

**U.S. EPA PUBLIC NOTICE**  
**Underground Injection Control (UIC) Program**  
**Notice of Proposed Permit Issuance for:**

**Seminole Tribe of Florida – Public Works Department**  
5700 Griffin Road  
Davie, Florida 33314

**EPA Requests Public Comments on the proposed Permit Issuance.**

**All Public Comments on the permit issuance must be emailed or postmarked by March 31, 2026.**

The U.S. Environmental Protection Agency Region 4 (EPA) proposes to issue a permit under the authority of the federal Underground Injection Control (UIC) regulations at 40 Code of Federal Regulations (C.F.R.) Parts 124, 144, 146, and 147 to the Seminole Tribe of Florida – Public Works Department (Applicant).

**Description:** The Applicant submitted a timely application for a renewal permit covering two (2) UIC Class I – nonhazardous industrial injection wells for the injection of: 1) concentrate from reverse osmosis operations at the Applicant’s Hollywood Water Treatment Plant (WTP) as well as raw water and flush water from the operation of the plant’s reverse osmosis system and: 2) secondary treated effluent from the Applicant’s Hollywood Wastewater Treatment Plant. The injection well is located at the Applicant’s WTP at 2600 N 64th Ave, Hollywood, FL 33024. If the EPA issues the final permit to the Applicant, the permit will remain in effect for 10 years. A permit is required to meet the provisions of the EPA-administered UIC Program on Tribal Lands in Florida.

All data submitted by the Applicant in support of the draft permit, unless deemed confidential, is included in the Administrative Record. The Administrative Record for the draft permit is available for public review and can be requested by contacting the EPA staff listed below.

Copies of this public notice, associated fact sheet, and the draft permit are available for review and inspection on the EPA’s website at <https://www.epa.gov/fl/florida-events-public-notice-and-press-releases>.

**Public Hearing:** The EPA is not required to hold a public hearing but may do so if there is sufficient public interest in the proposed decision. Any person desiring such a hearing must submit a written request, which identifies the proposed issue(s) for discussion at the hearing. Requests must be sent via email or mail to the contact information below. If a public hearing is deemed necessary, the EPA will issue a public notice of the hearing at least 30 days prior to the scheduled date.

**Final Permit Decisions and Appeals Process**

After the close of the public comment period, the EPA will review and consider all comments relevant to the draft decision. The EPA will respond to each comment submitted by the Applicant and the public. The EPA’s response to comments will contain: a response to all significant comments on the draft decision; the EPA’s final decision; any changes in the conditions in the draft permit, and the reasons for such changes; and procedures for appealing the decision.

**General Notice:** If you would like to be added to a general mailing list for notice of any of the EPA's future UIC permitting actions in any of the EPA Region 4 jurisdictions in Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee, please notify the EPA by sending an email to [R4GWUIC@epa.gov](mailto:R4GWUIC@epa.gov). Please specify if you are interested in all or specific permitting actions in all or specific jurisdictions. If you do not have access to email, you may also send a request to be included on the mailing list at the physical address below.

Send comments on the draft permit, requests for additional information, requests for public hearings and mailing list requests to:

**US EPA Region 4 – WD/SDWB  
ATTN: Samuel Yun – PN SE25UIC002  
Atlanta Federal Center  
61 Forsyth Street SW, MS  
Atlanta, GA, 30303-8931  
[R4GWUIC@epa.gov](mailto:R4GWUIC@epa.gov)  
(404) 562-8909**

FACT SHEET FOR  
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 4  
NOTICE OF INTENT TO ISSUE UNDERGROUND INJECTION CONTROL (UIC) PERMIT  
DRAFT PERMIT NUMBER SE1P-00001 TO  
THE SEMINOLE TRIBE OF FLORIDA – PUBLIC WORKS DEPARTMENT

Associated Public Notice: SE26UIC001

March 1, 2026

**1. Summary of Proposed Action**

[40 C.F.R. § 124.8(b)(1)]

The U.S. Environmental Protection Agency Region 4 (EPA) intends to issue a Class I nonhazardous industrial Underground Injection Control (UIC) area permit (Draft Permit) to the Seminole Tribe of Florida – Public Works Department (Applicant) under the authority of Part C of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300f *et seq.*, and the rules adopted thereunder as found at Title 40 of the Code of Federal Regulations (C.F.R.) Parts 124, 144, 146, and 147 (Federal UIC regulations). The Draft Permit would reauthorize the Applicant to continue to operate their UIC Class I facility previously authorized under Permit SEI0001. Permit SEI0001 expired on December 1, 2021. SEI0001 has been administratively continued under 40 C.F.R. § 144.37 pending a final decision on the Draft Permit.

The Draft Permit covers activity consisting of the injection of nonhazardous industrial fluids which consist of: 1) concentrate from reverse osmosis operations at the Applicant’s Hollywood Reservation Water Treatment Plant as well as raw water and flush water from the operation of the plant’s reverse osmosis system; and 2) secondary treated effluent from the Applicant’s Hollywood Reservation Wastewater Treatment Plant. Injection would only be authorized to take place in accordance with the terms and conditions of the Draft Permit. The Draft Permit sets the following limits on injection: fluids may only be injected into IW-1 and IW-2 in the lowermost Middle Avon Park Confining and Composite Unit, and the Boulder Zone in the Oldsmar formation. In IW-1, this zone is encountered between 2,920 and 3,501 feet below land surface. In IW-2, this zone is encountered between 3,000 and 3,503 feet below land surface. For both wells, there is a maximum allowable injection pressure of 103 psig; a maximum permitted capacity of 8.87 million gallons per day; and a maximum injection velocity of 12 feet per second.)

**2. Purpose of this Document**

[40 C.F.R. § 124.8(a)]

The EPA has prepared this fact sheet for the purpose of: 1) briefly describing the proposed permitting decision; 2) briefly presenting the principal facts and the significant factual, legal, methodological and policy questions which were considered in the decision to issue this Draft Permit; 3) briefly describing the derivation and reasons for the conditions of the Draft Permit; and 4) providing useful background for individuals that wish to provide comments or request a public hearing. The sections referenced in the fact sheet below provide an overview of the requirements and conditions established in the Draft Permit.

The EPA issues UIC permits for the purpose of regulating the injection of fluids into underground injection wells so that any authorized injection activity will not endanger underground sources of drinking water (USDWs). Permit conditions are based upon the federal UIC regulations and address potential impacts to USDWs. Issuance of a UIC permit does not convey any property rights of any sort or any exclusive privilege, nor does it authorize injury to persons or property or invasion of other private rights, or any infringement of other federal, state or local laws or regulations. See 40 C.F.R.

§ 144.35. Certain conditions apply to all UIC permits and may be incorporated either expressly or by reference. General permit conditions for which the content is mandatory and not subject to site-specific differences are not discussed in this document. See 40 C.F.R. §§ 124, 144, 146 and 147.

**3. Applicant Information [40 C.F.R. § 124.8(b)(1)]**

Applicant: Seminole Tribe of Florida – Public Works Department  
Applicant Address: 5700 Griffin Road  
Davie, Florida 33314

**4. Facility Location [40 C.F.R. § 124.8(b)(1)]**

Facility Location: Hollywood Reservation IW-1  
EPA ID SES0110001  
26° 2' 5.52" N80° 13' 13.44" W

Facility Location: Hollywood Reservation IW-2  
EPA ID SES0110002  
26° 2' 8.49" N80° 13' 13.51" W

Facility Address: Hollywood Reservation Water Treatment Plant  
2600 North 64th Avenue  
Hollywood, Broward County, Florida 33024

**5. The Public's Ability to Comment and Participate [40 C.F.R. § 124.8(b)(6)]**

The public comment period begins on March 1, 2026. The public comment period on this permitting action will close thirty (30) days after that date on March 31, 2026, unless otherwise extended. A final decision to issue the permit or draft decision to deny the application will be made after the close of the public comment period.

All persons, including the applicant, who object to any condition of the Draft Permit or the EPA's decision to prepare a Draft Permit must raise all reasonably ascertainable issues and submit all reasonable arguments supporting their position by, or postmarked no later than, March 31, 2026.

A public hearing may be held if the EPA receives written comments of substantial public interest on this Draft Permit. Public notice of such a hearing will be placed in local publications or other media and mailed to interested parties.

After the conclusion of the public comment period and any public meeting described above, the EPA may revise the conditions of the permit based on such public comment. The administrative record, including permit application, fact sheet, Draft Permit, comments received and additional information on hearing procedures are available by writing to the EPA using the address below, or for review and copying at: Atlanta Federal Center, 61 Forsyth Street, SW, Suite 9T25, Atlanta, Georgia, 30303-8960, between the hours of 8:15 a.m. and 4:30 p.m., Monday through Friday.

During the public comment period, the Draft Permit, this fact sheet, and permit application are also available at the EPA Region 4 web page: <https://www.epa.gov/aboutepa/about-epa-region-4-southeast#r4-publicnotices>.

## 6. EPA Contact Information

[40 C.F.R. §§ 124.8(b)(6)(i), 124.8(b)(7)]

During the public comment period, all written comments on the Draft Permit must be mailed or emailed to Mr. Samuel Yun. Mr. Yun is also available by phone or e-mail for any informational questions regarding the Draft Permit conditions or procedures for commenting.

EPA Permit Writer: Mr. Samuel Yun  
EPA Street Address: U.S. Environmental Protection Agency - Region 4  
Water Division – Safe Drinking Water Branch  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street Southwest  
Atlanta, Georgia 30303

EPA Mailing Address: US EPA Region 4 – WD/SDWB  
ATTN: Samuel Yun – PN SE25UIC001  
61 Forsyth Street SW MC9T25  
Atlanta, Georgia 30303-8960

Permit Writer Phone: (404) 562-8909  
EPA Email Address: R4GWUIC@EPA.GOV

## 7. Statutory Basis for Requiring/Issuing Permit

[40 C.F.R. §§ 144, 145, 147]

The U.S. Environmental Protection Agency has permitting jurisdiction over the SDWA and the federal UIC regulations. Under 40 C.F.R. § 144.31, the EPA Region 4 Water Division Director has authority to issue permits for underground injection activities for all Indian Tribes that have not received primacy for the UIC program under 40 C.F.R. § 145 Subpart E. This project involves injecting both industrial and municipal waste below the lowermost formation containing an USDW within one-quarter mile of the well. This activity meets the description of Class I nonhazardous industrial activity under the UIC program's system of well classification at 40 C.F.R. § 144.6(a). All activity described in 40 C.F.R. §144.6(a) must be conducted safely under a permit in accordance with 40 C.F.R. § 144.31(a).

### 7.1. Considerations Under “The Water Rights Compact Among the Seminole Tribe of Florida, the State of Florida, and the South Florida Water Management District” (Compact)

[Seminole Indian Land Claims Settlement Act of 1987, Pub. L. 100–228, §7, 101 Stat. 1556, 1560 (1987)]

In addition to the terms and conditions required by the SDWA and the federal UIC regulations, this Draft Permit includes conditions that meet applicable requirements established in the Compact and its associated Criteria Manual. This was done to reduce the burden on the Applicant. Where possible, the EPA has attempted to align the terms of the Draft Permit with the applicable requirements of the Compact and the corresponding Criteria Manual. The language of the Draft Permit does not change or supersede any obligations established under the Compact.

## 8. Reasons why this Draft Permit was Issued

[40 C.F.R. § 124.6]

The EPA has reviewed the project's construction, geologic setting, operational history, as well as the newly proposed operational standards and monitoring requirements from the newly submitted permitting materials. The EPA believes the proposed activities, when conducted under the conditions presented in this proposed Draft Permit, are protective of USDWs as required under the SDWA.

**8.1. Area of Review and Corrective Action** [40 C.F.R. §§ 144.55, 146.6, 146.7]

The area of review used in the review of the application was calculated using the requirements of Section 6.1.3.2 of the Criteria Manual. The calculated radius was a two (2) mile distance around the midpoint of the well bores of IW-1 and IW-2. This is the area surrounding the project which the applicant must research, examine and develop a program to address, with a corrective action plan, wells which penetrate the injection zones that are improperly sealed, completed or abandoned and may therefore provide a conduit for fluid migration. Other than IW-1 and IW-2, no wells, holes, or other openings were identified that penetrate the confining zone (see heading 8.3 of this document). As such, the EPA determined that no corrective actions are required for wells or other features located in the Area of Review.

**8.2. Underground Sources of Drinking Water** [40 C.F.R. § 146.12(a)]

A USDW is defined as an aquifer or the portions thereof which (1) currently supplies any public water system; or (2) contains a sufficient quantity of groundwater to supply a public water system and currently supplies drinking water for human consumption or contains fewer than 10,000 mg/l of total dissolved solids and is not an already exempted aquifer. 40 C.F.R. § 144.3. The lowermost USDW that has been identified in the Area of Review is at approximately 1,630 feet below land surface in the Permeable Zone (which exists approximately between 1,575 and 1,640 feet below land surface) of the Avon Park Formation (which exists approximately between 1,030 feet to 2,770 feet below land surface) in the Upper Floridan Aquifer (which exists approximately between 950 and 1225 feet below land surface). The lowermost depth of the Avon Park Permeable Zone that meets the criteria for a USDW was measured during the construction of the injection well and the dual zone monitoring in 2018 and 2019. No USDWs were identified below the injection zone.

**8.3. Confinement** [40 C.F.R. § 146.14(a)]

A confining zone means a geological formation, group of formations, or part of a formation that limits fluid movement from an injection zone into overlying or underlying zones. 40 C.F.R. § 146.3. During the drilling and testing of IW1, IW-2 and the dual zone monitoring well, three (3) confining zones were identified between the lowermost USDW and the injection formation (the Boulder Zone in the Oldsmar). These confining intervals consist of primarily light-colored limestones (mudstones and packstones) and dolostones. The confining zones occurred in the intervals from approximately 1,980 to 2,030 feet below land surface; 2,290 to 2,490 feet below land surface; and 2,590 to 2,720 feet below land surface, all as part of the Middle Avon Park Confining and Composite Unit.

**8.4. Injection Zone** [40 C.F.R. § 146.14]

An injection zone is defined as a geological formation, group of formations, or part of a formation receiving fluids through a well. 40 C.F.R. § 144.3. The injection zone authorized by this Draft Permit is the Lowermost Middle Avon Park Confining and Composite Unit and the Boulder Zone in the Oldsmar. See Appendix A of the Draft Permit.

**8.5. Geological Faults** [40 C.F.R. § 146.14(a)]

No geological faults were identified within the Area of Review.

9. Brief Summary of Project Specific Conditions in the Draft Permit

[40 C.F.R. § 124.8(b)(4)]

The conditions and restrictions in the sections below were developed specifically for this project to ensure that the proposed injection activity could be performed in a manner that is protective of USDWs.

Table 9.1.1. IW-1 and IW-2 Construction Details

Nominal Outside Diameter (inches)	Casing / Tubing Materials	Nominal Borehole Diameter (Inches)	Depth (Feet Below Land Surface)	Additional Information
Injection Well IW-1				
66	0.375-in thick, grade B, spiral welded steel casing	66	8	Pit Pipe, used to stabilize drill site, not cemented
54	0.375-in thick, grade B, spiral welded steel casing	64	249	fully cemented
44	0.375-in thick, grade B, spiral welded steel casing	52	1003	fully cemented
34	0.375-in thick, grade B, spiral welded steel casing	44	2000	fully cemented, except for 1525 to 1642 feet below land surface due to a loss of circulation in a cavernous portion of the formation
24	0.500-in thick, grade B, seamless steel casing	34	2920	fully cemented
16	0.80-in thick, Grade 1500, Red Box - FRP	24	2910	fully cemented
22.5	Open borehole	22.5	3501	This is the injection interval
Injection Well IW-2				
66	0.375-in thick, grade B, spiral welded steel casing	66	8	Pit Pipe, used to stabilize drill site, not cemented
54	0.375-in thick, grade B, spiral welded steel casing	64	250	fully cemented
44	0.375-in thick, grade B, spiral welded steel casing	54	1005	fully cemented
34	0.375-in thick, grade B, spiral welded steel casing	44	2000	fully cemented, except for 1525 to 1642 feet below land surface due to a loss of circulation in a cavernous portion of the formation
24	0.500-in thick, grade B, seamless steel casing	34	3000	fully cemented
16	0.80-in thick, Grade 1500, Red Box - FRP	24	2990	fully cemented
22.5	Open borehole	22.5	3503	This is the injection interval

### 9.1. Injection Well Construction

[40 C.F.R. § 124.8(b)(4)]

The Applicant must maintain the injection and monitoring wells in working order as originally constructed. See Appendix B of the Draft Permit for more details.

#### 9.1.1. Injection Well 1 (IW-1) and Injection Well 2 (IW-2)

[40 C.F.R. § 124.8(b)(4)]

IW1 and IW-2 are constructed with boreholes, casings, cement and tubing as presented in Table 9.1.1. The cementing of the injection tubing in place without the ability to monitor the pressure between the injection tubing and the inner most casing required a variance, see 9.1.1.1.

##### 9.1.1.1. Variance for Alternative to Tubing and Packer Construction

[40 C.F.R. § 124.8(b)(5) & 146.13(a)(3)]

Under 40 C.F.R. §146.12(c)(1), the Applicant petitioned for a construction method involving tubing cemented in place as an alternative to tubing and packer construction. Historically, EPA has reviewed this petition and granted the request, with the condition that requirements for the demonstration of mechanical integrity be modified to include a downhole video survey and radioactive tracer survey.

#### 9.1.2. Dual Zone Monitor Well (MW-1)

[40 C.F.R. § 146.13(d)(2)]

MW-1 was constructed in a manner that allows it to monitor two separate zones.

Table 9.1.2. MW-1 Construction Details

Nominal Outside Diameter (inches)	Casing Materials	Nominal Borehole Diameter (Inches)	Depth (Feet Below Land Surface)	Additional Information
48	0.375-in thick, grade B, spiral welded steel casing	48	8	Pit Pipe, used to stabilize drill site, not cemented
36	0.375-in thick, grade B, spiral welded steel casing	48	250	fully cemented
24	0.375-in thick, grade B, spiral welded steel casing	36	1000	fully cemented
16	0.375-in thick, grade B, spiral welded steel casing	24	1500	fully cemented
16	Open Borehole	16	1500 to 1529	This is the upper monitoring zone (UMZ). It is the annulus between the 6.625-in casing and the 16" borehole
6.625	0.892-in thick, Grade 2500, fiberglass reinforced plastic casing	16	1770	
12.25	Open Borehole	12.25	1810	This is the lower monitoring zone (LMZ). It is the open hole from 1770 to 1810 feet below land surface.

9.1.2.1. MW-1 Upper Monitoring Zone (UMZ) [40 C.F.R. § 146.13(d)(2)]

MW-1-UMZ monitors the interval between 1,545 to 1,578 feet below land surface. This depth was chosen as a productive zone in the lowermost USDW in the Avon Park Permeable Zone. It is monitored to ensure that the lowermost USDW has not been impacted by fluid movement. Instead of a typical casing construction, this monitoring well consists of the uncemented annulus between the 16-inch steel casing, the 16-inch borehole below it, and the 6.625-inch casing.

9.1.2.2. MW-1 Lower Monitoring Zone (LMZ) [40 C.F.R. § 146.13(d)(2)]

MW1-LMZ monitors the interval between 1,770 to 1,810 feet below land surface. This depth was chosen as a productive zone in the middle confining unit of the Floridan aquifer. It is monitored to provide warning that fluid is migrating upward from the injection zone. This would provide an early warning to cease injection before the lowermost USDW is impacted by fluid movement. It's monitored interval is the open borehole drilled below the 6.625-inch casing.

9.2. Mechanical Integrity [40 C.F.R. § 146.8]

The Applicant must maintain mechanical integrity of the IW-1 and IW-2 injection wells at all times. The Applicant must review the results of the monitoring and interpret them for indications of a potential loss of mechanical integrity.

In addition, mechanical integrity testing must be conducted at least once every five years to demonstrate that there is no leak in the casing, and that there is no fluid movement into or between USDWs. This testing will include: a downhole video survey, a pressure test of at least 150% of the maximum injection pressure, a radioactive tracer survey, and a temperature survey. The last round of testing by the Applicant began on July 22, 2024 and finished on July 26, 2024. See Draft Permit Appendix C for more requirements regarding mechanical integrity.

9.3. Injection Operation Limitations [40 C.F.R. § 146.13(a)]

The Draft Permit places multiple limits on the proposed injection activity to ensure that it can occur without endangering USDWs. See Draft Permit Appendix D for more requirements regarding Injection Operations.

9.3.1. Injection Fluid [40 C.F.R. § 146.14(a)(7)]

For the well authorized by this Draft Permit, the injectate will consist of only the fluid or fluids specifically authorized within the Draft Permit. The injected fluid is currently limited to the injection of nonhazardous fluids consisting of: 1) concentrate from reverse osmosis operations at the Applicant's Hollywood Reservation Water Treatment Plant as well as any associated raw water and flush water from the operation of this system; and 2) secondary treated effluent from the Applicant's Hollywood Reservation Wastewater Treatment Plant.

9.3.2. Maximum Allowable Injection Pressure [40 C.F.R. § 146.13(a)]

Injection pressures must not initiate new fractures or propagate existing fractures in the confining zone adjacent to USDWs; significantly alter the fluid movement capabilities of the confining zone; or cause the movement of injection or formation fluids into an USDW or into an essential monitoring zone or between USDWs. The integrity of the well structure must be protected; hence, total pressure must not exceed the maximum allowable stress of the materials used to construct the well.

The Draft Permit limits IW-1 and IW-2 to a maximum injection pressure of 103 pounds per square inch gauge as measured at the surface, which has been determined to meet the above requirements. As part of the regular mechanical integrity testing, the Applicant must be able to pressure test the injection well to a pressure of 150% of the maximum allowed injection pressure.

The Draft Permit provides procedures for the Applicant to demonstrate that higher injection pressures are safe. The Draft Permit also requires the Applicant to request approval of well stimulation procedures which might require higher injection pressures on a temporary basis.

**9.3.3. Other Maximum Allowable Injection Limits** [40 C.F.R. § 146.13(a)]

The Draft Permit also sets the demonstrated maximum permitted injection rate of the well as 8.87 million gallons per day. The Draft Permit also sets a maximum injection velocity of 12 feet per second.

