



山东朗格环保工程有限公司
Shandong Langge Environmental Protection Engineering Co., Ltd

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GB12348-2008

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4a

GB3096-2008

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1 2015 1 1
2 2016 9 1 2018 12 29
3 2018 10 26
4 2017 6 27 2018 1

1

5 2022 6 5
6 2020 4 29
7 2019 1 1
8 2011 3 1
9 2012 7 1
10 2018 10 26
11 2018 10 26
12 2020 1 1
13 [2013]37 2013 9

10

14 645 2013 12 7
15 31 2015 1 1
16 [2015]4 <
> 2015 1 8
17 [2015]17 2015

4 2

18	34			2015 6 5
19	[2016]45			
	2016 4 15			
20	[2016]31			
2016 5 28				
21	[2016]150			
	2016 10 26			
22	[2016]81			
	2016 11 10			
23	42			2016 12 31
24				
	2017 2 7			
25	682			2017 10 1
26	[2017]84			
	2017 11 14			
27	[2018]11			
	2018 1 25			
28	[2018]266			
		2018 5 10		
29	[2018]17			
	2018 6 16			
30	4			2019 1 1
31		2019 4		
2018	2019 1 23			
32	2019 8	<		
	2019 >	2019 2 27		
33	[2019]17	<		>

2019 3 1
 34 [2019]25 2019
 3 28
 35 [2019]56 < >
 2019 7 9
 36 2019 28
 2019 7 23
 37 [2019]719
 2019 9 2
 38 [2019]92
 2019 10 15
 39 29 2019 2019
 10 30
 40 [2020]463 <
 2021 2023 >> 2021 >
 2020 9 1
 41 [2020]23 2020
 9 8
 42 16 2021
 1 1
 43 [2020]688 <
 > 2020 12 13
 44 736 2021 1 24
 45 [2021]969 " "
 2021 7 1
 46 [2021]65
 2021 8 4
 47 [2021]635 " "
 2021 8 16
 48 [2021]20 <" "

> 2021 9 1
 49 [2021]104 <2021-2022
 > 2021 10 28
 50 [2021]1524 < " "
 > 2021 10 29
 51 [2021]495 < 2021 >
 2021 11 2
 52 2021
 11 2
 53 [2021]108 " "
 2021 11 19
 54 748 2021 12 1
 55 23
 2021 11 30
 56 [2021]26
 2021 12 21
 57 [2021]120 " "
 2021 12 29
 58 2021 82 <
 > 2021 12 30
 59 [2022]17 2022
 3 3
 60 [2022]29 2022 3
 28
 61 [2022]26 <" "
 > 2022 4 1
 1.1.2
 1 [2015]249 2015 12 10

2 [2015]259
 2015 12 18
 3 [2015]31
 2015 12 31
 4 [2017]176 <
 2016-2020 2016 9 28
 5 [2016]141
 2016 9 30
 6 2016 11 1
 7 [2016]37
 2016 12 31
 8 2017 5 1
 9 [2017]561
 2017 9 19
 10 67
 2018 1 23
 11 47 <
 > 2018 1 23
 12 105
 2018 1 23
 13 < > 2018 1
 23
 14 107
 2018 1 23
 15 227 2018
 1 24
 16 248 2012
 1 4 2018 1 24
 17 311 <
 > 33 2018 1 24

18 [2018]90
2018 4 24

19 [2018]166
2018-2020 2018 8 2

20 [2018]190 <
> 2018 8 6

21 [2018]5 <
> 2018 11 8

22 99 2018 11

30 2019 1

1

23 [2019]29
2019 2 8

24 [2019]58
2019 3 24

25 [2019]112
2019 5 8

26 [2019]113
2019 5 28

27 [2019]126
2019 8 2

28 [2019]132
2019 9 2

29 [2019]134
2019 9 9

30 [2019]66
2019 9 20

31 [2019]26

2019 10 16
 32 83
 2020 1 1
 33 [2020]5
 2020 1 16
 34 [2020]6
 2020 4 7
 35 [2020]50
 2020 4 20
 36 [2020]83
 2020 6 19
 37 [2020]29
 2020 6 22
 38 [2020]48 " "
 " 2020 11 6
 39 2020 11 27
 40
 2020 11 27
 41 [2021]58 " "
 2021 3 4
 42 [2021]81
 2021 4 4
 43 [2021]5
 2035 2021 4 6
 44 [2021]92 <
 > 2021 4 9
 45 [2021]143 "
 " 2021 8 11
 46 [2021]30
 2021-2025

2021-2025		2021-2025	
2021	8 22		
47	[2021]12		" "
		2021 8 22	
48	[2021]3		<
"	"	2021-2023 >	2021 10 26
49	[2021]8		< " "
		>	2021 11 13
50	[2021]249		
		2021 11 19	
51	[2021]9		2021-2022
		2021 11 25	
52	[2022]1		
			2022 4 3
53		11	
2018.1.2			
54		16	
2018.8.30			
55	[2019]6		<
	>		
56	[2019]7		<
	>		
57	[2019]19		<
		>	
58	[2019]39		<
>	2019 7 17		
59	[2020]3		
		2020 01 17	
60	[2020]8		
2020		2020 4 10	

-
- 61 [2020]17

 - 62 [2020]49
2020 10 29

 - 63 [2020]65

 - 64 [2021]6 " "
2021 05 21

 - 65 [2022]2 " "
2022 01 21

 - 66 [2018]62
2019.12.25

 - 67 [2019]30
2019.10.18

 - 68 [2019]29
2019.10.18

 - 69 [2021]34
2020.11.11

 - 70 [2021]3
(2021.4.9)

1.1.3

- 1 HJ2.1-2016
- 2 HJ2.2-2018
- 3 HJ2.3-2018
- 4 HJ610-2016
- 5 HJ2.4-2009
- 6 HJ964-2018
- 7 HJ169-2018
- 8 HJ19-2011
- 9 HJ2000-2010

10		HJ2015-2012		
11		HJ2035-2013		
12		HJ2034-2013		
13		HJ589-2010		
14		HJ2042-2014		
15		HJ 819-2017		
16		HJ 1139-2020		
17		HJ942-2018		
18		HJ		
1102-2020				
19				
20		2021		
21		2015.11		
22		2016.9.26		
23				
24		2018-2035		
1.1.4				
1	1			
2	2			
3	3			
4	4			
5			4.5	
6	/		[2007]21	
5				
6			45000t/a	6
/		[2010]12	6	
7			45000t/a	6
/			7	
8				
				[2014]49

8			
9			[2018]31
9			
10			
		[2018]96	10
11			
		[2018]207	11
12			
		[2019]7	12
13			
			13
14	14		
15	15		
16	16		
17		17	

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1.2.1

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" " " "

" " " "

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		SS COD BOD

1.3.1.2

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	GB3838-2002	
	GB5084-2021	1
	GB/T14848-2017	
	GB3096-2008	2 3 4a
	GB36600-2018	1 2
	GB15618-2018	1

1.4-2 mg/m³

SO ₂	0.50	0.15	0.06	GB3095-2012
NO ₂	0.20	0.08	0.04	
PM ₁₀		0.15	0.07	
TSP		0.30	0.20	
PM _{2.5}		0.075	0.035	
CO	10	4		
O ₃	0.2	0.16 8		
NO _x	0.25	0.10	0.05	
	0.05			HJ2.2-2018 D
	0.2			
	0.11			
	0.2			
	0.2			
	2.0			p244 mg/m ³

1.4-3 mg/L

	pH		SS	COD _{Cr}	BOD ₅	
	6 9	3mg/L	100mg/L	30mg/L	6mg/L	1.5mg/L
		P				
	10mg/L	0.3mg/L	1.0mg/L	2.0mg/L	0.02mg/L	0.1mg/L
	0.001mg/L	0.005mg/L	0.05mg/L	0.05mg/L	10mg/L	250mg/L
	1.5mg/L	0.2mg/L	250mg/L	0.01mg/L	0.5mg/L	20000 /L
						—
	0.5mg/L	0.9mg/L	0.01mg/L	0.7mg/L	0.5mg/L	—

1.4-4

mg/L pH MPN/100mL CFU/mL

	pH						
	6.5~8.5	450	0.50	250	250	1.00	20.0

1,1,1,2-	2.6
1,1,2,2-	1.6
	11
1,1,1-	840
1,1,2-	2.8
	2.8
1,2,3-	0.5
	0.43
	4
	270
1,2-	560
1,4-	20
	28
	1290
	1200
+	570
	640
	76
	260
2-	2256
[a]	15
[a]	1.5
[b]	15
[k]	151
	1293
[a h]	1.5
[1,2,3-cd]	15
	70
C ₁₀ C ₄₀	4500

1.4.2

1.4-8~ 1.4-13

1.4-8

		1	
	6 DB37/801.6-2018	VOCs	2
		3	
	GB31572-2015	5	
	DB37/2376-2019	1	
	GB16297-1996	2	
	GB14554-93	1	2

	[2019]39	NO _x
	GB/T31962-2015	GB/T31962-2015 1A
	GB12523-2011	—
	GB12348-2008	3 4a
	GB18599-2020	—
	GB18597-2001 2013	—

1.4-9

			mg/m ³	kg/h		
				m		
1	P1		10	43m	45.3	DB37/2376-2019 1
		SO ₂	50		—	
		NO _x	50		—	[2019]39
		VOCs	60		3.0	6 DB37/801.6-2018 1
					41	GB14554-93 2
			5		—	6 DB37/801.6-2018 2
			15		—	

1.4-10

		mg/m ³	
1		1.0	GB16297-1996 2
2		0.2	
3		0.08	
4	VOCs	2.0	6

			DB37/801.6-2018 3
5		1.5	GB14554-1993 1
6	NMHC	1h	GB37822-2019
		6 20	

1.4-11 mg/L

		GB/T31962-2015 1A	
1	pH	6.5~9.5	6.5~9.5
2	COD	500	300
3	BOD ₅	350	150
4		45	20
5	TN	70	—
6		--	1600
7		5	—

1.4-12

	dB A	dB A	
	70	55	GB12523-2011
	65	55	GB12348-2008 3
	70	55	GB12348-2008 4a

1.4-13

		GB18599-2020
		GB18597-2001 2013

1.5

1.5-1

1.5-1

		1% P _{max} =4.88% 10% 75.65m ³ /d

			3
			3dB(A)
			E1
			E1
		" "	

1.6

1.6-1

1.6-2

1.6-1

1.6-2

1.6-1

		5km	
		500m	2000m
	1000m	2000m	1000m
			6km ²
		200m	

5		N	116.196E	36.859N	765	403	115
6	2#	N	116.191E	36.859N	780	2800	1400
7		E	116.212E	36.845N	840	3385	967
8		E	116.212E	36.847N	880	567	162
9		NE	116.210E	36.855N	970	417	119

29		SSW	116.190E	36.830N	1690	492	140
30		NE	116.214E	36.862N	1700	2695	770
31		SSE	116.210E	36.830N	1710	710	200
32		NE	116.211E	36.863N	1730	98	28
33		NNE	116.204E	36.865N	1760	945	270
34		SSE	116.208E	36.829N	1770	400	114
35		N	116.199E	36.869N	1800	469	134
36		WSW	116.172E	36.842N	1810	693	198
37		NNE	116.210E	36.864N	1820	1050	300
38		ENE	116.222E	36.851N	1830	560	160
39		NE	116.212E	36.864N	1850	1670	--
40		NNE	116.202E	36.867N	1860	350	--
41		NE	116.219E	36.860N	1870	791	226
42		NNE	116.205E	36.867N	1880	300	--
43		NNW	116.191E	36.867N	1890	116	33
44		NE	116.215E	36.865N	1980	2205	630
45		ENE	116.224E	36.850N	2000	994	284
46		W	116.170E	36.849N	2040	787	225
47		NNW	116.186E	36.868N	2060	850	--
48		NE	116.217E	36.865N	2150	840	240
49		NNE	116.208E	36.868N	2170	1610	460
50		ENE	116.226E	36.850N	2170	882	252
51		NNE	116.768E	36.229N	2250	462	132
52		NE	116.216E	36.870N	2370	840	240
53		NW	116.176E	36.869N	2390	539	154
54		NE	116.221E	36.866N	2430	1820	520
55		ENE	116.225E	36.860N	2480	450	--
56		SW	116.174E	36.826N	2530	1463	418

57		N	116.191E	36.878N	2550	1386	396
58		NE	116.220E	36.868N	2580	350	100
59		NE	116.219E	36.867N	2580	630	180
60		ENE	116.224E	36.859N	2590	578	165

86		ENE	116.235E	36.853N	3130	385	110
87		WNW	116.166E	36.862N	3170	1064	304
88		NW	116.168E	36.869N	3170	539	154
89		SE	116.230E	36.829N	3180	683	195
90		NNE	116.208E	36.877N	3210	998	285
91		NE	116.232E	36.863N	3210	210	60
92		W	116.159E	36.855N	3220	546	156
93		NE	116.230E	36.866N	3230	595	170
94		ENE	116.230E	36.855N	3260	420	120
95		NE	116.225E	36.871N	3270	1260	360
96		E	116.237E	36.844N	3290	350	--
97		E	116.237E	36.843N	3320	840	240
98		ENE	116.237E	36.857N	3350	630	180
99		ENE	116.236E	36.860N	3370	87	25
100		NE	116.222E	36.874N	3380	1260	360
101		NE	116.224E	36.873N	3380	560	160
102		NE	116.233E	36.865N	3380	350	100
103		SW	116.170E	36.823N	3420	308	88
103		ENE	116.236E	36.862N	3460	280	80
105		ENE	116.237E	36.860N	3480	300	--
106		SE	116.227E	36.823N	3480	347	99
107		NE	116.224E	36.874N	3500	1680	480
108		NE	116.235E	36.865N	3520	350	100
109		W	116.155E	36.850N	3520	592	169
110		NE	116.230E	36.871N	3540	1134	324
111		ENE	116.236E	36.863N	3540	455	130
112		ENE	116.237E	36.862N	3580	168	48
113		ENE	116.239E	36.859N	3610	2310	660
114		SSE	116.214E	36.815N	3610	501	143

115		ENE	116.240E	36.855N	3620	1260	360
116		SSW	116.179E	36.815N	3620	546	156
117		ENE	116.238E	36.863N	3640	315	90
118		NE	116.236E	36.865N	3670	2205	630
119		NE	116.232E	36.870N	3680	455	130
120		E	116.241E	36.844N	3680	840	240
121		ENE	116.242E	36.849N	3690	840	240
122		SW	116.167E	36.821N	3700	364	104
123		ENE	116.241E	36.858N	3710	560	160
124		SE	116.236E	36.829N	3710	455	130
125		ESE	116.238E	36.832N	3710	728	208
126		SW	116.163E	36.824N	3770	504	144
127		NW	116.159E	36.868N			

	147		ENE	116.249E	36.849N	4370	630	180		
	148		SE	116.234E	36.816N	4430	168	48		
	149		NE	116.246E	36.866N	4450	462	132		
	150		NE	116.244E	36.870N	4490	1260	360		
	151		NNE	116.206E	36.889N	4500	672	192		
	152		NE	116.246E	36.867N	4550	525	150		
	153		ESE	116.250E	36.836N	4550	616	176		
	154		SW	116.163E	36.824N	4580	210	60		
	155		NE	116.242E	36.874N	4610	3360	960		
	156		ESE	116.248E	36.829N	4610	455	130		
	157		ENE	116.252E	36.848N	4620	700	200		
	158		SE	116.226E	36.809N	4660	536	153		
	159		NW	116.145E	36.866N	4730	269	77		
	160		NNW	116.180E	36.891N	4760	578	165		
	161		E	116.253E	36.843N	4760	539	154		
	162		SSE	116.200E	36.802N	4760	357	102		
	163		SSW	116.173E	36.806N	4780	259	74		
	164		NNE	116.209E	36.892N	4870	809	231		
	165		ENE	116.256E	36.858N	4940	1015	290		
	166		W	116.139E	36.851N	4940	315	90		
	167		NE	116.254E	36.863N	4980	462	132		
	168		ENE	116.257E	36.847N	4990	182	52		
	169		S	116.188E	36.798N	5080	432	123		
	170		SW	116.212E	36.798N	5060	510	145		
	171		SW	116.144E	36.819N	5160	815	232		
	1		NE			6200			(GB3838-2002)	
	2		W			400			(GB3838-2002)	
	1		6km ²							(GB/T14848-2017)
	1		200m			200			(GB3096-2008) 2	
	1		200m			200			(GB36600-2018)	

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1		201700	8	2005.10.17 [2005]2021	559 2005.7.6	2005.7	2006.6	[2006]137 2006.10.27		
2	1 55	1000	55 1		2006.10.20	2006.5	2006.10	2006.12 [2006]02		
3	2×130t/h	4500	2×130t/h	2002.4.26 0200153	[2002]85 2002.12	2003.1	2003.12	[2008]38 2008 7 2		
4	5	4850	2 1 50MW	2003.6.25 03006892	[2004]26 2004.7.30	2004.8	2005.6			
5	2×130t/h 2×24MW	9100	2×130t/h 2×24MW	2×24MW 2003.4.15 0300339 2×130t/h 2002.6.17 [2002]02	[2008]200	2002.6	2003.12	[2010]141 2010 9 1 24MW 2021		
6		2970	1×130t/h	---	[2011]49	2013.5	2014.1	[2014]21		

7	1-2	2849.26	1# 2#	---	[2015]16	2015.6	2016.7		
8		3288.39	2# 1 4 SNCR	---	[2016]46	2016.11	2016.7	[2016]6 2016 12	
9	3×130t/h	1300	FOSS	---	[2017]26 2017.5.26	2017.7	2017.7	2018 6	
10	5×130t/h	2456.87	1# 2# 3# 4# 5×130t/h	2018-371526-44-03-0 44625	[2018]208 2018.12.21	2018.12	2018.12	2019 3	
11		170	EPS 20	2019-371526-50-03-0 02920	[2019]24 2019.04.25	2019.4	2020.3	2020.4	
8	45000 6 /	13420		[2005]95	2007.9.20 [2007]21	2006.2	2009.5	[2010]12 2010 5	

9		634	15 15	6	[2017]377 2017 9 11	2017 10	2017.12	2018 6		
10		36000		135	[2014]49 2014 9 27	2016.10	2017.12	2018 6		
11		1150.87		2850	2011 7 6 [2022]18	2015.10	2017.12	2018 6		
12		956		50	[2018]96 2018 7 20	2018.07 .21	2019.02.20	2019 3 16		
13		650		80	2017-371526-30-03-0 72538	[2018]207 2018 12 21	2018.12	2018.12	2019 3 16	
14		185		50	20173715260000 0255	-	2017.9			
15		120		1500	20173715260000		2017.8			

					0166					
16		116	450		20173715260000 0170		2017.7			
17		100000	6		[2019]7	2016.1	2016.11	2019 6		
			3.5 6 2		2019.1.28					
18		201700	8	2005.10.17 [2005]2021	559 2005.7.6	2005.7	2006.6	[2006]137 2006.10.27		
19	20	980	20	2019-371526-50-03-0 68462	[2019]122 2019.12.20					
20		350	5000		2006.5.10	2006.5	2007.3	2007.9.8 [2007]21		

21 2582 1 /

24	15 VOC	5000	VOC		[2019]56 2019.07.18	2019.08	2019.08	2019.08.27		
25	10	65491.6	10 130		2012.6.27 [2012]10	2014.12	2016.2	2016.10.9 [2016]25		
26	VOCs	3053.8	VOCs		[2018]209	2018.12	2019.01	2019.03.16		
27	20 /	20000	20	2020-371526-41-03-0 01799	[2020]3					
28	20	987	20	2020-371526-41-03-1 35626	[2020]212					

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45000t/a 6 /

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2.2-1

	45000t	2
	20500t	90%
6	35000t	2
6	20000t	
	30	--
	62	--
	20	--
	1.8	--
	84	--
	100	--
	50	--

2.2.3

2.2-2

2.2-2

45000t/a /	6	3		2
		1 1	1	1
		1		
		1		
		1		
				1
				1
				2
		1		
			1	
		1		
1 2 3 4		1	1	
		1		1
		1		
		1		
		1		
		2	1	1
		8	1	2
		170m ³	2	
			515m ³	

		2	1000m ³
		3	400kg
		2	2.0m ³
		2	2.0m ³
	45000t/a /	6	<p>1 40m</p> <p>DA012 DA017 DA022</p> <p>25m</p> <p>DA023 DA026</p> <p>15m</p> <p>DA027 DA028</p> <p>30m DA013 DA019</p> <p>35m DA014</p> <p>35m DA015</p> <p>35m</p> <p>DA020</p> <p>35m DA016 DA021</p>
			1
		15m	DA31
		UV DA007	1 15m
		+ UV DA005	/ 1 26m
		1 15m	DA008
			UV 1 15m DA007
			1 44m DA025

			1	30m
		20m	DA024 DA018	25m
			DA029	
	45000t/a /	6		

2.2.4

2

2

1

4

3

2.2-1

2.2.5

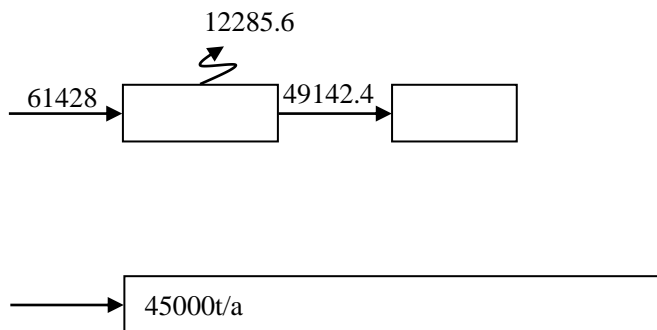
2.2.5.1

2.2-3

2.2-3

1	45000t/a	6	/
3			
4			
5			
6			

2.2-2



2.2-2

m³/a

2.2.5.2)à 9 0;

+)à 9 0;



