1901

0.9Mt/a

0

1

2 [2013]486

0.9Mt/a 2013 4 12

3 [2013]86

0.9Mt/a 2013 6 3

4 [2009]36

2009 9 14

5 [2011]16

2011 1 5

6 [2008]802

2008 9 11

7 1 1 [2009]30

2.6km

112°27′58″—112°29′05″ 39°29′23″—39°30′28″

[2009]36

“ ”

2014 1 24

1400002009101220038812 1#-11# 90 /

2.4281km^2

[2008]56 “

11 ”

90 t/a 2008 3

2008 9 11

[2008]802 2008 9

2009 1 29

[2008]70 2009 4

900kt/a

2009 12 9 [2009]620

2010 1 28 [2010]79

2010 3

2011 1 5

[2011]16

90 t/a 2.428km^2

8 4 8 9^{-1} 9^{-2} 11

300 t/a

2012 6

2013 4 12

[2013]486

2010 1 28 2013 4 2013

6 3 [2013]86

253

[2001] 13

[2000]38

2013 6 16

0.9Mt/a

“ ”

2014 1 21 -23

0.9Mt/a

2013 6

78% 2630t/d

87.8%

31146.87 682 2.19%

0.9Mt/a 180 /

300

/ 2012 6

[2012]77 2012 7 3

22

[2012]98 2012 8 7

23 [2012]134

2012 10 30

24

[2013]103 2013 11 14

25 [2013]104

2013 11 15

26 1997 7 30

27

[2006]445

28

[2007]523 2007 9

29

[2013]15 2013 2 18

30

[2013]86 2013 11 7

31

[2013]105 2013 12 10

32

[2014]179 2014 12 25

33

[2014]180 2014 12 26

34 2015

[2015]64 2015 5 15

1.1.2

1 HJ/T2.1-2011 HJ2.2-2008,HJ/T 2.3-93 HJ2.4-2009

HJ19-2011 HJ610-2011 HJ619-2011

2 HJ672—2013

3 HJ/T 394—2007

4 [1992] 1229

5 2006 9 1

6

7 1994

8 HJ 446 2008

9 GB50433-2008

10 GB50434-2008

11 2000

1.1.3

1 90 t/a

2012 10

2 [2013]486

0.9Mt/a 2013 4 12

3

2008 3

4 [2008]802

2008 9 11

5

2010 3

6 [2011]16

2011 1 5

7 0.9Mt/a

2010 5

8 [2010]949

0.9Mt/a 2010 8

30

9

2012 11

10 [2013]73

2013 1

23

11 [2009]30

2009 3 4

12

13 [2013]86

0.9Mt/a 2013 6 3

14 0.9Mt/a

2013 7

15

16 300 t/a

2013 6

17 300 t/a

[2013]110 2013 7 16

18 300 t/a

[2014]101 2014 12 22

1.2

1.2.1

1

2

3

4

1.2.2

1

2

3

4

5

1.3

1 — HJ672-2013

— HJ/T394-2007

2

3

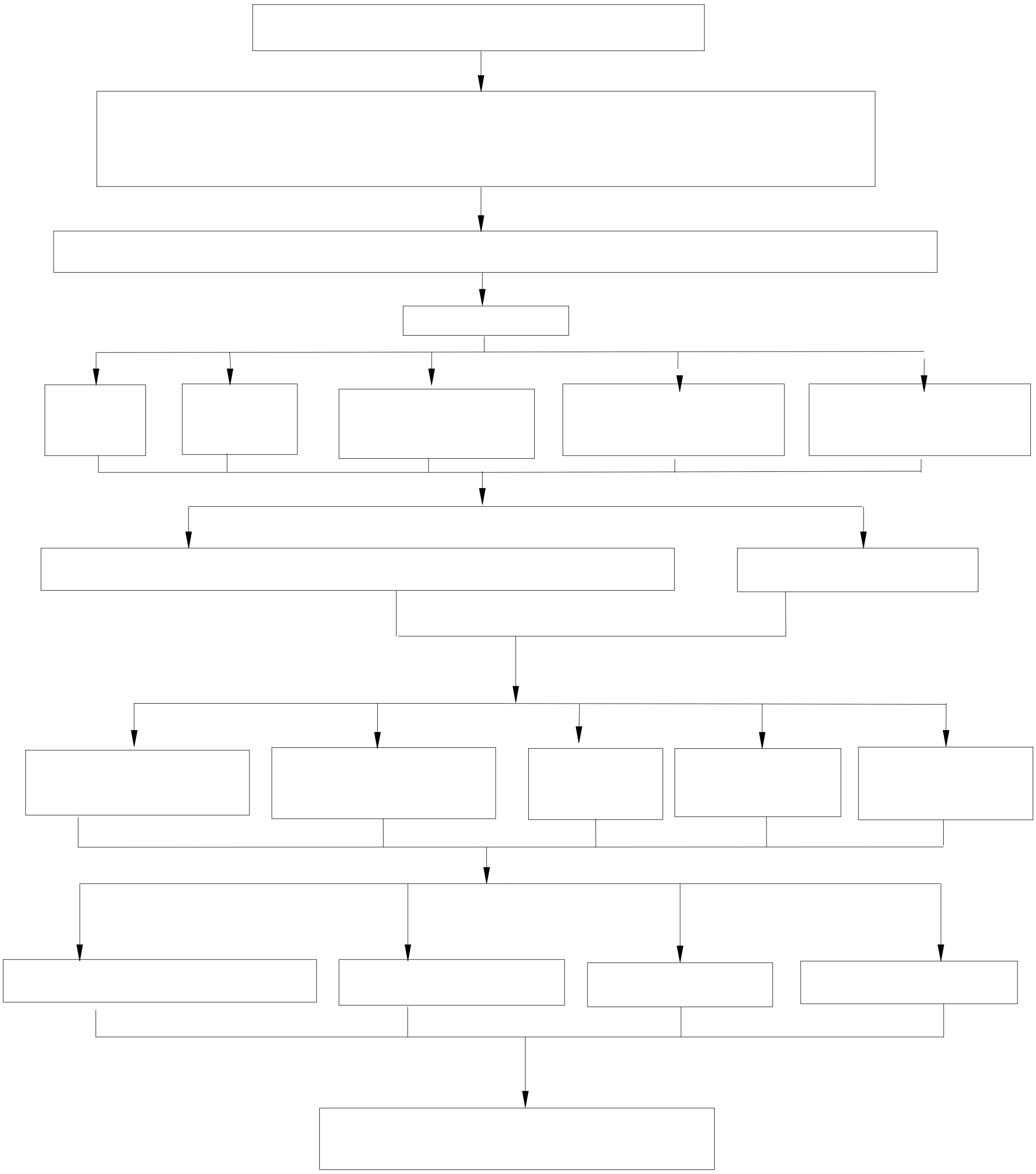
4

1-3-1

1.4

1.4.1

1-4-1



1-3-1

1.4.3

[1999] 3 “

” [2000] 38

—

HJ672-2013

2009 3 4 [2009]30

“ 900kt/a

”

1. GB3095-1996

GB3095-2012

