BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In re: Town of Jupiter Water Treatment Plant
Petition for Variance from Rule 62-521.400(1)(f), F.A.C.

DEP File No.: 427187
OGC Case No. 22-2716
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FINAL ORDER GRANTING PETITION FOR VARIANCE

On October 3, 2022, the Town of Jupiter (Petitioner), filed a petition with the Florida Department of Environmental Protection (Department) requesting a section 120.542, Florida Statutes (F.S.), variance from the requirements of Rule 62-521.400(1)(f), Florida Administrative Code (F.A.C.). Rule 62-521.400(1)(f), F.A.C., prohibits the construction of a Class I Underground Injection Control (UIC) well, as regulated in Chapter 62-528, F.A.C., within a five hundred (500) foot radial setback distance around a drinking water supply well. The requested variance would allow the construction of a new Class I UIC well within 500 feet of the Petitioner's drinking water supply well. The request is for a variance that would be permanent. Notice of receipt of the petition was published in the Florida Administrative Register on October 25, 2022. No public comment was received.

BACKGROUND AND APPLICABLE REGULATORY CRITERIA

1. The Petitioner's Water Treatment Plant (WTP) utilizes two membrane treatment processes to produce potable drinking water: brackish Floridan aquifer water desalination through reverse osmosis (RO) and nanofiltration (NF) treatment of the fresh Surficial aquifer water supply; each with permitted capacities of 13.7 million gallons per day (mgd) and 14.5 mgd, respectively. Each of these treatment facilities produces a separate concentrate byproduct (concentrate) which requires management. Currently, the Petitioner's NF concentrate is reused through the delivery and sale of the concentrate flow (via Interlocal Agreement) to Loxahatchee River District (LRD), for blending and distribution as a supplemental supply to the LRD's irrigation water reuse system. The current disposal method for the

Petitioner's RO concentrate is through permitted surface water discharge via outfall to the C-18 canal, approximately 2,000 feet north of the water treatment plant. The C-18 canal flows into the Southwest Fork of the Loxahatchee River. Due to changes in the Petitioner's interlocal agreement with LRD and potential regulatory changes for surface water discharges, the Petitioner has determined that Class I underground injection is the most viable option for long-term concentrate management. The purpose of the proposed injection well system is for disposal of RO and NF concentrate.

2. The Petitioner proposes to construct one Class I UIC well and a dual-zone monitor well at the Petitioner's WTP. The Petitioner's WTP is located at 17403 Central Boulevard, Jupiter, Florida 33458, in Section 3, Township 41 South, Range 42 East in Palm Beach County, at latitude 26° 55' 56.56" N and longitude 80° 07' 58.70" W.

3. The Petitioner is requesting that the construction of a new Class I injection well be allowed within 500 feet of a drinking water supply well (Production Well RO-4) that has a production interval completed within the Upper Floridan aquifer between 1,065 feet and 1,373 feet below land surface (bls). The proposed injection well system will include one dual-zone monitor well, constructed to meet requirements stipulated in Chapter 62-528, FAC. The injection well and dual-zone monitor well are herein designated as IW1 and DZMW1, respectively.

4. The proposed location of wells IW1 and DZMW1 is near the south property boundary of the Petitioner's WTP. The proposed location of IW1 will be approximately 286 feet west of existing potable water well (RO-4).

5. With respect to wellhead protection, Rule 62-521.200(7), F.A.C., provides in pertinent part:

> "Wellhead Protection Area" means an area designated by the Department consisting of a 500-foot radial setback distance around a potable water well where ground water is provided the most stringent protection measures to protect the ground water source for a potable water well and includes the surface and subsurface area surrounding the well.

6. With respect to wellhead protection, Rule 62-521.400(1)(f), F.A.C., provides in pertinent part:

The Department shall require new installations to meet the following restrictions within a wellhead protection area: New Class I and Class III underground injection control wells, as regulated in Chapter 62-528, F.A.C., are prohibited.

7. The Petitioner has submitted to the Department a permit application for a construction permit for the construction and operational testing of the Jupiter WTP injection well (IW1). The UIC well is proposed to be constructed as a non-municipal, alternative-design injection well with a 28-inch outside diameter (OD) casing set to approximately 2,850 feet below land surface (bls), a 20-inch nominal size, fiberglass-reinforced plastic (FRP) tubing set to approximately 2,840 feet bls with a cemented annulus, and total depth of approximately 3,300 feet bls.

