


Memorandum



Date: August 11, 2022

To: Rashid Istambouli, P.E., Interim Director
Department of Regulatory and Economic Resources
Division of Environmental Resources Management (DERM)

From: Wilbur Mayorga, P.E., Chief
Environmental Monitoring and Restoration Division (DERM-EMRD)



Cc: Lourdes Gomez, Director RER
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EMRD Staff

Subject: Background Concentrations of Metals in Groundwater - Miami-Dade County

Between November 2019 and January 2020 DERM commissioned a study to evaluate background concentrations of certain nutrients and metals in shallow groundwater throughout the County. The project involved the sampling and analysis of groundwater from over 500 pre-existing monitoring wells in Miami-Dade County. The attached report presents the results, data analysis and findings of the study with respect to background concentrations of the metals of interest.

Overall, the background concentrations of metals in shallow groundwater in Miami-Dade County is unremarkable. Eight of the metals evaluated reported non-detectable concentrations in greater than ninety percent of the samples. Four metals, arsenic, aluminum, iron, and manganese documented concentrations above regulatory criteria defined as the groundwater cleanup target levels (GCTL) pursuant to Chapter 62-777 Florida Administrative Code (FAC) and Chapter 24 of the Miami-Dade County Code. Except for iron, the frequency of GCTL exceedance was less than ten percent.

The GCTL for arsenic is based on potential impacts to human health. While human health-based benchmarks (HHB) are available for aluminum, manganese and iron the GCTLs for these metals are based on organoleptic concerns (color, taste, smell) and the potential to cause nuisance concerns, since these effects occur at much lower concentrations than the concentrations at which human health impacts are documented. Arsenic, manganese, and iron were documented in the studied groundwater at concentrations exceeding the human health-based criteria (HHB) in a small percent of the samples.

The distribution of metals in groundwater was evaluated for potential impacts based on groundwater geochemistry as well as surrounding land use. Spatial trends in metal concentration distribution were also assessed.



BACKGROUND CONCENTRATION OF METALS IN GROUNDWATER - MIAMI-DADE COUNTY

August 2022

Department of Regulatory and Economic Resources (RER)
Division of Environmental Resources Management (DERM)

Introduction

The Miami-Dade County Department of Regulatory and Economic Resources Division of Environmental Resources Management (DERM) currently administers two groundwater quality monitoring programs (WQMP): the Wellfield Protection Area Monitoring Program (WMP) required pursuant to Miami-Dade County's Consumptive Water Use Permit issued by the South Florida Water Management District and the Ambient Groundwater Monitoring Program (AGWMP), established in 1981 to provide data on Miami-Dade County's background groundwater quality. Between the two programs DERM routinely samples a total of 254 groundwater monitoring wells (monitoring wells): one hundred and eighty-five (185) wells in the WMP and sixty-nine (69) in the AGWMP. The monitoring well depths range from 10 to 149 feet below land surface (bls). Groundwater is monitored for a comprehensive list of parameters at differing frequencies based on the requirements of each program. Data from groundwater monitoring programs is updated on a weekly basis and is publicly accessible via the Miami-Dade County Surface and Groundwater Quality Viewer at <https://mdc.maps.arcgis.com/apps/webappviewer/index.html?id=3fd24515ee614f5db63924d7323a4ea7>.

Recent challenges relating to sea level rise, concerns regarding the potential impact to groundwater resources from compromised septic tanks and emerging contaminants, land use changes and increased development has indicated a need to supplement the available regional groundwater quality data especially for urbanized areas of the county.

In response to the identified need, during November 2019 through January 2020, DERM (through its environmental contractor) conducted a synoptic groundwater sampling event. The concentrations of fourteen metals nutrients and, to a limited sucralose as wells as four pharmaceuticals, in shallow groundwater in the urban areas of Miami-Dade County (MDC) was evaluated utilizing samples collected from 552 pre-existing wells located at facilities permitted by the Miami-Dade County Division of Environmental Resources Management (DERM). The fourteen metals analyzed Aluminum (Al), Arsenic (As), Barium (Ba), Cadmium (Cd), Chromium (Cr), Copper (Cu), Iron (Fe), Lead (Pb), Manganese (Mn), Nickel (Ni), Selenium (Se), Silver (Ag), Vanadium (V) and Zinc (Zn) are the report focus of this report.

Purpose and Scope

The locations sampled for this study are assumed to be unimpacted by any potential point source or non-point source discharges of the metals of interest and as such groundwater concentrations at these locations potentially represent anthropogenic background concentrations for the urbanized areas of the county. The primary purpose of the study was to describe the occurrence and distribution of the fourteen metals in shallow groundwater in MDC and to determine regional background concentrations for these metals. The metals were also evaluated against their groundwater cleanup target levels (GCTL) pursuant to the Miami-Dade County Code (Chapter 24) and Florida Department of Environmental Protections criteria (Chapter 62-777, Florida Administrative Code) to identify subregions where impacted groundwater (groundwater at concentrations above GCTL) may occur based on localized geochemistry. The study also assessed for patterns in spatial distribution of the metals, for those metals with concentrations above criteria.

Study Design

Gas stations are required by permit to maintain compliance monitoring wells. The locations sampled for this project (Figure 1 and Table 2) were selected from DERM's records of active gas stations in Miami-Dade County (MDC). Except where two or more gas stations fell within a 500 feet radius of each other, in which case only one such location was randomly selected for sampling, all active gas stations in MDC were sampled. Twelve of the sampling locations represented industrial facilities, not gas stations. In most cases the selected facilities had several compliance monitoring wells; however, typically only one monitoring well was sampled at each facility. Monitoring well selection criteria included proximity to a septic tank or to an adjacent surface water body (for the evaluation of nutrients), minimization of disturbance to facility operations, safety, accessibility, etc.

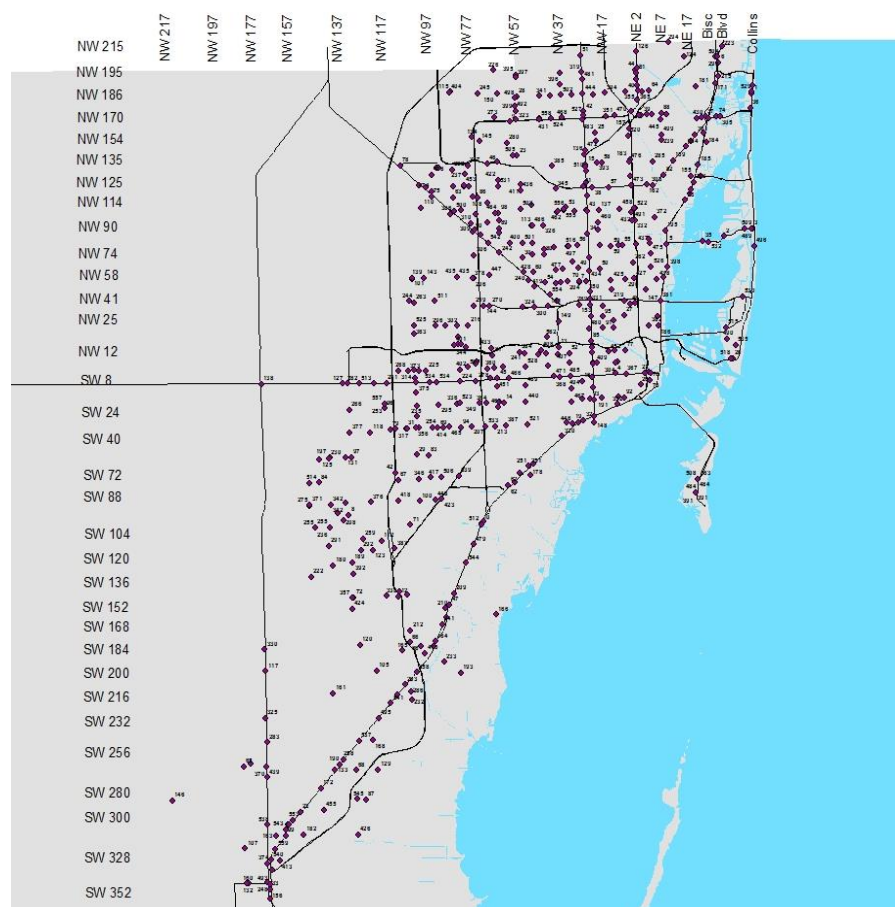


Figure 1: Sampling Locations (Table 2)

Sampling locations were identified by a seven-digit state ID number assigned to the facility; the sampled well was identified and located based on its geographic coordinate. Sampling was conducted by Arcadis, US Inc., under contract with DERM.

Sampling Methodology

Prior to sample collection, the wells were purged and geochemical parameters, temperature, dissolved oxygen (DO), specific conductance and pH, were allowed to stabilize. The wells were sampled in accordance with the Florida Department of Environmental Protection (FDEP) Standard Operating Procedures provided in Chapter 62-160, Florida Administrative Code (FAC) <https://floridadep.gov/dear/quality-assurance/content/dep-sops>. The samples were placed on ice and transported to the DERM laboratory.

The samples were analyzed either by the DERM laboratory or by Pace Analytical Laboratory utilizing EPA method 200.7. For some metals, the two analytical laboratories reported at different detection limits (both detection limits were below applicable groundwater regulatory criteria); in such cases the highest detection limit was used for statistical evaluations.

Statistical Approach

The handling of outliers in environmental data represents a challenge since an anomalous observation does not necessarily mean that the data is wrong or false. Since the objective of the study was to describe the background groundwater concentrations and given the potential influences of heterogeneous groundwater geochemistry, soil type, and aquifer characteristics the data was not censored for outliers using the commonly utilized censoring techniques (e.g., Dixon's test, Rosner test, etc.). Instead, the data was censored to remove extreme values only. Aluminum (Figure 2), Ba, Cr, Pb, Mn and Ni had one extreme value while Cu, Ag and Zn had two. Data from monitoring wells with multiple samples (duplicate samples, resampled sites, etc.) were represented as the mean of the concentrations except when resampling was based on the existence of an extreme value in which case the extreme value was excluded as indicated above and exemplified by Figure 2.

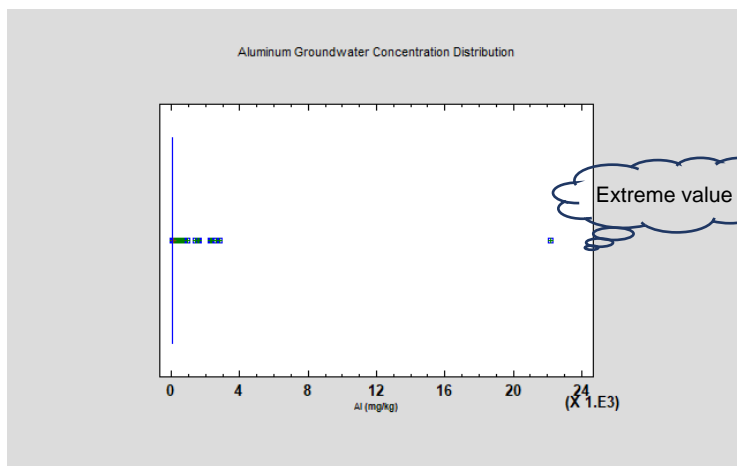


Figure 2: Example of Extreme Value Screening using Aluminum

The Statgraphic™ (version 18) software was utilized for statistical analysis. Predominantly the data sets were predominantly not normally distributed; therefore, population distribution comparisons and hypothesis testing were based on non-parametric statistics. (Kruskal-Wallis Test, Mood's Median Test, Mann-Whitney W-test, Kolmogorov-Smirnov Test, etc.). The Spearman Ranked correlation was used to evaluate the strength of relationships between variables. All statistical tests were performed at a significance level (α) of 0.05. Summary statistics are provided in Table 1. while the complete dataset is provided in Table 3.

Data Evaluation

Groundwater Geochemistry

Temperature, specific conductance, pH, and DO were obtained as field measurements during each sampling event. Groundwater temperature ranged from 22.8°C to 32.79°C (median 27.7°C). Specific conductance ranged from 136 $\mu\text{S}/\text{cm}$ to 4342 $\mu\text{S}/\text{cm}$ with a median concentration of 477 $\mu\text{S}/\text{cm}$ categorizing the groundwater documented during this study as fresh (<1500 $\mu\text{S}/\text{cm}$) to slightly saline (1500 to 4600 $\mu\text{S}/\text{cm}$) (Kasenow, 1997). pH values ranged from 5.97 to 8.78, (exclusive of four anomalous values 2.37, 3.01, 4.3 and 10.04) with a median of 7.2, which is higher than the median value of 6.7 documented for Miami-Dade, Broward, and Palm Beach Counties by Bradner (Bradner et.al. 2005). Seventy six percent of the pH values fell between 7 and 8 (Figure 3).

The National Oceanographic and Atmospheric Administration defines waters with DO levels between 0 to 0.2 mg/l as anoxic and DO levels between 0.3 and 2 mg/l as hypoxic (NOAA Chesapeake Bay). Waters with DO above 3 mg/l are considered oxic or oxygenated. The median dissolved oxygen concentration of 0.35 mg/l indicated groundwater in this study area is oxygen deficient and classifies as predominantly anoxic or hypoxic water (Figure 4) which is consistent with the USGS findings for predominately carbonate rock aquifers (DeSimone et.al. 2015).

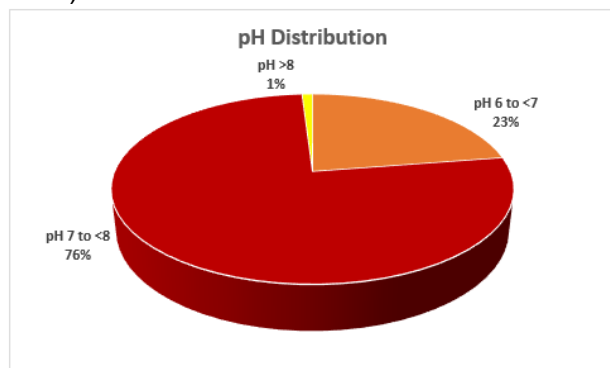


Figure 3: Percent distribution of pH in groundwater

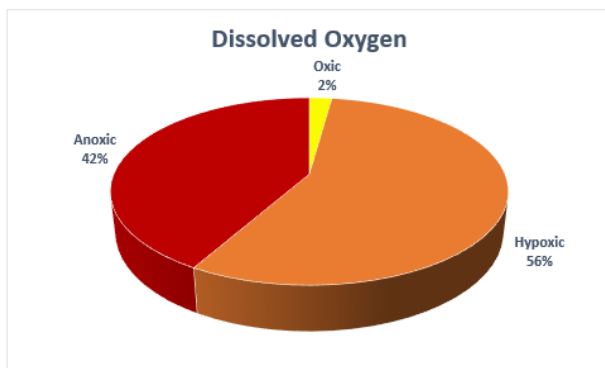


Figure 4: Percent of samples per DO saturation category

Several studies have documented the influence of organic matter on the solubility and mobility of metals in groundwater with the primary mechanisms of action being the impact on redox reactions, formation of metal complexes and sorption and desorption process. TOC along with dissolved organic carbon are the two primary parameters used as indicators of overall levels of organic compounds in groundwater. Forty-one samples were analyzed for total organic carbon (TOC), concentrations ranged from 1000 $\mu\text{g}/\text{l}$ to 7300 $\mu\text{g}/\text{l}$ with one extreme outlier, 38400 $\mu\text{g}/\text{l}$.

Occurrence of Metal in Groundwater

Over 90 percent of the samples for Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Silver, and Selenium were reported at below the method detection limit (for parameters with multiple detection limits the largest detection limit was utilized). Except for arsenic, metals with greater than 90% non-detects were not further evaluated. Barium was ubiquitous in groundwater with a

Background Concentrations of Metals in Groundwater-Miami-Dade County

detection frequency of 99.3 percent; however, barium concentrations did not exceed the Groundwater Cleanup Target Level (GCTL) provided in 62-777 FAC and Chapter 24 of the MDC Code (GCTL) therefore, barium was not further evaluated. Similarly, vanadium and zinc were not further evaluated since they were not detected at concentrations above the GCTL.

Approximately 35 percent of all samples exceeded the GCTL for at least one metal while approximately 8 percent exceed for two or more metals. Excursions from the GCTL were documented for four metals: aluminum, arsenic, iron, and manganese. In the case of lead one sample exceeded the GCTL but the concentration was classified as an extreme value. The GCTL for arsenic is based on human health concerns and is equivalent to the primary drinking water standard developed by the U.S Environmental Protection Agency (USEPA) to be protective of human health. Aluminum, iron, and manganese are assigned secondary drinking water standards by the USEPA based on aesthetic considerations, such as taste, color, and odor. While human health risk-based criteria are available for these metals (iron 4200 µg/l, manganese 330 µg/L and Aluminum 7000 µg/l - FDEP) the regulatory criteria pursuant to 62-777 FAC and Chapter 24 of the MDC Code is the organoleptic/aesthetic end point. These organoleptic endpoints are significantly lower than the human health-based (HHB) criteria and are therefore adequate to be protective of human health effects.

Table 1: Statistical Descriptors (concentrations in µg/l)

Table 1: Summary Statistics

	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
MDL*	30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
GWCTL	<u>200</u>	<u>10</u>	<u>2,000</u>	<u>5</u>	<u>100</u>	<u>1,000</u>	<u>300</u>	<u>15</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>100</u>	<u>49</u>	<u>5,000</u>
Count	551	552	551	552	551	550	552	551	551	551	552	552	525	550
Mean	86.6	7.4	17.1	0.5	2.0	2.9	421.0	4.5	92.6	2.5	8.6	1.0	2.7	13.8
Median	30.7	7.1	12.6	0.3	1.7	2.6	88.7	4.6	5.1	2.1	8.5	1.0	1.4	11.0
Geometric Mean	42.9	7.3	12.3	0.4	1.8	2.8	91.9	4.5	4.6	2.6	8.6	1.0	2.8	12.2
MVUE	66.8	7.6	19.5	0.5	2.0	3.0	628.0	4.6	35.8	2.6	8.7	1.1	3.5	14.4
95% UCL	134.7	7.8	20.5	0.5	2.5	3.1	634.0	4.6	182.0	2.7	8.8	1.1	3.8	16.3
Standard deviation	259.0	2.2	18.5	0.4	2.4	0.9	1150.0	0.6	483.0	1.5	1.0	0.2	3.8	13.7
Minimum	30.7	6.0	1.2	0.3	1.7	2.6	4.5	3.0	0.4	2.1	8.0	1.0	1.0	11.0
Maximum	2790.0	30.7	171.0	2.0	40.3	12.9	11400.0	14.1	4640.0	23.2	20.0	3.0	37.7	182.0
Range	2760.0	24.7	170.0	1.7	38.6	10.3	11400.0	11.1	4640.0	23.2	12.0	2.0	36.7	171.0
Lower quartile	30.7	7.1	7.7	0.3	1.7	2.6	19.8	4.6	1.3	2.1	8.5	1.0	1.0	11.0
Upper quartile	36.3	7.1	19.4	0.3	1.7	2.6	342.0	4.6	11.4	2.1	8.5	1.0	2.6	11.0
Percent Non Detect	69.7%	94.7%	1.3%	100.0%	93.6%	97.3%	16.3%	98.5%	13.2%	98.9%	97.5%	93.1%	34.4%	84.7%
Percent > GCTL	6.0%	3.40%	0.0%	0.0%	0.0%	0.0%	28%	0.0%	6.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Results in ug/L

* MDL PACE Laboratory/DERM Laboratory

** Extreme Value(s) not included for statistical calculations

Arsenic exceeded the GCTL in 3.4 percent of the samples analyzed. Twenty-eight (28) percent of samples for iron (extreme values not included in data evaluation) and 6 percent of the aluminum and manganese samples exceeded the GCTL based on the organoleptic endpoint. Table 1. Manganese exceeded its HHB at a frequency of 3.6 percent while the frequency of

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HHB exceedance for iron was 1.3 percent. In total 7.8 percent of samples exceeded the HHB. Figure 5.

A desktop assessment (Florida Department of Health potable well database, Miami-Dade Water and Sewer customer database and DERM potable water supply permit database) of the locations with groundwater exceedances of the HHB indicates that these locations and adjoining properties are not documented to be served by private wells.

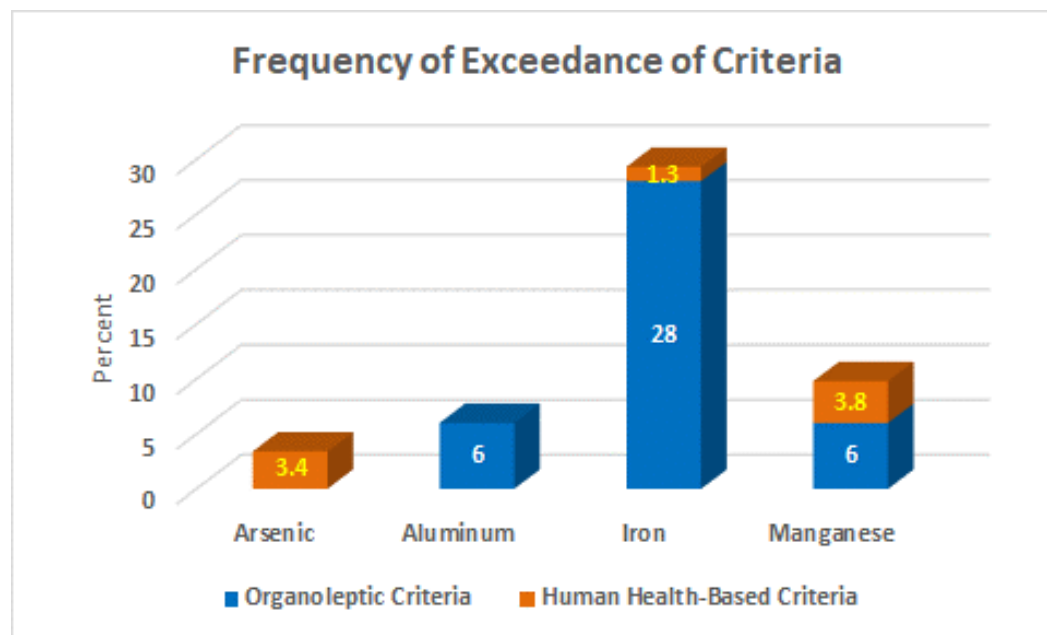


Figure 5: Frequency of exceedance of GCTL and HHB

Aluminum concentrations ranged from below detection limit (MDL 30.7 $\mu\text{g/l}$) to 2790 $\mu\text{g/l}$, arsenic concentrations ranged from below detection limit (MDL 7.1) to 30.7 $\mu\text{g/l}$ while manganese concentrations ranged from 0.4 $\mu\text{g/l}$ to 3640 $\mu\text{g/l}$. Iron exhibited the most variability with respect to the magnitude of concentrations: ranging over four orders of magnitude from 4.5 $\mu\text{g/l}$ to 11,400 $\mu\text{g/l}$ (Table 1)

Several samples reported multiple metals with GCTL exceedances. In all cases with multiple exceedances iron was one of the co-occurring metals; iron co-occurred with aluminum most frequently (Figure 6). The Spearman Ranked Correlation analysis indicated positive correlations between iron and aluminum and iron and manganese ($r=0.3$ and $r=0.6$ respectively). With respect to co-occurrence for samples exceeding the HHB criteria, one sample exceeded the HHB for all three metals while exceedances of arsenic and iron were documented in two additional samples.

