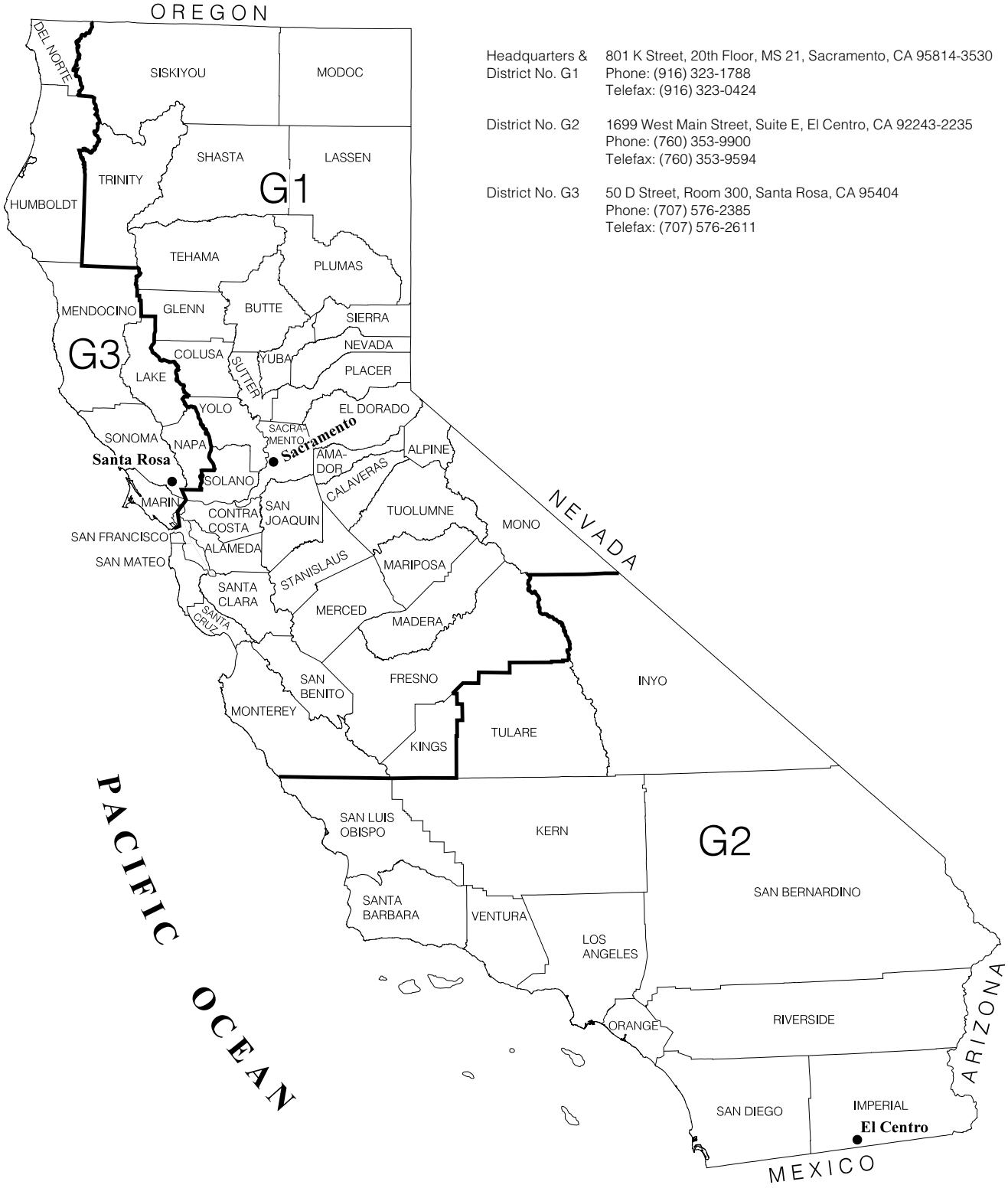
GEOTHERMAL OPERATIONS

GEOTHERMAL DISTRICT BOUNDARIES AND OFFICES
of the
Division of Oil, Gas, and Geothermal Resources



Headquarters & District No. G1
801 K Street, 20th Floor, MS 21, Sacramento, CA 95814-3530
Phone: (916) 323-1788
Telefax: (916) 323-0424

District No. G2
1699 West Main Street, Suite E, El Centro, CA 92243-2235
Phone: (760) 353-9900
Telefax: (760) 353-9594

District No. G3
50 D Street, Room 300, Santa Rosa, CA 95404
Phone: (707) 576-2385
Telefax: (707) 576-2611

SUMMARY OF GEOTHERMAL OPERATIONS

Richard P. Thomas, Geothermal Officer, Sacramento

PROGRAM HIGHLIGHTS:

UNIT 15 WELLS The wells at Unit 15, a 62-megawatt power plant owned by Pacific Gas & Electric Company (PG&E) at The Geysers Geothermal field in Sonoma County, were operated by Geo Operator Corporation, which has since filed for bankruptcy. Unit 15 and its wells have not been operated since 1989; however, the wells have been monitored by Department of Conservation engineers, who recently found some of the wells corroding and leaking hydrogen sulfide. All the wells now need proper plugging and abandonment to avoid future hazards.

