



DIRECTOR OF ENGINEERING REPORT

March 18, 2020

District Engineering manages projects, consultants, contractors and equipment suppliers. Consultant reports and Project Managers reports are included in this section along with details regarding the status of the associated study, design, or construction projects.

ACTIVE PROJECTS

West Headworks Improvements:

| SCOPE: This project entails comprehensive upgrades to the screening and grit washing facilities on the west head works of the treatment facility. This portion of the facility covers roughly 45 percent of the Wastewater Treatment Facility's 125 MGD peak flow capacity. The project will include a new screen building with new screens and grit washers, replacement of the various carbon-based odor control units with a biological odor control filter and upgrades to pumps. | | | | | | |
|---|----------|----------|-------------------------------|-------------------|------------------|----------------------|
| Contractor: Plocher Construction, Inc. | | | | | | |
| Engineer: Donohue and Associates | | | | | | |
| Advertise | Pre-bid | Bid Open | Intent to Award / Final Award | Notice to Proceed | Pre-Construction | Scheduled Completion |
| 02/13/18 | 03/15/18 | 04/19/18 | 05/24/18 07/02/18 | 08/13/18 | 07/11/18 | 02/04/20 |
| Submittals Reviewed: 194 shop drawings submitted /194 complete | | | | | | |
| Requests for Information (RFIs): 50 received / 50 answered | | | | | | |
| Owner Requests for Proposal/Change Order (RFPCO): 13 issued / 0 outstanding | | | | | | |

○ **Key Activities:**

Construction is complete. Contractor has received arc flash labels and distributed them to Bodine for application. Expect this to be completed week of March 16, 2020.

Work was completed this month on the SCADA integration for the West Headworks Project. The SCADA work was performed by SDD integrator Jamey Oliver with SOP's, integration documentation, and QA/QC performed by Farnworth Group. The integration work went very smoothly and credit should be given to Jamey for his diligence and effort to make the integration successful. Jamey summarized the effort by indicating:

West Headworks Summary:

- Total tags created 807
- 75 tags for alarming
- 350 tags are being recorded in Historian
- Complete setup and programming of both new smart MCC's
- Updating documentation that came in wrong on the new MCC's
- Pictures created 15

Attached to this report is a manufacturer's case study for trustee review. It highlights the Odor Control Systems that SDD has installed over the last few years, including the West Headworks installation.

○ **Future Change Items:** *Final Change Order #04 is before the board for consideration.*

| | |
|---|---------------|
| 4-01 WCD - 06 – Relocate W1 water line by 003 building | + \$23,512.65 |
| 4-02 RFPCO-13 – Stabilizing brackets added to 003 Stair Tower | + \$ 4,122.98 |



DIRECTOR OF ENGINEERING REPORT

March 18, 2020

WYCKLES UPGRADES Project:

| | | | | | | |
|--|----------|----------|-------------|-------------------|------------------|----------------------|
| SCOPE: This project addresses the replacement of valves and appurtenances at 6 sludge inlets to the lagoons at the Wyckles facility along with site grading to address stormwater runoff on the NW corner of the westernmost lagoon. | | | | | | |
| Contractor: The BURDICK COMPANY Engineer: SDD | | | | | | |
| Advertise | Pre-bid | Bid Open | Final Award | Notice to Proceed | Pre-Construction | Scheduled Completion |
| 08/23/19 | 08/27/18 | 09/13/18 | 09/18/19 | 01/06/20 | 12/20/20 | 60 days 03/06/20 |
| Submittals Reviewed: 2 shop drawings submitted /2 complete Requests for Information (RFIs): 1 received /1 answered Owner Requests for Proposal/Change Order (RFPCO): 0 issued /0 outstanding | | | | | | |

- **Key Activities:** Work has been completed. Site clean-up is remaining.
- **Future Change Items:**

1-01 FO-01 – Install an additional 3” yard hydrant on East Lagoon Ramp. (T&M) + TBD

NON-CONSTRUCTION ACTIVITY

ADMINISTRATIVE OFFICE MASTER PLANNING:

Update: Staff reviewed a first draft of the Phase 2 report. Architectural Expressions (AEX) has provided an updated report which staff is currently reviewing.

