August 28, 2012

Ms. Candie Fuller
Inspector General
Florida Department of Environmental Protection
Office of the Inspector General
3900 Commonwealth Boulevard, MS 40
Tallahassee, FL 32399-3000

Re: Failure of FDEP to Follow CERCLA Protocols at Key Largo Hammock Botanical State Park

Dear Ms. Fuller:

This petition is filed pursuant to § 20.055(2)(d), Fla. Stat., and Florida, Department of Environmental Protection (FDEP) Administrative Directive DEP 290, authorizing FDEP's Office of Inspector General to conduct investigations into the operation of programs within the FDEP. More specifically, this petition is asking that your office investigate the failure of FDEP's South District to properly assess and remediate known contamination at Key Largo Hammock Botanical State Park.

Background

Key Largo Hammock Botanical State Park (KLHB) was purchased in 1982 by the State of Florida Board of Trustees of the Internal Improvement Trust Fund as part of the Conservation and Recreation Lands (CARL) program.[1] KLHB is currently managed by the Division of Recreation and Parks. According to 62-302.700(9)(d)6., F.A.C. the surface waters that border the KLHB are Outstanding Florida Waters and thus entitled to the highest protection that can be afforded by the State of Florida. See, 62-302.700(1), F.A.C. KLHB is also in an Area of Critical State Concern under § 380.05, Fla. Stat., and is one of the components of Florida's Greenways and Trails System. It is adjacent to an aquatic preserve that has been so designated under the Florida Aquatic Preserve Act of 1975. See, § 258.35, Fla. Stat. The site is also home to four federally endangered animals, the American crocodile, Key Largo woodrat, Key Largo Cotton Mouse, and Schaus swallowtail butterfly.[2]

[1] *Dagny Johnson Key Largo Hammock Botanical State Park, Unit Management Plan*, September 1, 2004, A1-1
[2] *Dagny Johnson Key Largo Hammock Botanical State Park, Unit Management Plan*, September 1, 2004, pg. 19

The surface waters surrounding much of the Florida Keys have been designated by the FDEP as impaired for nutrients.[3] In a Florida Keys Reasonable Assurance Document (FKRAD) issued by the Watershed Management Bureau in December 2008 the FDEP stated:

> The Florida Keys, in contrast, is a 220 miles-long string of small narrow linear islands surrounded by a very large receiving waterbody. As a result, local runoff is not focused and pollutants are dispersed in the Gulf of Mexico and Straits of Florida. Soils are such that infliltration and percolation are relatively enhanced, moving infiltrated runoff and its pollutants to nearshor waters quickly, yielding little or no nutrient entrapment or treatment in the soils matrix. The limited size of the land area limits the ability to place land intensive stormwater BMPs (such as detention or retention ponds). Also uniquie to the Florida Keys is the degree to which external farfield pollutants circulating in marine waters impact local waters. For wastewater, due to the soils, high water table and tides, septic tanks have limited treatment capability and "regional" systems are historically limited to small package plants. Finally, pollutant sources outside the control of the local governments provide the dominant influence on the receiving waters of the area. In this case, unconventional approaches to pollutant controls are required."

FKRAD, pp. ES-1-2. While the FKRAD dealt with nutrient pollution in surrounding surface waters the above conclusion is significant vis-à-vis the ability of pollutants to infiltrate and percolate through the soils into the groundwater and nearby surface waters.

The property currently in question was previously used by the federal government. At one time there was a NIKE missile site located on what is now the midpoint of the property. There was also a skeet range located in the northern section of the property. After acquisition, the State of Florida closed the skeet shooting range.[4] It appears that significant contamination occurred on the property while owned by the previous owner, although the Unit Management Plan that was approved in 2004 erroneously described the contamination as minimal.[5]

The issue with which we are concerned is documented soil contamination inside KLHB for which there has been no risk assessment or remedial action plan prepared by the FDEP as required by the Department's own rules. The contaminates involved are lead, arsenic, antimony and several different PAHs: acenaphthalene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene. They are located in the area known as the Skeet Range.

[3] See, passim, *Site-Specific Information in Support of Establishing Numeric Nutrient Criteria for the Florida Keys*, September 2011.
[4] Dagny Johnson Key Largo Hammock Botanical State Park, Unit Management Plan, September 1, 2004, page 29
[5] Dagny Johnson Key Largo Hammock Botanical State Park, Unit Management Plan, September 1, 2004, page 18.