**9.4. Monitoring and Reporting Requirements** [40 C.F.R. § 146.13(b) & (c)]

The Draft Permit requires several types of monitoring on various time scales. The Draft Permit requires the Applicant to maintain in good working order all wells and any monitoring equipment required to perform the prescribed monitoring. The Draft Permit also requires the Applicant to report any noncompliance which may endanger health or the environment within 24-hours of discovery. Monitoring requirements are described in the sections below, are grouped by type, and contain a description of their reporting frequency. See Draft Permit Appendix E for more requirements regarding monitoring and reporting.

**Table 9.2.3. Schedule of Monitor Well and Injectate Water Quality Testing**

<b>Parameter</b>	<b>MW-1-UMZ</b>	<b>MW-1-LMZ</b>	<b>Reverse Osmosis Concentrate</b>	<b>Wastewater Treatment Plant Treated Effluent</b>
Temperature	Monthly	Monthly	Monthly	Monthly
pH	Monthly	Monthly	Monthly	Monthly
Specific Conductance	Monthly	Monthly	Monthly	Monthly
Specific Gravity	Not Sampled	Not Sampled	Monthly	Monthly
Total Dissolved Solids	Monthly	Monthly	Monthly	Monthly
Total Suspended Solids	Monthly	Monthly	Monthly	Monthly
Ammonia	Monthly	Monthly	Monthly	Monthly
Total Kjeldahl Nitrogen	Monthly	Monthly	Monthly	Monthly
Nitrate	Monthly	Monthly	Monthly	Monthly
Nitrite	Monthly	Monthly	Monthly	Monthly
Sulfate	Monthly	Monthly	Not Sampled	Monthly
Total Phosphorus	Monthly	Monthly	Not Sampled	Monthly
Fecal Coliform	Monthly	Monthly	Monthly	Monthly
Total Hardness	Monthly	Monthly	Monthly	Monthly
Calcium Hardness	Monthly	Monthly	Monthly	Monthly
Magnesium Hardness	Monthly	Monthly	Monthly	Monthly
Gross Alpha	Not Sampled	Quarterly	Quarterly	Not Sampled
Radium 226	Not Sampled	Quarterly	Quarterly	Not Sampled

Parameter	MW-1-UMZ	MW-1-LMZ	Reverse Osmosis Concentrate	Wastewater Treatment Plant Treated Effluent
Radium 228	Not Sampled	Quarterly	Quarterly	Not Sampled
Remaining National Primary and Secondary Drinking Water Standards	Not Sampled	Not Sampled	Annually	Annually

**9.4.1. Continuous Monitoring Requirements** [40 C.F.R. § 146.13(b)(2) & (d)(2)]

The Draft Permit requires the installation and use of continuous recording devices to monitor injection pressure, fluid velocity, flow rates, and cumulative volume for each injectate source (40 C.F.R. § 146.13(b)(2)), as well as continuous monitoring of the pressure of both zones of the MW1 (40 C.F.R. § 146.13(d)(2)(i)). Monitoring results must be summarized and reported quarterly.

**9.4.2. Water Quality Analytical Testing Monitoring Requirements** [40 C.F.R. § 146.13(b)(1) & (d)(2)]

The Draft Permit requires at least monthly sampling and analysis of both monitoring zones and each injectate. Table 9.2.3. displays the sampling schedule for the various analytes. Reports are due quarterly, and annual samples should be included in the report for the quarter in which they are performed.

**9.5. Plugging and Abandonment** [40 C.F.R. § 146.10]

In accordance with 40 C.F.R. §§ 146.10 and 146.14(c), the Draft Permit includes a plugging and abandonment plan that will result in environmentally protective well closure at the time of the Applicant’s cessation of operations. The Applicant has also made a demonstration of financial responsibility, in accordance with 40 C.F.R. §§ 144.52(a) and 146.14(a), which ensures that adequate resources will be available for well closure and will preclude the possibility of abandonment without proper plugging.

**9.6. Term of Permit** [40 C.F.R. § 144.36]

Upon the effective date assigned upon issuance, a UIC permit authorizes the construction and operation of an injection well or wells so that the injection does not endanger any USDW. The Permit is issued for 10 years unless terminated for reasonable cause under 40 C.F.R. § 144.40 and may be modified or revoked and reissued under 40 C.F.R. §§ 144.39 or 144.41. The Permit is subject to EPA review at least once every five years to determine if action is required under 40 C.F.R. § 144.36(a).

The Permit will expire upon delegation of primary enforcement responsibility (primacy) for applicable portions of the UIC Program to an approved state or tribal program, unless the delegated agency has the authority and chooses to adopt and enforce this Permit as a state permit.



U.S. Environmental Protection Agency, Region 4  
Underground Injection Control Program

Draft Class I Nonhazardous Industrial Area Permit  
Permit Number: SE1P-00001  
March 2026

Issued To:

Seminole Tribe of Florida – Public Works Department  
5700 Griffin Road  
Davie, Florida 33314

Covering:

Hollywood Reservation IW-1 and IW-2 (EPA Well ID: SES0110001)

UIC Facility Location:

Hollywood Reservation Water Treatment Plant  
2600 North 64th Avenue  
Hollywood, Broward County, Florida 33024

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## Area Permit Authorization to Operate and Plug and Abandon Two (2) Underground Injection Control Class I Nonhazardous Industrial Wells

Permittee: Seminole Tribe of Florida – Public Works Department  
 Mailing Address: 5700 Griffin Road  
 Davie, Florida 33314  
 Facility Address: Hollywood Reservation Water Treatment Plant  
 2600 North 64th Avenue  
 Hollywood, Broward County, Florida 33024

Under the authority of the Safe Drinking Water Act (the SDWA) and UIC Program regulations codified at Title 40 of the Code of Federal Regulations (40 C.F.R.) Parts 124, 144, 146 and 147, the Permittee referenced above is authorized to convert, operate and plug and abandon under all applicable laws and the terms of this UIC Class I Nonhazardous Industrial Area Permit (the Permit) for the following injection wells:

EPA WELL ID #	Well Name	Latitude	Longitude
SES0110001	Hollywood Reservation WTP IW-1	N 26° 02' 05.52"	W 80° 13' 13.44"
SES0110001	Hollywood Reservation WTP IW-2	N 26° 02' 08.49"	W 80° 13' 13.51"

This Permit is based on representations made by the Permittee and on other information contained in the administrative record. Misrepresentation of information or failure to fully disclose all relevant information may be cause for termination, revocation and reissuance, or modification of this Permit and/or formal enforcement action. It is the Permittee's responsibility to read and understand all provisions of this Permit.

This authorization is in accordance with the limitations, monitoring requirements and other conditions in the Permit. All references to 40 C.F.R. are to regulations that are in effect on the date that this Permit becomes effective.

This Permit is effective as of **DRAFT**.

This Permit will remain in full force and effect for ten (10) years after the effective date, unless this Permit is otherwise modified, revoked and reissued, terminated, or a minor modification is made as provided at 40 C.F.R. §§ 124.5, 144.39, 144.40 and 144.41.

This Permit expires on **DRAFT 10 years from Effective Date**.

**Draft**

Issuance Date

Kathlene Butler  
 Director  
 Water Division  
 U.S. Environmental Protection Agency  
 Region 4

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## Abbreviations, Acronyms, Definitions, and Shorthand References

All terms used in this Permit that are not specifically defined within the Permit, are defined at: 40 C.F.R. §§ 124, 144, 145, 146 and 147; The Water Rights Compact among the Seminole Tribe of Florida, the State of Florida and the South Florida Water Management District (See 25 U.S.C. § 1772e) or its associated Criteria Manual; or have the meaning given by their appropriate acts, laws or regulations.

bbl or bbls – Barrel or Blue Barrel, a unit of volume equivalent to 42 US gallons.

C.F.R. – Code of Federal Regulations

the Compact – The Water Rights Compact among the Seminole Tribe of Florida, the State of Florida and the South Florida Water Management District (Pub. L. No. 100–228, §7, 101 Stat. 1560 (1987)). At the time of this Permit’s issuance a digital copy of the Compact may be found at <https://www.semtribe.com/services/environmental-resource-management-department>.

Corrective Action – Such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water.

Closure – The permanent removal of a well from the permitted UIC operations through completing plans approved by the Director to either convert that well to another well type or to properly plug and abandon that well.

Compliance Schedule – a schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the appropriate act and regulations.

Criteria Manual – “Criteria Manual to the Seminole Water Rights Compact.” Specifically, the current version at the time of this Permit’s Issuance. At the time of this Permit’s issuance a digital copy of the Criteria Manual may be found at <https://www.semtribe.com/services/environmental-resource-management-department>.

the Director – For the purposes of this Permit, the term “Director” refers to the Director of the Water Division of the EPA Region 4.

the District – The South Florida Water Management District.

ft bgs or ft bls – feet below ground surface or feet below land surface, respectively. This unit measures depth

GPM – Gallons per minute. A unit of measure for volumetric flow typically used for liquids.

Mcf – 1,000 cubic feet. This unit measures volume, typically of gasses.

Mscf - 1,000 cubic feet at standard temperature and pressure. This unit for measures volume, typically of gasses.

Mcf/d or Mscf/d – Mcf per day or Mscf per day, respectively. A unit of volumetric flow typically used for gasses

MGD – millions of gallons per day. A unit of measurement for volumetric flow typically used for liquids.

psig – pounds per square inch gauge, a unit of pressure that is relative to the current atmospheric pressure

RCRA – Resource Conservation and Recovery Act (42 U.S.C. 6901 *et seq.*)

SDWA – The Safe Drinking Water Act (42 U.S.C. 300f *et seq.*)

TA – Temporarily Abandoned

TENORM –Technologically Enhanced Naturally Occurring Radioactive Material. It refers to radioactive materials that are naturally present in the environment but become more concentrated or exposed to the accessible environment due to human activities like mining, processing, or manufacturing.

UIC – Underground Injection Control

USDW – Underground Source of Drinking Water

USDWs – Underground Sources of Drinking Water

U.S.C. – the Code of Laws of the United States of America

## Part I. Permit Summary

### Section A. Implications Under “The Water Rights Compact Among the Seminole Tribe of Florida, the State of Florida, and the South Florida Water Management District”

In addition to the requirements established by the Safe Drinking Water Act (SDWA) [Title 42 of the United States Code (C.F.R.) 300f et. seq. and the rules adopted thereunder as found in 40 C.F.R. §§ 124, 144, 146 and 147, this permit includes applicable requirements established in the Compact as described under Pub. L. 100–228, §7, Dec. 31, 1987, 101 Stat. 1560. To reduce the burden on the Permittee, the EPA has attempted to align this permit with the applicable requirements of the Compact and the corresponding Evaluation Criteria Manual (Manual). The language of this permit does not change or supersede any obligations established under the Compact.

The Permittee is responsible for notifying the EPA of any changes to the Compact or the Manual that could affect the well(s) covered by this permit. This includes any related agreements between the Permittee, the State of Florida, and the South Florida Water Management District regarding oversight, technical assistance and/or data reporting. The Permittee is required to submit copies of any reports regarding the construction, operation, and plugging and abandonment of the well(s) covered under this permit that are not required by this permit but are required under the Compact.

The Permittee may request modification of the permit under Part VII. Section A to remove conflicting requirements between this permit and the Compact or where the Permittee feels that duplication of effort may be removed or to reduce undue regulatory burden on the Permittee. The EPA will evaluate such requests in consultation with the Permittee, the Seminole Tribe of Florida, the State of Florida, and the South Florida Water Management District.

### Section B. Document Structure

This Permit is structured as follows:

- The Authorization Page contains the Director’s Signature, the Effective Date of the Permit, and the Expiration date of the permit.
- Part I. Permit Summary contains a summary of this Permit. Specific Project Details can be found in Appendix A.
- Part II. Effect of Permit contains the legal limitations of this Permit.
- Part III. Permittee Duties and Responsibilities contains the duties and responsibilities of the Permittee.
- Part IV. Procedural Requirements for Covered Wells Before Commencing Initial Injection contains the requirements that Permittees must follow before a new UIC well can receive initial authorization to inject. Construction requirements the Permittee must meet and maintain for wells covered by this Permit are in Appendix B.
- Part V. Procedural Requirements During the Operational Life of Covered Wells contains the recordkeeping and reporting requirements that Permittees must follow during the operational life of each well covered by this Permit. Appendix C contains the operational parameters the Permittee must follow. Procedures for Mechanical Integrity testing for covered wells are contained in Appendix D. Project specific monitoring frequency, reporting frequency and monitoring parameters are found in Appendix E.

- Part VI. Procedural Requirements for the Closure of Covered Wells contains the requirements Permittees must follow before closure of a covered well either by conversion or plugging and abandonment by an approved plan, such as that found in Appendix F.
- Part VII. Permitting Action Processes and Procedures contains the procedures by which this Permit may be modified, revoked, renewed, transferred, and terminated.
- Appendix A Project Information contains the project’s permitting history, well locations (including maps), area of review, and geologic information.
- Appendix B Project Well Construction Requirements and Specifications contains the well specifications the Permittee must meet during the construction and conversion of all wells covered by this Permit, as well as those specifications that must be maintained during the operational life of those wells.
- Appendix C Project Mechanical Integrity Requirements contains the Mechanical Integrity Testing requirements for wells covered by this Permit.
- Appendix D Project Injection Operation Requirements contains the injection parameters the wells covered by this Permit must meet during operation.
- Appendix E Project Monitoring and Reporting Requirements contains project specific monitoring frequency, reporting frequency, and monitoring parameters for wells covered by this Permit.
- Appendix F Approved Closure Plans contains the currently approved plugging and abandonment plan(s) for wells covered by this Permit, as well as the approved post-closure monitoring plan required by Criteria Manual § 6.2.6.1.I.
- Appendix G Compliance Schedule(s) is a place holder for potential compliance schedules related to this Permit. As of the date of issuance, the permitted facilities are not subject to any compliance schedules related to an enforcement action under the SDWA. See 40 C.F.R. § 144.53.

## Part II. Effect of Permit

### Section A. Effect of Permit

The Permittee, as specified on the most recent signed authorization page, is permitted to engage in underground injection in accordance with the conditions of this permit. Any underground injection activity not specifically authorized by permit or by rule is prohibited. See 40 C.F.R. § 144.11

Compliance with this Permit constitutes compliance, for purposes of enforcement, with Part C of the SDWA. See 40 C.F.R. § 144.35(a).

This Permit does not convey property rights of any sort, or any exclusive privilege. See 40 C.F.R. §§ 144.35(b) & 144.51(g).

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this Permit may be construed to relieve the Permittee of any duties under applicable regulations or laws. See 40 C.F.R. § 144.35(c).

## **Section B. Duration of Permit**

Permits for Class I UIC wells are effective for a fixed term not to exceed 10 years. The Director may issue or modify any permit for a duration that is less than the full allowable term of said permit. See 40 C.F.R. § 144.36.

This Permit has been issued for a term as specified on the signed authorization page.

The provisions of this Permit will remain in effect until either: the end of the Permit's authorized term, until the Permit is terminated under Part VII. Section G, or until all wells authorized under this Permit have been plugged and abandoned or converted under Part VI of this Permit.

At the end of the authorized term, the Permittee will be in violation of the SDWA if they have not either:

1. Submitted a timely application for a new permit covering this well (See Part III. Section J and Part VII. Section G); or
2. Properly converted or plugged and abandoned all wells authorized by this Permit according to a plan approved by the Director (see Part VI).

## **Section C. Severability**

The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this Permit will not be affected thereby.

## **Section D. Confidentiality**

In accordance with 40 C.F.R. § 2 (Public Information), any information submitted to the EPA pursuant to this Permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, the EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 C.F.R. § 2 (Subpart B). Claims of confidentiality for the following information will be denied:

1. The name and address of any permit applicant or Permittee; and,
2. Information which deals with the existence, absence or level of contaminants in drinking water.

# **Part III. Permittee Duties and Responsibilities**

## **Section A. Duty to Comply**

The Permittee must comply with all conditions of this Permit. Noncompliance of this permit constitutes a violation of the SDWA and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application; except that the Permittee need not comply with the provisions of this Permit to the extent and for the duration such

noncompliance is authorized in an emergency permit under 40 C.F.R. § 144.34. See 40 C.F.R. § 144.51(a).

1. Penalties for Violations of Permit Conditions

Any person who violates a permit requirement is subject to civil penalties and other enforcement actions under the SDWA, which may include criminal prosecution. See 40 C.F.R. § 144.51(a).

2. Need to Halt or Reduce Activity not a Defense

The Permittee may not use as a defense in any enforcement action related to the terms of this permit that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions. See 40 C.F.R. § 144.51(c).

**Section B. Duty to Provide Information**

The Permittee must furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee must also furnish to the Director, upon request, copies of records required to be kept by this Permit. See 40 C.F.R. § 144.51(h).

1. Contacting the Director

Unless otherwise specified, hard copies of all requests, notifications, and reports required by this Permit must be submitted to the Director using the following address:

US EPA Region 4 – Water Division  
ATTN: UIC Program  
Atlanta Federal Center  
61 Forsyth Street SW, 9T25  
Atlanta, Georgia 30303-8960

Items received by the Director will be date stamped when received.

Informal notification and inquires can be directed to the appropriate assigned UIC program staff as listed at:

<https://www.epa.gov/uic/underground-injection-control-epa-region-4-al-fl-ga-ky-ms-nc-sc-and-tn>.

a. SFWMD Reporting Requirement

Copies of all Reports must also be provided to the District at the following address:

ATTN: Water Use Bureau  
Compliance and Technical Services Unit  
South Florida Water Management District  
P.O. Box 24680  
West Palm Beach, Florida 33416-4680

## 2. Signatory Requirements

All reports or other information submitted to the Director must be signed and certified in accordance with 40 C.F.R. § 144.32. See 40 C.F.R. § 144.51(k).

For Class I wells, signatory requirements for all applications and reports are as follows:

### a. For Permits issued to Corporations

All applications must be submitted by a responsible corporate officer. For the purpose of this Permit, a responsible corporate officer means one of the following:

- i. A president, secretary, treasurer or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation. See 40 C.F.R. § 144.32(a)(1)(i).
- ii. The manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporation procedures. See 40 C.F.R. § 144.32(a)(1)(ii).

All reports must be submitted by a responsible corporate officer as described in Part III. Section B.2.a or by a duly authorized representative of such corporate officer according to Part III. Section B.2.d. See 40 C.F.R. § 144.32(b).

### b. For Permits issued to Partnerships or Sole Proprietorships

All applications must be submitted by a general partner or the proprietor, respectively. See 40 C.F.R. § 144.32(a)(2).

All reports must be submitted by a general partner or the proprietor, respectively or by their duly authorized representative according to Part III. Section B.2.d. See 40 C.F.R. § 144.32(a)(2) and 40 C.F.R. § 144.32(b).

### c. For Permits issued to a municipality, state, tribal, federal, or other public agency

All applications must be submitted by either a principal executive officer or ranking elected official. See 40 C.F.R. §§ 144.32(a)(3).

All reports must be submitted by either a principal executive officer or ranking elected official; or their duly authorized representative according to Part III. Section B.2.d. See 40 C.F.R. § 144.32(a)(3) and 40 C.F.R. § 144.32(b).

### d. Duly Authorized Representatives

A person is a duly authorized representative only if:

- i. The written authorization is submitted to the Director. See 40 C.F.R. § 144.32(b)(3).

- ii. The authorization is made in writing by a person described in items a, b, or c above. See 40 C.F.R. § 144.32(b)(1).
- iii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position. See 40 C.F.R. § 144.32(b)(2).
- iv. If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative. See 40 C.F.R. § 144.32(c).

e. Certification Statement

Any person signing a document must make the certification below. See 40 C.F.R. § 144.32(d).

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

3. Reporting Planned Changes.

The Permittee must give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility. See 40 C.F.R. § 144.51(l)(1).

4. Monitoring Reports

Monitoring results must be reported at the intervals specified in Part III, Part IV, and Appendix E. See 40 C.F.R. § 144.51(l)(4).

5. Reporting of Other or New Information.

When the Permittee becomes aware that it failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, the Permittee is to submit such facts or correct information within two (2) weeks of the time such facts or information becomes known. See 40 C.F.R. § 144.51(l)(8).

6. Reporting to Meet Compliance Schedule Requirements

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit must be submitted no later than

30 calendar days following each scheduled date. Any compliance schedules associated with this permit may be found in Appendix G. See 40 C.F.R. § 144.51(l)(5).

7. Reporting Notice of Anticipated Noncompliance

The Permittee must give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. See 40 C.F.R. § 144.51(l)(2).

8. Reporting Other Noncompliance

The Permittee must report all instances of noncompliance not reported on monitoring reports or compliance schedules at the time monitoring reports are submitted. Such reports must also contain the information listed in Part III. Section D. See 40 C.F.R. § 144.51(l)(7).

9. Allowing Shorter Notice Periods

Where the Permittee is required to provide notice to the Director, the Director may allow a shorter notice period upon written request of the Permittee.

**Section C. Duty to Protect USDWs**

The Permittee must not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into an USDW, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 C.F.R. § 142 or may otherwise adversely affect the health of persons. See 40 C.F.R. § 144.12.

**Section D. Duty to Report Any Noncompliance Which May Endanger Health or The Environment within 24-Hours**

**THE PERMITTEE MUST REPORT ANY NONCOMPLIANCE WHICH MAY ENDANGER HEALTH OR THE ENVIRONMENT WITHIN 24-HOURS TO 1(800)424-8802.**

This includes but is not limited to the following types of noncompliance:

1. Any monitoring or other information which indicates that any contaminant may cause endangerment to an USDW. See 40 C.F.R. § 144.51(l)(6)(i).
2. Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs. See 40 C.F.R. § 144.51(l)(6)(ii).

The Permittee must report any information regarding any such noncompliance within 24 hours from the time the Permittee becomes aware of the noncompliance. The Permittee must report such information over the phone either directly or through leaving a voice message at EPA's National Response Center at 1-800-424-8802. See 40 C.F.R. § 144.51(l)(6).

In addition, a follow-up written report must be provided to the Director within five (5) calendar days of the time the Permittee becomes aware of the circumstances. The written submission must contain a description of the noncompliance and its cause, the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. See 40 C.F.R. § 144.51(l)(6).

