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**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA**

Application for Certification for the
HIGH DESERT POWER PROJECT

Docket No. 97-AFC-1C

**HIGH DESERT POWER PROJECT, LLC'S
PROPOSED SOIL&WATER CONDITIONS OF CERTIFICATION
IN SUPPORT OF THE PETITION FOR MODIFICATION TO DROUGHT-PROOF THE
HIGH DESERT POWER PROJECT**

INTRODUCTION

On October 30, 2015, High Desert Power Project, LLC (“HDPP” or “Project Owner”) filed a *Petition for Modification to Drought-Proof the High Desert Power Project* (“Petition”).¹ The Petition requests interim and long-term changes to the Conditions of Certification governing water use at the High Desert Power Project (“Facility”).

The Petition requested authority to allow the Facility to blend available water supplies, maximize the use of recycled water, and, on an emergency drought-related basis, rely on groundwater from the adjudicated Mojave River Basin, all implemented through a comprehensive cooling tower monitoring program.²

In response, California Energy Commission (“CEC”) Staff advocated “that use of 100 percent recycled water is a feasible alternative supply that would drought proof the project” and recommended conversion of the project to 100 percent recycled water within a 3-year period.³ The Project Owner and the CEC Staff being at an impasse, the Project Owner requested appointment of a Committee to oversee these proceedings,⁴ which was granted on January 19, 2016.⁵

On February 16, 2016, the California Department of Fish and Wildlife (“CDFW”) entered the proceeding, requesting a delay in then-scheduled hearings.⁶ In its opening testimony, CDFW argued that the existing, CEC-approved “use of 100% recycled water at the HDPP” has the potential to have adverse effects on certain riparian habitat.⁷

By discussion, education, and negotiation, the parties sought a compromise position, and on June 1, 2016, HDPP, the CEC Staff, and CDFW filed a stipulation in support of proposed

¹ TN#: 206468.

² *Id.*

³ TN#: 210083, CEC Staff’s Water Resources Opening Testimony, p. 3 and *passim*.

⁴ TN#: 206534

⁵ Order No. 16-0113-2a, TN#: 207552.

⁶ TN#: 210355

⁷ TN#: 210565

amendments to Soil&Water Conditions of Certification to provide interim drought relief to the Facility.⁸

On June 10, 2016, the Committee issued a *Revised Committee Recommended Decision Granting Interim Relief*, which recommended the grant of interim relief subject to certain Conditions of Certification.⁹ On June 14, 2016, the Commission approved most aspects of the stipulation (“June 14th Adoption Order”).¹⁰

HDPP submits the following factual and legal findings in support of the proposed revisions to the Conditions of Certification for a final decision on the Petition.

STORAGE OF SWP WATER VIA PERCOLATION

The evidentiary record in this proceeding supports HDPP’s storage of SWP Water via percolation on a permanent basis as follows:

CDFW, CEC Staff and HDPP agree that the facility should be allowed to recharge its groundwater bank via percolation at Mojave Water Agency (“MWA”) facilities.¹¹

The June 14th Adoption Order grants HDPP authority to recharge the groundwater bank through percolation at MWA facilities through September 30, 2018, and requested additional evidence now in the record:

[T]he Committee would like the benefit of additional evidence, analysis, and argument from the parties in the long-term proceedings on this Petition regarding percolation before making its use permanent. This evidence may include improvements to the existing models used to address the previously identified impacts resulting from injection into the groundwater aquifer, as well as additional effects that may arise from percolating groundwater.¹²

Additional evidence has been docketed that describes the Mojave Basin Area Adjudication and the management of groundwater resources within the Mojave Basin in response to the June 14th Adoption Order’s request for information about percolation effects.¹³ The following evidence supports factual and legal findings to make percolation a permanent component of the Facility’s water supply:

⁸ TN#: 211710.

⁹ TN#: 211790.

¹⁰ Commission Order No, 16-0614-A (TN#: 212052).

¹¹ TN#: 211710.

¹² TN#: 212052 at p. 11.

¹³ TN#: # 213702-213740.