The transformation of inorganic contaminants in groundwater is influenced by the chemical and physical characteristics of aquifers such as pH, redox potential (Eh) and organic matter. Aluminum, iron, manganese, nickel, copper, lead, and zinc, adsorb more strongly to aquifer materials as pH increases (USGS 2011). Consequently, for such metals, solubility in water often decreases with increasing pH while for others, such as arsenic, solubility can increase with increasing pH over the normal pH range of most natural waters (USGS 2011). Reducing

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conditions, and salinity are some of the key factors influencing the dissolution and migration of Fe and Mn to groundwater (Zhang et. al., 2020). High concentrations of dissolved iron or manganese (defined as greater than or equal to 50 µg/L) indicate that the aquifer geochemical environment is relatively free of dissolved oxygen and dissolved sulfide (Groschen, et.al., 2009).

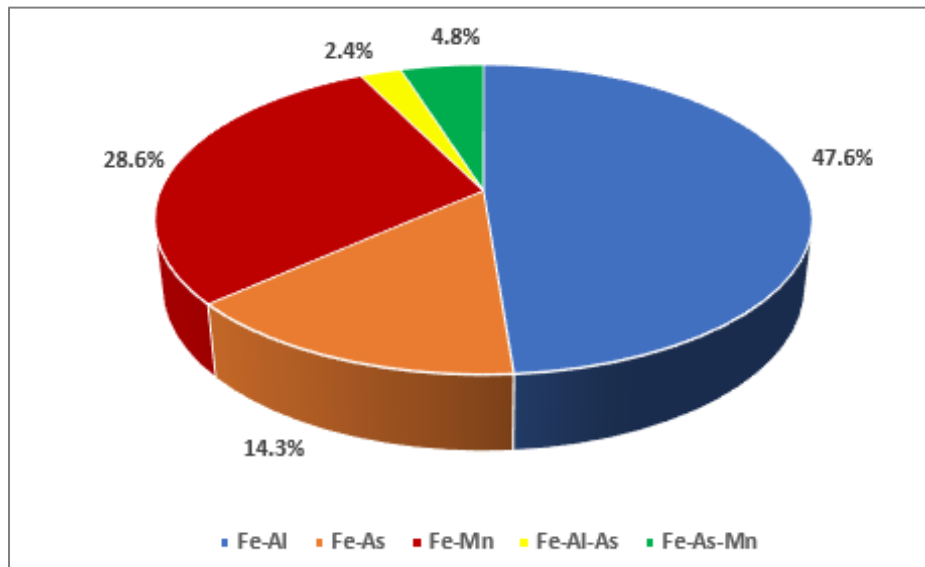


Figure 6: Frequency of co-occurrence of metals >GWCTL

The potential influence of groundwater geochemistry (pH, temperature, specific conductivity, DO and TOC) on the distribution of Al, Fe, Mn, and As was evaluated. The Spearman Ranked correlation indicated a weak to moderate negative correlation between Fe and DO as well as Fe and pH ($r = -0.2$ and $r = -0.3$) while exhibiting a weak to moderate positive correlation with specific conductance. Correlations were also observed for Mn with DO, pH, and specific conductance ($r = -0.3$, $r = -0.3$ and $r = 0.3$, respectively). Arsenic was not significantly correlated with any geochemical variable. For the samples for which TOC values were available, iron and manganese indicated significant positive correlations (Spearman Ranked coefficient) with $r = 0.53$, and $r = 0.58$ respectively while aluminum indicated a weak negative correlation ($r = -0.23$).

Spatial Distribution

Aluminum, iron, and manganese were evaluated for spatial distribution patterns along north to south and west to east transects across MDC (Figure 7). For north to south spatial analysis the County was divided into three geographic regions: north, center and south. The regions were roughly based on inland extrapolation of the North Bay, North Central Inshore and South Central Inshore boundaries as defined by the Florida Department of Environmental Protection's numerical nutrient criteria estuary regions (FDEP Numeric Nutrient Criteria (NNC) - Estuary Nutrient Regions - [FDEP::numeric-nutrient-criteria-nnc-estuary-nutrient-regions](#)) and were initially demarcated to facilitate the nutrient evaluation portion of the larger project.

Within each geographic region the data was further evaluated along east-west transects to evaluate the impact of urbanization since generally the western reaches of the county represent more recently urbanized areas and given the general groundwater flow direction as provided by Fish and Stewart (USGS 1991) represent upstream/headwaters.

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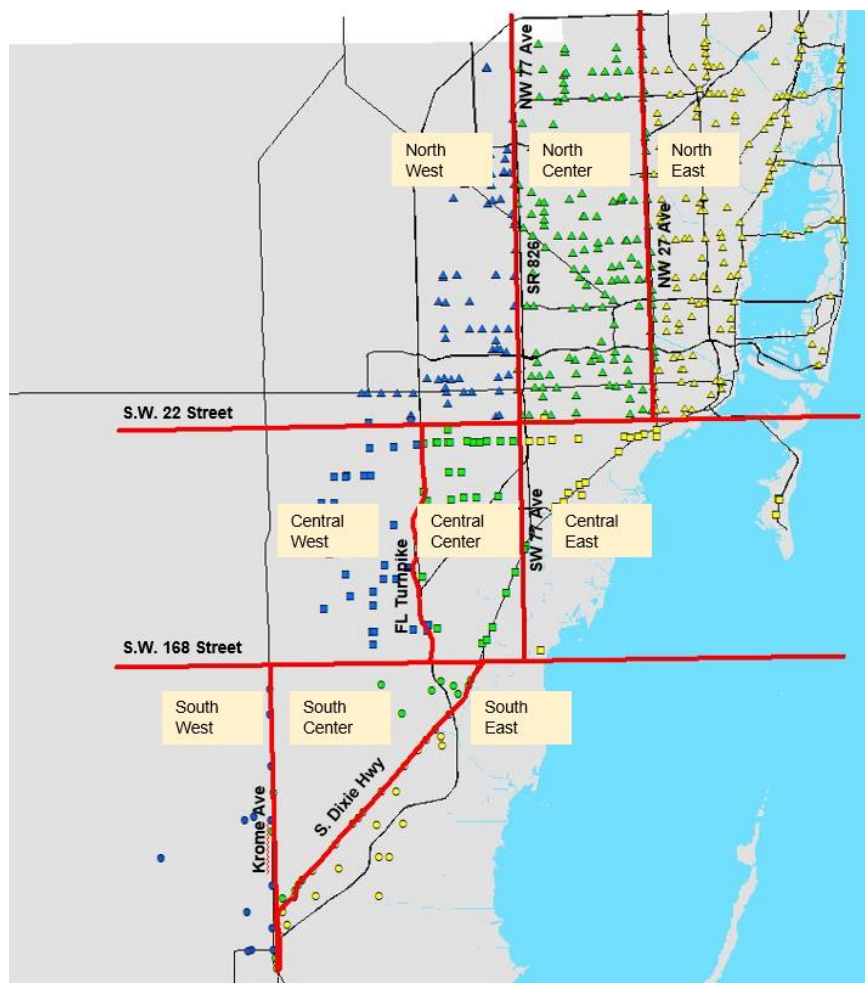


Figure 7: Spatial Distribution Boundaries

Iso-concentration maps for aluminum, iron and manganese are provided in Figures 8a, b, and c. Highest concentrations of iron and aluminum were documented in the north: the population distributions and median concentrations for these two parameters indicated no significant differences between the central and south regions of the county (Figure 9). Manganese concentrations indicated no significant north-central-south spatial variability (Figure 9). None of the metals evaluated indicated statistically significant east to west spatial distribution patterns.

Notwithstanding the absence of overall statistically significant north to south differences in spatial distribution for manganese the data indicated a cluster of high manganese concentrations in the central region of the county (Figure 8c). Although the central region accounted for only 19 percent of the total number of samples obtained for manganese it accounted for a disproportionate number of all manganese GCTL exceedances, specifically, 33 percent.

This disproportionality is also evident in the spatial distribution of samples exceeding the HHB for manganese where in the central region 93% of the samples above GCTL for manganese also exceeded the HHB while in the north only 33% of the samples above GCTL exceeded the HHB. The data appears to suggest that the aquifer geochemistry in the central region of the

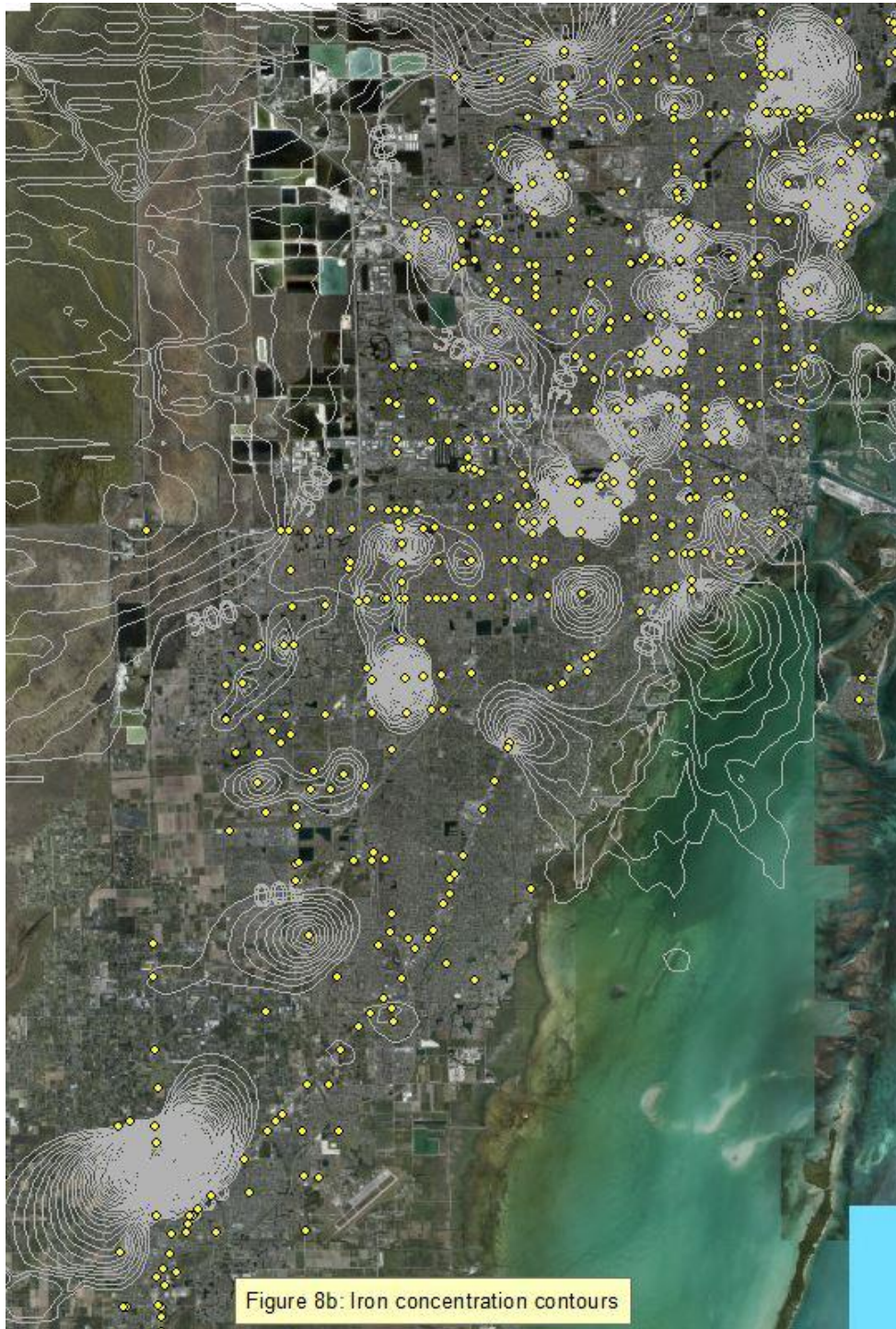
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county is conducive to the desorption and mobilization of manganese. The proportion of samples exceeding HHB relative to those exceeding the GCTL for iron did not indicate a spatial bias. The ratio was 3.7 percent for the north and 3.4 percent for the central region.

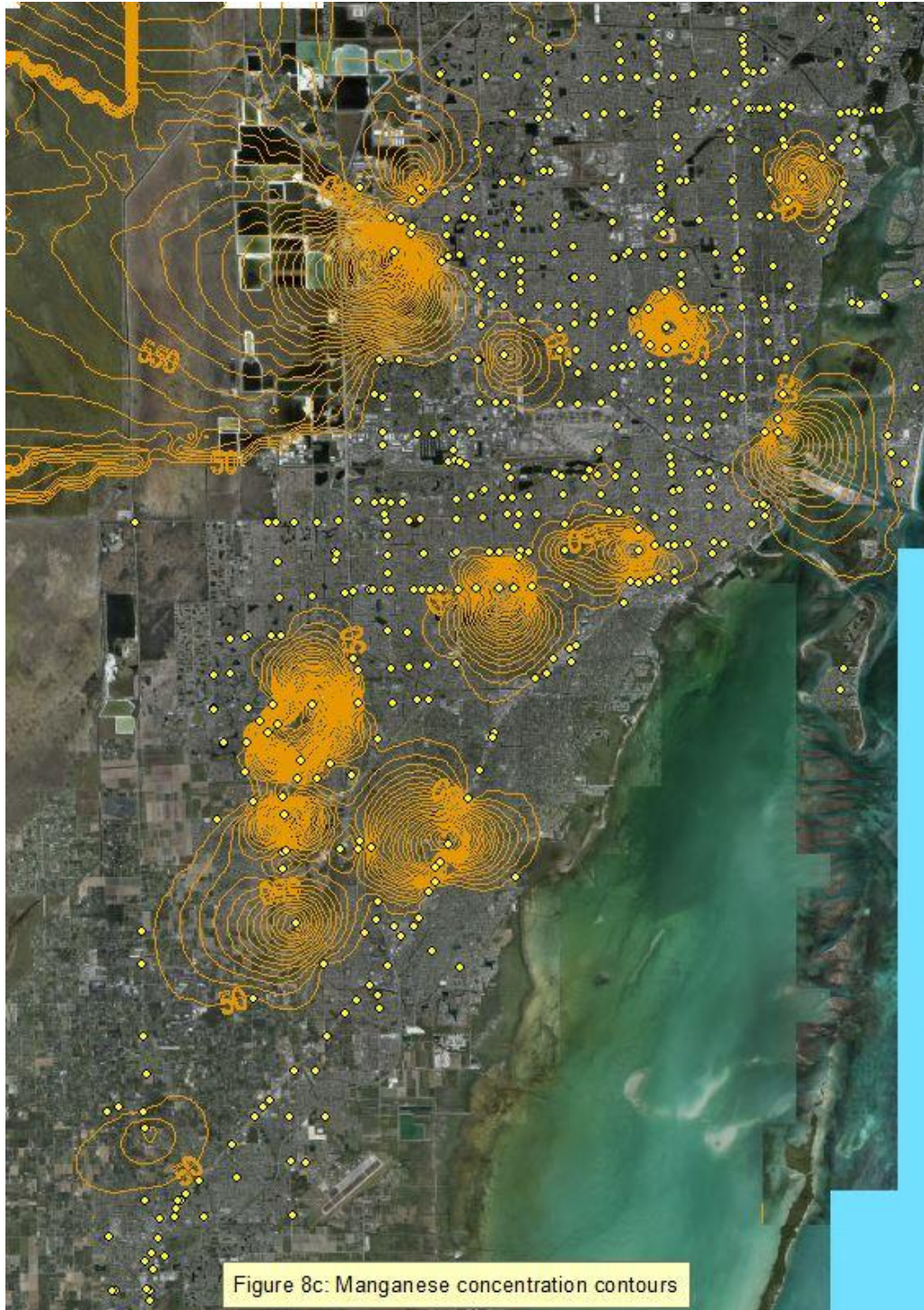
Arsenic concentration distribution indicated no spatial variability, neither did the percentage of samples exceeding the GCTL/HHB for arsenic.



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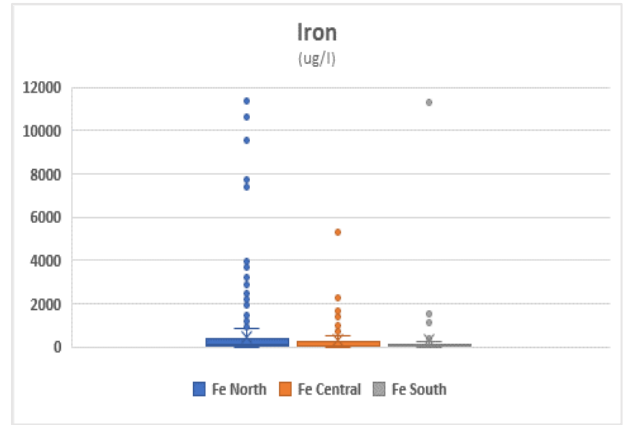
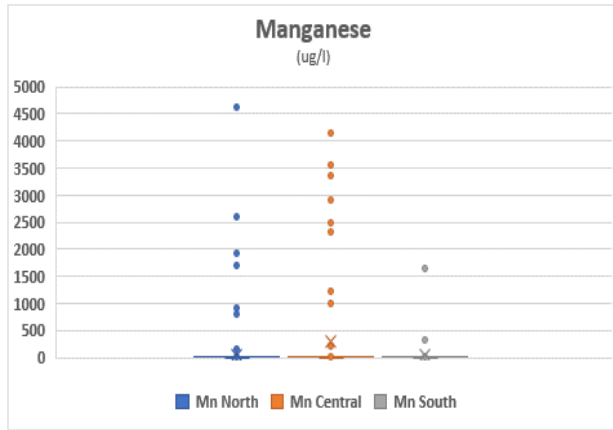
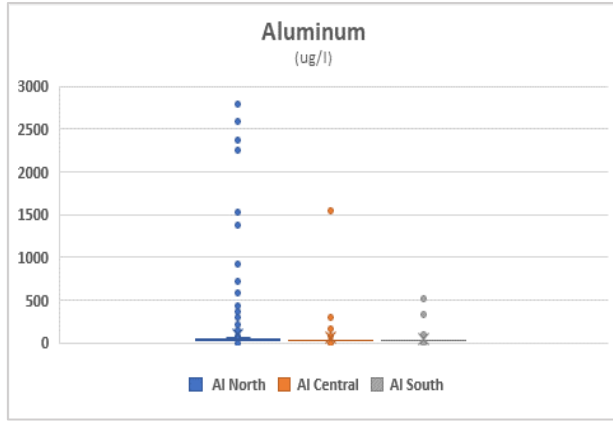
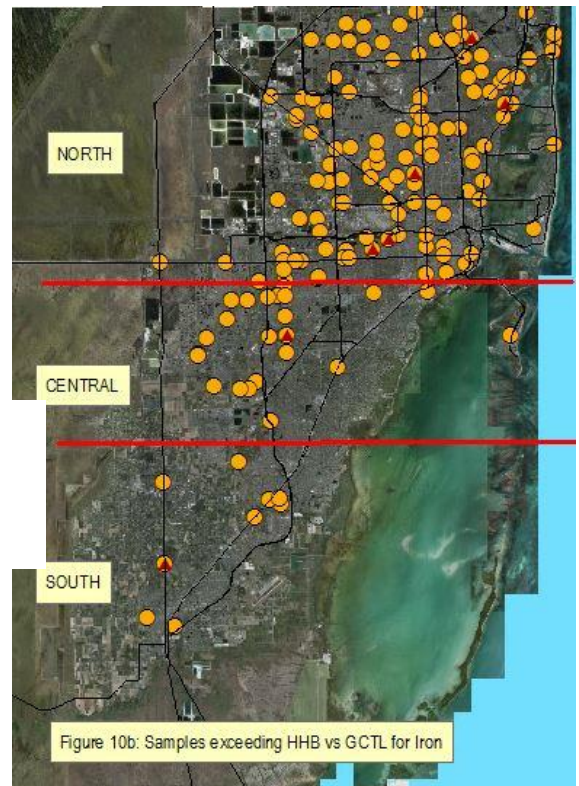
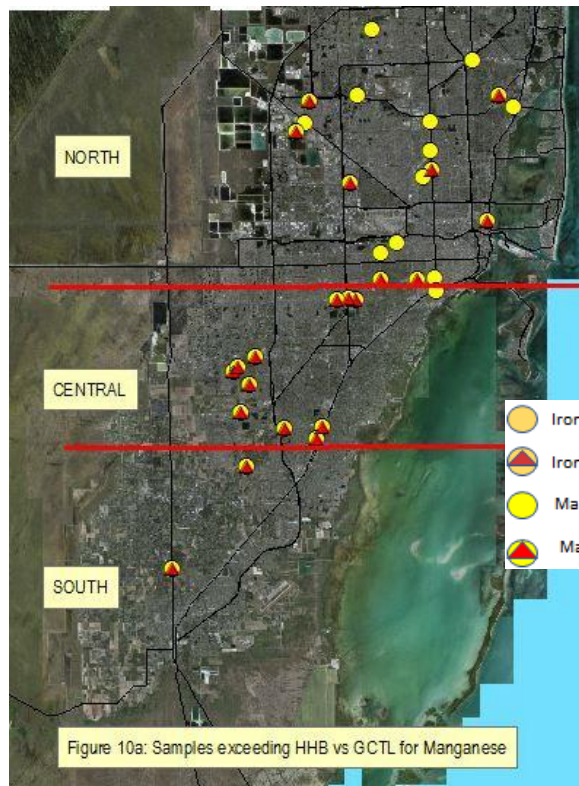


Figure 9: North-South Spatial Distribution Population Comparison Al, Fe and Mn



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Evaluation of the groundwater data with respect to the geochemical factors known to influence and control the occurrence, transformation, and mobility of metal in groundwater did not provide a potential explanation for the observed spatial distributions.

