CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. R7-2003-0076

WASTE DISCHARGE REQUIREMENTS
FOR
MAGMA POWER COMPANY, LANDOWNER
CALENERGY OPERATING CORPORATION, OPERATOR
FOR J.J. ELMORE POWER PLANT CLASS II HOLDING POND
AND WELLFIELD BASINS (MUD SUMPS)
Salton Sea Known Geothermal Resource Area – Imperial County

The California Regional Water quality Control Board, Colorado River Basin Region, finds that:

1. CalEnergy Operating Corporation (CalEnergy), a wholly owned subsidiary of CE Generation, is the operator of J.J. Elmore Geothermal Power Plant that is located at 786 West Sinclair Road, Calipatria.

2. J.J. Elmore Power Plant is owned by Magma Power Company, 7030 Gentry Road, Calipatria, CA 92233.

3. The property upon which the J.J. Elmore Power Plant is located, including its geothermal holding pond, is owned by Magma Power Company, 7030 Gentry Road, Calipatria, CA 92233

4. Ownership of the properties upon which the production, injection wells, and associated mud sumps are located are as follows:

    a. Elmore 12, 13 and Elmore I.W. 6; Imperial Magma LLC, 551 W. Main St., Suite 1, Brawley, CA 92227

    b. Elmore 4,6,14,15, and 16; J.R. Smith, 1593 Gonder Road, Brawley, CA 92227

    c. Elmore I.W. 3,4, and 5; Lillian Baretta, P.O. Box 803, Calipatria, CA 92233

    d. Smith I.W. 1 and 2; J.R. Smith, Gonder Road, Brawley, CA 92227

5. Definition of terms used in this Board Order:

    a. **Facility** – The entire parcel of property where J.J. Elmore Power Plant industrial operation or related geothermal industrial activities are conducted.

    b. **Waste Management Units (WMUs)** – The area of land, or the portions of the facility where geothermal or related wastes are discharged. The holding pond and mud sumps are WMUs.

    c. **Discharger** – the term Discharger means any person who discharges waste that could affect the quality of the waters of the State, and includes any person who owns the land, waste management unit or who is responsible for the operation of a waste management unit. Specifically, the terms “discharger” or “dischargers” in the Order means CalEnergy, Magma Power Company, Imperial Magma LLC, J.R. Smith, and Lillian Baretta.

6. The facility is currently regulated under two Waste Discharge Requirements (WDRs). Board Order No. 94-016 adopted on March 15, 1994 and Board Order No. 91-052 adopted on November 20, 1991. These WDRs are being combined and updated to comply with Division 7 of the California Water Code and to incorporate the applicable provisions of Title 27 of the California Code of Regulations.

7. The facility is located approximately 7 miles west of the town of Calipatria on privately owned land at S½, SW¼, SE¼, Section 27, T11S, R13E, SBB&M, Imperial County, as shown on Attachment A.

8. The facility is a 47-megawatt geothermal power plant and associated wellfield located in the Salton Sea Known Geothermal Resource Area (KGRA).

9. J.J. Elmore Power Plant uses steam from the hot (450 to 500° F) geothermal brines that flow from 2,500 to 9,500 feet below ground surface to turn turbines that produce electricity.

10. Within the facility, CalEnergy operates a holding pond with a capacity of about 1,629,000 gallons. The holding pond is used to temporarily retain geothermal brines prior to re-injection and to hold solids that have fallen out of the geothermal brines during the process. The location of the holding pond is shown on Attachment B.

11. The holding pond is also used to retain geothermal brines and cooling tower blowdown during emergency situations and maintenance operations prior to reinjection to the geothermal resource. Additionally, the holding pond is used for temporary holding of geothermal brine from cleanup of any unauthorized spills or releases.

12. A conveyance system is located underfoot throughout the plant to be utilized during plant cleanups and washdowns. The conveyance system is concrete lined and covered by an open grate. Washdown water is discharged through the conveyance system to the holding pond.