1. All rights to extract water from and store water in the Mojave Basin Area, including the storage and extraction of Banked SWP Water for the Facility, are subject to the exclusive and continuing legal jurisdiction of the Riverside County Superior Court pursuant to the Judgment After Trial, *City of Barstow v. City of Adelanto*, Riverside County Superior Court Case No. 208568 (hereinafter, “Judgment”; January 10, 1996). (TN#: 213704, Part 1; TN#: 213705, Part 2.)
2. The Court has appointed MWA as Watermaster to administer and enforce the provisions of the Judgment and any subsequent instructions or orders of the Court. (TN#: 213704, Judgment § 23.) MWA’s actions undertaken as Watermaster to implement the Judgment are actions undertaken solely pursuant to judicial authority. (TN#: 213704, Judgment, § 23(c).)
3. The Watermaster regulates the storage and extraction of stored water pursuant to court-approved Rules and Regulations of the Mojave Basin Area Watermaster (the “Watermaster Rules”) (TN#: 213706). Section 23 of the Watermaster Rules, Uniform Rules for Storage Agreements, sets forth the terms and conditions for parties to the Adjudication to enter into storage agreements to bank water via injection and percolation. Section 23 also sets forth the processes for applications for storage agreements; the general conditions for storage agreements; the determination of available storage capacity; and the priorities for use of available storage capacity. (TN#: 213706, Watermaster Rules, § 23.)
4. The Watermaster is obligated to determine and account for any losses of water stored pursuant to a Storage Agreement. (TN#: 213706, Watermaster Rules, § 23.F.(3).) Watermaster accounting for Storage Agreements is included in annual reports submitted for court approval. (TN#: 213702.)
5. Watermaster has approved a Storage Agreement for the percolation of water for the Facility. (TN#: 212984.) The Storage Agreement requires Watermaster to calculate additions, extractions and losses of water stored for the Facility under the Storage Agreement and maintain an annual account of all such water. (TN#: 212984, Percolated Water Storage Agreement, § E.)
6. MWA is a special act district created with a broad mission and powers to manage water resources within its boundary. (Cal. Water Code Appendix, Chapter 97-1.5, (July 21, 1960).) MWA imports SWP water for direct use by customers and to recharge the Mojave Basin. MWA has constructed and operates multiple recharge basins in the Alto Subarea where the Facility is located. (TN#: 213716, 2015 UWMP, p. 3-10, 3-32 – 3-34, 3-36 – 3-38; TN#: 213717, Mojave IRWM Plan.)
7. The construction and operation of the MWA recharge facilities has been analyzed under the California Environmental Quality Act (“CEQA”) and the National Environmental Policy Act (“NEPA”). The *2004 Regional Water Management Plan Program EIR* (“2004 RWMP PEIR”), adopted as the Final Program

Environmental Impact Report (TN#: 213739), the *Mojave Water Agency Water Supply Reliability and Groundwater Replenishment Program Final Project Environmental Impact Report* (TN#: 213740), and *Environmental Assessment* (“EA”) (TN#: 213737) and *Finding of No Significant Impact* (TN#: 213738) for the “Regional Recharge and Recovery Project (R³), including the Oro Grande Wash Recharge Project” are examples.

RECYCLED WATER: 20% UP TO 2,000 AFY

The evidentiary record in this proceeding supports a compromise commitment for HDPP to use recycled water for at least 20% of the Facility’s cooling needs while limiting the quantity taken from the VVWRA Shay Road Plant to 2,000 acre-feet per year measured on a three-year rolling average as follows:

CEC Staff has advocated for the Facility to use up to 100% recycled water for power plant cooling.¹⁴ HDPP analyzed the feasibility of converting the Facility to a 100% recycled cooling water supply, and the evidence in the record supports the finding that it is not feasible as that term of art is used in CEQA for the Facility to operate on up to 100% recycled water.¹⁵

At the retail level, the City of Victorville (“City”) is the exclusive service provider for the Facility for all of its supply options: recycled water, SWP Water, Banked SWP Water, and MRB Adjudicated groundwater through the end of water year 2016/17. HDPP is a retail customer of the City.¹⁶

