

第2節 地盤沈下防止対策

1 公害防止条例による規制

(1) 指定地域

昭和49年7月20日に地盤沈下防止対策要綱に基づき仙台市苦竹地区7.5㎩を指定地域とした。さらに、昭和58年9月19日には、仙台市、多賀城市及び利府町のそれぞれ一部にまたがる地域及び塩竈市の一部37.2㎩を、平成4年4月1日には、仙台市東南部荒井・沖野地区17.7㎩について指定地域を拡大し、計62.4㎩となった。現在は平成8年1月1日に施行された公害防止条例により揚水規制が実施されている。その範囲を図4-2に示す。

(2) 条例に基づく届出施設

指定地域内では、揚水設備（揚水機の吐出口断面積6㎤を超えるもの）により地下水を採取している者、又はしようとする者は、業種及び地下水の用途に関わらず、届出を必要とする。

(3) 地下水揚水量の報告

建設工事関係を除き、揚水機の吐出口断面積が6㎤を超える揚水設備を有する採取者及び平成8年1月1日以前に揚水設備を有する採取者は吐出口断面積が19㎤以上の者に、年1回の地下水揚水量の報告を義務づけている。

地下水揚水量について、図4-1、表4-1に示す。昭和59年には指定地域の拡大に伴う届出・報告件数の増加により地下水揚水量は増加しているが、その後は水源転換により減少している。

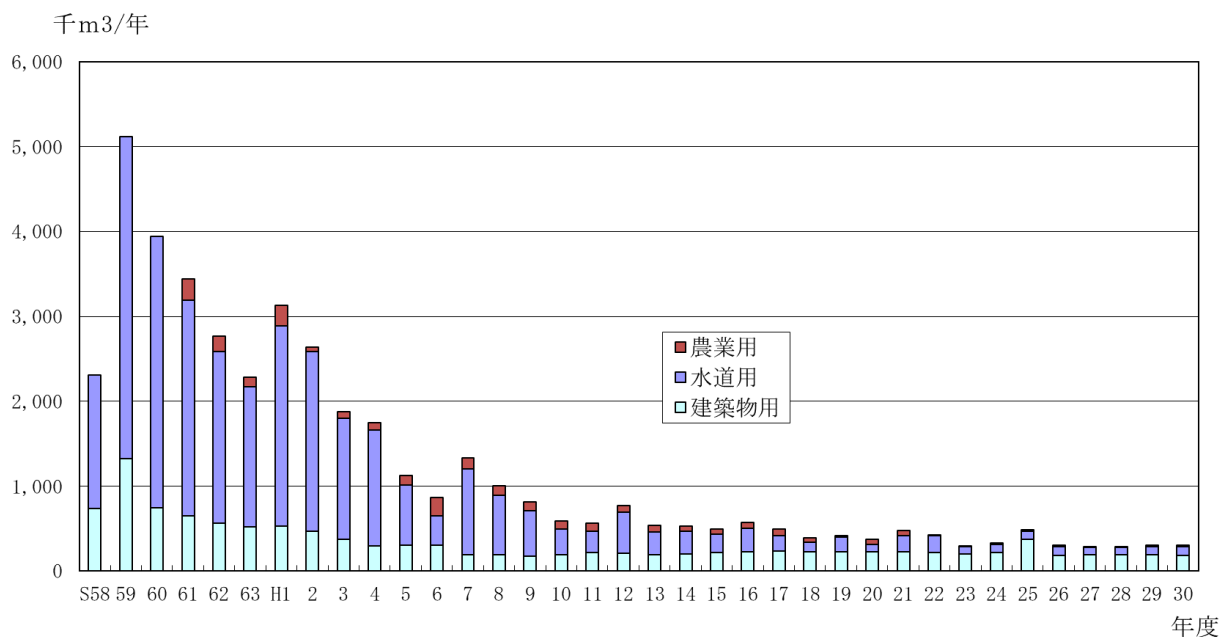


図4-1 条例に基づく指定地域内の地下水採取量

表4-1 宮城県公害防止条例に基づく指定地域内の地下水採取量
(宮城県公害防止条例に基づく採取報告による)