13. The raised holding pond is lined with 35 mil, XR-5 flexible membrane underlain by 1 ft. of compacted fill (class II mill run granular material compacted to 90%) and 2 ft. of clay compacted to 80% modified proctor density. The liner is covered with 2 ft. of cement-stabilized sand compacted to 90% modified proctor density for protection from physical damage.

14. The Leak Detection System (LDS) is located beneath the membrane liner and consists of five (5) perforated 4" diameter pipes vented to the side of the pond by 3" diameter PVC pipe. The perforated line drains to the test wells outside the pond. The test wells are numbered TW-1, TW-2, TW-3, TW-4, and TW-5.

15. The holding pond is regulated by the Regional Board as a Class II designated waste facility.

16. Geothermal fluids in this portion of the Salton Sea KGRA contain approximately 25% (by weight) dissolvable solids. These fluids may be classified as hazardous in accordance with the criteria listed in Section 66699, Title 22 of the California Code of Regulations. However, the geothermal fluids are not required to be managed as hazardous waste under Title 22 because they are exempt from regulation as hazardous waste by Health & Safety Code section 25143.1, subdivision (a). The raised holding pond and LDS are adequate for the geothermal fluids, considering the toxicity, persistence, degradability, solubility, and other biological, chemical and physical properties of the wastes.
17. The solids collected in the holding pond are known to have elevated levels of lead (Pb) and arsenic (As). The solids are routinely removed and disposed of at a Class I landfill.

18. The facility wellfield consists of production and injection wells. The well sites typically include the well, the wellhead system, pipelines, and a mud sump.

19. The mud sumps are constructed next to each well during the construction of a new well, and used for temporary discharges of drilling and cutting mud. The mud sumps are basically earthen-bermed surface impoundments lined with 12 inches of compacted clay with a maximum hydraulic permeability of 1x10-6 cm/sec. The mud sumps vary in capacity depending on the number of wells they are associated with.

20. Geothermal fluids and drilling muds are left to evaporate in the mud sumps. Solid wastes from the mud sumps are analyzed and disposed of according to the resulting analyses at either a Class I or Class II landfill.

21. Following well development, the mud sumps are periodically utilized for well maintenance.

22. The facility also contains a Makeup Water Pond that is filled with water from nearby agricultural canals to be used, when needed, in the cooling towers. The location of the Makeup Water Pond is shown on Attachment B.

23. The facility is located within the Salton Trough, a closed basin located below sea level. The Trough is separated from the Gulf of California by the Colorado River Delta (approx. 40 feet above mean sea level) and lowest portion of the basin is the Salton Sea at approximately 227 feet below mean sea level. The Trough is a structural and topographic depression containing thousands feet of heterogeneous Tertiary and Quaternary age sediments of lacustrine and deltaic origins.

24. Groundwater is located 5 to 15 feet below ground surface. Groundwater in this area has a salinity of approximately 35,000 ppm. The natural recharge in this arid region is quite low; however, millions of acre-feet have been added to shallow aquifers from canal seepage.

25. Surface waters in the area of the facility consist of the Salton Sea, the Alamo River, Imperial Irrigation District (IID) irrigation canals, surface drains, and tiled agricultural drains. Agricultural subsurface drainage water enters tile drains and open drains near the facility and serve as a source of freshwater replenishment of the Salton Sea.

26. The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan) was adopted on November 17, 1993, and designates the beneficial uses of ground and surface water in this Region.

27. The beneficial uses of ground water in the Imperial Hydrological Unit are:

    a. Municipal Supply (MUN)
    b. Industrial Supply (IND)

    However, with respect to the MUN designation, the Basin Plan states: “At such time as the need arises to know whether a particular aquifer which has no known existing MUN used should be considered as a source of drinking water, the Regional Board will make such a determination based on the criteria listed in the ‘Sources of Drinking Water Policy’ in Chapter 2 of this Basin Plan. An indication of MUN for a particular hydrologic unit indicates only that at least one of the aquifers in that unit currently supports a MUN beneficial use. For example, the actual MUN usage of the Imperial hydrologic unit is limited only to a small portion of that ground water unit.”

