FIVE-YEAR REVIEW REPORT

SECOND FIVE-YEAR REVIEW REPORT
FOR
TAYLOR ROAD LANDFILL

SEFFNER
HILLSBOROUGH COUNTY, FLORIDA
EPA ID: FLD980494959

September, 2008

PREPARED BY:

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Five-Year Review Report

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List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirements
BRA	Baseline Risk Assessment
CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	Contaminant of Potential Concern
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FS	Feasibility Study
GCTL	Groundwater Clean-up Target Levels
HHLF	Hillsborough Heights Landfill
LFG	Landfill Gas
MCL	Maximum Contaminant Levels
MDL	Minimum Detection Limit
mg/L	milligrams per liter
MSL	mean sea level
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PCE	Tetrachloroethene
PRP	Potentially Responsible Party
RAO	Remedial action objectives
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RP	Responsible Party
Site	Taylor Road Landfill Superfund Site
SCS	SCS Engineers
SDWA	Safe Drinking Water Act
SDWS	Secondary Drinking Water Standards
SWMD	Solid Waste Management Department
TDS	Total Dissolved Solids
TCE	Trichloroethene
TRLF	Taylor Road Landfill
µg/L	micrograms per liter
VC	Vinyl chloride
VOC	volatile organic compound

Executive Summary

The purpose of the Second Five-Year Review of the Taylor Road Landfill Superfund Site is to evaluate the implementation and performance of the remedy selected as the final action to respond to risks associated with potential exposure to contaminated ground water in the Floridan aquifer that is present beneath or is attributable to the Site. The methods, findings, and conclusions of this evaluation are documented in this Second Five-Year Review Report. Based on the data and observations evaluated during the Second Five-Year Review, the remedy is protective of human health and the environment. In addition, this Second Five-Year Review report identifies issues found during the review and includes recommendations to address them. This statutory Second Five-Year Review was performed by U.S. Army Corps of Engineers on behalf of EPA Region 4.

The Record of Decision for Taylor Road Landfill was signed on September 29, 1995, and selected Alternative 3, Natural Attenuation and Collect and Treat Ground Water at Property Boundary on a Contingent Basis, as the remedy for the Site. The major components of this remedy include: institutional controls, extension of water lines, groundwater monitoring, and natural attenuation with contingent corrective action. In the Record of Decision, the Florida Primary and Secondary Standards and Minimum Criteria were established as the cleanup goals for ground water, and the point of compliance was set as a ring of monitoring wells encircling the three landfills. An Explanation of Significant Difference was issued by EPA in August 2000 to remove Florida Secondary Drinking Water Standards from the federally-enforceable applicable, or relevant and appropriate requirements (ARARs) for this action. The Florida Department of Environmental Protection did not concur with EPA's change to the Record of Decision.

Community involvement activities associated with the Five-Year Review include publication of a legal notice at the start of the Five-Year Review process, contacts and interviews with citizens/community groups identified in the Community Relations Plan, and issuance of a Fact Sheet and second legal notice upon completion of the Five-Year Review. Legal notices are published in the Tampa Tribune, and Fact Sheets will be sent to the Site mailing list and placed in the Information Repository. An inspection of the Information Repository, maintained at the Thonotosassa Public Library on 10715 Main St., Thonotosassa, FL 33592, indicates that the site file is up-to-date and readily accessible. Interviews with citizens and community groups indicate that there is an ongoing level of concern about the Site, but the remedy and its implementation by Hillsborough County are generally addressing these concerns.

The remedy at Taylor Road Landfill is protective of human health and the environment in the short term, because all exposure pathways that could result in unacceptable risks are being controlled. Land use on site remains industrial. Deed notices are in place to restrict land use and construction of new potable wells on site. New residential properties near the Site are required to connect to the County water supply. As a precaution, the county is presently extending water lines to residents whose wells are monitored on a monthly basis, but do not contain contamination above MCLs. Ground water data confirms the effectiveness of natural attenuation

in reducing contamination at the Site. The landfill caps are effectively containing contaminants and reducing infiltration. The landfills are well-vegetated and well-maintained.

The remedy is operational and functional, some institutional controls are in place, all remedial construction activities are complete, and groundwater monitoring is ongoing.

However, in order for the remedy to be protective in the long-term, institutional controls should be considered on properties where contamination from the site is above federal or state MCLs; and a screening level vapor intrusion assessment should be conducted to determine whether this potential pathway presents an unacceptable risk to human health.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site name ***(from WasteLAN)***: Taylor Road Landfill		
EPA ID ***(from WasteLAN)***: FLD980494959		
Region: 4	**State:** FLA	**City/County:** Seffner/Hillsborough
SITE STATUS		
NPL status: : ☒ Final ☐ Deleted ☐ Other (specify)		
Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☐ Complete		
Multiple OUs?* ☐ YES : ☒ NO	**Construction completion date:** June 18, 1999	
Has site been put into reuse? ☒ YES ☐ NO		
REVIEW STATUS		
Lead agency: : ☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency		
Author name: Enid Gerena		
Author title: Environmental Engineer	**Author affiliation:** U.S. Army Corps of Engineers	
Review period: November 28, 2007 through September 25, 2008		
Date(s) of site inspection: March 05, 2008		
Type of review: ☒ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion		
Review number: ☐ (first) ☒ (second) ☐ (third) ☐ Other (specify)		
Triggering action: ☐ Actual RA On-site Construction at OU #___ ☐ Actual RA Start at OU# __ ☐ Construction Completion ☒ Previous Five-Year Review Report ☐ Other (specify)		
Triggering action date ***(from WasteLAN)***: September 24, 2003		
Due date ***(five years after triggering action date)***: September 24, 2008		

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

1. Unused ground water monitoring well need to be abandoned.
2. Sampling frequency should be optimized for efficiency.
3. Additional institutional controls for groundwater use may be needed
4. Vapor intrusion should be evaluated as a potential pathway to impact human health.

Recommendations and Follow-up Actions:

1. Remove unused ground water monitoring wells from the monitoring network.
2. EPA and FDEP will evaluate the groundwater monitoring program to optimize the efficiency of monitoring.
3. Institutional controls will be evaluated for properties where contamination from the site is above federal or state MCLs.
4. A screening level vapor intrusion assessment will be conducted to determine whether this potential pathway presents an unacceptable risk to human health.

Protectiveness Statement:

The remedy at Taylor Road Landfill is protective of human health and the environment in the short term, because all exposure pathways that could result in unacceptable risks are being controlled. Land use on site remains industrial. Deed notices are in place to restrict land use and construction of new potable wells on site. New residential properties near the Site are required to connect to the County water supply. As a precaution, the county is presently extending water lines to residents whose wells are monitored on a monthly basis, but do not contain contamination above MCLs. Ground water data confirms the effectiveness of natural attenuation in reducing contamination at the Site. The landfill caps are effectively containing contaminants and reducing infiltration. The landfills are well-vegetated and well-maintained.

The remedy is operational and functional, some institutional controls are in place, all remedial construction activities are complete, and groundwater monitoring is ongoing.

However, in order for the remedy to be protective in the long-term, institutional controls should be considered on properties where contamination from the site is above federal or state MCLs; and a screening level vapor intrusion assessment should be conducted to determine whether this potential pathway presents an unacceptable risk to human health.

Other Comments:

Overall, Hillsborough County Solid Waste Management Department has done a commendable job of following-up and maintaining the implemented remedy and integrating RCRA and CERCLA operation and maintenance requirements for the Site. It is expected that Hillsborough County will continue to be responsive.

Five-Year Review Report

I. Introduction

The purpose of the Second Five-Year Review of the Taylor Road Landfill Superfund Site (the Site) is to evaluate the implementation and performance of the remedy selected as the final action to respond to risks associated with potential exposure to contaminated ground water in the Floridan aquifer that is present beneath or is attributable to the Site. The methods, findings, and conclusions of this evaluation are documented in this Second Five-Year Review Report. A determination is made as to whether the remedy is protective of human health and the environment based on the data and observations evaluated during the Second Five-Year Review. In addition, this Second Five-Year Review report identifies issues found during the review, and includes recommendations to address them.

The Site is a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Enforcement-lead site, and Hillsborough County, Solid Waste Management Department, is the representative of the responsible parties (RP). Hillsborough County, Solid Waste Management Department, has cooperated during performance of the Second Five-Year Review, providing site access and other material support as requested. This Second Five-Year Review has been conducted to meet the statutory requirements of CERCLA §121, the National Contingency Plan (NCP), and specific requirements of the Record of Decision (ROD) for this action.

Specifically, CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The U.S. EPA has interpreted this requirement further in the NCP; 40 CFR §300.430(f) (4) (ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

This is the Second Five-Year Review for the Taylor Road Landfill Superfund Site. The triggering action for this review is the date of the Previous Five Year Review Report, as shown in EPA's WasteLAN database: September 24, 2003. This review is required because hazardous substances or contaminants were left on site above levels that allow for unlimited use and unrestricted exposure. This is a statutory five year review, which, in accordance with CERCLA §121 and the NCP, is triggered by the initiation of the first remedial action that leaves hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposure.

As the lead agency, U.S. EPA, Region 4, formed an in-house team consisting of the EPA Remedial Project Manager, and Community Involvement Coordinator (CIC), and an Environmental Engineer from the U.S. Army Corps of Engineers to conduct the Second Five-Year Review. The Florida Department of Environmental Protection (FDEP) is the support agency for the Second Five-Year Review of this Site, and has participated in the planning, and review of the draft Second Five-Year Review report.

The Taylor Road Landfill Site consists of a single operable unit (OU) that encompasses ground water beneath and contiguous with the Site; this includes Taylor Road Landfill, Hillsborough Heights Landfill, and the FDOT Borrow Pit Landfill. The objective of the remedy is to prevent current or future exposure to contaminated ground water through provision of County water to residents and through natural attenuation or active treatment of groundwater should conditions indicate it is necessary. A significant contributing factor to the success of the natural attenuation component of the remedy is the operation and maintenance (O&M) of the closed landfills at the site. While the O&M of the landfills is regulated separately from Superfund under the FDEP RCRA program, the landfill O&M was inspected and evaluated as part of this Second Five-Year Review to assess its contribution to the long-term effectiveness of the ground water remedy.

The next Five-Year Review for the Taylor Road Landfill Superfund Site will be due in September 2013.

II. Site Chronology

The chronology of significant events at the Taylor Road Landfill Superfund Site includes both CERCLA pre-remedial and remedial process milestones, as well as the September 1983 Consent Decree under RCRA that specified requirements for the cap, cover, site drainage, methane gas control, and thirty years of O&M for all three landfills. Table 1 summarizes the chronology of Site events.

Table 1: Chronology of Site Events	
Event	**Date**
Initial discovery of problem or contamination	**8/1/1979**
Preliminary Assessment	**8/1/1980**
HRS Package	**12/1/1982**
Consent Decree - remedial measures implementation under RCRA	**7/20/1983**
TRLF Closure (Ceased operations)	**2/1/1980**
NPL listing	**9/8/1983**
Site Inspection	**11/1/1984**
Removal Assessment	**9/15/1992**
Administrative Order on Consent - groundwater RI/FS	**2/1/1993**
Remedial Investigation/Feasibility Study complete	**9/29/1995**
ROD signature	**9/29/1995**
Administrative Order on Consent	**9/18/1996**
Administrative Order on Consent	**7/11/1997**
Consent Decree - RD/RA	**5/11/1998**
Remedial design start	**2/25/1998**
Remedial design complete	**8/11/1998**
Remedial action start	**8/11/1998**
Construction completion date	**6/18/1999**
Explanation of Significant Difference	**8/3/2000**
Five Year Review	**9/24/2003**

III Background

The Taylor Road Landfill Superfund Site is located in eastern Hillsborough County, Florida, on County-owned property, approximately 7 miles east of Tampa in the Seffner-Thonotosassa area. Interstate 4 borders the site to the south, and Mango Road (State Route 579) borders the site to the west. The County property is 252 acres in size and contains three closed landfills. The 42 acre Taylor Road Landfill is located east of the approximately 10 acre Florida Department of Transportation (FDOT) Borrow Pit Landfill and southeast of the 64 acre Hillsborough Heights Landfill. Only the Taylor Road Landfill is on the National Priorities List (NPL). Despite this fact, groundwater contamination has moved well beyond the boundaries of the Taylor Road Landfill. Accordingly, the two adjacent landfills have been evaluated to determine if they are contributing to ground water contamination. Also located within the 252 acres of County property are six stormwater detention basins, County maintenance facilities, and a community recycling collection center/refuse collection area. The entire 252 acres of County property, containing all three landfills, and adjacent properties comprising the groundwater monitoring network are referred to collectively as the Site.

Physical Characteristics

The Taylor Road Landfill Superfund Site is located within an internally drained portion of the Polk Upland karst escarpment that is referred to as the Brandon Karst Terrain. The Site lies along a small ridge that extends northward from the Brandon Karst Terrain. In the vicinity of the Site are sinkholes, headlands of small drainage systems, and distinctive hills formed by the accumulation of marine and coastal sands. Based on U.S. Geological Survey topographic maps, the original land surface in the vicinity of the Site extended from a low of approximately 45-ft above mean sea level (MSL) to a high of slightly above 125-ft above MSL located on the small ridge on which the landfills were developed.

The hydrogeology of the Site is characterized by the presence of an ephemeral surficial aquifer in shallow sands above a leaky intermediate confining unit consisting of clays and sandy clays of the Hawthorn Group. The clays and sandy clays of the intermediate confining unit are discontinuous, blocky, and contain pipes and limestone pinnacles that are interconnected with the underlying Floridan aquifer. Due to the discontinuous nature of the Hawthorn Group in the vicinity of the Site, no intermediate aquifer system is considered to be present. The Floridan aquifer at the Site is comprised of the Tampa Member and underlying limestones. The Floridan aquifer is generally unconfined or very poorly confined at the Site. The general direction of groundwater flow across the Taylor Road Landfill Superfund site is from the northeast to the southwest. However, it should be noted that the Taylor Road site is located within the hydrogeologic area mentioned above known as the Brandon Karst Terrain, and groundwater flow is influenced by conduit and fracture flow.

The ecosystem of the Site is characterized primarily as disturbed grasslands containing manmade detention basins surrounded by an area of commercial/residential development containing small ponds and springs. The Site originally consisted of high pine, sandhill communities. Pockets of the original high pine communities remain in the vicinity of the Site, characterized primarily as

Turkey Oak Barrens or Turkey Oak Sandhills. Although a variety of flora and fauna may be found in the vicinity of the Site, and possibly may include federal and state-listed species and state species of special concern, the immediate area around the landfills is not likely to serve as a significant habitat for these species. However, wading birds, small amphibians, reptiles, and mammals may use the stormwater runoff detention basins as a water source and intermittent foraging area. No perennial streams are present at the Site.

Land and Resource Use

The land surrounding the Taylor Road Landfill Superfund Site encompasses a variety of uses, including residential, commercial, and agricultural. The Site, as defined by the ring of compliance monitoring wells and 270-ft setback, includes all or part of 62 separate parcels ranging from approximately 0.1 acre to 80 acres in size. Excluding the property owned and maintained as landfill or buffer by Hillsborough County, the predominant land uses are residential and commercial. Agricultural use in the area is generally limited and non-intensive. In general, residential and particularly commercial land use has been expanding in recent years at the expense of agricultural areas. This mix of land uses is essentially unchanged and consistent with the land use identified in the ROD. A number of commercial properties have developed adjacent to the southwestern portion of the Site since remedy construction was completed.

Hillsborough County, Solid Waste Management Department, has actively sought compatible reuse opportunities for the landfill and buffer properties under their control; at the same time pursuing acquisition of property not already under their control within the compliance ring as such property becomes available. Current reuse of buffer zone property includes leases to the Hillsborough County survey and mapping organization, TRAC Aviation (runway and hanger facilities for remote control aircraft hobbyists), and a strip of property for use by the TA Travel Center. Leased properties are isolated from the landfills by fencing, and groundwater use is prohibited within the leased areas. Note that the former operation of the microturbine (recovered methane) is not in use anymore because of malfunction, this was a pilot project.