In June 1994, the State Oil and Gas Supervisor issued a Formal Order to plug and abandon the 23 production and injection wells at the site. However, complex, unresolved legal issues left no clear title to the wells and no party responsible for plugging and abandoning them.

During the past few years, representatives from the department, Sonoma County, and other companies and agencies have met to identify funds that could be used to plug and abandon the wells. At a meeting in April 1996, the California Energy Commission (CEC) agreed to provide up to $20,000 to study the condition of the wells, describe the environmental consequences of a blowout, and estimate the costs to plug and abandon the wells. In early 1997, the completed CEC report was reviewed by all involved parties, including Sonoma County, which then applied to the CEC for money to plug and abandon the wells. The actual plugging and abandonment operations will be managed by the department, which will contract out the work. The U.S. Environmental Protection Agency will participate in the project, which will be completed in 1997.

DISTRICT NO. G1

Elizabeth A. Johnson, District Engineer, Sacramento

SCIENTIFIC WELL Well "Long Valley Federal" 51-20, drilled to a depth of 7,578 feet, has been transferred to the U.S. Geological Survey (USGS) by the U.S. Department of Energy (*see* photo). With the well, the USGS hopes to verify the presence of a heat source under the Long Valley caldera. The well will be deepened until it reaches a temperature gradient that is fairly stable. To date, the temperatures measured in the well are cool for the depth, perhaps because of cool groundwater flowing laterally. The USGS study will also investigate how young silicic calderas form and change over time.

Deep scientific well in the Long Valley caldera, "Long Valley Federal" 51-20. *Photo by E. Johnson.*

LASSEN VOLCANIC NATIONAL PARK "WALKER O" WELL The National Park Service, Mining and Minerals Branch, obtained funds to plug and abandon well "Walker O" 1, a geothermal well

drilled in 1969 in a privately owned enclave of Lassen Volcanic National Park. Today this enclave is part of the park and the well is within park boundaries. The well was drilled to a depth of 1,258 feet and deepened to 4,008 feet. Terminal Geyser, a large and famous fumarole, is about 100 feet from the well. The National Park Service has consulted with the department on the plugging and abandonment project (*see* photo).

Elizabeth Johnson, department engineer, measures the "Walker O" well pad in Lassen Volcanic National Park. Terminal Geyser is in the background. *Photo by R. Estabrook.*

DISTRICT NO. G2

Timothy S. Boardman, District Engineer, El Centro

SALTON SEA GEOTHERMAL FIELD In 1996, CalEnergy completed the power plant Unit 3 Expansion, a 39.6-megawatt, net, geothermal power plant built in Salton Sea Geothermal field (*see* photo). Sited

CalEnergy's Unit 3 Expansion power plant, Salton Sea Geothermal field. Note power plant Units 1 and 2 in the background, on the edge of the Salton Sea. *Photo by T. Boardman.*

next to power plant Unit 3, the Unit 3 Expansion plant began operating in May 1996.

This plant utilizes the pH modification process first used on power plant Units 1 and 2, built in 1990 and owned and operated by CalEnergy. At these plants, hydrochloric acid is injected into the production stream to keep the highly concentrated salts and silica dissolved in the brine. The process eliminates the crystallizer/clarifier hardware used at other CalEnergy power plants and no surface disposal is needed for filter cake materials.

DISTRICT NO. G3

Kenneth F. Stelling, District Engineer, Santa Rosa

EFFLUENT PIPELINE In the second half of 1996, large segments of the Southeast Geysers Effluent Pipeline Project were assembled. The project is scheduled to begin operating in the fall of 1997. The pipeline will carry about 7.8 million gallons a day of treated wastewater effluent and fresh makeup water from Lake County Sanitation District treatment plants at Clearlake and Middletown to leases at The Geysers Geothermal field for injection. The pipeline, about 27 miles long, requires three large pumping stations to move the treated effluent to the field.

THE GEYSERS STEAM PRODUCTION Steam production at The Geysers rose from about 61.1

billion kilograms in 1995 to about 65.1 billion kilograms in 1996, reversing eight consecutive years of steam production declines. One reason for the reversal was that PG&E increased its 1996 purchases of steam from The Geysers for electrical power generation.

CCPA POWER PLANTS CEASE OPERATING In May 1996, the Central California Power Authority (CCPA) stopped generating electrical power at its Units 1 and 2 in the northern part of The Geysers Geothermal field. The power plants may be sold to another party or retired and dismantled.

