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ARCADIS
855 Route 146
Suite 210
Clifton Park
New York 12065
Tel 518 250 7300
Fax 518 250 7301

Transmittal Letter

To:
Ms. Ruth Curley
NYSDEC, Remedial Bureau B
625 Broadway, 12th Floor
Albany, NY 12233

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Charles Trione, Lockheed Martin
James Zigmont, CDM
Peter Milionis, ARCADIS
Greg Rys, NYSDOH
Dale Truskett, Lockheed Martin
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Date:
March 29, 2012

Subject:
2011 Annual Groundwater Collection and Treatment System Operation, Maintenance & Monitoring Report

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2011 Annual Groundwater Collection and Treatment System Operation, Maintenance, and Monitoring Report

Former Lockheed Martin French Road Facility Utica, New York

March 2012

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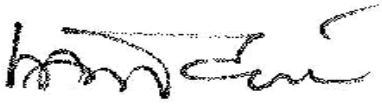
Todd Carignan
Project Engineer

Jeffrey Bonsteel
Associate Project Manager

Peter Milionis, P.G.
Project Manager



Moh Mohiuddin, Ph.D., P.E., BCEE
Principal Engineer/Engineer of Record
NY PE License #074527-1

2011 Annual Groundwater Collection and Treatment System Operation, Maintenance, and Monitoring Report

Former Lockheed Martin French Road Facility, Utica, New York

Prepared for:
Lockheed Martin Corporation

Prepared by:
ARCADIS of New York, Inc.
855 Route 146
Suite 210
Clifton Park
New York 12065
Tel 518.4518.250.7300
Fax 518.250.7301

Our Ref.:
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Date:
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Acronyms

CB	catch-basin
cfm	cubic feet per minute
CO	“Order on Consent”
CVOCs	chlorinated volatile organic compounds
DAR	Division of Air Resources
ft	feet
GCTS	groundwater collection and treatment system
gpm	gallons per minute
HDPE	high-density polyethylene
HOA	hand-off-auto
hp	horsepower
in	inch
In. W.C.	inches of water column
lb	pounds
MH	manhole
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operations and maintenance
OM&M	operation, maintenance, and monitoring
PLC	programmable logic controller
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
RCP	Reinforced-concrete pipe
RL	reporting limits
SCFM	standard cubic feet per minute
SCH	schedule
SOP	standard operating procedure
SPDES	State Pollutant Discharge Elimination System
USEPA	United States Environmental Protection Agency
VOA	volatile organic analysis
VOCs	volatile organic compounds
WTC	water treatment chemical

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1. Introduction

This *Groundwater Collection and Treatment System Operation, Maintenance, and Monitoring Report* was prepared by ARCADIS for Lockheed Martin Corporation (Lockheed Martin), in accordance with the DRAFT *Site Management Plan for the Solvent Dock Area* (ARCADIS 2009) at the Former Lockheed Martin French Road Facility (herein referred to as the "site") in Utica, New York (Figure 1). All work was performed in accordance with the October 3, 2008 "Order on Consent" (CO 6-20080321-5) issued by the New York State Department of Environmental Conservation (NYSDEC). This report summarizes the operation, maintenance, and monitoring (OM&M) of the groundwater collection and treatment system (GCTS) between January 1 - December 31, 2011. The data summary includes a review of influent and effluent system sampling, analysis of key operating parameters (e.g. flow rates, pressures, system run-time, and maintenance activities), and any modifications and recommendations related to continued system operation and monitoring.

1.1 System Upgrades

In March 2011, Lockheed Martin finished implementing upgrades to the GCTS, in accordance with the NYSDEC-approved *Groundwater Collection and Treatment System 100% Design Work Plan* (ARCADIS 2010). As part of these upgrades, the following major GCTS modifications were made:

- A third manhole, MH-3 was installed;
- The existing air stripper was replaced with a new and more efficient model;
- Vapor phase carbon treatment was installed post the new air stripper unit;
- The control system and logic were upgraded in relation to the equipment modifications noted above; and
- Water treatment chemical (WTC) was integrated into the system in order to control mineral deposits, most notably calcium carbonate and manganese.

Remedial operation and progress achieved by ARCADIS during this reporting period are summarized in the following sections.

2. Groundwater Collection and Treatment System Description

The GCTS is designed to collect groundwater contaminated with chlorinated volatile organic compounds (CVOCs) from the former Solvent Dock Area and former northern-perimeter ditch area and transport it to a treatment building where the VOCs are removed by a low-profile air stripper. Following treatment, groundwater is discharged via gravity to the local municipal storm drain under a NYSDEC "State Pollutant Discharge Elimination System" (SPDES) permit (permit No. NY-0121894). The system is designed to operate automatically and requires only periodic inspections and maintenance. An automated system operation log is sent daily via e-mail to the project engineer to verify operation. A more detailed explanation of the GCTS appears below.

Groundwater in the former Solvent Dock area (MH-2 and MH-3) and former northern-perimeter ditch area (MH-1) is captured by separate perforated-pipelines and flows via gravity to collection manholes. Groundwater is then pumped (batch mode) from each manhole through subsurface double walled pipelines to the GCTS building for treatment before being discharged to the local municipal stormwater collection system. The groundwater is treated with a low-profile air stripper, which removes the dissolved-phase CVOCs.

During air stripping, contaminated water enters the air stripper at the top and ambient air enters from the bottom. The groundwater flows over four trays in series where CVOCs are transferred from the aqueous phase (i.e., water) to the vapor phase (i.e., counter-current air stream). The air stream (off-gas) is treated using granular activated carbon before discharge to the atmosphere. A GCTS site plan is illustrated in Figure 2, and the GCTS process and instrumentation diagram record drawing showing sampling locations is provided in Appendix A.

2.1 Major System Components

Major components of the system are as follows:

- MH-1: 6-ft diameter and 13-ft deep pre-cast concrete pumping-manhole equipped with the following components:
    - Two ¾ horsepower (hp) submersible pumps;
    - Five associated float-switches;
    - 2-in/4-in diameter double walled HDPE discharge-piping; and

  - Gravity Collection Drain - 670 feet (ft) of 8-inch (in) diameter perforated high-density polyethylene (HDPE) pipe installed in a 4–6-ft deep, stone-filled collection trench located parallel to the former northern-perimeter ditch.

- MH-2: 6-ft diameter and 18-ft deep pre-cast concrete pumping-manhole equipped with the following components:
  - Two ¾ hp submersible pumps;
  - Five associated float-switches;
  - 2-in/4-in diameter double wall HDPE discharge piping; and
  - Gravity Collection Drain - 70 ft of 6-in diameter perforated HDPE-pipe installed in a 16-ft deep, stone-filled collection trench located adjacent to the former Solvent Dock area;
- MH-3: 6-ft diameter and 17-ft deep pre-cast concrete pumping-manhole equipped with the following components:
  - Two ¾ hp submersible pumps;
  - Five associated float-switches;
  - 2-in/4-in diameter double wall HDPE discharge piping; and
  - Gravity Collection Drain - 70 ft of 6-in diameter perforated HDPE-pipe installed in a 16-ft deep, stone-filled collection trench located adjacent to the facility stormwater drainage line within the former Solvent Dock area.
- Pre-Engineering Metal Building: A 24-ft 8-in by 20-ft pre-engineered metal treatment-building set on a concrete foundation and slab equipped with a secondary containment- dike and floor sump;
- Programmable Logic Controller (PLC) and motor control panels for the air stripper, duct heater, and manhole pumps;
- Air Stripper: Low profile, stainless steel air stripper rated for a maximum flowrate of 120 gallons per minute (gpm);
- Liquid Phase Discharge: 60-ft of 4-in diameter schedule (SCH)-40 polyvinyl chloride (PVC) gravity-discharge pipe from the air stripper effluent to the local municipal stormwater collection and drainage system [30-in diameter reinforced-concrete pipe (RCP)];

- Duct Heater: Inline duct heater rated at 600 standard cubic feet per minute (SCFM);
- Vapor Phase Treatment Vessels: 2-1000 pound (lb) activated carbon vessels that discharge the treated air stripper off-gas through an exhaust-duct made of PVC (interior) and stainless steel (exterior) that extends approximately 28-ft above the ground surface; and
- Chemical Feed System: Aries Chemical sequestering agent 2908 is injected into the influent groundwater stream for mineral deposit control using a LMI chemical feed pump model AA941-353 BI, equipped with a LMI Digi-Pulse Meter model FM-200 rated for 0.05-5.0 ml/stroke. [Note: Approval for the WTC was received from NYSDEC on April 13, 2011. Usage of the WTC began on April 20, 2011.]

Record drawings for the GCTS are included in Appendix A. System components are described in more detail in the *Operational, Maintenance, and Monitoring Manual* (ARCADIS 2011).

3. 2011 Remedial Operational Objectives

The GCTS' overall remedial goal is to reduce the potential for groundwater contaminated with CVOCs to infiltrate the facility's storm drainage system (Figure 2) before its contents eventually discharge to Nail Creek. The GCTS' operational objectives are to:

- Maintain and operate the system continuously without significant downtime;
- Demonstrate the GCTS' effectiveness in preventing infiltration of CVOC contaminated groundwater into the site facility's storm drain;
- Demonstrate that the air stripper is removing CVOCs from the influent groundwater streams before being discharged into the local county storm drain system, in compliance with the site's SPDES permit;
- Demonstrate that vapor phase discharge from the air stripper complies with NYSDEC Division of Air Resources (DAR-1); and
- Achieve the site specific goal of 95 percent (%) mass removal of target VOCs (i.e., TCE and daughter products including 1, 2-DCE) in the system vapor effluent.

