

**Attachments to  
FDOT Grant / Contract AQN20**

**CITY IN KIND  
LOCAL MATCH (20%)**

- 1) CH2M Hill Closure Report (5701 College Rd) w/ cost estimates**
  
- 2) Budget Sheets FY 2011-2012 / Solid Waste Demolition & Contingency Accounts AND Email with FDOT / District 6**

**CH2M Hill Closure Report  
5701 College Road, Key West, Florida**

**(pages 1 to 5 of full report)**

# Closure Documentation for the Southernmost Waste-to-Energy (SWEF) Facility

PREPARED FOR: City of Key West

PREPARED BY: CH2M HILL

DATE: August 31, 2010

PROJECT NUMBER: 408719.BB.01

## Background

The Southernmost Waste-to-Energy Facility (SWEF) began operations in 1986 and handled a maximum of 150 tons of garbage per day. The facility served a population of approximately 39,000 and, at full operating capacity, provided 2.3 megawatts per hour of electrical power that was sold to City Electric System. The City of Key West (the City) operated the SWEF under operating permits issued by the Florida Department of Environmental Protection (FDEP). SWEF was located on approximately 2.25 acres adjacent to the Stock Island Landfill. The Landfill was closed in 1993.

Following the closure of the waste incinerator and power production facilities at the SWEF in April 2004, the tipping floor and waste storage pit at the SWEF were converted to a temporary solid waste transfer facility. The pit that had been used for waste storage during incinerator operation was filled by the City and a concrete slab was poured over the fill. The filled pit and tipping area were then used for temporary storage of waste awaiting transport and disposal by Waste Management, through a contract with the City.

In September 2007, the City began construction of a solid waste transfer station located on approximately 4 acres in Rockland Key, Monroe County, Florida. Certification of Construction Completion for the new transfer station was approved by FDEP on July 22, 2009, and the facility began operation on August 24, 2009. Upon the start of operations at the new transfer station, all solid waste was removed from the SWEF and the facility was closed as a solid waste processing facility.

## Purpose

The purpose of this technical memorandum (TM) is to document closure of the SWEF and outline due diligence requirements for demolition and removal of the infrastructure associated with the SWEF to prepare the site for future use by the City as a transit facility. The City property on Stock Island includes the former SWEF and the closed Stock Island Landfill. The Stock Island Landfill was closed in 1993 under Consent Order OGC File No. 89-0466 and currently is undergoing post-closure care as prescribed by the Consent Order. For purposes of the TM, the approximate delineation between the Stock Island Landfill and the SWEF is the outside edge of the perimeter road, as shown in Exhibit 1. The Stock Island Landfill and the associated liner system, landfill gas monitoring probes, and

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groundwater monitoring wells shall not be disturbed by future construction activities unless Consent Order OGC File No. 89-0466 is appropriately amended to authorize any disturbance or replacement of existing facilities.

## Closure Chronology and Documentation for the SWEF

- Final Operating Permit for the SWEF was Permit No. 0127929-002-SO/09, which was issued in 2004 and expired in 2009 (Exhibit 2).
- On April 6, 2004, the City ceased operation of the SWEF as a waste-to-energy facility and began operating it as a temporary solid waste transfer station. The City surrendered its Title V permit to FDEP at that time (Exhibit 3).
- Paragraph 10 of Consent Order OGC No. 09-0114-44-SW provided FDEP authorization to continue operating the SWEF as a transfer station (Exhibit 4). Paragraph 10 of the Consent Order provides a 180-day time frame for construction of the City's new transfer station. Although the new transfer station took more than 180 days to construct and put into operation, FDEP allowed the temporary transfer station to remain in operation under the terms of the Consent Order (Exhibit 5).
- On January 4, 2010, FDEP notified the City that the SWEF was officially closed as a solid waste management facility (Exhibit 6).

## Results of Site Assessment

CH2M HILL prepared a Letter Report titled *Due Diligence for Proposed Bus Facilities at Stock Island* for the City in January 2006. The report identified nine areas of concern (AOCs) that subsequently were investigated during a Preliminary Site Assessment performed by CH2M HILL in 2007. The AOCs are identified in Exhibit 7. The results of the site assessment are presented in the report, *Preliminary Site Assessment Report, Southernmost Waste-to-Energy Facility* (CH2M HILL, April 2007). Recommendations of the Site Assessment Report were as follows:

*The results of this preliminary site assessment indicate potential site impacts associated with past operations at the Southernmost Waste-to-Energy (SWTE) site and the adjacent closed landfill. Analytical results from soil (three AOCs), groundwater (four AOCs), and the sediment samples collected at the site exceeded applicable regulatory standards and/or criteria. Arsenic was detected in soil samples and concentration exceedances were close to the soil cleanup target level (SCTL). Background soil sampling and analyses for arsenic and vanadium are recommended to establish background conditions specific to the site. In addition, resampling and analysis of groundwater from AOC-1, AOC-6, and MW-1 should be performed for metals using EPA Method 6010B. Resampling and analysis of groundwater from AOC-1 should be performed to evaluate whether Aroclor 1016 is present.*

