



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

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1.1.1

1		2015	1	1	
2		2016	9	1	2018 12 29
3		2018	10	26	
4		2017	6	27	2018 1
1					
5		1996	10		2021 12
24					
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	
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10					
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15	31			2015	1 1
16	[2015]4	<			
	>	2015	1	8	
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4	2			
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	19	[2015]162		2015
12	10			
	20	[2016]45		
		2016	4	15
	21	[2016]31		
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	22	[2016]150		
		2016	10	26
	23	[2016]81		
		2016	11	10
	24	42	2016	12 31
	25			
		2017	2	7
	26	682	2017	10 1
	27	[2017]84		
		2017	11	14
	28	《关于京津冀大气污染传输通道城市执行大气污染物特别排放限值的公告》（环保部公告2018年第9号）；		
	29	[2018]	48	2018 1
10				
	30	[2018]11		
		2018	1	25
	31	[2018]266		
			2018	5 10
	32	[2018]17		
		2018	6	16

33	4	2019	1	1
34		2019	4	
2018	2019	1	23	
35	2019	8	<	
	2019	>	2019	2 27
36	[2019]17	<		>
	2019	3	1	
37	[2019]25			2019
3 28				
38	[2019]56	<		>
2019	7	9		
39		2019	28	
	2019	7	23	
40	环办固体函[2019]719号《关于开展危险废物专项治理工作的通知》 (2019年9月2日)；			
41	[2019]92			
		2019	10	15
42	29	2019		2019
10 30				
43	[2020]463	<		
2021	2023	><	2021	>
	2020	9	1	
44	环办土壤[2020]23号《关于加强土壤污染防治项目管理的通知》(2020 年9月8日)；			
45	16			2021
1 1				
46	[2020]688	<		
	>	2020	12	13
47	736		2021	1 24

48	[2021]969		
	2021 7 1		
49	[2021]65		
	2021 8 4		
50	[2021]635		
		2021 8 16	
51	[2021]20	<	
	>	2021 9 1	
52	[2021]104	<2021-2022	
	>	2021 10 28	
53	[2021]1524		<
	>	2021 10 29	
54	[2021]495	<	2021 >
	2021 11 2		
55			2021
11 2			
56	[2021]108		
	2021 11 19		
57	748	2021 12 1	
58		23	
2021 11 30			
59	[2021]26		
2021 12 21			
60	[2021]120		
	2021 12 29		
61	2021 82	<	
	>	2021 12 30	
62	[2022]17		2022
3 3			
63	[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]66						
			2019	9	20			
	30	[2019]26						

2019	10	16			
31				83	
2020	1	1			
32		[2020]5			
			2020	1	16
33		[2020]6			
	2020	4	7		
34		[2020]50			
		2020	4	20	
35		[2020]83			
		2020	6	19	
36		[2020]29			
		2020	6	22	
37		[2020]48			
		2020	11	6	
38			2020	11	27
39					
		2020	11	27	
40		[2021]58			

2021-2025				
2021-2025			2021-2025	
2021	8	22		
46	[2021]12			
	2021	8	22	
47	[2021]3			<
	2021-2023		>	2021 10 26
48	[2021]8			<
		>	2021	11 13
49	[2021]249			
	2021	11	19	
50	[2021]9			2021-2022
	2021	11	25	
51	[2022]1			
			2022	4 3
52		11		
2018.1.2				
53		16		
2018.8.30				
54	[2019]6			<
	>			
55	[2019]7			<
	>			
56	[2019]19			<
		>		
57	[2019]39			<
>	2019	7	17	
58	[2020]3			
	2020	01	17	
59	[2020]8			

2020	2020	4	10
60	[2020]17		
61	[2020]49		
		2020	10 29
62	[2020]65		
63	[2021]6		
		2021	05 21
64	[2022]2		
		2022	01 21
65	[2018]62		
		2019.12.25	
66	[2019]30		
		2019.10.18	
67	[2019]29		
		2019.10.18	
68	[2021]34		
		2020.11.11	
69	[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			HJ942-2018	
17		2021		
18			2015.11	
19			2016.9.26	
20				
21			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				2 130t/h
		[2002]85	14	
15			5	
		15		
16			5	
	16			
17				2 24MW
			17	
18				2 24MW
		18		
19				
			19	
20				
			20	
21			1-2	
		21		
22				
		22		
23				
	23			
24			3 130t/h	

24

25 5 130t/h

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26 5 130t/h

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1.2.1

1.2.2

1.2.3

1.3

1.3.1

1.3.1.1

1.3-1

1.3-1

		SS COD BOD

1.3.1.2

1.3-2

1.3-2

	VOCs SO ₂ NO _x	COD _{Cr} BOD ₅	L _{Aeq}	

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1.3.2

1.3-3

1.3-3

	SO ₂ NO ₂ PM ₁₀ PM _{2.5} CO O ₃ TSP	SO ₂ NO _x TSP PM ₁₀
	pH SS COD _{Cr} BOD ₅	--
	pH K ⁺ +Na ⁺ Ca ²⁺ Mg ²⁺ CO ₃ ²⁻ HCO ₃ ⁻	--
	Leq A	Leq A
	pH 1,1- 1,2- 1,1,1,2- 1,1,2- 1,2,3- 1,2- [b] [k] 2- [a] [a] [a h] [1,2,3-cd]	--

1.4

1.4.1

1.4-1~ 1.4-7

1.4-1

	GB3095-2012	
	HJ2.2-2018	D
	GB3838-2002	
	GB5084-2021	1
	GB/T14848-2017	
	GB3096-2008	2 3
	GB36600-2018	1 2
	GB15618-2018	1

1.4-2

mg/m³

	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
	1000	3.0	1.0	0.02	0.002	3.0	100
	0.005	0.1	0.3	0.01	0.01	0.001	0.05
	0.05	0.20	1.00	1.00	0.01	0.7	0.5
		Ca ²⁺	Mg ²⁺	CO ₃ ²⁻	HCO ₃ ⁻	K ⁺	
	0.3	--	--	--	--	--	200

1.4-5

dB A

2	60	50
3	65	55

1.4-6

mg/kg

	65
	5.7
	18000
	800
	38
	900
	2.8
	0.9
	37

1.4-8~ 1.4-13

1.4-8

	6 DB37/801.6-2018	1 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	2
	GB18599-2020	

7		50	/	/	DB37/2376-2019 1 [2019]39 GB16297-1996 2
8	SO ₂	50	/	/	
9		10	30	23	
			35	31	
			36	32.6	
			38	35.8	
10		/	27	20	GB14554-93 2

1.4-9

		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		0.1	
6		0.2	
7		0.2	
8		1.5	GB14554-93

1.4-10

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	

1.4-11

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

1.4-12

	GB18599-2020
	GB18597-2001 2013

1.5

1.5-1

1.5-1

			一级
		Pmax=20.37% 10%	
		123.46m ³ /d	B
		3	

	500m	2000m
	1000m	6km ²
	200m	
	50m	

2

2.1

1993 5

18

2003 ISO9001

500 2016 360
19 146 2016 500 372
500 60 100 38 50

1

2.1-1

2.1-1

2.1-1

“√”

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		√
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	[2016]6 2016 12		√
8		3288.39	2# 1 4	—	[2016]46	2016.11	2016.7			√

			SNCR							
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 /
n

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	-				

				68462						
20		350	5000		2006.5.10	2006.5	2007.3	2007.9.8 [2007]21		√
21		2582	1 /		2006.3.13	2006.4	2007.8	2007.9.8 [2007]22		√
22	15	74676	15		[2009]137	2010.2	2011.7	2019 8 27		2011 √
23	15				[2011]174					2015 √
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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2.2

2.2.1

4.5

2.2-1

45000t/a 6 /

2.1-1

913715261682127528005U

913715261682127528001P

2.2.2

2.2-1

2.2-1

45000t/a 6 /	6	45000t	45~50%
	6	20500t	90%
	6	35000t	55~60%
		30	--
		62	--
		20	--
		1.8	--
		84	--
		100	--
		50	--
		80 m ²	--

4.5

		50	--
		1500	--
		450	--

2.2.3

2.2-2

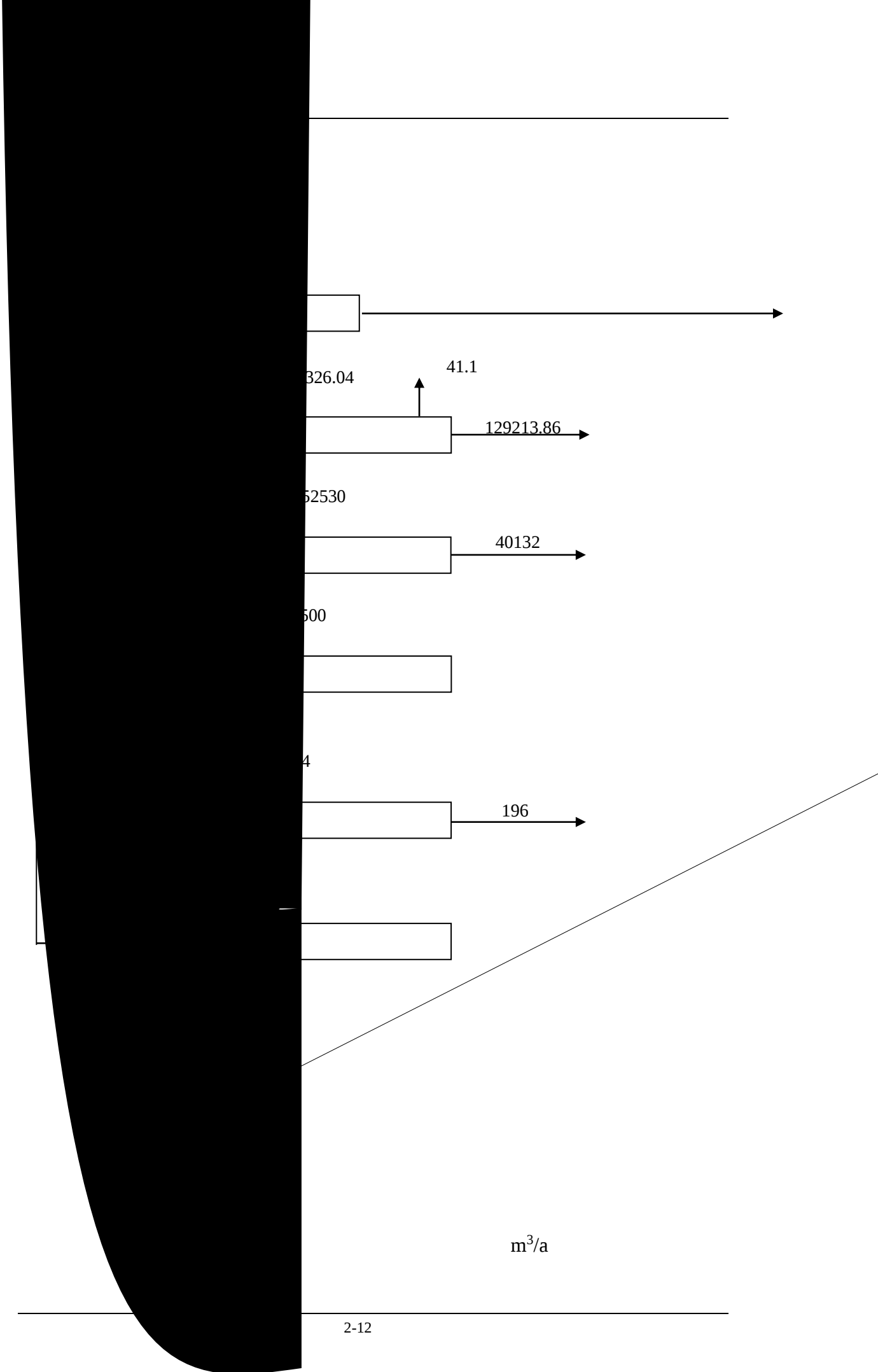
2.2-2

	45000t/a 6 /	3 2
		1 1 1 1
		1

		1		
		2	1	1
		8	1	2
			170m ³ 2	515m ³
		2		1000m ³
		2		2.0m ³
		2		2.0m ³

			UV 1 15m DA007
			1 44m DA025 1 30m DA024 20m DA018 25m DA029
		45000t/a / 6	
			/ /

4.5		
		759m ³



2.2.5.2

2.2.5.3

2.2.5.4

2.2-4

2.2-4

			m	m	m ³	t
	4		6.0	6.1	170	612
	2		10	12.8	1000	1800
	2		8.1	10	515	—
	2		1.3	1.6	2.0	0.74
	2		1.3	1.6	2.0	0.88

2.2.6

2.2.6.1 45000t/a 6 /

2.2.6.1.1

1

90

68~71

270

G1-1

G1-2

S1-12

G1-1 G1-2

1

40m

DA012 DA022 DA017

2

-

4.5

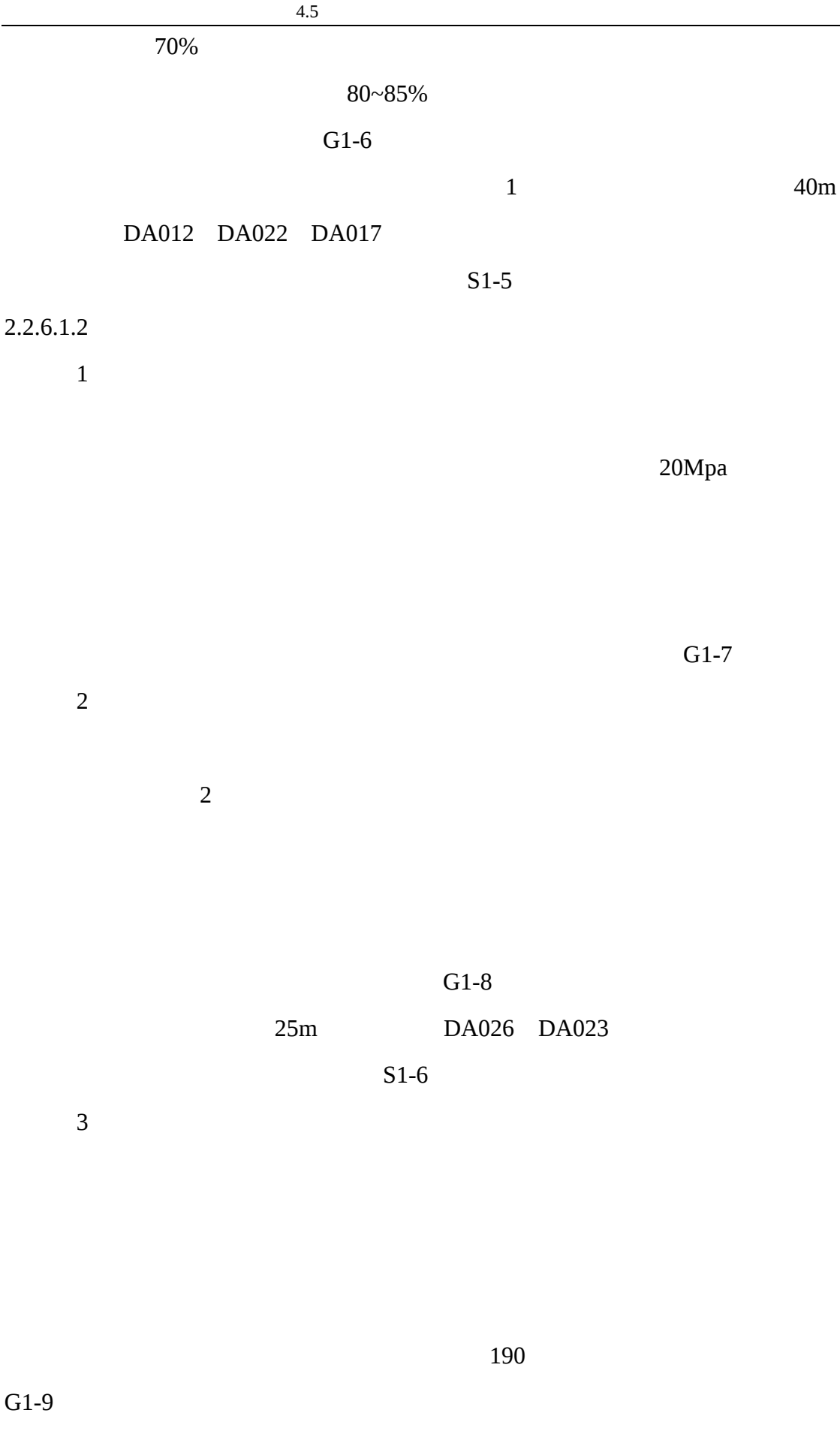
10%

4

0.06%

2

5



		4.5			
			20~25		
				S1-7	
	15m		DA028	DA027	
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

G1-13

G1-14 G1-15

G1-13 G1-14 G1-15

35m DA014 DA015 DA020

DA016 DA021

S1-10

S1-12

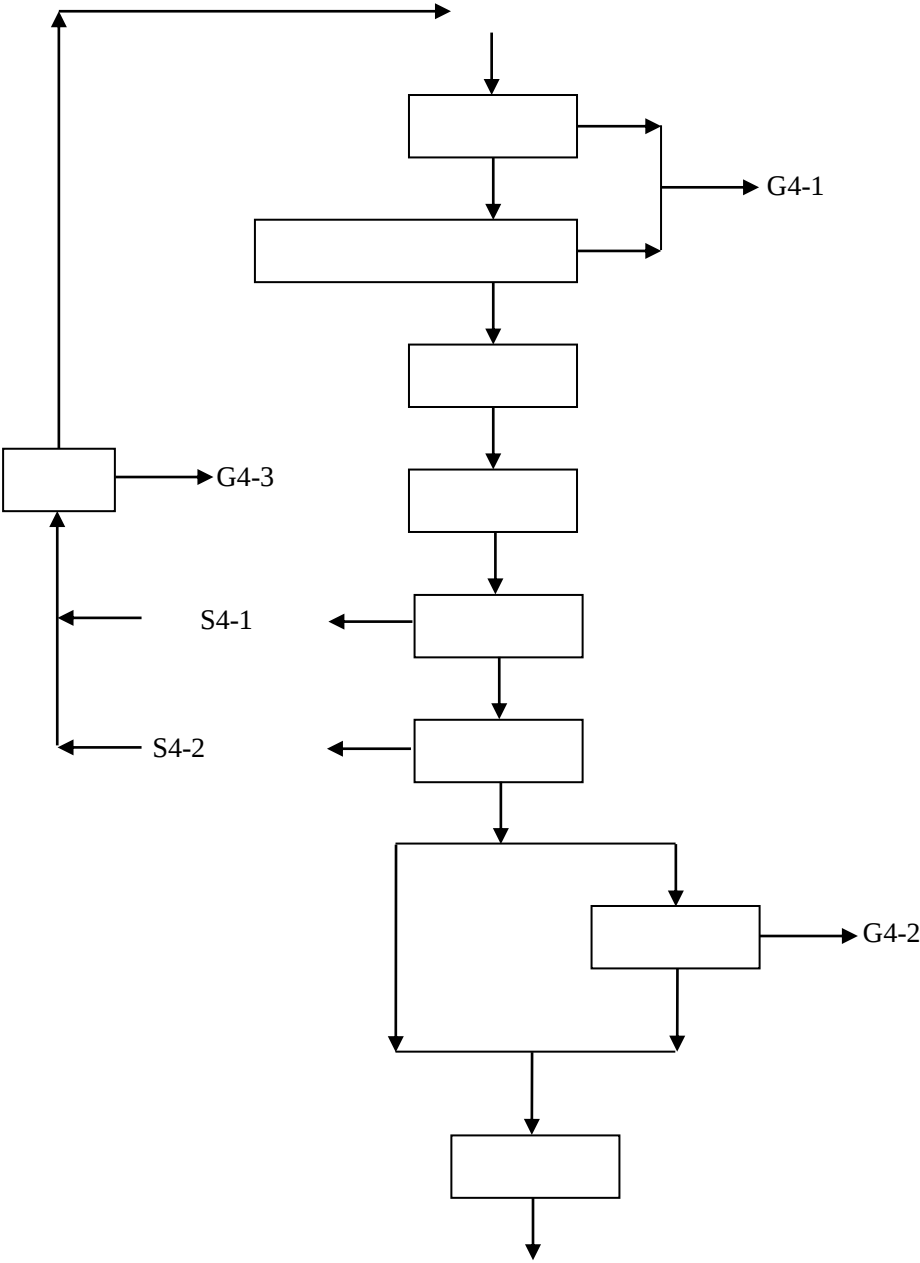
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2.2.6.2

2.2.6.2.1

2.2-5~2.2-7

2.2-5



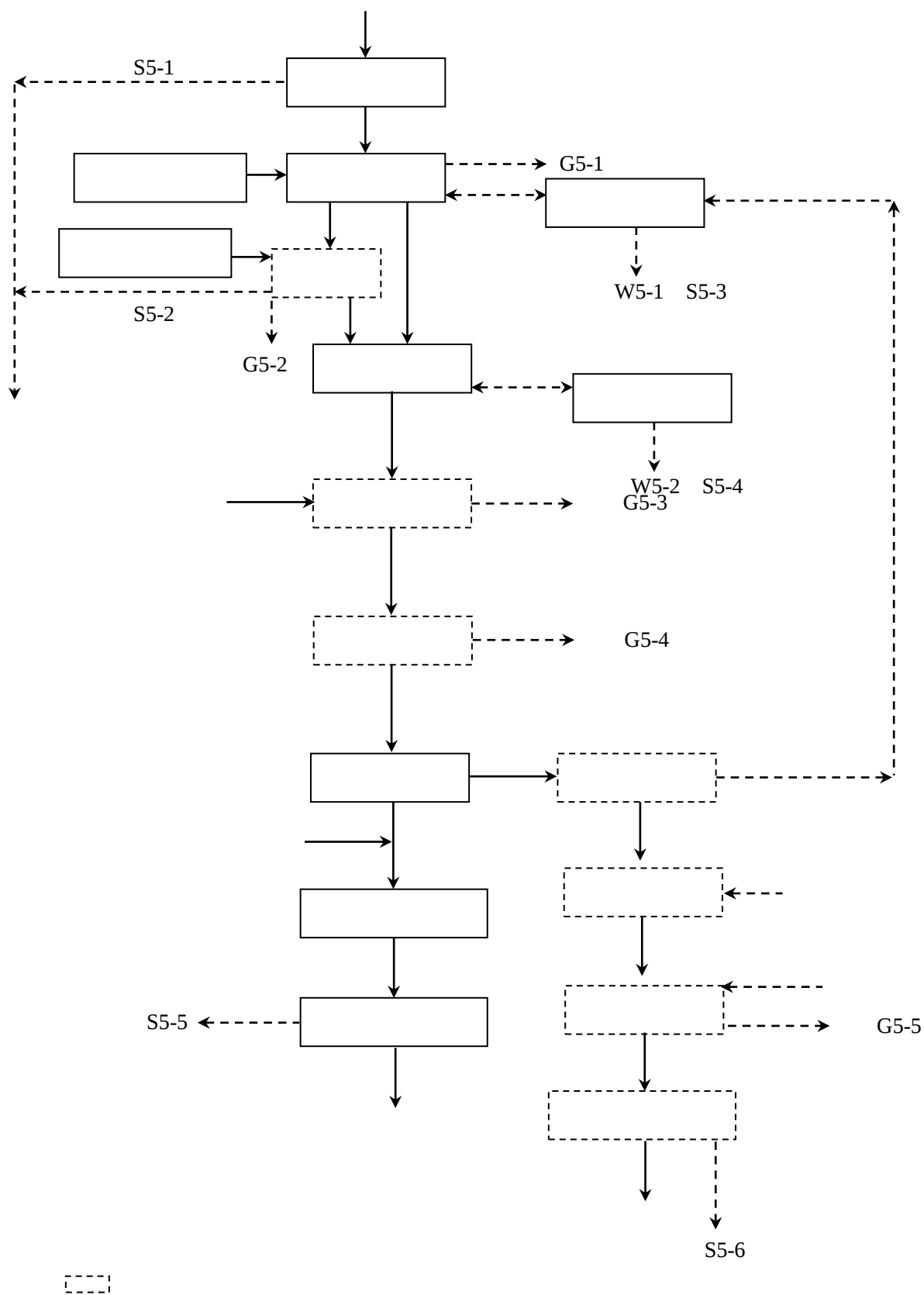
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2.2.6.5

1

2





2.2-10

2.2.6.6

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” “ ”