8. The injection zone for the UIC well is expected to be in the "Boulder Zone" of the Oldsmar Formation from approximately 2,850 feet bls to the total depth of the well at 3,300 feet bls. The confinement between the injection zone and the overlying aquifers containing an underground source of drinking water (USDW) and fluid movement adjacent to the well bore of IW1 will be monitored by the upper and lower monitor zones of the proposed dual-zone monitor well DZMW1. DZMW1 is proposed to be completed in the Floridan aquifer with an upper monitor zone at 1,790 to 1,830 feet bls and a lower monitor zone at 2,000 to 2,050 feet bls. The lower zone is to be positioned in a transmissive interval between the base of the lowermost USDW and the top of the major confining units that overlie the injection zone. The purpose of the lower monitor zone is to provide reasonable assurance of vertical confinement of injected fluids and external mechanical integrity of the injection wells. The upper monitor zone of DZMW1 is to be positioned in a transmissive interval above and near the base of the lowermost USDW (estimated to occur at approximately 1,840 feet bls). The depth of the USDW will be verified by testing during the construction of IW1 and DZMW1 and the actual depth of the monitor zones will be based on that information.

9. Production Well RO-4 is constructed with a production zone completed within the USDW in the Upper Floridan aquifer between 1,065 feet and 1,373 feet bls. The base of Production Well RO-4 is approximately 467 feet above the base of the USDW.

10. Strata with sufficient confining properties between the base of the lowermost USDW and the top of the injection zone (estimated to at approximately 2,850 feet bls) will be identified and tested during construction of IW1.

11. Injection well IW1 will be constructed with four cemented casings to protect the Biscayne Aquifer. The 28-inch OD injection casing will be cemented from the base, located at approximately 2,850 feet bls, to land surface. A 20-inch nominal size FRP tubing will be cemented inside the 28-inch OD injection casing from approximately 2,840 feet bls to land surface.

12. Injection well IW1 will be used to inject up to 11.4 mgd of non-hazardous, treatment processes concentrate resulting from desalination of Floridan and surficial aquifer groundwater through RO and NF treatment at the Petitioner's WTP. NF concentrate will primarily be re-purposed by blending it with Floridan aquifer and surficial aquifer raw water followed by processing through the RO treatment facilities. Thus, injection IW1 will be the primary disposal method for RO concentrate and a secondary disposal method for the NF concentrate. IW1 will also be used for disposal of raw groundwater and potable water produced during WTP maintenance activities. The actual permitted flow rate of this injection well, for conducting operational testing and during operation, will be determined based on field-testing information obtained during construction of the injection well.

13. The application of the Wellhead Protection Area prohibition (i.e., within 500 feet of a drinking water supply well) would create a substantial economic hardship.

THE VARIANCE WILL MEET THE UNDERLYING PURPOSE OF THE STATUTE

14. Section 120.542(2), F.S., provides "variances and waivers shall be granted when the person subject to the rule demonstrates that the purpose of the underlying statute will be or has been achieved by other means by the person and when application of a rule would create a substantial hardship or would violate principles of fairness." The variance procedure provides relief from unreasonable, unfair, and unintended results.

15. A variance may be granted when the person subject to the rule demonstrates that the purpose of the underlying statute will be or has been achieved by other means. § 120.542(2), F.S. The Town of Jupiter has demonstrated that the purpose of the underlying statute will be achieved by other means.

16. The underlying purpose of the Wellhead Protection Area rule is to provide geographic separation between a potable-water well and a potential source of contamination. The potential source of contamination for this application is potable water treatment byproduct (RO and NF concentrate) disposed by the proposed Class I injection in injection well (IW1).

17. The Petitioner demonstrated that the purpose of the underlying statute will be achieved. The protection area has two separate components: 1) subsurface area and 2) surface area. As required by Chapter 62-528, F.A.C., sufficient confining layers must be present (and demonstrated) between the injection zone and the base of the lowermost USDW. The base of the USDW is estimated to be near the depth of 1,840 feet bls; 467 feet below the base of the production zone of Production Well RO-4. The top of the injection zone is estimated to be near the depth of 2,850 feet bls. The vertical separation between the proposed injection depth and the production zone of the drinking water supply well achieves the purpose of the underlying statute.