-

G1-3 G1-4

S1-1

S1-2

G1-5

G1-5

1

40m

DA012 DA017 DA022

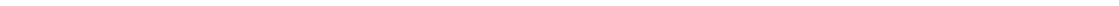
S1-3

S1-4

3

10%

0.5%



10%

4

0.06%

2

5

70%

80~85%

G1-6

1

40m

DA012 DA017 DA022

S1-5

2.2.6.1.2

1

20Mpa

G1-7

2

2

G1-8

25m

20~25

S1-7

15m

DA027

DA028

4

S1-8

S1-12

2.2.6.1.3

S1-9

2.2.6.1.4

20~30

-

1.3~2.3

pH

25

G1-10

G1-11

G1-16

1

30m

DA013 DA019

G1-12

30m

DA013 DA019

G1-14 G1-15

G1-13

G1-13 G1-14 G1-15

35m

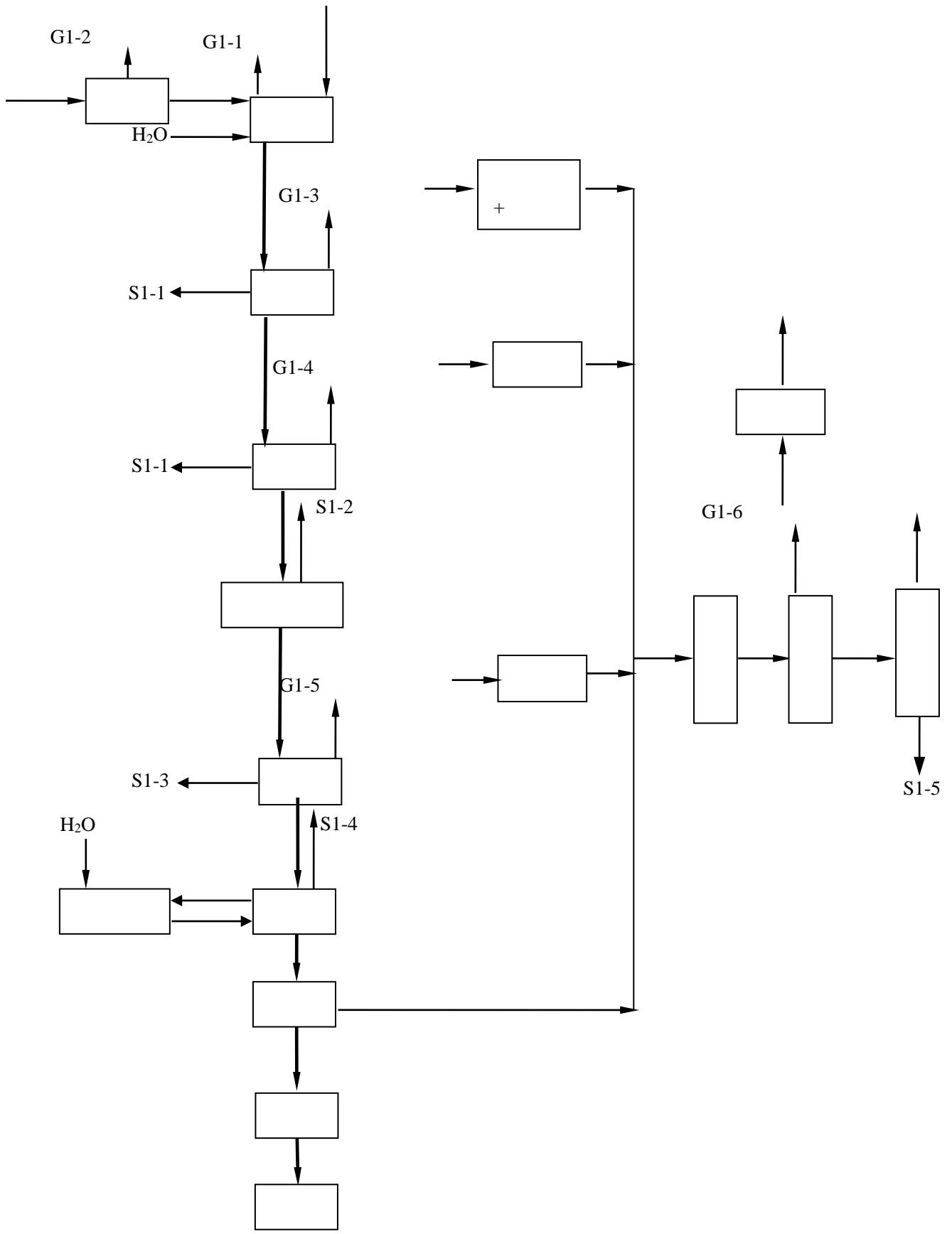
DA014 DA015 DA016

DA020 DA021

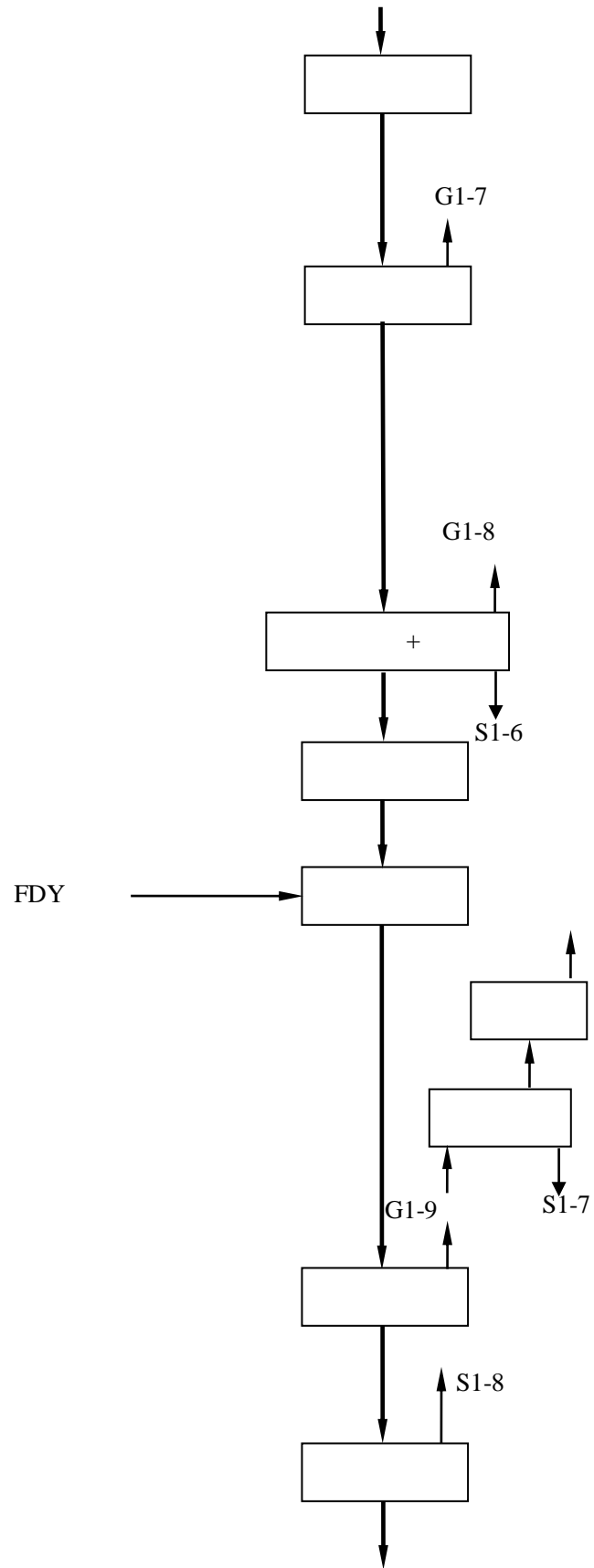
S1-10

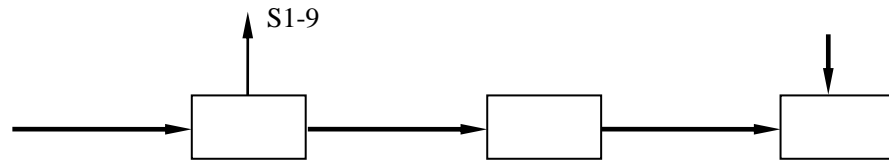
S1-12

2.2-3

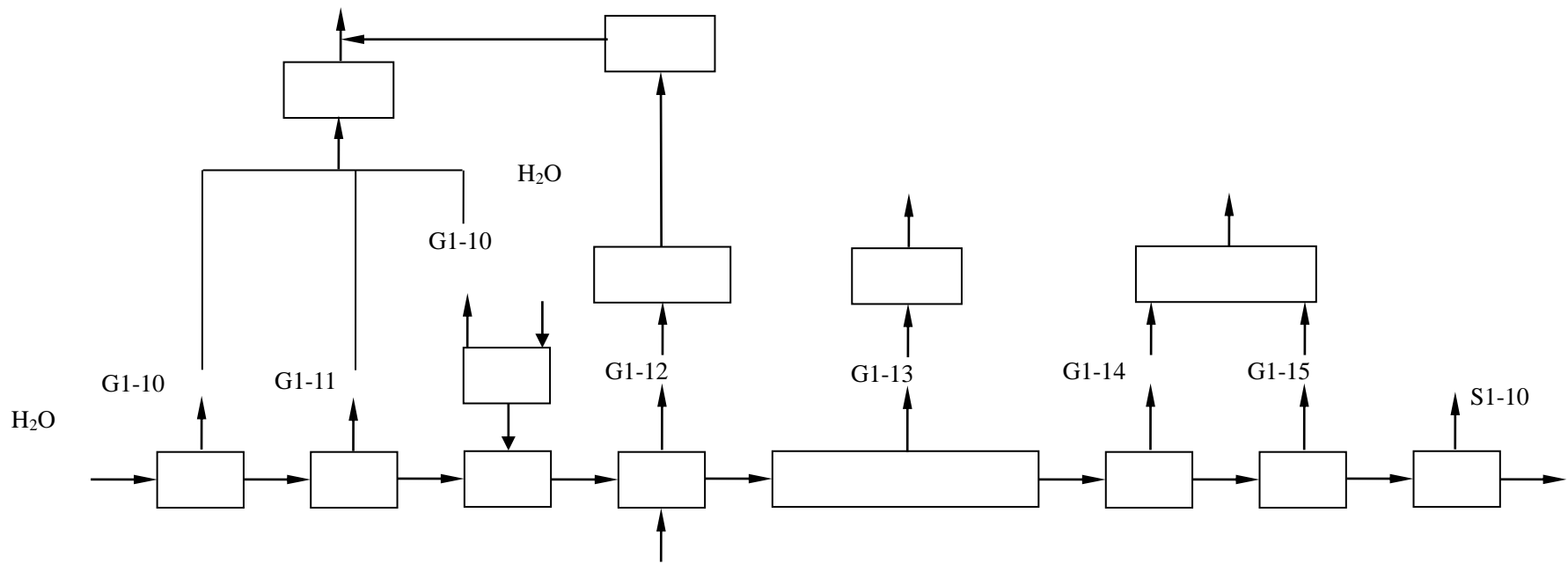


2.2-3 1





2.2-3 3

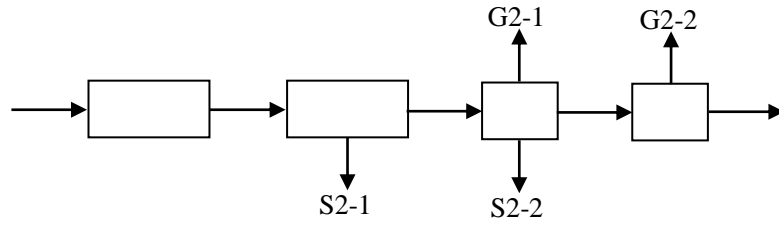


2.2-3 4

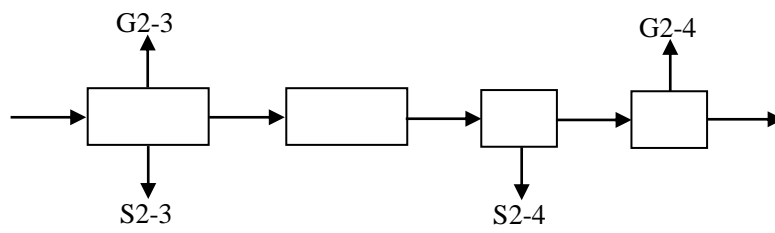
2.2.6.2

2.2.6.2.1

2.2-4~2.2-6



2.2-4

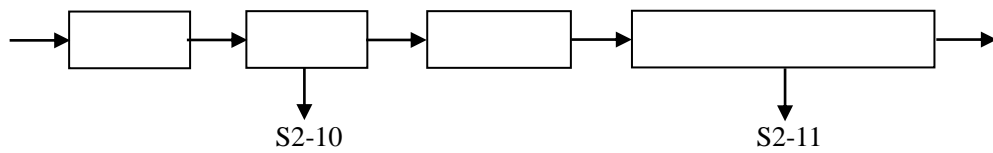


2.2-5



2.2-6

2.2.6.2.2



2.2-7

2.2.6.2.3

2.2.6.3

2.2.6.4

1

/ /

60~110

2

150

160

165

175

180

30

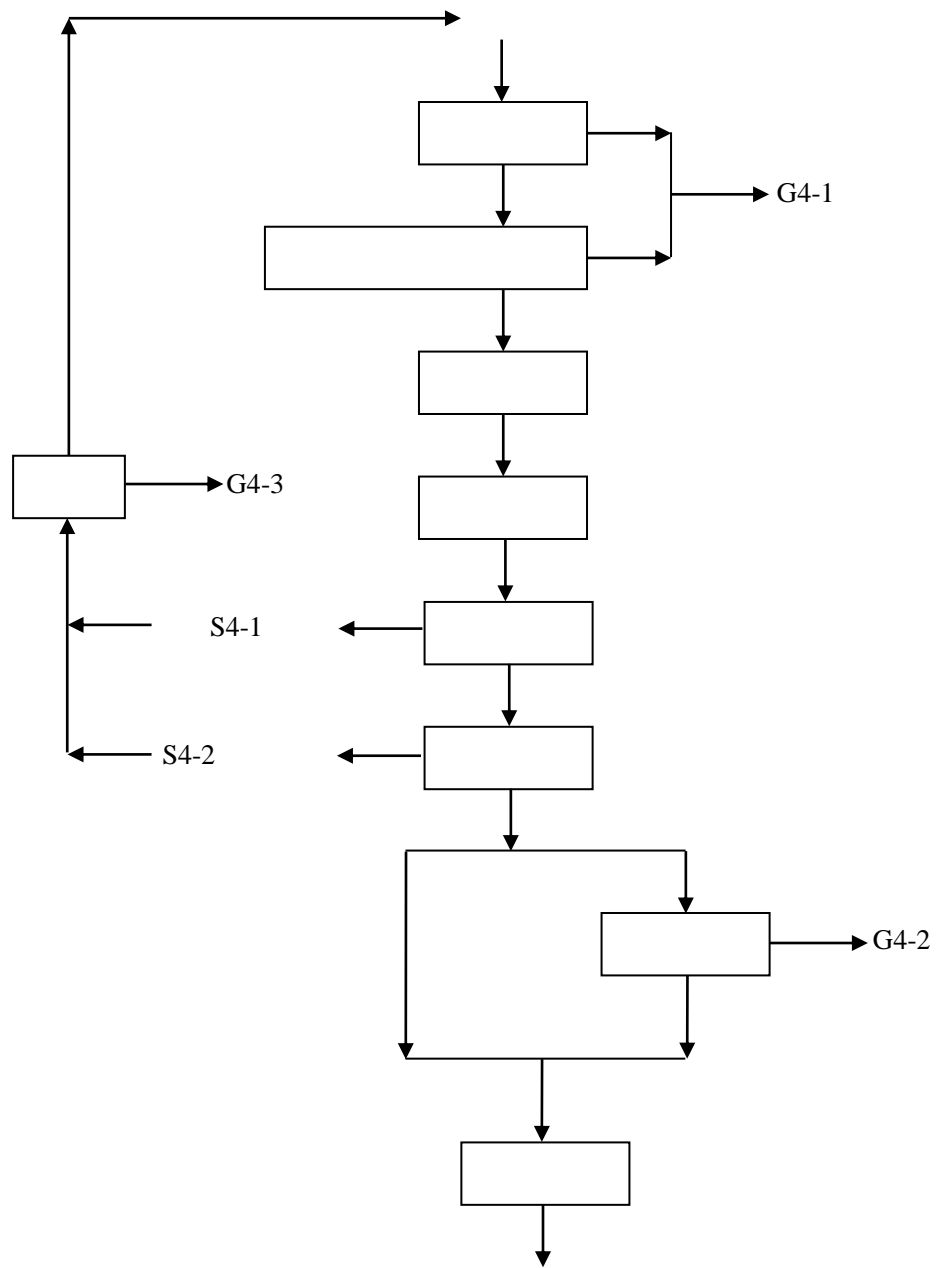
3

/ /

4

5

2.2-8



2.2-8

2.2.6.5

1

2

3

4

8m³

1

8m³

SS

5

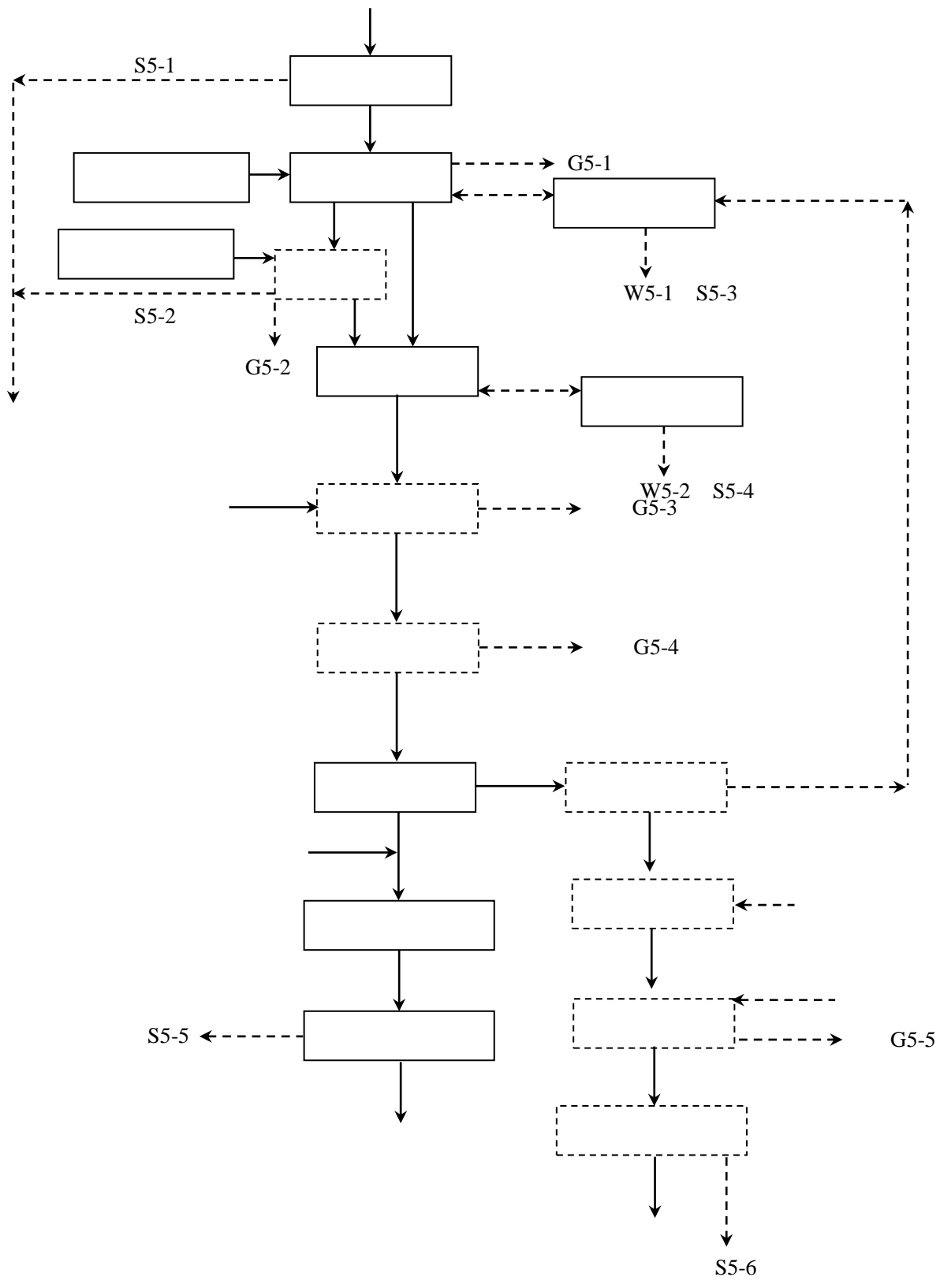
6

700

7

8

2.2-9



2.2-9

2.2.6.6

“

-

“ “

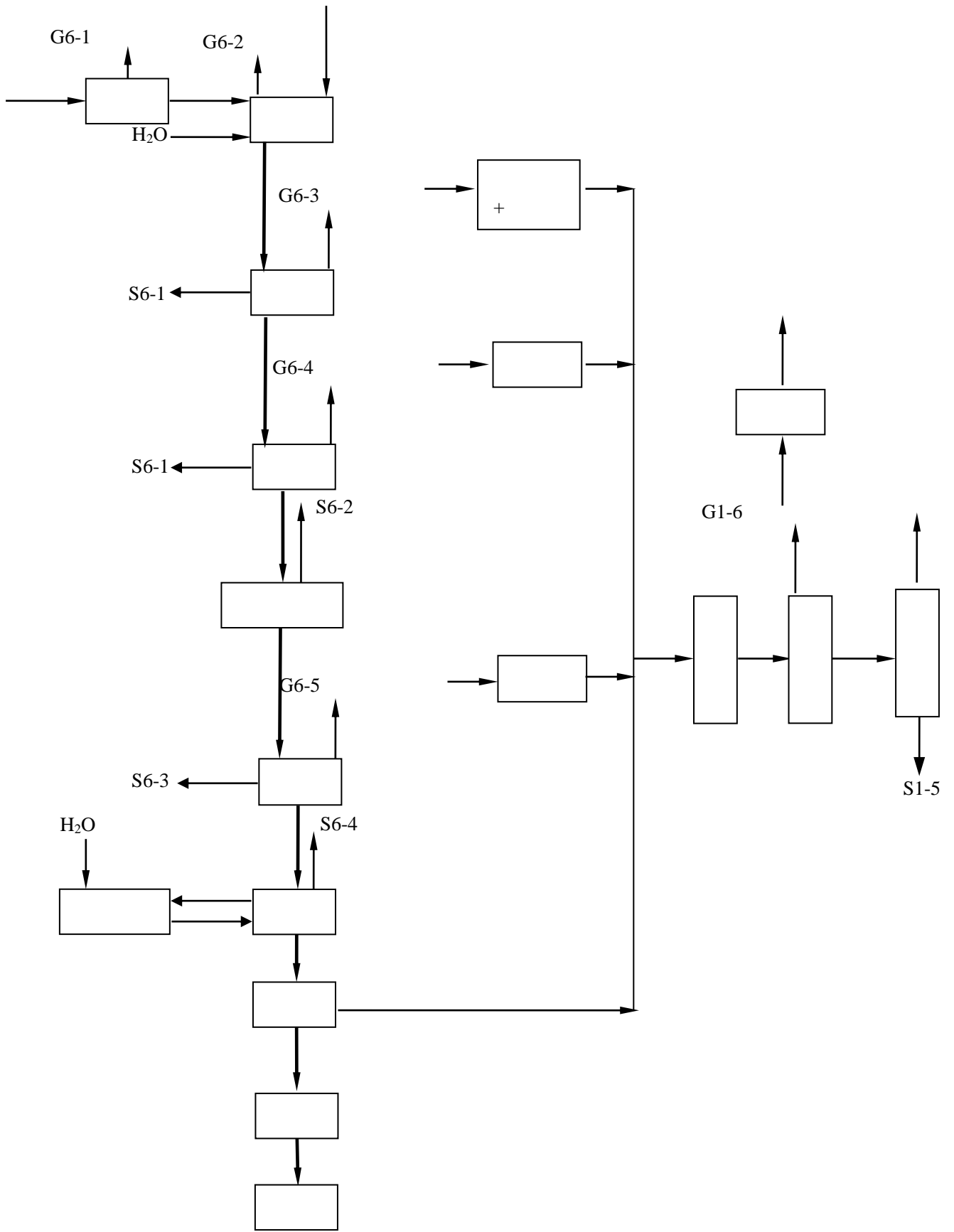
”

45000t/a 6 /

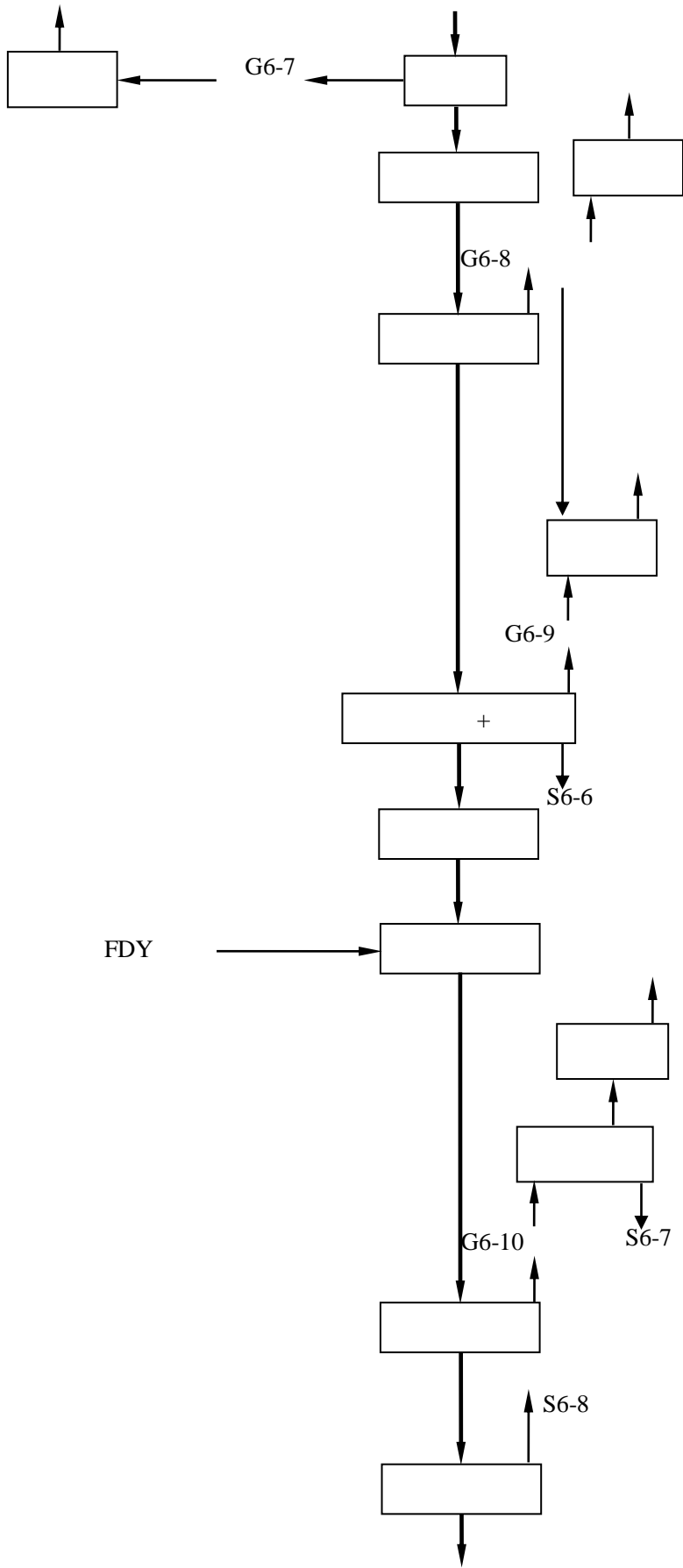
45000t/a 6 /

2.2.6.1.1

2.2-10



2.2-10 1



2.2.7

" "

2.2.7.1

2.2.7.1.1

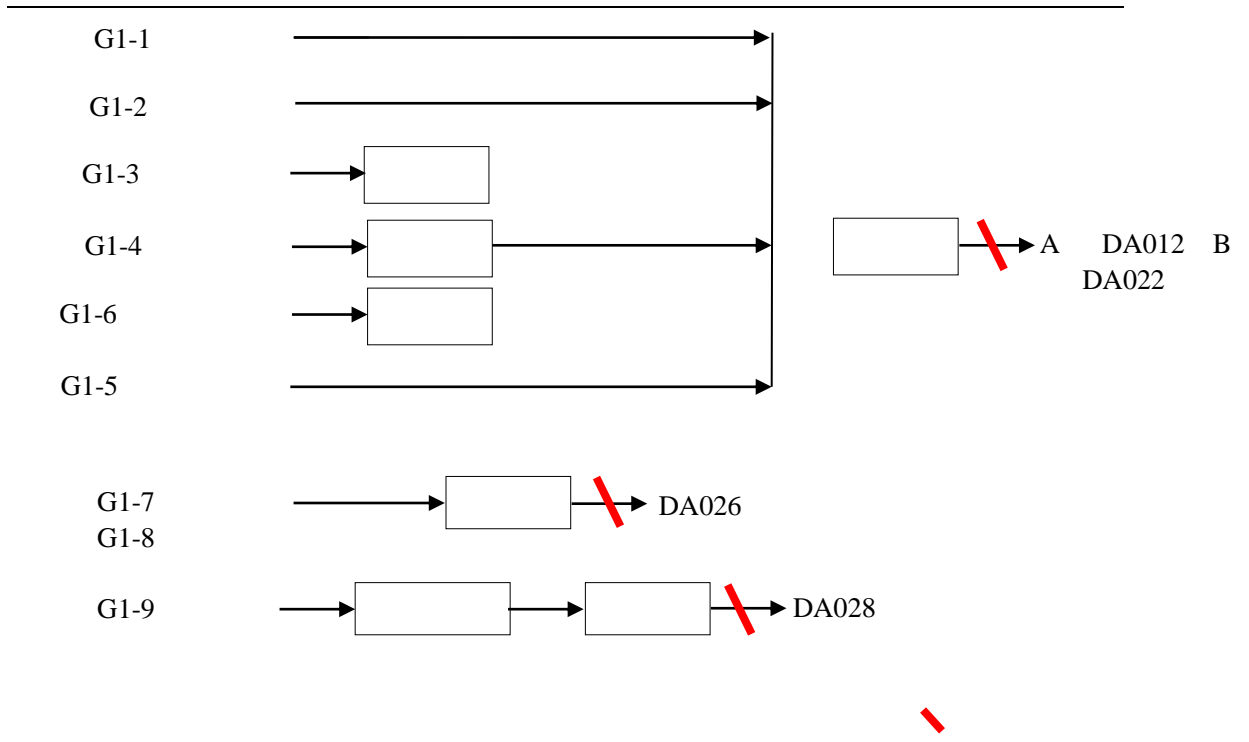
45000t/a 6 /

2.2-5

2.2-5

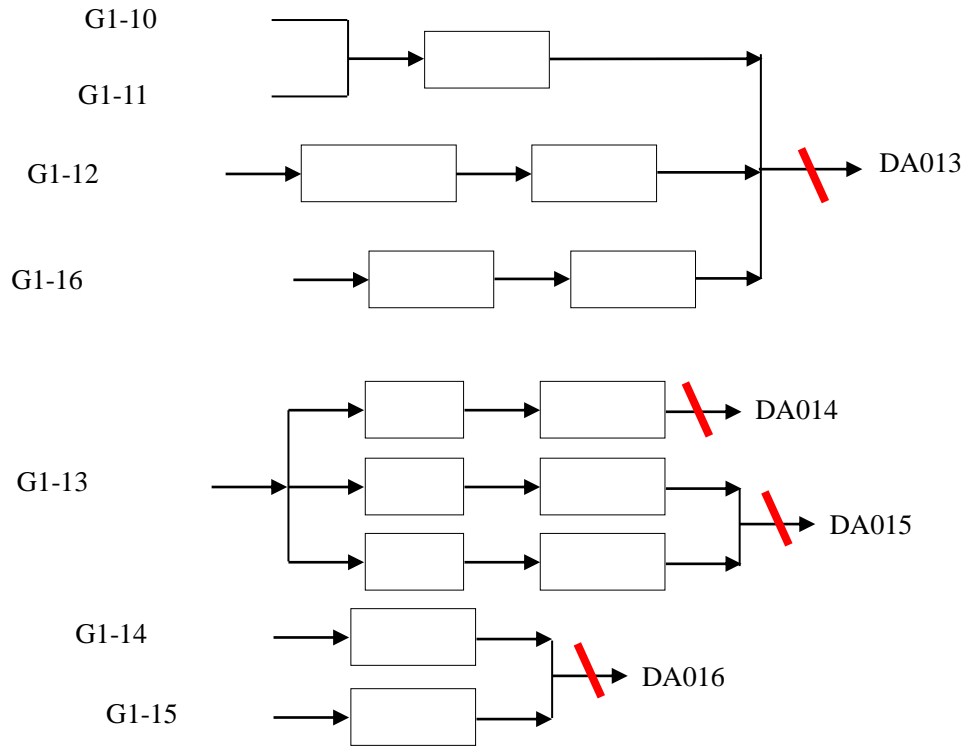
G1-1			1 DA012 DA017 DA022 40m
G1-2			
G1-3			
G1-4			
G1-6			
G1-5			
G1-7			25m
G1-8			DA023 DA026
G1-9			15m
G1-12			DA027 DA028 30m
G1-10			
G1-11			
G1-16			
G1-13			35m DA014 35m DA015 35m DA020
G1-14			35m
G1-15			DA016 DA021