28. Within the Imperial Valley area of the Imperial Hydrologic Unit, much of the ground water is too saline for municipal use. The existing municipal use in this area is practically inconsequential.

29. The beneficial uses of nearby surface waters are as follows:

    <u>Imperial Valley Drains</u>

    a. Freshwater Replenishment
    b. Water Contact Recreation (RECI)
    c. Noncontact Water Recreation (RECII)
    d. Warm Freshwater Habitat (WARM)
    e. Wildlife Habitat (WILD)
    f. Preservation of Rare, Threatened, or Endangered Species (RARE).

Alamo River

a. Fresh Water Replenishment (FRSH)
b. Water Contact Recreation (RECI)
c. Noncontact Water Recreation (RECII)
d. Warm Freshwater Habitat (WARM)
e. Wildlife Habitat (WILD)
f. Hydropower Generation (POW)
g. Preservation of Rare, Threatened, or Endangered Species (RARE)

Salton Sea

a. Aquaculture (AQUA)
b. Industrial Service Supply (IND)
c. Water Contact Recreation (RECI)
d. Noncontact Water Recreation (RECII)
e. Warm Water Habitat (WARM)
f. Wildlife Habitat (WILD)
g. Preservation of Rare, Threatened, or Endangered Species (RARE)

30. The facility is located in a desert environment, in the northern portion of Imperial Valley. The desert climate is characterized by hot summers and mild winters. Normal annual precipitation in the area is 2.5 to 3.0 inches and normal annual surface evaporation is approximately 100 inches.

31. The facility is not allowed to discharge, treat, or compost the following wastes:

    a. Municipal solid waste;

    b. Sludge (including sewage sludge, water treatment sludge, and industrial sludge);

    c. Septage;

    d. Liquid waste. Unless specifically approved by this Board Order or by the Regional Board's Executive Officer;

    e. Oily and greasy liquid waste, unless specifically approved by this Board Order or by the Regional Board's Executive Officer; or

    f. Hot, burning waste materials or ash.

32. Any hazardous waste generated or stored at the facility will be contained and disposed in a manner that complies with federal and state regulations.

33. In accordance with Section 15301, Chapter 3, Title 14 of the California Code of Regulation, the issuance of these WDRs, which govern the operation of an existing facility involving negligible or no expansion of use beyond that previously existing, is exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et. seq.)

34. There are no domestic wells within 500 feet of the facility or well field described in Findings 1 through 4 above.

35. Federal regulations for storm water discharges were promulgated by the U.S. Environmental Protection Agency (40 CFR Parts 122, 123, and 124). The regulation require specific categories of facilities which discharge storm water associated with industrial activity to obtain NPDES permits and to implement Best Conventional Pollutant Technology (BCPT) to reduce or eliminate industrial storm water pollution.

36. The State Water Resources Control Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying WDRs for discharges of storm water associated with industrial activities, excluding construction activities, and requiring submittal of a Notice of Intent (NOI) by industries to be covered under the Permit.

37. The monitoring and reporting requirements in Monitoring and Reporting Program No. R7-2003-0076, and the requirement to install groundwater monitoring wells, are necessary to determine compliance with these WDRs, and to determine the facility's impacts, if any, on receiving water.

38. The Board has notified the discharger and all known interested agencies and persons of its intent to update WDRs for said discharge and has provided them with an opportunity for a public meeting and an opportunity to submit comments.

39. The Board, in a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, that Board Order Nos. 94-016 and 91-052 be rescinded, and in order to meet the provision contained in Division 7 of the California Water Code and regulation adopted thereunder, the dischargers shall comply with the following:

A. Specifications

1. The treatment or disposal of wastes at this facility shall not cause pollution or nuisance as defined in Sections 13050 of Division 7 of the California Water Code.