年度	井戸 本数	月 別 取 量 (m ³ /月)												年間揚水量 (m ³ /年)
		4月	5月	6月	7月	8月	9月	10月	11月	12月	1月	2月	3月	
昭和58	18	111,955	106,900	113,834	116,133	119,503	118,032	105,051	105,149	108,417	440,032	458,275	406,753	2,310,054
59	86	414,066	444,880	458,418	515,525	525,412	440,521	394,637	352,781	392,956	428,349	362,216	382,443	5,112,204
60	85	355,701	371,139	377,291	382,674	399,616	348,145	323,402	267,298	291,147	277,348	266,205	3,939,849	
61	83	256,544	320,888	327,001	342,969	339,606	287,718	275,801	261,348	268,989	278,432	247,466	233,810	3,440,572
62	74	244,890	266,074	267,424	288,177	258,381	233,434	217,868	191,334	208,713	187,625	211,956	195,190	2,771,066
63	71	186,672	188,625	212,323	200,785	243,332	191,378	187,848	181,441	184,048	162,223	163,926	184,097	2,286,734
平成元	65	229,523	306,479	304,711	329,309	306,718	268,002	240,150	223,462	229,556	237,619	231,992	230,198	3,127,719
2	64	241,792	202,367	229,440	257,717	273,395	240,271	216,345	202,723	204,263	189,314	189,844	192,247	2,639,718
3	60	151,018	170,530	195,793	193,783	181,798	160,612	140,905	137,016	135,048	129,269	138,630	141,885	1,876,287
4	59	137,815	140,606	160,274	200,643	180,820	167,458	141,311	135,587	157,587	111,752	102,230	110,524	1,746,612
5	62	100,485	142,532	139,426	138,560	141,912	108,607	74,241	75,984	73,960	37,720	42,572	54,647	1,130,646
6	57	45,695	86,359	90,973	95,137	98,415	62,027	32,170	41,828	43,065	88,083	89,142	93,910	866,804
7	52	83,017	123,516	116,046	177,965	161,544	120,652	101,799	84,572	86,187	88,510	106,502	81,731	1,332,041
8	66	71,404	97,264	103,730	130,087	154,055	87,314	75,759	66,561	57,045	52,882	58,771	55,590	1,010,462
9	50	56,464	70,196	87,044	109,135	136,600	71,062	60,230	50,270	31,096	53,068	46,704	47,310	819,179
10	55	42,517	82,639	50,307	61,406	52,102	54,786	39,626	49,446	40,438	45,939	38,783	29,311	587,300
11	59	31,110	83,459	56,148	55,885	63,769	44,938	31,194	38,796	40,421	33,508	37,303	47,874	564,405
12	59	56,065	78,420	84,386	101,006	99,440	76,088	62,013	48,998	46,955	44,839	40,342	34,295	772,847
13	58	48,364	59,114	54,028	81,816	49,825	48,834	38,824	32,110	34,476	30,543	30,127	34,432	542,494
14	61	44,252	47,629	58,156	56,265	68,575	49,351	36,882	37,472	35,909	32,753	31,408	34,223	533,174
15	61	32,208	36,587	62,440	46,178	47,123	41,795	44,496	38,706	38,478	37,030	35,939	35,588	496,567
16	62	45,423	53,582	69,526	57,876	58,892	45,842	45,091	42,557	39,334	36,701	33,361	46,691	574,875
17	59	34,533	52,997	59,724	47,326	55,055	53,587	34,454	32,879	26,071	29,705	31,559	26,357	491,504
18	61	28,285	60,406	44,920	38,172	47,476	30,704	24,080	22,695	27,970	23,461	21,785	21,948	392,632
19	58	27,600	40,957	44,883	39,511	58,820	48,803	37,568	24,081	24,183	23,999	23,617	24,241	418,265
20	58	27,546	37,801	42,922	50,361	36,825	27,690	29,221	24,383	24,509	23,294	22,752	24,229	371,533
21	56	29,480	49,446	40,793	38,678	43,617	27,674	27,886	26,428	47,153	53,198	55,056	42,481	481,892
22	55	28,627	34,810	38,449	46,238	44,740	31,466	37,910	25,127	26,437	27,364	38,618	50,856	430,642
23	53	29,146	23,019	25,695	23,859	27,433	24,822	25,721	25,755	25,229	22,975	23,053	23,886	300,594
24	53	24,641	27,367	26,741	28,180	31,610	25,764	24,528	22,084	25,397	32,518	26,955	35,847	331,631
25	53	33,506	34,757	37,099	37,786	44,558	45,742	50,057	45,578	42,960	41,398	32,505	42,510	488,456
26	46	35,122	42,391	52,128	70,514	68,482	54,760	40,359	30,999	27,732	27,045	23,298	15,006	487,840
27	38	21,355	23,377	28,794	42,398	31,103	25,064	19,702	16,487	21,829	19,649	19,926	21,957	291,646
28	38	18,319	21,906	26,864	28,602	28,113	22,608	19,892	24,441	24,006	22,585	25,614	27,302	290,251
29	38	26,010	30,428	30,029	26,967	26,539	25,120	22,979	24,080	19,432	23,860	23,537	25,031	304,011
30	38	25,554	26,162	27,534	29,941	25,577	22,105	23,819	24,103	22,889	26,207	31,002	24,017	308,909