2.2-11~2.2-14

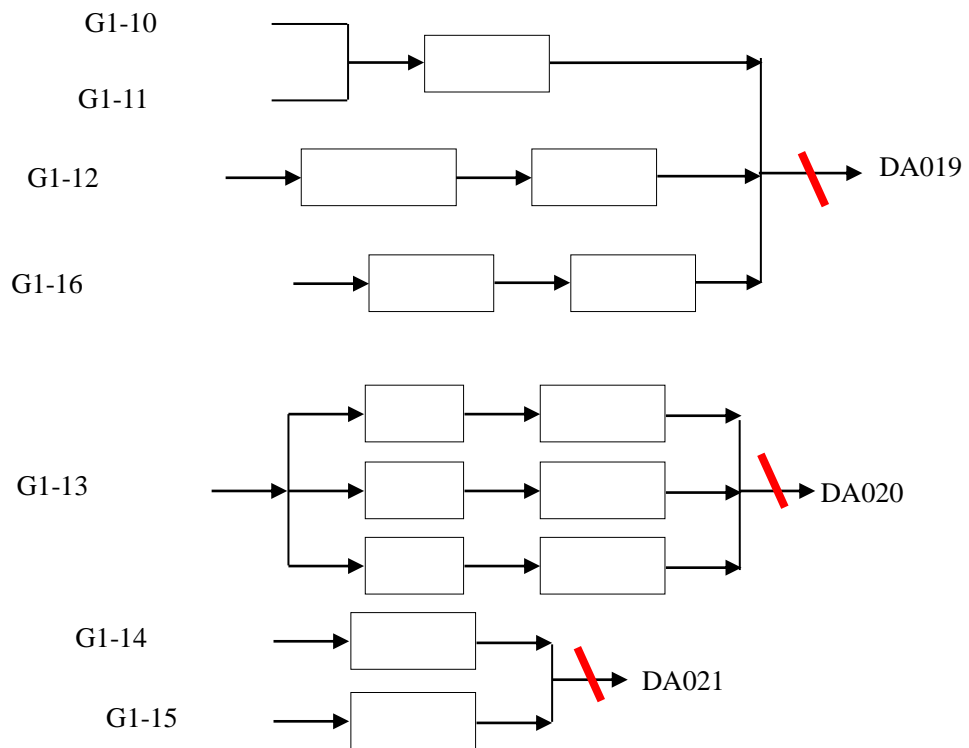


2.2-11

2.2-12



2.2-13



2.2-14

2022 C220189 2022 1 19
2021 12 11
2021 C210848-20
2022 C220189-02 2022 3 10 -12
2022 C220189-03 2022 4 3
2.2-6

2.2-6

				m ³ /h	mg/m ³	kg/h	kg/h	m m			
									mg/m ³	kg/h	
DA012	VOCs	2022.1.19	1	2022	1.5	0.00303	0.00364	40/0.5	10	39	
			2	2207	1.7	0.00375					
			3	1976	2.1	0.00415					
		1	2022	4.52	0.00914	0.00855	60	3.0			
		2	2022	4.10	0.00829						
		3	2022	4.06	0.00821						
VOCs	2022.1.19	1	2509	9.4	0.0236	0.0276	30/0.5	10	23		
		2	3564	7.8	0.0278						
		3	3512	8.9	0.0313						
		1	2509	4.13	0.0104	0.0109	60	3.0			
		2	2509	4.28	0.0107						
		3	2509	4.58	0.0115						
DA017	VOCs	2022.1.19	1		7.6	0.00519	0.00607	35/0.3	10	31	
			2		8.1	0.00758					
			3		7.3	0.00545					
		1	683	3.92	0.00268	0.00258	60	3.0			

		2022.3.27	1	2169	1.2	0.00260	0.00348		15	—			
			2	2609	1.6	0.00417							
			3	2041	1.8	0.00367							
DA015	VOCs	2022.1.20	1	12375	11.9	0.147	0.164	30/0.8	60	3.0			
					2	12375						13.7	0.170
					3	12226						14.3	0.175
					1	12375	0.8		0.00990	0.00905	5	—	
					2	12375	0.8		0.00990				
					3	12226	0.6		0.00734				
					1	12375	2.9		0.0124	0.00631	10	23	
					2	12226	2.4		0.00359				
					3	10883	2.7		0.00293				
				1	12375	2.62	0.0324	0.0365	—	20			
				2	12375	3.08	0.0381						
				3	12226	3.19	0.0390						
			2022.3.27	1	4860	5.6	0.0272	0.0231	15	—			
				2	5589	3.5	0.0196						
				3	5241	4.3	0.0225						
DA020	VOCs	2022.1.20	1	2884	5.71	0.0165	0.0175	30/0.8	60	3.0			
					2	2884						6.12	0.0177
					3	2884						6.36	0.0183
					1	2884	1.4		0.00404	0.00512	10	23	
					2	2908	1.6		0.00465				
					3	3514	1.9		0.00668				
					1	2884	2.40		0.00692	0.00724	—	20	
					2	2884	2.97		0.00857				
					3	2884	2.16		0.00623				
					1	2884	0.8		0.00231	0.00212	5	—	

			2	2884	0.7	0.00202					
			3	2884	0.7	0.00202					
		2022.3.27	1	2733	1.2	0.00328	0.00367		15	—	
			2	2953	1.8	0.00523					
			3	2786	0.9	0.00251					
DA016	VOCs	2022.3.07	1	5606	3.63	0.0203	0.0213	30/0.8	60	3.0	
			2	6160	3.97	0.0245					
			3	5529	3.48	0.0192					
DA021	VOCs	2022.3.07	1	10657	3.02	0.0322	0.0320	30/0.8	60	3.0	
			2	10496	3.03	0.0318					
			3	10343	3.08	0.0319					

2.2-6

GB16297-1996 2

DB37/2376-2019

1 GB14554-93

2 VOCs

6 DB37/801.6-2018

1

6 DB37/801.6-2018 2

GB31572-2015 5

6

DB37/801.6-2018 2

132917m³/h 111650.28 m³/a

1.883t/a VOCs 7.661t/a

1.955t/a 0.213t/a 0.497t/a

1 15m DA031

2021 C210848-20

2021 12 13

2.2-7

2.2-7

							kg/h	m			
			m ³ /h	mg/m ³	kg/h				mg/m ³	kg/h	
DA031	2021.12.13	1	8822	5.1	0.045	0.0402	15/0.35	10	3.5		
		2	8640	5.6	0.0484						
		3	6469	4.2	0.0272						

2.2-7

1

7977m³/h 5743.44 m³/a

0.29t/a

/ G4-1 G4-2

G4-3 G4-4 2.2-8

2.2-8

G4-2											UV DA007
G4-1 G4-3	/										VOCs + UV DA005
G4-4											1 15m DA008

2020 12 22

2.2-9

2.2-9

				m ³ /h	mg/m ³	kg/h	kg/h	m		mg/m ³	kg/h			
DA007	VOCs	2020.12.22	1	6467.255	8.13	0.0526	0.0490	15	60	3.0				
			2	6467.255	7.50	0.0485								
			3	6467.255	7.12	0.0460								
DA005	VOCs	2020.12.22	1	5125.481	1.79	0.00917	0.00679	26	50	2.0				
			2	5125.734	2.64	0.00135								
			3	5056.011	1.95	0.00986								
					1	5125.481			---	---	0.5	0.2		
					2	5125.734			---					
					3	5056.011			---					
					1	5125.481	0.023		0.000118	0.000111	5.0	0.6		
					2	5125.734	0.020		0.000103					
					3	5056.011			---					

			1	5125.481		---	—	15	0.8	
			2	5125.734		---				
			3	5056.011		---				
		2020.12.22	1	5125.481	4.6	0.0236	0.025 4	10		
			2	5125.734	5.3	0.0272				
			3	5056.011	5.0	0.0253				
DA008			1	4264.790	4.0	0.0171	0.016 9	15	10	3.5
		2	3814.772	4.3	0.0164					
		3	4540.407	3.8	0.0173					

DA007

VOCs

6

DB37/801.6-2018

1

GB16297-1996

2

DB37/2376-2019

1

DA005

VOCs

5

DB37/2801.5-2018

2

6

DB37/801.6-2018

1

15776m³/h 3783.84 m³/a VOCs

0.134t/a

0.27kg/a

0.102t/a

G5-3

G5-4

G5-5

2.2-10

2.2-10

G5-3		UV 1 15m DA007
G5-4		
G5-5		

2.2-9 DA007

VOCs

4

DB37/2801.4-2017

2

2.2-11

2.2-11

G6-1			44m DA025 1
G6-3			
G6-4			
G6-6			
G6-5			30m 1 DA024
G6-2			
G6-7			
G6-8			
G6-9			
G6-8			20m DA018
G6-10			25m DA029

2022 C220189-02 2022

3 18

2.2-12

2.2-12

						kg/h	m m			
			m ³ /h	mg/m ³	kg/h			mg/m ³	kg/h	
DA018		1	20265	24.4	0.494	0.449	30/1.2	---	---	---
		2	19567	22.6	0.442					
		3	19374	21.2	0.411					
	VOCs	1	20265	16.5	0.334	0.278		---	---	---
		2	19567	14.0	0.274					
		3	19374	11.7	0.227					
DA018		1	39277	3.1	0.122	0.108	30/1.2	10	23	
		2	41294	2.6	0.107					
		3	40116	2.4	0.0963					
	VOCs	1	41294	11.4	0.185	0.207		60	3.0	
		2	41294	11.4	0.173					
		3	41294	11.4	0.264					
DA024		1	7673	21.5	0.165	0.167	30/0.6	---	---	---
		2	8093	22.2	0.180					
		3	7631	20.5	0.156					
	VOCs	1	8093	3.36	0.0272	0.0264		---	---	---
		2	8093	3.10	0.0251					
		3	8093	3.32	0.0269					
DA024		1	6636	2.4	0.0159	0.0191	10	23		

		2	6562	3.0	0.0197	0.0216	30/0.5	60	3.0	
		3	6616	3.3	0.0218					
		VOCs	1	6562	3.05					
	2		6562	3.50	0.0230					
	3		6562	3.36	0.0220					
DA025		1	3130	21.4	0.0670	0.0652	30/0.5			
		2	3054	22.1	0.0675					
		3	2968	20.6	0.0611					
	VOCs	1	3054	3.51	0.0107	0.00983				
		2	3054	3.14	0.00959					
		3	3054	3.01	0.00919					
DA025		1	3352	2.3	0.00771	0.01	30/0.5	10	23	
		2	3664	3.2	0.0117					
		3	3329	3.2	0.0107					
	VOCs	1	3664	2.91	0.0106	0.0105				
		2	3664	2.73	0.0100					
		3	3664	2.94	0.0108					
DA029		1	11495	23.9	0.275	0.256	25/0.5			
		2	12271	20.2	0.248					
		3	11321	21.6	0.245					
	VOCs	1	11495	14.1	0.162	0.167				
		2	12271	15.0	0.184					
		3	11321	13.6	0.154					
DA029		1	9601	3.5	0.0336	0.0292	10	14.45		

2

DB37/2376-2019 1

VOCs

6

DB37/801.6-2018 1

2021 C210848-08

2021 9 30

2.2-16

		()		m/s)	%	(hPa)	/
2021.9.30	09:00	20.6	S	1.5	65.8	1005.1	3/2
	11:00	23.5	S	1.6	60.1	1004.8	3/1
	13:00	25.6	S	1.5	58.1	1003.4	3/2

2.2-15

HCl

GB16297-1996 2

GB14554-93 1

VOCs 4

DB37/2801.4-2017 3 5

DB37/2801.5-2018 3

6 DB37/801.6-2018 3

2.2.7.1.3

45000t/a 6 /

45000t/a 6 /

100m

100m 11

100m

100m

[2018]96

100m

[2018]207

100m

[2019]7

100m

100m

50m

2.2.7.2

2.2.7.2.1

2.2-17

2.2-17

1	45000t/a	6	/
2			
3			
4			
5			

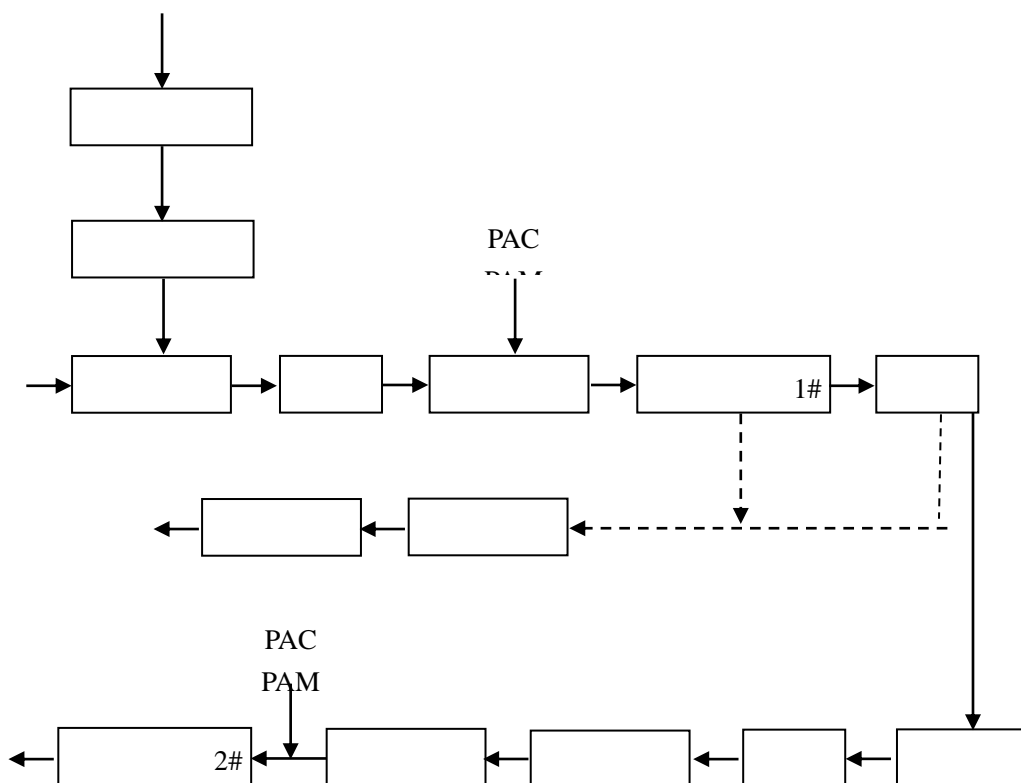
2.2.7.2.2

1000m³/d

"

+ + + "

2.2-16



2.2-16

2022

7

2.2-18

2.2-18

2022 2

	m ³ /d	COD _{Cr} mg/L	mg/L	mg/L
2022-07-01	2576	4.23	0.377	0.0555
2022-07-02	3459	5.29	0.529	0.0835
2022-07-03	4079	12.7	0.301	0.117
2022-07-04	4126	32.7	4.86	0.435
2022-07-05	2868	14.6	2	0.122
2022-07-06	1380	11.3	1.3	0.00957
2022-07-07	1525	15.8	1.53	0.0095
2022-07-08	1230	3.8	0.436	0.00671
2022-07-09	1206	5.74	0.649	0.0039
2022-07-10	1476	22	1.56	0.0445

2022-07-11

21.890186 m³/a

COD_{Cr} 19.4mg/L 0.253mg/L

0.202mg/L 8.61mg/L 4.247t/a 0.055t/a 0.044t/a 1.885t/a

2.2.7.3

2021 C210848-08 2021

9 27

2.2-17 2.2-19

2.2-19

		2021 9 27	
		dB(A)	dB(A)
1#	1	57.3	48.6
2#	1	52.2	49.1

2.2-20~2.2-25

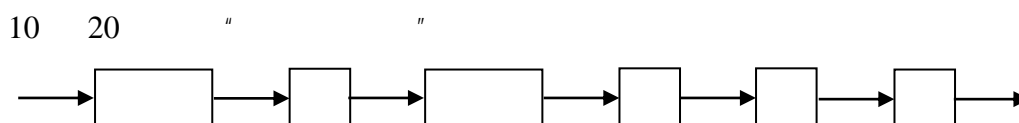
45000t/a 6 /

2.2-20

2.2-20

				t/a	
			--	0.35	
			--	8	
			--	40	
			--	20	
			--	128.53	
			--	185	
			--	265	
			HW08 900-249-08	0.12	
			--	70	
			--	82	
			--	12	
			--	150	
	--		HW49 900-041-49	12	
			HW08 900-249-08	26t/4a	
			--	0.4	

2000



2.2-21

2.2-21

				t/a	
			--	10	
			HW08 900-249-08	1.0	
			HW08 900-249-08		
			HW09 900-006-09	1.2	
	--		HW09 900-006-09	2.0	
			--	0.03	
			--	60	

2.2-22

2.2-22

				t/a	
			--	2.0	
			--	6.0	
			HW12 900-252-12	6.2	

				t/a	
			--	18	
			--	0.5	
			--	4	
			HW12 900-253-12	0.02	
			HW49 900-041-49	2	
	UV		HW29 900-023-29	0.01	
			--	4.8	

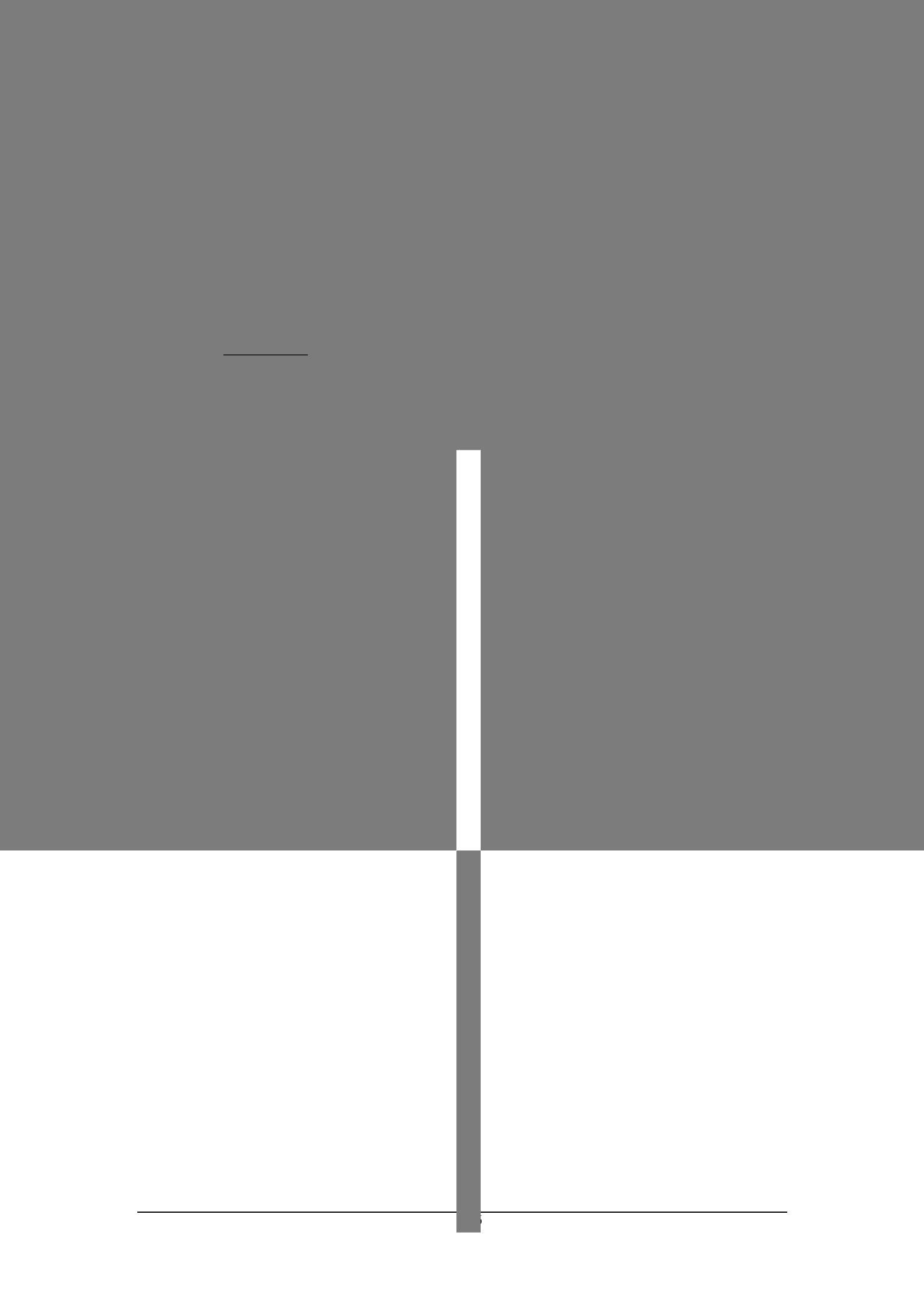
2.2-24

2.2-24

		t/a		
		0.27		
		6		
		31		
		15		
		69.943		
		142		
		206		
		0.16		
		7		
		32		
FDY	--	2		
		5t/4a		
		10t/4a		
		0.45		

2.2-21~2.2-24

2.3



RTO

RCO

VOCs

2022

11

3

2019 134

VOCS

0.5 /

10000 /

DA015

DA021

DA023

DA026

DA027

2022

11

2.5

2.5.1

4.5

2.5.2

2.5-1

		t/a		
	6	3	50%	50%
	6	1.5		
	6	3		

2.5.3

2.5-2

2.5-2 1

()

		1 6	22858m ²
		1 1	6950m ²

		1 6	5592.66m ²
		1	
			1t/h
		1	666m ²
	1	1	4032m ²
		1	4032m ² 1
	2	1	4032m ² 1
	3	1	4368m ²
	4	1	1152m ²
		1	2000m ²
		1	7.5m ²
		1	800L
		1	3.9m ³
		1	3.9m ³
			3304.7 kWh
			4872t
			1
			1
			1 160m ³ /h
			30m P1-1
			30m P1-2
		P1	RTO 43

()