### **Section E. Duty to Mitigate**

The Permittee must take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit. See 40 C.F.R. § 144.51(d).

### **Section F. Duty to Allow Inspection and Entry**

The Permittee must allow the Director, or an authorized representative, to perform the following activities:

1. The Permittee must allow the Director, or an authorized representative, to enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit. See 40 C.F.R. § 144.51(i)(1).
2. The Permittee must allow the Director, or an authorized representative, to have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit. See 40 C.F.R. § 144.51(i)(2).
3. The Permittee must allow the Director, or an authorized representative, to inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit. See 40 C.F.R. § 144.51(i)(3).
4. The Permittee must allow the Director, or an authorized representative, to sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA, any substances or parameters at any location. See 40 C.F.R. § 144.51(i)(4).

The Director or their authorized representative must present credentials and other documents as may be required by law. See 40 C.F.R. § 144.51(i).

### **Section G. Duty to Properly Operate and Maintain**

The Permittee must properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit. See 40 C.F.R. § 144.51(e).

All monitoring and recording equipment required to meet the terms of this Permit must be calibrated and maintained on a regular basis to ensure their proper working order.

## **Section H. Duty to Establish and Maintain Mechanical Integrity**

The owner or operator of a Class I well must establish mechanical integrity prior to commencing injection or on a schedule determined by the Director. Thereafter the owner or operator of Class I wells must maintain mechanical integrity as defined in 40 C.F.R. §146.8 and Appendix C. For EPA-administered programs, the Director may require by written notice that the owner or operator comply with a schedule describing when mechanical integrity demonstrations will be made. See 40 C.F.R. § 144.51(q)(1).

## **Section I. Duty to Demonstrate and Maintain Financial Responsibility**

To protect USDWs, owners or operators are required to maintain financial responsibility for all classes of permit-authorized wells. Financial responsibility requires owners or operators to set aside financial resources sufficient to maintain and plug and abandon wells consistent with the currently approved closure plans.

### **1. Duration of Financial Responsibility Demonstration and Maintenance**

The Permittee, including a transferor of a permit, is required to demonstrate and maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the Director until one of the following:

- a. The well has been plugged and abandoned in accordance with an approved plugging and abandonment plan pursuant to 40 C.F.R. §§ 144.51(o) & 146.10, and a plugging and abandonment report has been submitted pursuant to 40 C.F.R. § 144.51(p). See 40 C.F.R. § 144.52(a)(7)(i)(A).
- b. The well has been converted to a production well in compliance with the requirements of 40 C.F.R. § 144.51(n) and Part V. See 40 C.F.R. § 144.52(a)(7)(i)(B).
- c. The transferor of a permit has received notice from the Director that the owner or operator receiving transfer of the permit, the new Permittee, has demonstrated financial responsibility for the well. See 40 C.F.R. § 144.52(a)(7)(i)(C). For more information on transferring this Permit, see Part VII. Section E.

### **2. Financial Responsibility Demonstration Options**

The Permittee must show evidence of such financial responsibility to the Director by the submission of a surety bond, or other adequate assurance, such as a financial statement or other materials acceptable to the Director. For more information regarding which methods have been approved by the Director for this Permit, contact the Region 4 UIC Program. See 40 C.F.R. § 144.52(a)(7)(ii).

### **3. Bankruptcy and/or Insolvency of the Permittee**

The Permittee must notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within ten (10) business days after commencement of the proceeding. A guarantor of a

corporate guarantee must make such a notification if he is named as debtor, as required under the terms of the guarantee. See 40 C.F.R. § 144.64(a).

4. Bankruptcy, Insolvency, Suspension, or Loss of Authority of an Issuing Financial Institution

In the event of insolvency or bankruptcy of the trustee or issuing institution of the financial mechanism; the suspension or revocation of the authority of the trustee institution to act as trustee; or the issuing institution's losing its authority to issue such an instrument, the Permittee must notify the Director, within ten (10) business days of the Permittee's receiving notice of such event by certified mail.

An owner or operator who obtains a letter of credit, surety bond or insurance policy will be deemed to be without the required financial responsibility or liability coverage in the event of bankruptcy, insolvency, or a suspension or revocation of the license or charter of the issuing institution. The owner or operator must establish other financial responsibility or liability coverage acceptable to the Director, within 60 calendar days after such an event. See 40 C.F.R. § 144.64(b).

**Section J. Duty to Reapply**

If the Permittee wishes to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee must apply for and obtain a new permit. To renew the Permit, the Permittee must follow the procedures presented in Part VII. Section G. See 40 C.F.R. § 144.51(b).

**Part IV. Procedural Requirements for Covered Wells Before Commencing Initial Injection**

**Section A. Reporting and Monitoring Prior to Commencing Initial Injection**

1. Notification Prior to and During Construction

The Permittee is required to notify the Director prior to commencing construction activities detailed in Appendix B. This notification should include a tentative schedule of when construction is complete.

The Permittee is required to notify and report during construction or conversion activities as detailed in Appendix B.

2. Monitoring Reports Prior to Commencing Initial Injection

The Permittee is required to submit monitoring reports on the schedule(s) presented in Appendix E, even if no injection took place during the reporting period.

**Section B. Prohibition on Commencing Injection without Authorization**

The Permittee must not commence injection activity after the effective date of this Permit, unless the Permittee has made all demonstrations as required under this part and followed the procedures in Part III. Section F.

### **Section C. Demonstration of Completion of Area of Review Corrective Actions**

The Permittee must demonstrate that they have met all required corrective actions as provided in Appendix A. Section E.5. To demonstrate this, the Permittee must submit the following to the Director:

1. All reports on corrective actions as required in in Appendix A. Section E.5

### **Section D. Demonstration of Completion of Construction**

The Permittee must demonstrate that they have met the requirements for construction as provided in Appendix B.

To demonstrate this, the Permittee must submit all the following to the Director:

1. All reports as required in Appendix B.
2. A properly completed "Form 7520-18 - Completion Report for Injection Wells"

### **Section E. Initial Demonstration of Mechanical Integrity**

Within 90 calendar days of the completion of construction of an UIC well, the Permittee must establish and demonstrate that the well authorized by this Permit has mechanical integrity in accordance with 40 C.F.R. § 146.8 and Appendix C. The Permittee must receive a written notice from the Director that such demonstration is satisfactory, prior to commencing injection.

### **Section F. Procedures for Commencing Injection**

The Permittee must provide written notice to the Director that the Permittee believes they have completed all construction requirements above with regards to the specified well and are ready for inspection. See 40 C.F.R. § 144.51(m)(1).

Once the permittee has provided written notice, the Director will provide notice of EPA's intent to inspect the well, within a reasonable time. If after 13 calendar days of the notice provided by the Permittee as evidenced by certified mail return receipts, the Permittee has not received notice from the Director of EPA's intent to inspect or otherwise review the new injection well, prior inspection or review is waived, and the Permittee may commence injection. See 40 C.F.R. § 144.51(m)(2)(ii).

If the Director inspects or otherwise reviews the new injection well and finds that it complies with the conditions of the permit, the Director will provide written notice that the Permittee is Authorized to commence injection operations at the new injection well. See 40 C.F.R. § 144.51(m)(2)(i).

## **Part V. Procedural Requirements During the Operational Life of Covered Wells**

### **Section A. Recordkeeping Requirements**

#### **1. Record Retention Requirements**

The Permittee must retain records of all monitoring information, including the following for the specified retention periods:

a. Retained a Minimum of Five (5) Years

The following items must be retained 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 Director at any time. See 40 C.F.R. § 144.51(j)(2)(i).

- i. Instrument calibration records
- ii. Maintenance records
- iii. All original strip charts or other recordings for continuous monitoring instrumentation
- iv. Copies of all reports required by this Permit
- v. Records of all data used to complete the application for this Permit
- vi. Fluid Pressure records
- vii. The volumes, nature, and composition of all injected fluids
- viii. Records and results of mechanical integrity tests or any other tests required by the EPA
- ix. Other records related to the construction, operation, and closure of a well.

b. Retained Until Three (3) Years after Closure of a Well

The following items must be retained until three (3) years after the completion of any procedures specified under Part V. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period. The owner or operator must continue to retain the records after the three (3) year retention period unless he delivers the records to the Director or obtains written approval from the Director to discard the records. See 40 C.F.R. § 144.51(j)(2)(ii).

- i. The volumes, nature and composition of all injected fluids

2. Required Information for Monitoring Records

Records of monitoring information must include:

- a. The date, exact place, and time of sampling or measurements. See 40 C.F.R. § 144.51(j)(3)(i).
- b. The individual(s) who performed the sampling or measurements. See 40 C.F.R. § 144.51(j)(3)(ii).
- c. The date(s) analyses were performed. See 40 C.F.R. § 144.51(j)(3)(iii).
- d. The individual(s) who performed the analyses. See 40 C.F.R. § 144.51(j)(3)(iv).
- e. The analytical techniques or methods used. See 40 C.F.R. § 144.51(j)(3)(v).
- f. The results of such analyses. See 40 C.F.R. § 144.51(j)(3)(vi).

## **Section B. Monitoring**

Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity. See 40 C.F.R. § 144.51(j)(1).

The Permittee must follow the monitoring requirements as specified in Appendix E.

## **Section C. Monitoring Reports**

Monitoring results must be reported at the intervals specified in Appendix E. See 40 C.F.R. § 144.51(l)(4).

## **Section D. Other Reporting Requirements**

### **1. Reports on Well Tests not Required Under this Permit**

The Permittee must report the results of any mechanical integrity tests, logging, and other well tests, performed on this well which reveal downhole conditions within 90 calendar days after the completion of the activity, even if that diagnostic activity was not required by the terms of this Permit.

### **2. Reporting of New or Previously Unknown Wells (or Other Features) Within the AoR**

If the Permittee discovers the existence of any of the below within the Area of Review that were not disclosed in the original permit application, the Permittee must notify the Director within ten (10) calendar days from the date of discovery. The Permittee must report such information to the Director and confirm the receipt of such information. These items include:

- a. The discovery of previously unreported existing wells.
- b. The drilling of any new wells that penetrate (or may potentially penetrate) the confining zone.
- c. The plugging of any existing known wells.
- d. Any wells that are discovered to need corrective action.
- e. Newly identified faults or joint/fracture systems.
- f. Other features that may allow for a failure of the confining zone to protect USDWs.

The Director may terminate the Permit or require corrective action under 40 C.F.R. § 144.40(a)(3), if the presence of such features will not protect USDWs from contamination or continued injection may endanger human health or the environment.

## **Section E. Well Maintenance, Workovers, Logging, Alterations and Stimulation**

Workovers, alterations, and well stimulation must meet all conditions of the Permit.

1. Workovers, Logging and Maintenance not Requiring a Loss of Mechanical Integrity

a. Notice

The Permittee is not required to give written notice or obtain the approval of the Director of any workovers, logging or maintenance activity that does not involve unseating the injection well's tubing and packer or otherwise cause a temporary loss of mechanical integrity.

b. Required Reporting

Once completed the Permittee must record and submit the results of this work on a "EPA Form 7520-19 - Well Rework Record, Plugging and Abandonment Plan, or Plugging and Abandonment Affidavit", and include any necessary additional reports or logs as needed. Reports are required within 90 calendar days after the completion of the activity.

2. Workovers, Logging and Maintenance Requiring a Loss of Mechanical Integrity

a. Request

The Permittee must request approval at least 30 calendar days in advance via written request to the Director describing any maintenance or workover that would involve unseating the injection well's tubing and packer or otherwise cause a temporary loss of mechanical integrity. The Director will review submitted plans and provide notification of approval, request additional information or deny the request. The Director may allow a shorter notice period upon written request.

b. Required Reporting

Once completed, the Permittee must record and submit the results of this work on a "EPA Form 7520-19 - Well Rework Record, Plugging and Abandonment Plan, or Plugging and Abandonment Affidavit," and include any necessary additional reports or logs as needed. Reports and results must be submitted no later than 60 calendar days after the initial loss of mechanical integrity unless written approval of an alternate time period has been given by the Director.

c. Requirement to reestablish Mechanical Integrity

In addition, a demonstration of mechanical integrity pursuant to 40 C.F.R. § 146.8 and in accordance with the conditions found in Appendix C is required. Mechanical integrity must be reestablished within 90 calendar days of the initial loss of mechanical integrity unless written approval of an alternate time period has been given by the Director.

d. Obtaining Authorization to Resume Injection Operations

Once the submission and demonstration have been made, the Director will review this information, and reissue authorization to inject if it is sufficient. Authorization to resume injection will be given in writing.

### 3. Alterations

These are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the inclusion of permit conditions that are different from or absent in the existing Permit. For the purposes of this Permit, alterations include any activity that changes the design of the well from that shown in Appendix B. Examples of alterations include changes to the seating depth of the packer and adding additional perforations.

All alterations must be approved by the Director prior to being performed. Substantial alterations may also be cause for modification to the Permit.

#### a. Request for Alterations

The Permittee must request approval at least 30 calendar days in advance via written request to the Director describing any alterations. The Permittee may request such an alteration at any time. If approved, the Director will notify the Permittee and provide the time frame for completion of the alterations.

Requests for alterations must include:

- i. A description of the proposed alterations
- ii. Schematics showing changes to the current completion of the well
- iii. A time frame for completing the proposed alteration, once approval is given

#### b. Schedule of Approved Alterations

Once approved, the Permittee must complete any well workover or alteration which affects the tubing, packer, or casing within 90 calendar days of the time frame provided. If the Permittee is unable to complete work within the specified time period, the Permittee may request an alternative schedule and must obtain the Director's written approval prior to commencing alterations. Once the alternative schedule is approved, any well workover or alteration must be complete within the approved timeframe.

#### c. Required Reporting

Once completed the Permittee must record and submit the results of this work on a "Form 7520--18 – Completion Report for Injection Wells" and include any necessary additional reports or logs as needed. Reports and results must be submitted no later than 60 calendar days after the initial loss of mechanical integrity unless an alternative schedule has been approved under item b, above.

#### d. Requirement to reestablish Mechanical Integrity

In addition, a demonstration of mechanical integrity pursuant to 40 C.F.R. § 146.8 and in accordance with the conditions found in Appendix C is required. Mechanical integrity must be reestablished within 90 calendar days of the initial loss of mechanical integrity unless an alternative schedule has been approved under item b, above.

e. Obtaining Authorization to Resume Injection Operations

Once the submission and demonstration have been made, the Director will review this information and reissue authorization to inject if it is sufficient. Authorization to resume injection will be given in writing. The Permittee may not inject until such authorization is received.

4. Well Stimulation

The Permittee should follow the procedures laid out in Part V. Section E.3 to obtain approval for well stimulation. In addition, the description of the work to be completed must also include, at a minimum:

- a. A list of all products to be used and their chemical composition
- b. Estimated treatment pressures
- c. Injected volume of fluids
- d. Plans for disposal of recovered chemicals post treatment

**Section F. Inactive Injection Well(s)**

1. Requirement to Monitor and Report During Inactivity

The Permittee must perform and meet all monitoring requirements (Part V. Section B) and reporting requirements (Part V. Section C) even during periods of no injection.

2. Requirement to Plug and Abandon Wells after 24 Months of Inactivity

If at any time there has been no injection into an UIC well authorized by this Permit for a period of 24 consecutive months, the Permittee must plug and abandon the well in accordance with the requirements in Part VI. See 40 C.F.R. § 144.52(a)(6).

Failure to plug and abandon an UIC well authorized by this Permit after 24 consecutive months of inactivity may lead to the well being considered improperly abandoned.

3. Requirements for Requests for TA Status

The Permittee may request exemption from the requirement of Part V. Section F.2. This request to place the well into a TA Status should be in writing and must be sent at any time before the 24 consecutive months of inactivity has passed. See 40 C.F.R. § 144.52(a)(6)(i).

This request should describe any actions or procedures which the Permittee will take to ensure that the well will not endanger USDWs during the period of inactivity. These actions must include compliance with the technical and reporting requirements applicable to active injection wells as laid out in this Permit unless waived, in writing, by the Director. See 40 C.F.R. § 144.52(a)(6)(ii).

These actions and procedures may include, but are not limited to:

- a. A new demonstration of mechanical integrity and/or more frequent schedules of mechanical integrity, per the requirements in Appendix C.
- b. A new demonstration of financial responsibility, per the requirements in Part III. Section I.
- c. Any necessary plans for maintenance, workovers or alterations, per the requirements of Part V. Section E.

#### 4. Review of Requests for TA Status

During the review of the request to TA an UIC well authorized by this Permit, the well will not be considered abandoned. The Permittee is required to comply with the terms of this Permit as though it were an active injection well.

#### 5. Approval, Conditional Approval, or Denial of Requests for TA Status

The Director will approve or deny the request for TA status as submitted or may conditionally approve of the request and require more stringent requirements than proposed. The Director will notify the Permittee in writing of the decision.

The decision will establish a compliance schedule for the Permittee to begin following an approved set of TA status procedures or actions, and/or plug and abandon the well.

This Permit may be modified to incorporate approved TA status requirements as a minor modification under 40 C.F.R. § 144.41.

#### 6. Resuming Injection after TA Status

The Permittee of any well that is resuming operation after having been under TA Status under Part V. Section F.5, must notify and receive approval from the Director prior to resuming operation of the well. Depending on the circumstances, the Director may request additional information necessary to ensure that the well can be operated safely.

## Part VI. Procedural Requirements for the Closure of Covered Wells

### Section A. Closure of an UIC Project or Well

The permitted UIC project will be considered closed when the well authorized by this Permit has been closed. A well authorized by this Permit may be removed from coverage of this Permit in one of the following ways:

#### 1. Conversion to a Different Type of Well

Conversion of the permitted well(s) to another type of UIC or non-UIC well must be performed according to a plan that has been approved by the Director. The well must be converted in a manner which will not allow the movement of fluids either into or between USDWs.

It is the Permittee's responsibility to ensure that any conversion meets all other federal, state, tribal, and local requirements.

## 2. Plugging and Abandonment of a Permitted Well by Approved Methods

Plugging and abandonment must be performed according to a plan that has been approved by the Director. The well must be plugged with cement in a manner which will not allow the movement of fluids either into or between USDWs. See 40 C.F.R. § 146.10(a)(1).

It is the Permittee's responsibility to ensure that any plugging and abandonment meets all other federal, state, tribal and local requirements.

### **Section B. Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)**

During the operating life of the permitted well, this injection facility may be screened for TENORM by the EPA or other authorized party. If the Permittee is notified by a party other than the EPA or becomes aware at any time that elevated levels of TENORM have been detected at this injection facility, the Permittee must notify the EPA in writing of that fact no later than 45 calendar days prior to the Permittee's intended date to plug and abandon the well. The EPA may require the Permittee to revise the plugging and abandonment plan to ensure the safe disposal and proper management of elevated levels of TENORM waste(s).

### **Section C. Required Procedures for Closure of a Well**

The Permittee must complete the following the steps for closure of a well authorized by this Permit.

#### 1. Provide Prior Notice of Intent to Close a Well

The Permittee must notify the Director no later than 45 calendar days before a planned conversion or plugging and abandonment of any well authorized by this Permit. The Director may allow a shorter notice period upon written request. See 40 C.F.R. § 144.51(n).

The Director will review the submitted request and included information and may request additional information or specify requirements, before approving the request. Any deviation from a previously approved plan may be cause for the Director to require the Permittee to re-plug the well or may subject the Permittee to enforcement action. See 40 C.F.R. §§ 144.51(a), 144.51(p) & 146.10.

The minimum requirements for each type of notice are below.

##### a. Notice of Intent to Convert a Well Authorized by this Permit

If the Permittee intends to convert this well to another type of UIC or non-UIC well, the notice must include:

- i. The type of well the authorized well will be converted to;
- ii. The name of the agency or department which has regulatory authority over the proposed type of well;
- iii. A description of any needed remedial construction or workover procedures required before this well can be permitted or authorized by the new regulatory authority (the

Permittee is required to ensure that any proposed plan meets the requirements and approval of the new regulatory authority); and

- iv. A timeline for completing work identified under item iii, above and receiving any required permits from the new regulatory authority.

b. Notice of Intent to plug and abandon a Well Authorized by this Permit

If the Permittee intends to plug and abandon a well authorized by this Permit, the notice must include:

- i. Either a statement that the Permittee wishes to use the plugging and abandonment plan included in Appendix F or a new plugging and abandonment plan that meets the requirements laid out in Part VI. Section D; and
- ii. A timeline for completing any work required by the chosen plugging and abandonment plan.

2. Perform any Required Work

The Permittee must have written authorization from the Director to begin any work requested in Part VI. Section C.1.a. The Director may require an inspection or witnessing of the work by a designee during performance of this work.

3. Submission of Final Reports

Within 60 calendar days after closure of a well, or at the time of the next quarterly report (whichever is less), the owner or operator must submit a report to the Director. If the quarterly report is due less than 15 calendar days before completion of plugging, then the report must be submitted within 60 calendar days after closure of a well. The report must be certified as accurate by the person who performed the plugging operation. See 40 C.F.R. § 144.51(p).

- a. If the well was closed in accordance with the plan previously approved by the Director per Part VI. Section C.1, the report must consist of a completed “EPA Form 7520 19 - Well Rework Record, Plugging and Abandonment Plan, or Plugging and Abandonment Affidavit”. See 40 C.F.R. § 144.51(p)(1).
- b. If the actual closure of the well differed from the approved plan in Part VI. Section C.1, the report must consist of:
  - i. A statement defining the actual plugging process, including an updated version of the plan on an “EPA Form 7520 19 - Well Rework Record, Plugging and Abandonment Plan, or Plugging and Abandonment Affidavit,” specifying any differences, or changes from the approved plan as required by 40 C.F.R. § 144.51(p)(2);
  - ii. The reasoning behind why each difference was necessary, and how the completed construction or procedures were protective of USDWs; and
  - iii. A stated reason why the Director should approve such a difference.

Substantial differences from a previously approved plan may be cause for the Director to require the owner or operator to perform corrective actions, including the re-plugging of the well, to ensure that the well does not endanger USDWs. See 40 C.F.R. §§ 144.51(d), 144.51(p).

