

		1
1		11
1.1		11
1.2		14
1.3		15
1.4		17
1.5		23
1.6		33
2		36
2.1		36
2.2		44
2.3		52
2.4		57
2.5		57
2.6		58
2.7		58
3		61
3.1		60
3.2		62
3.3		64
3.4		65
3.5		65
3.6		66
3.7		68
3.8		75
3.9		80
3.10		85
4		87
4.1		86
4.2		90
4.3		97
4.4		120

5	.....	123
5.1	.....	122
5.2	.....	147
5.3	.....	147
5.4	.....	173
5.5	.....	176
5.6	.....	177
5.7	.....	186
5.8	.....	186
6	.....	188
6.1	.....	188
6.2	.....	195
6.3	.....	201
6.4	.....	209
6.5	.....	215
6.6	.....	227
6.7	.....	240
7	.....	244
7.1	.....	243
7.2	.....	248
7.3	.....	249
7.4	.....	255
7.5	.....	256
7.6	.....	258
7.7	.....	259
8	.....	262
8.1	.....	261
8.2	.....	261
8.3	.....	261
8.4	.....	262
9	.....	264
9.1	.....	263
9.2	.....	263

9.3	.....	266
9.4	.....	267
9.5 “ ”	.....	269
10	.....	271
10.1	.....	270
10.2	.....	270
10.3	.....	270
10.4	.....	271
10.5	.....	271
10.6	.....	273
10.7	.....	274
10.8	.....	274
10.9	.....	274

2018

2018 3

2019 4

[2019]4

3 [2019]4

2019 4 12 2021 4 21

91152992MA0Q1TBX5Y001P 2021 6 9

152921-2021-01-L

10000 20000 2022 7 10

2021 “

6000t/a ”

6000t 2022 7 5

[2022]21 2022 9

3000t/a

2024 9 2

2022 “

” “STRO

” 2023 2 20

[2023]4 2023

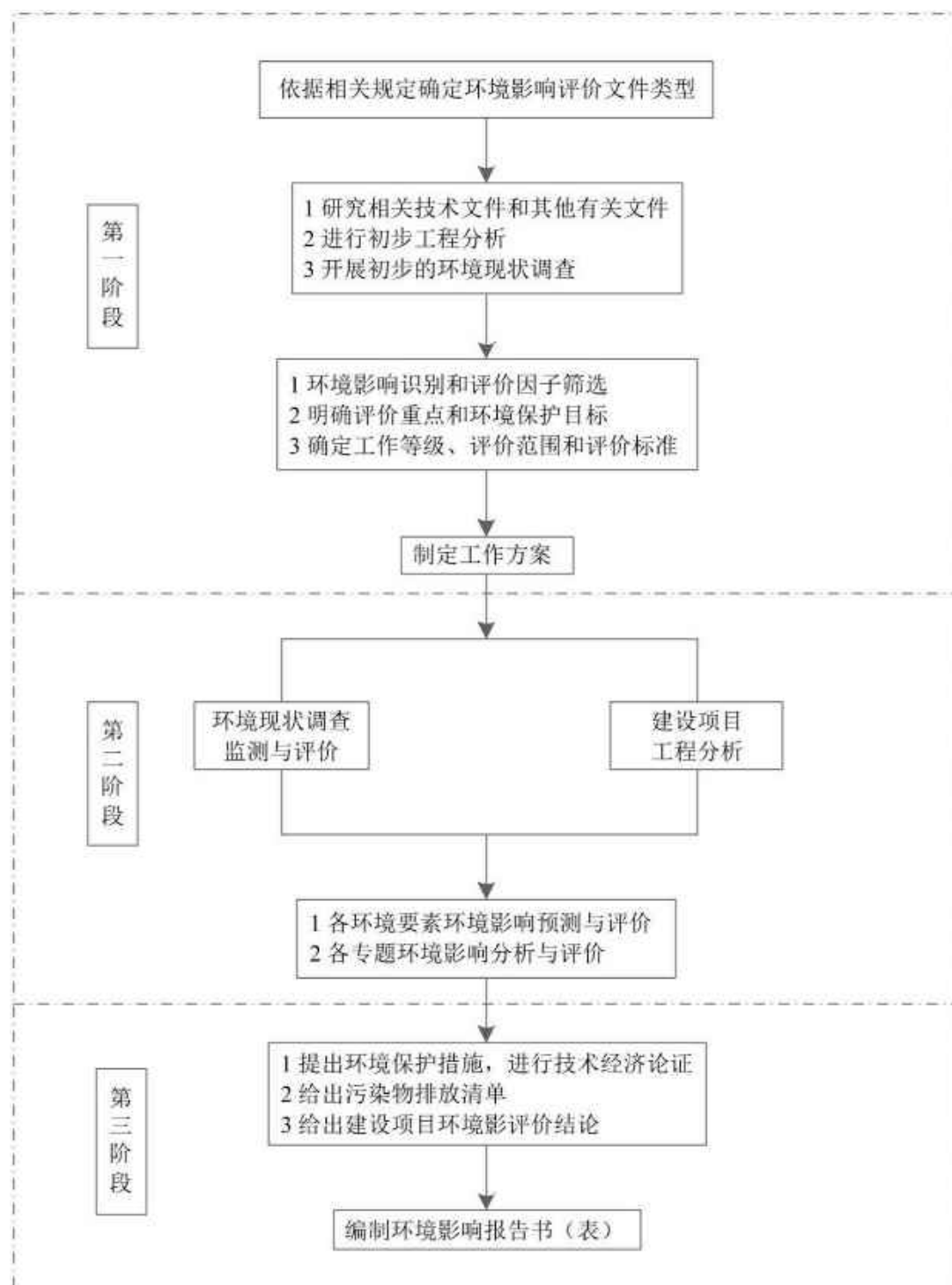
3 30

1

=====

2

1



1

3

1

2024

2

“ ”

“ ”

1

1

“ ”

..... “ ” 		
“ ”		

“ ”

“ ”

2

2

“ ”

		
VOCs	VOCs	
VOCs	VOCs	
	VOCs	VOCs
	“ ”	
	VOCs	
VOCs	VOCs	
VOCs	VOCs	

“ ”

“ ”

“ ”

“ ” “ ”

2021.10.28

“ ”

5

“ ”

“ ”

“ ”

“ ”

“ ”

2020

60%

“ ”

“ ”

“ ”

3 “ ”

“ ”

2023 [2023]65 97

ZH15292120023 2

1

2

GB3095-2012

2022

Cl₂ HCl TVOC

GB3096-2008 3

GB/T14848-2017

GB36600-2018

Cl₂ HCl TVOC
+

“ ”

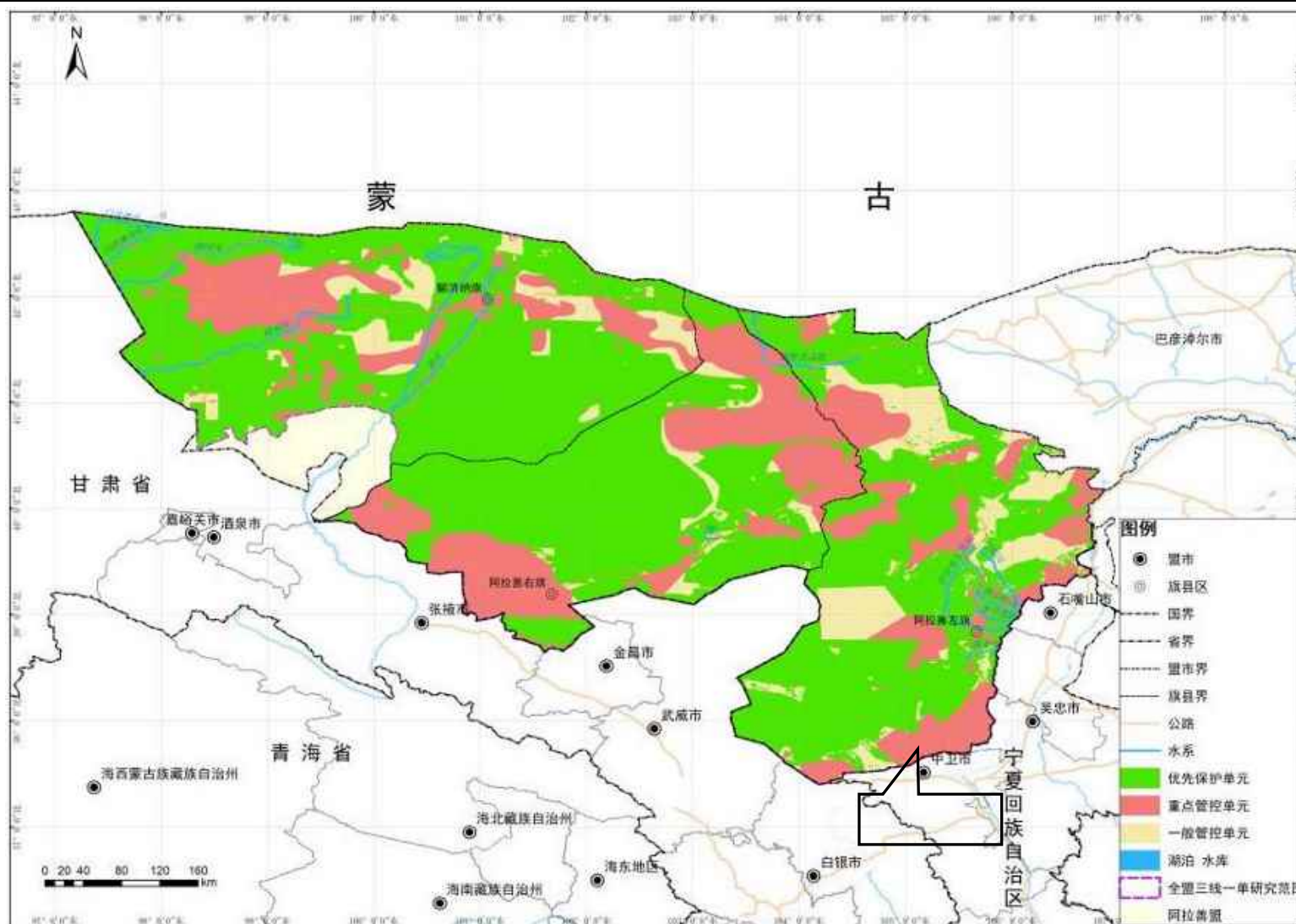
3

“ ”

4

2023
ZH15292120023

1



			1. 2018 11 “ ” 2016 510 “ ” 2016 512 2018 444 2. 3. PVC “ ”	1. “ ” 2. 3. PVC 4. “ ” 5. 6.	

		4.	“ ” “ ” 2023 < >	
		5.		
		6.	“ ” 2022 142)	
		7.	“ ”	
		8.		
		9.		

		10.		
		11.		
	1.	“ ”	1.	
	2.	“ ”	2.	“ ”

		“ ” 3. VOCs VOCs VOCs VOCs 4. A 5. 6. 2025 65 35 65 7. “ ”	3. 4. + 5. 6. 7.	

		1.		
	+	"	"	"
		"	"	"
		2.		1.
				2.
		3.		3.
				4.
			3	5.
		4.		
		5.		

		6.		
		1. 2025	5.68	
		2.		
		3.		1. 2.
		4.	“ ”	
			“ ”	

				5.		
Z H 1 5 2 9 2 1 2 0 0 2 3				1. 2.	1. 2.	
				1. 2. 35t/h 3. VOCs	1. + 2. 3.	
				4. “ ” “ ”		
				1. 2.		
				1. “ ”		

				2.	“ ”	
				3.		

=====

“

”

4

1

2

3

4

5

“

”

1

1.1

1.1.1

1	2024	6		
2		2408-152998-89-01-544905		
	2024	8	27	

1.1.2

1		2015	1	1	
2		2018	12	29	
3		2018	10	26	
4		2018	1	1	
5		2018	12	29	
6			2020	9	1
7		2019	1	1	
8			2012	7	1
9		2020	1	1	
10			2018	10	26
11		2024		2024	2 1
12			2017		
	682	2017	10	1	
13			2021		16
2020	11	30			
	14				[2015]17
2015	4	2			

	15								[2016]31
2016	5	28							
	16					4		2019	1
1									
	17							2021	11
2									
	18								
		[2012]77		2012	7	3			
	19								
[2012]98		2012	8	8					
	20		“	”					
					[2021]20	[2021]65		2021.9.1	
	21				2021				
	22							3	2018
8	1								
	23								
		[2021]45		2021	5	30			
	24		“	”					
	[2022]34		2022	4	7				
	25				2021		;		
	26					2001	12	17	
	27					2013	12	7	
	28					2022	1	1	
1.1.3									
	1					2018	12	6	
	2					[2012]85		2012	7 27
	3								
	[2015]119		2015	10	19				

4								2035
	2021	2	7					
5			“	”			2021	9
6								
		2018	13	2018	8	22		
7								
				[2018]11			2018	3 29
8				“	”			
	[2020]24							
9					2020	12		
11					2020	1 1		
12					2019	3 1		
13					2021	1 1		
14							2023	1 1
15							2022	1 1
16								
			[2019]269					
17								
[2021]262		2021	3	19				
18			“	”				
	2021	209	2021	3	9			
19								2035
	2021	7	21					
20				“	”			
	2023							
21					2023			
1.1.4								
1							HJ 2.1-2016	
2							HJ2.3-2018	

3		HJ 610-2016		
4		HJ2.2-2018		
5		HJ2.4-2021		
6		HJ964-2018		
7		HJ19-2022		
8		HJ169-2018		
9		HJ2000-2010		
10		HJ2015-2012		
11		HJ2034-2013		
12		HJ819-2017		
13	VOCs		2013	31

1.1.5

1.2

1.2.1

1

2

3



4

5

1.2.2

1

2

3

1.2.3

1.3

1.3.1

1.3-1

1.3-1

		TVOC
		A

1.3.2

1.3-2

1.3-2

		-1S							
				-1S					
		-2L			-1L		-1L	-1L	
							-1L		
			-1L						
				-1L					
		+	-	S	L		1	2	3

1.3-2

1.3.3

1.3-3

1.3-3

		SO ₂	NO ₂	PM ₁₀	PM _{2.5}	CO	O ₃	Cl ₂	HCl		TVOC
					Cl ₂	HCl				TVOC	
									pH		

4

GB36600-2018

GB50137

R

A33

A5

A6

G1

GB50137

M

W

B

S

U

A

A33

A5 A6

G G1

5

“

”

“ V₋₂₋₃

”

1.4.2

1.4.2.1

1

GB3095-2012

Cl₂

HCl TVOC

D

DB13/1577-2012

1.4-1

1.4-1

	PM ₁₀	µg/m ³		70

GB3095-2012			24	150
	PM _{2.5}	µg/m ³		35
			24	75
	SO ₂	µg/m ³		60
			24	150
			1	500
	NO ₂	µg/m ³		40
			24	80
			1	200
	O ₃	µg/m ³	8	160
			1	200
	CO	mg/m ³	24	4
			1	10
HJ2.2-2018	Cl ₂	µg/m ³	1	100
		µg/m ³	24	30
	HCl	µg/m ³	1	50
		µg/m ³	24	15
	TVOC	µg/m ³	8	600
DB13/1577-2012		mg/m ³	1	2

2

GB/T14848-2017

1.4-2

1		15	17		0.5
2			18		0.02
3	NTU	3	19		200
4			20	CFU/100mL	3.0
5	pH	6.5-8.5	21	CFU/mL	100
6	CaCO ₃	450	22	N	20
7		1000	23	N	1.0
8		250	24		0.05
9		250	25		1.0
10		0.3	26		0.001
11		0.1	27		0.01
12		1.0	28		0.005

13		1.0	29		0.05
14		0.002	30		0.01
15		0.3	31		3.0
16	COD _{Mn} O ₂	3.0			
K ⁺ Ca ²⁺ Mg ²⁺ CO ₃ ²⁻ HCO ₃ ⁻					
3.0mg/L					

3

GB3096-2008 3

1.4-3

1.4-3

GB3096-2008

		[dB(A)]	
GB3096-2008		3	
		65	55

4

GB36600-2018

1.4-4

1.4-4

mg/kg

1		20	60	24	1,2,3-	0.05	0.5
2		20	65	25		0.12	0.43
3		2000	18000	26		1	4
4		400	800	27		68	270
5		8	38	28	1,2-	560	560
6		150	900	29	1,4-	5.6	20
7		3.0	5.7	30		7.2	28
8		0.9	2.8	31		1290	1290
9		0.3	0.9	32		1200	1200
10		12	37	33	+	163	570
11	1,1-	3	9	34		222	640
12	1,2-	0.52	5	35		34	76
13	1,1-	12	66	36		92	260
14	-1,2-	66	596	37	2-	250	2256
15	-1,2-	10	54	38	[a]	5.5	15
16		94	616	39	[a]	0.55	1.5

17	1,2-	1	5	40	[b]	5.5	15
18	1,1,1,2-	2.6	10	41	[k]	55	151
19	1,1,2,2-	1.6	6.8	42		490	1293
20		11	53	43	[a,h]	0.55	1.5
21	1,1,1-	701	840	44	[1,2,3-cd]	5.5	15
22	1,1,2-	0.6	2.8	45		25	70
23		0.7	2.8	46	C ₁₀ ~C ₄₀	826	4500

1.4.2.2

1

Cl₂ HCl TVOC
GB39727-2020 1

1.4-5

1.4-5a

		mg/m ³	
GB39727-2020	Cl ₂	5	
	HCl	30	
		100	
	TVOC	150	

Cl₂
GB39727-2020 C.1 1.4-5b

1.4-5b

			mg/m ³
GB39727-2020			0.4

2

+

GB/T 19923-2005

“	”	1.4-6
---	---	-------

1.4-6

1	pH	6.5-9.0	6.5-8.5	6.5-9.0	6.5-8.5	6.5-8.5
2	mg/L ≤	30	-	30	-	-
3	NTU ≤	-	5	-	5	5
4	≤	30	30	30	30	30
5	mg/L ≤	30	10	30	10	10
6	mg/L ≤	-	60	-	60	60
7	mg/L ≤	-	0.3	0.3	0.3	0.3
8	mg/L ≤	-	0.1	0.1	0.1	0.1
9	mg/L ≤	250	250	250	250	250
10	mg/L ≤	50	50	-	30	30
11	mg/L ≤	450	450	450	450	450
12	mg/L ≤	350	350	350	350	350
13	mg/L ≤	600	250	250	250	250
14	mg/L ≤	-	10	-	10	10
15	mg/L ≤	-	1	-	1	1
16	mg/L ≤	1000	1000	1000	1000	1000
17	mg/L ≤	-	1	-	1	1
18	mg/L ≤	-	0.5	-	0.5	0.5
19	mg/L ≤	0.05	0.05	0.05	0.05	0.05
20	/L ≤	2000	2000	2000	2000	2000

3

GB12523-2011

GB12348-2008 3

1.4-7 1.4-8

1.4-7

dB A

70	55

1.4-8

dB A

3	65	55

4

GB 18597-2023

2		
5.1-12		
5.1-13		
3		
1.5-3		
/	/	
		/
/		37.6
/		-29.4
	/m	90
	/m	/
	/°	/
4		

1.5-4

1.5-4

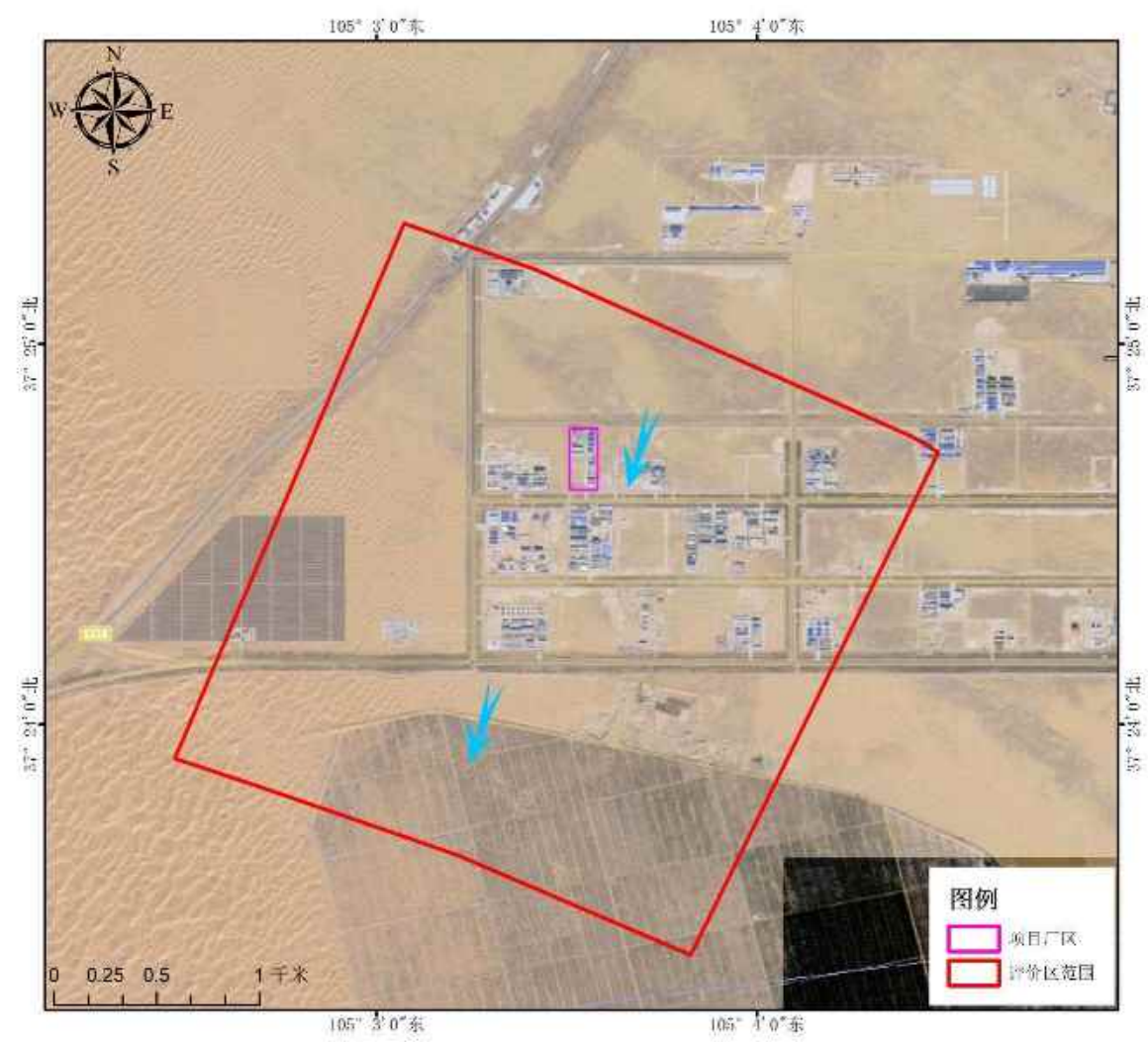
/m	1#									
	Cl ₂		HCl				TVOC		Cl ₂	
	μg/m ³	%	μg/m ³	%	μg/m ³	%	μg/m ³	%	μg/m ³	%
10	0.006904	0.01	0.058225	0.12	0.556824	0.03	0.558895	0.03	3.6382	3.64
58									5.211201	5.21
100	0.14953	0.15	1.261036	2.52	12.05959	0.6	12.10445	0.76	4.2282	4.23
200	0.11889	0.12	1.002639	2.01	9.588479	0.48	9.624146	0.6	1.9428	1.94
300	0.14052	0.14	1.185052	2.37	11.33294	0.57	11.37509	0.71	1.449	1.45
400	0.15568	0.16	1.312901	2.63	12.55559	0.63	12.6023	0.79	1.1937	1.19
500	0.16971	0.17	1.431221	2.86	13.68711	0.68	13.73802	0.86	1.0922	1.09
600	0.49491	0.49	4.173741	8.35	39.91449	2	40.06297	2.5	1.0194	1.02
700	0.57699	0.58	4.865951	9.73	46.53424	2.33	46.70734	2.92	0.96375	0.96
731	0.76915	0.77	6.486499	12.97	62.03196	3.1	62.2627	3.89		
800	0.68243	0.68	5.755161	11.51	55.03798	2.75	55.24271	3.45	0.91959	0.92
900	0.49702	0.5	4.191536	8.38	40.08466	2	40.23377	2.51	0.88311	0.88
1000	0.52305	0.52	4.411056	8.82	42.18398	2.11	42.3409	2.65	0.85523	0.86
1100	0.44779	0.45	3.776363	7.55	36.11427	1.81	36.2486	2.27	0.82768	0.83
1200	0.40908	0.41	3.449908	6.9	32.9923	1.65	33.11502	2.07	0.80313	0.8
1300	0.37039	0.37	3.123623	6.25	29.87195	1.49	29.98307	1.87	0.78091	0.78
1400	0.34481	0.34	2.907898	5.82	27.80893	1.39	27.91237	1.74	0.76056	0.76
1500	0.30744	0.31	2.592744	5.19	24.79504	1.24	24.88727	1.56	0.74173	0.74
1600	0.29208	0.29	2.463208	4.93	23.55625	1.18	23.64387	1.48	0.72417	0.72

1700	0.26778	0.27	2.258278	4.52	21.59646	1.08	21.67679	1.35	0.70768	0.71
1800	0.25318	0.25	2.135152	4.27	20.41897	1.02	20.49492	1.28	0.69212	0.69
1900	0.3696	0.37	3.11696	6.23	29.80824	1.49	29.91912	1.87	0.67737	0.68
2000	0.27171	0.27	2.291421	4.58	21.91341	1.1	21.99492	1.37	0.66333	0.66
3000	0.13534	0.14	1.141368	2.28	10.91517	0.55	10.95577	0.68	0.55046	0.55
5000	0.072598	0.07	0.612243	1.22	5.85503	0.29	5.876809	0.37	0.40757	0.41
10000	0.031942	0.03	0.269378	0.54	2.576122	0.13	2.585705	0.16	0.24946	0.25
15000	0.01972	0.02	0.166305	0.33	1.590418	0.08	1.596334	0.1	0.19007	0.19
20000	0.015984	0.02	0.134798	0.27	1.28911	0.06	1.293905	0.08	0.15502	0.16
25000	0.009981	0.01	0.084172	0.17	0.80496	0.04	0.807954	0.05	0.13174	0.13
/%	0.76915	0.77	6.486499	12.97	62.03196	3.1	62.2627	3.89	5.211201	5.21
10%	/		825		/		/		/	

6-20km

L 2.78km
0.95km L/2 1.3km 1.6km
6.08km²

1.5.2-3



1.5-1

1.5.3

1

HJ2.3-2018

B

B

1.5-8

1.5-8

		Q/ m ³ /d W/
		Q≥20000 W≥600000
A		Q 200 W 6000
B		-

1.5.4

1

HJ2.4-2021

1.5-9

GB3096

3

1.5-9

	0	1~2	3~4
	>5dB A	3~5dB A	<3dB A

2

200m

1.5.5

1

HJ964-2018

1

HJ964-2018

A

A.1

“ — — ”

I

2

82223.87m²

3

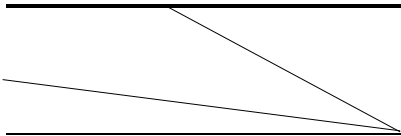
1.5-10

1.5-10

4

1.5-11

1.5-11

									
									-
								-	-

“ ”

2

200m

III-160-2010

	+			
				a
a				

1.5-13		

1.5-13

2

5km

1.5.8

1.5-14

1.6-1

1.5-14

		5km
	B	/
		2.78km
	0.95km	1.3km 1.6km
		6.08km ²
		200m
		200m
		5km

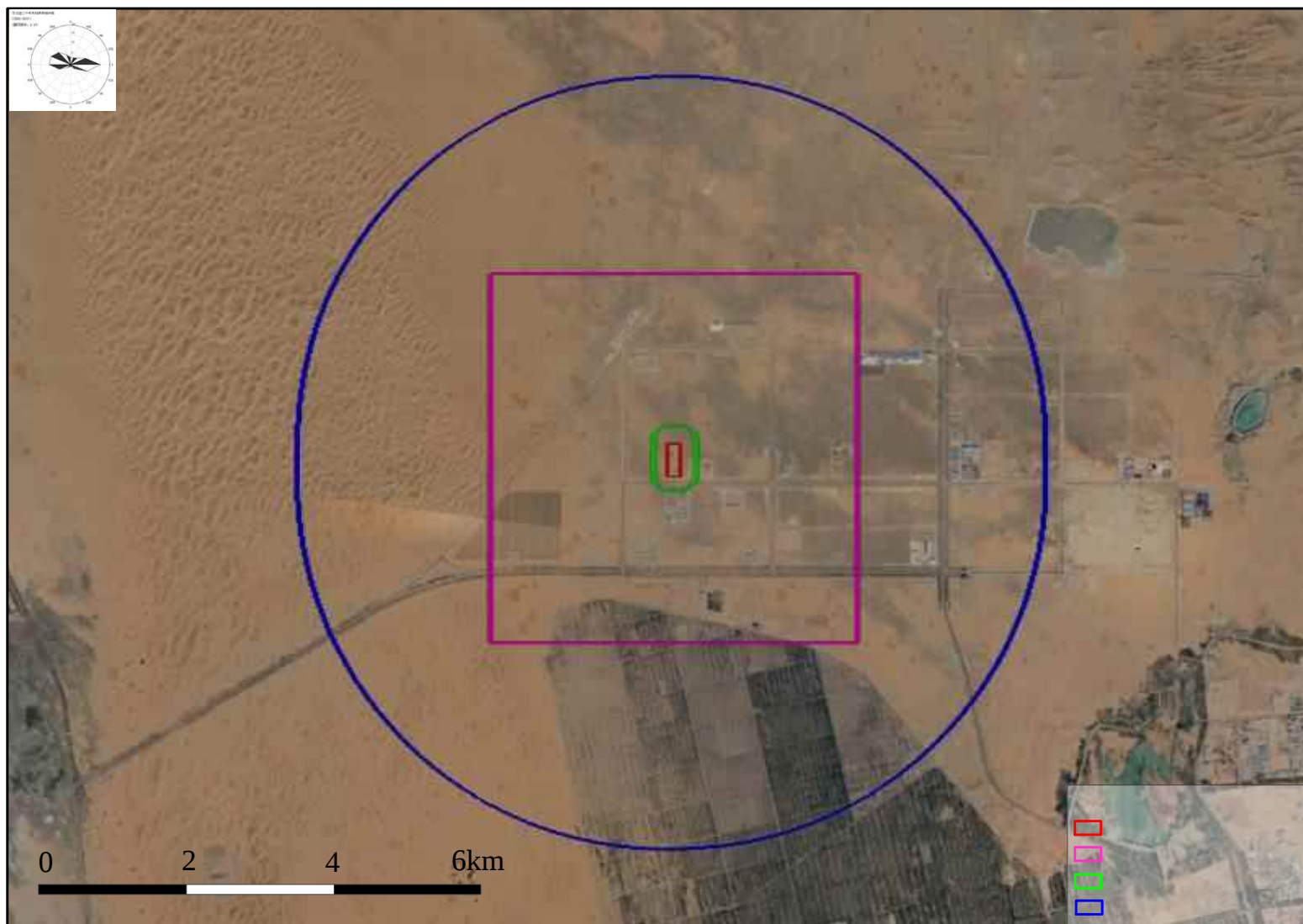
1.6

1.6-1

1.5-1

1.6-1

1.6-1								
								/m
		X	Y					
	5km × 5km					GB3095-2012	-	-
			m					
	5000m							
						GB/T14848-2017		
	200m					GB36600-2018		
	200m					GB3096-2008 3		



1.6-1

2

2.1

2018 2018
3 2019 4
[2019]4
3
[2019]4 2019 4 12
10000 20000 2021
7 2022 7 10
2021 “
6000t/a ”
6000t 2022 7 5
[2022]21 2022 9
3000t/a
2024 9 2
2022 “
” “ STRO ”
2023 2 20
[2023]4 2023 3
30

2.1.1

1 3000
2 3000 /

82223.3m²

7920h

2.1.2

2.1-2

2.1-2

[illegible]

			1	3F	931.14m ²						
			1	3F	794.25m ²						
	1#		175.36m ²		1F	6.2m					
	2#		748.1m ²		1F	8.2m					
	3#		748.1m ²		1F	8.2m					
	4#		749.25m ²		1F	6.3m					
			1	811.64m ²			1mm	3			5
			2	2			2				
			1	3			50m ³				
			1#								
			25m			DA001					
		1#	“ MW-LEP+								
			+			”		25m			DA001
			“								
			”			15m		DA002			
			“			+		+		+	
”			15m		DA003						
		1	1			“					
		+	+	+	+	+	”				
		100m ³ /d			“ STRO					”	
		1 191.36m ²									
		1 720m ³									

2.1.3

2.1-3

2.1-3

		t/a	
1		10000	
2		3000	
3		5355.1	
4		6708.6	

2.1.4

2.1-4

2.1-5

2.1-4

1			7059		1#
2			6066		
3			4496		
4	30%		4203		
5			7		
6			3062		2#

2.1-5

1		kW.h/a	690	
2		m ³ /a	13810.5	
3		t/a	21720	

2.1.5

2.1.5.1

1

2

1

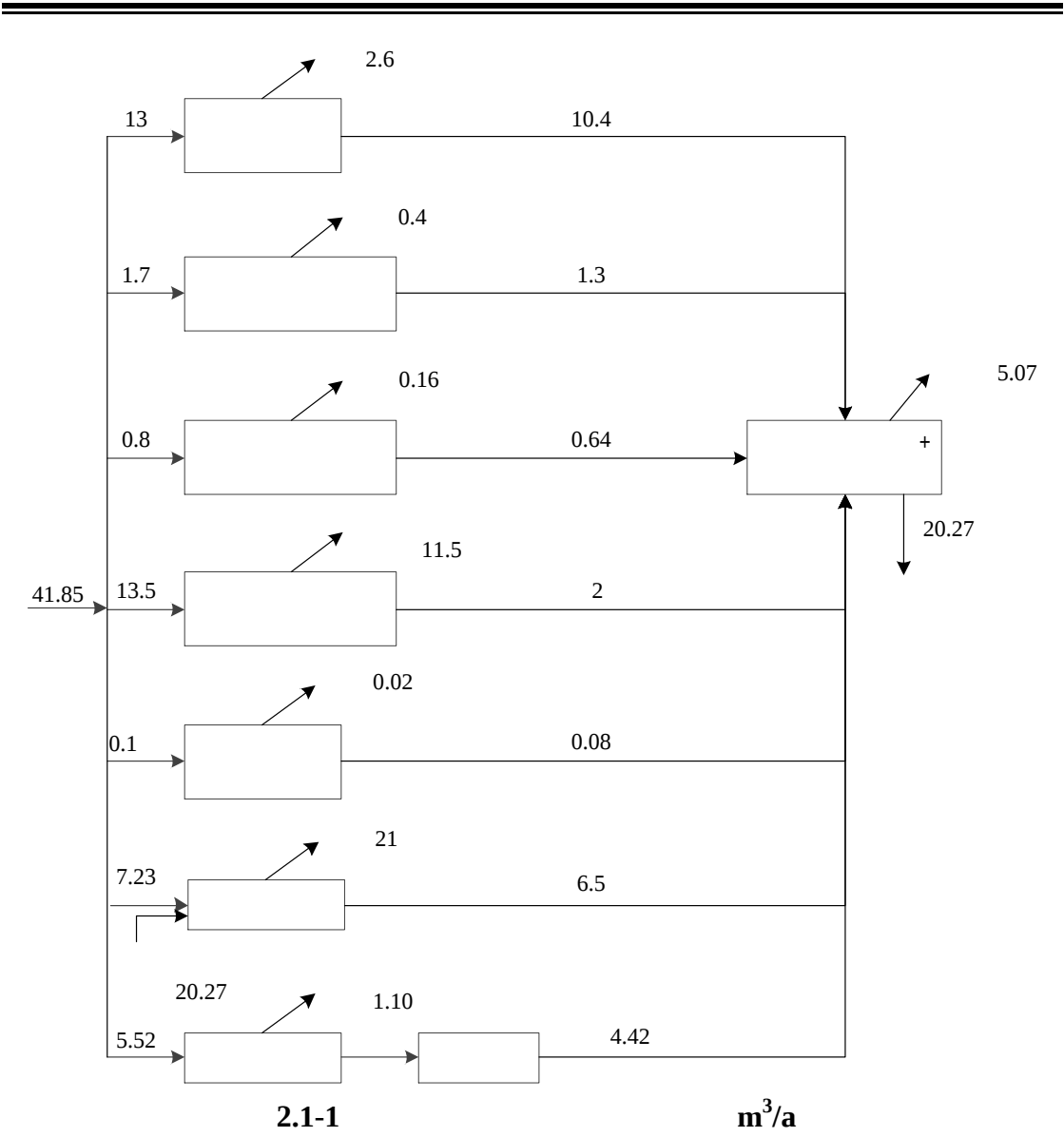
1

“

+ + + + + ”

