



**Barton Springs
Edwards Aquifer**
CONSERVATION DISTRICT

March 30, 2018

Sent via certified mail and email

Electro Purification LLC
4605 Post Oak Place Dr.
Houston, TX 77027

RE: Administrative Review of additional required information submitted in response to the General Manager's Preliminary Finding of a Production Permit Application submitted by Electro Purification LLC, for authorization to produce 2.5 MGD of groundwater from the Middle Trinity Aquifer.

Dear Mr. Tim Throckmorton:

This letter serves as an acknowledgment that as of March 22, 2018, the Barton Springs Edwards Aquifer Conservation District staff (District) received your timely submitted required application materials. In accordance with District Rule 3-1.4.A.10, and per the instructions provided to you via the written correspondence on 2/20/18, the District requested that you submit required information to address the following items listed below. The information you submitted on 3/22/18 appears to have addressed the items indicated by a .

District Rule 3-1.4.A.10 a-d

- ✓ *A written description of avoidance measures and actions that the applicant proposes to implement either before or after groundwater production commences in an effort to avoid the occurrence of unreasonable impacts.*
- ✓ *A compliance monitoring plan subject to District review and approval and consistent with minimum plan requirements pursuant to District Rule 3-1.11.B.*
- ✓ *Other facts and considerations deemed necessary by the General Manager.*
- X *In addition to the above requirements a-c, the applicant may opt to submit a mitigation plan subject to District review and approval and consistent with minimum requirements pursuant to District Rule 3-1.11.C [emphasis added]. The District-approved mitigation plan shall be incorporated into a binding agreement between the permittee and the District, which will be incorporated as special provisions of the permit.*

Upon receipt of your submitted materials, the staff reviewed the informational items and **we are now requesting additional clarification or further information in the following areas.**

1. (Rule 3-1.4 .A.10 a-d) Descriptive Statement of Avoidance Measures

In the submitted materials, the applicant indicates its intention to commit to avoidance measures. Those proposed measures describe advanced avoidance actions related to:

- i. phasing of the permit;
- ii. lowering of pumps compliance; and
- iii. establishing a curtailment schedule based on water level triggers

- A. The District requests that the applicant provide additional explanation, details, and description of the avoidance measures. The applicant should consider the complete package of avoidance measures that it intends to commit to or that it proposes as part of the permit framework. Acceptable avoidance measures should be consistent with District Rule 3-1.4 G.4 a-h.

The District also requests that the applicant reformat the “descriptive statement of avoidance measures” to be consistent with the enclosed guidance (see Enclosure 1). We suggest that the “descriptive statement of avoidance measures”, also referred to as the Impact Avoidance Plan (IAP), be aggregated into a separate document that could be an appendix to the “compliance monitoring plan”.

- B. The District requests that the applicant adjust its proposed trigger water levels to more accurately reflect the cone of depression from the proposed pumping. Based on the information currently available, the District’s analysis indicates that the applicant’s suggested trigger levels for Zone 2 in the multiport well (Cow Creek) do not reflect the expected cone of depression from the proposed pumping. At a pumping rate of 1.5 MGD -2.5 MGD from the three primary wells over a period of 7 years, the water level in Zone 2 of the multiport well will be about 80 ft, 0 ft, and 60 ft higher than in the Bridges 1, Bridges 2, and the Odell 2 wells, respectively. Additionally, what has been proposed as Trigger Level 4 is only 25 ft of average difference. Trigger Level 4 should be adjusted up another 20 ft to match better the expected drawdown. This would be the level that Level 3 had been proposed (703 ft). The additional triggers could be spaced sufficiently to provide adequate time to avoid or delay reaching subsequent triggers.

The District agrees that the top of the water-bearing Lower Glen Rose (Zone 8) should be protected from dewatering. Trigger Level 4 is set to the top of the reef unit (510 ft) within the Lower Glen Rose. However, the spacing for Levels 1-3 are only 10 ft apart and may not provide adequate time for the effects of curtailment. We suggest that Level 3 would be at the top of the Lower Glen Rose (450 ft), and Level 1 would be at 340 ft. Level 2 could be somewhere in between.