Phase 3 (\$10,000) of this facility assessment will follow trustee review of Ph 2 and concurrence to proceed. Phase 3 is to perform a pre-design level study ranging from modifications and upgrades to the existing facilities to the possibility of a new facility, based on the space needs that were identified in Phase 2. The study includes a high-level cost opinion that provides context for the findings from Phase 1 and 2. A review of the existing lab space as a standalone structure is also included in Phase 3.

ARC FLASH STUDY

Industrial Technology Group (ITG) from Champaign, IL was awarded a professional services agreement on 01/22/2020 to update the main treatment plant ARC FLASH STUDY.

Update: Kickoff coordination meeting was held this last period with ITG and Bodine Electric. Bodine will be performing field measurements and field data gathering necessary to complete the study.

RAS Pump Station Valve Replacement

E.L. Pruitt Co was notified this last period that they would be awarded the work for changing out the valves in the RAS pump station. Staff has been waiting for a knife gate valve to arrive before scheduling a draw down test of the pump station. All valves have now been received and as maintenance/operations have time and weather permits; draw down isolation test will be performed.

Primary Clarifier 01 Concrete Repairs

GRS General Contractors has been providing shop drawings/submittals for review and approval. There are currently no submittals waiting for review. Submittals should be finished in the next couple of weeks and contractor will be ready to mobilize.



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March 18, 2020

UPCOMING PROJECTS:

Wyckles Decant Upgrades: Staff is considering different operating alternatives now that the operation of the valves around the lagoons have been upgraded.

Sodium Bisulfite Tank Replacement: <<No Update>> Development of project plans to replace the two sodium bisulfite tanks is ongoing.

Sewer Cleaning Project: Update: The 2019 pre-cleaning contract included 25,000 LF of which approximately 5000 LF will require heavier cleaning. The heavier cleaning contract specifications have been completed and are undergoing QA/QC review at this time.

South Shores Interceptor Lining: Update: SDD has IEPA approved Facility Plans for this lining work. To participate in revolving loan funding through IEPA, staff is required to submit a "Funding Nomination Form (FNF)" for the work; after which IEPA will priority rank the project for funding. Staff submitted the FNF this month. Staff is considering the need to prepare a Request for Proposals for firms to provide engineering services for the South Shores Interceptor Lining project. The access to this interceptor is complex due to the interceptor location (proximity to Lake Decatur and inaccessibility of manholes).

Lake Shore Pump Station Rebuild: Update: RFP was distributed to 5 engineering firms all of whom attended a pre-submittal conference on 3/5/2020. The proposals are due 4/1/2020 after which proposals will be evaluated and design firm selected for this update. Note: Lake Shore pump station was originally built in 1953, modified in 1976, and subsequently modified again in August 2000 when a force main was installed by ADM to bypass the flow around the pump station. The original design of the pump station was for the 4 shaft driven pumps with the drive motors upstairs and the pumps 2 stories below. Staff has modified the pumps to be dry pit submersible style pumps to improve the reliability of the pumps, however access to the lower level is restricted and the pipe gallery is undersized and is a very difficult environment to perform any maintenance. Access to the wet-well is through a side entry door which requires a confined space entry and houses valves that are difficult to access. This pump station is scheduled for rebuild.

INTERGOVERNMENTAL ACTIVITIES

Provided Pump Station and Interceptor capacity information to Economic Development Corporation.

PROPOSED BOARD ACTION

For the Board's consideration from the Engineering Dept this meeting:

1. Change Order #4 – West Headworks Improvements

Further details can be found in respective Summaries of Motion.

If there are any questions, please contact me by telephone at 422-6931 ext 216, or by email at DonM@sddcleanwater.org.