100m³/d “ STRO ”

2.1-1



2.1.5.2

10kV			
1	2000kVA	1	690×10 ⁴ kWh

2.1.5.3

2	75t	2	40t	1	36t
---	-----	---	-----	---	-----

2.1-6

2.1-6

		t/d
		32

		12
		48
		92

2.1.5.4

1

720m³

2

Q=150m³/h

H=32m

N=37kW

2

Q=200m³/h

t= 10

, N=5.5kW

2.1.5.5

1

1

1

3m³

2

4

100

R-404A

3

1

5Nm³/hPRa

0.75MPa

≥98.9%

≤-40

3m³

2.1.5.6

1

1

“

+

++

+

+

+

+

+

+

+

+

”

100m³/d

“ STRO

”

100m³/d

30m³/d

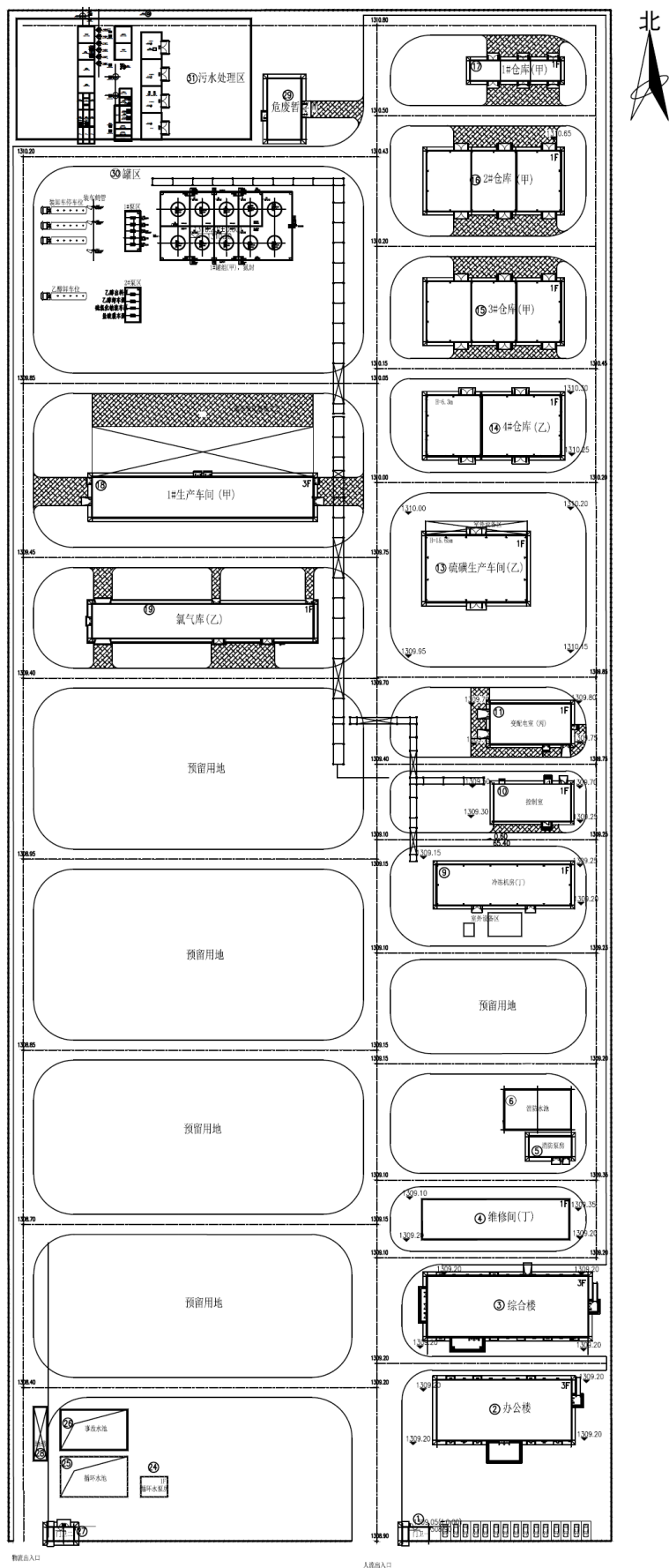
2.1.6

82223.3m²

1#

	1#	2#	3#	4#
--	----	----	----	----

2.1-1



2.1-1

2.1.7

92

8

330

2.2

2.2-1

2.2-1

						m	m		
1	DA001			105 ° 6 ' 16.60 "	37 ° 41 ' 28.97 "	25	0.6		
2	DA002			105 ° 6 ' 12.49 "	37 ° 41 ' 32.60 "	15	0.4		
3	DA003			105 ° 7 ' 1.31 "	37 ° 41 ' 16.51 "	15	0.8		

2.2.1

2.2.2

2.3

2.3.1

2024

2024 6

2024 8

1

2.3-1

		1	2	3		
DA001	Nm ³ /h	6969	6971	6946	/	/
	m/s	9.34	9.33	9.22	/	/
		33	33	30	/	/
	mg/m ³	70.0	71.8	66.2	100	
	kg/h	0.488	0.501	0.460	/	/
	mg/m ³	0.75	0.69	0.81	5	
	kg/h	5.23×10^{-3}	4.81×10^{-3}	5.63×10^{-3}	/	/
	mg/m ³	6.65	6.46	6.58		
	kg/h	0.046	0.045	0.046		
	mg/m ³	5.79	5.60	5.29		
	kg/h	0.040	0.039	0.037		
		1513	1318	1318	6000	
DA002	Nm ³ /h	2079	2075	2074	/	/
	m/s	11.3	11.3	11.3	/	/
		35	35	35	/	/
	mg/m ³	30.8	25.5	24.8	100	
	kg/h	0.064	0.053	0.051	/	/
	mg/m ³	3.7	3.42	3.97	30	
	kg/h	7.69×10^{-3}	7.10×10^{-3}	8.23×10^{-3}	/	/
	mg/m ³	1.25	1.47	1.32	5.0	
	kg/h	2.60×10^{-3}	3.05×10^{-3}	2.74×10^{-3}		
		1122	1122	1122	2000	
DA003	Nm ³ /h	1981	1973	1771	/	/
	m/s	2.65	2.66	2.37	/	/
		34	36	34	/	/
		1.3	1.5	1.3	30	

	mg/m ³					
	kg/h	2.58×10^{-3}	2.96×10^{-3}	2.30×10^{-3}	/	/
	mg/m ³	3.37	3.85	4.57	120	
	kg/h	6.68×10^{-3}	7.60×10^{-3}	8.09×10^{-3}	/	/
		851	724	851	6000	

GB39727-2020 1

GB14554-93 2

GB31573-2015 3

GB16297-1996 2

2

2.3-2

		1	2	3	4		
mg/m ³	1#	0.590	0.578	0.570	0.550	1.0 mg/m ³	
	2#	0.666	0.640	0.618	0.598		
	3#	0.645	0.709	0.566	0.620		
	4#	0.687	0.677	0.700	0.696		
mg/m ³	1#	0.006	0.004	0.003	0.005	0.03 mg/m ³	
	2#	0.009	0.008	0.005	0.007		
	3#	0.006	0.004	0.008	0.003		
	4#	0.007	0.009	0.005	0.006		
mg/m ³	1#	0.04	0.02	0.03	0.02	0.3 mg/m ³	
	2#	0.07	0.07	0.06	0.05		
	3#	0.07	0.08	0.06	0.07		
	4#	0.05	0.08	0.07	0.06		
mg/m ³	1#	0.189	0.187	0.182	0.186	0.2 mg/m ³	
	2#	0.135	0.140	0.144	0.137		
	3#	0.127	0.121	0.125	0.123		
	4#	0.165	0.164	0.162	0.173		
mg/m ³	1#	0.03ND	0.03ND	0.03ND	0.03ND	0.4 mg/m ³	
	2#	0.03ND	0.03ND	0.03ND	0.03ND		
	3#	0.03ND	0.03ND	0.03ND	0.03ND		
	4#	0.03ND	0.03ND	0.03ND	0.03ND		
mg/m ³	1#	0.34	0.35	0.36	0.32	4.0 mg/m ³	
	2#	0.81	0.78	0.69	0.80		
	3#	1.01	0.98	0.86	0.84		

	4#	0.84	0.88	0.85	0.81		
	1#	10	10	10	10	20	
	2#	10	10	10	10		
	3#	10	10	10	10		
	4#	10	10	10	10		

GB16297-1996 2

GB31573-2015 5

GB39727-2020 3 GB14554-93 1

2.3.2

2024

2024 6 2.3-3

2.3-3

	dB A	dB A	
	59	51	65dB A 55 dB A
	60	51	
	58	49	
	59	48	

58 60dB A 48

51dB A GB12348-2008 3

2.3.3

2023

2023 7 2.3-4

2.3-4

						1#			
1	pH		7.4	7.3	7.5	7.6	7.5	/	/
2		mg/kg	5.16	4.41	10.2	3.52	5.61	60	
3		mg/kg	0.42	0.40	1.00	0.42	0.44	65	
4		mg/kg	0.64	1.12	0.62	ND	0.61	5.7	

5		mg/kg	29.6	27.2	24.8	34.7	30.6	18000	
6		mg/kg	17.4	16.0	17.4	46.6	18.0	800	
7		mg/kg	0.092	0.165	0.184	0.201	0.175	38	
8		mg/kg	20.0	7.30	15.9	20.2	28.9	900	

GB 36600-2018

2.3.4

2024

2024 6

2.3-6

2.3-6

		1#	2#	3#	
1	pH	7.4	7.8	7.6	6.5≤pH≤8.5
2	CODMn O2 mg/L	2.4	1.0	0.8	3.0
3	N mg/L	0.319	0.140	0.129	0.50
4	P mg/L	0.79	0.02	0.03	/
5	N mg/L	0.023	0.019	0.012	1.00
6	mg/L	0.003L	0.003L	0.003L	0.02
7	mg/L	1.13	1.13	1.28	1.0
8	CaCO ₃ mg/L	622	409	378	450
9	mg/L	1460	1220	896	1000
10	mg/L	235	227	236	250
11	N mg/L	3.11	7.52	14.0	20.0
12	mg/L	219	213	206	250
13	MPN/100mL	2	2	2	3.0
14	AOX μg/L	19.8	92.2	181	/

2021

2015 4

4 t

2019 2

2000t/ 2- -4,6-

2.4

1

152921-2024-06-02

2

3

4

1 720 m³

1 720m³

2.5

2019

“ 47

263-

2631

2632

”

91152992MA0Q1TBX5Y001P

=====

2.6

	150mm	C25		P8	
		Mb≥6.0m	K≤1×10 ⁻⁷ cm/s		1.5
				Mb≥1.5m	K≤1×10 ⁻⁷ cm/s
		60mm	C15		
1					
2					
3					
4					
5					
3			5		
6	1#				
1					
2					
3					
4					
5					
6	1#			“	+
	+	”			

2.7

2.6-1

2.6-1			
		t/a	
		0.021	
	Cl ₂	0.041	
	HCl	0.362	
	H ₂ S	0.328	
	NH ₃	0.061	
		4.328	
		340.845	/

3

3.1

105 °9.19"

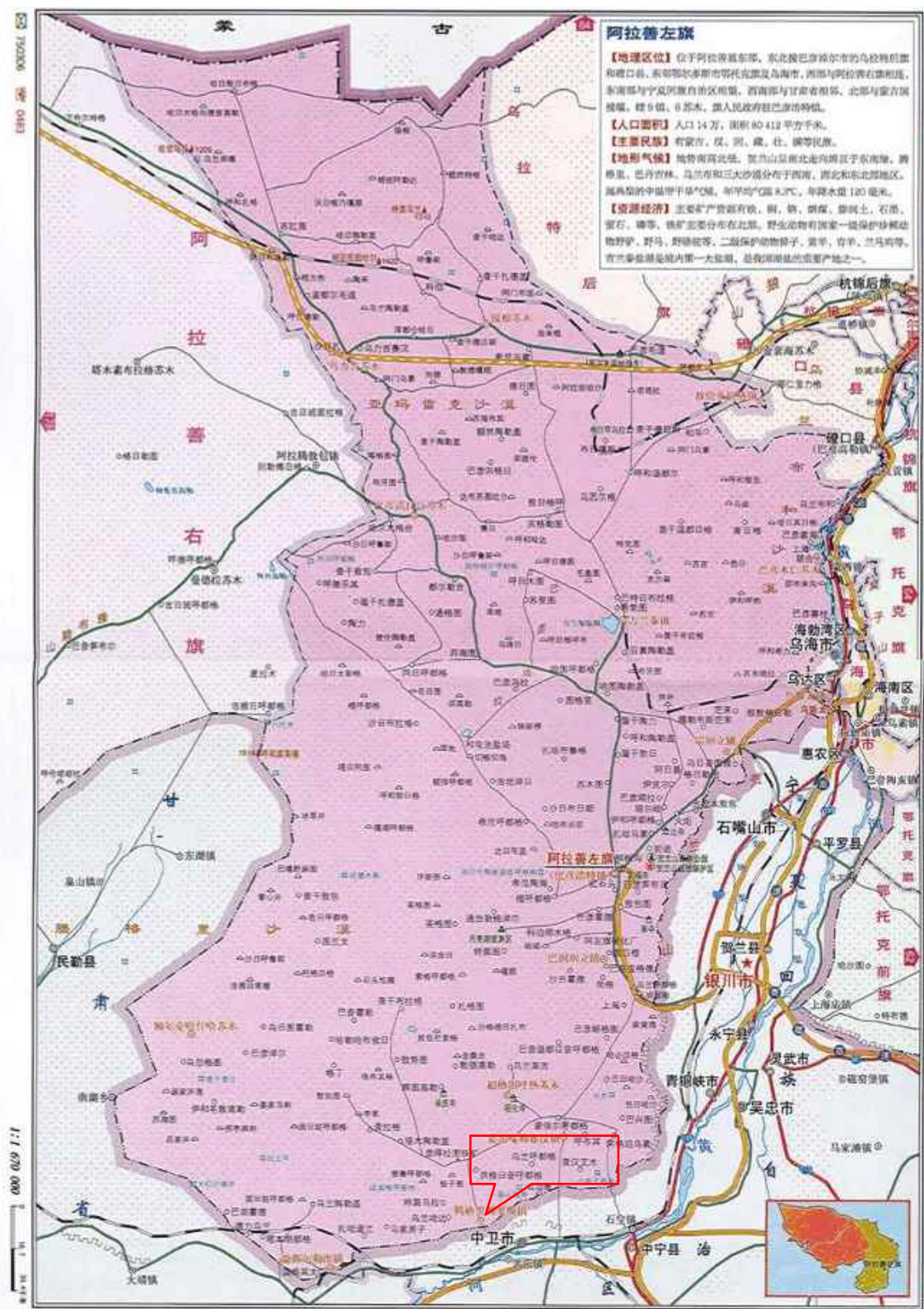
37 °41'16.26"

3.1-1

3.1-2



3.1-1



3.1-2

30t/d			
10309.2t/a			
666.6t/a			
300			
330d 7920h			
3.2			
3.2.1			
3.2.1.1			
3.2-1			
3.2-1			
	t/a		
	10309.2		
	666.6		
3.2.1.2			
GB/T320-2006			
3.2-2		3.2-3	
3.2-2	GB/T320-2006	%	
HCl	≥	31.0	
Fe	≤	0.002	0.008 0.01
	≤	0.05	0.10 0.15
Cl	≤	0.004	0.008 0.01
	≤	0.0001	
SO ₄ ²⁻	≤	0.005	0.03 -

3.2-3	
/ % ≥	97.5
/ % ≤	2.4
/ % ≤	0.1

3.2.2

3.2-4

3.2-4

		340m ²	
		1# 233m ³ /a “ + ” 555m ³ /a 8.15m ³ /d	
			-
	1	705.96m ² 50	
		1# 168.92m ² 2 120.6m ³ 2# 719.1m ² 2 242.7m ³ 2 266.7m ³	+
		Cl ₂ HCl + “ + ” + +MW-LEP+ + 25m DA001 +MW-LEP+ + “ + ” + 25m DA001	+
		+	

		191.36m ²	
		1 720m ³	

3.2.3

3.2-5

3.2-5

1		t/a	10309.2	
2		t/a	666.6	
			330	
1		kW.h/	53.06	
2		m ³ /a	3477.5	
			0	
			300	

3.3

3.3-1

3.3-2

3.3-3

3.3-1

	%		t			
	99%		1446.72			
	/		9900	/	/	

3.3-2

1	H ⁺	mg/L	22000	
2	Cl ⁻	mg/L	24000	
3		%	13.16	
4	ClO ⁻	%	42.41	
5		mg/L	520	

3.3-3

1		kW.h/	53.06	
2		m ³ /a	3477.5	

3.4

3.4-1

3.4-1

1	1	8m ³		1
2		10m ³		1
3	2	8m ³		1
4		/		2
5		/		2
6		30m ³		1
7		8m ³		1
8		5m ³		1
9		50m ³		1
10		1200 × 1200 × 1300		1

3.5

3.5.1

11755.92t/a

1446.72t/a

10309.2t/a

3.5.2

3.5-1

3.5-1

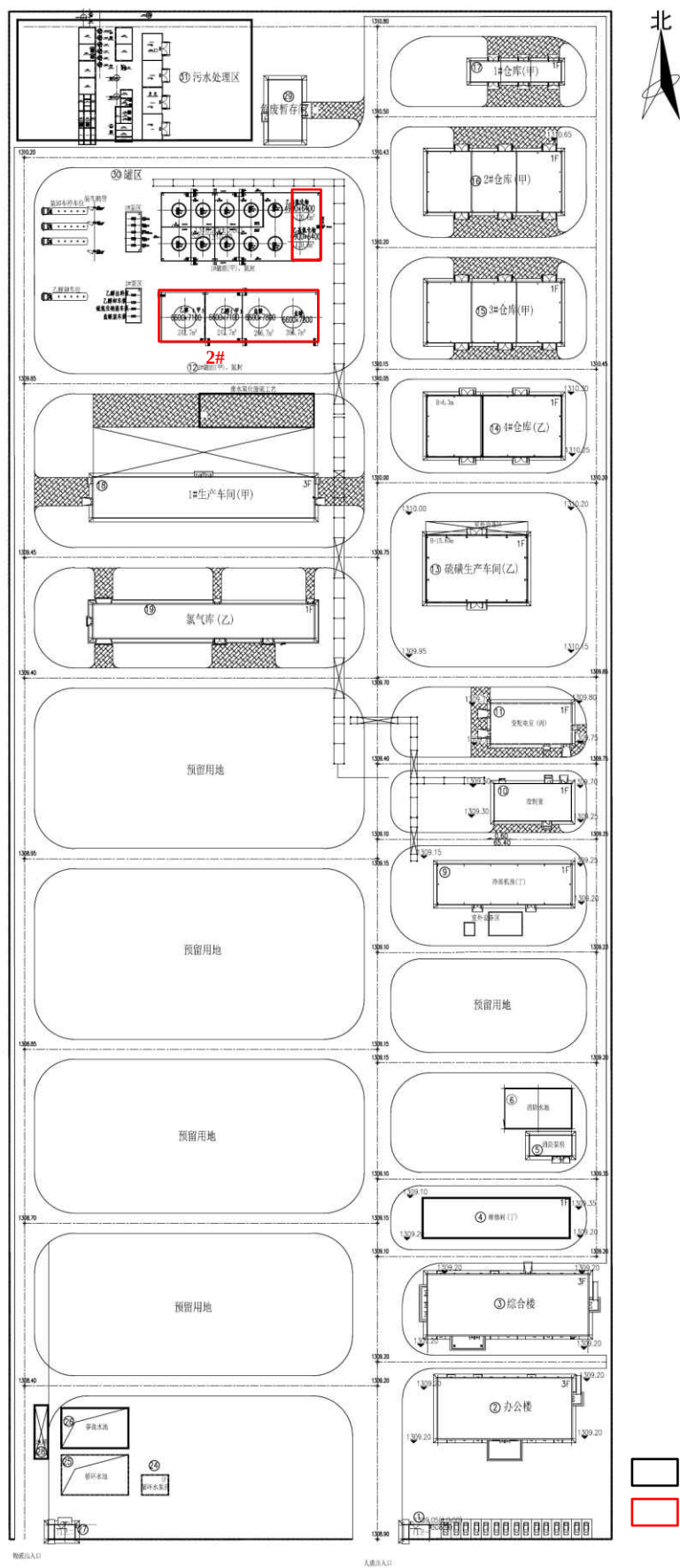
						t
	1		/	/	/	/
	2				1t	50
	3				266.7m ³	500
	4				242.7m ³	306
	5				120.6m ³	230

=====

3.6

	1#		2		1#
2#		2		2	

3.6-1



3.6-1

3.7

3.7.1.1

3.7.1.2

3.7-2a

kg/

3.7-2b

t/a

3.8

3.8.1

1

1#

555m³/a

233m³/a

“ + ”

8.15m³/d

2689.5m³/a

2

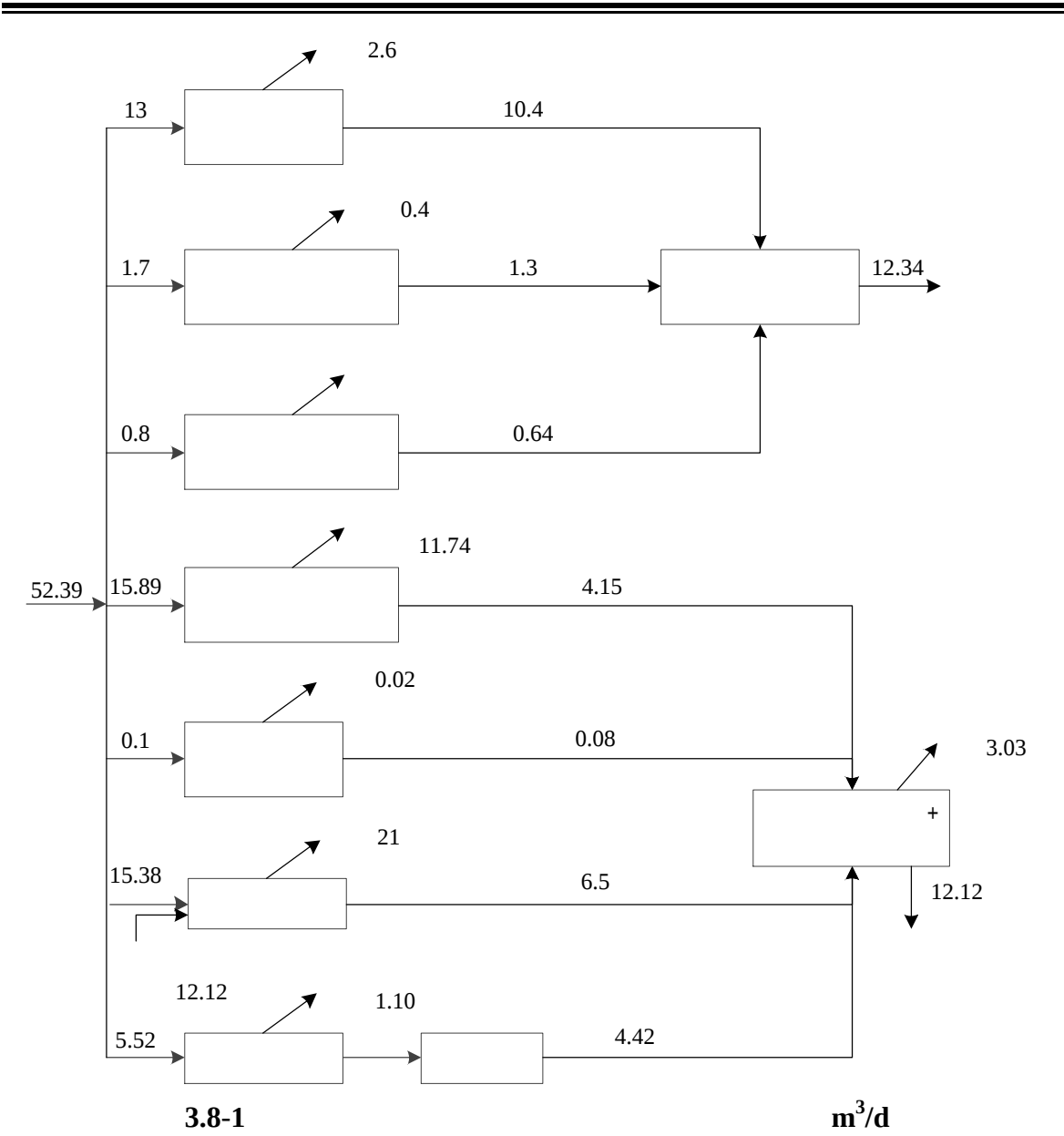
1#

500m³/a

210m³/a

+

3.8-1



3.8.2

3.8.3

10kV

53.06 kWh

3.8.4

3.8.4.1

1t	7
----	---

3.8.5.2

	1	811.64m ²	2	2
	2	1	3	
50m ³				
	120.6m ³			2#
	719.1m ³	2	242.7m ³	2
				266.7m ³

a.

$L_B=0.191\times M$	$P/$	100910	P	$\times D^{0.68}\times H^{1.73}\times T^{0.51}\times T^{0.45}\times F_P\times C\times K_C$
L_B —				Kg/a
M —				
P —				Pa
D —	m			
H —			m	
T —				15
F_P —				1~1.5
C —				0~9m
$C=1$	$0.0123(D-9)^2$	9m	$C=1$	
K_C —		K_C	0.65	1.0
K_C	1.0			

b						
$L_W=4.188 \times 10^{-7} \times M \times P \times K_N \times K_C$						
L_W				Kg/m^3		
K_N				K		
$K \leq 36$	$K_N=1$	$36 < K \leq 220$	$K_N=11.467 \times K^{0.7026}$	$K > 220$	$K_N=0.26$	

3.8-1

	M g/mol	P _{VA} Pa	D m	H m	T	Fp	C	Kc	K _N		kg/a	kg/a	kg/a
	188.5	20.27	4.9	6.4	15	1.25	0.79	1	1	2	6	29.8	35.8
	46	5800	6.6	7.1	15	1.25	0.93	1	1	2	606.12	732.74	1338.86
	36.5	30660	6.6	7.8	15	1.25	0.93	1	1	2	4094.62	2325.54	6420.16

1#				
	“	+	+	+MW-LEP+
”	25m	DA001		60%
	99.5%		99.5%	
14.32kg/a		6.69kg/a		32.10kg/a
3.8.5				

0.01%

3.8-2

3.8-2

		kg/h	t/a
	Cl ₂	0.018	0.145

3.9

3.9.1

3.9.1.1

3.9-1

3.8-2

3.9-1

										/	
		kg/h	t/a			m ³ /h	mg/m ³	kg/h	t/a	/H/ φ m	
	Cl ₂	0.083	0.66	+ + +MW-LEP+ +	99	7000	0.12	0.0008	0.0066	DA001/2 5/0.6	25
	HCl	0.167	1.32		99.5		0.70	0.0049	0.0387		
		0.0045	0.036		60		0.26	0.0018	0.0143		
		0.169	1.339		99.5		0.13	0.0009	0.007		
	HCl	0.811	6.42		99.5		-	-	-		
		0.0891	0.7078		-		0.13	0.0009	0.0073		
	TVOC	0.1735	1.375		-		0.39	0.0027	0.0213		

3.9.1.2

1#

3.9-2

3.9-2

	m ³ /a				
			mg/L	t/a	
	500	pH	2-5	-	+
		COD	5000	2.5	
			10	0.005	
			200	0.1	
			0.5	0.00025	
	210	pH	6-7	-	
		COD	1400	0.294	
			5	0.00105	
			150	0.0315	
			1	0.00021	
		TDS	5000	1.05	

3.9.1.3

3.9-3

3.9-3

	t/a					
S ₁	46.2		HW04 263-009-04			
S ₂	316.8		HW04 263-009-04			
S ₃	5.94		HW34-261-057-34			

3.9.1.4

75 80dB A

GB12348-2008 3

3.9-4

3.9-4

			/ dB A /m		
1		/	80		24h
2		1200 × 1200 × 1300	75		24h

3.9.2

3.9.2.1

3.9-5 3.9-7

3.9-5

		t/a	t/a	t/a
1	Cl ₂	0.805	0.6534	0.1516
2	HCl	7.74	7.7013	0.0387
3		0.7078	0.7005	0.0073
4	TVOC	1.375	0.6786	0.0213

3.9-6

		t/a	t/a	t/a
1		710	710	0
2	COD	3.794	3.794	0
3		0.00605	0.00605	0

3.9-7

		t/a	t/a	t/a	t/a
1		368.94	0	368.94	0

3.9.2.2

“ ” 3.9-6

3.9-6

“ ”

		t/a	t/a	“ ”	t/a	t/a
		0.021	0	0	0.021	0
	Cl ₂	0.041	0.1516	0	0.1926	+0.1516
	HCl	0.362	0.0387	0	0.4007	+0.0387
	H ₂ S	0.328	0	0	0.329	0
	NH ₃	0.061	0	0	0.061	0
		4.328	0.0073	0	4.3353	+0.0073
	TVOC	4.328	0.0213	0	4.3493	+0.0213
		0	0	0	0	0

3.9.3

3.9.3.1

3.9-7

3.9-7

		mg/m ³	kg/h	m				
					mg/m ³	kg/h		
1# DA001	Cl ₂	0.87	0.006	25	5	-	GB39727-202 0	
	HCl	7.26	0.0506		30	-		
		69.46	0.4839		100	-		
	TVOC	69.72	0.4857		150	-		

3.9.3.2

+

3.9.4

1

1

2

50%		3.9-8			
3.9-8					
			/ kg/h	/h	/
1#	1#	Cl ₂	0.303	1	2
	49.5% HCl	HCl	5.09		
	49.75%		48.63		
	TVOC	TVOC	48.81		
	49.75%				
2					

720m³

3.10

3.10-1			
3.10-1		t/a	
		t/a	t/a
1		0.0213	+0.0213

4

4.1

4.1.1



4.1.2

800~1400m

()

4.1.3

3

4.1.5

8 km²

690

4.1.6

61

316

35

119

27

17.7

t

“

”

1.17

t

970

t

20

t

950

t

4.2

4.2.1

1991

2002 2004

2009 “ ”

2011

[2011]146 2011 9 13

[2011]162

1999

2000

2002 2008

2011

[2012]80 2012

[2012]415

5.0km

2012

[2012]6

“ ”

2013

[2013]228

2

1

81.7km²

2

20.9km²

()

“

"

()

3

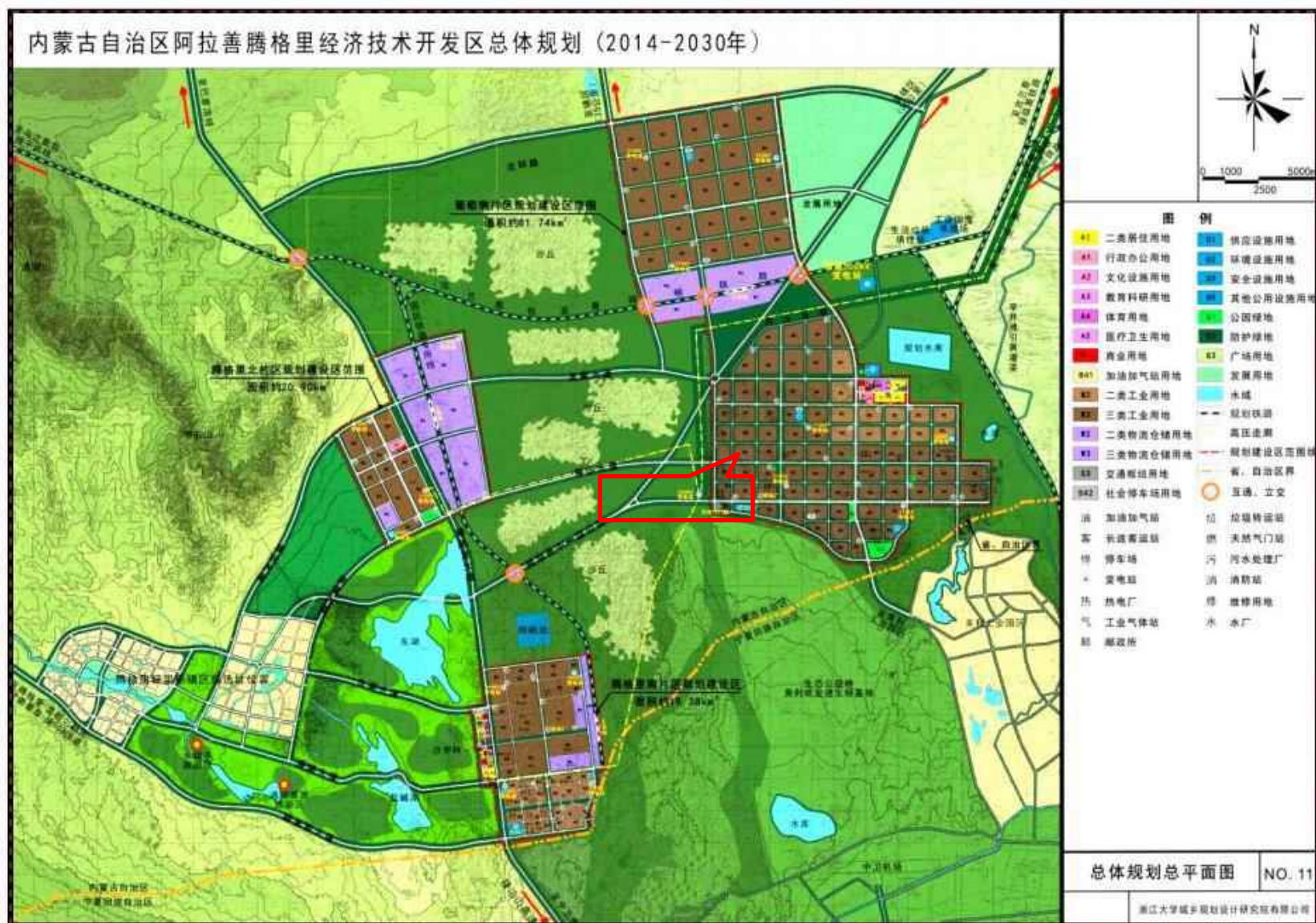
()