Private wells drilled into the upper Floridan aquifer were the primary residential water supply in the area of the site. Extensions of County water service have focused on supply to areas within the compliance ring monitoring well setback. Currently, groundwater use within the compliance ring monitoring well setback is prohibited through implementation of institutional controls as a remedy component in the ROD. The Hillsborough County implemented the selected remedy required by the Consent Decree (Case No. 80-1128), which required the construction potable water distribution lines and connections to those residents in the affected area. Also, the Hillsborough County is required to conduct maintenance and environmental monitoring program which includes engineering controls for the methane gas control system for the landfills and the entire site. By March 17, 1999 the Hillsborough County completed the installation of five new groundwater monitoring wells as part of the compliance ring network, and completed seven new connections to the County's potable distribution system. After the installation of the new groundwater monitoring wells the ring was expanded on three separate occasions, however, no new connections have occurred during the past five years. Water lines are available around the

entire perimeter of TRLF, so if a well permit is denied, potable water is available by connection to the potable water distribution lines.

History of Contamination

The three landfills were developed sequentially. The first, known as the Taylor Road Landfill, was an FDOT borrow pit until it was permitted as a solid waste landfill for Hillsborough County in 1975. The Taylor Road Landfill was not constructed with a liner or leachate collection system. From May 1976 until February 1980, the County operated the Taylor Road Landfill, which was intended for disposal of residential, commercial, and industrial refuse. A total of 620,000 tons was disposed of in the landfill. An unknown quantity of hazardous waste is suspected to have been buried at this landfill. In the late1970s, two events precipitated the development of capacity problems within the Taylor Road Landfill. One of these events was the settling of a legal dispute with EPA by the City of Tampa, during which the city agreed to close its incinerator by January 1, 1980. This event diverted an estimated 790 tons of refuse per day to the Taylor Road Landfill. At the same time, another local landfill was closed, adding 490 tons of solid waste per day to the Taylor Road Landfill disposal load. Because of the discontinuation of the incinerator operation, waste generated from area hospitals, clinics, and other health providers also began to be buried at the Taylor Road Landfill.

In February 1980, the Taylor Road Landfill reached its capacity, and landfill operations were moved to an adjacent 10 acre parcel known as the FDOT Borrow Pit Landfill. The Borrow Pit Landfill was developed to operate as a high-rise sanitary landfill for residential, commercial, industrial, and agricultural wastes; dead animals; and water treatment sludge. The Borrow Pit Landfill was constructed with a liner and a leachate collection system. The Borrow Pit Landfill was to serve as a temporary site, pending the design, permitting, and construction of a proposed 200 acre landfill on the adjacent property to the north. A total of 320,000 tons of waste was disposed of in the Borrow Pit Landfill.

The application to extend the Taylor Road Landfill was met by strong public opposition from a neighborhood group. Their petition claimed that the County failed to properly maintain the site. In January 1980, the permit was initially approved, with warnings, such as landfilling operations could not proceed should any determination be made that groundwater was being contaminated by the existing Taylor Road Landfill or the Borrow Pit Landfill. Ultimately, the 200-acre landfill expansion project was rejected, resolving that no guarantee of an environmentally safe operation could be given, and that additional wastes deposited on the site would add to the existing potential hazards. The County continued to use the Borrow Pit Landfill until October 1980, when waste disposal operations were transferred to a third 64-acre property located north and west of the two previous landfills. This property is known as the Hillsborough Heights Landfill.

The Hillsborough Heights Landfill was opened under emergency order, and occupied a portion of the 200 acres that had previously been rejected. In the landfill's early months of operation, infectious wastes from hospitals, clinics, laboratories, and doctors' offices were among the refuse disposed of there. The landfill remained open for four years. Approximately 3,500,000 tons of waste was disposed of in the Hillsborough Heights Landfill.

Results of sampling in the area in 1979 revealed the presence of volatile organic compounds (VOCs) and metals contamination in site monitoring wells and numerous private wells. Residents were advised to discontinue use of their wells. The County established a program of bottled water delivery to 95 residences within a specified radial distance of the Taylor Road Landfill, and authorized construction of County water lines to the affected areas. Further ground water investigations revealed that a plume of VOCs was migrating off site into residential areas. Additionally, methane gas from the Taylor Road Landfill was detected near residences adjacent to the site in potentially explosive concentrations during this same timeframe. In April 1980, water delivery was expanded to 180 homes and businesses. About 400 residences and business were eventually connected to the County water supply.

Initial Response

In October 1980, EPA filed suit against Hillsborough County under RCRA and the Safe Drinking Water Act, alleging the existence of ground water contamination from soil and hazardous waste disposed at the Site. EPA sought injunctive relief and demanded the implementation of certain operational and remedial measures at the Site. The complaint also sought the abatement of hazards caused by methane gas released at or attributable to the Site. Due to the ground water contamination identified in October 1981, EPA began the process of adding the Taylor Road Landfill Superfund Site to the National Priorities List (NPL) of uncontrolled waste sites under the federal Superfund program. The NPL is a list of priority releases for long-term evaluation and remedial response, and was promulgated pursuant to section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended. The NPL list is found in the NCP (Appendix B of 40 CFR part 300). As EPA was developing administrative procedures for the newly created Superfund program, it pursued cleanup of the Site under RCRA.

Under the Consent Decree signed in 1983 by EPA, FDEP (predecessor agency), and Hillsborough County, the County agreed to a 30-year maintenance and environmental monitoring program governing all three landfills on County property. The decree specified requirements for the cap, cover, and drainage ditch, as well as methane gas control. In February 1984, the County began installation of methane monitoring wells around all three landfills, and commenced construction of a gas collection system, cap, cover, and drainage system in compliance with the Consent Decree. In addition, the County installed a water supply system to serve residents in a specified area south of the landfills, and proceeded with a routine sampling program which is ongoing.

In 1986, EPA initiated a Forward Planning Study under the Superfund Program to investigate all potential contaminant sources in the vicinity of the Site. In 1987, EPA initiated an area-wide private well sampling effort that used information from the Forward Planning Study and previous data collection efforts. In September 1987, EPA notified Hillsborough County and Waste Management, Inc. that they were potentially responsible parties (PRP) relative to the Site ground water contamination. A search for additional PRP was initiated in 1988 at the request of the existing PRP, and July 1992 Special Notice Letters were issued to approximately 45 PRP. In February 1993, an Administrative Order on Consent was signed by EPA and 19 PRP to perform a Remedial Investigation/Feasibility Study.

Basis for Taking Action

The Remedial Investigation (RI) of the Taylor Road Landfill Superfund Site was performed by ERM-South, Inc., and was completed in 1995. A Baseline Risk Assessment (BRA) was conducted by CDM Federal Programs Corporation for EPA, and a Feasibility Study (FS) addressing remedial alternatives was prepared by ERM-South, Inc. in 1995. Based on the findings and conclusions of the RI, BRA, and FS, it was determined by EPA that remedial action to address ground water contamination was warranted. A Proposed Plan identifying EPA's preferred remedial alternative was circulated for community input, and a ROD was signed by EPA in September 1995 selecting the remedy.

Remedial Investigation

The RI evaluated landfill leachate, surface water and sediment from the Site stormwater detention basins, and ground water from Site monitoring wells and selected private wells. The leachate data were used to evaluate the contaminant source concentrations, and, since the leachate collection system is not accessible for exposure, these data were not used in the BRA. The analytical results for leachate indicated the presence of volatile organic compounds, semi-volatile organic compounds, one pesticide, and inorganics. The analytical results for surface water and sediment indicate that inorganics were detected in surface water, and that volatile organic compounds, semi-volatile organic compounds, pesticides, and inorganics were detected in sediment. The types and concentrations of chemicals detected in surface water and sediment were determined to be typical of other stormwater detention basins in the area. Although it also was determined that current human exposure to surface water and sediment was unlikely, potential future exposure was considered possible. Surface water and sediment data were evaluated in the BRA for human health risk and potential impacts to ecological receptors.

The ground water data selected for evaluation during the RI were generated from 12 quarterly ground water sampling events conducted by Hillsborough County from 1990 to 1992, and from sampling conducted by ERM-South, Inc. during August and September 1993. Figure 1 and 2 (Attachment 1) illustrates the locations of monitoring and private wells in the vicinity of the Site. Ground water samples were analyzed for physical parameters, selected metals, nutrients, and organic compounds. The ground water analytical data, validated and qualified, is summarized in Table 2 for those analytes that were positively detected at least once. This table shows the range of detections above the sample quantitation limit (SQL), the date the maximum concentration sample was collected, frequency of detection by year, and the maximum background concentration (from formerly Well 27-D, currently the background well is F-12). The average concentrations were calculated based on positive detections only. A broad range of volatile organic compounds and inorganics at average concentrations exceeding applicable statutory thresholds were identified.

Table 2: Occurrence and Distribution of Chemicals in Ground Water (1990 - 1993)

DETECTABLE ANALYTE	Min.	Max.	Mean	Sampling Date of Maximum	Frequency of Detection (1)				Maximum in Background (Well 27-D)	Federal MCL (2)	Florida DEP Groundwater Guidance (3)	USEPA Region III (4,5)		COPC (6)
	ug/L	ug/L	ug/L		1990	1991	1992	1993	ug/L	ug/L	ug/L	Risk Level=1E-06	HQ=0.1	
PURGEABLE ORGANICS														
1,1-DICHLOROETHANE	0.4	192	22	Apr-90	65/104	33/78	47/88	5/6					81	Y
1,1-DICHLOROETHENE	1	279	31	Jan-90	28/104	21/78	31/88	4/6	1	7	7**	0.044		Y
1,2-DICHLOROBENZENE	1	198	20	Jul-90	25/104	12/78	14/88	3/6		600	600**		37	Y
1,2-DICHLOROETHANE	1	3	1.9	Jul-91	7/104	2/78	0/88	0/6		5	3**	0.12		Y
1,3-DICHLOROBENZENE	1	3	2	Nov-91	1/104	1/78	1/88	0/6		600			53	N
1,2-DICHLOROPROPANE	1	6	2	Jul-91	13/104	7/78	11/88	1/6		5	5**	0.16		Y
1,4-DICHLOROBENZENE	1	45	5.7	Apr-91	26/104	20/78	13/88	3/6		75	75**	0.44		Y
CARBON DISULFIDE	2	3	2.5	Nov-91	0/104	2/78	0/88	0/6					2.1	N*
ACETONE	2	279	30	Apr-91	4/104	18/78	4/42	0/6	5				370	N
BENZENE	0.6	12	3.1	Jan-90	29/104	7/78	10/88	2/6		5	1**	0.36		Y
CHLOROBENZENE	1.1	5.3	3.1	Oct-92	4/104	4/78	7/88	1/6		100	100**		3.9	N*
CHLOROFORM	1	1	1	Apr-90	1/104	0/78	0/88	0/6		100	6****	0.15		Y
CHLOROMETHANE	2	2	2	Aug-93	0/104	0/78	0/88	1/6			2.7****	1.4		Y
DIBROMOCHLOROMETHANE	6	6	6	Oct-90	1/104	0/78	0/88	0/6			1****	0.13		Y
ETHYLBENZENE	1.4	18	5.7	Jul-91	1/104	3/78	1/88	0/6		700	700**/130***		130	Y
METHYLENE CHLORIDE	0.7	54	11	Jan-90	10/104	5/78	14/88	1/6		5	5**	4.1		Y
TETRACHLOROETHENE	0.8	145	23	Apr-90	44/104	13/78	18/88	2/6		5	3**	1.1		Y
TOLUENE	0.2	82	9	Jul-91	4/104	2/78	4/88	2/6		1000	1000**/40***		75	Y
trans-1,2-DICHLOROETHENE	0.3	135	32	Jan-90	51/104	29/78	7/88	2/6		100	100**		12	Y
cis-1,2-DICHLOROETHENE	3	45	16	Aug-93	NA	NA	NA	4/6		70	70**		6.1	Y
STYRENE	3	3	3	Jul-91	0/104	1/78	0/88	0/6		100	100**		160	N
TRICHLOROETHENE	1	180	19	Oct-92	56/104	28/78	43/88	4/6		5	3**	1.6		Y
VINYL CHLORIDE	1	105	24	Apr-90	28/104	16/78	23/88	3/6		2	1**	0.019		Y
XYLENES (TOTAL)	2	85	12	Jul-91	6/104	8/78	1/88	0/6		10000	10000**/20***		1200	N

Table 2: Occurrence and Distribution of Chemicals in Ground Water (1990 - 1993) (cont.)

DETECTABLE ANALYTE	Min.	Max.	Mean	Sampling Date of Maximum	Frequency of Detection (1)				Maximum in Background (Well 27-D)	Federal MCL (2)	Florida DEP Groundwater Guidance (3)	USEPA Region III (4,5)		COPC (6)
	ug/L	ug/L	ug/L		1990	1991	1992	1993	ug/L	ug/L	ug/L	Risk Level=1E-06	HQ=0.1	
ARSENIC	3.7	3.7	3.7	Aug-93	NA	NA	0/13	1/6		50	50**	0.038	1.1	N*
BARIUM	14.2	221	97	Aug-93	NA	NA	1/13	4/6		2000	2000**		260	N
CADMIUM	5	5	5	Apr-92	NA	NA	1/13	0/6		5	5**		1.8	N*
CHROMIUM	11	11	11	Apr-92	NA	NA	1/13	0/6		100	100**		3700	N
COPPER	200	200	200	Jan-91	0/16	1/5	0/11	0/6			1000***		140	N*
LEAD	1.3	13	4.5	Apr-92	NA	NA	3/13	6/6	2	15*	15*			N
MANGANESE	12.4	2380	320	Aug-93	5/12	2/5	6/20	3/6	311		50***		18	N*
MERCURY	0.2	42.3	4.5	Jul-90	60/104	12/29	27/59	0/6	2	2	2**		1.1	Y
NICKEL	40.7	95.4	68	Aug-93	NA	NA	NA	2/6		100	100**		73	Y
NITRATES	30	38700	5200	Jan-90	94/104	23/26	44/62	3/6	4460	10000	10000**		5800	N*
SELENIUM	2	2	2	Aug-93	NA	NA	NA	1/6		50	50**		18	N
VANADIUM	53.7	53.7	53.7	Aug-93	NA	NA	NA	1/6					26	N*
ZINC	10	403	64	Jan-91	8/12	4/5	5/13	1/6	159		5000**		1100	N

Source: CDM - BRA as presented in EPA/ROD/R04-95/239 1995.

NOTES:

1. Frequency of detection = # of detections/# of samples.
2. MCL = Maximum Contaminant Level. * - Value for lead is an action level. EPA, December 1993.
3. Florida Department of Environmental Regulations Groundwater Guidance Concentrations. June 1994.

** - Primary Standard. *** - Secondary Standard. **** - Guidance Concentration.

4. USEPA Region III - Risk-based Concentrations for tap water. January 7, 1994.
5. HQ = Hazard Quotient.
6. COPC = Chemical of Potential Concern. Y = Yes. N = No. N* = Not selected as a COPC, because the chemical was not detected or detected at a low frequency in the wells selected for risk assessment. N** = Concentrations detected in wells selected for the risk assessment did not exceed two times the background concentration.

Baseline Risk Assessment

The BRA was used to identify and select chemicals of potential concern (COPC) for ground water and surface water and sediment based on current or future risk to human or ecological receptors. Carcinogenic COPC were based on a risk level of 1E-06, and non-carcinogens were based on a Hazard Quotient of 0.1 in order to consider potential exposure to multiple chemicals. COPC were also selected based on comparison to relevant promulgated standards (e.g., federal and state Maximum Contaminant Levels), regulatory guidance, and background concentrations.

The ground water current and future exposure pathway for the human health risk assessment identifies landfill waste as the chemical source, drinking water wells in the Floridan aquifer as the exposure points, and ingestion of ground water and inhalation of volatiles released from ground water as the feasible routes of human exposure. The current exposure pathways for leachate and surface water and sediment are considered to be incomplete, but the future exposure pathway for surface water and sediment may be completed. The exposure points for current ground water users are wells in the down gradient residential area, and on site monitoring well data were used for the future use scenario.