2. (Rule 3-1.11 B,2,a,iii) Compliance Monitoring Well Network – General Information

We recognize and appreciate that the applicant has been in close communication with our technical staff in developing the concepts and details of the applicant’s proposed well monitoring network. To accompany the location map of the monitoring network we are requesting additional explanation of the rationale for the locations of the specific wells for the monitor network.

3. (Rule 3-1.11 B,2,b,i) Compliance Monitoring Well Network – Design and Construction

In the submitted Compliance Monitoring Plan, the applicant proposes to drill two new monitor wells, and proposes to modify one well to serve as a monitor well. The applicant also indicated during our 3/22/18 discussion, that it is interested in drilling a fourth new monitor well closer into the pumping area of influence. We request that the applicant provide a well design schematic for the four (4) proposed monitor wells.

- 4. (Rule 3-1.11 B,2,b,iii) Compliance Monitoring Well Network – Design and Construction**
In the submitted Compliance Monitoring Plan, the applicant indicated that it intends to equip the index well with dual transducers and telemetry. Please provide additional details on the proposed network system or hosting system for the telemetry. Include details on the estimated total costs for equipping and maintaining the full telemetry for the two transducers. Also, include a statement indicating the applicant’s commitment to cover those costs in full or in part.
- 5. (Rule 3-1.11 B,2,d) Monitoring Well Access**
Please provide a statement indicating that upon the District providing prior notice the applicant will provide the District with access to any EP-owned monitor well or pumping well. Also, provide additional details describing how the applicant intends to ensure that the District can maintain access to all the well identified in the proposed monitoring network.
- 6. (Rule 3-1.11 B,2,e) Maintenance and Repair Commitments**
In the submitted Compliance Monitoring Plan, the applicant indicated that it intends to equip the index well with dual transducers and telemetry. The applicant also proposes to drill/modify 3-4 monitor wells. Please provide additional details on the applicant’s commitments to maintain and repair all of the EP-owned monitor wells and the monitoring equipment placed in the index well.
- 7. (Rule 3-1.11 B,2,f,iii) Groundwater Sampling and Analysis Plan**
In the applicant’s submitted Compliance Monitoring Plan, the applicant indicates it is willing to contribute \$1500/yr to the District for water quality sampling in the EP vicinity. Please provide a proposed sampling schedule or spreadsheet that reflects which monitoring wells and pumping wells will be sampled and describe the frequency and parameters for the sampling. Please also provide detailed information on the water level measurement procedure, schedule, and frequency (i.e. manual measurements).
- 8. (Rule 3-1.11 B,2,g) Other Relevant information**
The purpose of the compliance monitoring plan and network is to provide data needed to assess the impacts of the pumping on the aquifer(s) over time and compliance with permit conditions in place to avoid unreasonable impacts. The District requests that the applicant provide an overview statement at the end of the compliance monitoring plan stating that the proposed information within the plan indicates the applicant’s commitment, cooperation and agreement that the identified monitor well network is appropriate and satisfactory to monitor and avoid potential unreasonable impacts.
- 9. (Rule 3-1.4 .A.10 a-d) Optional Mitigation Plan**
In the submitted materials, the applicant indicated it is amenable to discussing the development of a mitigation plan. The District would like to reiterate that a Mitigation Plan is not an application requirement, but rather an optional submission that the applicant can submit to serve as a contingency for the unexpected occurrence of unreasonable impacts following the applicant’s operation under the District’s Production Permit and implementation of the Compliance Monitoring Plan. Upon review of the information, it does not appear that you have submitted a mitigation plan. Please provide a confirmation statement indicating that you have opted to not submit a mitigation plan. Or alternatively, submit a mitigation plan that addresses all the required elements outlined in District Rule 3-1.11.C.

Please provide the above requested information by COB Friday April 13, 2018. If you have any further questions or need clarification regarding the requested information, please feel free to contact my office by phone at 512-282-8441.