Sanitary District of Decatur
501 Dipper Lane * Decatur, Illinois 62522 * 217/422-6931

MEMORANDUM

TO: Don Miller

DATE: March 13, 2020

FR: Roger Dudley

RE: Wyckles Facility Upgrades

- Contractor – Burdick Plumbing & Heating – Decatur, IL
- Project is complete with general cleanup and final payment remaining to closeout project.
- Additional fire hydrant has been added to the contract to facilitate the washing/cleaning of the unloading ramp located at the northwest corner of the east lagoon.
- Project completion date – March 6, 2020.

Sanitary District of Decatur
501 Dipper Lane * Decatur, Illinois 62522 * 217/422-6931

MEMORANDUM

TO: Don Miller

DATE: March 13, 2020

FR: Roger Dudley

RE: Clarifier #1 Concrete Repair

- Contractor – GRS General Contractors
- Contract amount - \$23,120.00
- Scope of work:
 - Repair deteriorated concrete & seal vertical cracking along the outside wall of the clarifier launderer.
- Insurance certificate has been submitted and approved.
- One (1) submittal (reinforcement) has been approved and returned.
- Engineering Department awaiting additional submittals for approval.
- Contractor has stated that reinforcement delivery in approx. 1 week.

Integrity Municipal Systems' Biological Odor Control Systems Successfully Eliminate Odors at Multiple Locations of the Sanitary District of Decatur, Illinois

Since 1917, the Sanitary District of Decatur has been the wastewater treatment authority for central Macon County, Illinois. The District provides wastewater treatment for the residents and industries in Decatur, Mt. Zion, Forsyth, Argenta, and Oreana. The original treatment facility was built in 1924 and the current treatment plant was completed in 1990. Prior to 2019, about a half dozen carbon adsorber systems handled the odor control for the east side of the plant, which is located adjacent to a nearby neighborhood. The high concentrations of hydrogen sulfide (H₂S) being treated made it very difficult to keep the carbon absorber systems online.

The IMS I-BOx® 8015 systems selected by the District feature superior performance, compact plug-and-play design, long lasting inert media, minimal routine maintenance, and low operating costs. The performance of the IMS biological odor control systems prompted the District to install additional IMS systems in 2019 when it came time to replace the existing carbon adsorber systems on the east side of the facility. Having virtually no issues with IMS' systems for nearly five years, the District and design engineering firm Donohue & Associates jointly determined to use them for the second project. Plocher Construction installed the systems.

“Working with IMS on this project has been an absolute pleasure. The two Biological Odor Control Units arrived on time and the installation process went smoothly. IMS’ staff proved to be professional and helpful during the installation and startup process, which is always appreciated.”

Kaleb Kampwerth
Project Manager
Plocher Construction

The carbon media needed replacement and disposal approximately every three months, leading to high operating costs. During the planning stages for new construction on the west side of the plant, the District investigated various biological odor control technologies in a search of better alternatives. The District settled on biological odor control systems over carbon adsorber systems for two major reasons: First, the District knew from experience that carbon adsorber systems require costly and frequent carbon media replacement; and Second, the efficiency, ease of operation, and low operating cost of biological odor control systems appealed to the District.

In 2015, the District and design engineering firm Clark Dietz, Inc. selected Integrity Municipal Systems LLC (IMS) from among several suppliers to provide two innovative, environmentally-friendly, and sustainable biological odor control systems for the new west side of the plant.



I-BOx® 8015 Biological Odor Control Systems
Installed in 2015



I-BOx® 8020 Biological Odor Control Systems
Installed in 2019

I-BOx® biological odor control systems are pre-assembled, piped, wired, and factory-tested for easy installation and fast start-up at the jobsite. The packaged biological odor control systems consist of an FRP air exhaust fan, FRP odor control vessel, water and nutrient feed panel, nutrient tank, and electrical control panel.

The fans operate continuously and pull foul air from the process area into the biological odor control systems for treatment before release to the atmosphere. The systems use a single biological stage, where the treatment occurs, to remove hydrogen sulfide (H₂S) by providing an environment that promotes the natural growth of acidophilic, sulfur-oxidizing bacteria. The media is an inert, porous, mineral-expanded clay material designed to resist compaction and degradation from the acidic sulfates produced by the biological oxidation of the hydrogen sulfide.