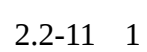
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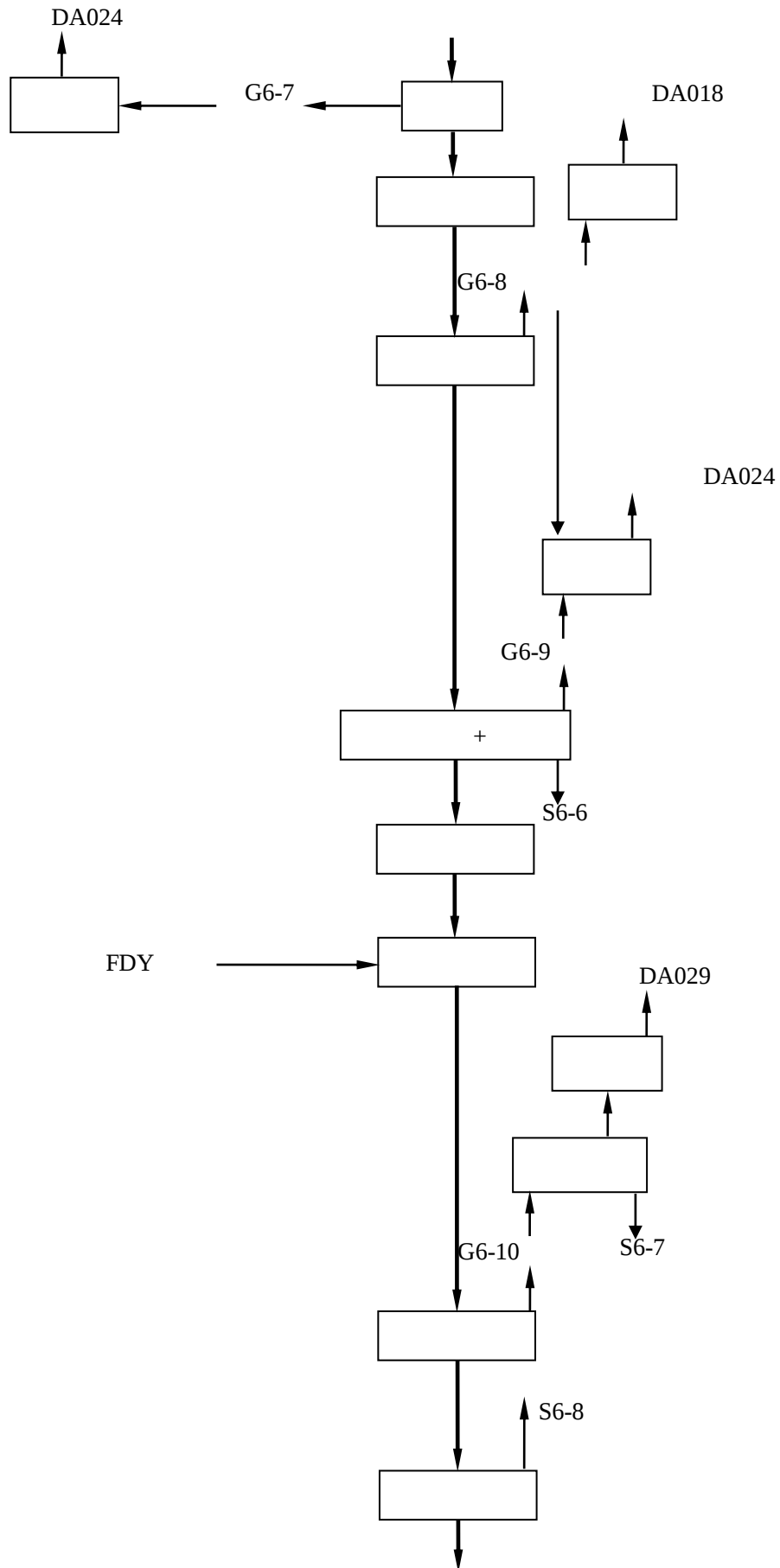
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2.2.6.1.1

2.2-11





2.2.7

2.2.7.1

2.2.7.1.1

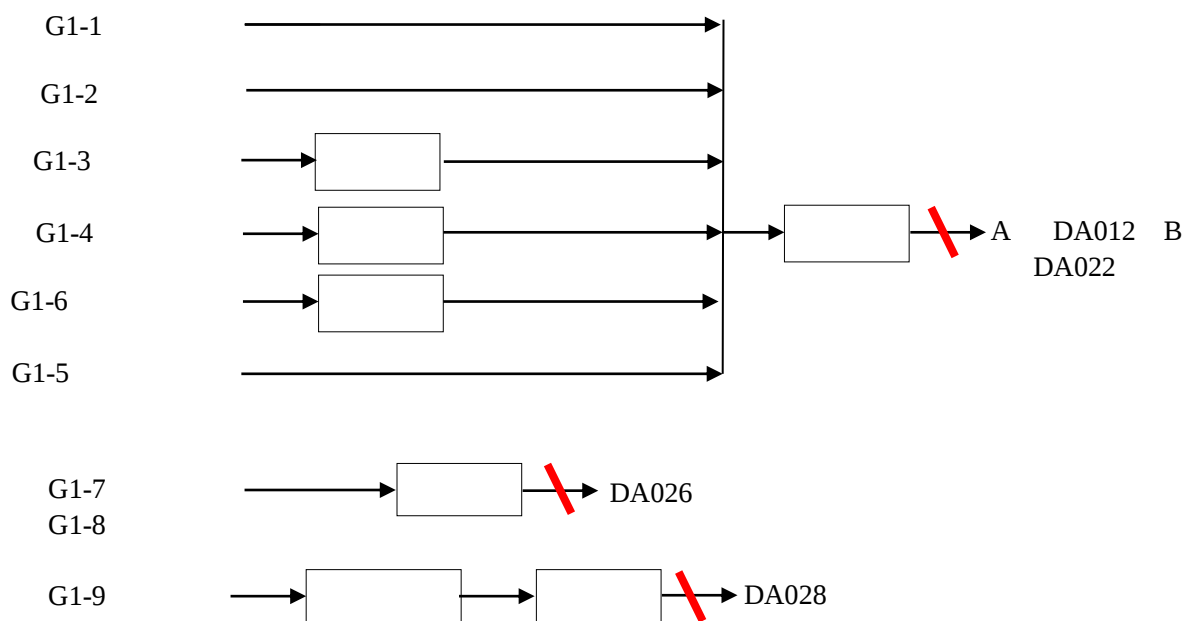
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2.2-5

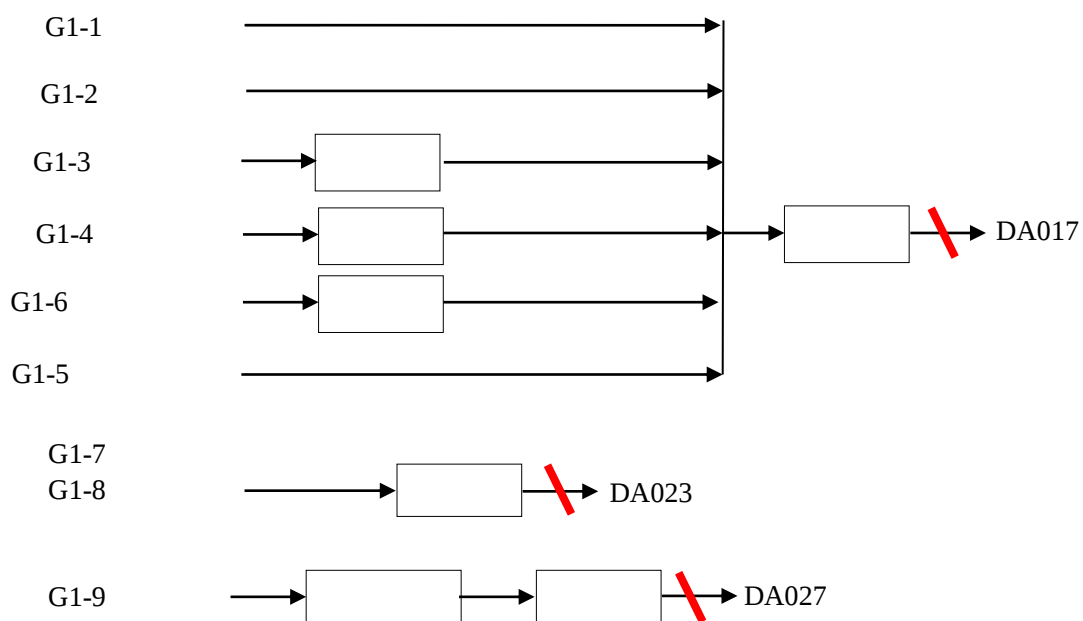
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G1-1			1 DA012 DA022 DA017 40m
G1-2			
G1-3			
G1-4			
G1-6			
G1-5			
G1-7			DA026 DA023 25m
G1-8			
G1-9			DA028 DA027 15m
G1-12			DA013 DA019 30m
G1-10			
G1-11			

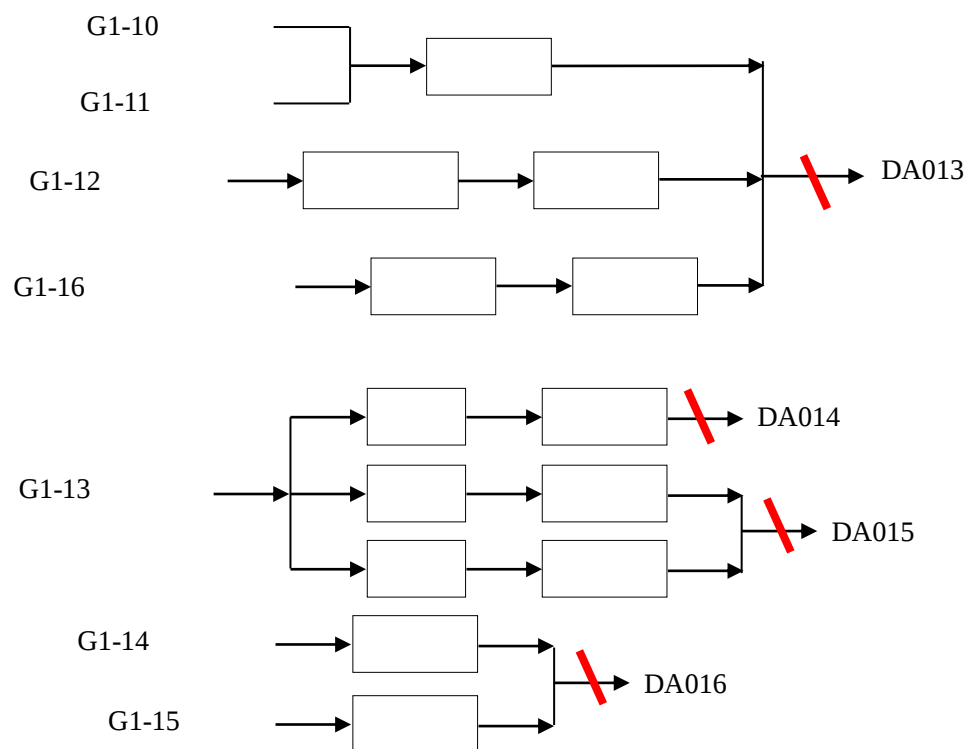
G1



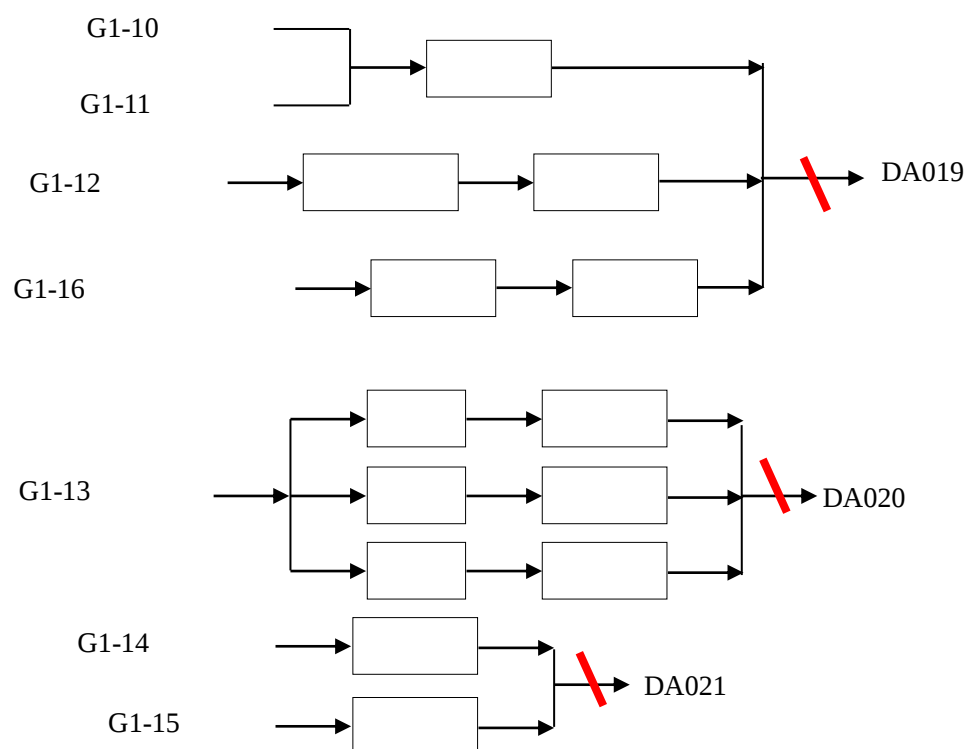
2.2-11



2.2-12



2.2-13



2.2-14

2022 C220189 2022 1 19

2021 C210848-20

2021 12 11

2022 C220189-02 2022 3 10 -12

2.2-6

2.2-6

							kg/h	m m			
				m³/h	mg/m³	kg/h			mg/m³	kg/h	
DA012		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					
	VOCs		1	2022	4.52	0.00914	0.00855		60	3.0	
			2	2022	4.10	0.00829					
			3	2022	4.06	0.00821					
DA022		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					
	VOCs		1	2509	4.13	0.0104	0.0109		60	3.0	
			2	2509	4.28	0.0107					
			3	2509	4.58	0.0115					
DA017		2022.1.19	1	683	7.6	0.00519	0.00607	35/0.3	10	31	
			2	936	8.1	0.00758					
			3	747	7.3	0.00545					
	VOCs		1	683	3.92	0.00268	0.00258		60	3.0	
			2	683	3.99	0.00273					
			3	683	3.40	0.00232					
DA026	VOCs	2021.12.11	1	14420	3.03	0.0437	0.0624				

			2	30896	8.87	0.274						
			3	31944	9.80	0.313						
DA028	VOCs	2022.3.10	1	7645	7.28	0.0557	0.0519	35/0.6	60	3.0		
			2	7645	6.92	0.0529						
			3	7645	6.16	0.0471						
			1	7781	3.7	0.0288	0.0276		10	31		
			2	7645	3.8	0.0291						
			3	7822	3.2	0.0250						
	DA027	VOCs	2022.3.11	1	40366	2.77	0.112		0.108	30/1.2	60	3.0
2				40366	2.52	0.102						
3				40366	2.74	0.111						
		1		40366	3.9	0.157	0.138	10	23			
		2		39725	3.4	0.135						
		3		38398	3.2	0.123						
DA013		2022.1.20	1	2094	1.1	0.00230	0.00313	28/0.3	10	19.58		
			2	2095	1.5	0.00314						
			3	1979	2.0	0.00396						
	VOCs		1	2094	43.0	0.0900	0.0990		60	3.0		
			2	2094	57.6	0.121						
			3	2094	41.0	0.0859						
			1	2094	3.46	0.00725	0.00835		—	17.6		
			2	2094	4.71	0.00986						
			3	2094	3.79	0.00794						
			1	2094	0.6	0.00126	0.00133		5	—		
			2	2094	0.7	0.00147						
			3	2094	0.6	0.00126						
		2022.3.27	1	921	3.6	0.00332	0.00375		15	—		
			2	1118	3.3	0.00369						

4.5

			3	1031	4.1	0.00423					
			1	1718	1.9	0.00326					
			2	1997	2.3	0.00459	0.00374		10	23	
			3	1536	2.2	0.00338					

2022.1.20

DA019

30/0.5

		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							

			2	2884	0.7	0.00202					
			3	2884	0.7	0.00202					
		2022.3.27	1	2733	1.2	0.00328					
			2	2953	1.8	0.00523	0.00367		15	—	
			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					
		2022.3.27	1	7471	2.5	0.0187	0.0162		15	—	
			2	6612	2.0	0.0132					
			3	7970	2.1	0.0167					
			1	7471	0.8	0.00598	0.00676		5	—	
			2	6612	1.2	0.00793					
			3	7970	0.8	0.00638					
			1	7471	21.9	0.164	0.158		—	20	
			2	6612	19.4	0.128					
			3	7970	22.9	0.183					
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					
		2022.3.27	1	4839	1.5	0.00726	0.00664		15	—	
			2	5170	0.8	0.00414					
			3	5011	1.7	0.00852					
			1	4839	0.7	0.00339	0.00385		5	—	
			2	5170	0.9	0.00465					
			3	5011	0.7	0.00351					
			1	4839	2.22	0.0107	0.0112		—	20	

4.5

2

5170

2.59

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

133566m³/h 69857.28 m³/a

1.883t/a VOCs 7.661t/a

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

t/a

t/a

1 15m DA031

2021 C210848-20

2021 12 13

2.2-7

2.2-7

				m ³ /h	mg/m ³	kg/h			mg/m ³	kg/h	
DA031		1	8822	5.1	0.045						
	2021.12.13						0.0402	15/0.35	10	3.5	

2.2-7

GB16297-1996 2

DB37/2376-2019

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 1 15m DA007
G4-1 G4-3	/	VOCs + UV 1 26m DA005
G4-4		1 15m DA008

2020 12 22

2.2-9

2.2-9

							kg/ h	m			
				m ³ /h	mg/m ₃	kg/h			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		—					
			2	5125.734		—	—		0.5	0.2	

4.5

			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		——						
			1	5125.481	4.6	0.0236	0.0254		10			
			2	5125.734	5.3	0.0272						
			3	5056.011	5.0	0.0253						
DA008		2020.12.22	1	4264.790	4.0	0.0171	0.0169	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

2.2-11

2.2-11

G6-1			44m DA025 1
G6-3			
G6-4			
G6-6			
G6-5			
G6-2			
G6			30m 1 DA024

2.2-12

						kg/h	m m			
			m³/h	mg/m³	kg/h			mg/m³	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

		2	6562	3.0	0.0197					
		3	6616	3.3	0.0218					
	VOCs	1	6562	3.05	0.0200	0.0216		60	3.0	
		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		60	3.0	
		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	10925	2.6	0.0248					
		3	10108	2.9	0.0293					
	VOCs	1	10925	4.10	0.0448	0.0479		60	3.0	
		2	10925	5.09	0.0556					
		3	10925	3.95	0.0432					

GB16297-1996

2

DB37/2376-2019 1

VOCs

6

DB37/801.6-2018 1

38112m³/h 27440.64 m³/a VOCs

2.411t/a

1.397t/a

2.2-13

2.2-13

	t/a	VOCs t/a	t/a	t/a	t/a	t/a	t/a	t/a
45000t/a 6 /	1.882	7.661	1.955	0.212	0.497			
	0.29	—	—	—	—	—	—	—
	0.102	0.134	—	—	—	—	—	—
	1.397	2.411	—	—	—	—	—	—
	3.619	10.139	1.955	0.212	0.497			

2.2.7.1.2

2.2-14

2.2-14

1	45000t/a 6 /	

4.5

2		
3		
4		
5		

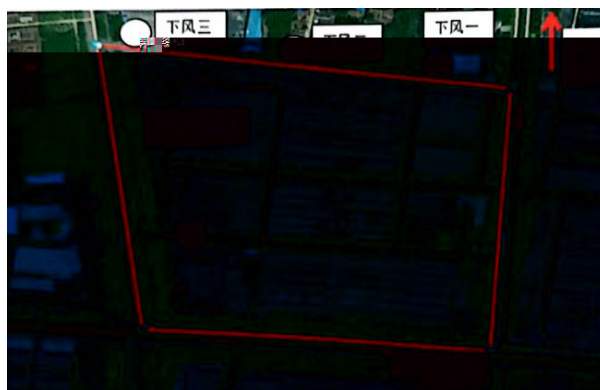
2021 C210848-08

2021 9 30

2.2-15

2.2-16

2.2-15



2.2-15

2.2-15

	2021.9.30						
		mg/m ³	HCl mg/m ³	mg/m ³	mg/m ³	VOCs mg/m ³	mg/m ³
	09:00	0.04		0.01	0.003	0.86	0.25
	11:00	0.04		0.01	0.006	0.98	0.217
	13:00	0.02		0.01	0.004	0.97	0.267

4.5

	09:00	0.11	0.023	0.01	0.007	1.31	0.284
	11:00	0.09	0.026	0.02	0.008	1.30	0.250
	13:00	0.09	0.034	0.01	0.007	1.44	0.333
	09:00	—	—	—	—	1.53	—
	11:00	—	—	—	—	1.51	—
	13:00	—	—	—	—	1.61	—
		0.11	0.059	0.02	0.009	1.61	0.333
		1.5	0.2	0.2	0.06	2.0	1.0

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

2.2.7.2

2.2.7.2.1

2.2-17

2.2-17

1	45000t/a 6 /		
2			
3			
4			
5			

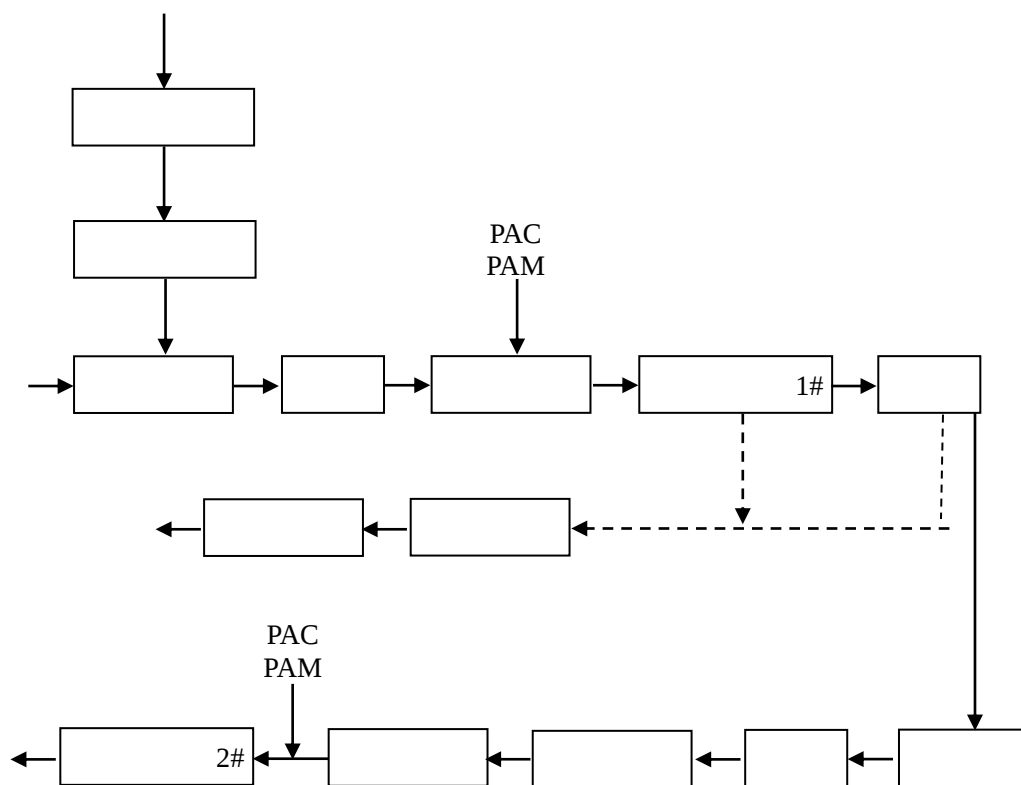
2.2.7.2.2

1000m³/d

“

+ + + ”

2.2-16



2.2-16

2022 2 -3

2.2-18

2.2-18

2022 2

	m ³ /d	COD _{Cr} mg/L	mg/L	mg/L
2022-02-08	2054	26.4	11.7	1.09
2022-02-09	1399	27.7	15.3	1.24
2022-02-10	1602	50.3	14.5	1.39
2022-02-11	1473	33.8	15.4	1.53
2022-02-12	2354	23.9	9.03	0.598

2022-02-13	2551	26.9	11	0.888
2022-02-14	2026	24.1	6.88	0.653
2022-02-15	1854	28.6	5.69	0.641
2022-02-16	1728	20.1	5.96	0.464
2022-02-17	2183	30.8	11.6	0.931
2022-02-18	1820	28.2	11.7	1.02
2022-02-19	1520	20.1	8.46	0.794
2022-02-20	1424	19.4	6.95	0.655
2022-02-21	1878	22.7	5.38	0.585
2022-02-22	1965	15.8	6.68	0.721
2022-02-23	1706	25.4	6.69	0.596
2022-02-24	2149	29.5	6.68	0.613
2022-02-25	2172	43.2	7.69	0.786
2022-02-26	1907	46.6	7.75	0.815
2022-02-27	1999	46.3	8.25	0.876
2022-02-28	2021	28.1	4.17	0.606
2022-03-01	1340	28.1	6.94	0.833
2022-03-02	1967	31.1	5.53	0.665
2022-03-03	2399	35.3	5.06	0.598
2022-03-04	2284	30.3	5.3	0.596
2022-03-05	2280	35.2	5.84	0.54
2022-03-06	2273	24.8	4.51	0.4
2022-03-07	2255	31.7	5.34	0.607
2022-03-08	2131	25.1	7.89	0.6
	1956	29.6	8.06	0.77
	2551	50.3	15.4	1.53
	1340	15.8	4.17	0.4
GB/T31962-2015 A	—	500	45	8
	—	300	20	8

GB/T31962-2015 1A

2.2.7.2.3

21.890186 m³/a

COD_{Cr}

29.6mg/L 15.4mg/L 1.53mg/L

21.890186 m³/aCOD_{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

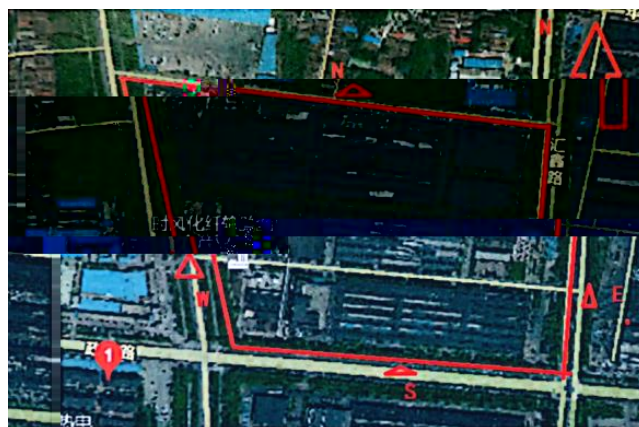
9 27

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
3#	1	55.4	48.8
4#	1	55.3	47.9
		65	55