According to records that we obtained directly from the FDEP pursuant to a public records request under Chapter 119, Florida Statutes, the property in question has been under scrutiny for some time. In 2003 the firm of Metcalf & Eddy (M&E) conducted a reconnaissance of the property at the FDEP's request. On June 27, 2003, a Site Reconnaissance Report was submitted to the FDEP. It delineated concerns about soil contamination on the property resulting from naval activities conducted thereon. M&E then conducted both a preliminary site investigation and a site investigation, said investigations beginning on May 3, 2005 and concluding on March 14, 2006.

In addition, this property routinely undergoes management reviews by the Division of State Lands as required by § 259.036, Fla. Stat. Accordingly, the property was reviewed on November 18, 2010, after which a management plan was approved on February 23, 2006. This plan was reviewed and approved during a time in which the FDEP was actively investigating soil contamination in the park. Yet there is no mention in the plan about this issue, or the need to determine the extent to which the contamination exists. Then, barely two months after the management review was conducted, the results of the M&E investigations were provided to the FDEP in the form of a Site Investigation Report on April 17, 2006.

In the Site Investigation Report, a copy of which is enclosed herewith, M&E concentrated their efforts on three areas, one that contained Underground Storage Tanks (AOC 1), one known as the Former Skeet Range (AOC 2) and a third known as a former helipad (AOC 3). M&E concluded that AOC 1 was actually not part of KLHB and therefore discontinued their study of this area.[6]

While there was stressed vegetation in AOC 3, M&E concluded that contamination was not the stressor and thus no further action was required. Nevertheless, M&E found that "[f]ive RCRA metals were detected in the samples: arsenic, barium, chromium, and lead were detected in all four samples and selenium was detected in three of four samples. All metals concentrations were less than the SCTLs." In addition, elevated levels of phosphorus, magnesium, sodium, sulfur, calcium and nitrogen were found in the samples.

The AOC 2 sampling showed significantly different results. M&E obtained numerous soil samples of the area. They also conducted some synthetic precipitate leaching procedures (SPLP), designed to determine the extent to which the metals would leach to groundwater and concluded, it appears, that no such leaching would occur. Thus, it does not appear that actual groundwater sampling was conducted.[7] This approach would seem to be suspect given the FDEP's own conclusion that the soils in the area are particularly prone to infiltration and percolation, supra.

M&E's sampling of AOC 2 was compromised because the park manager would not allow them to use their "truck-mounted, direct-push drill rig to access [certain areas]." This was because of a

[6] It is unknown whether other agencies such as the FDEP, USDoD or USEPA have conducted sampling of AOC 1. However, the history would suggest that such studies are in order.
[7] Site Investigation Report, page 4

program then underway to return natural vegetation to the area.[8] Therefore, only soil samples were taken and no monitoring wells were installed.

The sampling was conducted in separate site visits. The first showed the presence of antimony, arsenic and lead, the latter two of which were in concentrations that exceeded soil cleanup target levels (SCTL) set in Chapter 62-777, F.A.C. M&E took four shallow soil borings during the next site visits. The results of that sampling showed that benzo(a)pyrene exceeded residential and industrial exposure levels. Benzo(a)anthracene levels exceeded industrial and residential exposure limits. benzo(k)fluoranthene exceeded the residential direct exposure limits. Benzo(b)fluoranthene exceeded the residential direct exposure limits. Samples from a mangrove area showed levels of arsenic and antimony that exceeded the residential direct exposure limit, while lead exceeded the industrial direct limit (1,400 mg/kg).

Additional sampling was conducted at other areas within the former skeet range and the mangrove area. The samples from the former skeet range showed arsenic and lead levels exceeding both residential and industrial exposure SCTLs. Benzo(a)pyrene levels exceeded industrial SCTLs and dibenz(a,h)anthracene exceeded residential SCTL exposure levels.

The mangrove areas were no better. They showed lead and arsenic levels exceeding industrial direct exposure SCTL. Antimony exceeded the residential SCTL. Benzo(a)pyrene levels exceeded both residential and industrial SCTLs.

As a result of these tests, M&E recommended that "[r]emediation of contaminated soils and sediments in AOC 2 would require vehicle access. However, park management is currently prohibiting vehicle access to allow natural revegetation of this area. Therefore, M&E recommends that the area be subject to an environmental use restriction as deemed appropriate by the FDEP."[9]

The Regulatory Requirements

Chapter 62-780 of the Florida Administrative Code (F.A.C.) is quite specific on what must be done when hazardous wastes are found on a site. The objectives of the rules are comprehensive. One of the initial objectives is that the public be given notice that the site is contaminated. § 62-780.220(5), F.A.C. requires that warning signs be erected if hazardous waste is present on a site.