An intermittent water irrigation system is incorporated into the biological system design to provide the media with adequate moisture. Nutrients are also trickled over the media to enhance and sustain the biological activity. The nutrients are commercially available fertilizers stored in an integral nutrient tank and dosed into the system by a nutrient pump mounted in the water and nutrient feed panel. Water and acidic sulfate byproducts washed from the media leave the system through the drain piping at the bottom of the vessel and are returned to the sewer main.

After delivery to the jobsite, the I-BOx® biological odor control systems were installed and started-up. The system specifications require 95% and 80% minimum H₂S removal efficiencies during the summer and winter months respectively. The systems have far exceeded these specifications, averaging more than 99% H₂S removal efficiencies since being placed in operation.

Minimal maintenance keeps operating costs low. The I-BOx® 8015 and I-BOx® 8020 biological odor control systems solved the odor control problem at the Sanitary District of Decatur and will provide Macon County with reliable, efficient, cost-effective and sustainable odor control technology now and for years to come.

Table 1: SYSTEM DESIGN PARAMETERS

| System Design Information | |
|--|---------------------------|
| Model | I-BOx® 8015 / I-BOx® 8020 |
| Design Air Flow Rate | 3,000 cfm / 3,750 cfm |
| Number of Units | 2 / 2 |
| Avg. Inlet H ₂ S Concentration, ppm | 100 ppm / 50 ppm |
| Peak Inlet H ₂ S Concentration, ppm | 400 ppm / 100+ ppm |
| Minimum H ₂ S Removal Efficiency (S/W)* | 95%/80% / 95%/80% |
| System Dimensions | |
| Length | 19' / 25' |
| Width | 8' / 8' |
| Height (SSH) | 7' / 7' |
| Shipping Weight | 37,000 lbs / 48,000 lbs |
| Operating Weight | 42,000 lbs / 56,000 lbs |
| Nutrient Tank and Metering Pump | |
| Nutrient Tank Capacity | 82 gal / 118 gal |
| Nutrient Metering Pump Flow Rate | 4.2 gpd / 2.6 gpd |
| Water Feed | |
| Solenoid Frequency | Every 30 min (each) |
| Solenoid Valve Open Duration | 4.9 min / 4 min |
| Flow Rate | 18 gpm / 18 gpm |

* (S/W) = Summer/Winter H₂S Removal Efficiencies
Both vessels are fully insulated for the cold weather.

SANITARY DISTRICT OF DECATUR

501 Dipper Lane Decatur, IL (217) 422-6931

MEMORANDUM

TO: Kent Newton

FROM: J. D. Malone

DATE: 3/12/2020

SUBJECT: Maintenance Monthly Activity Report for February 2020

Overall

The three vehicles (2 trucks and 1 van) that were approved to be purchased at the November 2019 board meeting have been ordered. According to our latest update, Ford Transit Van and Ford F150 Super Cab have approximately 4 weeks of lead time remaining. Dynagraphics installed vehicle graphics on the new Silverado and new trailer jetter. I will have them parked in front of the administration building for viewing prior to or after the board meeting.

I am pursuing a replacement for our 2006 F450 service body truck. No update on the approval of the state bid contract for this month. The money allocated for this purchase has been carried over to the next fiscal year due to the delay.

Crown Equipment supplied the lowest quote for the used forklift and required charger for the new inventory area. This unit will be used, but fully refurbished with a 1-year warranty parts / labor.

Work Orders Completed, Total of 1070

73 Corrective

8 Improvement / New

934 PM

0 Process

0 Project

15 Safety

2 Training / Meeting

1 Asset Management

37 Proactive Work / Issues found during a PM

SANITARY DISTRICT OF DECATUR

501 Dipper Lane Decatur, IL (217) 422-6931

MEMORANDUM

I&C Monthly Activity

Final set up and testing of all required systems for the upcoming disinfection season is under way now. The I&C and maintenance groups have been working together to install the new flow meters and verify proper operation.