Toxicity assessment for the COPC is based on information contained in EPA's Integrated Risk Information System database for both carcinogenic and non-carcinogenic toxicity. The combination of a complete, or potentially complete, exposure pathway and toxicity information for the COPC allows risk characterization to be performed. Ground water was determined to contain COPC at concentrations posing an unacceptable risk to potential future users. Surface water and sediment, while containing elevated COPC concentrations, were not found to pose an unacceptable risk to human health. Likewise, an impact to pelagic aquatic biota and benthic organisms is suggested, but it was determined that this impact is unlikely to significantly affect the receptors. Based on the findings of the BRA, remedial action was necessary to control risk posed by ingestion of and dermal contact with ground water and to limit the migration of contaminated ground water.

IV. Remedial Actions

In accordance with CERCLA and the NCP, the overriding goals for any remedial action are protection of human health and the environment and compliance with ARARs. A number of remedial alternatives were considered for the Site, and final selection was made based on an evaluation of each alternative against nine evaluation criteria that are specified in Section 300.430(f)(5)(i) of the NCP. The nine criteria include:

1. Overall Protectiveness of Human Health and the Environment
2. Compliance with ARARs
3. Long-Term Effectiveness and Permanence
4. Reduction of Toxicity, Mobility or Volume of Contaminants through Treatment
5. Short-term Effectiveness
6. Implementability
7. Cost
8. State Acceptance

9. Community Acceptance

Remedial Action Objectives (RAOs) associated with the selected remedy within the ROD included to prevent current or future exposure to contaminated ground water through provision of County water to residents and through natural attenuation or active treatment of groundwater should conditions indicate it is necessary.

Remedy Selection

The EPA WasteLAN database defines one site-wide operable unit (OU) for the Taylor Road Landfill Site, and the remedial action selected in the ROD is expected to be the final action for this OU. The remedial action at the Taylor Road Landfill Superfund Site was designed to address ground water contamination since source control was accomplished through a prior RCRA action.

The ROD for Taylor Road Landfill (EPA/ROD/R04-95/239) was signed on September 29, 1995, and selected Alternative 3, Collect and Treat Ground Water at Property Boundary on a Contingent Basis, as the remedy for the Site. The major components of this remedy include: institutional controls, extension of water lines and monitoring, and natural attenuation with contingent corrective action. In the ROD, the Florida Primary and Secondary Standards and Minimum Criteria were established as the cleanup goals for ground water, and the point of compliance was set as the ring of monitoring wells encircling the three landfills.

The components of the remedy selected in the ROD are described as follows:

(1) **Institutional Controls (ICs).** As noted in the selected remedy of the ROD regarding ICs, Hillsborough County owns the properties that constitute the Site. The County will write covenants into the deeds of these properties that would restrict the construction of drinking water wells on the Site. For properties not owned by the County but near the Site, two regulatory measures currently in effect restrict the construction of new potable-water wells. First, the 1983 RCRA Consent Decree requires all new residential buildings in the area to the south of the Site to be connected to the County water supply. Second, the 1991 establishment of a delineated area in accordance with FAC Chapter 62-524 restricts the issuance of permits for new potable-water wells in an area 500 ft from the County property boundary.

(2) **Monitoring and Extension of Water Lines.** Modification of the existing ground water monitoring program to include quarterly monitoring of a "ring" of monitoring wells that define the point of compliance for Site ground water. Monitoring will be used to evaluate compliance with Florida Primary and Secondary Drinking Water Standards and Minimum Criteria as the cleanup goals. Provision of County water service to human receptors within a 270-ft setback of the compliance ring monitoring wells.

(a) Contingent expansion of the compliance ring monitoring wells. If quarterly sampling reveals an exceedance of cleanup goals that is confirmed by subsequent sampling, the ring of monitoring wells will be expanded to encompass the revised compliance boundary.

(b) Expansion of the County water-supply network. The expansion of the County water-supply network to connect receptors within the setback zone, to support institutional controls, and to meet a one-month response time for connection of additional receptors should the area of impacted ground water increase in size.

(3) **Natural Attenuation with Contingent Corrective Action.** Maintenance of ground water contaminant levels below cleanup goals at the point of compliance will be achieved through natural attenuation or contingent corrective action.

(a) Natural attenuation. The reduction of contaminant concentrations through natural processes such as biodegradation.

(b) Contingent Corrective Action. The extraction and collection of ground water within the Point of Compliance for treatment to control ground water flow and reduce contaminant concentrations to acceptable levels. As described within the selected remedy of the ROD, the point of compliance surrounds all three landfills, and is defined by groundwater monitoring wells encircling the three landfills that were indicated in Figure 9.1 in the ROD. Evaluation of the integrity of the landfill cover installed under RCRA also is a component of this contingency. This contingency would be triggered by exceedance of cleanup goals at the point of compliance as evaluated annually by EPA and FDEP based on trend analysis and other site data.

Remedy Implementation

EPA issued a Statement of Work to the settling defendants at the Site pursuant to the Consent Decree following the ROD. The Statement of Work prescribes the approach to be used by the settling defendants, represented by Hillsborough County, to fully implement the selected remedy in the ROD, and identifies specific tasks and deliverables to be accomplished. The tasks and deliverables included the following: project planning; development and submittal of a Remedial Design/Remedial Action Work Plan; notification and support for a Final Construction Inspection; development and submittal of a Final Construction Report; and, development and submittal of a Remedial Action Report.

Hillsborough County prepared and submitted a Remedial Action Work Plan in April 1998 to accomplish the remedy objectives. The work plan provided for the installation of six monitoring wells (four new and two replacements), as well as revision of the requirements for the existing ground water monitoring program. The original ground water monitoring program consisted of thirteen compliance ring wells, three additional interior wells, and one background well to be sampled quarterly for field parameters, volatile organic compounds, metals, mercury, and nitrates. Construction methods, sampling methods, and quality assurance/quality control requirements were specified as sub-plans within the work plan. Institutional controls implementation would consist of placement of a deed notice for the County property at the Site, and enforcement of existing ordinances prohibiting property development or installation of new potable supply wells in areas within 1,500-ft of County supply lines and/or requiring request of

extension of such service. Originally, twenty residences within the compliance ring setback zone were identified for connection to the existing County water distribution network in the work plan. Quarterly reporting requirements for the ground water monitoring program were also set forth in the work plan.

Following regulatory review and discussion about the Remedial Action Work Plan, a Remedial Action Work Plan Addendum was issued in July 1998 revising the ground water monitoring plan. The current revised ground water monitoring plan incorporates quarterly sampling of 27 ground water monitoring wells; of which 13 comprise the compliance ring, 13 are additional interior monitoring points, and 1 is a background well. The analytical parameters for the ground water monitoring were also revised to include field parameters, volatile organic compounds, metals, mercury, chloride, nitrates, total dissolved solids, and sulfate.

Activities undertaken by Hillsborough County to implement the planned remedial action are documented in the Final Construction Report for the Taylor Road Landfill Superfund Site (April 16, 1999). As part of the institutional controls, Hillsborough County Solid Waste Management Department filed a "Notice of Entry of Consent Decree for the Taylor Road Landfill Superfund Site in Hillsborough County, Florida" with the Clerk of the Circuit Court in Hillsborough County in February 1998. This filing fulfills the requirement of the Consent Decree that all instruments conveying an interest in the Site shall contain a notice stating that the property is subject to the Consent Decree. Field construction activities to implement the remedy were begun in November 1998 with the construction of seven new monitoring wells and the rehabilitation of one damaged well. Following construction, the new and existing wells in the ground water monitoring plan were surveyed, and dedicated sampling equipment was installed. Five land parcels, with seven eligible receptors, were identified within the established compliance ring 270-ft setback that were not connected to County water supply. All seven property owners agreed to be connected to the County water supply network, and extension of water lines, meter placement, and connection to the structures was accomplished in February and March 1999. In summary, at that time five homes, one trailer park, and one business were connected to the County water supply network. The first round of sampling of 23 monitoring wells (this includes 5 additional interior monitoring points added after the work plan addendum) under the updated ground water monitoring program was performed in April 1999.

Post-ROD Changes

An Explanation of Significant Difference (ESD) was issued by EPA in August 2000 to remove Florida Secondary Drinking Water Standards from the federally-enforceable applicable, or relevant and appropriate requirements identified in the ROD. The rationale for this change is based on the fact that Secondary Drinking Water Standards are established to improve the taste, color and odor of drinking water, rather than address actual health threats. As such, EPA has determined that these standards are not applicable, or relevant and appropriate requirements, are not federally-enforceable (40 CFR Part 143), and are not needed to protect public health. The Florida Department of Environmental Protection did not concur with EPA's change to the ROD, and does retain authority to separately enforce Florida Secondary Drinking Water Standards at its discretion.

Based on the ROD and ESD for this Site, the final cleanup goals for this action are the Florida Primary Drinking Water Standards for volatile organic compounds and metals and the Florida Minimum Criteria for Organoleptics as set forth in the *Groundwater Guidance Concentrations* (FDEP, 1994). The remedial action objectives from the ROD, consists of: 1) eliminate current human exposure to ground water contaminants above cleanup goals through provision of County water and ground water monitoring; 2) prevent future human exposure to ground water contamination above cleanup goals through a combination of institutional controls, natural attenuation, and contingent treatment of ground water; and, 3) maintain ground water concentrations below cleanup goals at the point-of-compliance through natural attenuation and/or contingent treatment.

System Operations/Operations & Maintenance

Operation and maintenance activities at the Site consists of those activities associated with upkeep of the landfills as required under the existing RCRA Consent Decree and the long-term care permit with FDEP, and those activities necessary for the ongoing implementation of the monitoring component of the CERCLA remedy. EPA is copied on Monthly Reports sent to FDEP under the long-term care permit for landfill closure. These activities are summarized as follows:

- **Landfill Operation and Maintenance**
  - Monitoring of ground water, surface water and landfill gas;
  - Site inspections (daily, weekly, monthly, quarterly and after rainfall);
  - Maintenance and repairs (facilities, monitoring wells, landfill cover, surface water management system, and landfill gas monitoring and recovery system);
  - Notification, record keeping and reporting; and,
  - Facility and system upgrades

- **Ground Water Operation and Maintenance**
  - Monitoring of ground water;
  - Monitoring well repair and replacement;
  - Maintenance of access agreements (off-site wells); and,
  - Notification, record keeping, and reporting.

Costs associated with Landfill and Ground Water operation and maintenance are tracked by Hillsborough County, and are summarized in Table 3. Since landfill operation and maintenance is performed by a dedicated on-site workforce, labor costs are included in the cost summary. Ground water operation and maintenance is performed by County employees who support multiple sites, and these labor costs are not included in the operation and maintenance summary. Additionally, landfill facility and system upgrades performed by Hillsborough County are tracked separately. Since 1998, upgrade projects, including re-routing of the Taylor Road Landfill gas collection system, installation of new gas collection wells at Taylor Road Landfill, and drainage improvements between the FDOT and Taylor Road Landfills, have been undertaken at a cost of approximately $1,373,896.10. The upgrades and improvements were performed as approved engineering solutions to observed negative changes in the efficiency of

the Taylor Road Landfill gas collection system and to correct persistent erosion control problems between the landfills.

Table 3: Site Operation and Maintenance Costs

Year	Ground Water O&M Cost	Landfill O&M Cost
1998	$0	$864,209
1999	$101,495	$917,470
2000	$120,006	$727,047
2001	$120,000	$601,384
2002	$23,985	$745,788
2003	$25,000	$813,221
2004	$25,000	$913,346
2005	$25,000	$930,587
2006	$25,000	$925,914
2007	$25,000	$662,781

V. Progress Since the Last Review

This report documents the Second Five-Year Review for the Taylor Road Landfill Superfund Site. A Follow-Up Actions & Response to EPA Comment Letter Dated February 12, 2004 was submitted by the Hillsborough County Solid Waste Management Department (SWMD) on June 4, 2004 are presented in Table 4. The Follow-Up report stated the actions taken by the County in response to the EPA recommendations.

Protectiveness statements from the last review

> *The remedy at the Taylor Road Landfill currently protects human health and the environment because ground water monitoring at the compliance ring ensures contingent measures can be taken prior to impacts to domestic supply wells, institutional controls restrict the installation of new domestic supply wells in the impacted area, post-closure care of the landfills under RCRA minimizes ongoing impacts to the aquifer, and natural attenuation is demonstrated to be occurring. However, in order for the remedy to remain protective in the long-term, the following actions need to be taken: repair fencing and improve enforcement of site access controls; improve routine maintenance of monitoring wells; perform a potable well survey in the vicinity of the site to ensure institutional controls are effective; ensure the long-term operation and maintenance of the landfills; resume annual ground water quality statistical evaluations; and, improve responsiveness to ongoing community concerns.*
>
> *Overall, Hillsborough County Solid Waste Management Department has done a commendable job of implementing the remedy and integrating RCRA and CERCLA operation and maintenance requirements for the Site. While these follow-up actions, if not implemented, would be expected to have a negative impact on the long-term*

effectiveness of the remedy, it is expected that Hillsborough County will be responsive to these recommendations. Most of the recommendations and follow-up actions for the Site are being implemented by Hillsborough County based on the debriefing at the conclusion of the site inspection.

Recommendations from the Previous Five Year Review:

The following discussion summarizes the issues and recommendations made in the 2003 FYR and any follow up actions that have been taken to address those recommendations. Ground water monitoring at the compliance ring ensures that additional measures can be taken before contamination can impact nearby domestic supply wells. Institutional controls restrict the installation of new domestic supply wells in the impacted area. Post-closure care of the landfills under RCRA minimizes ongoing impacts to the aquifer. The landfill caps are limiting infiltration of rainwater and preventing direct contact with contaminated soils. The gas recovery and flaring system is operating as intended.

The following follow-up actions were taken by the Hillsborough County as a result of the 2003 FYR:

- Repaired fencing and improved enforcement of site access controls;
- Continued routine maintenance of monitoring wells including daily perimeter security checks;
- A potable well survey was conducted by SCS Engineers for the SWMD in the vicinity of the site;
- Continued oversight of the long-term operation and maintenance of the landfills by FDEP permit renewal process in 2005;
- Continued quarterly ground water quality data monitoring and statistical evaluations analysis; and
- Continued responsiveness to ongoing community concerns by providing a mailing list to EPA for fact sheets distribution.

The well survey identified two irrigation wells within the 270-ft setback. Both wells were added to the monthly monitoring program.

Issues, recommendations and follow-up actions presented in the 2003 five-year review are shown in Table 4.

Table 4: Actions Taken Since the Last Five-Year Review

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
(1) Site access security (monitoring & maintenance of fences)	(1) Repair cut and damaged fences	Hillsborough Co.	11/1/2003	Hillsborough Co. has fixed damaged fences and continues with daily perimeter checks.	6/4/2004
	- Institute daily perimeter security checks (per 1983 CD)				
(2) Ground water monitoring well maintenance	(2) Perform routine maintenance on wells TR2-S and 32D	Hillsborough County SWMD	11/1/2003	Completed	2/12/2004
	- Refit/replace well NE-23	Hillsborough County SWMD			6/4/2004
	- Refit/replace well F-2	Hillsborough County SWMD			8/2003
	- Abandon unused shallow wells	Hillsborough County SWMD			8/2003
	- Lock and clearly label all wells	Hillsborough County SWMD			2/12/2004
	- Add well rehabilitation check to pump repair process	Hillsborough County SWMD			2/12/2004
(3) Potential for un-permitted potable well installation in adjoining properties	(3) Perform potable well survey on adjacent parcels (approximately 1-mile radius of Site)	Hillsborough County SWMD	11/1/2003	Completed	1/22/2004
(4) Operations & maintenance of landfill caps, leachate collection, gas collection and storm water management systems under RCRA	(4) Consideration of ground water impacts during RCRA permit renewal negotiation	FDEP District Office	9/15/2013	Completed / Ongoing	2005
(5) Annual reporting for Ground Water Quality Statistical Evaluations	(5) Return to Annual reporting and evaluation of ground water trends	Hillsborough County SWMD	6/27/2004	Completed	6/2004

Table 4: Actions Taken Since the Last Five-Year Review

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
(6) Ground water quality concerns (mercury, oil & grease, and pH) of adjoining land owners should be affirmatively addressed	(6) Prepare Fact Sheet presenting results of Five-Year Review and addressing community ground water quality concerns	EPA	10/1/2003	Not necessary at this time	NA
(7) Quantitative measurement and tracking of fill activities in landfill cap settlement areas	(7) - Perform routine civil surveying of landfill cap surfaces (bi-annual or when significant settlement is observed)	Hillsborough County SWMD	5/1/2004 (survey)	Completed	2003
	- Include quantitative estimate of settlement fill activities (area, thickness and location		10/1/2003 (reports)		2003
(8) Monitoring/evaluation of potential environmental impacts from adjacent properties (commercial activities and dumping) should be performed	(8) - Inventory products and wastes managed on adjacent or nearby properties	Hillsborough County SWMD	11/1/2003	Pending	Pending
	- Request notification from FDEP District Office of nearby spills or releases			- Completed	6/3/2004
	- Report/cleanup illegal dumping on adjacent properties			- Completed	6/3/2004

VI. Five-Year Review Process

The Five-Year Review process for the Taylor Road Landfill Superfund Site consisted of project management, community involvement, document/data review, site inspection, interviews, and a determination as to the ongoing protectiveness of the remedy. As the lead agency, U.S. EPA Region 4 performed the Second Five-Year Review. The Florida Department of Environmental Protection is the support agency for this activity, and has been involved throughout the Five-Year Review process. Hillsborough County Solid Waste Management Department is the representative of the responsible parties for the Site, and has cooperated during performance of the Second Five-Year Review providing site access and other material support as requested.