Land Use

Industrial/commercial agricultural, and residential land uses were selected as land uses of interest for the purpose of this study. The aluminum, iron and manganese data sets were evaluated for any indication of differences in the groundwater quality based on the predominant surrounding land use. Figure 11.

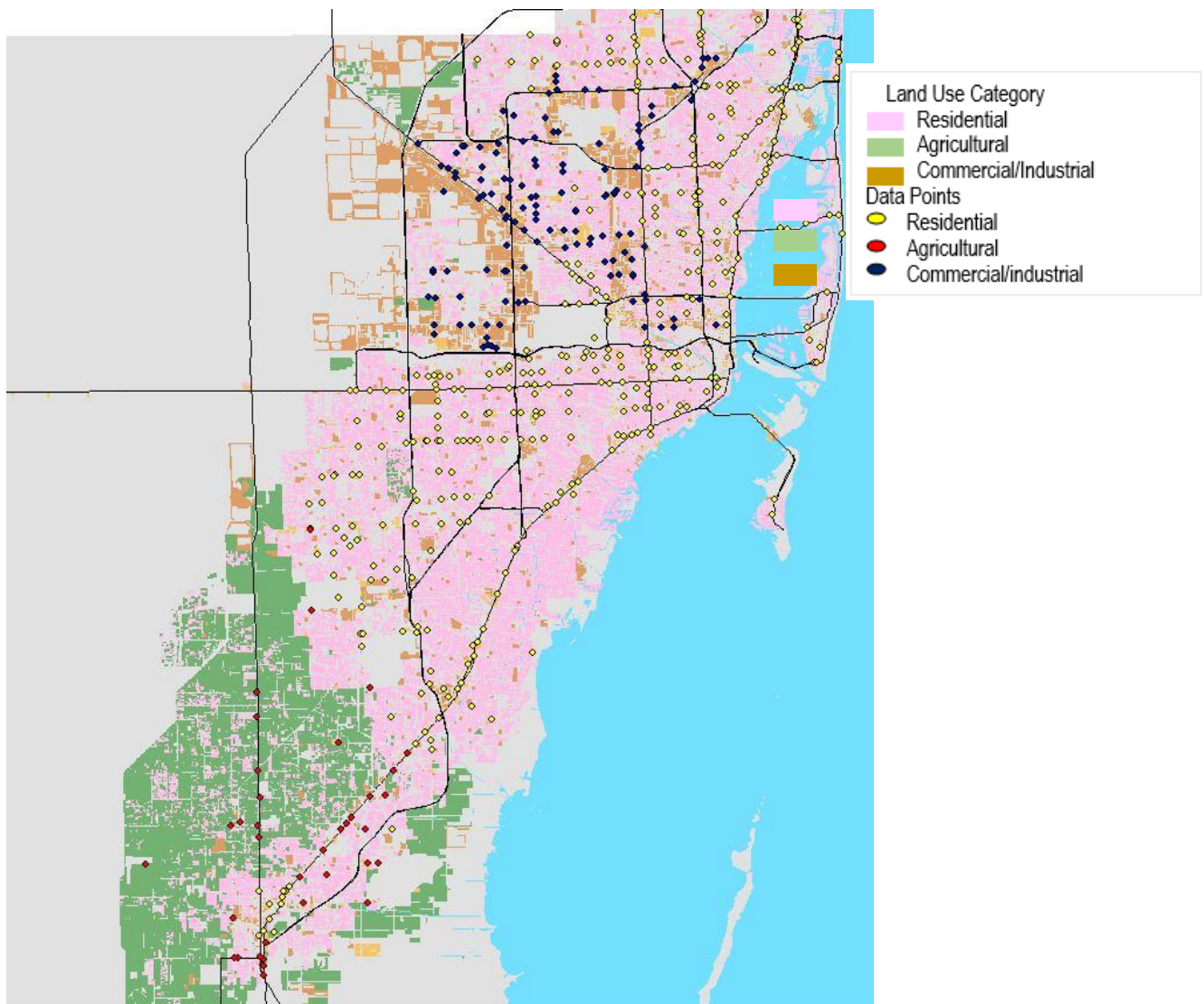


Figure 11: Miami-Dade County Residential, Agricultural and Commercial-Industrial Land Use Map.

(Developed from Miami-Dade County Open Data Hub-Land Use Symbology Data Miami-Dade County, Florida MD Publisher)

<https://gis-mdc.opendata.arcgis.com/maps/land-use-symbology-view>

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The population distributions were indicated as being significantly different for the land use categories for the three metals evaluated. There was no indication of a statistically significant difference between the median aluminum concentrations for the land use categories evaluated as represented in Figure 12a. In the case of iron, the median concentration in primarily agricultural areas was significantly different and lower than for industrial and residential areas while for manganese the median concentration in industrial areas was significantly different and higher than for areas with residential and agricultural land uses. Figures 12b and 12c.

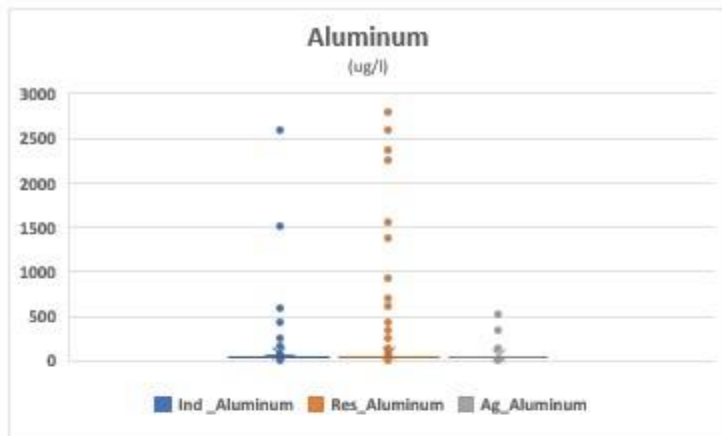


Figure 12a

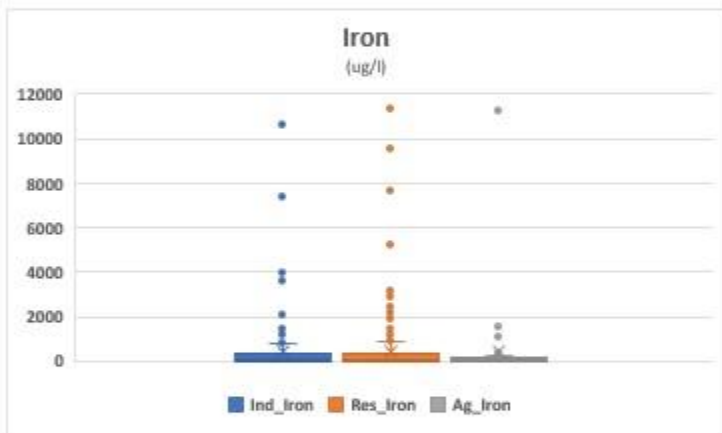


Figure 12b

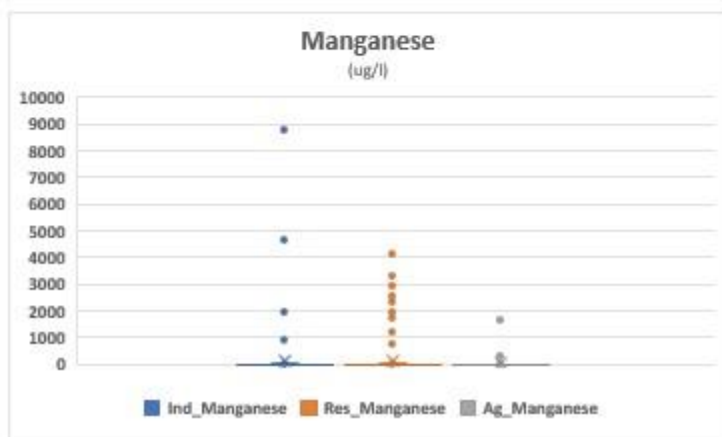


Figure 12c

Consistency with DERM's Water Quality Monitoring Program

Aluminum, iron, and manganese data from the shallow wells in the Ambient Groundwater Quality Monitoring Program (AGWQP) for the period 2010 to 2021 was evaluated against the data from the synoptic groundwater sampling project. For aluminum and manganese both the median concentrations and population distributions indicated statistically significant differences. In the case of iron while the null hypothesis of equal medians was not rejected (Mann-Whitney W-test: 95% confidence level) there was a significant difference in the population distributions (Kolmogorov-Smirnov Test). Overall, the concentrations as indicated by central tendency descriptors were higher for the synoptic sampling project compared to the data set from the AGWQMP long-term monitoring. Figure 13. The disproportion in the size of the dataset for wells at equivalent depths, for the AGQMP versus the synoptic sampling dataset, n=71 and n=551, respectively, may have resulted in statistical biases.

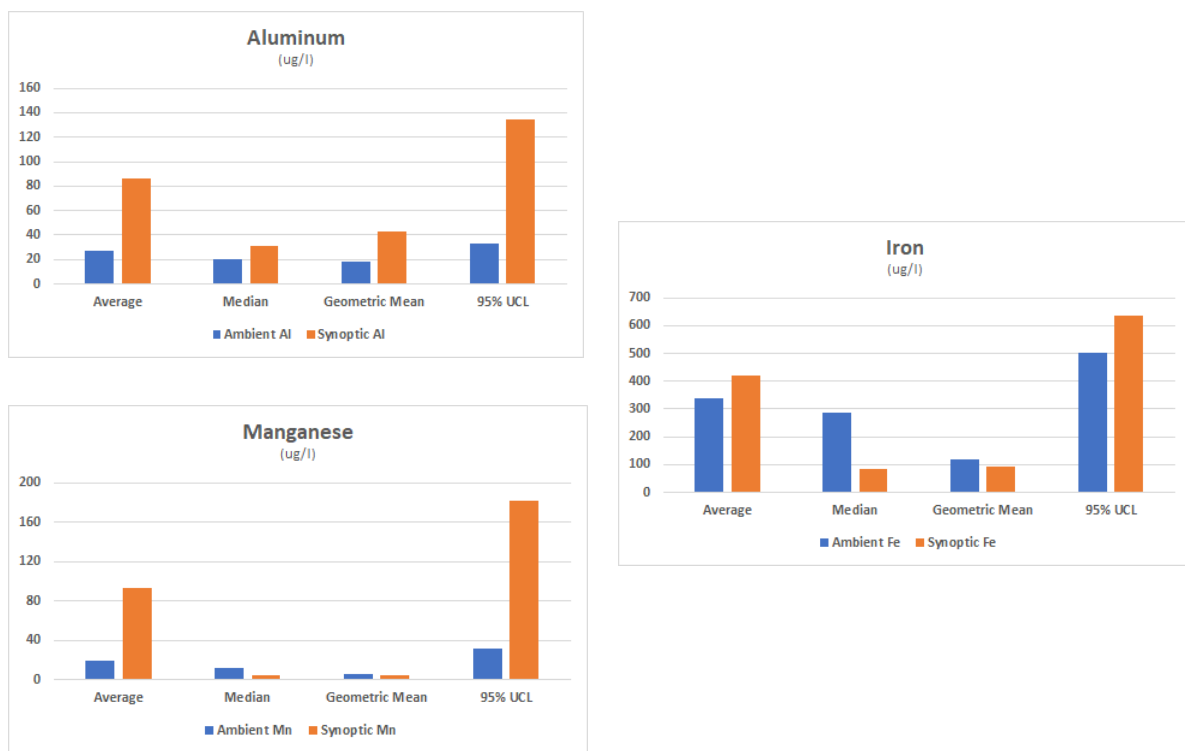


Figure 13: Aluminum, Iron and Manganese-AGWMP vs Synoptic Project-Central Tendency Descriptors

Background Concentration of Iron in Miami-Dade County

Iron is the predominant metal documented in groundwater during this study and as such warranted further analysis to attempt to understand its distribution and variability. Consistent with the findings of Parker et al., (USGS 1955) and Schroeder et al., (USGS 1958) dramatic variation in iron concentrations were observed in monitoring wells within short distances of each other.

A 2005 study by Miami-Dade County, involving groundwater data from a one-time sampling event at 62 preexisting shallow wells in Miami-Dade County, yielded a countywide background concentration for iron of 706 µg/l based on the Minimum Unbiased Estimator of the Mean

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(DERM 2005). Since its publication in 2005, this background concentration has been utilized as an appropriate cleanup endpoint on a case-by-case basis at site with groundwater iron contamination. The synoptic sampling data was compared to the 2005 concentrations to evaluate for consistency in the two datasets. Twenty three of the 62 locations sampled in 2005 were resampled for the synoptic project; in 65 percent of the cases the synoptic project reported reduced concentrations relative to the 2005 study. Statistically the populations are significantly different both for concentrations and population distribution as seen in Figure 14. The calculated MVUE for the current study relative to the 2005 study is 628 $\mu\text{g/l}$ vs 706 $\mu\text{g/l}$ with a combined MVUE of 664 $\mu\text{g/l}$.

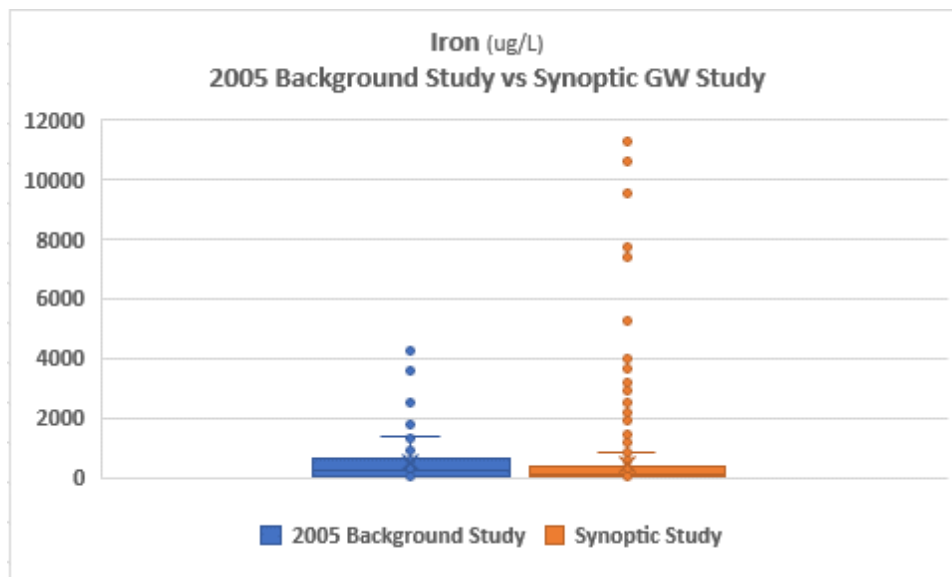


Figure 14: 2005 Iron Background Study vs Iron Concentration for Synoptic Study

Conclusion

Background concentrations of metals in shallow groundwater in Miami-Dade County is unremarkable. Over 70 percent of the samples obtained during this study were reported at concentrations below detection limit. Four metals, aluminum, iron, manganese, and arsenic were detected at concentrations above their respective GCTL (percentages). The data for iron and to a lesser extent aluminum indicated some spatial variability along a north-south transect with higher concentrations documented in the north. Iron was the predominant groundwater contaminant. Iron is regulated based on aesthetic considerations and as such is a secondary standard. The occurrence and distribution of metals in groundwater was poorly to moderately correlated with groundwater geochemistry for aluminum, iron, and manganese.

Limitations of Study

The interpretation of the study's findings was limited by the absence of essential groundwater geochemistry data such as redox potential, organic matter, TDS, sulphate, and total and dissolved organic carbon. These geochemical properties, which can have profound influence on metal dissolution, transport, and spatial distribution, were not measured during this study. Additionally, the data provided represents a one-time dry season only sampling events, and as such does not account for potential temporal variations and seasonality in groundwater quality .

Evaluating Background Concentrations

Trace metals and especially metals that are abundant in the earth's crust such as aluminum and iron are frequently present in dissolved form in shallow groundwater at concentrations above the GCTL because of natural process unrelated to site discharges. Section 24-44(2)(f)(i) of the Code of Miami-Dade County allows that the GCTL may be superseded by background concentrations based on a naturally occurring background study approved by DERM.

The data provided herein is a resource and informational tool that may be utilized by environmental professionals during the initial site screening for site rehabilitation. The data may be utilized to determine the likelihood of potential contributions from naturally occurring background concentrations in a particular geographical locale. While a properly designed site-specific background may utilize and incorporate, as applicable and appropriate, data obtained in the general locale of the property under investigation, the information presented herein is not intended to be used as a surrogate for conducting a site-specific study. Further, the data should not be construed as default alternative cleanup target levels.

Environmental practitioners/professionals should utilize the concentration distribution of the data provided (as appropriate and applicable) for each chemical in conjunction with site specific information including, but not limited to; current and historical land use, site conditions, discharge history, onsite contaminant distribution, adjacent impacted or contaminated sites with relevant groundwater data, supplemental site-specific background data, along with professional judgement to drive site rehabilitation strategies.

Guidance for designing a proper site-specific background study and for appropriately comparing site concentrations against background concentrations are provided in DERM's Assessment and Remediation Guidance document available for download at <https://www.miamidade.gov/environment/library/instructions/risk-based-corrective-action.pdf> and also the Florida Department of Environmental Protection's guidance document at https://floridadep.gov/sites/default/files/7-GroundwaterBackgroundGuidance2013_0.pdf.

The data presented in this report (tables, copies of laboratory analytical reports) is available via Miami-Dade County DERM's electronic database at HWR-1207 available at [Supporting Data-Background Concentrations of Metals – Miami-Dade County](#).

Acknowledgement

MDC DERM wishes to acknowledge Arcadis's contribution to this project under contract with and on behalf of Miami-Dade County. Field work, initial data compilation and preliminary report development (Miami-Dade County Synoptic Groundwater Analysis Report Miami, Florida September 2020- (HWR-1207)) were conducted by Arcadis. The data evaluation and conclusions presented in this report builds on the work conducted by Arcadis.

In addition, we would like to acknowledge the extraordinary support provided by the MDC DERM-EMRD Laboratory staff without which this report would not have been possible.

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Table 2: Locations Sampled - Synoptic Groundwater Sampling Project

	Location ID	X Coordinate	Y Coordinate
1	8503538	912517.535203	514387.207160
2	8503563	931214.093283	575777.774011
3	8503565	873433.532663	471358.717101
4	8503567	924802.741604	596835.891672
5	8503568	920177.796130	585825.345123
6	8503573	864420.563812	514063.288188
7	8503612	944731.761457	585539.263018
8	8503619	917124.433142	589866.677264
9	8503643	944739.260786	554434.719584
10	8503703	895999.135498	536743.714612
11	8503745	938562.999517	531919.959168
12	8503772	906057.656063	537111.193208
13	8503827	864885.052713	521918.721952
14	8503828	850637.776600	437739.935900
15	8503834	890574.429155	518700.086001
16	8503836	891983.029028	555135.039378
17	8503837	878094.746110	543059.568450
18	8503839	864372.205641	511578.432594
19	8503842	914806.964352	521300.295696
20	8503843	908991.204986	536817.636052
21	8503844	906061.191489	515591.908819
22	8503845	874062.289936	514465.558381
23	8503846	883211.117438	509210.374666
24	8503847	864473.954125	502927.124109
25	8503870	911926.723065	580251.347085
26	8503873	895146.069946	542129.902330
27	8503878	911650.808919	531908.177695
28	8503892	882980.111995	522652.925536
29	8503922	917242.348588	586961.084978
30	8503931	920203.953230	532314.427867
31	8503940	922299.693789	534434.844230
32	8503951	908040.313515	558708.750734
33	8503956	905183.388454	542474.913780
34	8503964	828450.811700	418579.322300
35	8504011	882982.112975	579645.473297
36	8504021	869488.371918	508985.528987
37	8504022	874972.985293	509168.098175
38	8504037	929914.111303	562480.317994
39	8504071	915911.911617	558089.828088
40	8504093	882233.157452	527219.028937

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
41	8504103	892362.600776	544444.019749
42	8504116	931873.119196	497423.288988
43	8504147	893767.357153	584650.910464
44	8504149	910538.510290	526377.580817
45	8504161	906696.474995	523870.502826
46	8504163	922086.833978	542930.473236
47	8504188	944899.843142	554435.792417
48	8504189	890984.017575	509828.492852
49	8504191	871338.778978	467932.023167
50	8504195	891629.309920	498273.891289
51	8504203	892621.467384	541162.086025
52	8504204	874739.870601	519549.172558
53	8504206	934340.014852	579502.862033
54	8504207	875819.565292	564056.807624
55	8504208	918573.707474	585726.792171
56	8504212	904363.205712	580340.202878
57	8504213	930861.741297	564948.938057
58	8504221	914473.135623	526755.807751
59	8504238	901627.394582	518029.111293
60	8504239	862881.971417	486924.883476
61	8504242	915699.218801	570090.809991
62	8504254	861853.041716	508948.705898
63	8504281	869249.790300	519404.122400
64	8504283	848923.555764	470223.134727
65	8504285	908791.800529	515896.117528
66	8504287	904051.398592	515713.493221
67	8504292	914244.791920	534741.053919
68	8504300	916584.573985	543052.297795
69	8504301	912884.722789	550728.424832
70	8504309	903602.941812	593935.434546
71	8504316	851456.935540	483832.989069
72	8504319	909005.583238	534355.187893
73	8504332	923530.520723	543249.965379
74	8504347	827072.717904	518913.719760
75	8504377	857247.355718	470704.361783
76	8504390	856002.885110	483343.372594
77	8504391	943033.073254	554423.356090
78	8504394	881012.812452	514656.292252
79	8504396	874600.027200	498092.801800
80	8504399	829455.313500	410756.401100

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
81	8504406	858183.214300	446278.646900
82	8504420	882603.720359	525490.572420
83	8504440	899297.767024	507123.342751
84	8504469	911059.155574	550517.953796
85	8504472	881596.574700	551191.958600
86	8504478	903427.636389	537007.352536
87	8504519	924660.078176	545652.974353
88	8504524	889363.620553	564416.284267
89	8504525	898000.238451	537997.196357
90	8504526	890234.303851	525886.052600
91	8504527	900999.221626	526100.806108
92	8504528	906668.113831	518346.319976
93	8504531	880980.102544	509331.877375
94	8504576	898388.107754	533274.000095
95	8504579	939834.680372	524806.744392
96	8504590	906595.297376	520520.010183
97	8504607	885208.929060	522819.930780
98	8504636	854070.846323	519095.019923
99	8504644	923098.182677	580674.112972
100	8504646	871056.981642	455707.362906
101	8504651	920971.911667	564310.284807
102	8504653	900385.861304	510168.736922
103	8504677	920470.378222	521556.285341
104	8504680	901644.709180	514967.720763
105	8504691	897861.297456	544895.909266
106	8504692	884089.072704	556179.719703
107	8504693	904770.368283	572355.859923
108	8504718	880536.455137	536816.110137
109	8504739	944754.199733	585184.437612
110	8504744	918266.352118	580200.722842
111	8504751	889814.824375	547780.082303
112	8504780	907036.197085	510273.192750
113	8504781	904441.309558	510768.530342
114	8504790	850635.769860	519079.487145
115	8504792	897272.729735	520777.778696
116	8504796	862214.714549	508950.419805
117	8504801	918317.123014	518858.833715
118	8504802	919124.096137	521614.657928
119	8504871	898147.761450	558275.031786
120	8504873	884287.703540	548970.725591