#### **Section D. Plugging and Abandonment Plan Requirements**

Any plan submitted by the Permittee to the Director must meet the applicable requirements of 40 C.F.R. § 146.10 and Appendix F and ensure that plugging and abandonment of the well will not allow the movement of fluids into or between USDWs. Where the plan meets the requirements of 40 C.F.R. § 146.10, the Director may incorporate the plan into the Permit as a permit condition. See 40 C.F.R. § 144.51(o).

Where the Director's review of a plugging and abandonment plan indicates that the plan is inadequate, the Director may require the Permittee to revise the plan and/or prescribe conditions to meet any applicable requirements. See 40 C.F.R. § 144.51(o).

#### **Section E. Revisions to a Plugging and Abandonment Plan**

Revisions to the plugging and abandonment Plan must be submitted to the Director no less than 45 calendar days prior to the plugging and abandonment. The Director must approve the revision prior to the start of plugging operations. See 40 C.F.R. § 144.51(n).

### **Part VII. Permitting Action Processes and Procedures**

This Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. See 40 C.F.R. § 144.51(f).

#### **Section A. Requests for Modification, Revocation and Reissuance, or Termination**

Permits may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon the Director's initiative. All requests must be in writing and must contain facts or reasons supporting the request. The submittal of an updated application may be required prior to the Director's granting a request for permit modification or revocation and reissuance. See 40 C.F.R. § 124.5(a).

If the Director decides the request is not justified, the requester will be sent a brief written response giving the reason for the decision. See 40 C.F.R. § 124.5(b).

Denials of requests for modification, revocation and reissuance, or termination are not subject to public notice, comment, or hearings. Denials by the Director may be informally appealed to the Environmental Appeals Board (EAB) by a letter briefly setting forth the relevant facts. The EAB may direct the Director to begin modification, revocation and reissuance, or termination proceedings under 40 C.F.R. § 124.5(c). The appeal will be considered denied if the EAB takes no action on the letter within 60 calendar days after receiving it. This informal appeal is, under 5 U.S.C. § 704, a prerequisite to seeking judicial review of EPA action in denying a request for modification, revocation and reissuance, or termination. See 40 C.F.R. § 124.5(b).

## **Section B. Causes for Modification, Revocation and Reissuance, or Termination**

Other than requests for modification, permits may only be modified, revoked and reissued, or terminated for the reasons specified below. See 40 C.F.R. §§ 124.5(a), 144.12, 144.39, 144.40 & 144.41.

### **1. Alterations**

There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the inclusion of permit conditions that are different from or absent in the existing permit. See 40 C.F.R. § 144.39(a)(1).

### **2. Information**

The Director has received information which was not available at the time of permit issuance (other than revised regulations, guidance or test methods) and which would have justified the application of different permit conditions at the time of issuance. For UIC area permits, this may include any information indicating that cumulative effects on the environment are unacceptable. See 40 C.F.R. § 144.39(a)(2).

### **3. New Regulations**

The standards or regulations on which the permit is based have been changed by promulgation of newer or amended standards or regulations or by judicial decision after the permit is issued. See 40 C.F.R. § 144.39(a)(3).

### **4. Compliance Schedules**

The Director determines that good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or material shortage or other events over which the Permittee has little or no control and for which there is no reasonably available remedy. See 40 C.F.R. § 144.39(a)(4).

### **5. Proposed Transfer**

The Director receives notification of a proposed transfer of the permit. See 40 C.F.R. §§ 144.38, § 144.39(b)(2), & 144.41(d).

### **6. Noncompliance**

Noncompliance by the Permittee with any condition of the permit. See 40 C.F.R. § 144.40(a)(1).

### **7. Failure to Disclose Relevant Facts**

The Permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the Permittee's misrepresentation of any relevant facts at any time. See 40 C.F.R. § 144.40(a)(2).

## 8. Endangerment

A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination. See 40 C.F.R. §§ 144.12 & 144.40(a)(3).

### **Section C. Modification**

Modification of permit terms and conditions not covered under Part VII. Section D, are subject to the draft permit and public notice procedures of 40 C.F.R. § 124. When a permit is modified, only the conditions subject to modification are reopened when a new draft permit is prepared. All other aspects of the existing permit will remain in effect for the duration of the unmodified permit. See 40 C.F.R. §§ 124.5 & 144.39.

### **Section D. Minor Modification**

Upon the consent of the Permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section (minor modifications) without following the draft permit and public notice procedures of 40 C.F.R. § 124. See 40 C.F.R. § 144.41.

Minor modifications may only be performed for the following reasons:

1. Correction of typographical errors;
2. Requiring more frequent monitoring or reporting by the Permittee;
3. Changing an interim compliance date in a compliance schedule, provided the new date is not more than 120 calendar days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement;
4. To change ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Permittee(s) has been submitted to the Director;
5. To change quantities or types of fluids injected which are within the capacity of the facility as permitted and, in the judgment of the Director, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification;
6. To change construction requirements approved by the Director pursuant to 40 C.F.R. § 144.52(a)(1) (establishing UIC permit conditions), any such alteration must comply with the requirements of 40 C.F.R. parts 144 and 146; or
7. To amend a plugging and abandonment plan which has been updated under 40 C.F.R. § 144.52(a)(6).

## **Section E. Transfer of Permits**

This Permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the SDWA. See 40 C.F.R. § 144.38. In some cases, modification or revocation and reissuance is mandatory. See 40 C.F.R. § 144.51(l)(3).

This Permit may be transferred to a new owner or operator by minor modification according to Part VII. Section D. 4, if the following conditions are met:

1. The Director determines that no other change in the permit is necessary;
2. A written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Permittee has been submitted to the Director; and
3. The Director has determined that the new owner or operator has submitted adequate financial responsibility per Part III. Section I of this Permit.

## **Section F. Revocation and Reissuance**

The Director may determine that the scope of changes or duration of the permit requires that all permit conditions be reopened for public comment. When a permit is revoked and reissued, the entire permit is reopened just as if the permit had expired and was being reissued. During any revocation and reissuance proceeding the Permittee must comply with all conditions of the existing permit until a new final permit is reissued. See 40 C.F.R. §§ 124.5 & 144.39.

## **Section G. Renewal or Termination of an Expiring Permit**

The Permittee must notify the Director, in writing, at least 60 calendar days before this Permit expires (as indicated on the signed authorization page) with one of the following options:

- a. The Permittee's intent to submit a timely application for renewal.
  - b. A schedule for following the current closure plan that has been approved by the Director. See Part VI.
  - c. A request for approval of a new closure plan and a schedule to implement that plan.
2. Timely Applications for Renewal

Due to the need for current information in the application process, applications for renewal should be submitted no earlier than 180 calendar days before the expiration date given on page iii. To ensure the application is a complete application per 40 C.F.R. § 124.3, applications should be submitted no later than 30 calendar days prior to the expiration date given in the authorization page. See 40 C.F.R. § 124.3 & 144.37(a)(1).

## Section H. Continuation of an Expiring Permit

### 1. Conditions for allowing the Continuation of an Expiring Permit

The Director may allow the conditions and effect of an expired permit to continue in force under 5 U.S.C. § 558(c) until the effective date of a new permit if the conditions below are met. See 40 C.F.R. § 144.37(a).

#### a. The Permittee has met the requirements for renewal of a permit

The permittee has met the requirements found in Part VII. Section G.

#### b. The new permit application has not been denied

The application for renewal has not been denied under 40 C.F.R. § 124.15, or in the case of a denial, it has been appealed under 40 C.F.R. § 124.19 and final agency action has not occurred in accordance with 40 C.F.R. § 124.19(l).

#### c. No new permit covering this UIC activity has been issued

The Director, through no fault of the Permittee, has not issued a new permit with an effective date on or before the expiration date of the previous permit. See 40 C.F.R. § 144.37(a)(2).

### 2. Effect of a Continued Permit

Permits continued under 5 U.S.C. § 558(c) remain fully effective and enforceable. However, no new wells may be constructed under an area permit during the continuance of the expired permit. See 40 C.F.R. § 144.37(b).

### 3. Enforcement of Continued Permits

When the Permittee is not in compliance with the conditions of the expiring or expired permit, the Director may choose to do any of the following:

- a. Initiate enforcement action based upon the permit which has been continued. See 40 C.F.R. § 144.37(c)(1).
- b. Issue a notice of intent to deny the new permit. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit. See 40 C.F.R. § 144.37(c)(2).
- c. Issue a new permit under 40 C.F.R. part 124 with appropriate conditions See 40 C.F.R. § 144.37(c)(3).
- d. Take other actions authorized by UIC regulations. See 40 C.F.R. § 144.37(c)(4).

#### 4. State or Tribal Continuation

An EPA issued permit does not continue in force beyond its expiration date under Federal law if at that time a State or Tribe has primary enforcement authority. A State or Tribe authorized to administer the UIC program may continue the EPA issued permit or permits they have issued until the effective date of the new permits, if applicable law allows. Otherwise, the facility or activity is operating without a permit from the time of expiration of the old permit to the effective date of a new permit issued by the State or Tribe. See 40 C.F.R. § 144.37(d).

#### **Section I. Termination**

The Director may terminate a permit during its term or deny a permit renewal application for the following causes: noncompliance (Part VII. Section B. 6); failure to disclose relevant facts (Part VII. Section B. 7); or endangerment of human health or the environment (Part VII. Section B. 8).

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## Appendix A. Project Information

### Section A. Project Summary

The UIC project authorized by this Permit as written involves: the continued proper operation and maintenance of two UIC Class I nonhazardous industrial wells (IW-1 and IW-2); the proper operation and maintenance of the associated dual zone monitoring well (MW-1); and the eventual closure of this UIC project, through either conversion of IW-1 and IW-2 to another type of well or through proper plugging and abandonment of the Wells, and subsequent post-closure site monitoring.

The drilling of additional wells under this Permit may only be done after the Director's approval and modification to this Permit. The conversion, operation, and closure of any well covered by this Permit may only be performed with the written approval of the Director as contained in this Permit, and must be performed according to all applicable laws, regulations, permit requirements and any subsequent plans as approved by the Director.

While in operation, this UIC Project will dispose of: 1) concentrate from reverse osmosis operations at the Permittee's Hollywood Reservation Water Treatment Plant (Hollywood WTP) as well as raw water and flush water associated with the operation of the reverse osmosis system; and 2) secondary treated effluent from the Permittee's Hollywood Reservation Wastewater Treatment Plant (Hollywood WWTP).

### Section B. UIC Project History

A simplified timeline of permitting activity related to this UIC project is found in the table below.

**Table A.1. UIC Project Permitting Action Timeline**

<b>Date (Year-Month-Day)</b>	<b>Description of Activity</b>
2014-06-27	The initial application for this UIC project is received
2016-11-01	The first permit covering this project, SEI0001 is issued.
2020-05-27	Request for Modification of Permit SEI0001 to update maximum allowable injection pressure from 70 psig to 103 psig based on initial mechanical integrity testing results.
2021-11-17	Permittee submits application for renewal.
2021-12-01	Permit SEI0001 expires. SEI0001 is administratively continued under 40 C.F.R. § 144.37
2026-XX-XX	Issuance of Permit SE1P-00001

### Section C. Wells Authorized by This Permit

Construction, operation, and the plugging and abandonment of Class I underground injection well may only be performed with the written approval of the Director as contained in this permit, and must be

performed according to all applicable laws, regulations, permit requirements and plans as approved by the Director. The well(s) approved by this Permit are as follows:

**Table A.2. Table of All Wells Authorized by SE1P-00001**

Well Name	EPA ID #	Well Type	Latitude	Longitude
Hollywood Reservation WTP IW-1	SES0110001	Class I Nonhazardous Industrial	26° 2' 5.52" N	80° 13' 13.44" W
Hollywood Reservation WTP IW-2	SES0110002	Class I Nonhazardous Industrial	26° 2' 8.49" N	80° 13' 13.51" W
MW-1	NA	Dual Zone Monitoring Well	26° 2' 7.01" N	80° 13' 14.48" W

### Section D. UIC Project Location

The UIC project is located at the Seminole Tribe of Florida’s Hollywood Reservation WTP. This facility has a street address of Hollywood Reservation Water Treatment Plant, 2600 North 64th Avenue, Hollywood, Florida 33024. The facility is an active drinking water treatment plant.

### Section E. Area of Review

#### 1. Definition of the Area of Review

The Area of Review is the area around the well which was reviewed to determine the potential for the proposed injection project to impact USDWs.

For this Permit, the Area of Review has been calculated as a two (2) mile radius from the borehole of the injection well. See 40 C.F.R. § 146.6 and Criteria Manual 6.1.2.7 and 6.1.3.2.

#### 2. Maps of the Area of Review

Maps showing the location of the permitted well and its associated Area of Review have been included at the end of this appendix as Figure A.1 and Figure A.2.

#### 3. Faults and Open Fractures and Other Features.

As of the date of issuance, no faults or open fractures which penetrate the confining zone have been identified.

#### 4. List of Wells Penetrating the Confining Zone(s) within the Area of Review

Other than the IW-1 and IW-2. There are no wells, holes, or openings that have been identified penetrating the lowermost confining zone. All wells identified in the area of review are shown in the map in Figure A.2.

5. Required Corrective Action(s) for wells in the Area of Review

On the date of issuance of this Permit, no corrective actions for wells or features located in the Area of Review have been identified. See 40 C.F.R. §§ 144.52(a)(2), 144.55 & 146.7. As such, the Permit is not subjected to a Compliance Schedule related to any corrective actions. See 40 C.F.R. § 144.53.

**Section F. Project Geology**

Figure A.3. contains a diagram of the generalized hydrogeologic column. Formation descriptions are included below.

1. Undifferentiated Surficial Sediments and the Pliocene-Pleistocene Series:

The upper 40 to 60 feet of the stratigraphic column consists of the undifferentiated Quaternary sediments which are generally unconsolidated very fine-grained quartz sand. The Pliocene-Pleistocene Series is composed of the Miami Limestone, the Anastasia Formation and the Tamiami Formation. These formations are present from the base of the Quaternary sediments to approximately 230 feet bls. The lithology is highly variable and comprised of interbedded limestone and calcareous sandstone, with varying amounts of unconsolidated shell and sand. The boundaries between the individual formations were unable to be determined. The surficial aquifer system is located within these formations.

2. Hawthorn Group (Miocene Series):

The Hawthorn Group is situated within the Upper Miocene to Upper Oligocene Series. Within the site, the Hawthorn Group is located from approximately 230 feet to 1,030 feet bls. It is comprised of the Peace River Formation and the Arcadia Formation. The Peace River Formation extends to approximately 510 feet bls and is predominantly composed of slightly phosphatic sandy limey clay and marl with varying amounts of fine-grained quartz sand and detrital carbonate. Rare interbeds of very hard cryptocrystalline chert are occasionally present within the Peace River Formation. The Arcadia Formation extends from 510 feet to about 1,030 feet bls. This unit consists of weakly phosphatic limestone and clay with varying amounts of quartz sand and detrital carbonate. This upper portion of the Hawthorn Group primarily forms the intermediate aquifer system / intermediate confining unit. Within the lower 80 feet of the Arcadia Formation, from 950 to 1,030 feet, the lithology is much more permeable and comprises the uppermost portion of the Upper Floridan aquifer system.

3. Avon Park Formation:

The Avon Park Formation is comprised wholly within the Middle Eocene Series from approximately 1,030 feet to 2,770 feet bls. The upper portion of the Avon Park Formation from approximately 1,030 to 1,900 feet bls is composed almost entirely of fossiliferous limestone. The lower portion of the Avon Park Formation, from about 1,900 to 2,760 feet bls, consists of limestone interbedded with limey dolostone. These dolostone units comprise less than 10% of the sequence. The Avon Park Formation is situated in both the Upper and Lower Floridan aquifer.

The base of the USDW, the depth where TDS exceeds 10,000 mg/L based on the log derived water quality data for IW-1, IW-2 and MW-1, is found at 1,630 feet bls in all three wells.

#### 4. Oldsmar Formation:

The Oldsmar Formation is comprised wholly within the Lower Eocene Series from approximately 2,760 feet bls to the base of the injection wells at 3,500 feet bls. The upper limit of the Oldsmar Formation was unable to be definitively determined based on the lithostratigraphy encountered within the well bores. However, a noticeable decrease in gamma ray activity below 2,760 feet bls may indicate that the top of the Oldsmar Formation occurs at this depth. The upper portion from 2,760 to 3,000 feet bls consists of interbedded limestone and dolostone. Below 3,000 feet bls the sequence is composed of dolostone with interbedded limestone. The Oldsmar Formation is situated in the Lower Floridan aquifer.

The “Boulder Zone” extends from approximately 2,940 to at least 3,500 feet bls in the lower portion of the Oldsmar Formation. The lower limit of the “Boulder Zone” was not determined since drilling was terminated at approximately 3,500 feet bls. The video surveys show that the dolostone in this zone exhibits extensive dissolution cavities as well as fracturing.

### **Section G. USDWs**

USDWs are defined as aquifers or the portions thereof which (1) currently supply any public water system or (2) contains a sufficient quantity of groundwater to supply a public water system and currently supplies drinking water for human consumption or contain fewer than 10,000 mg/l total dissolved solids and is not an exempted aquifer. See 40 C.F.R. § 144.3.

The lowermost USDW that has been identified in the Area of Review is in the Avon Park Formation of the Lower Floridan Aquifer. The lowermost depth that meets the criteria for a USDW was measured at approximately 1630 feet below land surface during the construction of the injection well and the dual zone monitoring. No USDWs were identified below the injection zone.

All Class I wells must be sited in such a fashion that they inject into a formation which is beneath the lowermost formation containing an USDW within one-quarter mile of the well bore. See 40 C.F.R. § 146.12(a). Based on regional geologic records there are no USDWs below the injection zone.

### **Section H. Confining Zone(s)**

A confining zone means a geological formation, group of formations, or part of a formation that limits fluid movement from an injection zone into overlying or underlying zones. During the drilling and testing of the wells at the STOF Hollywood Reservation two confining zones were identified between the base of the USDW (1630 feet bls) and the top of the injection formation (2940 feet bls; the Boulder Zone in the Oldsmar). These confining intervals consist of primarily light-colored limestones (mudstones and packstones) and dolostones. These intervals occurred from approximately 1,980 to 2,030 feet bls; from approximately 2,290 to 2,490 feet bls; and from approximately 2,590 to 2,720 feet bls. See Criteria Manual 6.1.2.14.

## Section I. Injection Zone(s)

An injection zone is defined as a geological formation, group of formations, or part of a formation receiving fluid(s) through a well. See 40 C.F.R. § 144.3. The injection authorized by this Permit is only allowed within the approved interval of the injection zone specified in Appendix B. Section G.3. The injection zone(s) identified in the project area are as follows:

The injection zone authorized by this Permit is the lowermost portion of the Middle Avon Park Confining and Composite Unit, and the Boulder Zone in the Oldsmar formation. In IW-1, this zone is encountered between 2,920 and 3,501 feet below land surface. In IW-2, this zone is encountered between 3,000 and 3,503 feet below land surface.

## Section J. Descriptions of Figures Included in This Appendix.

### 1. Description of “Figure A.1. USGS 1:24,000 Quadrangle Map”

This is a topographic map (USGS 1:24,000 quadrangle base map), displaying the location of the permitted wells IW-1 and IW-2. This map also shows relevant features within a 2-mile radius of the borehole, and the 2.0-mile Area of Review.

Source: Renewal Application, Received November 17, 2021, Figure A-1 “USGS 1:24,000 QUADRANGLE MAP”

Original Size: One (1) page, 8.5 inches by 11 inches.

### 2. Description of “Figure A.2. Wells Within Area of Review from SFWMD”

This map shows the area of review, and all known wells identified within it by the South Florida Waste Management District. The base map is of streets and water bodies.

Source: Renewal Application, Received November 17, 2021, Figure A-2 “WELLS WITHIN AREA OF REVIEW FROM SFWMD”

Original Size: One (1) page, 8.5 inches by 11 inches.

### 3. Description of “Figure A.3. Wells Within Area of Review from FGS And USGS”

This map shows the area of review, and all known wells identified within it by the Florida Geological Survey and U.S. Geological Survey. The base map is of streets and water bodies.

Source: Renewal Application, Received November 17, 2021, Figure A-3 “WELLS WITHIN AREA OF REVIEW FROM FGS AND USGS”

Original Size: One (1) page, 8.5 inches by 11 inches.

### 4. Description of “Figure A.4. Wells Within Area of Review from Seminole Tribe Of Florida”

This map shows the area of review and all Seminole Tribe irrigation wells within it. The base map is of streets and water bodies.

Source: Renewal Application, Received November 17, 2021, Figure A-3 “WELLS WITHIN AREA OF REVIEW FROM SEMINOLE TRIBE OF FLORIDA”

Original Size: One (1) page, 8.5 inches by 11 inches.