Sincerely,



Kirk Holland, P.G.
Interim General Manager

Enclosure 1: Guidance for the Descriptive Statement of Avoidance Measures - Impact Avoidance Plan

Enclosure 2: Rule Excerpts

cc:

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Enclosure 1
Guidance for the “Descriptive Statement on Avoidance Measures”
Impact Avoidance Plan (IAP) Guidance

Impact Avoidance Plan (IAP) – Descriptive Statement of Avoidance Measures District Rule 3-1.4 G.4 a-h

An Impact Avoidance Plan is a document that captures the description and details of the Permittee's proposed avoidance measures. Those avoidance measures may include:

- a. reduction of authorized permit volume and/or pumping rate;
- b. phased permit volumes with conditional increases;
- c. ongoing aquifer monitoring;
- d. one or more index wells with defined compliance levels and prescribed responses;
- e. temporary pumping curtailments;
- f. permanent permit volume reductions;
- g. mitigation measures if applicable; and
- h. other reasonable measures necessary to avoid the occurrence of unreasonable impacts.

Planning and implementation of the Impact Avoidance Plan (IAP) shall be closely coordinated with the District staff to ensure that the proposed plan is consistent with District expectations. After the permittee has received official notification and instruction from the District, the permittee shall implement applicable measures of the approved Impact Avoidance Plan (IAP) on file. The applicant will prepare a descriptive IAP document that describes details on the following elements.

1. **Objectives.** The Permittee should describe an overview of the cumulative avoidance measures that they wish to implement or incorporate into the permit provisions as a demonstration of their intent to avoid unreasonable impacts. Those measures may include any combination of the approaches listed in Rule 3-1.4 G.4 a-h
2. **Financial Commitment.** A description of permittee's financial commitment to implement avoidance actions. Responsible parties for managing the funding must be specified.
3. **Avoidance Actions.** A description of the actions that will be taken to reduce the risk of unreasonable impacts.

Example Avoidance Action: *(Lowering of Pumps Proposed by EP Feb 2018)*

▪ **Public Notification**

Part 1 Timeline: Implement within 60 days of receiving District instruction

- Public Notices should reference the investigation efforts and type of well modifications the Permittee will offer
- Mail certified letters to all parcels in X mile radius
- Post public notices in papers
- Provide signs for each neighborhood in X mile radius
- Host a public meeting in coordination with District staff. Comments received after the meeting will be considered by the Permittee and District.

▪ **Implementation**

Part 2 Timeline: Implement within 180 days of completing Part 1 of IAP

- 3rd part administrator coordinates well work with drillers and landowners. District must agree with 3rd party.

- a licensed driller lowers pumps
 - **Eligibility.** A description of how the permittee, District or Third party will determine the well owners that are eligible for avoidance actions.
 - **Avoidance Impact Area.** Details on the geographic area and depths of wells that will be eligible for avoidance should be addressed in this description. Provide a geographical description of the designated impact area within the potential area of influence of the proposed pumping. A profile of impact estimation should be included to outline the risk analysis within the avoidance impact area.
4. **Implementation Schedule.** A description of the schedule and timeline for implementing each action or part of the IAP. Responsible parties must be specified. A schedule and timeframe must be provided for each 'avoidance action' which includes the timing and frequency actions.
 5. **Implementation Documentation.** A description of the types of documents and reports that will be produced to document actions and schedules of implementation tasks. Responsible parties must be specified.
 6. **Third Party Contractors.** A list of the third party contractors, mutually agreed upon by the District and permittee, to carry out well services, well repairs, well construction, or well equipment replacement. The responsibilities of each contractor, District and permittee must be specified.
 7. **Assessment.** A description of how this overall IAP is consistent with previous avoidance measures that the Permittee has taken itself or that has been documented as a successfully applied avoidance approach in the regional aquifer system.

Enclosure 1 - Rule Excerpts

Rule 3-1.4.A.10

Rule 3-1.4.D

Rule 3-1.4.G.6

Rule 3-1.11.B

Rule 3-1.11.C

3-1.4. APPLICATION FOR REGISTRATION, PRODUCTION PERMITS, TRANSPORT PERMITS, WELL PLUGGING, WELL DEVELOPMENT, WELL DRILLING, OR WELL MODIFICATION AUTHORIZATION.