*The purpose of this report is to provide a preliminary assessment of potential environmental impacts associated with past activities at the site. It is beyond the scope of this study to determine the full extent of impact from any of these potential source areas. CH2M HILL recommends that an Interim Remedial Action Plan (IRAP) be prepared for the SWTE site to identify monitoring and confirmatory sampling that should be performed after demolition of onsite buildings.*

The results of the resampling recommended in the Site Assessment Report were presented in a TM titled, *Resampling of Specific Monitoring Wells*, prepared for R. B. Havens, City of Key West, by T. Langille, CH2M HILL and dated September 25, 2007:

*Based on the groundwater sampling results and review of previous data, it appears the results for AOC-1 for Aroclor 1016 stand with both results greater than the cleanup criteria for Aroclor 1016. In addition, thallium exceeded the groundwater cleanup target level in both samples collected from AOC-7.*

On the basis of these results, CH2M HILL recommended "...that analyses for Aroclor 1016 in AOC-1 and thallium for AOC-7 should be added to the solid waste management facility closure monitoring requirements."

### Demolition of Existing Site Facilities

CH2MHILL was tasked to prepare an Opinion of Probable Demolition Costs to remove the facilities currently located on the site. This task includes all roads and any item or material stored onsite that the City states is surplus. Demolition costs include demolition, haul, and disposal at the Broward County landfill; grading of the site; and placement of 2 feet of suitable fill over the entire site. Demolition of the facilities includes removal of underground tanks, concrete slabs, buildings with foundation, pavement, outside storage area, equipment, trees, bollards, some underground utilities, and appurtenances. Building piles were estimated to be cut off 4 feet below existing ground elevation. Exhibit 8 shows the major facilities to be removed.

Table 1 summarizes the Opinion of Probable Demolition Cost.

TABLE 1  
Opinion of Probable Demolition Costs

Description	Subtotal
Demolition	\$ 274,192
Haul and Disposal	\$ 716,553
Earthwork (Grading and 2 foot Fill)	\$ 314,581
<b>Subtotal</b>	<b>\$ 990,745</b>
Mobilization/Demobilization (5%)	\$ 49,537
Bonds/Insurance (3%)	\$ 29,722
<b>Subtotal</b>	<b>\$ 1,070,004</b>
Contingency (10%)	\$ 107,000
<b>TOTAL</b>	<b><u>\$ 1,177,005</u></b>

The estimate is based on the assumption that the work will be done on a competitive bid basis and the Contractor will have a reasonable amount of time to complete the work. The cost for hauling and disposal was calculated using a fee from the City's waste disposal contract.

## Assumptions and Clarifications

1. Disposal of material will be at a permitted municipal solid waste landfill.
2. No hazardous material or waste are present at the facility.
3. A lead paint and asbestos investigation will be completed, with the results available at the bid.
4. The City will remove all material and equipment deemed salvageable before demolition.
5. The Fire System Building with fire pump will be relocated by the City.
6. The water and electrical feeds will be disconnected by the City before demolition.
7. The fuel tanks will be relocated by the City before demolition.
8. The existing landfill perimeter road remains.
9. The 2 feet of acceptable fill across the site is acceptable to FDEP for closure.
10. The fence remains.
11. Access to the police area will be relocated by the City before demolition.
12. Electrical and water to the police area remains.
13. All underground tanks are concrete and are nonhazardous.
14. The City owns all material, equipment, and structures to be demolished.
15. The City will pump out the septic tank before demolition.

## Path Forward

The following activities need to be performed at the SWEF to clear the site for future development:

- Develop an IRAP as recommended in the Site Assessment Report. The IRAP will define additional sampling that is needed to document site conditions and provide recommendations for future utilization. Data collected during the 2007 Site Assessment indicated the presence of elements and compounds at concentrations in excess of the residential soil cleanup target levels, but below the industrial soil cleanup target levels. Expected recommendation from the IRAP would be as follows:
  - If no elements or compounds are detected in excess of the industrial soil cleanup target levels, onsite materials remaining after demolition will be used as onsite fill material and 2 feet of clean soil will be placed over the onsite materials.
  - If elements or compounds are detected in excess of the industrial soil cleanup target levels, materials exceeding the industrial target level will be excavated and removed from the site for disposal at an appropriately licensed disposal site. The remaining onsite materials will be used as onsite fill material and 2 feet of clean soil will be placed over the onsite materials.

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- Groundwater data collected during the 2007 Site Assessment indicated exceedances of groundwater cleanup target levels for Aroclor 1016 at AOC-1 and thallium at AOC-7. The recommendation of the Site Assessment was to add these parameters to the routine ground monitoring program for the site. Data from the routine groundwater monitoring program will be reviewed as part of the IRAP to assess whether further action is required for groundwater.
- Conduct an inspection and testing for asbestos in conjunction with the IRAP.
- Conduct an inspection and testing for lead-based paint in conjunction with the IRAP.
- Develop procedures for disposal and/or processing and use of demolition debris as fill material at the site.

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