March 2nd through March 6th Allen Bradley was on site to perform a customized training course for the entire I&C group. The training consisted of Studio 5000 Logix Designer Level 1, ControlLogix Fundamentals & Troubleshooting, and PowerFlex 750 Configuration and Startup classes. Feedback from I&C staff on the training was very positive. The material covered was all applicable to our installed base of equipment.

Mechanical Maintenance Monthly Activity

Eastside Booster Pump #3 was repaired by Bodine Electric and installed by the outside maintenance crew. Pump #4 had to be pulled due to a vibration / impeller fitment issue. This unit will be repaired under warranty.

Installation of pump #2 at the Fairies Park pump station will require installation of a new 8-inch check valve and 8 to 10-inch reducer. Parts are on order and should be in soon with pump installation completed late March 2020.

The program for our Laborer's in-training is progressing well, and the employees are being familiarized with all facets of our plant / collection system. All three employees now have obtained their Class B CDL licenses and can proceed with training in other departments. Tiwanun Hill is currently working with the outside maintenance crew to become more familiar with the outside pump stations / facilities.

M.I.S. Department Monthly Update

- Network Administration, Helpdesk, Troubleshooting and Repair
 - Ongoing network administration.
 - Work on SDD surveillance system
 - Ongoing replacement of SDD virtual servers
 - Ongoing SDD Network rebuild
 - Coordinated multiple CMMS software demonstrations for staff review of each package.