4. Operation and Maintenance Activities

The GCTS operated nearly continuously between January 1 - December 31, 2011 (run time was approximately 88%, or 348 of 365 days), with minor scheduled routine maintenance and/or operational interruptions due to system alarm conditions. It should be noted that the planned implementation of the system upgrades during the January and February reporting periods resulted in most of the system down time for the 2011 reporting period. The cumulative run time for the second, third, and fourth quarters was approximately 97%.

The system was inspected either by physical site inspections, remote computer monitoring, and/or via review of the daily system operation e-mails during the reporting period. System operating-parameters are recorded during monthly site inspections and compliance sampling events. The GCTS operational summary is provided in Table 1.

4.1 Daily Routine System Inspections

Daily remote system monitoring of the system was performed during 2011. Monitoring included review of the daily system operational e-mails to confirm that the system was operational, that all system variables were within their allowable ranges, and that no alarm conditions were present.

4.2 Monthly Routine System Inspections

This section summarizes the activities completed during the operations and maintenance (O&M) monthly site visits. These activities were recorded on the “Monthly O&M Checklists” (attached as Appendix B).

Air Stripper:

- Observe the air stripper for any visible leaks;
- Clean air stripper aeration trays and sump (as required);
- Observe the blower for proper operation;
- Inspect the air stripper trays via the glass door and record and noted deposits; and

- Record the gauge pressure and level readings on the log sheet for the following:
    - Air stripper sump;
    - Differential pressure across the air stripper trays; and
    - Air stripper-sump water level.

Flow Meters:

- Observe the flow meters to ensure they are operating properly and cleaned them, as necessary; and
- Record the monthly and permanent totalizer readings.

Vapor Phase Equipment:

- Inspect the duct heater for proper operation;
- Record pre-duct heater and carbon vessel temperatures;
- Inspect the carbon vessels for any signs of leaks; and
- Record pressures before the lead vessel, and between the lead and lag vessels.

Control Panels:

- Test hand-off-auto (HOA) switches for proper operation; and
- Test power and pump-run lights.

Water Treatment Chemical:

- Inspect chemical feed pump and associated tubing for any signs of leaks;
- Record and date remaining chemical level in drum on a monthly basis; and
- Track chemical consumption and dosing rates on a monthly basis.

Pumping Manhole Inspections:

- Check the HDPE double-walled pipe for flow entering the manhole from the outer containment pipe, which could indicate a discharge pipe leak;
- Check the floats to ensure they are hanging properly and unobstructed;

- Observe groundwater in the manhole for any unusual odors, water clarity, etc; and
- If the pump(s) are running, listen for unusual sounds and inspect the discharge piping in the manhole for leaks.

Miscellaneous O&M:

- Observe all treatment-building piping for signs of leaks;
- Exercise MH-1, MH-2, and MH-3 influent ball valves to clean any mineral deposits in order to maintain full operational range of the valve;
- Check the building unit heaters and thermostats, adjust as necessary; and
- Inspect all health and safety related equipment and replace as necessary.

4.3 Quarterly System O&M and Inspections

This section describes activities completed during the O&M quarterly critical device testing. These activities were recorded on the "Monthly/Quarterly O&M Checklists" (attached as Appendix B). The system was temporarily turned on and off for several hours, per event in February, April, July, and October 2011 to perform critical-device testing. These devices were tested for proper operation as described in the *OM&M Manual* (ARCADIS 2011) standard operating procedures (SOPs). Below is summary of each event:

- February 2011 – All critical devices were calibrated and tested during the startup and shakedown of the system. Each device was successfully brought into operation. Specific details of device testing results and date completed can be found in the *Remediation System Startup Checklist – Operational Readiness Review* (ARCADIS 2011).
- April 4 and 5, 2011 – All critical devices passed.
- July 7 and 8, 2011 – All critical devices passed.
- October 7, 2011 - All critical devices passed.

4.4 Non-Routine Operation and Maintenance Activities

The following non-routine system O&M activities were performed between January 1 and December 31, 2011:

- An oily substance was identified on the water surface within manhole MH-2 during the monthly site inspection on March 22, 2011. Upon making this observation, ARCADIS notified Lockheed Martin and NYSDEC, and temporarily turned off the pumps in the manhole in order to investigate the source. ARCADIS collected a sample of the oily substance on March 23, 2011 and submitted the sample to TestAmerica Laboratories for a petroleum fingerprint analysis. The analytical results indicated that the sample was a close match to generic motor oil, indicating that the source was most likely attributed to the manhole pump non-contact cooling oil. The source of the oil was later confirmed when one of the original pumps ("pump B) oil fill/drain plug was found partially deteriorated and no oil was present in pump (i.e. the total volume of oil had leaked out into manhole). The MH-2, Pump B replacement pump was reinstalled on April 20, 2011. In addition, the manhole and system components within MH-2 were pressure washed to remove any residual oil. The oil/water mixture was then removed from the manhole and disposed of off-site in accordance with Lockheed Martin and regulatory policies and procedures.
- As a result of the MH-2 Pump B failure, a replacement pump for the MH-1 Pump B was also installed on April 20, 2011 as a preventative measure because this pump was equipped with the same type of oil plug that had failed in the other pump.
- On June 24, 2011, fouling of the chemical feed injection port was identified. The fouling consisted of the WTC solidifying in discharge tubing and the injection port. The injection port and adjacent tubing were cleaned and re-installed. Additionally, the low chemical feed flow set point was modified from 8 to 50 cycles in order to minimize nuisance alarms.
- On November 26, 2011, the MH-2 Pump A was found to be recirculating water back into the manhole through Pump B due to a faulty check valve. The check valve was removed, cleaned, and replaced on December 8, 2011.
- On December 15, 2011, an intrinsically safe relay switch for MH-1's low float switch was found to be faulty. This was replaced on December 29, 2011.

Several changes to critical device set points were made during the 2011 reporting period as a result of the new system installation. The latest set points (i.e. operational and alarm) have been documented in the OM&M Plan, revised Tables (ARCADIS 2012).

4.5 Alarm Conditions and System Modifications

Several fatal alarm conditions occurred between January 1 - December 31, 2011. The cause of each system alarm and corresponding corrective action are summarized in Table 1. Alarm logs and response sheets are provided in Appendix C. Below is a summary of fatal alarms and corrective actions including and system modifications that were made during the reporting period:

- On January 31 through February 19, and March 14 through March 26, 2011, during the initial operational period of the new upgraded system, several low (Process 32) and high (Process 42) air stripper sump alarms were observed. As a corrective action, several adjustments were made to the air stripper blower damper setting and liquid phase gravity discharge stack height.
- On February 8, 2011 (during the startup and shakedown period) high pre-carbon temperature alarm (Process 46) was observed following any automatic system shutdown. A time delay was placed in the PLC so that the duct heater shutoff 2 minutes prior to the blower in order to remove most of the residual heat from the duct heater.
- On February 24 and 26, 2011, a low pre-carbon temperature alarm (Process 47) was observed. The corrective action for this condition included reprogramming the PLC so that the duct heater shut off concurrently with the blower, and modified the programming to ignore the alarm condition when the system was not actively processing water.
- On June 11 and July 9, 2011 power outages occurred. The system was restarted after a physical inspection in both instances.
- As a result of the power outages on June 11 and July 9, 2011, low pre-carbon temperature alarms (Process 47) were observed on June 12 and July 12, 2011, respectively. These alarm conditions were the result of the duct heater losing power and required a local reset at its main control panel.
- On November 21, 2011, the PLC reset to manual and the site configuration file (i.e. line logic and operational set points) was found to be corrupted. The PLC was reconfigured with the latest backup site configuration file, and the system was restarted on November 23, 2011. The PLC manufacturer indicated that the most likely cause of the faulty PLC was linked back to an interrupted remote re-configuration of the PLC that occurred the week prior.
- On December 8, 11, and 13, 2011, high pre-carbon temperature alarms (Process 46) were observed. Following a review of the data logger files and

physical inspections of the duct heater and temperature transmitters, no apparent causes of the alarms could be determined. As a result, the high alarm set point was increased from 105 to 110 F. The system was restarted and monitored remotely for normal and safe operation.

- On December 14, 2011, a high air flowrate alarm (Process 45) was observed. A possible cause for the alarm condition was due to possible drifting of the flow transmitter and/or moisture on the Pitot tube. As a result of the alarm condition a high alarm set point was increased from 1000 to 1100 cubic feet per minute (cfm).
- Several non-fatal alarms were observed during the 2011 reporting period, including failed daily fax logs and low flow meter flows, these non-fatal alarms and the associated corrective actions (if applicable) are documented in Appendix C.

5. Analytical Monitoring Activities

This section summarizes the monthly GCTS compliance sampling and monitoring activities completed during the reporting period.

5.1 System-Effluent Monitoring

The treatment system discharges to an Oneida County storm drain under the terms of an SPDES permit (permit No. NY-0121894). As required by the SPDES permit, effluent grab-water samples were collected monthly from the treatment system. One effluent grab-sample was collected monthly from the treatment-system-effluent sampling-port SP-100 (designated by NYSDEC as “Outfall #2”), located on the 4-in diameter air stripper liquid phase effluent line. The location of sampling port SP-100 is shown on drawing M-1 in Appendix A.