10000m ²
19008m ²
2t/h
1
3.9m ³
3.9m ³
1379.2 kWh
1512t

--	--	--

2.5.4

2.2-1

2.5.5

2.5.5.1

45000t/a 6

/

2.5.5.2

1

140-150

24-36h

18

90 左右

18

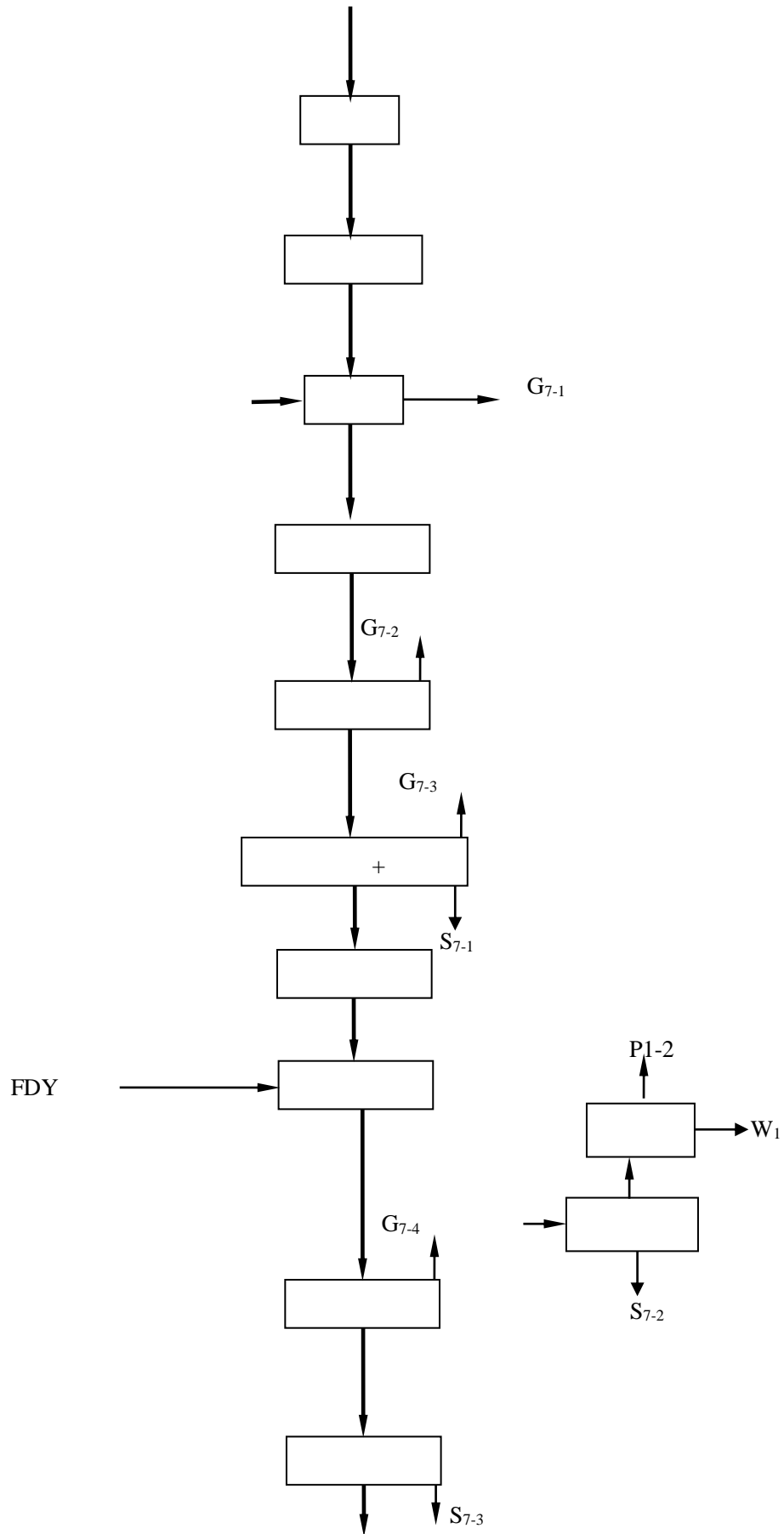
90 左右

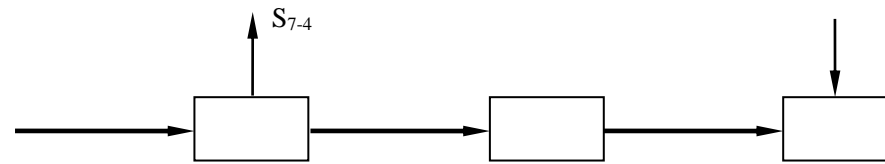
2

2

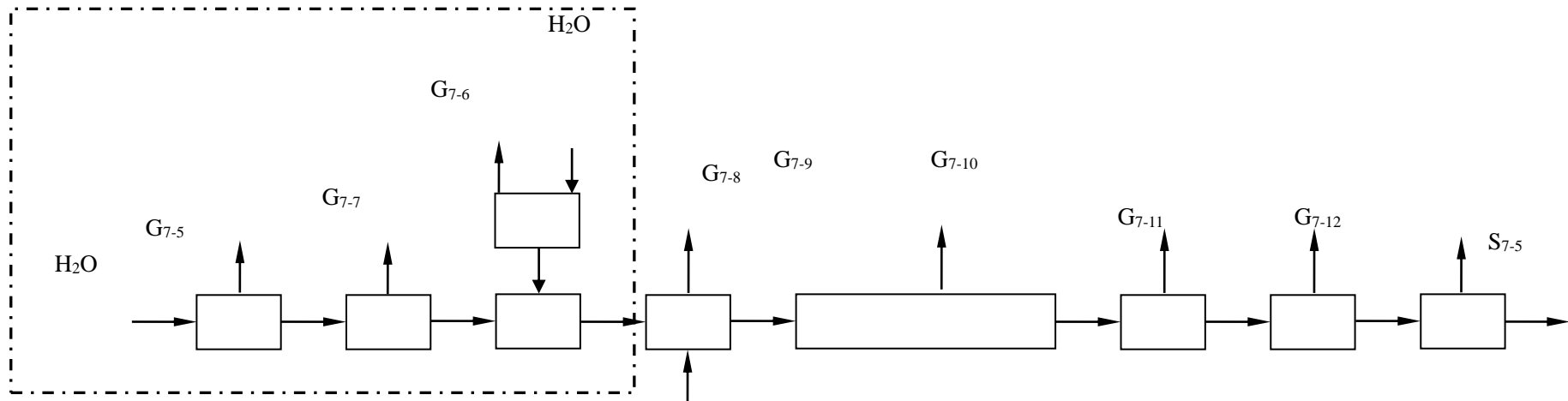
2.2.6.1.1

2.5-1





3.2-6 2



2.5-2 3

2.5.6

" "

2.5.6.1

2.5.6.1.1

2.5-3

2.5-3

G ₇₋₁							
G ₇₋₂					30m	P1-1	
G ₇₋₃							
G ₇₋₄					30m	P1-2	
G ₇₋₅							
G ₇₋₆							
G ₇₋₇							
G ₇₋₈							
—							
G ₁₋₉			43			P1	43m
					P1-3	P1-4	
G ₁₋₁₁							
G ₁₋₁₂							
—	RTO	RTO					
G ₁₋₁₀							

2.5-4

								/ m
		mg/m ³	kg/h	t/a	mg/m ³	kg/h	t/a	
P1-1		18.7	0.533	4.48	2.8	0.08	0.672	30/0.8
	VOCs	4.7	0.143	1.20	3.2	0.097	0.816	
P1-2		23.3	0.7	5.88	3.5	0.105	0.882	30/0.8
	VOCs	1.9	0.057	0.48	1.3	0.039	0.326	
P1		6.9	0.172	1.4452	3.4	0.085	0.71	P1

P1-3 P1-4	SO ₂	3.4	0.085	0.716	3.4	0.085	0.716	43/1.2 P1-3 P1-4 43/0.8
	NO _x	13.7	0.342	2.871	13.7	0.342	2.871	
	VOCs	17.8	0.446	3.75	0.4	0.0089	0.075	
		18.6	0.464	3.898	1.86	0.0464	0.3898	
		2.2	0.054	0.454	0.04	0.0011	0.0091	
		1.1	0.027	0.227	0.02	0.00054	0.00454	

2.5-4

GB16297-1996 2

45.3kg/h

DB37/2376-2019 1

10mg/m³

50mg/m³

100mg/m³

<

>

[2019]39

50mg/m³

GB31572-2015

5

15mg/m³

5mg/m³

6

2

15mg/m³

5mg/m³ VOCs

6

DB37/801.6-2018

1

VOCs60mg/m³ 3.0kg/h

GB14554-93 2

41kg/h

2.5.6.1.2

1.151t/a VOCs

0.187t/a

0.097t/a VOCs

0.416t/a

0.433t/a

0.05t/a

0.025t/a

0.194t/a

VOCs

0.832t/a

0.866t/a

0.1t/a

0.05t/a

90%

90%

2.5.6.2

2.5-5

2.5-5

	m ³ /a	m ³ /a	mg/L					
			COD _{Cr}	BOD ₅				
	4095	7654.5	1500	700	15	25	700	5
	3360	4200	100	60	5	8	2100	—
	840	1680	60	20	5	8	2800	—
	1575	1260	500	350	5	8	700	—
	1008	805	350	250	30	45	700	—
	10878	—	705	357	11	18	1295	1.9
	—	15599.5	827	403	11	18	1303	2.5
	26477.5		201	118	11	18	1300	2.2

10878m³/a COD_{Cr} 7.67t/a

3.88t/a

15599.5m³/a COD_{Cr}

12.9t/a 6.29t/a

26477.5m³/a COD_{Cr}

20.57t/a 10.17t/a

GB/T31962-2015 1A

[2017]5

COD_{Cr}

NH₃-

	RTO		12t/5a	24t/5a		282-999-99	
			2530.82	1290.3			
			3.1	3.5			

2.5.6.4

20

25dB(A)

GB12348-2008 3

GB12348-2008 4a

2.5.7

2.5-7

2.5-7

		Nm ³ /a	113400	
		t/a	3.684	
	VOCs	t/a	1.367	
	SO ₂	t/a	2.148	
	NOx	t/a	8.613	
		t/a	1.1694	
		t/a	0.0273	
		t/a	0.01362	
		t/a	1.442	
	VOCs	t/a	1.435	
		t/a	1.299	
		t/a	0.15	
		t/a	0.075	
		m ³ /a	26477.5	
	COD _{Cr}	t/a	0.51	
		t/a	0.007	

	t/a	0	
--	-------	---	--

3

3.1

2019 1 28

[2019]7

3.5 6

2019 6 23

6 2 2022 1

5 130t/h

1 5

1 2.4

3.1-1

3.1-1 251.69 314.69 Tm 0 g 0 G [(1)6>> BDC q

3.2

3.2.1

2.1-1

1 1
6 2 t

40000

60

8

350d 8400h

3.2.2

3.2-1

3.2-2

3.2-1

	t/a	
6	2	

35000t/a

6 /

3.2-2

3.2-2

3.2-2

6

GBT9102-2016

			/(dtex/											
			2100/2		1870/2		1400/3		1400/2			930/2		
			V ₁	V ₂	V ₁	V ₂	V ₁	V ₂	V ₁	V ₂	V ₃	V ₁	V ₂	V ₃
1		/10cm	88	74	88	74	88	74	100	74	52	126	94	60
2			92	78	92	78	92	78	105	78	55	130	98	64
3			8	10	8	10	8	10	8	10	16	10	12	14
4		tex	28~30											
5		m	L±2%											
6		cm	145±3											
			2~10 28tex-30tex											

7

			1t/h	
	1	1	4032m ²	1
	2	1	4032m ²	1
	3	1	4368m ²	
	4	1	1152m ²	
		1	2000m ²	
		1	7.5m ²	
		1	3.9m ³	
		1	3.9m ³	
			750 kWh	
			4872t	
		43	P1-1	RTO

3.2.4

3.2-4

3.2-4

1	6	t/a	20000
		d/a	350
			60
		m ²	1800
			40000
		/	152159
		/	143434
		/	8458
		/	2117.2
		/	6340.8
		%	21.1
		%	15.2

1		- -5-
2		- 5- - -

3.2.5.2

3.2-7

3.2-7

1		18438m ³ /a	
2		750 kWh/a	
3		1260t/a	
4		477.6408 m ³ /a	

3.2.6

3.2.6.1

2

3.2-3

3.2.6.2

1

2

3

SSW

3.2.7

3.2-8

3.2-8

1		152/168	33	
2		MNB190CM	14	
3		--	18	
4		--	1	

45 ~50

85

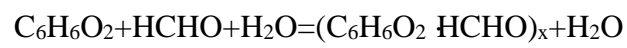
95

25

35

-

1.3~2.3



-

PH

PH

PH

10

2.0Cps

18%

15

G₁ G₂

G₃

3

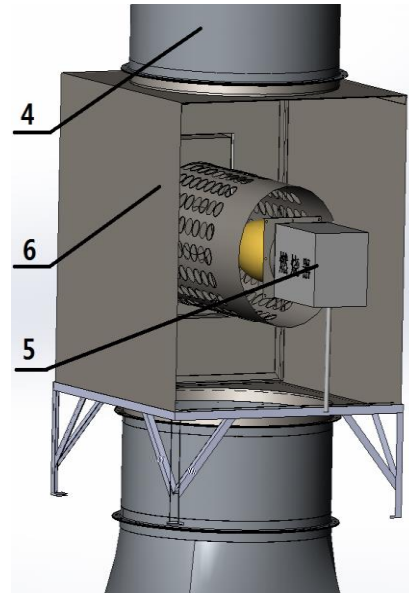
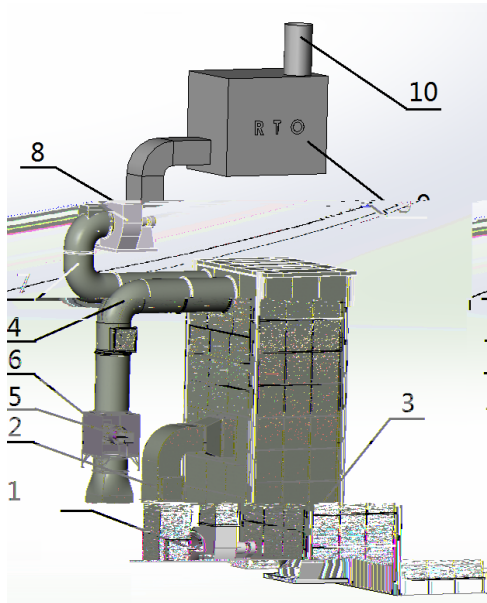
G₄

+RTO 43m

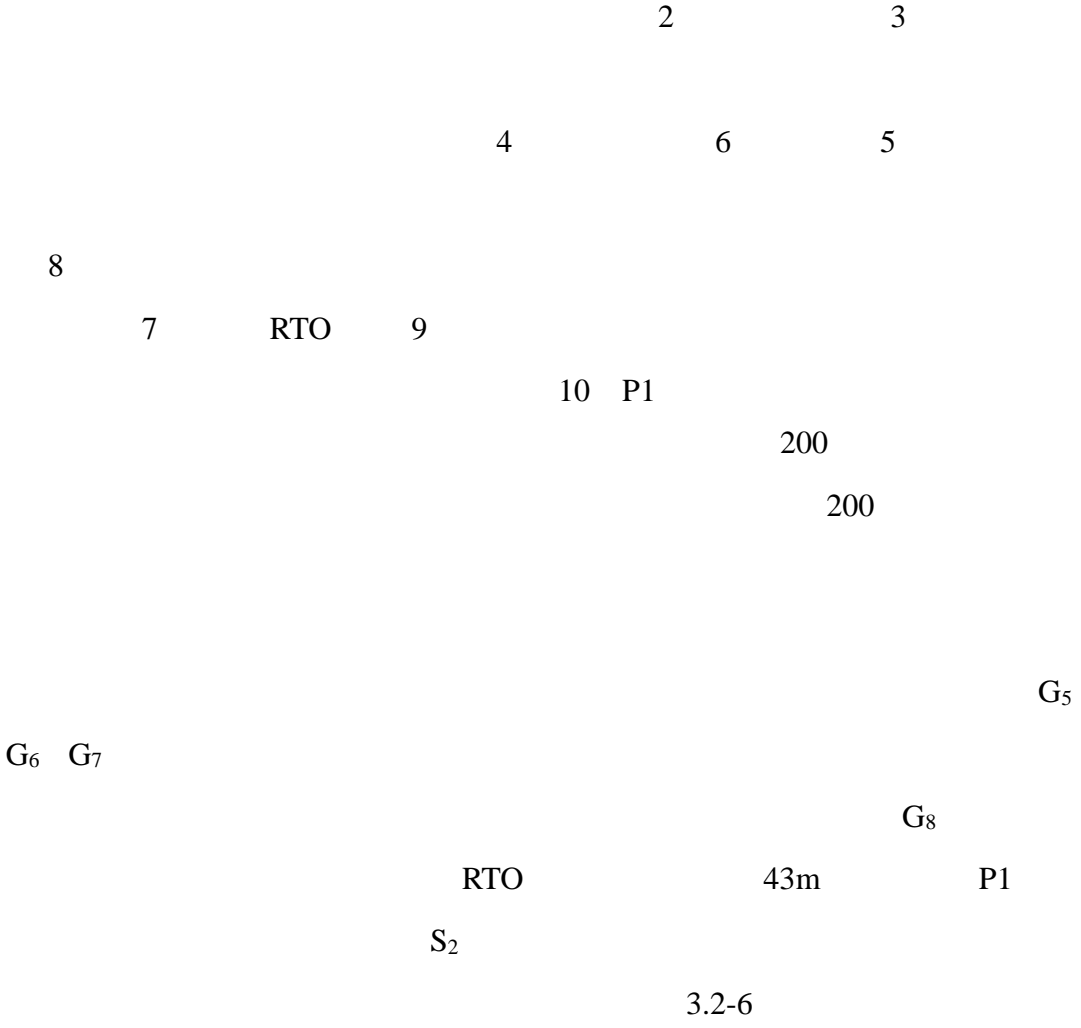
P1

110-140

110-140



1. 2. 3. 4. 5. 6. 7.
8. 9.RTO 10.



3.2.9

3.2.9.1

1

4m³/d 1400m³/a

2

9.6m³/d 3360m³/a12.8m³/d 4480m³/a

3

35m³/h 294000m³/a 3%1.05m³/h 25.2m³/d 8820m³/a

4

6.6m³/d 2310m³/a

5

60 120L/ .

7.2m³/d 2520m³/a

6

0.15t/h 1260t/a

0.02t/h 168t/a

0.13t/h 1092t/a

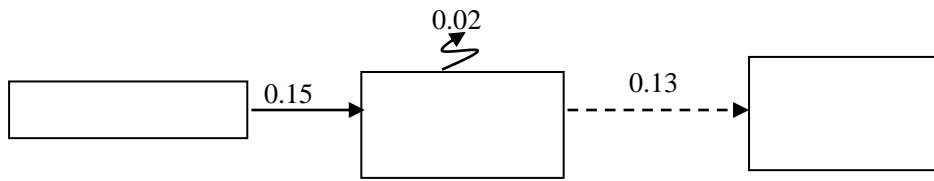
18480m³/a13608m³/a

1092m³/a

3.3.9.2

3.2-9

3.2-12



3.2-12

t/h

3.2.9.3

750 kWh

3.2.9.4

520.7m³/h 437.388 m³/a

RTO

47.92m³/h 40.2528 m³/a

3.2.9.5

3.2-11

3.2-11

			m	m	m ³		t
	2		1.5	2.2	3.9	0.8	2.84
	2		1.5	2.2	3.9	0.8	2.54

3.2.9.6

EDI

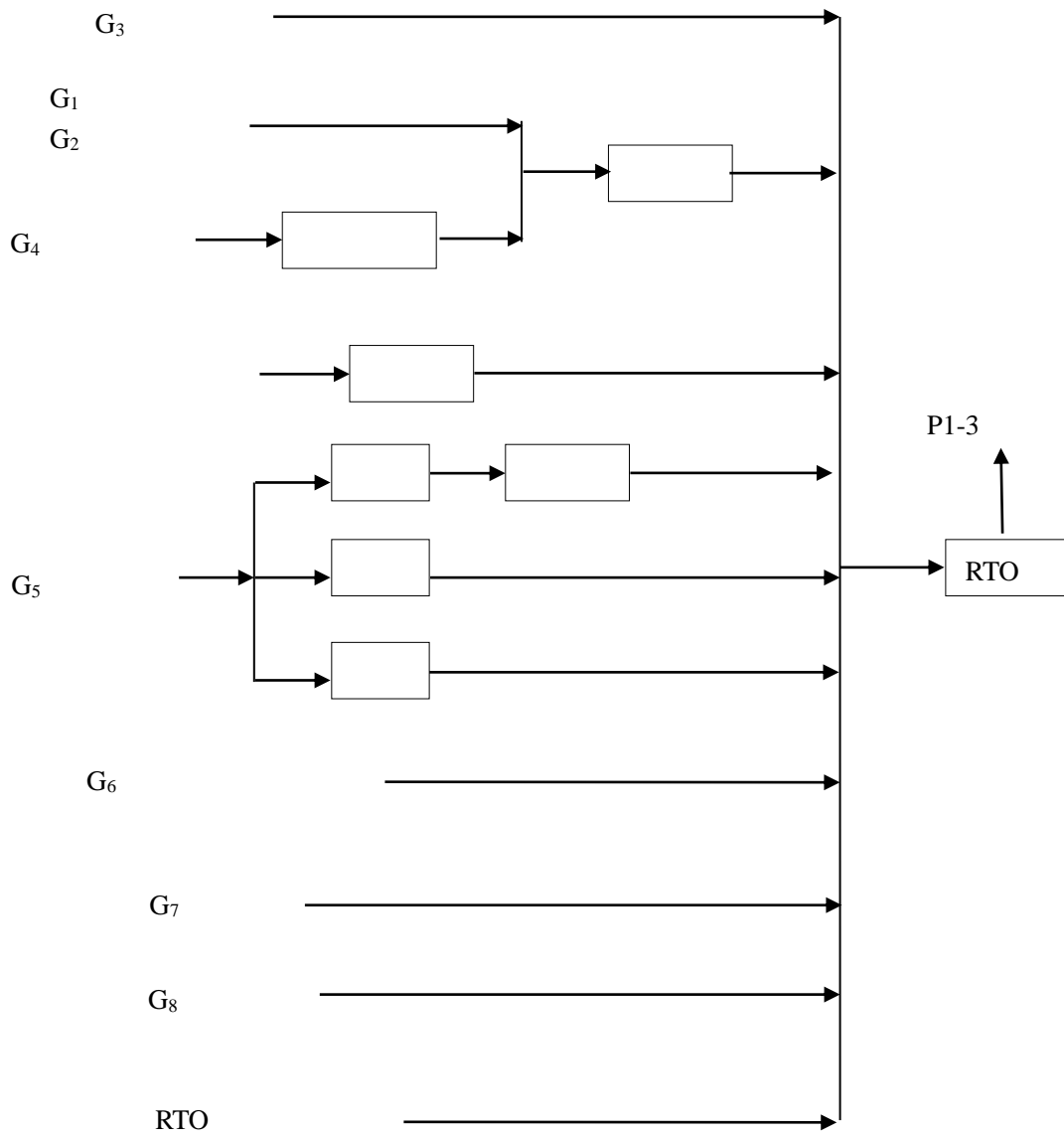
EDI Electrodeionization

G₇
G₆ RTO

G₈

45000t/a 6 /
+RTO

3.3-1



3.3-1

3.3.1.1

3.3-1 3.3-1

3.3-1

G ₁			RTO 43m
G ₂	VOCs		
G ₄		VOCs	
G ₅		VOCs	
G ₃			
		VOCs	
G ₆			
RTO			
G ₇	VOCs		
G ₈	VOCs		

1

HJ991-2018 C

1m³ C.3

$$V_0 = 0.0476[0.5\varphi(CO) + 0.5\varphi(H_2) + 1.5\varphi(H_2S) + \sum(m + \frac{n}{4})\varphi(C_mH_n) - \varphi(O_2)] \quad C.3$$

V_0

m^3/m^3

%

%

%

% m

n

%

3.3-2

	CH ₄	C ₂ H ₆	C ₃ H ₈	C ₄ H ₁₀	C ₅ H ₁₂	C ₅₊	H ₂	H ₂ S	CO ₂	N ₂
	96	2	0.5							

V_{H_2O}	m^3/m^3	
$\varphi(H_2)$	%	
		1.75
	$V_{RO_2}=1.034$ $V_{N_2}=7.703$	
$V_g=1.034+7.703+(1.75-1$	$9.732=16.036m^3/m^3$	
	$520.7m^3/h$ 437.388 m^3/a	
7013.95	m^3/a	
$E_{SO_2}=2R \times S_t \times (1 - s/100) \times K \times 10^{-5}$		
E_{SO_2}		t
R		m^3
S_t		mg/m^3
s	%	
K		
	GB17820-2018	1
	$100mg/m^3$	
0 K 1		$E_{SO_2}=2 \times 437.388 \times 100 \times 10^{-5}=0.875t/a$
$10mg/m^3$		$10mg/m^3$
	$0.701t/a$	
	NOx	$50mg/m^3$
		$50mg/m^3$

3.507t/a

3.3-3

3.3-3

	Nm ³ /a						
				SO ₂		NO _x	
		t/a	mg/Nm ³	t/a	mg/Nm ³	t/a	mg/Nm ³
	7013.95	0.701	10	0.875	12.2	3.507	50
DB37/2376-2019 1			10		50		100
[2019]39							50

3.3-3

DB37/2376-2019 1

10mg/m³

50mg/m³

100mg/m³

<

>

[2019]39

50mg/m³

1 43m

P1

2 RTO

RTO

RTO

3.5 Nm³/h

98%

RTO

3.3-4

3.3-4

RTO

	25000m ³ /h
	1000mg/m ³
VOCS	98%
	0.75
	95%
	80
	5000Pa
	15 5m

$$\text{热效率} = \frac{T_{com} - T_{out}}{T_{com} - T_{in}} * 100\%$$

RTO 760 RTO 80 RTO
95% RTO 114
T=114 -80 =34

RTO

RTO

RTO

VOCs RTO

$$Q = CM_{\Delta}T$$

C kJ/ kg ·

M kg/h

T

RTO Q = 1.005kJ/ kg · × 1.293kg/Nm³ ×
40000Nm³/h × 34 = 1767272.4kJ/h

$$V = 1767272.4 \text{ kJ/h}$$

$$36440 \text{ kJ/Nm}^3 = 48.50 \text{ Nm}^3/\text{h}$$

3.3-5

3.3-5 VOCs

	kJ/mol	g/mol	mg/m ³		kJ/h
	2847.8	110.111	0.9	98%	21295
	2345	30.026	1.8		
	2826.51	263.377	14.9		
	2826.51	105.137	14.9		

$$21295 \text{ kJ/h}$$

$$36440 \text{ kJ/Nm}^3 = 0.58 \text{ Nm}^3/\text{h}$$

$$48.50 \text{ Nm}^3/\text{h} - 0.58 \text{ Nm}^3/\text{h} = 47.92 \text{ m}^3/\text{h}$$

$$40.2528 \text{ m}^3$$

RTO

HJ991-2018 C

$$1 \text{ m}^3$$

C.3

$$V_0 = 0.0476 [0.5\varphi(CO) + 0.5\varphi(H_2) + 1.5\varphi(H_2S) + \sum(m + \frac{n}{4})\varphi(C_mH_n) - \varphi(O_2)] \quad \text{C.3}$$

$$V_0 \quad \text{m}^3/\text{m}^3$$

$$\varphi(CO) \quad \%$$

$$\varphi(H_2) \quad \%$$

$$\varphi(H_2S) \quad \%$$

$$\varphi(C_mH_n) \quad \% \quad m \quad n$$

$$\varphi(O_2) \quad \%$$

3.3-2

C.3

$$V_0 = 9.732 \text{ m}^3/\text{m}^3$$

1

1kg

C.4

$$V_{RO_2} = V_{CO_2} + V_{SO_2} = 1.866 \times \frac{C_{ar} + 0.375S_{ar}}{100} \quad C.4$$

$$V_{RO_2} = 0.01[\varphi(CO_2) + \varphi(CO) + \varphi(H_2S) + \sum m\varphi(C_mH_n)]$$

$$V_{N_2} = 0.79V_0 + \frac{\varphi(N_2)}{100}$$

$$V_g = V_{RO_2} + V_{N_2} + (\alpha - 1)V_0$$

V_g	m^3/kg		
V_{RO_2}			m^3/m^3
$\varphi(CO_2)$		%	
$\varphi(CO)$		%	
$\varphi(H_2S)$		%	
$\varphi(C_mH_n)$		%	m n
V_{N_2}	m^3/m^3		
V_0	m^3/m^3		
$\varphi(N_2)$		%	
V_{H_2O}	m^3/m^3		
$\varphi(H_2)$		%	