○ 建築物用

年度 昭和58	井戸 本数	取 量 (m ³ /月)												年間揚水量 (m ³ /年)		
		4月	5月	6月	7月	8月	9月	10月	11月	12月	1月	2月	3月			
59	41	130,213	142,031	132,914	141,035	139,686	135,086	82,799	83,811	40,856	40,430	45,940	134,532	124,368	92,257	741,425
60	40	61,870	62,526	62,192	66,485	65,792	66,913	67,066	66,311	61,634	66,311	66,311	55,776	56,361	56,569	1,322,570
61	38	54,347	53,996	57,098	57,384	54,394	52,584	59,149	52,584	53,318	60,636	49,943	50,451	46,943	49,288	649,558
62	38	50,345	47,658	47,591	47,142	51,705	46,763	46,862	49,061	42,684	49,606	49,606	43,727	45,741	43,926	563,205
63	37	44,236	44,000	43,478	43,486	48,556	43,463	43,463	41,904	43,186	41,904	42,786	42,786	40,628	42,509	519,196
平成元	36	42,277	43,454	43,486	46,331	49,058	45,363	42,723	43,509	43,512	43,509	43,086	43,086	43,116	43,086	529,520
2	35	42,964	40,673	42,700	42,311	43,791	37,997	37,997	36,228	36,228	36,228	35,344	36,729	35,893	36,661	468,947
3	31	37,044	38,123	37,751	40,882	45,156	27,220	25,812	24,794	24,988	24,988	23,535	22,924	23,535	23,916	372,155
4	30	21,782	21,486	21,844	25,107	31,065	27,681	26,785	26,035	26,247	26,035	21,716	22,793	21,716	24,595	297,136
5	31	25,439	22,716	25,790	25,988	27,624	26,624	26,446	25,101	25,722	25,101	22,551	22,551	23,524	25,775	303,304
6	28	24,925	23,277	25,777	28,332	26,782	24,504	23,676	22,911	22,664	22,911	20,759	30,759	26,111	28,220	307,938
7	25	15,646	15,602	15,677	16,131	16,817	16,508	15,835	14,959	14,959	14,959	14,308	14,308	14,731	15,258	190,143
8	27	15,458	16,012	17,010	17,111	18,393	17,106	15,738	15,995	16,091	14,354	14,354	14,686	14,686	14,503	192,457
9	20	14,871	15,229	14,362	15,958	16,190	15,080	15,093	14,068	14,665	15,423	13,919	13,919	13,264	13,677	175,344
10	25	14,867	16,317	15,130	16,502	16,946	17,631	16,686	16,655	16,655	15,423	14,989	14,989	13,506	15,876	190,528
11	29	17,297	18,493	19,495	18,579	21,051	18,832	20,393	17,604	17,604	17,668	15,987	15,987	16,061	16,700	218,160
12	28	17,521	18,492	19,329	19,321	18,891	18,555	19,310	15,730	16,879	16,879	15,450	14,687	16,465	16,465	210,630