Samples were collected in 40-millimeter volatile organic analysis (VOA) vials supplied by a New York State Department of Health (NYSDOH)-certified laboratory. The sampling protocol for the effluent sample is included in the *Site-Specific Quality Assurance Project Plan* (QAPP) (ARCADIS 2009b). The samples were shipped on the day of collection via overnight delivery to TestAmerica Laboratories, Inc. in Amherst, New York. One laboratory trip-blank accompanied each water sample. All samples were analyzed for VOCs by United States Environmental Protection Agency (USEPA) Method 8260. The SPDES permit also requires monthly collection and analysis of a grab sample for pH. The pH is measured locally using a site-dedicated pH meter.

The system-effluent samples contained no detectable concentrations of VOCs above their respective laboratory reporting limits (RL) (as shown in Table 2) during the entire reporting period, with the exception of the February 2011 sample. This sample exhibited a concentration of 0.47 μg/L of trichloroethene. Although detected above laboratory RLs, this detection was significantly below the SPDES effluent limit of 10 μg/L.

The SPDES permit limits the systems effluent average daily discharge flow (over the course of a monthly reporting period) to 45 gpm. Effluent flow did not exceed this average during the reporting period. In addition, the pH recorded during the 2011 reporting period ranged from 6.9 to 8.2 standard units, and remained within the SPDES effluent limits of 6.5 to 8.5 standard units.

5.2 System-Influent Monitoring

Influent-water samples were collected as part of quarterly monitoring activities in February, April, July, and October 2011. Influent samples were collected from each influent-line (MH-1, MH-2, and MH-3) sampling-tap on the 2-in diameter influent lines before the influent water entered the air stripper. The sampling protocol and delivery method followed were identical to those for the SPDES compliance sampling.

The primary site-related CVOCs detected for MH-1 were:

- 1,1-Dichloroethane (4.20 μg/L in February, 2.7 μg/L in April, 8.5 μg/L in July, and 5.9 μg/L in October);
- cis-1,2-Diclhoroethene (30 μg/L in February, 19 μg/L in April, 43 μg/L in July, and 33 μg/L in October);
- Tetrachloroethene (23 μg/L in February, 18 μg/L in April, 26 μg/L in July, and 19 μg/L in October); and
- Trichloroethene (57 μg/L in February, 27 μg/L in April, 57 μg/L in July, and 29 μg/L in October).

The primary site-related CVOCs detected for MH-2 were:

- 1,1-Dichloroethane (1.9 μg/L in February, 3.5 μg/L in July, 2.6 μg/L, and 3 μg/L in October);

- cis-1,2-Diclhoroethene (7.6 μg/L in February, 12 μg/L in July, and 16 μg/L in October);
- Tetrachloroethene (2.6 μg/L in February, 2.8 μg/L in July, and 3.6 μg/L in October); and
- Trichloroethene (4.6 μg/L in February, 7.7 μg/L in July, and 7.5 μg/L in October).

The primary site-related CVOCs detected for MH-3 were:

- cis-1,2-Diclhoroethene (3.7 μg/L in January, 2.3 μg/L in February, 3.5 μg/L in April, 3.8 μg/L in July, and 3.1 μg/L in October);
- Tetrachloroethene (1.2 μg/L in January, 1.1 μg/L in February, 12 μg/L in April, 21 μg/L in July, and 23 μg/L in October); and
- Trichloroethene (4.2 μg/L in January, 5.6 μg/L in February, 9 μg/L in April, 19 μg/L in July, and 13 μg/L in October).

System influent analytical sampling results are summarized in Table 3.

5.3 Stormwater Monitoring

As outlined in the *Operational, Maintenance, and Monitoring Manual* (ARCADIS 2011), quarterly stormwater samples were collected from 3 catch basin (CB) locations at the site (identified as CB-1, CB-2, and CB-3; as shown on Figure 2). The quarterly stormwater samples contained no detectable concentrations of VOCs above their respective laboratory RLs (as shown in Table 4), with the exception of the April 2011 sample from stormwater sampling location CB-3. This sample exhibited a concentration of tetrachloroethene (0.51 μg/L). Although detected above laboratory RLs, these detections were below the applicable SPDES effluent limitations.

6. System Performance Results

Operational data collected during monthly system-operation inspections are summarized in the following sections.

6.1 Groundwater Recovery/Extracted Liquid Flowrate

The groundwater recovery/extraction-liquid flowrates for the 2011 reporting period are summarized in Table 5. These data include the average and cumulative recovered-groundwater and manhole-pump run-times. Total extracted-groundwater flow readings were collected from the totalizing flow-meters FT 101 (MH-1), FT 102 (MH-2) and FT 103 (MH-3). The average monthly system groundwater extraction flowrates from January - December 2011 are included in Table 5. The total flow recorded for manhole MH-1 was approximately 3,244,140 gallons, with a corresponding average recovery rate of 6.5 gpm. The total flow recorded for manhole MH-2 was approximately 561,515 gallons, with a corresponding average recovery rate of 1.1 gpm. The total flow recorded for manhole MH-3 was approximately 1,355,108 gallons, with a corresponding average recovery rate of 2.7 gpm. The resulting total annual flow for the GCTS was approximately 5,176,015 gallons of groundwater. The total flows recorded correspond to an average recovery rate of approximately 10.4 gpm over the entire 2011 reporting period.

6.2 Air Stripper Performance

The air stripper vapor flowrate was calculated using the differential pressure (post-carbon vessels) recorded during each monthly sampling event which is converted to volumetric flowrate using a transmitter. The vapor flowrate ranged from 583 to 784 standard cubic feet per minute (scfm) during the 2011 reporting period. These flow ranges correspond to a weighted average of approximately 672 cfm over the entire 2011 reporting period. The air stripper sump pressures ranged from 25 to 29 inches of water column (in.W.C.) during the 2011 reporting period. Monthly air stripper performance data are summarized in Table 5.

6.3 Air Stripper Emissions

The GCTS removed an estimated 21.3 lbs of total VOCs from groundwater during the 2011 reporting period. This value was calculated from the quarterly pre-carbon vapor analytical data and the average monthly air stripper effluent vapor flowrate. Quarterly estimated mass removal rate data are summarized in Table 6.

VOC removal efficiency of the carbon vessels was tracked throughout the 2011 reporting period. Both cumulative and target VOC percent removal was calculated by comparing the quarterly vapor influent, mid-carbon, and post-carbon analytical results. As noted in Section 3.0, the site specific goal for vapor phase treatment is a 95% mass

removal of target VOCs. Both the mid-carbon and effluent percent removals for target VOCs were calculated at 100% for the first three quarters of reporting period. A reduction in mass removal (88%) was calculated for the fourth quarter sampling event..

The VOC concentrations emitted in the air stripper (pre-carbon, mid-carbon, and post-carbon) were below the allowable annual-guideline concentration (AGC) values (as provided in NYSDEC DAR 1 tables) for each detectable compound. Short-term guideline concentration (SGC) values are not applicable as performance samples are only collected quarterly. Individual VOCs emitted and their estimated maximum allowable-mass flow-concentrations, as per NYSDEC DAR 1 guidance, are shown in Table 7.

6.4 Water Treatment Chemical Monitoring

As required under the terms of an SPDES permit (permit no. NY0121894), the volume WTC discharged on an annual basis is reported to NYSDEC in the December Monthly Discharge Monitoring Report. The total amount of WTC (i.e., Sequestering Agent - Aries 2908) discharged through the site Outfall 002 during the 2011 reporting was approximately 604 lbs. The total amount of WTC discharged corresponds to an average dosing rate of 17.6 ppm over the entire 2011 reporting period. Monthly WTC consumption, dosing rates, and date of recording are summarized in Table 8.

6.5 Stormwater Monitoring

As presented in Section 5.3, the quarterly stormwater samples contained no detectable concentrations of VOCs above their respective laboratory RLs (as shown in Table 4), with the exception of the April 2011 sample from stormwater sampling location CB-3. This sample exhibited a concentration of tetrachloroethene (0.51 μg/L). Although detected above laboratory RLs, this detection was below the applicable SPDES effluent limitations.

The general absence of constituents detected in the stormwater samples collected at the site continues to indicate that the GCTS is operating as designed and preventing the migration of impacted groundwater into the stormwater system at the locations sampled.

6.6 Groundwater Elevation Measurements

Groundwater elevation measurements are collected from site monitoring wells and piezometers as part of the quarterly O&M program. Groundwater elevations for the reporting period are included on Table 9.

As noted in previous reports for the site (including the *Corrective Measures Study Report*, ARCADIS, 2009a), the complexity of the groundwater elevations, due to the presence of the GCTS as well as the facility building, utility corridors, and natural conditions, makes contouring groundwater elevations difficult and inconclusive. However, based on the review of current elevation measurements, operation of the treatment system continues to maintain control of movement of groundwater and modified the direction of groundwater flow in select areas of the site.

7. 2012 Goals and Recommendations

The information presented in this report indicates that the systems will continue to operate as designed and outlined within the NYSDEC approved *Groundwater Collection and Treatment System 100% Design Work Plan* (ARCADIS 2010), and *Operational, Maintenance, and Monitoring Manual* (ARCADIS 2011). The recommendations and action items planned for during the 2012 reporting period are described in the sections below.