SANITARY DISTRICT OF DECATUR

501 Dipper Lane Decatur, IL (217) 422-6931

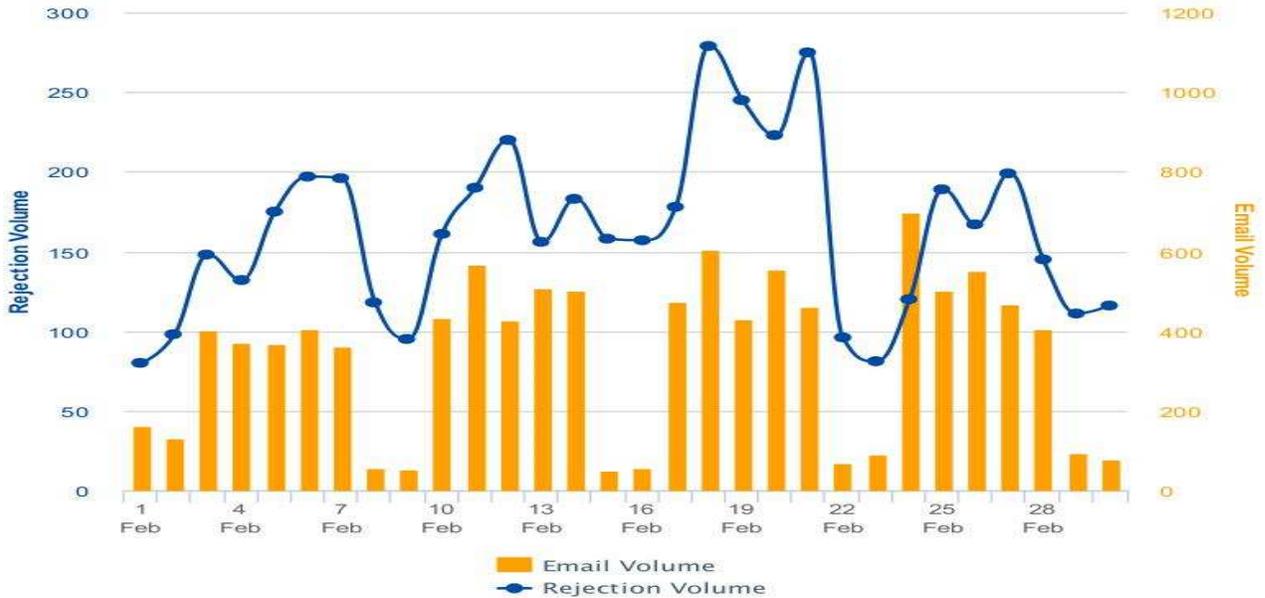
MEMORANDUM

Mimecast Email Security

Email Volume Vs Rejected Mail

From 1 Feb 2020 To 1 Mar 2020

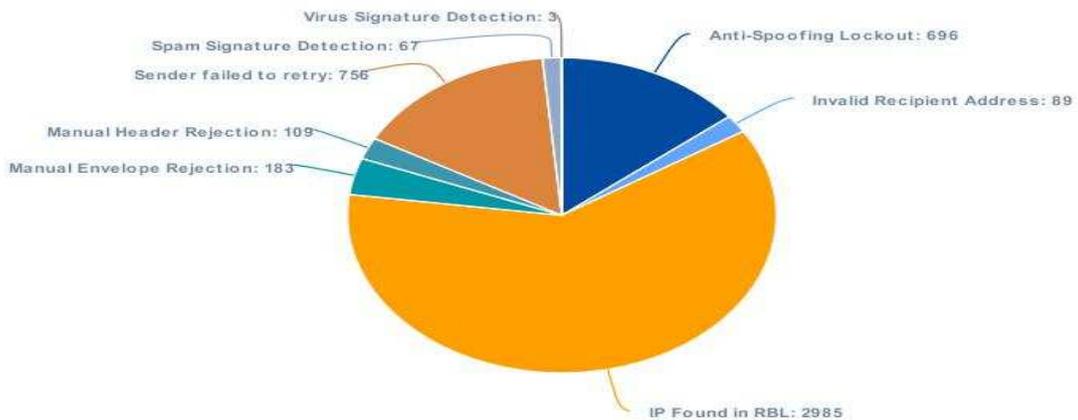
Total Email Count : 10331 Total Rejection Count : 4888



Rejection Overview

From 1 Feb 2020 To 1 Mar 2020

Total Rejection Count : 4888



SANITARY DISTRICT OF DECATUR

501 Dipper Lane Decatur, IL (217) 422-6931

MEMORANDUM

Email Statistics Report

From Mar - 2019 To Feb - 2020

| Month-Year | Total Inbound email | Rejections (includes viruses & spam) | Legit Inbound Email | % Rejections | Total Outbound email | Total Internal email |
|--------------|---------------------|--------------------------------------|---------------------|----------------|----------------------|----------------------|
| Mar - 2019 | 5,223 | 1,623 | 3,600 | 31.07 % | 1,033 | 5,446 |
| Apr - 2019 | 6,218 | 2,066 | 4,152 | 33.23 % | 1,446 | 5,885 |
| May - 2019 | 6,263 | 2,308 | 3,955 | 36.85 % | 1,495 | 5,200 |
| June - 2019 | 6,453 | 3,182 | 3,271 | 49.31 % | 1,373 | 4,314 |
| July - 2019 | 8,068 | 4,514 | 3,554 | 55.95 % | 1,325 | 4,865 |
| Aug - 2019 | 9,209 | 5,540 | 3,669 | 60.16 % | 1,352 | 4,952 |
| Sep - 2019 | 19,087 | 15,377 | 3,710 | 80.56 % | 1,214 | 4,273 |
| Oct - 2019 | 17,123 | 13,201 | 3,922 | 77.10 % | 1,212 | 5,319 |
| Nov - 2019 | 8,292 | 5,050 | 3,242 | 60.90 % | 1,158 | 4,563 |
| Dec - 2019 | 7,676 | 4,476 | 3,200 | 58.31 % | 906 | 5,465 |
| Jan - 2020 | 6,604 | 3,281 | 3,323 | 49.68 % | 1,207 | 5,632 |
| Feb - 2020 | 8,553 | 4,772 | 3,781 | 55.79 % | 1,382 | 5,089 |
| Total | 108,769 | 65,390 | 43,379 | | 15,103 | 61,003 |
| Mean | 9,064.08 | 5,449.17 | 3,614.92 | 54.08 % | 1,258.58 | 5,083.58 |