()

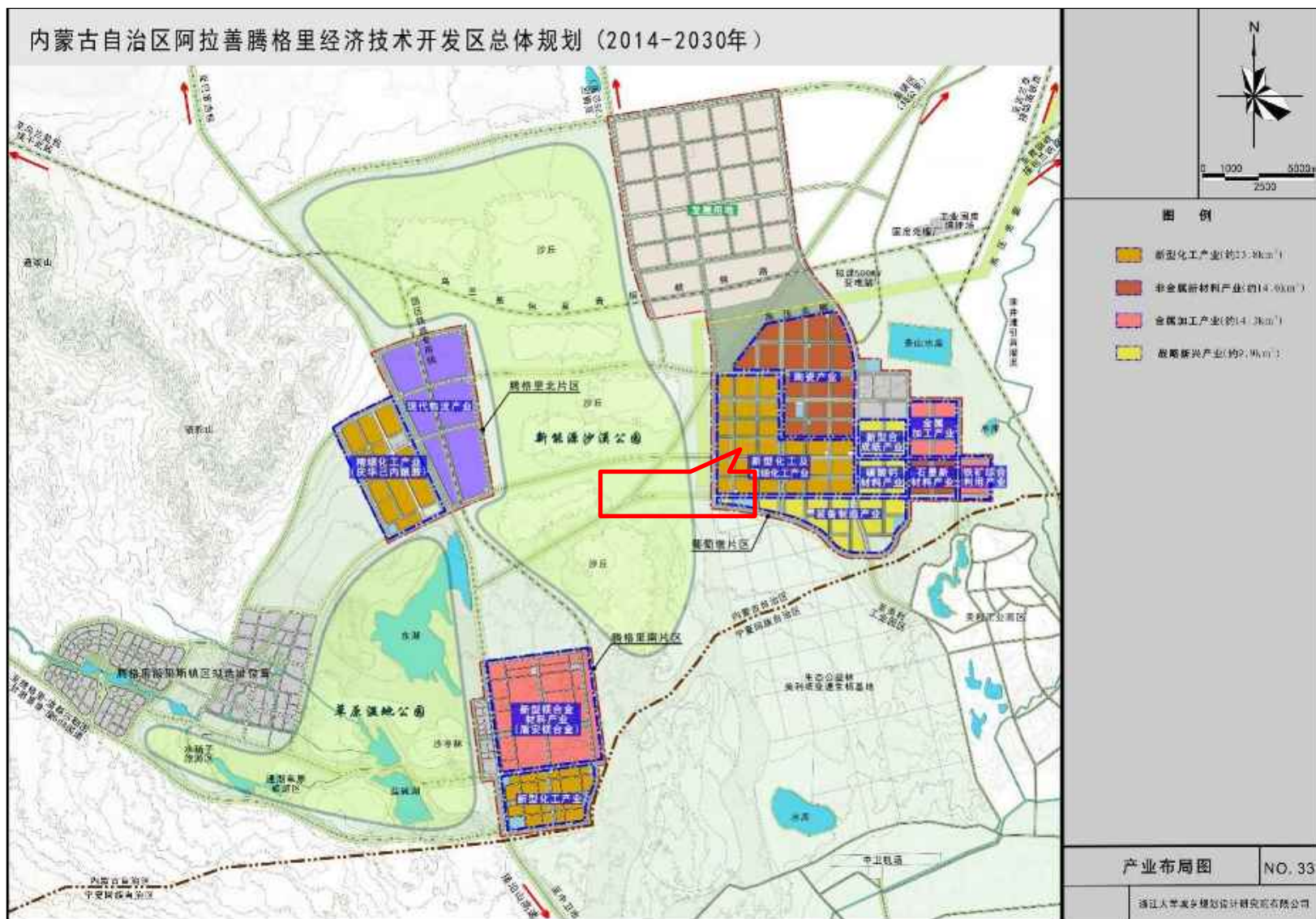
19.4km²

“

"



4.2-1



4.2-2

4.2.4

	“	” + “	”
1	“	”	
2	“	”	

4.2.5

1			
1			
	2020	$3102 \times 10^4 \text{m}^3/\text{a}$	$9.4 \times 10^4 \text{m}^3/\text{d}$
2030	$4392 \times 10^4 \text{m}^3/\text{a}$	$13.31 \times 10^4 \text{m}^3/\text{d}$	
	2020	$337 \times 10^4 \text{m}^3/\text{a}$	$1.02 \times 10^4 \text{m}^3/\text{d}$
2030	$416 \times 10^4 \text{m}^3/\text{a}$	$1.26 \times 10^4 \text{m}^3/\text{d}$	
	2020	$2765 \times 10^4 \text{m}^3/\text{a}$	$8.38 \times 10^4 \text{m}^3/\text{d}$
2030	$3976 \times 10^4 \text{m}^3/\text{a}$	$12.05 \times 10^4 \text{m}^3/\text{d}$	
2			
	()		

3

2020	$7 \times 10^4 \text{m}^3/\text{d}$	2030	$10 \times 10^4 \text{m}^3/\text{d}$
2			
1			

[illegible]

20hm^2

10

2020 7

2021

2019

4.3

4.3.1

4.3.1.1

				2022			2022	
				2022				
			6		SO ₂	NO ₂	PM ₁₀	PM _{2.5}
	8μg/m ³	10μg/m ³	40μg/m ³	23μg/m ³	CO24		95	0.6mg/m ³
O ₃	8		90		146μg/m ³			
GB3095-2012								

4.3-1

			μg/m ³	μg/m ³		
SO ₂			8	60	/	
NO ₂			10	40	/	
PM ₁₀			40	70	/	
PM _{2.5}			23	35	/	
CO	24	95	600	4000	/	
O ₃	8	90	146	160	/	

2022

PM₁₀ PM_{2.5} SO₂ NO₂

CO O₃

4.3.1.2

1

HJ2.2-2018

1

HJ664

2022 1

4.3-2

4.3-2								
				μg/m ³	μg/m ³	%	%	
	E105.724 ° N38.8516 °	SO ₂		60	6	10	/	
			98	150	13	8.67	/	
		NO ₂		40	7	17.5	/	
			98	80	20	25	/	
		PM ₁₀		70	43	61.43	/	
			95	150	117	78	/	
		PM _{2.5}		35	26	74.29	/	
			95	75	54	72	/	
		CO	95	4000	600	15	/	
		O ₃	8h 90	160	146	91.25	/	
4.3-2			SO ₂	NO ₂	98			
PM ₁₀	95		PM _{2.5}		95			
CO	95	O ₃		8h	90			
GB3095-2012								
2								
1								
HJ2.2-2018								
1								
4.3-3			4.3-1					



4.3-1

4.3-3				
			km	
1#		-	-	N:37 41'16.22" E: 105 6'10.00"

2

Cl₂ HCl TVOC

3

7 Cl₂ HCl 1 45min

4 02 00 08 00 14 00 20 00 TVOC

8 8 6 Cl₂ HCl 24

24

4

4.3-4

4.3-4				
1	Cl ₂	2003	A	0.03mg/m ³
2	HCl	HJ 549-2016		0.02mg/m ³
3		- HJ 604-2017		0.07mg/m ³
4	TVOC	1,1-	/ - HJ 644-2013	0.3μg/m ³
		1,1,2- -1,2,2-		0.5μg/m ³
				0.3μg/m ³
				1.0μg/m ³
		1,1-		0.4μg/m ³
		-1,2-		0.5μg/m ³
				0.4μg/m ³
		1,1,1-		0.4μg/m ³
				0.6μg/m ³
		1,2-		0.8μg/m ³
				0.4μg/m ³
				0.5μg/m ³
		1,2-		0.4μg/m ³
		-1,3-		0.5μg/m ³

				0.4μg/m ³
		-1,3-		0.5μg/m ³
		1,1,2-		0.4μg/m ³
				0.4μg/m ³
		1,2-		0.4μg/m ³
				0.3μg/m ³
				0.3μg/m ³
		, -		0.6μg/m ³
		-		0.6μg/m ³
				0.6μg/m ³
		1,1,2,2-		0.4μg/m ³
		4-		0.8μg/m ³
		1,3,5-		0.7μg/m ³
		1,2,4-		0.8μg/m ³
		1,3-		0.6μg/m ³
		1,4-		0.7μg/m ³
				0.7μg/m ³
		1,2-		0.7μg/m ³
		1,2,4-		0.7μg/m ³
				0.6μg/m ³

5

2024 9 27 2024 10 3

Cl₂ HCl TVOC 7 Cl₂ HCl TVOC

HJ2.2-2018 D

DB13/1577-2012

4.3-5

4.3-5

				μg/m ³	μg/m ³	/%	%	
1#	N:37 °41'16.22" E: 105 °6'10.00"	Cl ₂	1	100	ND 30 -50	60%	0	
		HCl	1	50	ND 20	20%	0	
			1	2000	260-380	19%	0	
		TVOC	8	600	9.5-30.2	5.03%	0	
		Cl ₂	24	30	19-28	93.33%	0	
		HCl	24	15	10-13	86.67%	0	

ND “ ”

4.3-5 Cl₂ HCl TVOC

HJ2.2-2018 D

4.3.2

4.3.2.1

2024

10

4.3-6

10

4.3-2

9.01‰

4.3-6

	x °	y °	m	m	2024	10	m	
					m	m		
D1	105°6'15.40831"	37°41'23.31615"	1310.90	30.31	6.12	1304.78		
D2	105°6'8.30152"	37°41'8.79360"	1308.71	30.13	8.69	1300.02		
D3	105°5'43.58229"	37°41'16.82735"	1304.76	30.12	4.76	1300.00	W530	
D4	105°6'37.96461"	37°41'1.37783"	1310.74	30.31	8.61	1302.13	ES591	
D5	105°5'57.17787"	37°40'47.78225"	1302.91	25.37	8.59	1294.32	WS735	
D6	105°7'37.29078"	37°41'23.00716"	1320.25	30.34	10.22	1310.03	E2045	
D7	105°7'15.97044"	37°40'38.20354"	1309.71	17.21	9.71	1300.00	ES1775	
D8	105°5'39.87440"	37°40'57.66994"	1303.12	30.95	8.23	1294.89	WS817	
D9	105°5'45.43623"	37°40'34.49565"	1302.13	20.73	12.13	1290.00	WS1187	
D10	105°6'50.63322"	37°40'29.86080"	1307.60	20.31	12.13	1295.47	ES1468	



4.3-2 2024 10

4.3.2.2

1

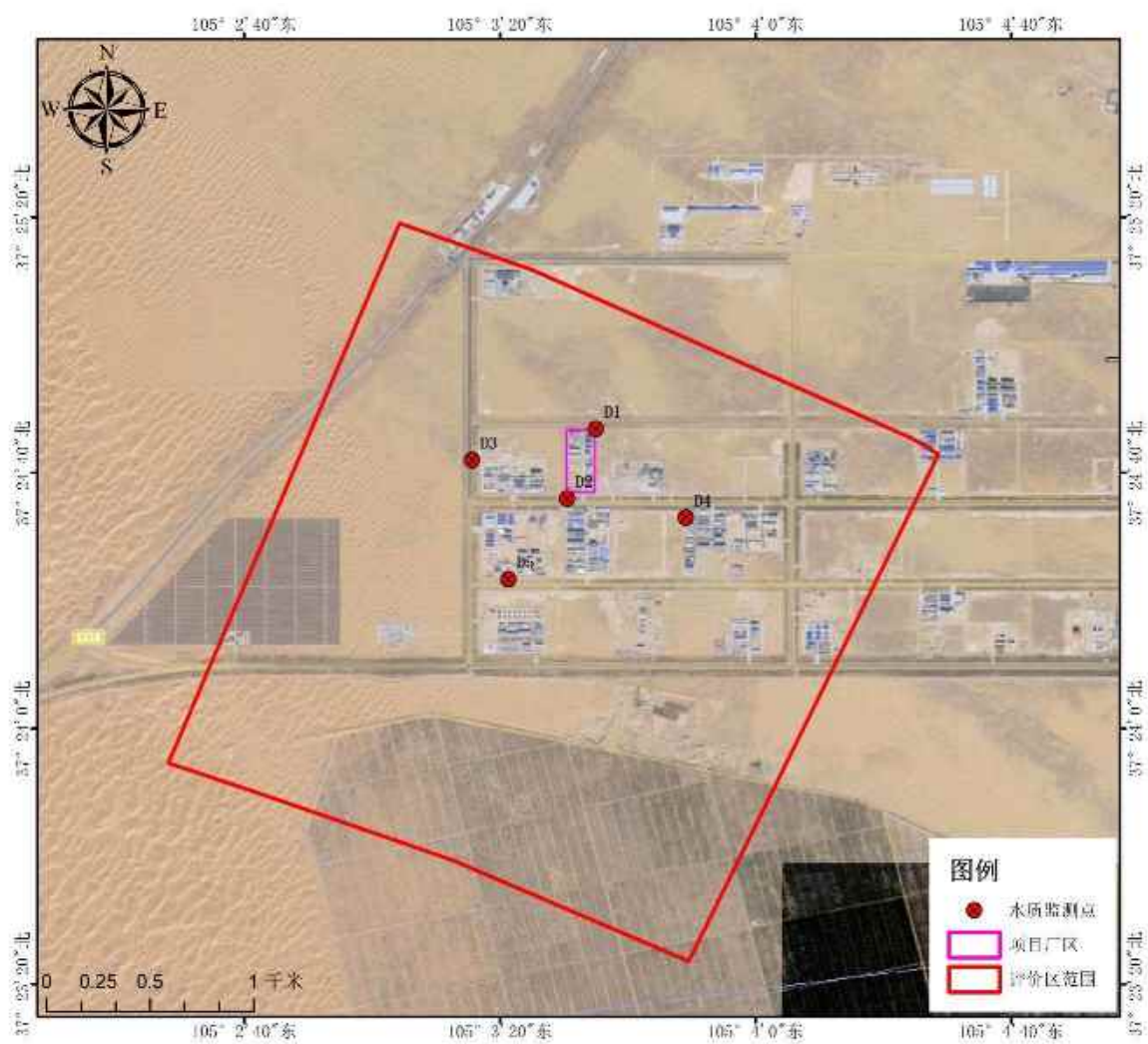
5

4.3-7

4.3-3

4.3-7

			m	
D1	105°6'15.40831"	37°41'23.31615"	30.31	Q
D2	105°6'8.30152"	37°41'8.79360"	30.13	Q
D3	105°5'43.58229"	37°41'16.82735"	30.12	Q
D4	105°6'37.96461"	37°41'1.37783"	30.31	Q
D5	105°5'57.17787"	37°40'47.78225"	25.37	Q



4.3-3

2

pH

COD_{Mn} O₂

K⁺ Na⁺ Ca²⁺ Mg²⁺ CO₃²⁻ HCO₃⁻ Cl⁻ SO₄²⁻

3

4.3-8

4.3-8			
	GB/T 11903-1989 3	/	/
	4 GB/T 5750.4-2023 6.1	/	/
	HJ 1075-2019	0.3NTU	LH-NTU3M IE-0002
	4 GB/T 5750.4-2023 7.1	/	/
pH	pH HJ 1147-2020	/	DZB-712 IE-0240
	4 GB/T 5750.4-2023 11.1	4mg/L	101-2ASB IE-0034 ME204E/02 IE-0005
	EDTA GB/T 7477-1987	5mg/L	50mL D-50-3
	Ca ²⁺ Mg ²⁺ Li ⁺ Na ⁺ NH ₄ ⁺ K ⁺ HJ 812-2016	0.02mg/L	CIC-D120 IE-0064
	Ca ²⁺ Mg ²⁺ Li ⁺ Na ⁺ NH ₄ ⁺ K ⁺ HJ 812-2016	0.02mg/L	CIC-D120 IE-0064
	Ca ²⁺ Mg ²⁺ Li ⁺ Na ⁺ NH ₄ ⁺ K ⁺ HJ 812-2016	0.03mg/L	CIC-D120 IE-0064
	Ca ²⁺ Mg ²⁺ Li ⁺ Na ⁺ NH ₄ ⁺ K ⁺ HJ 812-2016	0.02mg/L	CIC-D120 IE-0064
	49 DZ/T 0064.49-2021	5mg/L	25mL D-25-3
	49 DZ/T 0064.49-2021	5mg/L	25mL D-25-3
	F ⁻ Cl ⁻ NO ₂ ⁻ Br ⁻ NO ₃ ⁻ PO ₄ ³⁻ SO ₃ ²⁻ SO ₄ ²⁻ HJ 84-2016	0.007mg/ L	CIC-D120 IE-0064
	F ⁻ Cl ⁻ NO ₂ ⁻ Br ⁻ NO ₃ ⁻ PO ₄ ³⁻ SO ₃ ²⁻ SO ₄ ²⁻ HJ 84-2016	0.018mg/ L	CIC-D120 IE-0064

	GB/T 11911-1989	0.03mg/L	A3AFG-12 IE-0058
	GB/T 11911-1989	0.01mg/L	A3AFG-12 IE-0058
	GB/T 7475-1987	0.01mg/L	A3AFG-12 IE-0058
	GB/T 7475-1987	0.01mg/L	A3AFG-12 IE-0058
	4- HJ 503-2009	0.0003mg/ L	UV8100A IE-0053
	GB/T 7494-1987	0.05mg/L	UV8100A IE-0053
	GB/T 11892-1989	0.1mg/L	25mL D-25-2
	HJ 535-2009	0.025mg/ L	UV8100A IE-0053
	HJ 1226-2021	0.003mg/ L	UV8100A IE-0053
	12 GB/T 5750.12-2023 5.1	/	SPX-150 IE-0167
	HJ 1000-2018	/	DH-500ASB IE-0031
	GB/T 7493-1987	0.003mg/ L	UV8100A IE-0053
	HJ/T 346-2007	0.08mg/L	UV8100A IE-0053
	52 - DZ/T 0064.52-2021	0.002mg/ L	UV8100A IE-0053
	F ⁻ Cl ⁻ NO ₂ ⁻ Br ⁻ NO ₃ ⁻ PO ₄ ³⁻ SO ₃ ²⁻ SO ₄ ²⁻ HJ 84-2016	0.006mg/ L	CIC-D120 IE-0064
	HJ 694-2014	0.04μg/L	SK-2003AZ IE-0057
	HJ 694-2014	0.3μg/L	SK-2003AZ IE-0057
	2002 B	0.025μg/L	A3AFG-12 IE-0058
	6 GB/T 5750.6-2023 13.1	0.004mg/ L	UV8100A IE-0053

	2002 B	0.25μg/L	A3AFG-12 IE-0058
	HJ 970-2018	0.01mg/L	UV8100A IE-0053

4

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

$$S_{i,j}——i$$

$$C_{ij}——i\hspace{1cm}mg/L$$

$$C_{si}——i\hspace{1cm}mg/L$$

$$S_{i,j}\hspace{1cm}S_{i,j}\hspace{1cm}1$$

pH

$$S_{pH,j}=(7.0-pH_j)/(7.0-pH_{sd})\hspace{0.5cm}(pH_j\leq7.0)$$

$$S_{pH,j}=(pH_j-7.0)/(pH_{su}-7.0)\hspace{0.5cm}(pH_j\geq7.0)$$

$$pH_j——pH$$

$$pH_{sd}——pH$$

$$pH_{su}——pH$$

GB/T14848-2017

5

4.3-9~ 4.3-11

4.3-9						
		2024.09.27 /				2024.06.28
		D1/WT24941 DX010101	D2/WT24941 DX020101	D5/WT24941 DX050101	D3/WT24941 DX030101	D4
		5	5	5	5	5
	/					
	NTU	1.7	0.5	1.3	2.8	2.1
	/					
pH	/	7.7	6.6	7.9	7.7	7.6
	mg/L	982	1.27×10 ³	549	522	652
	mg/L	285	640	112	200	592
	mg/L	6.07	7.11	2.79	4.71	/
	mg/L	252	251	160	117	56.7
	mg/L	31.5	162	15.9	34.2	/
	mg/L	44.6	51.1	14.4	22.1	/
	mg/L	5L	5L	5L	5L	/
	mg/L	256	534	288	218	/
	mg/L	201	278	52.0	58.2	46.6
	mg/L	216	217	64.0	101	87.6
	mg/L	1.3	4.3	0.8	1.1	/
	mg/L	0.051	0.358	0.027	0.026	0.098
	mg/L	0.003L	0.003L	0.003L	0.003L	0.003L
	mg/L	0.004	0.006	0.004	0.003L	0.003L
	mg/L	10.2	3.30	10.2	8.86	0.404
	mg/L	0.03L	0.03L	0.03L	0.03L	0.03L
	mg/L	0.01L	1.32	0.01L	0.01L	0.01L
	mg/L	0.01L	0.01L	0.01L	0.01L	0.01L
	mg/L	0.01L	0.06	0.02	0.03	0.009L
	mg/L	0.0003L	0.0003L	0.0003L	0.0003L	0.0003L
	mg/L	0.05L	0.05L	0.05L	0.05L	0.05L

	MPN/ 100mL					
	CFU/mL	82	66	79	74	49
	mg/L	0.002L	0.002L	0.002L	0.002L	0.002L
	mg/L	1.14	0.885	1.78	1.09	0.88
	µg/L	0.04L	0.04L	0.04L	0.04L	0.04L
	µg/L	4.3	4.6	4.2	3.6	3.5
	µg/L	1.76	2.11	0.534	0.487	0.01L
	mg/L	0.004L	0.004L	0.004L	0.004L	0.004L
	µg/L	4.33	7.58	0.84	1.07	10L
	mg/L	0.01L	0.01L	0.01L	0.01L	0.01L
	pH	pH	“+L”			
	GB/T 14848-2017					
	COD _{Mn}		O ₂			

4.3-10

	2024.09.27 /				
	D1/WT24941	D2/WT24941	D5/WT24941	D3/WT24941	D4
	0.33	0.33	0.33	0.33	0.33
	--	--	--	--	--
	0.57	0.17	0.43	0.93	0.70
	--	--	--	--	--
pH	0.47	-0.27	0.60	0.47	0.40
	0.98	1.27	0.55	0.52	0.65
	0.63	1.42	0.25	0.44	1.32
	--	--	--	--	--
	1.26	1.26	0.80	0.59	0.28
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	0.80	1.11	0.21	0.23	0.19
	0.86	0.87	0.26	0.40	0.35
	0.43	1.43	0.27	0.37	0.00
	0.10	0.72	0.05	0.05	0.20

	--	--	--	--	--
	0.00	0.01	0.00	--	--
	0.51	0.17	0.51	0.44	0.02
	--	--	--	--	--
	--	13.20	--	--	--
	--	--	--	--	--
	--	0.06	0.02	0.03	--
	--	--	--	--	--
	--	--	--	--	--
	--	--	--	--	--
	0.82	0.66	0.79	0.74	0.49
	--	--	--	--	--
	1.14	0.89	1.78	1.09	0.88
	--	--	--	--	--
	0.43	0.46	0.42	0.36	0.35
	0.35	0.42	0.11	0.10	--
	--	--	--	--	--
	0.43	0.76	0.08	0.11	--
	--	--	--	--	--

4.3-11

		D1/WT24941 DX010101	D2/WT24941 DX020101	D5/WT24941 DX050101	D3/WT24941 DX030101
mg/L		6.07	7.11	2.79	4.71
		252	251	160	117
		31.5	162	15.9	34.2
		44.6	51.1	14.4	22.1
		5L	5L	5L	5L
		256	534	288	218
		201	278	52.0	58.2
		216	217	64.0	101
		0.16	0.18	0.07	0.12
		10.96	10.91	6.96	5.09
		1.58	8.10	0.80	1.71
		3.72	4.26	1.20	1.84
		--	--	--	--
		4.20	8.75	4.72	3.57
		5.66	7.83	1.46	1.64
		4.50	4.52	1.33	2.10
		16.40	23.45	9.02	8.76
		14.36	21.11	7.52	7.32
		0.01	0.01	0.01	0.01

		0.67	0.47	0.77	0.58
		0.10	0.35	0.09	0.20
		0.23	0.18	0.13	0.21
		--	--	--	--
		0.29	0.41	0.63	0.49
		0.39	0.37	0.19	0.22
		0.31	0.21	0.18	0.29
		Cl SO ₄ HCO ₃ -Na	HCO ₃ Cl-Na Ca	HCO ₃ -Na	HCO ₃ SO ₄ -N a

4.3-9~ 4.3-11

2021

2015 4 4 t

2019 2 2000t/

2- -4,6-

GB/T14848-2017

-

Na Cl SO₄
Na⁺ SO₄²⁻
Cl SO₄ HCO₃-Na HCO₃ Cl-Na Ca HCO₃-Na
HCO₃ SO₄-Na

4.3.3

1

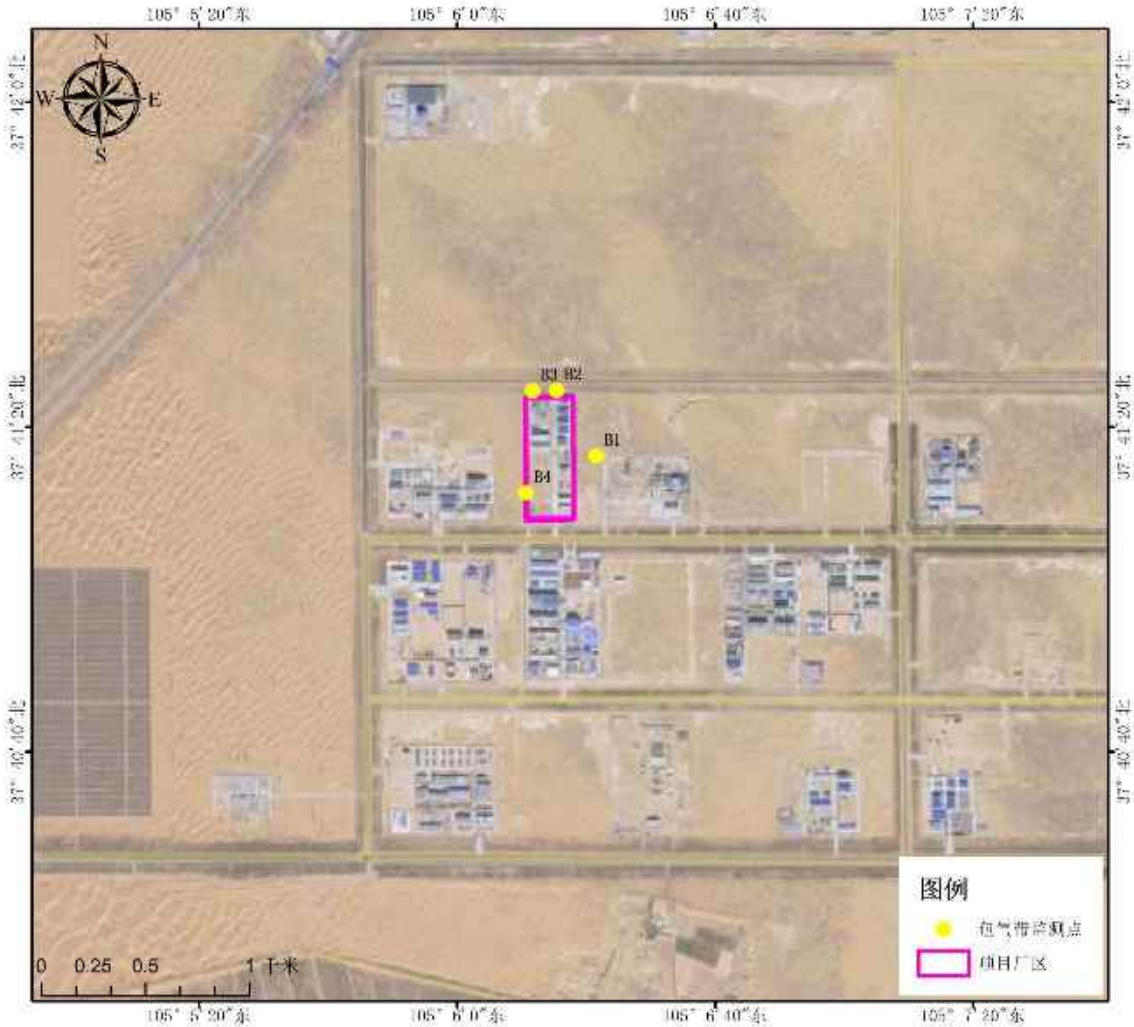
4 0.2m

4.3-12 4.3-4

4.3-12

--	--	--	--

B1		105°6'16.20257"	37°41'17.91116"	0~20cm
B2		105°6'11.42986"	37°41'23.43251"	
B3		105°6'7.52886"	37°41'23.54838"	
B4		105°6'6.17702"	37°41'10.30042"	



4.3-4

2
pH
3
1 2024 10 9
4

HJ557-2010

GB/T15555.1-12

HJ164-2020

4.3-13			
pH	pH HJ 1147-2020	/	FE28 pH IE-0029
	F^- Cl^- NO_2^- Br^- NO_3^- PO_4^{3-} SO_3^{2-} SO_4^{2-} HJ 84-2016	0.007mg/L	CIC-D120 IE-0064
	F^- Cl^- NO_2^- Br^- NO_3^- PO_4^{3-} SO_3^{2-} SO_4^{2-} HJ 84-2016	0.018mg/L	CIC-D120 IE-0064
	GB/T 11911-1989	0.03mg/L	A3AFG-12 IE-0058
	HJ 1226-2021	0.003mg/L	UV8100A IE-0053
	HJ 970-2018	0.01mg/L	UV8100A IE-0053

5

4.3-14

4.3-14					
		2024.09.27 /			
		B1 /SD24940BQ010101	B2 /SD24940BQ020101	B3 /SD24940BQ030101	B4 /SD24940BQ040101
pH	/	8.4	8.5	8.4	8.5
	mg/L	0.602	0.599	0.882	0.610
	mg/L	0.974	4.68	1.92	1.02
	mg/L	0.13	0.03L	0.22	0.27
	mg/L	0.003L	0.003L	0.003L	0.003L
	mg/L	0.01L	0.01L	0.01L	0.01L
	pH “ +L”				

4.3.4

1

4

1

1

4.3-1

2

A

3

2024 9 27 9 28

GB3096-2008

4

4.3-15

4.3-15

dB A

		9 27		9 28	
1#		63	54	62	53
2#		59	53	58	52
3#		50	46	49	45
4#		58	52	57	51
		65	55	65	55

4.3-15

49~63dB(A)

65dB(A)

45~54dB(A)

55dB(A)

GB3096-2008 3

4.3.5

4.3.5.1

4#

4.3-16

4.3-16 4#

	4#	2024 9 27
	105 6'10.66"	37 41'11.77"
		6%
	pH	8.93
		15.9
		473
	/ mm/min	2.75
	/ g/cm ³	1.32
	%	49.0

4.3.5.2

1

6

4.3-18 4.3-1

4.3-18

			km		
1		-	-	37 41'23.16" 105 6'8.65"	
2		-	-	37 41'20.08" 105 6'8.62"	0 20cm
3		-	-	37 41'16.66" 105 6'9.00"	300cm
4		-	-	37 41'11.77" 105 6'10.66"	0 50cm 50
5		-	-	37 41'18.43" 105 6'17.41"	150cm 150
6		-	-	37 41'18.02" 105 6'1.47"	300cm

2					
4#					
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		
1#	2#	3#	5#	6#	
8					
3					
2024 9 27					
4.3-19					

4.3-19		
pH	2 pH NY/T 1121.2-2006	/
	4 NY/T 1121.4-2006	/
	- LY/T 1215-1999	/
	LY/T 1218-1999 3	/
	HJ 889-2017 -	0.8cmol+/kg
	HJ 746-2015	/
	2 GB/T 22105.2-2008	0.01mg/kg
	GB/T 17141-1997	0.01mg/kg
	HJ 491-2019	1mg/kg
	GB/T 17141-1997	0.1mg/kg

	1	GB/T 22105.1-2008	0.002mg/kg
		HJ 491-2019	3mg/kg
		HJ 1082-2019	0.5mg/kg
		HJ 605-2011	1.0µg/kg
		HJ 605-2011	1.0µg/kg
1,1-		HJ 605-2011	1.0µg/kg
		HJ 605-2011	1.5µg/kg
-1,2-		HJ 605-2011	1.4µg/kg
1,1		HJ 605-2011	1.2µg/kg
-1,2-		HJ 605-2011	1.3µg/kg
		HJ 605-2011	1.1µg/kg
1,1,1-		HJ 605-2011	1.3µg/kg
		HJ 605-2011	1.3µg/kg
		HJ 605-2011	1.9µg/kg
1,2-		HJ 605-2011	1.3µg/kg
		HJ 605-2011	1.2µg/kg
1,2-		HJ 605-2011	1.1µg/kg
		HJ 605-2011	1.3µg/kg
1,1,2-		HJ 605-2011	1.2µg/kg
		HJ 605-2011	1.4µg/kg
		HJ 605-2011	1.2µg/kg

1,1,1,2-	HJ 605-2011	/	-	1.2 µg/kg
	HJ 605-2011	/	-	1.2 µg/kg
, -	HJ 605-2011	/	-	1.2 µg/kg
-	HJ 605-2011	/	-	1.2 µg/kg
	HJ 605-2011	/	-	1.1 µg/kg
1,1,2,2-	HJ 605-2011	/	-	1.2 µg/kg
1,2,3-	HJ 605-2011	/	-	1.2 µg/kg
1,4-	HJ 605-2011	/	-	1.5 µg/kg
1,2-	HJ 605-2011	/	-	1.5 µg/kg
	HJ 834-2017	-		0.1mg/kg
2-	HJ 834-2017	-		0.06 mg/kg
	HJ 834-2017	-		0.09 mg/kg
	HJ 834-2017	-		0.09 mg/kg
[a]	HJ 834-2017	-		0.1 mg/kg
	HJ 834-2017	-		0.1 mg/kg
[b]	HJ 834-2017	-		0.2 mg/kg
[k]	HJ 834-2017	-		0.1 mg/kg
[a]	HJ 834-2017	-		0.1 mg/kg
1,2,3-c,d	HJ 834-2017	-		0.1 mg/kg
(a,h)	HJ 834-2017	-		0.1 mg/kg
	C10-C40 HJ 1021-2019			6mg/kg