7.1 Goals

The GCTS 2011 remedial and operational goals will be unchanged from those noted in section 3.0. The operational data to be collected includes:

- Quarterly influent-water samples will be collected during the first monthly sampling event of each quarter (i.e., January, April, July, and October);
- Quarterly groundwater-elevation measurements will be collected at all accessible site monitoring-wells and piezometers;
- Quarterly storm-water samples will be collected from the pipe running beneath the manufacturing building and traversing east towards the public storm-drain pipe. These samples will be collected at catch-basin (CB) locations CB-1, CB-2, and CB-3. Samples will be analyzed for VOCs by USEPA Method 8260 and

collected and submitted to the laboratory in accordance with procedures outlined in the QAPP;

- Monthly effluent SPDES compliance samples, including tracking the WTC dosing rates;
- Continued demonstration that VOCs concentrations in the GCTS air stripper exhaust (i.e., post-carbon) remain below the NYSDEC DAR 1 guidance values before being discharged to the atmosphere;
- Continued to track the carbon performance in order to maintain the minimum 95% removal goal for target VOCs in the vapor effluent; and
- Daily review of GCTS operation email logs and prompt response to system alarms.

7.2 Recommendations

The following recommendations and action items are planned for implementation during the next reporting period (January–December 2012):

- Continued operation of the GCTS;
- Continued system compliance sampling, including monitoring the pH of the system effluent;
- Continued preventive maintenance and failure-mode-effects analyses to improve system reliability;
- Perform a carbon changeout in the first quarter of 2012, in response to the noted reduction in carbon efficiency during the fourth quarter of 2011;
- Perform the Whole Effluent Toxicity (WET) testing on the system effluent in response to the NYSDEC letter, dated January 11, 2012, and modify the SPDES permit appropriately;
- Review current SPDES flow and pH limits, and make a determination on whether adjustments to the permit should be requested based on the 2011 data;

- Develop a standard operating procedure (SOP) for confined entry's performed during any non-routine manhole maintenance activity;
- Conduct an Arc Flash study of the GCTS electrical system; and
- Modification of the *OM&M Manual* as needed to include new system enhancements/modifications.

8. References

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Tables

Table 1. Groundwater Collection and Treatment System Operation Summary, Former Lockheed Martin French Road Facility, Utica, NY.

Date	Date/Time			Process	Description	Suspected Cause of Alarm	Corrective Action
	Shutdown	Online	Off (days)				
June 1996	Historical data (pre- 2009) has not been included in this table.						
1/17/2009	1/17/09 8:25	1/17/09 9:34	0.05	45	High/low air temperature.	Low ambient air temperature.	Adjusted low temperature alarm setting from 40 to 32 F to account for low ambient temperature.
8/3/2009	7/31/09 9:58	8/3/09 14:38	3.2	40	Wall louver fault.	Power outage due to inclement weather.	Restart system and observe proper operation following storm event.
9/4/2009	9/1/09 15:09	9/4/09 12:47	2.9	NA	Power outage	Power outage due to inclement weather.	Restart system and observe proper operation following storm event.
2009 % Run Time Summary		**Days Offline**	**Days Online**	**% Run Time**			
		6.1	357.86	98%			
1/25/2010	1/25/10 17:53	1/27/10 7:57	1.6	46/Other	Low Air Flow/System PLC left in manual mode accidentally	Blower influent damper/tray and/or demister pad fouled	Adjust blower damper/Restart system remotely
3/2/2010	3/2/10 17:55	3/3/10 11:31	0.7	42	High level air stripper sump.	Blower influent damper in need of adjustment following air stripper tray cleaning.	Damper adjusted to allow more air flow.
4/7/2010	4/7/10 12:00	4/7/10 18:00	0.3	NA	Quarterly System Testing	NA	NA
4/15/2010	4/15/10 8:00	4/15/10 19:30	0.5	NA	Annual Stripper Cleaning	NA	NA
4/22/2010	4/22/10 6:20	4/22/10 11:08	0.2	42	High Air Stripper Sump Level	Low back pressure due to recent stripper cleaning which results in gravity discharge issues.	Adjust blower damper to increase air flow/sump pressure.
4/25/2010	4/25/10 19:08	4/26/10 9:39	0.6	42	High Air Stripper Sump Level	Low back pressure due to recent stripper cleaning which results in gravity discharge issues.	Adjust blower damper to increase air flow/sump pressure.
4/27/2010	4/27/10 8:53	4/27/10 14:58	0.3	42	High Air Stripper Sump Level	Low back pressure due to recent stripper cleaning which results in gravity discharge issues.	Adjust blower damper to increase air flow/sump pressure.
4/29/2010	4/29/10 16:35	4/30/10 7:41	0.6	42	High Air Stripper Sump Level	Low back pressure due to recent stripper cleaning which results in gravity discharge issues.	Adjust blower damper to increase air flow/sump pressure.
5/28/2010	5/28/10 16:35	5/31/10 9:40	2.7	NA	Power outage	Power outage due to inclement weather. Electric meter damaged as a result.	Inspect system, temporarily bypass faulty E-meter, perform critical device inspection, restart system and monitor for proper operation.
6/1/2010	6/1/10 14:42	6/2/10 8:55	0.8	42	High Air Stripper Sump Level	Low back pressure due to recent stripper cleaning which results in gravity discharge issues.	Adjust blower damper to increase air flow/sump pressure.
7/12/2010	7/12/10 16:00	7/16/10 14:31	3.9	0	MH-1 offline for testing phase, air stripper left in auto with MH-2 online.	NA	NA
11/2/2010	11/2/10 22:22	11/3/10 13:45	0.6	41	High Pressure in Air Stripper Sump.	Blower damper adjustment.	Adjust air stripper blower damper.
11/10/2010	11/10/10 11:42	11/10/10 20:23	0.4	48	Manual system shutdown/LOTO	Implementing GCTS system upgrades.	Restart system after completing work.
11/11/2010	11/11/10 9:52	11/11/10 16:21	0.3	48	Manual system shutdown/LOTO	Implementing GCTS system upgrades.	Restart system after completing work.
11/11/2010	11/11/10 16:37	11/11/10 18:49	0.1	41	High Pressure in Air Stripper Sump.	Blower damper adjustment.	Adjust air stripper blower damper.
11/11/2010	11/11/10 19:18	11/12/10 9:08	0.6	41	High Pressure in Air Stripper Sump.	Blower damper adjustment.	Adjust air stripper blower damper.
11/12/2010	11/12/10 9:18	11/12/10 12:43	0.1	41	High Pressure in Air Stripper Sump.	Blower damper adjustment.	Adjust air stripper blower damper.
11/12/2010	11/12/10 12:55	11/12/10 13:04	0.0	41	High Pressure in Air Stripper Sump.	Fouled air stripper trays.	Clean air stripper trays and adjust air stripper blower damper.
11/18/2010	11/18/10 10:23	11/18/10 19:22	0.4	48	Manual system shutdown/LOTO	Implementing GCTS system upgrades.	Restart system after completing work.
11/19/2010	11/19/10 9:44	11/19/10 17:06	0.3	40	Wall louver damper motor fault.	Power failure due to a system shutdown for system inspection during construction phase.	Restart system after inspection.
11/29/2010[3]	11/29/10 12:53	12/31/10 23:59	23.5	NA	Air Stripper taken permanently offline.	Implementing GCTS system upgrades.	Install temporary air stripper.
2010 % Run Time Summary		**Days Offline**	**Days Online**	**% Run Time**			
		38.4	326.6	89%			
1/1/2011[4]	1/1/11 0:00	1/24/11 23:59	22.7	NA	Air Stripper taken permanently offline.	Implementing GCTS system upgrades.	Periodically operated system.
1/31/2011	1/31/11 4:30	1/31/11 16:02	0.5	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Restarted system remotely.
2/2/2011	2/2/11 7:09	2/2/11 11:21	0.2	42	High Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
2/8/2011	2/8/11 2:53	2/8/11 8:52	0.2	42	High Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
2/8/2011	2/8/11 13:59	2/8/11 19:11	0.2	46	High Pre-Carbon Temperature	Residual heat in duct heater raising pre-carbon temperature following blower/duct heater shutdown.	Modified programming so that duct heater shuts off 2 minutes prior to blower.
2/8/2011	2/8/11 19:51	2/9/11 8:17	0.5	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
2/11/2011	2/11/11 5:06	2/11/11 11:46	0.3	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
2/13/2011	2/13/11 18:01	2/17/11 16:03	3.9	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
2/19/2011	2/19/11 10:31	2/21/11 9:42	2.0	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
2/24/2011	2/24/11 0:08	2/24/11 8:47	0.4	47	Low Pre-Carbon Temperature	Following end-cycle of manhole pumpdown and 10 minute continuation of blower operation, air stream generated by blower with duct heater off causing pre-carbon temperature to drop.	Restart system.
2/26/2011	2/26/11 3:23	2/26/11 10:58	0.3	47	Low Pre-Carbon Temperature	Following end-cycle of manhole pumpdown and 10 minute continuation of blower operation, air stream generated by blower with duct heater off causing pre-carbon temperature to drop.	Restart system.
2/26/2011	2/26/11 13:46	2/28/11 10:22	1.9	47	Low Pre-Carbon Temperature	Following end-cycle of manhole pumpdown and 10 minute continuation of blower operation, air stream generated by blower with duct heater off causing pre-carbon temperature to drop.	Modified programming so that duct heater shuts off in parallel with blower and pre-carbon temperature alarms are ignored when blower is not operating.
3/14/2011	3/14/11 0:33	3/14/11 10:31	0.4	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
3/14/2011	3/14/11 23:53	3/15/11 9:14	0.4	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
3/20/2011	3/20/11 7:16	3/20/11 12:35	0.2	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
3/23/2011	3/23/11 6:47	3/23/11 11:42	0.2	42	High Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
3/26/2011	3/26/11 3:21	3/26/11 9:37	0.3	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation.
3/26/2011	3/26/11 21:38	3/29/11 9:52	2.5	32	Low Air Stripper Sump Level	Narrow sump elevation operating range.	Adjusted blower damper and/or liquid effluent pipe elevation. Will replace existing high level sensor with tethered float to allow wider operating range in sump.
6/11/2011	6/11/11 16:53	6/12/11 11:40	0.8	NA	Power outage	Power outage due to inclement weather.	Restart system after inspection.
6/12/2011	6/12/11 23:00	6/13/11 7:15	0.3	47	Low Pre-Carbon Temperature	Duct heater requires local reset following power outage therefore not operating.	Low temperature setpoint temporarily lowered until local restart could be initiated on 6/13/11.
7/9/2011	7/9/11 6:58	7/11/11 8:56	2.1	NA	Power outage	Power outage.	Restart system.
7/12/2011	7/12/11 22:13	7/13/11 12:53	0.6	47	Low Pre-Carbon Temperature	Duct heater requires local reset following power outage therefore not operating.	Duct heater locally reset.
11/21/2011	11/21/11 16:23	11/23/11 12:00	1.8	NA	PLC Reset to "Manual" for unknown reason, identified during remote login following no daily fax receipt.	System reset automatically, exact cause unknown. Suspect cause due to bad remote system reconfiguration due to faulty/interuped remote connection.	Log into the system remotely and reconfigures the PLC with the latest GCTS File #17.
12/8/2011	12/8/11 10:06	12/9/11 21:00	1.5	46	High Pre-Carbon Temperature	Unknown	Monitor system and temperatures remotely.
12/11/2011	12/11/11 20:06	12/11/11 20:13	0.0	46	High Pre-Carbon Temperature	Unknown	Review datalogger file/site inspection to verify transmitter readings versus field gauge.
12/14/2011	12/12/11 1:17	12/12/11 9:49	0.4	45	High Air Flowrate	Potential drifting associated with transmitter calibration.	Adjust high flow alarm setpoint
12/13/2011	12/13/11 3:50	12/13/11 8:06	0.2	46	High Pre-Carbon Temperature	Potential drifting associated with transmitter calibration.	Adjust high temperature alarm setpoint