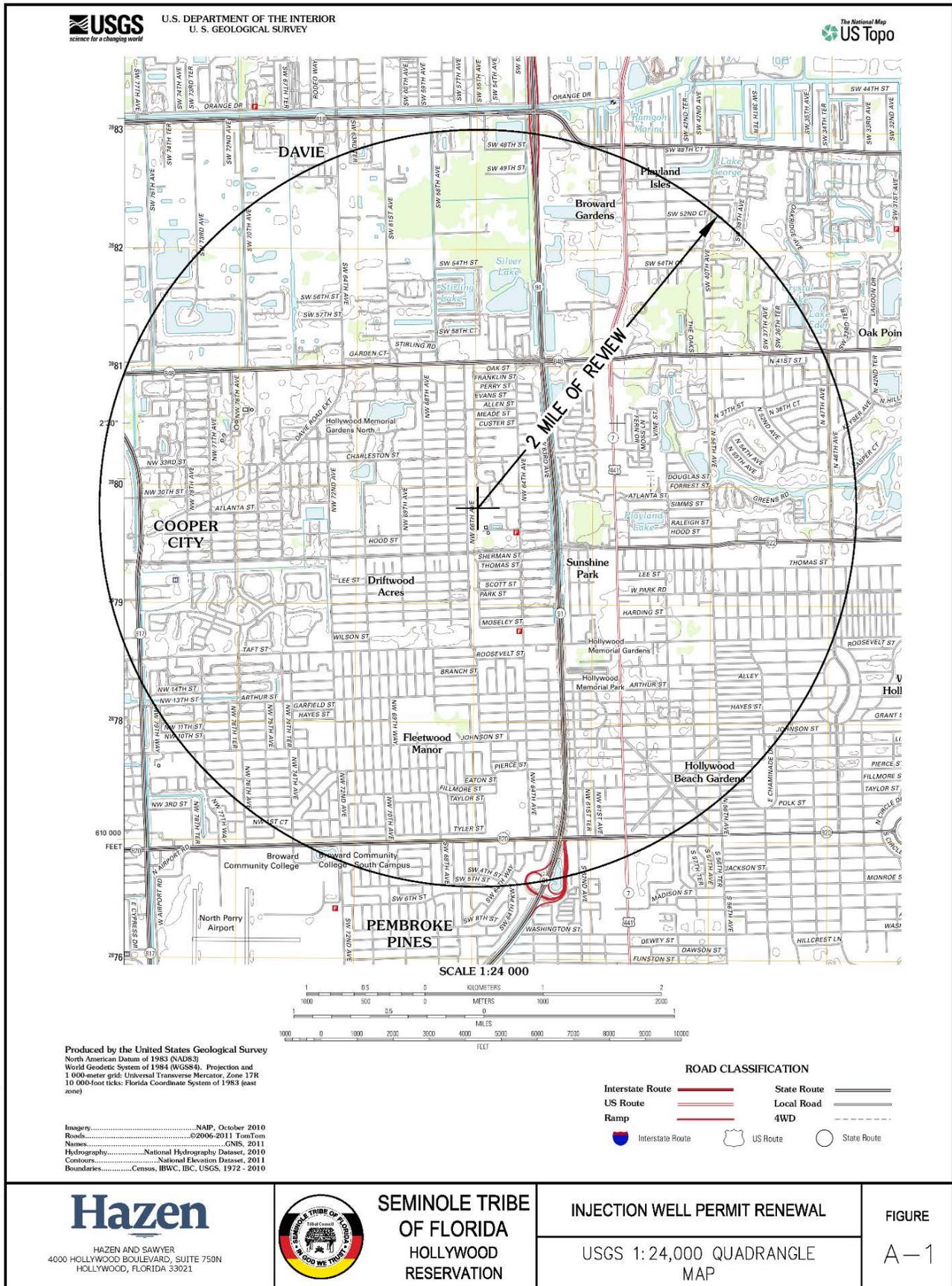
5. Description of “Figure A.5. Generalized Hydrogeologic Column”

This is a diagram showing the generalized vertical changes in geology and hydrogeology. This includes: a depth scale given in feet below land surface; geologic formation names; general lithology, names of hydrogeologic units, and the base of the lowermost USDW (1,630 ft)

Source: Renewal Application, Received November 17, 2021, Figure B-5 “GENERALIZED HYDROGEOLOGIC COLUMN”

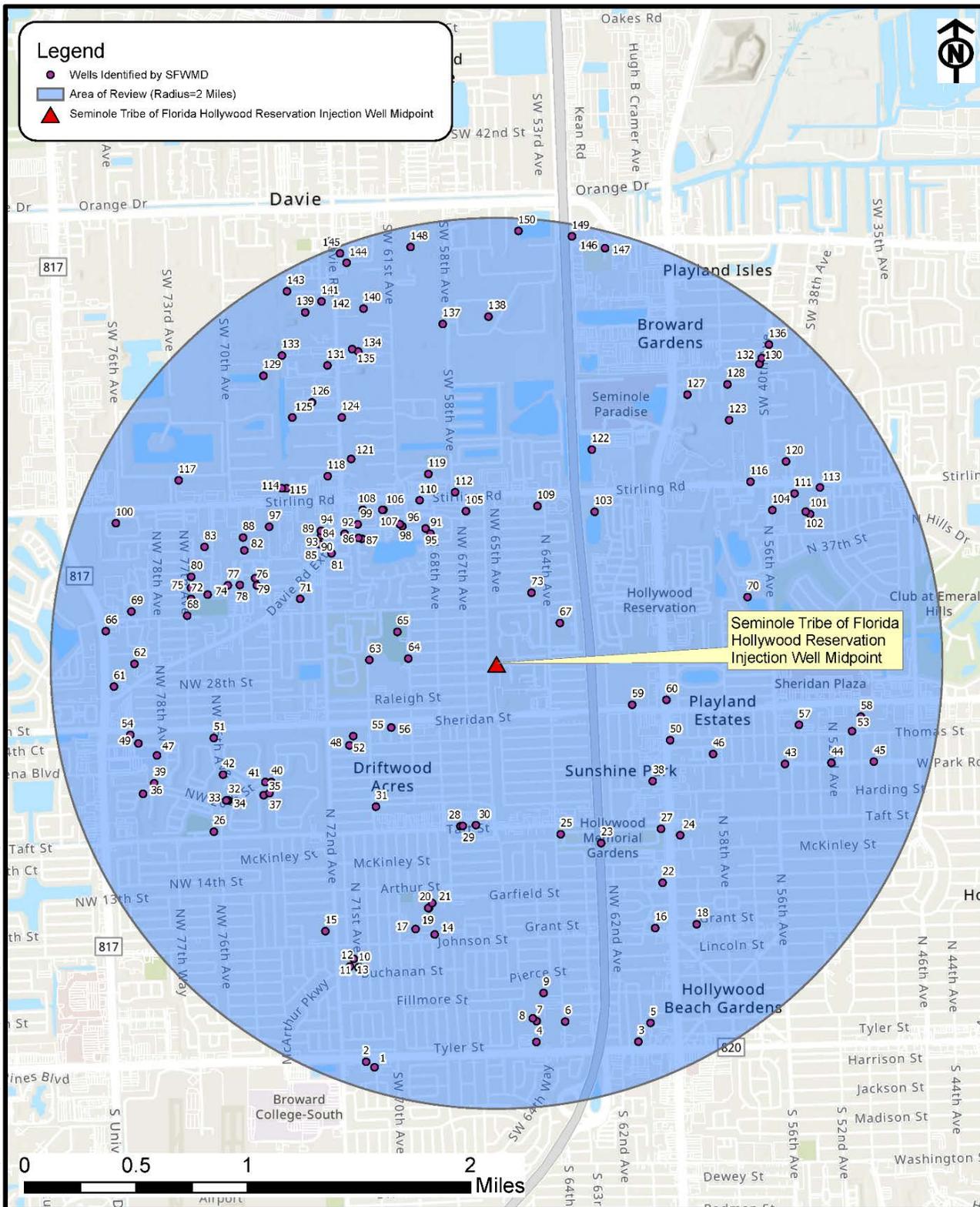
Size: One (1) page, 8.5 inches by 11 inches.

Figure A.1. USGS 1:24,000 Quadrangle Map



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Figure A.2. Wells Within Area of Review From SFWMD



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 HAZEN AND SAWYER 4000 HOLLYWOOD BOULEVARD, SUITE 750N HOLLYWOOD, FLORIDA 33021		SEMINOLE TRIBE OF FLORIDA HOLLYWOOD RESERVATION		INJECTION WELL PERMIT RENEWAL	FIGURE A-2
		WELLS WITHIN AREA OF REVIEW FROM SFWMD			

Figure A.3. Wells Within Area of Review from FGS And USGS

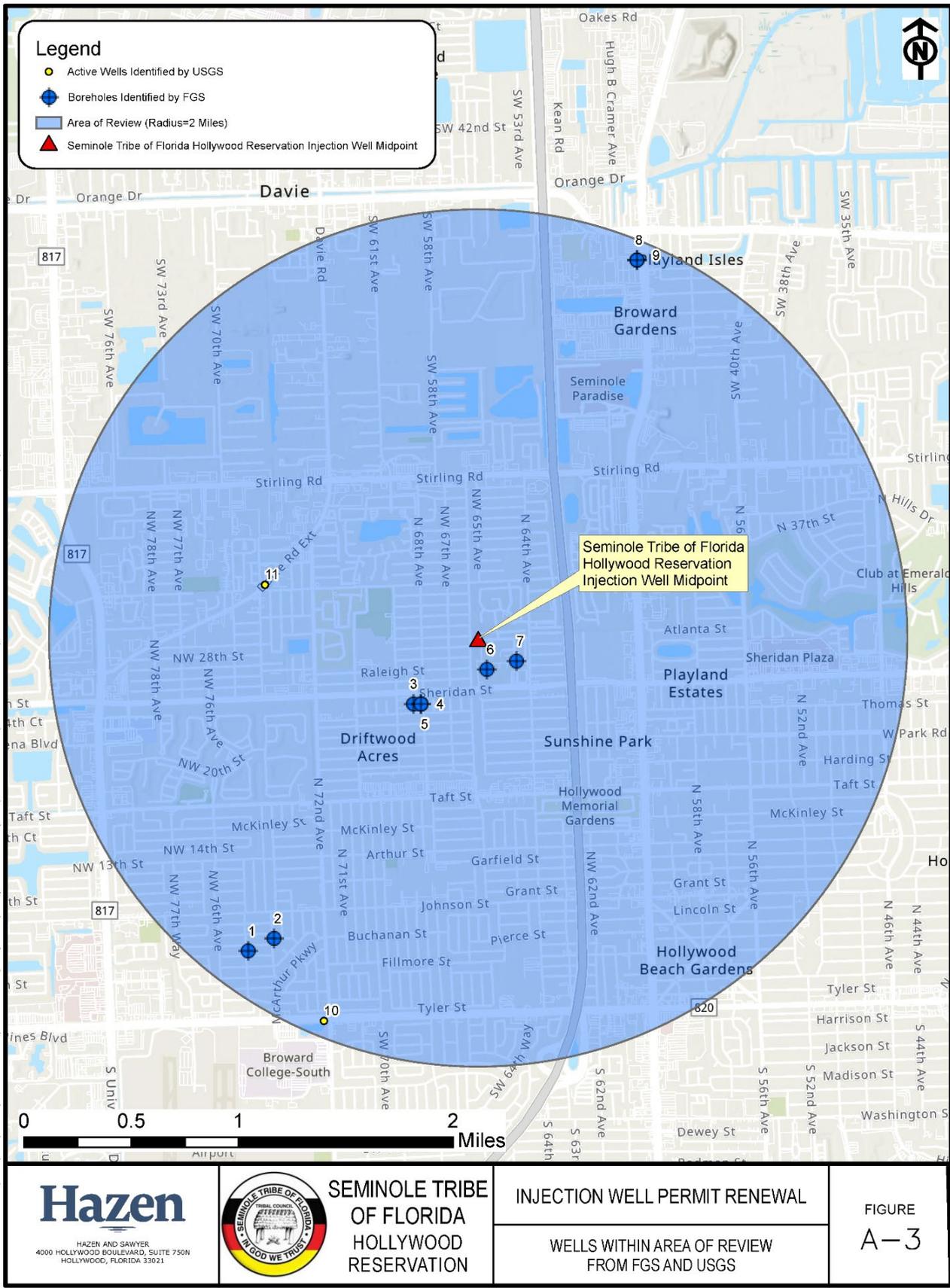


Figure A.4. Wells Within Area of Review from Seminole Tribe of Florida

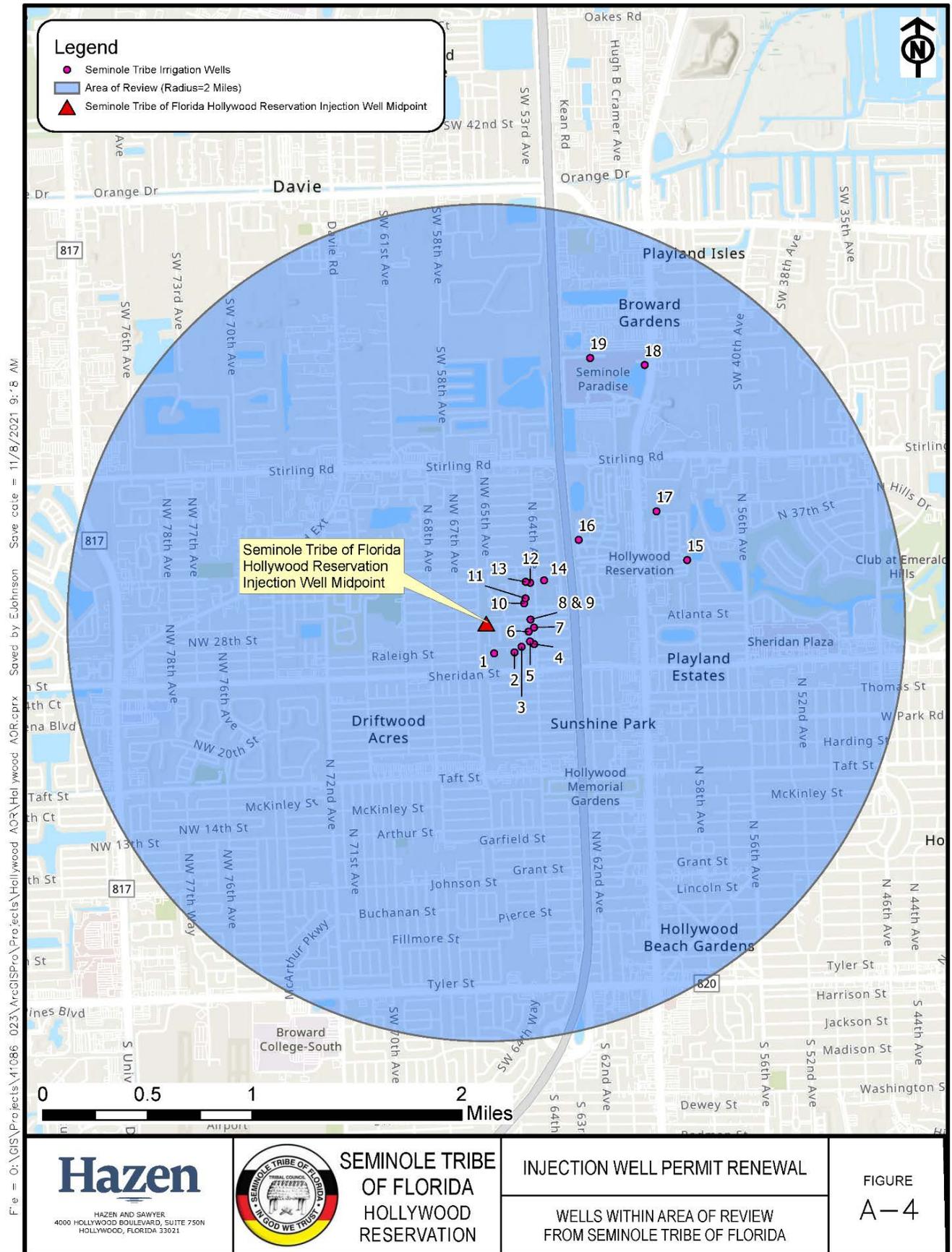
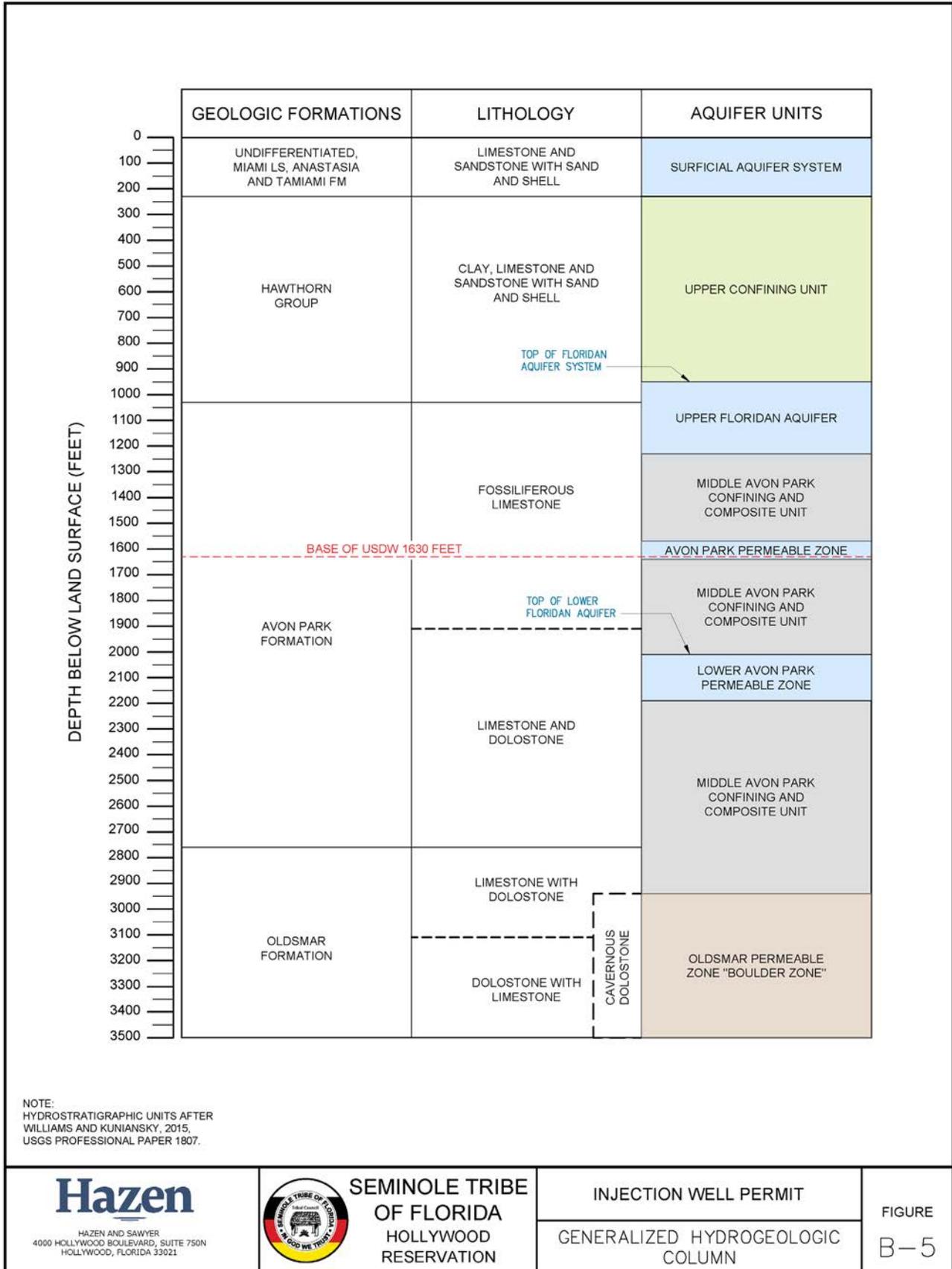


Figure A.5. Generalized Hydrogeologic Column



**Hazen**

HAZEN AND SAWYER  
4000 HOLLYWOOD BOULEVARD, SUITE 750N  
HOLLYWOOD, FLORIDA 33021



SEMINOLE TRIBE  
OF FLORIDA  
HOLLYWOOD  
RESERVATION

INJECTION WELL PERMIT

GENERALIZED HYDROGEOLOGIC  
COLUMN

FIGURE

B-5

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## Appendix B. Project Well Construction Requirements and Specifications

### Section A. Responsibility to Maintain Well Construction as Specified

All Class I wells must be cased and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well must be designed for the life expectancy of the well. See 40 C.F.R. § 146.12(b)(1).

The Permittee is responsible for ensuring that once construction is complete, the well meets the requirements of this appendix. After construction, the Permittee is responsible for maintaining the well in a manner that ensures that these requirements are met, until either the Well is closed per the requirements of Part VI or until the Permit is Modified under Part VII.

### Section B. Postponement of Construction

The Permittee must begin work to convert or construct any new injection well authorized by this Permit within one (1) year of the Effective Date of the Permit. Authorization to convert or construct any new injection well will expire if the work has not been started within one (1) year of the Effective Date of the Permit, unless the Permittee has notified the Director and requested an extension. Notification must be in writing and must state the reasons for the delay and provide estimated dates of construction commencement and completion.

Once the authorization to construct has expired under this part or should the delay in construction be deemed extensive, the Director may request additional information from the Permittee. If upon submittal of additional information, the Director determines that there are substantial changes in the information supporting the permit or the conditions at the facility, then a new permit may be required. This process would include an opportunity for public comment prior and would have to be completed prior to any construction.

Should there be a failure to provide requested information or inform the Director of the need for an extension, this Permit may be terminated under 40 C.F.R. §144.40.

### Section C. Cementing Requirements

Prior to any cementing, borehole(s) and casing(s) must be prepared to allow sufficient bonding of the cement to the casing and to the formation and to prevent channeling. During cementing, adequate pressure differentials must be maintained between the annulus and the casing to prevent collapse or distortion of the casing.

#### 1. Cementing Specifications

The Permittee must consider and determine the appropriate quality and characteristics of any cement to be used in meeting conditions in and around the well. The Permittee must consider integrity, containment, corrosion protection, and structural strength of the cement, and ensure these characteristics are not affected to a point where they can no longer meet the design parameters set forth in this Permit. The Permittee must determine the appropriate use of cement additives, water/cement ratio, and the type of water used for mixing. All cement must be compatible with the injected fluid, native fluids, and the formation.

The Permittee must request, as needed, any cement other than the default cement specifications as provided in Appendix B. Section C. 2.

2. Default Cementing Specification

Unless otherwise requested and approved by the Director, the Permittee must use American Petroleum Institute Class A or American Society of Testing and Materials Specification C150, Type I cement for any required cementing.

**Section D. Deviations from the Approved Construction Plan**

Changes to the approved plan that may occur during construction must be approved prior to being physically incorporated.

1. Major Changes

Major changes necessitate a detailed review by the Director and may lead to changes in operating parameters or corrective action requirements. Major changes include changes in the injection formation and material changes in the setting depth or cementing of the surface casing (casings which are set to protect USDW). The Director must approve a written description of these changes prior to the changes being physically incorporated into the well.

2. Minor Changes

Minor changes include all other changes. These changes may be approved by the permit writer via email.

These changes include but are not limited to:

- a. Changes in the number of casing strings or liners;
- b. Changes in the specifications for any casing or liners which are not the outermost casing in an USDW;
- c. Changes in the completion of the well;
- d. Changes in the exact setting of open hole intervals or injection intervals within the permitted injection formation; and
- e. Changes in the type of cement used.

3. Report of Summary of Changes

Once construction is completed, a written summary of all changes in the construction plan, both major and minor must be submitted to the Director as part of the completion report required in Part IV. Section D.

## **Section E. Remedial Construction Measures**

Remedial construction measures may be required if the well is unable to demonstrate Mechanical Integrity as described in Appendix C.

