

Illicit Discharge Detection and Elimination

May 27, 2020



WELCOME AND INTRODUCTIONS

Please type your name and city/organization into the chat box.



FY 2020 TRAINING

Basic Dry Weather Field Screening Training

Poll - who can attend an all-day offsite training?

- Recommendations
 - Training dates (Usually held in June)
 - Location (Virtual)
 - Instructors

FY 2020 TRAINING

Industrial Inspectors Workshop.

- Training at Peterbuilt was postponed due to covid-19.
- Recommendations
 - Training dates (Aug or Sept)
 - Locations
 - Instructors

The City of Arlington Case Study

Presented by: Trenecia Williams

The “Mystery” @Crystal Canyon

PRESENTED BY:
TRENECIA WILLIAMS
SENIOR ENVIRONMENTAL SPECIALIST

INITIAL CALL-OUT

➤ **When:**

- December 2, 2015

➤ **Who:**

- Citizen complaints to Parks department staff

➤ **Complaint:**

- White foamy substance observed in stream that runs thru park. Additional inspection by Parks staff observed white staining at storm inlet upstream from the stream
- Parks staff initially thinks someone possibly dumped drywall into the storm drain and it was discharging downstream at the creek.

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Initial Assessment

SITE 1:

➤ **Storm inlet located upstream from creek**

- Faint white staining
 - Minimal and not consistent with an excessive dumping

➤ **Outfall**

- Discharges into concrete flume
- Flow observed discharging from outfall at time of assessment
 - Clear, no odor, no white residue
- Water in channel was turbid

➤ **Additional Observations**

- Ditch alongside flume
 - Iridescent film on standing water pocket
 - Reddish-brown iron ore deposits
 - White foamy substance





Initial Assessment

SITE 2:

➤ **Stream inside Crystal Canyon Park**

- White thick foamy accumulations observed
 - Along stream bank and stream bed.
 - Foam is light and not slimy
- Water appears to be a light blue-green color
 - There is no odor





Full IDDE Investigation Is Launched

1. Onsite storm kit analysis for basic water quality parameters

- pH, Ammonia, Phenol, Chlorine, Surfactants, DO and Conductivity
- All were within normal range

2. Upstream investigation

- Surveyed area surrounding Crystal Canyon
 - Residential areas
 - Multi-family
 - Commercial shopping
- Popped man-holes
 - No visible evidence of illicit discharge/dumping