2.2-17

52.2~57.3dB(A)

47.9~49.1dB(A)

GB12348-2008 3

2.2.7.4

2.2-20~2.2-25

45000t/a 6 /

2.2-20

2.2-20

				t/a	
			--	0.35	

4.5

			HW12 900-253-12	0.02	
			HW49 900-041-49	2	
	UV		HW29 900-023-29	0.01	
			--	4.8	

2.2-25

2.2-25

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

2.2-20~2.2-25

2.2.8

2.2-26

2.2-26

		m ³ /a	101084.16
		t/a	3.619
		VOCs t/a	10.139

4.5

		t/a	1.955
		t/a	0.212
		t/a	0.497
		t/a	
		t/a	
		t/a	
	m ³ /a		218901.86
	COD _{Cr}	t/a	4.247
		t/a	0.055
		t/a	0.044
		t/a	1.885
t/a			0

2.2.9

2.3

2.3.1

2.3.2

2.3-1

2.3-1

	6	20000t	

2.3.3

2.3-2

2.3-2

		2
	1	
	—	
	1	2.0m ³

		1	2.0m³
			1
		15m P7-1	
		25m P7-2	
		35m P7-3 P7-4 P7-5	
		35m P7-6 P7-7	
		15m P7-8	
			759m³

2.3.4

2.2-2

2.3.5

2 45000t/a

6 /

2.2-4 3 4

2.3.6

2.3.6.1

2.3.6.1.1

G6-11

G6-12	G6-13	G6-14	G6-15
G6-16		G6-17	
		2.3-3	2.3-4
2.3-3			

1	G6-11	1 15m P6-1
2	G6-12	
3	G6-13	25m P6-2
4	G6-14	P6-4 P6-5 35m P6-3
5	G6-15	35m P6-6
6	G6-16	35m P6-7
7	G6-17	15m P6-8

2.3-4

								m m
		mg/m ³	kg/h	t/a	mg/m ³	kg/h	t/a	
G6-11		2.03	0.0047	0.039	0.609	0.0014	0.0117	15/0.3
G6-12		0.203	0.00047	0.0039	0.061	0.00014	0.0012	
		0.001	2.34×10 ⁻⁶	0.00002	0.0003	7.02×10 ⁻⁷	0.000006	
P6-1		0.707	1.63×10 ⁻³	0.0137	0.212	4.88×10 ⁻⁴	0.0041	
		0.017	3.96×10 ⁻⁵	0.0003	0.005	1.19×10 ⁻⁵	0.0001	
G6-13 P6-2		3.03	1.635×10 ⁻²	0.137	0.303	1.635×10 ⁻³	0.0137	25/0.3
		72	0.39	3.276	7.2	0.039	0.3276	
	VOCs	22	0.12	1.008	2.2	0.012	0.1008	
		0.17	8.99×10 ⁻⁴	0.008	0.017	8.99×10 ⁻⁵	0.0008	
		1.03	5.58×10 ⁻³	0.047	0.103	5.58×10 ⁻⁴	0.0047	
		2.96	1.596×10 ⁻²	0.134	0.296	1.596×10 ⁻³	0.0134	
		0.79	4.27×10 ⁻³	0.036	0.079	4.27×10 ⁻⁴	0.0036	
		0.11	5.95×10 ⁻⁴	0.005	0.011	5.95×10 ⁻⁵	0.0005	
G6-14		2.59	0.0207	0.174	0.259	2.07×10 ⁻³	0.014800	

P6-3 P6-4 P6-5		97.5	0.78	6.552	9.75	0.078	0.6552	
	VOCs	16.25	0.13	1.092	1.625	0.013	0.1092	
		0.43	3.41×10^{-3}	0.029	0.043	3.41×10^{-4}	0.0029	
		1.12	8.96×10^{-3}	0.075	0.112	8.96×10^{-4}	0.0075	
		0.68	5.44×10^{-3}	0.046	0.068	5.44×10^{-4}	0.0046	

4.5	
6	DB37/801.6-2018

1

2.3.6.1.2

				0.1003t/a
0.00003t/a	2.1883t/a	VOCs0.5642t/a	0.0113t/a	0.0501t/a
0.1208t/a	0.0109t/a			

GB14554-93 1

GB16297-1996 2 VOCs

6

DB37/801.6-2018 3

2.3.6.2

2.3-5

2.3-5

	t/a	mg/L			
		COD _{Cr}	BOD ₅		
	5489.77	200	100	15	--
	4200	100	60	5	1000
	840	60	20	5	2000
	1260	500	350	5	--
	2016	350	250	30	--
	13805.77				

13805.77t/a COD_{Cr} 2.9t/a 0.17t/a

GB/T31962-2015 1A

GB18918-2002 A

4.5		
[2017]5	COD _{Cr}	NH ₃ -
13805.77t/a COD _{Cr}		
0.55t/a	0.028t/a	
2.3.6.3		
		2.3-6
2.3-6		
		t/a

4.5

		t/a	2.3049	
		t/a	0.0111	
		t/a	0.117	
		t/a	0.0001	
		VOCs t/a	0.6086	
		t/a	0.0109	
		t/a	0.0498	
		t/a	0.1257	
		t/a	2.1883	--
		t/a	0.0109	
		t/a	0.1003	
		t/a	0.00003	
		VOCs t/a	0.5642	
		t/a	0.0113	
		t/a	0.0501	
		t/a	0.1208	
	t/a		13805.77	
	COD _{Cr} t/a		0.55	
	t/a		0.028	
	t/a		0	

2.4

2.4.1

2 × 130t/h

5

2 × 130t/h

2 × 24MW

3 × 130t/h

5 × 130t/h

2.1-1

2001

2

130t/h

+2 24MW

2 130t/h

+1 50MW

1# 2#

3# 4# 2004

[2002]85

[2004]26 2004 10

[2008]38

1# 2#

2008 9

[2008]200 2010

9 [2010]141

2008 4 130t/h 2

2 1# 2#

95% 2010 1

2011 5# 2011 12

2014 10

2015 1# 2# 2015 5

[2015]16

2016 5

[2015]16

1# 2# 2016

11 2016 12

2017 2017 5

2.4.2

2.4-1

2.4-1

--	--	--	--

2 × 130t/h 5 2 × 130t/h 2 × 24MW 130t/h 5 × 130t/h 3 ×		312 t/a 58800	5 × 130t/h 5 2 × 24MW
	EPS	20 m³/a	--

2.4-2

2.4-2

2-62

4.5

2.4.4

2

2.4-1

2.4.5

2.4.5.1

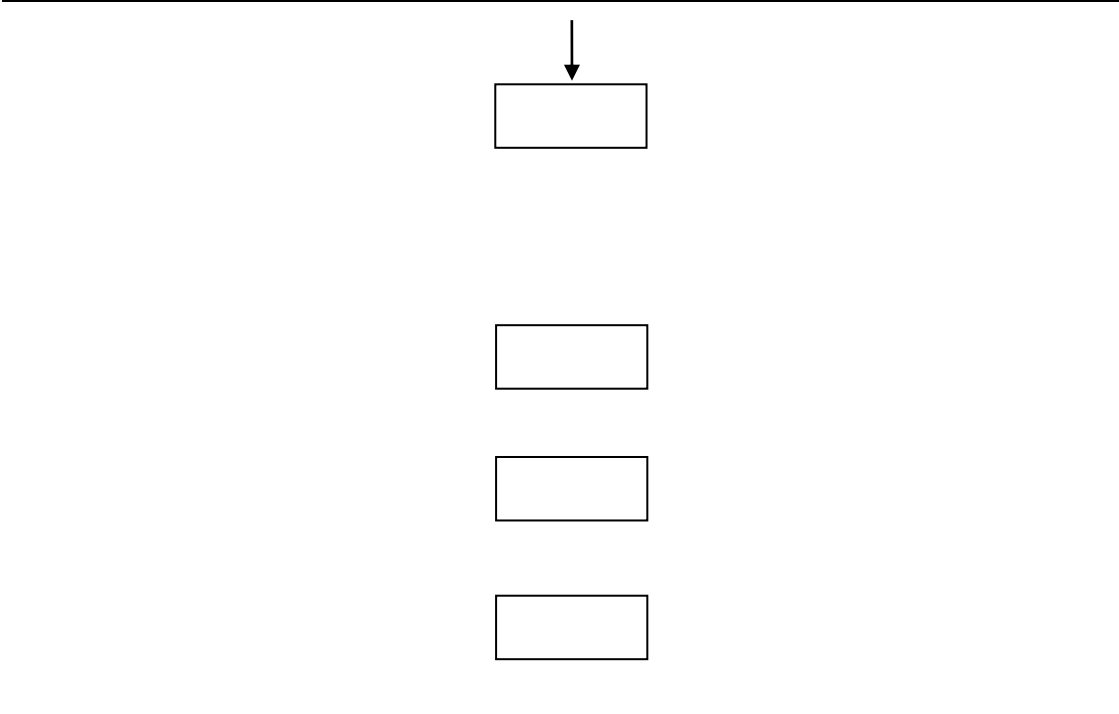
1

3311.6m³/a

2

50m³/d

2.4.5.2



2.4-3

2.4.7

2.4.7.1

2.4.7.1.1

		5	130t/h						
		SO ₂	NO _x		+SNCR				+
	+		+	+			1	150m	
DA001									
	“	+	+UV	+	”		1	15m	

		SO ₂	NO _x						
		2022	2-3			2.4-3			
2.4-3				2022	2				

4.5

	mg/m ³		mg/m ³		mg/m ³		m ³ /h	
2022-02-01	8.26	17.6	17.3	37	0.631	1.35	188554	39.1
2022-02-02	7.57	14.4	18.7	35.6	0.692	1.31	206427	41.2
2022-02-03	4.31	8.15	17.3	32.6	0.671	1.27	212336	41.7
2022-02-04	4.47	8.51	16.9	32.1	0.67	1.28	205347	41
2022-02-05	6.94	13.3	18.5	35.1	0.697	1.33	209894	41.1
2022-02-06	7.88	14.8	18.9	35.7	0.811	1.53	281169	43.1
2022-02-07	8.06	13.9	21.9	37.7	0.871	1.5	279381	47.8
2022-02-08	9.47	15.4	22.3	36.3	0.952	1.54	291612	45
2022-02-09	9.38	15.4	21.1	34.5	0.859	1.41	279320	45.1
2022-02-10	7.04	11.7	21.2	35.1	0.762	1.26	247916	45.6
2022-02-11	5.76	11.1	17.6	34.4	0.65	1.31	250690	42.4
2022-02-12	6.75	12.2	18.9	34.6	0.757	1.38	254021	42.9
2022-02-13	6.39	11.5	18.9	34.3	0.739	1.34	252152	43.1
2022-02-14	5.58	10.3	18.8	35	0.688	1.28	262152	42.3
2022-02-15	7.12	12.8	18.4	33.3	0.812	1.47	286572	41.6
2022-02-16	8.39	14.6	19.2	33.5	0.817	1.42	302780	42
2022-02-17	9.53	16.6	20.7	36.2	0.816	1.42	310628	41.9
2022-02-18	10	16.9	21.3	36	0.825	1.4	291227	43.2
2022-02-19	10.2	17.2	21.7	36.8	0.827	1.4	311221	43.1
2022-02-20	10	17.1	20.9	35.8	0.823	1.41	309019	42.7
2022-02-21	11	17.7	22.4	36	0.834	1.34	302413	43.8
2022-02-22	11.4	18.1	21.8	34.6	0.837	1.33	308136	44.7

2021 101911 2021 10 19

2.4-4

2.4-4

				m³/h	mg/m³	mg/m³	kg/h
DA001		2021.10.13	1	212472	20.7	34.98	0.0044
			2	232366	23.2	39.44	0.00539
			3	240790	23.2	39.44	0.00559
			1	212472	1.23	2.08	0.26
			2	232366	1.23	2.09	0.29
			3	240790	1.21	2.06	0.29
			1	1			

2.4-3

2.4-4

DB37/664 2019 2

5mg/m³ 35mg/m³ 50mg/m³ 0.03mg/m³

1

HJ2301-2017

8mg/m³

277140m³/h 242774.64 m³/a

20.88t/a

49.28t/a

1.92t/a

2020

2020

67% 2019.11.30 66%

2019.12.01

2.4-5

2.4-4

				m ³ /h	mg/m ³	kg/h	

DA002		2019. 11.30	1	7895		5.92×10^{-6}
			2	9322		6.99×10^{-6}
			3	9684		7.26×10^{-6}
			1	7895		5.92×10^{-6}
			2	9322		6.99×10^{-6}
			3	9684		7.26×10^{-6}
			1	7895		5.92×10^{-6}
			2	9322		6.99×10^{-6}
			3	9684		7.26×10^{-6}
			1	7895	1.88	0.014
			2	9322	2.30	0.021

2.4-5

2.4-5

t/a	t/a	t/a	t/a	kg/a	kg/a	kg/a
-----	-----	-----	-----	------	------	------



2.4-4 1



2.4-4 2

2.4-6 1

	2021.12.15			
		mg/m ³	mg/m ³	mg/m ³
		0.04	0.215	—
		0.06	0.199	—
		0.05	0.234	—
		0.07	0.316	—
		0.07	0.283	—
		0.06	0.269	—
		0.08	0.299	—
		0.10	0.286	—
		0.08	0.318	—
		0.07	0.233	—
		0.08	0.267	—
		0.07	0.250	—
		—	—	1.63
		—	—	1.75
		—	—	1.78
		0.10	0.059	1.78
		1.5	1.0	厂界 2.0(厂区内 6)

2.4-6 2

	2019.11.30				
		mg/m ³	mg/m ³	mg/m ³	mg/m ³
		0.53			
		0.54			
		0.54			
		0.49			
		0.86			
		1.21			
		1.01			
		1.03			
		1.78			
		1.54			
		1.48			
		1.49			
		1.33			

4.5

		1.31			
		1.37			
		1.11			
	2019.11.30				
		mg/m ³	mg/m ³	mg/m ³	mg/m ³
		0.54			
		0.53			
		0.47			
		0.46			
		0.79			
		0.79			
		0.92			
		0.5			
		0.94			
		0.93			
		0.96			
		0.99			
		1.64			
		1.55			
		1.68			
		1.68			
		1.68			
		2.0	0.1		

4.5

2019.11.30		8.6	E	0.9	102.38	2/5
		8.6	E	0.9	102.38	2/5
		9.3	E	0.7	102.38	2/5
		9.3	E	0.7	102.38	1/5
2019.12.01		6.7	E	0.9	100.93	2/5
		6.7	E	0.9	100.93	2/5
		7.3	E	1.0	102.97	1/5
		7.3	E	1.0	102.97	1/5

2.4-6

GB16297-1996

2

GB14554-93

1

VOCs

6

DB37/801.6-2018

3

VOCs

GB

37822—2019

A.1

VOCs

2.4.7.2

3311.6m³/a

2022

C220190

2022

1

21

2.4-8

2.4-8

2022

1

		pH	COD _{Cr}			
--	--	----	-------------------	--	--	--

	m ³ /d		mg/L	mg/L	mg/L	mg/L
2022.1.21	60	6.8	8		0.02	0.11
		7.0	11		0.02	0.14
		6.8	10		0.02	0.18
GB/T31962-2015 A	—	6.5-9.5	500	45	8	100
	—	6.5-9.5	300	20	8	—
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2022.1.21	22		1.41	928	0.22	
	20		1.30	906	0.22	
	24		1.46	916	0.19	

4.5

		dB(A)	dB(A)
1#	1	55.1	49.0

4.5

			HW29 900-023-29	0.03	
			HW08 900-218-08	0.085	

2.4-10

2.4.8

2.4-11

2.4-11

		m³/a	247155.84
		t/a	20.88
		t/a	49.28
		t/a	1.92
		kg/a	0.0027
		kg/a	0.0027
		kg/a	0.0027
		VOCs t/a	3.577
		kg/a	0.0027
	m³/a		21900
	COD _{Cr} t/a		0.212
	t/a		0.0004
t/a			0

2.4.9

3

3.1

10

15

37

3

2

2~3

1

4~5

5000

4~5

3

2018

8

4.5%-5%

100

8

20

30

2

880

3.2

3.2.1

4.5

2.1-1

1

1

1

1

1

6

3

t

6

4.5

t

100000

54

30

24

8

350d

8400h

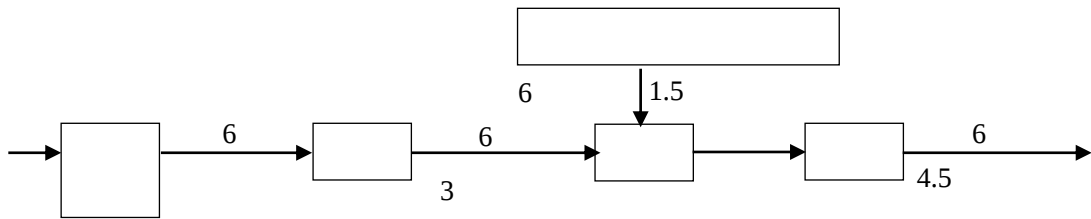
3.2.2

3.2-1

3.2-2

3.2-1

7



3.2-1

3.2-2 6

			/(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											
7			2~10 28tex-30tex											
		/10cm	42~45											
		cm	10											
L 2100dtex/2 1200m 1400dtex/3 930dtex/2-V ₁ V ₂ 1100m 1870dtex/2 1280m 1400dtex/2-V ₁ V ₂ 1310m 1400dtex/2-V ₃ 1160m 930dtex/2-V ₃ 2200m 720m														

3.2.3

3.2-3

3.2-3 1 ()

		1 6 22858m ²	
		1 1 6950m ²	

		P1 30m 25m P2 1 35m P3 36m P4 浸胶 38m P5 37m P6	

3.2-3

		1 1 10000m ²	
		1 6 19008m ²	
		1	
		8t/h	
		1 4 1	
		1 20m ²	

4.5			
	1	2.0m ³	

1	6	t/a	30000
	6	t/a	15000
2	6	t/a	30000
		d/a	350
			500
			270 230
		m ²	49444 36276 13168
			45000
		/	132750
		/	114272.08
		/	15000.83
		/	3750.21
		/	11250.62
		%	33.34
		%	25.49
			31592.78
			3.9
		%	31.97

3.2.5

3.2.5.1

3.2-5

3.2-5 1

		t/a	t			
1		35105	1810	99.98%	25kg/	
2	FDY	350	15	TF-6 HQ-699	180kg/	
3	DNP/A\B\C\D	5.5 DNP 49 A\B\C\D	5	--	25kg/	
4			0.4	99%	400kg/	
5		1198	60	40.5%	1000kg/	
6		300	20	40.5%	1000kg/	
7		70	6	99.8%	25kg/	
8		108	0.93	37%	180kg/	

9		70	1.1	20~25%	180kg/	
10		2.2	1	99%	25kg/	
1		1198	60	40.5%	1000kg/	
2		300	20	40.5%	1000kg/	
3		70	6	99.8%	25kg/	
4		108	0.93	37%	180kg/	
5		70	1.1	20~25%	180kg/	
6		2.2	1	99%	25kg/	

3.2-5 2

1	DNP	N,N'- -
2	A\B\C\D	2~ / / BBM 4 4'- 6- -3- / TMTD
3	FDY	
4		- -5

3.2-1

3.2.6.2

1

2

3

SSW

3.2.7

3.2-7

3.2-7

1			1	
2			1	
3		N-170/98	1	
4			1	
5		STC	31	
6		LTP-R54E4E4 CL51	2	
7		ø4200*19300	1	
8		ASC-23F	1	

9			1	
10			1	
11			1	
12			2	
13			1	
14		ZAX9200iTC	20	
15		TZJB	20	
16		ASG700	6	
17		K3503F	36	
18			6	
19			8	
20		OP425	24	
		VP300L	24	
21			1	

140-150

24-36h

18

90 左右

18

90 左右

2

2

1

20Mpa

G_1

G_2

2

2

270-290

4

S₃

3

S₄

4

20~3

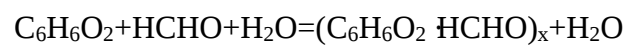
45 ~50

85

95

20~30

- 1.3~2.3



pH 25

G₆G₇

1

1 15m

P3

G₈

25m

P4

110-140

110-140

200

200

G14

G15 G16

G14 G15 G16

35m

P12 P13 P14 P15 P16

S10

S12

3.3-2

3.3.8

3.3-3

3.3-4

3.3.9

3.3.9.1

1

5m³/d1750m³/a4m³/d 1400m³/a

2

7.2m³/d 2520m³/a9.6m³/d 3360m³/a14.4m³/d 5040m³/a19.2m³/d 6720m³/a

3

40m³/h 336000m³/a

3%

1.2m³/h 28.8m³/d 10080m³/a50m³/h 420000m³/a

3%

1.5m³/h 36m³/d 12600m³/a

4

5.8m³/d 2030m³/a

9.9m³/d 3465m³/a

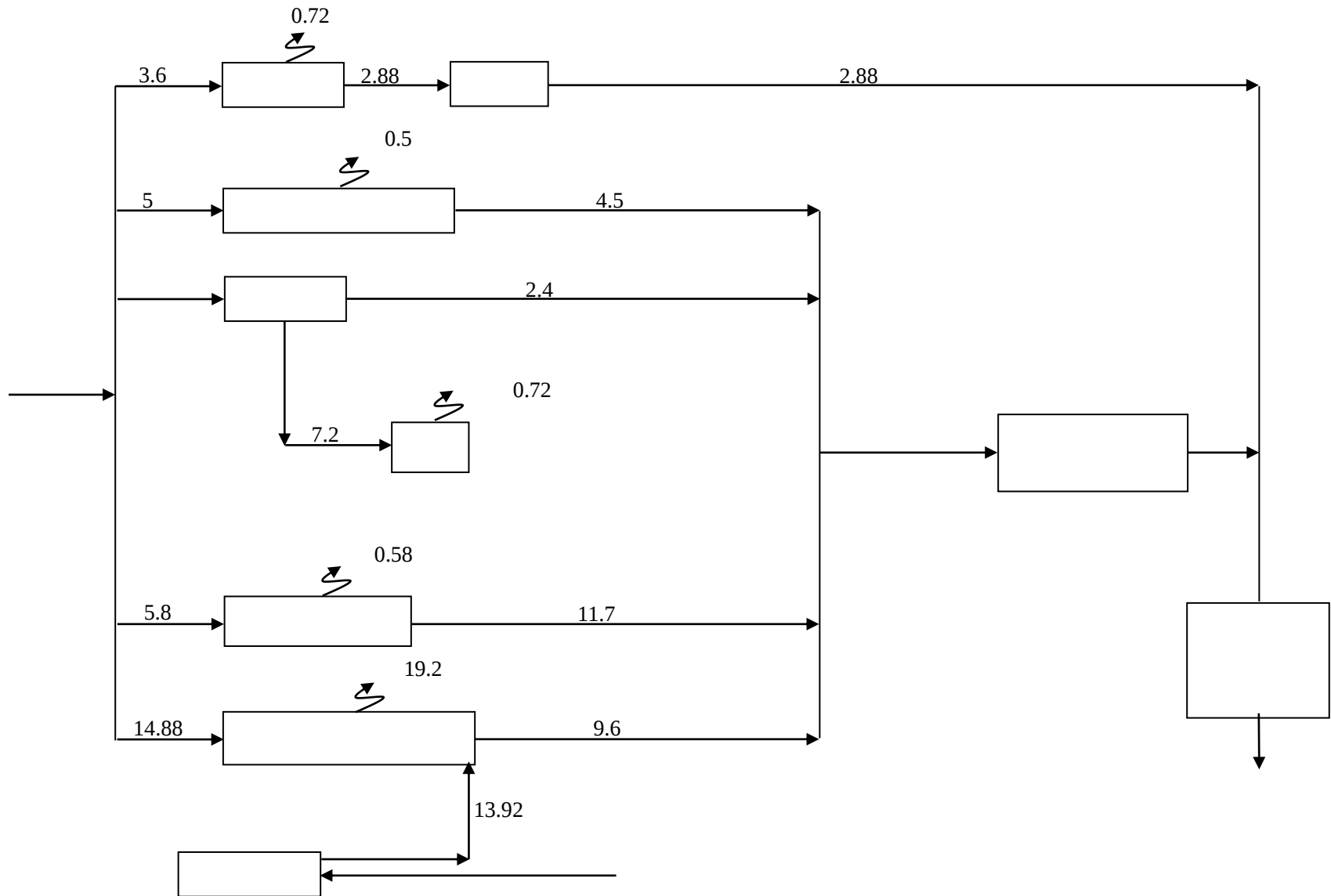
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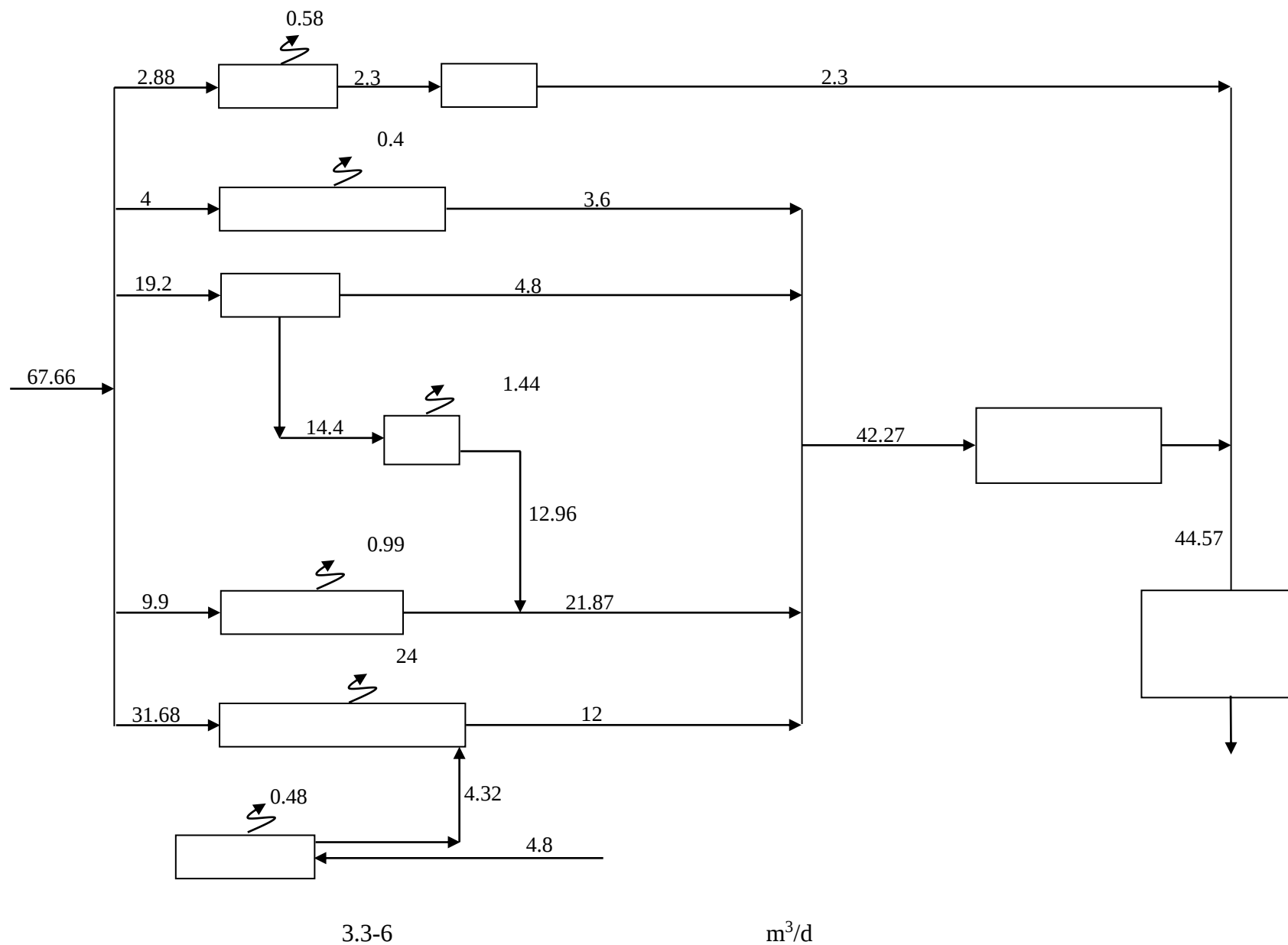
30