18. Strata with sufficient confining properties between 1,840 feet and 2,850 feet bls will be identified and tested during construction of IW1. The target injection zone of IW1 will be a highly permeable, saline zone, below the Production Well RO-4 production zone and separated from it by confining formations. The physical separation provided by the confining properties of the sub-surface strata separating the injection depth and aquifer of the potable supply well demonstrates the purpose of the underlying statute will be achieved.

19. The means by which the "subsurface" components of the rule will be achieved to adequately protect the potable water supply well include:

a. IW1 will have two concentrically cemented steel casing strings isolating the Upper Floridan aquifer. Additionally, a cemented FRP tubing will line the inside of the innermost and deepest steel casing. The proposed design will isolate the injectant from the aquifers used for drinking water supply in the area of the well.

b. IW1 will be fully cased to the proposed injection zone.

c. All casings of IW1 will be cemented up to land surface.

d. The innermost FRP tubing of IW1 is a non-corrosive material.

e. During drilling of IW1 and DZMW1, borehole deviation will be checked at 90-foot intervals by performing inclination surveys. Hole-straightness will ensure that casings can be set to the specified depths and sufficient annular space will be present for proper cementing. Hole-straightness will also ensure that all pilot holes will be completely over-drilled during reaming operations which will reduce the risk of pathways of lesser quality water migrating up into the Upper Floridan aquifer.

f. DZMW1 will be constructed to monitor for upward migration of fluids injected into IW1. The monitoring intervals will be located at depths below the Production Well RO-4 production interval and near the base of the lowermost USDW.

g. A rigorous program to monitor the physical and chemical characteristics of the injection well system will be implemented throughout the life of the system.

h. Prior to commencing construction of IW1 and DZMW1, shallow monitor wells (Pad Wells) will be installed with monitoring intervals intersecting the water table (screened monitor intervals approximately between 10 feet and 20 feet bls). To monitor for any changes in water quality during construction of IW1 and DZMW1, water level measurements (referenced to an established datum in feet NAVD 88) and groundwater samples will be collected from the Pad Wells weekly. Samples will be analyzed for, pH, specific conductance, temperature, and chloride. Laboratory analysis also will include total dissolved solids (TDS) during the initial four weeks of construction.

i. The Petitioner also is prepared to perform additional monitoring not specifically required by Rule 62-528, F.A.C. to further ensure the purpose of the underlying statute is achieved. Water samples from Production Well RO-4 will be collected on a monthly basis prior to and during construction of IW1 and DZMW1. Samples will be analyzed for specific conductance and chlorides to establish background water quality and facilitate identifying deviation from normal conditions.

j. Production Well RO-4 will not be operated during pilot hole drilling of IW1 and DZMW1 within the Upper Floridan aquifer, and the associated geophysical logging and packer testing activities.

20. The means by which the "surface" component of the rule will also be achieved include the following:

a. The wellheads of IW1 and DZMW1 will be constructed of corrosion-resistant stainless steel.

b. IW1 and DZMW1 will be located within concrete containment pads to contain potential leaks of concentrate water (IW1) and lesser quality formation water (DZMW1).

c. The aboveground piping connected to IW1 will be stainless steel.

d. The below-ground piping from the water treatment plant to IW1 will consist of corrosion-resistant polyvinyl chloride (PVC).

21. In summary, the purpose of the "subsurface" and "surface" components of the underlying rule will be achieved through multiple avenues including: construction of IW1 to a depth that provides adequate vertical and physical separation; confining layer separation from the potable supply well; construction materials and techniques that ensure protection of the aquifer; and multiple monitoring systems to provide early detection of potential migration of injected fluids into the aquifer of the drinking water supply well.