A pipeline section is lowered into a trench north of Middletown. *Photo by M. Ali Khan.*

GEOTHERMAL STATISTICS

GEOTHERMAL OPERATIONS AND METERS DRILLED - 1996*

Field or county	API county code	Drilled					Completed					Redrilled or deepened					Plugged & abandoned					Suspended	Meters drilled	
		Explor.	Prod.	Serv.	Temp. grad.	Total	Explor.	Prod.	Serv.	Temp. grad.	Total	Explor.	Prod.	Serv.	Temp. grad.	Total	Explor.	Prod.	Serv.	Temp. grad.	Total		New wells	Reworks
DISTRICT G1																								
Casa Diablo	051	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake City	049	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Litchfield	035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Susanville	035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wendel	035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lassen County	035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modoc County	049	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mono County	051	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plumas County	063	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shasta County	089	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sierra County	091	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	153	0
District G1 Totals		1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	153	0
DISTRICT G2																								
Brawley	025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heber	025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Mesa	025	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	1,537	149
Mesquite	025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salton Sea	025	0	2	1	0	3	0	2	1	0	3	0	2	6	0	8	0	5	1	0	6	0	5,308	2,724
Desert Hot Springs	065	0	7	0	0	7	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	679	0
Imperial County	025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0
Inyo County	027	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2,530	0
Kern County	029	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Riverside County	065	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Bernardino	071	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Luis Obispo	079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District G2 Totals		0	10	2	0	12	0	9	3	0	12	0	2	7	0	9	2	6	1	0	9	0	10,054	2,873
DISTRICT G3																								
Calistoga	055	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	117	0
The Geysers	033	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	4,221	0
	097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0
Lake County	033	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mendocino County	045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sonoma County	097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District G3 Totals		0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	4,338	0
STATE TOTALS		1	12	2	0	15	1	11	3	0	15	0	2	7	0	9	2	11	1	0	14	0	14,545	2,873

* Data for federal leases are not included.

CALIFORNIA'S STEAM-DOMINATED GEOTHERMAL FIELDS *

Year	Average number of producing wells	Gross steam produced kilograms (thousands)	Average number of active injection wells	Water injected kilograms (thousands)	Percent injected
The Geysers Geothermal field:					
1960	3	306,180	0	0	0
1961	3	857,431	0	0	0
1962	3	913,804	0	0	0
1963	7	1,530,900	0	0	0
1964	7	1,838,314	0	0	0
1965	7	1,727,581	0	0	0
1966	7	1,709,872	0	0	0
1967	13	2,862,470	0	0	0
1968	13	3,515,849	0	0	0
1969	26	6,812,616	1	410,788	6.0
1970	27	6,457,453	1	847,490	13.1
1971	30	7,813,799	2	1,224,598	15.7
1972	45	15,777,373	3	2,904,923	18.4
1973	60	21,464,314	4	4,064,929	18.9
1974	72	26,329,259	5	5,364,196	20.4
1975	84	30,514,607	5	7,473,397	24.5
1976	92	31,995,187	6	7,717,116	24.1
1977	95	32,527,275	6	7,496,076	23.0
1978	95	27,622,596	6	6,522,400	23.6
1979	123	36,138,118	9	8,723,633	24.1
1980	150	46,966,791	10	10,866,000	23.1
1981	165	52,864,353	12	13,595,090	25.7
1982	174	48,174,347	11	13,549,916	28.1
1983	225	65,893,108	15	19,081,541	29.0
1984	253	80,067,099	17	23,312,221	29.1
1985	309	95,232,214	22	26,517,067	27.8
1986	354	106,561,865	23	30,771,676	28.9
1987	390	111,821,897	23	31,495,280	28.2
1988	429	108,523,641	23	28,325,113	26.1
1989	439	100,205,378	23	28,348,657	28.3
1990	442	95,646,626	25	27,318,499	28.6
1991	436	89,660,288	26	25,747,804	28.7
1992	444	88,513,172	29	27,344,280	30.9
1993	450	84,379,560	29	30,183,128	35.8
1994	447	+78,427,345	28	+24,524,066	31.3
1995	+428	+61,125,959	26	26,826,230	43.9
1996	439	65,091,416	25	30,601,721	47.0

* Data for federal leases included.
\+ Contains corrected data.