4.3-20

GB 36600-2018

4.3-20		4#	mg/kg		
	12.6	60		0.26	65
	ND 0.5	5.7		13	18000
	17.1	800		0.106	38
	37	900		ND 1.3 × 10 ⁻³	2.8
	ND 1.1 × 10 ⁻³	0.9		ND 1.0 × 10 ⁻³	37
1,1-	ND 1.2 × 10 ⁻³	9	1,2-	ND 1.3 × 10 ⁻³	5
1,1-	ND 1.0 × 10 ⁻³	66	-1,1-	ND 1.3 × 10 ⁻³	596
-1,1-	ND 1.4 × 10 ⁻³	54		ND 1.5 × 10 ⁻³	616
1,2-	ND 1.1 × 10 ⁻³	5	1,1,1,2-	ND 1.2 × 10 ⁻³	10
1,1,2,2-	ND 1.2 × 10 ⁻³	6.8		ND 1.4 × 10 ⁻³	53
1,1,1-	ND 1.3 × 10 ⁻³	840	1,1,2-	ND 1.2 × 10 ⁻³	2.8
	ND 1.2 × 10 ⁻³	2.8	1,2,3-	ND 1.2 × 10 ⁻³	0.5
	ND 1.0 × 10 ⁻³	0.43		ND 1.9 × 10 ⁻³	4
	ND 1.2 × 10 ⁻³	270	1,2-	ND 1.5 × 10 ⁻³	560
1,4-	ND 1.5 × 10 ⁻³	20		ND 1.2 × 10 ⁻³	28
	ND 1.1 × 10 ⁻³	1290		ND 1.3 × 10 ⁻³	1200
+	ND 1.2 × 10 ⁻³	570		ND 1.2 × 10 ⁻³	640
	ND 0.09	76		ND 0.1	260
2-	ND 0.06	2256	[a]	ND 0.1	15
[a]	ND 0.1	1.5	[b]	ND 0.2	15
[k]	ND 0.1	151		ND 0.1	1293
[a,h]	ND 0.1	1.5	[1,2,3-cd]	ND 0.1	15
	ND 0.09	70		50	4500

ND

3.3-20		1#	2#	3#	5#	6#	mg/kg		
1#		13.2	0.27	14	13.2	0.072	39	ND 0.5	59
		15.2	0.32	13	11.3	0.047	44	ND 0.5	48
		13.0	0.32	14	13.7	0.079	39	ND 0.5	43
2#		7.11	0.24	10	13.3	0.079	34	ND 0.5	24
		8.07	0.22	12	11.5	0.132	36	ND 0.5	20
		8.92	0.46	15	11.2	0.083	43	ND 0.5	19

3#		6.58	0.22	11	12.1	0.087	27	ND 0.5	36
		6.79	0.22	11	11.2	0.182	24	ND 0.5	31
		7.65	0.21	11	13.2	0.061	33	ND 0.5	26
5#		10.1	0.28	13	15.3	0.085	38	ND 0.5	28
6#		7.81	0.26	10	14.8	0.125	33	ND 0.5	21
		60	65	18000	800	38	900	5.7	4500

ND

4.3-20

GB 36600-2018

4.4

HJ2.2-2018 “

”

4.4-1

4.4-1

			t/a	
1	3	2	Cl ₂ 0.041t/a HCl 0.362t/a 3.825t/a TVOC 3.825t/a H ₂ S 0.306t/a	
2	6000t/a	3000	0.021t/a 0.059t/a TVOC 0.059t/a	
3	18000	2700 2-(2-(1-)-3-(2-)-2-)-1 2 4- -3-	Cl ₂ 0.021t/a HCl 0.177t/a 7.481t/a TVOC 7.569t/a 0.109 NH ₃ 0.171 H ₂ S 0.006	
4	1800t/a 400t/a3 5 6-	1800 400t3 5 6-	1.399 NH3:0.48 HCl 0.269 0.162	

			0.0009	
			VOCs 0.555	

5

5.1

5.1.1

5.1.1.1

2003 2022

2022

37.30 N 105.11°E 1227m

40km

5.1-1

5.1-1		20	2003	2022
		10.1	2021	11
		38.9	2017-07-11	38.9
		-27.1	2008-01-31	-27.1
hPa		878.3		
h		2921.2		
%		51.9		
mm		183.9		
	d	11.9		
	d	0.1		
	d	10.9		
m/s		27.1	2003-07-09	ENE
m/s		2.4		
(<0.5m/s)(%)		5.1		

5.1.1.2

1

1

5.1-2 04 3 / 1 10

2.1 /

5.1-2													m/s												
	1	2	3	4	5	6	7	8	9	10	11	12													
m/s	2.1	2.4	2.8	3	2.9	2.6	2.6	2.5	2.3	2.1	2.2	2.2													

2

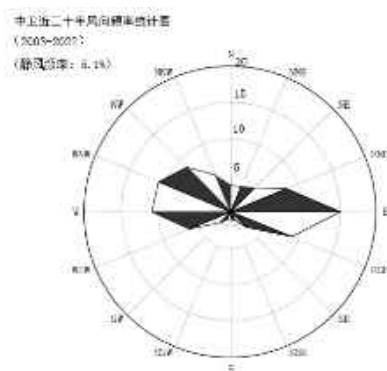
20

5.1-1

5.1-3

ENE E ESE 28.6 E 12.7

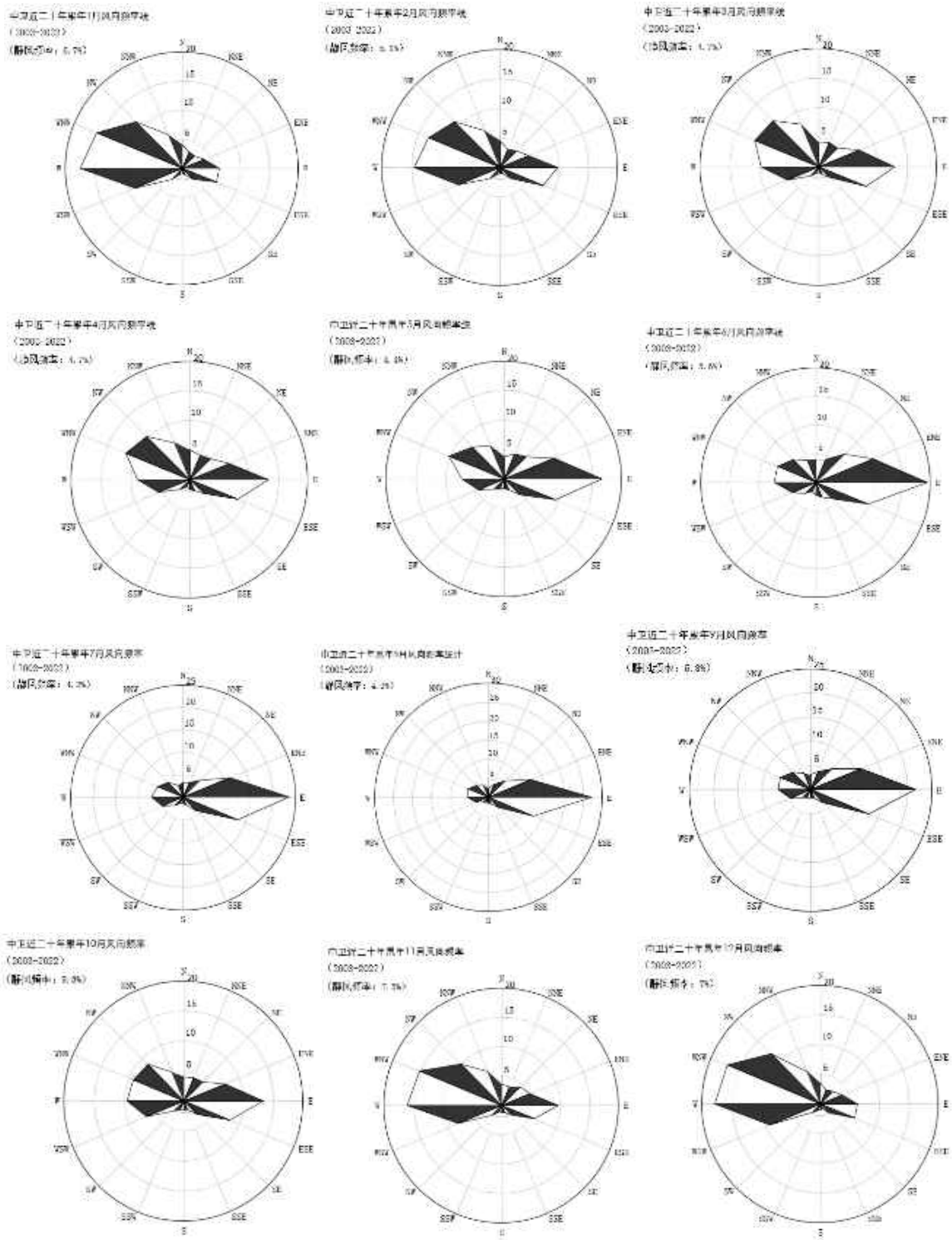
5.1-3										%							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	C
	3.68	3.73	4.65	8.28	15.02	9.03	2.97	1.34	1.04	1.14	2.19	6.20	10.9	10.67	8.56	5.46	5.09



5.1-1

15.3%

5.1-4										%							
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	C
	4	3.1	3	4.1	6.3	6.3	2.6	1.2	1	1.2	2.6	8.8	17.5	15.9	11.3	6.2	6.7
	4.5	3.3	3.9	5.2	9.8	7.9	2.7	1.2	1.1	1.3	2.6	7.7	14.6	13.1	11	6.7	5.1
	4	4.5	4.5	7.3	12.8	8.6	2.5	1.4	0.9	1.2	2.1	5.8	9.8	11.8	11	7.7	4.7
	5	4.5	5	7.2	13.3	8.7	3.4	2	1.7	1.3	2.3	5.7	8.8	11.7	10.3	6.8	4.7
	3.8	4.6	5.3	9.2	16.6	9.4	3.8	2.1	1.7	1.8	2.5	4.8	7.2	10.2	7.7	6.1	4.4
	4	4.3	7	10.8	19.4	9.8	4	2.8	2.3	1.7	2.7	4.5	7.3	7.3	5.7	4.2	3.6
	3.3	3.5	5.3	11.3	23.7	13.1	4.2	1.8	1.5	1.5	2.5	4.9	7.1	6.2	4.7	2.9	4.2
	2.4	3.8	6.2	12.1	27.2	12.7	3.9	1.7	1.4	1.4	1.9	3.6	5.5	5.8	4.5	3.6	4.3
	3.1	4	6.2	11.3	21.6	13	3.7	1.9	1.6	1.8	2.3	4.5	6.7	6.8	5.2	3.7	5.8
	4	4.2	4.5	7.5	13.3	8.3	3.1	1.5	1.5	1.5	2.3	6.8	9.6	9.2	8.6	5.2	9.3
	3.6	3.4	4.5	5.2	9.6	5.9	2.4	1.4	1.2	1.1	2.4	8	16.2	15.2	9.9	6.2	7.3
	3.5	2.5	2.9	3.9	6.2	6.2	2.1	0.9	1	1.1	2	9.3	17.9	17.1	11.9	5.9	7



5.1-2

3

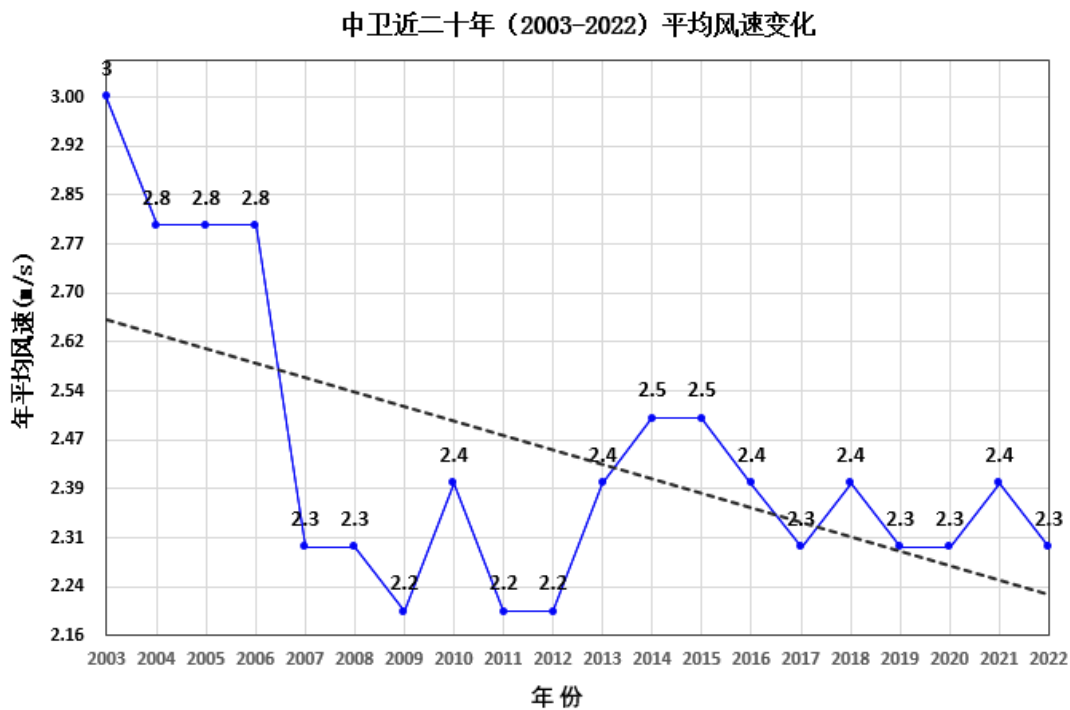
20

2003

3.0

/ 2009 2011 2012

2.2 /

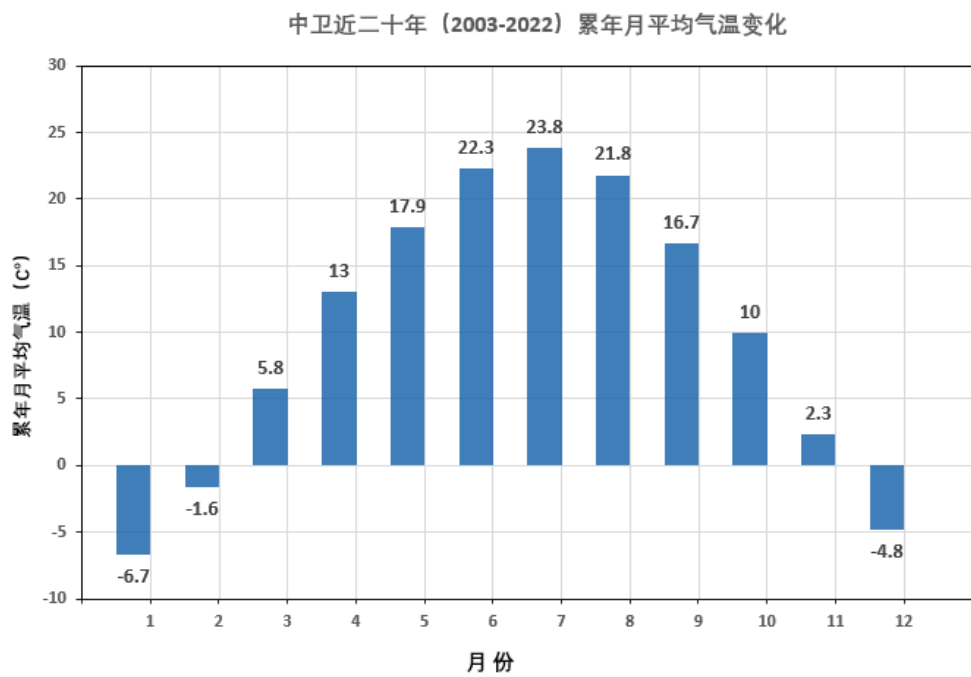


5.1-3 m/s

2

1

07 23.8 01 -6.7 20
2017-07 38.9 20 2008-01 -27.1



5.1-4 ℃

2

20

2021 2022

11

2008

9.1



5.1-5

℃

3

1

08

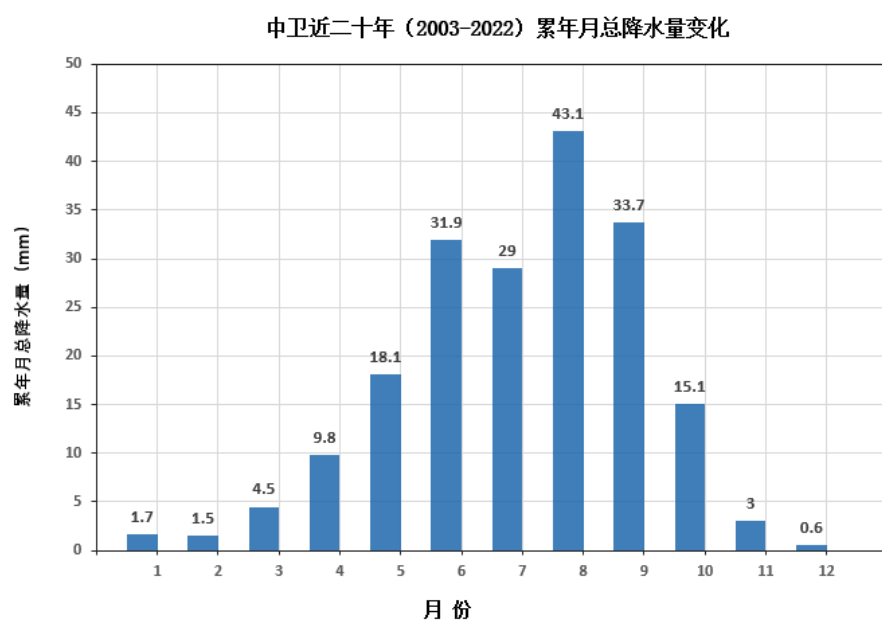
43.1

12

0.6

20

2018-08 58



5.1-6

2

20

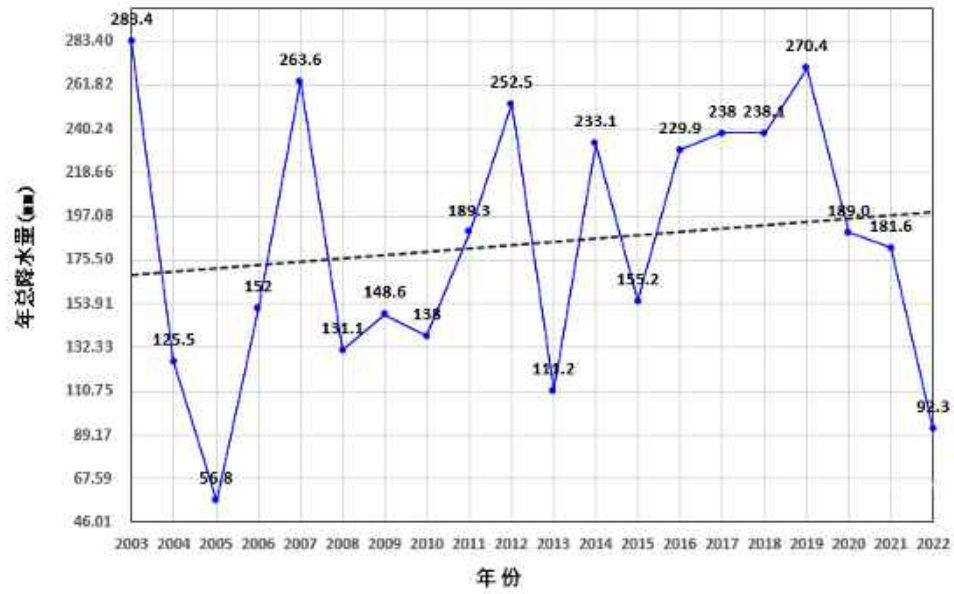
2003

283.4

2005

56.8

中卫近二十年（2003-2022）总降水量变化



5.1-7

4

1

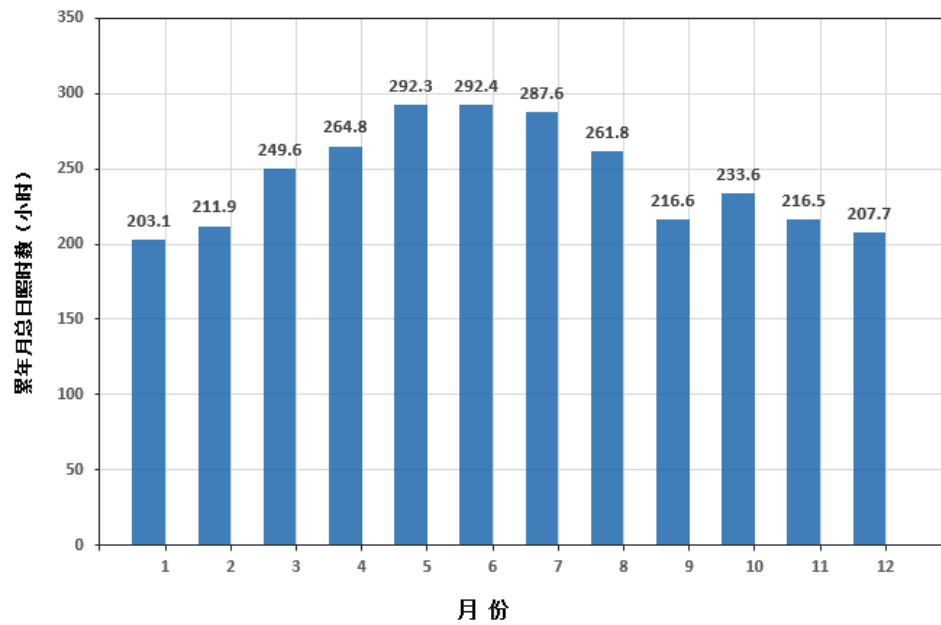
05

292.4

1

203.1

中卫近二十年（2003-2022）累年月总日照时数变化



5.1-8

2

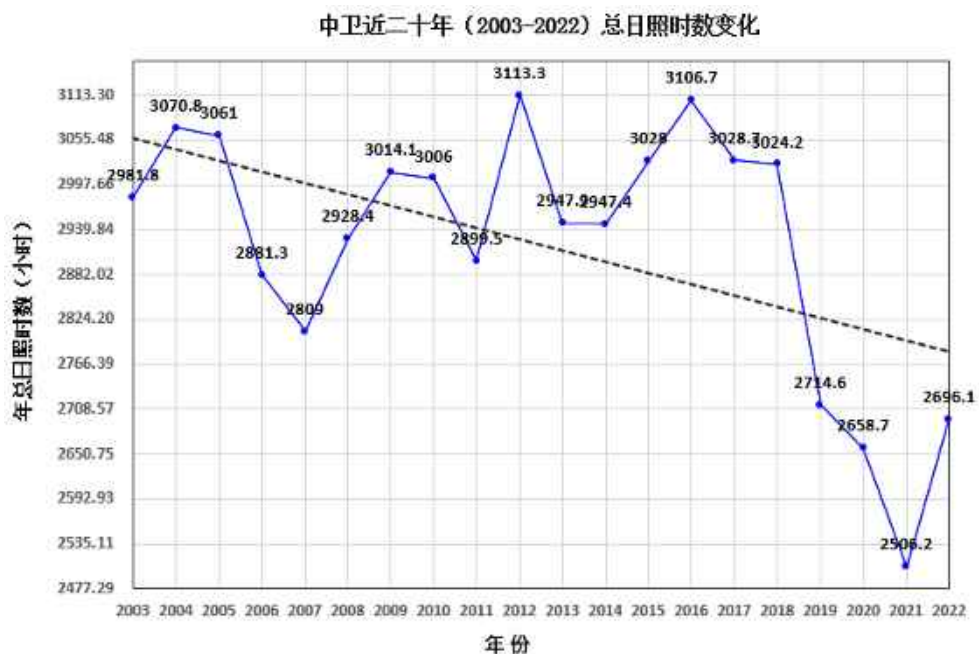
20

2021

2506.2

2012

3113.3



5.1-9

5

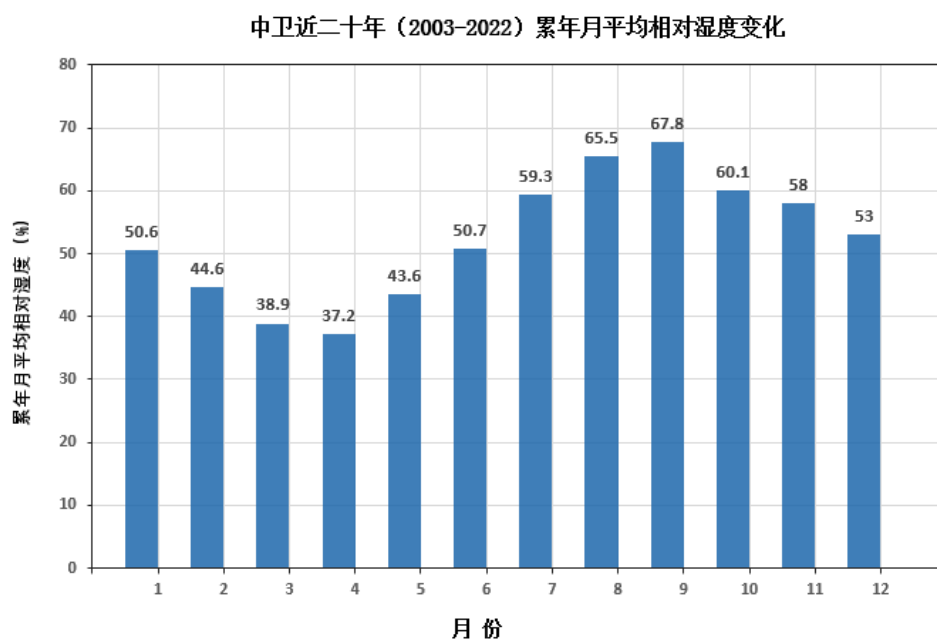
1

09

67.8%

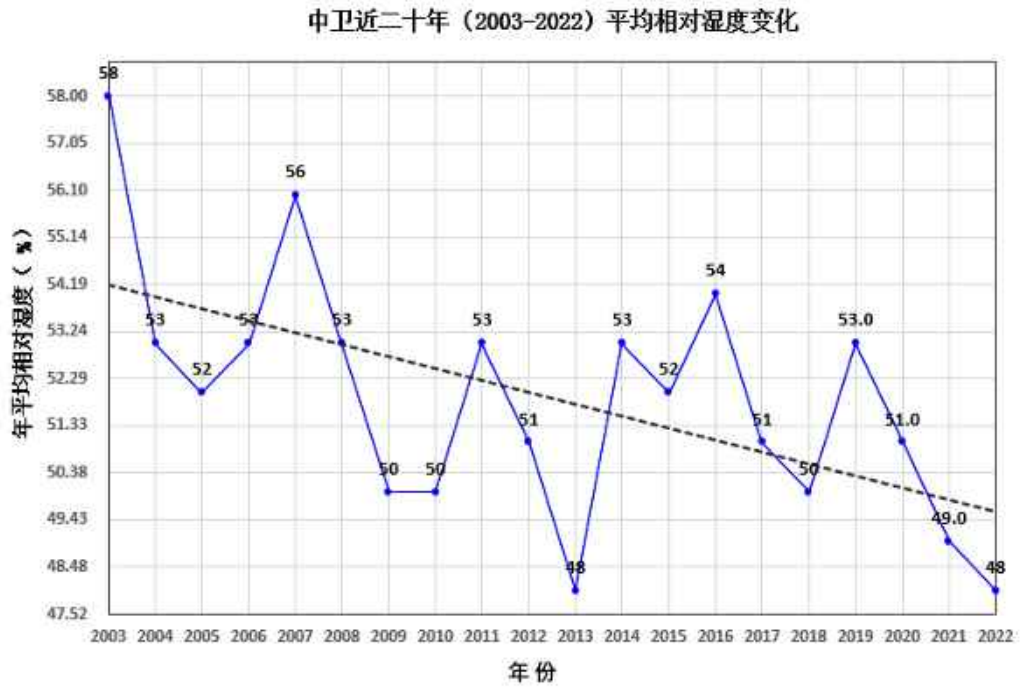
04

37.2%



5.1-10

20
2003
58% 2013 2022 48%



5.1-11

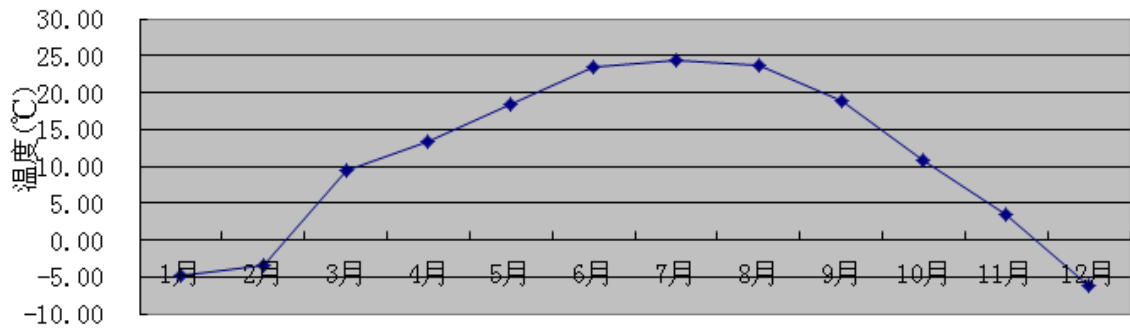
5.1.1.3

2022

5.1-5

5.1-12

	5.1-5					2022							
	1	2	3	4	5	6	7	8	9	10	11	12	
()	-4.82	-3.54	9.47	13.26	18.32	23.53	24.43	23.70	18.74	10.78	3.48	-6.13	



5.1-12 2022

2022

7

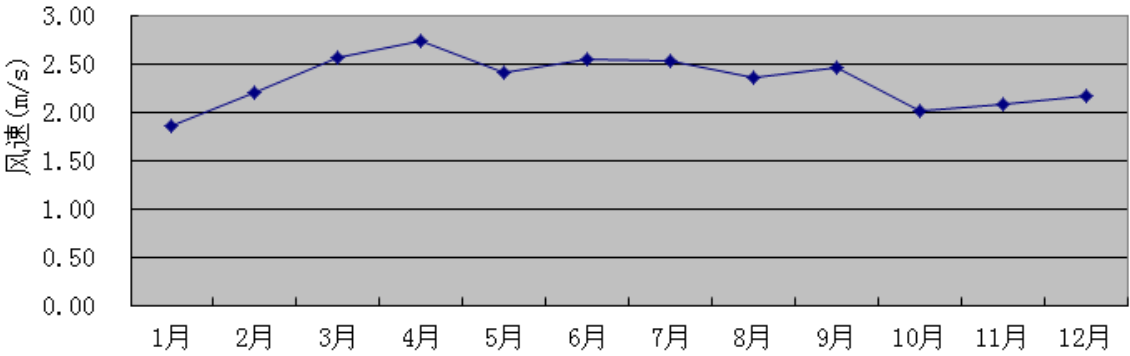
24.43

12

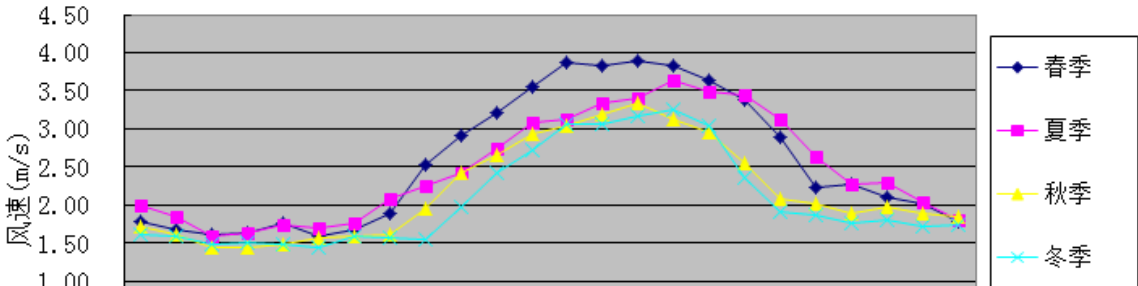
-6.13

2022	5.1-6	5.1-13
	5.1-7	5.1-14

	5.1-6				2022							
	1	2	3	4	5	6	7	8	9	10	11	12
m/s	1.86	2.19	2.56	2.74	2.40	2.55	2.53	2.36	2.46	2.01	2.07	2.16



5.1-13				2022								
5.1-7				2022								
(m/s) (h)	1	2	3	4	5	6	7	8	9	10	11	12
	1.78	1.68	1.61	1.64	1.77	1.59	1.67	1.89	2.52	2.92	3.22	3.55
	1.99	1.84	1.59	1.63	1.73	1.69	1.77	2.07	2.26	2.41	2.75	3.08
	1.72	1.62	1.44	1.44	1.49	1.56	1.58	1.60	1.95	2.42	2.66	2.93
	1.60	1.58	1.49	1.50	1.48	1.45	1.59	1.57	1.54	1.97	2.42	2.71
(m/s) (h)	13	14	15	16	17	18	19	20	21	22	23	24
	3.88	3.82	3.89	3.82	3.64	3.37	2.88	2.22	2.27	2.10	2.01	1.78
	3.13	3.34	3.40	3.64	3.49	3.45	3.13	2.63	2.28	2.30	2.03	1.81
	3.04	3.19	3.33	3.13	2.96	2.54	2.07	2.02	1.89	1.98	1.89	1.84
	3.06	3.06	3.16	3.25	3.04	2.36	1.90	1.86	1.75	1.80	1.72	1.73