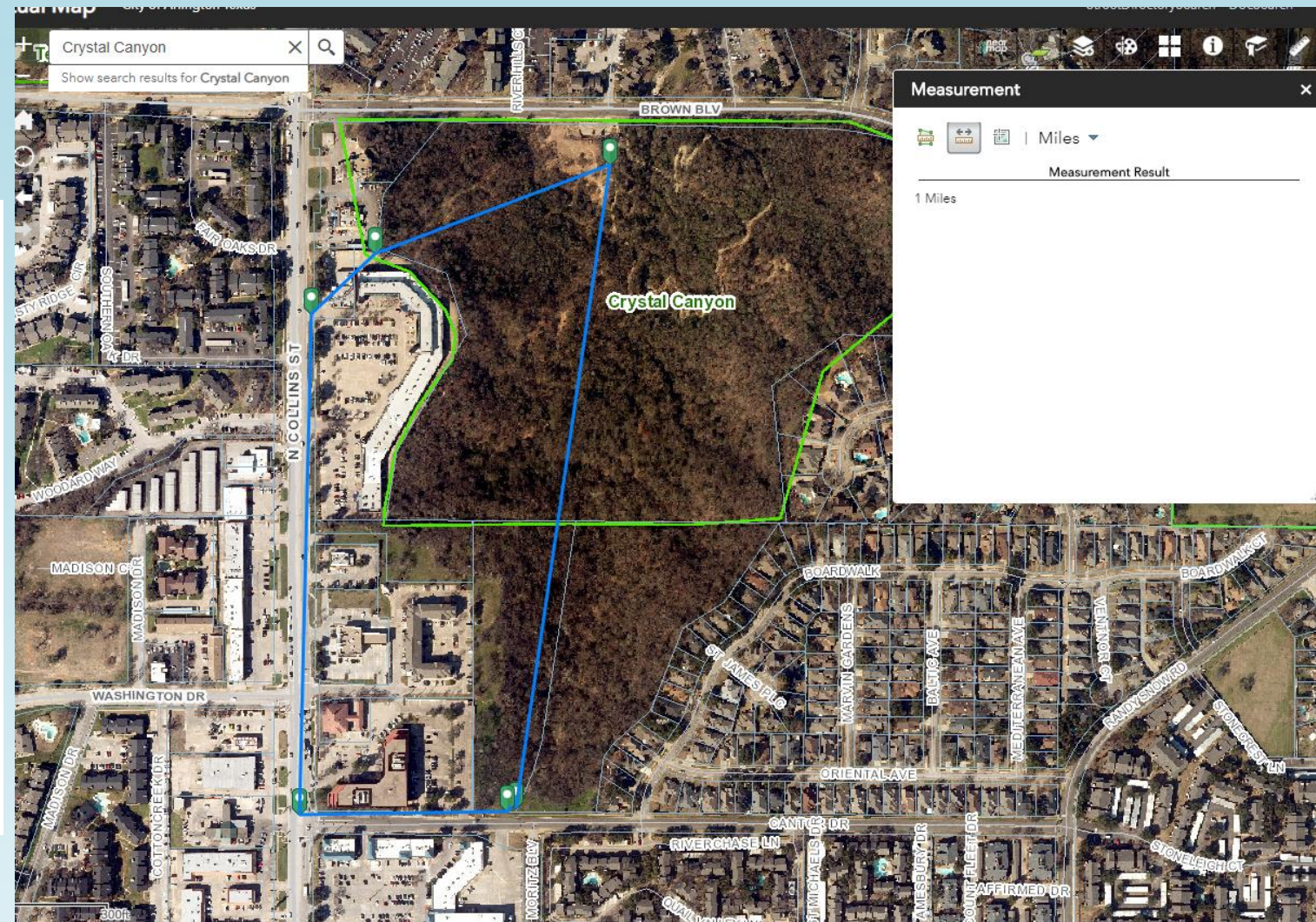
Basic Case Facts

- Streams in Crystal Canyon aren't always around.
 - Intermittent or "Seasonal" Streams
 - Water only flows during wet periods of the year
- 2015 was the wettest year on record for DFW, exceeding the "normal" annual rainfall by nearly 300%
- Wettest May on record
 - Total: 17.55 inches
- Wettest November on record
 - Total: 11.05 inches



December 4, 2015

- Conducted a channel walk with the assistance of Parks department
- About 1/2 a mile into walk, we start observing:
 - White foamy accumulations along the bank
 - Limestone deposits along exposed bedrock areas
- Water had blue-greenish hue to it.





December 4, 2015

➤ **2nd call-out regarding possible pollution source**

- Renovation occurring at nearby commercial facility
 - Observed blue paint being dumped behind the facility
- No evidence of tracking or discharge of waste material outside of dumping area
 - Massive permanent vegetative buffer between dump location and stream
 - Highly unlikely this was the source



December 9, 2015- Follow-Up Inspection

➤ **Site 1 :**

- Observed no change at site
 - Outfall still actively flowing
 - No visible staining to indicate a illegal dump
 - Onsite storm kit analysis of flow
 - (DO, Conductivity, pH, Ammonia, Copper, Phenol, Detergent, Chlorine)
 - All parameters were within normal range

➤ **Site 2:**

- White foamy accumulations and blue green colored water still Present along stream bank
- No odor
- Water sample is clear in container