13	26	16,533	17,440	18,989	16,755	18,145	17,326	17,452	13,477	13,477	13,477	12,261	12,261	11,711	15,312	190,773
14	26	16,589	17,421	18,004	17,404	18,850	18,446	17,010	15,770	15,842	15,842	14,544	14,544	13,809	14,836	198,924
15	26	14,075	14,551	16,935	17,394	16,350	19,446	21,990	19,674	19,727	18,671	18,671	17,661	19,046	19,741	217,568
16	26	19,625	18,827	19,914	20,452	21,462	20,890	20,241	18,587	18,649	18,649	17,661	17,449	17,449	18,688	232,444
17	26	18,950	19,870	19,592	20,188	21,081	21,561	20,808	19,456	18,625	18,625	18,381	18,381	18,108	19,094	235,716
18	26	18,791	18,849	19,700	19,811	20,718	20,573	19,213	18,598	17,965	17,965	16,885	16,885	16,792	17,307	225,377
19	26	19,053	18,371	19,127	19,407	20,463	21,391	19,951	18,281	18,281	17,998	17,998	17,903	18,007	18,007	228,243
20	26	18,926	18,497	18,197	19,144	18,845	20,455	20,378	18,551	18,271	18,271	18,122	17,618	17,572	17,618	224,577
21	26	19,018	18,299	18,853	20,540	21,892	20,851	20,218	18,677	18,677	19,362	17,912	17,912	18,033	18,033	231,509
22	26	19,076	18,782	17,717	20,019	21,888	21,797	19,069	17,820	18,720	18,720	16,834	16,834	16,647	15,530	223,897
23	24	12,703	16,678	15,630	14,169	15,780	16,503	19,585	18,564	19,244	18,088	18,088	17,521	18,290	202,755	
24	24	17,919	17,572	18,011	18,622	19,772	19,746	18,418	15,312	17,357	17,357	17,482	17,332	17,936	215,478	
25	24	26,799	24,972	28,371	28,242	32,722	39,726	43,948	38,807	34,932	26,362	22,882	22,882	24,596	372,359	
26	22	16,774	17,171	18,169	16,688	15,696	15,141	15,131	13,907	15,041	14,711	13,830	12,577	12,577	184,835	
27	20	15,616	15,433	16,016	17,135	17,013	15,828	16,700	15,190	15,480	16,154	15,079	16,147	16,147	191,790	
28	20	12,965	16,164	16,955	17,991	17,628	16,340	16,036	14,974	15,781	15,247	15,047	15,047	16,968	192,085	
29	20	16,737	16,397	17,477	17,031	17,160	16,098	14,282	14,992	15,340	15,081	15,081	14,107	15,278	189,979	
30	20	14,582	14,484	14,966	16,295	16,522	14,870	15,312	15,147	16,003	15,189	16,188	13,358	13,358	182,915	