1.75

$$V_{RO_2}=1.034 \quad V_{N_2}=7.703$$

$$V_g=1.034+7.703+(1.75-1) \quad 9.732=16.036m^3/m^3$$

$$RTO \quad 47.92m^3/h \quad 40.2528 \quad m^3 \quad 645.49$$

m^3/a

RTO

$$E_{SO_2}=2R \times S_t \times (1 - \eta/100) \times K \times 10^{-5}$$

E_{SO_2} t

R m^3

S_t mg/m^3

η %

K

GB17820-2018 1

100mg/m³

0 K 1

E_{SO2}=2 40.2528 100 10⁻⁵=0.08t/a

RTO

10mg/m³

10mg/m³

0.065t/a

NO_x

50mg/m³

50mg/m³

0.323t/a

RTO

3.3-6

3.3-6 RTO

	Nm ³ /a						
				SO ₂		NO _x	
		t/a	mg/Nm ³	t/a	mg/Nm ³	t/a	mg/Nm ³
	645.49	0.065	10	0.08	12.4	0.323	50
DB37/2376-2019 1			10		50		100
[2019]39							50

3.3-6

RTO

DB37/2376-2019 1

10mg/m³

50mg/m³

100mg/m³

<

>

[2019]39

50mg/m³

RTO

1 43m

P1-3

3

RTO

43m

VOCs

HJ 1102-2020 D.1

6

56.16g/ +

38.19g/

VOCs 32%

85-89%

85%

RTO RTO

98%

80%

2.05

2

RTO

25000Nm³/h

98%

3.3-7

3.3-7

P1

		(t/a)	kg/h	(mg/m ³)	(m ³ /h)		(%)	(t/a)	(kg/h)	(mg/m ³)
P1		1.9252	0.229	9.2	25000	RTO 43m	51.2	0.94	0.112	4.5
	SO ₂	0.955	0.114	4.6			0	0.955	0.114	4.6
	NO _x	3.83	0.456	18.2			0	3.83	0.456	18.2
	VOCs	4.998	0.595	23.8			98	0.10	0.012	0.5
		5.46	0.65	26			90	0.546	0.065	2.6
		0.605	0.072	2.9			98	0.0121	0.0014	0.06
		0.294	0.035	1.4			98	0.00588	0.0007	0.03

4.5

1.5

3.3-8

4.5

P1

		(t/a)	kg/h	(mg/m ³)	(m ³ /h)		(%)	(t/a)	(kg/h)	(mg/m ³)
P1		1.4452	0.172	6.9	25000		50.9	0.71	0.085	3.4
	SO ₂	0.716	0.085	3.4		0	0.716	0.085	3.4	

	NOx	2.871	0.342	13.7
	VOCs	3.75	0.446	17.8
		3.898	0.464	18.6
		0.454	0.054	2.2
		0.227	0.027	1.1

3.3-7 3.3-8

P1

3.3-9 P1

	0	2.871	0.342	13.7
	98	0.075	0.0089	0.4
	90	0.3898	0.0464	1.86
RTO	98	0.0091	0.0011	0.04
43m	98	0.00454	0.00054	0.02

4.5

3.3-9

		(t/a)	kg/h	(mg/m ³)	(m ³ /h)		(%)	(t/a)	(kg/h)	(mg/m ³)
P1		3.3704	0.401	8.0	50000		51.2	1.65	0.197	3.9
	SO ₂	1.671	0.199	4.0			0	1.671	0.199	4.0
	NOx	6.701	0.798	16.0			0	6.701	0.798	16.0
	VOCs	8.748	1.041	20.8			98	0.175	0.0209	0.4

9.358 1.114

RTO

	0.521	0.062	1.2	43m	98	0.01042	0.00124	0.02
--	-------	-------	-----	-----	----	---------	---------	------

3.3-7 3.3-9 P1
 GB16297-1996 2

45.3kg/h

DB37/2376-2019 1 10mg/m³ 50mg/m³
 100mg/m³ < >
 [2019]39 50mg/m³

GB31572-2015

5 15mg/m³ 5mg/m³
 6 2 15mg/m³
 5mg/m³ VOCs
 6 DB37/801.6-2018 1

VOCs60mg/m³ 3.0kg/h
 GB14554-93 2 41kg/h

3.3-10

3.3-10

													m		
		Nm ³ /h	mg/m ³	kg/h	t/a			mg/ m ³	kg/h	t/a	mg/m ³	kg/h			
G1		25000	9.2	0.229	1.9252	RTO 43m	51.2 %	4.5	0.112	0.94	10	45.3	P1	43	0.8
G2	SO ₂		4.6	0.114	0.955		0	4.6	0.114	0.955	50				
G3	NO _x		18.2	0.456	3.83		0	18.2	0.456	3.83	50				
G4	VOCs		23.8	0.595	4.998		98%	0.5	0.012	0.10	60	3.0			
G5			26	0.65	5.46		90%	2.6	0.065	0.546		41			
G6			2.9	0.072	0.605		98%	0.06	0.0014	0.0121	5				
G7	RTO														
G8			1.4	0.035	0.294		98%	0.03	0.0007	0.00588	15				
		21000 m ³ /a	0.94t/a VOCs 0.546t/a			0.1t/a SO ₂ 0.0121t/a			0.955t/a NO _x 0.00588t/a		3.83t/a				

3.3-8
 0.1t/a SO₂ 0.955t/a NO_x 3.83t/a
 21000 Nm³/a
 0.546t/a
 0.94t/a VOCs
 0.0121t/a 0.00588t/a

3.3.1.2

90%

3.3-10

		m ³ /a	mg/L	t/a
1	COD _{Cr}	12439	752	9.35
2	BOD ₅		379	4.71
3			13	0.16
4			21	0.26
5			1220	15.18
6			2.1	0.03

3.3-10

12439m³/a COD_{Cr}

9.35t/a 0.16t/a

3.3.2.2

2.2.7.2.2

2022 7

COD_{Cr} 18.5mg/L 1.69mg/L

GB/T31962-2015 1A

3.4.2.3

1

2004

8

4 m³/d

2007 9

8 m³/d

4 m³/d

1 A

2009 5

8

16km

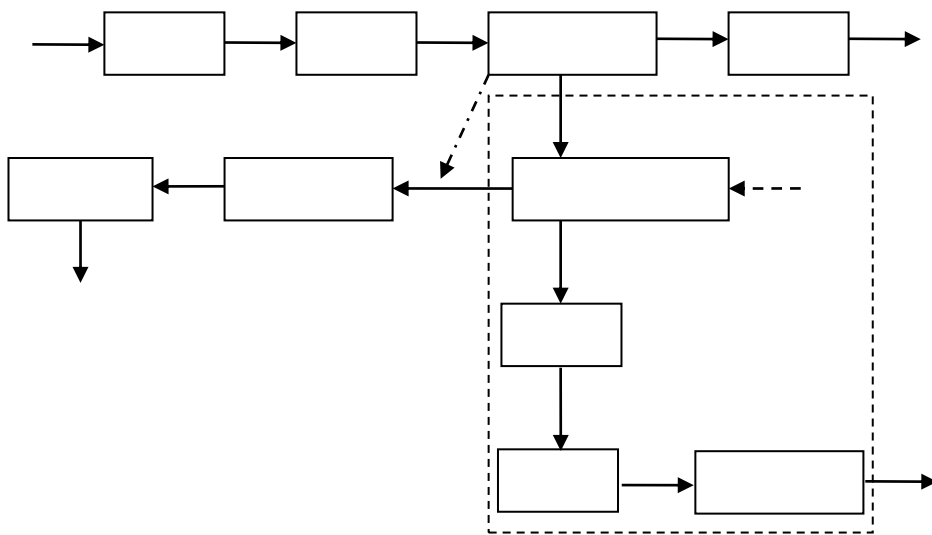
0.9mm

BIOLAK

BIOLAK

BIOLAK

3.3-3



3.3-3

pH 6~9

COD_{Cr}

BOD₅

(GB18918-2002)

A

[2017]5

COD_{Cr}

NH₃-

2

2022 7

3.4-16

3.4-16

2021 7

		pH				
2022-07-01	(m ³) 30.3 34E616				(mg/L)	

[2017]5

COD_{Cr}

NH₃-

3

GB18918-2002

A

[2017]5

COD_{Cr}

NH₃-

3.4.2.4

3.4-17

3.4-17

		m ³ /a	mg/L	t/a	m ³ /a	mg/L	t/a
1	COD _{Cr}	12439	18.5	0.23	12439	15.9	0.20
2	BOD ₅		9	0.11		8	0.10
3			1.69	0.021		0.653	0.008
4			3	0.04		1.2	0.02
5			1220	15.18		1220	15.18
6			0.2	0.002		0.2	0.002

12439m³/a

COD_{Cr}

15.9mg/L

0.653mg/L

COD_{Cr}

0.20t/a

0.008t/a

3.3.3

3.3.3.1

80 95dB A

3.4-19

3.4-19

					/m			/m	/dB(A)		dB(A)		
					/ dB(A)/m	X	Y					Z	/dB(A)
1				85/1	274	-507	32.57	5	71.0	24h	26	45.0	1
2				90/1	285	-508	30.11	2	84.0	24h	26	58.0	1
3				85/1	254	-488	31.36	5	71.0	24h	26	45.0	1
4			40Nm ³ /min	90/1	304	-494	30.13	2	84.0	24h	26	58.0	1

FDY

3.4-20

3.4-20

t/a

	t/a	0.294	0.28812	0.00588	
	t/a	0.129	0	0.129	
	VOCs t/a	0.555	0	0.555	
	t/a	0.607	0	0.607	

3.3.7.2

0

3.3-24

3.3-24

		mg/m ³	kg/h	mg/m ³	kg/h	
P1		9.2	0.229	10	45.3	
	SO ₂	4.6	0.114	50		
	NO _x	18.2	0.456	50		
	VOCs	23.8	0.595	60	3.0	
		26	0.65		41	
		2.9	0.072	5		
		1.4	0.035	15		

3.3.8

3.4-26

3.3-26

	t/a	218901.86	10878	0	12439	242218.9	+12439
	COD t/a	4.247	0.21	0	0.20	4.657	+0.20
	t/a	0.055	0.003	0	0.008	0.066	+0.008
	t/a	0.044		0		0.044	
	t/a	1.885	0.09	0	0.02	1.995	+0.02
	m ³ /a	148618.2	71400	0	21000	241018.2	+21000
	t/a	3.672	2.264	0	0.94	6.876	+0.94

2

3.4.3

1

2

20%

3

3.4.4

3.5-1

3.5-1

	m ³ /t	0.92	1.5
	kWh/t	375	500

	t/t	0.06	1.75
	m ³ /t	238.8	

3.5-1

3.4.5

3.4-2

3.4-2

6	t/t	0.98	0.92
	t/t	0.076	0.06
	t/t	0.02	0.02

3.5-1

6

3.4.6

3.4-3

3.4-3

	kg/t	0.05	0.12
VOCs	kg/t	0.005	0.03

VOCs

3.4.7

3.4.8

3.4-4

1		<p>GB16297-1996 2</p> <p>DB37/2376-2019 1</p> <p>1 2</p> <p>DB37/801.6-2018 1 2 3</p> <p>GB31572-2015 5 9</p> <p>GB12348-2008 3 4a</p> <p>GB14554-93 6</p> <p>GB18599-2020</p> <p>GB18597-2001</p>
2		3
3		
4		
5		

6

4

4.1

116° 36°

42.4km 960km² 9 3 1 40.8km 603
42 51.4

2 2 105 308 308 107km
316 56km
70km
50 km

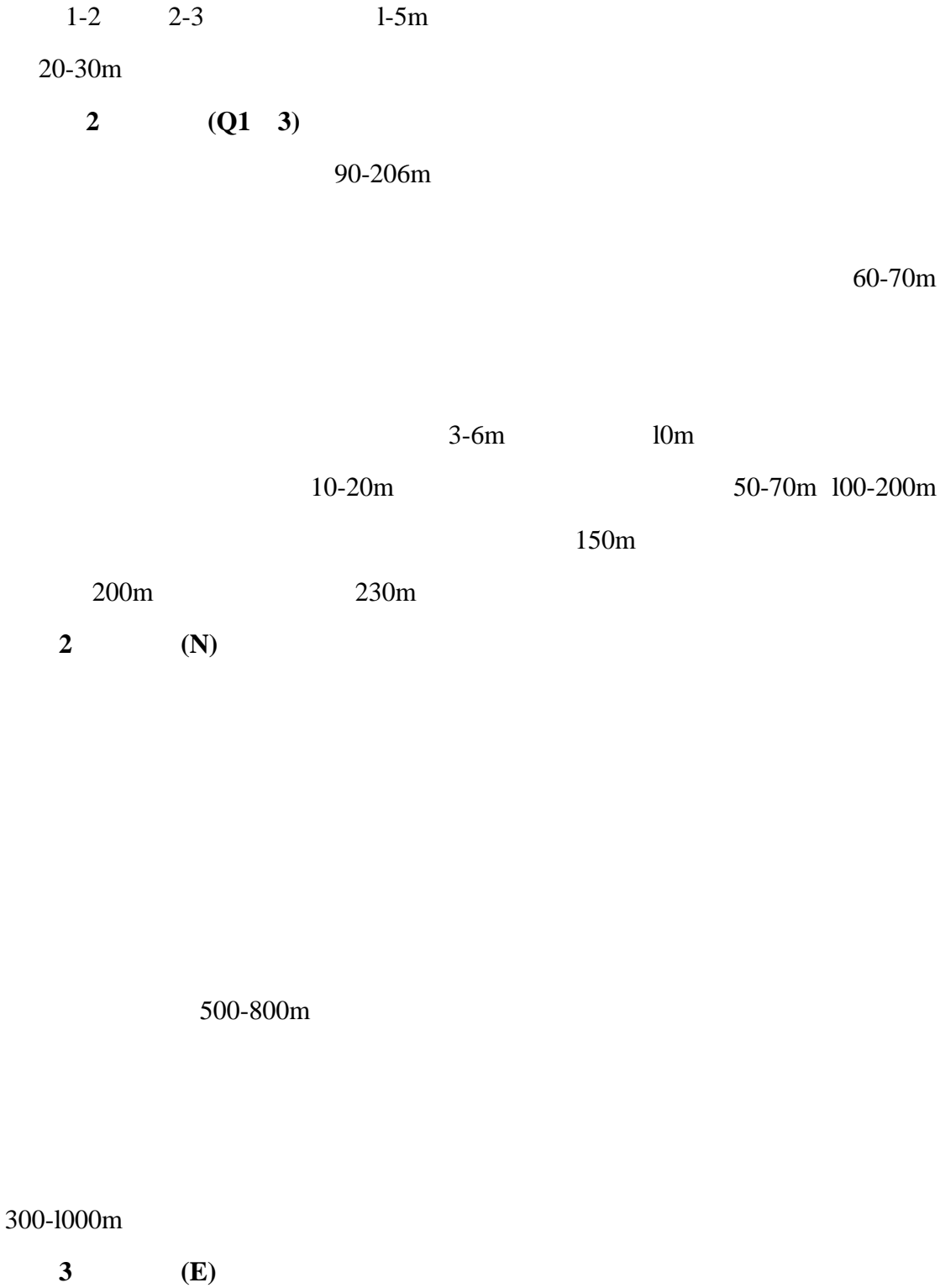
2.1-1

4.2

4.2.1

32.00m 22.00m 27m 32.1m
22.6m 1/7000 1/9000

			3m	
			56.25%	17.65%
	10.83%	6.94%	5.11%	
	3.22%			
				7
4.2.2				
4.2.2.1				
				V_4^8
	V_4^{10}	V_4^{11}		V_4^8
	-			
	2000-3500m			
		250m		
1	(Q)			
240-300m				
1	(Q4)			
		12-58m		
		15m		
		0.5m		



4.2.2.2

II

III

270km

NE10°-30°

NW

40°-70°

-

-

6.3m

800-1000m

6500-7000m

5000-6500m

40°-45°

55km

145km

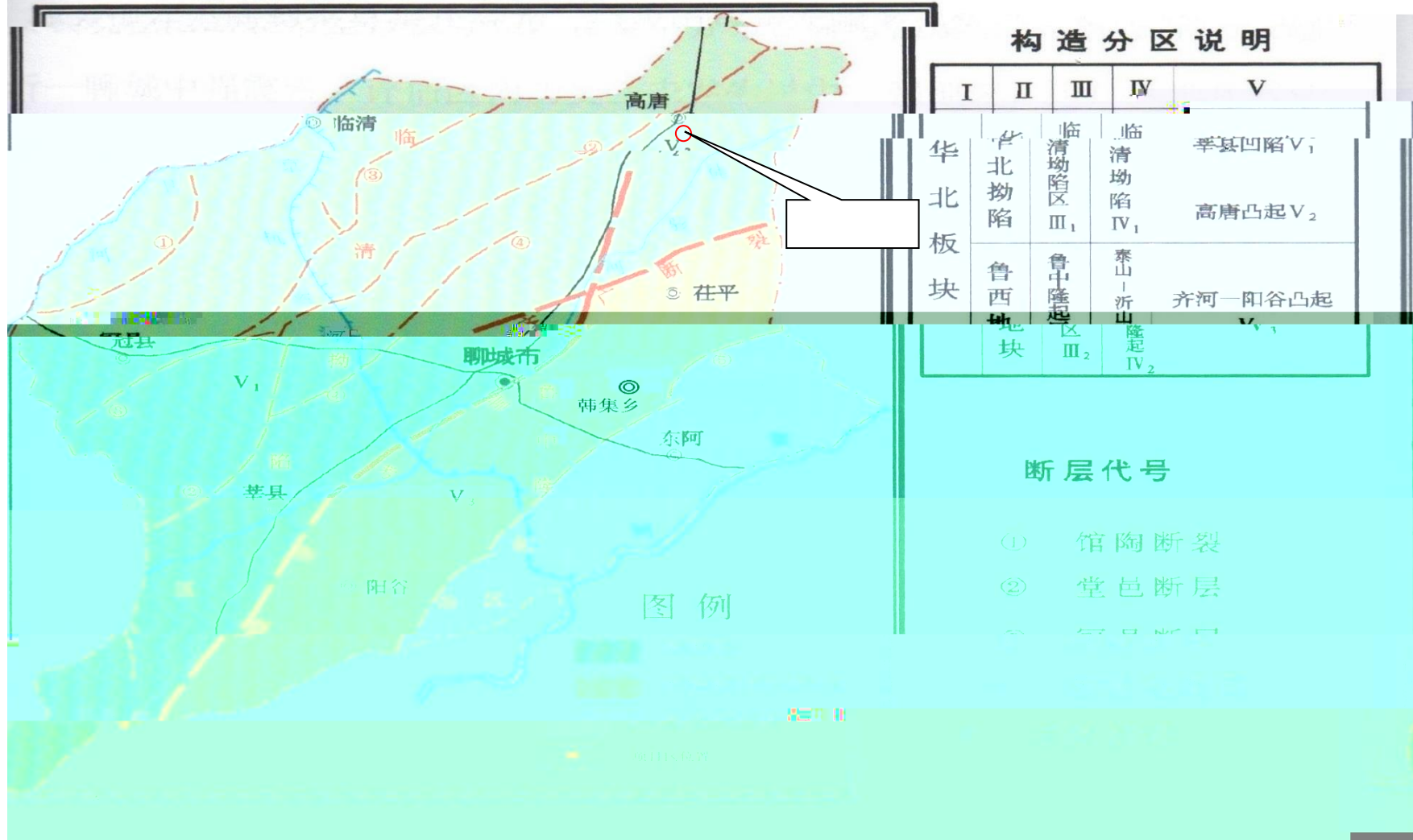
III

IV

V

4.2-1

聊城地区大地构造分区略图



4.2-1

4.2.3

4.2.3.1

-

- -

(50m) (2g/L)

(50-120m)(2-5g/L)

120-140m (2g/L)

4.2.3.2

1

4.2.4

17

4181.2km²
26km 393.62km²
26km 393.6km² 9
100km² 100km²
28km 432.3km² 6 100km²
100km²

4.2-2

4.2.5

13.1 26.6
41.2 (1958 6 18) -3.0 -20.8
(1981 1 26) 1 -3.1 7
26.8 195 43cm 31cm
3.7m/s 4 4.7m/s
8 2.5m/s
508.8mm 7 8 9
73.2 975.9mm 1961 287.1mm 2002
3.4 1.2mm 121.6mm
56.1mm 150mm 1644.9mm

	E601		1892.3mm		1994	
	1368.1mm	2007		10m	10	24m/s
	2.3m/s		1.9m/s		2.3m/s	
	18%	4%	18%		20	/
4.2.6						
			GB18306-2015			
	0.15g		VII			
						7
4.2.7						
			142		119	
	76.79%	33.41		23.21%		
	94.4		65.41%	8.87	6.15%	
	7.5	5.2%	1.46	1%		
	22.32	15.5%			11.01	7.71%
		18.68	m ³			
		2.7	m ³	1.56	m ³	
					60m	
	16.7	m ³	15.9	m ³	0.8	m ³
						1.34
	m ³				3.9974	m ³
4.2.8						
			142		119	
				83		58%

	19.9	14%		
			40	27%
				2 3m
	20	15%		
4.2.9				
	58715.8		338500	8%
	93			
4.3				
1			(GB3095 2012)	
2			GB3838-2002	
			GB3838-2002	
3			GB/T14848-2017 III	
4	3			
5				
(GB36600-2018)				
GB15618-2018				
4.4				
4.4.1				
			2018 ~2035	2022
	2035	2050		

4.4.1.1

1

1

54.6

308

0.6

2

6.7

6.4

12.1

7.4

6.1

9.8

0.6

308

0.3

4.4.1.2

1064.1

25.5%

30.4

13

	0.8		
0.6		0.4	
15		13	2-3
2	47.6	1.1%	1.4
3	22.2	0.5%	
0.6			
4	146.8	3.5%	
4.2			
5	37.4	0.9%	1.1
6	60	1.4%	1.7
7	5 /		2 /

7				
		15.6	0.4%	
0.4				
3.4.1.4				
		263.2	6.3%	
7.5				
4.4.1.5				
1				
		1206.1	28.9%	
34.5				
	2013	36		1.0
2				
		65	1.6%	1.9
		1		
4.4.1.6				
				+
4.4.1.7				

2018~2035

4.4-1

4.4.2

2014 12

[2014]220

2008

2018

23km²

316

-

322

1

2

3

4

GB/T4754-2017

2011

2013

[2013]12

3.4-1

3.4-1

1	1	
2		1
3	2	
4		2 “ ”
5	3	
6	4	3
7	5	
	6	4
	7	
	8	
	9	5
	2016 442 10	
	11	
	12	
2015-2020		

4.4-2

4.5

4.5.1

4.5.1.1

1

2021

4.5-1

4.5-1

μg/m³

	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	CO	O ₃
					24 95	8 90
	11	33	81	49	1.4mg/m ³	159
	60	40	70	35	4 mg/m ³	160

2021

SO₂ NO₂

CO 24

95

O₃

8

90

GB3095-2012

PM₁₀

PM_{2.5}

GB3095-2012

PM_{2.5} PM₁₀

2

HJ2.2-2018

4.5-1

2021

PM₁₀

PM_{2.5}

GB3095-2012

4.5.1.2

1

S

4.5

HJ2.2-2018

2

4.5-2

4.5-1

4.5-2

			m		
1#		N	100	TSP	

2

TSP

9

3

en-US

		GB/T 15516-1995	0.01mg/m ³
--	--	-----------------	-----------------------

5

4.5-4

4.5-5

4.5-6

4.5-4

			(m/s)	()	(kPa)		/
2022.01.18- 2022.01.19	13:48	S	1.6	7.3	100.34		10/7
	19:47	S	1.4	-3.2	102.27		/
	01:47	S	1.3	-3.7	102.35		/
	07:46	S	2.1	0.2	101.46		10/8
2022.01.19- 2022.01.20	14:02	S	1.9	5.7	102.16		10/7
	20:25	S	2.3	-2.8	102.33		/
	02:17	S	1.7	-6.3	102.50		/
	07:56	S	2.0	-6.2	102.63		9/6
2022.01.20- 2022.01.21	13:50	S	1.4	1.3	102.21		10/7
	19:50	S	1.2	-2.2	103.24		/
	01:50	S	1.1	-4.6	103.31		/
	07:50	S	1.2	-4.5	103.31		10/9
2022.01.21- 2022.01.22	13:47	S	1.8	2.7	102.24		10/7
	19:49	S	1.9	-2.7	102.31		/
	01:49	S	2.1	-5.9	102.49		/
	07:49	S	1.9	-6.3	102.52		9/7
2022.01.23- 2022.01.24	10:27	S	2.0	1.5	102.53		10/7
	13:48	S	1.5	1.8	102.52		10/7
	19:47	S	1.2	0.6	102.53		/
	01:48	S	1.4	-2.9	102.56		/
	07:47	S	1.1	-4.2	102.58		10/8
2022.01.24- 2022.01.25	13:52	S	1.9	2.6	102.29		10/7
	19:58	S	1.6	1.5	102.30		/
	02:31	S	1.7	-1.8	102.33		/
	07:51	S	2.0	0.4	102.34		10/8
2022.01.25- 2022.01.26	13:48	S	1.3	4.5	102.14		3/1
	19:50	S	1.2	-1.2	102.20		/

	01:52	S	1.2	-4.2	102.50		/
	07:50	S	1.2	-4.0	102.51		3/1

4.5-5 1

mg/m³

						NH ₃							
		14:00	20:00	02:00	08:00	14:00	20:00	02:00	08:00	14:02	20:01	02:01	08:02
1 #	2022.1.18- 2022.1.19						0.02	0.02	0.04	0.62	1.30	1.12	0.78
	2022.1.19- 2022.1.20						0.02	0.02	0.03	1.00	0.96	0.92	0.69
	2022.1.20- 2022.1.21						0.02	0.02	0.02	0.76	0.62	0.96	1.04
	2022.1.21- 2022.1.22						0.02	0.02	0.03	0.68	0.79	0.76	0.62
	2022.1.23- 2022.1.24						0.02	0.02	0.02	0.78	0.63	0.60	0.66
	2022.1.24- 2022.1.25						0.02	0.02	0.02	0.56	0.64	0.47	0.71
	2022.1.25- 2022.1.26						0.02	0.02	0.02	0.40	0.77	0.62	0.44

=

3.5-5 2

mg/m³

		14:00	20:00	02:00	08:00								

2022.1.20-2022.1.21	0.004	0.004	0.004	0.004	0.132	12	14	13	14
2022.1.21-2022.1.22					0.147	12	14	14	13
2022.1.23-2022.1.24		0.004	0.004	0.004	0.168	11	14	14	13
2022.1.24-2022.1.25					0.182	11	15	12	13
2022.1.25-2022.1.26		0.004	0.004	0.004	0.126	12	14	13	14