1-4-3 **mg/m^3**

	TSP	PM_{10}	SO_2	NO_2	CO		
	0.20	0.10	0.06	0.08			
	0.30	0.15	0.15	0.12	4.00		GB3095-1996
1			0.50	0.24	10.00		
	TSP	PM_{10}	SO_2	NO_2	CO	$PM_{2.5}$	
	0.20	0.07	0.06	0.04	4.00	0.035	
	0.30	0.15	0.15	0.08	10.00	0.075	GB3095-2012
1			0.50	0.20			

2. GB3838-2002

1-4-4 **mg/L PH**

	PH	COD	BOD	NH_3-N				
	6 9	30	6	1.5	0.5	0.5	0.2	1.5

3. (GB/T14848-93)

1-4-5 **mg/L PH**

	PH			F^-	NH_3-N	NO_3-N	NO_2-N
	6.5-8.5	≤450	≤250	≤1.0	≤0.2	≤20	≤0.02
			As	Hg		Cr^{6+}	Cd
	≤3.0	≤0.1	≤0.05	≤0.001	≤0.3	≤0.05	≤0.01
	Pb						
	≤0.05	≤0.005	≤1000	≤100	≤3.0		
	/L		/ml				

4. (GB3096-2008) 1 2

4a

1-4-6 dB(A)

	2	60	50
	1	55	45
	4 a	70	55

1. GB13271-2001

GB13271-2014 1

1-4-7 0Tc -9.88 4.8910 Td (7)Tj 0.2053Tc -0.0053.88 (G20)5.9(0)]T

3. GB8978-96 4

GB20426-2006 2

1-4-10 (GB8978—1996) 4

	PH	SS	COD_{Cr}	BOD_5		
	6 9	70	100	20	5	2.0
	LAS					
	5.0	10	10	0.5	1.0	15

1-4-11 (GB20426-2006) 2

	PH		COD_{cr}			
	6 9	50.0	50.0	5.0	6.0	4.0

4. GBl2348-2008 2

60 dB A 50 dB A

5. GB18599-2001

2013

2009 1 15 [2009]14 “

900kt/a ” 2009

1 19

1-4-12

1-4-12

			SO_2
/	4.3	14.0	11.5

HJ446-2008

1.5

1-5-1 1-5-1

1.6

1

2

3

4

5

6

7

8

9

10

11

1-6-1

1-6-1

1-5-1

							90	
		5.0hm^2					50%	
		120m						
		3.8km						
		10.2km						
		1m					2	
		200m					1	
		200m					4 a	
		( )	(km)	( )				
		NE	1.71	58	260			
		NW	1.20	41	184			
		WNW	2.38	55	247			
		SSW	1.62	62	250			
		SE	1.40	32	130			
		SSE	1.69	38	152			
		N	2.45	45	225			
		SSE	3.45	52	282			

2.1

2.1.1

400km^2

“V” “U”

30-50m 1505.5m

1258.00m 220.5m

“V” “U”

2.1.2

5.8 34.5

28.8 2702.3h

5755.94~5988.48MJ/m^2 410.4mm 757.4mm 195.6mm

7 8 9 75% 2118.4mm

5 6 7 30mm

54% 10 4 1.23m

1.74m 17.2m/s 44 22

23m/s

2.1.3

2.1.4

1

112km

30km 2133km^2

70km 1035km^2

18km 136km^2 60 120m^3/s 500m^3/s 1921

0.17 0.26m^3/s 1990 9 0.0348m^3/s

0.07423m^3/s

15km 70 100m 36 40L/s

2008 11

100a 1270.2m

2-1-1

2

2—4

40m

0.014　0.33 L/s

.