CALIFORNIA'S WATER - DOMINATED GEOTHERMAL FIELDS*

Geothermal field	Year	Average number of producing wells	Gross water produced kilograms (thousands)	Average number of injection wells	Water injected kilograms (thousands)
Amedee	1988**	2	1,283,871	NO INJECTION	
	1989	2	4,778,856		
	1990	2	5,443,317		
	1991	2	5,778,129		
	1992	2	5,946,618		
	1993	2	5,535,367		
	1994	2	4,970,443		
	1995	2	5,357,734		
	1996	2	5,670,982		
Brawley	1982**	2	1,833,217	2	1,578,510
	1983	2	2,397,722	4	2,342,862
	1984	1	1,122,414	3	994,175
	1985	1	555,731	1	529,041
	1986	PROJECT TERMINATED			
Casa Diablo	1984**	1	1,317,788	1	1,317,788
	1985	3	3,840,401	3	3,840,401
	1986	3	6,076,840	3	6,076,840
	1987	4	6,754,790	3	6,754,790
	1988	4	6,723,808	3	6,723,808
	1989	3	6,871,002	3	6,871,002
	1990	4	6,971,231	3	6,971,231
	1991	10	24,538,220	5	24,538,220
	1992	10	24,604,335	4	24,604,335
	1993	10	23,544,466	4	23,544,466
	1994	10	23,637,236	5	23,637,236
	1995	9	22,498,589	5	22,498,589
	1996	9	22,500,565	5	22,500,565
Coso	1987**	5	4,125,630	3	3,547,813
	1988	15	13,965,143	6	9,233,591
	1989	32	44,187,631	12	+34,841,883
	1990	47	55,936,765	+14	+40,390,044
	1991	57	46,624,874	+14	+28,479,346
	1992	63	41,198,639	+16	+27,342,886
	1993	68	+47,002,216	+18	+26,693,236
	1994	+71	+42,171,623	+19	+24,412,831
	1995	+74	+39,595,562	20	+24,483,807
	1996	78	38,929,425	20	22,416,692
East Mesa	1983**	5	3,196,215	3	3,190,219
	1984	6	4,050,175	2	3,963,468
	1985	6	3,659,938	2	3,385,793
	1986	6	4,725,162	3	4,399,114
	1987	15	14,187,024	6	13,734,959
	1988	25	40,952,496	12	35,950,366
	1989	32	67,990,914	23	57,796,766
	1990	39	79,221,063	33	+75,465,209
	1991	42	+91,984,758	36	+89,406,945
	1992	42	+97,750,781	39	94,370,772
	1993	43	97,849,346	40	+96,029,637
	1994	43	90,589,304	40	87,198,495
	1995	43	90,488,703	41	86,970,705
	1996	43	92,604,479	42	89,674,536
Heber	1985**	9	13,584,658	8	13,214,051
	1986	13	32,263,682	12	29,716,492
	1987	16	34,472,259	13	31,300,084
	1988	12	29,769,219	10	26,031,068
	1989	11	29,384,658	10	24,976,751
	1990	10	29,487,574	9	25,085,848
	1991	10	29,215,287	9	25,252,223
	1992	10	29,478,685	9	26,816,804
	1993	17	41,674,826	17	38,101,717
	1994	22	53,988,169	22	+49,908,275
	1995	22	56,645,248	23	52,587,798
	1996	22	58,358,658	23	54,637,130

Geothermal field	Year	Average number of producing wells	Gross water produced kilograms (thousands)	Average number of injection wells	Water injected kilograms (thousands)
Litchfield	1984**	1	945,419	NO INJECTION	
	1985	1	987,427		
	1986	1	852,801		
	1987	1	712,709		
	1988	1	765,384		
	1989	1	1,061,360		
	1990	1	891,708		
	1991	1	760,304		
	1992	1	621,690		
	1993	1	885,045		
	1994	1	701,006		
	1995	1	822,790		
	1996	1	729,777		
Salton Sea	1982**	2	2,383,365	2	2,071,770
	1983	3	3,735,455	2	3,260,076
	1984	2	4,208,900	2	3,211,456
	1985	2	4,167,497	2	3,193,912
	1986	9	13,433,795	7	10,851,579
	1987	9	14,272,783	8	11,911,933
	1988	11	+19,572,266	10	17,087,924
	1989	23	56,570,756	18	47,581,465
	1990	32	75,745,346	23	62,991,977
	1991	33	77,687,699	23	68,884,579
	1992	35	78,034,671	22	69,247,157
	1993	34	77,792,273	25	67,126,019
	1994	31	+77,764,065	24	69,917,900
	1995	32	+80,974,333	24	+71,139,969
	1996	32	96,779,351	26	83,173,456
Susanville***	1982**	1	21,228	1	21,228
	1983	1	174,352	1	174,352
	1984	1	134,832	1	134,832
	1985	1	339,792	1	171,360
	1986	1	345,600	1	199,104
	1987	1	436,751	1	276,196
	1988	1	262,878	1	230,307
	1989	1	448,792	1	300,972
	1990	1	518,471	1	297,840
	1991	1	525,490	1	297,840
	1992	1	482,574	1	298,656
	1993	1	589,658	1	297,840
	1994	1	551,406	1	297,840
	1995	1	565,345	1	297,024
	1996	1	489,327	1	297,840
Wendel	1985**	1	833,989		0
	1986	1	1,808,949		0
	1987	1	1,773,907		0
	1988	1	1,763,722		0
	1989	2	2,542,910	1	428,745
	1990	2	2,618,618	1	978,066
	1991	2	2,440,737	1	1,717,291
	1992	2	2,503,719	1	1,017,408
	1993	2	2,370,861	1	1,043,371
	1994	2	2,309,924	1	1,145,622
	1995	2	2,153,224	1	956,770
	1996	2	1,559,810	1	749,124

* Data for federal leases included.
** The first year that production data were reported to the Division of Oil, Gas, and Geothermal Resources.
*** Data are only available for the city's space-heating project.
\+ Contains corrected data.