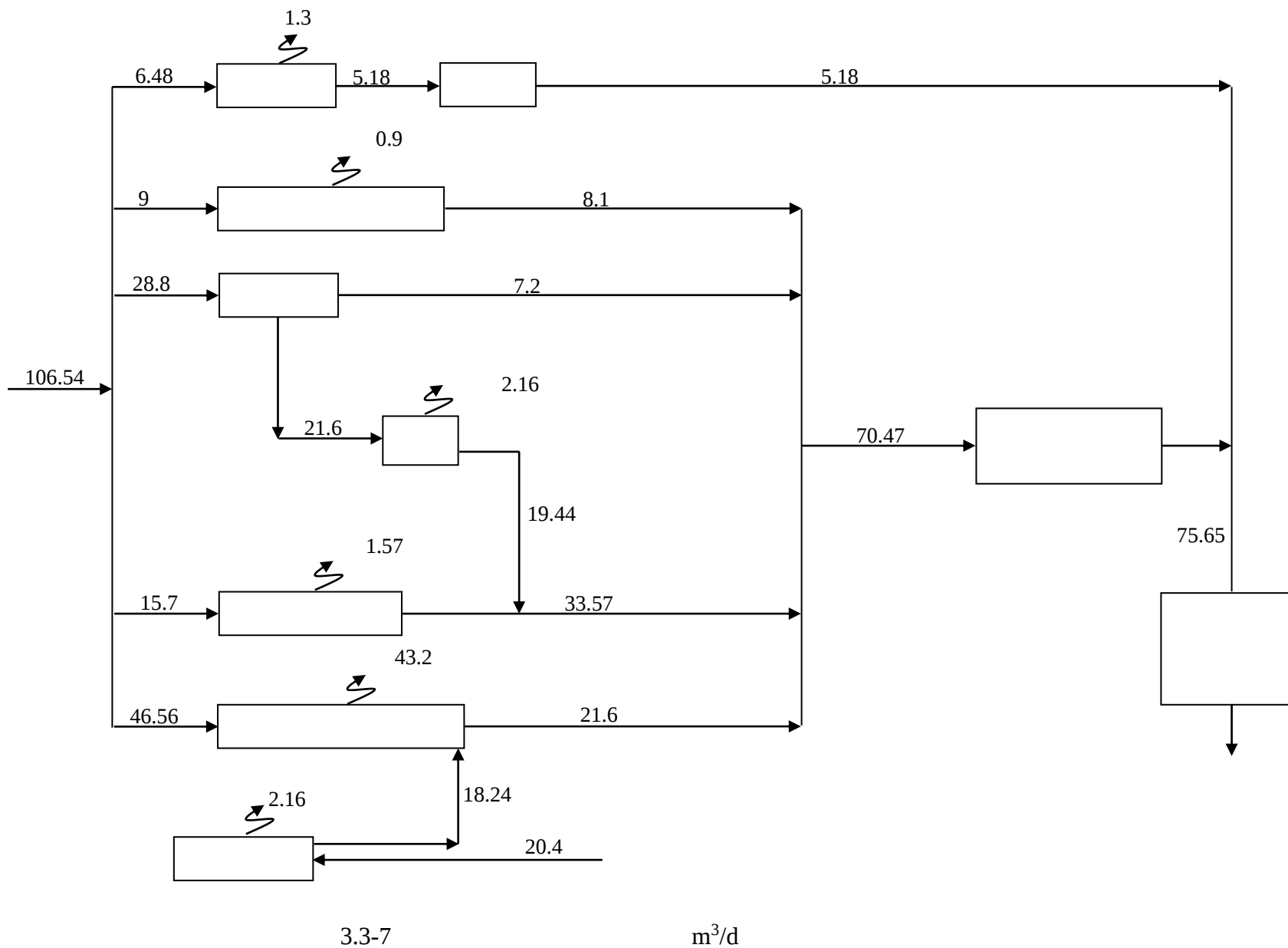
24

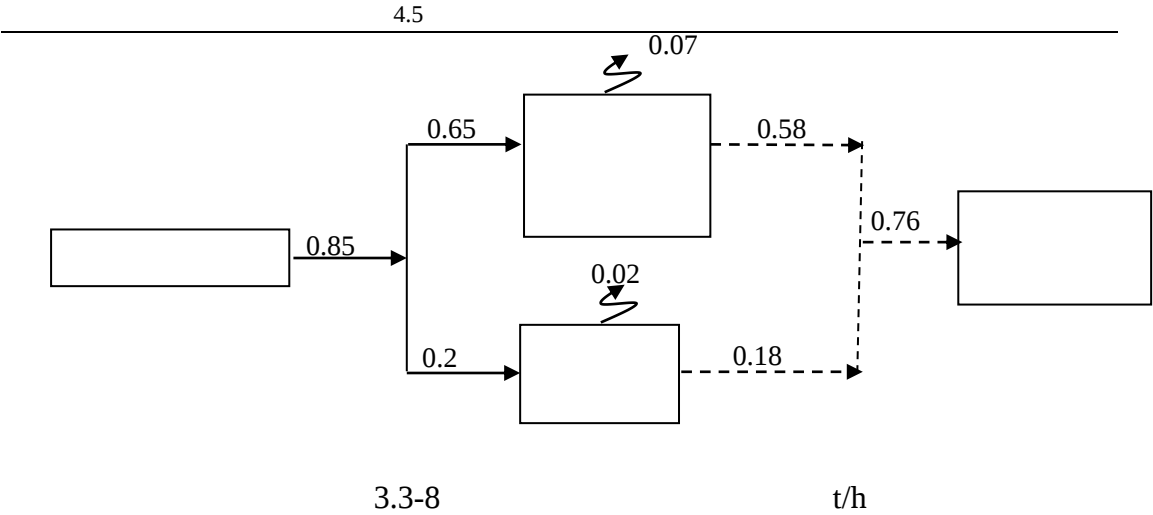
120L/ .

3.6m³/d 1260m









3.3.9.3

3304.7 kWh

1379.2 kWh

3.3.9.4

0.65t/h 5460t/a

0.2t/h 1680t/a

781m³/h 656.04 m³/a

1562m³/h 1312.08

m³/a

3.3.9.5

3.3-11

3.3-11

				m	m	m ³		t
		1		1.5	2.2	3.9	0.8	2.84
		1		1.5	2.2	3.9	0.8	2.54

		1		1.5	2.2	3.9	0.8	2.84
		1		1.5	2.2	3.9	0.8	2.54

3.3.9.6

EDI EDI Electrodeionization

EDI

EDI

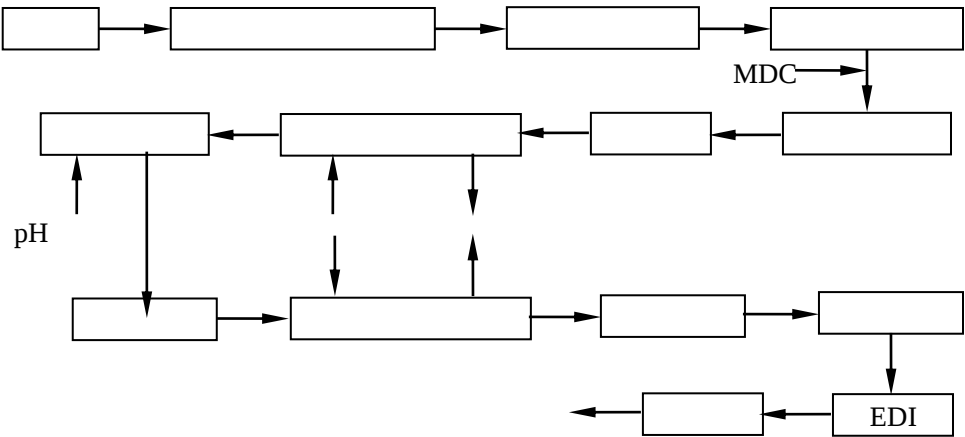
EDI

EDI

EDI 3~5

EDI

3.3-9



3.3-9

R134a

1

40Nm³/min

140Nm³/h

100Nm³/h

1

170Nm³/h

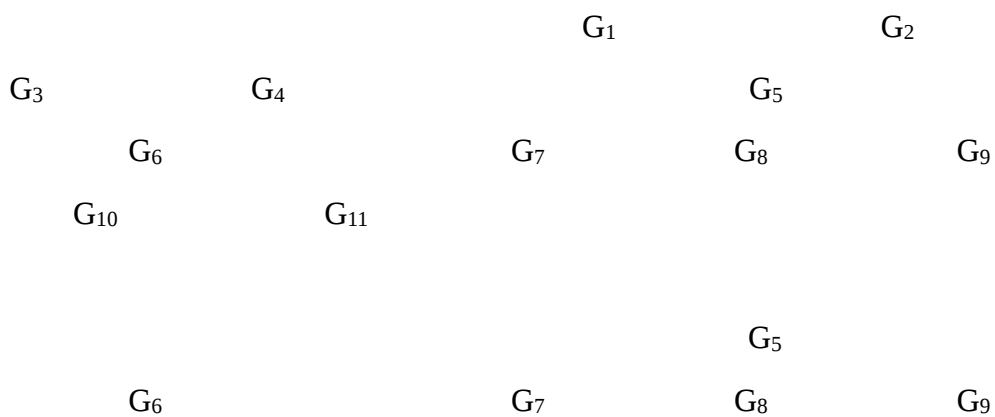
5

20kg/d 7t/a

2NH₃=3H₂+N₂

3.4

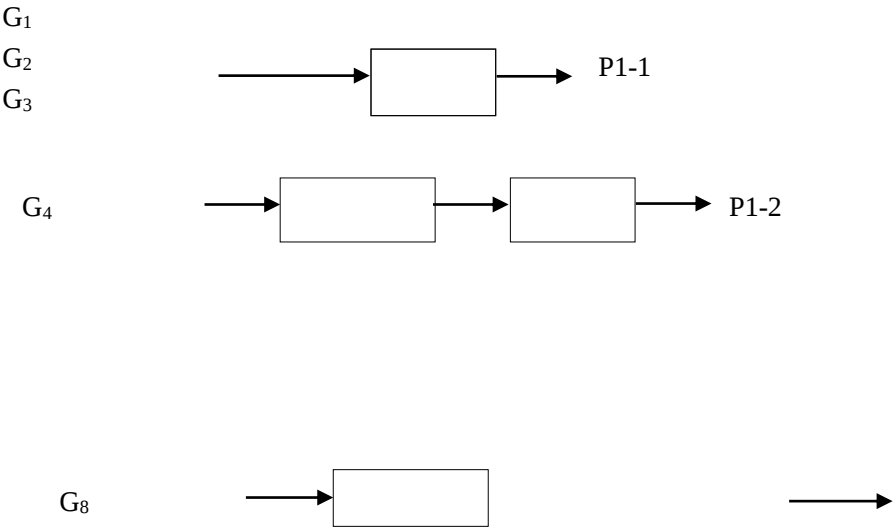
3.4.1



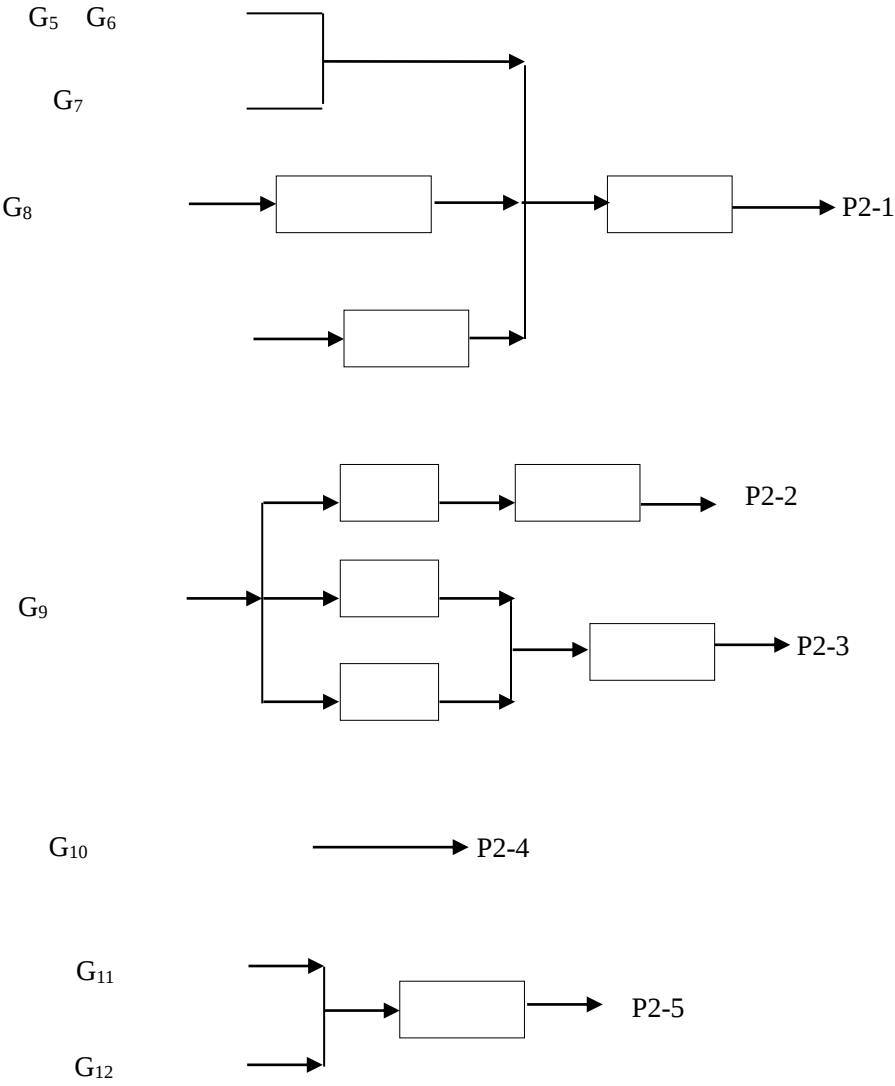
G_{10} G_{11}

45000t/a 6 /

3.4-1 3.4-2



3.4-1



3.4-2

3.0kg/h

2

G₄

19

G₄

30m

0.8m

P1-2

45000t/a

6

/

2021 12

11

DA028

DA027

2022

3

18

DA029

HJ 1102-2020 D.1

6

56.16g/

+

38.19g/

3.4-2

3.4-2

		(t/a)	kg/h	(mg/m ³)	(m ³ /h)		(%)	(t/a)	(kg/h)	(mg/m ³)
P1-2	VOCs	0.48	0.057	1.9	30000	+	32	0.326	0.039	1.3

		6		15mg/m ³	
5mg/m ³	VOCs				
6					
DB37/801.6-2018	1	VOCs60mg/m ³		3.0kg/h	2mg/m ³ 0.15kg/h
5mg/m ³	0.3kg/h	8mg/m ³		0.3kg/h	
GB14554-93		2	27kg/h		
4	G ₉				
36m					
0.4m	P1-4	38m			
0.5m	P1-5				
3.4-4			3.4-5		

3.4-4

		(t/a)	kg/h	(mg/m ³)	(m ³ /h)		(%)	(t/a)	(kg/h)	(mg/m ³)
P1-4		1.28	0.152	25.3	6000		85	0.192	0.0228	3.8
	VOCs	0.407	0.0485	8.1			32	0.277	0.033	5.5

		1.16	0.138	23			90	0.116	0.0138	2.3
		0.336	0.04	6			90	0.0336	0.004	0.6
		0.111	0.0132	2.2			32	0.0756	0.009	1.5
P1-5		1.8144	0.216	18	12000		85	0.272	0.0324	2.7
	VOCs	1.976	0.235	19.6			32	1.344	0.160	13.3
		3.02	0.360	30			90	0.302	0.036	3.0
		0.706	0.0840	7			90	0.0706	0.0084	0.7
		0.668	0.0795	6.6			32	0.454	0.054	4.5

3.4-5 P1-4 P1-5

(m)

GB16297-1996 2

36m 32.6kg/h 38m 35.8kg/h

DB37/2376-2013 2

10mg/m³ VOCs

6 DB37/801.6-2018

1 VOCs60mg/m³ 3.0kg/h 2mg/m³ 0.15kg/h 5mg/m³
 0.3kg/h 8mg/m³ 0.3kg/h

6 DB37/801.6-2018

2 15mg/m³ 5mg/m³5 G₁₀781m³/h 656.04 m³/a 30m

0.5m P1-6

HJ991-2018 C

C.4

Q_{net,ar} 10467kJ/m³ V₀=0.26 Q_{net,ar}/1000-0.25V_s=0.272 Q_{net,ar}/1000-0.25+1.061 -1 V₀V₀ m³/m³Q_{net,ar} kJ/m³ 36440kJ/m³10467kJ/m³V_s m³/m³

1.7

V₀=0.260×36440/1000-0.25=9.22m³/m³V_s=0.272×36440/1000-0.25+1.0161× 1.7-1 ×9.53=16.44m³/m³10785.3 m³/aE_{SO2}=2R×S_t×(1- s/100)×K×10⁻⁵

E_{SO_2}

[2019]39						
----------	--	--	--	--	--	--

3.4-6

DB37/2376-2019 1

10mg/m³50mg/m³100mg/m³

<

>

[2019]39

50mg/m³

6

G₁₁G₁₂G₁₁G₁₂

35m

0.5m

P15

90%

HJ 1102-2020

D.1

6

32%

10%

12000m³/h

3.4-13

3.4-7

		(t/a)	kg/h	(mg/m ³)	(m ³ /h)		(%)	(t/a)	(kg/h)	(mg/m ³)
P1-7	VOCs	0.504	0.06	5	12000		32	0.343	0.0408	3.4
		2.22	0.264	22			90	0.222	0.0264	2.2
		0.907	0.108	9			90	0.0907	0.0108	0.9
		0.266	0.0317	2.6			32	0.181	0.0216	1.8

3.4-7

GB14554-93	2	30.2kg/h	VOCs	6
	DB37/801.6-2018	1	VOCs60mg/m ³	3.0kg/h
2mg/m ³	0.15kg/h	5mg/m ³	0.3kg/h	8mg/m ³
				0.3kg/h
				6
	DB37/801.6-2018	2		15mg/m ³
5mg/m ³				

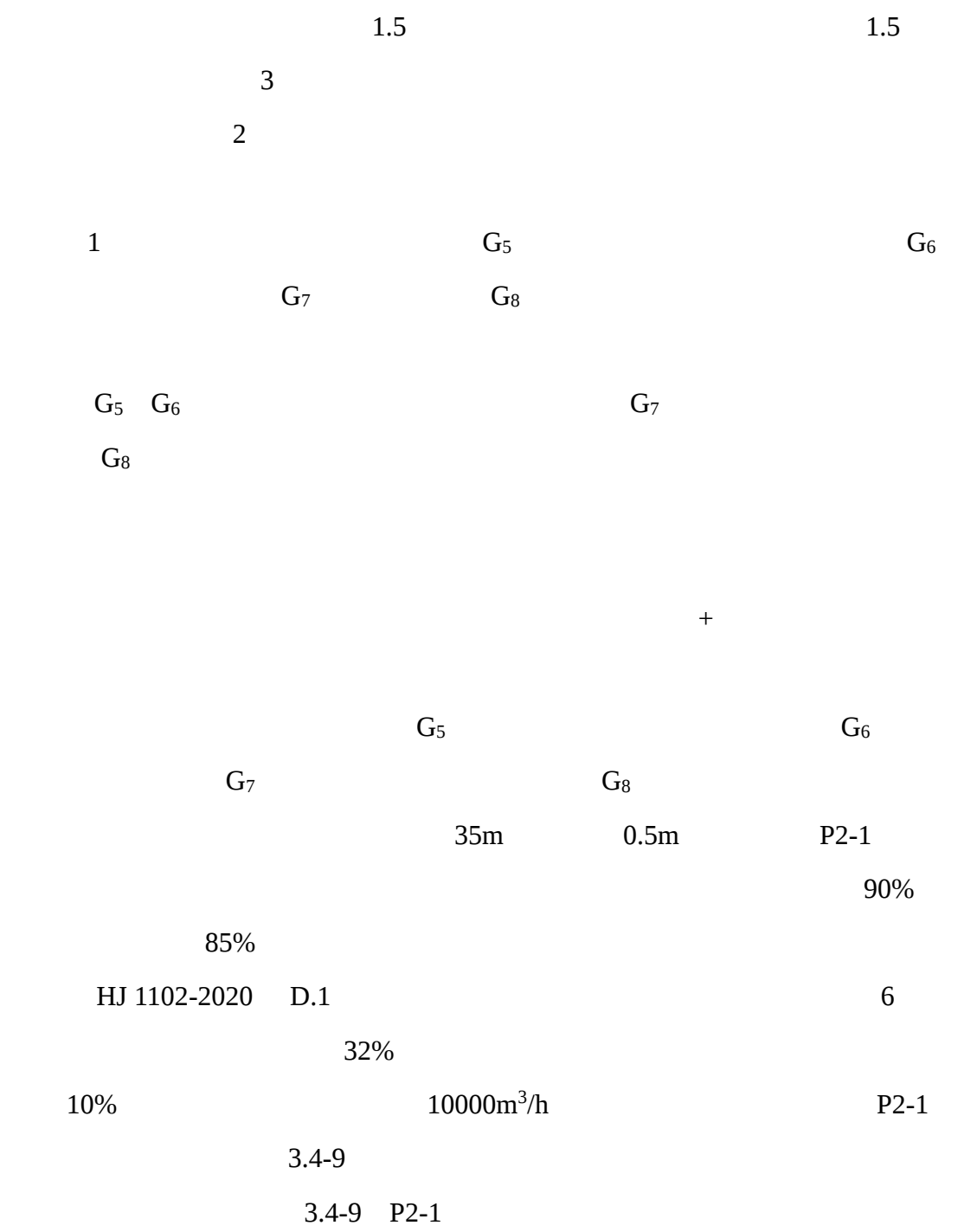
3.4-8

3.4-8

													m		
		Nm ³ /h	mg/m ³	kg/h	t/a			mg/m ³	kg/h	t/a	mg/m ³	kg/h			
G1		30000	18.7	0.533	4.48		85%	2.8	0.08	0.672	10	23	P1-1	30	0.8
G2 G3	VOCs		4.7	0.143	1.20		32%	3.2	0.097	0.816	60	3.0			
G4	VOCs	30000	1.9	0.057	0.48	+	32%	--	0.039	0.326	60	3.0	P1-2	30	0.8
G5		5000	12.7	0.0633	0.532		85%	1.9	0.00995	0.0798	10	31	P1-3	35	0.3
G6	VOCs		61.9	0.310	2.606		32%	42.1	0.211	1.772	60	3.0			
G7			41	0.205	1.722		90%	4.1	0.0205	0.1722		27			
			7	0.035	0.294		90%	0.7	0.0035	0.0294	5				
G8															