2—3　K_3　K_3

3.08　5.77m　4.56m

0.041　0.84L/s.m

0.28　27.12m/d　1311.61m　HCO_3　Mg·Ca

0.52g/L　19.98

9　9　11

,

q=0.056　0.01L/s.m

k=0.209　0.176m/d

HCO_3　Ca·Mg　10　15

3

806　8021

HCO_3-CaMg

1070.00　1074.00m　1078m

4　9^{-1}　9^{-2}

11　1070m

4　9^{-1}　9^{-2}　11

3

28.95　4.77m

4

5

60m^3/d 100m^3/d

11 0.15 MPa/m

0.06 MPa/m 11

2006

500m^3

80D30×7 45KW

210 m 146 m

20—25m

5m

6

4 21 t/a

$60m^3/d$ $100m^3/d$ 90 t/a

$257\ m^3/d$ $428\ m^3/d$ 8

$150m^3/d$ $300m^3/d$ 9

$157m^3/d$ $204m^3/d$ 11

$19m^3/d$ $24.3m^3/d$

7

11 0.15 MPa/m

0.06 MPa/m 11

2-1-2

8

2.1.5

2-1-3

1

$5km^2$ 100

1052 1065m 1044 1053m

— — —

12km

4

—

—

1460m

( )

2.1.6

\ ó ’

40% 38 550

2.4.4

109

“ ”

~ 5km

16km

[2009]36

1
1-
3-

	11 9 4		

. 1901

2009.12.09

2008

	1400000622894 2.428km		2006.11.20
			2008.03

[2009]620

	ì		2008.09
	[2008		2009.01.29
	ì 0.9Mt/a		2009.04

		[2010]79		2010.01.28
90				2009.09.14
				2010.03

[redacted]

		/	/	
		[2011]16		2011.01.05
		1400002009101220038812 1#-11# 90 / 2.4281km^2		2014.1.24
		[2012]1095		2012.09.07
		0.9Mt/a		2012.06
		[2013]486		2013.04.12
		[2013]86		2013.06.03
		[2014] 95 [2015] 35		2014.12 2015.05
				2013.07

3.2

3.2.1

3-2-1

3-2-1

3.2.2

2.6km

112°27′58″—112°29′05″ 39°29′23″—39°30′28″

19km 22km

— 235km 130km

3-2-1

3.2.3

3.2.3.1

[2009]36

“ ”

2.428 km^2 0.9Mt/a

2014 1 24

1400002009101220038812 1#-11# 90 /

2.4281km^2

3-2-2

3-2-2

3.2.3.1

1

3-2-3

(1) O_2s

180.00m

—

(2) C_{2b}

28.95 42.77m 37.00m

2

(3) C_3t

87.23 109.44m 100.23m

1-2

8 9^{-1} 9^{-2} 11

4 5 4 5

57

(4) P_1s

48.64 78.79m 67.56 m

1 2

(5) P_1x

58.22 103.42m 92.56m

K_4

(6) Q_{2+3}

3.88-43.70m

26.50m

2

(1) C_3t

4 8 9^{-1} 9^{-2} 11 9 11

11 9

9 9^{-1} 9^{-2}

8

5 4 4

(2) P_1s

2

4 8 9 11

3

2°~5° F_2

80° 5m 200m

3.2.3.2

1

P_1s 2 2 3

0.40m 67.56m 0.6%

C_3t 5 4 8 9^{-1}

9^{-2} 11 4 8 9^{-1} 9^{-2} 11 5

57 31.81m

100.23m 31.74%

2

4 8 9^{-1} 9^{-2} 11

4 11.60 15.92m 13.31m

3 16 0.02 0.53m

8 4 4 11.30
19.20m 16.65m 1.34 1.69m 1.53m
— 0 2 0.05 0.15m
9^{-1} 8 8 5.68 10.20m 8.40m
6.76 7.42m 7.06m 2 6

9^{-2} 9^{-1} 9^{-1} 13.50 22.20m 16.65m
5.44 5.62m 5.53m 3 6

11 9^{-2} 8.40 13.53m 10.00m
1.94 4.71m 3.61m
1 5
3-2-3
3
8 9 11

3-2-4
4
200~13mm
13~0mm 3~0.15mm 0.15~0mm

3.2.3.3

/ 84.9Mt / 46.93Mt
4 18.98Mt 8 2.62Mt 9^{-1} 10.27Mt 9^{-2} 9.57Mt 11
5.48Mt 3-2-5
37.2a 4 15.1a 8
9^{-1} 9^{-2} 11 22.1a

3.2.3.4

1
2007 31 “

2006 ”

2006 $0.38m^3/min$

$0.80m^3/t$ $1.02m^3/min$ $2.16m^3/t$

2

2008 8 2 4

400mm 75%

2007 6 9

9 400mm 75%

3

2008 8 2 4

$0.62cm^3/g$

2007 6 9

9 $0.8063cm^3/g$

4

3.3

3.3.1

90 t/a

3-3-1

3-3-1

		90 t/a	90 t/a		
		21 / 23° 482m	23° 502m		
		22° 453m	6.5° 1390m		
		21 / 29° 300m	90 23.6°, 423m		
		+50mm 50~25mm -25mm +50mm 50~25mm -25mm			
		450m^2 540m^2 135m^2			
		1344m^2 1152m^2 1688m^2 1330m^2 166m^2			
		1 , 16m, 36.5m, 4850t 16m, 42m, 5500t , 8000t			

[redacted]

3.3.2

1

8 4 8 9^{-1} 9^{-2} 11

23° 502m

6.5° 1390m

23.6° 423m

3-3-2

3-3-2

1		(X)	4374005.998	4374065.1	4374111.01
		(Y)	19626698.806	19626688.7	19626763.95
2	(°)		240°	270°	
3	(°)		23°	6.5°	23°39’
4	(m)		+1305.854	+1305.5	+1305.235
5	(m)		1112.8	1151.5	1139.6
			1112.8	[illegible]>>BDC [redacted]	
6	(m)		502	1390	423