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
121	8504874	877645.012757	509248.192175
122	8504875	917094.008334	594880.435609
123	8504879	892220.340890	548436.509140
124	8504895	928923.873454	573078.753818
125	8504897	870491.818730	464289.709914
126	8504922	936343.229678	579959.563220
127	8504934	916845.610537	556365.002469
128	8504943	828487.242963	409733.085104
129	8504944	919549.273437	580363.848500
130	8504984	916648.774316	559048.234635
131	8505000	928573.425336	593576.127194
132	8505004	896584.299682	579497.406335
133	8505042	904235.163317	585153.675535
134	8505055	874992.569571	453197.929276
135	8505068	915561.379509	566318.469767
136	8505074	911278.107892	540624.692742
137	8505086	905352.167316	558471.302062
138	8505103	847279.401244	492022.441850
139	8505107	870412.051173	492795.668322
140	8505108	865127.756296	492326.299838
141	8505115	931953.515360	497423.798501
142	8505120	931919.302174	569037.838672
143	8505142	924222.941583	580459.243651
144	8505162	901390.363560	520867.415000
145	8505170	881351.405607	569232.201800
146	8505186	894910.018909	548517.833452
147	8505192	898229.046720	525796.848054
148	8505199	842068.915274	422077.814679
149	8505202	898720.294753	520564.001893
150	8505241	920184.126498	552014.774621
151	8505254	890510.760648	523047.917529
152	8505259	863698.966174	522112.688428
153	8505261	932458.777801	566268.086994
154	8505271	896455.147053	584665.831694
155	8505315	886508.029808	520275.592037
156	8505318	916183.249657	556361.010023
157	8505347	916401.659981	546756.121096
158	8505352	942573.579094	538934.734180
159	8505403	883716.404158	569754.869062
160	8505404	879459.259129	574258.321669

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
161	8505405	885961.984640	573848.806084
162	8505412	921478.192151	557036.586756
163	8505416	916889.216093	559116.241717
164	8505419	891187.590987	542685.022283
165	8505420	892606.273517	536591.943918
166	8505424	893856.433090	579415.709977
167	8505431	916999.386476	550841.802229
168	8505436	867207.624511	502807.204401
169	8505439	848641.097012	502277.361629
170	8505446	944881.957679	587071.105427
171	8505450	862092.957903	470948.792724
172	8505451	853329.397346	492115.974799
173	8505454	910478.643612	563870.013706
174	8505455	864243.678339	509048.827417
175	8505459	880327.437182	487809.797060
176	8505460	857184.207222	519175.885246
177	8505464	868864.747181	492699.343711
178	8505534	915380.843453	569645.187195
179	8505536	925953.508988	569998.452564
180	8505548	938146.757895	552638.522389
181	8505551	944415.577378	581832.085065
182	8505556	916919.021807	537530.212055
183	8505566	905691.592162	544873.820727
184	8505567	883373.384502	466528.847496
185	8505587	905919.636326	540149.735359
186	8505598	905150.183796	558691.987973
187	8505617	893650.038162	525682.783322
188	8505621	919545.736370	564523.409709
189	8505637	883156.699568	557905.221502
190	8505638	884039.331661	557998.609438
191	8505645	899211.357748	579667.447990
192	8505647	877879.738994	553662.714895
193	8505664	923686.291409	566723.059181
194	8505672	911025.140222	542664.227705
195	8505684	930199.219656	574462.353742
196	8505701	871550.621731	465759.050807
197	8505720	888259.542381	579385.185103
198	8505754	830617.216393	415997.060108
199	8505786	928880.622556	560876.417659
200	8505800	844371.575695	448463.496816

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
201	8505801	920350.953592	550995.270755
202	8505864	906246.117300	528815.125482
203	8505872	890614.530125	514995.485143
204	8505875	908739.999451	569472.666214
205	8505883	805741.958073	424179.492234
206	8505904	909660.815523	580082.651884
207	8505920	899060.892825	542218.258125
208	8505925	888019.797126	496723.783169
209	8505925	888019.797126	496723.783169
210	8505941	894752.576967	555216.802338
211	8505946	884105.702263	514872.081846
212	8505953	889310.490082	563107.087082
213	8505988	885740.965725	509578.621305
214	8505992	833707.232851	418693.576041
215	8505994	868404.237932	459265.986366
216	8505996	864134.297324	519297.379754
217	8505997	906697.244023	523737.398433
218	8505999	869723.506618	514288.708013
219	8506001	874724.160003	514690.728534
220	8506009	896013.666636	523233.296095
221	8506013	923088.716161	575726.673063
222	8506016	931443.827075	586916.480080
223	8506045	872280.418171	468668.741838
224	8506068	878581.324533	557748.304821
225	8506081	938921.931213	529237.863154
226	8506084	898480.857568	527462.109816
227	8506087	914256.348983	515928.266742
228	8506091	940235.974189	524875.927980
229	8506129	937306.149012	579965.838469
230	8506133	897430.052911	550217.876968
231	8506142	888993.718078	498769.944759
232	8506145	870206.157228	497874.807114
233	8506157	924426.823721	550887.265721
234	8506186	844366.303396	477701.291687
235	8506202	906703.203328	585012.674176
236	8506206	883899.529776	565474.156167
237	8506210	883906.789932	564098.734049
238	8506212	879566.296972	514648.824091
239	8506213	829230.200466	405166.338332
240	8506215	889087.410476	526257.013473

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
241	8506218	881921.643639	536889.864910
242	8506219	878022.837133	482429.447257
243	8506226	906845.227322	515507.690811
244	8506231	872179.401641	509287.221953
245	8506235	906515.157116	527441.216813
246	8506240	912059.579755	523901.820676
247	8506278	867488.701049	519380.141400
248	8506282	894206.342167	526795.067843
249	8506285	878616.093492	519724.164990
250	8506324	934500.805213	551461.235702
251	8506352	892045.092553	551119.917487
252	8506353	906565.389627	563847.127925
253	8506356	915184.858281	575545.323032
254	8506357	920464.617078	548821.808238
255	8506358	916919.021807	537530.212055
256	8506373	852226.275537	424295.952303
257	8506379	920684.096626	545761.584043
258	8506384	924046.096136	554013.040310
259	8506385	867634.350364	497706.940324
260	8506411	891296.705270	500313.056830
261	8506411	891296.705270	500313.056830
262	8506412	892379.184732	500829.164722
263	8506412	892379.184732	500829.164722
264	8506451	857996.847657	508575.674163
265	8506461	886805.387481	551180.376355
266	8506483	859381.921659	508870.523639
267	8506486	881453.860454	522578.416827
268	8506488	859921.378913	492368.170161
269	8506489	878923.477392	561454.918470
270	8506508	897947.802204	558140.801411
271	8506537	912869.333056	516053.150678
272	8520517	931490.786955	579573.296604
273	8520522	838718.403274	491542.025488
274	8520524	903258.752212	510251.538922
275	8520525	898981.724021	584813.122738
276	8521971	865002.872359	497405.835611
277	8521972	932733.140770	579803.114057
278	8522035	908319.450096	545266.207410
279	8622071	855154.670927	431141.587890
280	8622097	920772.959309	580371.350126

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
281	8622123	833060.801800	417492.118700
282	8622132	876298.901600	478245.876400
283	8622167	850110.168400	424431.824600
284	8622222	881361.694956	555721.718651
285	8622473	906562.118637	526265.690293
286	8626150	883674.740855	585239.744588
287	8626176	832891.989730	416139.248144
288	8628711	888148.421868	588835.426373
289	8628796	846734.058831	488026.980025
290	8628797	886375.916555	495916.418970
291	8628815	877773.509219	543057.921800
292	8628943	834528.864081	419650.773273
293	8628975	823197.775523	413195.376079
294	8628993	923175.290135	574706.674447
295	8629011	841384.033770	426933.022488
296	8732280	860043.158197	522095.349224
297	8732338	879790.748623	552873.915291
298	8732372	860925.589503	458276.413870
299	8732373	843824.293325	491497.184698
300	8732373	843824.293325	491497.184698
301	8732567	904208.984235	579252.235894
302	8732731	917550.215427	585809.305785
303	8733527	872439.763981	557717.108689
304	8735287	844828.648928	431095.954123
305	8737035	907997.048838	555802.244736
306	8837733	907327.181739	574322.985254
307	8837735	913137.398465	558871.896405
308	8838029	905382.373621	553235.795145
309	8838046	897777.145393	541989.221509
310	8838306	933114.416582	551651.998444
311	8838492	859388.608325	498843.386870
312	8838494	840988.506674	496587.302799
313	8838498	828579.863840	437417.788264
314	8838676	921058.802242	569768.435636
315	8838960	882068.596430	520252.246939
316	8839586	867883.939431	561754.310588
317	8839865	930130.004572	566408.533563
318	8839879	877548.506060	575180.226978
319	8840195	914225.221749	538024.326880
320	8840547	824154.311012	405279.762317

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
321	8840581	894963.381007	549760.481229
322	8841022	847883.693999	519067.239138
323	8841130	899405.953159	545126.417991
324	8841192	914578.126883	542818.414733
325	8841196	898847.738396	587230.558848
326	8841197	827952.969097	453564.653280
327	8841203	895556.081266	526070.406234
328	8841205	912074.109581	521439.380719
329	8841207	906174.068560	534338.748950
330	8841362	935972.645773	587589.081097
331	8841381	891817.223914	559770.778138
332	8841437	919471.621361	540451.920450
333	8841450	822865.067527	431872.111364
334	8841487	873103.207536	561491.827189
335	8841567	868961.867394	460422.252754
336	8841693	866449.454440	563721.726273
337	8841758	889695.990624	551195.899618
338	8841817	920419.844858	519958.655334
339	8841862	911702.157897	533417.060176
340	8842260	904930.527412	568940.261767
341	8842290	828584.577085	405452.179952
342	8842457	931385.400000	494190.200000
343	8842457	931385.400000	494190.200000
344	8942557	909161.444803	531738.273179
345	8942621	909589.873408	585317.984917
346	8942654	878238.419051	554174.804750
347	8942704	907966.215894	554204.736120
348	8942895	904676.314994	571268.242020
349	8942909	856743.606397	514537.374182
350	8942912	856688.458542	513427.916756
351	8943097	873412.324372	527906.004925
352	8943600	896765.465986	568605.527857
353	8943621	905038.408101	567631.957954
354	8943655	866652.060990	522060.366682
355	8943894	900646.547134	542315.928861
356	8944020	840047.339921	486245.728666
357	8944020	840087.402900	486346.184100
358	8944271	889875.692364	536510.563832
359	8944349	935973.934157	593557.094423
360	8944426	862434.443113	521906.998223

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
361	8944456	915574.572725	537366.839350
362	8944457	903397.726671	542242.823036
363	8944497	892083.024891	555202.139965
364	8944527	853157.034174	507976.675690
365	8944551	884063.559303	553406.490013
366	8944602	848116.045568	489186.603034
367	8944619	868201.662221	509134.518846
368	8944682	878495.866042	523583.634961
369	8944689	878495.866042	523583.634961
370	8944782	845541.356492	489552.453024
371	8944831	847254.772028	502204.694779
372	8944857	878168.255149	548295.511718
373	8945175	833364.950399	418692.193826
374	8945221	843637.219552	502255.496843
375	8945247	862767.273156	460192.875260
376	8945345	919173.400000	574159.600000
377	8945491	911943.310302	526585.511503
378	9045714	945427.947729	550512.449870
379	9045756	936865.310327	592187.377347
380	9045801	936609.090700	593519.730500
381	9045874	901447.987133	584982.403896
382	9045940	841046.362201	501889.462142
383	9045944	846658.025847	519128.392231
384	9045945	848355.128424	507866.432800
385	9045988	843444.121841	486415.484888
386	9046090	849160.561852	475747.901565
387	9046120	838556.964621	496488.306278
388	9046140	838679.410570	491253.474556
389	9046154	843316.640469	502032.277801
390	9046168	864305.856036	517035.415774
391	9046225	877778.077123	561737.423811
392	9046231	871221.530853	532265.401062
393	9046323	876744.152354	532293.171020
394	9046557	889233.266155	558824.986394
395	9046693	905734.153101	547935.598724
396	9046843	876691.819125	522842.337887
397	9046899	859147.695093	481538.834536
398	9046908	877965.846761	536869.417445
399	9046914	874334.749693	528199.035835
400	9047119	876145.927173	527498.289533

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
401	9047196	885291.740246	514745.219239
402	9063962	829215.206730	403857.493180
403	9100201	829233.900000	403778.900000
404	9100427	876987.774300	564079.140600
405	9101121	901112.432029	523838.600002
406	9101332	907615.951175	569532.652643
407	9101371	872360.305479	585558.563504
408	9101665	884097.969339	554493.724388
409	9101874	904129.031967	519707.190942
410	9102401	864806.280232	509051.525902
411	9102744	923006.403333	579298.038296
412	9102800	904459.285572	581072.871360
413	9103194	936845.178477	589125.590491
414	9103515	850780.761696	459627.631640
415	9103543	922940.932336	537921.867111
416	9200381	863868.371675	520294.394492
417	9200612	874113.374807	532279.854445
418	9200630	907276.066684	576208.436535
419	9200863	870793.978887	509080.696775
420	9201326	912560.432099	524126.628298
421	9201453	864489.524960	453368.481100
422	9203113	848171.236403	513101.024037
423	9300532	860083.671567	470562.235099
424	9300549	903396.839206	542398.112752
425	9300838	874685.724712	522321.942931
426	9300946	890033.692048	544431.364591
427	9300995	863650.218568	532295.026331
428	9400451	920148.029129	521709.617712
429	9401093	907008.032115	511670.668302
430	9402046	872220.348738	585469.121426
431	9500100	868723.646742	537910.089904
432	9502583	827933.534752	458511.437350
433	9502714	881298.071724	560224.891403
434	9504792	849284.861472	470380.016959
435	9600294	933655.510972	579875.604398
436	9600967	863785.453534	537597.726684
437	9602350	869618.247971	568174.216383
438	9700097	904296.819033	563989.319241
439	9700100	879041.751761	585148.947854
440	9700665	867980.063911	566701.952596

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
441	9701097	875124.479084	558662.394200
442	9701268	875718.098960	564278.138546
443	9701269	888013.430668	584109.274736
444	9800128	882844.845861	590471.031698
445	9800193	888332.449387	584465.955453
446	9800239	863231.955625	447018.000691
447	9800384	867938.811041	562841.625343
448	9800402	904732.045525	568561.968889
449	9800528	845889.806254	432409.341916
450	9800896	843362.093790	482111.506291
451	9801350	933357.948903	576235.226836
452	9801620	848954.246320	467827.443980
453	9801698	874226.291248	529795.767222
454	9801711	898753.249412	589759.146311
455	9801900	933853.459067	574064.216414
456	9801924	849840.984048	431051.251785
457	9801939	886718.445398	578711.357383
458	9802084	829720.845482	408429.147751
459	9802233	863338.714926	542831.094498
460	9802395	863256.600261	543207.835870
461	9802399	837280.874653	416312.400357
462	9802436	908327.901194	550701.598442
463	9802439	874117.990284	543327.749016
464	9802891	874117.990284	543327.749016
465	9802891	902988.581492	550604.221996
466	9802925	866440.560428	457659.268122
467	9803125	937663.311355	595897.647813
468	9803167	848947.614443	478431.180975
469	9803284	872870.428802	567879.849190
470	9803585	868851.827588	532253.700954
471	9803656	881744.999964	543810.541686
472	9803788	897757.562427	563441.955507
473	9803816	873191.056114	563976.953124
474	9803878	828239.542671	431826.321101
475	9804098	917361.618691	583833.648647
476	9804112	862498.978745	537879.971854
477	9804120	941000.200000	527860.100000
478	9804223	863719.817510	530343.142768
479	9804363	865388.385367	559057.810076
480	9804428	903826.094253	590009.908276

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
481	9804700	917845.082291	580198.160839
482	9804716	917257.687469	591043.321564
483	9804757	853775.847241	437834.724438
484	9804800	915294.826237	577276.447195
485	9804843	903179.084392	545369.652741
486	9804861	861625.900766	450515.435953
487	9804862	875966.090262	566808.461569
488	9804873	915893.061917	581206.875357
489	9804890	862895.381823	462877.707161
490	9804891	869256.410440	568305.535018
491	9804937	853841.436020	481159.506883
492	9804951	866188.287311	543133.232345
493	9804985	930249.364569	563414.239355
494	9805319	907661.013749	523809.531819
495	9805387	916859.671860	590530.638862
496	9805445	873359.768375	558365.080818
497	9805519	914522.413412	585635.723783
498	9805680	846871.354160	433500.578907
499	9806012	895652.427500	529688.217800
500	9806124	905949.317369	538486.034618
501	9806127	859865.573250	448311.034194
502	9806129	828075.085978	442961.579670
503	9806295	877307.604967	555634.218170
504	9806421	913688.084372	550666.648708
505	9806541	851046.744103	481146.922919
506	9806595	876578.393499	568719.475792
507	9806600	864901.460488	564291.009255
508	9806680	887922.574223	582356.165710
509	9806892	875018.619060	528002.823957
510	9807099	831464.797375	410476.889062
511	9807174	865466.994462	459318.373072
512	9807823	823530.214163	405210.835618
513	9808016	836534.502787	421544.521126
514	9808140	828490.492956	429431.539801
515	9808581	902347.800000	558445.800000
516	9808780	860385.381266	568706.306527
517	9808781	839048.591919	475127.560942
518	9809084	850308.198008	416434.579247
519	9809173	856756.100000	514495.200000
520	9809276	860218.637833	471805.155185

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	Location ID	X Coordinate	Y Coordinate
521	9809844	922352.809496	532327.579087
522	9811164	829283.918535	401750.397657
523	9811559	905292.310153	561887.466162
524	9812787	888205.838092	589345.993594
525	9813970	883775.720640	520327.723822
526	9814067	917132.373415	588557.777322
527	9814456	854850.813595	453745.121751
528	9814709	905827.687035	531718.932011
529	9814800	830497.400000	413076.300000
530	9815176	915834.132901	564345.615773
531	9815205	878694.566432	524006.158066
532	9815335	855302.430146	442921.636837
533	9815622	888130.216852	581048.366160
534	9815863	862961.362006	448924.509017
535	9815901	901673.053612	509954.146800
536	9815926	904156.577844	588347.910944
537	9816096	860019.846564	497093.808348
538	9900552	888505.238084	571022.764492
539	8506453_MW-1	887521.724959	571084.030446
540	8506453_MW-2	899691.434871	558594.300504
541	9100532_MW-01	899691.434871	558594.300504
542	9100532_MW-02	900761.616786	550369.711966
543	9100579_EMW1	900721.468244	550369.484605
544	9100579_EMW2	900761.616786	550369.711966
545	9100579_EMW3	900761.616920	550369.711977
546	9100579_MW1	883724.997972	518508.332120
547	IW5-1253	901865.793384	546826.378830
548	IW5-13495	824613.658518	432544.282919
549	IW5-4492	879968.548792	487231.164031
550	IW5-6059_MW1	879868.716643	487097.546188
551	IW5-6059_MW2	900249.766760	559240.818896
552	IW5-7598	883950.216682	513872.967047
553	IW5-7980	905154.744483	564859.482527
554	IW5-9292	905112.300000	564650.300000
556	NA	931957.300000	497382.100000

Table 3: Synoptic Groundwater Sampling Project - Metal Concentrations (µg/l)