Administrative Components

Project management activities included identifying the EPA Region 4 team for the Second Five-Year Review, developing a schedule for the review activities, and notifying interested parties of the follow-up of the Five-Year Review process. Key personnel involved in the Second Five-Year Review of the Site, along with organizations and roles, are presented in Table 5.

Table 5: Second Five-Year Review Key Personnel

Name	Organization	Role
Enid Gerena	USACE 701 San Marco Blvd Jacksonville, FL 32207 (904) 232-1815	Environmental Engineer
L'Tonya Spencer	EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303 (404) 562-8463	Community Involvement Coordinator
Erik Spalvins	EPA Region 4 61 Forsyth Street, SW Atlanta, GA 30303 (404) 562-8938	Remedial Project Manager
Kelsey Helton	Florida Department of Environmental Protection Twin Towers Office Building 2600 Blair Stone Rd Tallahassee, FL 32399 (850) 245-8969	FDEP Project Manager Professional Geologist
David Adams	Solid Waste Management Department 24th Floor County Center Tampa, FL 33601 (813) 276-2944	Environmental Manager

Community Notification and Involvement

Community involvement activities associated with the Five-Year Review include publication of a legal notice at the start of the Five-Year Review process, contacts and interviews with citizens/community groups identified in the Community Relations Plan (CDM, 1989). A legal notice was published in the Tampa Tribune and placed in the Information Repository (Attachment 7). An inspection of the Information Repository, maintained at the Thonotosassa Public Library on 10715 Main St., Thonotosassa, FL 33592, indicates that the site file is up-to-date and readily accessible. Within thirty (30) calendar days of the Second Five-Year Review Report finalization, a notice will be published in the same local newspaper announcing that the Second Five-Year Review Report for Taylor Road Superfund Site is complete, and the results of the review and the report are available to the public at the information repository at the Thonotosassa Public Library.

The CIC, L'Tonya Spencer, and the RPM, Erik Spalvins, conducted interviews with four people. A copy of the completed Interview Worksheet is included as Attachment 5. The CIC and RPM met with some members of the Taylor Road Civic Association on March 5, 2008. The main issue brought to the EPA's attention was a concern about the low pH in one private well and low levels of Mercury one commercial supply well. The residents were concerned that the mercury contamination was coming from an industrial facility adjacent to the landfill. The mercury levels in several nearby wells are monitored on a monthly basis and remain below health standards. At this time, elevated mercury levels in the industrial supply well does not appear to be Site-related.

Document Review

Both the Administrative Record and Site File for the Taylor Road Landfill Superfund Site were reviewed for the Second Five-Year Review. These sources contain the combined documentation of the decisions and actions taken at the Site, including relevant RCRA documentation for closure of the landfills. Attachment 2 contains a complete list of the supporting documentation used in development of this Second Five-Year Review Report. A significant portion of this documentation consists of routine reporting from Hillsborough County presenting monthly Operation and Maintenance reports for the landfills and the results of the monthly residential well sampling. This data forms the basis of the technical assessment of remedy performance.

A technical review of the ground water monitoring data was performed to evaluate the remedy effectiveness and progress of natural attenuation. The monitoring data set used for this analysis includes compliance ring and interior monitoring wells for the period of 2003 through 2007.

Data Review

The following conclusions regarding concentration trends are based on the following reports: "Taylor Road Landfill Superfund Site Groundwater Quality Statistical Evaluation, Hillsborough County, Florida" (SCS Engineers, 2007) which includes a formal data time series graphs for these and other monitored contaminants (see Attachment 6 for priority COPCs data analysis graphs/time series), and the "Ground water Monitoring Network Optimization Taylor Road Landfill Superfund

Site" (GSI Environmental, Inc., 2007) prepared for the EPA. Note: due to the extensive content of these reports, these are listed under References see Attachment 2. The contaminants of concern (COCs) are presented in Table 6, these are designated with a "Y" in column 6 of Table 2.

Table 6: Contaminants of Concern

Purgeable Organics
1,1-Dichloroethane
1,1-Dichloroethene
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,4-Dichlorobenzene
Benzene
Chloroform
Chloromethane
Dibromochloromethane
Ethylbenzene
Methylene Chloride
Tetrachloroethene
Toluene
trans-1,2-DICHLOROETHENE
cis-1,2-DICHLOROETHENE
Trichloroethene
Vinyl Chloride
Inorganics
Mercury
Nickel

The "Ground water Monitoring Network Optimization Taylor Road Landfill Superfund Site" report considered data collected between January 1995 and April 2007. This report was prepared by an EPA contractor, GSI Environmental, Inc.

The conclusions of the GSI report with regard to trends are summarized as:

- Groundwater areas where concentrations routinely exceed MCLs are bounded by wells where results are below MCLs downgradient.
- Vinyl chloride (VC) was identified as the highest priority constituent among site constituents of potential concern (COPC) based on its prevalence, concentration relative to risk-based screening levels and its mobility. Trichloroethene (TCE) and benzene were also considered.
- The groundwater plume at the Taylor Road Site is largely stable to decreasing in concentration. The majority of individual well trends for VC and TCE indicate decreasing, probably decreasing or non-detect status. One well, 24-D, shows an increasing trend for VC, while 7 wells indicate increasing trends for TCE (18-D, 24-D, 31-D, 32-D, C-6, F-2, F-15).
- The study indicates that total dissolved masses for VC, TCE and manganese are decreasing.
- 16 of 27 monitoring locations are statistically below the regulatory screening levels for VC.
- 13 of 14 compliance ring wells have sufficient statistical power to show they have attained the cleanup standard.

The main goal of the GSI Report was to evaluate the potential optimization of the Long Term Monitoring at the site. The GSI Report made specific recommendations which will be considered by the EPA and FDEP. Ultimately, any changes to the sampling plan will be documented in a revised monitoring plan after discussion with FDEP and the County.

The "Taylor Road Landfill Superfund Site Groundwater Quality Statistical Evaluation" (SCS Engineers, 2007) also examined the trends of contaminants in groundwater. Table 7 is from the 2007 SCS Engineers Statistical Evaluation and summarizes the well trend analysis for both COCs and non-COCs (SCS Engineers, 2007.)

The majority of wells indicate decreasing concentration trends. Decreasing trends for VC are found at interior wells with historic high concentrations such as C-2, C-5, C-6 and TR-4D. Source area well TR-4D shows decreasing trends for VC, TCE, 1,1DCE and Benzene. Concentrations of inorganic COCs are very low and well below the respective Florida Primary Standards and Minimum Criteria as of June 1994.

Some wells have intermittent detections, varying between around the detection limit, resulting in a No Trend result. For some constituents, decreasing detection limits cause the appearance of a downward trend, even though the constituents are typically not detected. Compliance well F-4A was not included in the statistical analysis due to the abandonment of the well in December 2006. Overall trends indicate the concentrations of several constituents are decreasing over time.

Table 7. Well Trend Summary Results from "Taylor Road Landfill Superfund Site Groundwater Quality Statistical Evaluation" (SCS Engineers, 2007)

Monitoring Well Designations and Observations — Ring Wells

	Group R-1								Group R2								Group R-3							
	C-8		C-10		C-1		30-D		31-D		32-D		C-9		TR-2D		C-3		C-7		F-3		F-15	
Constituent	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX
1,1-Dichloroethane (ug/l)*							D		D		D												D	
1,1-Dichloroethene (ug/l)*																								
1,2-Dichlorobenzene (ug/l)*																								
1,2-Dichloroethane (ug/l)*									D		D													
1,2-Dichloropropane (ug/l)*																								
1,3-Dichlorobenzene (ug/l)*																								
1,4-Dichlorobenzene (ug/l)*									D															
Ammonia nitrogen (mg/l)			D												I									
Arsenic (ug/l)																								
Barium (ug/l)	D		I		D		I						I				D		I		D		D	
Benzene (ug/l)*																								
Chloride (mg/l)									D		D						D				D			
Chlorobenzene (ug/l)																								
Chloroform (ug/l)*																								
Chloromethane (ug/l)*																								
cis-1,2-Dichloroethene (ug/l)*							D																D	
Conductivity (umhos/cm)									I														D	
Dissolved oxygen (mg/l)	I		I														I				I		I	
Ethylbenzene (ug/l)*																								
Isopropylbenzene (ug/l)																								
Manganese (ug/l)	D		D		D		D		D		D						D		D				D	
Mercury (ug/l)*	D						D				D						D							
Methylene chloride (ug/l)*																								
Nickel (ug/l)*																								
Nitrates (mg/l)			I						D		D				I			X	I					
pH (SU)									I		I				I								I	
Sulfate (mg/l)																								
Tetrachloroethene (ug/l)*															D									
Toluene (ug/l)*																								
Total dissolved solids (mg/l)																	D							
trans-1,2-Dichloroethene (ug/l)*																								
Trichloroethene (ug/l)*											D												D	
Vanadium (ug/l)	D						I				I		D				D							
Vinyl Chloride (ug/l)*									D															
Zinc (ug/l)							D		D		D		D		D		D		D		D			

Monitoring Well Designations and Observations — Interior Wells and Up Gradient Wells

	Interior Wells: Group I-1														Interior Wells: Group I-2												Up Gradient Wells			
	C-5		C-6		18-D		24-D		28-D		F-1A		F-2		C-2		F-14		NE-23		TR-1D		TR-3D		TR-4D		F-12		C-4	
Constituent	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX	Trend	EX
1,1-Dichloroethane (ug/l)*	D		D		D		I		D		D		D																	
1,1-Dichloroethene (ug/l)*			D		D													X								X				
1,2-Dichlorobenzene (ug/l)*			D				D		D				D																	
1,2-Dichloroethane (ug/l)*					D																									
1,2-Dichloropropane (ug/l)*	D		D		D																									
1,3-Dichlorobenzene (ug/l)*																														
1,4-Dichlorobenzene (ug/l)*	D		D		I				D								I													
Ammonia nitrogen (mg/l)					I				D								I								I					
Arsenic (ug/l)	D				D				D										D		D		D			X	D			
Barium (ug/l)	D						I		D		D						I		D		D		D		D					
Benzene (ug/l)*	D		D	X		X			D		D														D	X				
Chloride (mg/l)			I				D		D		D		D		I		I								I		D		I	
Chlorobenzene (ug/l)	D		D																											
Chloroform (ug/l)*																														
Chloromethane (ug/l)*																														
cis-1,2-Dichloroethene (ug/l)*	D		D		D		I		D		D		D		D		D		D		D									
Conductivity (umhos/cm)	D				D				D				D		D		I		D		D						D			
Dissolved oxygen (mg/l)									I										I		I						D		I	
Ethylbenzene (ug/l)*																														
Isopropylbenzene (ug/l)			D																											
Manganese (ug/l)		X	I			X	I	X	D	X		X			D	X	I		D		D		D	X	D	X		X	D	
Mercury (ug/l)*	D			X			D				D														D		D		D	
Methylene chloride (ug/l)*			D																											
Nickel (ug/l)*	D				D	X	I						D.						D				D		D					
Nitrates (mg/l)			I				D		I		D								I		I		I		I		I			
pH (SU)		X		X		X	D		I		D	X	I						I		I		I		I	X			I	
Sulfate (mg/l)	I		D								D												I							
Tetrachloroethene (ug/l)*	D			X																										
Toluene (ug/l)*																														
Total dissolved solids (mg/l)		X		X					D			X	D				I		D		D					X			I	
trans-1,2-Dichloroethene (ug/l)*					D																									
Trichloroethene (ug/l)*	D			X			I				D				D		D		D		D		D		D	X				
Vanadium (ug/l)			D				D				D				D								D						D	
Vinyl Chloride (ug/l)*	D	X	D	X	D	X	I		D				D		D	X		X	D		D					X				
Zinc (ug/l)											D		D		D				I				D		D		D		D	

Notes:

1. "I" indicates the trend is significantly increasing in concentration or value.
2. "D" indicates the trend is significantly decreasing in concentration or value.
3. Blanks in the table indicate either no significant trend or trend based on non-detected values.
4. "*" indicates constituent of concern.
5. "X" indicates statistically significant exceedances of Drinking Water Standards or Groundwater Clean-up Target Levels. Highlighting is for the readers convience to help see the exceedances.
6. Deseasonalized results were not included in this table.

The most recent quarterly groundwater monitoring report, dated July 2008, was reviewed and the results are attached in Attachment I as Figure 5. The results of the July 2008 quarterly monitoring report are summarized below:

Volatile Organic Compounds

- VOCs were detected in all thirteen interior wells with eight of these wells exhibiting water quality in excess of their applicable Primary Drinking Water Standard (PDWS), Secondary Drinking Water Standard (SDWS), or the Groundwater Cleanup Target Levels (GCTL).
- Vinyl Chloride continues to exceed the standard of 1.0 microgram per liter (ug/l) in eight of the interior wells.
- VOC contaminants were observed in five of the compliance ring wells, but all of these detections were observed well below their applicable standards.

Metals

- Arsenic was not detected in any of the thirteen compliance ring monitoring wells; however it was detected above the PDWS of 0.010 mg/l in one interior well, TR-4D at a concentration of 0.015 mg/l.
- Manganese
    - Manganese was detected in six of the thirteen compliance ring monitoring wells at concentrations below the SDWS of 0.05 milligrams per liter (mg/l).
    - Manganese was detected above the SDWS in nine of the thirteen interior wells, with a range of concentrations from 0.078 to 3.0 mg/l.
    - The background water quality well, F-12 also exhibited manganese above the SDWS, at a concentration of 0.057 mg/l.
- Mercury
    - Mercury was detected well below the PDWS of 0.002 mg/l in the compliance ring monitoring wells, C-8, 31-D, and 32-D.
    - Mercury was also observed in the interior wells, C-6, 24-D, F-1A and F-2 at concentrations below the PDWS.
- Nickel was observed in eleven of the thirteen interior wells and the compliance ring monitoring wells C-4 and 32-D at concentrations below the PDWS of 0.10 mg/l.
- Vanadium was detected in nine of the thirteen compliance ring monitoring wells and four of the interior wells below the GCTL of 0.049 mg/l.

Site Inspection

The Second Five-Year Review site inspection was performed on March 5, 2008. The EPA site inspection team consisted of L'Tonya Spencer (EPAs CIC), and Erik Spalvins (EPA), and Enid Gerena (USACE). Hillsborough County was represented by David Adams, Mike Townsel, Walter Gray, and Anthony Sullivan.

Inspection of the landfill caps, gas collection system, liquids management system, site perimeter, and landfill records was performed on March 5, 2008, and is documented on the Site Inspection Checklist (Attachment 3). The caps for all three landfills (Taylor Road, FDOT, and Hillsborough Heights) were well vegetated and well maintained. Positive drainage was generally maintained throughout the cap surfaces, although six localized areas of ponding (~100-500 square yards) were noted on the Taylor Road and Hillsborough Heights caps. These were generally shallow and likely attributable to subsidence. Repair through sod removal, clay fill, and topsoil/sod replacement was reportedly routine at these landfills. All side slopes were in excellent condition with no erosion or leachate seeps observed. Photographs of the landfill caps are included in Attachment 4. The drainage swales and culverts were free-flowing and non-erosive down the side slopes, and into the detention basins.