GEOTHERMAL NOTICES FILED AND INSPECTIONS - 1996*

Field or county	Notices to drill					Notices to rework					Notices to plug & abandon					Total inspections by district
	Explor.	Prod.	Serv.	Temp. grad.	Total	Explor.	Prod.	Serv.	Temp. grad.	Total	Explor.	Prod.	Serv.	Temp. grad.	Total	
DISTRICT G1																
Casa Diablo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lake City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Litchfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Wendel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Susanville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lassen County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Modoc County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mono County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Plumas County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Shasta County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sierra County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
District G1 Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	279
DISTRICT G2																
Brawley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Heber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
East Mesa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mesquite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Salton Sea	0	1	2	0	3	0	19	11	0	30	1	4	0	1	6	
Desert Hot Springs	0	7	0	0	7	0	0	0	0	0	3	0	0	0	3	
Imperial County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Inyo County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Los Angeles County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Riverside County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
San Bernardino	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
San Luis Obispo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
District G2 Totals	0	8	2	0	10	0	19	11	0	30	4	4	0	1	9	475
DISTRICT G3																
Calistoga	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	
The Geysers	0	1	0	0	1	0	6	1	0	7	0	3	0	0	3	
Lake County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mendocino County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Napa County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sonoma County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
District G3 Totals	0	2	0	0	2	0	6	1	0	7	0	4	0	0	4	1,212
STATE TOTALS	0	10	2	0	12	0	25	12	0	37	4	8	0	1	13	1,966

* Data for federal leases not included. The number of drilling permits issued by the Bureau of Land Management (BLM) for geothermal development on federal lands in California decreased in 1996. According to the BLM, 1 well was permitted during federal fiscal year 1996 (October 1995 - September 1996), compared with 15 wells permitted the year before.

GEOTHERMAL EXPLORATORY WELLS DRILLED TO TOTAL DEPTH IN 1996

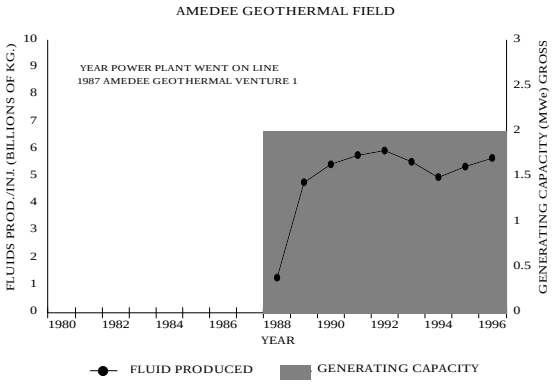
County	T.	R.	Sec.	B. & M.	Operator	Well designation and API number	Elev. (meters)	Month drilling completed	Total depth (meters)	Stratigraphic units penetrated and/or time-stratigraphic units at total depth (depth in meters)
Sierra	20N	15E	18	MD	New Age Church of Being	"SHS" 1 091-90009	152	April	153	Andesitic volcanics

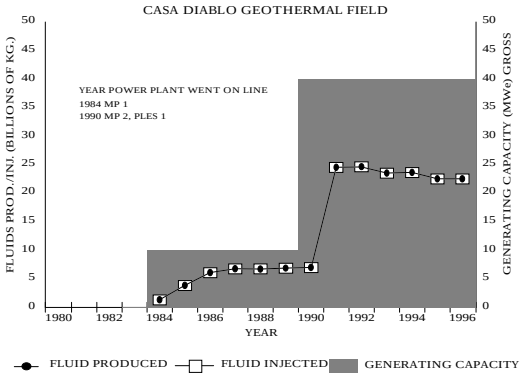
GEOTHERMAL CEQA APPLICATIONS AND SITE VISITS

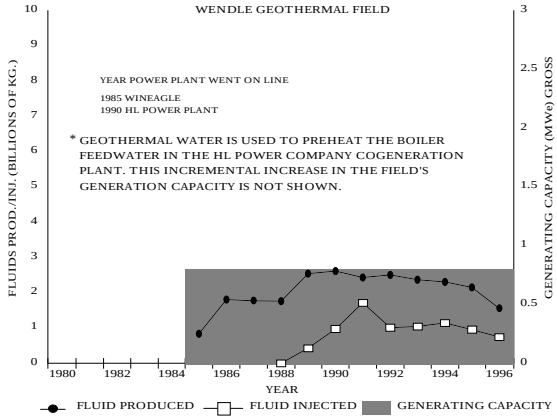
Year	Projects filed				Notices issued				Reports				Site inspections		
	Temperature gradient	Exploratory	Other	Total	Preparation	Exemption	Determination	Total	Negative declaration	Draft EIR	Final EIR	Total	General	Specific	Total
1980	24	6	0	30	9	20	6	35	3	4	4	11	2	9	11
1981	12	7	0	19	15	15	6	36	3	3	2	8	0	11	11
1982	2	6	0	8	5	3	5	13	2	1	2	5	0	2	2
1983	4	7	0	11	4	6	2	12	1	2	2	5	0	5	5
1984	5	3	0	8	1	7	5	13	0	5	4	9	0	4	4
1985	5	3	0	8	2	5	3	10	1	2	2	5	0	0	0
1986	0	3	0	3	0	2	1	3	1	0	0	1	1	0	1
1987	0	5	0	5	0	3	1	4	1	0	0	1	1	4	5
1988	0	1	0	1	0	1	1	2	0	0	0	0	1	0	1
1989	0	2	0	2	0	1	1	2	1	0	0	1	3	0	3
1990	0	2	0	2	0	2	2	4	0	0	0	0	0	2	2
1991	0	3	0	3	0	3	0	3	0	0	0	0	0	3	3
1992	0	2	1	3	0	0	2	2	2	0	0	2	2	6	8
1993	2	2	0	4	2	2	2	6	2	0	0	2	4	4	8
1994	0	1	0	1	0	0	0	0	0	0	0	0	1	1	2
1995	0	1	0	1	0	1	0	1	1	0	0	1	1	1	2
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