2. Within 90 days of the adoption of Board Order No. R7-2003-0076, the Discharger will install a background groundwater monitor well. The background groundwater monitor well will be upgradient of the holding pond in a location approved by the Executive Officer.
3. Thirty days prior to introduction of a new waste stream into the holding pond, the Discharger must receive approval from the Regional Board's Executive Officer.

4. Waste material shall be confined or discharged to the holding pond or mud sumps.

5. Prior to drilling a new production well or conversion of a production well to an injection well at the facility, the discharger shall notify, in writing, the Regional Board's Executive Officer of the proposed change.

6. Containment of waste shall be limited to the areas designated for such activities. Any revision or modification of the designated waste containment area, or any proposed change in operation at the facility that changes the nature and constituents of the waste produced must be submitted in writing to the Regional Board's Executive Officer for review and approval before the proposed change in operations or modification of the designated area is implemented.

7. Any substantial increase or change in the annual average volume of material to be discharged under this order at the site must be submitted in writing to the Regional Board's Executive Officer for review and approval.

8. If any portion of the holding pond or mud sumps are to be closed, the discharger shall notify the Regional Board's Executive Officer at least 180 days prior to beginning any partial or final closure activities.

9. Fluids and/or materials discharged to and/or contained in the holding pond or mud sumps shall not overflow the respective pond or sump.

10. Prior to the use of new chemicals for the purposes of adjustment or control of microbes, pH, scale, and corrosion of the cooling tower water and geothermal brine, the discharger shall notify the Regional Board's Executive Officer in writing.

11. For the liquids in the holding pond, a minimum freeboard of two (2) feet shall be maintained at all times.

12. Fluids discharged by subsurface injection shall be injected below the fracture pressure of the receiving aquifer and of the confining layer immediately above the receiving aquifer.

13. Final disposal of residual waste from cleanup of holding pond and mud sumps shall be accomplished to the satisfaction of the Regional Board's Executive Officer upon abandonment or closure of operations.

14. The holding pond shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods having a predicted frequency of once in 100 years.

15. Geothermal well clean out fluid, test and production fluid, production and injection well startups and cleanouts shall be discharged in mud pumps, metal tanks, or containers approved by the Regional Board's Executive Officer to receive this discharge.

16. Following well completion, the respective mud sumps shall have all drilling mud and cuttings tested and disposed of in accordance with applicable laws and regulations.

17. Prior to removal of solid material that has accumulated in the concrete cooling tower basins, an analysis of the material must be conducted and the material must be disposed of in a manner consistent with that analysis and applicable laws and regulations.

18. Conveyance systems throughout the plant area shall be cleaned out at least every 90 days to prevent the buildup of solids or when activity at the site creates the potential for release of solid materials from the conveyance systems.

19. Pipe maintenance and de-scaling activities that include hydroblasting and/or sandblasting shall be performed within a designated area that minimizes the potential for release to the environment. Waste generated as a result of these activities shall be disposed of in accordance with applicable laws and regulations. Water from the hydroblasting process shall be conveyed to the holding pond for injection into the geothermal resource.

20. Public contact with wastes containing geothermal fluids shall be precluded through such means as fences, signs, or other acceptable alternatives.

21. The holding pond and mud sumps shall be managed and maintained to ensure their effectiveness, in particular,

    a. Implementation of erosion control measures shall assure that small coves and irregularities are not created.

    b. The clay liner in the mud sumps shall be appropriately maintained to ensure its proper function.

    c. Solid material shall be removed from the holding pond and mud sumps in a manner that minimizes the likelihood of damage to the liner.

22. Ninety days prior to the cessation of discharge operations at the facility, the discharger shall submit a workplan, subject to approval of the Regional Board's Executive Officer, for assessing the extent, if any, of contamination of natural geological materials and waters of the Imperial

Hydrological Unit by the waste. 120 days following workplan approval, the discharger shall submit a technical report presenting results of the contamination assessment. A California Registered Civil Engineer or Certified Engineering Geologist must prepare the workplan, contamination assessment, and engineering report.