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			<i>MDL</i>	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			<i>GWCTL</i>	<u>200</u>	<u>10</u>	<u>2,000</u>	<u>5</u>	<u>100</u>	<u>1,000</u>	<u>300</u>	<u>15</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>100</u>	<u>49</u>	<u>5,000</u>
1	912517.535203	514387.207160	8503538	30.7	7.1	7.9	0.33	1.7	2.6	123	5.4	5.20	2.1	8.5	1.0	2.0	11
2	931214.093283	575777.774011	8503563	30.7	7.1	8.4	0.33	1.7	2.7	19	4.6	0.42	2.1	8.5	1.4	2.0	11
3	873433.532663	471358.717101	8503565	30.7	7.1	8.6	0.33	1.7	2.6	260	4.6	3020.00	2.1	8.5	1.0	1.0	11
4	924802.741604	596835.891672	8503567	30.7	7.1	3.3	0.33	1.7	2.6	52	4.6	1.80	2.1	8.5	1.0	1.4	11
5	920177.796130	585825.345123	8503568	30.7	7.1	24.6	0.33	1.7	2.6	7410	4.6	33.20	2.1	8.5	1.0	1.0	11
6	864420.563812	514063.288188	8503573	30.7	7.1	14.0	0.33	1.7	2.6	418	4.6	8.20	2.1	8.5	1.0	1.0	11
7	944731.761457	585539.263018	8503612	50.0	6.0	3.0	2.00	2.0	4.0	92	3.0	1.60	5.0	9.0	1.0	NA	17
8	917124.433142	589866.677264	8503619	30.7	7.1	5.3	0.33	1.7	2.6	26	4.6	0.42	2.1	8.5	1.0	37.7	11
9	944739.260786	554434.719584	8503643	73.0	6.0	5.0	2.00	16.0	4.0	848	3.0	3.80	11.0	20.0	1.0	NA	14
10	895999.135498	536743.714612	8503703	30.7	7.1	15.4	0.33	1.7	2.6	1890	4.6	28.10	2.1	8.5	1.0	1.0	11
11	938562.999517	531919.959168	8503745	42.0	6.0	9.0	2.00	2.0	4.0	198	3.0	6.40	5.0	14.0	1.0	0.0	15
12	906057.656063	537111.193208	8503772	30.7	7.1	6.4	0.33	1.7	2.6	11	4.6	0.45	2.1	8.5	1.0	1.4	11
13	864885.052713	521918.721952	8503827	30.7	7.1	12.4	0.33	1.7	2.6	99	4.6	7.30	2.1	8.5	1.0	1.0	11
14	850637.776600	437739.935900	8503828	30.7	7.1	22.0	0.33	1.7	2.6	18	5.2	9.70	2.1	8.5	1.0	1.0	11
15	890574.429155	518700.086001	8503834	30.7	7.1	1.2	0.33	1.7	2.6	16	4.6	0.42	2.1	8.5	1.0	6.2	11
16	891983.029028	555135.039378	8503836	30.7	7.1	11.7	0.33	1.7	2.6	26	4.6	8.80	2.1	8.5	1.0	1.0	11
17	878094.746110	543059.568450	8503837	30.7	7.1	11.5	0.33	1.7	2.6	50	4.6	5.00	2.1	8.5	1.0	1.0	11
18	864372.205641	511578.432594	8503839	30.7	7.1	12.3	0.33	1.7	2.6	342	4.6	4.50	2.1	8.5	1.0	1.1	11
19	914806.964352	521300.295696	8503842	30.7	7.1	13.1	0.33	1.7	3.0	9	4.6	0.42	2.1	8.5	1.0	2.1	11
20	908991.204986	536817.636052	8503843	30.7	7.1	15.7	0.33	1.7	2.6	314	4.6	7.80	2.1	8.5	1.0	1.0	11
21	906061.191489	515591.908819	8503844	30.7	7.1	8.3	0.33	1.7	2.6	374	4.6	6.40	2.1	8.5	1.0	1.0	11
22	874062.289936	514465.558381	8503845	36.6	7.1	11.8	0.33	1.7	2.6	1000	4.6	8.60	2.1	8.5	1.0	1.8	11
23	883211.117438	509210.374666	8503846	30.7	7.1	8.0	0.33	1.7	2.6	25	4.6	2910.00	2.1	8.5	1.0	1.0	11
24	864473.954125	502927.124109	8503847	68.0	10.0	16.0	2.00	2.0	4.0	422	3.0	3.00	5.0	8.0	1.0	NA	108
25	911926.723065	580251.347085	8503870	30.7	7.1	10.4	0.33	1.7	2.6	15	4.6	0.46	2.1	8.5	1.0	6.6	11
26	895146.069946	542129.902330	8503873	1370.0	7.1	17.6	0.39	5.4	4.2	666	4.6	4.20	2.1	8.5	1.0	16.4	11
27	911650.808919	531908.177695	8503878	30.7	7.1	31.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.5	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
28	882980.111995	522652.925536	8503892	30.7	7.1	16.4	0.33	1.7	2.6	397	4.6	17.30	2.1	8.5	1.0	1.0	11
29	917242.348588	586961.084978	8503922	30.7	7.1	14.0	0.33	1.7	2.6	415	4.6	4.20	2.1	8.5	1.0	2.8	11
30	920203.953230	532314.427867	8503931	30.7	7.1	2.9	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	2.3	11
31	922299.693789	534434.844230	8503940	30.7	7.1	7.8	0.33	1.7	2.6	110	5.5	4.50	2.1	8.5	1.0	1.0	11
32	908040.313515	558708.750734	8503951	30.7	7.1	19.1	0.33	1.7	2.6	354	4.6	15.90	2.1	8.5	1.0	1.0	11
33	905183.388454	542474.913780	8503956	30.7	7.1	7.0	0.33	1.7	3.0	16	4.6	1.30	2.1	8.5	1.2	1.9	11
34	828450.811700	418579.322300	8503964	30.7	7.1	2.4	0.33	1.7	2.6	9	4.6	0.69	2.1	8.5	1.0	1.1	11
35	882982.112975	579645.473297	8504011	30.7	7.1	34.0	0.33	1.7	2.6	9	4.6	1.60	2.1	8.5	1.0	1.3	11
36	869488.371918	508985.528987	8504021	30.7	7.1	20.0	0.33	1.7	2.6	235	4.6	2.80	2.1	8.5	1.0	1.0	11
37	874972.985293	509168.098175	8504022	30.7	7.1	12.3	0.33	1.7	2.6	175	4.6	6.50	2.1	8.5	1.0	1.0	11
38	929914.111303	562480.317994	8504037	30.7	7.1	19.6	0.33	1.7	2.6	831	4.6	9.60	2.1	8.5	1.0	1.0	11
39	915911.911617	558089.828088	8504071	30.7	7.1	12.4	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	3.7	11
40	882233.157452	527219.028937	8504093	116.0	7.1	36.0	0.33	1.7	3.0	291	4.6	15.70	2.1	8.5	1.1	3.7	11
41	892362.600776	544444.019749	8504103	30.7	7.1	14.3	0.33	1.7	3.0	9	4.6	0.42	2.1	8.5	1.0	29.8	11
42	931873.119196	497423.288988	8504116	30.7	7.1	17.3	0.33	3.4	2.6	984	4.6	7.30	2.1	8.5	1.0	1.6	11
43	893767.357153	584650.910464	8504147	30.7	10.0	6.4	0.33	1.7	2.6	811	4.6	19.30	2.1	8.5	1.0	1.2	11
44	910538.510290	526377.580817	8504149	30.7	7.1	4.0	0.33	1.7	2.6	60	4.6	1.90	2.1	8.5	1.0	4.8	11
45	906696.474995	523870.502826	8504161	30.7	7.1	9.3	0.33	1.7	2.6	1360	4.6	18.70	2.2	8.5	1.0	1.0	11
46	922086.833978	542930.473236	8504163	69.8	7.1	2.8	0.33	1.7	2.6	34	4.6	1.00	2.1	8.5	1.0	3.8	11
47	944899.843142	554435.792417	8504188	60.0	6.0	4.0	2.00	2.0	4.0	327	3.0	3.50	5.0	8.0	1.0	NA	20
48	890984.017575	509828.492852	8504189	30.7	7.1	10.9	0.33	1.7	2.6	1500	4.6	10.30	2.1	8.5	1.0	1.9	16
49	871338.778978	467932.023167	8504191	30.7	7.1	6.7	0.33	1.7	2.6	15	4.6	2490.00	2.1	8.5	1.0	1.0	11
50	891629.309920	498273.891289	8504195	30.7	7.1	10.6	0.33	1.7	2.6	27	4.6	1.60	2.1	8.5	1.0	1.0	11
51	892621.467384	541162.086025	8504203	30.7	7.1	10.3	0.33	1.7	2.6	9	4.6	0.92	2.1	8.5	1.0	3.2	11
52	874739.870601	519549.172558	8504204	30.7	7.1	13.8	0.33	1.7	2.6	191	4.6	7.40	2.1	8.5	1.0	1.1	11
53	934340.014852	579502.862033	8504206	30.7	7.1	10.3	0.33	1.7	2.6	194	4.6	25.80	2.1	8.5	1.0	1.6	11
54	875819.565292	564056.807624	8504207	85.0	7.1	29.1	0.33	1.7	2.6	388	4.6	17.50	2.1	8.5	1.0	1.3	11
55	918573.707474	585726.792171	8504208	30.7	7.1	6.9	0.33	1.7	2.6	9	4.6	0.55	2.1	8.5	1.0	1.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
56	904363.205712	580340.202878	8504212	31.0	7.1	12.0	0.33	1.7	2.6	46	4.6	0.50	2.1	8.5	1.0	2.4	17
57	930861.741297	564948.938057	8504213	30.7	7.1	8.4	0.33	1.7	2.6	40	4.6	4.60	2.1	8.5	1.0	1.0	11
58	914473.135623	526755.807751	8504221	456.0	7.1	432.0	0.33	10.9	4.2	35	4.6	0.42	2.1	8.5	1.0	1.0	11
59	901627.394582	518029.111293	8504238	30.7	7.1	26.0	0.33	1.7	2.6	197	4.6	8.90	2.1	8.5	1.0	1.0	13
60	862881.971417	486924.883476	8504239	30.7	7.1	6.6	0.33	1.7	2.6	10	4.6	3.40	2.1	8.5	1.0	1.0	11
61	915699.218801	570090.809991	8504242	30.7	7.1	25.4	0.33	1.7	2.6	93	4.6	2.00	2.1	8.5	1.0	1.0	11
62	861853.041716	508948.705898	8504254	30.7	7.1	22.3	0.33	1.7	2.6	338	4.6	9.70	2.1	8.5	1.0	2.1	142
63	869249.790300	519404.122400	8504281	30.7	7.1	23.5	0.33	1.7	2.6	359	4.6	7.40	2.1	8.5	1.0	1.9	11
64	848923.555764	470223.134727	8504283	30.7	7.1	15.6	0.33	1.7	2.6	39	4.6	0.86	2.1	8.5	1.0	2.0	11
65	908791.800529	515896.117528	8504285	30.7	7.1	2.2	0.33	1.7	2.6	181	4.6	3.00	2.1	8.5	1.0	1.0	11
66	904051.398592	515713.493221	8504287	30.7	7.1	7.0	0.33	1.7	2.6	131	4.6	1.40	2.1	8.5	1.0	1.0	11
67	914244.791920	534741.053919	8504292	30.7	7.1	14.4	0.33	1.7	2.9	39	4.6	1.60	2.1	8.5	1.0	15.8	86
68	916584.573985	543052.297795	8504300	30.7	7.1	2.5	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	3.6	11
69	912884.722789	550728.424832	8504301	68.7	7.1	4.8	0.33	1.7	2.7	201	4.6	6.40	2.1	8.5	1.2	1.2	11
70	903602.941812	593935.434546	8504309	639.0	9.4	15.0	0.33	2.2	3.8	531	4.6	4.50	2.1	8.5	1.0	13.8	11
71	851456.935540	483832.989069	8504316	30.7	7.1	11.0	0.33	1.7	2.6	9	4.6	2320.00	2.1	8.5	1.0	1.2	11
72	909005.583238	534355.187893	8504319	30.7	7.1	12.4	0.33	1.7	2.6	183	4.6	6.70	2.1	8.5	1.0	1.0	11
73	923530.520723	543249.965379	8504332	357.0	7.1	9.7	0.33	2.8	2.6	942	4.6	18.40	2.1	8.5	1.0	1.1	11
74	827072.717904	518913.719760	8504347	30.7	7.1	28.3	0.33	1.7	2.6	1060	4.6	16.20	2.1	8.5	1.0	1.0	11
75	857247.355718	470704.361783	8504377	152.0	7.1	4.9	0.33	3.7	2.6	44	4.6	0.42	2.1	8.5	1.0	1.8	11
76	856002.885110	483343.372594	8504390	30.7	7.1	11.3	0.33	1.7	2.6	1010	4.6	8.70	2.1	8.5	1.0	1.0	11
77	943033.073254	554423.356090	8504391	72.0	6.0	51.0	2.00	2.0	4.0	80	3.0	32.30	5.0	16.0	2.0	NA	12
78	881012.812452	514656.292252	8504394	30.7	7.1	9.9	0.33	1.8	2.6	51	4.6	0.42	2.1	8.5	1.0	2.1	11
79	874600.027200	498092.801800	8504396	30.7	7.1	12.8	0.33	1.7	2.6	152	4.6	5.30	2.1	8.5	1.0	1.0	11
80	829455.313500	410756.401100	8504399	30.7	7.1	9.4	0.33	1.7	2.6	85	4.6	4.20	2.1	8.5	1.0	1.0	11
81	858183.214300	446278.646900	8504406	30.7	7.1	4.2	0.33	1.7	2.6	9	4.6	2.10	2.1	8.5	1.0	1.9	11
82	882603.720359	525490.572420	8504420	30.7	7.1	17.4	0.33	1.7	2.6	16	4.6	5.50	2.1	8.5	1.0	1.0	11
83	899297.767024	507123.342751	8504440	30.7	7.1	40.8	0.33	1.7	2.6	16	4.6	0.42	2.1	8.5	1.0	1.6	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
84	911059.155574	550517.953796	8504469	36.3	7.1	15.1	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	28.3	11
85	881596.574700	551191.958600	8504472	30.7	7.1	27.9	0.33	1.7	2.6	72	4.6	9.35	2.1	8.5	1.0	1.0	11
86	903427.636389	537007.352536	8504478	30.7	7.1	16.4	0.33	1.7	2.6	1610	4.6	29.40	2.1	8.5	1.0	1.0	11
87	924660.078176	545652.974353	8504519	30.7	7.1	6.2	0.33	1.7	2.8	23	4.6	0.57	2.8	8.5	1.0	2.6	11
88	889363.620553	564416.284267	8504524	53.3	7.1	10.2	0.33	1.7	2.9	24	4.6	0.42	2.1	8.5	1.0	3.0	11
89	898000.238451	537997.196357	8504525	30.7	7.1	26.7	0.33	1.7	2.6	91	4.6	8.60	2.1	8.5	1.0	1.0	11
90	890234.303851	525886.052600	8504526	30.7	7.1	24.6	0.33	1.7	5.8	54	4.6	10.20	2.1	8.5	1.0	1.2	11
91	900999.221626	526100.806108	8504527	30.7	7.1	3.9	0.33	1.7	2.6	98	4.6	0.42	2.1	8.5	1.0	14.0	11
92	906668.113831	518346.319976	8504528	30.7	7.1	8.9	0.33	1.7	2.8	9	4.6	1.20	2.1	8.5	1.0	1.1	11
93	880980.102544	509331.877375	8504531	30.7	7.1	9.4	0.33	1.7	2.6	9	4.6	2340.00	2.1	8.5	1.0	4.3	18
94	898388.107754	533274.000095	8504576	30.7	7.1	25.9	0.33	1.7	2.6	2280	4.6	25.50	2.1	8.5	1.0	1.0	11
95	939834.680372	524806.744392	8504579	54.0	6.0	53.0	2.00	2.0	4.0	80	3.0	27.30	5.0	12.0	2.0	NA	15
96	906595.297376	520520.010183	8504590	52.4	7.1	14.3	0.33	1.7	2.8	40	4.6	1.20	2.1	8.5	1.0	3.2	11
97	885208.929060	522819.930780	8504607	30.7	7.1	11.5	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	3.0	11
98	854070.846323	519095.019923	8504636	30.7	7.1	19.1	0.33	1.7	2.6	270	4.6	11.00	2.1	8.5	1.0	1.3	11
99	923098.182677	580674.112972	8504644	383.0	7.1	6.5	0.33	1.7	2.6	493	4.6	6.00	2.1	8.5	1.0	1.0	11
100	871056.981642	455707.362906	8504646	30.7	7.1	12.2	0.33	1.7	2.6	130	4.6	1.10	2.1	8.5	1.0	1.1	11
101	920971.911667	564310.284807	8504651	30.7	7.1	10.7	0.33	1.7	2.6	53	4.6	1.50	2.1	8.5	1.0	1.5	11
102	900385.861304	510168.736922	8504653	30.7	7.1	8.7	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.3	11
103	920470.378222	521556.285341	8504677	30.7	7.1	48.7	0.33	1.7	27.6	222	4.6	27.80	2.1	8.5	1.0	4.7	50
104	901644.709180	514967.720763	8504680	30.7	7.4	2.4	0.33	1.7	2.6	12	4.6	2590.00	2.1	8.5	1.0	6.0	11
105	897861.297456	544895.909266	8504691	1520.0	7.1	12.6	0.33	5.9	2.6	607	4.6	2.60	2.1	8.5	1.0	7.3	11
106	884089.072704	556179.719703	8504692	30.7	7.4	8.7	0.33	1.7	2.6	22	4.6	1.80	2.1	8.5	1.0	5.1	11
107	904770.368283	572355.859923	8504693	82.9	7.1	20.6	0.33	1.7	2.7	71	4.6	1.30	2.1	8.5	1.4	6.8	11
108	880536.455137	536816.110137	8504718	30.7	7.1	28.7	0.33	1.7	2.6	953	4.6	20.30	2.1	8.5	1.0	1.0	11
109	944754.199733	585184.437612	8504739	64.0	6.0	6.0	2.00	2.0	4.0	1220	3.0	4.40	5.0	8.0	1.0	NA	20
110	918266.352118	580200.722842	8504744	140.0	7.1	7.7	0.33	1.7	2.6	2310	4.6	5.80	2.1	8.5	1.0	1.3	11
111	889814.824375	547780.082303	8504751	30.7	7.1	24.4	0.33	1.7	4.0	323	4.6	8.80	2.1	8.5	1.0	1.0	119