FLUID PRODUCED AND INJECTED, AND POWER PLANT CAPACITY FOR CALIFORNIA GEOTHERMAL FIELDS

DISTRICT NO. G1

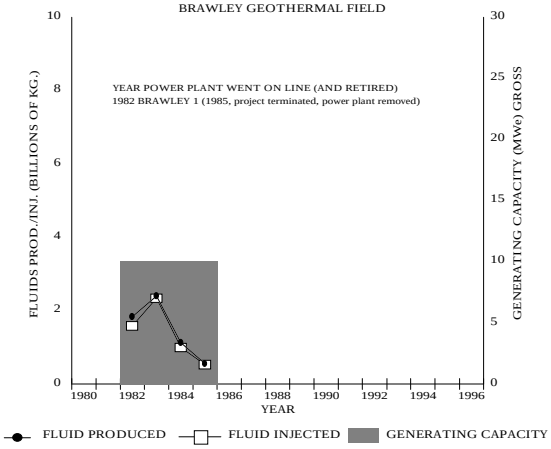




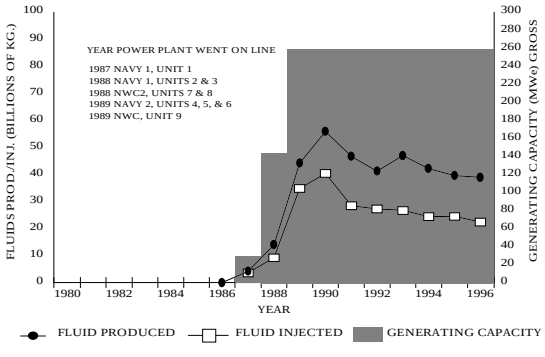


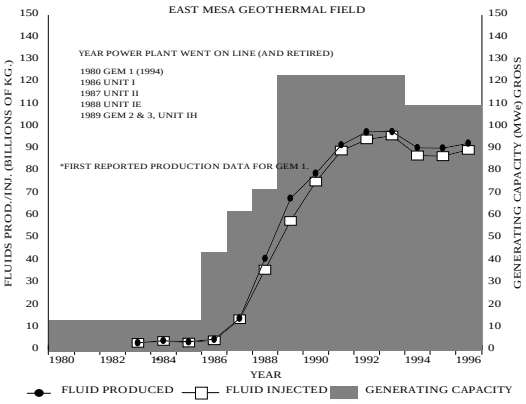
DISTRICT NO. G2

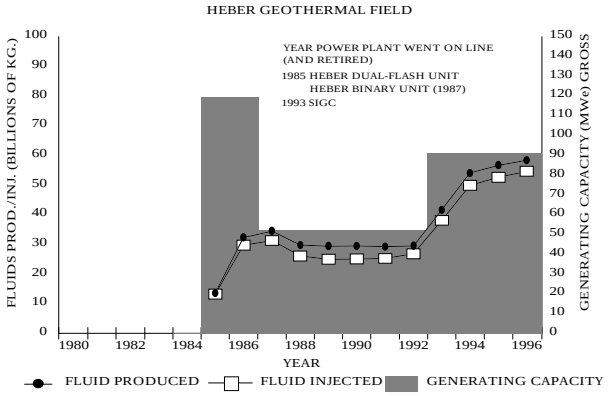
BRAWLEY GEOTHERMAL FIELD

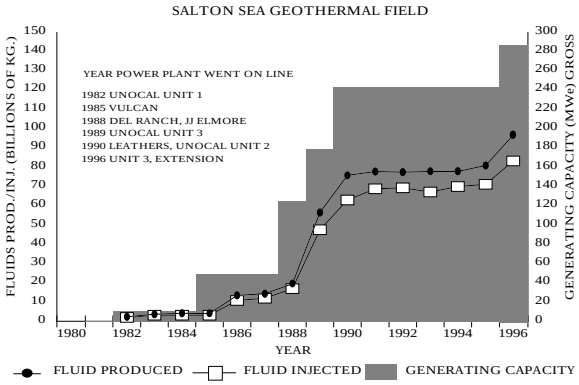


COSO GEOTHERMAL FIELD



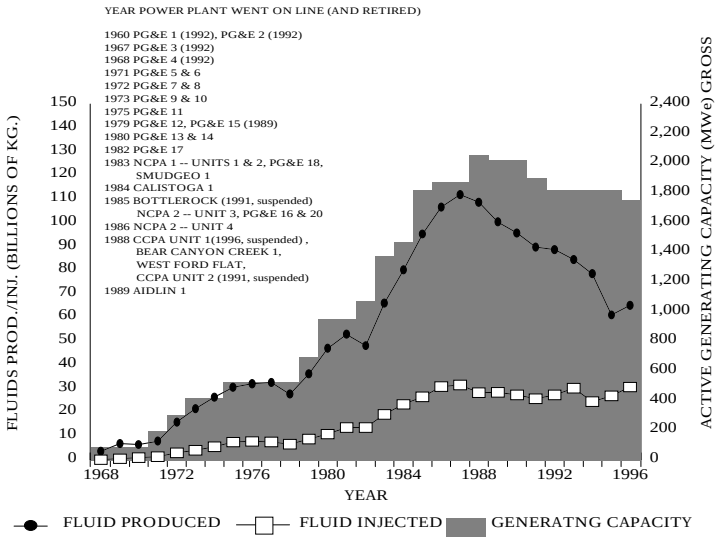






DISTRICT NO. G3

THE GEYSERS GEOTHERMAL FIELD



FINANCIAL REPORT

FINANCIAL REPORT

The following report is made in accordance with Section 3108, Division 3, Public Resources Code, which reads as follows: "On or before the first day of October of each year the supervisor shall make public for the benefit of all interested persons, a report in writing showing:

(a) The total amounts of oil and gas produced in each county in the state during the previous calendar year. (Figures for 1995 are published in the *81st Annual Report of the State Oil and Gas Supervisor.)*

(b) The total cost of the division for the previous fiscal year.

(c) The total amount delinquent and uncollected from any assessments or charges levied pursuant to the chapter.

The report shall also include such other information as the supervisor deems advisable."

Collection of Funds by Assessment

Funds for the support of the Department of Conservation's Division of Oil, Gas, and Geothermal Resources are raised by an assessment on oil and gas production as provided for in Article 7 of Division 3, Public Resources Code.

The assessment is based on the projected expenditures of the division, taking into account any previous surpluses or deficiencies, and the prior year's production. For the 1996-97 fiscal year, the rate of assessment was established at $0.033199 per barrel of oil or ten thousand cubic feet of gas.