=

4.5-6

mg/m³

	TSP				7	0.126	0.182
		28					
		28		0.03			
		28	0.40	1.30			
		28		0.004			
		28					
		28					
		28					
		28	11	15			

=

4.5.1.3

1

TSP

2

GB3095-2012

(HJ2.2-2018) D

1.4-2

3

$$P_i = \frac{C_i}{C_{0i}}$$

C_i

i

mg/m³

C_{0i} i mg/m^3
 P_i i

4

4.5-7

4.5-7

			%			%	
1#	TSP				0.42~0.61	0	0
	NH ₃	0.03~0.15	0	0			
		0.20~0.65	0	0			

4.5-7

,

()

2 3.6

2021 12 ,

10 /

+

SCR

() VOCs

VOCs 10

2021 12

VOCs

VOCs

()

()
7 /
()

()
2021 12
VOCs
VOCs 65%

2021
) 2022 3 (

4.5.2

4.5.2.1

1

4.5

2

4.5-8

4.5-2

4.5-8

1#	200m	
2#	2000m	

2

2022

1

20~23

3

3

pH

SS

COD_{Cr}

BOD₅

32

4

GB3838-2002

4.5-9

4.5-9

1			GB/T 13195-1991	/
2			HJ 506-2009	/
3	pH	pH	HJ 1147-2020	/
4			GB/T 11901-1989	/
5			HJ 828-2017	4mg/L
6		BOD ₅	HJ 505-2009	0.5mg/L
7			GB/T 11893-1989	0.01mg/L
8			HJ 535-2009	0.025mg/ L
9			HJ 636-2012	0.05mg/L
10			GB/T 7475-1987	0.05mg/L
11				0.05mg/L
12		9.1	GB/T 5750.6-2006	0.5 µg/L
13			HJ 694-2014	0.3 µg/L
14				0.4 µg/L
15				0.4 µg/L
16			GB/T 7467-1987	0.004mg/ L
17			GB/T 7493-1987	0.003mg/ L
18			HJ/T 346-2007	0.08mg/L
19			HJ/T 51-1999	/
20		F ⁻ Cl ⁻ NO ₂ ⁻ Br ⁻ NO ₃ ⁻ PO ₄ ³⁻ SO ₃ ²⁻ SO ₄ ²⁻	HJ 84-2016	0.007mg/ L
21				0.018mg/ L
22			GB/T 7484-1987	0.05mg/L
23			HJ 484-2009	0.004mg/L

				L
24			GB/T 11892-1989	0.5mg/L

25

4-

5

4.5-10

4.5-10

	1#						2#					
	2022.1.20		2022.1.21		2022.1.23		2022.1.20		2022.1.21		2022.1.22	
	1.0	1.0	1.1	1.1	2.8	2.9	1.0	1.0	1.3	1.2	3.4	3.4
m	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6
m	7	7	7	7	7	7	7	7	7	7	7	7
m ³ /h	0.04	0.04			0.08	0.08	0.04	0.04	0.04	0.04	0.08	0.08
pH	7.1	7.1	7.2	7.2	7.2	7.3	7.1	7.2	7.1	7.3	7.3	7.3
COD _{Cr} mg/L	24	21	27	23	25	20	23	26	21	26	25	28
BOD ₅ mg/L	5.0	4.2	5.2	4.6	5.2	4.4	5.2	5.4	4.6	4.8	5.0	4.6
SS mg/L	13	10	19	12	16	11	15	17	12	16	15	19
mg/L	1.41	1.44	1.42	1.43	1.40	1.42	1.04	1.07	1.02	1.09	1.08	1.05
mg/L	0.39	0.40	0.46	0.48	0.42	0.43	0.52	0.51	0.55	0.56	0.58	0.59
mg/L	4.81	5.05	5.13	5.10	5.28	5.13	4.83	4.88	4.75	4.80	4.96	4.83
mg/L	5.6	5.7	5.6	5.6	5.8	5.9	5.5	5.4	5.6	5.5	5.7	5.7
mg/L												
mg/L												
mg/L												
mg/L												
mg/L												

mg/L												
μ g/L	33.8	34.0	34.4	32.0	35.8	35.4	33.7	32.3	34.7	31.6	35.4	31.3
mg/L	4.11	4.03	4.10	4.15	4.10	4.09	4.23	4.16	4.02	4.06	4.16	4.15
mg/L	0.113	0.117	0.113	0.115	0.113	0.117	0.180	0.180	0.176	0.170	0.174	0.172
mg/L	408	418	363	374	360	365	448	458	441	442	457	462
mg/L	1.19	1.16	1.41	1.28	1.28	1.12	1.32	1.28	1.16	1.22	1.22	1.32
mg/L												
mg/L	5.4	4.8	5.6	4.9	5.4	4.7	5.5	5.3	5.7	5.3	5.4	5.1
mg/L	220	218	220	22	230	232	218	212	202	202	217	192
mg/L	1620	1500	1760	1190	1600	1370	1630	1500	1850	1280	1770	1470
mg/L												
mg/L	0.02	0.03	0.03	0.02	0.03	0.03	0.02	0.02	0.03	0.03	0.02	0.03
mg/L												
mg/L												
μ g/L												
μ g/L												
μ g/L												
MPN/L	2800	1600	2200	1400	1700	1300	5400	3500	1400	3500	2400	3500

=

4.5.2.2

1

pH

SS COD_{Cr} BOD₅

15 N© Ä

14

2

GB3838-2002

GB 3838-2002 2

SS

GB5084-2021 1

1.4-3

3

$$S_{DO_j} = 10 - 9 \frac{DO_j}{DO_s} \quad DO_j < DO_s$$

S_{DO_j} DO

DO_f mg/L

$$DO_f = 468 / (31.6 + T) \quad T$$

DO_j mg/L

DO_s mg/L

4

4.5-11

4.5-11

	1#						2#					
	2022.1.20		2022.1.21		2022.1.23		2022.1.20		2022.1.21		2022.1.22	
pH	0.05	0.05	0.10	0.10	0.10	0.15	0.05	0.10	0.05	0.15	0.15	0.15
	0.80	0.70	0.90	0.77	0.83	0.67	0.77	0.87	0.70	0.87	0.83	0.93
	0.83	0.70	0.87	0.77	0.87	0.73	0.87	0.90	0.77	0.80	0.83	0.77
SS	0.13	0.10	0.19	0.12	0.16	0.11	0.15	0.17	0.12	0.16	0.15	0.19
	0.94	0.96	0.95	0.95	0.93	0.95	0.69	0.71	0.68	0.73	0.72	0.70
	1.30	1.33	1.53	1.60	1.40	1.43	1.73	1.70	1.83	1.87	1.93	1.97
	0.77	0.76	0.77	0.77	0.74	0.73	0.78	0.79	0.77	0.78	0.74	0.74
	0.68	0.68	0.69	0.64	0.72	0.71	0.67	0.65	0.69	0.63	0.71	0.63
	0.41	0.40	0.41	0.42	0.41	0.41	0.42	0.42	0.40	0.41	0.42	0.42
	1.63	1.67	1.45	1.50	1.44	1.46	1.79	1.83	1.76	1.77	1.83	1.85
	0.79	0.77	0.94	0.85	0.85	0.75	0.88	0.85	0.77	0.81	0.81	0.88
	0.54	0.48	0.56	0.49	0.54	0.47	0.55	0.53	0.57	0.53	0.54	0.51
	0.88	0.87	0.88	0.09	0.92	0.93	0.87	0.85	0.81	0.81	0.87	0.77
	0.04	0.06	0.06	0.04	0.06	0.06	0.04	0.04	0.06	0.06	0.04	0.06
	0.14	0.08	0.11	0.07	0.09	0.07	0.27	0.18	0.07	0.18	0.12	0.18

4.5-11

1# 2#

GB3838-2002

4.5.2.3

		4.5-12										2021 8~2022		
4		4.5-12										4.2-2		
		mg/L												
		pH												
2021.08		6.89	7.09	29	0.360	0.52	8.2	5.60	0.30	1.44		0.0058	0.022	0.04
2021.09		6.81	7.11	29	0.284	0.52	8.9	0.80	0.07	1.79		0.0007		
2021.10														
2021.11		7.29	10.81	27	1.20	0.28	9.4	3.10	0.27	1.54				
2021.12		7.5	5.8	31	1.07	0.437	7.6	3.30	0.25	1.68		0.0008		0.03
2022.01		7.2	7.6	30	0.410	0.360	7.2	7.80	0.10	7.82		0.0007		0.03
2022.02		7.2	5.7	19	0.924	1.34	5.0	8.20	0.15	1.94				0.03

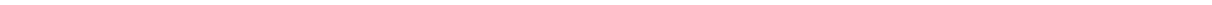


2019

2020 5

2020

A²O



4.5.3

4.5.3.1

1

4.5

8

4.5-13 **4.5-1**

4.5-

GB/T5760-2006

HJ610-2016

4.5-14

4.5-14

1	pH	pH	HJ 1147-2020	/
2			GB/T 13195-1991	/
3			HJ 694-2014	0.3
4				0.04
5		GB/T 5750.4-2006 7.1		1.0mg/L
6		8.1	GB/T 5750.4-2006	/
7			HJ 535-2009	0.025mg/L
8			GB/T 11911-1989	0.03mg/L
9				0.01mg/L
10		4.1 4.2	GB/T 5750.6-2006	5
11		5.1	GB/T 5750.6-2006	0.05mg/L
12		9.1 9.2	GB/T 5750.6-2006	0.5
13		11.1 11.2	GB/T 5750.6-2006	2.5
14		1.1 S	GB/T 5750.6-2006	0.008mg/L
15		9.1 4-	GB/T 5750.4-2006	0.002mg/L
16			GB/T 7494-1987	0.05mg/L
17			GB/T 16489-1996	0.005mg/L
18			GB/T 7484-1987	0.05mg/L
19			HJ 484-2009	0.004mg/L

20		1.1	GB/T 5750.7-2006	0.05mg/L
21			GB/T 7493-1987	0.003mg/L
22			HJ/T 346-2007	0.08mg/L
23		F ⁻ Cl ⁻ Br ⁻	HJ 84-2016	0.007mg/L
24		NO ₃ ⁻ PO ₄ ³⁻ SO ₃ ²⁻ SO ₄ ²⁻		0.018mg/L
25		/	HJ 639-2012	0.4
26				0.4
27				0.2
28	+			0.5
29			HJ 601-2011	0.05mg/L
30	Na ⁺	22.1	GB/T 5750.6-2006	0.01mg/L
31	K ⁺	22.1	GB/T 5750.6-2006	0.05mg/L
32	Ca ⁺		GB/T 11905-1989	0.02mg/L
33	Mg ⁺			0.002mg/L
34		10.1	GB/T 5750.6-2006	0.004mg/L
35		B		20MPN/L
36			HJ 1000-2018	1CFU/mL
37			DZ/T0064.49-2021	5mg/L
38				5mg/L

4

2022 1 18 19 24 1 1

5

4.5-15 4.5-16

3.5-15

	2022.01.24	2022.01.18	2022.01.18	2022.01.19	2022.01.18	2022.01.19
	1#	2#	3#	4#	5#	6#
	9.7	9.7	10.1	10.3	10.4	9.8
	8	10	9	6	7	8
	12	12	13	9	12	14

4.5-16

	2022.1.24	2022.1.18	
	1#	2#	3#
pH	7.1	7.1	7.0
mg/L	1588	1042	1692
mg/L	3.15×10^3	2.25×10^3	2.71×10^3
mg/L			
mg/L	1.42	1.64	1.34
mg/L			0.22
mg/L	0.04		0.07
µg/L	45		
mg/L	0.40		
mg/L			
mg/L	0.422		0.463
mg/L			
mg/L			
mg/L	0.53	1.40	0.17
mg/L	0.30	0.88	0.44
mg/L			
mg/L	822	700	732
mg/L	1079	650	707
mg/L			
µg/L			
µg/L			
µg/L	6.2	7.0	8.1
µg/L			
mg/L			
µg/L			
µg/L			
µg/L			
+ µg/L			
mg/L			
K ⁺ mg/L	3.71	1.33	1.33
Na ⁺ mg/L	690	164	171
Ca ²⁺ mg/L	264	24.2	193
Mg ²⁺ mg/L	234	260	278
mg/L	615	457	650
mg/L			

4.5.3.2

1

pH

K^+Na^+ Ca^+ Mg^+ CO_3^{2-} HCO_3^-

2

GB/T14848-2017

1.5-4

3

$$Pi=Ci/Si$$

Pi

Ci i mg/L

Si i mg/L

pH

$$Pi=(7.0-pH)/(7.0-pH_{sd})$$

pH>7 $Pi= (pH -7.0)/(pH_{su}-7.0)$

Pi pH

pH pH

pH_{sd} pH

pH_{su} pH

4

4.5-17

4.5-17

	2022.1.24	2022.1.18	
	1#	2#	3#
pH	0.07	0.07	0.00
	3.53	2.32	3.76
	3.15	2.25	2.71
	0.47	0.55	0.45
	0.05	0.05	0.73

	0.40	0.05	0.70
	0.045	0.003	0.003
	0.400	0.025	0.025
	0.84	0.03	0.93
	0.03	0.07	0.01
	0.30	0.88	0.44
	3.29	2.80	2.93
	4.32	2.60	2.83
	0.62	0.70	0.81

3

GB/T14848-2017

4.5.4

4.5.4.1

1

4.5

1m

6

4.5-20

4.5-3

4.5-20

1#			
2#			
3#			
4#			
5#			
6#			

2

L_{Aeq}

3

2022 1 19 -1 20

2

4

4.5-21

4.5-21

dB(A)

	1#	57.4	47.1

2022.1.19

	1#	57.4	70	-12.6	47.1	55	-7.9
	2#	58.6		-11.4	47.7		-7.3
	3#	57.7		-12.3	47.1		-7.9
	4#	58.9	65	-6.1	47.8		-7.2
5#		49.9	60	-10.1	40.5	-9.5	-9.5
6#		53.4		-6.6	43.2		-6.8

4.5-22

GB12348-2008 3

GB12348-2008 4a

GB3096-2008 2

4.5.5

4.5.5.1

1

HJ964-2018

4.5

10

4.5-23

4.5-4

4.5-23

6#		116.200E	36.845N	0~0.2m			
----	--	----------	---------	--------	--	--	--

2

1#

GB15618-2018

1

pH

+

13

3#

GB36600-2018

1

1,1-

1,2-

1,1-

-1,2-

-1,2-

1,2-

1,1,1,2-

1,1,2,2-

1,1,1-

1,1,2-

1,2,3-

1,2-

1,4-

+

2-

[a]

[a]

[b]

[k]

[a h]

[1,2,3-cd]

46

2#

4#

5#

6#

+

5

3

2022 2 9

1

4

4.5-24

4.5-24

1	pH	pH	HJ 962-2018	/
2			HJ 680-2013	0.01mg/kg
3		/		0.002mg/kg
4			GB/T 17141-1997	0.01mg/kg
5		-	HJ 1082-2019	0.5mg/kg
6			HJ 491-2019	1mg/kg
7				10mg/kg
8			HJ 491-2019	3mg/kg

9				1.0 µg/kg
10				1.0 µg/kg
11				1.5 µg/kg
12	-1,2-			1.3 µg/kg
13	-1,2-			1.4 µg/kg
				1.2 µg/kg



40				0.1mg/kg
41	[a]			0.1mg/kg
42	[b]			0.2mg/kg
43	[k]			0.1mg/kg
44	[a,h]			0.1mg/kg
45	[1,2,3-cd]			0.1mg/kg
46	[a]			0.1mg/kg

5

HJ 964-2018

4.5-25

4.5-25(1)

	2022.2.9
	1#
	0~0.2m
	116.19757 36.84259
	5%
pH	7.92
cmol ⁺ /kg	2.8
mV	466
mm/min	0.491
g/cm ³	1.43
%	50.5

4.5-25(2)

	2022.2.9		
	3#		
	0~0.5m	0.5~1.5m	1.5~3m
	116.20436° 36.84593°		

	5%	5%	5%
pH	7.86	8.12	8.01
cmol ⁺ /kg	3.0	3.1	3.4
mV	457	449	468
mm/min	0.497	0.475	0.485
g/cm ³	1.45	1.51	1.53
%	49.3	48.9	48.5

1# 4.5-26 2#
4.5-27 4# 5# 6# 4.5-28 3#
4.5-29

4.5-26 1# mg/kg

	pH						
1#	7.92	0.42	0.150	8.85	37	53	23
			C ₁₀ -C ₄₀			+	
1#	22	146	39				

4.5-27 2# mg/kg g/kg

		4#			5#			6#
	2#	0~0.5m	0.5~1.5m	1.5~3m	0~0.5m	0.5~1.5m	1.5~3m	
C ₁₀ -C ₄₀	21	18	20	26	46	23	29	45
+								

=
4.5-28 4# 5# 6# mg/kg g/kg

		8#			9#			10#
		0~0.5m	0.5~1.5m	1.5~3m	0~0.5m	0.5~1.5m	1.5~3m	
C ₁₀ -C ₄₀	16	19	14	23	20	24	15	
+								

--	--	--	--	--	--	--	--

=

3.5-29 3#

mg/kg

	3#		
	0~0.5m	0.5~1.5m	1.5~3m
	mg/kg	10.5	10.7
mg/kg	0.37	0.31	0.34
mg/kg			
mg/kg	19	23	22
mg/kg	43	53	44
mg/kg	0.068	0.053	0.047
mg/kg	23	29	26
μg/kg			
μg/kg			
μg/kg			
1,1- μg/kg			
1,2- μg/kg			
1,1- μg/kg			
-1,2- μg/kg			
-1,2- μg/kg			
μg/kg			
1,2- μg/kg			
1,1,1,2- μg/kg			
1,1,2,2- μg/kg			
μg/kg			
1,1,1- μg/kg			
1,1,2- μg/kg			
μg/kg			
1,2,3- μg/kg			
μg/kg			
μg/kg			
1,2- μg/kg			
1,4- μg/kg			
μg/kg			
μg/kg			
μg/kg			
+ μg/kg			
μg/kg			
mg/kg			
mg/kg			
2- mg/kg			

[mg/kg			
[mg/kg			
[b] mg/kg			
[k] mg/kg			
mg/kg			
[a,h] mg/kg			
[1,2,3-cd] mg/kg			
mg/kg			

$$P_i = C_i / S_i$$

P_i i

C_i i mg/kg

S_i i mg/kg

4

4.5-230

4.5-30 1 1#

	0.70	0.04	0.35	0.22	0.31	0.23	0.12	0.49	0.0087

4.5-30 2 2# 4# 5# 6#

	2#	4#			5#			6#
		0~0.5m	0.5~1.5m	1.5~3m	0~0.5m	0.5~1.5m	1.5~3m	
	0.005	0.004	0.004	0.006	0.01	0.005	0.006	0.01
		8#			9#			10#
		0~0.5m	0.5~1.5m	1.5~3m	0~0.5m	0.5~1.5m	1.5~3m	
		0.004	0.004	0.003	0.004	0.004	0.005	0.003

4.5-30 3 3#

3#	0~0.5m	0.18	0.006	0.001	0.05	0.002	0.03	0.006
	0.5~1.5m	0.18	0.005	0.001	0.07	0.001	0.03	0.005
	1.5~3m	0.16	0.005	0.001	0.06	0.001	0.03	0.006

4.5-30 1#

GB15618-2018 1

GB36600-2018

5

5.1

130m 500m 100m
600m

5.2

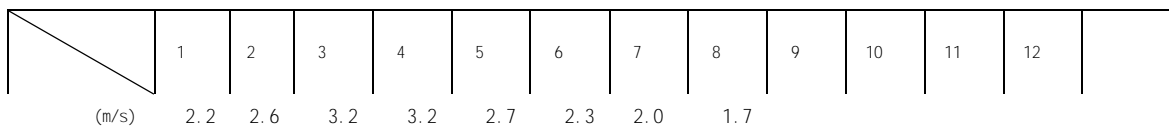
5.2.1

20 2001 2020

20 2001 2020
22.0m/s 2005 41.5
2013 -19.2 2001 802.9mm 2009 20
5.2-1 20 5.2-2 5.2-1

20

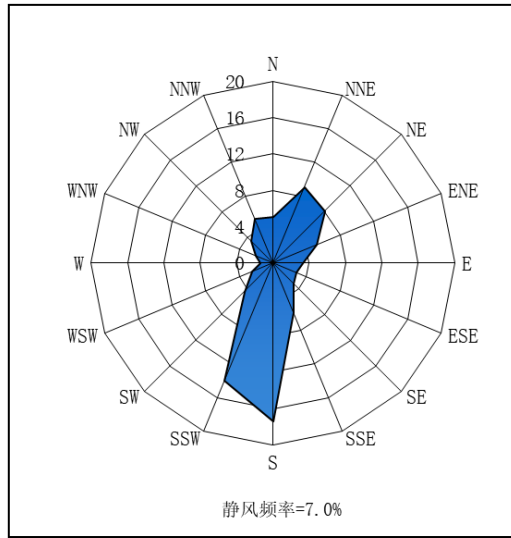
5.2-1 20 2001 2020



(%)	65	60	55	60	72	64	79	83	78	73	68	68	69
(mm)	3.6	7.1	9.4	27.9	43.5	74.1	110.7	105.2	63.2	41.5	7.3	4.0	497.6
(h)	149.9	156.9	203.7	222.5	246.3	210.9	179.2	189.7	187.3	158.6	154.7	133.0	2192.8

5.2-2 20 2001 2020

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	C
	5.1	9.0	8.0	5.2	3.3	2.8	3.3	5.8	17.4	14.0	4.5	2.5	1.4	2.1	3.4	5.3	7.0



5.2-1 20 2001-2020

5.2.2

HJ2.2-2018 " 5.3 "

5.2.2.1

HJ2.2-2018

P_i

P_i

$$P_i = \frac{C_i}{C_{0i}} \times 100\%$$

P_i i %

C_i i mg/m^3

C_{0i} i mg/m^3

5.2-3

5.2-4

5.2-7

5.2-2

5.2-3

/	/	
		50
	/	41.5

5.2-4

			/m	/m	/m	/ m/s	/	/h		/ kg/h	
	X	Y								VOCs	
P1	116.200E	36.846N	29	30	0.8	16.59	114	8400		0.112kg/h SO ₂ 0.114kg/h NO _x 0.456kg/h	0.012kg/h
P1	116.200E	36.846N	29	30	0.8	16.59	114	8400		0.197kg/h SO ₂ 0.199kg/h NO _x 0.798kg/h	0.0209kg/h
										0.065kg/h 0.0014kg/h 0.0007kg/h	
										0.01114kg/h 0.0025kg/h 0.00124kg/h	

5.2-5

			/m	/m	/m	/°	/m	/h		/ kg/h				
	X	Y									VOCs			
	116.193E	36.843N	33	90	20	10	33	8400		0.0154	0.066	0.0723	0.008	0.004

5.2-6 后

			/m	/m	/m	/ m/s	/	/h		/ kg/h
	X	Y								
DA012	116.198E	36.849N	29	40	0.5	3.54	30	8400		VOCs 0.00364kg/h 0.00855kg/h
DA022	116.196E	36.849N	29	30	0.5	4.95	30	8400		VOCs 0.0276kg/h 0.0109kg/h
DA017	116.195E	36.849N	29	35	0.3	3.70	30	8400		VOCs 0.00607kg/h 0.00258kg/h
DA026	116.196E	36.850N	29	35	1.2	5.41	30	8400		VOCs 0.0624kg/h
DA023	116.195E	36.850N	29	30	0.80	17.69	30	8400		VOCs 0.253kg/h
DA028	116.196E	36.849N	29	35	0.6	7.67	30	8400		VOCs 0.0276kg/h 0.0519kg/h
DA027	116.195E	36.850N	29	35	1.2	9.83	30	8400		VOCs 0.138kg/h 0.108kg/h
DA013	116.198E	36.849N	29	28	0.3	6.41	20	8400		0.00313kg/h VOCs 0.0990kg/h 0.00835kg/h 0.00133kg/h 0.00375kg/h
DA019	116.200E	36.849N	29	30	0.5	2.57	20	8400		0.00374kg/h VOCs 0.074kg/h 0.00846kg/h 0.00147kg/h 0.00238kg/h
DA014	116.199E	36.849N	29	30	0.5	1.89	20	8400		0.00293kg/h VOCs 0.00691kg/h 0.00293kg/h 0.000757kg/h 0.00348kg/h
DA015	116.199E	36.849N	29	30	0.8	5.48	20	8400		0.00631kg/h VOCs 0.164kg/h 0.0365kg/h 0.00905kg/h 0.0231kg/h
DA020	116.200E	36.849N	29	30	0.8	1.79	20	8400		0.00512kg/h VOCs 0.0175kg/h 0.00724kg/h 0.00212kg/h 0.00367kg/h
DA016	116.199E	36.849N	29	30	0.8	3.48	20	8400		VOCs 0.0213kg/h

DA021	116.200E	36.849N	29	30	0.8	3.96	20
-------	----------	---------	----	----	-----	------	----

										VOCs	0.0089kg/h
											0.0464kg/h
											0.0011kg/h
											0.00054kg/h
P1-4	116.193E	36.843N	30	43	0.8	13.82	114	8400		VOCs	0.0089kg/h
											0.085kg/h
											SO ₂ :0.085kg/h
											NO _x :0.342kg/h
											0.0464kg/h
											0.0011kg/h
											0.00054kg/h