2011 % Run Time Summary		**Days Offline**	**Days Online**	**% Run Time**
2011 First Quarter	1/1/11 - 1/24/11[4]	22.7	1.3	5%
	1/25/11 - 3/31/11	14.3	50.7	78%
	First Quarter Total	37.1	51.9	58%
2011 Second Quarter		1.1	89.9	99%
2011 Third Quarter		2.7	89.3	97%
2011 Fourth Quarter		3.8	88.2	96%
Current Month		2.0	29.0	94%
2011 Cumulative		**46.71**	**348.29**	**88%**

Note:

1. Table does not include brief (less than 3 hours [0.1 days]) system shutdowns for routine operation and maintenance activities.

2. Table does not include non-fatal alarms (i.e. low liquid flow, low air flow, etc) observed during the reporting period.

3. Between 11/29/10 and 12/31/10, temporary system was operational approximately 10 hours (7AM to 5PM) per weekday excluding 12/24/10, 12/30/10, and 12/31/10. System offline for nights and weekends due to lack of safety controls/interlocks and freezing weather conditions.

4. Between 1/1/11 and 1/24/11, the upgraded system was operated on the following dates: 1/13, 1/14, 1/17, 1/18 and 1/20. An average daily run time of 6 hours has been estimated for those dates.

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Table 2. Groundwater Collection and Treatment System Effluent Analytical Sampling Results, Former Lockheed Martin French Road Facility, Utica, NY.

Volatile Organic[1] Compounds (µg/L)	SPDES Effluent Limitations (ug/L)	1/8/2009	2/5/2009	3/4/2009	4/1/2009	5/5/2009	6/2/2009	7/1/2009	8/14/2009	9/4/2009	10/9/2009	11/4/2009	12/11/2009	1/12/2010	2/3/2010	3/3/2010	4/7/2010	5/5/2010	6/3/2010	7/8/2010	8/5/2010	9/7/2010	10/6/2010	11/10/2010	12/22/2010	1/28/2011	2/23/2011	3/22/2011	4/5/2011	5/12/2011	6/2/2011	7/7/2011	8/11/2011	9/8/2011	10/11/2011	11/1/2011	12/1/2011
1,1,1-Trichloroethane	10	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82
1,1-Dichloroethane	10	< 1.0	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
1,2-Dichlorobenzene	10	< 1.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79
1,3-Dichlorobenzene	-	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
1,4-Dichlorobenzene	-	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84
Benzene	-	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41
Chlorobenzene	-	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Chloroethane	10	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32
cis-1,2-Dichloroethene	10	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81
Ethylbenzene	5	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74
m-Xylene & p-Xylene	-	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	-	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76
Tetrachloroethene	10	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36
Toluene	5	< 1.0	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51
trans-1,2-Dichloroethene	10	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90
Trichloroethene	10	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	**0.69**	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	**0.47**	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46
Vinyl Chloride	10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes, total	15	< 3.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
pH (S.U.)[2]	**8.5**	**8.36**	**7.31**	**7.10**	**7.47**	**7.61**	**7.43**	**7.00**	**7.08**	**7.84**	**7.07**	**7.04**	**7.13**	**8.13**	**8.51**	**8.51**	**8.53**	**8.62[4]**	**7.19**	**8.5**	**8.1**	**8.3**	**7.8**	**8.1**	**8.0**	**8.1**	**8.2**	**8.1**	**8.1**	**6.9**	**6.8**	**8.1**	**8.2**	**7.9**	**7.8**	**7.8**	**7.7**
Oil & Grease (mg/L)[3]	**-**	NS	NS	NS	NS	NS	< 5.0	**2.5 J**	< 5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

1. Analyzed using United States Environmental Protection Agency (USEPA) Method 8260.
2. Analyzed in field.
3. Analyzed using United States Environmental Protection Agency (USEPA) Method 1664 A.
4. Several pH measurements were collected in May 2010, ranging from 7.83 to 8.62.

BOLD indicates detected concentrations.

Definitions:

< - less than laboratory detection limit listed
- No Standard
NS - Not Sampled For
mg/L - milligrams per liter
S.U. - Standard Units
µg/L - micrograms per liter

Table 3. Groundwater Collection and Treatment System Influent Groundwater Concentrations, Former Lockheed Martin French Road Facility, Utica, NY.

Volatile Organic[1] Compounds (µg/L)	MH-1										MH-2										MH-3				
	2/4/2009	1/12/2010	4/7/2010	7/8/2010	10/6/2010	12/22/2010	2/23/2011	4/5/2011	7/7/2011	10/11/2011	2/4/2009	1/12/2010	4/7/2010	7/8/2010	10/6/2010	12/22/2010	2/23/2011	4/5/2011[2]	7/7/2011	10/11/2011	1/28/2011	2/23/2011	4/5/2011	7/7/2011	10/11/2011
1,1,1-Trichloroethane	< 1.0	< 0.40	< 0.40	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 1.0	< 0.40	< 0.40	< 0.82	< 0.82	< 0.82	< 0.82	-	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82
1,1-Dichloroethane	**8.4**	**9**	**6**	**6.2**	**3.6**	**4.2**	**2.7**	**8.5**	**5.9**	**1.6**	**11**	**2**	**2.4**	**2.6**	**1.9**	**1.5**	**-**	**3.5**	**3**	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
1,2-Dichlorobenzene	< 1.0	< 0.50	< 0.50	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 1.0	< 0.50	< 0.50	< 0.79	< 0.79	< 0.79	< 0.79	**-**	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79
1,3-Dichlorobenzene	< 1.0	< 0.40	< 0.40	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 1.0	< 0.40	< 0.40	< 0.78	< 0.78	< 0.78	< 0.78	**-**	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
1,4-Dichlorobenzene	< 1.0	< 0.40	< 0.40	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 1.0	< 0.40	< 0.40	< 0.84	< 0.84	< 0.84	< 0.84	**-**	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84
Benzene	< 1.0	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 1.0	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	**-**	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41
Chlorobenzene	< 1.0	< 0.40	< 0.40	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 1.0	< 0.40	< 0.40	< 0.75	< 0.75	< 0.75	< 0.75	**-**	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Chloroethane	**0.70 J**	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.32	< 0.32	< 0.32	< 0.32	< 1.0	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.32	**-**	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32
cis-1,2-Dichloroethene	**39**	**44**	**28**	**42**	**35**	**21**	**30**	**19**	**43**	**33**	**10**	**47**	**12**	**14**	**13**	**12**	**7.6**	**-**	**12**	**16**	**3.7**	**2.3**	**3.5**	**3.8**	**3.1**
Ethylbenzene	< 1.0	< 0.40	< 0.40	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 1.0	< 0.40	< 0.40	< 0.74	< 0.74	< 0.74	< 0.74	**-**	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74
m-Xylene & p-Xylene	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**-**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	-	< 0.40	< 0.40	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	-	< 0.40	< 0.40	< 0.76	< 0.76	< 0.76	< 0.76	**-**	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76
Tetrachloroethene	**31**	**31**	**27**	**29**	**21**	**8.4**	**23**	**18**	**26**	**19**	**3.8**	**28**	**3.5**	**9.3**	**7.5**	**4.5**	**2.6**	**-**	**2.8**	**3.6**	**1.2**	**1.1**	**12**	**21**	**23**
Toluene	< 1.0	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.51	< 0.51	< 0.51	< 0.51	< 1.0	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.51	**-**	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51	< 0.51
trans-1,2-Dichloroethene	< 1.0	< 0.42	< 0.42	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	**0.22 J**	< 0.42	< 0.42	< 0.90	< 0.90	< 0.90	< 0.90	**-**	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90
Trichloroethene	**64**	**51**	**55**	**49**	**33**	**11**	**57**	**27**	**57**	**29**	**6.7**	**53**	**7.5**	**18**	**14**	**8.4**	**4.6**	**-**	**7.7**	**7.5**	**4.2**	**5.6**	**9**	**19**	**13**
Vinyl Chloride	**0.50 J**	**0.41 J**	< 1.0	< 1.0	< 1.0	**0.99 J**	**1.3**	< 1.0	< 1.0	< 1.0	**1.0 J**	< 1.0	**1.4**	**2.3**	**1.8**	**1.5**	**1.5**	**-**	**6.1**	**4.5**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes, total	< 3.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**-**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Notes:

1. Analyzed using United States Environmental Protection Agency (USEPA) Method 8260.
2. Manhole MH-2 not sampled during Second Quarter 2011 event due to manhole being offline for pump replacement.