○水道用

年度 昭和58	井戸 本数	取 量 (m ³ /月)												年間揚水量 (m ³ /年)	
		4月	5月	6月	7月	8月	9月	10月	11月	12月	1月	2月	3月		
5	59	67,523	64,434	70,516	72,447	74,174	74,221	74,221	64,195	64,719	62,477	305,520	333,907	314,496	1,568,629
6	12	283,853	302,849	325,504	374,490	385,726	305,435	305,435	311,838	268,966	306,576	245,288	282,487	296,625	3,789,634
7	12	293,831	308,613	315,099	316,189	329,339	281,332	281,332	256,356	205,664	224,956	228,372	220,987	209,636	3,190,354
8	12	193,090	209,454	217,043	242,355	243,314	224,356	224,356	209,232	201,310	201,633	221,867	195,000	178,407	2,837,070
9	12	183,052	179,324	191,352	211,352	190,363	173,873	173,873	164,211	142,732	153,537	139,039	161,806	146,405	2,026,542
10	12	128,855	120,132	150,292	140,360	179,454	139,057	139,057	139,284	123,147	137,321	119,284	123,147	141,434	1,651,910
11	12	179,618	178,256	203,823	235,230	230,223	218,230	218,230	197,269	179,909	185,892	191,511	186,523	174,513	2,360,987
12	12	195,152	154,380	179,662	207,825	222,023	198,734	198,734	176,092	163,979	166,593	150,173	151,766	153,174	2,119,282
13	3	109,553	116,679	144,049	143,275	120,691	129,445	129,445	112,036	109,841	107,530	103,828	112,730	115,452	1,425,172
14	4	111,701	102,399	124,618	162,937	136,895	135,603	135,603	111,409	107,111	128,828	86,414	78,196	83,384	1,369,495
15	5	72,017	94,434	92,073	93,423	93,120	71,189	71,189	45,205	48,414	45,693	12,542	16,669	26,245	711,024
16	6	6,798	20,050	23,252	24,021	29,156	19,737	19,737	5,822	16,373	17,774	54,907	60,840	63,272	342,002
17	7	64,792	77,311	79,400	137,737	119,804	95,613	95,613	83,541	67,271	65,099	71,785	89,505	64,056	1,015,914
18	8	53,474	64,979	71,914	97,073	88,779	67,430	67,430	57,648	48,268	38,581	36,155	41,939	38,714	704,954
19	9	35,201	43,997	62,628	82,411	75,428	48,852	48,852	42,727	33,868	15,053	36,739	31,257	31,223	539,384
20	10	23,624	28,103	26,591	35,839	26,008	32,691	32,691	20,551	30,478	22,626	28,561	23,115	11,046	309,233
21	11	9,825	22,685	25,802	26,656	31,791	22,287	22,287	8,457	18,923	20,409	15,177	19,049	28,829	249,890
22	12	35,122	42,391	52,128	70,514	68,486	54,760	54,760	40,359	30,959	27,732	27,045	23,298	15,006	487,840
23	13	23,359	28,020	26,461	46,988	17,530	28,316	28,316	18,489	13,931	18,115	15,399	15,759	16,236	268,602
24	14	22,710	24,273	33,047	29,922	30,345	24,072	24,072	17,528	19,434	17,723	15,865	15,482	17,043	267,444
25	15	14,217	14,125	37,734	21,469	23,567	18,389	18,389	18,602	15,325	14,889	14,498	13,355	11,984	218,153
26	16	22,380	21,958	43,548	28,718	22,028	20,773	20,773	22,503	21,700	18,340	16,697	13,719	25,659	277,024
27	17	9,466	16,656	32,358	21,822	19,438	28,150	28,150	11,271	11,139	5,101	8,980	11,335	4,919	180,636
28	18	6,318	19,221	17,448	12,926	19,190	7,942	7,942	4,430	3,736	9,633	6,204	4,656	4,269	115,974
29	19	7,907	18,485	22,064	16,397	34,170	26,480	26,480	17,151	5,470	5,319	5,829	5,378	5,862	170,483
30	20	5,857	5,608	11,653	18,318	6,627	6,627	6,627	8,282	4,799	5,865	4,799	4,844	6,239	92,773
31	21	8,826	10,905	9,463	6,260	9,127	5,628	5,628	7,110	7,210	27,231	34,728	36,696	23,890	187,072
32	22	8,822	14,158	19,170	24,537	21,170	9,127	9,127	18,281	6,946	7,345	10,159	21,636	34,953	196,304
33	23	15,843	3,708	7,485	7,055	9,019	7,719	7,719	5,517	5,613	5,613	4,515	5,196	5,224	83,645
34	24	4,805	6,377	5,428	6,148	8,326	4,936	4,936	4,993	6,411	7,668	14,664	9,287	17,537	96,580
35	25	4,805	6,377	5,428	6,136	8,326	4,936	4,936	4,993	6,411	7,668	14,664	9,287	17,537	96,580
36	26	14	7,254	10,813	11,607	9,491	5,997	5,997	6,042	5,215	5,215	4,991	5,226	5,226	101,449
37	27	5,379	5,244	10,257	22,731	11,557	8,204	8,204	2,634	937	5,977	3,123	4,511	5,438	85,992
38	28	4,811	4,461	8,646	9,330	7,524	5,725	5,725	3,295	8,924	7,667	6,780	10,063	9,783	87,009
39	29	8,662	8,518	9,933	7,305	6,748	8,179	8,179	7,305	8,726	3,719	8,407	9,094	9,379	96,993
40	30	8,082	8,062	10,886	11,856	7,217	6,273	6,273	7,534	7,995	5,914	10,046	13,878	9,686	107,429