2.74m/s 1

11~16

5.1-8

5.1-15

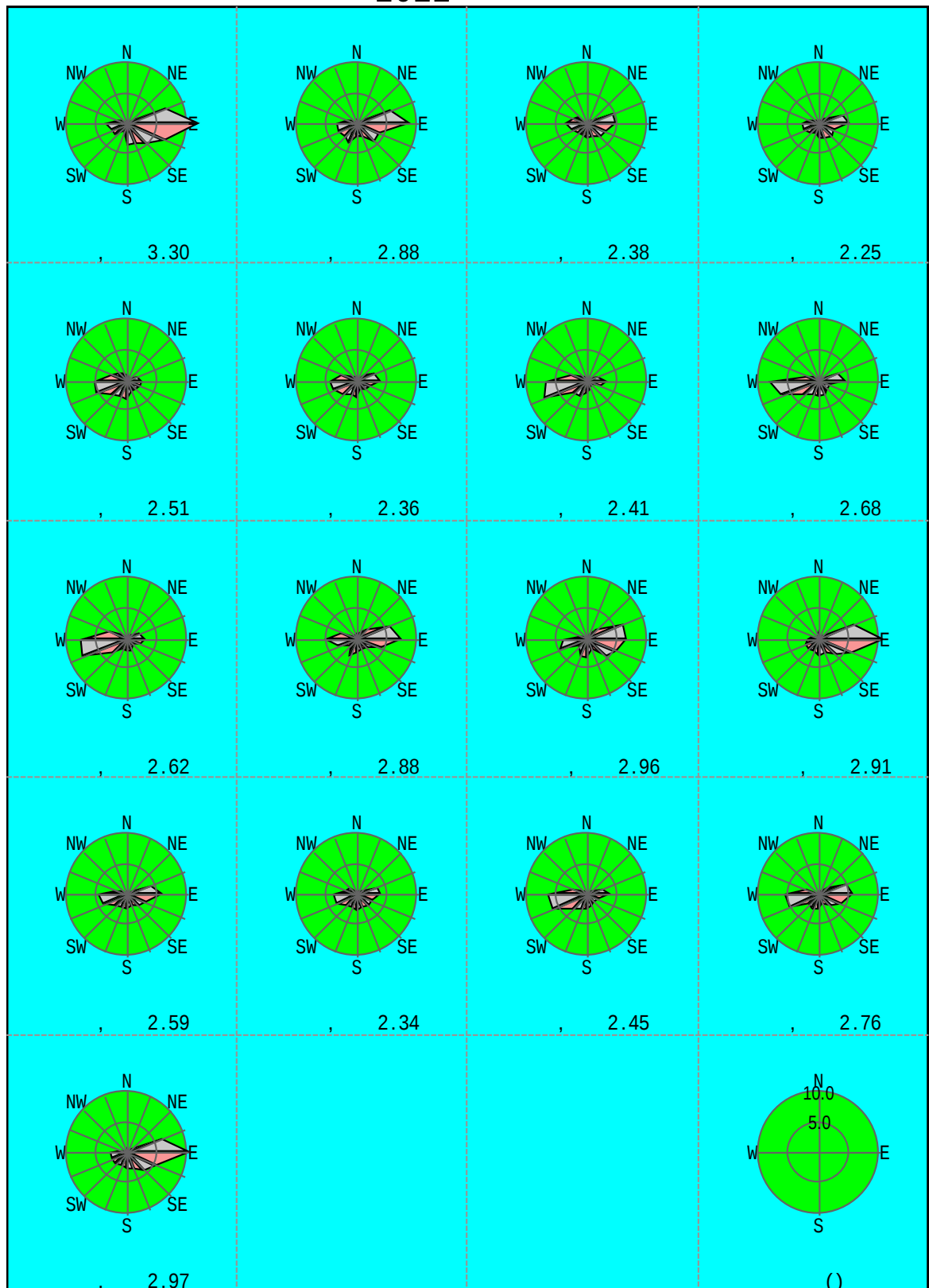
%

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	C
	3.90	1.75	3.63	5.38	9.81	4.70	2.15	0.67	0.94	0.40	1.34	11.96	21.64	12.10	10.35	5.24	4.03
	4.32	4.32	4.46	6.40	10.42	6.10	2.38	0.89	1.49	0.60	1.34	10.71	15.63	9.82	12.05	5.65	3.42
	4.97	4.03	3.63	7.12	12.23	5.11	3.36	0.81	0.54	1.08	2.02	9.14	12.10	9.95	13.04	6.05	4.84
	5.56	2.78	4.03	7.64	12.22	6.94	2.36	1.11	1.25	1.94	2.64	8.19	9.86	7.64	11.81	8.33	5.69
	7.26	5.91	7.93	13.71	16.53	8.87	4.70	2.28	1.34	2.15	1.61	3.90	4.97	5.24	5.65	4.44	3.49
	6.94	4.58	5.83	12.08	15.69	7.22	2.78	1.67	1.11	0.56	2.22	5.97	9.17	7.50	6.25	5.83	4.58
	4.57	3.76	5.78	19.89	21.10	7.80	2.42	1.21	1.21	0.94	1.48	4.17	6.99	7.80	3.63	3.49	3.76
	4.03	4.03	6.32	15.59	26.21	6.72	2.15	0.81	0.00	0.54	0.94	6.59	8.87	4.44	4.70	5.65	2.42
	2.08	2.64	5.83	17.22	26.53	11.25	3.19	0.97	1.11	0.83	1.53	4.44	6.11	5.14	3.89	2.36	4.86
	3.90	4.44	2.82	7.80	17.20	6.99	1.34	1.08	0.94	1.34	2.42	9.81	11.16	8.47	6.59	4.84	8.87
	5.56	3.75	2.36	8.61	12.08	3.06	0.97	0.42	0.42	0.69	2.78	11.94	12.92	13.61	11.67	4.03	5.14
	3.49	2.42	3.49	3.49	6.18	2.42	0.40	0.67	1.61	0.67	1.08	12.90	22.31	18.95	9.68	5.24	4.97

%

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	C
	5.93	4.26	5.21	9.51	13.68	6.97	3.49	1.40	1.04	1.72	2.08	7.07	8.97	7.61	10.14	6.25	4.66
	5.16	4.12	5.98	15.90	21.06	7.25	2.45	1.22	0.77	0.68	1.54	5.57	8.33	6.57	4.85	4.98	3.58
	3.85	3.62	3.66	11.17	18.59	7.10	1.83	0.82	0.82	0.96	2.24	8.75	10.07	9.07	7.37	3.75	6.32
	3.89	2.78	3.84	5.05	8.75	4.35	1.62	0.74	1.34	0.56	1.25	11.90	20.00	13.75	10.65	5.37	4.17
	4.71	3.70	4.68	10.43	15.55	6.43	2.35	1.05	0.99	0.98	1.78	8.30	11.80	9.22	8.24	5.09	4.68

2022



5.1-15 2022

5.1-10

5.1-10 Aermod

				BOWEN	
1	0-360	12,1,2	0.45	10	0.15
2	0-360	3,4,5	0.3	5	0.3
3	0-360	6,7,8	0.28	6	0.3
4	0-360	9,10,11	0.28	10	0.3

5.1.4

5.1.4.1

		SRTM3		SRTM-DEM			
				1	×1		1
one-arcsecond	3	three-arcsecond				SRTM-DEM	
	SRTM-1	SRTM-3		1			
30m			30m	90m			
90m							37 °
44 ' 11.292 "	37 ° 47 ' 25.44 "		105 ° 11 ' 53.52 "	105 ° 17 ' 20.04 "			

5.1.4.2

5.1-11

5.1-11a

				/km	/m		
	53704		105.1775E 37.5253N	42.5	1227	2022	

5.1-11b

	/km			
37.53N 105.18E	18.6	2022		WRF

5.1.5

1					Cl ₂ HCl
	TVOC				
2				1.4-1	
3					5km×5km
			8km×6km		
4					
5					5.1-12

5.1-12

1			Cl ₂ HCl TVOC		
2	+		Cl ₂ HCl TVOC		
3			Cl ₂ HCl TVOC	1h	
4			Cl ₂ HCl TVOC		

“

1h

5.1.6

5.1-13

5.1-14

5.1-15

5.1-13

		/m		/m	/m	m/s	/	/h		kg/h			
		X	Y							Cl ₂	HCl		TVOC
1	1# DA001	3956	3126	25	0.6	6.88	25	7920		0.0008	0.0049	0.0009	0.0027
										0.303	5.09	48.63	48.81

5.1-14

		/m		/m	/m	/m	/°	/m			kg/h	
		X	Y								Cl ₂	
1		3956	3159	1419	112	32	0	16	7920		0.091	

5.1-15

		/m		/m	/m	m/s	/	/h		kg/h			
		X	Y							Cl ₂	HCl		TVOC
3	1#	3956	3126	25	0.6	6.88	25	7920		0.010	0.091	0.966	0.966
6000t/a		3959	3065	15	0.4	2.65	25	7920		/	/	0.015	0.015
18000	DA004	3432	2558	15	0.2	13.27	25	7200		0.001	/	0.031	0.035
	DA006	3427	2527	15	0.2	13.27	25	7200		/	/	0.009	0.009
	DA008	3378	2430	25	0.6	9.83	25	7200		0.003	0.018	0.167	0.167

	DA009	3480	2292	25	0.6	9.83	25	7200		/	0.005	0.497	0.696
1800t/a 400t/a3 5 6-	+	3974	2576	25	0.6	18.18	20	7200		/	0.226	/	1.882

5.1-15

		/m		/m	/m	/m	/°	/m			kg/h	
		X	Y									TVOC
18000	1#	3419	2545	1305	18	42	87.65	20	7200		0.075	0.075
	3#	3483	2369	1307	26.5	54	88.78	20	7200		0.115	0.115
		3703	2561	1305	20.55	60	88.41	5	7200		0.002	0.002

5.1.7

5.1.7.1

1

5.1-16

5.1-16

			$\mu\text{g}/\text{m}^3$		/%	
Cl_2		1	10.61848	22021505	10.62	
		24	1.43747	221014	4.79	
HCl		1	0.70658	22080802	1.41	
		24	0.03693	221213	0.25	
		1	0.12978	22080802	0.01	
TVOC		1	0.38934	22080802	0.03	

5.1-16

Cl_2

10.62% $\leq 100\%$

2

5.1-17

5.1-17

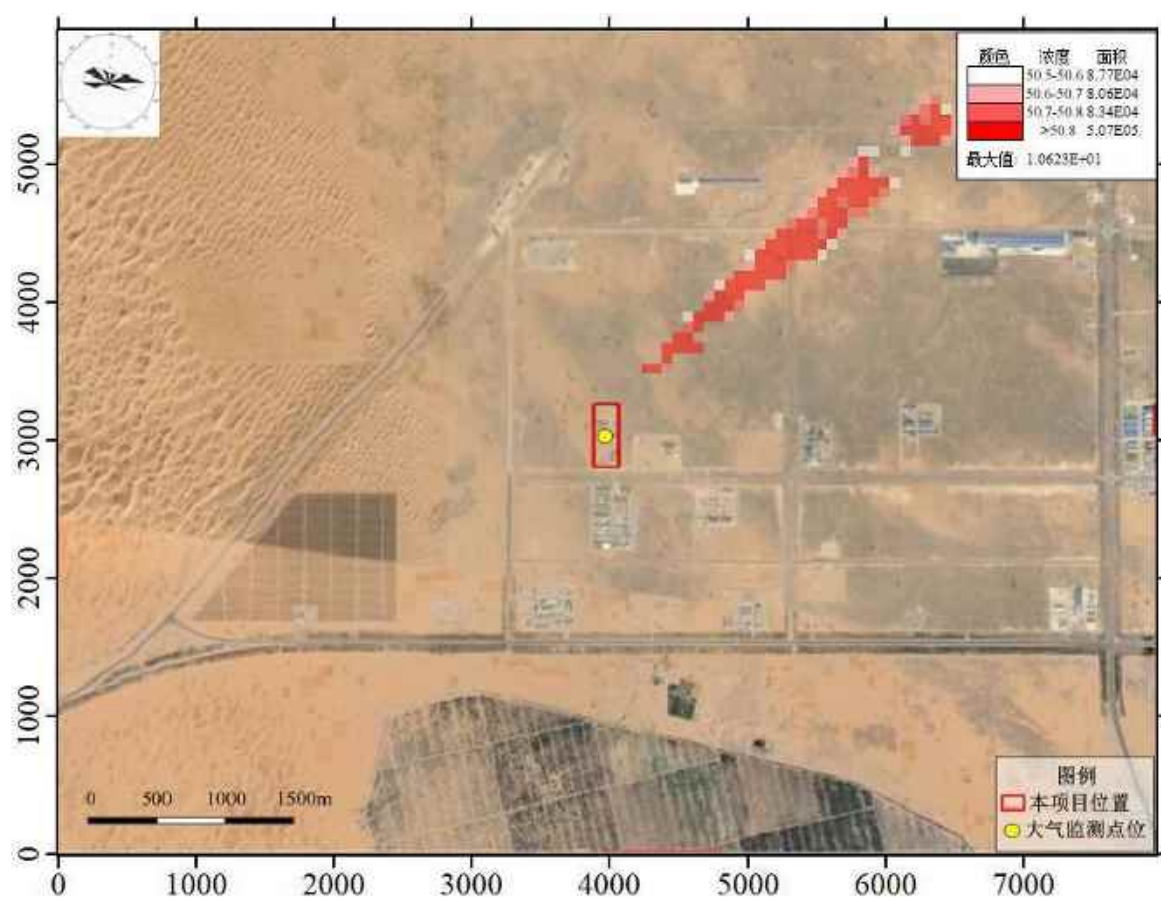
			$\mu\text{g}/\text{m}^3$	%	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	/%	
Cl_2		1	10.62316	10.62	50	60.62316	60.62	
		24	1.43994	4.80	28	29.43994	98.13	
HCl		1	25.16954	50.34	0	25.16954	50.34	
		24	1.7009	11.34	13	14.7009	98.01	
		1	294.4409	14.72	380	674.4409	33.72	

TVOC		1	409.9482	34.16	30.2	440.1482	36.68	
------	--	---	----------	-------	------	----------	-------	--

100%

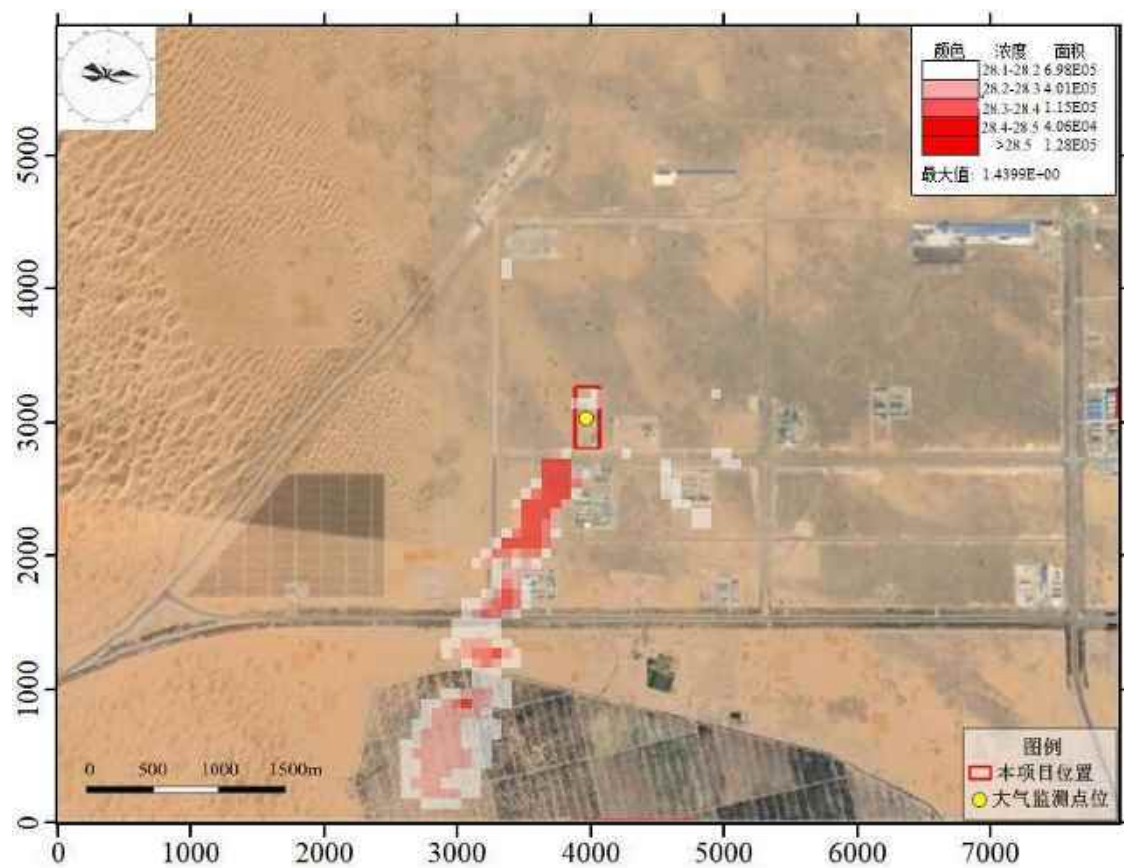
8.9.4

5.1-16 5.1-21

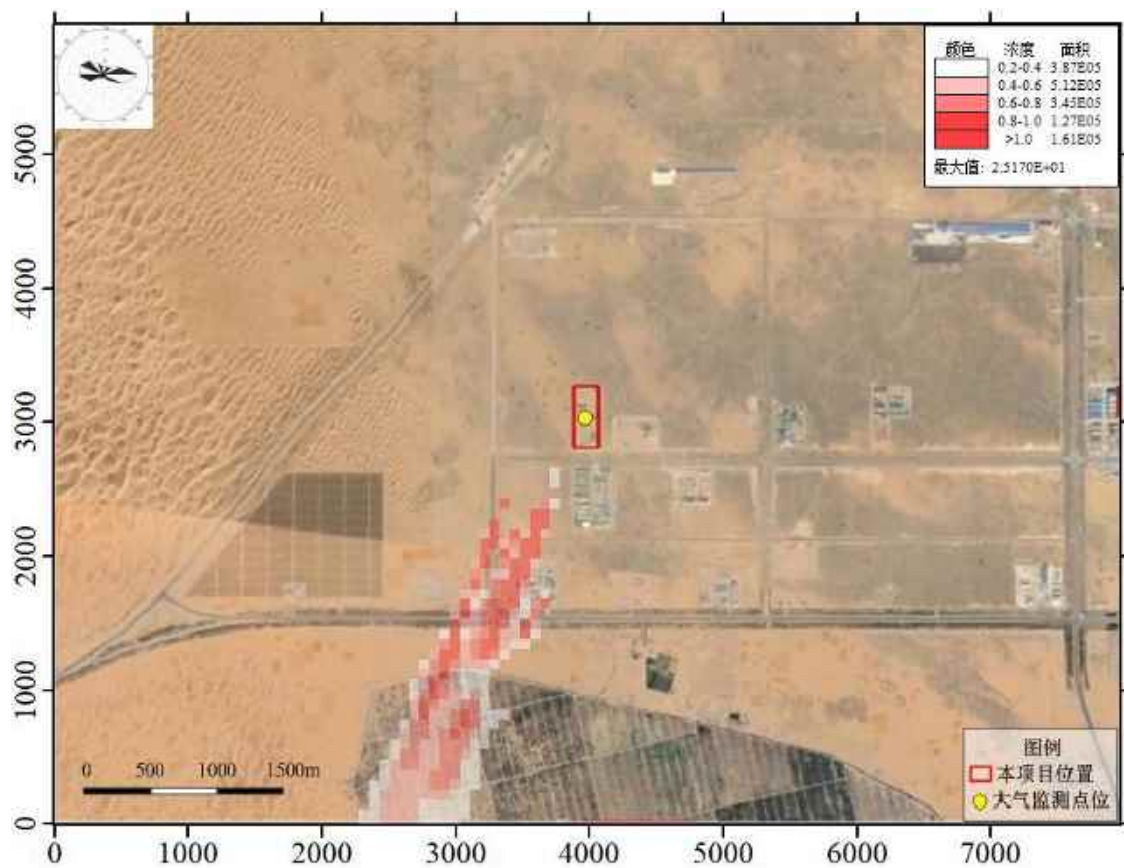


5.1-16

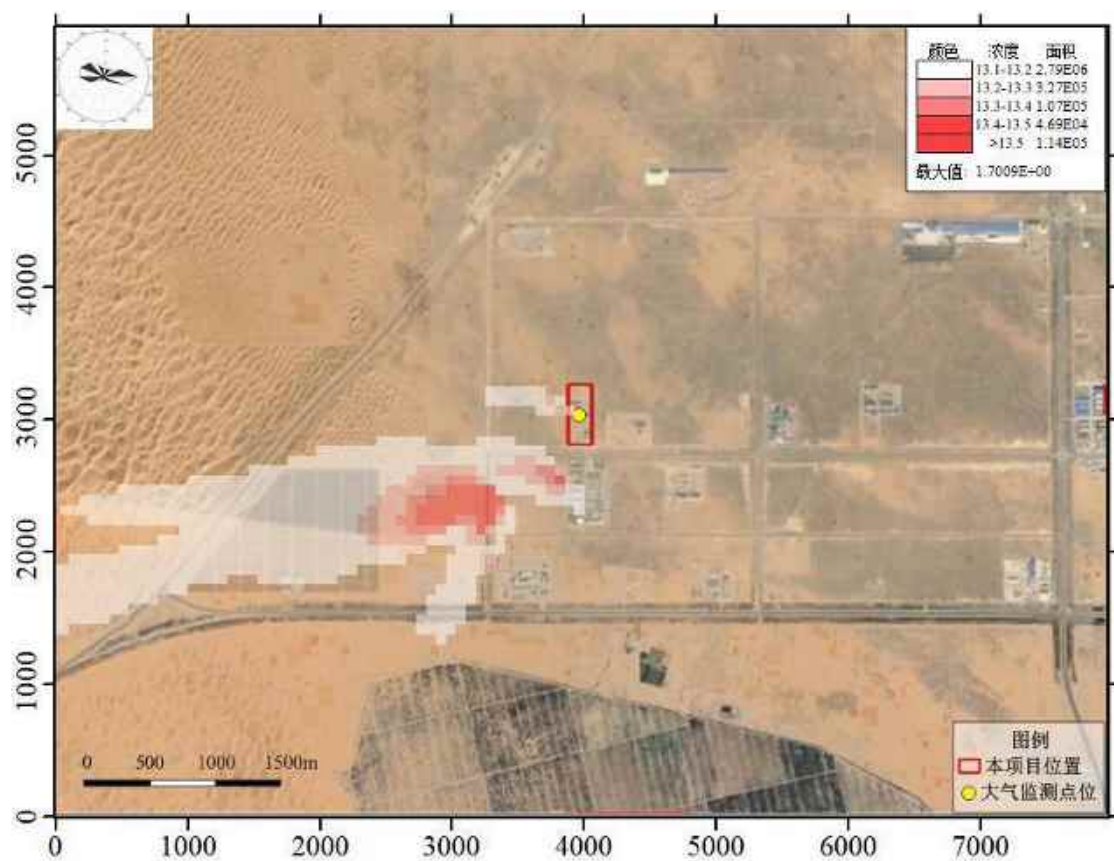
Cl₂



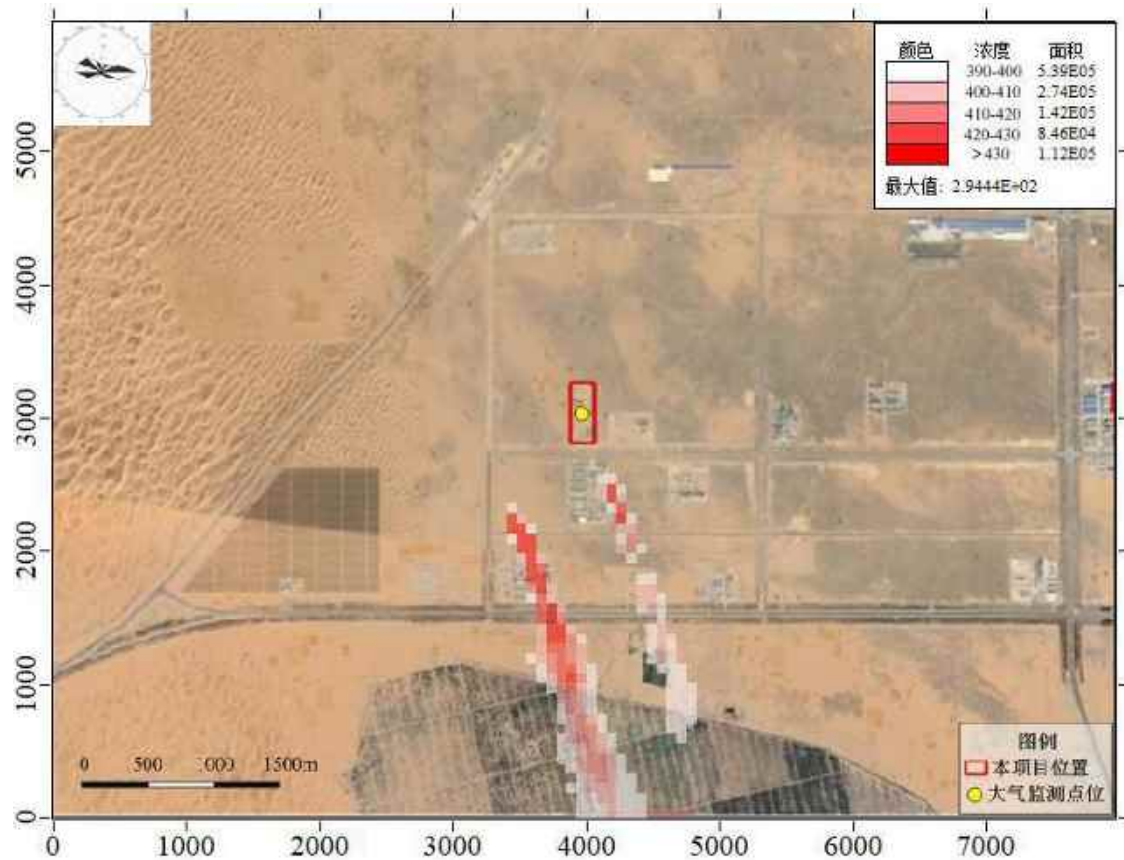
5.1-17 Cl_2



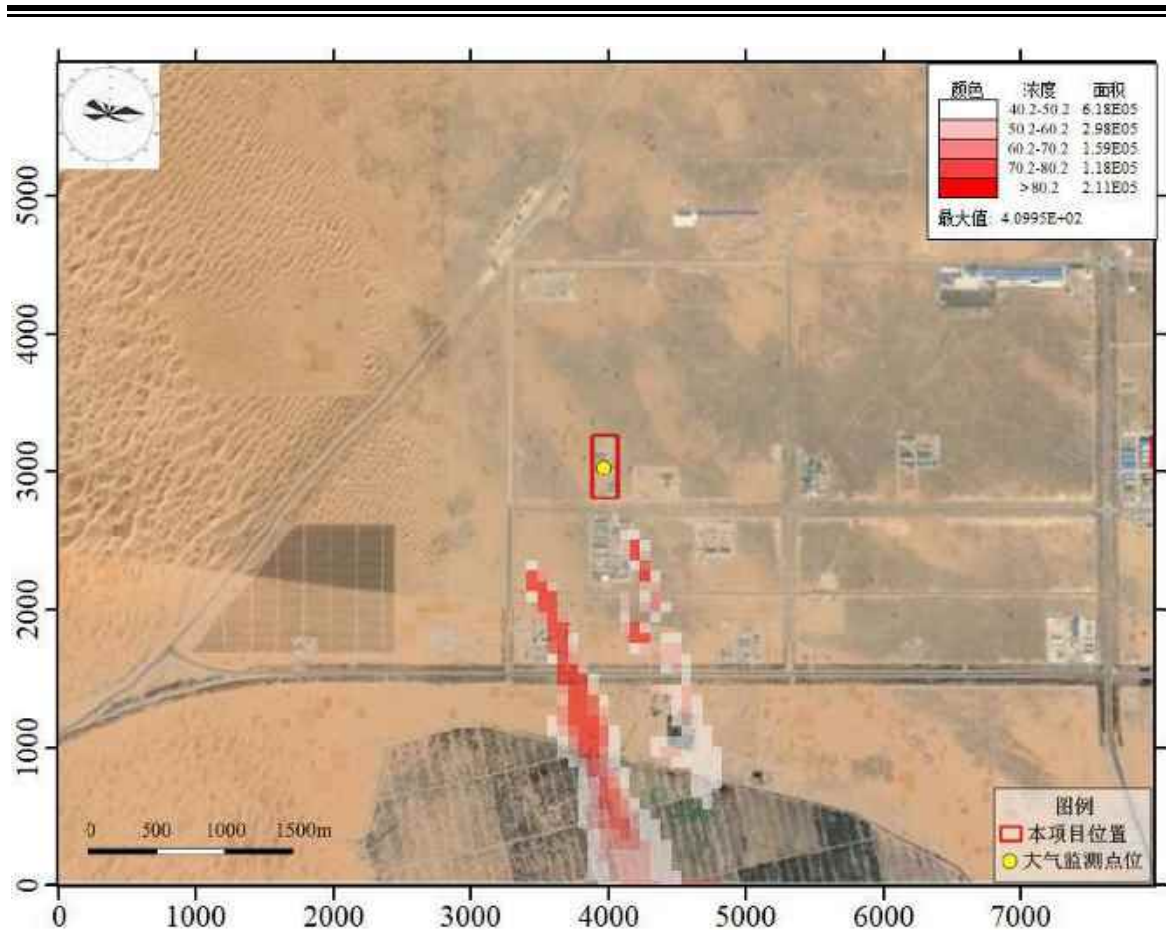
5.1-18 HCl



5.1-19 HCl



5.1-20



5.1-21 TVOC

5.1.7.2

1h

5.1-18

5.1-18

			$\mu\text{g}/\text{m}^3$		/%	
Cl_2		1	43.81137	22080802	43.81	
HCl		1	733.9772	22080802	1467.95	
		1	7012.436	22080802	350.62	
TVOC		1	7038.392	22080802	586.53	

HCl

TVOC1h

Cl_2 1h

5.1.8

HJ2.2-2018

5.1.9

5.1-19

5.1-20

5.1-21

5.1-19

			mg/m ³ /	kg/h /	t/a /
1	1# DA001	Cl ₂	0.12	0.0008	0.0066
		HCl	0.70	0.0049	0.0387
			0.13	0.0009	0.0073
		TVOC	0.39	0.0027	0.0213

5.1-20

						t/a
					mg/m ³	
1		Cl ₂		GB39727-2020 4	0.4	0.145
			Cl ₂	0.145		

5.1.12

5.1-22

5.1-22

		=50km		5 50km		=5km			
	SO ₂ +NO _x	≥2000t/a		500 ~ 2000t/a		500 t/a			
		PM ₁₀ PM _{2.5} SO ₂ NO ₂ CO O ₃ Cl ₂ HCl TVOC		PM _{2.5}		PM _{2.5}			
						D			
				2023					
		AERMOD	ADMS	AUSTA	EDMS/AE	CALPUF			
				L2000	DT	F			
		≥ 50km		5 50km		=5 km			
		Cl ₂ HCl TVOC		PM _{2.5}		PM _{2.5}			
		≤100%		100%					
			≤10%		10%				
			≤30%		30%				
	1h	h	2	≤100%		100%			
		k ≤-20%		k -20%					
		Cl ₂ HCl TVOC							
		Cl ₂ HCl TVOC		1					
		Cl ₂ 0.1516t/a		HCl 0.0387t/a		0.0073t/a		TVOC 0.0213t/a	

“□”	“√”	“	”
-----	-----	---	---

5.2

B

HJ2.3-2018

+

1

720m³

5.3

2020 8

5.3.1

1

1427m

2

1273m

154m

5.3-1

5.3-1

5.3-1			
			1
			1
			2
			3

1

10-20cm

D2s

C1c

1

30%

Q_{p3}^{pl}

Q_h^{eol}

2

Q_h^1

3

5-20m

30m

10-15 °

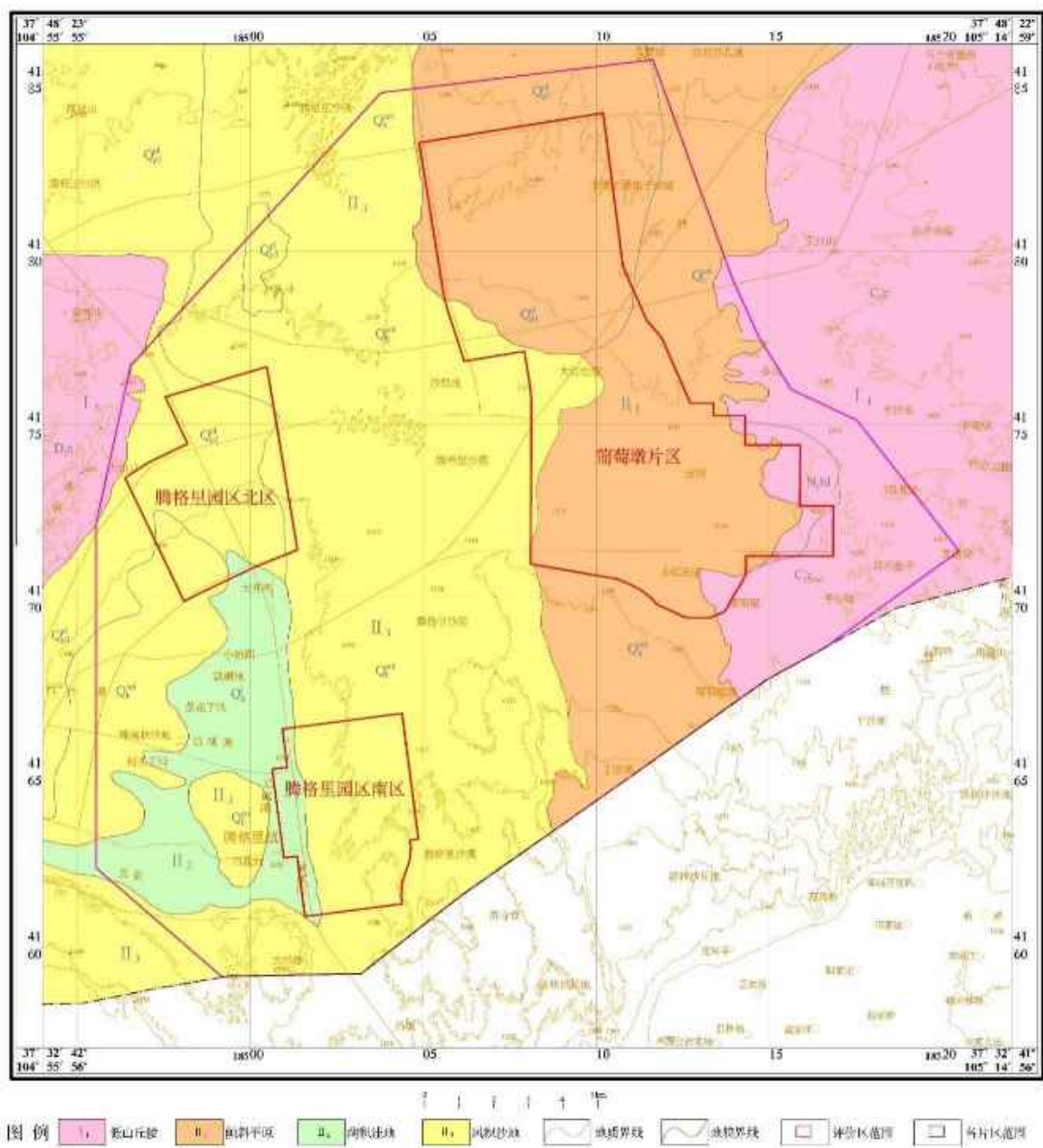
20-35 °

0.5-3m

3-5m

3

11km



5.3-1

， 22km “V”
 5 10m 1-3m
 0.62% 250km²
 4-5

45.78×10⁴m³

14km

5—8m 1-2m

0.5km² 1.5km² 1-1.5m

2m

5.3.2

5.3.2.1

D2s

-

-

456m

C1c

-

50m

E₃q

N₁hl

$$Q_{p3}^{pl}$$

$$Q_h^1$$

15-26m

$$Q_h^{eol}$$

“ ”

1-58m

5.3.2.2

5.3.2.3

-

5.3-2

-



5.3-2

			100	km
30-50km	5000km ²			
30km	20km	600km ²		

-

-

-

5.3.3

[illegible]

2.54-29.85m 519.18-542.51m³/d

139.8-2527.5m³/d 10

8.5%

170mm

155

			6.13m ³ /d	
4				
-				12-15m
		67.02m		
0-6m				
		1-4‰		
		0.25g/L		1338m ³ /d
			0.25m	Z62
	71.8m	71.8-139.24m	31.91m	1.1g/L
5				
		-		
			10.35-50.14m	-
			0.11-4.99m	12.18m
		333.5-1978.56m ³ /d		
	1g/L			
				HCO ₃ -Ca Mg
HCO ₃ SO ₄ -Na Mg				

						0.39-0.9g/L
1.1-1.5g/L						
Cl SO ₄ —Na	HCO ₃	Cl—Ca Mg Na		Cl SO ₄	HCO ₃ —Na Ca	
					E _{3q}	
	N _{1hl}					
N _{1hl}						
	1.5-5.5m					
						7.0-69.5m
32.5-87.55m						
103.05-146.64m	5-74.4m					
E _{3q}				35.7-116.25m		
10"	10m			100m /d		
				100-1000m /d		
	100m /d				0.39-1.5g/L	
CL S0 ₄ —Na	HCO ₃	CL—Ca Mg Na		CL S0 ₄	HCO ₃ —Na Ca	
2						
6.95-24.51m	30.6m					
QP ₃ ^{Pl}					5m	
	N _{1hl}				20-30m	
62.61m						
E _{3q}						
10"	10m			100m ³ /d		

