63	11	2
4	4000	712	126	22	4
5	8000	1425	253	45	8
6	16 000	2850	506	90	16
7	32 000	5700	1012	180	32
8	64 000	11 400	2025	360	64
9	128 000	22 800	4050	720	128
10	256 000	45 600	8100	1440	256
11	512 000	91 200	16 200	2880	512
12	1 024 000	182 400	32 400	5760	1024
N n _ r a r : 2 U o s / t AIA y NAS1638 N 1984 1 | ' 0 z					

7 m . r ; n

7.1 m .
J 7 8 k 6 • 6.2 y 6.10 J # u z

7.2 m ` G
7 8 k • 7-1 z

` 7-1 m `

	k 7	k a V		
		W	H	S
1	< X Y A B			|
2	/ X O o 0 h Y			|
3	T U V 0 \ ] ^ Y A B			|
N 7 8 k 7 ^ H N } 2 ~ 7 W N • O 7 S N 7 z				

T A B Q A m • 7-4 z

t 1 y T Z [A B t " Z X yo Ut 2 y T 4 Q A B B ~ • | w s GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s ^ 20.0.1 A 20.0.2 $ l z) T 0 ! O A X W j ^ # T 4 Q A B B ~ • | w s 18.0.8 $ l z b X ? T " n f T j 0 X | w s 20.0.1 $ l z

t 2 y < X Y 0 h Y T ^ e f = J # g U * 4 ? w # ; D s N 8 z | + k z @ ? < X Y 0 h Y T ^ H_2 s D = J N 8 t μL/L y e , Q D $; < v p N s N 20 * H_2 N 10 * C_2H_2 N 0 z

t 3 y 0 X) 66kV ! u (# T U V 0 X] ^ Y * ^ | q X A B * | 4 + X , ? T # g U * * ? w # " D | b k z 2 3 q b] ^ # 0 X) 66kV ! u (# T U V] ^ Y * | + X T ^ e f = J # g U * z T ^ e f = J R * N 8 t μL/L y D $; < v p e , * s N 10 * H_2 N 50 * C_2H_2 N 0 z

t 4 y 0 X) 500kV # 8 K T {) 7 y * $ + X T ^ e f = J # g U * T ^ e f = J R * N 8 t μL/L y D $; < v p e , * s N 10 * H_2 N 150 * C_2H_2 N 0 z

t 5 y 0 X) 500kV # < X Y 0 h Y * } $ l y 7 w 8 T ^ # N = 8 * D | Q 1 1 t J B * yz

t 6 y 500kV ! u (Z \ < X Y T ($ k { N Z t T y 100mL T ^ Q 5μm # T 2000 D * 500kV ! u (\ \ < X Y Z t T y ($ k { N 100mL T ^ Q 5μm # T 1000 D z

t 7 y T \ + X s y * { s * | T # - . E N T + X * * ' 2 | w s GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s 20.0.1 ^ L 3 11 Q # $ l z T t | GB 50150 2006 n 0 = ? > ? 2 3 0 = 5 Z [A B ~ • s 20.0.2 ^ # $ l + X T # A B z

t 8 y 2 +

TjDF(s)+2 (15.56 Tf 0.44 0 TD (3) Tj 7.55 +1 0.56 TD (10.56/05+2 (+0.56 Tj 0/F5+(7.1.56 Tf 10.56 Tj 15.63 10.56 (+X) Tj 10.56 Tf21.12+7

1 > 6 2 o U &

N **TSSY-ZW-09-01/01**

2 o y	2 o u 7	= > W	> W	+ d V
> * ! k 6				MCD

A B x C D) k 6 q *

>) Q/: N 0
[1 Z 0 V W ,

j k Nt , y 7 & 5 = > W * > W * * + d V , ' 1 z + d V n 2 * 2 k 6 O 2 O zt t y 2 o O P u 7 > 6 D < y 7 & 3 x 4 4 : * 5 6 | = @ > & * (Z @ \ V W ' < 7 y * | { p % & < 7 / 0 z 2 @ V W + X Z 0 * O , \ \ zt y | # % A *) > Q : N 0 ⁄ 8 y \ ) & •) D , d y * Q M | R S " f V W = @ + X $ % O k l 6 ⁄ 9 y & •) k 6 { n 2 : ; zt < y , D = t N > , # y ! o } & • L z