BOLD indicates detected concentrations.

Definitions:

< - less than laboratory detection limit listed

"-" - Analyte Not Analyzed For

J - Indicates concentration is estimated

µg/L - micrograms per liter

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Table 4. Stormwater Analytical Sampling Results, Former Lockheed Martin French Road Facility, Utica, NY.

Volatile Organic[(1)] Compounds (µg/L)	SPDES Effluent Limitations (µg/L)	CB-1								CB-2								CB-3							
		1/12/2010	4/7/2010	7/8/2010	12/22/2010	2/23/2011	4/5/2011	7/7/2011	10/11/2011	1/12/2010	4/7/2010	7/8/2010	12/22/2010	2/23/2011	4/5/2011	7/7/2011	10/11/2011	1/12/2010	4/7/2010	7/8/2010	12/22/2010	2/23/2011	4/5/2011	7/7/2011	10/11/2011
1,1,1-Trichloroethane	10	< 0.40	< 0.40	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.40	< 0.40	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.40	< 0.40	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82
1,1-Dichloroethane	10	< 0.75	< 0.75	< 0.75	< 0.75	< 0.38	< 0.38	< 0.38	< 0.38	< 0.75	< 0.75	< 0.75	< 0.75	< 0.38	< 0.38	< 0.38	< 0.38	< 0.75	< 0.75	**0.85**	< 0.75	< 0.38	< 0.38	< 0.38	< 0.38
1,2-Dichlorobenzene	10	< 0.50	< 0.50	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.50	< 0.50	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.50	< 0.50	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79
1,3-Dichlorobenzene	-	< 0.40	< 0.40	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.40	< 0.40	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.40	< 0.40	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
1,4-Dichlorobenzene	-	< 0.40	< 0.40	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.40	< 0.40	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.40	< 0.40	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84	< 0.84
Benzene	-	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41
Chlorobenzene	-	< 0.40	< 0.40	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.40	< 0.40	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.40	< 0.40	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Chloroethane	10	< 0.40	< 0.40	< 0.40	< 0.40	< 0.32	< 0.32	< 0.32	< 0.32	< 0.40	< 0.40	< 0.40	< 0.40	< 0.32	< 0.32	< 0.32	< 0.32	< 0.40	< 0.40	< 0.40	< 0.40	< 0.32	< 0.32	< 0.32	< 0.32
cis-1,2-Dichloroethene	10	< 0.40	< 0.40	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.40	< 0.40	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.40	< 0.40	**1.9**	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81
Ethylbenzene	5	< 0.40	< 0.40	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.40	< 0.40	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.40	< 0.40	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74
m-Xylene & p-Xylene	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	-	< 0.40	< 0.40	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.40	< 0.40	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.40	< 0.40	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76
Tetrachloroethene	10	< 0.40	< 0.40	< 0.40	< 0.40	< 0.36	< 0.36	< 0.36	< 0.36	< 0.40	< 0.40	< 0.40	< 0.40	< 0.36	< 0.36	< 0.36	< 0.36	< 0.40	< 0.40	< 0.40	< 0.40	< 0.36	**0.51**	< 0.36	< 0.36
Toluene	5	< 0.60	< 0.60	< 0.60	< 0.60	< 0.51	< 0.51	< 0.51	< 0.51	< 0.60	< 0.60	< 0.60	< 0.60	< 0.51	< 0.51	< 0.51	< 0.51	< 0.60	< 0.60	< 0.60	< 0.60	< 0.51	< 0.51	< 0.51	< 0.51
trans-1,2-Dichloroethene	10	< 0.42	< 0.42	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.42	< 0.42	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.42	< 0.42	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90	< 0.90
Trichloroethene	10	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	**0.69**	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46
Vinyl Chloride	10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes, total	15	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Notes:

1. Analyzed using United States Environmental Protection Agency (USEPA) Method 8260.

BOLD indicates detected concentrations.

Definitions:

< - less than laboratory detection limit listed

µg/L - micrograms per liter

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Table 5. Groundwater Collection and Treatment System Flowrates, Former Lockheed Martin French Road Facility, Utica, NY.

Date	Cumulative			MH-1			MH-2			MH-3			Air Stripper Parameters		
	Permanent Flow (gallons)	Flow Per Reporting Period (gallons)	Monthly Flowrate (gpm)	Permanent Flow (gallons)	Flow Per Reporting Period (gallons)	Monthly Flowrate (gpm)	Permanent Flow (gallons)	Flow Per Reporting Period (gallons)	Monthly Flowrate (gpm)	Permanent Flow (gallons)	Flow Per Reporting Period (gallons)	Monthly Flowrate (gpm)	Sump Pressure (In. W.C.)	Differential Pressure (In. W.C.)	Vapor Phase Flowrate (scfm)[4]
1/8/2009	51,642,496	547,845	10.3	43,857,473	468,600	8.8	7,785,023	79,245	1.5	-	-	-	14.0	1.0	1,398
2/5/2009	51,882,819	240,323	6.0	44,074,280	216,807	5.4	7,808,539	23,516	0.6	-	-	-	14.0	1.0	1,398
3/4/2009	52,290,566	407,747	10.5	44,426,462	352,182	9.1	7,864,104	55,565	1.4	-	-	-	15.0	1.0	1,398
4/1/2009	52,820,498	529,932	13.1	44,879,781	453,319	11.2	7,940,717	76,613	1.9	-	-	-	14.0	1.0	1,398
5/5/2009	53,224,271	403,773	8.2	45,236,249	356,468	7.3	7,988,022	47,305	1.0	-	-	-	14.0	1.0	1,398
6/2/2009	53,499,861	275,590	6.8	45,470,774	234,525	5.8	8,029,087	41,065	1.0	-	-	-	15.0	1.5	1,712
7/1/2009	53,736,159	236,298	5.7	45,666,782	196,008	4.7	8,069,377	40,290	1.0	-	-	-	15.0	1.5	1,712
8/14/2009	54,078,743	342,584	5.4	45,940,852	274,070	4.3	8,137,891	68,514	1.1	-	-	-	14.0	1.5	1,712
9/4/2009	54,230,373	151,630	5.0	46,060,707	119,855	4.0	8,169,666	31,775	1.1	-	-	-	14.0	1.5	1,712
10/9/2009	54,512,663	282,290	5.6	46,289,841	229,134	4.5	8,222,822	53,156	1.1	-	-	-	14.5	1.0	1,398
11/4/2009	54,750,788	238,125	6.4	46,494,959	205,118	5.5	8,255,829	33,007	0.9	-	-	-	14.5	1.0	1,398
12/11/2009	55,029,188	278,400	5.2	46,722,959	228,000	4.3	8,306,229	50,400	0.9	-	-	-	14.0	1.3	1,594
2009 Totals[1]	**-**	**3,934,537**	**7.3**	**-**	**3,334,086**	**6.2**	**-**	**600,451**	**1.1**	-	-	-	**14.3**	**1.2**	**1,519**
1/12/2010	55,368,138	338,950	7.4	47,041,049	318,090	6.9	8,327,089	20,860	0.5	-	-	-	18.0	1.2	1,531
2/3/2010	55,615,048	246,910	7.8	47,254,345	213,296	6.7	8,360,703	33,614	1.1	-	-	-	24.0	1.0	1,398
3/3/2010	55,830,985	215,937	5.4	47,442,614	188,269	4.7	8,388,371	27,668	0.7	-	-	-	11.0	1.7	1,823
4/7/2010	56,443,357	612,372	12.2	47,970,713	528,099	10.5	8,472,644	84,273	1.7	-	-	-	12.0	1.5	1,712
5/5/2010	56,705,454	262,097	6.5	48,202,863	232,150	5.8	8,502,591	29,947	0.7	-	-	-	17.5	2.7	2,297
6/3/2010	56,921,019	215,565	5.2	48,388,351	185,488	4.4	8,532,668	30,077	0.7	-	-	-	16.1	2.7	2,297
7/7/2010	57,256,158	335,139	6.8	48,646,601	258,250	5.3	8,609,557	76,889	1.6	-	-	-	15.5	2.4	2,166
8/5/2010	57,518,041	261,883	6.3	48,863,064	216,463	5.2	8,654,977	45,420	1.1	-	-	-	15.9	2.2	2,073
9/7/2010	57,797,649	279,608	5.9	49,095,255	232,191	4.9	8,702,394	47,417	1.0	-	-	-	18.5	1.9	1,927
10/5/2010	58,082,548	284,899	7.1	49,327,736	232,481	5.8	8,754,812	52,418	1.3	-	-	-	17.0	2.0	1,977
11/2/2010	58,456,895	374,347	9.3	49,643,060	315,324	7.8	8,813,835	59,023	1.5	-	-	-	22.0	0.9	1,289
12/22/2010	59,009,574	552,679	7.7	50,101,316	458,256	6.4	8,908,258	94,423	1.3	-	-	-	17.0	NA[2]	NA[2]
2010 Totals[2]	**-**	**3,980,386**	**7.4**	**-**	**3,378,357**	**6.2**	**-**	**602,029**	**1.1**	**-**	**-**	**-**	**17.0**	**1.8**	**1,863**
1/28/2011	59,088,966	79,392	1.5	50,142,913	41,597	0.8	8,930,851	22,593	0.4	15,202	-	-	25.9	-	718
2/23/2011	59,483,460	394,494	10.5	50,432,263	289,350	7.7	8,976,813	45,962	1.2	74,384	59182.0	1.6	26.0	-	742
3/22/2011	60,118,863	635,403	16.3	50,940,888	508,625	13.1	9,102,550	125,737	3.2	75,425	1041.0	0.0	26.2	-	681
First Quarter 2011[3]	-	**1,109,289**	**8.6**	**-**	**839,572**	**6.5**	**-**	**194,292**	**1.5**	**-**	**60,223**	**0.5**	**26.0**	**-**	**714**
4/5/2011	60,264,174	145,311	7.2	51,085,909	145,021	7.2	9,102,790	240	0.0	75,475	50	0.0	29.0	-	663
5/12/2011	61,189,715	925,541	17.4	51,609,588	523,679	9.8	9,161,683	58,893	1.1	418,444	342,969	9.2	26.5	-	553
6/2/2011	61,557,472	367,757	12.2	51,834,699	225,111	7.4	9,189,679	27,996	0.9	533,094	114,650	2.9	26.5	-	618
Second Quarter 2011[5]	**-**	**1,438,609**	**13.9**	**-**	**893,811**	**8.6**	**-**	**87,129**	**0.8**	**-**	**457,619**	**4.4**	**27.3**	-	**611**
7/7/2011	61,975,516	418,044	8.3	52,075,707	241,008	4.8	9,227,668	37,989	0.8	672,141	139,047	2.8	25.2	-	636
8/11/2011	62,296,730	321,214	6.4	52,243,445	167,738	3.3	9,265,879	38,211	0.8	787,406	115,265	2.3	26.5	-	651
9/8/2011	62,817,398	520,668	12.9	52,508,569	265,124	6.6	9,342,539	76,660	1.9	966,290	178,884	4.4	28.5	-	609
Third Quarter 2011	-	**1,259,926**	**8.9**	-	**673,870**	**4.8**	-	**152,860**	**1.1**	-	**433,196**	**3.1**	**26.7**	-	**632**
10/11/2011	63,444,585	627,187	13.2	52,883,146	374,577	7.9	9,400,121	57,582	1.2	1,161,318	195,028	4.1	27.0	-	715
11/1/2011	63,764,975	320,390	10.6	53,071,145	187,999	6.2	9,435,095	34,974	1.2	1,258,735	97,417	3.2	27.0	-	784
12/1/2011	64,185,589	420,614	9.7	53,345,456	274,311	6.3	9,469,773	34,678	0.8	1,370,360	111,625	2.6	27.0	-	739
Fourth Quarter 2011	-	**1,368,191**	**11.3**	-	**836,887**	**6.9**	-	**127,234**	**1.1**	-	**404,070**	**3.3**	**27.0**	-	**746**
2011 Totals[2]	-	**5,176,015**	**10.4**	-	**3,244,140**	**6.5**	-	**561,515**	**1.1**	-	**1,355,108**	**2.7**	**26.8**	-	**676**