○農業用

年度	井戸 本数	取 量 (m ³ /月)												年間揚水量 (m ³ /年)
		4月	5月	6月	7月	8月	9月	10月	11月	12月	1月	2月	3月	
昭和61	33	9,098	57,438	52,860	43,230	41,898	10,808	7,420	6,720	6,720	6,114	5,523	6,115	253,944
	62	11,493	39,092	28,481	29,055	27,445	12,798	6,795	5,918	6,115	4,859	4,409	4,859	181,319
	63	16,581	24,493	18,553	16,936	15,322	8,858	4,709	4,859	4,859	153	151	151	115,628
平成元	17	7,628	84,769	57,402	47,543	27,437	4,419	158	153	152	2,599	2,353	2,599	237,212
	2	3,676	7,314	7,078	7,581	7,581	3,947	2,597	2,516	2,597	2,412	2,185	2,412	51,489
	3	4,421	15,728	13,993	9,626	15,951	3,947	3,057	2,540	2,540	2,457	2,365	2,457	78,960
	4	17	4,332	16,721	13,122	12,599	4,174	3,117	2,441	2,517	2,545	2,318	2,545	79,981
	5	17	3,029	25,382	21,563	19,149	10,794	2,590	2,461	2,545	2,627	2,379	2,627	116,318
	6	17	13,972	43,032	42,478	42,477	17,786	2,672	2,544	2,627	2,417	2,191	2,417	216,864
	7	9	2,579	30,503	20,969	24,097	24,923	8,531	2,342	2,417	2,423	2,266	2,417	125,984
	8	21	2,472	16,273	14,806	15,903	46,883	2,778	2,373	2,373	2,373	2,146	2,373	113,051
	9	12	6,392	10,970	10,054	10,766	44,982	7,130	2,334	2,410	2,410	2,183	2,410	104,451
	10	12	4,026	38,219	8,586	9,065	9,148	2,389	2,313	2,389	2,389	2,162	2,389	87,539
	11	12	3,988	42,281	10,851	10,650	10,927	3,819	2,344	2,344	2,344	2,193	2,344	96,355
	12	12	3,422	17,537	12,929	11,171	12,063	2,773	2,269	2,344	2,344	2,357	2,344	74,377
	13	13	8,472	13,654	8,578	18,073	14,150	3,192	2,808	2,884	2,884	2,657	2,884	83,119
	14	15	4,953	5,935	7,105	8,940	19,680	6,435	2,268	2,344	2,344	2,117	2,344	66,806
	15	15	3,916	7,911	7,771	7,315	7,207	3,904	3,758	3,862	3,862	3,539	3,862	60,846
	16	16	3,418	12,797	7,064	8,706	15,402	4,179	2,270	2,346	2,344	2,192	2,344	65,408
	17	16	6,116	16,471	7,774	5,316	14,535	3,875	2,284	2,344	2,344	2,117	2,344	75,153
	18	18	3,176	22,336	7,773	5,435	7,568	2,188	361	373	372	336	372	51,281
	19	16	640	4,101	3,692	3,707	4,187	466	361	373	372	336	372	19,539
	20	14	2,763	13,695	13,072	12,898	8,770	608	362	373	373	336	372	54,183
	21	14	1,636	20,243	12,478	11,879	12,599	1,196	559	559	558	504	558	63,310
	22	13	730	1,870	1,562	1,682	1,682	542	361	372	372	336	373	10,441
	23	13	600	2,634	2,580	2,634	2,634	600	440	372	372	336	372	14,194
	24	13	1,917	3,418	3,302	3,418	3,418	1,082	361	372	372	336	372	19,573
	25	13	1,902	3,408	3,300	3,408	3,408	1,082	360	372	372	336	372	19,536
	26	10	729	5,525	2,761	2,781	1,273	1,116	360	372	372	336	372	18,284
	27	9	361	2,701	2,521	2,533	1,033	373	360	372	372	336	372	13,864
	28	9	543	1,281	1,263	1,281	2,961	543	558	558	558	504	558	11,157
	29	9	611	5,513	2,619	2,631	843	374	362	373	372	336	372	17,039
	30	9	2,890	3,616	1,682	1,790	1,838	962	961	972	972	936	972	18,565