The gas collection systems at the Taylor Road and FDOT landfills had undergone significant modifications since the original installations. These modifications included the addition of new gas collection wells, condensate collection sumps, and re-routing of the gas through a central blower and flare system adjacent to the Hillsborough Heights landfill. The aboveground components of the gas collection system (wellheads, sampling points, piping, blowers, and flare) were operable and appeared to be in good condition and well maintained. The TRLF gas collection system appears to be functioning adequately at this time. The former microturbine generator that was used as an alternative energy technology demonstration was removed because it was not working properly.

Liquids management at the landfills is conducted through collection of condensate from sumps and gas extraction wells. Condensate and leachate collected from the landfills is stored in a leachate holding tank. There is a leachate collection system at the Hillsborough Heights landfill. There is no leachate collection system for the 40 acre TRLF. Leachate from the Hillsborough Heights landfill is collected from nine sumps. The FDOT landfill gas extraction wells reportedly generate no collectable liquids.

Site access control is maintained through the use of a single entrance onto County property and perimeter fencing. The entrance to the Site is from State Route 579, and branches to a County recycling facility in the southwest corner of the property and to the facility maintenance shops and landfill areas to the north and east. A complete inspection of the perimeter fencing (6-ft chain link topped with 3 strands of barbed wire) was performed. Since the last Five Year Review, fences were repaired. No casual trespassing or trespassing for vandalism and theft was reported.

Verification of on-site documents and records was performed at the facility maintenance offices. The following documents were readily available and up-to-date: operations and maintenance

manuals, as-built drawings, maintenance logs, operations and maintenance training records, gas generation records, ground water monitoring records, and leachate extraction records. The site-specific health and safety plan and Occupational Health and Safety Agency (OSHA) training records were maintained at the downtown County offices. Updates to the health and safety plan, such as equipment or activity-specific memoranda, were maintained on-site. Visitor and access logs of daily activities are kept at the facility maintenance building. Visitors are expected to report to the facility maintenance office. In general, maintenance of and access to records was good.

The inspection of the ground water monitoring network primarily consisted of observations of the access, security, and condition of the well heads and dedicated sampling equipment. The only general observation is there are wells that are no longer used (old surficial well next to the Elementary School close to F-12, and another old well close to F-15.) Also, monitoring well F-4A was plugged and abandoned in 2006, due to repeated damage from the property's owner use of heavy equipment. Overall, the inspection of the ground water monitoring network indicates that the monitoring component of the remedy is operating and functional.

During the inspection it was noted that the site access security was improved, the perimeter fencing was repaired and the frequency of inspection was increased. The Hillsborough County maintained the updated potable well survey of adjacent properties to ensure no un-permitted human exposures were taking place. All documentation and records management were well maintained. The County officials were willing to provide all documentation required during this site inspection.

Interviews

Four interviews were conducted by L'Tonya Spencer and Erik Spalvins on March 5, 2008 and four citizens from the Taylor Road Civic Association. Each interview was conducted based on a set of six prepared questions addressing a range of general and technical issues associated with the remedy. These questions and the Interview Records are presented in Attachment 5.

Based on the interview comments, the residents are generally satisfied that Hillsborough County is complying with the requirements of the ROD. There remains some public concern about low pH in one residential well, P-22. There is also concern about detections of Mercury well below drinking water standards in private wells on Buster Bean Road. The county is in the process of extending the county water supply to these homes. As of September 2008, the main line has been extended and residential connections should be completed by the end of November 2008. The most recent monthly sampling of the private wells was early September 2008. The residents expressed concern that the mercury may be coming from a manufacturing operation between the homes and the landfill. At this time, the detection of mercury in the private wells is not clearly attributed to the Site. Other specific concerns noted during the interviews include evaluating potential environmental impacts from nearby properties, and dumping around the Site.

The residents were pleased about overall decreasing trends in ground water contaminants; the effectiveness of the well permit institutional control, the construction of the remedy, and the O&M at the landfill. Hillsborough County should continue and extend its efforts to·

communicate informally and formally with nearby landowners to address the concerns and successes at the Site.

VII. Technical Assessment

The technical assessment of the performance and protectiveness of the Taylor Road Landfill Superfund Site remedy is based on historical information and data collected during the Second Five-Year Review. As presented in the current Comprehensive Five-Year Review Guidance (EPA, 2001), this assessment is based on how each of three questions is answered. These questions are: A - Is the remedy functioning as intended by the decision documents?; B - Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?; and, C - Has any other information come to light that could call into question the protectiveness of the remedy?. The EPA team for the Second Five-Year Review met on March 5, 2008 to answer these questions, and the answers, along with supporting rationale, are discussed below.

Question A: Is the Remedy Functioning as Intended by the Decision Documents?

The remedy selected in the ROD, as constructed by Hillsborough County, and verified in the Final Construction Report, continues to function as intended. Ground water monitoring has been and continues to be performed to evaluate the progress of natural attenuation and to determine the need for contingent actions. Natural attenuation of contaminants in ground water is verified by the monitoring data. An opportunity for optimization is reducing the frequency of sampling ground water and will be discussed with the FDEP and the County.

Monitoring wells are in good condition and functioning adequately. There were no indicators of problems that would jeopardize the performance of the remedy. The landfill cap, cover, and storm water control systems are in good condition. There is adequate vegetative cover, with no signs of erosion. The landfill gas recovery system appears to be functioning well. Hillsborough County appears to have performed O&M requirements exceptionally well.

Current ICs are effective in the short term in preventing the construction of drinking water wells in contaminated areas. Additional institutional controls should be evaluated for properties where contamination from the site is above federal or state MCLs. ICs could take the form of restrictive covenants to prevent future users from using contaminated groundwater. Restrictive covenants may be needed for both County property and properties not owned by the County which has groundwater contamination affected by the site above site cleanup levels.

The selected remedy remains protective of human health and the environment.

The answer to Question A is **Yes**.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?

The exposure assumptions, toxicity data, and remedial action objectives are still valid and are considered as protective as they were at the time of the remedy selection. The baseline risk assessment was used to identify contaminants and exposure pathways, and contaminant-specific cleanup goals were based on FDEP standards. No changes to applicable or relevant and appropriate standards have been identified. The Federal MCL for arsenic changed from 50 ug/l to 10 ug/l. This change does not affect protectiveness at the site, because as noted in Table 2, the highest arsenic concentration found in wells at or near the site that are affected by site contamination is 4 ug/l, which is lower than the current standard.

There has been no change to the risk assessment methodology that could affect the protectiveness of the remedy. The toxicity data available at the time of the remedy selection and the current toxicity values for the COCs are provided in Table 8. The remedy is progressing as expected. No changes in site conditions, contaminant characteristics, or exposure pathways, were observed or are known to have occurred that would call into question the ongoing protectiveness of the remedy. No changes to the basis for the ecological risk evaluation were identified during the Second Five-Year Review.

Vapor intrusion is an exposure pathway that presents a potential unacceptable risk to human health and should be evaluated. One of the recommendations of this Five-Year Review is that a screening level vapor intrusion assessment be conducted to determine whether this potential pathway presents an unacceptable risk to human health.

As part of the ROD, Hillsborough County will continue performing the periodic private well survey at least every five years to ensure no un-permitted withdrawals are taking place in the vicinity of the landfill and to validate the exposure assumptions.

The answer to Question B is **Yes**.

Table 8: Comparison of Current Toxicity Values to those from the Remedy Selection

COC	Toxicity Values							
	RfDo (mg/kg-day)		SFo 1/(mg/kg-day)		RfDi (mg/kg-day)		SFi 1/(mg/kg-day)	
	Previous[1]	New[2]	Previous	New	Previous[1]	New[3]	Previous	New
1,1 Dichloroethene	9×10^{-3}	5×10^{-2}	6×10^{-1}	Not assessed in IRIS	--	--	--	--
1,2 Dichlorobenzene	9×10^{-2}	9×10^{-2}	--	--	--	Not assessed in IRIS	--	Not assessed in IRIS
1,2 Dichloroethane	--	--	9.1×10^{-2}	9.1×10^{-2}	--	Not assessed in IRIS	--	Not assessed in IRIS
Cis-1,2-Dichloroethene	1×10^{-2}	Not assessed in IRIS	--	Not assessed in IRIS	--	--	--	--
Trans-1,2-Dichloroethene	2×10^{-2}	2×10^{-2}	--	Not assessed in IRIS	--	Not assessed in IRIS	--	Not assessed in IRIS
1,2-Dichloropropane	--	Not assessed in IRIS	6.8×10^{-8}	3.6×10^{-2}	--	1.14×10^{-3}	--	Not assessed in IRIS
1,4-Dichlorobenzene	--	Not assessed in IRIS	2×10^{-2}	5.4×10^{-3}	--	2.28×10^{-1}	--	--
Benzene	--	4.0×10^{-3}	2.9×10^{-2}	1.5×10^{-2} to 5.5×10^{-2}	--	8.5×10^{-3}	--	--
Tetrachloroethene	1×10^{-2}	1×10^{-2}	5.2×10^{-2}	Not assessed in IRIS	--	Not assessed in IRIS	--	--
Trichloroethene	6×10^{-3}	Not assessed in IRIS	1.1×10^{-2}	1.3×10^{-2}	--	1.7×10^{-1}	--	7×10^{-3}
Vinyl Chloride	--	3×10^{-3}	1.9	7.2×10^{-1}	--	2.8×10^{-3}	--	--
Mercury	3×10^{-4}	Not assessed in IRIS	--	Not assessed in IRIS	--	8.5×10^{-5}	--	--
Nickel	2×10^{-2}	Not assessed in IRIS	--	Not assessed in IRIS	--	Not assessed in IRIS	--	--

[1] Derived from BRA Report dated 1995.
[2] Obtained from www.epa.gov/iris/subst/index.html
[3] Obtained from calculation RfDi = (Rfci mg/m^3 x 20 m^3/day) / 70 kg. Rfci (Reference Concentration (inhalation) was obtained from IRIS.

mg/kg-day = milligrams per kilogram per day
RfDo = oral reference dose
SFo = oral slope factor
RfDi = inhalation reference dose
SFi = inhalation slope factor
-- = no data

Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

No new information has come to light that would call into question the protectiveness of the remedy.

The answer to Question C is **No**.

VIII. Issues

During the course of the Second Five-Year Review document and data review, site inspection, and interviews, a number of issues were identified pertaining to remedy effectiveness. These issues and their impact on remedy protectiveness are summarized in Table 9.

Table 9: Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
1) Unused ground water monitoring well need to be abandoned.	No	No
2) Sampling frequency should be optimized for efficiency.	No	No
3) Additional institutional controls for groundwater use may be needed	No	Yes
4) Vapor intrusion should be evaluated as a potential pathway to impact human health.	No	Yes

IX. Recommendations and Follow-up Actions

Based on the issues identified during the Second Five-Year Review, recommendations and follow-up actions for the Taylor Road Landfill have been identified. These are summarized in Table 10.

Table 10: Recommendations and Follow-up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Mile-stone Date	Affects Protectiveness? (Yes/No)	
					Current	Future
Unused ground water monitoring wells need to be abandoned.	Remove unused ground water monitoring wells from the monitoring network.	Hillsborough County SWMD	EPA	6/1/2009	No	No
Sampling frequency should be optimized for efficiency.	EPA and FDEP will evaluate the groundwater monitoring program to optimize the efficiency of monitoring.	Hillsborough County SWMD	EPA and FDEP	6/1/2009	No	No
Additional institutional controls for groundwater use may be needed	Institutional controls will be evaluated for properties where contamination from the site is above federal or state MCLs.	Hillsborough County SWMD	EPA and FDEP	6/1/2009	No	Yes
Vapor intrusion should be evaluated as a potential pathway to impact human health.	A screening level vapor intrusion assessment will be conducted to determine whether this potential pathway presents an unacceptable risk to human health.	Hillsborough County SWMD	EPA	6/1/2009	No	Yes

X. Protectiveness Statement

The remedy at Taylor Road Landfill is protective of human health and the environment in the short term, because all exposure pathways that could result in unacceptable risks are being controlled. Land use on site remains industrial. Deed notices are in place to restrict land use and construction of new potable wells on site. New residential properties near the Site are required to connect to the County water supply. As a precaution, the county is presently extending water lines to residents whose wells are monitored on a monthly basis, but do not contain contamination above MCLs. Ground water data confirms the effectiveness of natural attenuation in reducing contamination at the Site. The landfill caps are effectively containing contaminants and reducing infiltration. The landfills are well-vegetated and well-maintained.

The remedy is operational and functional, some institutional controls are in place, all remedial construction activities are complete, and groundwater monitoring is ongoing.

However, in order for the remedy to be protective in the long-term, institutional controls should be considered on properties where contamination from the site is above federal or state MCLs; and a screening level vapor intrusion assessment should be conducted to determine whether this potential pathway presents an unacceptable risk to human health.

XI. Next Review

The next Five-Year Review for the Taylor Road Landfill Superfund Site is required by September 2013, five years from the approval date of this review.