Going further, the rules require that the person responsible for site rehabilitation (PRSR), in this case the FDEP, perform a multi-faceted review of the situation. The objective is to identify the contaminates, their location, their concentration, migration, rate of degradation, the expected use of the area's groundwater, surface water and land (as well as whether or not they are threatened) and also to determine the extent to which the contamination is impacting the human population and threatened or endangered species (both flora and fauna). See, §§ 62-780.600(3)(a)-(k),

[8] Site Investigation Report, page 2
[9] Site Investigation Report, page 8

F.A.C. From a review of the records provided to us by the FDEP it appears that the F.A.C. requirements were not adhered to in this matter.

According to § 62-780.600(1), F.A.C., the PRSR is required to submit a Site Assessment Report (SAR) to the FDEP within 60 days of discovery of the discharge. One might say that this deadline was more than missed, considering that according to the Site Reconnaissance Report (SRR) AOC 2 was acquired by the state in "the early 1990s." (SRR, page 6)

The SAR is required, by rule, to address multiple issues. The requirements of the report are set forth in § 780.600(8), F.A.C. § 780.600(8)(a), F.A.C., requires that the issues identified in §§ 780.600(3)-(5), F.A.C., be addressed. In other words, the PRSR is required to provide the FDEP with an analysis of the area (including groundwater and surface water) in which the hazardous wastes were found, the exact nature of the contaminates, the extent to which they will harm people and/or the environment and the manner in which the PRSR contemplates removal of the contaminates.

§ 62-780.650, F.A.C. also requires that the PRSR provide the FDEP with a risk assessment concerning the risks associated with the hazardous wastes found on the site. And assuming that remediation is warranted, a comprehensive Remediation Action Plan (RAP) must be provided to the FDEP containing all of the elements set forth in § 62-780.700, F.A.C. The objectives of the RAP are to put a plan in place that governs site cleanup. Thus, § 62-780.700, F.A.C., details all of the requirements that must be adhered to in putting together a plan designed to remove the site contamination.

There are circumstances in which cleanup of hazardous wastes at a site may be avoided by rule. Essentially, a PRSR can forego cleanup under any one of three conditions. Pursuant to § 62-780.680(1), F.A.C., no further action is allowed in those cases in which there is no leachabilty demonstrated by rigorous testing to show that contaminate leaching has not occurred in the soil, groundwater and surface water. No further action is also allowed in those situations in which it is believed that there will be no environmental harm if institutional and/or engineering controls can be put in place to ensure control of the contamination. See, § 62-780.680(2), F.A.C. In the event that no further action is allowed, either with or without institutional/engineering controls, §62-780.680(7), F.A.C., requires formal FDEP approval and § 780.680(8), F.A.C., requires that notice be provided thereof.

FDEP's Handling Of This Site Does Not Comply With Its Own Rules

A review of the FDEP files leads to the conclusion that in this case the agency has failed to comply with its own rules. While it has conducted multiple reviews of the site, those reviews have nevertheless been incomplete and ultimately have failed to result in site cleanup, or in a reasoned justification for no further action.

As a preliminary matter § 62-780.450(1), F.A.C., allows the PRSR to combine the Interim Source Removal Report (ISRR), the SAR and the RAP into one document, rather than submitting multiple studies. The studies conducted by the FDEP to date would, at most, be considered cumulatively as a Site Assessment Report. M&E itself reported that remediation

could not occur because the park manager would not allow access to the site—inferring that it believed that remediation was necessary.[10]

There are multiple ways in which the SIR submitted by M&E in June 2003 only partially satisfied the requirements of the FDEP's own rules. The full report must meet the requirements of § 62-780.600(8), F.A.C. And § 62-780.600(8)(b) requires conclusions regarding the site assessment objectives outlined in § 62-780.600(3), F.A.C., including, if appropriate, a recommendation for no further action. But the SIR did not deal with the following individual site characteristics considered to be significant by § 62-780.600(3), F.A.C.:

- § 62-780.600(3)(a)1., F.A.C., The current and projected use of the affected groundwater and surface water in the vicinity of the site;
- § 62-780.600(3)(a)3., F.A.C., The exposed human population and ecological receptors including the presence of threatened or endangered species (flora and fauna);
- § 62-780.600(3)(a)5., F.A.C., The degree and extent of contamination;
- § 62-780.600(3)(a)6., F.A.C., The rate and direction of migration of the plume;
- § 62-780.600(3)(a)7., F.A.C., The apparent or potential rate of degradation of contaminants through natural attenuation; and
- § 62-780.600(3)(a)8., F.A.C., The potential for further migration in relation to the source property boundary.

