



# FLORIDA DEPARTMENT OF Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**Ron DeSantis**  
Governor

**Jeanette Nuñez**  
Lt. Governor

**Shawn Hamilton**  
Secretary

## Memorandum

**To:** Maria Labrador, Engineering Specialist III  
Central District

**THROUGH:** Brian Dougherty, Program Manager  
District & Business Support Program, DWM

**FROM:** Jeff Wagner, PG II  
District & Business Support Program, DWM

**SUBJECT:** Beresford Springs Site,  
800 East Beresford Avenue, Deland, Volusia County  
Site Assessment Report – Volume 1, December 27, 2021  
Site ID: ERIC\_15328

**DATE:** March 23, 2022

A blue ink handwritten signature of Brian Dougherty.

Digitally signed by Brian  
Dougherty  
Date: 2022.03.24  
15:00:08 -04'00'

**Jeffry  
Wagner**

Digitally signed by Jeffry  
Wagner  
Date: 2022.03.23  
08:49:46 -04'00'

---

The District and Business Support Program (DBSP) has reviewed the Site Assessment Report – Volume I [and appendices with other site reports] dated December 27, 2021 by Kimley-Horn and Associates. The following review comments are provided to assist the Central District staff with their review. DBSP's review comments should not be inferred to be an approval of the subject document.

### Background

- Site was undeveloped until about 1940s
- During the 1950s and 1960s, a sand mine was operated on the property by the City of DeLand. At some point before the operations were discontinued, the mine was used as a dump and backfilled with construction and demolition debris. The property was sold in late 1960s.
- In 1968, the Sandhill Golf Course was constructed and was active until 2018.
  - Operations included maintenance and chemical storage areas.
  - The maintenance area included underground diesel and gasoline storage tanks. A 1,500-gal gasoline above ground storage tank (AST) was removed in 2004. Currently, there are two ASTs that are each less than 500 gal.
- From 1992 until 2015, the course was irrigated with reclaimed water from the city. The reclaimed water use permit included a condition to monitor the groundwater on a quarterly basis.

This Site Assessment Report, Volume 1 is based on three separate assessment periods that were conducted without FDEP oversight or Site Assessment Plan approval

1. June 12, 2020, Summary of Geotechnical and Environmental Testing Activities and Test Results, Bechtol Engineering and Testing, Inc.
2. September 17, 2020, Phase II Environmental Site Assessment, Kimley-Horn
3. December 27, 2021, Site Assessment Report – Volume I, Kimley-Horn (a future Volume II is intended to include a Site Assessment Addendum).

The above reports indicated soil sampling results above their respective soil cleanup target levels (SCTLs) specified by Chapter 62-777, Florida Administrative Code (F.A.C.) are present at the site for arsenic, lead, mercury, total chromium, chlordane (Technical), dieldrin, toxaphene, beta-hexachlorocyclohexane ( $\beta$ -BHC), benzo(a)anthracene (leachability), benzo(a)pyrene equivalents and tetrachloroethene.

The report also indicates the residential SCTL for barium is exceeded. The report cites the residential SCTL of 120 milligrams per kilogram (mg/kg) in Chapter 62-777, F.A.C. It is noted that given FDEP's consideration of updated Acute Toxicity Guidance recommended by EPA, FDEP supports the residential Alternative Soil Cleanup Target Level (ASCTL) (November 21, 2016) for acute exposure to barium as 3,000 mg/kg instead of 120 mg/kg. No soil sampling results exceeded the recommended ASCTL for barium. ([http://publicfiles.dep.state.fl.us/DWM/FTP/DBS/Alternative-Barium-Soil-Dade-City-Rod-and-Gun-Club-FACID\\_693-1.pdf](http://publicfiles.dep.state.fl.us/DWM/FTP/DBS/Alternative-Barium-Soil-Dade-City-Rod-and-Gun-Club-FACID_693-1.pdf))

Also, these reports included results from groundwater sampling indicating that concentrations above their respective Groundwater Cleanup Target Levels (GCTLs) specified by Chapter 62-777, F.A.C. are present at the site for arsenic, lead, total chromium, dieldrin, nitrate, bromodichloromethane and dibromochloromethane.