A. Administrative Completeness of Application.

10. Potential for Unreasonable Impacts. All applications required to conduct an aquifer test and submit a Hydrogeological Report pursuant to District Rule 3-1.4.D. will be evaluated by the General Manager to assess the potential to cause unreasonable impacts pursuant to District Rule 3-1.4.G. Applications for proposed production that are found to have potential for causing unreasonable impacts will receive written notification of the General Manager's preliminary finding prior to the expiration of the application review period. Upon receipt of written notification of the General Manager's preliminary finding, the applicant will be granted a 90-day extension to the application review period to provide the following additional application requirements unless the applicant requests that the application be directly referred to the Board as provided below.

a. The applicant shall submit a written description of avoidance measures and actions that the applicant proposes to implement either before or after groundwater production commences in an effort to avoid the occurrence of unreasonable impacts.

b. The applicant shall submit a compliance monitoring plan subject to District review and approval and consistent with minimum plan requirements pursuant to District Rule 3-1.11.B.

c. The applicant shall submit other facts and considerations deemed necessary by the General Manager.

d. In addition to the above requirements, the applicant may opt to submit a mitigation plan subject to District review and approval and consistent with minimum requirements pursuant to District Rule 3-1.11.C. The District-approved mitigation plan shall be incorporated into a binding agreement between the permittee and the District, which will be incorporated as special provisions of the permit.

The above plans and information shall be submitted within 30 days of receipt of notification of the General Manager's preliminary finding of potential for unreasonable impacts and may be incorporated in whole or in part as special provisions of the permit. Alternatively, the applicant may request that the application be directly referred to the Board, pursuant to District Rule 3-1.4.G.6, for consideration without the completed information requirements under Subsection 10 a-d above prompted by the General Manager's preliminary finding of unreasonable impacts provided that the application requirements of items 1-9 of this Section have been satisfied.

3-1.4. APPLICATION FOR REGISTRATION, PRODUCTION PERMITS, TRANSPORT PERMITS, WELL PLUGGING, WELL DEVELOPMENT, WELL DRILLING, OR WELL MODIFICATION AUTHORIZATION.

D. Hydrogeological Report and Aquifer Tests.

1. Applicants seeking to export groundwater out of the District, to obtain a major amendment or a minor amendment in accordance with 3-1.9(F)(G), or to permit a new nonexempt well with an annual pumpage volume of more than 2,000,000 gallons, shall conduct an aquifer test and submit to the District a current Hydrogeological Report addressing the potential impacts associated with the proposed groundwater production or export.

2. The Aquifer Test and Hydrogeologic Report must be prepared by a Texas licensed professional geoscientist or engineer pursuant to the District’s guidance document, Guidelines for Hydrogeologic Reports and Aquifer Testing (Guidelines).

3. Aquifer Tests. A written aquifer test work plan shall be submitted to the General Manager for review and approval prior to commencement of the test and shall include the required information for aquifer test work plans as specified in the Guidelines. Planning and implementation of the aquifer test work plan shall be closely coordinated with the District to ensure that the proposed study is consistent with District standards and expectations specified in the Guidelines.

a. The aquifer test shall be conducted and the report completed pursuant to the Guidelines and the following tiered requirements:

Table: Tiered Structure for Aquifer Testing Requirements

	Anticipated Production Volume	Aquifer Test Requirements
Tier 1	>2,000,000 to 12,000,000 gallons per year	Abbreviated pump test and report
Tier 2	>12,000,000 to 200,000,000 gallons per year	Hydrogeologic report and may require installation of new observation wells if existing wells are not available or adequate for monitoring.
Tier 3	>200,000,000 gallons per year	Will require an aquifer test work plan and monitoring well network plan. Will require installation of one or more new observation wells.

3-1.4. APPLICATION FOR REGISTRATION, PRODUCTION PERMITS, TRANSPORT PERMITS, WELL PLUGGING, WELL DEVELOPMENT, WELL DRILLING, OR WELL MODIFICATION AUTHORIZATION.