§ 62-780.600(3)(b), F.A.C. delves more deeply into the nature of the contamination. It notes that one of the objectives is not just to determine whether or not there is contamination. Rather, it is also important ". . . *to determine the horizontal and vertical extent of contamination in every medium found to be contaminated.* . ." (emphasis added) The SIR clearly did not fully examine that aspect of the contamination at this site.

The SIR also failed to evaluate other issues raised by § 62-780.600(3), F.A.C., including:

- § 62-780.600(3)(f), F.A.C., noting that it is important "to determine whether source removal, in addition to any interim source removal already performed pursuant to Rule 62-780.500, F.A.C., is warranted;"
- § 62-780.600(3)(g), F.A.C., which says that it is necessary "to describe relevant geologic and hydrogeologic characteristics that influence migration and transport of contaminants at the site, . . .;"
- § 62-780.600(3)(g)1., F.A.C., indicating that an evaluation should "describe the lithology and horizontal and vertical continuity of units, such as the presence of karst features, bedrock, native soil, and fill material, in the areas affected and expected to be affected by the discharge(s);"

[10] Site Investigation Report, page 8

- § 62-780.600(3)(g)2., F.A.C., specifies the need "To identify the aquifer or aquifers and confining units affected and expected to be affected by the discharge(s) and to determine the groundwater classification, hydraulic conductivity, transmissivity, and storativity of the aquifer or aquifers;"
- § 62-780.600(3)(g)3. , F.A.C., noting the need "[t]o identify and characterize any perched zone, if present;"
- § 62-780.600(3)(g)4., F.A.C., also deals with groundwater and mentions the need "[t]o determine the horizontal and vertical rate and direction of groundwater flow (at all affected depths, as appropriate), to determine the extent of water table fluctuation, to evaluate the potential effect of seasonal variations and vertical groundwater flow components on the rate and direction of groundwater flow, to determine the hydraulic interaction between groundwater and any surface water within the vicinity of the site, and to determine whether there are any tidal effects for sites located near marine surface water;"
- § 62-780.600(3)(g)5., F.A.C., signals the need "[t]o determine other mechanisms of transport of contaminants in the immediate vicinity of the site, including rate and direction of movement of contaminants in sewer lines, subsurface utility conduits or vaults, soil, sediments, and surface water, as applicable;"
- The SIR likewise did not address whether or not any public or private wells might have been contaminated. § 62-780.600(3)(h), F.A.C., deems this to be necessary;
- § 62-780.600(3)(i), F.A.C., indicates that the SIR should "determine whether any surface water will be exposed to contamination that migrates beyond the boundaries of the property at which site rehabilitation was initiated pursuant to this chapter;
- The SIR did not address whether there were ". . . any off-site activities (for example, dewatering, active remediation, or flood control pumping) in the immediate vicinity of the site that may have an effect on the groundwater flow at the site. . ." § 62-780.600(3)(j), F.A.C.

Another objective of the SIR, according to § 62-780.600(3)(k), F.A.C., should have been ". . . facilitate the selection of a remediation strategy for the site that is protective of human health and the environment, and considers the proposed property use, identifies risks posed by the contamination based on the proposed use, and describes how those risks will be managed. . . ."

The failure of the SIR to address potential impacts to the surface waters adjacent to the site is highly questionable given that these waters are already designated as Outstanding Florida Waters and further given the FDEP's recent studies in 2010 & 2011 showing them to already be impaired for nutrients. Furthermore, a 2009 study conducted by the National Oceanic and Atmospheric Administration (NOAA) addressed the potential for PAHs to impact coral reefs in

Puerto Rico. The study, entitled *Chemical Contaminants in the Coral Porites astreoides from Southwest Puerto Rico,* concluded that PAHs did interact with some corals in that region.[11] Given the findings of this study, it is reasonable to expect that the FDEP would address whether or not the contamination at KLHB state park has the potential to negatively impact not only the already impaired surface waters adjacent to the park, but also the threatened or endangered coral species found therein.

Thus, instead of fully evaluating the risks involved at the park itself, or the risks to groundwater and adjacent surface waters the SIR simply concludes that the site be "subject to an environmental use restriction" because the park manager would not allow remediation. This recommendation is clearly insufficient under § 62-780.600(8)(b)1., F.A.C. which allows for such a recommendation only if meets the rigorous requirements of 780.680(2) or (3) which this report does not. It is for that reason that we are asking that your office investigate the FDEP's handling of the contamination at this site and take appropriate action to remedy the situation.

Thank you for your attention in this matter. Please do not hesitate to contact me should you have any additional questions regarding the same.

Sincerely,

Jerry Phillips
Director, *Florida* PEER

Encl.

[11] *ccma.nos.noaa.gov/publications/nccostechmemo91.pdf*