At the wholesale level, the recycled water provided by Victorville to HDPP has been produced at the Victor Valley Wastewater Reclamation Authority (VVWRA) Shay Road Plant.¹⁷ The VVWRA Shay Road Plant discharges treated wastewater to the Mojave River.¹⁸ The VVWRA Shay Road has been the only recycled water supply received that has been of sufficient quality to blend with higher-quality sources of water (SWP Water, Banked SWP Water, and MRB Adjudicated Water) to meet the cooling water needs of the Facility.¹⁹

The City’s Industrial Wastewater Treatment Plant (“IWWTP”) discharges treated wastewater to the Westwinds Golf Course and to percolation ponds.²⁰ In February 2014, HDPP temporarily waived the water quality specification and received water from the City’s

¹⁴ TN#: 210083, Staff Analysis/Opening Testimony of Proposed Petition to drought proof the project; TN#: 206321, *Response to recycled water feasibility study summary report*.

¹⁵ TN#: 203306, *High Desert Power Project Recycled Water Feasibility Study Report*; TN#: 206909, *Reply of High Desert Power Project, LLC to California Energy Commission Staff’s Analysis of the High Desert Power Plant Recycled Water Feasibility Report*.

¹⁶ TN#: 210088, *Opening Testimony of High Desert Power Project, LLC* at p. 8.

¹⁷ TN#: 210088, at p. 8; TN#: 203306, at p. 11.

¹⁸ TN#: 210503, *Memorandum of Understanding between California Department of Fish and Game and the Victor Valley Wastewater Reclamation Authority*, at p. 2-4.

¹⁹ TN#: 203306, at p. 11.

²⁰ TN#: 210088, at p. 24.

IWWTP.²¹ However, the City has not provided recycled water generated at the IWWTP since 2014 because this source of recycled water has not been able to meet the water quality specifications.²² While based on continuing conversations with the City, HDPP is hopeful that the City's IWWTP will be able to provide recycled water to HDPP in the future, it is currently unknown if and when those City IWWTP supplies may become available.

CDFW is concerned that reduction of discharge from HDPP's recycled water source, the VVWRA Shay Road Plant, may adversely affect riparian habitat in the Mojave River.²³ CDFW prepared a "Water Balance Study for the Transition Zone of the Mojave River" that proposes that HDPP use of recycled water from the Shay Road Plant be limited.²⁴

GSI Water Solutions, Inc. provided a technical analysis rebutting CDFW's water balance study.²⁵

In the interest of addressing the irreconcilable objectives of CEC Staff (which proposes HDPP use more recycled water) and CDFW (which proposes that HDPP's use of recycled water from VVWRA be limited or eliminated), HDPP proposes a compromise commitment to use recycled water for at least 20% of the Facility's cooling and other process needs, while limiting the quantity taken from VVWRA to 2,000 acre-feet per year measured on a three-year rolling average. This compromise represents a reduction in the CEC-approved use of recycled water from VVWRA, meaning that the potential for environmental effects are reduced through the proposed limitation.

COMPROMISE FOREGOING USE OF MRB ADJUDICATED GROUNDWATER

In the interest of completing this Amendment proceeding, HDPP will withdraw its request to use MRB Water Rights as follows:

In the interest of completing this amendment proceeding, HDPP will withdraw its request to use MRB Water Rights if the following revisions to the SOIL&WATER Conditions of Certification for the Facility are adopted by the Commission. This agreement to abandon use of MRB Water Rights is possible only if the Commission allows for the permanent use of percolation, which is the only method that would allow HDPP to reliably build a bank of SWP Water during future drought years.

PROPOSED REVISIONS TO SOIL&WATER CONDITIONS OF CERTIFICATION²⁶

SOIL&WATER-1 The only water used for project operation (except for domestic purposes) shall be State Water Project (SWP) water obtained by the project owner consistent with the

²¹ TN#: 203306, at p. 11.

²² TN#: 203306 at 11-12.

²³ TN#: 210565, Opening Testimony.

²⁴ TN#: 214837.

²⁵ TN#: 215765.