### **1. Remedial Cementing Specifications**

For all remedial cementing that this well requires, the Permittee must consider and determine the appropriate quality and characteristics of any cement to be used in meeting conditions in and around the well. The Permittee must consider integrity, containment, corrosion protection, and structural strength of the cement and ensure these characteristics are not affected to a point where they can no longer meet the designed parameters laid out in this Permit. The Permittee must determine the appropriate use of cement additives, water/cement ratio and the type of water used for mixing. All cement must be compatible with the injected fluid, native fluids and the formation.

The Permittee must request, as needed any cement other than the default cement specifications as provided in Appendix B. Section C.2.

## **Section F. Post Construction Logs and Testing**

The Permittee must perform the following logs and tests:

1. A Cement Bond Log after the 10-inch Casing String is cemented in place; and
2. Other tests or documentation as needed for the Permittee to determine or calculate the following information concerning the injection formation:
  - a. Fluid pressure (See 40 C.F.R. § 146.12(e)(1));
  - b. Estimated fracture pressure (See 40 C.F.R. § 146.12(e)(3));
  - c. Physical and chemical characteristics of the injection zone (See 40 C.F.R. § 146.12(g)(5)); and
  - d. Deviation checks on all holes constructed by first drilling a pilot hole and then enlarging the pilot hole by reaming or another method. Such checks must be at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drilling. See 40 C.F.R. 146.12(d)(1)

A descriptive report interpreting the results of these logs and tests must be prepared by a knowledgeable log analyst and submitted to the Director as part of the completion report. See 40 C.F.R. § 146.12(d).

## Section G. IW-1 and IW-2 Construction Details and Specifications

### 1. Alternative to Injection Tubing and Packer

All Class I injection wells must inject fluids through tubing with a packer set immediately above the injection zone, or tubing with an approved fluid seal as an alternative. The use of other alternatives to a packer may be allowed with the written approval of the Director. See 40 C.F.R. § 146.12(c)(1).

On November 1, 2016, the Director authorized, under 40 C.F.R. § 146.12(c), the construction of wells with a fiberglass reinforced injection tubing cemented-in-place within the innermost steel casing from the ground surface to the injection zone. The approval required specific conditions for mechanical integrity testing of this well. These conditions are found in Appendix C.

A copy of this approval has been included as Exhibit B.1. at the end of this Appendix.

### 2. Casing and Tubing Specifications

The number, thickness, type of materials, and length of casing must be sufficient to protect the quality of drinking water resources, the integrity of the well, and the confining strata. IW-1 and IW-2 are constructed as specified in Table B.1.

#### a. Steel Casings

Certified welders assembled nominal 30-foot length casing joints to form the completed well casing string as it was lowered downhole. For each casing string, steel centralizers were placed at 20, 60, 100, and 140 feet above the bottom of the casing, then at approximate intervals of 200 feet thereafter. The upper most centralizers were placed at 20 feet bls. At each depth, centralizers were placed at 0, 90, 180, and 270 degrees around the casing.

#### b. 16-Inch Fiber Glass Reinforced Plastic Injection Tubing

FRP casing was delivered to the site in 30-foot nominal length joints of casing. The FRP casing and tubing for this project was Red Box as manufactured by Future Pipe Industries, Inc. For each casing string, steel centralizers were placed at 20, 60, 100, and 140 feet above the bottom of the casing, then at approximate intervals of 200 feet thereafter. The upper most centralizers were placed at 20 feet bls. At each depth, centralizers were placed at 0, 90, 180, and 270 degrees around the casing.

### 3. Injection Interval

The injection zone authorized by this Permit is the Open Borehole located in the lowermost Middle Avon Park Confining and Composite Unit, and Boulder Zone in the Oldsmar formation. In IW-1, this zone is encountered between 2,920 and 3,501 feet below land surface. In IW-2, this zone is encountered between 3,000 and 3,503 feet below land surface

**Table B.1. IW-1 and IW-2 Construction Summary**

Nominal Outside Diameter (inches)	Casing / Tubing Materials	Nominal Borehole Diameter (Inches)	Depth (Feet Below Land Surface)	Additional Information
<b>Injection Well IW-1</b>				
66	0.375-in thick, grade B, spiral welded steel casing	66	8	Pit Pipe, used to stabilize drill site, not cemented
54	0.375-in thick, grade B, spiral welded steel casing	64	249	fully cemented
44	0.375-in thick, grade B, spiral welded steel casing	54	1003	fully cemented
34	0.375-in thick, grade B, spiral welded steel casing	44	2000	fully cemented, except for 1525 to 1642 feet below land surface due to a loss of circulation in a cavernous portion of the formation
24	0.500-in thick, grade B, seamless steel casing	34	2920	fully cemented
16	0.80-in thick, Grade 1500, Red Box - FRP	24	2910	fully cemented
22.5	Open borehole	22.5	3501	This is the injection interval
<b>Injection Well IW-2</b>				
66	0.375-in thick, grade B, spiral welded steel casing	66	8	Pit Pipe, used to stabilize drill site, not cemented
54	0.375-in thick, grade B, spiral welded steel casing	64	250	fully cemented
44	0.375-in thick, grade B, spiral welded steel casing	54	1005	fully cemented
34	0.375-in thick, grade B, spiral welded steel casing	44	2000	fully cemented, except for 1525 to 1642 feet below land surface due to a loss of circulation in a cavernous portion of the formation
24	0.500-in thick, grade B, seamless steel casing	34	3000	fully cemented
16	0.80-in thick, Grade 1500, Red Box - FRP	24	2990	fully cemented
22.5	Open borehole	22.5	3503	This is the injection interval

**4. Safety Device(s)**

At a minimum, the operator must maintain in good operating condition a pressure actuated shut-off device attached to the injection flow line set to shut-off the injection pump when or before the maximum allowable injection pressure is reached at the wellhead.

5. Monitoring Devices

At a minimum, the operator must maintain devices to measure and record the following parameters in good operating condition:

- a. the injection pressure at which the injectate is being injected;
- b. the flow rate at which the injectate is being injected; and
- c. cumulative injection volumes.

6. Well Security

At a minimum, the operator must maintain the following in good operating condition, a lock or other system(s) as needed to prevent tampering with the well.

**Section H. MW-1 Construction Details and Specifications**

1. Casing and Tubing Specifications

The number, thickness, type of materials, and length of casing must be sufficient to protect the quality of drinking water resources, the integrity of the well, and the confining strata. MW-1 is constructed as specified in Table B.2.

**Table B.2. MW-1 Construction Summary**

Nominal Outside Diameter (inches)	Casing Materials	Nominal Borehole Diameter (Inches)	Depth (Feet Below Land Surface)	Additional Information
48	0.375-in thick, grade B, spiral welded steel casing	48	8	Pit Pipe, used to stabilize drill site, not cemented
36	0.375-in thick, grade B, spiral welded steel casing	48	250	fully cemented
24	0.375-in thick, grade B, spiral welded steel casing	36	1000	fully cemented
16	0.375-in thick, grade B, spiral welded steel casing	24	1500	fully cemented
16	Open Borehole	16	1500 to 1529	This is the upper monitoring zone (UMZ). It is the annulus between the 6.625-in casing and the 16" borehole
6.625	0.892-in thick, Grade 2500, fiberglass reinforced plastic casing	16	1770	
12.25	Open Borehole	12.25	1810	This is the lower monitoring zone (LMZ). It is the open hole from 1770 to 1810 feet below land surface.

a. Steel Casings

Certified welders assembled nominal 30-foot length casing joints to form the completed well casing string as it was lowered downhole. For each casing string, steel centralizers were placed at 20, 60, 100, and 140 feet above the bottom of the casing, then at approximate intervals of 200 feet thereafter. The upper most centralizers were placed at 20 feet bls. At each depth, centralizers were placed at 0, 90, 180, and 270 degrees around the casing.

b. 6.625-Inch Fiber Glass Reinforced Plastic Casing

FRP casing was delivered to the site in 30-foot nominal length joints of casing. The FRP casing and tubing for this project was Red Box as manufactured by Future Pipe Industries, Inc. For each casing string, steel centralizers were placed at 20, 60, 100, and 140 feet above the bottom of the casing, then at approximate intervals of 200 feet thereafter. The upper most centralizers were placed at 20 feet bls. At each depth, centralizers were placed at 0, 90, 180, and 270 degrees around the casing.

2. Monitored Intervals

MW-1 is designed to monitor the base of the lowermost USDW (the Avon Park Permeable Zone) and the confining units separating the lowermost USDW from other aquifers to determine if injection is causing fluid movement.

3. Monitoring Devices

At a minimum, the operator must maintain devices to measure and record the following parameters in good operating condition:

- a. The fluid pressure of each monitored formation.
- b. The ability to sample each monitored formation as required in Appendix D.

4. Well Security

At a minimum, the operator must maintain the following in good operating condition, a lock or other system(s) as needed to prevent tampering with the well.

**Section I. List and Descriptions of Figures and Exhibits Included in This Appendix.**

1. Description of “Figure B.1. IW-1 Schematic”

This is a diagram showing pertinent construction details of the injection well IW-1 as constructed.

Source: Renewal Application, Received November 17, 2021, Exhibit 3 “Injection Well Profile”

Original Size: One (1) page, 8.5 inches by 11 inches.

2. Description of “Figure B.1. IW-2 Schematic”

This is a diagram showing pertinent construction details of the injection well IW-2 as constructed.

Source: Renewal Application, Received November 17, 2021, Exhibit 4 “Injection Well Profile”

Original Size: One (1) page, 8.5 inches by 11 inches.

3. Description of “Figure B.2. MW-1 Schematic”

This is a diagram showing pertinent construction details of monitoring well MW-1 as constructed.

Source: Renewal Application, Received November 17, 2021, Exhibit 5 “Monitor Well Profile”

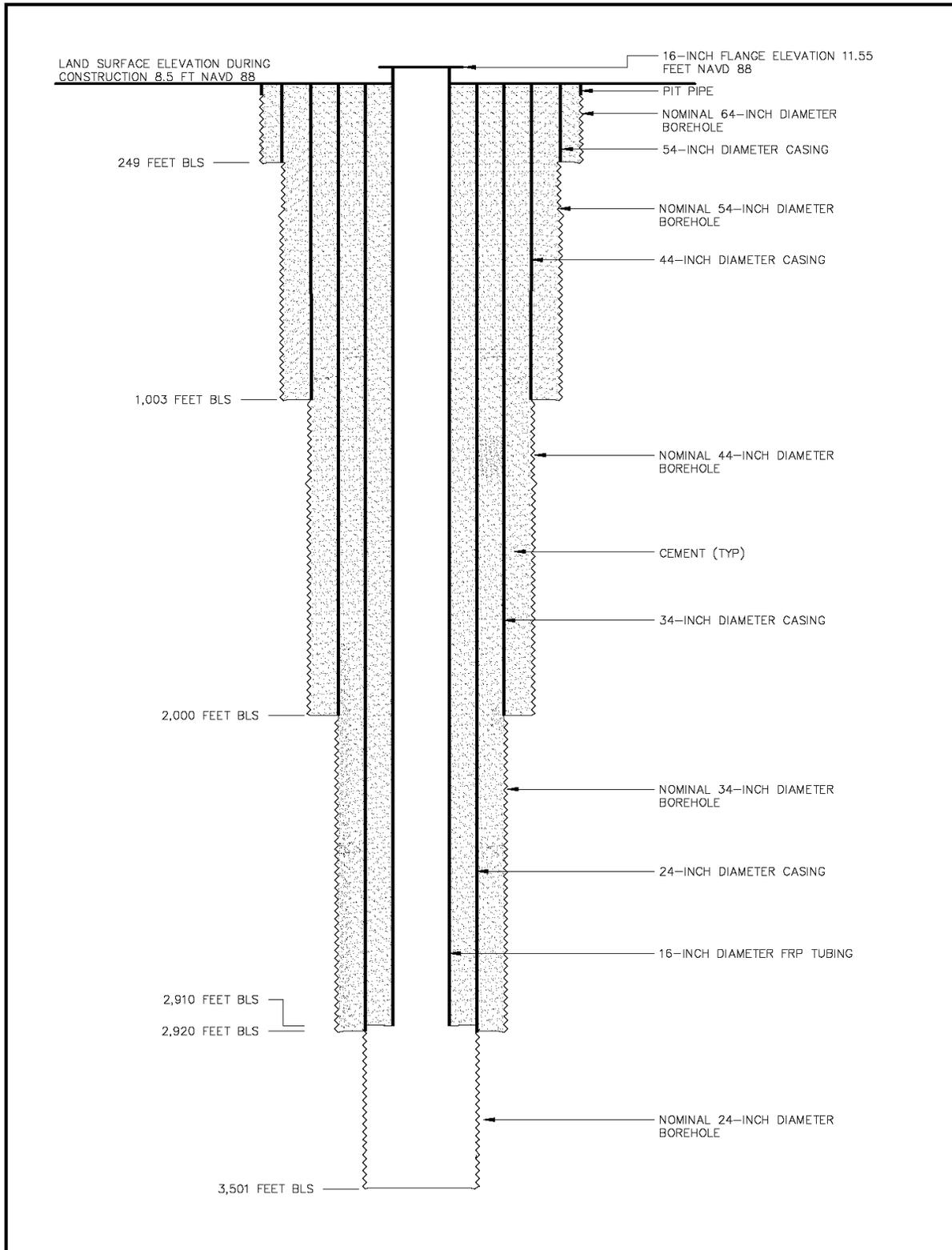
Original Size: One (1) page, 8.5 inches by 11 inches.

4. Description of “Authorization for Alternative Construction Method” dated 11-01-2016

This is a scan of an EPA Memo dated November 1, 2016, regarding “The Seminole Tribe of Florida’s Request for an Alternative to Tubing and Packer Construction for Class I Non-Hazardous Industrial Injection Wells UIC Permit Application SEA0001.”

Original Size: One (3) page, 8.5 inches by 11 inches.

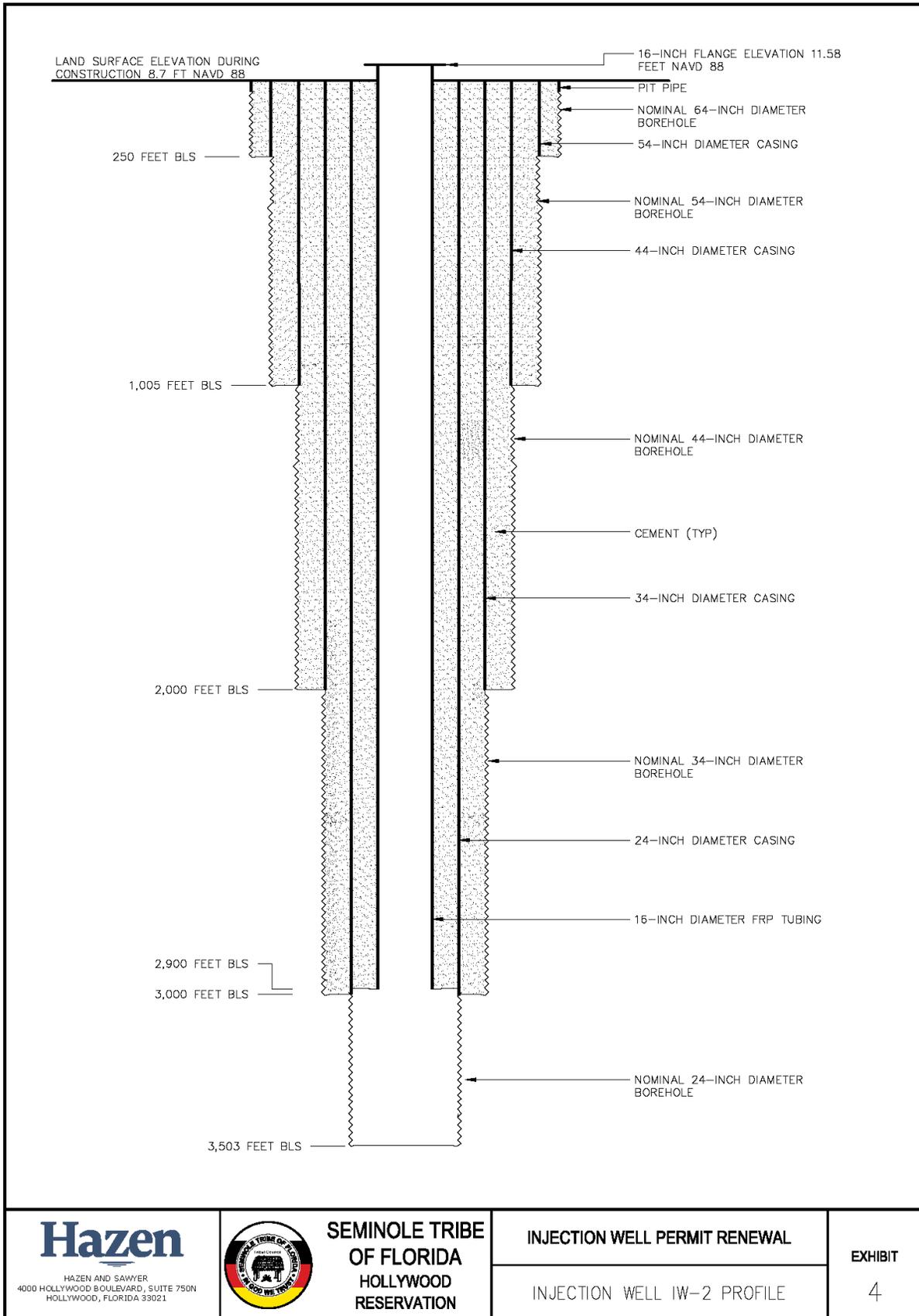
**Figure B.1. IW-1 Schematic**



 HAZEN AND SAWYER 4000 HOLLYWOOD BOULEVARD, SUITE 750N HOLLYWOOD, FLORIDA 33021	 SEMINOLE TRIBE OF FLORIDA HOLLYWOOD RESERVATION	INJECTION WELL PERMIT RENEWAL	EXHIBIT
		INJECTION WELL IW-1 PROFILE	3

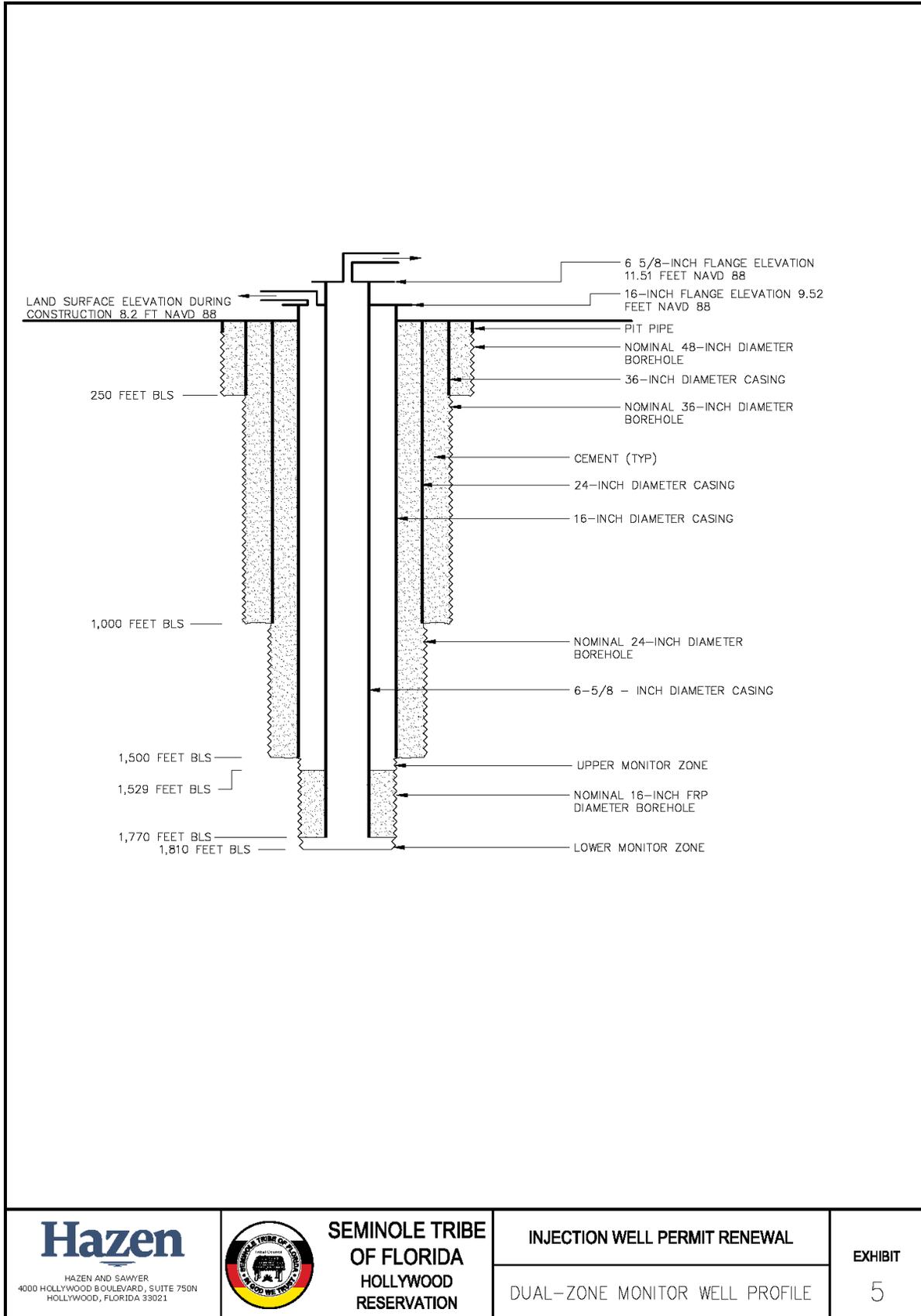
File = O:\41086-000-HWD\41086-023 HW DIW Permit Renewal\Drawings\Figures\41086-023-FIG 3 Saved by tbocos Save date = 11/8/2021 10:20 AM

Figure B.2. IW-2 Schematic



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Figure B.3. MW-1 Schematic



 <p>HAZEN AND SAWYER 4000 HOLLYWOOD BOULEVARD, SUITE 750N HOLLYWOOD, FLORIDA 33021</p>	 <p>SEMINOLE TRIBE OF FLORIDA HOLLYWOOD RESERVATION</p>	INJECTION WELL PERMIT RENEWAL	EXHIBIT
		DUAL-ZONE MONITOR WELL PROFILE	5

File = Q:\41086-000-HWD\41086-023 HW DIW Permit Renewal\Drawings\Figures\41086-023-FIG 5 Saved by tbacos Save date = 11/8/2021 10:21 AM

## Exhibit B.1. Approval of Alternate to Tubing and Packer 11-01-2016



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

### MEMORANDUM

**SUBJECT:** The Seminole Tribe of Florida's Request for an Alternative to Tubing and Packer construction for Class I Non-Hazardous Industrial Injection Wells UIC Permit Application SEA0001

**FROM:** Brian J. Smith, Chief  11/1/16  
Groundwater & Underground Injection Control Section

**TO:** James D. Giattina, Director  
Water Protection Division

In a letter dated March 23, 2016 (attached), the Seminole Tribe of Florida (the Tribe) petitioned Mr. James Giattina, the Water Protection Division Director (Director), for an alternative to the proscribed packer in the construction of two injection wells proposed in their application for a Class I Industrial Underground Injection Control (UIC) Area Permit, SEA0001. Such a petition is allowed under Title 40 of the Code of Federal Regulations (40 C.F.R.) at 146.12(c)(1). 40 C.F.R §146.12(c)(2) lists the factors that shall be considered when determining the requirements for alternate construction specifications. These are the depth of setting; characteristics of injection fluid; injection pressure; annular pressure; the rate, temperature and volume of injected fluid; and the size of the well casing.