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
112	907036.197085	510273.192750	8504780	80.3	7.1	9.6	0.33	1.7	2.6	2240	4.6	25.10	2.1	8.5	1.0	1.0	11
113	904441.309558	510768.530342	8504781	33.2	7.1	73.6	1.50	1.7	52.4	240	4.6	7.50	0.0	8.5	1.0	1.0	182
114	850635.769860	519079.487145	8504790	115.0	11.0	22.0	2.00	2.0	4.0	70	3.0	2.60	5.0	8.0	1.0	0.0	14
115	897272.729735	520777.778696	8504792	30.7	7.1	17.1	0.33	1.7	2.6	39	4.6	0.42	2.1	8.5	1.0	6.8	11
116	862214.714549	508950.419805	8504796	30.7	7.1	49.3	0.33	1.7	2.6	1370	4.6	13.70	2.1	8.5	1.0	1.3	11
117	918317.123014	518858.833715	8504801	30.7	14.7	101.0	0.88	1.7	9.4	962	6.6	25.30	11.2	8.5	1.0	1.3	72
118	919124.096137	521614.657928	8504802	30.7	7.1	7.2	0.33	1.7	2.6	12	7.1	4.90	2.1	8.5	1.0	1.0	11
119	898147.761450	558275.031786	8504871	30.7	7.1	10.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	2.9	11
120	884287.703540	548970.725591	8504873	59.8	7.1	27.8	0.33	1.7	2.6	148	4.6	10.60	2.1	8.5	1.0	1.2	11
121	877645.012757	509248.192175	8504874	30.7	7.1	13.5	0.33	1.7	2.6	62	4.6	1220.00	2.1	8.5	1.0	1.0	11
122	917094.008334	594880.435609	8504875	30.7	7.1	22.4	0.33	1.7	2.6	161	4.6	13.40	2.1	8.5	1.0	1.0	11
123	892220.340890	548436.509140	8504879	30.7	7.1	16.8	0.33	1.7	2.6	350	4.6	11.60	2.1	8.5	1.0	2.3	11
124	928923.873454	573078.753818	8504895	30.7	7.1	7.7	0.33	1.7	2.6	2330	4.6	24.50	2.1	8.5	1.0	1.4	11
125	870491.818730	464289.709914	8504897	30.7	7.1	6.4	0.33	1.7	2.6	9	4.6	5.20	2.1	8.5	1.0	4.1	11
126	936343.229678	579959.563220	8504922	30.7	7.1	17.0	0.33	1.7	2.6	12	4.6	6.40	2.1	8.5	1.0	1.0	11
127	916845.610537	556365.002469	8504934	30.7	7.1	3.8	0.33	1.7	2.6	25	4.6	2.40	2.1	8.5	1.0	1.7	11
128	828487.242963	409733.085104	8504943	30.7	7.1	7.7	0.33	1.7	2.6	18	4.6	2.70	2.1	8.5	1.0	2.2	11
129	919549.273437	580363.848500	8504944	30.7	7.1	3.6	0.33	1.7	2.6	257	4.6	1.60	2.1	8.5	1.0	1.0	11
130	916648.774316	559048.234635	8504984	30.7	7.1	3.9	0.33	1.7	2.6	28	4.6	1.80	2.1	8.5	1.0	2.0	16
131	928573.425336	593576.127194	8505000	30.7	7.1	11.1	0.33	1.7	2.6	129	4.6	12.80	2.1	8.5	1.0	1.0	11
132	896584.299682	579497.406335	8505004	30.7	7.1	40.4	0.33	1.7	8.0	837	4.6	15.30	2.1	8.5	1.3	2.3	16
133	904235.163317	585153.675535	8505042	33.1	7.1	6.4	0.33	1.7	2.6	30	4.6	0.77	2.1	8.5	1.0	4.2	11
134	874992.569571	453197.929276	8505055	30.7	7.1	10.2	0.33	1.7	2.6	31	4.6	3.50	2.1	8.5	1.0	1.0	11
135	915561.379509	566318.469767	8505068	483.0	7.1	9.6	0.33	2.4	2.6	182	4.6	2.50	2.1	8.5	1.0	1.7	11
136	911278.107892	540624.692742	8505074	30.7	7.1	4.9	0.33	1.7	2.6	99	4.6	1.70	2.1	8.5	1.0	1.0	11
137	905352.167316	558471.302062	8505086	623.0	7.1	4.5	0.33	3.0	2.6	238	4.6	2.80	2.1	8.5	1.0	2.4	11
138	847279.401244	492022.441850	8505103	30.7	7.1	18.4	0.33	1.7	2.6	11	4.6	4.40	2.1	8.5	1.0	1.2	11
139	870412.051173	492795.668322	8505107	61.2	7.1	17.3	0.33	1.7	2.6	47	4.6	4.60	2.1	8.5	1.0	3.3	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
140	865127.756296	492326.299838	8505108	30.7	7.1	16.2	0.33	1.7	2.6	957	4.6	6.90	2.1	8.5	1.0	1.0	11
141	931953.515360	497423.798501	8505115	35.0	6.0	17.0	2.00	5.0	4.0	109	3.0	3.10	5.0	11.0	1.0	NA	14
142	931919.302174	569037.838672	8505120	44.5	7.1	4.4	0.33	1.7	2.6	27	4.6	2.40	2.1	8.5	1.0	1.0	11
143	924222.941583	580459.243651	8505142	30.7	7.1	11.5	0.33	1.7	2.6	215	4.6	0.98	2.1	8.5	1.0	1.2	11
144	901390.363560	520867.415000	8505162	30.7	7.1	8.1	0.33	1.7	4.0	11	4.6	0.56	2.1	8.5	1.0	2.2	12
145	881351.405607	569232.201800	8505170	30.7	7.1	14.1	0.33	1.7	2.6	83	4.6	6.80	2.1	8.5	1.0	11.2	11
146	894910.018909	548517.833452	8505186	30.7	7.1	13.3	0.33	1.7	2.6	49	4.6	5.40	2.1	8.5	1.0	1.0	11
147	898229.046720	525796.848054	8505192	30.7	7.1	9.9	0.33	1.7	2.6	171	4.6	9.20	2.1	8.5	1.0	1.0	11
148	842068.915274	422077.814679	8505199	30.7	7.1	21.2	0.33	1.7	2.6	17	4.6	0.42	2.1	8.5	1.0	4.9	11
149	898720.294753	520564.001893	8505202	31.2	7.1	5.2	0.33	1.7	2.6	28	4.6	0.97	2.1	8.5	1.2	2.1	11
150	920184.126498	552014.774621	8505241	57.7	7.1	22.2	0.33	1.7	2.6	197	4.6	4.60	2.1	8.5	1.0	1.0	11
151	890510.760648	523047.917529	8505254	30.7	12.4	15.8	0.33	1.7	2.6	9540	4.6	64.60	2.1	8.5	1.0	4.4	17
152	863698.966174	522112.688428	8505259	30.7	7.1	35.5	0.33	1.7	2.6	452	4.6	7.70	2.1	8.5	1.0	1.0	11
153	932458.777801	566268.086994	8505261	30.7	7.1	18.4	0.33	1.7	2.6	1220	4.6	13.60	2.1	8.5	1.0	1.0	11
154	896455.147053	584665.831694	8505271	30.7	7.1	11.7	0.33	1.7	2.6	9	4.6	0.61	2.1	8.5	1.0	1.8	11
155	886508.029808	520275.592037	8505315	30.7	7.1	17.1	0.33	1.7	2.6	38	4.6	1.80	2.1	8.5	1.0	5.9	11
156	916183.249657	556361.010023	8505318	30.7	7.1	9.0	0.33	1.7	2.6	9	4.6	0.61	2.1	8.5	1.0	1.6	12
157	916401.659981	546756.121096	8505347	39.0	7.1	6.7	0.33	1.7	2.6	277	4.6	9.30	2.1	8.5	1.0	1.3	11
158	942573.579094	538934.734180	8505352	38.0	6.0	14.0	2.00	2.0	4.0	78	3.0	4.20	5.0	17.0	2.0	NA	17
159	883716.404158	569754.869062	8505403	30.7	7.1	64.6	0.33	2.0	2.6	3960	4.6	62.80	2.6	8.5	1.0	3.2	11
160	879459.259129	574258.321669	8505404	43.2	7.1	39.3	0.33	1.7	2.6	624	4.6	22.10	2.1	8.5	1.0	1.0	11
161	885961.984640	573848.806084	8505405	30.7	7.1	13.2	0.33	1.7	2.6	207	4.6	5.20	2.1	8.5	1.0	1.4	11
162	921478.192151	557036.586756	8505412	33.2	7.1	3.1	0.33	1.7	2.6	46	4.6	0.42	2.1	8.5	1.0	2.2	11
163	916889.216093	559116.241717	8505416	181.0	7.1	4.7	0.33	1.7	2.6	985	4.6	6.80	2.1	8.5	1.0	5.2	11
164	891187.590987	542685.022283	8505419	30.7	7.1	33.2	0.33	1.7	2.6	122	4.6	8.30	2.1	8.5	1.0	1.2	11
165	892606.273517	536591.943918	8505420	30.7	7.1	15.5	0.33	1.7	2.6	185	4.6	8.00	2.1	8.5	1.0	1.5	11
166	893856.433090	579415.709977	8505424	30.7	7.1	6.8	0.33	1.7	2.6	13	4.6	0.42	2.1	8.5	1.2	3.6	11
167	916999.386476	550841.802229	8505431	30.7	10.0	1.5	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	3.8	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
168	867207.624511	502807.204401	8505436	30.7	7.1	14.0	0.33	1.7	2.6	115	4.6	5.60	2.1	8.5	1.0	1.0	11
169	848641.097012	502277.361629	8505439	30.7	7.1	15.9	0.33	1.7	2.6	165	4.6	6.80	2.1	8.5	1.0	1.0	11
170	944881.957679	587071.105427	8505446	31.0	8.0	14.0	2.00	2.0	4.0	708	3.0	3.60	5.0	8.0	1.0	NA	15
171	862092.957903	470948.792724	8505450	30.7	7.1	5.6	0.33	1.7	2.6	17	4.6	998.00	2.1	8.5	1.0	1.3	11
172	853329.397346	492115.974799	8505451	30.7	7.1	16.8	0.33	1.7	2.6	9	4.6	4140.00	2.1	8.5	1.0	2.2	11
173	910478.643612	563870.013706	8505454	30.7	7.1	6.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	25.5	11
174	864243.678339	509048.827417	8505455	30.7	7.1	20.0	0.33	1.7	2.6	41	4.6	0.62	2.1	8.5	1.0	2.0	11
175	880327.437182	487809.797060	8505459	30.7	7.1	8.0	0.33	1.7	2.6	1570	4.6	28.20	2.1	8.5	1.0	1.0	11
176	857184.207222	519175.885246	8505460	30.7	7.1	21.7	0.33	1.7	2.6	107	4.6	10.70	2.1	8.5	1.0	1.4	11
177	868864.747181	492699.343711	8505464	30.7	7.1	6.3	0.33	1.7	2.6	155	4.6	0.42	2.1	8.5	1.0	4.5	11
178	915380.843453	569645.187195	8505534	437.0	7.1	5.2	0.33	1.7	2.6	90	4.6	1.10	2.1	8.5	1.0	7.1	11
179	925953.508988	569998.452564	8505536	44.6	7.1	12.1	0.33	1.7	2.6	2010	4.6	1710.00	2.1	8.5	1.0	1.0	11
180	938146.757895	552638.522389	8505548	43.0	6.0	15.0	2.00	2.0	7.0	78	3.0	2.60	5.0	8.0	1.0	NA	20
181	944415.577378	581832.085065	8505551	54.0	6.0	48.0	2.00	2.0	4.0	471	3.0	7.70	5.0	18.0	1.0	NA	11
182	916919.021807	537530.212055	8505556	30.7	7.1	5.8	0.33	1.7	2.6	109	4.6	0.63	2.1	8.5	1.1	1.0	11
183	905691.592162	544873.820727	8505566	30.7	7.1	8.2	0.33	1.7	3.2	9	4.6	0.42	2.1	8.5	1.2	3.7	11
184	883373.384502	466528.847496	8505567	295.0	7.1	7.8	0.33	1.7	2.6	28	4.6	0.54	2.1	8.5	1.0	1.0	11
185	905919.636326	540149.735359	8505587	30.7	7.1	6.3	0.33	1.7	2.6	63	4.6	1.10	2.1	8.5	1.0	1.7	11
186	905150.183796	558691.987973	8505598	919.0	7.1	15.7	0.33	2.8	2.6	553	4.6	2.00	2.1	8.5	1.0	5.2	11
187	893650.038162	525682.783322	8505617	34.4	7.1	28.6	0.33	1.7	2.6	103	4.6	19.10	2.1	8.5	1.1	1.0	11
188	919545.736370	564523.409709	8505621	30.7	7.1	1.6	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.0	11
189	883156.699568	557905.221502	8505637	30.7	7.1	11.1	0.33	1.7	2.6	9	4.6	1.20	2.1	8.5	1.0	5.7	11
190	884039.331661	557998.609438	8505638	30.7	7.1	14.8	0.33	1.7	2.6	187	4.6	6.80	2.1	8.5	1.0	1.0	11
191	899211.357748	579667.447990	8505645	42.5	7.1	7.9	0.33	1.7	2.9	10	4.6	0.42	2.1	8.5	1.1	6.0	11
192	877879.738994	553662.714895	8505647	30.7	7.1	23.6	0.33	1.7	2.6	9	4.6	6.10	2.1	8.5	1.0	1.0	11
193	923686.291409	566723.059181	8505664	30.7	7.1	16.4	0.33	1.7	2.6	74	4.6	5.60	2.1	8.5	1.0	1.0	11
194	911025.140222	542664.227705	8505672	60.8	7.1	9.8	0.33	1.7	3.2	43	4.6	0.64	2.1	8.5	1.0	3.5	11
195	930199.219656	574462.353742	8505684	30.7	7.1	15.1	0.33	1.7	2.6	461	4.6	10.60	2.1	8.5	1.0	1.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
196	871550.621731	465759.050807	8505701	30.7	7.1	11.5	0.33	1.7	3.2	51	4.6	1.60	2.1	8.5	1.0	1.0	11
197	888259.542381	579385.185103	8505720	30.7	7.1	3.2	0.33	1.7	2.6	23	4.6	1.00	2.1	8.5	1.0	1.6	11
198	830617.216393	415997.060108	8505754	30.7	7.1	3.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.0	11
199	928880.622556	560876.417659	8505786	30.7	7.1	16.3	0.33	1.7	2.6	19	4.6	4.70	2.1	8.5	1.0	1.0	11
200	844371.575695	448463.496816	8505800	30.7	7.1	10.4	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.0	11
201	920350.953592	550995.270755	8505801	357.0	7.1	6.1	0.33	1.7	2.6	320	4.6	3.20	2.1	8.5	1.0	1.0	11
202	906246.117300	528815.125482	8505864	30.7	7.1	9.0	0.33	1.7	2.6	281	4.6	5.90	2.1	8.5	1.0	1.0	11
203	890614.530125	514995.485143	8505872	30.7	7.1	2.5	0.33	1.7	2.6	9	4.6	801.00	2.1	8.5	1.0	4.0	11
204	908739.999451	569472.666214	8505875	30.7	7.1	8.8	0.33	1.7	4.2	18	4.6	0.42	2.1	8.5	1.0	25.6	11
205	805741.958073	424179.492234	8505883	30.7	7.1	11.6	0.33	1.7	2.6	258	4.6	24.40	2.1	8.5	1.0	1.0	11
206	909660.815523	580082.651884	8505904	183.0	7.1	23.6	0.33	1.7	2.6	101	4.6	2.60	2.1	8.5	1.0	10.0	11
207	899060.892825	542218.258125	8505920	30.7	7.1	14.6	0.33	1.7	2.6	36	4.6	4.80	2.1	8.5	1.0	1.2	11
208	888019.797126	496723.783169	8505925	30.7	7.1	12.9	0.33	1.7	2.6	317	4.6	4.6	2.1	8.5	1.0	1.0	11
209	888019.797126	496723.783169	8505925	30.7	7.1	15.2	0.33	1.7	2.6	99.5	4.6	4.60	2.1	8.5	1.0	1.0	11
210	894752.576967	555216.802338	8505941	30.7	7.1	19.3	0.33	1.7	2.6	102	4.6	5.40	2.1	8.5	1.0	1.7	11
211	884105.702263	514872.081846	8505946	30.7	7.1	10.0	0.33	1.7	2.6	58	4.6	6.40	2.1	8.5	1.0	1.6	11
212	889310.490082	563107.087082	8505953	41.2	7.1	9.2	0.33	1.7	3.0	37	4.6	0.42	2.1	8.5	1.0	3.8	11
213	885740.965725	509578.621305	8505988	169.0	7.1	7.0	0.33	1.7	2.6	124	4.6	0.71	2.1	8.5	1.0	2.4	11
214	833707.232851	418693.576041	8505992	30.7	7.1	34.1	0.33	1.7	2.6	19	4.6	1.70	2.1	8.5	1.0	1.4	15
215	868404.237932	459265.986366	8505994	30.7	7.1	2.3	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	2.1	11
216	864134.297324	519297.379754	8505996	30.7	7.1	21.5	0.33	1.7	2.6	583	4.6	11.70	2.1	8.5	1.0	1.6	11
217	906697.244023	523737.398433	8505997	30.7	7.1	8.0	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.4	11
218	869723.506618	514288.708013	8505999	30.7	7.1	9.5	0.33	1.7	2.6	80	4.6	3.50	2.1	8.5	1.0	1.4	11
219	874724.160003	514690.728534	8506001	38.0	13.0	17.0	2.00	5.0	4.0	441	3.0	10.60	5.0	8.0	2.0	NA	16
220	896013.666636	523233.296095	8506009	30.7	7.1	4.1	0.33	1.7	5.6	9	4.6	0.42	2.1	8.5	1.0	1.8	11
221	923088.716161	575726.673063	8506013	35.0	7.0	37.0	2.00	2.0	4.0	370	3.0	15.60	5.0	8.0	1.0	NA	13
222	931443.827075	586916.480080	8506016	30.7	7.1	2.7	0.33	1.7	2.6	88	4.6	1.80	2.1	8.5	1.0	1.0	11
223	872280.418171	468668.741838	8506045	30.7	7.1	11.6	0.33	1.7	2.6	62	4.6	17.80	2.1	8.5	1.0	12.2	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			<i>MDL</i>	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			<i>GWCTL</i>	<u>200</u>	<u>10</u>	<u>2,000</u>	<u>5</u>	<u>100</u>	<u>1,000</u>	<u>300</u>	<u>15</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>100</u>	<u>49</u>	<u>5,000</u>
224	878581.324533	557748.304821	8506068	30.7	7.1	73.1	0.33	1.7	2.6	35	4.6	4.40	2.1	8.5	1.0	1.3	11
225	938921.931213	529237.863154	8506081	129.0	6.0	10.0	2.00	2.0	4.0	548	3.0	3.20	5.0	8.0	3.0	NA	12
226	898480.857568	527462.109816	8506084	30.7	7.1	9.5	0.33	1.7	2.6	365	4.6	10.70	2.1	8.5	1.0	1.0	27
227	914256.348983	515928.266742	8506087	50.8	9.0	4.5	0.33	1.7	2.6	241	4.6	6.30	2.1	8.5	1.0	1.0	11
228	940235.974189	524875.927980	8506091	121.0	6.0	85.0	2.00	2.0	4.0	64	3.0	10.30	5.0	12.0	4.0	NA	47
229	937306.149012	579965.838469	8506129	30.7	7.1	18.5	0.33	1.7	2.9	388	4.6	16.90	2.1	8.5	1.0	1.5	11
230	897430.052911	550217.876968	8506133	165.0	7.1	10.4	0.33	1.7	2.6	174	4.6	5.60	2.1	8.5	1.0	4.2	11
231	888993.718078	498769.944759	8506142	30.7	7.1	6.0	0.33	1.7	2.6	9	4.6	0.66	2.1	8.5	1.0	1.0	11
232	870206.157228	497874.807114	8506145	30.7	7.1	14.3	0.33	1.7	2.6	155	4.6	2.90	2.1	8.5	1.0	1.3	14
233	924426.823721	550887.265721	8506157	48.0	6.0	27.0	2.00	2.0	4.0	57	4.0	4.40	5.0	15.0	1.0	NA	21
234	844366.303396	477701.291687	8506186	31.0	7.1	19.6	0.33	1.7	2.6	41	4.6	1.80	2.1	8.5	1.0	1.0	11
235	906703.203328	585012.674176	8506202	30.7	7.1	3.8	0.33	1.7	2.6	20	4.6	0.42	2.1	8.5	1.0	2.9	11
236	883899.529776	565474.156167	8506206	71.3	7.1	5.1	0.33	1.7	3.3	32	4.6	2.20	2.1	8.5	1.0	3.3	11
237	883906.789932	564098.734049	8506210	59.6	7.1	22.8	0.33	1.7	3.2	50	4.6	5.10	2.1	8.5	1.0	7.2	17
238	879566.296972	514648.824091	8506212	30.7	7.1	11.3	0.33	1.7	2.6	25	4.6	0.42	4.2	8.5	1.0	1.9	11
239	829230.200466	405166.338332	8506213	56.0	7.1	13.9	0.33	1.7	2.6	150	4.6	9.10	2.1	8.5	1.0	1.0	12
240	889087.410476	526257.013473	8506215	30.7	7.1	6.4	0.33	1.7	2.6	2480	4.6	3.70	2.1	8.5	1.0	2.3	11
241	881921.643639	536889.864910	8506218	53.3	7.1	35.3	0.33	1.7	2.6	748	4.6	20.00	2.1	8.5	1.0	1.3	11
242	878022.837133	482429.447257	8506219	30.7	7.1	16.2	0.33	1.7	2.6	9	4.6	0.81	2.1	8.1	1.0	8.1	11
243	906845.227322	515507.690811	8506226	30.7	7.1	25.9	0.33	1.7	2.6	1480	4.6	141.00	2.1	8.5	1.0	1.0	11
244	872179.401641	509287.221953	8506231	30.7	7.1	8.1	0.33	1.7	2.6	40	4.6	2.90	2.1	8.5	1.0	5.7	11
245	906515.157116	527441.216813	8506235	30.7	7.1	3.8	0.33	1.7	2.6	540	4.6	17.50	2.1	8.5	1.0	1.0	11
246	912059.579755	523901.820676	8506240	30.7	7.1	14.5	0.33	1.7	2.6	342	4.6	11.60	2.1	8.5	1.0	1.5	11
247	867488.701049	519380.141400	8506278	30.7	7.1	19.8	0.33	1.7	2.6	561	4.6	10.90	2.1	8.5	1.0	1.2	11
248	894206.342167	526795.067843	8506282	30.7	7.1	1.4	0.33	1.7	2.6	39	4.6	0.92	2.1	8.5	1.0	2.9	11
249	878616.093492	519724.164990	8506285	30.7	7.1	14.4	0.33	1.7	2.6	106	4.6	4.50	2.1	8.5	1.0	1.3	11
250	934500.805213	551461.235702	8506324	75.0	6.0	2.0	2.00	3.0	8.0	162	3.0	3.50	5.0	8.0	1.0	NA	18
251	892045.092553	551119.917487	8506352	30.7	10.1	21.9	0.33	1.7	2.6	990	4.6	18.80	2.1	8.5	1.0	2.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
252	906565.389627	563847.127925	8506353	30.7	11.4	32.5	0.33	1.7	2.6	148	4.6	24.80	2.1	8.5	1.0	1.2	11
253	915184.858281	575545.323032	8506356	30.7	7.1	22.5	0.33	1.7	2.6	195	4.6	11.10	2.1	8.5	1.0	3.0	16
254	920464.617078	548821.808238	8506357	244.0	7.1	5.1	0.33	1.7	2.6	307	4.6	7.00	2.1	8.5	1.0	7.1	11
255	916919.021807	537530.212055	8506358	30.7	7.1	5.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.6	11
256	852226.275537	424295.952303	8506373	517.0	7.1	13.6	0.33	1.7	2.6	111	4.6	6.00	2.1	8.5	1.0	1.0	11
257	920684.096626	545761.584043	8506379	30.7	7.1	3.0	0.36	1.7	2.6	20	4.6	0.42	2.1	8.5	1.0	3.4	17
258	924046.096136	554013.040310	8506384	113.0	7.1	7.7	0.33	1.7	2.6	3210	4.6	3.80	2.1	8.5	1.0	1.0	11
259	867634.350364	497706.940324	8506385	30.7	7.1	11.9	0.33	1.7	3.1	12	4.6	0.42	2.1	8.5	1.0	3.2	11
260	891296.705270	500313.056830	8506411	30.7	7.1	9.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.2	11
261	891296.705270	500313.056830	8506411	30.7	7.1	9.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.2	11
262	892379.184732	500829.164722	8506412	30.7	7.1	10.6	0.33	1.7	2.6	98	4.6	2.6	2.1	8.5	1.0	1.0	11
263	892379.184732	500829.164722	8506412	30.7	7.1	10.6	0.33	1.7	2.6	64.7	4.6	2.60	2.1	8.5	1.0	1.0	11
264	857996.847657	508575.674163	8506451	30.7	7.1	19.2	0.33	1.7	2.6	9	4.6	5.30	2.1	8.5	1.0	1.0	11
265	886805.387481	551180.376355	8506461	30.7	7.1	9.4	0.33	1.7	2.6	9	4.6	6.10	2.1	8.5	1.0	2.7	11
266	859381.921659	508870.523639	8506483	30.7	7.1	23.2	0.33	1.8	2.6	1650	4.6	13.70	2.1	8.5	1.0	1.6	11
267	881453.860454	522578.416827	8506486	30.7	7.1	9.4	0.33	1.7	2.6	31	4.6	3.50	2.1	8.5	1.0	2.0	11
268	859921.378913	492368.170161	8506488	30.7	7.1	10.2	0.33	1.7	2.6	36	4.6	0.42	2.1	8.5	1.0	3.2	11
269	878923.477392	561454.918470	8506489	30.7	7.1	16.1	0.33	1.7	2.6	24	4.6	5.90	2.1	8.5	1.0	1.0	11
270	897947.802204	558140.801411	8506508	291.0	7.1	7.5	0.33	1.7	2.6	167	4.6	2.70	2.1	8.5	1.0	1.7	11
271	912869.333056	516053.150678	8506537	30.7	7.1	14.8	0.33	1.7	2.6	940	4.6	16.50	2.1	8.5	1.0	1.2	11
272	931490.786955	579573.296604	8520517	204.0	7.1	5.4	0.33	1.7	2.6	106	4.6	2.70	2.1	8.5	1.1	3.6	11
273	838718.403274	491542.025488	8520522	30.7	7.1	18.6	0.33	40.3	2.6	513	4.6	7.20	2.1	8.5	1.0	2.2	11
274	903258.752212	510251.538922	8520524	30.7	7.1	9.7	0.33	1.7	4.2	34	4.6	1.40	2.1	8.5	1.0	2.3	45
275	898981.724021	584813.122738	8520525	30.7	7.1	13.0	0.33	1.7	2.6	30	4.6	3.10	2.1	8.5	1.0	1.3	13
276	865002.872359	497405.835611	8521971	30.7	30.7	15.3	0.33	1.7	2.6	5270	4.6	25.70	2.1	8.5	1.0	1.9	11
277	932733.140770	579803.114057	8521972	30.7	7.1	14.6	0.33	1.7	2.6	295	4.6	6.90	2.1	8.5	1.0	1.3	11
278	908319.450096	545266.207410	8522035	30.7	7.1	4.4	0.33	1.7	2.6	22	4.6	0.74	2.1	8.5	1.0	13.4	11
279	855154.670927	431141.587890	8622071	30.7	7.1	5.9	0.33	1.7	2.6	31	4.6	13.80	2.1	8.5	1.0	1.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
280	920772.959309	580371.350126	8622097	30.7	7.1	45.5	0.33	1.7	3.2	48	4.6	2.20	2.1	8.5	1.0	2.0	11
281	833060.801800	417492.118700	8622123	30.7	7.1	6.5	0.33	1.7	2.6	12	4.6	1.10	2.1	8.5	1.0	1.7	11
282	876298.901600	478245.876400	8622132	30.7	7.1	7.3	0.33	1.7	3.2	12	4.6	1.40	2.1	8.5	1.0	6.5	11
283	850110.168400	424431.824600	8622167	30.7	7.1	6.0	0.33	1.7	2.6	14	4.6	1.60	2.1	8.5	1.0	2.9	11
284	881361.694956	555721.718651	8622222	30.7	7.1	19.4	0.33	1.7	2.6	39	4.6	8.40	2.1	8.5	1.2	1.8	11
285	906562.118637	526265.690293	8622473	30.7	7.1	4.7	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.2	11
286	883674.740855	585239.744588	8626150	30.7	7.1	20.5	0.33	1.7	2.6	553	4.6	25.90	2.1	8.5	1.0	1.0	11
287	832891.989730	416139.248144	8626176	30.7	7.1	10.3	0.33	1.7	2.6	121	4.6	6.90	2.1	8.5	1.0	1.0	11
288	888148.421868	588835.426373	8628711	30.7	7.1	9.3	0.33	1.7	2.6	30	4.6	4.10	2.1	8.5	1.0	2.6	11
289	846734.058831	488026.980025	8628796	30.7	7.1	15.0	0.33	1.7	2.6	229	4.6	3350.00	2.1	8.5	1.0	1.0	11
290	886375.916555	495916.418970	8628797	30.7	7.1	5.5	0.33	3.9	2.6	61	4.6	4.00	2.1	8.5	1.0	1.0	11
291	877773.509219	543057.921800	8628815	590.0	7.1	18.8	0.33	3.0	2.6	354	4.6	9.90	2.1	8.5	1.0	2.3	11
292	834528.864081	419650.773273	8628943	30.7	7.1	12.2	0.33	1.7	3.8	132	4.6	4.60	6.3	8.5	1.0	1.1	11
293	823197.775523	413195.376079	8628975	30.7	7.1	17.0	0.33	1.7	2.6	1090	4.6	8.40	2.1	8.5	1.0	1.0	11
294	923175.290135	574706.674447	8628993	92.3	7.1	21.4	0.33	1.7	2.6	124	4.6	7.50	2.1	8.5	1.0	1.2	11
295	841384.033770	426933.022488	8629011	30.7	7.1	2.7	0.33	1.7	2.6	9	4.6	0.86	2.1	8.5	1.0	1.0	11
296	860043.158197	522095.349224	8732280	30.7	7.1	25.8	0.33	1.7	2.6	170	4.6	13.80	2.1	8.5	1.0	1.3	11
297	879790.748623	552873.915291	8732338	30.7	7.1	23.0	0.33	1.7	2.6	358	4.6	18.70	2.1	8.5	1.0	1.5	11
298	860925.589503	458276.413870	8732372	30.7	7.1	5.5	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.0	11
299	843824.293325	491497.184698	8732373	30.7	7.1	17.4	0.33	1.7	2.6	41	4.6	1.76	2.1	8.5	1.0	1.8	11
300	843824.293325	491497.184698	8732373	30.7	7.1	6.4	0.33	1.7	3.1	9	4.6	0.42	2.1	8.5	1.3	9.4	11
301	904208.984235	579252.235894	8732567	30.7	7.1	2.0	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	2.0	11
302	917550.215427	585809.305785	8732731	30.7	7.1	75.4	0.33	1.7	2.6	16	4.6	16.20	2.1	8.5	1.0	2.4	11
303	872439.763981	557717.108689	8733527	30.7	7.1	4.0	0.33	1.7	2.6	548	4.6	15.10	2.1	8.5	1.0	1.0	11
304	844828.648928	431095.954123	8735287	30.7	7.1	4.0	0.33	1.7	2.6	548	4.6	0.42	2.1	8.5	1.0	1.0	11
305	907997.048838	555802.244736	8737035	64.8	7.1	8.1	0.33	1.7	2.6	67	4.6	0.42	2.1	8.5	1.0	5.5	11
306	907327.181739	574322.985254	8837733	30.7	7.1	45.5	0.33	2.0	2.6	34	4.6	2.60	2.1	8.5	1.0	3.1	11
307	913137.398465	558871.896405	8837735	30.7	7.1	5.7	0.33	1.7	2.6	1180	4.6	9.30	2.1	8.5	1.0	1.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
308	905382.373621	553235.795145	8838029	30.7	7.1	49.5	0.33	1.7	3.8	3420	8.2	80.30	48.2	8.5	1.0	2.6	384
309	897777.145393	541989.221509	8838046	30.7	7.1	8.5	0.33	1.7	2.6	40	4.6	5.30	2.1	8.5	1.0	4.9	11
310	933114.416582	551651.998444	8838306	93.0	6.0	15.0	2.00	2.0	4.0	230	3.0	2.00	5.0	8.0	3.0	NA	10
311	859388.608325	498843.386870	8838492	30.7	7.1	11.7	0.33	1.7	2.6	9	4.6	0.98	2.1	8.5	1.0	3.3	11
312	840988.506674	496587.302799	8838494	30.7	7.1	14.4	0.33	1.7	2.6	734	4.6	5.60	2.1	8.5	1.0	1.0	11
313	828579.863840	437417.788264	8838498	30.7	7.1	9.4	0.33	1.7	2.6	33	4.6	12.80	2.1	8.5	1.0	1.4	11
314	921058.802242	569768.435636	8838676	30.7	7.1	23.3	0.33	1.7	2.6	2190	4.6	26.80	2.1	8.5	1.0	1.4	11
315	882068.596430	520252.246939	8838960	30.7	7.1	22.8	0.33	1.7	2.6	361	4.6	12.00	2.1	8.5	1.0	1.0	11
316	867883.939431	561754.310588	8839586	30.7	7.1	171.0	0.33	1.7	2.6	2120	4.6	53.00	2.1	8.5	1.3	1.0	11
317	930130.004572	566408.533563	8839865	30.7	7.1	42.9	0.33	1.7	2.6	7710	4.6	71.10	2.1	8.5	1.0	1.0	11
318	877548.506060	575180.226978	8839879	30.7	7.1	27.9	0.33	1.7	2.6	175	4.6	15.40	2.1	8.5	1.0	1.0	11
319	914225.221749	538024.326880	8840195	30.7	7.1	17.3	0.33	1.7	2.6	9	4.6	0.45	2.1	8.5	1.3	1.0	11
320	824154.311012	405279.762317	8840547	37.6	7.1	5.9	0.33	1.7	2.6	64	4.6	14.40	2.1	8.5	1.0	1.0	11
321	894963.381007	549760.481229	8840581	30.7	7.1	10.4	0.33	1.7	2.6	46	4.6	5.20	2.1	8.5	1.0	1.8	11
322	847883.693999	519067.239138	8841022	49.4	7.1	19.4	0.33	1.7	2.6	122	4.6	12.30	2.1	8.5	1.0	1.4	11
323	899405.953159	545126.417991	8841130	50.0	7.1	13.9	0.33	1.7	2.6	146	4.6	0.62	2.1	8.5	1.0	1.6	11
324	914578.126883	542818.414733	8841192	30.7	7.1	8.4	0.33	1.7	2.6	141	4.6	0.60	2.1	8.5	1.0	1.4	11
325	898847.738396	587230.558848	8841196	143.0	7.1	18.2	0.33	1.7	2.6	50	4.6	3.00	2.1	8.5	1.0	2.6	11
326	827952.969097	453564.653280	8841197	40.0	7.1	11.0	0.33	1.7	2.6	405	4.6	9.40	2.1	8.5	1.0	1.0	11
327	895556.081266	526070.406234	8841203	30.7	8.6	83.0	0.33	1.7	2.6	11400	4.6	154.00	2.1	8.5	1.0	1.1	11
328	912074.109581	521439.380719	8841205	33.5	7.1	26.1	0.33	1.7	4.3	1290	7.9	20.00	2.1	8.5	1.0	2.1	21
329	906174.068560	534338.748950	8841207	30.7	7.1	7.9	0.33	1.7	2.6	143	4.6	1.40	2.1	8.5	1.0	1.0	11
330	935972.645773	587589.081097	8841362	30.7	7.1	6.3	0.33	1.7	2.6	15	4.6	0.76	2.1	8.5	1.0	1.0	11
331	891817.223914	559770.778138	8841381	30.7	7.1	12.7	0.33	1.7	2.6	55	4.6	1.90	2.1	8.5	1.0	1.9	11
332	919471.621361	540451.920450	8841437	30.7	7.1	32.4	0.33	1.7	2.6	522	4.6	24.40	2.1	8.5	1.0	1.0	11
333	822865.067527	431872.111364	8841450	30.7	7.1	10.7	0.33	1.7	2.6	15	4.6	0.95	2.1	8.5	1.0	1.0	11
334	873103.207536	561491.827189	8841487	30.7	7.1	37.9	0.33	1.7	2.6	9	4.6	16.70	2.1	8.5	1.0	1.0	11
335	868961.867394	460422.252754	8841567	30.7	7.1	4.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
336	866449.454440	563721.726273	8841693	30.7	7.1	24.8	0.33	1.7	2.6	230	4.6	13.20	2.1	8.5	1.0	1.3	11
337	889695.990624	551195.899618	8841758	35.0	12.0	18.0	2.00	2.0	4.0	21	3.0	14.40	5.0	8.0	1.0	NA	13
338	920419.844858	519958.655334	8841817	33.6	7.1	5.7	0.33	1.7	6.2	165	14.1	19.50	9.8	8.5	1.0	1.0	11
339	911702.157897	533417.060176	8841862	44.0	7.1	17.7	0.33	1.7	12.9	3660	4.6	40.10	3.4	8.5	1.0	1.8	64
340	904930.527412	568940.261767	8842260	76.0	18.0	17.0	2.00	2.0	4.0	1480	3.0	8.30	5.0	8.0	1.0	NA	38
341	828584.577085	405452.179952	8842290	30.7	7.1	36.7	0.33	1.7	2.6	201	4.6	17.20	2.1	8.5	1.0	1.2	11
343	931385.400000	494190.200000	8842457	34.9	7.8	11.6	2.00	2.0	4.0	194	3.0	0.80	5.0	9.8	1.0	2.5	17
344	909161.444803	531738.273179	8942557	30.7	7.1	17.1	0.33	1.7	2.6	51	4.6	6.20	2.1	8.5	1.0	1.0	11
345	909589.873408	585317.984917	8942621	366.0	7.1	10.2	0.33	1.7	2.9	316	4.6	8.90	2.1	8.5	1.0	2.6	11
346	878238.419051	554174.804750	8942654	30.7	7.1	27.0	0.33	1.7	2.6	60	4.6	9.20	2.1	8.5	1.1	1.5	11
347	907966.215894	554204.736120	8942704	2370.0	7.1	4.6	0.33	8.3	2.6	848	5.7	8.00	2.1	8.5	1.0	9.4	11
348	904676.314994	571268.242020	8942895	30.7	7.1	8.3	0.33	1.7	2.6	179	4.6	15.70	2.1	8.5	1.0	1.0	11
349	856743.606397	514537.374182	8942909	30.7	7.1	13.2	0.33	1.7	2.6	9	4.6	1.10	2.1	8.5	1.0	1.2	11
350	856688.458542	513427.916756	8942912	30.7	7.1	15.6	0.33	1.7	2.6	342	4.6	6.70	2.1	8.5	1.0	1.0	11
351	873412.324372	527906.004925	8943097	30.7	7.1	4.0	0.33	1.7	2.6	9	4.6	0.67	2.1	8.5	1.0	2.7	11
352	896765.465986	568605.527857	8943600	33.5	7.1	11.9	0.33	1.7	2.9	278	4.6	7.50	2.1	8.5	1.0	2.4	11
353	905038.408101	567631.957954	8943621	87.0	19.0	22.0	2.00	2.0	4.0	624	3.0	3.30	5.0	8.0	1.0	NA	14
354	866652.060990	522060.366682	8943655	30.7	7.9	17.6	0.33	1.7	2.6	250	4.6	9.60	2.1	8.5	1.0	1.1	11
355	900646.547134	542315.928861	8943894	30.7	7.1	7.0	0.33	1.7	2.6	57	4.6	4.70	2.1	8.5	1.0	1.0	11
356	840047.339921	486245.728666	8944020	30.7	7.1	18.6	0.33	1.7	2.6	48.3	4.6	1.2	2.1	8.5	1.0	1.0	11
357	840047.339921	486245.728666	8944020	30.7	7.1	18.0	0.33	1.7	2.6	9.2	4.6	2.90	2.1	8.5	1.0	1.2	11
358	889875.692364	536510.563832	8944271	144.0	7.1	6.3	0.33	1.7	2.6	50	4.6	1.20	2.1	8.5	1.0	1.6	11
359	935973.934157	593557.094423	8944349	30.7	7.1	11.0	0.33	2.7	2.6	178	4.6	6.50	2.1	8.5	1.0	1.5	11
360	862434.443113	521906.998223	8944426	30.7	7.1	12.7	0.33	1.7	2.6	9	4.6	1.50	2.1	8.5	1.0	2.2	11
361	915574.572725	537366.839350	8944456	55.3	7.1	10.2	0.33	1.7	2.6	181	4.6	16.90	5.6	8.5	1.0	12.4	11
362	903397.726671	542242.823036	8944457	30.7	7.1	11.4	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.0	22
363	892083.024891	555202.139965	8944497	86.6	7.1	11.0	0.33	1.7	2.6	341	4.6	12.00	2.1	8.5	1.0	1.0	12
364	853157.034174	507976.675690	8944527	30.7	7.1	20.4	0.33	1.7	2.6	537	4.6	9.40	2.1	8.5	1.0	1.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
365	884063.559303	553406.490013	8944551	30.7	7.1	18.8	0.33	1.7	2.6	376	4.6	12.80	2.1	8.5	1.0	1.6	11
366	848116.045568	489186.603034	8944602	30.7	7.1	22.8	0.33	1.7	8.8	9	4.6	3380.00	2.1	8.5	1.0	1.0	23
367	868201.662221	509134.518846	8944619	30.7	7.1	7.5	0.33	4.1	2.6	112	4.6	1.50	2.1	8.5	1.0	1.2	11
369	878495.866042	523583.634961	8944689	30.7	7.1	11.1	0.33	1.7	2.6	71	4.6	0.42	2.1	8.5	1.0	1.2	11
370	845541.356492	489552.453024	8944782	30.7	7.1	16.4	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.3	11
371	847254.772028	502204.694779	8944831	30.7	7.1	16.4	0.33	1.7	2.6	1180	4.6	14.10	2.1	8.5	1.0	1.0	11
372	878168.255149	548295.511718	8944857	30.7	7.1	67.5	0.33	1.7	2.6	1320	4.6	30.90	2.1	8.5	1.0	1.5	11
373	833364.950399	418692.193826	8945175	86.5	7.1	7.0	0.33	1.7	2.6	45	4.6	1.70	2.1	8.5	1.0	2.4	11
374	843637.219552	502255.496843	8945221	30.7	7.1	21.4	0.33	1.7	2.6	85	4.6	4.10	2.1	8.5	1.0	1.0	11
375	862767.273156	460192.875260	8945247	30.7	7.1	5.4	0.33	1.7	2.6	31	4.6	1.30	2.1	8.5	1.0	1.0	11
376	919173.400000	574159.600000	8945345	30.7	7.1	10.1	0.33	1.7	2.6	328	4.6	3.30	2.1	8.5	1.0	1.3	11
377	911943.310302	526585.511503	8945491	30.7	7.1	10.1	0.33	1.7	2.6	12	4.6	5.70	2.1	8.5	1.0	5.2	11
378	945427.947729	550512.449870	9045714	30.7	7.1	25.3	0.33	1.7	2.6	43	4.6	4.40	2.1	8.5	1.0	1.0	11
379	936865.310327	592187.377347	9045756	33.1	6.0	4.0	2.00	2.0	4.0	215	3.0	1.60	5.0	10.0	1.0	NA	13
380	936609.090700	593519.730500	9045801	714.0	7.1	9.9	0.33	7.3	2.6	1620	4.6	21.10	2.1	8.5	1.0	3.8	22
381	901447.987133	584982.403896	9045874	33.1	7.1	19.5	0.33	1.7	3.6	25	4.6	1.20	2.1	8.5	1.0	2.5	14
382	841046.362201	501889.462142	9045940	52.3	7.1	7.4	0.33	1.7	2.6	41	4.6	2.60	2.1	8.5	1.0	1.0	11
383	846658.025847	519128.392231	9045944	30.7	7.1	20.2	0.33	1.7	2.6	758	4.6	13.00	2.1	8.5	1.0	1.0	11
384	848355.128424	507866.432800	9045945	30.7	7.1	20.6	0.33	1.7	2.6	475	4.6	13.40	2.1	8.5	1.0	1.0	11
385	843444.121841	486415.484888	9045988	30.7	7.1	14.6	0.33	1.7	2.6	67	4.6	6.90	2.1	8.5	1.0	2.3	11
386	849160.561852	475747.901565	9046090	30.7	7.1	14.9	0.33	1.7	2.6	12	4.6	3560.00	2.1	8.5	1.0	2.5	11
387	838556.964621	496488.306278	9046120	30.7	7.1	9.9	0.33	1.7	2.6	12	4.6	2.30	2.1	8.5	1.0	2.5	11
388	838679.410570	491253.474556	9046140	61.0	7.1	18.0	2.00	2.0	4.0	442	3.0	9.00	5.0	8.0	1.0	NA	14
389	843316.640469	502032.277801	9046154	30.7	7.1	17.6	0.33	1.7	2.6	15	4.6	3.20	2.1	8.5	1.0	1.3	11
390	864305.856036	517035.415774	9046168	30.7	7.1	25.1	0.33	1.7	2.6	2380	4.6	21.30	2.1	8.5	1.0	2.2	11
391	877778.077123	561737.423811	9046225	30.7	7.1	13.9	0.33	1.7	2.6	32	4.6	4.90	2.1	8.5	1.0	1.0	11
392	871221.530853	532265.401062	9046231	30.7	7.1	27.9	0.33	1.7	2.6	58	4.6	8.50	2.1	8.5	1.0	1.0	11
393	876744.152354	532293.171020	9046323	107.0	7.1	21.3	0.33	1.7	2.6	158	4.6	9.20	2.1	8.5	1.0	1.5	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			<i>MDL</i>	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			<i>GWCTL</i>	<u>200</u>	<u>10</u>	<u>2,000</u>	<u>5</u>	<u>100</u>	<u>1,000</u>	<u>300</u>	<u>15</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>100</u>	<u>49</u>	<u>5,000</u>
394	889233.266155	558824.986394	9046557	30.7	7.1	9.2	0.33	1.7	2.6	212	4.6	5.70	2.1	8.5	1.1	4.1	11
395	905734.153101	547935.598724	9046693	30.7	7.1	6.5	0.33	1.7	2.6	9	4.6	8810.00	2.1	8.5	1.0	4.1	13
396	876691.819125	522842.337887	9046843	30.7	7.1	7.7	0.33	1.7	2.6	374	4.6	0.73	2.1	8.5	1.0	1.0	11
397	859147.695093	481538.834536	9046899	30.7	7.1	61.5	0.46	1.7	2.6	115	4.6	8.10	2.7	8.5	1.0	1.4	14
398	877965.846761	536869.417445	9046908	30.7	7.1	6.4	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	2.3	11
399	874334.749693	528199.035835	9046914	30.7	7.1	15.0	0.33	1.7	2.6	95	4.6	7.70	2.1	8.5	1.3	1.5	11
400	876145.927173	527498.289533	9047119	80.1	7.1	14.9	0.33	1.7	2.6	226	4.6	11.40	2.1	8.5	1.3	1.5	11
401	885291.740246	514745.219239	9047196	30.7	7.1	17.8	0.33	1.7	2.6	294	4.6	14.00	2.1	8.5	1.0	1.0	30
402	829215.206730	403857.493180	9063962	30.7	7.1	24.5	0.49	1.7	2.6	11	4.6	4.50	2.1	8.5	1.0	3.5	30
403	829233.900000	403778.900000	9100201	30.7	7.1	31.7	0.33	1.7	2.6	262	4.6	14.30	0.0	8.5	1.0	NA	325
404	876987.774300	564079.140600	9100427	30.7	7.1	14.4	0.33	1.7	2.6	824	4.6	8.90	2.1	8.5	1.0	1.5	11
405	901112.432029	523838.600002	9101121	30.7	7.1	5.9	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.7	11
406	907615.951175	569532.652643	9101332	30.7	7.1	4.3	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	2.9	11
407	872360.305479	585558.563504	9101371	342.0	7.1	16.7	0.33	1.7	2.6	1220	4.6	5.70	2.1	8.5	1.0	2.6	11
408	884097.969339	554493.724388	9101665	30.7	7.1	11.9	0.33	1.7	2.6	154	4.6	9.30	2.1	8.5	1.0	1.0	11
409	904129.031967	519707.190942	9101874	30.7	7.1	17.6	0.33	1.7	2.6	37	4.6	6.00	2.1	8.5	1.0	1.0	11
410	864806.280232	509051.525902	9102401	30.7	7.1	21.4	0.33	1.7	2.6	414	4.6	5.30	2.1	8.5	1.0	1.0	39
411	923006.403333	579298.038296	9102744	62.0	7.1	37.0	0.33	1.7	2.6	98	4.6	3.90	3.6	8.5	1.0	1.0	11
412	904459.285572	581072.871360	9102800	2790.0	7.1	14.8	0.33	8.8	2.6	1490	4.6	5.20	3.6	8.5	1.0	4.2	11
413	936845.178477	589125.590491	9103194	30.7	7.1	6.3	0.33	1.7	2.6	16	4.6	0.42	4.1	8.5	1.0	4.1	11
414	850780.761696	459627.631640	9103515	30.7	7.1	142.0	0.33	1.7	2.6	1530	4.6	1650.00	4.1	8.5	1.0	1.0	11
415	922940.932336	537921.867111	9103543	30.7	7.1	2.1	0.33	1.7	2.6	404	4.6	10.40	2.1	8.5	1.0	1.0	11
416	863868.371675	520294.394492	9200381	30.7	7.1	2.1	0.33	1.7	2.6	13	4.6	0.42	2.1	8.5	1.0	2.3	11
417	874113.374807	532279.854445	9200612	73.8	7.1	16.5	0.33	1.7	2.6	493	4.6	13.90	2.1	8.5	1.0	1.1	11
418	907276.066684	576208.436535	9200630	30.7	7.1	17.2	0.33	1.7	2.6	184	4.6	12.00	2.1	8.5	1.0	1.1	11
419	870793.978887	509080.696775	9200863	30.7	7.1	46.6	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	4.8	68
420	912560.432099	524126.628298	9201326	30.7	7.1	13.3	0.33	1.8	3.3	35	4.6	2.50	2.6	8.5	1.0	3.0	11
421	864489.524960	453368.481100	9201453	30.7	7.1	12.6	0.33	1.7	2.6	29	4.6	4.20	2.1	8.5	1.0	2.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			<i>MDL</i>	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			<i>GWCTL</i>	<u>200</u>	<u>10</u>	<u>2,000</u>	<u>5</u>	<u>100</u>	<u>1,000</u>	<u>300</u>	<u>15</u>	<u>50</u>	<u>100</u>	<u>50</u>	<u>100</u>	<u>49</u>	<u>5,000</u>
422	848171.236403	513101.024037	9203113	30.7	7.1	3.8	0.33	1.7	2.6	24	4.6	1.10	2.1	8.5	1.0	1.3	11
423	860083.671567	470562.235099	9300532	30.7	7.1	19.3	0.33	1.7	2.6	254	4.6	13.60	2.1	8.5	1.0	1.3	11
424	903396.839206	542398.112752	9300549	98.0	7.1	13.0	2.00	11.0	4.0	974	3.0	28.10	5.0	8.0	1.0	NA	26
425	874685.724712	522321.942931	9300838	74.8	7.1	10.1	0.33	1.7	2.6	104	4.6	3.40	2.1	8.5	1.0	1.0	11
426	890033.692048	544431.364591	9300946	30.7	7.1	39.6	0.33	2.2	7.0	306	4.6	11.90	2.6	8.5	1.0	2.7	11
427	863650.218568	532295.026331	9300995	30.7	7.1	28.6	0.33	1.7	4.7	11	4.6	1.40	2.1	8.5	1.0	3.6	11
428	920148.029129	521709.617712	9400451	80.8	7.1	17.3	0.33	1.7	2.6	439	4.6	14.90	2.1	8.5	1.0	1.8	16
429	907008.032115	511670.668302	9401093	30.7	7.1	89.7	0.33	1.7	6.5	150	4.6	216.00	3.5	8.5	1.0	1.0	39
430	872220.348738	585469.121426	9402046	30.7	7.1	6.7	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	4.7	11
431	868723.646742	537910.089904	9500100	30.7	7.1	25.3	0.33	2.0	4.0	27	4.6	3.90	2.2	8.5	1.0	2.8	11
432	827933.534752	458511.437350	9502583	33.0	7.1	20.0	2.00	2.0	4.0	80	3.0	10.90	5.0	8.0	1.0	NA	14
433	881298.071724	560224.891403	9502714	30.7	7.1	19.7	0.33	1.7	2.7	9	4.6	0.43	2.1	8.5	1.0	1.7	11
434	849284.861472	470380.016959	9504792	30.7	7.1	17.1	0.33	1.7	2.6	39	4.6	0.42	2.1	8.5	1.0	6.8	11
435	933655.510972	579875.604398	9600294	30.7	7.1	25.4	0.33	1.7	2.6	103	4.6	5.90	2.1	8.5	1.0	4.2	11
436	863785.453534	537597.726684	9600967	184.0	7.1	8.1	0.33	1.7	2.6	248	4.6	3.90	2.1	8.5	1.0	1.0	11
437	869618.247971	568174.216383	9602350	136.0	7.1	10.4	0.33	1.7	2.6	311	4.6	8.80	2.1	8.5	1.0	1.3	11
438	904296.819033	563989.319241	9700097	30.7	7.1	14.3	0.33	1.7	2.6	377	4.6	9.40	2.1	8.5	1.0	1.3	11
439	879041.751761	585148.947854	9700100	30.7	7.1	25.6	0.33	1.7	2.6	834	4.6	11.20	2.1	8.5	1.0	1.5	11
440	867980.063911	566701.952596	9700665	30.8	7.1	9.6	0.33	1.7	2.6	20	4.6	2.00	2.1	8.5	1.0	2.5	11
441	875124.479084	558662.394200	9701097	64.0	7.1	18.2	0.33	1.7	2.6	161	4.6	11.90	2.1	8.5	1.0	1.2	11
442	875718.098960	564278.138546	9701268	152.0	7.1	30.0	0.33	1.8	3.9	127	4.6	7.30	2.1	8.5	1.0	8.0	11
443	888013.430668	584109.274736	9701269	30.7	7.1	17.8	0.33	1.7	2.6	162	4.6	5.70	2.8	8.5	1.3	1.5	11
444	882844.845861	590471.031698	9800128	2260.0	7.1	23.0	0.33	8.1	4.8	1460	4.6	16.80	2.8	8.5	1.2	4.8	11
445	888332.449387	584465.955453	9800193	38.0	13.0	9.0	2.00	2.0	4.0	20	3.0	4.00	5.0	8.0	1.0	NA	13
446	863231.955625	447018.000691	9800239	30.7	7.1	12.3	0.33	1.7	2.6	358	4.6	11.80	2.1	8.5	1.0	1.0	11
447	867938.811041	562841.625343	9800384	30.7	7.1	42.0	0.33	1.7	2.6	646	4.6	19.20	2.1	8.5	1.0	2.5	106
448	904732.045525	568561.968889	9800402	41.2	7.1	6.2	0.33	2.3	2.6	13	4.6	0.42	4.5	8.5	1.0	1.1	11
449	845889.806254	432409.341916	9800528	335.0	7.1	29.5	0.33	2.3	2.6	49	4.6	1.10	4.5	8.5	1.0	7.0	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
450	843362.093790	482111.506291	9800896	30.7	7.1	30.4	0.33	1.7	2.6	1030	4.6	43.80	2.1	8.5	1.0	1.0	11
451	933357.948903	576235.226836	9801350	30.7	7.1	4.0	0.33	1.7	2.6	9	4.6	2.90	2.1	8.5	1.0	1.0	11
452	848954.246320	467827.443980	9801620	30.7	7.1	16.5	0.33	1.7	2.6	23	4.6	0.70	2.1	8.5	1.0	1.4	11
453	874226.291248	529795.767222	9801698	63.6	7.1	5.7	0.33	1.7	2.6	36	4.6	3.50	2.1	8.5	1.5	1.0	11
454	898753.249412	589759.146311	9801711	134.0	7.1	18.9	0.33	1.7	2.6	349	4.6	7.40	2.1	8.5	1.0	3.4	11
455	933853.459067	574064.216414	9801900	30.7	7.1	12.2	0.33	1.7	2.6	355	4.6	4.90	2.1	8.5	1.4	1.5	11
456	849840.984048	431051.251785	9801924	30.7	7.1	13.4	0.33	1.7	2.6	18	4.6	2.10	2.1	8.5	1.0	1.3	11
457	886718.445398	578711.357383	9801939	30.7	7.1	13.8	0.33	1.7	2.6	9	4.6	2.30	2.1	8.5	1.0	1.0	11
458	829720.845482	408429.147751	9802084	40.3	15.1	5.9	0.33	1.7	2.6	9	4.6	2.20	2.1	8.5	1.0	1.0	11
459	863338.714926	542831.094498	9802233	68.8	7.1	13.2	0.33	1.7	2.6	111	4.6	9.90	2.1	8.5	1.0	2.2	23
460	863256.600261	543207.835870	9802395	30.7	7.1	13.4	0.33	1.7	2.6	122	4.6	17.80	2.1	8.5	1.0	1.0	11
461	837280.874653	416312.400357	9802399	30.7	7.1	14.8	0.33	1.7	2.6	38	4.6	7.20	2.1	8.5	1.0	1.0	11
462	908327.901194	550701.598442	9802436	35.7	7.1	25.0	0.33	1.7	2.6	1310	4.6	17.10	2.1	8.5	1.0	1.0	11
463	874117.990284	543327.749016	9802439	30.7	7.1	4.9	0.33	1.7	2.6	9	4.6	1.90	2.1	8.5	1.0	1.0	11
464	874117.990284	543327.749016	9802891	45.9	7.1	8.4	0.33	1.7	2.6	828	4.6	12.00	2.1	8.5	1.2	1.6	11
465	874117.990284	543327.749016	9802891	30.7	7.1	66.8	0.33	1.7	2.6	864	4.6	12.0	2.1	8.5	1.0	3.8	11
466	866440.560428	457659.268122	9802925	30.7	7.1	66.8	0.33	1.7	2.6	21	4.6	8.60	2.1	8.5	1.0	3.8	11
467	937663.311355	595897.647813	9803125	30.7	29.2	4.1	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	23.2	11
468	848947.614443	478431.180975	9803167	30.7	7.1	5.6	0.33	1.7	2.6	9	4.6	7.70	2.1	8.5	1.0	3.0	11
469	872870.428802	567879.849190	9803284	30.7	7.1	18.4	0.33	1.7	2.6	305	4.6	7.20	2.1	8.5	1.0	1.1	11
470	868851.827588	532253.700954	9803585	30.7	7.1	9.7	0.33	1.7	2.6	408	4.6	2.90	2.1	8.5	1.0	1.0	11
471	881744.999964	543810.541686	9803656	41.3	7.1	125.0	0.33	1.7	2.6	800	4.6	925.00	2.1	8.5	1.0	2.1	11
472	897757.562427	563441.955507	9803788	67.4	7.1	15.8	0.33	1.7	2.6	69	4.6	3.70	2.1	8.5	1.0	1.4	11
473	873191.056114	563976.953124	9803816	30.7	7.1	151.0	0.33	1.7	2.6	64	4.6	15.80	2.1	8.5	1.0	4.5	11
474	828239.542671	431826.321101	9803878	30.7	7.1	30.6	0.33	1.7	2.6	69	4.6	6.20	2.1	8.5	1.0	1.9	11
475	917361.618691	583833.648647	9804098	30.7	7.1	22.8	0.33	1.7	2.6	25	4.6	9.80	2.1	8.5	1.0	1.8	11
476	862498.978745	537879.971854	9804112	30.7	7.1	10.6	0.33	1.7	2.6	304	4.6	6.60	2.1	8.5	1.0	2.2	11
477	941000.200000	527860.100000	9804120	30.7	7.1	10.8	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	2.1	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
478	863719.817510	530343.142768	9804223	36.4	7.1	18.1	0.33	1.7	2.6	242	4.6	11.80	2.1	8.5	1.0	1.2	11
479	865388.385367	559057.810076	9804363	134.0	7.1	6.6	0.33	2.7	2.6	211	4.6	4640.00	2.1	8.5	1.0	2.1	11
480	903826.094253	590009.908276	9804428	30.7	7.1	19.8	0.33	1.7	2.6	164	4.6	8.70	2.1	8.5	1.0	1.0	11
481	917845.082291	580198.160839	9804700	42.3	7.1	31.0	1.40	1.7	2.9	2890	4.6	62.20	2.1	8.5	1.0	1.6	11
482	917257.687469	591043.321564	9804716	39.3	7.1	9.4	0.33	1.7	2.8	20	4.6	0.42	2.1	8.5	1.3	2.1	11
483	853775.847241	437834.724438	9804757	30.7	7.1	22.4	0.33	1.7	2.6	77	4.6	6.80	2.1	8.5	1.0	5.4	11
484	915294.826237	577276.447195	9804800	30.7	7.1	4.2	0.33	1.7	2.6	9	4.6	0.59	2.1	8.5	1.0	1.0	11
485	903179.084392	545369.652741	9804843	30.7	7.1	64.4	0.33	1.7	2.6	10600	4.6	131.00	2.1	8.5	1.0	1.0	11
486	861625.900766	450515.435953	9804861	30.7	7.1	3.0	0.33	1.7	2.6	9	4.6	1.30	2.1	8.5	1.0	12.7	11
487	875966.090262	566808.461569	9804862	30.7	7.1	6.3	0.33	1.7	2.6	9	4.6	0.91	2.1	8.5	1.0	1.4	11
488	915893.061917	581206.875357	9804873	30.7	7.1	16.4	0.33	1.7	2.6	201	4.6	6.60	2.1	8.5	1.3	1.1	11
489	862895.381823	462877.707161	9804890	30.7	7.1	4.2	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.8	11
490	869256.410440	568305.535018	9804891	30.7	7.1	5.0	0.33	1.7	2.6	18	4.6	1940.00	2.1	8.5	1.0	1.0	11
491	853841.436020	481159.506883	9804937	30.7	7.1	24.0	0.33	1.7	2.6	498	4.6	15.40	2.1	8.5	1.0	1.0	11
492	866188.287311	543133.232345	9804951	30.7	7.1	31.8	0.33	1.7	2.6	168	4.6	12.60	2.1	8.5	1.0	1.0	11
493	930249.364569	563414.239355	9804985	30.7	7.1	23.1	0.33	1.7	2.6	208	4.6	17.80	2.1	8.5	1.0	1.0	11
494	907661.013749	523809.531819	9805319	30.7	7.1	11.7	0.33	1.7	2.6	60	4.6	1.40	2.1	8.5	1.0	1.0	11
495	916859.671860	590530.638862	9805387	90.2	7.1	10.4	0.33	1.7	2.6	1480	4.6	1.20	2.1	8.5	1.0	2.9	11
496	873359.768375	558365.080818	9805445	170.0	7.1	2.2	0.33	1.7	2.6	63	4.6	0.73	2.1	8.5	1.0	5.4	11
497	914522.413412	585635.723783	9805519	384.0	15.0	41.0	2.00	2.0	4.0	318	3.0	11.40	5.0	8.0	1.0	NA	13
498	846871.354160	433500.578907	9805680	136.0	7.1	3.0	0.33	1.7	2.6	48	4.6	0.42	2.1	8.5	1.0	1.4	11
499	895652.427500	529688.217800	9806012	40.9	7.1	3.1	0.33	1.7	2.6	9	4.6	4.80	2.1	8.5	1.0	1.2	11
500	905949.317369	538486.034618	9806124	31.6	7.1	5.4	0.33	1.7	2.6	9	4.6	0.44	2.1	8.5	1.0	1.9	11
501	859865.573250	448311.034194	9806127	35.9	7.1	11.4	0.33	1.7	2.6	537	4.6	8.70	2.1	8.5	1.0	1.0	11
502	828075.085978	442961.579670	9806129	31.6	7.1	5.4	0.33	1.7	2.6	9	4.6	0.44	2.1	8.5	1.0	1.9	11
503	877307.604967	555634.218170	9806295	30.7	7.1	15.0	0.33	1.7	2.6	9	4.6	1.90	2.1	8.5	1.0	1.6	11
504	913688.084372	550666.648708	9806421	30.7	7.1	28.5	0.33	1.7	2.6	68	4.6	16.20	2.1	8.5	1.0	1.1	11
505	851046.744103	481146.922919	9806541	1590.0	7.1	4.1	0.33	3.5	2.6	787	4.6	1.00	2.6	8.5	1.0	17.9	11