As provided for in Chapter 4, Division 3, Section 3724.5 of the Public Resources Code, the division is also partly funded by an annual assessment levied on operators of high-temperature geothermal resource wells and by drilling fees charged to geothermal operators for drilling new wells or redrilling abandoned wells.

For the 1996-97 fiscal year, the fee-assessment was established at $1,556.00 per high-temperature geothermal well.

Financial Statement
1995-96 Fiscal Year

Beginning Resource	$	26,000.00
Balance Available from Prior Year	$	372,000.00
Revenue Applicable to Oil, Gas, and Geothermal Operations	$	10,042,000.00
Total Resources	$	10,440,000.00
Total Expenditures	$	10,088,000.00
Ending Resources	$	352,000.00

Hazardous and Idle - deserted Well Abandonment Expenditures
1995-96 Fiscal Year

No. of Wells			
65	Hazardous and Idle-deserted Wells Plugged and Abandoned	$	548,024.34 *
0	Section 3237 PRC Wells Plugged and Abandoned	$	0
1	Orphaned Wells Plugged and Abandoned (HIDWAF)	$	64,364.83
66	Total Wells Plugged and Abandoned	$	612,389.17
16	Wells on which Remedial Action was Taken	$	92,602.62
	Gross Expenditure	$	704,991.79
	Bond Reimbursement	$	-321,757.81
	Net Expenditure	$	383,233.98

Underground Injection Control Program Expenditures
(Oct. 1, 1995 - Sept. 30, 1996 Federal Fiscal Year)

Beginning Resource	$	387,700.00
Balance Available from Prior Year	$	46,087.00
Total Resources	$	433,787.00
Total Expenditures	$	-431,590.00
Ending Resources	$	2,197.00

*Figure includes funds for wells abandoned in the previous fiscal year.