Under 40 C.F.R. §146.12(c), A tubing and packer system is the preferred method of well completion in order to provide an additional layer of protection for an injection well. It does this by creating an annulus filled with a fluid (typically non-corrosive or corrosive inhibiting liquids or air). By monitoring the pressures differences between the tubing and the annulus, this construction method allows for the identification of any incidence where the tubing and packer system may have lost mechanical integrity (MI). Ideally, should a loss of MI occur, injection will cease and the damaged system will be repaired before significant damage to a well's casing can occur.

The Tribe cites the characteristics of the injection fluid, its rate of injection, and the diameters of the casing and tubing involved as the reasons it requires an alternate construction method. Instead of a tubing and packer system, the Tribe proposes to use an injection tubing string of 16-inch diameter fiberglass reinforced plastic (FRP) cemented in place inside the steel well casing from the injection zone (the Boulder Zone of the Lower Floridan Aquifer) to surface. The injectate will consist of secondarily treated domestic wastewater from the Tribe's Hollywood Reservation Wastewater Treatment Plant and reverse osmosis concentrate from the membrane treatment system at the Tribe's Hollywood Reservation Water Treatment Plant. The estimated mixture injectate will be approximately 80% wastewater and 20% concentrate, with a specific conductance of 1,100 µMHO/cm, a pH from 6.5 to 7.5, and a specific gravity close to that of water. The estimated average rate of injection will be 2.5 MGD, with a maximum injection rate of 6.5 MGD split between the two wells.

Cementing the annulus provides an additional physical barrier (the cement between the tubing and the innermost casing) between the injectate and any USDWs and removes the potential for the mechanical

failure of a packer. However, this construction style lacks the ability to monitor the annulus between the tubing and the innermost casing for the loss of MI in real-time. The Florida Department of Environmental Protection (FDEP)<sup>1</sup>, after consultation with the EPA, has permitted this alternative construction method for many similar injection operations in the State. Including for use in similarly sized Class I wells near the proposed wells, which also injecting into the boulder zone. Over the decades, FDEP has found this construction to be as reliable as the proscribed tubing and packer construction in this geological setting with wells of this size.

However due to aforementioned inability to monitor the MI of the tubing in real-time, FDEP has increased the requirements operators of such wells must meet during demonstrations of MI (often called the Mechanical Integrity Test or MIT). These more rigorous methods include, an internal pressure test (in which an inflatable packer is installed in the injection tubing and pressuring the well up to a PSI equal to 1.5 times the permitted Maximum Injection Rate); a borehole temperature log; a radioactive tracer survey (RTS); and a downhole video survey of the injection casing. FDEP requires this suite of methods for all MITs performed on wells with this construction method. At a bare minimum, an MIT must be performed prior to the beginning of injection and at least once every five years after that. In addition, MITs are required prior to injection resuming after a well has been worked over.

It is the conclusion of the Region 4 Groundwater and UIC Section that the proposed alternate well construction method when combined with the enhanced MIT requirements is as effective as traditional tubing and packer construction. As such, it is recommended that the Tribe's petition be approved through the signing of the attached "Authorization for Alternative Construction Method." The Tribe in their letter did not request that this alternative construction method be considered for general use rather than specifically for the wells proposed by SEA0001. However, the Region 4 Groundwater and UIC Section finds no reason to restrict this style of well construction for other Class I wells injecting into the same formation, with similar injectate and similar casing sizes.

#### Attachments

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<sup>1</sup> The Florida Department of Environmental Protection (FDEP) has primacy for classes I, III, IV and V injection wells. The wells proposed by the SEA0001 application are on the Seminole Tribe of Florida reservation lands and as such fall under EPA jurisdiction.

## AUTHORIZATION FOR ALTERNATIVE CONSTRUCTION METHOD

Under the authority of the Safe Drinking Water Act and Underground Injection Control (UIC) Program regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations (40 C.F.R.) Parts 124, 144, 146 and 147:

The Seminole Tribe of Florida - Hollywood Reservation  
Public Works Administration  
3107 North State Road 7  
Hollywood, Florida 33021

hereby referred to as the "Permittee" is hereby authorized under 40 C.F.R §146.12(c)(2) pending approval of the SEA0001 permit, to use the alternate construction method, as described below, as an alternative to tubing and packer construction described in 40 C.F.R §146.12(c) in the construction of Class I – Non-Hazardous Industrial injection wells located on the Permittee's Hollywood Reservation Water and Wastewater Treatment Plant in Hollywood, Florida.

Fiberglass reinforced plastic tubing installed and cemented-in-place inside the inner most steel casing across its entire length (~3,000 feet) from ground surface to the injection zone.

This authorization is in accordance with the limitations, monitoring requirements and other conditions set forth within the permit authorizing the construction, operation, wells. These requirements must contain the following items as requirements for the demonstration of mechanical integrity (often called the Mechanical Integrity Test or MIT).

- An internal pressure test (in which an inflatable packer is installed in the injection casing and pressuring the well up to 1.5 times the maximum injection pressure in PSI);
- A borehole temperature log;
- A radioactive tracer survey (RTS);
- And a downhole video survey of the injection casing.

In addition:

- An MIT must be performed prior to the beginning of injection;
- An MIT must be performed at least once every five years for the life of the well; and
- An MIT is required prior to injection resuming after a well has been worked over.

All references to 40 C.F.R. are to regulations that are in effect on the date that this permit becomes effective. This authorization for alternate construction shall remain in full force for the life of these wells.

This authorization shall become effective on NOV 01 2016.

NOV 01 2016

Issuance Date

  
James D. Giattina, Director  
Water Protection Division  
U.S. Environmental Protection Agency  
Region 4

## Appendix C. Project Mechanical Integrity Requirements

### Section A. Duty to Establish and Maintain Mechanical Integrity.

The Permittee must establish Mechanical Integrity, as defined by Appendix C, prior to commencing injection. Thereafter the Permittee must maintain Mechanical Integrity as defined in 40 C.F.R. § 146.8. See 40 C.F.R. § 144.51(q)(1).

### Section B. Definition of Mechanical Integrity

An injection well has Mechanical Integrity if it can demonstrate both:

1. Internal Mechanical Integrity

There is no significant leak in the injection tubing.

2. External Mechanical Integrity

There is no significant fluid movement into a USDW through vertical channels adjacent to the injection well bore.

### Section C. Prohibition Without Demonstration of Mechanical Integrity

The Permittee must not commence injection activity after the effective date of this Permit unless the Permittee has demonstrated that the well covered by this Permit has Mechanical Integrity in accordance with 40 C.F.R. § 146.8 and the Permittee has received written notice from the Director that such demonstration is satisfactory. See 40 C.F.R. §§ 144.51(q)(2) and 144.52(a)(8).

The Permittee must not resume injection activity after the loss of Mechanical Integrity for any reason unless the Permittee has demonstrated that the well covered by this Permit has Mechanical Integrity in accordance with 40 C.F.R. § 146.8 and the Permittee has received written notice from the Director that such demonstration is satisfactory. See 40 C.F.R. §§ 144.51(q)(2) and 144.52(a)(8).

The Director may authorize the Permittee of a well which lacks Mechanical Integrity pursuant to 40 C.F.R. § 146.8(a)(1) to continue or resume injection, if the owner or operator has made a satisfactory demonstration that there is no movement of fluid into or between USDW. Such authorization must be given in writing. See 40 C.F.R. §§ 144.51(q)(2) and 144.51(q)(3).

### Section D. Lack of Mechanical Integrity

A well is considered to lack Mechanical Integrity under the following circumstances:

1. Prior to Establishing Mechanical Integrity Before Injection Activity Commences

A well lacks Mechanical Integrity before the initial demonstration of Mechanical Integrity has been approved by the Director

2. Notice of Lack of Mechanical Integrity by the Director

When the Director determines a well lacks Mechanical Integrity, written notice of the determination will be given to the Permittee. Unless the Director requires immediate cessation of injection, the owner or operator must cease injection into the well within 48 hours of receipt of the Director's determination. See 40 C.F.R. § 144.51(q)(2).

The Director may allow plugging of the well pursuant to the requirements of this Permit or require the Permittee to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDW caused by the lack of Mechanical Integrity. The owner or operator may resume injection upon written notification from the Director that the owner or operator has demonstrated Mechanical Integrity pursuant to 40 C.F.R. §146.8 of this chapter. See 40 C.F.R. § 144.51(q)(2).

3. After Failure to Meet a Mechanical Integrity Deadline

A permittee is required to demonstrate Mechanical Integrity no later than 60 months from the date of the last approved demonstration, or on a more frequent schedule as required by the Director. Failure to demonstrate Mechanical Integrity within the required time frame, is consider a loss of Mechanical Integrity. See 40 C.F.R. 144.28(g)(2)(iv)(A).

4. Loss of Mechanical Integrity During Operation

The Permittee must cease injection if a loss of Mechanical Integrity as defined at 40 C.F.R. § 146.8 becomes evident during a test or operation. The Permittee must notify the Director within 24-hours of determining there was a loss of Mechanical Integrity. Injection operations must not be resumed until the Permittee has complied with the provisions of this Permit regarding Mechanical Integrity demonstration and testing.

Within five (5) calendar days, the Permittee must submit a follow-up written report that documents circumstances that resulted in the Mechanical Integrity loss and how it was addressed. If the Mechanical Integrity loss has not been resolved, the Permittee must provide a report with the proposed plan and schedule to reestablish Mechanical Integrity.

**Section E. Schedule of Mechanical Integrity Demonstrations**

The Permittee must at a minimum demonstrate Mechanical Integrity on the following schedule unless another schedule is required by a written notice from the Director. See 40 C.F.R. §§ 144.51(q)(1) & 144.51(q)(2).

1. Prior to Commencing Initial Injection. See 40 C.F.R. §§ 144.51(q)(2) and 144.52(a)(8).
2. Regularly, no longer than 60 months from the date of the last approved demonstration. See 40 C.F.R. 144.28(g)(2)(iv)(A).
3. After any workover, where Mechanical Integrity is lost, such as those that require unseating the tubing or resetting the packer. Mechanical Integrity must be reestablished within 90 calendar days

of any loss of Mechanical Integrity unless written approval of an alternate compliance period has been given by the Director.

4. Mechanical Integrity must be reestablished within 90 calendar days of any loss of Mechanical Integrity unless written approval of an alternate compliance period has been given by the Director.
5. When requested by the Director.

#### **Section F. Notification Prior to Performing a Mechanical Integrity Test**

The Permittee must notify the Director at least 30 calendar days prior to any mechanical integrity test. The Director may allow a shorter notification period if it would be sufficient to enable EPA or a designated representative to witness the mechanical integrity test or EPA declines to witness the test, see Part II. Section B.9. Notification may be in the form of a yearly or quarterly schedule of planned mechanical integrity tests, or it may be on an individual basis. See 40 C.F.R. §144.28(g)(2)(c).

Either with this notification or at least 30 calendar days prior to the mechanical integrity test, the Permittee must submit a work plan outlining the methods and timetable for performing the mechanical integrity test. If the Permittee chooses to use methods not listed within this Permit, the plan must be submitted at least 60 calendar days prior to the proposed mechanical integrity test date. The Director may allow a shorter notification period if it would be sufficient to enable the EPA to adequately respond, pursuant to Part II. Section B.9. See 40 C.F.R. § 146.8(d).

#### **Section G. Approved Mechanical Integrity Test Method**

The “Authorization for Alternative Construction Method” found in Exhibit B.1. requires the Permittee to utilize the methods for demonstrating Mechanical Integrity are as specified below. The Director may stipulate specific test methods and criteria best suited for a specific well construction and injection operation. In conducting and evaluating the tests enumerated in this subsection, or others to be allowed by the Director, the Permittee must apply methods and standards generally accepted in the industry.

##### **1. Internal Mechanical Integrity**

The following methods have been approved by the Director and may be used to evaluate the absence of tubing leaks for this well:

###### **a. Pressure Testing of Inner Casing or Tubing**

The demonstration will consist of a pressure test on the tubing an internal pressure test (in which an inflatable packer is installed in the injection casing and pressuring the well up to 1.5 times the maximum injection pressure (in psig) with not more than three (3) percent pressure changes over at least 30 minutes.

##### **2. External Mechanical Integrity**

- a. Temperature Log;
- b. Radioactive Tracer Survey; and

c. A downhole video survey of the injection casing.

3. Additional Testing

The Director may require additional or alternative tests if the results presented by the operator are not satisfactory to the Director to demonstrate there is no movement of fluid into or between USDW resulting from the injection activity.

4. Alternate Methods

A Permittee may propose other logs and tests as specified in 40 C.F.R. § 146.8 or as published in the Federal Register. The plan must also propose standards that will be used for evaluating the results of logging and testing. Mechanical Integrity will be confirmed if the well logs and test data meet or exceed the standards approved during the Director’s review of the plan.

**Section H. Reporting Results of Mechanical Integrity Tests**

When the Permittee reports the results of mechanical integrity tests, the Permittee must include a description of the test(s) and the method used. Monitoring and other test data submitted since the previous evaluation will be assessed and reviewed. Results of mechanical integrity tests required by this Permit must be submitted to the Director as soon as possible but no later than 90 calendar days after the test is complete. Results are to be submitted to the Director in accordance with Part III. Section B.

## Appendix D. Project Injection Operation Requirements

### Section A. Injection Operation

For a well authorized by this Permit, beginning on the date that Initial Injection is approved by the Director until the closure of the well has been approved by the Director, the Permittee, alone, is authorized to inject only those fluids as described in identified in this permit and only in a manner consistent with the conditions set forth in this permit. All other injection activity is prohibited. See 40 C.F.R. § 144.11.

Injection is prohibited:

1. Injection is prohibited between the outermost casing protecting the USDW and the well bore. See 40 C.F.R. § 144.28(f)(1).
2. Injection is prohibited if the well lacks Mechanical Integrity. See Appendix C.

### Section B. Injection Zone

For the well authorized by this Permit, injection must be limited to the specific zone(s) and interval(s) identified

The injection zone authorized by this Permit for IW-1 and IW-2 is the Open Borehole located in the lowermost Middle Avon Park Confining and Composite Unit, and Boulder Zone in the Oldsmar formation. In IW-1, this zone is encountered between 2,920 and 3,501 feet below land surface. In IW-2, this zone is encountered between 3,000 and 3,503 feet below land surface.

### Section C. Injection Fluid

For each well authorized by this Permit, the injectate will consist of only the fluid or fluids specifically authorized in this section, unless approved in advance by the Director.

#### 1. Specified Injection Fluid(s)

The injected fluid is limited to:

##### a. Reverse Osmosis Concentrate and Process Water:

This concentrate is from reverse osmosis operations at the Applicant's Hollywood Reservation Water Treatment Plant as well as any associated raw water and flush water from the operation of this system. This source is located at:

2600 North 64th Avenue, Hollywood, Florida 33024

#### 2. Secondary Treated Municipal Wastewater Effluent

This secondary treated municipal wastewater effluent is from the Applicant's Hollywood Reservation Wastewater Treatment Plant. This facility is located at:

2600 North 64th Avenue, Hollywood, Florida 33024

3. Additional Specified Injection Fluid(s)

The Permittee must seek a minor modification and receive approval from the Director before disposing of fluids of other types and sources into the well.

4. Additives and Treatments to the Injectate Stream

The Permittee must provide to the Director, 30 calendar days prior to injection, a list of any additives to the injectate and their chemical composition, including any inhibitors used to prevent scaling, corrosion, or bacterial growth. These lists should also indicate the brand name of the product(s) where appropriate and their manufacturer.

5. Well Stimulation Fluids

During the performance of Well Stimulation, the Permittee is required to follow the procedures approved by the Director, pursuant to Part V. Section E.4.

**Section D. Injection Pressure Limitations**

1. Injection Must Preserve the Integrity of Geologic Formations

Injection pressures must not initiate new fractures or propagate existing fractures in the confining zone adjacent to USDW; significantly alter the fluid movement capabilities of the confining zone; or cause the movement of injection or formation fluids into a USDW or into an essential monitoring zone or between USDW. See 40 C.F.R. § 144.28(f)(6)(i).

2. Injection Must Preserve the Mechanical Integrity of the Well

The integrity of the well structure must be protected; hence, total pressure must not exceed the maximum allowable stress of the materials used to construct the well. The permittee may demonstrate through pressure testing of the inner casing or tubing at a pressure of 150 percent of the desired injection pressure.

3. Injection During Well Stimulation

During the performance of Well Stimulation, the Permittee is required to follow the procedures approved by the Director. See Part V. Section E.4

4. Maximum Allowable Injection Pressure

Except during stimulation, as approved by the Director, the Permittee must not exceed an injection pressure at the wellhead which must be calculated so as to assure that the pressure during injection does not initiate new fractures or propagate existing fractures in the injection zone; and Permittee must not inject at a pressure which will initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water. See 40 C.F.R. § 144.11.

For IW-1 and IW-2, unless following approved well stimulation procedures, the Permittee is limited to a maximum injection pressure of 103 psig as measured at the wellhead.

#### **Section E. Injection Rate Limitations**

The maximum rate of injection will be 8.87 million gallons per day, per well.

The Permittee may request an increase in the maximum rate allowed. Any such request must be made in writing to the Director. Should any increase in rate be requested, the Permittee must demonstrate to the satisfaction of the Director that the increase in volume will not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification, or cause migration of injectate or pressure buildup to occur beyond the AOR.

#### **Section F. Injection Velocity Limitations**

The maximum velocity of injected fluid must not exceed the point where the mechanical limits of the well design or structure of the formation will be adversely affected.

For IW-1 and IW-2, the maximum injection velocity authorized must not exceed 12 feet per second (ft/sec).

The Permittee may request an increase in the maximum velocity allowed. Any such request must be made in writing to the Director. Should any increase in rate be requested, the Permittee must demonstrate to the satisfaction of the Director that higher velocities will not compromise the integrity or operation of the well.

#### **Section G. Inability to Comply**

In the event the Permittee is temporarily unable to comply with any of the criteria outlined in this Permit due to breakdown of equipment, power outages, destruction by hazard of fire, wind, or by other cause, the Permittee must notify the EPA. Notification must be made to the Director within 24 hours of breakdown or malfunction - in person, by telephone, or by e-mail.

# Appendix E. Project Monitoring and Reporting Requirements

## Section A. Monitored Parameters and Frequency of Monitoring

### 1. Injection Operation Monitoring Parameters

At a minimum, the Permittee must monitor the following parameters at a minimum frequency as given in the corresponding entry below.

#### a. Injection Tubing Pressure (psig)

- i. The Permittee must monitor injection tubing pressure continuously at the well head during injection operations.
- ii. The Permittee must monitor injection tubing pressure at least once a month at the well head during periods of inactivity. See 40 C.F.R. § 146.13(b)(2).
- iii. A quarterly report submitted to the EPA will include the pressure data summarized by month. The monthly pressure data will include:
  - Maximum pressure, psi;
  - Minimum pressure, psi;
  - Average pressure, psi.

#### b. Flow Rate

- i. A quarterly report submitted to the EPA will include the flow rate into the injection zone summarized by month. The monthly cumulative flow data will be reported as:
  - Maximum flow, gallons per minute;
  - Minimum flow, gallons per minute;
  - Average flow, gallons per minute.

#### c. Fluid Volume Injected (bbls)

- i. The Permittee must record the volume of fluid source, separately for each specified fluid source, continuously during injection operations.

#### d. Cumulative Fluid Volume Injected (since injection began) (bbls)

- i. The Permittee must monitor the cumulative volume of fluid injected at least once a week. See 40 C.F.R. § 146.13(b)(2).

### 2. Injection Fluid Analysis

The Permittee must regularly submit a chemical analysis of each specified injection fluid which the Permittee plans to inject prior to initiating injection. The required parameters and the schedule of their measurement for injected fluids are found below in Table E.1.

### 3. Monitored Formation Fluid Analysis

The Permittee must regularly submit a chemical analysis of each zone monitored by the monitoring well. The required parameters and the schedule of their measurement for both the Upper and Lower Monitoring Zones are found below in Table E.1.