It is likely that bromodichloromethane and dibromochloromethane are byproducts from chlorination of water. The source of drilling water was not included in the report, but likely is from the chlorinated municipal water supply. Nitrate impacts are likely from the use of reclaimed water used for irrigating the course. The reclaimed water operations appear to have been located in the southeast portion of the property.

The following comments relate to the DBSP review.

- It is assumed that groundwater flow is west-southwest. The flow direction for each zone needs to be confirmed with further assessment activities. There is high variability in the data, so it is not clear if the measured water levels represent the same groundwater zone given the different depths and different screen intervals.

- The depth to the water table appears to be varied and may range from 30-35 bls to 41-53 ft bls.
  - It was noted in the well construction table that at 20-30 ft a well was dry. Also, at KHMW-7, the boring log indicated the soils were wet at 10 ft bls which is in contrast to KHMW-4 where the water table was at 34 ft bls.
- Groundwater delineation is not defined southwest of the maintenance area, off-source property in the southeast corner and southwest of the defined dump area.
- Additional soil and groundwater delineations are needed with regards to dieldrin, arsenic, lead, and chromium for the maintenance and chemical storage areas.
- Groundwater sampling field documentation for sampling conducted during the Volume 1 SAR activities was not completed in accordance with FDEP sampling protocols. The records required during well purging were not provided. Samples need to be collected when purged groundwater indicates field parameters have stabilized. Without this documentation, sample result quality is questionable.
- There are several soil delineation data gaps for the site assessment.
  - Additional step out soil samples (lateral and vertical) are needed for golf course features, the maintenance/storage area, and the dump area.
  - Additional lateral and vertical groundwater delineation
- In order to validate any ESA data (groundwater or soil) that might be used for satisfying requirements for the Site Assessment, a Confirmatory Sampling Plan should be prepared.

In Summary –

- Brownfield sites are subject to the assessment/remedial action requirements under Chapter 62-780, F.A.C. and must satisfy 62-780.680, F.A.C. No Further Action criteria for site closure.
  - Requirements for delineation of any soil or groundwater impacts (if applicable) do not end at legal property boundaries.
  - Groundwater plumes must be delineated to the applicable groundwater cleanup target level or to a FDEP approved site-specific groundwater background concentration or alternative cleanup target level whichever is less stringent.
- The SAR text does not provide a description of the local hydrogeology and no cross section was included that defines the subsurface groundwater zone(s). The top of the confining unit is not defined.
  - It could not be determined which groundwater zone the monitoring wells tap.

- There is a general lack of detailed subsurface data associated with the existing boring logs for the site.
  - A well construction table including details on elevations, depth of casing, total depth, and water level information needs to be provided for all existing and future constructed monitoring wells.
- FDEP can only make limited use of Phase I/II ESAs performed by others with no FDEP oversight to make decisions regarding compliance with rehabilitation requirements in accordance with rule 62-780, F.A.C. or meeting NFA criteria per 62-780.680, F.A.C.
  - Protocols for ESAs do not meet the Department standards as put forth by Chapter 62-780 and FDEP Standard Operating Procedures (SOPs) for Field Sampling of soil, groundwater, surface water and sediment media.
  - In order for any of the Phase II data to be accepted, confirmatory sampling will be needed to verify the ESA soil and groundwater sampling results.
    - The promulgated (62-780.600, F.A.C.) soil vertical sampling intervals are land surface to six inches, six inches to two feet, and two-foot intervals thereafter to the extent necessary to define the soil contamination.
      - The assessment conducted to date did not consistently collect soil samples at the vertical intervals specified by the rule.
- SAR, Volume 1 may need to be re-packaged to understand what data is being extracted from ESA for use in the SAR. Data tables, figures, and field note documentation should be in accordance with 62-780.600, F.A.C. requirements.

If you have any questions, please contact me at [Jeffry.Wagner@FloridaDEP.gov](mailto:Jeffry.Wagner@FloridaDEP.gov) or (850) 245-8967.