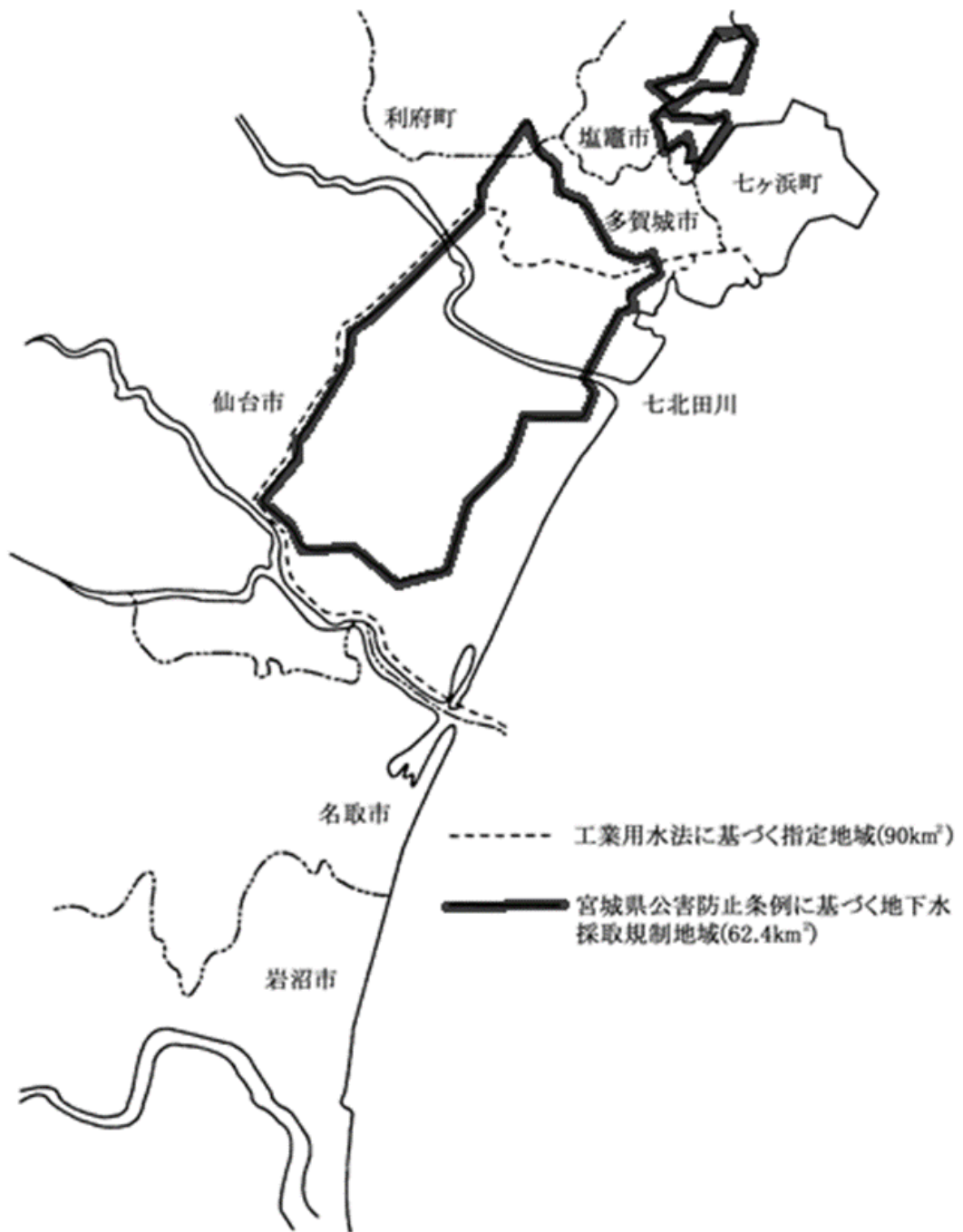


図4-2 工業用水法に基づく指定地域
及び宮城県公害防止条例に基づく地下水採取規制地域