4 8 9^{-1} 9^{-2} 11 2 4

1137m 8 9^{-1} 9^{-2} 11 1079m

3-3-1 3-3-2

3

4

4 4 8 9^{-1}

9^{-2} 11 9^{-1} 9^{-2} 11

4

4 1 8 9^{-1} 9^{-2} 11 1

4 8 9^{-1} 9^{-2} 11

3-3-3

3-3-3

		Mt	Mt/a	(a)	
	4	18.98	0.9	15.1	
	8 9^{-1} 9^{-2} 11	25.33	0.9	22.1	

4101 3-3-3

5

4 9^{-1} 9^{-2}

11

6

7

90 t/a 4

257m^3/d 428m^3/d

8 150m^3/d

300m^3/d 9 157m^3/d 204m^3/d

11 19m^3/d 24.3m^3/d

3.3.3

1

300 t/a >13mm

13 0mm 3.0 0.15mm

0.25 0mm

2

3

4

1

450m^2

540m^2

2

135m^2

5

1

(5 8m)

20 30m

2 3-3-4

3-3-4

1		65ZX30-15		1
2		LHZ-40		1
3		FFZ-T60		1
4		Φ245×7	m	1500
5	( )	Φ108×6×5	m	1400
6	4	DN100	m	200
7		80NYL50-20J		2
8		Φ30	m	200

6

2 DZL4.2-1.0/115/70-A 1

DZL1.4-0.7/95/70-A 3

1

DZL1.4-0.7/95/70-A

157d/a 16h/d 208 d/a 8 h/d

4 25.38% 0.54%

7

1 20 m^3/h → →

→ →

100%

8

SBR-15

15m^3/h 155m^3/d

100%

3.3.4

241 1km

3.3.5

17.9hm^2 4.9hm^2

5.0hm^2 6.5hm^2 0.2hm^2 1.3hm^2

1

3-3-3

2

5.0hm^2

100 m^3

3m 45

100 m^3

“ ”

1-1

3

50m 150-200m

280m 30-40m 6.50hm^2 220 t

40 t 5a

4

8.0m 1.3hm^2

5

1.23hm^2 25%

3.3.6

3-3-5

3-3-5

		m^3		
1		1620.0		
2		320.0		
3		660.0		
4		883.2		
5		198.0		
6		6480.0		
7		3600.0		
8		742.5		
9		3375.0		
10		1687.5		
11		1260.0		
12		486.0		
13		360.0		
14		400.0		
15		243.0		
16		259.2		
17		1360.5		
18		7526.4		
19		4320.0		
20		6330.0		
21		913.0		
22		330.0		
23		4389.0		

3.3.7

300 / 200~13mm 13~0mm 3~0.15mm

0.15~0mm

300 t/a 2012 6

2013 7 [2013]110

2014 12 [2014]101

3-3-6

1		300 t/a
2		
3		
4		300 t/a
5		
6		200~13mm 13~0mm 3~0.15mm 0.15~0mm
7		
8		9860
9		330d/a 16h/d 5280h
10		4.77m^2
11		2013.06
12		[2013]110 2012.07.16
13		[2014]101 2014.12.22

3.3.8

3-3-7

3-3-7

1		km^2	2.4281	
1.1		km	1.45	
1.2		km	2.0	
2		—	—	
2.1			4 8 9^{-1} 9^{-2} 11	
2.2		m	13.31	

2.4		(°)	2　5	
3	/	—	—	
3.1	/	Mt	79.39	
3.2	/	Mt	78.22	
3.3	/	Mt	71.58	
3.4		Mt	44.31	
4		—	—	
4.1		Mt/a	0.9	
4.2		t/d	2727	
5		—	—	
5.1		a	35.2	
5.2	4	a	15.1	
6		—	—	
6.1		d	330	
6.2			4	
7		—	—	
7.1		—		
7.2			2	
7.3		m	+1137	
7.4		—	1.0m	
7.5		—		
8		—	—	
8.1			1	
8.2			2(　2　)	
8.3		—		
9		ha	17.9	
9.1		ha	4.9	
9.2		ha	0.2	
9.3		ha	5.0	
9.4		ha	6.5	
9.5		ha	1.3	
10			524	
10.1		t/	7.93	
11			31146.87	
12			346	
13			20.4	

3.3.9

31146.87 682

2.19% 3-3-8

3-3-8

1			2 DZL4.2-1.0/115/70-A 1 DZL1.4-0.7/95/70-A +DCJ-X 40m	65
			1	24
2				78
3			1 $2\times15m^3/h$ +	120
			1 $20m^3/h$	80
			500 m^3	15
4			1 1 1 1	130
			1	8
				6
5				120
				6
6			$1.23hm^2$ 25%	14
7				16
				682

3.4

$5.0hm^2$

100 m^3

20-30m

3-4-1

1					

3.5

2700 t/d

80%

3-5-1

				%
	1 21	3000 t/d	2650 t/d	88
	1 22	3000 t/d	2750 t/d	90
	1 23	3000 t/d	2550 t/d	85
	2013 6	7.5 t/	60600t/	81
	2013 7	7.5 t/	60000t/	80
	2013 8	7.5 t/	57500t/	77
	2013 9	7.5 t/	58000t/	77
	2013 10	7.5 t/	56900t/	76
	2013 11	7.5 t/	57200t/	76

3.6

4.1

4.1.1

1

5.0hm^2

2

(45° 70°) 260m

62.15hm^2

24.18hm^2 37.97hm^2 176.30hm^2

61.44hm^2 114.86hm^2

31.54t

91.72t

4.1.2

11 K_2

“ ”

4 9 11

11 1070 1078m

(Ts<0.06MPa/m) >1078m

11

10.2km 5.3km

4.1.3

1

2

4.1.4

+DCJ-X 40m

98% 70% SO_2

GB13271-2001

4.1.5

200m

200m

51.6dB(A) 53.7dB(A)

46.3dB(A) 49.8dB(A) 2

4.1.6

4.2

2013 4 12 [2013]486

0.9Mt/a

“ ”

“

( ) ”