Notes:

1. 2009 Totals include data between 12/8/2008 and 12/11/2009.

2. Existing air stripper taken offline on 11/29/10 and temporary air stripper in operation through end of 2010 while system upgrades were being implemented. System back online last week in February 2011.

3. New air stripper brought online on 1/25/11, and was operated intermittently on the dates of 1/13, 1/14, 1/17, 1/18 and 1/20.

4. Prior to 2011, vapor phase flowrate calculated using the Air Velocity Measurement formula as provided in the Dwyer Instruments catalog. Differential pressure used in the blower intake pipe, and constants for temperature (70°F) and barometric pressure (29.92 in.Hg.) were assumed. Following the beginning of 2011, the vapor phase flowrate has been obtained from flow transmitter FT-106.

5. Manhole MH-2 offline for pump replacement from 3/22/11 to 4/20/11.

Definitions:

gpm - gallons per minute

In. W.C. - Inches of Water Column

cfm - cubic feet per minute

NA - Not applicable

ARCADIS

Table 6. Vapor Phase Analytical Sampling Results, Former Lockheed Martin French Road Facility, Utica, NY.

Pre-Carbon

Volatile Organic[1] Compounds ($\mu g/m^3$)	1/28/2011	Q	Value used for calcs	Reporting Limit	2/23/2011	Q	Value used for calcs	Reporting Limit	4/4/2011	Q	Value used for calcs	Reporting Limit	7/7/2011	Q	Value used for calcs	Reporting Limit	10/12/2011	Q	Value used for calcs	Reporting Limit
1,1,1-Trichloroethane	< 0.83		0	0.83	< 0.83		0	< 0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83
1,1,2,2-Tetrachloroethane	< 1.00		0	1	< 1.0		0	< 1.0	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1
1,1,2-Trichloroethane	< 0.83		0	0.83	< 0.83		0	< 0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83
1,1-Dichloroethane	< 0.62		0	0.62	**18**		18		**19**		19		**71**		71		**41**		41	
1,1-Dichloroethene	< 0.60		0	0.6	< 0.60		0	< 0.60	< 0.60		0	0.6	**0.81**		0.81		**0.48**	J	0.48	
1,2,4-Trichlorobenzene	< 1.10		0	1.1	< 1.1		0	< 1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1
1,2,4-Trimethylbenzene	**1**		1	**1**	**4.6**		4.6		**1.6**		1.6		**1.3**		1.3		< 0.75		0	0.75
1,2-Dibromoethane	< 1.20		0	1.2	< 1.2		0	< 1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
1,2-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	< 0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,2-Dichloroethane	< 0.62		0	0.62	< 0.62		0	< 0.62	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62
1,2-Dichloropropane	< 0.70		0	0.7	< 0.70		0	< 0.70	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7
1,3,5-Trimethylbenzene	< 0.75		0	0.75	**1.5**		1.5		< 0.75		0	0.75	< 0.75		0	0.75	< 0.75		0	0.75
1,3-butadiene	< 0.34		0	0.34	< 0.34		0	< 0.34	< 0.34		0	0.34	< 0.34		0	0.34	< 0.34		0	0.34
1,3-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	< 0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,4-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	< 0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,4-Dioxane	< 1.10		0	1.1	< 1.1		0	< 1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1
2,2,4-trimethylpentane	< 0.71		0	0.71	**0.76**		0.76		< 0.71		0	0.71	< 0.71		0	0.71	< 0.71		0	0.71
4-ethyltoluene	**0.6**	J	0.6		**1.1**		1.1		< 0.75		0	0.75	< 0.75		0	0.75	< 0.75		0	0.75
Acetone	**29**		29		**21**		21		**10**		10		**14**		14		**3.7**		3.7	
Allyl chloride	< 0.48		0	0.48	< 0.48		0	< 0.48	< 0.48		0	0.48	< 0.48		0	0.48	< 0.48		0	0.48
Benzene	< 0.49		0	0.49	**1.5**		1.5		**0.91**		0.91		**0.39**	J	0.39		**0.75**		0.75	
Benzyl chloride	< 0.88		0	0.88	< 0.88		0	< 0.88	< 0.88		0	0.88	< 0.88		0	0.88	< 0.88		0	0.88
Bromodichloromethane	< 1.00		0	1	< 1.0		0	< 1.0	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1
Bromoform	< 1.60		0	1.6	< 1.6		0	< 1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6
Bromomethane	< 0.59		0	0.59	< 0.59		0	< 0.59	< 0.59		0	0.59	< 0.59		0	0.59	< 0.59		0	0.59
Carbon disulfide	< 0.47		0	0.47	< 0.47		0	< 0.47	< 0.47		0	0.47	**0.32**	J	0.32		< 0.47		0	0.47
Carbon tetrachloride	< 0.96		0	0.96	**0.77**	J	0.77		< 0.96		0	0.96	**0.9**	J	0.9		**0.38**	J	0.38	
Chlorobenzene	< 0.70		0	0.7	**0.66**	J	0.66		< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7
Chloroethane	< 0.40		0	0.4	**1.2**		1.2		< 0.40		0	0.4	< 0.40		0	0.4	**0.86**		0.86	
Chloroform	< 0.74		0	0.74	**5.7**		5.7		**10**		10		**8.5**		8.5		**1.3**		1.3	
Chloromethane	**1.2**		1.2		**0.84**		0.84		< 0.31		0	0.31	< 0.31		0	0.31	**0.57**		0.57	
cis-1,2-Dichloroethene	< 0.60		0	0.6	**220**		220		**140**		140		**840**		840		**210**		210	
cis-1,3-Dichloropropene	< 0.69		0	0.69	< 0.69		0	< 0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69
Cyclohexane	< 0.52		0	0.52	< 0.52		0	< 0.52	< 0.52		0	0.52	< 0.52		0	0.52	< 0.52		0	0.52
Dibromochloromethane	< 1.30		0	1.3	< 1.3		0	< 1.3	< 1.30		0	1.3	< 1.30		0	1.3	< 1.30		0	1.3
Ethyl acetate	< 0.92		0	0.92	< 0.92		0	< 0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
Ethylbenzene	**2.8**		2.8		**2.3**		2.3		**0.71**		0.71		< 0.66		0	0.66	< 0.66		0	0.66
Freon 11	< 0.86		0	0.86	**1.7**		1.7		**6**		6		**1.8**		1.8		**1.1**		1.1	
Freon 113	< 1.20		0	1.2	**110**		110		**60**		60		**170**		170		**83**		83	
Freon 114	< 1.10		0	1.1	< 1.1		0	< 1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1
Freon 12	**0.65**	J	0.65		**2.8**		2.8		**3.4**		3.4		**2.7**		2.7		**1.6**		1.6	
Heptane	< 0.62		0	0.62	**0.92**		0.92		< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62
Hexachloro-1,3-butadiene	< 1.60		0	1.6	< 1.6		0	< 1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6
Hexane	< 0.54		0	0.54	< 0.54		0	< 0.54	< 0.54		0	0.54	< 0.54		0	0.54	**0.75**		0.75	
Isopropyl alcohol	< 0.37		0	0.37	**4.3**		4.3		**5.4**		5.4		< 0.37		0	0.37	< 0.37		0	0.37
m&p-Xylene	**7.9**		7.9		**8.5**		8.5		**2.3**		2.3		**1.6**		1.6		**0.75**	J	0.75	
Methyl Butyl Ketone	< 1.20		0	1.2	< 1.2		0	< 1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
Methyl Ethyl Ketone	**10**		10		**2.7**		2.7		**2.5**		2.5		< 0.90		0	0.9	**1.2**		1.2	
Methyl Isobutyl Ketone	< 1.20		0	1.2	< 1.2		0	< 1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
Methyl tert-butyl ether	< 0.55		0	0.55	< 0.55		0	< 0.55	< 0.55		0	0.55	< 0.55		0	0.55	< 0.55		0	0.55
Methylene chloride	< 0.53		0	0.53	**1.8**		1.8		**1.8**		1.8		**1.8**		1.8		**0.56**		0.56	
o-Xylene	**1.4**		1.4		**3.1**		3.1		**0.66**		0.66		**0.62**	J	0.62		< 0.66		0	0.66
Propylene	< 0.26		0	0.26	< 0.26		0	< 0.26	< 0.26		0	0.26	< 0.26		0	0.26	< 0.26		0	0.26
Styrene	**0.52**	J	0.52		< 0.65		0	< 0.65	< 0.65		0	0.65	< 0.65		0	0.65	< 0.65		0	0.65
Tetrachloroethylene	**0.83**	J	0.83		**110**		110		**180**		180		**460**		460		**140**		140	
Tetrahydrofuran	**72**		72		**2.4**		2.4		**5.1**		5.1		< 0.45		0	0.45	**0.96**		0.96	
Toluene	**5.7**		5.7		**7.2**		7.2		**2.3**		2.3		**1.5**		1.5		**1.9**		1.9	
trans-1,2-Dichloroethene	< 0.60		0	0.6	**0.64**		0.64		**1.5**		1.5		**1.1**		1.1		**1.4**		1.4	
trans-1,3-Dichloropropene	< 0.69		0	0.69	< 0.69		0	< 0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69
Trichloroethene	**0.71**	J	0.71		**350**		350		**220**		220		**1,200**		1200		**180**		180	
Vinyl acetate	< 0.54		0	0.54	< 0.54		0	< 0.54	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54
Vinyl Bromide	< 0.67		0	0.67	< 0.67		0	< 0.67	< 0.67		0	0.67	< 0.67		0	0.67	< 0.67		0	0.67
Vinyl chloride	< 0.39		0	0.39			0		**2.3**		2.3		**3**		3		**1.7**		1.7	
Cumulative VOCs ($\mu g/m^3$)[2]	134.31				885.99				675.48				2781.34				673.96			
Cum % Removal	NA				NA				NA				NA				NA			
Target VOCs ($\mu g/m^3$)[3]	1.54				680.64				541.5				2501.1				531.4			
Target % Removal	NA				NA				NA				NA				NA			
Cumulative VOCs (g/day)	3.91				25.78				16.84				71.67				20.50			
																	lb/year		21.28	