G. Applications found to have potential for unreasonable impacts.

4. **General Manager's Statement of Position.** For applications found to have potential for unreasonable impacts that are not directly referred to the Board, the General Manager shall provide a statement of position with the findings and recommendations for consideration by the Board. The statement of position may include recommended special permit provisions incorporating elements of the measures and plans submitted pursuant District Rules 3-1.4.A.10 and 3-1.11, and other reasonable measures necessary to avoid or mitigate for unreasonable impacts. Such measures may include:
 - a. reduction of authorized permit volume and/or pumping rate;
 - b. phased permit volumes with conditional increases;
 - c. ongoing aquifer monitoring;
 - d. one or more index wells with defined compliance levels and prescribed responses;
 - e. temporary pumping curtailments;
 - f. permanent permit volume reductions;
 - g. mitigation measures if applicable; and
 - h. other reasonable measures necessary to avoid the occurrence of unreasonable impacts.

6. **Direct Referral Process.** In lieu of completion of the additional information requirements prompted by the General Manager's preliminary findings pursuant to District Rule 3-1.4.A.10, the applicant may opt to request direct referral of the application to the Board for a hearing on whether the application complies with all statutory and regulatory requirements, including whether there is the potential for causing unreasonable impacts.
 - a. The applicant may request direct referral by submitting a written request to the General Manager within ten days of receipt of the notification of the General Manager's preliminary finding of potential for unreasonable impacts. Within a reasonable time after receipt of the request, the General Manager shall declare the application administratively complete, provided that the application contains all required

information pursuant to District Rule 3-1.4.A.1-9, and shall promptly provide written notification to the applicant in accordance with Rule 3-1.6.B.

- b. An application that is directly referred to the Board is subject to and the applicant must comply with District Rules 3-1.4 and 4-9 regarding notice; comment and hearing; and, if desired, request for contested case hearing, and request for a contested case to be conducted by SOAH.
- c. Persons desiring to comment on or protest an application subject to a direct referral must likewise comply with the applicable District Rules 3-1.4 and 4-9.
- d. The General Manager will include with such applications for the Board's consideration, the preliminary findings of potential for unreasonable impacts and supporting evidence, but shall not include recommendations for special permit provisions to avoid or mitigate for unreasonable impacts described under Rule 3-1.4.A.10.a-d.
- e. If after hearing, the Board determines an application has the potential for causing unreasonable impacts, the Board may order a remand to reopen the record for further proceedings on recommendations to avoid or mitigate for unreasonable impacts.

3-1.11. PERMIT COMPLIANCE, MONITORING, AND MITIGATION.

B. Compliance Monitoring Plan and Compliance Monitoring Well Network. Except as provided by Rule 3-1.4.G.6., any Production Permit application that, through an evaluation of the Hydrogeological Report and aquifer test data, has been found by the General Manager to have the potential to cause unreasonable impacts, pursuant to Rule 3-1.4.G. will require submittal and implementation of a compliance monitoring plan including a compliance monitoring well network. The purpose of the compliance monitoring plan and network is to provide data needed to assess the impacts of the pumping on the aquifer(s) over time and compliance with permit conditions in place to avoid unreasonable impacts.

1. **Compliance Monitoring Well Network.** A compliance monitoring well network shall be established by installing a sufficient number of index wells to measure drawdown and water quality around the well or well field. Spring flow should also be monitored if the spring is sourced from the same formation and within the vicinity of the proposed well or well field. Planning and implementation of the plan and network shall be closely coordinated with the District to ensure that the proposed plan is consistent with District standards and expectations. The final plan and network must be approved by the District and installed prior to commencement of pumping. The permittee or applicant will be required to pay for all cost associated with the design, engineering, construction, sampling and maintenance of the monitoring well network and equipment except such that may be agreed upon by the District. The permittee or applicant shall provide assurances of legal District access to the monitoring well network. A permittee or applicant who incurs cost related to implementing the plan and operating the network assumes the risk that the Board may modify, reduce, adjust, or curtail the permitted volume.