10m^3/h+10m^3/h

2×15m^3/h

0.9Mt/a

11.5t/a 4.3t/a 14.0t/a

./ Å j à f w

4.3

4-3-1

4.4

[2009]620 “

900kt/a ” 4-4-1

[2013]486

0.9Mt/a 4-4-2

4.5

4-5-1

4-3-1

		2 6t 1 2t +DCJ-X 40m	3	SO_2 GB13271 -2001		
		1	1			
			1			
			1			
			--	GB12348-2008 2		
			--			
			4			
		2×15m^3/h +	1			
		1 20m^3/h	1			
			——			
		1 , 1 , 1 1	1			
			15 , 1			
			5000m^2			

			--	95% 95% 90% 45%		
			--	90% , 20%		
			1.0hm^2			
		1.23hm^2 25%	1.23hm^2	25%		
		5.0hm^2 50%	5.0hm^2	50%		--
		6.5hm^2 50%	6.5hm^2	50%		--
		8 9 11 1.5%	--	2006 445	300 /	

4-4-1 900kt/a

1			
2			
3		ClO_2 500m³	
4	SO_2 2m	SO_2	

5			
6			
7	11 1.5% 11	7 300 / 2013 [2013]110 2014 12	

4-4-2 900kt/a

1	“ ”	“ ”	
2		2010 2 2012 3 [2012]378 [2013]26	
3	“ ( ) ”		
4	$10m^3/h+10m^3/h$ $2×15m^3/h$	ClO_2 $500m^3$	
5		4 0.54% 25.38%	

6			
7		1406032201212015	
8	0.9Mt/a 11.5t/a 4.3t/a 14.0t/a	4-3-1 SO_2 2.93t/a 8.66t/a	
9			
10	180 /	300 / 2013 7 [2013]110 2014 12 [2014]101	

5.1

5.1.1

1

4 9 3

1

2

3

2

A—B1—B2—B/C A 0 26cm - B1

26 8lcm

A 5.64% 0.313% C/N10.5 257.8ppm 0.0724%

24.2mg /100g B1 26 50cm 3.35% O.2076% C/N9.4

308.7ppm 14.7mg /100g A 6.15% B1 18.38%

B2 17.98%

5.1.2

GB/T21010-2007

9

5-4

2.75 1.47

km^2 68.75 60.49 % 0.04 0.00 km^2 1.00 0.00 %

1.20 0.95 km^2 30.00 39.09 %

5-4

			(km^2)	%	(km^2)	%
1			1.2	30.00	0.95	39.09
2			0.04	1.00	0.00	0.00
3			0.01	0.25	0.01	0.41
4			2.75	68.75	1.47	60.49
5			4.00	100	2.43	100.00

5.1.3

SL190-2007

5-3

5-3

			km^2	%	km^2	%

1

1

1

“

”

2

1

30~50%

0.5~1.5m

2

1100~1250m

30~45% 5~15cm

30~60%

20~40cm

3

2

10 20

5-6

5.2

5.2.1

5-6

km^2

	17.9ha
	1.23ha 25%

5.2.3

1

2

3

4

5

6

5.2.4

5-2-3 5-2-4

5-2-3

	1 2 20%	1 2

4

2

4 4

$0.5932km^2$

30cm-50cm 5m-40m

50cm-80cm

2

5-3-1

5.3.2

150-200m 280m 30-40m $6.50hm^2$

220 t 40 t 5a

$6.5hm^2$ $6.5hm^2$

220 m^3 98% 4.4 m^3 8.0

5.3.3

5.0hm^2

100 m^3

30%

“ ”

5.3.4

21 /a 1.00hm^2

2015

5.4

(GB/T14848-93)

6.2

6.3

6.5.1

1

2

“ ”

6.5.2

11

1078m 4 9^{-1} 9^{-2}

11 1070m

4 9^{-1} 9^{-2}

11

11 1070-1078m

(Ts<0.06MPa/m) >1078m

11

2

“ ”

6.5.3

6.5.4

4 9 11

11 1070 1078m

(Ts<0.06MPa/m) >1078m

10.2km 5.3km

10cm/d

10% 4576 km^2 0.05%

6.4

1

2014 1 21 -23 2015 5 4 -6

2

6-3-1

6-3-1

	pH	3 1

3

4

6-3-2

6-3-2

GB/T14848-93

5

2010 12 17 19

660m 440m 660m 300m

600m 150m

(GB/T14848-93)

6.5

1 11

2 10.2km

3 GB/T14848-93

20m

7.1

112km

30km 2133km^2

70km 1035km^2

18km 136km^2 60 120m^3/s 500m^3/s 1921

0.17 0.26m^3/s 1990 9 0.0348m^3/s

0.07423m^3/s

15km 70 100m 36 40L/s

7.2

SS

BOD_5 COD SS

7.3

COD BOD_5 SS

7-3-1

7-3-1

	(m^3/d)		(m^3/d)	
	130	1 20 m^3/h → → → →	0	
	155	1 2×15m^3/h +	0	
	--	500m^3 10m×10m×5m	0	