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
506	876578.393499	568719.475792	9806595	30.7	7.1	14.0	0.33	1.7	2.6	9	4.6	0.84	2.1	8.5	1.0	1.4	11
507	864901.460488	564291.009255	9806600	30.7	7.1	17.5	0.33	1.7	2.6	253	4.6	8.90	2.1	8.5	1.0	1.7	11
508	887922.574223	582356.165710	9806680	2590.0	7.1	39.2	0.33	8.7	4.1	2220	4.6	25.60	2.9	8.5	1.0	5.6	11
509	875018.619060	528002.823957	9806892	434.0	7.1	33.4	0.33	1.7	2.6	664	4.6	3.80	2.1	8.5	1.0	5.4	12
510	831464.797375	410476.889062	9807099	30.7	7.1	12.1	0.33	1.7	2.6	407	4.6	5.70	2.1	8.5	1.3	1.8	11
511	865466.994462	459318.373072	9807174	30.7	7.1	12.5	0.33	1.7	2.6	24	4.6	2.70	2.1	8.5	1.0	3.0	11
512	823530.214163	405210.835618	9807823	30.7	7.1	7.7	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.7	11
513	836534.502787	421544.521126	9808016	30.7	7.1	10.3	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.0	11
514	828490.492956	429431.539801	9808140	22200.0	21.1	134.0	1.30	98.0	2.6	11300	266.0	333.00	23.2	8.5	1.0	44.0	54
515	902347.800000	558445.800000	9808581	30.7	7.1	13.0	0.33	1.7	2.6	9	4.6	3.90	2.1	8.5	1.0	3.9	11
516	860385.381266	568706.306527	9808780	46.2	7.1	13.5	0.33	1.7	2.6	523	4.6	28.00	2.1	8.5	1.0	1.0	11
517	839048.591919	475127.560942	9808781	30.7	7.1	14.2	0.33	1.7	2.6	53	4.6	5.10	2.1	8.5	1.0	1.0	11
518	850308.198008	416434.579247	9809084	30.7	7.1	15.9	0.33	1.7	2.6	9	4.6	7.00	2.1	8.5	1.0	1.1	11
519	856756.100000	514495.200000	9809173	40.4	7.1	12.1	0.33	1.7	2.6	23	4.6	1.80	2.1	8.5	1.0	3.5	11
520	860218.637833	471805.155185	9809276	30.7	7.1	15.6	0.33	1.7	2.6	342	4.6	6.70	2.1	8.5	1.0	1.0	11
521	922352.809496	532327.579087	9809844	30.7	7.1	5.5	0.33	1.7	2.6	16	4.6	1950.00	2.1	8.5	1.0	1.0	11
522	829283.918535	401750.397657	9811164	30.7	28.3	5.5	0.33	1.7	2.6	60	4.6	2.50	2.1	8.5	1.0	1.0	11
523	905292.310153	561887.466162	9811559	30.7	7.1	118.0	0.33	1.7	2.6	3990	4.6	88.10	2.1	8.5	1.0	1.0	11
524	888205.838092	589345.993594	9812787	31.5	19.6	33.4	0.33	1.7	2.6	2160	4.6	86.60	2.1	8.5	1.0	2.5	11
525	883775.720640	520327.723822	9813970	640.0	7.1	16.7	0.33	3.3	2.6	2250	4.6	16.10	2.1	8.5	1.0	2.6	11
526	917132.373415	588557.777322	9814067	68.2	7.1	6.6	0.33	1.7	2.6	25	4.6	0.42	2.1	8.5	1.0	10.7	11
527	854850.813595	453745.121751	9814456	30.7	7.1	26.2	0.33	1.7	2.8	9	4.6	6.30	2.1	8.5	1.0	14.5	25
528	905827.687035	531718.932011	9814709	30.7	7.1	10.2	0.33	1.7	2.6	75	4.6	8.20	2.1	8.5	1.0	1.0	11
529	830497.400000	413076.300000	9814800	30.7	7.1	24.9	0.33	1.7	3.4	12	4.6	0.72	2.1	8.5	1.0	8.4	11
530	915834.132901	564345.615773	9815176	39.2	7.1	13.8	0.33	1.7	2.6	9	4.6	0.62	2.1	8.5	1.0	4.6	11
531	878694.566432	524006.158066	9815205	76.6	7.1	9.3	0.33	1.7	2.6	59	4.6	0.47	2.1	8.5	1.0	7.0	11
532	855302.430146	442921.636837	9815335	54.8	7.1	32.0	0.33	1.7	2.6	458	4.6	12.50	2.1	8.5	1.0	1.2	11
533	888130.216852	581048.366160	9815622	35.0	15.0	14.0	2.00	2.0	4.0	7	3.0	0.50	5.0	8.0	1.0	NA	13