**Table E.1. Schedule of Monitor Well and Injectate Water Quality Testing**

<b>Parameter</b>	<b>MW-1-UMZ</b>	<b>MW-1-LMZ</b>	<b>Reverse Osmosis Concentrate</b>	<b>Wastewater Treatment Plant Treated Effluent</b>
Temperature	Monthly	Monthly	Monthly	Monthly
pH	Monthly	Monthly	Monthly	Monthly
Specific Conductance	Monthly	Monthly	Monthly	Monthly
Specific Gravity	Not Sampled	Not Sampled	Monthly	Monthly
Total Dissolved Solids	Monthly	Monthly	Monthly	Monthly
Total Suspended Solids	Monthly	Monthly	Monthly	Monthly
Ammonia	Monthly	Monthly	Monthly	Monthly
Total Kjeldahl Nitrogen	Monthly	Monthly	Monthly	Monthly
Chloride	Monthly	Monthly	Monthly	Monthly
Nitrate	Monthly	Monthly	Monthly	Monthly
Nitrite	Monthly	Monthly	Monthly	Monthly
Sulfate	Monthly	Monthly	Not Sampled	Monthly
Total Phosphorus	Monthly	Monthly	Not Sampled	Monthly
Fecal Coliform	Monthly	Monthly	Monthly	Monthly
Total Hardness	Monthly	Monthly	Monthly	Monthly
Calcium Hardness	Monthly	Monthly	Monthly	Monthly
Magnesium Hardness	Monthly	Monthly	Monthly	Monthly
Gross Alpha	Not Sampled	Quarterly	Quarterly	Not Sampled
Radium 226	Not Sampled	Quarterly	Quarterly	Not Sampled
Radium 228	Not Sampled	Quarterly	Quarterly	Not Sampled
Remaining National Primary and Secondary Drinking Water Standards	Not Sampled	Not Sampled	Annually	Annually

### **Section B. Monitoring Methods**

The Permittee must identify the types of tests and methods used to generate all monitoring data. Monitoring observations, measurements, samples, and any other source of data used for the purpose of complying with these requirements must be representative of the activity or condition being monitored.

1. Analytical Methods

The analytic methods used to monitor the nature of the injected fluids must comply with analytical methods cited and described in Appendix F, Table 1 of 40 C.F.R. § 136.3 or Appendix III of 40 C.F.R. Part 261, or by other methods that have been approved in writing by the Director. The Permittee may make a request to the Director in writing for the approval of alternative methods other than those listed above. See 40 C.F.R. § 144.52(a)(5).

All analytical methods must be performed at laboratories accredited for the methods used.

2. Operational Monitoring Methods

Injection pressure, injection rate, and cumulative injected volume must be observed and recorded at the wellhead, and all parameters must be observed simultaneously to provide a clear depiction of well operation.

- a. Pressures are to be measured in pounds per square inch (psi) or pounds per square inch gauge (psig), as appropriate.
- b. Fluid volumes are to be measured in units of standard gallons (G), 42-gallon barrels (bbl), thousand standard cubic feet (Mcf or Mscf), or in millions of gallons (MG), as appropriate.
- c. Injection rates are to be measured in gallons per minute (GPM), barrels per day (BPD or bbls/Day), thousand standard cubic feet per day (Mcf/d or Mscf/d), or millions of gallons per day (MGD).

**Section C. Monitoring Report Requirements**

1. Monitoring Report Schedule

The Permittee must submit reports as shown below:

**Table E.2. UIC Reporting Schedule**

Monitoring Report	Reporting Period	Report Due Date
1 <sup>st</sup> Quarter Monitoring Report	January 1 to March 31	April 30
2 <sup>nd</sup> Quarter Monitoring Report	April 1 to June 30	July 31
3 <sup>rd</sup> Quarter Monitoring Report	July 1 to September 30	October 31
4 <sup>th</sup> Quarter Monitoring Report	October 1 to December 31	Following January 31

2. Quarterly Monitoring Report

A Quarterly Monitoring Report must be submitted every quarter, this includes the calendar quarter this Permit becomes effective and any quarter where there was no injection activity. The Quarterly Monitoring Report for each quarter is due on the last day of the month following the end of the reporting period.

The Quarterly Monitoring Report must contain the following items:

a. Owner or Operator Quarterly Injection Well Monitoring Report - EPA Form 7520-8

The Permittee must submit a separate form for each specified fluid source.

b. Injection Fluid Analysis

The Permittee must submit a separate analysis for each specified fluid source. The Permittee must note any major changes in characteristics of injected fluid. Previously submitted information may be included by reference.

c. Well Stimulation and Treatment Chemicals

On an annual basis, the Permittee must submit:

- i. a list of all chemicals and their composition used for any well stimulation during that reporting period unless previously submitted as part of a well stimulation report; and,
- ii. a list of any additives used and their chemical composition, including any inhibitors used to prevent scaling, corrosion, or bacterial growth.

These lists should indicate the brand name of the product (if applicable) and the manufacturer.

## Appendix F. Approved Closure Plans

### Section A. Plugging and Abandonment Plans

The Permittee must update this information as required by Part VI and must follow any additional requirements in this appendix.

### Section B. Plugging and Abandonment Requirements

Prior to abandonment, a well must be plugged with cement in a manner which will not allow the movement of any fluids into a USDW or between two or more USDWs, and which isolates the injected fluid in the injection formation. See 40 C.F.R. § 146.10(a).

### Section C. Required Plugging and Abandonment Methods

Prior to the placement of a cement plug, the well must be in a state of static equilibrium, with the mud weight equalized from top to bottom, either by circulating the mud in the well at least once or by a comparable approved method. See 40 C.F.R. § 146.10(a)(3).

In addition, placement of the plugging material must be accomplished by one of the following methods:

1. The balance method;
2. The dump bailer method;
3. The two-plug method; or
4. Any other recognized method as effective or more effective than the above which has been approved by the Director in this well's plugging and abandonment plan. See 40 C.F.R. § 146.10(a)(2).

### Section D. Required Post-Closure Monitoring

1. Under the Criteria Manual 6.2.6.1.I, the Permittee may be required to prepare a post-closure monitoring plan. The Permittee should submit a copy of that plan to the Director. In addition to the requirements of 6.2.6.1.I.

### Section E. Description of Currently Approved Plugging and Abandonment Plans

#### 1. IW-1 and IW-2 Plugging Plan

Cement will be used to plug the entire length of the tubing and casing as identified in the P&A Plan. Gravel will be placed in the injection well open hole from the well TD to 10 feet below the bottom of the final steel casing. Cement will be placed in stages based on conditions at the time of plugging. ASTM C150 Type II or Type 1L Portland cement will be used for the P&A of the wells.

Injection Well P&A Plan:

1. Obtain approval from the EPA.
2. Mobilize necessary materials and equipment.
3. Suppress the wellhead pressure with mud or salt.
4. Remove the wellhead assembly.
5. Perform a MIT on the well.
6. Fill the open hole with crushed limestone to within 10 feet of the casing seat.
7. Fill casing and remaining open hole with neat cement in stages, tagging cement top between stages.
8. Remove the wellhead and cutoff well casings three feet below grade.
9. Add a monument identifying the location of the well.
10. Restore the site to existing condition.
11. Demobilize materials and equipment.

## 2. MW-1 Plugging Plan

Cement will be used to plug the entire length of the tubing and casing as identified in the P&A Plan. Gravel will be placed in the injection well open hole from the well TD to 10 feet below the bottom of the final steel casing. Cement will be placed in stages based on conditions at the time of plugging. ASTM C150 Type II or Type 1L Portland cement will be used for the P&A of the wells

Monitoring Well P&A Plan:

1. Obtain approval from the EPA.
2. Mobilize necessary materials and equipment.
3. Suppress the wellhead pressure with mud or salt.
4. Remove the wellhead assembly.
5. Perform a geophysical logging in the well.
6. Fill the 6-5/8 diameter open hole with crushed limestone to within 10 feet of the casing seat.
7. Fill the deep zone and the 6-5/8-inch casing with neat cement to land surface in stages, tagging cement top between stages.
8. Fill the 16-inch diameter open hole with crushed limestone to within 10 feet of the 16-inch.

9. Fill the shallow zone and the 16-inch diameter casing with neat cement to land surface in stages, tagging cement top between stages.
10. Remove the wellhead and cutoff well casings three feet below grade.
11. Add a monument identifying the location of the well.
12. Restore the site to existing conditions.
13. Demobilize materials and equipment.

**Section F. List and Descriptions of Figures and Exhibits Included in This Appendix**

1. Description of “Exhibit F.1. Approved Plugging and Abandonment Plan”

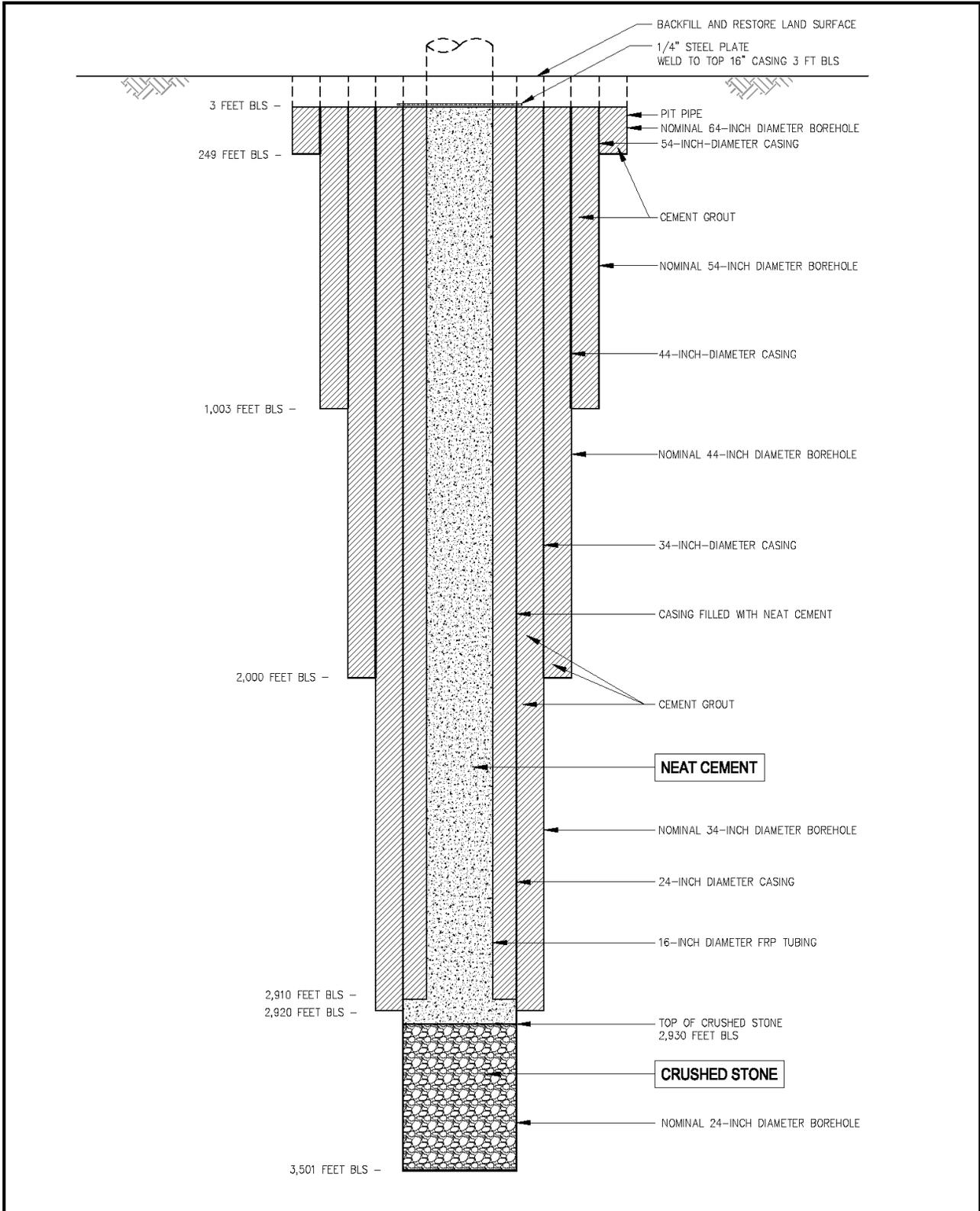
This document includes: a completed form 7520-14; well diagrams showing IW1, IW-2, and MW-1 post-plugging.

Source: Renewal Application, Received November 17, 2021, Attachment E “Plugging and Abandonment Plan”

Original Size: Four 4 pages, 8.5 inches by 11 inches.

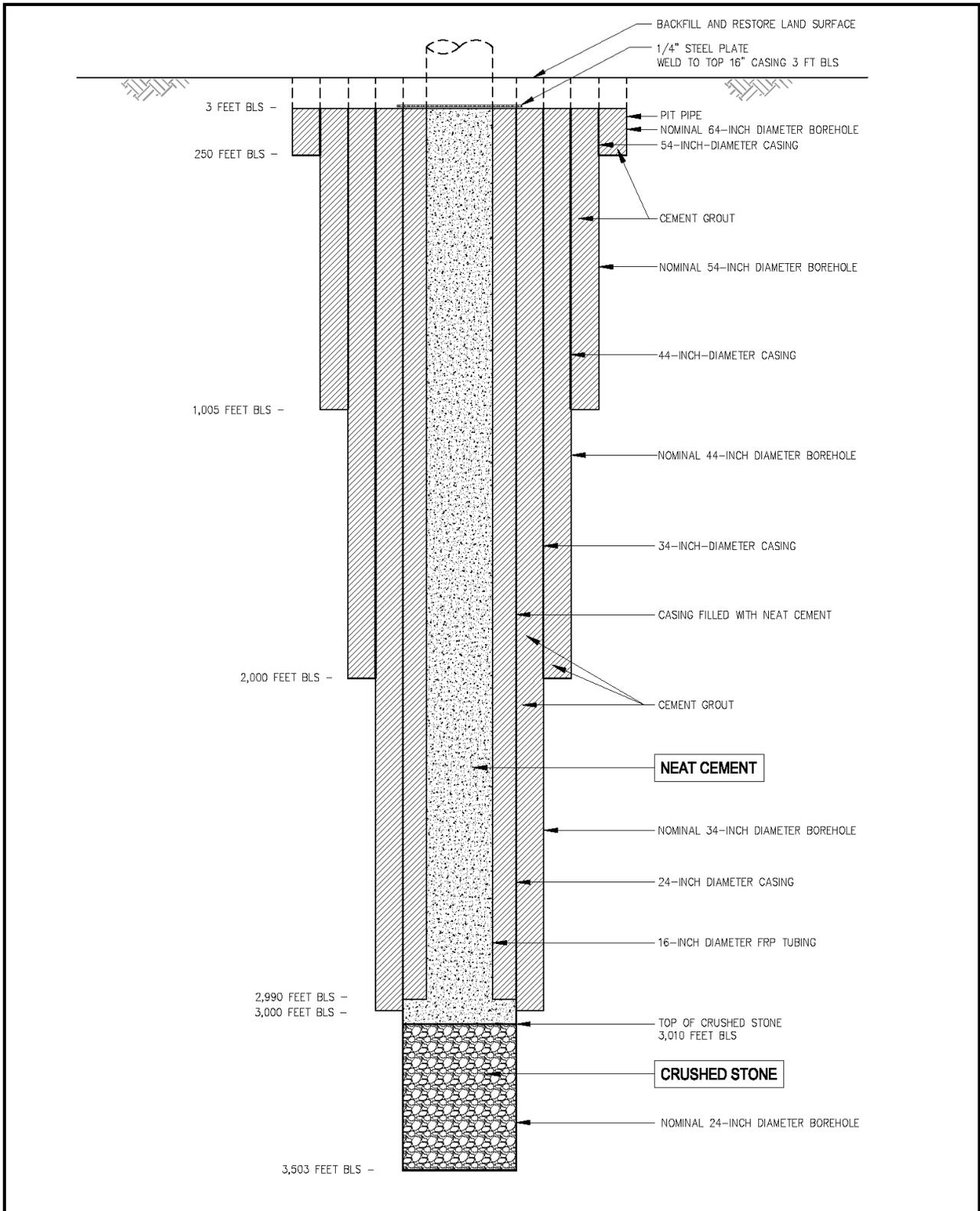


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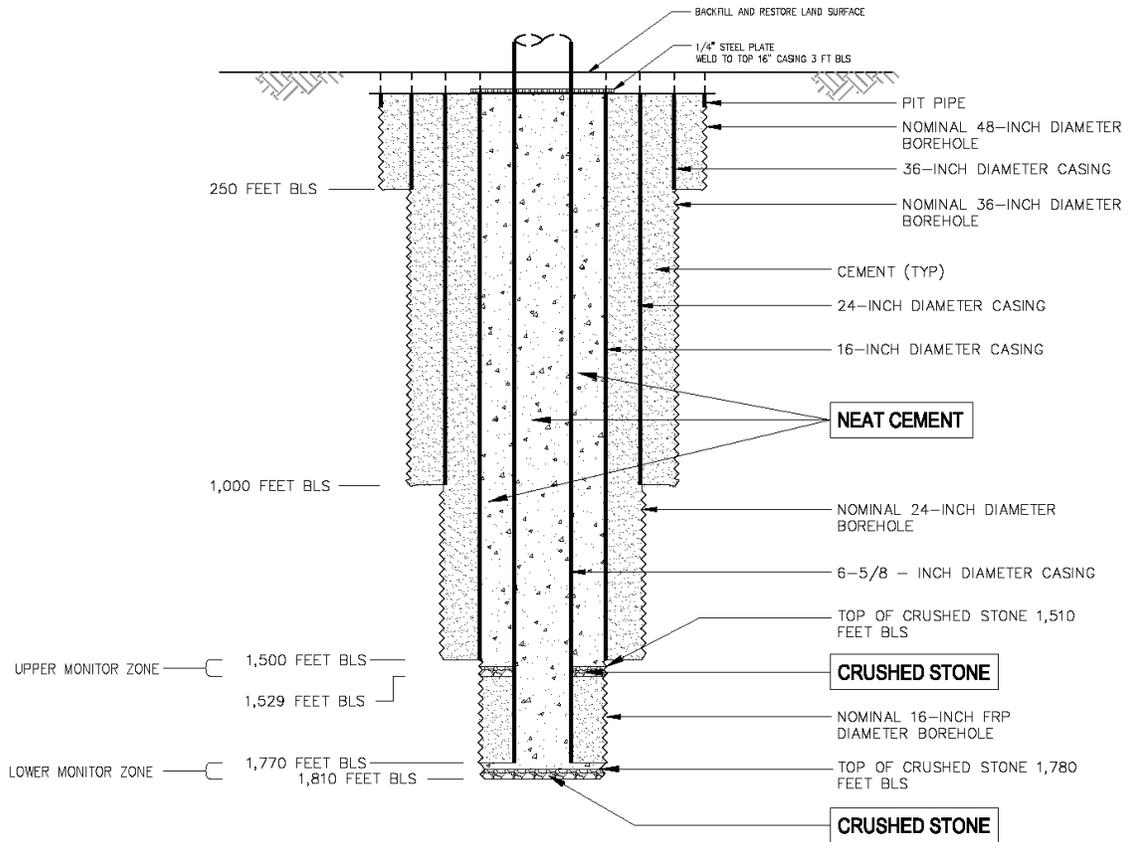
 <p>HAZEN AND SAWYER 4000 HOLLYWOOD BOULEVARD, SUITE 750N HOLLYWOOD, FLORIDA 33021</p>	 <p>SEMINOLE TRIBE OF FLORIDA HOLLYWOOD RESERVATION</p>	<p>INJECTION WELL PERMIT RENEWAL</p> <hr/> <p>INJECTION WELL IW-1 PLUGGING DETAILS</p>	<p>FIGURE E-1</p>
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 <p>HAZEN AND SAWYER 4000 HOLLYWOOD BOULEVARD, SUITE 750N HOLLYWOOD, FLORIDA 33021</p>	 <p>SEMINOLE TRIBE OF FLORIDA HOLLYWOOD RESERVATION</p>	<p>INJECTION WELL PERMIT RENEWAL</p> <hr/> <p>INJECTION WELL IW-2 PLUGGING DETAILS</p>	<p>FIGURE E-2</p>
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**Hazen**

HAZEN AND SAWYER  
4000 HOLLYWOOD BOULEVARD, SUITE 750N  
HOLLYWOOD, FLORIDA 33021



SEMINOLE TRIBE  
OF FLORIDA  
HOLLYWOOD  
RESERVATION

INJECTION WELL PERMIT RENEWAL

DUAL-ZONE MONITOR WELL  
PLUGGING DETAILS

FIGURE

E-3

## Appendix G. Compliance Schedule(s)

On the effective date of this Permit as found on page iii, there are currently no compliance schedules associated with this permit.

### **Section A. Modification to Include Compliance Schedules**

This permit may be modified to specify a compliance schedule leading to compliance with the SDWA. See 40 C.F.R. § 144.53(a).

### **Section B. Time Period for Compliance**

Any compliance schedules must require compliance as soon as possible, and in no case later than 3 years after the effective date of the permit. See 40 C.F.R. § 144.53(a)(1).

#### 1. Interim Dates

If a permit establishes a compliance schedule which exceeds 1 year from the date of permit issuance, the schedule must set forth interim requirements and the dates for their achievement. See 40 C.F.R. § 144.53(a)(2). The time between interim dates must not exceed 1 year.

If the time necessary for completion of any interim requirement is more than 1 year and is not readily divisible into stages for completion, the permit must specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

### **Section C. Compliance Schedule Reporting.**

All reports and progress reports be submitted no later than 30 days following each interim date and the final date of compliance. See 40 C.F.R. § 144.53(a)(3).

### **Section D. Alternative Schedules of Compliance.**

Rather than continue to operate and meet existing compliance schedule requirements, a permittee may cease conducting regulated activities through plugging and abandonment of all covered wells under the terms of this Permit contained in Part VI and Appendix F. See 40 C.F.R. § 144.53(b).

This may be done as follows:

1. If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:
  - a. The permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or
  - b. The permittee must cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement already specified in the permit. See 40 C.F.R. § 144.53(b)(1).

2. If the permittee is undecided whether to cease conducting regulated activities, the Director may issue or modify a permit to contain two schedules as follows:
  - a. Both schedules must contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities.
  - b. One schedule will lead to timely compliance with applicable requirements.
  - c. The second schedule will lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements.
  - d. Each permit containing two (2) schedules must include a requirement that after the Permittee has made a final decision regarding which schedule to follow, the Permittee must either follow the schedule leading to compliance if the decision is to continue conducting regulated activities or follow the schedule leading to termination if the decision is to cease conducting regulated activities. See 40 C.F.R. § 144.53(b)(3).
3. The Permittee's decision to cease conducting regulated activities must be evidenced by a firm public commitment satisfactory to the Director, such as a resolution of the board of directors of a corporation. See 40 C.F.R. § 144.53(b)(4).