100-1000m ³ /d							
3							
4							
N ₁ hl				1.5-5.5m			
N ₁ hl							
E ₃ q							
5							
2020 6							
5.3-2							
0.23-36.15m				6.95-24.51m		30.6m	
5.3-4							
5.3-2							
				2020	6	2020	6
		(m)		(m)		(m)	

		(m)		2020 6	2020 6
				(m)	(m)
	S1	517.58		7.74	509.84
	S2	1302.05		16.37	1285.68
	S3	1278.86		1.74	1277.12
	S4	1278.6		0.23	1278.37
	S6	1322.71		43.16	1279.55
	S7	1305.92		22.37	1283.55
	S10	1308.28		21.02	1287.26
	S11	1292.15		7.98	1284.17
	S12	1298.56		24.08	1274.48
	S13	1315.36		24.51	1290.85
	S14	1283.65		4.46	1279.19
	S15	1284.84		8.97	1275.87
	S16	1277.86		2.54	1275.32
	S17	1280.88		3.01	1277.87
	S19	1280.37		8.22	1272.15
	S20	1300.62		29.56	1271.06
	S21	1286.48		1.30	1285.18
	S23	1279.24		6.57	1272.67
	S25	1285.43		2.10	1283.33
	S26	1283.95		1.01	1282.94
	S30	1348.92		36.15	1312.77
	S33	1355.35		6.95	1348.4
	S36	1348.35		23.90	1324.45
	S37	1369.36		30.60	1338.76
	S38	1346.05		33.43	1312.62

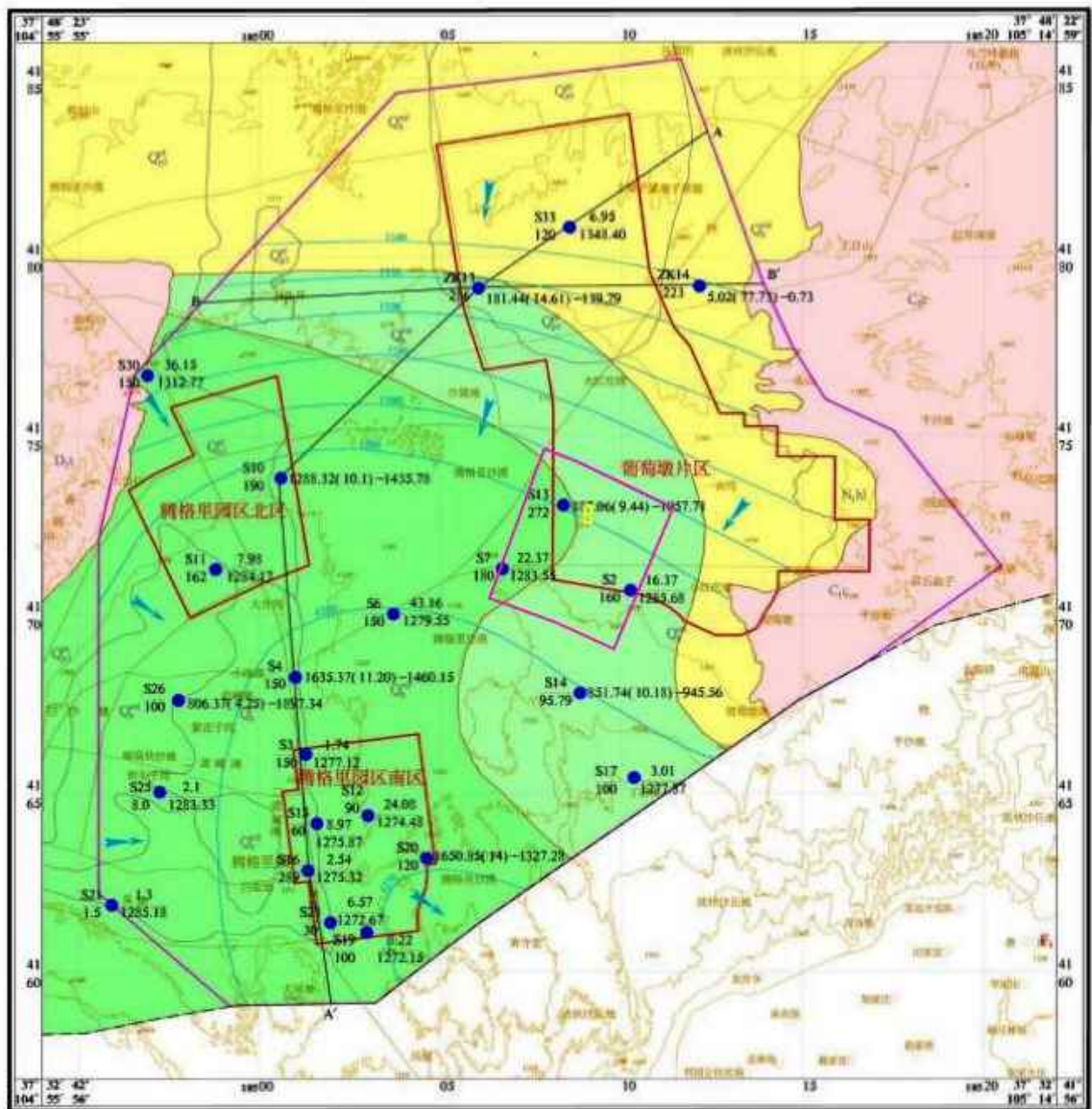
6.95-24.51m

QP_3^{pl}

Qh^{eol}

$1.71 \times 10^{-4} \text{cm/s}$

$3.55 \times 10^{-3} \text{cm/s}$



图例

一、含水岩组富水性分幅

1. 松散岩、碎屑岩类孔隙裂隙水(10°口径 10m降深 m^3/d)

<100 100-1000 >1000

2. 基岩裂隙水

<100m³/d

二、控制性水点

S10 1208.32(10.1)-1435.78

井孔编号 井深(m) 涌水量(降深)-换算涌水量

S13 8.97

井孔编号 水位埋深(m)

井深(m) 水位标高(m)

三、界线及其它

水文地质界线

地质界线

A-A'

水文地质剖面线及编号

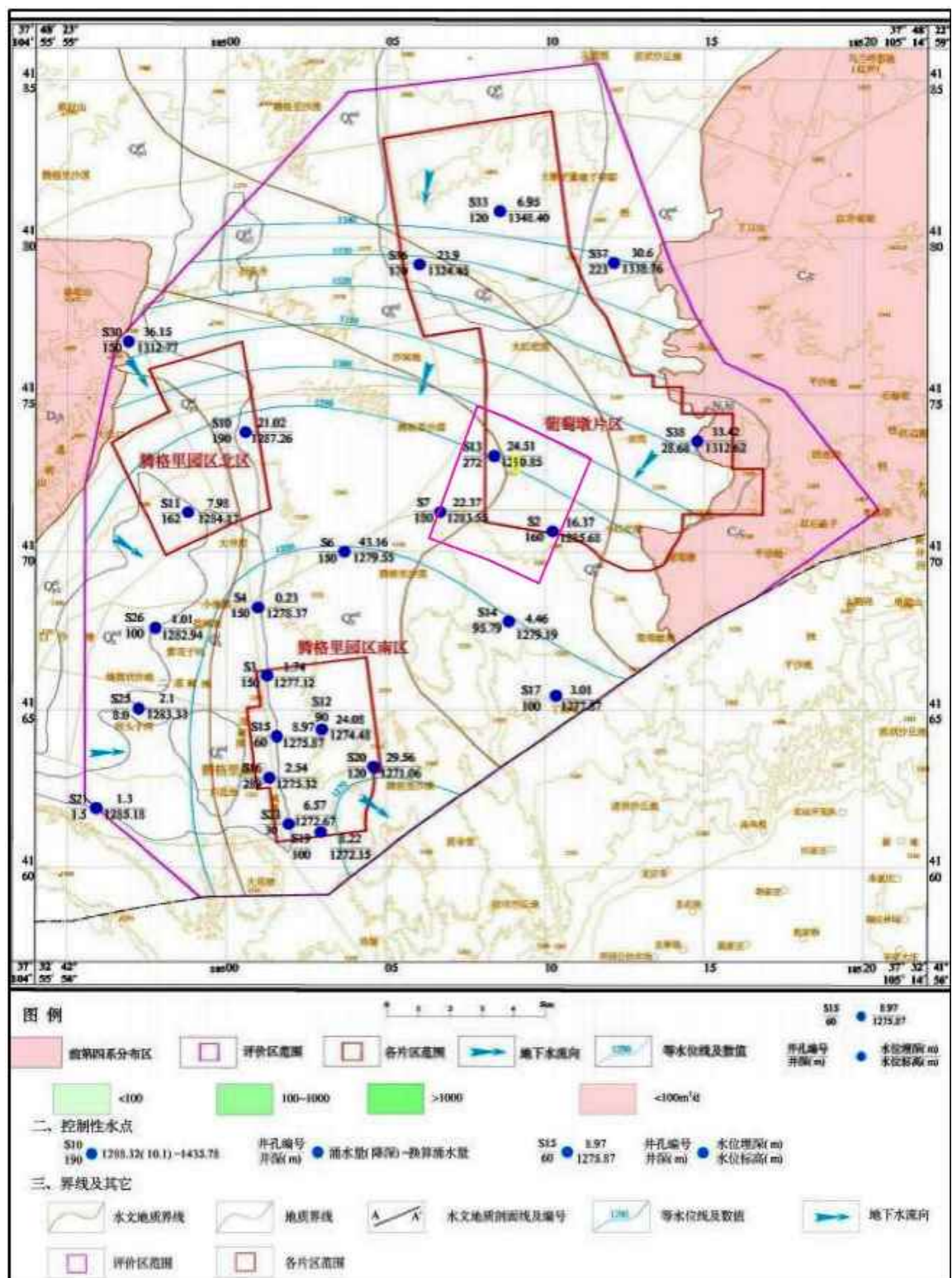
等水位线及数值

地下水流向

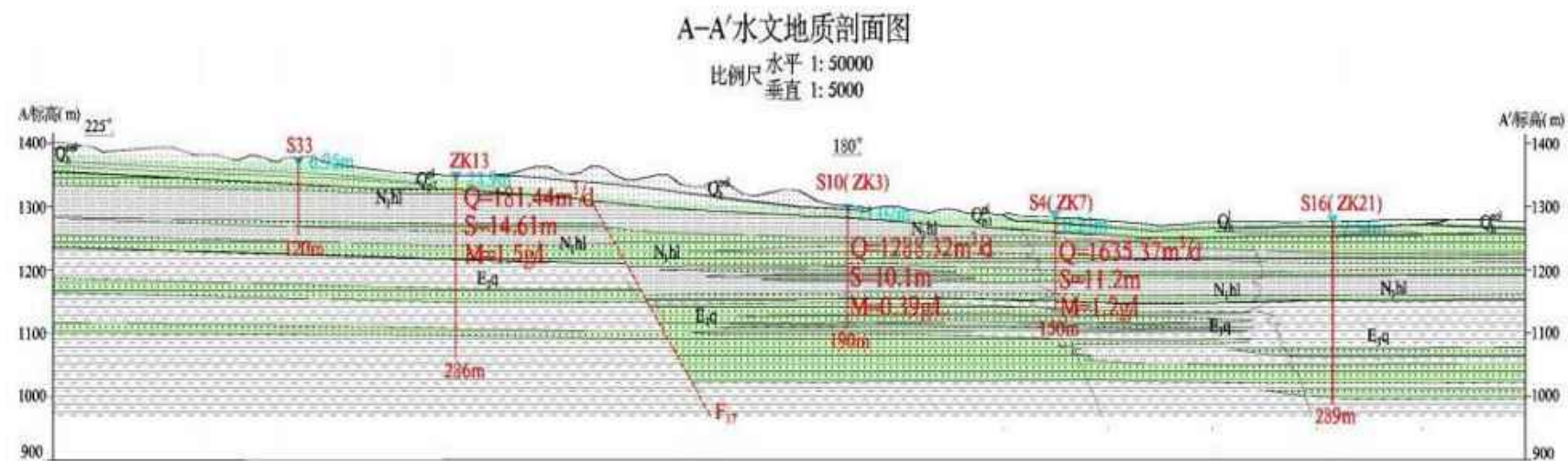
评价区范围

各片区范围

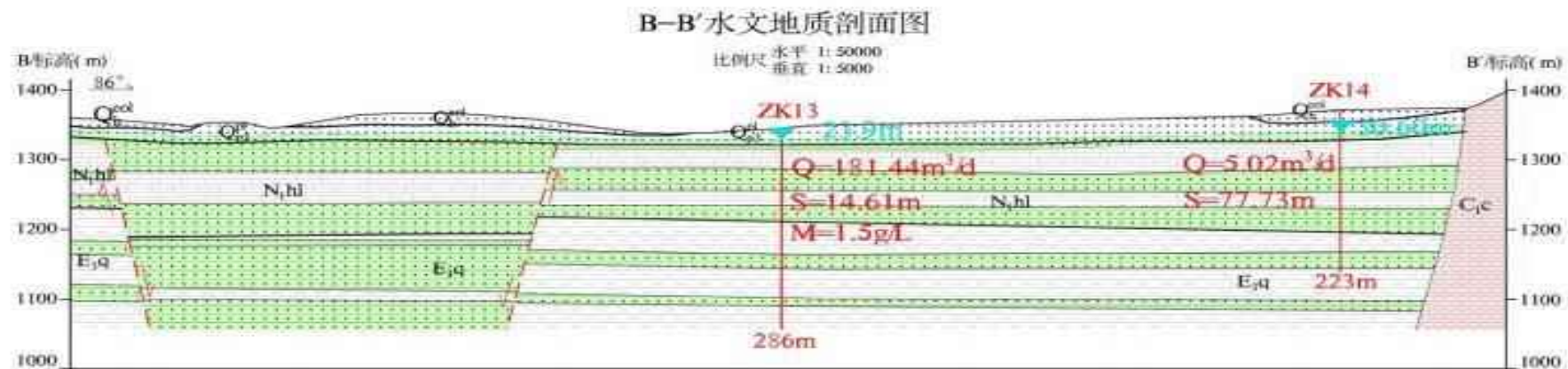
5.3-3



5.3-4



5.3-5



5.3-6

5.3.5

5.3.5.1

,

$Q_4^{\text{al+eol}}$

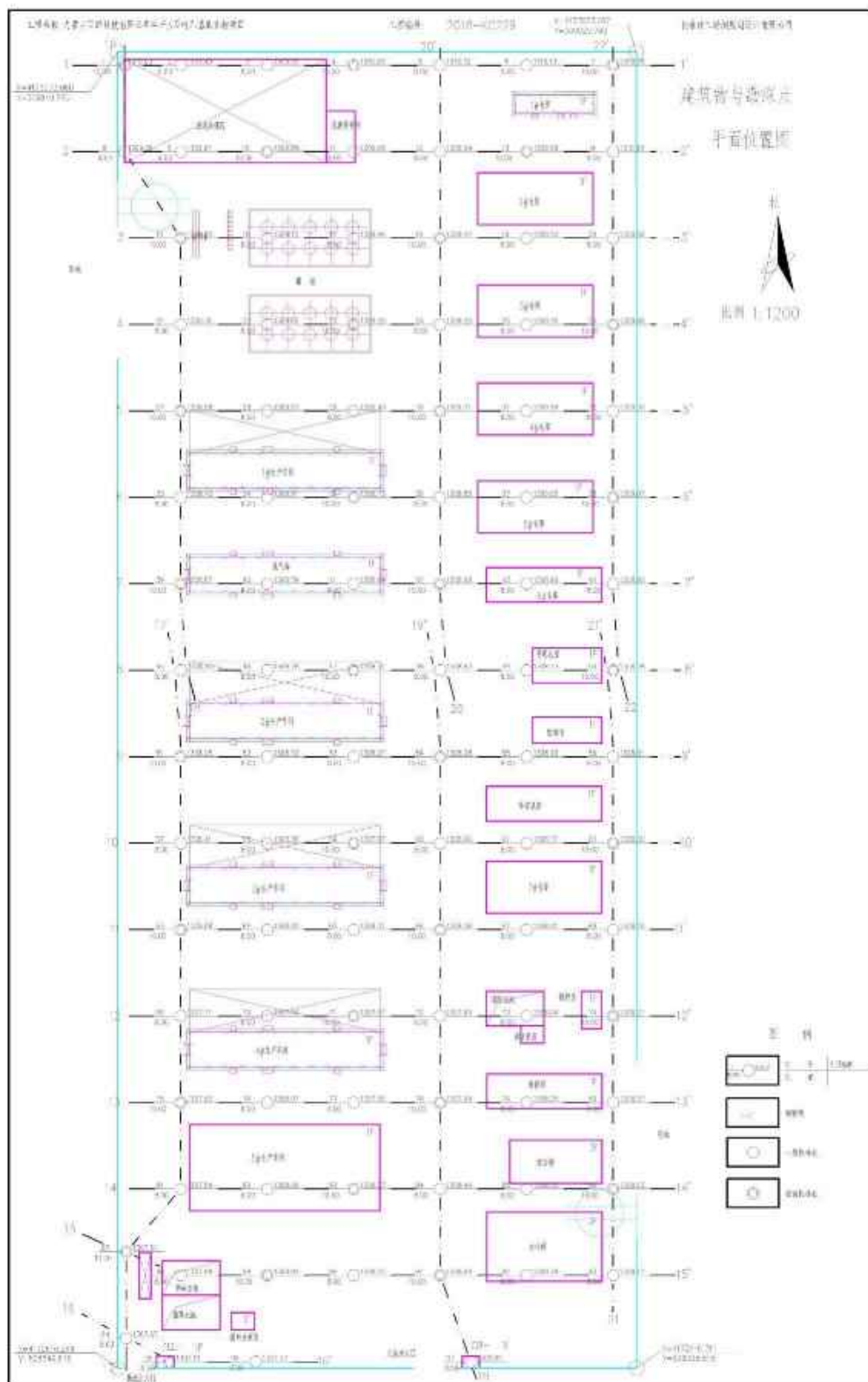
E

E

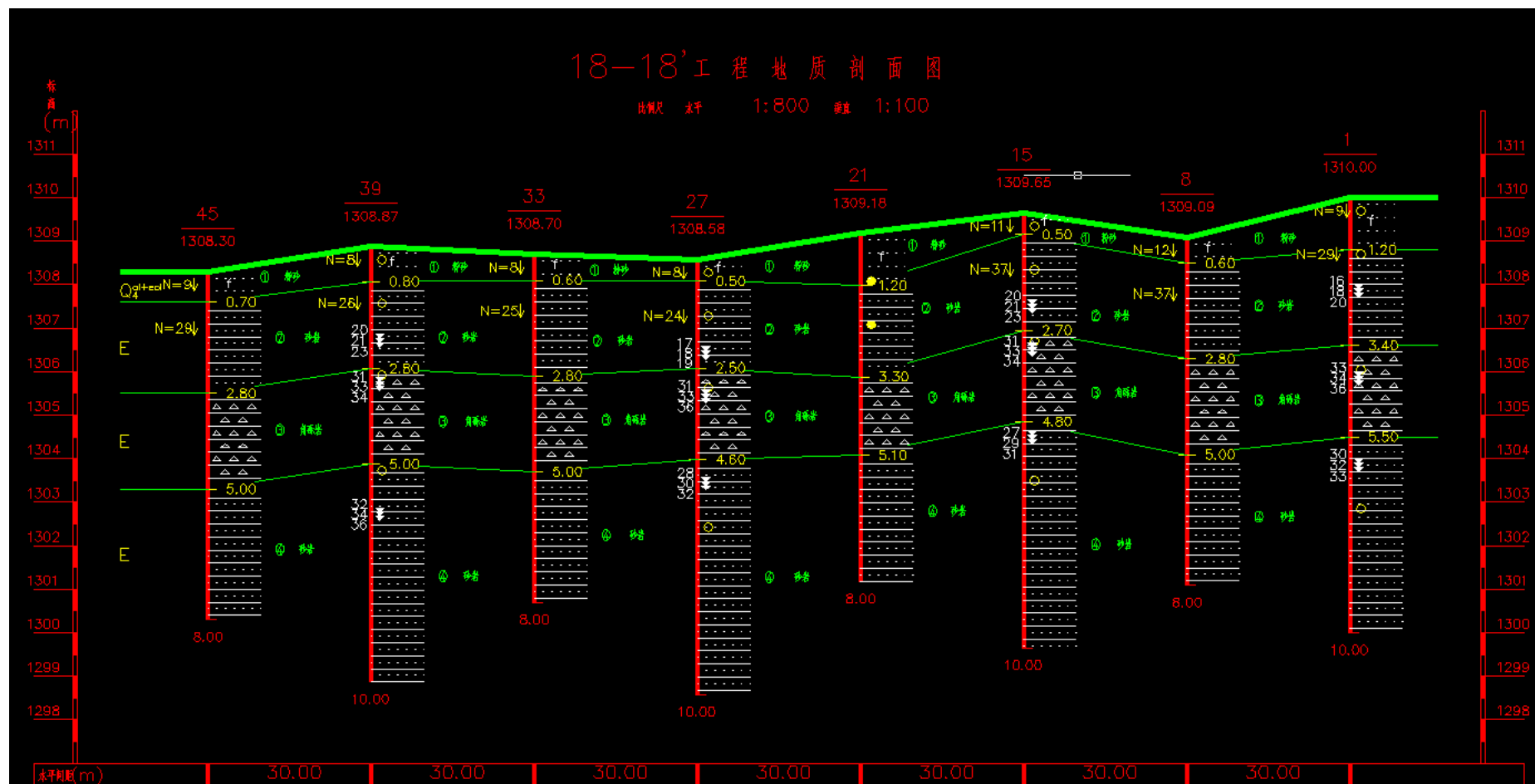
E

5.3.5.2

30m



5.3-7



5.3-8

5.3.6

5.3.6.1

5m

HJ610 2016

a

b

1

-

$$C(x,y,t)=\frac{m_M/M}{4\pi ut\sqrt{D_LD_T}}e^{-\left[\frac{(x-ut)^2}{4D_Lt}+\frac{y^2}{4D_Tt}\right]}$$

x y—

t—— d

c x y t ——t x y g/L

M—	m	
mN—	M	kg
u—	m/d	
ne—		
DI—	m ² /d	
DT—	y	m ² /d
π—		
2		-

$$C(x, y, t) = \frac{m_i}{4\pi M n \sqrt{D_L D_T}} e^{\frac{m}{2D_L}} \left[2K_0(\beta) - W\left(\frac{u^2 t}{4D_L}, \beta\right) \right]$$

$$\beta = \sqrt{\frac{u^2 x^2}{4D_L^2} + \frac{u^2 y^2}{4D_L D_T}}$$

x	y—	
T—	d	
C	x y z t —t	x y g/L
M—	m	
mt—		kg/d
U—	m/d	
ne—		
DL—	m ² /d	
DT—	y	m ² /d
π—		
K0	β —	
$W\left(\frac{u^2 t}{4D_L}, \beta\right)$	—	

5.3-3

5.3-3

	n	u	I	k	m	DL m ² /d	DT m ² /d
--	---	---	---	---	---	----------------------	----------------------

	0.15	0.24	0.009	4.0	4.5	0.86	0.086
--	------	------	-------	-----	-----	------	-------

5.3.6.2

5.3-4

5.3-4

COD

COD_{Cr}

GB/T14848-2017

COD_{Cr}

COD_{Cr}

(

)

Y=4.76X+2.61

X

Y

COD

1049.87mg/L

5.3-5

	mg/L		
pH	2-5	6.5~8.5	/
COD	1049.87	3.0	349.96
	10	0.5	20
	200	0.2	1000
	1	0.02	50
TDS	5000	1000	5

5.3.6.3

1

2

100

10cm×10cm

S=0.01m²

H=4.0m

M=30m

K=3.55×10⁻³cm/s 3.07m/d

$I= \frac{4+30}{30}=1.13$

$Q=3.07\times1.13\times0.01=0.03\text{m}^3/\text{d}$

2

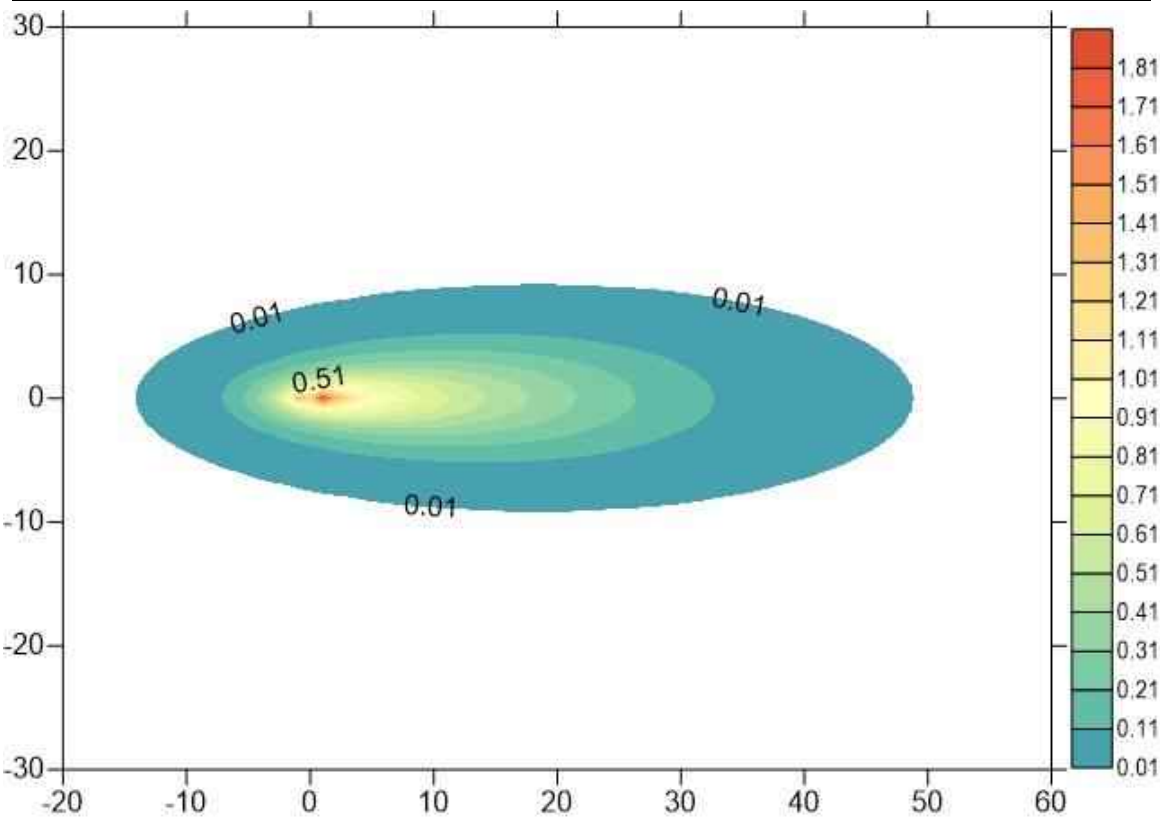
GB/T14848-2017

5.3-6

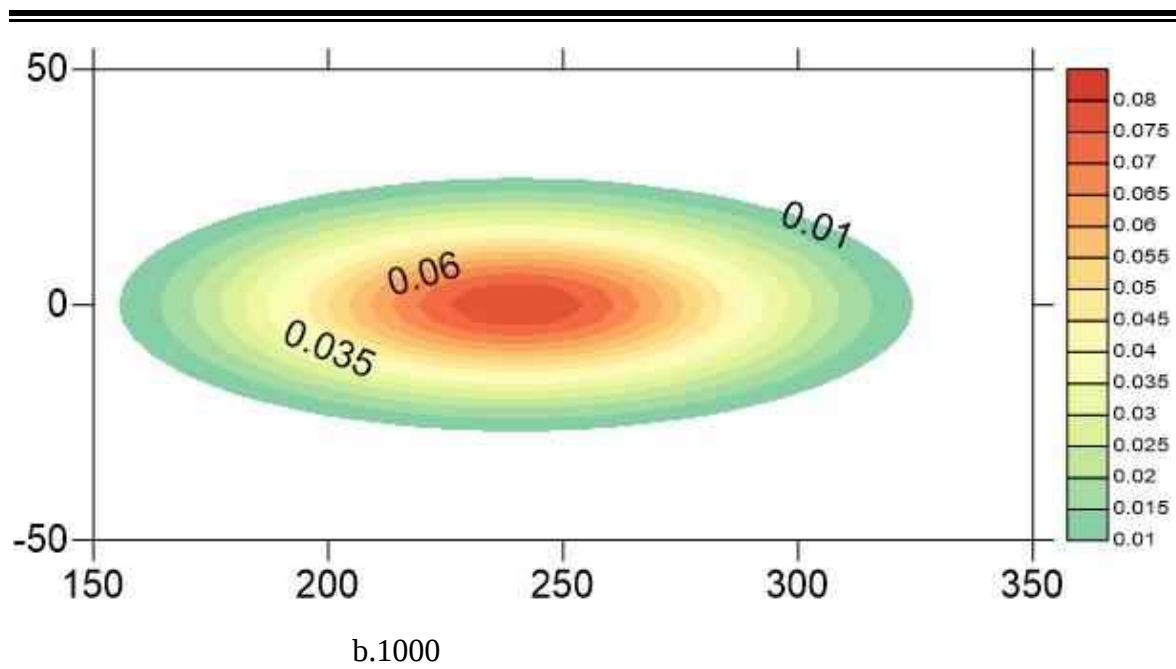
	(mg/L)
	0.2

5.3.6.4

100			
1000			
0.05mg/L			
5.3-7			
	m		mg/L
	X	Y	
100	-5~26	-3~3	1.84
1000	-48~130	-28~28	0.05
X	+Y	+X	-X
		-Y	Y



a.100



5.3-9

1000

5.4

5.4.1

75 80dB A

3.9-3

5.4.2

HJ2.4-2021

a

$L_p - r$

1

$$L_p(r) = L_w + D_C - (A_{\text{div}} + A_{\text{atm}} + A_{\text{gr}} + A_{\text{bar}} + A_{\text{misc}}) \quad 1$$

$$L_p(r) \text{ — } \text{dB}$$

$$L_w \text{ — } \text{A} \quad \text{dB}$$

$$D_C \text{ — } L_w$$

$$\text{dB}$$

$$A_{\text{div}} \text{ — } \text{dB}$$

$$A_{\text{atm}} \text{ — } \text{dB}$$

$$A_{\text{gr}} \text{ — } \text{dB}$$

$$A_{\text{bar}} \text{ — } \text{dB}$$

$$A_{\text{misc}} \text{ — } \text{dB}$$

$$L_p(r_0)$$

$$L_p(r) \quad 2$$

$$L_p(r) = L_p(r_0) + D_C - (A_{\text{div}} + A_{\text{atm}} + A_{\text{gr}} + A_{\text{bar}} + A_{\text{misc}}) \quad 2$$

$$b \quad A \quad L_A(r) \quad 8 \quad 3$$

$$L_A(r) = 10 \lg \left\{ \sum_{i=1}^8 10^{0.1[L_{pi}(r) - \Delta L_i]} \right\} \quad 3$$

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

$$L_{pi}(r) \text{ — } r \quad i \quad \text{dB}$$

$$\Delta L_i \text{ — } i \quad \text{A} \quad \text{dB}$$

$$C \quad 4$$

$$L_A(r) = L_A(r_0) - A_{\text{div}} \quad 4$$

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

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

$$A_{\text{div}} \text{ — } \text{dB}$$

LP1 LP2

$$L_{p2} = L_{p1} - (TL + 6)$$

5

TL—

dB

i

A

Lai

T

ti

j

A

Laj

T

tj

Leqq

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

6

tj—

T

j

s

ti—

T

i

s

T—

s

N—

M—

5.4.3

5.4-1

5.4-1			dB A			
1		40.1	63	54	63.02	54.17
2		40.2	59	53	59.06	53.22
3		30.8	50	46	50.05	46.13
4#		43.1	58	52	58.14	52.53
			65	55	65	55

5.4-1

GB12348-2008

3

65dB

A

55dB

A

5.4-2

--	--

		☐ ☐ ☒					
		200 m ☒		200 m ☐		200 m ☐	
		A ☒		A ☐		☐	
		☒ ☐ ☐					
		0 ☐	1 ☐	2 ☐	3 ☒	4a ☐	4b ☐
		☒	☐		☐		☐
		☒ ☐ ☐					
		100%					
		☐ ☒ ☐					
		☒ ☐					
		200 m ☒		200 m ☐		200 m ☐	
		A ☒		A ☐		☐	
		☒ ☐					
		☒ ☐ ☐					
					4		☐
		☒ ☐					
“ ☐ ” √ “ ”							

5.5

5.5.1

5.5-1

5.5-1

	t/a					
S ₁	46.2		HW04 263-009-04			
S ₂	316.8		HW04 263-009-04			
S ₃	5.94		HW34-261-057-34			

5.5.2

2021

110

120

5.5.3

191.36m²

GB18597-2023

“ ”

5.6

5.6.1

5.6-1

5.6-1

5.6-1					
	/				
			Cl ₂ HCl TVOC	/	
			H ⁺ Cl ⁻ ClO ⁻ S ²⁻	S ²⁻	“ ”
				/	
			COD		
			H ⁺ Cl ⁻ ClO ⁻ S ²⁻	S ²⁻	
			COD	/	

5.6.2

5.6.2.1

	Cl ₂	HCl	TVOC
			“ + +
+MW-LEP+	+	”	
	Cl ₂	HCl	

5.6.2.2

1	
	200mg/L
15	
2	
1	
	~

Richards	
$\frac{\partial \theta}{\partial t} = \frac{\partial}{\partial z} [k(h) (\frac{\partial h}{\partial z} + 1)] - s$	
θ —	[L3L-3]
h —	[L]
z t—	[L] [T]
K —	[LT-1]
s —	[T-1]
$\theta(z,0) = \theta_0(z)$	$Z \leq z \leq 0$
$-k(h) (\frac{\partial h}{\partial z} + 1) = q_s$	$z=0$

$h_z(t) = h_b(t) \quad z=30\text{m}$		
30m		
$\theta(z)$ —		
Z—		[L]
qs—	[LT-1]	
$h_b(t)$ —	[L]	
2		
		—
$\frac{\partial(\theta c)}{\partial t} + \frac{\partial(\rho s)}{\partial t} = \frac{\partial}{\partial z} \left(\theta D \frac{\partial c}{\partial z} \right) - \frac{\partial}{\partial z} (cq)$		
c—		[ML-3]
ρ —	[ML-3]	
D—	[L ² T-1]	
Q—Z	[LT-1]	
A—	1	
$c_z(0) = c_i(z) \quad Z \leq z \leq 0 \quad t=0$		
$-\theta D \frac{\partial c}{\partial z} + q_z c = q_s c_s(t) \quad z=0, t>0$		
$c_z(t) = c_b(t) \quad t=0$		
$c_0(z)$ —		[ML-3]
qz—	[LT-1]	
qs—	[LT-1]	
cs—		
$c_b(t)$ —	[ML-3]	
3		
HYDRUS-1D		
HYDRUS	US Salinity laboratory	1991