Background Concentrations of Metals in Groundwater-Miami-Dade County

ID	X Coordinate	Y Coordinate	Location ID	Aluminum	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Nickel	Selenium	Silver	Vanadium	Zinc
			MDL	10/30.7	7.1/6	0.84/2	0.33/2	1.7/2	2.6/4	9.20	4.6/3	0.42	2.1/5	8/8.5	1.00	1.00	5/11
			GWCTL	200	10	2,000	5	100	1,000	300	15	50	100	50	100	49	5,000
534	862961.362006	448924.509017	9815863	30.7	7.1	31.0	0.33	1.7	2.6	562	4.6	11.40	2.1	8.5	1.2	2.6	11
535	901673.053612	509954.146800	9815901	30.7	7.1	4.4	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.4	11
536	904156.577844	588347.910944	9815926	30.7	7.1	5.5	0.33	1.7	2.6	22	4.6	0.42	2.1	8.5	1.0	4.4	11
537	860019.846564	497093.808348	9816096	1550.0	7.1	18.1	0.33	3.8	3.0	367	4.6	3.40	2.1	8.5	1.0	8.5	11
538	888505.238084	571022.764492	9900552	30.7	7.1	12.6	0.33	1.7	2.6	42	4.6	2.10	2.1	8.5	1.0	1.0	11
539	887521.724959	571084.030446	8506453_MW-1	30.7	7.1	44.3	0.33	1.7	7.8	29	4.6	40.00	4.0	8.5	1.0	13.8	63
540	899691.434871	558594.300504	8506453_MW-2	30.7	7.1	8.0	0.33	1.7	2.6	405	4.6	8.60	2.1	8.5	1.0	1.0	14
541	899691.434871	558594.300504	9100532_MW-01	121.0	7.1	18.6	0.33	1.7	2.6	89	4.6	2.00	2.1	8.5	1.0	5.5	11
542	900761.616786	550369.711966	9100532_MW-02	252.0	7.1	10.5	0.33	2.5	2.6	1210	4.6	22.20	2.1	8.5	1.0	2.3	11
543	900721.468244	550369.484605	9100579_EMW1	33.0	6.0	9.0	2.00	2.0	4.0	142	3.0	12.10	5.0	8.0	1.0	NA	12
544	900761.616786	550369.711966	9100579_EMW2	94.0	6.0	4.0	2.00	32.0	4.0	289	3.0	14.90	18.0	8.0	1.0	NA	13
545	900761.616920	550369.711977	9100579_EMW3	31.0	6.0	4.0	2.00	2.0	4.0	236	3.0	3.50	5.0	8.0	1.0	NA	15
546	883724.997972	518508.332120	9100579_MW1	51.0	14.0	11.0	2.00	2.0	0.0	63	0.0	5.90	0.0	0.0	0.0	NA	0
547	901865.793384	546826.378830	IW5-1253	30.7	7.1	3.3	0.33	1.7	2.6	10	4.6	1.10	2.1	8.5	1.0	4.8	11
548	824613.658518	432544.282919	IW5-13495	30.7	7.1	5.6	0.33	1.7	2.9	15	4.6	3.40	2.1	8.5	1.0	3.6	11
549	879968.548792	487231.164031	IW5-4492	30.7	7.1	7.4	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	1.4	11
550	879868.716643	487097.546188	IW5-6059_MW1	33.0	6.0	6.0	2.00	2.0	4.0	6	3.0	0.70	5.0	12.0	1.0	NA	24
551	900249.766760	559240.818896	IW5-6059_MW2	38.0	6.0	4.0	2.00	2.0	4.0	23	3.0	0.50	5.0	15.0	1.0	NA	14
552	883950.216682	513872.967047	IW5-7598	31.3	7.1	8.0	0.33	1.7	3.5	21	4.6	3.70	2.1	8.5	1.0	15.5	11
553	905154.744483	564859.482527	IW5-7980	30.7	7.1	19.0	0.33	1.7	2.6	9	4.6	0.42	2.1	8.5	1.0	5.5	11
554	905112.300000	564650.300000	IW5-9292	378.0	7.1	10.6	0.93	1.9	9.3	119	4.6	14.60	5.0	8.5	1.0	9.7	40
556	931957.300000	497382.100000	NA	31.6	7.1	5.4	0.33	1.7	2.6	9	4.6	0.44	2.1	8.5	1.0	1.9	11