DA012 A DA022 B DA017 DA026 DA023

DA028 DA027 DA013 DA019 DA014 年

DA015 年 DA020 年 DA016 DA021 DA031

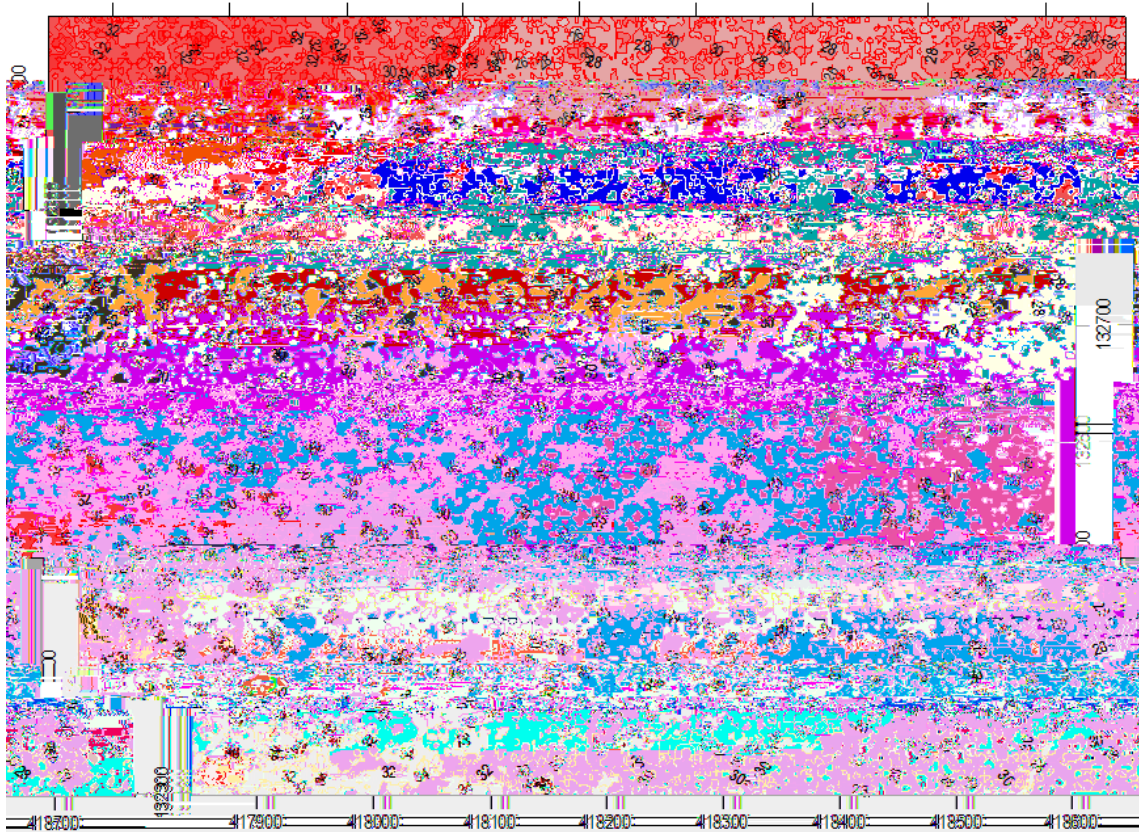
DA005 DA007 DA008 DA025 下 DA024 下

DA018 下 DA029 下 DA001 DA002 何 P1-1 后

P1-2 后 P1 P1-3 P1-4 后

5.2-7 后

			/m	/m	/m	/°	/m	/h		/ kg/h				
	X	Y									VOCs			
	116.196E	36.846N	29	78	62	10	27	8400		0.137	0.0223	—	—	—
	116.199E	36.846N	29	90	25	10	33	8400		0.0116	0.0495	0.0515	0.006	0.003
	116.193E	36.843N	30	66	47	10	33	8400		0.0232	0.099	0.1031	0.012	0.006



5.2-2

5.2.2.2

5.2-8

		mg/m ³	m	D _{10%}	mg/m ³	% P _{max}
P1		0.00048	197		0.45	0.11
	SO ₂	0.000485	197		0.5	0.10
	NO _x	0.001946	197		0.20	0.78
	VOCs	0.000051	197		2	0.0026
		0.000027	197		0.2	0.01
		0.000006	197		0.05	0.01
		0.001983	46		0.9	0.22
	VOCs	0.008497	46		2	0.42
		0.009308	46		0.2	4.65
		0.00103	46		0.05	2.06

PM₁₀ 3 TSP 3
 Pmax 1%
 Pmax=4.65% 10% HJ2.2-2018

5.2.2.3

HJ2.2-2018 " 5.4.2
 5km"
 5km 1.6-1 1.6-1

5.2.3

/

5.2-9 后 天

										kg/h /
	X	Y								
P1-1	116.196E	36.846N	29	30	0.8	16.59	30	8400		VOCs 0.08kg/h 0.097kg/h
P1-2	116.196E	36.846N	29	30	0.8	16.59	30	8400		VOCs 0.105kg/h 0.039kg/h
P1	116.2000E	36.846N	29	43	1.2	6.14	114	8400		0.085kg/h SO ₂ 0.085kg/h NO _x 0.342kg/h VOCs 0.0089kg/h 0.0464kg/h 0.0011kg/h 0.00054kg/h

5.2.4 天

5.2.5

5.2-10

5.2-11

5.2-12

5.2-10

天

			mg/m ³	(kg/h)	(t/a)		
						mg/m ³	kg/h
1	P1		4.5	0.112	0.94	10	45.3
		SO ₂	4.6	0.114	0.955	50	—
		NO _x	18.2	0.456	3.83	50	—
		VOCs	0.5	0.012	0.10	60	3.0
			2.6	0.065	0.546		41
			0.06	0.0014	0.0121	5	—
			0.03	0.0007	0.00588	15	—
			0.94t/a	VOCs		0.1t/a	SO ₂
			0.955t/a	NO _x	3.83t/a	0.546t/a	0.0121t/a
					0.00588t/a		

5.2-11

天

						mg/m ³ /	t/a										
1						GB16297-1996	2	1.0	0.129								
								0.2	0.067								
								0.08	0.033								
						VOCs						GB14554-1993	1	1.5	0.607		
													6	DB37/801.6-2018	3	2.0	0.555
						t/a		0.129									
						t/a		0.067									
						t/a		0.033									

	t/a		0.607
VOCs	t/a		0.555

5.2-12 天

		%	m ³ /h	mg/m ³	kg/h					
						mg/m ³	kg/h			
P1		0	25000	9.2	0.229	10	45.3		1	1
	SO ₂	0		4.6	0.114	50	—		1	1
	NO _x	0		18.2	0.456	50	—		1	1
	VOCs	0		23.8	0.595	60	3.0		1	1
		0		26	0.65		41		1	1
		0		2.9	0.072	5	—		1	1
		0		1.4	0.035	15	—		1	1

5.2.6

5.2.6.1 后

45000t/a 6 /

45000t/a 6 /

100m

100m 11

100m

100m

[2018]96

100m

下

[2018]207

100m

[2019]7

100m

50m

4.5

100m

150m

5.2-3

5.2.6.2

GB/39499-2020

15m

$$Q_C / C_m \quad 1/A \quad B \quad L^C \quad 0.25 \quad r^{2.050} \quad L^D$$

Qc

kg/h

Cm

mg/m³

L

m

r

m

A B C D

5

1

5.2-13

5.2-13

		m	m	m	(kg/h)	mg/m ³		m	
		90	20	33	0.0154	0.9	1.0	50	100
	VOCs				0.066	2	2.2	50	
					0.0723	0.2	22.9	50	
					0.008	0.05	8.9	50	

5.2-13

100m

100m

130m

500m 600m

5.2-4

5.2-5

5.2.6 天

100m

5.2.7 天

5.2-14

5.2-14 天

						=5~50k				
	SO ₂ +NO _x									
				TSP	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	CO	O ₃
						2020				

		AERMO	ADMS	AUSTAL200	EDMS/	CALPUF	
		C			C		
			C			C	
			C			C	
	lh		h	C		C	
		C				C	
		-				k>-	
		VOCs	SO ₂ NO _x				
)					
		m					
		SO ₂ :(0.955)t/a	NO _x :(3.83)t/a		:(0.94)t/a	VOCs:(0.1)t/a	

5.3

5.3.1

GB/T31962-2015 1A

5.3-1

5.3-2

5.3-3

5.3-1

1		COD _{Cr} BOD ₅			T1			DW001	

2

COD_{Cr}
BOD₅

SS

										70
					GB18918-2002 A COD _{Cr} NH ₃ -					5

5.3-3

										/ mg/L
1	DW001	COD _{Cr}	GB/T31962-2015 1A		500					
		BOD ₅			350					
					45					
					70					
				5						
		COD _{Cr}			300					
					20					
		BOD ₅			150					

5.3.2

I

(~~2018~~-2018)

B



8 m³/d 2021.7
5.9091 m³/d 35.54m³/d
0.17%
18.5mg/L BOD₅ 9mg/L 1.69mg/L

BOD₅

5.3.5

12439m³/a
0.008t/a COD 40mg/L
COD_{Cr} 0.20t/a NH₃-N



5.3.6

5.3-4

5.3-4

			pH	
		40%	40%	

				pH	SS	COD _{Cr}	BOD ₅
							2
		km				km ²	
		pH	SS	COD _{Cr}	BOD ₅		
		km				km ²	

/ t/a

/ mg/L

			12439m ³ /a	
COD _{Cr}	COD _{Cr}	0.23t/a	0.021t/a	COD _{Cr} 18.5
COD _{Cr}	1243*m ³ /a	COD _{Cr}	0.20t/a	0.0087t/a

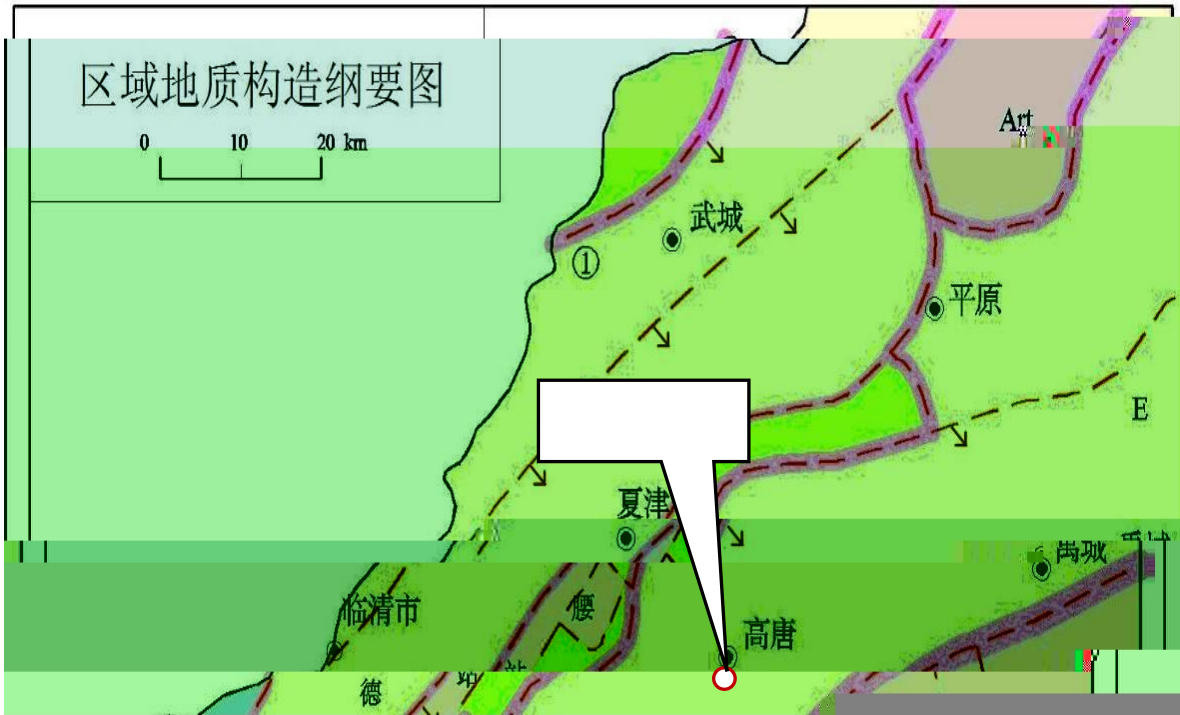
				pH COD _{cr} TP TN BOD ₅

5.4 不

5.4.1

5.4.1.1

	2		1		2
9]À°Eí° Aì]9	2		1		2
R±? 6üì]9	1		3		7
		1	2		3



5.4-1

5.4.1.2

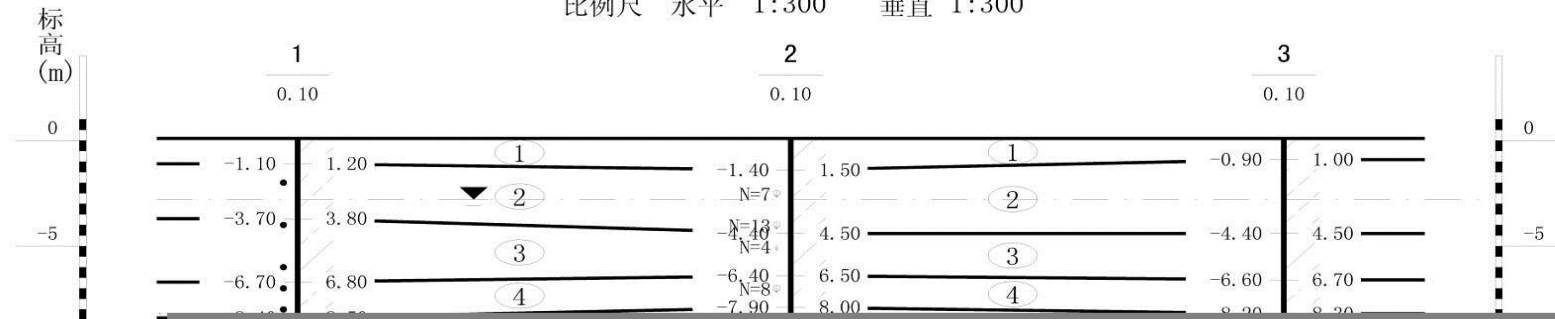
-
- -
(50m) (2g/L)
(50

6	-		1.30~2.50m	1.78m
-18.80~-18.20m	-18.44m		18.30~18.90m	18.54m
7		6.10~7.10m	6.68m	-25.40~-24.70m
-25.08m	24.80~25.50m		25.18m	
8				

5.4-2~5.4-5

1-1' 工程地质剖面图

比例尺 水平 1:300 垂直 1:300



5.4-2

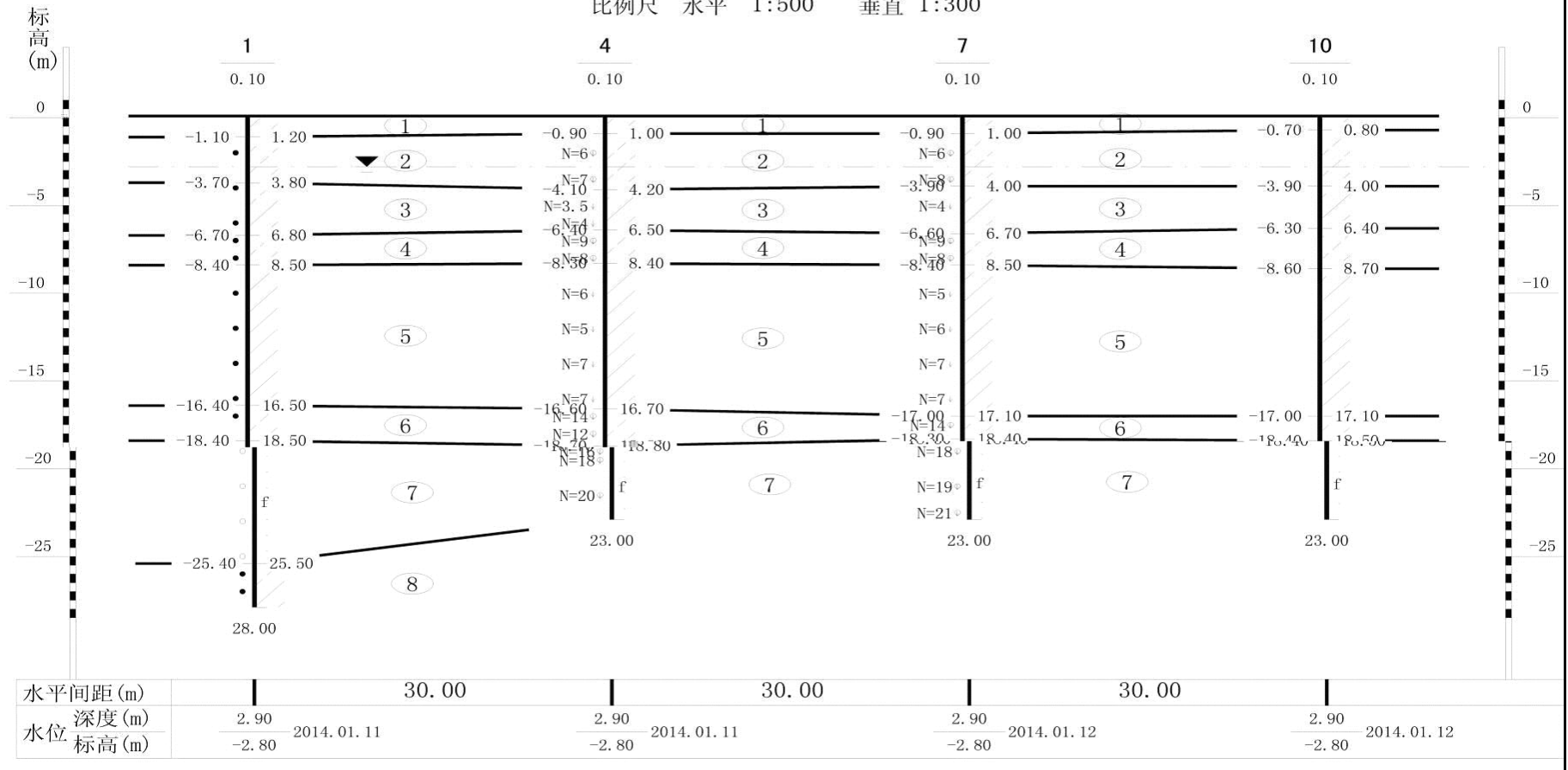
2-2' 工程地质剖面图



5.4-3

5-5' 工程地质剖面图

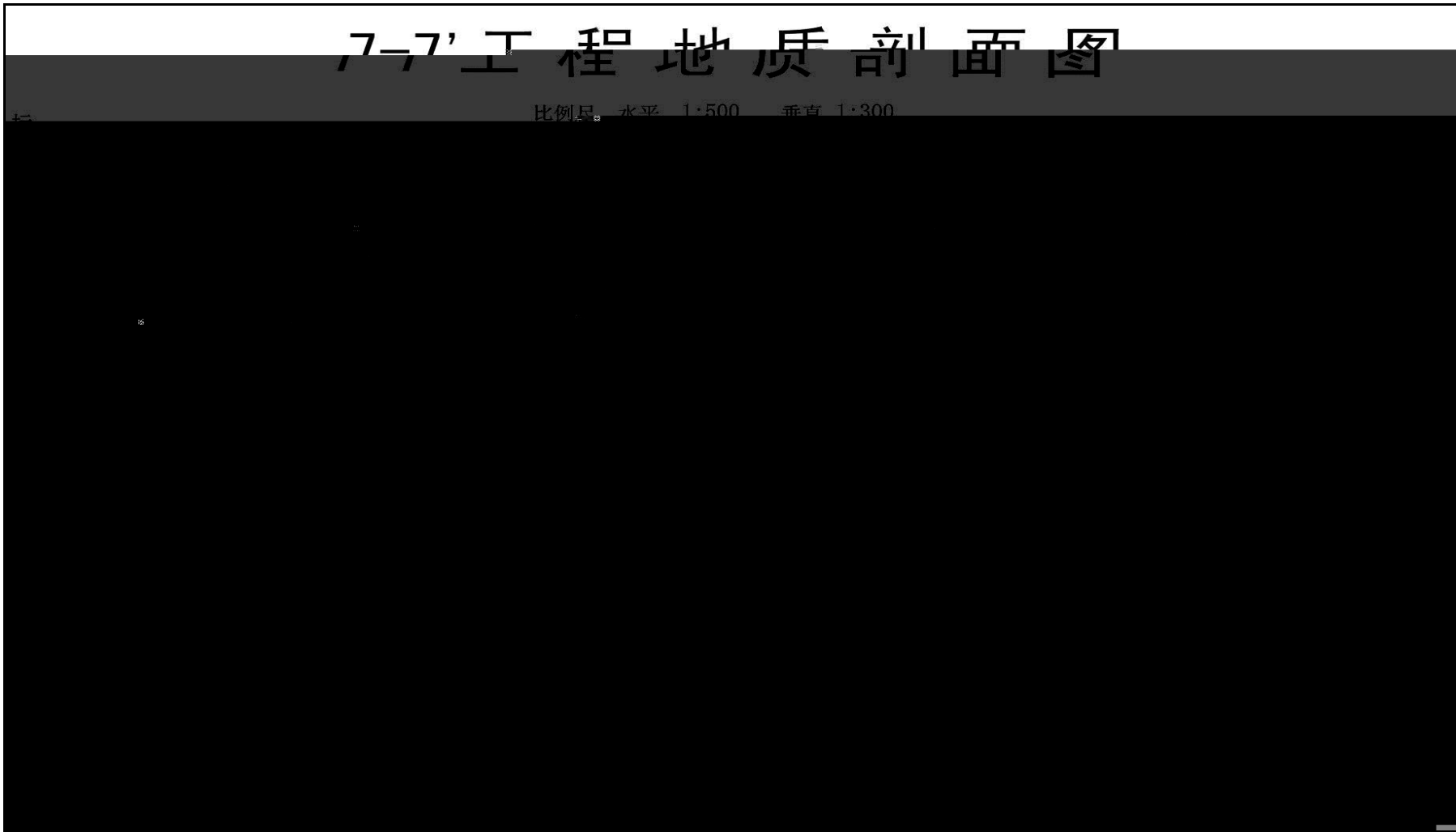
比例尺 水平 1:500 垂直 1:300



5.4-4

7-7' 工程地质剖面图

比例尺：水平 1:500 垂直 1:300



5.4.3 不

5.4.3.1

1

HJ610-2016

HJ610-2016

A

" O

119

"

5.4-1 不

2

HJ610-2016

5.4-2

			下

4.4.3.2

HJ610-2016

2

5.4-3 不

	km ²	
	6-20	

2000m

1000m

1000m

6km²

5.4.4 不

5.4.4.1 不

5.4.4.2 不

1

GB/T31962-2015 1A

2

5.4.4.3

100km²

5.4-6

2km

5.4.4.4

不

"

"

1

" "

" "

2

3

4

5.4-4

		300 C30	600 3:7 6.0m $1.0 \times 10^{-7} \text{cm/s}$
		C10 ± 0.00	100 20 C35 1.5m $1.0 \times 10^{-7} \text{cm/s}$
		3:7 300	--

C30

P8

250mm

150mm

1.0mm

2mm

100m

2

1m

$^{-7} \text{cm/s}$

2mm

2mm

$^{-10} \text{cm/s}$

1.5m

$1 \times 10^{-7} \text{cm/s}$

C25

P6

100mm

P6

1.0mm

0.3%

HDPE

5.4.4.5

不

1

5.4-5

5.4-5

		300mm	400mmC30	P8	6.0m 1.0×10^{-7} cm/s
		300mm3:7	200mmC30	P6	
		2500mm	350mmC30	P8	
		100 C10 20	± 0.00 C35		1.5m 1.0×10^{-7} cm/s
		3:7	300		--

2

5.4-5

2

5.4.4.6

1

5.4-7

5.4-6

5.4-6 不

1			116.200E 36.849N		pH	

5.4.4.7

5.4.5

5.5

80~90dB(A)

5.5.1

5.5-1

5.5-2

5.5-1

dB(A)

						/m						
				/	X	Y	Z	/m	/dB(A)		dB(A)	/
				dB(A)/m							dB(A)	dB(A)

5.5-2

	m			
	1#	2#	3#	4#
	40	30	355	385
	50	35	350	380
	40	30	355	385
	60	35	350	380

5.5.2

5.5.2.1

4

5.5-3

5.5-3

		/m			/m		/	
		X	Y	Z				
1		-69	572	32.01	100			
2		-893	60	32.17	130		GB3096-2008 2	

5.5.2.1

HJ2.4-2021

A

$$L_A(r) \quad L_A(r_0) \quad (A_{div} \quad A_{atm} \quad A_{bar} \quad A_{gr} \quad A_{misc})$$

$$L_A(r) \quad r \quad A \quad \text{dB(A)}$$

$$L_A(r_0) \quad r_0 \quad A \quad \text{dB(A)}$$

$$A_{div} \quad \text{dB(A)}$$

$$A_{atm} \quad \text{dB(A)}$$

$$A_{bar} \quad \text{dB(A)}$$

$$A_{gr} \quad \text{dB(A)}$$

$$A_{misc} \quad \text{dB(A)}$$

$$L_{eqg} = 10 \lg \left[\frac{1}{T} \sum_{i=1}^N 10^{0.1 L_{Ai}} \sum_{j=1}^M 10^{0.1 L_{Aj}} \right]$$

5.5.2.2

- 1 A_{div}
 - a $A_{div} = 20Lg(r/r_0)$
 - b L_0
 - $r > L_0$ $r_0 > L_0$ $A_{div} = 20Lg(r/r_0)$
 - $r < L_0/3$ $r_0 < L_0/3$ $A_{div} = 10Lg(r/r_0)$
 - $L_0/3 < r < L_0$ $L_0/3 < r_0 < L_0$ $A_{div} = 15Lg(r/r_0)$
- 2 天 A_{atm}
- 3 A_{bar}
- 4 $20dB(A)$ A_{gr}
- 5 A_{misc}

5.5.2.3

5.5-3

5.5-4

5.5-3

/m			dB(A)	dB(A)
X	Y	Z		
408	-518	28.97	30.3	

(3)

5.5.4

5.5-5

5.5-5

		200m						
		A		A				
		0	1	2	3	4a	4b	
		200 m						
		A		A				

2

3

() HJ964-2018

5.6-2

5.6-2

100m

1000m

4

HJ964-2018

5.6-3

5.6-3

									-
								-	-

5.6.1.2

1

HJ964-2018 8.2

1.0km

2

50

3

4

5

Is-Ls-Rs / pb×A×D

g/kg

Is

g

5880g/a

940000g/a

Ls

g 0

Rs

g 0

pb

kg/m³ 14800kg/m³

A

m²

200m

474800m²

D

0.2m

n

a

E

Sb

g/kg

S

g/kg

6

n

5.6-4

5.6-4 后

	mg/kg	S mg/kg	mg/kg	S mg/kg
10	0.000041838		0.006688	—
20	0.000083677		0.013377	—
30	0.000125515		0.020065	—
40	0.000167354		0.026754	—
50	0.000209192		0.033442	—

g/kg	—
------	---

5~50

5.6.1.3

1

2

5.6.1.4

5.6-5

5.6-5

			GB15618-2018	1

5.6.1.5

5.6-6

5.6-6

			N	100m
		VOCs	SO ₂	NO _x TSP

			a	b	c
			4.5-23		
			1	2	0~0.2m
			3	0	0~0.5m 0.5~1.5m 1.5~3m
		pH	1,1- -1,2- 1,1,1,2- 1,1,2- 1,2- [b]	1,2- -1,2- 1,1,2,2- 1,2,3- 1,4- [k]	1,1- 1,2- 1,1,1- + [a] [1,2,3-cd]
			-1,2- 1,1,2,2- 1,4- [b]	1,1- -1,2- 1,2,3- 2- [k]	1,2- 1,1,1- + [a] [1,2,3-cd]
			GB 15618		
					200m
			a	b	c
			a	b	
			2		

5.6.2 何

5.6-7

5.6-7 何

			t/a								
S ₁			209			—			282-999-99	—	
S ₂			672.6			—			282-999-99	—	
			0.15			—	4		282-999-99		

5.6.3 何 别

5.6.3.1

5.6.3.2

2021

5.6.3.3

5.6.4

5.6.4.1

GB18599-2020

«

1

¶

2

$1 \times 10^{-7} \text{cm/s}$

3

GB1556.2-1995

4

5.6.4.2

1

GB18597-2001

2013

1

2

GB18597-2001 2013

a.

b.

c.

d.