²⁶ Proposed additions are shown in bold and underlined, proposed deletions are shown in bold and strikeout.

provisions of the Mojave Water Agency's (MWA) Ordinance 9 and/or appropriately treated recycled waste water, ~~and/or an alternative water supply obtained from the Mojave River Basin (MRB) consistent with the "Judgment After Trial" dated January 1996 in City of Barstow, et al., v. City of Adelanto, et al. (Riverside County Superior Court Case No. 208568) ("MRB Water Rights") as administered by the Watermaster (the "Judgment").~~

a. The project owner shall implement ~~an interim~~ a "Loading Sequence" in the following order:

1. The project owner will use recycled waste water as the primary water supply, to the extent it is available and its quality is sufficient to maintain cooling tower functions and reliable operation of the facility, **provided that the use of recycled waste water from the Victor Valley Wastewater Reclamation Authority (VWVRA) Shay Road Plant shall not to exceed 2,000 acre-feet per year (AFY), calculated on a three calendar year rolling average basis. The use of recycled waste water from the City of Victorville's Industrial Wastewater Treatment Plant (IWWTP) shall not be subject to a maximum annual quantity.**

2. If there is insufficient recycled waste water of quality or quantity sufficient to maintain cooling tower functions and reliable operation of the facility, recycled waste water may be blended with either (a) directly available SWP water or (b) banked SWP Water from the four HDPP wells, **provided that (i) as long as the amount of banked SWP water used does not exceed the amount of water determined to be available to the project pursuant to SOIL&WATER-5 and (ii) recycled waste water is used for a minimum of twenty percent (20%) of annual cooling water needs, calculated on a three-year rolling average basis.**

~~3. If there is insufficient directly available SWP Water of quality or quantity sufficient to maintain cooling tower functions for reliable operation of the facility and the amount of banked SWP water determined to be available to the project pursuant to SOIL&WATER-5 is less than 4,000 acre-feet (AF) in water year 2015/2016 (ending September 30, 2016) and less than 5,000 AF in water year 2016/2017 (ending September 30, 2017), the project owner may blend recycled waste water with MRB Water Rights to achieve the required cooling tower blowdown rate or cooling tower functionality, subject to the limitations contained above.~~

~~4. The Project Owner shall consume no more than 2,000 AF of MRB Water Rights in water year 2015/2016 (October 1, 2015 – September 30, 2016) and no more than 2,000 AF in water year 2016/2017 (October 1, 2016 – September 30, 2017). The acquisition, use and~~

~~transfer of MRB Water Rights shall comply with the Judgment and Rules and Regulations of the Watermaster.~~

At the project owner's discretion, dry cooling may be used instead, if an amendment to the Commission's decision allowing dry cooling is approved.

- b. The project owner shall report, on or before the 15th of each month, the use of water from all sources for the prior month to the Energy Commission CPM in acre-feet. The monthly report shall include acre-feet usage by source, as well as total.
- c. The project's water supply facilities shall be appropriately sized and utilized to meet project needs. The project shall make maximum use of recycled waste water for power plant cooling given current equipment capabilities and permit conditions.

VERIFICATION: The project owner shall provide final design drawings of the project's water supply facilities to the CPM, for review and approval, thirty (30) days before commencing project construction. ~~The project owner shall submit to the CPM documentation showing the agreements entered into between the project owner, MWA Watermaster, and water right owners in MRB regarding the acquisition, use and transfer of MRB Water Rights.~~ The project owner shall report all use of water in acre feet to the Energy Commission CPM on a monthly basis for each supply: Recycled Water, SWP Water, and Banked SWP Water, ~~and MRB Water Rights~~. The monthly report shall contain a brief statement on (1) the water quantity and water quality of the supplies available in the prior month and (2) a summary of efforts to use available supplies to provide cooling water for operations, build the HDPP groundwater bank, and/or preserve the HDPP water bank.