			2.2	0.0132	0.111		32%	1.5	0.009	0.0756	15				
G9		12000	18	0.216	1.8144		85%	2.7	0.0324	0.272	10	35.8	P1-5	38	0.5
	VOCs		19.6	0.235	1.976		32%	13.3	0.160	1.344	60	3.0			
			30	0.360	3.02		90%	3.0	0.036	0.302		28.6			
			7	0.0840	0.706		90%	0.7	0.0084	0.0706	5				
			6.6	0.0795	0.668		32%	4.5	0.054	0.454	15				
		12839.6	10	0.128	1.0785		0	10	0.128	1.079	10		P1-6	30	0.5
	SO ₂		17.2	0.156	1.312		0	17.2	0.156	1.312	50				
	NO _x		50	0.642	5.393		0	50	0.642	5.393	50				
G10 G11	VOCs	12000	5	0.06	0.504		32%	3.4	0.0408	0.343	60	3.0	P1-7	35	0.5
			22	0.264	2.22		90%	2.2	0.0264	0.222		30.2			
			9	0.108	0.907		90%	0.9	0.0108	0.0907	5				

3.4.1.1.2



		(t/a)	kg/h	(mg/m ³)	(m ³ /h)		(%)	(t/a)	(kg/h)	(mg/m ³)
P2-1		1.064	0.1266	12.7	10000		85	0.1596	0.019	1.9

	0.7	0.0248		5		
	4.5	0.126		15		

3.4-10 3.4-11

GB14554-93 2 36m 28.6kg/h 38m 31.8kg/h

GB16297-1996 2

36m 32.6kg/h 38m 35.8kg/h

DB37/2376-2013 2

10mg/m³ VOCs

6 DB37/801.6-2018

1 VOCs60mg/m³ 3.0kg/h 2mg/m³ 0.15kg/h 5mg/m³

0.3kg/h 8mg/m³ 0.3kg/h

6 DB37/801.6-2018

2 15mg/m³ 5mg/m³3 G₁₀1562m³/h 1312.08 m³/a 30m

0.8m P2-4

HJ991-2018 C

C.4

 $Q_{\text{net,ar}} 10467\text{kJ/m}^3 V_0=0.26 Q_{\text{net,ar}}/1000-0.25$ $V_s=0.272 Q_{\text{net,ar}}/1000-0.25+1.061 -1 V_0$ $V_0 \text{ m}^3/\text{m}^3$ $Q_{\text{net,ar}} \text{ kJ/m}^3 36440\text{kJ/m}^3$ 10467kJ/m³ $V_s \text{ m}^3/\text{m}^3$

1.7

 $V_0=0.260 \times 36440/1000-0.25=9.22\text{m}^3/\text{m}^3$ $V_s=0.272 \times 36440/1000-0.25+1.0161 \times 1.7-1 \times 9.53=16.44\text{m}^3/\text{m}^3$

21570.6 m³/a

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

E_{SO_2} t

R m³

S_t mg/m³

s %

K

GB17820-2018 1

100mg/m³

$$0 \quad K \quad 1 \quad E_{SO_2}=2 \quad 1312.08 \quad 100 \quad 10^{-5}=2.624t/a$$

10mg/m³

10mg/m³

2.157t/a

NOx 50mg/m³

50mg/m³

10.785t/a

3.4-12

3.4-12

	Nm³/a						
				SO ₂		NO _x	
		t/a	mg/Nm³	t/a	mg/Nm³	t/a	mg/Nm³

	21570.6	2.157	10	2.264	12.2	10.78 5	50
DB37/2376-2019 1			10		50		100
[2019]39							50

3.4-12

DB37/2376-2019 1

10mg/m³50mg/m³100mg/m³

<

>

[2019]39

50mg/m³

	1.814	0.216	9		90	0.1814	0.0216	0.9
	0.532	0.0634	2.6		32	0.362	0.0432	1.8

3.4-13

GB14554-93 2 30.2kg/h

VOCs

6

DB37/801.6-2018 1

VOCs60mg/m³ 3.0kg/h2mg/m³ 0.15kg/h 5mg/m³ 0.3kg/h8mg/m³ 0.3kg/h

6

DB37/801.6-2018 2

15mg/m³5mg/m³

3.4-14

3.4-14

													m		
		Nm ³ /h	mg/m ³	kg/h	t/a			mg/m ³	kg/h	t/a	mg/m ³	kg/h			
G5		5000	12.7	0.1266	1.064		85%	1.9	0.019	0.1596	10	31	P2-1	35	0.5
G6	VOCs		61.9	0.620	5.212		32%	42.1	0.422	3.544	60	3.0			
G7			41	0.41	3.444		90%	4.1	0.041	0.3444		27			
G8			7	0.07	0.588		90%	0.7	0.007	0.0588	5				
			4.3	0.0426	0.358		32%	2.9	0.029	0.2436	15				
G9		12000	25.3	0.304	2.56		85%	3.8	0.0456	0.384	10	32.6	P2-2	36	0.2
	VOCs		8.1	0.097	0.814		32%	5.5	0.066	0.554	60	3.0			
			23	0.276	2.32		90%	2.3	0.0276	0.232		28.6			
			6	0.08	0.672		90%	0.6	0.008	0.0672	5				
			2.2	0.0132	0.111		32%	1.5	0.018	0.1512	15				
G9		24000	18	0.432	3.6288		85%	2.7	0.0648	0.544	10	35.8	P2-3	38	0.4
	VOCs		19.6	0.47	3.952		32%	13.3	0.32	2.688	60	3.0			
			30	0.72	6.04		90%	3.0	0.072	0.604		28.6			

			7	0.168	1.412		90%	0.7	0.0168	0.1412	5				
			6.6	0.159	1.336		32%	4.5	0.108	0.908	15				
			10	0.257	2.157		0	10	0.257	2.157	10				
		25679.3											P2- 4	30	0.5

3.4-15

													m		
		Nm³/h	mg/m³	kg/h	t/a			mg/m³	kg/h	t/a	mg/m³	kg/h			
G1 G2 G3		30000	18.7	0.533	4.48		85%	2.8	0.08	0.672	10	23	P1- 1	30	0.8
	VOCs		4.7	0.143	1.20		32%	3.2	0.097	0.816	60	3.0			
G4	VOCs	30000	1.9	0.057	0.48	+	32%	--	0.039	0.326	60	3.0	P1- 2		

			2.2	0.0132	0.111		32%	1.5	0.009	0.0756	15				
			18	0.0633	0.532		85%	2.7	0.0324	0.272	10	35.8			

G9

12000

P1-5380.5

G9		6000	25.3	0.304	2.56		85%	3.8	0.0456	0.384	10	32.6	P2- 2	36	0.2
	VOCs		8.1	0.097	0.814		32%	5.5	0.066	0.554	60	3.0			
			23	0.276	2.32		90%	2.3	0.0276	0.232		28.6			
			6	0.08	0.672		90%	0.6	0.008	0.0672	5				
			2.2	0.0132	0.111		32%	1.5	0.018	0.1512	15				
G9		12000	18	0.1266	1.064		85%	2.7	0.0648	0.544	10	35.8	P2- 3	38	0.4
	VOCs		19.6	0.47	3.952		32%	13.3	0.32	2.688	60	3.0			
			30	0.72	6.04		90%	3.0	0.072	0.604		28.6			
			7	0.168	1.412		90%	0.7	0.0168	0.1412	5				
			6.6	0.159	1.336		32%	4.5	0.108	0.908	15				

25679.3

3.4-15			141555.876	Nm ³ /a	5.5389t/a	VOCs	
12.35t/a	SO ₂	3.936t/a	NO _x	16.178t/a	2.4366t/a	0.6729t/a	2.4972t/a

3.4.1.2

3.4.1.2.1

			90%	10%
			0.498t/a	VOCs
0.187t/a				

			90%	10%
			0.2604t/a	VOCs
0.61t/a	0.902t/a	0.249t/a	0.136t/a	

3.4.1.2.2

			90%	10%
			0.806t/a	VOCs
1.221t/a	1.805t/a	0.498t/a	0.26t/a	

90%

90%

3.4.2

3.4.2.1

3.4-16

3.4-17

3.4-16

	m ³ /a	m ³ /a	mg/L				
			COD _{Cr}	BOD ₅			
	4095	7654.5	200	100	15	25	700
	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		216	132	11	18	1295
		15599.5	190	109	11	18	1303
	26477.5		201	118	11	18	1300

3.4-16

		m ³ /a	mg/L	t/a	m ³ /a	mg/L	t/a	m ³ /a	mg/L	t/a
1	COD _{Cr}		216	2.35		190	2.96		201	5.31
2	BOD ₅		132	1.44		109	1.70		118	3.14
3		10878	11	0.12	15599.5	11	0.17	26477.5	11	0.29

CODcr	29.6mg/L	8.06mg/L
	GB/T31962-2015	1A

3.4.2.3

1

2004

8

4 m³/d

2007 9

8 m³/d4 m³/d

1 A

2009 5

8

16km

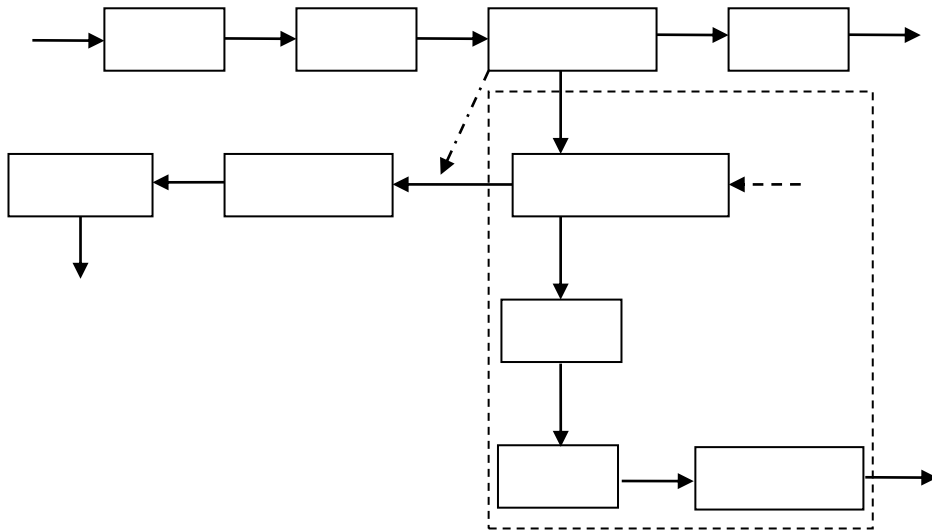
0.9mm

BIOLAK

BIOLAK

BIOLAK

3.4-3



3.4-3

pH 6~9

COD_{Cr}BOD₅

(GB18918-2002)

A

[2017]5

COD_{Cr}NH₃-

2

2021 1~12

3.4-17

3.4-17

2021 1~12

	(m³)	pH				
			(mg/L)			
2021.01	1071636	6.99	14.4	0.253	0.186	6.81
2021.02	1018063	7.25	17.4	0.188	0.202	6.58
2021.03	915311	7.05	13.7	0.152	0.204	9.56
2021.04	666861	6.77	13.5	0.151	0.191	10.9
2021.05	684945	6.96	14.4	0.219	0.278	9.03
2021.06	926823	7.06	20.6	0.244	0.231	8
2021.07	1282826	7.06	17.6	0.343	0.199	8.18
2021.08	1459914	7.06	20.3	0.276	0.188	8.06
2021.09	1381393	7.13	17.1	0.219	0.142	8.45
2021.10	1294080	7.15	26.5	0.151	0.205	10.2
2021.11	1048103	7.27	28.7	0.495	0.198	9.89
2021.12	1424289	7.39	28.1	0.34	0.202	7.66

	1097854	7.1	19.4	0.253	0.202	8.61
	1459914	7.39	28.7	0.495	0.278	10.9
	666861	6.77	13.5	0.151	0.142	6.58
	10881313	/	/	/	/	/
			40	2	4	45

3.4-17

GB18918-2002

A

[2017]5

COD_{Cr}NH₃-

4

GB18918-2002

A

[2017]5

COD_{Cr}NH₃-

3237.3t/a

COD_{Cr}

15.1mg/L 0.148mg/L 6.34mg/L 0.263mg/L

0.049t/a

0.0005t/a 0.02t/a 0.0009t/a

6474.6t/a

COD_{Cr}

0.098t/a 0.001t/a 0.04t/a 0.0018t/a

3.4.2.4

3.4-18

3.4-19

3.4-18

		m ³ /a	mg/L	t/a	m ³ /a	mg/L	t/a
1	COD _{Cr}	10878	29.6	0.32	10878	19.4	0.21
2	BOD ₅		18	0.20		10	0.11
3			8.06	0.088		0.253	0.003
4			13	0.14		8.61	0.09
5			1295	14.09		1295	14.09

3.4-19

		m ³ /a	mg/L	t/a	m ³ /a	mg/L	t/a	m ³ /a	mg/L	t/a
1	COD _{Cr}	15599.5	29.6	0.46	15599.5	19.4	0.30	26477.5	19.4	0.51
2	BOD ₅		18	0.28		10	0.16		10	0.26
3			8.06	0.126		0.253	0.004		0.253	0.007
4			13	0.20		8.61	0.13		8.61	0.23
5			1303	20.33		1303	20.33		1300	34.42

10878m³/aCOD_{Cr}

19.4mg/L

0.253mg/L

COD_{Cr}

0.21t/a

0.003t/a

26477.5m³/aCOD_{Cr}

0.30t/a

0.004t/a

26477.5m³/aCOD_{Cr}

0.51t/a

0.007t/a

.3

.3.1

80 95dB A

3.4-20

3.4-20

					dB(A) 1m	dB(A)
		1			80	55
		1			95	70
		31			95	70
		1			80	55
		1			80	55

		36			85	60
		6			85	60
		25			90	65
		10			85	60
		50			90	65
		20			85	60
		36			85	60
		20			85	60

3.4.3.2

A

B

C

15 25dB A

GB12348-2008 3 4

3.4.4

2021

HW08 900-249-08 FDY

HW49 900-041-49

2

FDY

3.4-21

3.4-21

			t/a				
S ₁			773	--		282-999-99	
S ₃			1110	--		282-999-99	
S ₄			157	314		282-999-99	
S ₅			472.6	945.2		282-999-99	
S ₂			0.1	--		HW08 (900-249-08)	
			4	3.5		282-999-99	

			0.1	0.2		282-999-99	
			5.3	4.2			
		--	2	3.5		HW49 (900-041-49)	
			1t/4a			HW08 (900-249-08)	
			2535.1	1272.6			
			3.1	3.5			

3.4.5

3.4-22

3.4-23

3.4-24

3.4-22

		Nm ³ /a	90585.26	0	90585.26	
		t/a	9.1849	6.8906	2.2943	
		VOCs t/a	7.173	2.295	4.878	
		SO ₂ t/a	1.312	0	1.312	
		NO _x t/a	5.393	0	5.393	
		t/a	8.122	0.3916	0.8122	
		t/a	2.243	6.8906	0.2243	
		t/a	1.224	2.295	0.8324	
		t/a	0.2604	0	0.2604	
		VOCs t/a	0.61	0	0.61	
		t/a	0.0902	0	0.0902	
		t/a	0.249	0	0.249	
		t/a	0.136	0	0.136	
		m ³ /a	10878	0	10878	
		COD _{Cr} t/a	2.35	2.14	0.21	
		t/a	0.12	0.117	0.003	

	t/a	773	773	0	
	t/a	1110	1110	0	
	t/a	4	4	0	
	t/a	157	157	0	
	t/a	472.6	472.6	0	
	t/a	0.1	0.1	0	
	t/a	0.1	0.1	0	
	t/a	5.3	5.3	0	
	t/a	2	2	0	
	t/a	1t/4a	1t/4a	0	
	t/a	515.573	515.573	0	

3.4-23

	Nm ³ /a	50970.61	0		

t/a

314

314

	t/a	1110	1110	0	
	t/a	7.5	7.5	0	
	t/a	471	471	0	
	t/a	1417.8	1417.8	0	
	t/a	0.1	0.1	0	

		mg/m ³	kg/h	mg/m ³	kg/h	
P1-1		18.7	0.533	10	23	
	VOCs	4.7	0.143	60	3.0	
P1-2	VOCs	1.9	0.057	60	3.0	
P1-3		12.7	0.0633	10	31	
	VOCs	61.9	0.310	60	3.0	
		41	0.205		27	
		7	0.035	5		
		4.3	0.0213	15		
P1-4		25.3	0.152	10	32.6	
	VOCs	8.1	0.0485	60	3.0	
		23	0.138		28.6	
		6	0.04	5		
		2.2	0.0132	15		
P1-5		18	0.216	10	35.8	
	VOCs	19.6	0.235	60	3.0	
		30	0.360		28.6	
		7	0.0840	5		
		6.6	0.0795	15		
P1-7	VOCs	5	0.06	60	3.0	
		22	0.264		30.2	
		9	0.108	5		
		2.6	0.0317	15		
		0.17	0.00038	5	0.26	

3.4-26

		mg/m ³	kg/h	mg/m ³

		23	0.276		28.6	
		6	0.08	5		
		2.2	0.0132	15		
P2-3		18	0.432	10	35.8	
	VOCs	19.6	0.47	60	3.0	
		30	0.72		28.6	
		7	0.168	5		
		6.6	0.159	15		
P2-5	VOCs	5	0.12	60	3.0	
		22	0.528		30.2	
		9	0.216	5		

	VOCs	10.139	0.6086	4.878
	t/a			
	SO ₂ t/a			1.312
	NO _x t/a			5.393
	t/a	1.955	0.117	0.8122

[illegible]

200

3.5.2

1

6

8 10

6

FDY

2

FDY

3.5.3

1

2

20%

3

3.5.4

3.5-1

3.5-1

					kg/t
	m ³ /t		0.829	0.086kg/m ³	0.0713
	kWh/t		1041	0.404kg/kWh	420.16
	t/t		0.16	0.129kg/kg	0.021
	m ³ /t		437.4	1.2143kg/m ³	531.13

3.5-1

3.5.5

3.5.6

3.5.7

3.5-2

3.5-2

1		GB16297-19962 DB37/2376-20132 GB14554-9312 6 DB37/801.6-2018 123 GB31572-201559 GB12348-200834 GB18599-2020 GB18597-2001
2		3
3		
4		
5		
6		

3.5-2

3.5.8

1

2

3

4

4.1

116 ° 36 °

40.8km

42.4km 960km² 9 3 1 603

42 51.4

105 308

2 2 308 107km

316 56km

70km

50 km

2.2-1

4.2

4.2.1

32.00m 22.00m 27m 32.1m

		4.5		
		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

1-2 2-3 1-5m
 20-30m
 2 (Q1 3)
 90-206m

60-70m

3-6m 10m
 10-20m 50-70m 100-200m
 150m
 200m 230m
 2 (N)

500-800m

300-1000m

3 (E)

4.2.2.2

II

III

270km NE10°-30° NW 40°-70°

-

-

6.3m

800-1000m 6500-7000m 5000-6500m 40°-45°
55km

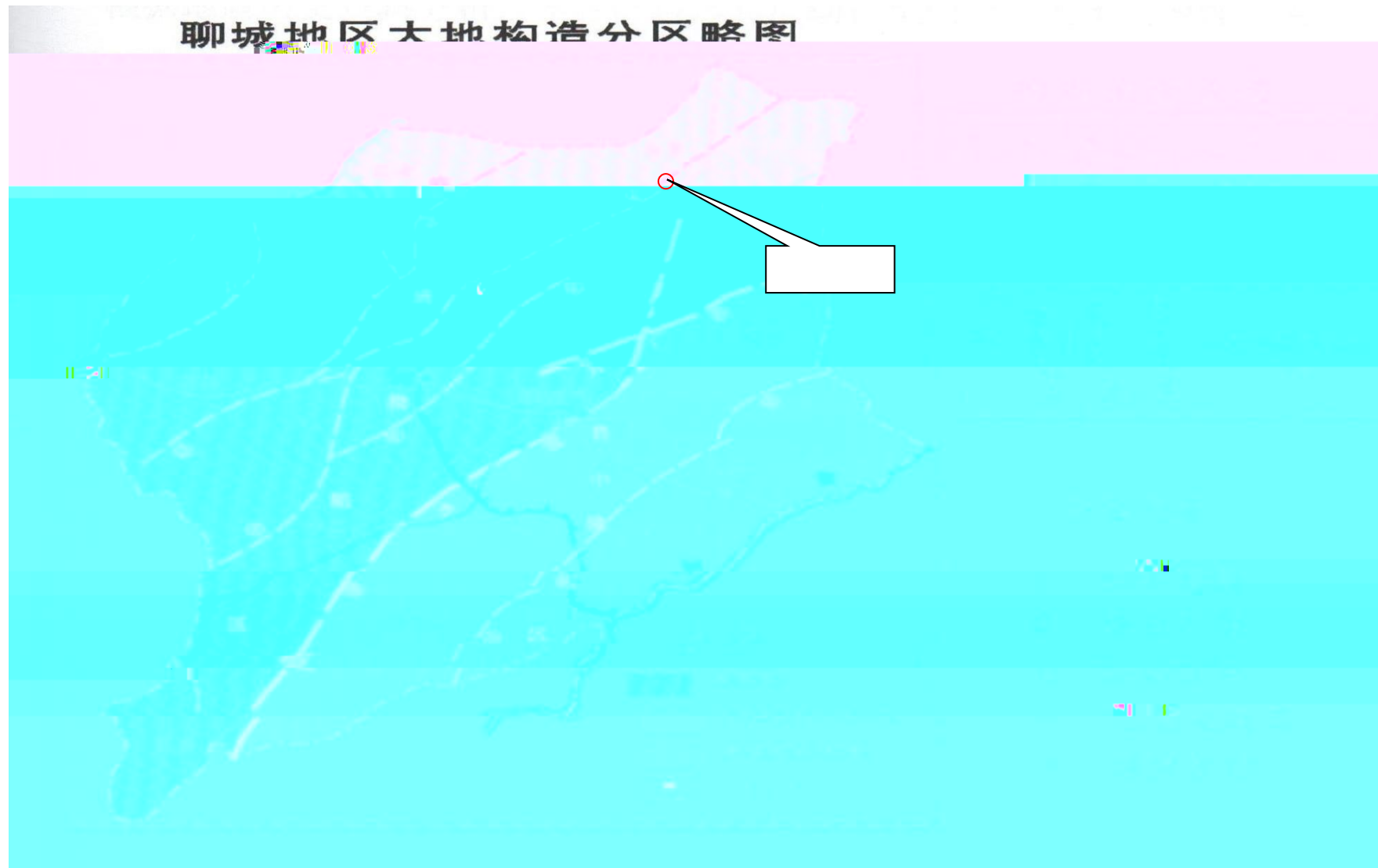
145km

III

IV

V

4.2-1



4.2-1

4.2.3

4.2.3.1

1

-

2

4.2.4

17

			4181.2km ²	
			26km	393.62km ²
	26km	393.6km ²	9	
100km ²		100km ²		
	28km	432.3km ²	6	100km ²
		100km ²		

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

4.5					
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		m³			
2.7		m³		1.56 m³	
60m					
16.7	m³	15.9	m³	0.8	m³ 1.34
m³		3.9974		m³	
4.2.8					
142			119		
83 58%					

4.5			
19.9	14%		
		40	27%
		2	3m
20	15%		
4.2.9			
58715.8	338500	8%	
4-10			

3.4.1.1

1

1

54.6

308

0.6

2

6.7

		4.5	
	6.4		
	12.1		
	7.4		
	6.1		
	9.8		
		0.6	308
		0.3	
3.4.1.2		1064.1	25.5%
	30.4	13	
	5		
	2.0		
3.4.1.3			
1		333.4	8.0%
	9.5		

	4.5			
	0.8			
0.6				
	0.4			
	13			
15			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 /

2018~2035

4.4-1

4.4.2

2014 12

[2014]220

2008

23km²

316

-

322

4.4-2

4.5

4.5.1

4.5.1.1

1

2020

3.5-1

4.5-1

	SO ₂	NO ₂	PM ₁₀	PM _{2.5}	CO	O ₃
					24 95	8 90
	17	39	106	62	1.7mg/m ³	185
	60	40	70	35	4 mg/m ³	160

2019

SO₂ NO₂

CO 24

95

GB3095-2012

PM₁₀PM_{2.5}O₃

8

90

GB3095-2012

PM_{2.5} PM₁₀O₃

2

HJ2.2-2018

3.5-1

2019

PM₁₀PM_{2.5}O₃

8

90

GB3095-2012

4.5.1.2

1

S

HJ2.2-2018

2

4.5-2

4.5-1

4.5-2

			m		
1#		N	40	TSP	
		W	130		
2#		N	100		
		NE	660		

2

TSP

9

3

2022 1 18 ~1 25

7

	4-	HJ/T 32-1999	0.3mg/m ³
		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
	19:44	S	1.5	-3.2	102.27		/
	01:42	S	1.2	-3.5	102.35		/
	07:40	S	2.1	0.2	101.46		10/8
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	13:45	S	1.9	5.6	102.17		10/7
	20:00	S	2.3	-2.9	102.32		/
	01:50	S	1.7	-6.3	102.50		/
	07:45	S	2.0	-6.2	102.63		9/6
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	1.3	1.2	103.21		10/7
	19:48	S	1.1	-2.1	102.24		/
	01:49	S	1.0	-4.7	103.31		/
	07:50	S	1.1	-4.5	103.31		10/7
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-	13:46	S	1.8	2.7	102.24		10/7