23. Upon ceasing operation at the facility, all waste, all natural geologic material contaminated by waste, and all surplus or unprocessed material shall be removed from the site and disposed of in accordance with applicable laws and regulations.

24. The discharger shall establish an irrevocable bond for closure in an amount acceptable to the Regional Board's Executive Officer or provide other means to ensure financial security for closure if closure is needed at the discharging site. The closure fund shall be established (or evidence of an existing closure fund shall be provided) within six (6) months of the adoption of this Order.

25. Surface drainage from tributary areas or subsurface sources, shall not contact or percolate through the waste discharged at this site.

26. The discharger shall use the constituents listed in Monitoring and Reporting Program No. R7-2003-0076 and revisions thereto, as "Monitoring Parameters".

27. The discharger shall implement the attached Monitoring and Reporting Programs No. R7-2003-0076 and revisions thereto, in order to detect, at the earliest opportunity, any unauthorized discharge of waste constituents from the facility, or any impairment of beneficial uses associated with (caused by) discharges of waste to the holding pond or mud sumps.

28. The discharger shall follow the Water Quality Protection Standard (WQPS) for detection monitoring established by the Regional Board. The following are parts of WQPS as established by the Regional Board's Executive Officer:

    a. The discharger shall test for the monitoring parameters and the Constituents of Concern (CoC) listed in the Monitoring and Reporting R7-2003-0076 and revisions thereto.

    b. Concentration Limits – The concentration limit for each monitoring parameter and constituents of concern for each monitoring point (as stated in the Detection Monitoring Program), shall be its background valued as obtained during that reporting period.

    c. Monitoring point of compliance are the approved monitoring points and any revised Monitoring and Reporting Program approved by the Region Board's Executive Officer.

29. Water used for the process and site maintenance shall be limited to the amount necessary in the process, for dust control, and for plant cleanup and maintenance.

30. The discharger shall not cause or permit the release of pollutants, or waste constituents, in a manner which could cause or contribute to a condition of contamination, nuisance, or pollution to occur.

B. Prohibitions

1. The discharge or deposit of solid geothermal waste to the holding pond or mud sumps as a final form of disposal is prohibited, unless authorized by the Regional Board's Executive Officer.

2. The discharger is prohibited from discharging, treating or composting at this site the following wastes:

    a. Municipal solid waste;

b. Sludge (including sewage sludge, water treatment sludge, and industrial sludge);

c. Septage;

d. Liquid waste, unless specifically approved by this Order or by the Regional Board's Executive Officer;

e. Oily and greasy liquid waste; unless specifically approved by this Order or by the Regional Board's Executive Officer;3

f. Hot, burning waste materials or ash.

3. The discharger shall not cause degradation of any groundwater aquifer or water supply.

4. The discharge of waste to land not owned or controlled by the discharger is prohibited.
5. Use of geothermal fluids or cooling tower liquids on access roads, well pads, or other developed project locations for dust control is prohibited.

6. The discharge of hazardous or designated wastes to other than a waste management unit authorized to receive such waste is prohibited.

7. Permanent (longer than one year) disposal or storage of geothermal waste in on-site temporary mud sumps is prohibited, unless authorized by the Regional Board's Executive Officer.

8. The mud sumps must be lined, and the geothermal brine or any geothermal fluid shall not penetrate through the lining during the containment period.

9. Geothermal fluids or any fluids in the holding pond or mud sumps shall not enter any canal, drainage, or drains (including subsurface drainage systems) which could provide flow to the Salton Sea, except as allowed under an appropriate National Pollutant Discharge Elimination System (NPDES) permit.

10. The discharger shall appropriately dispose of any materials, including fluids and sediments removed from the mud sumps.

11. The discharger shall neither cause nor contribute to the contamination or pollution of ground water via the release of waste constituents in either liquid or gaseous phase.