ATTACHMENT 1

SITE FIGURES

Figure 1 – Taylor Road Landfill Site Location Map

Figure 2 – Ground Water Monitoring Well Location Map

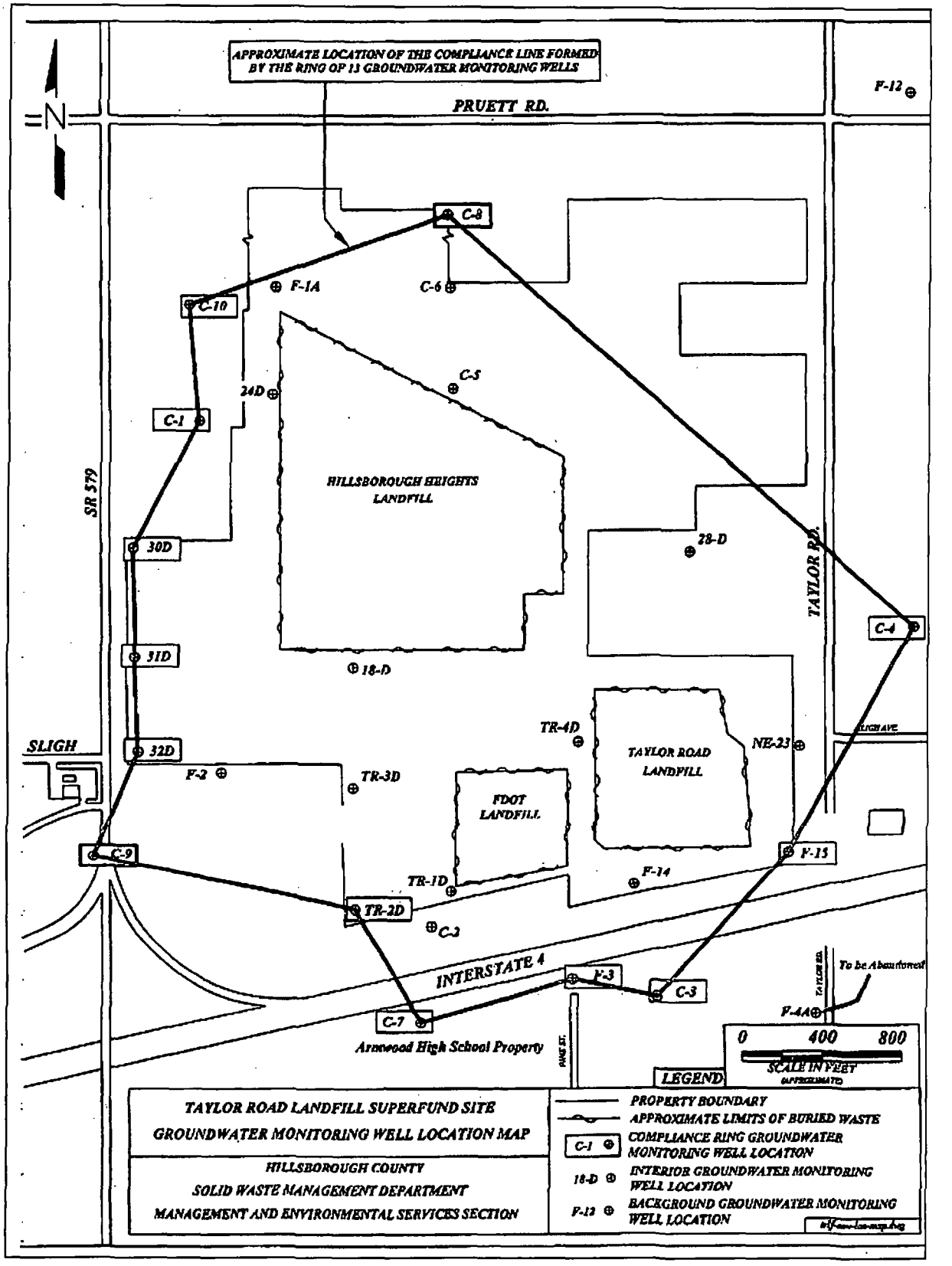
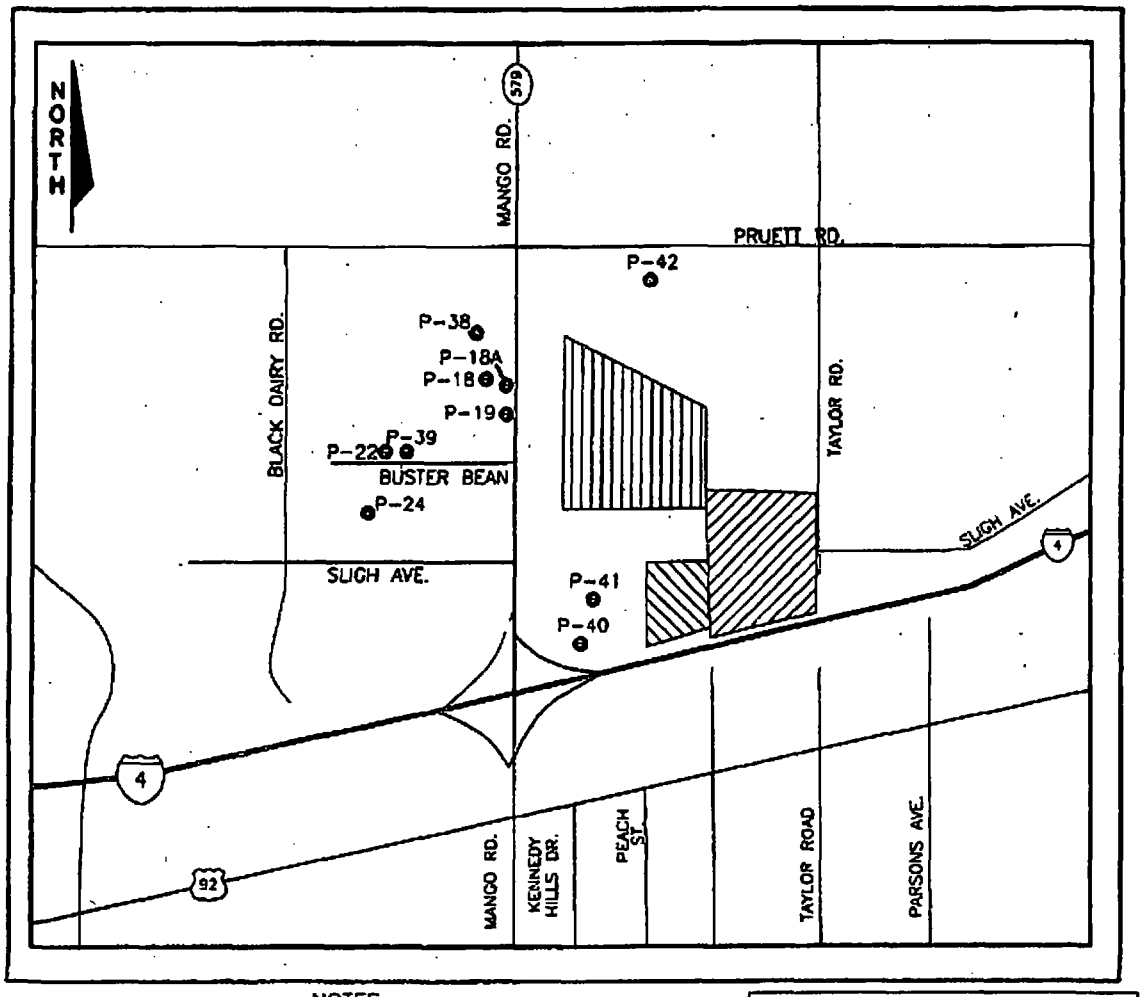


Figure - 3 Private Supply Wells Location Map

HILLSBOROUGH HEIGHTS PRIVATE SUPPLY WELLS



NOTES

1) The domestic supply wells P-18 and P-18A are sampled on an alternating monthly schedule.

2) The private supply wells P-1A and P-4 are no longer utilized for potable supply. The former users of these wells have been connected to the County's potable water distribution system.

3) The irrigation supply wells P-40 and P-41 are no longer in use. However, they will continue to be included in the monthly program until further notice.

LEGEND

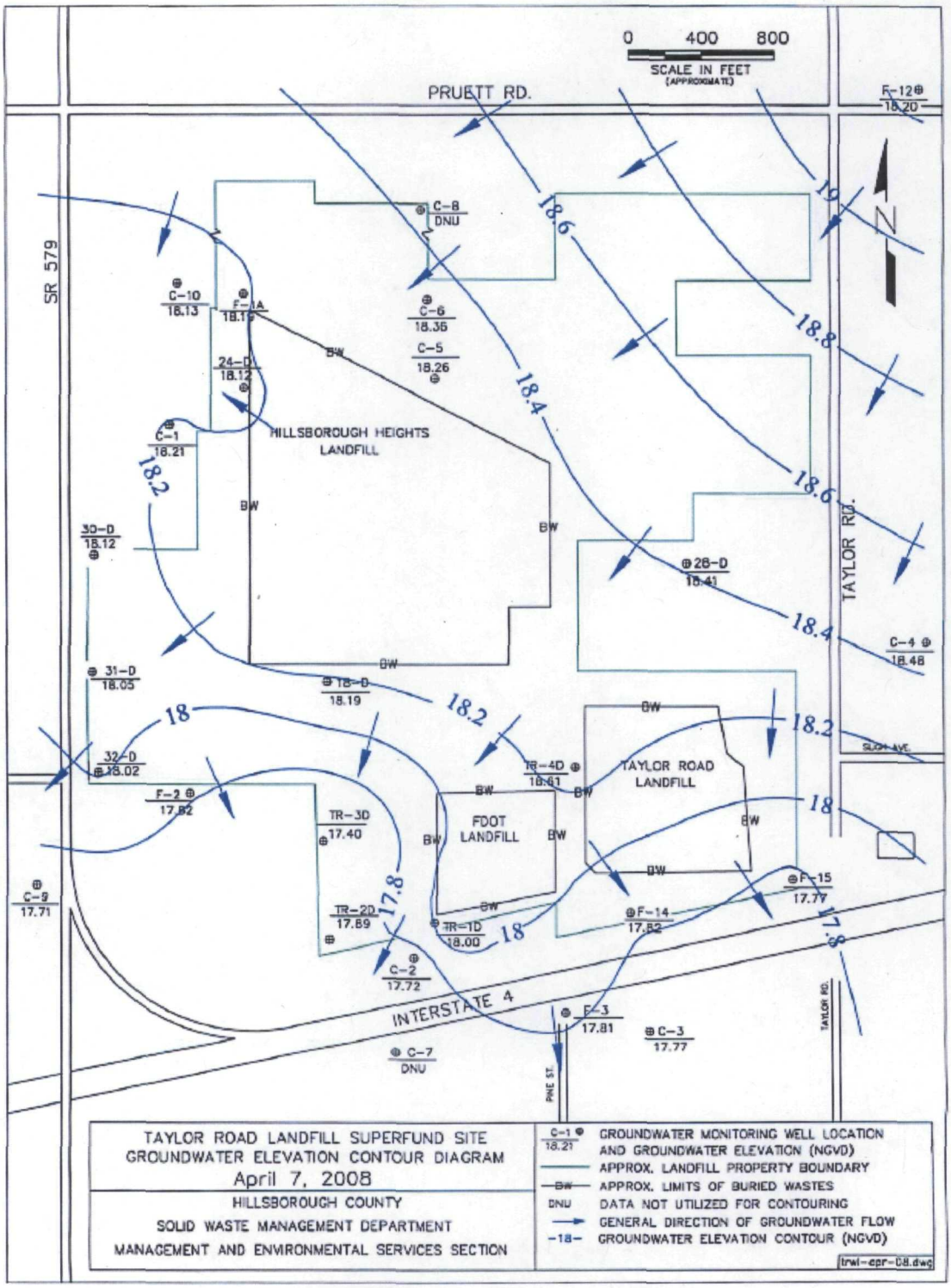
- ● P-4 PRIVATE SUPPLY WELL LOCATION
- TAYLOR ROAD LANDFILL
- HILLSBOROUGH HEIGHTS LANDFILL
- FDOT BORROW PIT LANDFILL

PRIVATE SUPPLY WELL LOCATION MAP

HILLSBOROUGH COUNTY
SOLID WASTE MANAGEMENT DEPARTMENT
MANAGEMENT & ENVIRONMENTAL SERVICES SECTION

File name: Hh-privatewell-locmap.dwg

Figure 4 – Direction of Ground-Water Flow



ATTACHMENT 2

LIST OF DOCUMENTS REVIEWED

CDM Federal Programs Corporation, Final Baseline Risk Assessment, August 1994

Environmental Protection Agency Region Four, Administrative Order by Consent for Remedial Investigation/Feasibility Study, February 1, 1993

Environmental Protection Agency Region Four, Record of Decision, September 29, 1995

Environmental Protection Agency Region Four, Superfund Proposed Plan fact Sheet, July 1995

Environmental Protection Agency. Explanation of Significant Differences. August 2000.

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Hillsborough County Solid Waste Management Department (SWMD),Taylor Road Landfill Superfund Site, Five Year Review Recommended Follow-Up Actions & Response to EPA Comment Letter Dated (February 12, 2004), June 2004

S C S Engineers, Taylor Road Landfill, Superfund Site Groundwater Quality Statistical Evaluation, July 2007

ATTACHMENT 3

SITE INSPECTION CHECKLIST

Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	*OSWER No. 9355.7-03B-P*
Site name: Taylor Road Landfill	**Date of inspection: March 5,2008**
Location and Region: Tampa, Hillsborough Co., FL – EPA Region 4	**EPA ID: FLD 980 494 959**
Agency, office, or company leading the five-year review: US Army Corps of Engineers	**Weather/temperature:** **Clear & Sunny, Temperature 76-80°F**

Remedy Includes: (Check all that apply)

✓ Landfill cover/containment
✓ Access controls
✓ Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
✓ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls
✓Other_The Hillsborough Co. consulted with the Water Management District (i.e., 4 sections around the compliance ring 270-ft setback) to get copies of the permit applications._____

Attachments: ☐ Inspection team roster attached ✓Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _David Adams_____ _Environmental Manager____ _5-March-2008__
   Name Title Date
   Interviewed ✓ at site ☐ at office ✓ by phone Phone no. _813-276-2944_____
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____Mike Townsel_____ _Hydrologist___ _5-March-2008__
   Name Title Date
   Interviewed ✓ at site ☐ at office ☐ by phone Phone no. _813-276-2955____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency FDEP_____
Contact ___John Morris_____ _Professional Geologist _____ 813-632-7600 ext 336
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _No representative was available at the site visit._____

Agency __EPC_____
Contact __Chuck Heintz_____ _ Professional Geologist _____ 813-627-2600_
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____ No representative was available at the site visit._

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☐ O&M manual — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ✓ As-built drawings — ✓ Readily available — ✓ Up to date — ☐ N/A
   - ✓ Maintenance logs — ✓ Readily available — ✓ Up to date — ☐ N/A

   Remarks____Map of Survey describe horizontal control of each well due to natural attenuation, following the ROD procedures._____

2. **Site-Specific Health and Safety Plan** — ✓ Readily available — ✓ Up to date — ☐ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks__ Maintained at the county offices and at the site. Several H&S plans are being prepared for all activities._____

3. **O&M and OSHA Training Records** — ✓ Readily available — ✓ Up to date — ☐ N/A

   Remarks__Maintained at county offices. Health & Safety Section employees are trained with OSHA refresher training at the county office and at the site._____

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ✓ N/A
   - ✓ Effluent discharge — ✓ Readily available — ✓ Up to date — ☐ N/A
   - ✓ Waste disposal, POTW — ✓ Readily available — ✓ Up to date — ☐ N/A
   - ✓ Other permits_____ — ✓ Readily available — ✓ Up to date — ☐ N/A

   Remarks___Waste water leachate permit, discharge permit, long term care permit are maintained according to FDEP rules/regulations required._____

5. **Gas Generation Records** — ✓ Readily available — ✓ Up to date — ☐ N/A

   Remarks_____Extensive evaluations of gas collection system are available at the county offices.___

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ✓ N/A

   Remarks____Topography surveys are being conducted as part of the re-shaped of collection points._

7. **Groundwater Monitoring Records** — ✓ Readily available — ✓ Up to date — ☐ N/A

   Remarks_Submitted quarterly to EPA, FDEP, EPC, and Waste Management Inc. _____

8. **Leachate Extraction Records** — ✓ Readily available — ✓ Up to date — ☐ N/A

   Remarks____Extensive evaluation records are available at the county offices._____

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ✓ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ✓ N/A

   Remarks___Leachate compliance records are available_____

10. **Daily Access/Security Logs** — ✓ Readily available — ✓ Up to date — ☐ N/A

    Remarks__ Visitors reports to the Community Collection Center, and records are maintained for 5-7 years or longer._____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
✓ PRP in-house ✓ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other__Hillsborough County is PRP and O&M organization is primarily in-house staff with some contract support. Analitycal Lab Contract Test- America and CSC Engineers (gas collection system upgrade.)_____

2. **O&M Cost Records**

✓ Readily available ✓ Up to date
✓ Funding mechanism/agreement in place
Original O&M cost estimate___N/A_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From___*_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

* Maintained as part of county budget, information provided.

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: __Maintenance and Analysis no unanticipated costs identified._____

V. ACCESS AND INSTITUTIONAL CONTROLS ✓ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ✓ Gates secured ☐ N/A

Remarks___Site reasonable secure, no apparent damage to fences and /or gates._____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks_No trespassing sign every 50 feet along fence._____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ✓ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ✓ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) __O&M personnel on-site daily /self reporting.___
Frequency _Daily inspection of perimeter of fence line/monthly detailed inspection of site._____
Responsible party/agency _Hillsborough County Solid Waste Management Department_____
Contact _Waymon Rose_____ __Senior Crew Ldr_____ _____ 813-765-4478__
Name Title Date Phone no.

Reporting is up-to-date ✓ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ✓ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ✓ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ✓ N/A
Other problems or suggestions: ☐ Report attached

Re-sample within the same quarter for any exceedances
._____

2. **Adequacy** ✓ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks__Physical security is adequately implemented. Groundwater use restrictions seem to be working properly._____
_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ✓ No vandalism evident
Remarks_____
_____

2. **Land use changes on site** ✓ N/A
Remarks____No_____

3. **Land use changes off site** ✓ N/A
Remarks____No, however, the Cone Brothers Borow Pit its being active upgradient from site. This is an offsite borrow pit used for selling top soil and construction materials._____

VI. GENERAL SITE CONDITIONS

A. Roads ✓ Applicable ☐ N/A

Roads damaged ☐ Location shown on site map ✓ Roads adequate ☐ N/A
Remarks_____
_____

B. Other Site Conditions

Remarks _____
_____
_____
_____
_____
_____

VII. LANDFILL COVERS ✓ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth__0.5-1 ft_____
Remarks_Low areas (100-500 meters square) noted on TRLF and HH. Hillsborough Co. constantly do maintenance of the cap. Ongoing repairs to the cap are being done._____

2. **Cracks** ☐ Location shown on site map ✓ Cracking not evident
Lengths_____ Widths_____ Depths_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ✓ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Holes** ☐ Location shown on site map ✓ Holes not evident
Areal extent_____ Depth_____
Remarks_____

5. **Vegetative Cover** ✓ Grass ✓ Cover properly established ✓ No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks__New trees_will be planted along the perimeter for aesthetics of landfill.