List of Delinquent Assessments and Penalties: Oil, Gas, and Geothermal Operations as of June 30, 1997

OPERATOR	YEAR	ASSESSMENT
OIL AND GAS OPERATORS		
Alanmar Energy	1996	$1,112.71
Allied Energy Corp.	1996	$80.83
American Barter Petro., Inc.	1993	$4,078.89
	1994	$3,154.34
American Titan Oil Co.	1996	$235.32
Baker Oil and Gas Co.	1990	$940.72
Blackhawk Oil Co.	1994	$6,585.22
	1995	$2,242.75
Brindle/Thomas	1996	$699.25
E. H. Brogdon	1996	$62.28
Weldon Bruce	1989	$595.49
Calif. Oil Independents, Inc.	1995	$326.87
	1996	$274.86
Central Lease Inc.	1991	$1,462.02
	1992	$1,027.68
	1993	$750.38
	1995	$74.06
Deuel Petroleum Co., Inc.	1987	$116.94
	1988	$197.69
Dominion Oil Co.	1988	$3,747.37
	1989	$3,657.26
	1990	$3,582.24
	1991	$3,143.87
	1992	$2,521.92
	1993	$1,604.48
	1994	$1,731.15
	1995	$1,113.72
	1996	$766.61
Dynametrics	1996	$170.02
Eastern Pacific Oil Co.	1996	$57.84
Energy Development of Calif.	1990	$1,115.38
	1991	$414.09
Fortune Petroleum Corp.	1996	$204.93
GENY Operations	1995	$1,276.33
GEO Petroleum, Inc.	1993	$3,342.51
Graham Royalty, LTD.	1994	$7,282.35
Grayson Service, Inc.	1996	$94.87
Hilliard Oil & Gas Inc.	1986	$550.54
Joro Inc.	1996	$644.63
Kalco Development Corp.	1988	$2,874.36
	1989	$2,195.68
	1990	$449.13
	1991	$303.51
Killingsworth Oil Co.	1994	$157.54
Ted Koble, Opr.	1994	$202.14
Lobodo Inc.	1994	$183.78
	1995	$57.81
	1996	$59.28
Marlin Pacific Oil & Gas	1996	$326.93
Les Miller	1996	$95.21
Mitchell Oil Co.	1989	$259.92
	1990	$317.09
	1991	$243.63
	1992	$125.69
	1994	$241.53
Nahama & Weagant Energy Co.	1994	$1,475.16
	1996	$4,738.54
The National Oil Co.	1987	$64.17
	1990	$185.28
	1991	$97.31
North Valley Oil & Gas Co.	1994	$2,393.53
	1996	$2,713.62
Nugget Oil Co.	1996	$334.11
Oilfield Pet. & Energy Co.	1995	$112.37
	1996	$183.96
Pacific Inland Oper. Corp.	1996	$2,618.37
Pan American Energy Corp.	1993	$133.11
	1994	$37.30
	1994	$115.29
Pangea Inc.	1996	$417.92
Petro Nova	1989	$488.83
	1990	$194.35
Pine Meadows Ranch Inc.	1996	$948.19
Prado Petroleum	1988	$1,189.70
	1989	$655.39
	1990	$1,207.08
	1991	$844.17
	1992	$449.23
	1993	$448.79
Pueblo Oil & Gas	1992	$399.07
	1993	$361.12
Razar Resources	1996	$365.30
Res-Tech Inc.	1994	$266.13
	1995	$54.56
Sam Enterprises, Inc.	1996	$112.47
South Coast Oil Corp.	1996	$369.46
St. Regis Resources Corp.	1995	$341.14
Sunwest Petroleum Inc.	1996	$808.53
Supreme Oil & Gas Corp.	1994	$99.54
TRV Minerals Corp.	1987	$374.50
Tatum Petroleum Corp.	1996	$111.93
Zachary T. Tatum	1995	$85.58
	1996	$183.64
John A. Thomas	1996	$162.84
Thomas Oil Co.	1987	$322.84
	1988	$428.29
	1989	$260.48
	1990	$231.46
	1993	$329.71
	1994	$380.01
Tri Kern Resources	1988	$529.30
	1989	$249.04
Troy Resources Corp.	1988	$200.72
	1989	$420.01
Turco Products Division	1994	$122.20
United Energy, Inc.	1996	$484.34
TOTALS	1986	$550.54
	1987	$878.45
	1988	$9,167.43
	1989	$8,782.10
	1990	$8,222.73
	1991	$6,508.60
	1992	$4,523.59
	1993	$11,048.99
	1994	$24,427.21
	1995	$5,685.19
	1996	$19,438.79
		$99,233.62
GEOTHERMAL OPERATORS		
Bonneville Pacific Corp.	1991	$413.58
	1992	$6,699.00
	1993	$7,653.57
	1994	$7,746.75
	1995	$6,419.38
	1996	$5,835.00
GEO Operator Corp.	1988	$21,197.44
	1989	$149,946.40
	1990	$86,239.46
	1991	$77,419.60
	1992	$6,942.60
	1996	$5,835.00
Geysers Power, Inc.	1992	$44,660.00
	1993	$50,877.60
	1994	$53,130.00
	1995	$41,097.00
	1996	$40,845.00
Imperial Energy Corp.	1985	$2,660.37
MSR Power Agency	1994	$5,313.00
TOTALS	1985	$2,660.37
	1986	$0.00
	1987	$0.00
	1988	$21,197.44
	1989	$149,946.40
	1990	$86,239.46
	1991	$77,833.18
	1992	$58,301.60
	1993	$58,531.17
	1994	$66,189.75
	1995	$47,516.38
	1996	$52,515.00
		$620,930.75
GRAND TOTAL		$720,164.37

PR06 (8/97/OSP/2M)