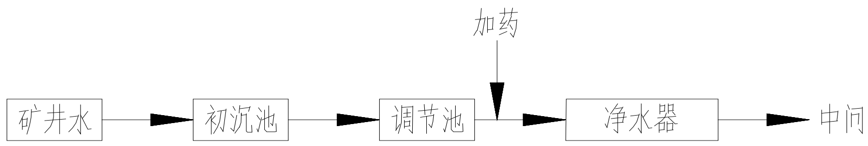
7.3.1

1 20 m^3/h

→ → → →

100%

7-3-1



7-3-1

7.3.2

SBR-15

15m^3/h

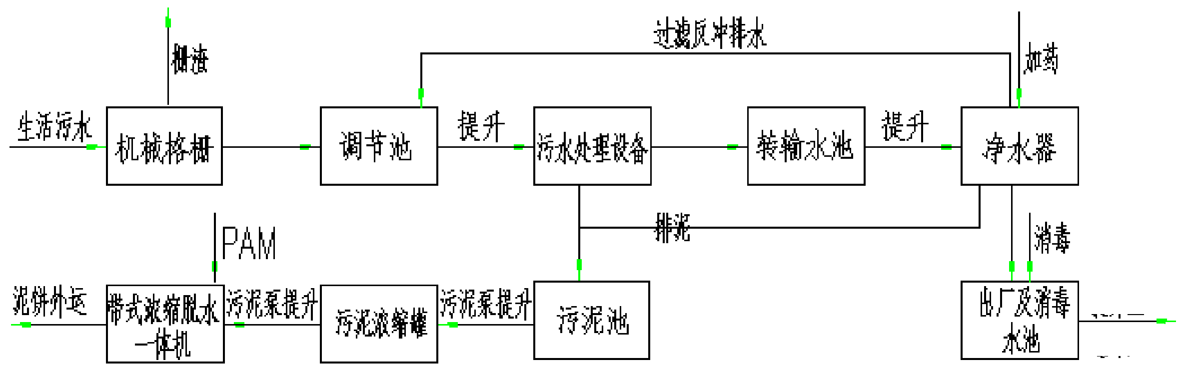
155m^3/d

100%

SBR

SBR SBR

7-3-2



7-3-2

7.3.3

500m^3

10m×10m×5m

7.3.4

100%

155 m^3/d

320 m^3/d

7-3-3

7.3.5

7.3.5.1

1

2014 1 21-23 2015 5 4-6

1

2

7-3-2

7-3-2

	1	pH SS COD_{Cr} Cr^{6+}	3 4

3

4

GB20426-2006

GB8978-1996

7-3-3

7-3-3

SS COD_{Cr} 75.9% 71.1%

82.5% 30.4%

7.3.5.2

1

2014 1 21-23 2015 5 4-6

1

2

7-3-4

7-3-4

	1	pH SS COD_{Cr} BOD_5 LAS	3 4

3

4

7-3-5

- GB/T18920-2002 “ / ”

GB50810-2012

GB8978-1996

7-3-5

SS COD BOD 84.8% 95.0%

96.2% 83.3%

7.4

$130m^3/d$ $20m^3/h$

GB20426-2006

GB8978-1996 SS COD_{Cr}

75.9% 71.1% 82.5% 30.4%

$155m^3/d$ $30m^3/h$

- GB/T18920-2002 “

/ ” GB50810-2012

GB8978-1996

SS COD BOD 84.8% 95.0% 96.2% 83.3%

$500m^3$ 10m×10m×5m

8.1

GB3095-1996

GB3095-1996

GB13271-2001

GB20426-2006 4

5

150 /

2012 4 7 ~4 13

TSP PM_{10}

NO_2 SO_2

8.2

8.3

8.3.1

8.3.1.1

2 DZL4.2-1.0/115/70-A

1 DZL1.4-0.7/95/70-A 3

1

DZL1.4-0.7/95/70-A

157d/a 16h/d 208 d/a 8 h/d

4 25.38% 0.54% 30.83MJ/kg

DCJ-X

XTD

NaOH-Ca $(OH)_2$

1

$NaOH \quad SO_2 \rightarrow Na_2SO_3 + H_2O$ 1

$Na_2SO_3 \quad SO_2 \quad H_2O \rightarrow 2NaHSO_3$ 2

1

2

2

$Ca(OH)_2 \quad Na_2SO_3 \rightarrow NaOH \quad CaSO_3\downarrow$

$Ca(OH)_2 \quad NaHSO_3 \quad Na_2SO_3 \quad CaSO_3\downarrow + H_2O$

$NaHSO_3$

Na^+ SO_3^{2-} $CaSO_3$

40m

SO_2

NaOH pH 10 11

8.3.1.2

8.3.1.3

1.0km 241

8.3.2

8.3.2.1

8-3-1

8.3.2.2

1

2014 1 21 -22

8-3-1

1	2 DZL4.2-1.0/115/70-A DZL1.4-0.7/95/70-A	SO_2 NO_X	2 3	--

2	1 4	SO_2	2 3	1.5m,
3	1 4			
4	1			

8-3-2 8-3-3

8-3-4

8-3-2

		kg/h	kg/h	%
DZL4.2-1.0/115/70A 1#	1 21	960	710	78.9
	1 22	960	715	79.4
DZL4.2-1.0/115/70A 2#	1 21	960	710	78.9
	1 22	960	720	80.0
DZL1.4-0.7/95/70-A 3#	1 21	320	230	76.7
	1 22	320	230	76.7