2022.01.22	19:48	S	1.9	-2.7	102.31		/
	01:49	S	2.1	-5.9	102.49		/
	07:48	S	1.9	-6.3	102.52		9/7
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	2.6	1.6	102.52		10/7
	13:50	S	1.5	1.8	102.52		10/7
	19:50	S	1.2	0.6	102.53		/
	01:48	S	1.4	-2.9	102.56		/
	07:50	S	1.1	-4.2	102.58		10/8
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	14:00	S	1.9	2.6	102.29		10/7
	19:45	S	1.6	1.5	102.30		/
	01:45	S	1.7	-1.8	102.33		/
	07:45	S	2.0	0.4	102.34		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	13:31	S	1.3	4.3	102.12		3/1
	19:50	S	1.2	-1.2	102.21		/
	01:48	S	1.1	-4.1	102.51		/
	07:50	S	1.2	-4.0	102.51		3/1
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	0.03	0.02	0.54	1.02	1.04	0.95
	2022.1.19- 2022.1.20						0.02	0.03	0.02	0.39	1.20	1.12	0.87
	2022.1.20- 2022.1.21						0.02	0.02	0.02	0.70	1.02	0.95	0.67
	2022.1.21- 2022.1.22						0.02	0.02	0.02	0.84	0.34	0.45	0.58
	2022.1.23- 2022.1.24						0.02	0.02	0.02	0.29	0.96	0.76	0.77

		14:00	20:00	02:00	08:00	14:00	20:00	02:00	08:00	14:02	20:01	02:01	08:02
2 #	2022.1.18- 2022.1.19												
	2022.1.19- 2022.1.20												
	2022.1.20- 2022.1.21												
	2022.1.21- 2022.1.22												
	2022.1.23- 2022.1.24												
	2022.1.24- 2022.1.25												
	2022.1.25- 2022.1.26												

4.5-5 3

mg/m³

						TSP	()			
		14:00	20:00	02:00	08:00		14:08	20:06	02:08	08:06
1#	2022.1.18- 2022.1.19				0.004	0.113	11	12	14	14
	2022.1.19- 2022.1.20					0.136	11	13	14	14
	2022.1.20- 2022.1.21	0.004	0.004			0.165	11	14	14	13
	2022.1.21- 2022.1.22					0.172	11	13	14	13
	2022.1.23- 2022.1.24			0.004		0.149	11	12	13	13
	2022.1.24- 2022.1.25					0.136	11	14	15	13
	2022.1.25- 2022.1.26					0.155	11	13	14	14
		14:00	20:00	02:00	08:00		14:09	20:06	02:06	08:09
2#	2022.1.18- 2022.1.19	0.004		0.004	0.004	0.159	11	13	12	14
	2022.1.19- 2022.1.20		0.004	0.004		0.155	12	15	13	13
	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

3.5

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/m³

P_i i

4

4.5-7

4.5-7

			%			%	
1#	TSP				0.38~0.55	0	0
	NH ₃	0.03~0.15	0	0			
		0.10~0.60	0	0			
2#	TSP				0.42~0.61	0	0
	NH ₃	0.03~0.15	0	0			
		0.20~0.65	0	0			

4.5-7

(HJ2.2-2018) D TSP GB3095-2012

p244

4.5.1.4

2021-2022

()

7 0.8
2022

,

()

2 3.6 2021 12

,

10 /

+

SCR

() VOCs

VOCs 10
2021 12

VOCs

VOCs

()

()

7 /

()

()
2021 12

VOCs

VOCs

65%

2021

()

2022 3

4.5-9

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
24			GB/T 11892-1989	0.5mg/L
25		4-	HJ 503-2009	0.0003mg/ L
26			HJ 970-2018	0.01mg/L

27			GB/T 16489-1996	0.005mg/L
28			HJ 601-2011	0.05mg/L
29		/	HJ 639-2012	0.4 K0
30				0.3 K0
31				0.2 K0
32	+			0.5 K0
33		11.1 11.2	GB/T 5750.6-2006	2.5 K0
34			HJ 755-2015	20MPN/L

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	静流	静流	0.08	0.08	0.04	0.04	0.04	0.04	0.08	0.08
pH 值	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
氨氮 (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
总磷 (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
总氮 (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
溶解氧 (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
铜 (mg/L)	未	未	未	未	未	未	未	未	未	未	未	未
锌 (mg/L)	未	未	未	未	未	未	未	未	未	未	未	未
(mg/L)	未	未	未	未	未	未	未	未	未	未	未	未
砷 (mg/L)	未	未	未	未	未	未	未	未	未	未	未	未
汞 (mg/L)	未	未	未	未	未	未	未	未	未	未	未	未
镉 (mg/L)	未	未	未	未	未	未	未	未	未	未	未	未

六价铬 (mg/L)	未	未	未	未	未	未	未	未	未	未	未	未
铅 (μg/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
硝酸盐 (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
亚硝酸盐 (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
氯化物 (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
氰化物 (mg/L)			未	未	未	未	未	未	未	未	未	未
高锰酸盐指数 (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
硫酸盐 (mg/L)	220	218	220	22	230	232	218	212	202	202	217	192
全盐量 (mg/L)	1620	1500	1760	1190	1600	1370	1630	1500	1850	1280	1770	1470
挥发酚 (mg/L)			未		未	未	未	未	未	未	未	未
石油类 (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

4.5.2.2

1

pH

SS

COD_{Cr}BOD₅

15

14

2

GB3838-2002

GB 3838-2002 2

SS

GB5084-2021 1

1.4-3

3

1 ()

$$S_{i,j} = \frac{C_{i,j}}{C_{s,i}}$$

 $S_{i,j}$ $S_{i,j} \leq 1$ $S_{i,j} > 1$
 $C_{i,j}$ i j mg/l

 $C_{s,i}$ i mg/l

2 --pH

$$S_{pH,j} = \frac{7.0 - pH_j}{7.0 - pH_{sd}} \quad pH_j \leq 7.0$$

$$S_{pH,j} = \frac{pH_j - 7.0}{pH_{su} - 7.0} \quad pH_j > 7.0$$

 S_{pHj} pH

 pH_j pH

 pH_{sd} pH

 pH_{su} pH

3

$$S_{DO_j} = |DO_f - DO_j| / (DO_f - DO_s) \quad DO_j \geq DO_s$$

$$S_{DO_j} = 10 - 9 \frac{DO_j}{DO_s}$$
$$S_{DO_j} \quad DO$$
$$DO_f \quad \text{mg/L}$$
$$DO_f = 468 / (31.6 + T) \quad T$$
$$DO_j \quad \text{mg/L}$$
$$DO_s \quad \text{mg/L}$$

$$DO_j < DO_s$$

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

4.5.2.3

2021

2019

2020 5

2020

A²O

			m	
1#		S	145	
		SW	545	
2#		--	--	
3#		--	--	
4#		N	40	
		W	130	
5#		SW	660	
		N	100	
6#		SW	790	
		SW	1420	
7#		W	950	
		W	1600	
8#		NW	12900	
		N	765	

2

1#~5#

pH

$$\text{K}^+ + \text{Na}^+ \quad \text{Ca}^{2+} \quad \text{Mg}^{2+} \quad \text{CO}_3^{2-} \quad \text{HCO}_3^- \quad 36$$

6#~8#

3

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 K0
4				0.04 K0

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 K0
11		5.1	GB/T 5750.6-2006	0.05mg/L
12		9.1 9.2	GB/T 5750.6-2006	0.5 K0
13		11.1 11.2	GB/T 5750.6-2006	2.5 K0
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 K0
26				0.4 K0
27				0.2 K0

28	+			0.5 K0
29			HJ 601-2011	0.05mg/L
30	Na ⁺	22.1	GB/T 5750.6-2006	0.01mg/L

	4.5				
mg/L	3.15×10^3	2.62×10^3	2.25×10^3	2.73×10^3	2.71×10^3



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#	4#	5#
pH	0.07	0.07	0.07	0.00	0.00
	3.53	3.42	2.32	3.61	3.76
	3.15	2.62	2.25	2.73	2.71
	0.47	0.50	0.55	0.48	0.45

	0.05	0.40	0.05	0.05	0.73
	0.40	0.40	0.05	0.60	0.70
	0.045	0.008	0.003	0.003	0.003
	0.400	0.740	0.025	0.025	0.025
	0.84	0.86	0.03	0.90	0.93
	0.03	0.01	0.26	0.01	0.01
	0.30	0.36	0.88	0.54	0.44
	3.29	2.99	2.80	2.57	2.93
	4.32	2.76	2.60	3.07	2.83
	0.62	0.90	0.70	0.78	0.81

5

GB/T14848-2017

4.5.4

4.5.4.1

1

1m

6

4.5-18

4.5-4

4.5-18

1#			
2#			
3#			
4#			
5#			
6#			
7#			
8#			
9#			
10#			
11#			

2

L_{Aeq}

2022 1 19 -1 20 2

4

4.5-19 dB(A)

4.5.4.2

GB3096-2008 3

65dB(A) 55dB(A)

GB3096-2008	2	60dB(A)	50dB(A)
-------------	---	---------	---------

A	Leq(A)
---	--------

$$P = L_{eq} - L_b$$

P dB(A)

Leq	A	dB(A)
-----	---	-------

L_b dB(A)

3

4.5-20

4.5-20 dB(A)

		LAeq	Lb	P	LAeq	Lb	P
	1#	57.4	65	-7.6	47.1	55	-7.9
	2#	58.6		-6.4	47.7		-7.3
	3#	57.7		-7.3	47.1		-7.9
	4#	58.9		-6.1	47.8		-7.2
	5#	52.0		-13	44.0		-11
	6#	52.7		-12.3	44.6		-10.4
	7#	57.1		-7.9	46.7		-8.3
	8#	55.4		-9.6	46.4		-8.6
9#		50.6	60	-9.4	40.1	50	-9.9
10#		49.9		-10.1	40.5		-9.5
11#		53.4		-6.6	43.2		-6.8

4.5-20

GB3096-2008 3

GB3096-2008 2

4.5.5

4.5.5.1

1

HJ964-2018

10

4.5-21 4.5-5

4.5-21

1#	100m	116.193E	36.841N	0~0.2m	GB15618-2018 +		

2# 100m 116.199E 36.850N 0~0.2m



				0.5~1.5m 1.5~3m	+		
4#		116.194E	36.843N	0~0.5m 0.5~1.5m 1.5~3m			
5#		116.189E	36.845N	0~0.5m 0.5~1.5m 1.5~3m			
6#		116.194E	36.845N	0~0.2m			
7#		116.195E	36.850N	0~0.5m 0.5~1.5m 1.5~3m	GB36600-2018 +		
8#		116.200E	36.849N	0~0.5m 0.5~1.5m 1.5~3m			
9#		116.196E	36.846N	0~0.5m 0.5~1.5m 1.5~3m			
10#		116.200E	36.845N	0~0.2m			

2

1#

GB15618-2018

1

pH

+

13

3# 7#

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-

1,1,222

1,2,3-

1,2-

1,4-

+

2-

[a]

[a]

[b]

[k]

[a h]

[1,2,3-cd]

46

2# 4# 5# 6# 8# 9# 10#

+

5

3

2022

4

4.5-24

4.5-25

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		/ -	HJ 605-2011	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
14	1,1-			1.2 µg/kg
15				1.1 µg/kg
16	1,1,1-			1.3 µg/kg
17				1.3 µg/kg
18				1.9 µg/kg
19	1,2-			1.3 µg/kg
20				1.2 µg/kg
21	1,2-			1.1 µg/kg
22	1,1-			1.0 µg/kg
23				1.3 µg/kg

24	1,1,2-			1.2 µg/kg
25				1.4 µg/kg
26				1.2 µg/kg
27				1.2 µg/kg
28	+	/ -	HJ 605-2011	1.2 µg/kg
29				1.2 µg/kg
30	1,1,1,2-			1.2 µg/kg
31	1,1,2,2-			1.2 µg/kg
32	1,2-			1.5 µg/kg
33	1,4-			1.5 µg/kg
34				1.1 µg/kg
35	1,2,3-			1.2 µg/kg
36			HJ 834-2017	0.057mg/kg
37	2-			0.06mg/kg
38				0.09mg/kg
39				0.09mg/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

4.5-23

4.5-23(1)

1# 4.5-24 2# 3# 4# 6# 7#

4.5-25 5# 4.5-26

4.5-24 1# mg/kg

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

4.5-25 1 2# 4# 5# 6# mg/kg g/kg

	2#	4#			5#			6#
		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
+								

4.5-25 2 8# 9# 10# 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		
					20	24	15	

mg/kg	0.044	0.088	0.069	0.068	0.053	0.047
mg/kg	20	27	22	23	29	26
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]						

	31	24	23	27	23	25

4.5.5.2

1

1# 9

+

2# 4# 5# 6# 8# 9# 10# 1 +

3# 7# 7

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]

2

1#

GB15618-2018 1

GB36600-2018 1 2

1.4-6 1.4-7

3

$P_i=C_i/S_i$

P_i i

C_i i mg/kg

S_i i mg/kg

4

4.5-27

4.5-27 1 1#

	0.70	0.04	0.35	0.22	0.31	0.23	0.12	0.49	0.0087

4.5-27 2 2# 4# 5# 6# 8# 9# 10#

	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

4.5-27 3 3# 7#

3#	0~0.5m	0.15	0.006	0.0008	0.02	0.001	0.02	0.007
	0.5~1.5m	0.17	0.006	0.001	0.03	0.002	0.03	0.005
	1.5~3m	0.19	0.005	0.001	0.02	0.002	0.02	0.005
7#	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

4.5-27 1#

GB15618-2018 1

GB36600-2018

5

5.1

6950

5.1.1

1

2

3

76dB(A) 110dB(A)

$$L_2 = L_1 - 20 \lg(r_2/r_1)$$

 L_2 L_1 r_1 r_2 r_1 r_2 r_1 1

5.1-1

5.1-1

dB(A)

			20m	40m	60m	80m	100m	200m	300m	500m
1		110	84	78	74	72	70	64	60	56

2		97	71	65	61	59	57	51	47	43
3		83	57	51	47	45	43	37	-	-
4		85	59	53	49	47	45	39	-	-
5		85	59	53	49	47	45	39	-	-
6		72	46	40	36	-	-	-	-	-
7		97	71	64	61	59	57	51	47	43
8		83	57	51	47	45	43	37	-	-
9		76	50	44	40	38	36	-	-	-
10		90	64	58	54	52	50	44	40	36
11		78	52	46	42	40	38	-	-	-
12		80	54	48	44	42	40	34	-	-
13		84	58	52	48	46	44	38	-	-
14		110	84	78	74	72	70	64	60	56
15		105	79	73	69	67	65	59	55	51
16		85	59	53	49	47	45	39	-	-

4.1-1

100m

70dB(A)

500m

56dB(A)

4.1-2

1~5dB(A)

15dB(A)

100m

145m

5.1-2

dB(A)

70	55

5.1.2

5.1.3

5.1.4

5.1.5

5.1.6

5.1.6.1

1

4

1 2

5

6

7

8

9

40

10

15

10

11

12

13

5.1.6.3

5.1.6.4

5.1.6.5

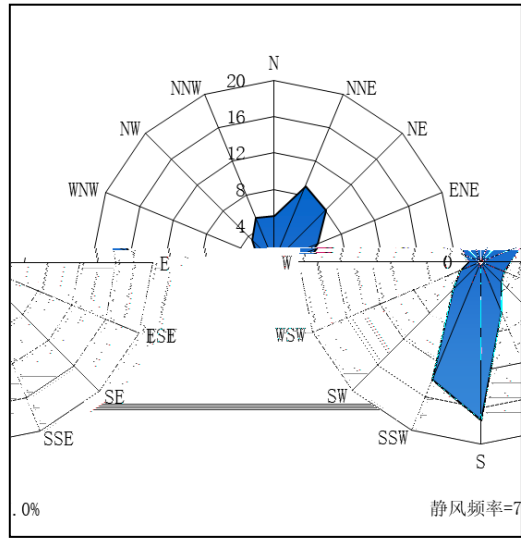
5.1.7

5.2-2

20

2001

2020



5.2-1

20

2001-2020

5.2.2

5.2-3

5.2.-4

5.2-5

5.2-2

5.2-3

/	/	
		50
/		41.5
/		-19.2
	/m	90m
	/km	/
	/°	/

5.2-4

			/m	/m	/m	/ m/s	/	/h		/ kg/h
	X	Y								
P1-1	116.196E	36.846N	57	30	0.80	16.59	30	8400		0.08kg/h VOCs 0.097kg/h
P1-2	116.196E	36.846N	57	30	0.80	16.59	30	8400		VOCs 0.039kg/h
P1-3	116.199E	36.846N	57	35	0.9	13.11	30	6600		kg/h VOCs kg/h
P1-4	116.199E	36.846N	57	36	0.9	13.11	30	6600		0.0675kg/h VOCs 0.097kg/h 0.0021kg/h
P1-5	116.199E	36.846N	57	38	0.15	13.3	90	6600		0.0675kg/h VOCs 0.097kg/h 0.0021kg/h
P1-6	116.200E	36.846N	57	30	0.15	13.3	90	6600		0.0252kg/h 0.0324kg/h 0.19kg/h
P1-7	116.200E	36.846N		35						VOCs 0.097kg/h 0.0021kg/h
P2-1	116.193E	36.843N	57	35	0.9	13.11	30	6600		kg/h VOCs kg/h
P2-2	116.193E	36.843N	57	36	0.9	13.11	30	6600		0.0675kg/h VOCs 0.097kg/h 0.0021kg/h
P2-3	116.193E	36.843N	57	38	0.15	13.3	90	6600		0.0675kg/h VOCs 0.097kg/h 0.0021kg/h

P2-4	116.193E	36.843N	57	30	0.15	13.3	90	6600		0.0252kg/h 0.0324kg/h 0.19kg/h
P2-5	116.193E	36.843N		35						VOCs 0.097kg/h 0.0021kg/h

/m

/ m/s

/

h

/

										0.108kg/h	0.01214kg/h
										0.00189kg/h	
DA031	116.196E	36.848N	57	15	0.35	25.33	20	7200		0.0402kg/h	
DA005	116.197E	36.848N	57	26	0.4	11.06	20	2400		0.0254kg/h	VOCs
										0.00679kg/h	0.000111kg/h
DA007	116.197E	36.848N	57	15	0.4	14.38	20	2400		VOCs	0.049kg/h
DA008	116.197E	36.848N	57	15	0.4	9.95	20	2400		0.0169kg/h	
DA025	116.196E	36.847N	57	30	0.5	4.95	30	8400		0.01kg/h	
									VOCs	0.0105kg/h	
DA024	116.196E	36.847N	57	30	0.6	7.86	30	8400		0.0191kg/h	
									VOCs	0.0216kg/h	
DA018	116.196E	36.847N	57	30	1.2	9.83	30	8400		0.0108kg/h	
									VOCs	0.207kg/h	
DA029	116.196E	36.848N	57	30	0.80	5.53	30	8400		0.0292kg/h	
									VOCs	0.479kg/h	
P6-1	116.199E	36.845N	57	15	0.3	9.04	20	8400		0.0014kg/h	0.00014kg/h
										7.02×10^{-7} kg/h	4.88×10^{-4} kg/h
										1.19×10^{-5} kg/h	
P6-2	116.199E	36.845N	57	25	0.3	21.23	20	8400		0.039kg/h	VOCs0.012kg/h
										5.95×10^{-5} kg/h	8.99×10^{-5} kg/h
										5.58×10^{-4} kg/h	0.002023kg/h
										0.001635kg/h	
P6-3 P6-4 P6-5	116.199E	36.845N	57	35	2.4	1.47	20	8400		0.259kg/h	VOCs0.039kg/h
										0.0009kg/h	0.001026kg/h
										0.002688kg/h	0.0186kg/h
										0.00621kg/h	
P6-6	116.199E	36.845N	57	35	0.8	4.42	20	8400		VOCs0.0122kg/h	0.0000595kg/h
										0.000113kg/h	0.00109kg/h
										0.00591kg/h	0.00224kg/h
P6-7	116.200E	36.845N	57	35	0.8	4.42	20	8400		VOCs0.00925kg/h	0.0000595kg/h
										0.0000578kg/h	0.00159kg/h
										0.00486kg/h	
P6-8	116.200E	36.845N	57	15	0.3	9.04	20	8400		0.0147kg/h	0.000038kg/h
DA012	A	DA022	B	DA017	DA026	DA023					

DA028

DA027

DA013

DA019

DA014

DA015

DA020

DA016

DA021

DA031

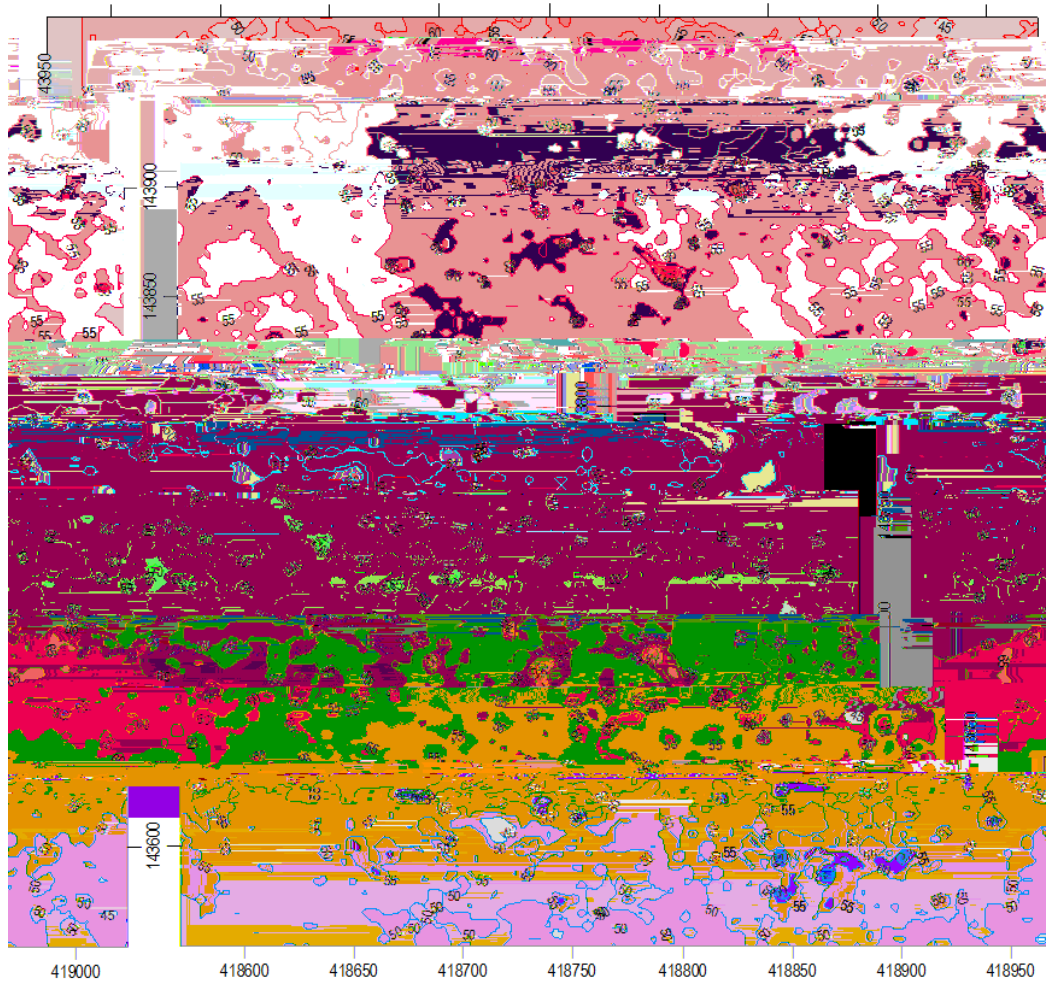
DA005

DA007

DA008

DA025

DA0



4.2-2

5.2.2.2

Pmax

1%

Pmax=9.47% 10%

HJ2.2-2018

5.2.2.3

HJ2.2-2018

5.4.2

5km

5km

1.7-1

1.7-1

5.2.3

/

5.2.4

5.2.5

4.2-7

4.2-8

4.2-9

		AERMO	ADMS	AUSTAL200	EDMS/	CALPUF			
		C				C			
			C			C			
			C			C			
	1h	h		C			C		
		C					C		
	-					k>-			
		SO ₂ NO _x							

5.3-2

5.3-1

5.3-3

5.3-1

5.3-1

1		COD _{Cr} BOD ₅			T1			DW001		
2		COD _{Cr} BOD ₅ SS	GB/T31962-2015 1A		T2			DW001		

4.3-2

				t/a						
										/ mg/L
1	DW001	116.185	36.856	0.32373					COD _{Cr}	40

2				0.64746	GB18918-2002 A COD _{Cr} NH ₃ -				BOD ₅	10
										2.0
										70
										5

4.3-3

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

5.3.2

(HJ2.3-2018)

B

5.3.3

GB/T31962-2015 1A

(GB18918-2002) A

[2017]5

COD_{Cr}NH₃-26477.5m³/aCOD_{Cr}BOD₅

29.6mg/L

18mg/L

8.06mg/L

13mg/L

0.78t/a

0.48t/a

0.214t/a

0.34t/a

26477.5m³/aCOD_{Cr}BOD₅

0.51t/a 0.26t/a

0.007t/a

0.23t/a

5.3.4

5.3.4.1

2004

8

4 m³/d

2007 9

8 m³/d4 m³/d

1

A

2009

5

8

16km

3.4-3

3.4.2.3

5.3.4.2

8 m³/d 2021.1-12
3.66 m³/d 75.65m³/d
0.17%
29.6mg/L BOD₅ 18mg/L 8.06mg/L
300mg/L
BOD₅ 150mg/L 20mg/L