1/5

e.

f.

100mm

3

4

5

GB18597-2001 2013

23

1

2

3

4

5.6.5

5.7

[2012]77

[2012]98

HJ169-2018

5.7.1

5.7.1.1

45000 6 /

FDY

5.7.1.2

1

5.7-1

5.7-1

1		1 760m ³ 2
2		1 2
3		1 2 3 4 5

5.7-3

5.7-2

	8kg	299
	4kg	9
	12kg	299
	35kg	25
CO ₂	3kg	82
		158
		627
		76
		975
		19
		144
		6
		200
		40
		40
		3
		2
		10
		20
		5
		485
		485
		485
		29
		3
		1
		28
		56
		43
		21
		12
		29

		11
		170
		388
		30
		9
		5

3

5.7-3

5.7-3

			/
1	pH	PHS-3C	1
2	COD	JH-12	1
3	COD		

1.5km

30m³

16cm

24kg

5.7-4

5.7-4

		t/a	t/a			
		93	7			
	37%	105	2.54 0.94	3.9m ³	1	
	20-25%	75	2.84	3.9m ³	1	
		1.5	0.1			
		1520	87			
		400	23			
		477.6408 m ³	0.024			
		—	0.00588	—		
	VOCs	—	0.1	—		

5.7.2.2

5.7.2.3

MSDS

5.7-5~ 5.7-10

5.7-5

MSDS

				m-Dihydroxybenzene		
	C ₆ H ₄ (OH) ₂		110.11		608	127
	110.7		276.8			
	=1	1.28		(kJ/mol)	2847.8	
	=1	3.79				
(vol%)						
6.1						
LD ₅₀ 301mg/kg() 3360mg/kg() 29mg/kg						
				UN	2876	CAS NO. 108-46-3
61725					O53	—
()						

5.7-6 MSDS

				formaldehyde		
	CH ₂ O		30.03		430	50 (37%)
	-92		-19.4		13.33kPa(-57.3)()	
	=1	0.82		(kJ/mol)	2345	
	=1	1.07			137.2	
(vol%)	7.0 7.3					
	8.3					

LD50 800mg/kg(

5.7-7 MSDS

				Ammonium hydroxide Ammonia water		
	NH4OH		35.05			
				1.59kPa(20)		
	=1	0.91		(kJ/mol)		
	=1				--	
	(vol%)					
	8.2					
			UN	2672	CAS NO.	1336-21-6
	82503					20
	15					
	15 3%					

5.7-8

MSDS

				Sodiun hydroxide Caustic soda		
	NaOH		40.01		-	-
	318.4		1390	0.13kPa(739)		
	=1	2.12		(kJ/mol)	-	
	=1	-			-	
(vol%)	-					
	-	MAC	2			
	8.2					
	LD50 LC50					
				UN	1823	CAS NO. 1310-73-2
	82001					-
					15	15
					()	

5.7-9

				Natural gas dehydration		
	CH ₄		16.05	537		-218
	-182.6		-160	53.32kPa(-168.8)		
	=1	0.45()		890.8kJ/mol		
	=1	0.6		-82.25		
	5 15(vol%)					
	2.1					
	-					
				UN	1971	CAS NO. 74-82-8
	21007					
	()			()	()

5.7-10

MSDS

1			- 5- butadiene vinyl-pyridine rubber latex 50 -
2			- 5- - - pH 10.0 11.5, 0.9 0.95, -60 -75 50/50 11.0 26% 42% 41% 63% 75/25 pH 9.5
3			-OH 48 20 50% (7 : 3) 10
4	VOCs		VOC VOC

5.7.3

5.7.3.1

1

P

1

Q

B

Q

Q

C.1

Q

$$Q=q_1/Q_1+q_2/Q_2$$

n/Q_n

C.1

q₁ q₂

q_n

t

Q₁ Q₂

Q_n

t

Q 1

Q

10

100

(HJ 169-2018)

B

5.7-11

5.7-11

		CAS	t	t	q ₁ /Q ₁	Q
		108-46-3	7	5	1.4	3. 5664 10
	37%	50-00-0	2.54 0.94	0.5	1.88	
	20-25%	1336-21-6	2.84	10	0.284	
		74-82-8	0.024	10	0.0024	

2

M

(HJ 169-2018)C.1

M

M 20

10

M 20

5

M=5

M1 M2 M3 M4

M

5.7-12

5.7-12

M

				/	M
1				1	5
M				1	5

M=5

M4

3

P

Q

M

5.7-13

P

P1 P2 P3 P4

5.7-13

P

M

Q

E3

3

E1

E2 E3 5.7-18

5.7-19 5.7-20

G D

5.7-18

	G1	G2	G3
D1	E1	E1	E2
D2	E1	E2	E3
D3	E2	E2	E3

5.7-19 不

G1	
G2	a
G3	
a	

G3

5.7-20

D3	$\times 10^{-6} \text{cm/s}$
D2	1.0m $\times 10^{-6} \text{cm/s}$ 1.0 $\times 10^{-6} \text{cm/s}$ $\times 10^{-4} \text{cm/s}$
D1	

4.16

$3.47 \times 10^{-5} \text{cm/s}$

D2

D2

G3

5.7-18

E3

3

5.7-21

5.7-21

			(m)		
	5km		1.6-1		
	500m				2223
	5km				144072
	E				E1
					24h /km
	1				6.72
	2				—
	3				—
	E				E3 F3 S3
	1			10^{-6}	10^{-4}cm/s
	E				E3 D2 G3

4

/ +

5.7-22

5.7-22

E	P			
	P1	P2	P3	P4
E1	+			
E2				
E3				
+				

E1 P4
E3

5.7.3.2

HJ 169-2018 1

5.7-23

	+			

E3 P4 E1

5.7.3.3

(HJ 169
2018) 5km

5.7.4 6km² 5km
1.6-1 1.6-1 1.6-2
HJ 169-2018

5.7.4.1 /

5.7.4.1 37% 20-25%

5.7.4.2 VOCs
5.7-5~ 5.7-10

5.7-24

5.7-24

		/		
	VOCs			

5.7.4.3

37%

20-25%

VOCs

/

|

5.7.5

5.7.5.1 天

110.7

5.7.5.2 天

(HJ 169-2018) E 10

5.7-26

5.7-26

/ / /	10min 10mm	1.00×10 ⁻⁴ /a 5.00×10 ⁻⁶ /a 5.00×10 ⁻⁶ /a
	10min 10mm	1.00×10 ⁻⁴ /a 5.00×10 ⁻⁶ /a 5.00×10 ⁻⁶ /a
	10min 10mm	1.00×10 ⁻⁴ /a 1.25×10 ⁻⁸ /a 1.25×10 ⁻⁸ /a
		1.00×10 ⁻⁸ /a
	10%	5.00×10 ⁻⁶ / m a 1.00×10 ⁻⁶ / m a
75mm	10%	2.00×10 ⁻⁶ / m a 3.00×10 ⁻⁷ / m a
150mm	10% 50mm	2.40×10 ⁻⁶ / m a 1.00×10 ⁻⁷ / m a

	10% 50mm	5.00×10 ⁻⁴ /a 1.00×10 ⁻⁴ /a
	50mm 10%	3.00×10 ⁻⁷ /h 3.00×10 ⁻⁸ /h
	50mm 10%	4.00×10 ⁻⁵ /h 4.00×10 ⁻⁶ /h

5.7-33

10% 4.0×10⁻⁵/h

5.7.6

5.7.6.1

1

10%

50mm

3.9m³

0.02m

Q_L

$$Q_L = C_d A \rho \sqrt{\frac{2(P - P_0)}{\rho} + 2gh}$$

Q_L

kg/s

P

Pa

P₀

Pa

kg/m³

g

9.81m/s²

h

m

C_d

0.65

A

m²

30min

5.7-27

5.7-27

	P Pa	P ₀ Pa	kg/m ³	h m	A m ²	Q _L kg/s
	101325	101325	815	2	0.00000314	0.0104

0.0104kg/s

30min

18.72kg

2

E F	0.3	5.285×10^{-3}
-----	-----	------------------------

HJ/T169-2018

F 1.5m/s 25 50%

5.7-29

5.7-29

	n		P Pa	u m/s	m ²	r m	min	Q ₃ kg/s
F	0.3	5.285×10^{-3}	194	1.5	73.5	4.84	30	0.00032

0.00032kg/s

30min

18.72kg

0.576kg

5.7.6.2

1

HJ16-2018

1

HJ/T169-2018

F 1.5m/s 25

50%

2

HJ/T169-2018 H CAS 50-00-0 1

69mg/m³ 2

17mg/m³

3

30min

4

HJ/T169-2018

G

AFTOX

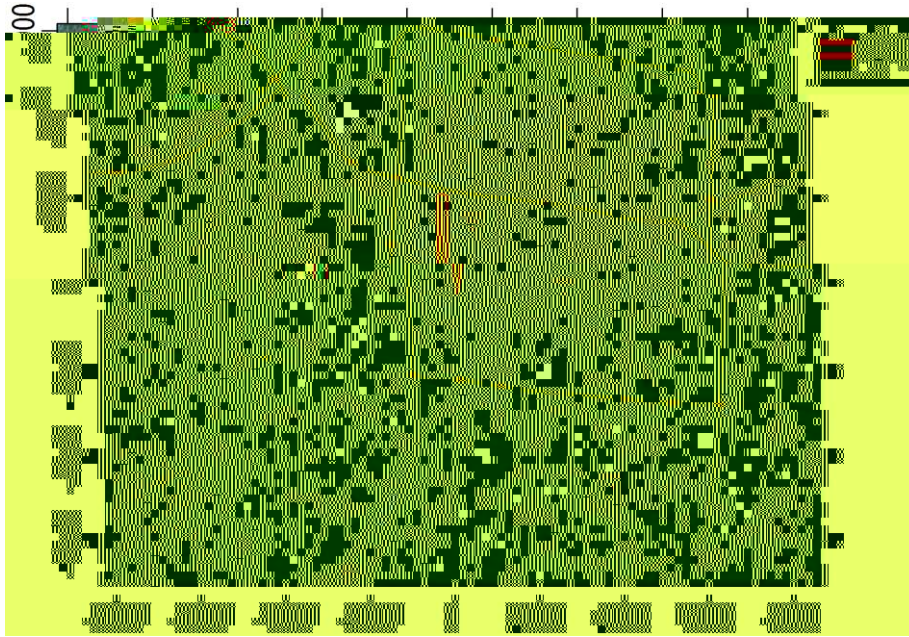
5

F 1.5m/s 25 50%
 5.7-30 5.7-5
 5.7-6 5.7-7
 5.7-30 天

	(m)	min	(mg/m ³)
1	10	0.11	115.44
2	60	0.67	8.29
3	110	1.22	3.95
4	160	1.78	2.43
5	210	2.33	1.66
6	260	2.89	1.21
7	310	3.44	0.93
8	360	4.00	0.74
9	410	4.56	0.60
10	460	5.11	0.50
11	510	5.67	0.42
12	560	6.22	0.36
13	610	6.78	0.32
14	660	7.33	0.28
15	710	7.89	0.25
16	760	8.44	0.22
17	810	9.00	0.20
18	860	9.56	0.18
19	910	10.11	0.16
20	960	10.67	0.15
21	1010	11.22	0.14
22	1060	11.78	0.13
23	1110	12.33	0.12
24	1160	12.89	0.11
25	1210		

32	1560	17.33	0.07
33	1610	17.89	0.07
34	1660	18.44	0.06
35	1710	19.00	0.06
36	1760	19.56	0.06
37	1810	20.11	0.06
38	1860	20.67	0.05
39	1910	21.22	0.05
40	1960	21.78	0.05
41	2010	22.33	0.05
42	2060	22.89	0.05
43	2110	23.44	0.05
44	2160	24.00	0.04
45	2210	24.56	0.04
46	2260	25.11	0.04
47	2310	25.67	0.04
48	2360	26.22	0.04
49	2410	26.78	0.04
50	2460	27.33	0.04
51	2510	27.89	0.04
52	2560	28.44	0.04
53	2610	29.00	0.03
54	2660	29.56	0.03
55	2710	34.11	0.03
56	2760	34.67	0.03
57	2810	35.22	0.03
58	2860	35.78	0.03
59	2910	36.33	0.03
60	2960	36.89	0.03
61	3010	37.44	0.03
62	3060	38.00	0.03
63	3110	38.56	0.03
64	3160	39.11	0.03
65	3210	39.67	0.03
66	3260	40.22	0.03
67	3310	40.78	0.03
68	3360	41.33	0.02
69	3410	41.89	0.02
70	3460	42.44	0.02
71	3510	43.00	0.02
72	3560	43.56	0.02
73	3610	44.11	0.02

74	3660	45.67	0.02
78	3710	46.22	0.02
76	3760	46.78	0.02
77	3810	47.33	0.02



5.7-6 不



5.7-7 别 不 不 天

17mg/m³ 40m 0.5min

69mg/m³ 10m 0.5min

5.7-31

5.7-31

10%					
10%					
		/	25	/Mpa	0.101325
		/kg	2540	/mm	2
kg/s /	0.00032	/min	30	/kg	18.72
/m	2	/kg	0.576		$4.0 \times 10^{-5}/h$
			mg/m ³ /	/m	/min
		-1	17	40	0
		-2	69	10	0
			/min	/min	mg/m ³ /
			0	0.35	115.44

2

GB/T31962-2015 1A

pH COD SS

3

5.7.7

5.7.7.1

1

1

2

RTO

3

2

1

2

3

4

5

5.7.7.2

1

1

2

3

2

17.5m×4.2m×1.2m

19m× 8m× 5m 760m³

GB/T50483-2019

= -

-

$$V = V_1 + V_2 + V_{\max} - V_3$$

$$V_1 + V_2 + V_{\max} \text{ --- } m^3$$

$$V_1 \text{ --- } m^3$$

$$3.9m^3$$

$$V_2 \text{ --- } m^3$$

$$25L/s \quad 2$$

$$180m^3 \quad V \text{ --- } m^3$$

$$V_3 \text{ --- } m^3$$

$$88.2m^3$$

$$V = 10qF$$

q— mm

$$q = qa/n \quad qa$$

508.8mm n

60

8.48mm

F

$$2.2152hm^2$$

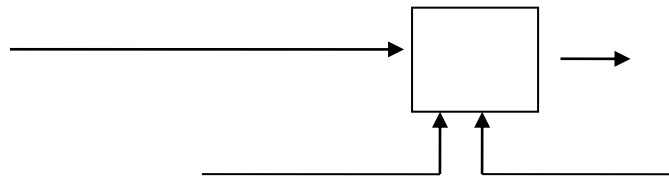
V_5

$$187.85m^3$$

$$V = 3.9 + 180 - 88.2 + 187.85 = 283.55m^3$$

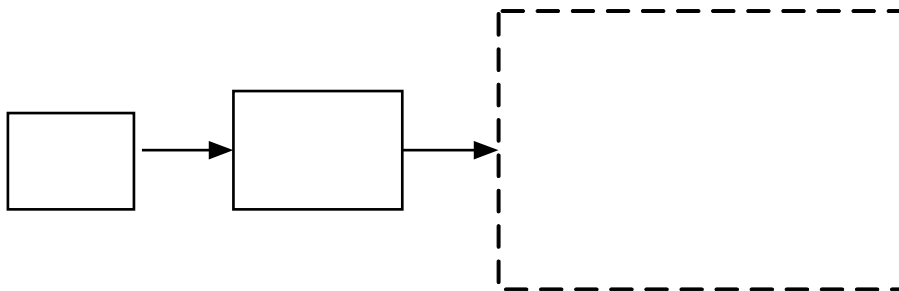
$$760m^3$$

5.7-8



5.78

5.7-9



5.7-9 下 何

5.7.7.3

VOCs

1

2

()

3

4

5.7.7.4

1 " " "

"

2 " "

3

4

5

6

7

8

5.7.7.5

1

2

3

5.7.7.6

1

2

3

4

5

5.7-31

5.7-31

1		1 2

		3 4 5	
			5.7-10
2		1 2	GB50160-2008 " " " " 760m ³
3			
4			
5			
6			
7		760m ³	/

5.7.8

4.7.8.1

2020 12 30

371526-2020-001-H

4.7.8.2

1

2

1

2

5.7-43

5.7-43

	pH BOD ₅ COD SS

2

3

3

(1)

()

(2)

24

(3)

(4)

3

(5)

5.7.9

5.7-44

5.7-44

				37%	20-25%		
		/t	7	2.54	2.84	0.024	
		500m <u>2223</u>				5km	
		200m				<u>144072</u> -	
			Q	Q			Q
			M				
			P				

5.8

2008

2008 264

1

2

20 30m

3

5.8-1

5.8-1

		km ² km ²
		/
		/
" "		" "

6

利 但 中
但

6.1

6.1.1

中

中 12439t/a COD_{Cr}

中 9.35t/a 0.16t/a

不

6.1.2

6.1.2.1

不

中

1000m³/d

+ + +

2.2-16

不

中 10423m³/a

29.78m³/d

不

中 600m³/d

中 1000m³/d

中 400m³/d

29.78m³/d

不

—

不

GB/T31962-2015

1A

不

不

GB18918-2002

A

中 12439m³/a COD_{Cr}

中 0.20t/a 0.008t/a

6.1.3

中 20

40000

0.05%

6.2

6.2.1

丁 利

丁 利

RTO

43

P1

6.2.2

但丁

但

但丁

丁

RTO

利

中

VOCs

RTO

98%

RTO

VOCs

但

不

6.3		丁	DN200 RTO	
		760	RTO 760 750 850	中 中
6.4	利	—		

6.5

--	--	--	--	--

不

丁

6.3.2

不

不 不

GB12348-2008 3

不 不

GB12348-2008 4a 万

GB3096-2008 2

利

中 20

40000

0.05%

6.4

6.4.1

不

不

6.4.2

6.4.2.1

6.4.2.2

2021

FDY

中 HW49

900-041-49

不

但

6.4.3

但

一

但

但

但

但

但

6.5

利

但 6.5-1

6.5-1

" "

	利			
	利		GB16297-1996	2
	利	丁		
		利	DB37/2376-2019	1
			利	
			<	
			>	
			[2019]39	不
				不
			GB31572-2015	5
				6
			不	2
		丁	VOCs	
				6
			不	DB37/801.6-2018
		43	1	
		P1		
			GB14554-93	2
			41kg/h	

			<p>GB16297-1996 2</p> <p>GB14554-93 1</p> <p>VOCs</p> <p>DB37/801.6-2018 3</p> <p>GB14554-1993 1</p> <p>6 不</p>	
		不	<p>GB/T31962-2015 1A</p>	<p>GB/T31962-2015 5 1A</p>
			<p>不 不</p> <p>GB12348-2008 3</p> <p>GB12348-2008 4a</p> <p>不 不</p>	<p>3</p> <p>1mL_{Aeq}(A) 65dB(A) 55dB(A) 4a</p> <p>1mL_{Aeq}(A) 70dB(A) 55dB(A)</p>
	不		但	

不

	不			

6.6

万

中

7

7.1

公 7.1-1

7.1-1

			40000
		/	152159
		/	143434
		/	8458
		/	2117.2
		/	6340.8
		%	21.1
		%	15.2
			2202
			7.1
		%	47.1

15.2%

7.1

9.0

47.1%

7.2

7.2.1

272

单

40000

0.68%

7.2-1

7.2-1

1			1	10		七
2			2	10		七
			2	20		
			1	15		
			1	20		

		RTO	1	150		
			1	10		
3				20	卷	
4	卷			2		
5				15		
				272		

7.2.2

三 八

8

8.1

8.1.1

1

24

2

1

2

a

b

c

d

a

b

c

d

8.2

8.2-1

8.2-1

8.2-1										
								t/a		
		SO ₂ NO _x VOCs	+RTO	RTO 43 P1-3 P2-1 P2-2 3	4.5 mg/m ³ SO ₂ 4.6mg/m ³ NO _x 18.2mg/m ³ VOCs 0.5mg/m ³ 0.06mg/m ³ 0.03mg/m ³ 2.6mg/m ³	GB16297-1996 2 DB37/2376-2019 1 GB31572-2015 5 6 DB37/801.6-2018 1 GB14554-93 2	0.94t/a SO ₂ 0.955t/a NO _x 3.83t/a VOCs 0.1t/a 0.0121t/a 0.00588t/a 0.546t/a	0.94 0.955 3.83 0.1	43m 1	VOCs SO ₂ NO _x
VOCs	--	--	--	--	--	GB16297-1996 2 GB14554-1993 1 VOCs 6	0.129t/a VOCs 0.555t/a 0.607t/a 0.067t/a 0.033t/a	--	--	VOCs

						DB37/801.6-2018	3				
	NMHC	--	--	--	--	GB37822-2019		VOCs		--	VOCs
		pH	COD _{Cr}					0.555t/a			
		NH ₃ -N									

COD_{Cr}50mg/L
5mg/L

GB/T31962-2015
1A

				--		0	--		
				--	GB18597-2001	0	--		
		Leq		--	GB12348-2008 3 4a	--	--	--	
						Mb≥6.0m k≤1×10 ⁻⁷ cm/s		GB18598	
						Mb≥1.5m k≤1×10 ⁻⁷ cm/s		GB18598	

8.3

8.3.1

HJ 1102-2020

HJ 1139-2020

()

8.3-1

8.3-1

	P1	VOCs SO ₂ NO _x		
		VOCs		
		NMHC		
		pH COD _{Cr}		
		BOD ₅ SS		
		A		
		pH		

8.3-2

8.3-2

		pH	

8.3.2

8.3-2

8.3-2

1		JDC-109	1
2		GC-14C	1
3		GC-2010	1
4		AA7002	1
5	COD	JH-12	1
6		PHS-3C	1
7	COD	--	2

8

8.4.2

1

[1996]470

2

DB37/T 2463-2014

3

DB37/T3535-2019

0.5m

1.2m

100mm 2mm

100mm

10mm

4

8.4.3

1

600mm

300mm

2m

2

GB15562.1

[2003]95

3

**

**

4

8.5

8.5.1

8.5.1.1

8.5.1.2

SO₂

NO_x

COD

NH₃-N

8.5.2

1

12439m³/a

COD_{Cr}

0.20t/a

0.008t/a COD_{Cr}

COD_{Cr}

2

VOCs

0.10t/a

	0.0121t/a	0.00588t/a	SO ₂	0.955t/a	NO _x
3.83t/a		0.94t/a			
		VOCs			
0.11798t/a			VOCs0.11798t/a	SO ₂	0.955t/a NO _x
3.83t/a		0.94t/a			
		VOCs			0.555t/a
	0.067t/a	0.033t/a		0.129t/a	
		VOCs			
0.655t/a			VOCs	0.77298t/a	SO ₂
					0.955t/a NO _x
3.83t/a		1.069t/a			

[2019]132

9

9.1

9.1.1

2019

29

9.1.2 "

"

2021 5 19

[2021]6

"

"

9.1-1

"

"

9.1-1

9.1-1

"

"

	<p>40% 28%</p> <p>90%</p> <p>14% PM_{2.5}</p> <p>48ug/m³ 70%</p> <p>2020</p> <p>92%</p>	<p>GB3095-2012</p> <p>RTO</p> <p>GB3838-2002</p> <p>GB3096-2008</p> <p>2</p> <p>GB12348-2008 3 4a</p>
--	--	---

14

146

19

191

20

202

22

203

221

	5		
	2		VOCs VOCs " +RTO"
	4	VOCs	
	6	VOCs	VOCs
	10		
	11		
	1		

		+	
		2	
		3	
		4	
		5	
		6	
		1	
		2.	
		2022	
		2025	
		2025	
		50% 2030	
		3	
		36575-2018	
		4	
		5	
			GB/T

9.1.3

" "

2021 58

" "

9.1-2

9.1-3

	" "	

	<p style="text-align: center;">2023</p> <p style="text-align: center;">39600</p> <p style="text-align: center;">4400</p> <p style="text-align: center;">6%</p>	<p style="text-align: center;">5</p>

2023

10%

1

150

150

	VOCs	0.3m/s	VOCs
			0.3m/s
	VOCs	" "	VOCs
	VOCs		VOCs
	VOCs		RTO
	800mg/g		

9.1.7

2021—2025

[2021]30

2021—2025

[2021]30

9.1-6

[2021]30

	2021—2025		
			8
VOCs	<p>VOCs</p> <p>2025</p> <p>VOCs</p> <p>2025</p> <p>LDAR</p> <p>LDAR</p>	<p>30</p> <p>20% 2021</p> <p>2025</p> <p>80%</p> <p>O₃</p> <p>2023</p> <p>LDAR</p>	<p>VOCs</p> <p>VOCs</p> <p>VOCs</p> <p>VOCs</p> <p>VOC RTO</p> <p>LDAR</p> <p>LDAR</p>
NOx		2023	

2021—2025

[2021]30

9.2

9.2.1

2003-2020

9.2.2

2003-2020

9.2.3

500m 100m 100m 130m
 600m

9.2.4

9.2.5

9.2.6

1

2

3

2

4

9.3

" "

10

10.1

10.1.1

40000

1

6 2 t

10.1.2

10.1.3

100m

100m

500m

10.1.3

45000t/a 6 /

4.5

10.1.4.1

			GB16297-1996	2	
					DB37/2376-2019
1					
GB14554-93	2		VOCs		
				6	
DB37/801.6-2018	1				
		GB31572-2015	5		
				GB16297-1996	2
					GB16297-1996
2					
GB14554-93	1			VOCs	
					6
		DB37/801.6-2018	3		
10.1.4.2					
			GB/T31962-2015	1A	
10.1.4.3					
10.1.4.4					
					GB12348-2008 3

4a

10.1.5

10.1.5.1

1

P1

GB16297-1996 2

DB37/2376-2019 1

<

>

[2019]39

GB31572-2015 5

6 2

VOCs

6

DB37/801.6-2018 1

GB14554-93 2

2

GB14554-93 1

GB16297-1996 2

VOCs

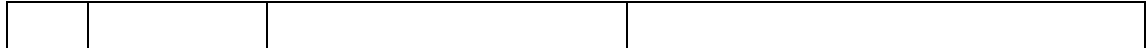
6

10.2

10.2.1

10.2-1

10.2-1



GB16297-1996 2

DB37/2376-2019 1
<

RTO

1 43

PI

1

--	--	--	--	--

10.2.2

1

2

3

4

5