SOIL&WATER-4 Injection Banking Schedule

- a. The project owner shall inject one thousand (1000) acre-feet of SWP water within twelve (12) months of the commencement of the projects commercial operation.
- b. By the end of the four years and two months from the start of commercial operation, the project owner shall install and begin operation of a pre-injection ultraviolet (UV) disinfection system.
- c. By the end of the fifth year of commercial operation, the project shall submit a report to the CPM demonstrating that HDPP has maintained an average THM concentration level consistent with the WDR permit requirements.
- d. After the end of the fifth year of commercial operation, the project owner shall inject SWP water when it is available in excess of volumes needed to operate the project, up to a cumulative quantity of 13,000 acre-feet, subject to equipment capabilities and permit requirements. The amount of injected SWP water available to HDPP for extraction is equal to Injection minus Extraction minus Dissipation minus 1000 acre-feet, as defined in SOIL&WATER-6.

- e. **As an additional method to build the project's groundwater bank, the project owner will work with the Mojave Water Agency (MWA), Mojave Basin Area Watermaster, the City of Victorville or the Victorville Water District to seek a feasible agreement or modify existing agreements to allow for the banking of SWP water in the Mojave River Basin through percolation using existing MWA facilities for the sole use of HDPP at HDPP. If agreement is reached, the project shall be permitted to bank SWP water through percolation in accordance with the terms of such agreement(s).**

VERIFICATION: The project owner shall submit an installation and operation report describing the pre-injection ultraviolet disinfection system (UV) by the end of the fourth year of commercial operation. Forecasted estimates of SWP water to be injected shall be included in the quarterly Aquifer and Storage Recovery Well Report. The project owner shall submit a UV performance report by the fifth year of commercial operation. For other related items, see the verification to Condition 5. See also the verification to Condition 12. **If the project owner, MWA, Mojave Basin Area Watermaster, City of Victorville or the Victorville Water District are able to reach an agreement or modify existing agreements regarding use of existing MWA facilities for the percolation and banking of SWP water that is feasible for the facility, the project owner shall provide a copy of such agreement or modified agreements to the CPM.**

SOIL&WATER-5 Calculation of Water Bank Balance

- a. The amount of **injected**, banked groundwater available to the project shall be calculated by the CEC staff using the HDPP model, FEMFLOW3D. **The amount of percolated, banked groundwater available to the project shall be calculated by MWA or the Mojave Basin Area Watermaster.** The amount of banked groundwater available shall be updated on a calendar year basis by the CEC staff, taking into account the amount of groundwater pumped by the project during the preceding year and the amount of water banked by the project during the preceding year.

SOIL&WATER-6 Banked Water Available for Project Use

- a. The amount of banked groundwater available to the project during the first twelve (12) months of commercial operation is the amount of SWP water injected by the project owner into the High Desert Power Project (project) wells, minus the amount of groundwater pumped by the project owner, minus the amount of dissipated groundwater, and minus any amount described in SOIL&WATER-5(b).
- b. The amount of banked groundwater available to the project after the first twelve (12) months of commercial operation is: **(1) the amount of SWP water percolated by MWA and (2) the amount of SWP water injected by the project owner into the project wells,** minus the amount of groundwater pumped by the project owner, minus the amount of dissipated groundwater, minus one thousand (1,000) acre feet, and minus any amount described in SOIL&WATER-5(b).

SOIL&WATER-13

The project owner shall implement the approved water treatment and monitoring plan. All ~~banked injected~~ SWP water shall be treated to meet local groundwater conditions as identified in Condition SOIL&WATER-12. Treatment levels may be revised by the CEC and, if applicable, by the RWQCB, based upon changes in local groundwater quality identified in the monitoring program not attributable to the groundwater banking program. Monitoring results shall be submitted annually to the CEC CPM and, if applicable, to the RWQCB.

~~**SOIL & WATER-22.**~~

~~Until September 30, 2018, and notwithstanding the existing Soil & Water Conditions of Certification, the project owner may percolate SWP water consistent with an agreement with MWA (or modification to any existing agreement regarding SWP water banking), provided that the amount of percolated water that will be available to withdraw for power plant cooling shall be calculated in the same manner as for injected SWP water pursuant to Conditions of Certification Soil & Water 4, 5, and 6.~~

~~**VERIFICATION:** If the project owner and MWA are able to reach an agreement or modify existing agreements regarding use of existing MWA facilities for the percolation of SWP water, the project owner shall provide a copy of such agreement or modified agreements, and any subsequent modifications to the CPM, within 10 days of their finalization.~~

Respectfully submitted,



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