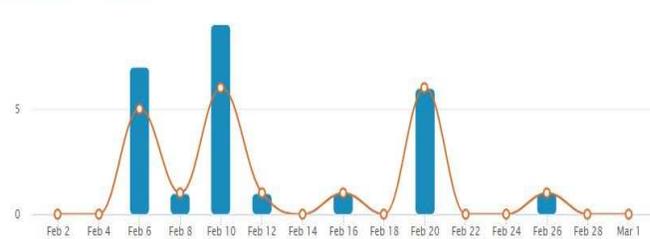
Vipre Endpoint Security

Threat Summary Report

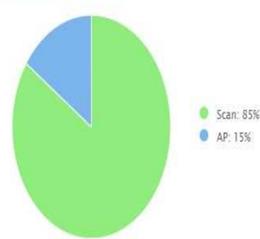
Export CSV

From Feb 1, 2020 9:16 AM to Mar 1, 2020 9:16 AM

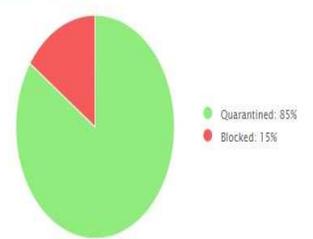
INSTANCE VS. DEVICES



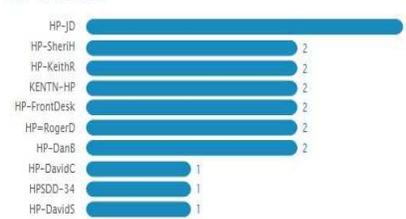
DETECTION SOURCES



ACTIONS TAKEN



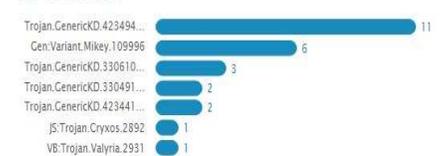
TOP 10 DEVICES



SEVERITY BREAKDOWN



TOP 10 THREATS



DETECTIONS

| TIME | NAME | SOURCE | SEVERITY | DEVICE | POLICY | ACTION TAKEN |
|----------------------|---------------------------|--------|----------|-----------|--------------|--------------|
| Feb 27, 2020 2:31 PM | JS:Trojan.Cryxos.2892 | AP | Severe | HP-Davids | Workstations | Blocked |
| Feb 21, 2020 9:03 PM | Gen.Variant.Mikey.109996 | Scan | Severe | HPSDD-35 | Workstations | Quarantined |
| Feb 21, 2020 9:02 PM | Gen.Variant.Mikey.109996 | Scan | Severe | HPSDD-36 | Workstations | Quarantined |
| Feb 21, 2020 9:00 PM | Gen.Variant.Mikey.109996 | Scan | Severe | HPSDD-39 | Workstations | Quarantined |
| Feb 21, 2020 9:00 PM | Gen.Variant.Mikey.109996 | Scan | Severe | HPSDD-37 | Workstations | Quarantined |
| Feb 21, 2020 9:00 PM | Gen.Variant.Mikey.109996 | Scan | Severe | HPSDD-34 | Workstations | Quarantined |
| Feb 21, 2020 9:00 PM | Gen.Variant.Mikey.109996 | Scan | Severe | HPSDD-38 | SCADA | Quarantined |
| Feb 17, 2020 7:12 AM | Trojan.GenericKD.42344163 | Scan | Severe | HP-JD | Workstations | Quarantined |

SANITARY DISTRICT OF DECATUR

501 Dipper Lane Decatur, IL (217) 422-6931

MEMORANDUM

Systems Integrator Monthly Update

- West Headworks upgrade project - completing documentation and minor adjustments to running program per operations
- Added historical data dating back to 2010 into the new historian server, backed up old data for storage
- Created new trends for the West Headworks
- Worked with Farnsworth on the SOP for the West Headworks
- Started updating the SOP for the East Headworks along with adding new sections
- Adding documentation to the 259 Nitrification Return Pump Station

If you have any questions or would like additional information about the maintenance department and our activities, feel free to contact me.

Thank you,

James Malone, CPMM

Phone: (217) 422-6931 (x-226)