SUBSTANTIAL HARDSHIP TO THE PETITIONER

22. Petitioner requests a variance of the strict application of Rule 62- 521.400(1)(f), F.A.C., because applying the rule would create a substantial hardship. "Substantial hardship" means a demonstrated economic, technological, legal, or other type of hardship to the person requesting the variance or waiver. The Petitioner demonstrated that strict application of the rule would result in substantial economic hardship to the Petitioner.

23. Siting of the proposed injection well system was carefully evaluated by the Petitioner. The impacts of locating the injection well system onsite of the WTP and at a radial distance greater than 500 feet from Production Well RO-4 proved to be financially and operationally prohibitive. The majority of the WTP site is within the 500-foot Wellhead Protection Area of Production Well RO-4. A large construction area is required to construct and test an injection well system. Sufficient spacing around IW1 also is necessary to perform required future mechanical integrity testing and potential future well

rehabilitation activities. Existing above-grade and below-grade utility and infrastructure conflicts preclude alternative onsite locations.

24. The northwest corner of the WTP site is outside of the 500-foot radial Wellhead Protection Area of Production Well RO-4. Petitioner considered siting the injection well system in this area. The Petitioner ultimately deemed this area not to be a feasible location due to conflicts as noted above and due to safety concerns as the facility's emergency exit is located in this area. Siting the injection well system in the northwest corner would prohibit the ingress/egress for emergency responders and eliminate the facility's secondary exit in the event of a chlorine gas leak.

25. The impacts of locating the injection well system offsite would be financially and operationally prohibitive. Locating the injection well system offsite would require the installation of a large diameter transmission main line in a highly commercial and populated area resulting in significant increased project costs. Additional pumping facilities also would be necessary to convey the injectate to the offsite location resulting in increased capital, maintenance, and power consumption costs. It is also important to note that Petitioner-owned offsite property include four (4) surficial aquifer and two (2) Floridan aquifer potable water supply wells. Locating the injection well system offsite would likely necessitate securing a similar variance from Rule 62-521.400(1)(f), FAC. The Petitioner has a vested interest in being protective of their water supply resources including the resources in the vicinity of Production Well RO-4 as they are vital in maintaining a reliable and high-quality drinking water supply for Jupiter's service area.

THEREFORE, IT IS ORDERED:

1. Based on the foregoing reasons, the Petitioner has demonstrated that it has met the requirements for a variance from Rule 62- 521.400(1)(f), F.A.C. The variance is subject to the following conditions:

a) The Petitioner will analyze water samples from Production Well RO-4 prior to commencement of drilling activities to establish background water quality conditions.

b) Water samples from Production Well RO-4 will be collected monthly prior to and during construction and operational testing of IW1 and DZMW1.

c) All water samples will be analyzed for specific conductance, chlorides, TDS, and temperature.

d) Petitioner will report any observed deviation from background water quality conditions.

e) Production Well RO-4 will not be operated during drilling, geophysical logging, and packer testing activities associated with the pilot holes of IW1 and DZMW1 within the Upper Floridan aquifer.

f) Construction and operation of the UIC well shall be subject to the terms and conditions of UIC Permit # 0427187-001-UC/1X.

2. This variance shall remain in effect for the life of the injection well system.

PUBLICATION OF NOTICE

The Petitioner is required to publish at its own expense the enclosed notice of this variance. The notice is required to be published one time within 30 days, in the legal advertisements section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to:

Department of Environmental Protection
Aquifer Protection Program
2600 Blair Stone Road, MS 3530
Tallahassee, Florida 32399-2400

The proof of publication shall be provided to the above address within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time shall be grounds for denial of the variance or waiver.

NOTICE OF RIGHTS

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the request for a variance or waiver.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, telephone number, and any e-mail address of the petitioner; the name, address, telephone number, and any e-mail address of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action.

(f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, or via electronic correspondence at Agency Clerk@dep.state.fl.us. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing must be filed within 21 days of receipt of this written notice. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation

Mediation is not available in this proceeding.

Judicial Review

Once this decision becomes final, any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

DONE AND ORDERED this 4th day of May 2023, in Leon County, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Digitally signed by John A. Coates
Date: 2023.05.02 17:47:04 -04'00'

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FILING AND ACKNOWLEDGMENT

FILED, on this date, under 120.52(7) of the Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Andrew Baker 05/04/2023
Clerk Date

Copies furnished to:
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