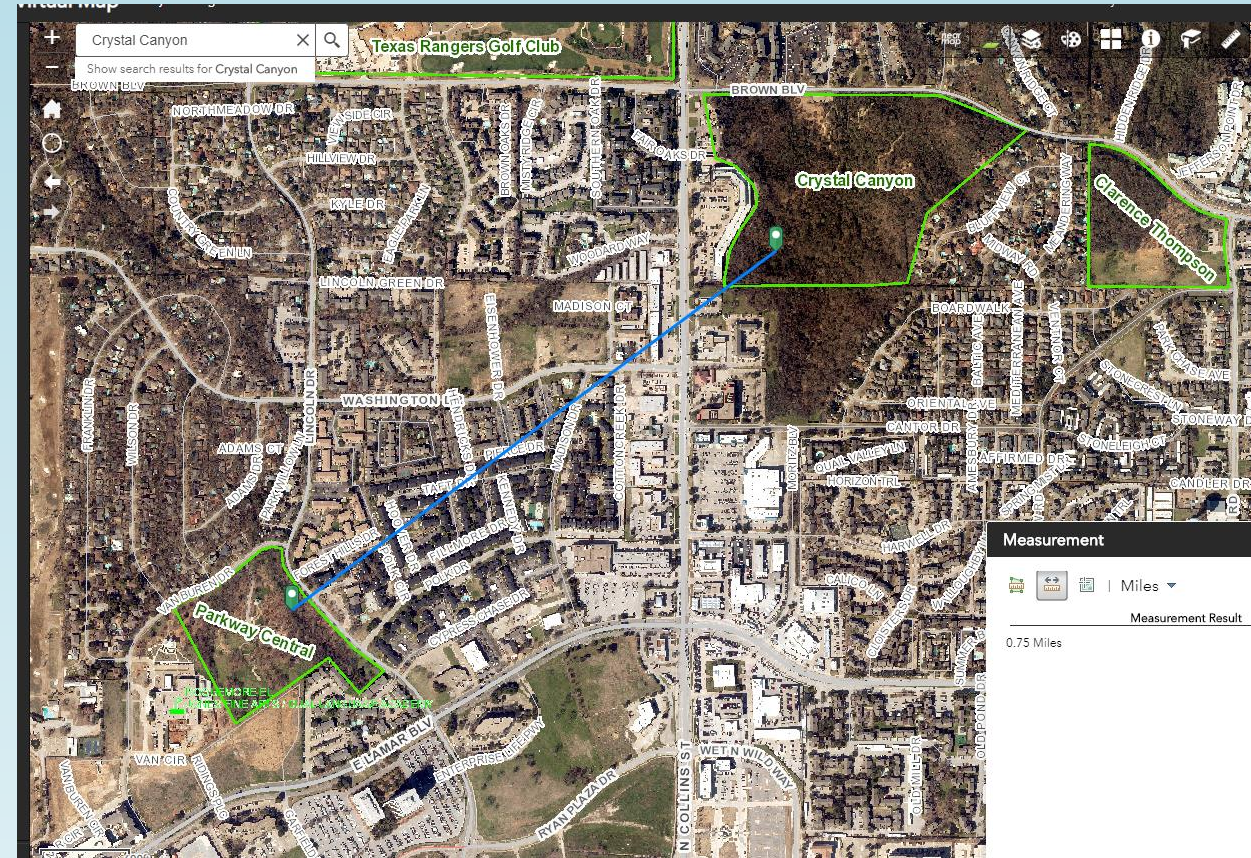
1/14/2016

➤ Incident at Parkway Central Park

- Foamy white accumulations observed in natural stream that ran thru Parkway Central park.
 - Note: Streams are intermittent here as well
- Similar to Crystal Canyon

➤ Both incidents were similar to another site that has historically displayed these characteristics

- Prompted a more in depth chemical analysis of water at all three sites to compare
 - Parkway Central
 - Crystal Canyon
 - Woodfield Drive (Historically Similar Site)



Laboratory Analysis

- 1/14/2016- Samples were collected from all 3 sites
- Results indicated that the discolored water found in Crystal Canyon and Parkway Central were **similar** to the occurrence of discolored water at Woodfield Dr.
- High concentrations of the following minerals detected:
 - *Calcium, Iron, Magnesium, Manganese, Potassium and Sodium detected in **ALL 3** samples*
- August 2004- UTA- Department of Civil and Environmental Engineering
 - Conducted an extensive study to determine the source of blue-green colored water and white powder found at Woodfield Drive drainage channel.
 - Results indicated the discoloration was due to geochemical reactions between groundwater and mineral rich geology of the area
 - Used this information as guidance and a point of reference

CONCLUSION

- **Water discoloration due to geochemical reactions between groundwater and mineral rich geology of the area**
- **White foamy substance**
 - Due to the high concentrations of Manganese and Magnesium in the groundwater seeping into the stream
- **Prior to 2015, the DFW Metroplex had been in a drought for years**
- **Record rainfall in 2015 raised groundwater levels**
 - Many groundwater seeps and springs were being reactivated all throughout the city.
 - SO in conclusion, the white accumulations and discoloration was due to geochemical reactions between groundwater and the mineral rich geology of the area.
- **RECOMMENDATIONS**
 - Post signage informing citizens of the geomorphology of the area.
- **Environmental continues to monitor the site periodically**



The discoloration of the water in the creek is due to
geochemical reactions between the groundwater and
mineral rich geology of the area.

For more information go to:
<https://naturallyfun.org/crystal-canyon-natural-area>

What are the Crystals in Crystal Canyon Natural Area



Selenite

Gypsum can be found in a variety of shapes and forms. Large, milky-colored forms of gypsum are called **alabaster**. Forms which look silky and fibrous (made of fibers) are called **satin spar**. The crystallized form of gypsum is called **selenite**.



Desert Rose



Multiple Forms of Gypsum



The various forms of gypsum are used frequently in the construction and art industries. Powdered gypsum is added to cement to slow the drying time, to soil as conditioner, and to some animal foods. The most common use of gypsum is in making drywall and plaster. Alabaster is used for ornamental purposes, like in sculpture. Forms like satin spar and selenite are often collected for their beauty!



Gypsum is a common, non-metallic mineral made from the evaporation of sea water. Minerals which form from the evaporation of water are called **evaporites**.

Gypsum is very soft and can be easily scratched with your fingernail. On the Mohs scale of hardness (developed by Friedrich Mohs in 1822), gypsum is the second softest mineral.



Crystal Canyon is named for the many selenite crystals you can find here. The name selenite comes from the Ancient Greek word for moon. Selenite crystals also come in many forms, like lozenge-shaped prisms, elongated "swords," rosettes called desert rose, and "swallow tail" twins. While usually colorless and transparent, selenite crystals can gain color from the presence of other particles (like iron, sand, and clay).



5/1/20

February 2020



A graphic featuring two red curtains pulled back to reveal a dark blue, starry background. The text "The End" is written in a white, cursive font across the center of the scene.

The End

ROUNDTABLE DISCUSSION AND OTHER BUSINESS

NOW, IT'S YOUR TURN...



SCHEDULE FOR THE NEXT MEETING

Next meeting date:

Tentatively: July 30, 2020, at 9:30 a.m.

NCTCOG Center Point II

Six Flags Conference Room

Virtual option will be available

Contact

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