8-3-3

	%
1 21	0.53
1 22	0.54

8-3-4 78.5-118.1 mg/m^3 SO_2 263-297mg/m^3 NO_X 133-158 mg/m^3

GB13271-2001 100%

GB13271-2014 1

SO_2 NO_X

1.48

2016 6 30

1 2

3

4

2

2014 1 21 22

8-3-5

8-3-5

SO_2

GB20426—2006 5 100%

8.4

1

GB13271-2001

2

3 SO_2

GB20426—2006 5 100%

9.1

200m

2

9.2

,

85~100dB A

200m

9.3

9.3.1

9-3-1

9-3-1

1			
2			
3			
4			
5			
6			
7			
8			
9	35kv		
10			
11			

9.3.2

1

2

2014 1 21 22

9-3-2

9-3-2

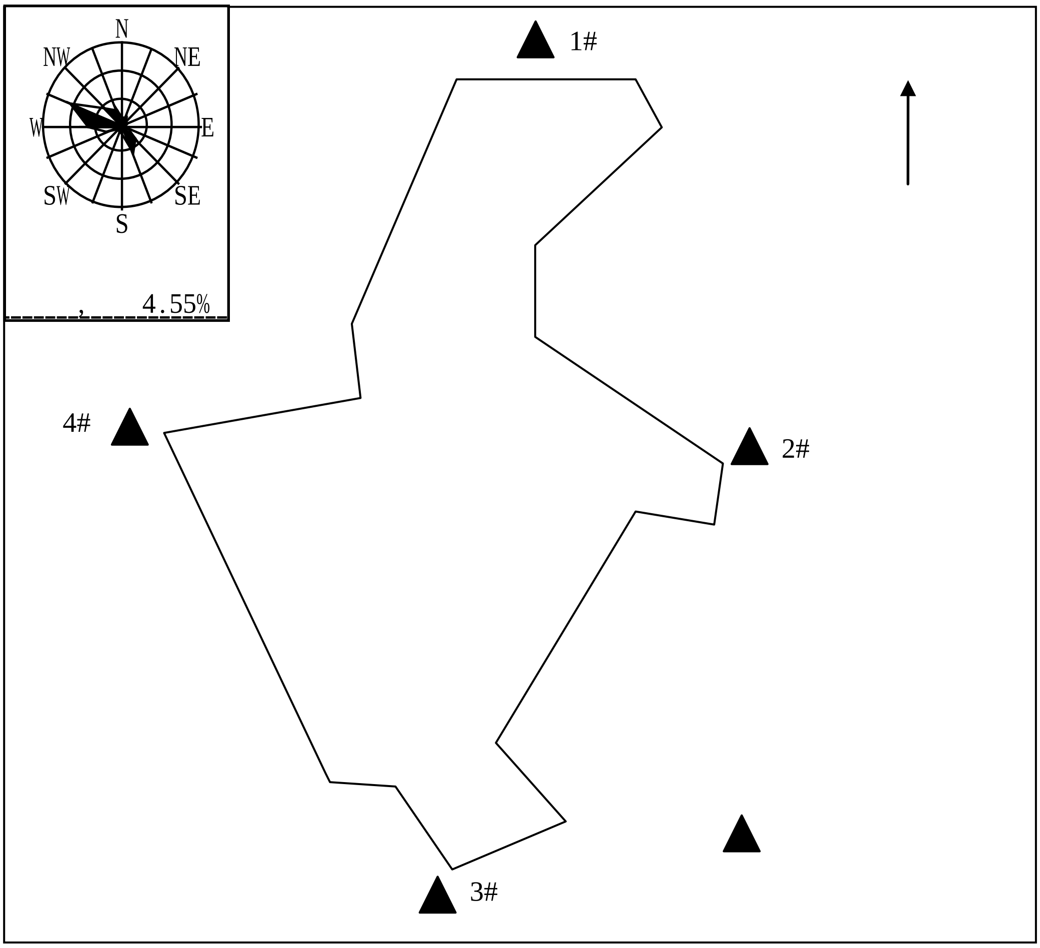
	4	Leq(A)	

3

9-3-3

9-3-3

		Leq(A)			
		dB(A)		dB(A)	
		1 21	1 22	1 21	1 22
	1#	55.6	54.9	46.7	46.0
	2#	55.7	53.9	47.7	45.1
	3#	54.8	55.4	45.7	46.0
	4#	55.3	56.2	44.2	46.1
dB(A)		60		50	



9-3-1

9-3-3

GB12348-2008 2

9.4

10.1

10-1-1

10-1-1

	t		
	4500		
	140 60		
	24		

10.2

10.3

150-200m 280m 30-40m 6.50hm^2

220 t 40 t 5a

GB 18599-2001

2013 500m

10.4

11.1

2.6km

112°27′58″—112°29′05″ 39°29′23″—39°30′28″

11 2 442 445 18.3

25 1.56

11-1-1

11-1-1

	( )	(km)	( )	( )
	NE	1.71	58	260
	NW	1.20	41	184

11.3

1

2

11.3

12.1

1 2

12-1-1

12-1-1

ʿ Ψ

0.9Mt/a

		3m
		“ ”

			2014 1 2015 5

“ ”

12-1-2

12-1-2

GB15562.1-1995 GB15562.2-1995

12.2

12.2.1

NO_X SO_2

1 3

1 4

1 3

pH SS COD_{Cr} BOD_5

LAS

pH SS BOD_5 COD 1

3

pH SS COD_{Cr}

Cr^{6+}

PH COD SS 1 3

3

4

5

(1)

(2)

(3)

(4)

7 8 9

(6)

7

12.2.2

2014 1

12.3

[2007]306

[2007]618

[2010]60

[2011]302

“ ”

12.4

12.4.1

12.2.1.2

12-2-1

12-2-1

1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

12.4.3

1

3km

1

2

3

2

[2012]77

[2012]98

[2012]389 “ ”

140603201212015

13.1

13.1.1

4

257.0m^3/d 428.0m^3/d 8 150m^3/d

300m^3/d 9 157m^3/d 204m^3/d

11 19m^3/d 24.3m^3/d

20m^3/h

130 m^3/d 20m^3/h

→ → → →

100%

13.1.2

524 54

186.2m^3/d 12m^3/h

155 m^3/d 30m^3/h

→SBR → → →

100%→

14.1

2008 11 21

HJ446—2008 2009 2 1

6

14.1.1

HJ446-2008

14-1-1

14.1.7

14-2

14-1-2

	19	8	14	2	43
(%)	44.2	18.6	32.6	4.6	100

14-2 43 19

8 14 2 44.2%

18.6% 32.6%

4	100	≥80	100	

14-1-1

1. /(kWh/t)		≤15	≤20	≤25	22.84	
2. /(m^3/t)	( )	≤0.1	≤0.2	≤0.3	0.05	
3. /(m^3/ t)		≤10	≤25	≤30	≤30	
4. /%		≥77		≥75	80	
		≥82		≥80	75	
5. /%		≥95		≥93	95	
		≥97		≥95	95	
6. (hm^2/Mt)		0.1 0.12			0.20	
2.	%	≤0.5	≤1.5	≤2.0	0.54(4)	
	%	≤12	≤15	≤22	20(4)	
1. (g/t)		≤100	≤200	≤300	0.62	
2. (g/t)		≤6	≤8	≤10	0.13	
3. (t/t)		≤0.03	≤0.05	≤0.1	0.03	
4. (mg/m^3)		≤4000			3000	
1. /%		≤85	≤70	≤60	-	-
2. /%		≤80	≤75	≤70	≤70	
3. /%		100	≥95	≥90	100	