HYDRUS

HYDRUS-1D HYDRUS

4

4

1.2m	2.2m	2.1m	24.5m
1.2m	3.4m	5.5m	30m
6	5.6-1		1

a

15 15

0~15d

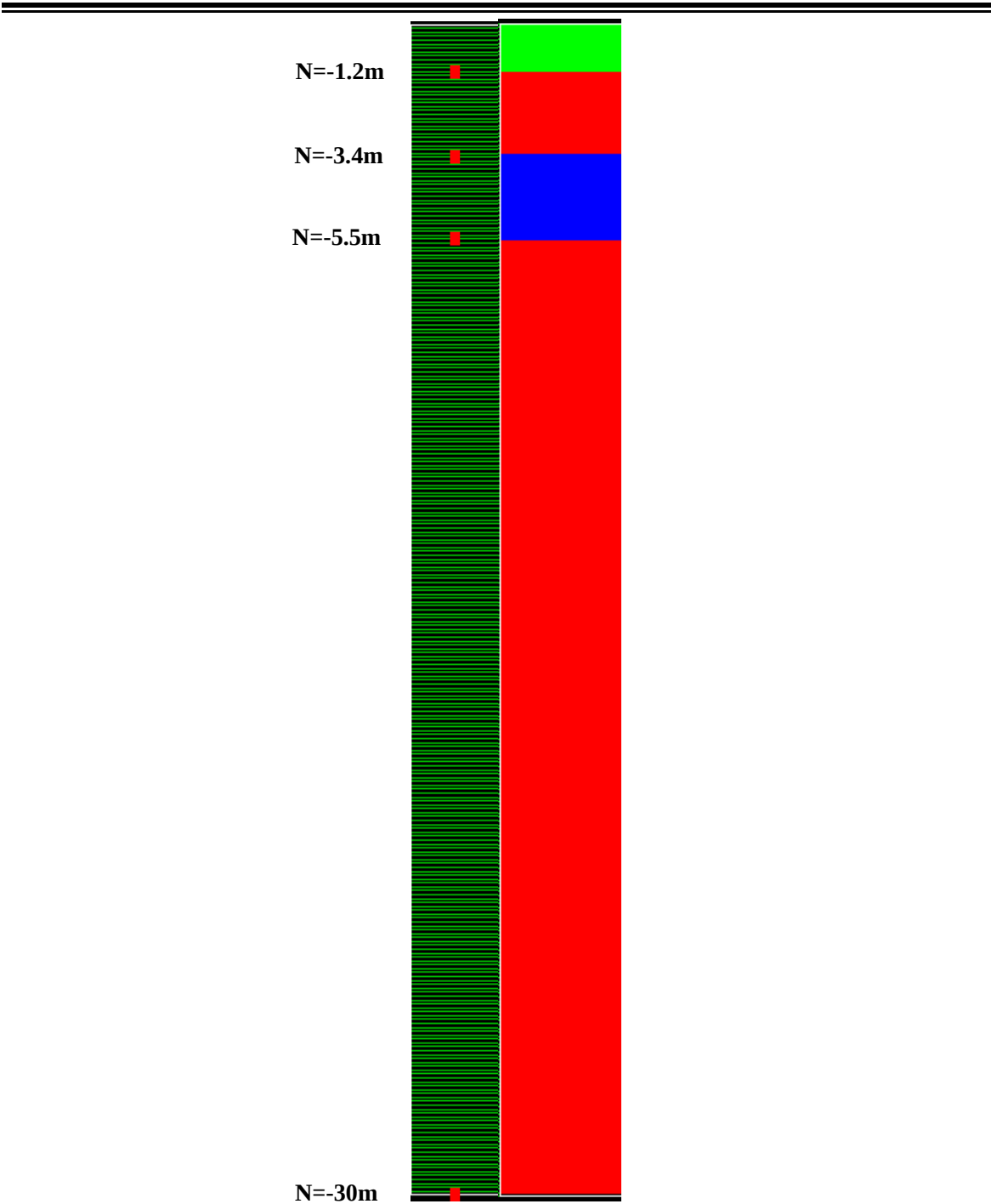
3m 300cm

b

1.061m/d

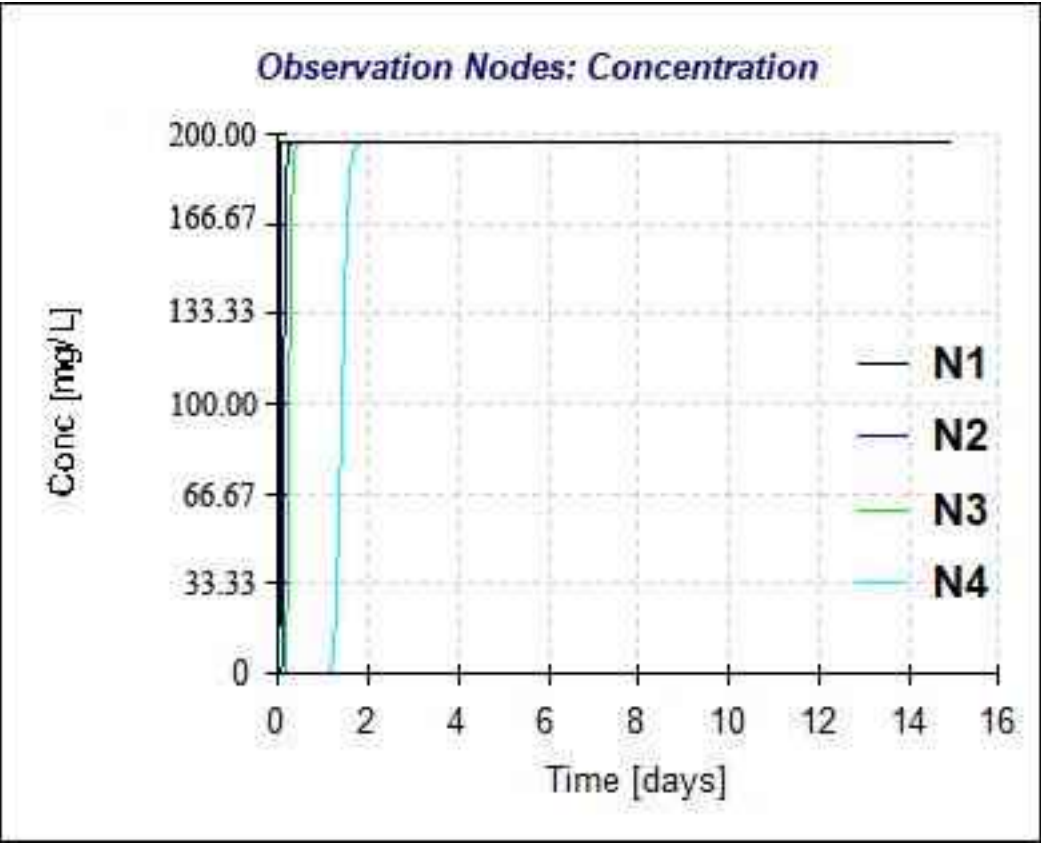
25m/d 50m/d

HYDRUS-1D



5

5.6-2



5.6-2

-

N1 1.2m N2 3.4m N3 5.5m
 N4 30m
 5.6-2 15 1.2m N1 3.4m
 N2 5.5m N3 30m N4 2

5.6.3

		8.22 hm ²				
		HCl Cl ₂	TVOC			
		a b c d				
						4.3-1
		1	2	0-0.2m		
		3	0	0-3.0m		
		1,1- -1,2- 1,2,3- 2- [a] [a,h]	1,2- 1,2- 1,1,1- [a] [a,h]	1,1- 1,2- 1,1,2- 1,1,2- 1,2- + [a] [1,2,3-cd]	-1,2- 1,1,1,2- 1,1,2- 1,2- 1,4- [b] [k]	1,1,2,2- [k] 46
		GB 15618	GB 36600	D.1	D.2	
		GB36600-2018				
		E F				
		200m				
		a b c a b				
			GB36600 1		1 /	
	5	GB36600 1		1 /		

			45	1 /3	
	1 “□”	√ “ ”	“ ”		
	2				

5.7

5.8

5.8-1

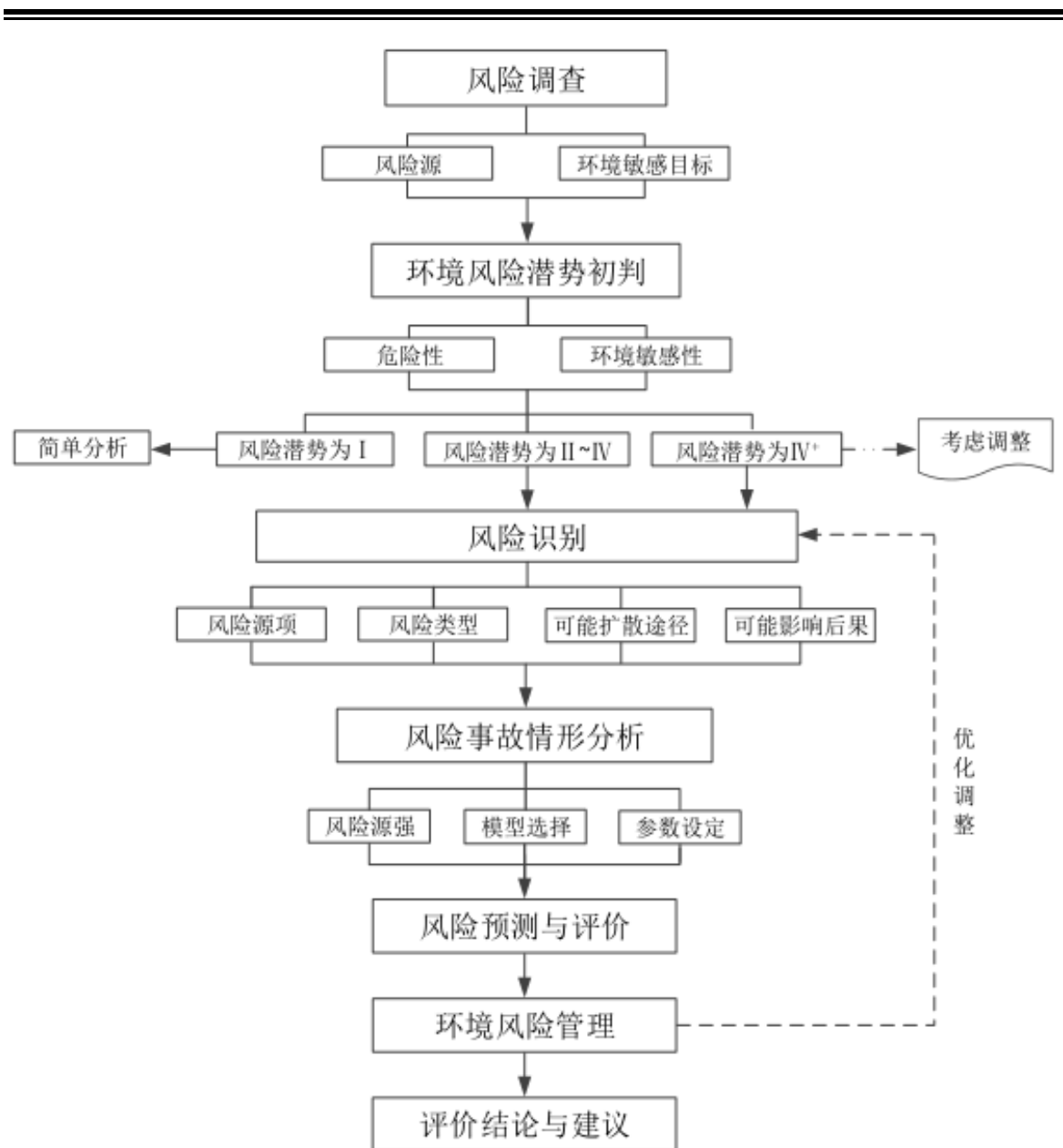
5.8-1			
			COD BOD ₅ SS

6

2018 10 15

HJ169-2018

6.1-1



6.1-1

6.1

6.1.1

MSDS

6.1-1

6.1-2

6.1-9

6.1-1					
		t			
1		50			
2		500			
3		306			
4		230			
5		100			

6.1-2					
	CAS	7782-50-5		1017	
	RTECS	FO2100000		70.9	
	UN	1017		Cl ₂	
	EC	017-001-00-7			

	30 85%

6.1-4

	[]			2568	
	ethyl alcohol ethanol			UN	1170
	C ₂ H ₆ O	46.07		CAS	64-17-5
	-114.1	(=1)	0.79	(=1)	1.59
	78.3	kPa		5.33/19	
		LD ₅₀ 7060mg/kg() 7340mg/kg() LC ₅₀ 37620mg/m ³ 10 () 4.3mg/L×50 2.6mg/L×39			
	()	12	v%	19.0	
	()	363	v%	3.3	

		(3m/s)

6.1-5

	-O,O-			
	DIETHYLTHIOPHOSPHORYL CHLORIDE Phosphorochloridothioic acid-O,Odieyhylester Diethyl chlorothiophosphate Diethyl phosphochloridothionate 188.6 $C_4H_{10}ClO_2PS$			
	20			
	>110 <-75 =1 1.19 50 190Pa 92			
				/

					/
					/
			/		
6.1-6					
	SULFUR Flowers of sulfur Flour sulfur Brimstone 256.5 S S8				
	20 :				
	445 (γ-):107 (β-):115 ():120 2.1g/cm ³ 160 232 35 1400g/m ³				
					/

6.2

6.2.1

/ +

6.2-1

6.2-1

E	P			
	P1	P2	P3	P4
E1	+			
E2				
E3				

1 P

HJ169-2018 B

Q M

C P

1 Q

B

Q

Q

Q

$$Q=\frac{q_1}{Q_1}+\frac{q_2}{Q_2}+...+\frac{q_n}{Q_n}$$

q₁ q₂ ... q_n—— t

Q₁ Q₂ ... Q_n—— t

Q 1

Q≥1 Q 1≤Q 10 10≤Q 100 Q≥100

Q 6.2-2

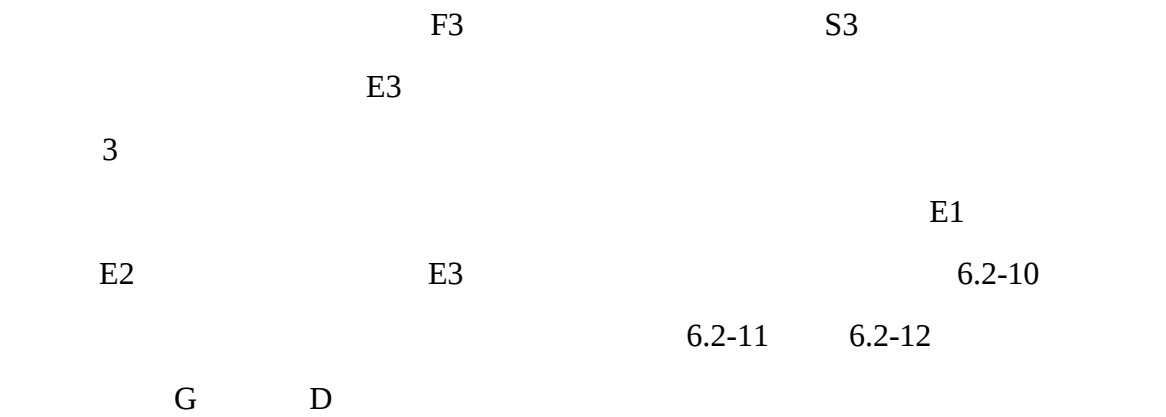
6.2-2 Q

		CAS			Q
--	--	-----	--	--	---

F2	24h
F3	

6.2-9

S1	()10km () :
S2	()10km ,
S3	()10km 1 2



6.2-10

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

6.2-11

G1	
G2	

	a
G3	
“	”

6.2-12	
D3	Mb≥1.0m K≤1.0×10 ⁻⁶ cm/s
D2	0.5m≤Mb 1.0m K≤1.0×10 ⁻⁶ cm/s Mb≥1.0m 1.0×10 ⁻⁶ cm/s K≤1.0×10 ⁻⁴ cm/s
D1	“D2” “D3”
Mb	K

	D1		
	G3		E2
3			
		P1	
E3		E3	
	E2	6.2-1	

6.2.2

1		HJ169-2018
	6.2-13	
	6.2-13	

	+			
				a
a				

		6.2-14
6.2-14		

6.2-14

2

5km

6.3

6.3.1

6.3.1.1

1

1

6.3-1

6.3-2

6.3-1

	16.8	9.5	8.7	8.4	7.3	7.3	7.3
	6.3	6.3	4.2	3.16	3.16	1.1	1.1

6.3-2

			%
1		34	35.1
2		18	18.2
3		15	15.6
4		12	12.4
5		10	10.4
6		8	8.4

6.3-1 6.3-2

16.8%

35.1%

2

102

6.3-3

6.3-3			
		%	
1		3.5	7.0
2		2.0	12.0
3		3.0	14.0
4		20.2	2.0
5		10.6	3.0
6		4.4	4.0
7		17.2	10.0
8		31.1	46.0
9		8.0	2.0

6.3-3

“ 4 ” “ 5 ”

“ 2 ” “ 3 ”

6.3.1.2

1 2014 6 8 11 10

4

1

3

2 2017 5 13

					1000
2	25				
					15
	2017	5	13		

6.3.2

HJ169-2018

B

6.3-4

6.3-4

	CAS					% V/V		
1		7782-50-5	/	-34	-101	/	3 1 —	
2		7647-01-0	/	108.6	-114.8	/	/ 1B - , 2	
3		64-17-5	14	78.3	/	3.3-19		
4		63705-05-5	207	444.6	119	/		

6.3.3

6.3.3.1

2016

6.3-5

6.3-5

A horizontal number line with five vertical tick marks. Below the first tick mark is the number 0. Below the second tick mark is the number 2. Below the third tick mark is the number 4. Below the fourth tick mark is the number 6. Below the fifth tick mark is the number 8.

6.3-6

6.3-6

1					/	
					/	
					/	

6.3.3.2

2

4

3

50

6.3-7

6.3-7

							×m ³	t			
1					/		2×50m ³ 2×242.7m ³	370			
				CO			1×50m ³ 2×266.7m ³	546			
					/						
2							50	1t			0.7MPa
3					/						

6.3.3.3

6.3-9

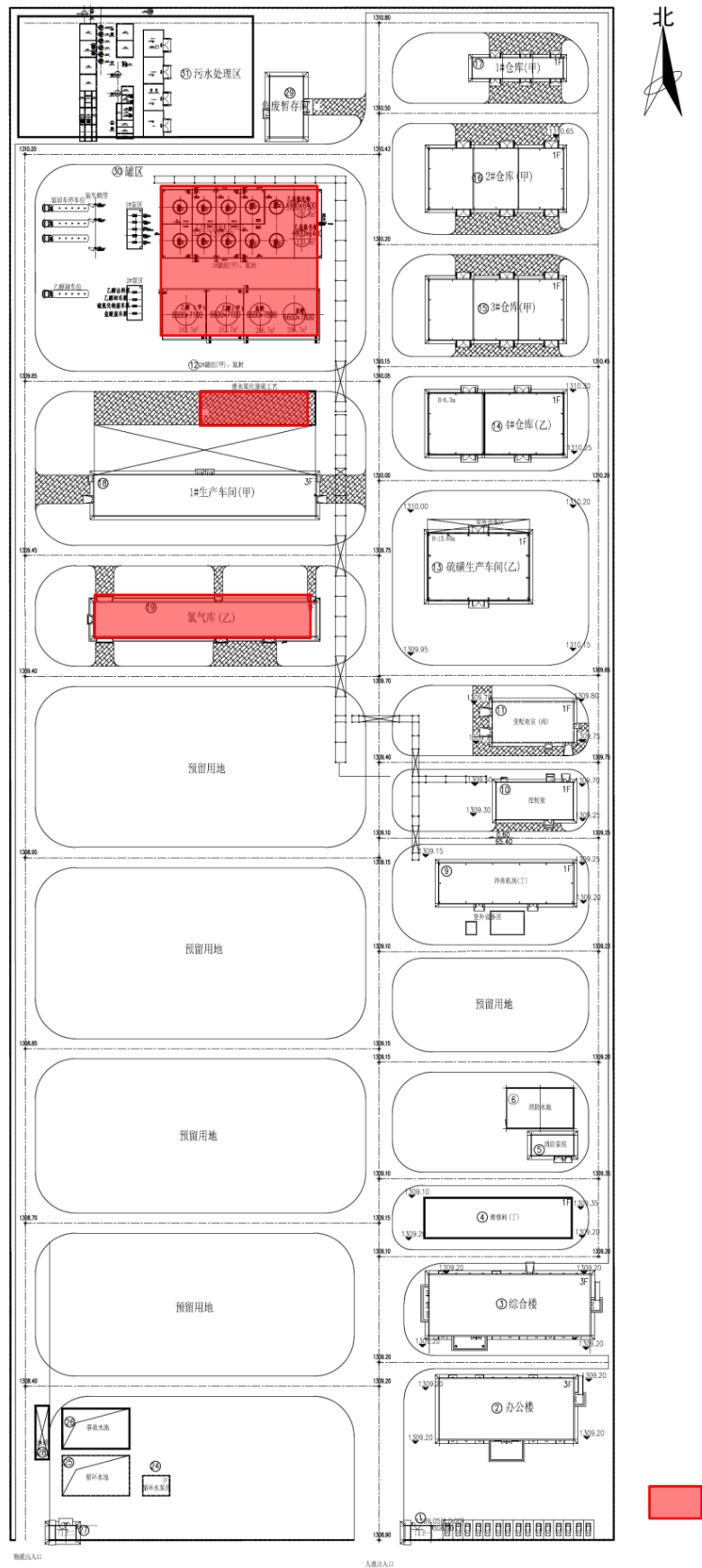
6.3-9

1						
2		MW-LEP+ +				

6.3.3.4

6.3-1

CO



6.3-1

6.4

6.4.1

1

1006.4-1

16.8%

6.4-1		100						
(%)	16.8	9.5	8.7	8.4	7.3	7.3	7.3	6.3
(%)	6.3	4.2	3.16	3.16	1.1	1.1	1.1	

/

6.4-4

6.4-2	
/	

HJ169-2018

/

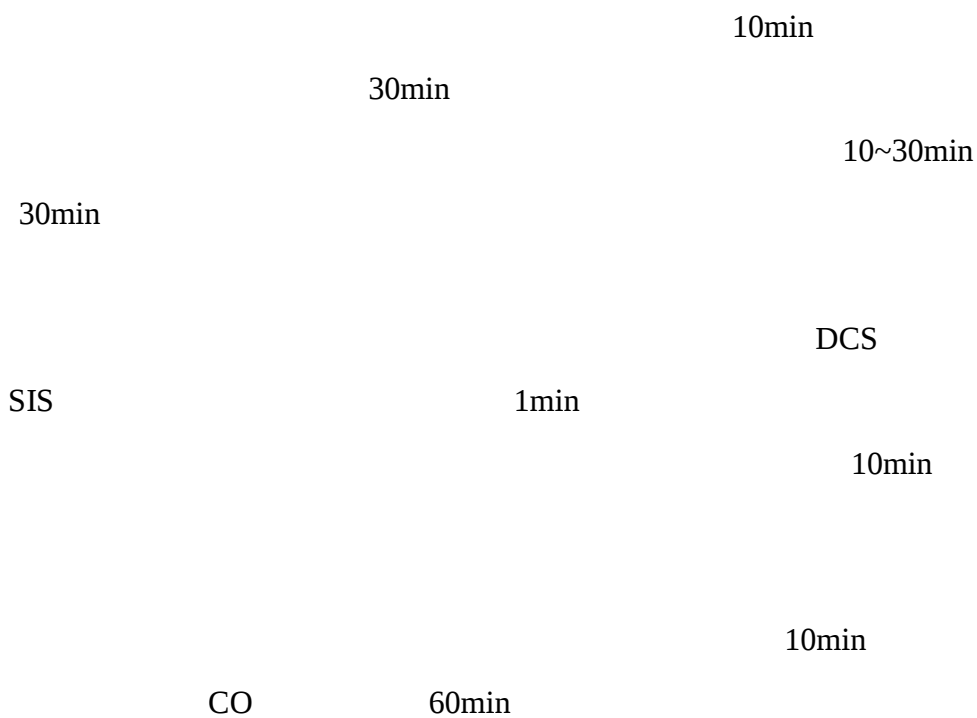
2

HJ169-2018			
10 ⁻⁶ /			
	E	/	/
10mm	1.00×10 ⁻⁴ /a	10min	5.00×10 ⁻⁶ /a
	5.00×10 ⁻⁶ /a		10mm
1.00×10 ⁻⁴ /a	10min	5.00×10 ⁻⁶ /a	
5.00×10 ⁻⁶ /a			

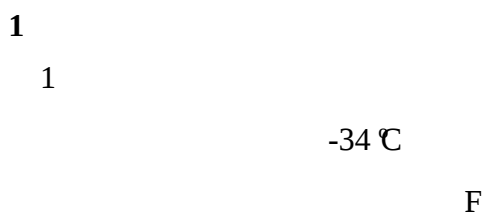
3

- | | | |
|---|------|----|
| 1 | 10mm | |
| 2 | 10mm | |
| 3 | 10mm | CO |

6.4.2



6.4.3



$$Q_{\text{LG}} = C_d A \sqrt{2 \rho_{\text{m}} (P - P_{\text{c}})}$$

$$\rho_m = \frac{1}{\frac{F_V}{\rho_1} + \frac{1 - F_V}{\rho_2}}$$

$$F_V = \frac{C_p (T_{LG} - T_C)}{H}$$

Q_{LG} — kg/s

C_d —

P_c — Pa

P — Pa

A — m²

ρ_m kg/m³

ρ_1 kg/m³

ρ_2 — kg/m³

F_V —

C_p — J/ kg.K

T_{LG} — K

T_C — K

H — J/kg

2

1000kg

6.4-3

6.4-3

				kg/s	/min	/kg	/kg	/mm	/	MPaG
				0.358	10	214.8	214.8	10	25	0.70

2

1

HJ 169 2018

2

QL

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

Q—— kg/s

Cd—— 0.62

A—— m²

ρ—— kg/m³

P—— Pa

P₀—— Pa

g——

h—— m

2

HJ 169 2018

$$Q_1 = F \cdot W_T / t_1$$

Q₁—— kg/s

W_T—— kg

t₁—— s

F——

$$F = C_p \frac{T_L - T_b}{H}$$

C_p—— J/(kg K)

T_L—— K
T_b—— K
H —— J/kg

$$Q_2 = \frac{Q_2}{H\sqrt{\pi\alpha t}}$$

Q₂—— kg/s
T₀—— k
T_b—— k
S—— m²
H—— J/kg
λ—— W/m k
α—— m²/s
t—— s

6.4-4

	λ w/m k	α m ² /s
	1.1	1.29×10 ⁻⁷
8%	0.9	4.3×10 ⁻⁷
	0.3	2.3×10 ⁻⁷
	0.6	3.3×10 ⁻⁷
	2.5	11.0×10 ⁻⁷

$$Q_3 = a \times p \times M / (R \times T_\theta) \times u^{(2-n)/(2+n)} \times r^{(4+n)/(2+n)}$$

Q₃—— kg/s
a n——
p—— Pa

R—— J/mol k

T₀—— k

u—— m/s

r—— m

6.4-5

	n	α
A,B	0.2	3.846×10^{-3}
D	0.25	4.685×10^{-3}
E,F	0.3	5.285×10^{-3}

$$W_p = Q_1 t_1 + Q_2 t_2 + Q_3 t_3$$

W_p—— kg

Q₁—— kg

Q₂—— kg/s

t₁—— s

t₂—— s

Q₃—— kg/s

t₃—— s

3

10min

6.4-6

6.4-6

				kg/s	/min	/kg	/kg	/mm	/	MPaG
				0.574	10	344.4	106.76	10	25	

3

/

	$G = 2330qCQ$	
G	—	kg/s
C	—	52.17%
q	—	1.5% 6% 3.8%
Q	—	t/s 0.026kg/m ² s
	29.5m ²	0.0008t/s

$G_{CO}=2330 \times 3.8\% \times 52.17\% \times 0.0008=0.037\text{kg/s}$

1 CO 133.2kg

6.5

6.5.1

6.5.1.1

1

1

HJ169-2018 G

SLAB

SLAB

SLAB

2

HJ169-2018

5km

3

6.5-1

6.5-1

1	P_0 Pa	87830
2	P Pa	700000
3		25
4		25
5	M g/mol	71

6	℃	-34
7	K	417.15
8	atm	76.098
9		/
10	J/kg k	498.1
11	J/kg k	926.3
12	ρ kg/m ³	1574
13	J/kg	287840

4

F 1.5m/s 25 50%

6.5-2

6.5-2

	/(°)	105.102288
	/(°)	37.688255
	/(m/s)	1.5
	/	25
	/%	50
		F
	/m	3cm
	/m	90

5

HJ169-2018 H -1 58mg/m³

-2 5.8mg/m³

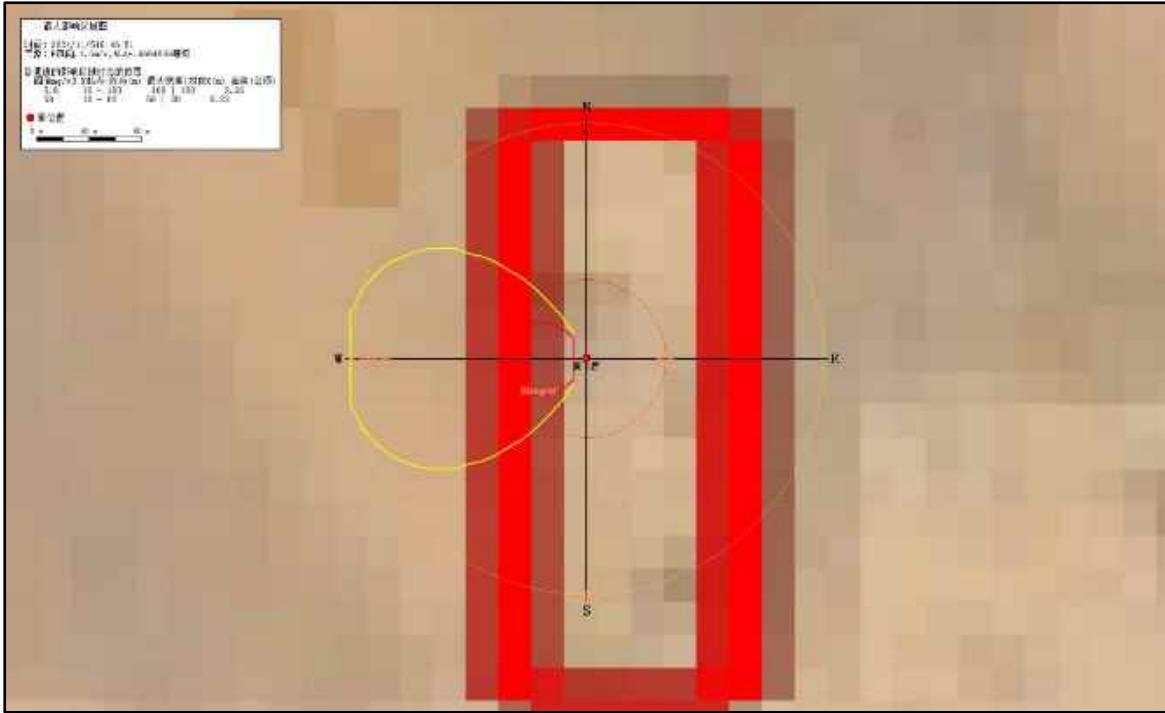
6

SLAB -1 -2

6.5-3 6.5-1

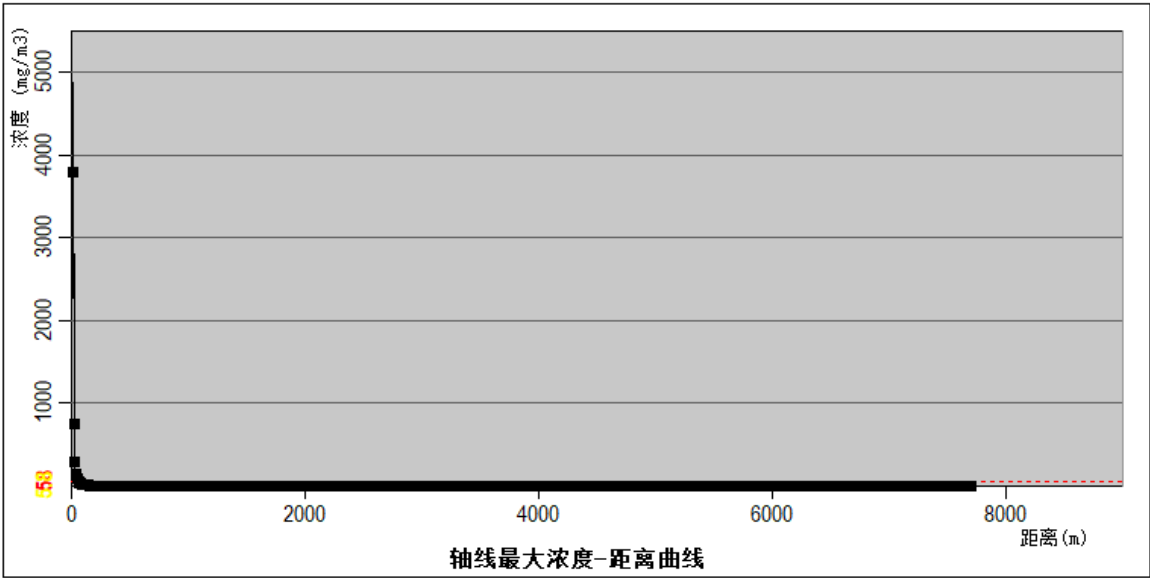
6.5-3

		-1 58mg/m ³	30
	10mm	-2 5.8mg/m ³	100



6.5-1

6.5-2



6.5-2

6.5-4

6.5-4

		/	25	/MPa	0.7

		/t	1	/mm	10
/ kg/s	0.358	/min	10	/t	0.2148
/m	2	/t	0.2148		$5.00 \times 10^{-6}/a$
			/(mg/m ³)	/m	/min
		-1	58	30	5.26
		-2	5.8	100	5.89
			/min	/min	/(mg/m ³)
		/	/	/	/

2

1

HJ169-2018 G

SLAB

SLAB

SLAB

2

HJ169-2018

5km

3

6.5-5

6.5-5

1	P ₀ Pa	89160
2	P Pa	89160
3		25
4		25
5	M g/mol	36.5
6	℃	-85
7	K	324.4
8	atm	81.5
9		0.66
10	J/kg k	575.3
11	J/kg k	2600
12	ρ kg/m ³	1191
13	J/kg	443.38