5.3.5

26477.5m³/a
COD_{Cr} 0.51t/a NH₃-N
0.007t/a COD 40mg/L

5.3.6

5.3-4

5.3-4

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

2

				pH	COD _{Cr}	TP	TN

5.4

5.4.1

5.4.1.1

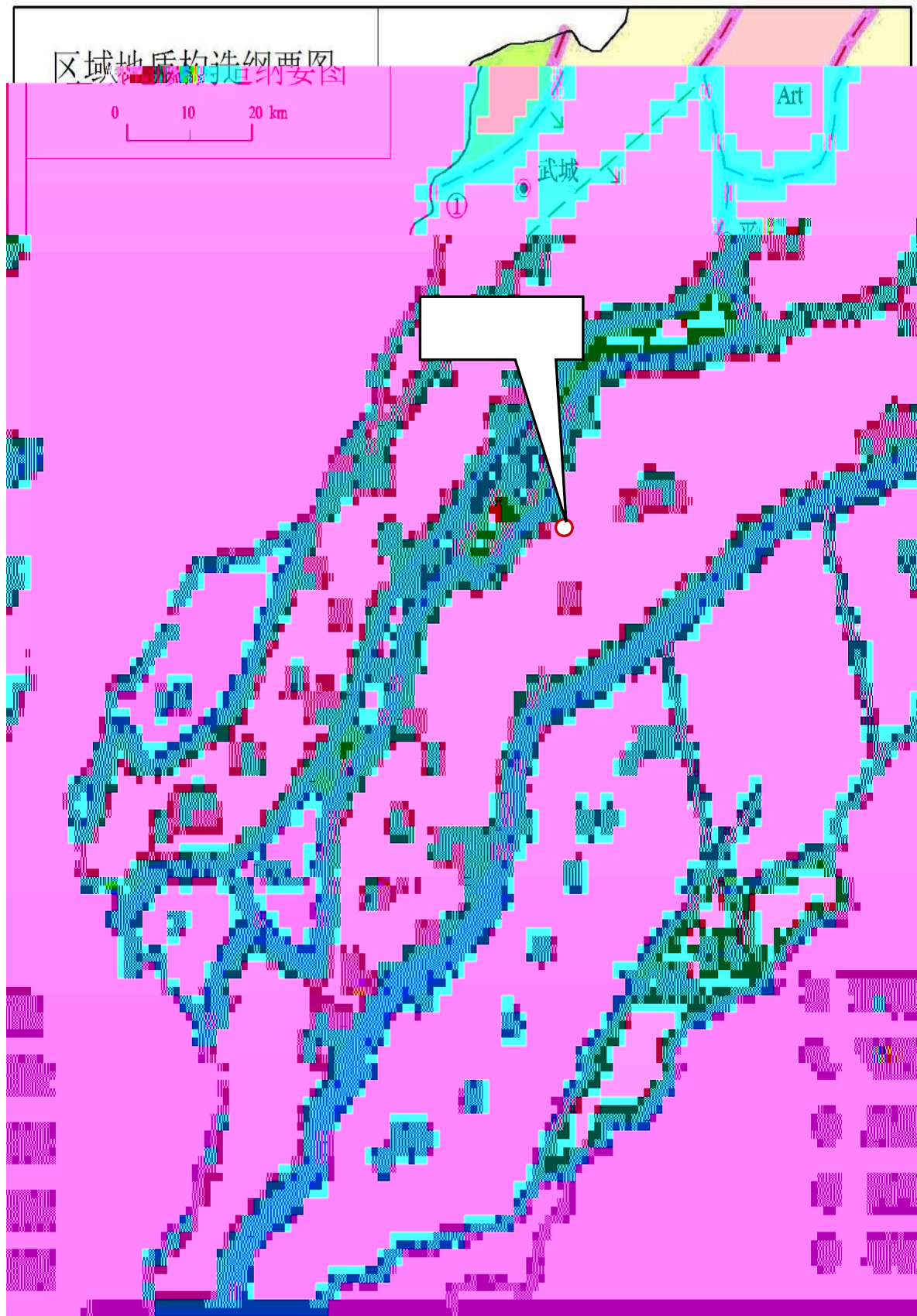
2		1	2
2		1	2
1		3	7
	1	2	3
4	5	6	7

1			
2			6
	4	5	
3			

GB50011-2001

7 0.15g

5.4-1



5.4-1

5.4.1.2

-

- -

(50m) (2g/L)

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

120-140m (2g/L)

5.4.2

90m

8

1 :

:0.80~1.50m 1.06m :-1.40~-0.70m -0.96m

0.80~1.50m 1.06m

2 :

2.60~3.50m 3.10m

-4.40~-3.70m -4.06m 3.80~4.50m 4.16m

3

2.00~3.00m 2.51m

-6.90~-6.30m -6.57m 6.40~7.00m 6.67m

4

1.00~2.30m 1.78m

-8.70~-7.90m -8.35m 8.00~8.80m 8.45m

5 -

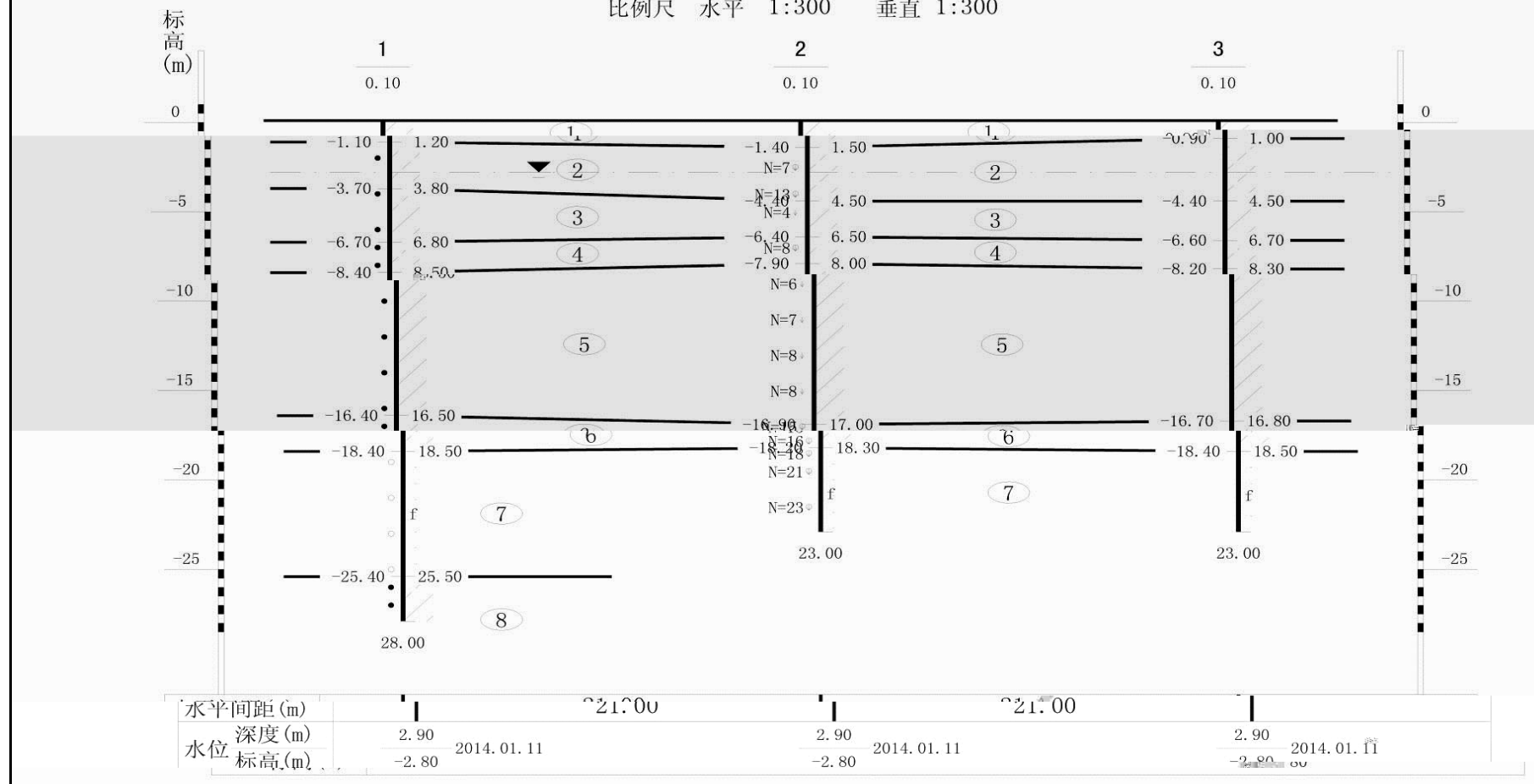
7.60~9.00m 8.32m

	-17.00~-16.20m	-16.67m	16.30~17.10m	16.77m
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				

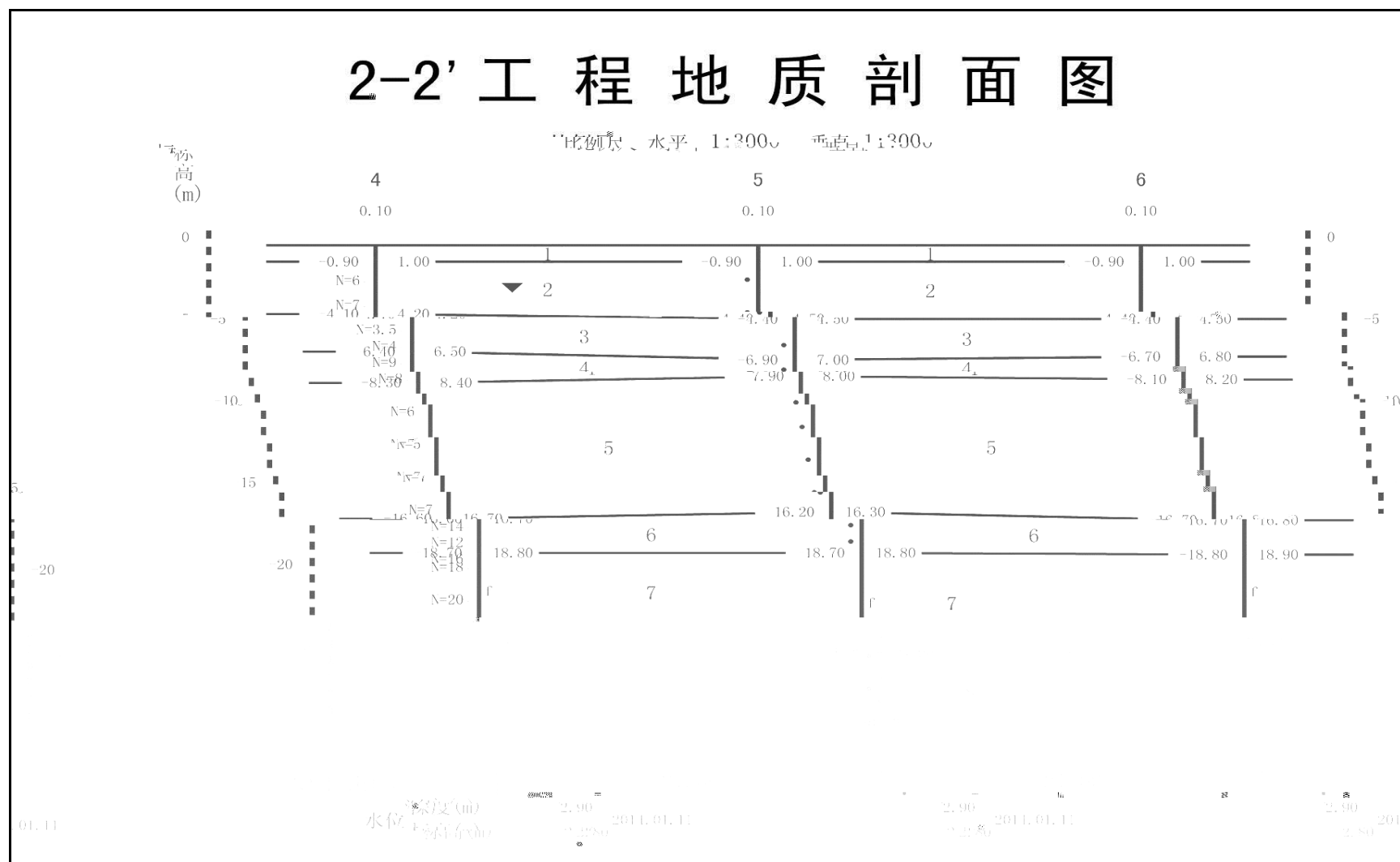
5.4-2~5.4-5

1-1' 工程地质剖面图

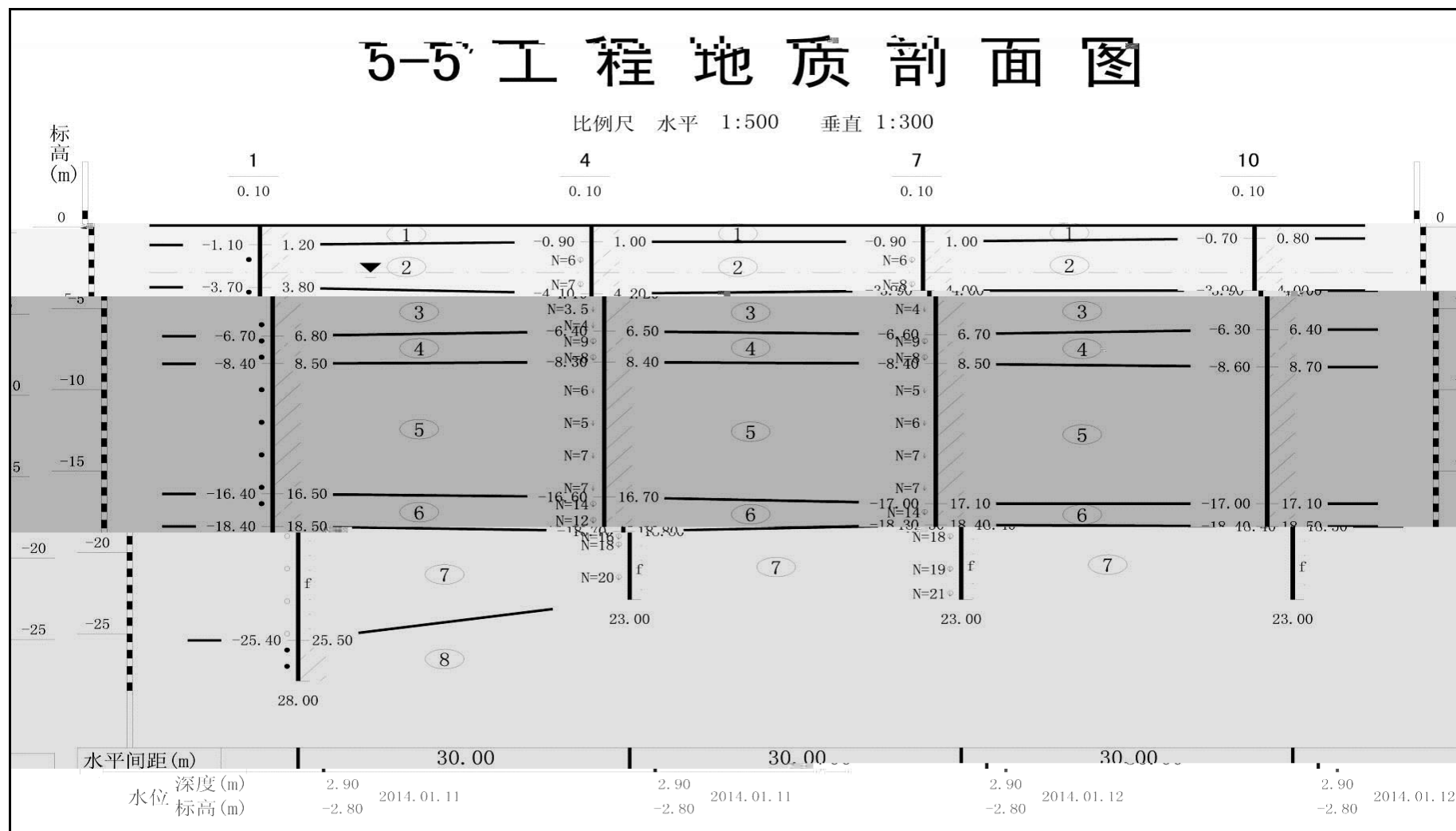
比例尺 水平 1:300 垂直 1:300



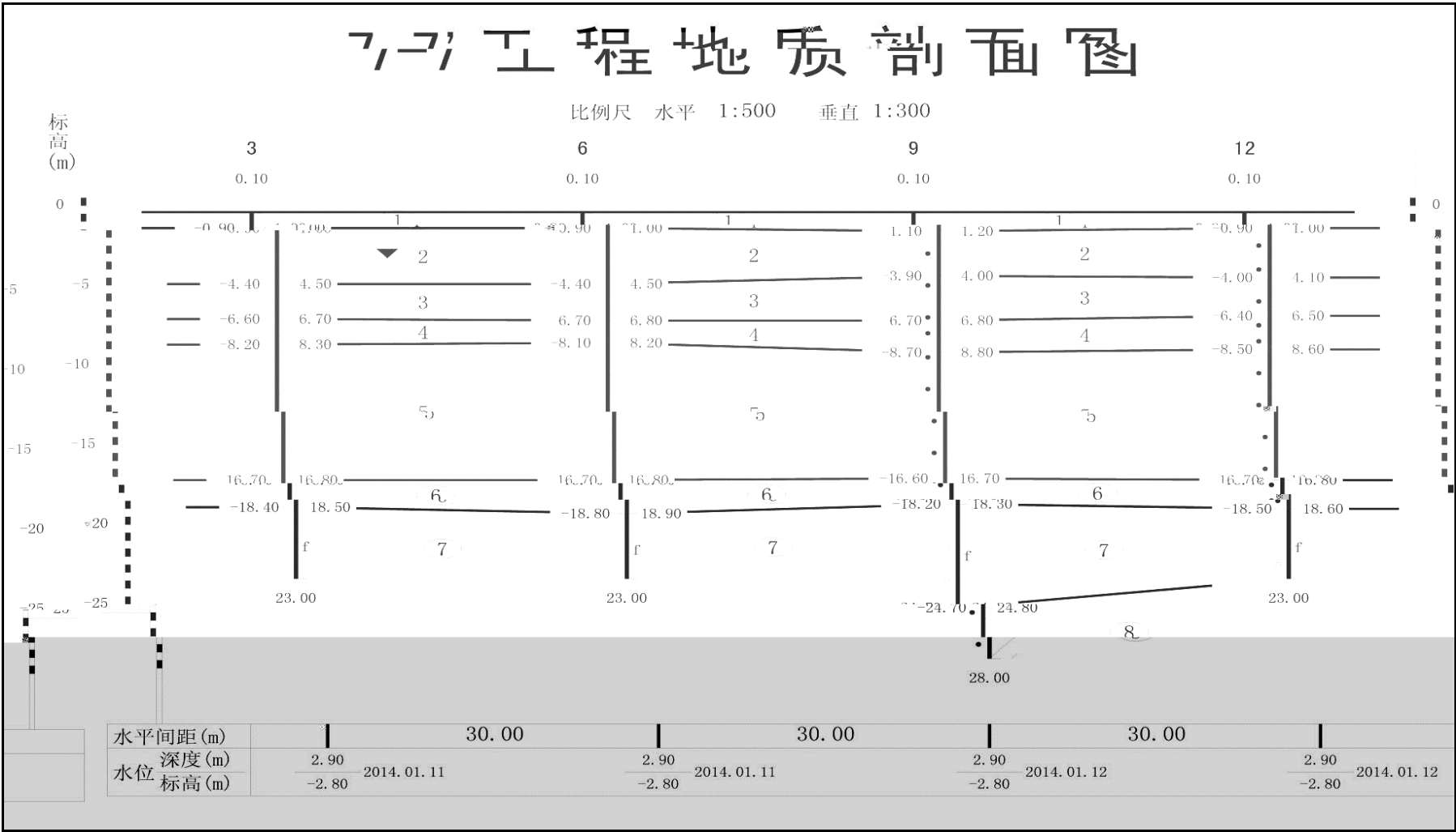
5.4-2



5.4-3



5.4-4



5.4-5

5.4.3

5.4.3.1

1

HJ610-2016

HJ610-2016

A

O

119

4.4-1

2

HJ610-2016

4.4-2

4.4.3.2

HJ610-2016

2

4.4-3

	km ²	
--	-----------------	--

1

GB/T31962-2015 1A

2

5.4.4.3

100km²

5.4-6

2.5km

5.4.4.4

1

2

3

4

6m

 $1.0 \times 10^{-7} \text{ cm/s}$

1.5m

 $1.0 \times 10^{-7} \text{ cm/s}$

5.4-4

5.4-7

5.4-4

		300 C30 600 3:7	6.0m 1.0×10 ⁻⁷ cm/s
		C10 ±0.00 100 20 C35	1.5m 1.0×10 ⁻⁷ cm/s
		3:7 300	--

C30

P8

250mm

150mm

1.0mm

2mm

100m

2

1m

⁻⁷cm/s

2mm

2mm

⁻¹⁰cm/s

1.5m

1×10⁻⁷cm/s

C25

P6

100mm

P6

1.0mm

0.3%

HDPE

4.4.4.5

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

1

2.2-1

5.4-6

5.4-6

1				pH	

5.4-7

	2019.12.28	
pH	7.42	6-9
mg/L	0.22	1.5
mg/L		0.002
mg/L		0.02
mg/L	1.1	20
mg/L		1.00
mg/L		0.05
mg/L	1.6	3.0
(MPN/100ml)	2	3.0
(CFU/ml)	94	100
mg/L		1.0
mg/L		0.001
mg/L		0.01
mg/L		0.05
mg/L		0.01
mg/L	0.68	1.0
mg/L		0.005
mg/L		0.3
mg/L		0.10
mg/L		1.00
mg/L		0.3
	2020.12.30	
		0.02
mg/L	435	450
mg/L	909	1000
Na ⁺ mg/L	155	200
K ⁺ mg/L		
Ca ⁺ mg/L		
Mg ⁺ mg/L		
mg/L	225	250
mg/L	1160	250
CO ₃ ²⁻ mg/L		
HCO ₃ ⁻ mg/L	351	

GB/T14848-2017

5.4.4.7

5

5.4.5

5.5

80~90dB(A)

5.5-1

dB(A)

					dB(A) 1m	dB(A)
		1			80	55
		1			95	70
		31			95	70
		1			80	55
		1			80	55
		1			85	65
		2			85	60
		1			85	60
		26			85	60
		36			85	60
		6			85	60
		25			90	65
		10			85	60
		50			90	65
		20			85	60
		36			85	60
		20			85	60

5.5-2

		m			
		1#	2#	3#	4#
		370	30	100	390
		310	40	100	325
		335	35	130	370
		365	40	105	380
		365	35	105	385
		360	50	110	370
		310	30	100	330
		330	45	135	365

		125	20	160	305
		30	70	350	300
		30	70	350	300
		40	30	110	330
		50	40	110	320
		35	30	230	270
		75	10	230	230
		10	10	195	200
		20	20	235	275

5.5.2

4

5.5.2.1

HJ2.4-2009

A

$$L_A(r) = L_{Aref}(r_0) + (A_{div} + A_{atm} + A_{bar} + A_{gr} + A_{misc})$$

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

$$L_{Aref}(r_0) \quad r_0 \quad A \quad \text{dB(A)}$$

$$A_{div}$$

1 [#]			36.66	65	-28.34	36.66	55	-10.99
2 [#]			44.01		-20.99	44.01		-21.03
3 [#]			33.97		-31.03	33.97		-30.44
4 [#]			24.56		-40.44	24.56		-13.16
5 [#]			41.84	65	-23.16	41.84	55	-10.85
6 [#]			44.15		-20.85	44.15		-34.16
7 [#]			20.84		-44.16	20.84		-34.98
8 [#]			20.02		-44.98	20.02		-31.52
9 [#]			23.48	60	-36.52	23.48	50	-26.52
10 [#]			25.67		-34.33	25.67		-24.33
11 [#]			22.34		-37.66	22.34		-27.66

4.5-4

dB A

1 [#]			57.4	36.7	36.66	57.47	65	-7.53	47.1	36.7	36.66	47.82	55	-7.18
2 [#]			58.6	42.0	44.01	58.84		-6.16	47.7	42.0	44.01	50.00		-5
3 [#]			57.7	19.5	33.97	57.72		-7.28	47.1	19.5	33.97	47.31		-7.69
4 [#]			58.9	19.1	24.56	58.90		-6.1	47.8	19.1	24.56	47.83		-7.17
5 [#]			52.0		41.84	52.40	65	-12.6	44.0		41.84	46.06	55	-8.94
6 [#]			52.7		44.15	53.27		-11.73	44.6		44.15	47.39		-7.61
7 [#]			57.1		20.84	57.10		-7.9	46.7					

5.5-4

GB12348-2008 3

GB3096-2008

2

5.5.3

(1)

VOCs

HJ964-2018 B

5.6-1

5.6-1

5.6-1

2

49444m²

HJ964-2018 6.2.2.1

2

3

() HJ964-2018

4.6-2

4.6-2

40m

1000m

4

HJ964-2018

4.6-3

4.6-3

									-
								-	-

4.6.1.2

1

HJ964-2018

8.2

1.0km

2

50

3

4

5

Is-Ls-Rs / pb×A×D

g/kg

Is

g

g/a

g/a

g/a

g/a

g/a

g/a

g/a

g/a

Ls g 0

Rs g 0

pb kg/m³ 1377kg/m³A m² 2175400m²2128000 m²

D 0.2m

n a

E

Sb g/kg

S g/kg

6

n

5.6-4

5.6-4 1

	g/kg	S g/kg	g/kg	S g/kg
10	0.0002592	0.0010592	0.000105	0.012105
20	0.0005185	0.0013185	0.000211	0.012211
30	0.0007777	0.0015777	0.000316	0.012316
40	0.0010370	0.001837	0.000421	0.012421
50	0.0012962	0.0020962	0.000527	0.012527
g/kg	4mg/kg		1200mg/kg	
10	0.0002592	0.0010592	0.000105	0.012105
20	0.0005185	0.0013185	0.000211	0.012211
30	0.0007777	0.0015777	0.000316	0.012316
40	0.0010370	0.001837	0.000421	0.012421