6. **Alternative Cover (armored rock, concrete, etc.)** ✓ N/A
Remarks_____

7. **Bulges** ☐ Location shown on site map ✓ Bulges not evident
Areal extent_____ Height_____
Remarks_____

8. **Wet Areas/Water Damage** ✓ Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent_____
☐ Ponding ☐ Location shown on site map Areal extent_____
☐ Seeps ☐ Location shown on site map Areal extent_____
☐ Soft subgrade ☐ Location shown on site map Areal extent_____
Remarks_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ✓ No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches ✓ Applicable ☐ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks__No flow pass by bench. Stormwater flows uniformly off perimeter ditches, which ultimately flows to storm water ponds (6 stormwater areas.)_____

2. **Bench Breached** ☐ Location shown on site map ✓ N/A or okay
Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ✓ N/A or okay
Remarks_____

C. Letdown Channels ✓ Applicable ☐ N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ✓ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** ☐ Location shown on site map ✓ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ✓ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** ☐ Location shown on site map ✓ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ✓ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
✓ No evidence of excessive growth
✓ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ✓ Applicable ☐ N/A

1. **Gas Vents** ✓ Active ☐ Passive
✓ Properly secured/locked ☐ Functioning ✓ Routinely sampled ✓ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks____Leakage checked quarterly._____

2. **Gas Monitoring Probes**
✓ Properly secured/locked ☐ Functioning ✓ Routinely sampled ✓ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks__Applicable to collection or extraction wells, gas is collected and being flared. Monthly sampled._____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ✓ N/A
Remarks___Located outside the the landfill footprint._

4. **Leachate Extraction Wells**
✓ Properly secured/locked ☐ Functioning ✓ Routinely sampled ✓ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks__Recent upgrades to leachate & gas collection sytem completed._____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ✓ N/A
Remarks_____

E. Gas Collection and Treatment ✓ Applicable ☐ N/A

1. **Gas Treatment Facilities**
✓ Flaring ✓ Thermal destruction ☐ Collection for reuse
✓ Good condition ☐ Needs Maintenance
Remarks__Micro-turbine has been removed from the site because it was not working properly (pilot project.)_____

2. **Gas Collection Wells, Manifolds and Piping**
✓ Good condition ☐ Needs Maintenance
Remarks___Upgrade recently completed._____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
✓ Good condition ☐ Needs Maintenance ☐ N/A
Remarks__Monitored within structures quarterly. Sheriff's building it is not monitored for security reasons._____

F. Cover Drainage Layer ☐ Applicable ✓ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
Remarks_____

G. Detention/Sedimentation Ponds ✓ Applicable ☐ N/A

1. **Siltation** Areal extent 8-9 acres_____ Depth 5-10 feet_____ ☐ N/A
   ✓ Siltation not evident
   Remarks___Infiltrate into the ground on-site. Four on site one off-site._____

2. **Erosion** Areal extent_____ Depth_____
   ✓ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ✓ N/A
   Remarks_____

4. **Dam** ☐ Functioning ✓ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ✓ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ✓ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ✓ Siltation not evident
   Areal extent_____ Depth_____
   Remarks__Perimeter ditches around landfill, route to detention basins. No off-site discharge.__

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ✓ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ✓ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Discharge Structure** ☐ Functioning ✓ N/A
Remarks____There is no discharge off-site.

VIII. VERTICAL BARRIER WALLS ☐ Applicable ✓ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2. **Performance Monitoring** Type of monitoring_____
☐ Performance not monitored
Frequency_____ ☐ Evidence of breaching
Head differential_____
Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ✓ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ✓N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance
☐ N/A
Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☐ Good condition ☐ Needs Maintenance
Remarks_____

3. **Spare Parts and Equipment**
☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ✓ N/A

1. **Collection Structures, Pumps, and Electrical**
☐ Good condition ☐ Needs Maintenance
Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☐ Good condition ☐ Needs Maintenance
Remarks_____

3. **Spare Parts and Equipment**
☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks_____

C. Treatment System ☐ Applicable ✓ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☐ Carbon adsorbers
☐ Filters_____
☐ Additive (*e.g.*, chelation agent, flocculent)_____
☐ Others_____
☐ Good condition ☐ Needs Maintenance
☐ Sampling ports properly marked and functional
☐ Sampling/maintenance log displayed and up to date
☐ Equipment properly identified
☐ Quantity of groundwater treated annually_____
☐ Quantity of surface water treated annually_____
Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
✓ N/A ☐ Good condition ☐ Needs Maintenance
Remarks_____

3.	**Tanks, Vaults, Storage Vessels** ✓ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks_____
4.	**Discharge Structure and Appurtenances** ✓ N/A ☐ Good condition ☐ Needs Maintenance Remarks_____
5.	**Treatment Building(s)** ✓ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks_____
6.	**Monitoring Wells** (pump and treatment remedy) ✓ Properly secured/locked ✓ Functioning ✓ Routinely sampled ✓ Good condition ✓ All required wells located ☐ Needs Maintenance ☐ N/A Remarks__Monitored for natural attenuation. Abandoned wells need to be removed.
D. Monitoring Data	
1.	Monitoring Data ✓ Is routinely submitted on time ✓ Is of acceptable quality
2.	Monitoring data suggests: ✓ Groundwater plume is effectively contained ✓ Contaminant concentrations are declining
E. Monitored Natural Attenuation	
1.	**Monitoring Wells** (natural attenuation remedy) ✓ Properly secured/locked ✓ Functioning ✓ Routinely sampled ✓ Good condition ✓ All required wells located ☐ Needs Maintenance ☐ N/A Remarks__Routinely smpled on a quarterly basis. Wells are properly labeled with ID._____
X. OTHER REMEDIES	
	If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

____Remedy is to control human exposure and monitor for natural attenuation. Remedy is generally being implemented as expected, and is operational and functional. _____

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

____O&M is generally adequate._____

____System upgrade was completed. _____

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

____None._____

_____Remedy is functioning properly. Plume is contained from the groundwater. Data set is very consistent._____

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. _____ _____Reduction of frequency of monitoring program (long term monitoring optimization.) _____Vapor phase transport could be investigated in a more detailed manner. Although, is challenging due to depths of 70-80 feet, it would be a good idea to re-visit with extraction wells. Refer to C-5 & C-6 (Interior wells.) _____

ATTACHMENT 4

SITE PHOTOGRAPHS

Taylor Road Landfill: Well-established grass cover.

Taylor Road Landfill: Deep monitoring well (interior well) with protective casing and dedicated sampling system, located outside the site area.

Taylor Road Landfill: Improvement/upgrading of gas well monitoring areas.

Taylor Road and Hillsborough Heights Landfills: Flare for combined flow landfill gas recovery system.

Taylor Road Landfill: Leachate collection tank.

Taylor Road Landfill: Fencing around the perimeter.

ATTACHMENT 5

INTERVIEW RECORDS

INTERVIEW RECORD

Site Name: Taylor Road	EPA ID No.:
Subject: 5 yr Rvw	Time: 2:30 PM Date: 3/5/08
Type: ☐ Telephone ☒ Visit ☐ Other Location of Visit:	☐ Incoming ☐ Outgoing

Contact Made By:

Name: L'Tonya Spencer	Title: CIC	Organization: EPA

Individual Contacted:

Name: Cam Oberting	Title:	Organization: Taylor Road Civic Assoc.
Telephone No: Fax No: E-Mail Address:	Street Address: City, State, Zip:	

Summary Of Conversation

See Attached

INTERVIEW DOCUMENTATION FORM

The following is a list of individuals interviewed for this five-year review. See the attached contact record(s) for a detailed summary of the interviews.

Name	Title/Position	Organization	Date
Georgia M. Graff	member	Taylor RdCivic	03-05-08
Rosa B. Goldsmith	BD member	TAYLOR RD Civic assn	03-05-08
Cam Oberting	Pres.	Taylor Rd civic assn.	03-05-08
Lee E. Oberting	Board	Taylor Rd Assn	3-5-08

Taylor Road Superfund Site
March 5, 2008

FIVE YEAR REVIEW INTERVIEW QUESTIONS FOR COMMUNITY

1. What is your impression of the activities (O & M) at the site?

The site is much better than before. There are no more trespassing, etc. The fences are repaired.

2. Have there been any effects on the surrounding community related to the site operations?

No, ⇒ However, the mercury is a problem.
mercury is not natural
Is that the reason the water lines have been extended to supply water to in the area. the homes on 579 (Corner)

3. Are you aware of any community concerns regarding the site or its operations and administration?

Q: What about the gas on the Taylor Road Site?
Q: What about mercury? ~~How does it at~~
What are the health affects of the mercury?

4. Are you aware of any events, incidents or activities, such as trespassing, vandalism, emergency responses, etc., at the site?

← Low levels of mercury in wells are a concern ⇒ Where is it coming from?
Where is the low ~~pH's~~ & mercury coming from?
Discarded ~~industrial~~ waste @ an industrial place in the area, & it needs to be looked @.

5. Do you feel well informed about the site activities and/or progress?

Yes. David does a wonderful job on communicating what is going on at the site & near the area.

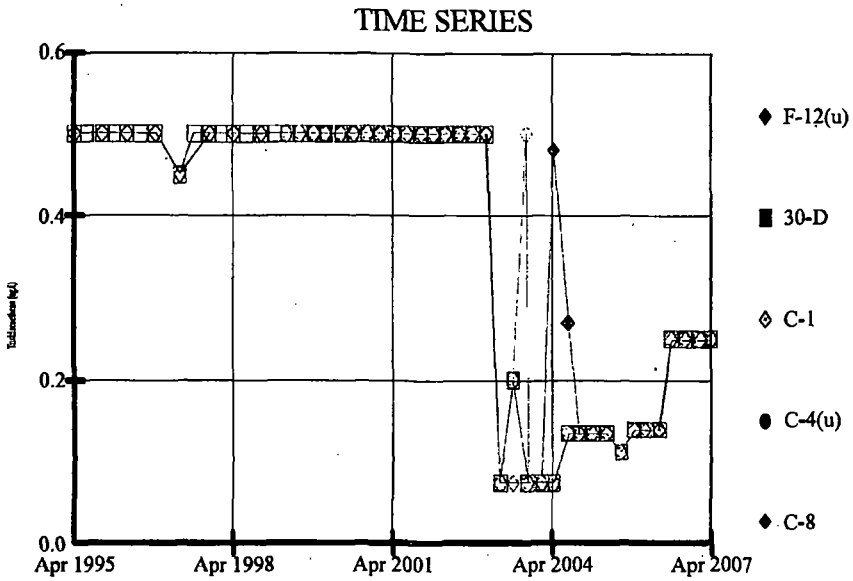
6. Do you have any comments, suggestions or recommendations regarding the site's activities or operation?

Pleased that the golf course on top of the dump is not going forward.
Concerned that mercury may be moving in this direction.

ATTACHMENT 6

PRIORITY COPCs DATA GRAPHS

Note: Concentration Units are in µg/l



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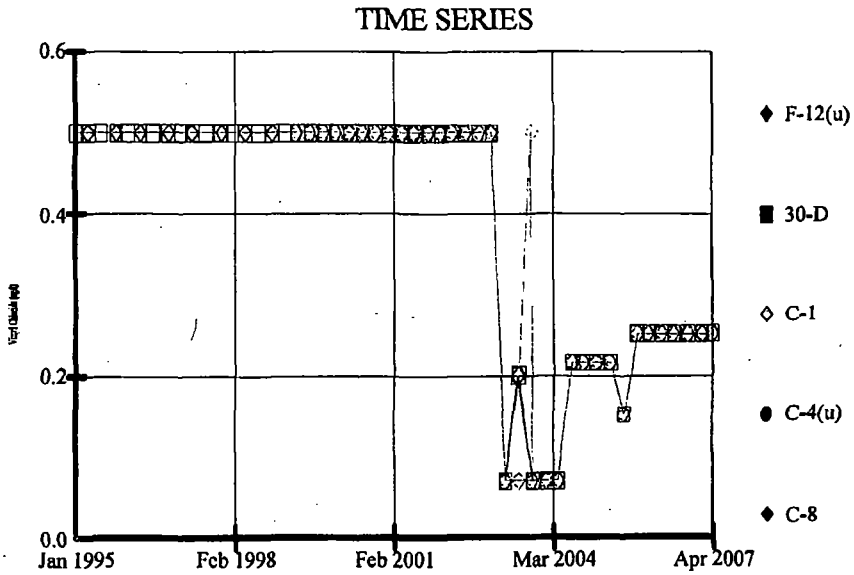

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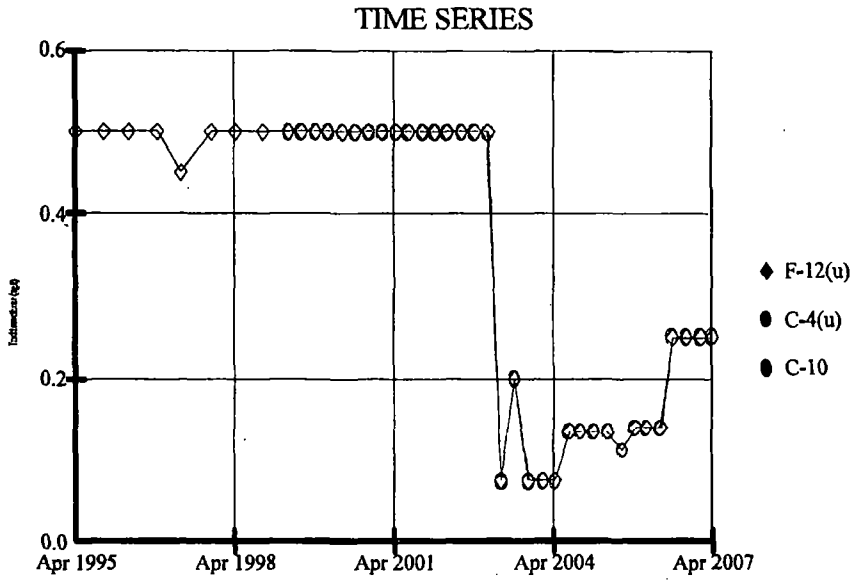

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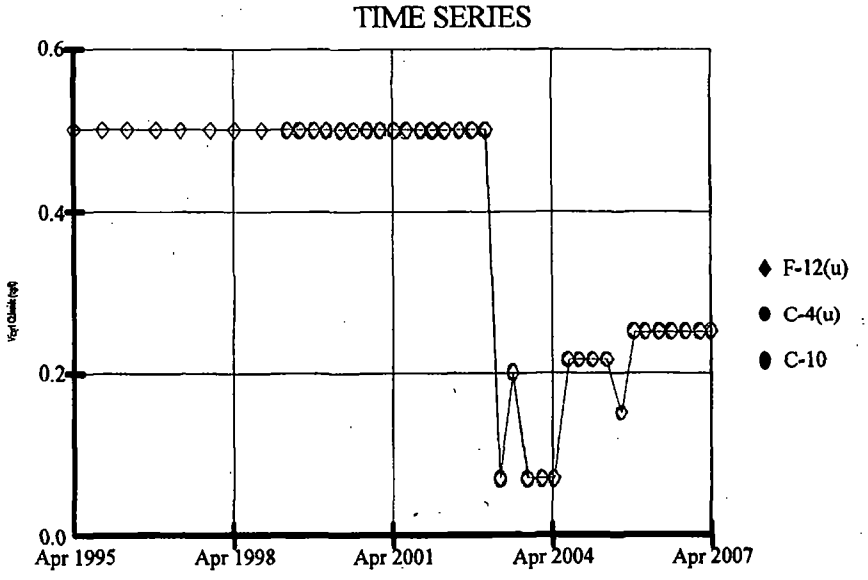