4

F 1.5m/s 25 50%

6.5-6

6.5-6

	/(°)	105.102422
	/(°)	37.689078
	/(m/s)	1.5
	/	25
	/%	50
	F	
	/m	3cm
	/m	90

5

HJ169-2018 H -1 150mg/m³

-2 33mg/m³

6

SLAB

-1

-2

6.5-7 6.5-3

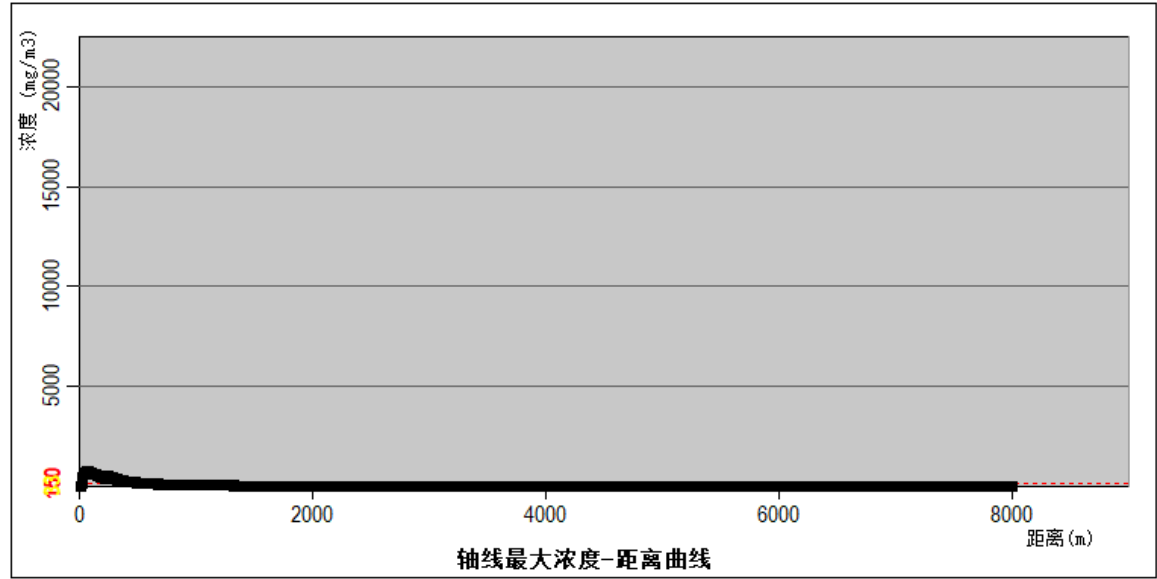
6.5-7

		-1 150mg/m ³	390
	10mm	-2 33mg/m ³	1070



6.5-3

6.5-4



6.5-4

6.5-8

		/	25	/MPa	
		/t	250	/mm	10

/ kg/s	0.574	/min	10	/t	0.344
/m	3	/t	0.107		$5.00 \times 10^{-6}/a$

			/(mg/m ³)	/m	/min
		-1	150	390	12.23
		-2	33	1070	20.77
			/min	/min	/(mg/m ³)
		/	/	/	/

3

1

HJ169-2018 G

CO Ri=-0.44 Ri 1/6 AFTOX

AFTOX

2

HJ169-2018

5km

3

6.5-9

CO

6.5-9

6.5-9

CO

1	M g/mol	28
2	℃	-191.5
3	J/kg k	1040

4

F 1.5m/s

25 50%

CO

6.5-10

6.5-10	CO	
	/(°)	105.102121
	/(°)	37.689028
		CO
	/(m/s)	1.5
	/	25
	/%	50
		F
	/m	3cm
	/m	90

5

CO

HJ169-2018 H CO -1 380mg/m³

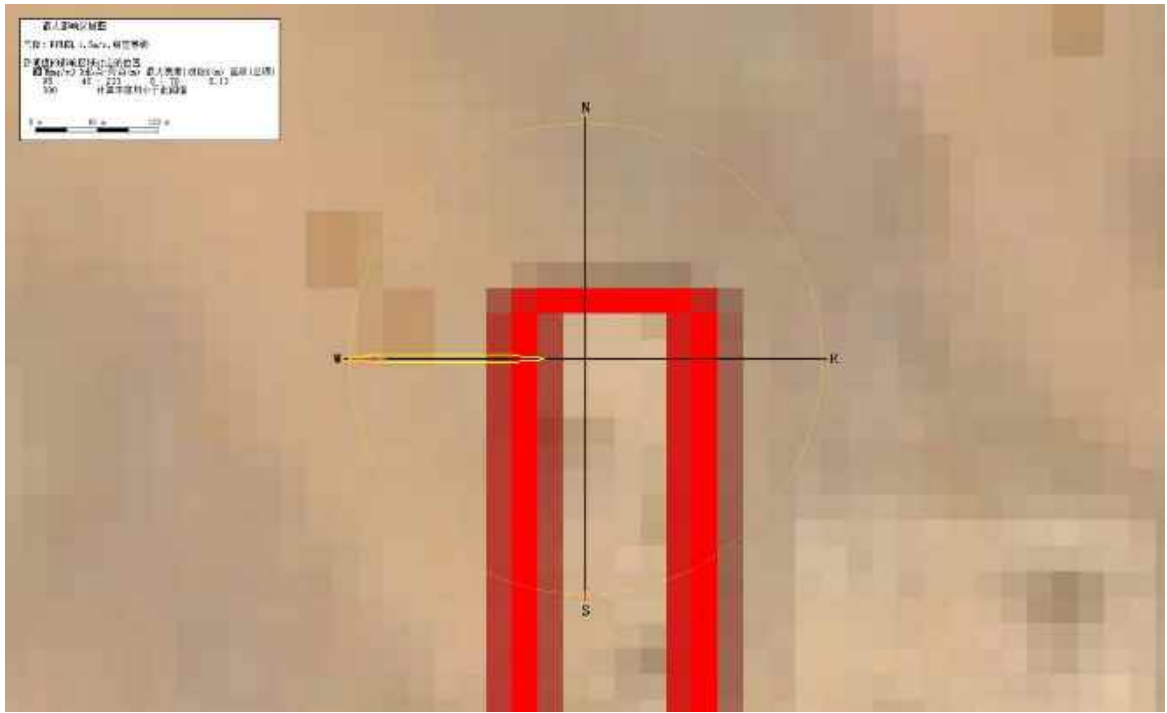
-2 95mg/m³

6

AFTOX CO -1 -2

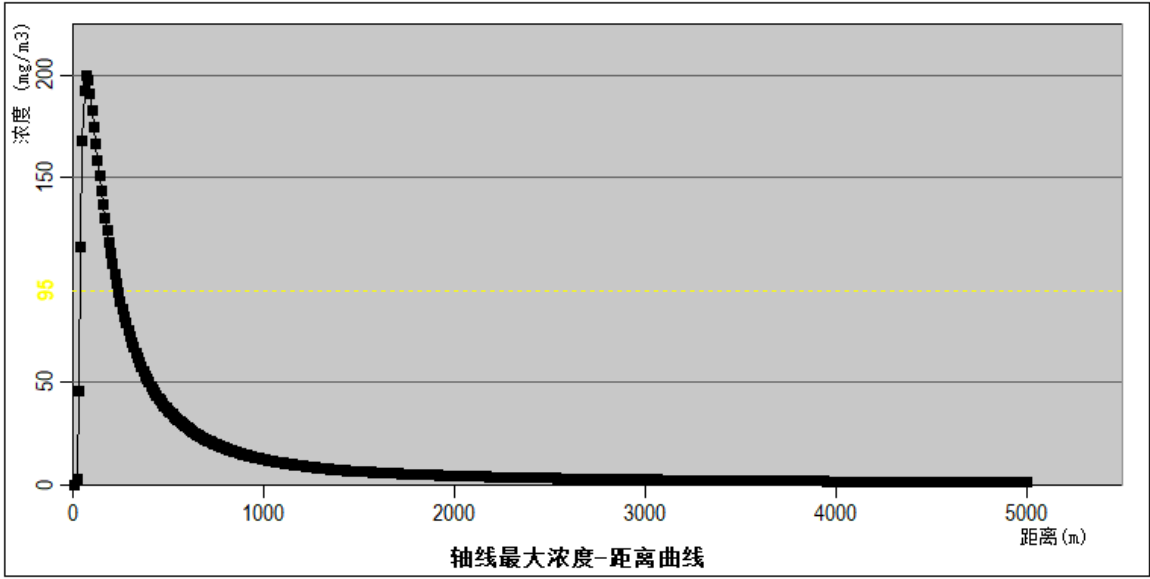
6.5-11 6.5-5

6.5-11	CO		
		-1 380mg/m ³	/
	CO	-2 95mg/m ³	70



6.5-5 CO

CO 6.5-6



6.5-6 CO

CO 6.5-12

6.5-12 CO

	CO				
		/	25	/MPa	

	CO	/t	/	/mm	/
/ kg/s	0.037	/min	60	/t	0.1332
/m	/	/t	/		5.00×10 ⁻⁶ /a
	CO		/(mg/m ³)	/m	/min
		-1	380	/	/
		-2	95	70	0.78
			/min	/min	/(mg/m ³)
		/	/	/	/

6.5.1.2

1

6.5.1.3

1

6.5-13

6.5-13

		“ ”

GB/T 14848-2017

266.7m³

1180000mg/L

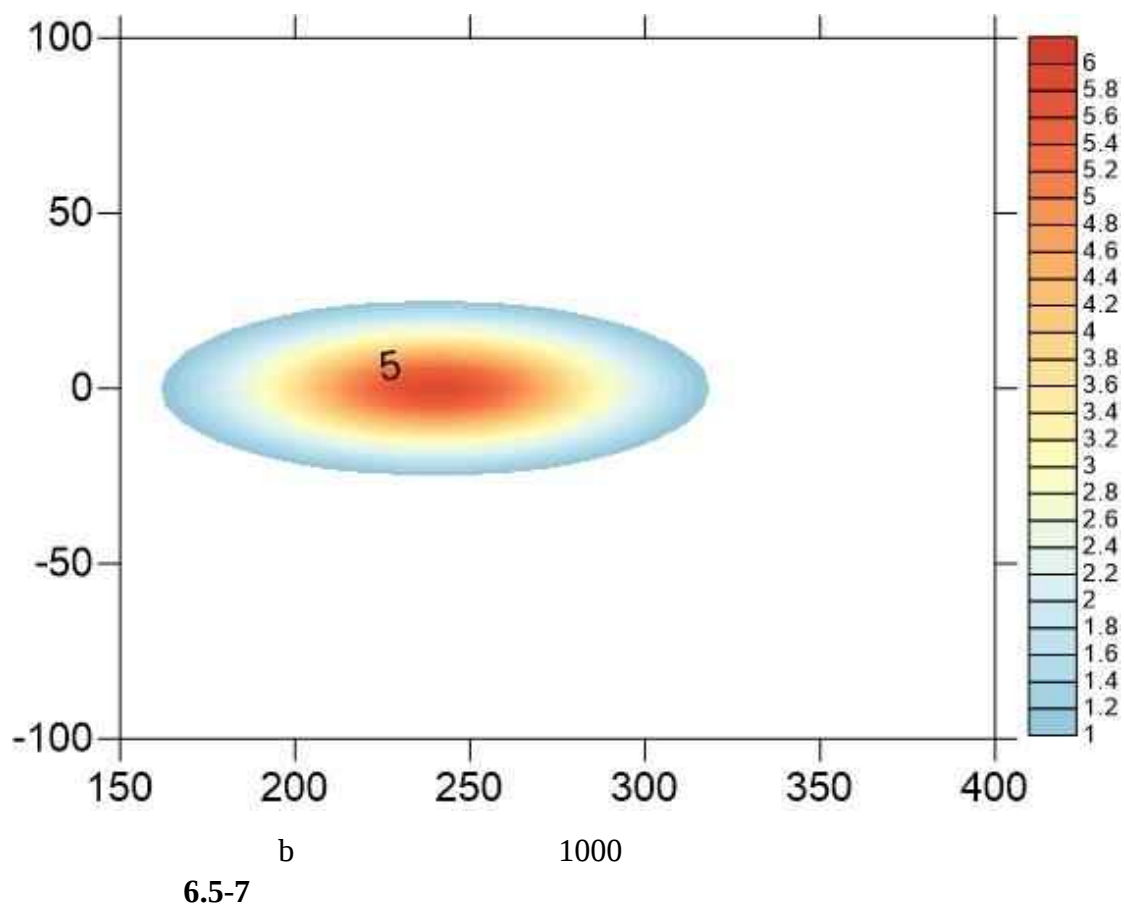
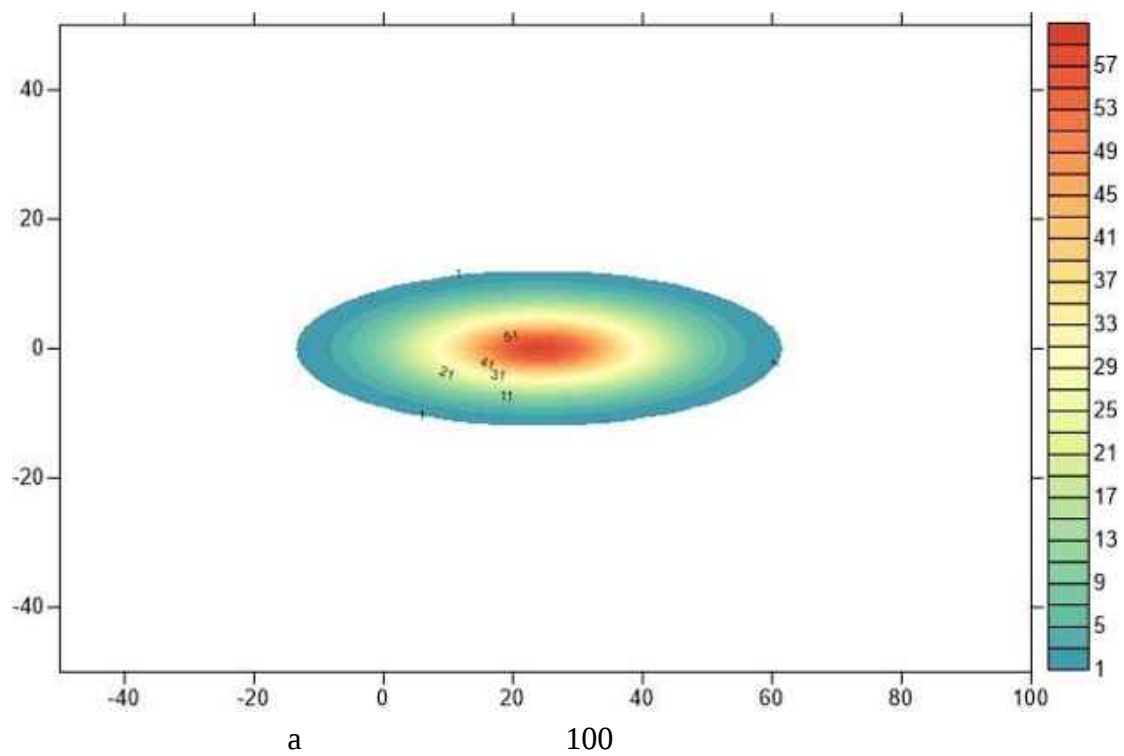
2

			5%
	266.7m ³	13.34m ³	1
	0.1%		
	0.013m ³		
3			

GB/T14848-2017	
6.5-14	
6.5-14	
	(mg/L)
	250
4	

	6.5-15
6.5-7	
	100
	250mg/L

6.5-15				
	m		m ²	mg/L
	X	Y		
100	--	--	--	59.84
1000	--	--	--	5.98



6.5.2

1

2

3

6.6

6.6.1

6.6.2

6.6.2.1

1

2

GB50187-2012

GB50489-2009

2018

GB50016-2014

GB 55037-2022

3

GB2893-2008

GB7231-2003

4

6

2016

GB50011-2010

GB50223-2008

1.5h

1.5h

5

6.6.2.2

1

- - - - -

6.6-1

1				
2				
3				

GB190-2009

GB/T191-2008

GB12463-2009

2

1.2m

0.3m

HG23011 23018-1999

0.10mm

0.01

1 2

DCS

30

80%

6.6.2.3

1

2

3

4

5

6

7

8

9

10

1—2

11

12

$\pm 1\text{m/m}$

$\pm 3\text{m/m}$

0.02

0.10mm

13

32%

14

15

16

6.6.2.4

“ ”

6.6.2.5

1

GB50016-2014 2018

2 GB50016-2014 2018

3

6.6.2.6

“ — ”

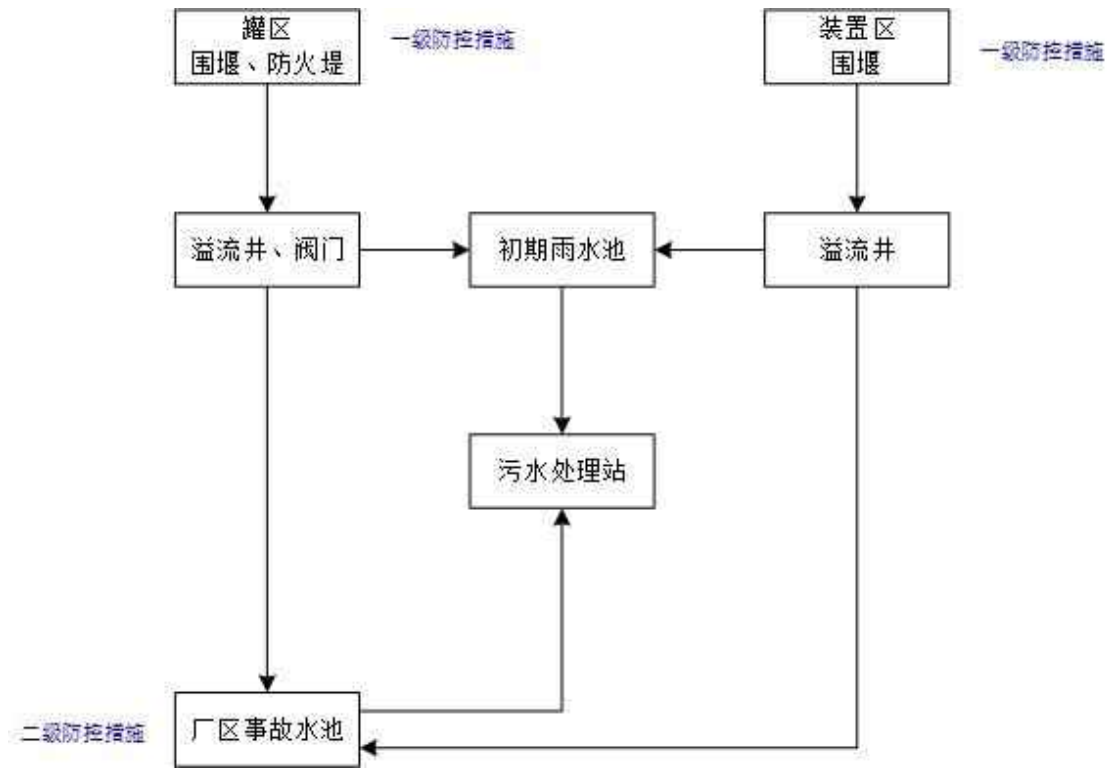
1

0.15m

0.2m

2

1 720m³



6.5-1

3

Q/SY08190-2019

2006 43

$$V = V_1 + V_2 - V_3 + V_4 + V_5$$

$$V_2 = \sum Q \cdot t$$

$$V_5 = 10qF$$

$$q = q_a/n$$

$$V_1 \text{—} m^3$$

$$V_2 \text{—} m^3$$

$$V_3 \text{—} m^3$$

V_4	—			m^3
V_5	—		m^3	
q	—	mm		
q_a	—	mm		
n	—			
F	—		hm^2	
1	V_1		$266.7m^3$	$V_1 \quad 266.7m^3$
2	V_2			
		GB50016-2014		40L/s
	2h		$288m^3$	
3	V_3		$400m^3$	
4	V_4			
				0
5	V_5	$82223.87m^2$		$157.9mm$
6-8		$V_5=144.26m^3$		
			$V=266.7+288-266.7+144.26=432.26m^3$	
	1	$720m^3$		

6.6.2.7

6.6.3

2024

6.6.4

[2015]4

HJ 941-2018

GB30077-2013

6.7

1

2

-1

-2

30m

100m

-1

-2

390m 1070m

CO

-2

70m

CO

-1

3

4

		/t	50	457				
			500m <u>0</u>			5km <u>0</u>		
			200m					
				F1 □		F2 □		F3
				S1 □		S2 □		S3
				G1 □		G2□		G3
				D1		D2 □		D3 □
		Q	Q 1 □		1≤Q 10 □		10≤Q 100 □	Q 100
		M	M1 □		M2		M3 □	M4 □
		P	P1		P2 □		P3 □	P4 □
			E1 □		E2□		E3	
			E1 □		E2 □		E3	

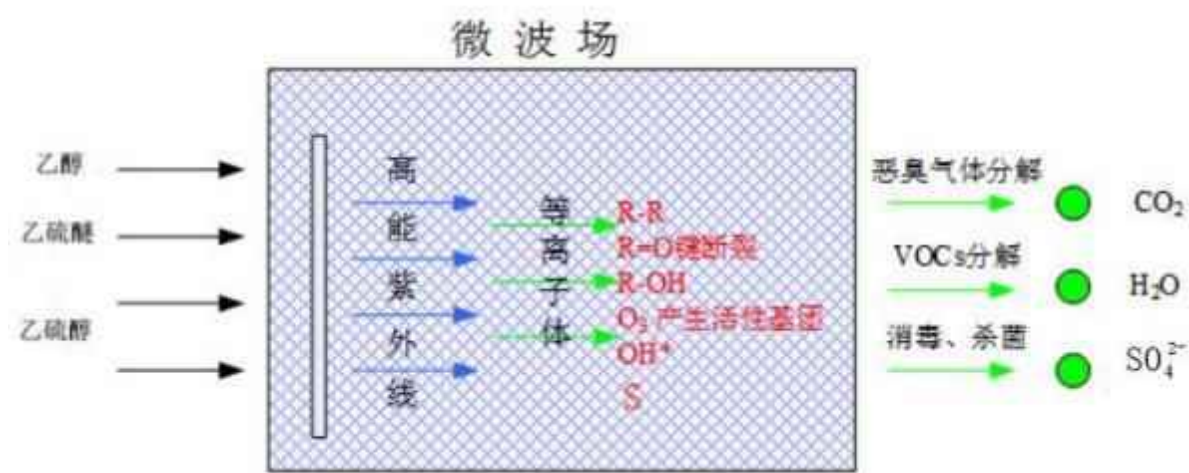
		E1 ☐		E2		E3 ☐	
		+ ☐		☐		☐	
		☐		☐		☐	
						/	
				☐			
					☐		☐
			SLAB	AFTOX	☐		
			-1			<u>30m</u>	
			-2				
			<u>100m</u>				
			-1				
			<u>390m</u>				
	-2						
	<u>1070 m</u>						
	CO			-1			
	CO			-2		<u>70 m</u>	
	<u> </u> / <u> </u> <u> </u> / <u> </u> h						
	<u> </u> / <u> </u> d						
	<u> </u> / <u> </u> <u> </u> / <u> </u> d						
“☐” “ ”							

7

7.1

7.1.1

Cl_2 HCl +
 1#
 1# 1# “ +
 + +MW-LEP + + ”
 1# 25m DA001
 1 MW-LEP
MW-LEP
 MW-LEP
 LEP
 UV 1s
 MW-LEP
 O_2 H_2O $\bullet\text{O}_2$
 $\bullet\text{OH}$
 CO_2 H_2O
 MW-LEP Microwave Light-Emitting Plasma
 LEP
 CO_2 H_2O



7.1-1 MW-LEP

MW-LEP



7.1-1

MW-LEP

1		H ₂ S	34		H-S	H ₂ O SO ₄ ²⁻
2		C ₄ H ₁₀ S	90		C-C C-H C-S	H ₂ O CO ₂ SO ₄ ²⁻
3		C ₂ H ₆ S	62		C-S C-H H-S	H ₂ O CO ₂ SO ₄ ²⁻
4		C ₂ H ₆ O	46		C-H C-O H-O	H ₂ O CO ₂

1.01×105Pa 20)

MW-LEP

MW-LEP

7.1-2

7.1-2 MW-LEP

	MW-LEP	UV	RTO	RCO		
	LEP 185nm 254nm	V U	680 400	200		V OCs CO ₂ H ₂ O
						H p

2

3

CO₂

85%

VOC

VOC

4

pH

5

+MW-LEP + + ” “ + +
Cl₂ HCl 99.5% 60% Cl₂ 99% HCl
99.5%
Cl₂ HCl TVOC
GB39727-2020 1
HJ 1293-2023

7.1.2

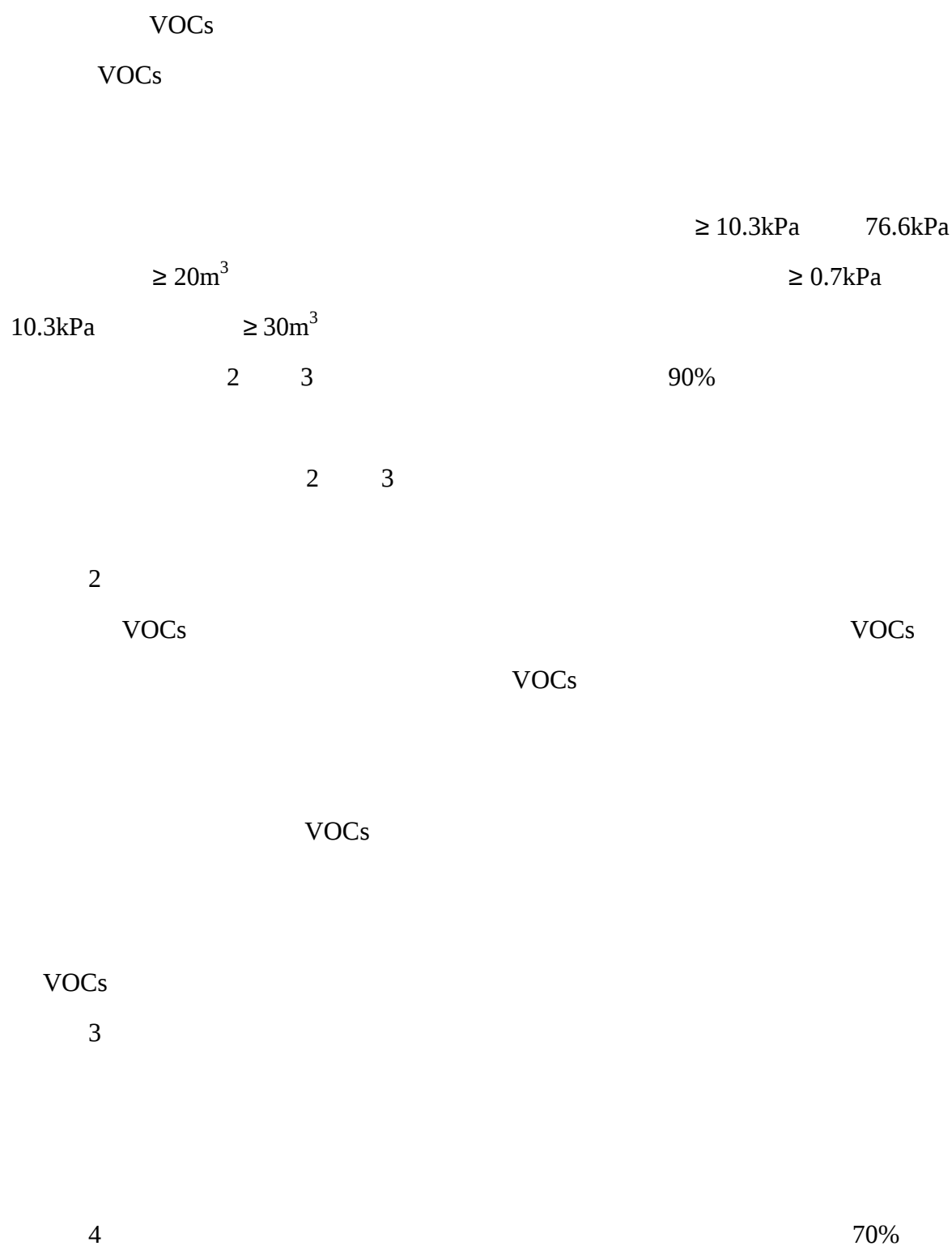
1

GB 37822-2019

1

VOCs

VOCs



5

5 28%

6

VOCs

LDAR

VOC

VOCs

VOCs

7.2

“ + + + ”
+ + + ” 100m³/d
“ STRO ” 30m³/d
+
7.2-1 +

		m ³ /a	COD mg/L	mg/L	mg/L	mg/L	TDS mg/L
		710	3935.21	8.52	185.21	0.65	1478.87
		595.69	3935.21	8.52	185.21	0.65	10.35
		-	0	0	0	0	99.3%
		595.69	3935.21	8.52	185.21	0.65	10.35
		595.69	3935.21	8.52	185.21	0.11	10.35

		-	0	0	0	83%	0
+		595.69	3935.21	8.52	185.21	0.11	10.35
		595.69	78.70	1.81	1.24	0.11	10.35
		-	98%	78.75%	99.33%	0	0
		595.69	78.70	1.81	1.24	0.11	10.35
		595.69	78.70	1.60	1.03	0.11	10.35
		-	0	11.76%	16.67%	0	0
STRO		595.69	78.70	1.60	1.03	0.11	10.35
		568	55.09	1.50	0.83	2.20	6.66
		-	30%	6.67%	20%	80%	35.71%
		-	55.09	1.50	0.83	2.20	6.66
			60	10	1	-	-

7.2-1

+

COD55.09mg/L

1.50mg/L

0.83mg/L

7.3

7.3.1

“ ” “

”

7.3.2

1

2

$Mb \geq 1.5m$ $K \leq 1 \times 10^{-7} \text{cm/s}$

3

2mm HDPE 10^{-10}cm/s
 $Mb \geq 6.0m$ $K \leq 1 \times 10^{-7} \text{cm/s}$

HJ610-2016

GBT50934-2013

7.3-1 7.3-1

7.3-1

	1#			
				$Mb \geq 6.0m$ $\leq 10^{-7} \text{cm/s}$
				$Mb \geq 16.0m$ $\leq 10^{-7} \text{cm/s}$
				$Mb \geq 1.5m$ $\leq 10^{-7} \text{cm/s}$

	1#			Mb≥6.0m ≤10 ⁻⁷ cm/s
	2#			
	3#			
	4#			
				Mb≥6.0m ≤10 ⁻⁷ cm/s
				2mm HDPE ≤10 ⁻¹⁰ cm/s
				Mb≥6.0m ≤10 ⁻⁷ cm/s



7.3-1

7.3.3

1

1

GB/T14848-2017

GB3838-2002

2

HJ1209 2021

4 J1 J2 J3 J4

J1

J2

J3

J4

7.3-2 7.3-1

7.3-2

J1	105°6'13.11797"	37°41'23.40287"			
J2	105°6'7.20853"	37°41'22.08966"			
J3	105°6'8.44449"	37°41'20.54471"			
J4	105°6'6.39743"	37°41'9.38243"			

2

3

2

4

HJ1209—2021

pH

COD_{Mn}

O₂

K⁺ Na⁺ Ca²⁺ Mg²⁺ CO₃²⁻

HCO₃⁻ Cl⁻ SO₄²⁻

K⁺ Na⁺ Ca²⁺ Mg²⁺ CO₃²⁻ HCO₃⁻ Cl⁻ SO₄²⁻ pH

COD_{Mn}

O₂

5

5

7.3.4

7.3.5

7.4

1

2

3

4

5

7.5

1

1 191.36m²

2

GB18597-2023

a

b

A

c

2 $\leq 10^{-10}$ cm/s

d

e

“ ”

f

GB15562.2

g

2

HJ2025-2012

e

HJ2025-2012

() [2006]50

100%

7.6

HJ964-2018

1

2

7.3.2

3

HJ1209-2021

2

7.6-1

7.6-1

1		0~0.5m 1.5~3m	GB36600 1 45
2		0~0.5m 1.5~3m	
3		0~0.5m	
4		0~0.5m	
5		0~0.5m	

GB36600 1

45

1 / 1 /3

GB 36600-2018

7.7

300 30 10%

7.7-1

7.7-1

		Cl ₂ HCl	Cl ₂ HCl	
		HCl	+	1#
		TVOC	1#	28
			1#	
			“ + + + ”	
			+MW-LEP + + 1#	
			25m DA001	
		Cl ₂		-
				1
				1
			4	/
				30

8.1

8.2

8.3

8.3.1

“

” “

”

7.7-1

300

10%

8.3.2

8.4

1

2

3

“ ”

9

9.1

9.1-1

9.1-1

				mg/m ³	kg/h	t/a	
	1#	HCl	“ + + +MW-LEP + ” 1# 25m DA001	0.70	0.0049	0.0387	GB39727-2020 1
		Cl ₂		0.12	0.0008	0.0066	
				0.13	0.0009	0.0073	
		TVOC		0.39	0.0027	0.0213	
				m ³ /a			GB/T 19923-2005
			+	500			
				210			
			t/a				GB18597-2023
			368.94				

9.2

9.2.1

1

2

2

9.2.2

1

2

3

“ ”

4

9.2.3

1

2

3

4

9.2.4

1

2 “ ”

“ ”

9.2.5

1

2

3

4

5

6

9.3

HJ819-2017

9.3-1

9.3-2

9.3-1

	1#	HCl	1	GB39727-2020 1 C.1
		Cl ₂	1	
		TVOC	1	
		TVOC	1	GB16297-1996 2
		HCl Cl ₂	1	
	1m	A	1	GB12348-2008 3

9.3-2

		HCl Cl ₂	TVOC	2 /
				HJ2.2-2018
				D
				DB13/1577-2012
	J1 J2 J3 J4	O ₂ Ca ²⁺ Mg ²⁺ CO ₃ ²⁻ Cl ⁻ SO ₄ ²⁻	pH COD _{Mn} K ⁺ Na ⁺ HCO ₃ ⁻	2
		Mg ²⁺ CO ₃ ²⁻ pH K ⁺ Na ⁺ Ca ²⁺ HCO ₃ ⁻ Cl ⁻ SO ₄ ²⁻ COD _{Mn} O ₂		GB/T14848-2017
			45	1 / 1 /3
				GB36600-2018

9.4

9.4.1

- 1
- 2
- 3

9.4.2

1

2

3

9.4.3

1

2

—

GB15562.1-1995

2m

9.4.4

1

2



9.4-1

9.5 “ ”

“ ”

“ ” 9.5-1

9.5-1

		HCl Cl ₂ TVOC	“ + +MW-LEP + ” +25m	DA001	HCl Cl ₂ TVOC	GB39727-202 0 1 C.1
		HCl Cl ₂			HCl Cl ₂	GB16297-199 6 2
				-	-	GB 18597-2023
					A	GB12348-200 8
		4		-	-	HJ/T164-2004

10

10.1

105 °9.19" 37 °41'16.26"

30t/d

10309.2t/a

666.6t/a

300

330d 7920h

10.2

2024

2408-152998-89-01-544905

10.3

10.4

10.4.1

2022 HCl Cl₂ TVOC
HJ2.2-2018 D

DB13/1577-2012

10.4.2

GB/T14848-2017

10.4.3

49~63dB(A) 65dB(A) 45~54dB(A)
55dB(A)
GB3096-2008 3

10.4.4

GB 36600-2018

10.5

10.5.1

1 Cl₂ HCl +
1#

1# 1# “ +
+ +MW-LEP + + ”
1# 25m DA001
2

HJ2.2-2018

AERMOD

100%
30% Cl₂ HCl
TVOC
HCl TVOC1h
Cl₂ 1h

10.5.2

+

1

720m³

10.5.3

100

250mg/L

10.5.4

1 191.36m²

10.5.5

GB12348-2008 3 65dB A 55dB A

10.5.6

GB18597 2023

10.6

1

2

-1 -2 30m

100m

-1 -2

390m 1070m

CO CO -1

-2 70m

3

4

10.7

0.0213t/a

10.8

10.9