12. Direct or indirect discharge of any waste to any surface water or surface drainage courses is prohibited.

13. The discharger shall not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value in any monitored medium at any Monitoring Point assigned for Detection Monitoring pursuant to Monitoring and Reporting Program No. R7-2003-0076.

C. Provisions

1. The discharger shall comply with Monitoring and Reporting Program No. R7-2003-0076 and future revisions thereto, as specified by the Regional Board's Executive Officer.

2. Unless otherwise approved by Regional Board's Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services. All analyses shall be conducted in accordance with the latest edition of "Guideline Establishing Test Procedures for Analysis of Pollutants", promulgated by the United States Environmental Protection Agency.

3. Prior to any change in ownership of this operation, the discharger shall transmit a copy of the Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.

4. Prior to any modification in this facility that would result in material change in the quality or quantity of discharge, or any material change in the location of discharge, the discharger shall report all pertinent information in writing to the Regional Board's Executive Officer and obtain revised requirements before any modification is implemented.

5. All permanent containment structures and erosion and drainage control systems shall be certified by a California Registered Civil Engineer or Certified Engineering Geologist as meeting the prescriptive standards and performance goals.

6. The discharger shall ensure that all site-operating personnel are familiar with the content of this Board Order, and shall maintain a copy of this Board Order at the site.

7. The Board Order does not authorize violation of any federal, state, or local laws or regulations.

8. The discharger shall allow the Regional Board, or an authorized representative, upon presentation of credential and other documents as may be required by law, to:

    a. Enter upon the premises regulated by this Board Order, or the place where records must be kept under the conditions of the Board Order;

    b. Have access to and copy, at reasonable times, any records that shall be kept under the condition of this Board Order;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Board Order; and

    d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Board Order or as otherwise authorized by the California Water Code of Regulation, any substances or parameters at this location.

9. The discharger shall comply with all of the conditions of this Board Order. Any noncompliance with this Board Order constitutes a violation of the Porter-Cologne Water Quality Act and is grounds for enforcement action.

10. The discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the discharger to achieve compliance with this Board Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

11. This Board Order does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

12. The discharger shall comply with the following:

    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

    b. The discharger shall retain records of all monitoring information, copies of all reports required by the Board Order, and records of all data used to complete the application for this Board Order, for a period of at least five (5) years from the date of the sample, measurement, report

or application. This period may be extended by request of the Regional Board's Executive Officer at any time.

c. Records of monitoring information shall include:

1. The date, exact places, and time of sampling or measurements.
2. The individual(s) who performed the sampling or measurements.
3. The date(s) analyses were performed.
4. The individual(s) responsible for reviewing the analyses.
5. The results of such analyses.

d. Monitoring must be conducted according to test procedures described in the Monitoring and Reporting Program, unless other test procedures have been specified in this Board Order or approved by the Regional Board's Executive Officer.

13. All monitoring systems shall be readily accessible for sampling and inspection.

14. The discharger is the responsible party for the WDRs, and the monitoring and reporting program for the facility. The discharger shall comply with all conditions of these WDRs. Violations may result in enforcement actions, including Regional Boards Orders or court orders, requiring corrective action or imposing civil monetary liability or in modification or revocation of these WDRs by the Regional Board.

15. The discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted in accordance with the specifications prepared by the Regional Board's Executive Officer. Such specifications are subject to periodic revisions as may be warranted.

16. The discharger may be required to submit technical reports as directed by the Regional Board's Executive Officer.

17. The procedure for preparing samples for the analyses shall be consistent with the Monitoring and Reporting Program No. R7-2003-0076 and any revisions thereto. The Monitoring Reports shall be certified to be true and correct, and signed, under penalty of perjury, by an authorized official of the company.

18. The discharger shall submit a Notice of Intent (NOI) to the State Water Resources Control Board to be covered under the Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities, Order No. 97-03-DWQ, NPDES No. CAS000001.

19. All monitoring shall be done as described in Title 27 of the California Code of Regulations.

I, Philip A. Gruenberg, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on September 3, 2003.

_____

Executive Officer