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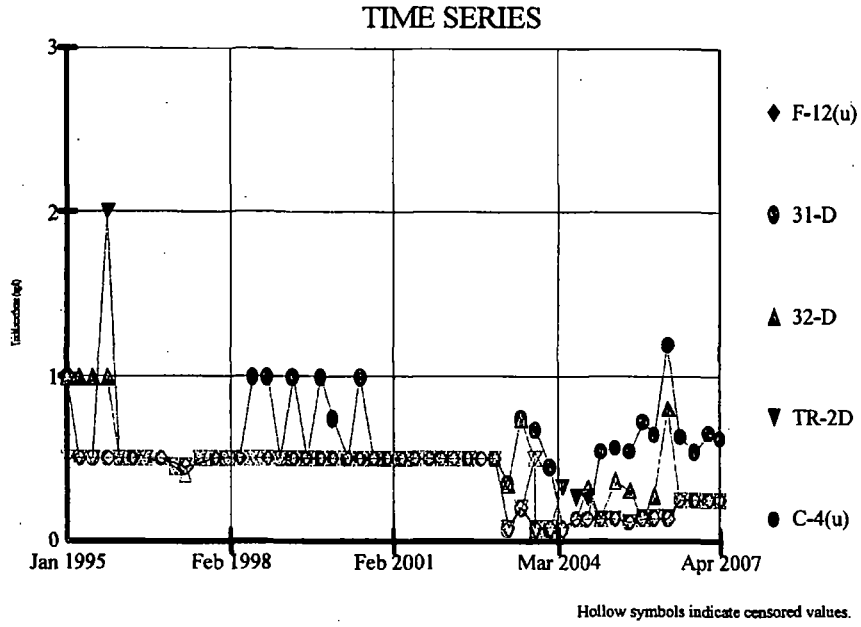

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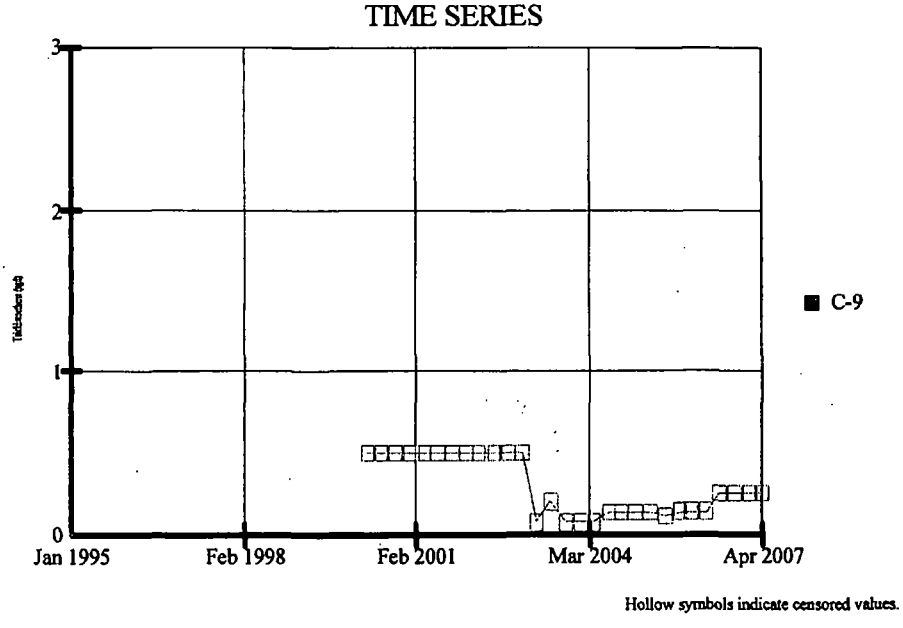

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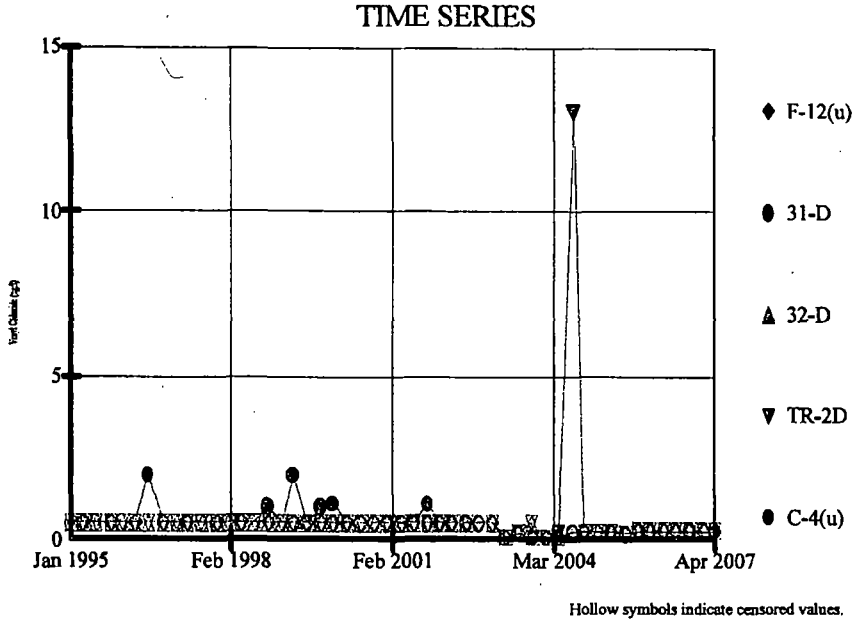

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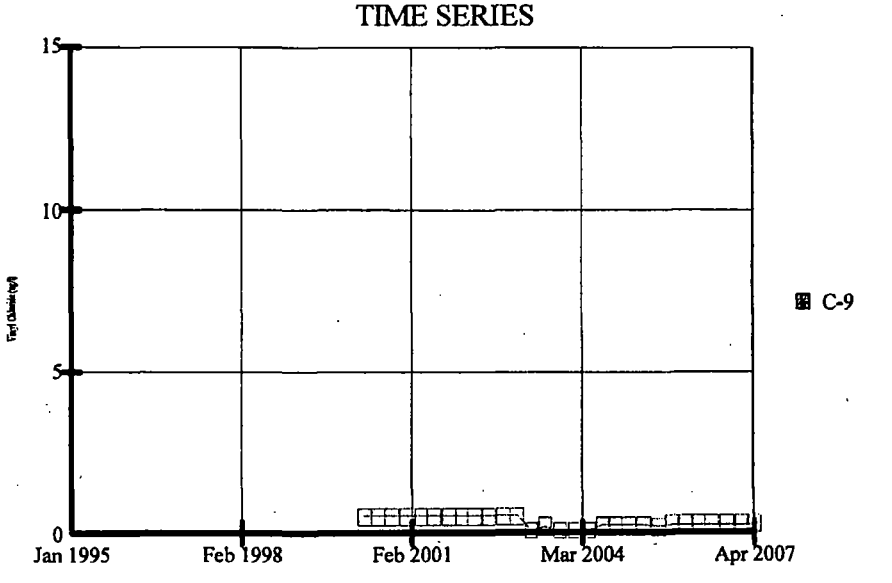

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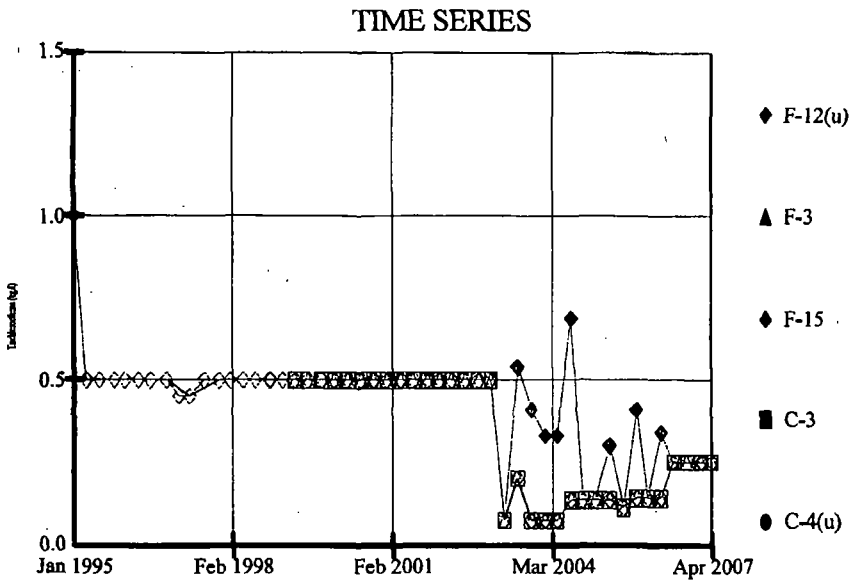

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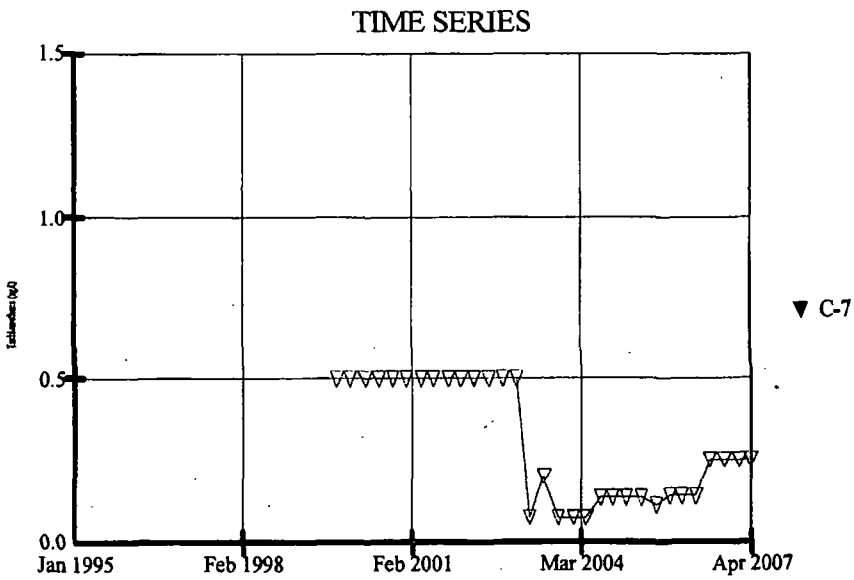

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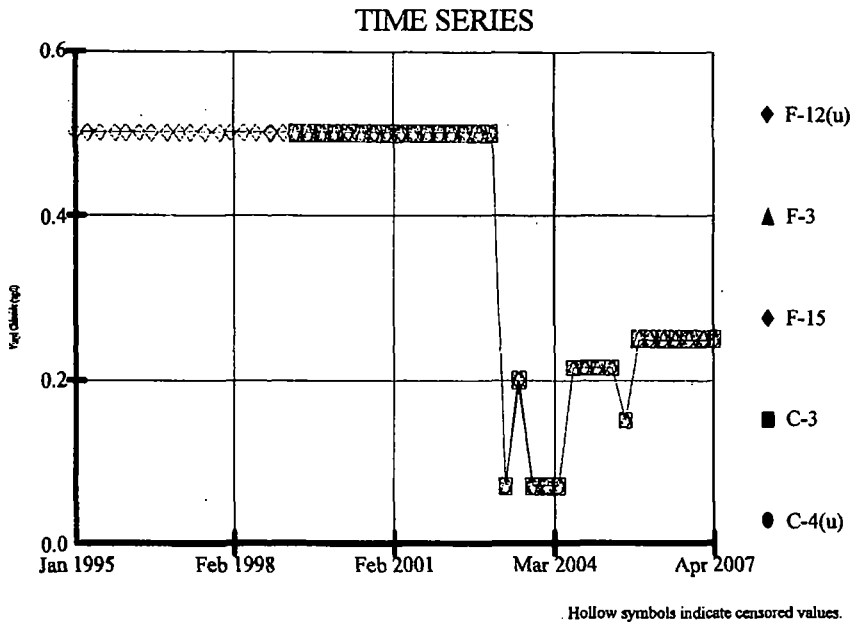

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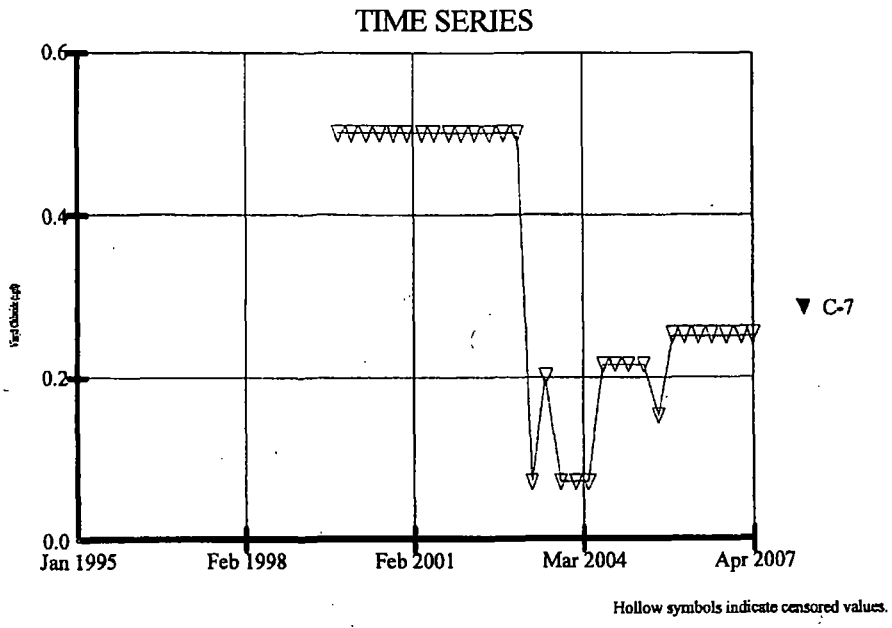

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ATTACHMENT 7

PUBLIC NOTICE OF FIVE YEAR REVIEW

U. S. Environmental Protection Agency, Region 4
Announces a Five-Year Review
for the Taylor Road Landfill Superfund Site
Hillsborough County, FL

Purpose/Objective: The US Environmental Protection Agency (EPA) is conducting a Five-Year Review of the remedy for the Taylor Road Landfill Superfund Site. The Taylor Road Landfill Superfund Site is located in eastern Hillsborough County, Florida, approximately 7 miles east of Tampa in the Seffner-Thonotosassa area. The purpose of the Five-Year Review is to ensure that the selected cleanup actions continue to protect human health and the environment.

Site Background: The Taylor Road Landfill was permitted as a solid waste landfill for Hillsborough County in 1975. The Taylor Road Landfill was not constructed with a liner or leachate collection system. The County operated the Taylor Road Landfill from May 1976 until February 1980. A total of 620,000 tons was disposed of in the landfill. An unknown quantity of hazardous waste is suspected to have been buried at this landfill.

In October 1979, as part of a nationwide program of groundwater sampling and analysis, EPA discovered volatile organic compounds and metals in site monitoring wells and numerous private wells drilled into the Floridan Aquifer, which is the drinking water source for much of the greater Tampa area. EPA advised residents in the vicinity of the site to discontinue the use of their wells. A bottled water program was established and eventually about 400 residences and businesses were connected to the county water supply. A final remedy decision addressing the groundwater contamination was made in September, 1995. The remedy consists of monitoring groundwater, creating a buffer zone by supplying additional residents with county water, and planning for active groundwater remediation if future monitoring reveals the need. Groundwater monitoring continues at the site to make sure the remedy remains effective.

Five-Year Review Schedule: The National Contingency Plan requires that remedial actions which result in any hazardous substances, pollutants, or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure be reviewed every five years to ensure protection of human health and the environment. EPA completed a statutory Five-Year Review in September 2003. The remedy at the Taylor Road Landfill was determined to be protective of human health and the environment. This is the second Five-Year Review for this site.

EPA invites community participation in the Five-Year Review process.

The EPA is conducting this Five-Year Review to evaluate the effectiveness of the remedy and ensure that the remedy remains protective of human health and the environment. As part of the Five-Year Review process, the EPA is available to answer any questions about the Site. Community members who have questions about the Site, the Five-Year Review process, or who would like to participate in a community interview, are asked to contact the following:

Erik E. Spalvins, Environmental Scientist
404-562-8938 / 1-800-435-9234 (Toll Free)
spalvins.erik@epa.gov

L'Tonya Spencer, Community Involvement Coordinator
404-562-8463 / 1-800-435-9234 (Toll Free)
spencer.latonya@epa.gov

U.S. EPA – Region 4 Mailing Address
Superfund Division (4SD-SRB)
61 Forsyth Street,
Atlanta, Georgia 30303

Local Document Repository
Thonotosassa Public Library
10715 Main Street
Thonotosassa, FL 33592

Online: http://www.epa.gov/region4/waste/npl/nplfln/taylorfl.htm