14-1-1

3.		100%	98%	95%	95%	
		“ ”				
4.		GB20426 GB18599			GB20426 GB18599	
5.						
		“ ”				

14-1-1

5.						
6.						

14.2

14.2.1

2009

4.3 t/a 14t/a SO_2 11.5 t/a

14.2.2

14-2-1

14.2.3

14-2-1 SO_2 2.93t/a 8.66t/a

4.3 t/a SO_2 11.5t/a

14-2-1

							t/a			
		h	kg/h	kg/h	t/a	t/a			t/a	
	DZL4.2-1.0/115/70A 1#	208×8+16×157	19.44	0.60	32.35	1.00				
	DZL4.2-1.0/115/70A 2#	165×16	19.77	0.61	32.90	1.02	95.65	2.93	4.3	
	DZL1.4-0.7/95/70-A 3#	165×16	7.28	0.22	30.40	0.92				
	DZL4.2-1.0/115/70A 1#	208×8+16×157	5.91	1.79	9.83	2.98				
SO_2	DZL4.2-1.0/115/70A 2#	165×16	5.99	1.91	9.97	3.18	27.69	8.66	11.5	
	DZL1.4-0.7/95/70-A 3#	165×16	1.89	0.60	7.89	2.51				
	DZL4.2-1.0/115/70A 1#	208×8+16×157		0.97		1.61				
NO_2	DZL4.2-1.0/115/70A 2#	165×16		0.95		1.58		4.32	//	//
	DZL1.4-0.7/95/70-A 3#	165×16		0.27		1.13				
									14	//

15.1

15.1.1

15.1.2

7 2013 6 20

10

2014 7

100 27 63

15-1-1

15-1-1

				<35	35-55	>55							
	35	20	15	3	19	13	1	33	0	0	1	34	1	0
	57	39	18	8	45	4	1	54	0	0	2	43	12	2
	8	5	3	2	4	2	0	8	0	0	0	5	3	0
	100	64	36	13	68	19	2	95	0	0	3	82	16	2

15.2

1

2

3

4

5

6

0.9Mt/a

[2009]36

“ ”

2.6km

2013 4 12 [2013]486

2013 6 3 [2013]86

2014 6

13934941339

13753122370

10

2013 6 20

15-2-1

0.9Mt/a

w ·

2.6km N

15.3

15.3.1

15-3-1

15-3-1

		/ %	/ %	/ %	/ %
		/0%		/100%	
		/0%	/3%	/8%	/89%
		/0%	/5%	/6%	/89%
		/0%	/0%	/0%	/100%
		/0%	/0%	/0%	/100%
		/0%	/2%	/13%	/85%
		/0%	/3%	/10%	/87%
		/0%		/100%	
		/0%	/0%	/0%	/100%

1

2 3% 8%

89%

3 5% 6%

89%

4 100%

5 2% 13%

85%

6 3% 10%

87%

7 100% 6%

94%

8

9 6% 94%

10 6% 94%

11

12 36% 64%

13 35% 29%%

36%

13 91% 9%

15.3.2

“ ”

15.3.3

100%

0.9Mt/a

16.1

2.6km

112°27′58″—112°29′05″ 39°29′23″—39°30′28″

[2009]36

“ ”

2014 1 24

14000020091012200388121 1#-11# 90 /

2.4281km^2

2010 3

2011 1 5

[2011]16

90 t/a 2.428km^2

8 4 8 9^{-1} 9^{-2} 11

300 t/a

2012 6

2013 4 12

[2013]486

2010 1 28 2013 4 2013

6 3 [2013]86

2013 6

78% 2630t/d

87.8%

31146.87 682 2.19%

2014 1 21 -23

16.2

3 4# 0.76km^2

18.98Mt 15.1a

4

4

150-200m 280m 30-40m 6.50hm^2

220 t 40 t 5a

5

6 1.0km 241

7

8 21 /a

1.00hm^2

16.3.2

$4^{\#}$ $8^{\#}$ $9^{\#}$ $11^{\#}$

11

1078m 4 9^{-1} 9^{-2}

4 9^{-1} 9^{-2} 11

1070m 11

11 1070-1078m (Ts<0.06MPa/m)

>1078m

GB/T14848-93

10.2km

16.3.3

130m^3/d 20m^3/h

GB20426-2006

GB8978-1996 SS COD_{Cr}

75.9% 71.1% 82.5% 30.4%

155m^3/d 30m^3/h

GB8978-1996

SS COD BOD 84.8% 95.0% 96.2% 83.3%

500m^3 10m×10m×5m

16.3.4

1

GB13271-2001

2

3 SO_2

GB20426—2006 5 100%

16.3.5

GB12348-2008 2

16.3.6

16.3.7

16.3.8

43 19 8

14 2 44.2% 18.6%

32.6%

SO_2 2.93t/a 8.66t/a

4.3 t/a SO_2 11.5t/a

16.3.9

100%

16.4

16.4.1

1

2

3 Ȟ Պ

3 “ ”

4

16.5

0.9Mt/a