50	0.0012962	0.0020962	0.000527	0.012527
g/kg	4mg/kg		1200mg/kg	

1

5.6-4 2

2

5.6.1.4

5.6-5

5.6-5

			GB15618-2018 1	

5.6.1.5

5.6-6

5.6-6

			W	40m	
		VOCs	SO ₂	NO _x	TSP
				+	
				+	
		a	b	c	d
					4.5-23
			8	2	0~0.2m
			6	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]
			1,1- -1,2- 1,1,2,2- 1,4- [b]	1,2- -1,2- 1,2,3- 2- [k]	1,1- 1,2- 1,1,1- + [a] [1,2,3-cd]
		GB 15618			
		1000m			
		a b c a b			
		2			

5.6.2

5.6-7

5.6-7

			t/a									
S ₁			773	--						282-999-99		
S ₃			1110	--						282-999-99		
S ₄			157	314						282-999-99		
S ₅			472.6	945.2						282-999-99		
S ₂			0.1	--						HW08 (900-249-08)	T I	
			4	3.5				6		282-999-99		
			0.1	0.2				4		282-999-99		
			5.3	4.2								

		--	2	3.5						HW49 (900-041-49)	T/In	
			1t/4a	2t/4a				4		HW08 (900-249-08)	T I	
			2535.1 3.1	1272.6 5.5								

5.6.3

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
5.6.5			

5.7

5 130t/h 5 2 24MW
SO₂ NO_x

5.7.1.2

5.7-1

5.7-1

1		1 750m ³
		2
2		1
		2
3		1
		2
		3
		4
		5

4.7.1.3

2020 12 30

371526-2021-004-L

5.7.2

5.7.2.1

HJ 169-2018 B

2015

-

VOCs

16cm

1.5km

30m³

24kg

5.7-2

5.7-2

			t/a	t/a		
			31000	885		
			0.0013	2 10 ⁻⁷	400kg/	
		-	1/4a	1		
			70	2		
		37%	105	2.54 0.94	3.9m ³ 1	
		20-25%	75	2.84	3.9m ³ 1	
			1.1	0.03		
			656.04 m ³	0.024		
			140	4		
			210	2.54 0.94		
		20-25%	150	2.84	3.9m ³ 1	
			2.2	0.06	3.9m ³ 1	
			1312.08 m ³	0.024		

4.7.2.2

4.7.2.3

MSDS

4.7-3~ 4.7-9

4.7-3

MSDS

			Caprolactam
	C ₆ H		

[illegible]

MSDS

4.7-6 MSDS

4.7-7

MSDS

--	--

4.7-8 MSDS

			Ammonium hydroxide Ammonia water
	NH ₄ OH	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%

--	--

4.7-9

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						

MSDS

MSDS

[illegible]

4.7-12 MSDS

					benzene		
	C ₆ H ₆		78.11				
	5.5		80.1				
	LD50 3306 mg/kg() 48 mg/kg() LC50 31900mg/m3 7 ()						
	()						

4.7-13 MSDS

MSDS

[illegible]

4.7-14

MSDS

			106.17				
	13.3		138.4				

4.7-10

2

M

(HJ 169-2018)C.1

M

M

20

10

M

20

5

M=5

M1

M2

M3

M4

M

4.7-11

M=5

M4

3

P

Q

M

4.7-4

P

P1

P2

P3

P4

4.7-12

P

Q	M			
	M1	M2	M3	M4
	P1	P1	P2	P3
100	P1	P2	P3	P4
10	P2	P3	P4	P4

10 M4

4.7-12

P4

2

E

1

E1

E2

E3

4.7-13

4.7-13

E1	5km 5	500m 200m	1000 200	
E2	5km 1	5 500m 200m	500 1000 100	
	200			

E3	5km 1 200m	500m	500 100
----	------------------	------	------------

	500m	1000
E1		
2		
	E1	E2
E3	4.7-14	
	4.7-15	4.7-16
	4.7-14	

	F1	F2	F3
S1	E1	E1	E2
S2	E1	E2	E3
S3	E1	E2	E3

F1	24h
F2	24h
F3	

IV
F3
4.7-16

10km

S1

G2	a
G3	
a	

G3

4.7-19

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

3.1

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

D2

D2

G3

4.7-9

E3

3

4.7-20

4.7-20

				(m)		
	5km			1.6-1		
	500m					1709
	5km					130041
	E					E1

4.5

4.7-22

	+				
--	---	--	--	--	--

4.7-25

4.7-25

1						
2						
3						

4.7.5

4.7.5.1

		$1.00 \times 10^{-8}/a$
	10%	$5.00 \times 10^{-6}/m\ a$ $1.00 \times 10^{-6}/m\ a$
75mm	10%	$2.00 \times 10^{-6}/m\ a$ $3.00 \times 10^{-7}/m\ a$
150mm	10% 50mm	$2.40 \times 10^{-6}/m\ a$ $1.00 \times 10^{-7}/m\ a$
	10% 50mm	$5.00 \times 10^{-4}/a$ $1.00 \times 10^{-4}/a$
	10% 50mm	$3.00 \times 10^{-7}/h$ $3.00 \times 10^{-8}/h$
	10% 50mm	$4.00 \times 10^{-5}/h$ $4.00 \times 10^{-6}/h$

4.7-24

10%

 $4.0 \times 10^{-5}/h$

4.7.6

4.7.6.1

1

10%

50mm

 $50m^3$ $45m^3$

5.0m

3.5m

0.10m

 Q_L

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

 Q_L

kg/s

P

Pa

 P_0

Pa

 kg/m^3

g 9.81m/s²

h m

C_d 0.65A m²

30min 4.7-27

4.7-27

	P Pa	P ₀ Pa	kg/m ³	h m	A m ²	Q _L kg/s
	101325	101325	1155	4.3	0.0000785	0.541

2

HJ/T169-2018

HJ/T169-2018 F.1.4.3

$$Q = \frac{M}{\rho} \cdot \frac{(2-n)}{(2+n)} \cdot \frac{(4+n)}{(2+n)}$$

Q₃ kg/s

P Pa

R 8.314J/ mol K

T₀ 298K

M 0.0365kg/mol

u m/s

r m

n 4.7-28

4.7-28

	n	
A B	0.2	3.846×10 ⁻³
D	0.25	4.685×10 ⁻³
E F	0.3	5.285×10 ⁻³

HJ/T169-2018

4.5										
			F		1.5m/s	25				
50%										
4.7-29										
4.7-29										
	n		P Pa	u m/s	m ²	r m	min	Q ₃ kg/s		
F	0.3	5.285×10 ⁻³	2012.5	1.5	81	5.07	30	0.0045		
4.7.6.2										
1										
HJ16-2018										
1										
HJ/T169-2018										
			F		1.5m/s	25				
50%										
2										
HJ/T169-2018	H CAS		7647-01-0	1	150mg/m ³					
2	33mg/m ³									
3										
30min										
4										
HJ/T169-2018						G				
AFTOX										
5										

5-86

4.7-30

4.7-2

4.7-3

4.7-4

4.7-3

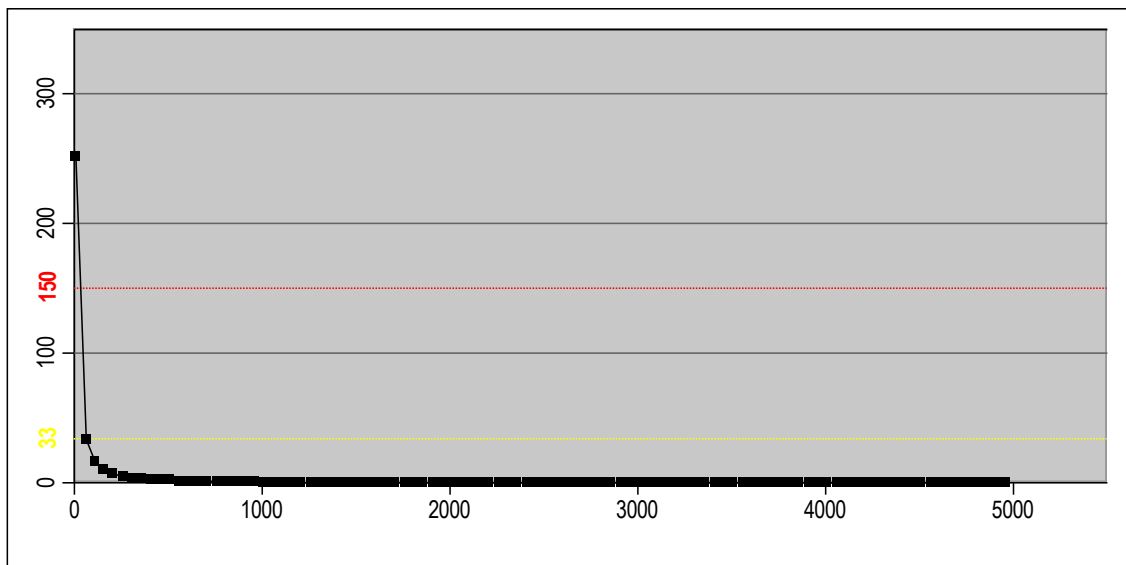
4.7-30

(m)

min

35	1710	19.0	0.251
36	1760	19.6	0.241
37	1810	20.1	0.233
38	1860	20.7	0.225
39	1910	21.2	0.217
40	1960	21.8	0.210
41	2010	22.3	0.203
42	2060	22.9	0.197
43	2110	23.4	0.191
44	2160	24.0	0.185
45	2210	24.6	0.180
46	2260	25.1	0.174
47	2310	25.7	0.170
48	2360	26.2	0.165
49	2410	26.8	0.160
50	2460	27.3	0.156
51	2510	27.9	0.152
52	2560	28.4	0.148
53	2610	29.0	0.145
54	2660	29.6	0.141
55	2710	38.1	0.138
56	2760	38.7	0.135
57	2810	40.2	0.131
58	2860	40.8	0.128
59	2910	41.3	0.126
60	2960	41.9	0.123
61	3010	42.4	0.120
62	3060	43.0	0.118
63	3110	43.6	0.115
64	3160	44.1	0.113
65	3210	45.7	0.111
66	3260	46.2	0.108
67	3310	46.8	0.106
68	3360	47.3	0.104
69	3410	47.9	0.102
70	3460	48.4	0.100
71	3510	49.0	0.098
72	3560	49.6	0.097
73	3610	51.1	0.095
74	3660	51.7	0.093
78	3710	52.2	0.092
76	3760	52.8	0.090

77	3810	53.3	0.088
78	3860	53.9	0.087
79	3910	54.4	0.086
80	3960	55.0	0.084
81	4010	56.6	0.083
82	4060	57.1	0.081
83	4110	57.7	0.080
84	4160	58.2	0.079
85	4210	58.8	0.078
86	4260	59.3	0.076
87	4310	59.9	0.075
88	4360	60.4	0.074
89	4410	61.0	0.073
90	4460	62.6	0.072
91	4510	63.1	0.071
92	4560	63.7	0.070
93	4610	64.2	0.069
94	4660	64.8	0.068
95	4710	65.3	0.067
96	4760	65.9	0.066
97	4810	66.4	0.065
98	4860	68.0	0.064
99	4910	68.6	0.064
100	4960	69.1	0.063



4.7-2

33mg/m³

60m

150mg/m³

10m

1min

33mg/m³

60m

150m

2

pH

pH

6.5

pH

6

90%

pH

4

1 1000m³

250m

3

4.7.7

4.7.7.1

1

1

2

2

1

2

3

4

5

4.7.7.2

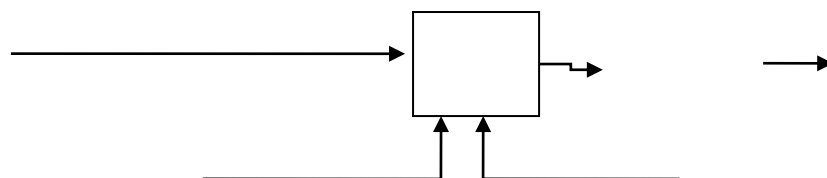
1

$$\begin{aligned}
 V &= V_1 + V_2 - V_3 - V_4 + V_5 \\
 V_1 &= 50 \text{ m}^3 \\
 V_2 &= 288 \text{ m}^3 \\
 V_3 &= 121 \text{ m}^3 \\
 V_4 &= 0 \text{ m}^3 \\
 V_5 &= 118.04 \text{ m}^3 \\
 V &= 50 + 288 - 121 + 118.04 = 335.04 \text{ m}^3
 \end{aligned}$$

$Q = 10 \text{ q F}$
 $Q = 1.856 \text{ hm}^2$
 $q = 508.8 \text{ mm}$
 $q = q_a / n$
 $q_a = 80 \text{ d}$

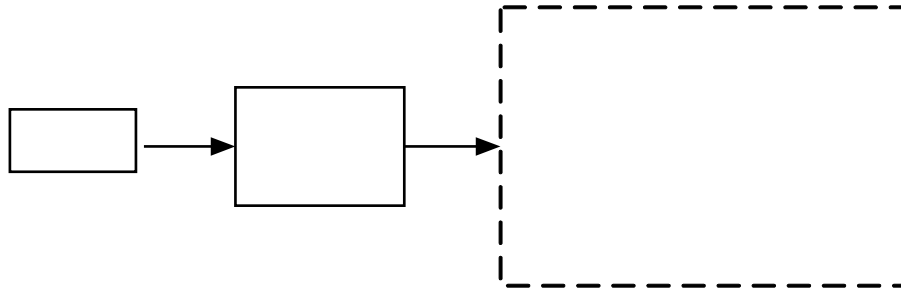
$V_5 = 118.04 \text{ m}^3$
 $V = 335.04 \text{ m}^3$
 1000 m^3

4.7-5



4.7-5

4.7-6



4.7-6

4.7.7.3

1

2

()

3

4

4.7.7.4

1

2

3

4

5

6

7

8

4.7.7.5

1

2

3

4.7.7.6

1

2

3

4

5

4.7-32

4.7-32

1		4.7-7
2		
3		/
4		
5		
6		
7		

4.7.7.7

(1)

(2)

200m 500m 1000m 1500m 2000m

TSP

15min

4.7.8

4.7.8.1

2015 9 29

371526-2015-008-L

4.7.8.2

1

2

1

4.7-31

4.7-31

	200m 500m 1000m 1500m 2000m	SO ₂ NO ₂ PM ₁₀ TSP VOCs NH ₃
	2	

COD SS

4.7-32

	pH BOD ₅ COD SS

()

(2)

24

(3)

(4)

3

(5)

4.7.9

SO₂ NO₂

4.7-33

4.7-33

		1 Q 10					
			500m <u>1709</u>			5km <u>130041</u> -	
			200m				
						F2	F3
							G3
					D1	D2	
		Q	Q			Q	
		M					
		P					
			E1		E2		
					E2		E3
					E2		E3
		+					
					/		
					AFTOX		
			-1 <u>10</u> m				
			-2 <u>60</u> m				

		_____ h
		_____ d
		_____ d

6

6.1

6.1.1

59985.77t/a COD_{Cr}

9.7t/a 0.56t/a

6.1.2

6.1.2.1

1000m³/d + + +

2.10-7

51921.77m³/a 148m³/d

300m³/d

1000m³/d

700m³/d

148m³/d

GB/T31962-2015 1A

A

2.3t/a

0.23t/a

6.1.3

10

100000

0.01%

6.2

6.2.1

G1

38m

P1

G2

16m

P2

G3

 $+$

G4

+

G6

1

44m

G5

G5

26m

P4

G7

26m

P5

G9

17m

P6

30m

P7

G10

4.5

25m

P8 P9

G11 G12

1

15m

GB16297-1996	2		
DB37/2376-2013	2		GB14554-93 2
			6
DB37/801.6-2018	1	2	
GB31572-2015	5		

6.2.3

0.3% 300 100000

6.3

6.3.1

80 95dB A

A

B

C

6.3.2

GB12348-2008	3		
		GB12348-2008	4
		GB3096-2008	3
20		100000	0.02%

6.4

6.4.1

515.573t/a	146.15t/a	661.723t/a
------------	-----------	------------

6.4.2

6.4.2.1

2

6.4.2.2

2016

HW08

900-249-08

HW13

900-015-13

HW49

900-041-49

6.4-1

6.4-1

			t/a			
S1			0.27	--		
S2			6	--		
S3			31	--		
S4			15	--		
S5			69.943	--		
S6			142	--		
S8			206	--		
S7			0.16	--		
S9			--	60		
S10			--	65		
S11			7	3		
S13			32	10		
S12	FDY	--	2	8		

S14			5t/4a	--		
S15			10t/4a	--		
S16			0.45	0.15		

6.4.3

6.5

6.5-1

6.5-1

		38m P1	GB16297-1996 2 DB37/2376-2013 2	
		16m P2	6 DB37/801.6-2018 1	
		+	1 GB16297-1996 2	
		+	44m DB37/2376-2013 2	

P3

1
15m
P10

		35m P15	2 GB14554-93 VOCs 6 DB37/801.6-2018 1	
		35m P16	6 DB37/801.6-2018 2 GB16297-1996 2	
		15m P17	2 GB14554-93 6 DB37/801.6-2018 2 GB16297-1996 2	
			GB16297-1996 2 GB14554-93 1 VOCs 6 DB37/801.6-2018 3	
			GB/T31962-2015 1A	GB/T31962-2015 1A

			GB12348-2008 3 4	1m L _{Aeq} (A) 65dB(A) 70dB(A) 55dB(A)

6.6

			2	30		
			2	40		
			16	15		
3				20		
4				2		
5				5		
				337		

7.2.2

7.3 社会效益分析

240

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

								t/a		
					1.59mg/m ³	GB16297-1996 2 DB37/2376-2013 2	0.0041t/a	--	26m	
					6.4mg/m ³ 0.89mg/m ³ 16.8mg/m ³	GB16297-1996 2 DB37/2376-2013 2	0.0588t/a 0.0084t/a 0.1571t/a	--	17m	
					5.7mg/m ³ 0.86mg/m ³ 10.6mg/m ³	DB37/2376-2013 2 DB37/801.6-2018 1	0.0479t/a 0.0076t/a 0.0865t/a	--	30m	
			+	2	4.78mg/m ³ 1.39mg/m ³	GB16297-1996 2	0.0496t/a 0.0143t/a	--	25m	
			+	2 2	5.37mg/m ³ 1.68mg/m ³	DB37/2376-2013 2	0.0529t/a 0.0168t/a	--	25m	

					0.043mg/m ³ 0.112mg/m ³ 0.068mg/m ³ 0.024mg/m ³ 0.038mg/m ³	2	0.0029t/a 0.0075t/a 0.0046t/a 0.0016t/a 0.0028t/a			
		VOCs			0.259mg/m ³ 9.75mg/m ³ 1.625mg/m ³ 0.043mg/m ³ 0.112mg/m ³ 0.068mg/m ³ 0.024mg/m ³ 0.038mg/m ³		0.0174t/a 0.6552t/a 0.1092t/a 0.0029t/a 0.0075t/a 0.0046t/a 0.0016t/a 0.0028t/a	0.1092	35m	
		VOCs			0.259mg/m ³ 9.75mg/m ³ 1.625mg/m ³ 0.043mg/m ³ 0.112mg/m ³ 0.068mg/m ³ 0.024mg/m ³ 0.038mg/m ³		0.0174t/a 0.6552t/a 0.1092t/a 0.0029t/a 0.0075t/a 0.0046t/a 0.0016t/a 0.0028t/a	0.1092	35m	
		VOCs			0.28mg/m ³ 1.525mg/m ³ 0.014mg/m ³ 0.136mg/m ³ 0.57mg/m ³	GB14554-93 2 GB16297-1996 2	0.0188t/a 0.1025t/a 0.0009t/a 0.0092t/a 0.0383t/a	0.1025	35m	

					0.168mg/m ³ 0.007mg/m ³	6 DB37/801.6-2018 1 2	0.0113t/a 0.0005t/a			
		VOCs			0.266mg/m ³ 1.156mg/m ³ 0.007mg/m ³ 0.199mg/m ³ 0.446mg/m ³ 0.161mg/m ³ 0.007mg/m ³	GB14554-93 2 GB16297-1996 2 6 DB37/801.6-2018 1 2	0.0179t/a 0.0777t/a 0.0005t/a 0.0134/a 0.0300t/a 0.0105t/a 0.0005t/a	0.0777	35m	
			+	15m	6.39mg/m ³ 0.017mg/m ³	GB14554-93 2 GB16297-1996 2 6 DB37/801.6-2018 1	0.0103t/a 0.000027t/a	--	15m	
		pH COD _{Cr} NH ₃ -N								
		pH COD _{Cr} NH ₃ -N			COD _{Cr} 50mg/L 5mg/L	GB/T31962-2015 1A	COD _{Cr} 2.3t/a 0.23t/a	--		

		pH COD _{Cr} NH ₃ -N SS								
--	--	---	--	--	--	--	--	--	--	--

				--		0	--		
				--		0	--		
				--		0	--		

Leq

8.3

8.3.1

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8.3-1

8.3-1

		GB36600-2018		
		1 45		

8.3.2

8.3-2

8.3-2

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1

3

8.4.2

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96 470

2

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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

COD

8.5.2

COD_{Cr}

COD_{Cr}

VOCs

9

9.1

9.1.1

9

2011

201

2013 21

9.1.2

9.1-1

9.1-1 “ ”

	700m SD-15-B1-03 9.1-1
	1 TSP PM₁₀ PM_{2.5} GB 3095-2012 HJ2.2-2018 D.1 2 3838-2002 GB 3 GB/T14848-2017

	4	(GB12348-2008)3	
		(GB12348-2008)4	GB3096-2008 3
			2011 2013

9.1.3

9.1-3

--	--	--

2008 0800213

9.2.3

100m

100m

50m

9.2.4

9.2.5

9.2.6

1

2

3

2

4

9.3

10

10.1

10.1.1

4.5

1

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1

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3

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6

4.5 t

10.1.2

2011

2013

[illegible]

GB12348-2008		3		
GB12348-2008		4		
10.1.5				
10.1.5.1				
1				
1				
		26m	0.15m	P5
		GB16297-1996		
2				
DB37/2376-2013		2		
		17m	0.2m	P6
		30m	0.2m	P7
		GB16297-1996		
2				
DB37/2376-2013		2		
		GB16297-1996		2
		6	DB37/801.6-2018	
1				
		19		
		25m		
0.2m		P8	P9	
GB16297-1996		2		
		DB37/2376-2013		2
GB16297-1996		2		

2

1

1 15m

0.3m

P10

GB16297-1996

2

DB37/2376-2013

2

GB31572-2015

5

GB16297-1996

2

6

DB37/801.6-2018

1

GB14554-93

2

25m

0.3m

P11

GB14554-93

2

GB16297-1996

2

DB37/2376-2013

2

VOCs

6

DB37/801.6-2018

1

6

DB37/801.6-2018

2

GB16297-1996

2

35m

0.8m

P12 P13 P14

GB14554-93

2

GB16297-1996

2

		DB37/2376-2013		2	
VOCs					
		6	DB37/801.6-2018		1
6	DB37/801.6-2018		2		
		GB16297-1996		2	
		35m			
0.8m	P15				
GB14554-93	2	VOCs			
		6			
DB37/801.6-2018	1				
		6	DB37/801.6-2018		2
GB16297-1996	2				
		35m			
0.8m	P16				
GB14554-93	2	VOCs			
		6			
DB37/801.6-2018	1				
		6	DB37/801.6-2018		
2					
GB16297-1996	2				
15m	0.3	P17			
		GB14554-93	2		
		6			
DB37/801.6-2018	2				

GB16297-1996 2

2

G8

G18

GB14554-93 1

GB16297-1996 2

VOCs

6 DB37/801.6-2018 3

10.1.5.2

10.1.5.3

515.573t/a

146.15t/a

661.723t/a

2

2016

900-249-08

900-015-13

900-041-49

10.1.5.4**10.1.6****10.1.6.1**PM₁₀ SO₂ NO₂ CO

GB3095-2012

PM_{2.5} O₃

GB3095-2012

SO₂ NO₂

GB3095-2012

NH₃

VOCs

HJ2.2-2018

D.1

CH245-71

TSP PM₁₀ PM_{2.5}**10.1.6.2**

1#

SO₄²⁻

2#

GB

3838-2002

IV

GB3838-2002

GB18918-2002 A
GB3838-2002

10.1.6.3

3
1# 3# 1# 2# 2#
GB/T14848-2017

10.1.6.4

GB12348-2008 3
GB12348-2008 4
GB3096-2008 3

10.1.7

10.1.7.1

10.1.7.2

10.1.7.3**10.1.7.4**

GB12348-2008 3

GB12348-2008 4

GB3096-2008 3

10.1.7.5**10.1.8****10.1.9**COD_{Cr}COD_{Cr}

VOCs

10.1.10

10.1.11**10.1.12****10.1.13**

4.5

10.2**10.2.1**

10.2-1

10.2-1

		P5 26m	GB16297-1996 2 DB37/2376-2013 2
		P6 17m	GB16297-1996 2 DB37/2376-2013 2
		P7 30m	GB16297-1996 2

		P15 35m	GB14554-93 2 VOCs
		P16 35m	6 DB37/801.6-2018 1 6 DB37/801.6-2018 2 GB16297-1996 2
		15m P17	GB14554-93 2 6 DB37/801.6-2018 2 GB16297-1996 2
			GB16297-1996 2 GB14554-93 1 VOCs 6 DB37/801.6-2018 3
			GB/T31962-2015 1A
			GB12348-2008 3 4

10.2.2

1

2

3

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5

1

6