2. **Minimum Compliance Monitoring Plan Requirements.** The compliance monitoring plan shall be a legally binding agreement between the District and permittee or applicant and should include detailed information on the construction, operation, sampling and analysis, and maintenance of the new compliance monitoring well network. The plan shall be subject to approval by the General Manager and shall, at minimum, include the following:
 - a. **General Information:**
 - i. Goal and purpose of project.
 - ii. Description of local geologic and hydrogeologic conditions.
 - iii. Location map showing monitoring well network well locations (including proposed and existing wells) and rationale for well locations.

- b. Design and Construction:
 - i. Well design plans and schematics on construction of each new index well.
 - ii. Completion and construction data for each existing well that will be used in the monitoring well network (e.g. State well reports, available geophysical data, downhole video, pump depth, or schematics for proposed modifications).
 - iii. Monitoring well equipment specifications and installation.
 - iv. Designated hydrogeologist and well drilling contractor.
- c. Schedule for Completion of Work.
- d. Monitoring Well Access. The permittee or applicant will ensure that the District can maintain access to the monitoring well network and equipment.
- e. Maintenance and Repair Commitments. Identify parties responsible for maintaining, repairing, and equipping the monitoring well network.
- f. Groundwater Sampling and Analysis Plan.
 - i. Sampling procedure, schedule, and frequency.
 - ii. Target constituents.
 - iii. Water level measurement procedure, schedule, and frequency.
- g. Other Relevant Information.

3-1.11. PERMIT COMPLIANCE, MONITORING, AND MITIGATION.

C. Mitigation Plans. For Production Permit applications found by the General Manager to have the potential to cause unreasonable impacts related to groundwater quality degradation or well interference, pursuant to Rule 3-1.4.G, the applicant may opt to submit a mitigation plan subject to District review and approval to **serve as a contingency for the occurrence of unreasonable impacts that are unanticipated or unavoidable through reasonable measures.** Mitigation Plans, if adopted by agreement between the permittee and the District, will be incorporated as special provisions of the permit.

1. **Planning and Implementation.** Planning and implementation of the plan shall be closely coordinated with the District to ensure that the proposed plan is consistent with District standards and expectations. After an investigation is initiated and the permittee has received official notification from the District, the permittee shall implement the approved mitigation plan pursuant to the conditions and requirements of the permit. A permittee or applicant who incurs cost related to implementing the plan assumes the risk that the Board may modify, reduce, adjust, or curtail the permitted volume.
2. **Plan Requirements.** A Mitigation Plan shall address the following minimum requirements.
 - a. **Financial Commitment.** A description of permittee's financial commitment to implement mitigation actions. Responsible parties for managing the funding must be specified.
 - b. **Impact Area.** A geographical description of the designated impact area within the potential area of influence. A profile of impact estimation should be included to outline the risk analysis within the designated impact area.
 - c. **Contingency Supply.** An outline of actions and temporary procedures that will be taken by the permittee to provide a supplemental or alternative source of potable water to the owners of the wells that were determined to be unreasonably impacted. Responsible parties must be specified.
 - i. These measures shall be temporary in nature until the permittee can provide a permanent solution of well remediation or well replacement.
 - ii. The quantity and quality of the supplemental or alternative water supply shall be equal to or greater than the original

water supply yield and quality available from the impacted water supply well.

- d. Mitigation Actions. A description of the actions that will be taken to remediate or replace the impacted well(s). Mitigation actions may be categorized into 'action tiers' for which there are specific diagnostics and responses taken to comply with this condition. Responsible parties must be specified.
- e. Implementation Schedule. A description of the schedule and timeline for implementing each phase of the mitigation plan. Responsible parties must be specified. A schedule and timeframe must be provided for each 'mitigation action tier' which includes the timing and frequency of diagnostic and response actions.
- f. Implementation Documentation. A description of the types of documents and reports that will be produced to document actions and schedules of implementation tasks. Responsible parties must be specified.

Third Party Contractors. A list of the third party contractors, mutually agreed upon by the District and permittee, to carry out well services, well repairs, well construction, or well equipment replacement. The responsibilities of each contractor, District and permittee must be specified.