Mid-Carbon

Volatile Organic[1] Compounds ($\mu g/m^3$)	1/28/2011	Q	Value used for calcs	Reporting Limit	2/23/2011	Q	Value used for calcs	Reporting Limit	4/4/2011	Q	Value used for calcs	Reporting Limit	7/7/2011	Q	Value used for calcs	Reporting Limit	10/12/2011	Q	Value used for calcs	Reporting Limit
1,1,1-Trichloroethane	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83
1,1,2,2-Tetrachloroethane	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1
1,1,2-Trichloroethane	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83
1,1-Dichloroethane	**0.49**	J	0.49		< 0.62		0	0.62	< 0.62		0	0.62	**0.66**		0.66		**10**		10	
1,1-Dichloroethene	< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6
1,2,4-Trichlorobenzene	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1
1,2,4-Trimethylbenzene	**1.9**		1.9		**2.1**		2.1		**3**		3		**14**	J	14		< 0.75		0	0.75
1,2-Dibromoethane	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
1,2-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,2-Dichloroethane	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62
1,2-Dichloropropane	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7
1,3,5-Trimethylbenzene	**0.8**		0.8		**0.8**		0.8		**1**		1		**4.4**		4.4		< 0.75		0	0.75
1,3-butadiene	< 0.34		0	0.34	< 0.34		0	0.34	<0.34		0	<0.34	< 0.34		0	0.34	< 0.34		0	0.34
1,3-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,4-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,4-Dioxane	**2.3**		2.3		< 1.10		0	1.1	< 1.10		0	1.1	**1.3**		1.3		< 1.10		0	1.1
2,2,4-trimethylpentane	< 0.71		0	0.71	**0.66**	J	0.66		< 0.71		0	0.71	< 0.71		0	0.71	< 0.71		0	0.71
4-ethyltoluene	**0.6**	J	0.6		**0.95**		0.95		**2.2**		2.2		**3.5**		3.5		< 0.75		0	0.75
Acetone	**20**		20		**37**		37		**7.5**		7.5		**25**		25		**3.5**		3.5	
Allyl chloride	< 0.48		0	0.48	< 0.48		0	0.48	< 0.48		0	0.48	< 0.48		0	0.48	< 0.48		0	0.48
Benzene	**2**		2		**0.81**		0.81		< 0.49		0	0.49	< 0.49		0	0.49	< 0.49		0	0.49
Benzyl chloride	< 0.88		0	0.88	< 0.88		0	0.88	< 0.88		0	0.88	< 0.88		0	0.88	< 0.88		0	0.88
Bromodichloromethane	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1
Bromoform	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6
Bromomethane	< 0.59		0	0.59	< 0.59		0	0.59	< 0.59		0	0.59	< 0.59		0	0.59	< 0.59		0	0.59
Carbon disulfide	< 0.47		0	0.47	< 0.47		0	0.47	< 0.47		0	0.47	**0.32**	J	0.32		**0.85**		0.85	
Carbon tetrachloride	**0.77**	J	0.77		< 0.96		0	0.96	< 0.96		0	0.96	< 0.96		0	0.96	< 0.96		0	0.96
Chlorobenzene	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7
Chloroethane	< 0.40		0	0.4	< 0.40		0	0.4	< 0.40		0	0.4	< 0.40		0	0.4	**0.46**		0.46	
Chloroform	**8.9**		8.9		< 0.74		0	0.74	< 0.74		0	0.74	< 0.74		0	0.74	**3.7**		3.7	
Chloromethane	**1.2**		1.2		**0.57**		0.57		< 0.31		0	0.31	< 0.31		0	0.31	**0.59**		0.59	
cis-1,2-Dichloroethene	**24**		24		< 0.60		0	0.6	< 0.60		0	0.6	**0.44**	J	0.44		**63**		63	
cis-1,3-Dichloropropene	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69
Cyclohexane	< 0.52		0	0.52	< 0.52		0	0.52	< 0.52		0	0.52	< 0.52		0	0.52	< 0.52		0	0.52
Dibromochloromethane	< 1.30		0	1.3	< 1.30		0	1.3	< 1.30		0	1.3	< 1.30		0	1.3	< 1.30		0	1.3
Ethyl acetate	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
Ethylbenzene	**0.97**		0.97		**4.5**		4.5		**8.2**		8.2		**7.5**		7.5		**0.71**		0.71	
Freon 11	**3.1**		3.1		< 0.86		0	0.86	< 0.86		0	0.86	**9.9**		9.9		**1.5**		1.5	
Freon 113	**1.2**		1.2		< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	**16**		16	
Freon 114	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1
Freon 12	**3.6**		3.6		**4.2**		4.2		**4**		4		**5.7**		5.7		**3.8**		3.8	
Heptane	**0.62**		0.62		**0.79**		0.79		< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62
Hexachloro-1,3-butadiene	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6
Hexane	**0.9**		0.9		< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54
Isopropyl alcohol	< 0.37		0	0.37	**5.3**		5.3		< 0.37		0	0.37	< 0.37		0	0.37	< 0.37		0	0.37
m&p-Xylene	**2.4**		2.4		**34**	J	34		**20**		20		**75**		75		**3.1**		3.1	
Methyl Butyl Ketone	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
Methyl Ethyl Ketone	**3.1**		3.1		< 0.90		0	0.9	**1.9**		1.9		**1.7**		1.7		**0.87**	J	0.87	
Methyl Isobutyl Ketone	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
Methyl tert-butyl ether	< 0.55		0	0.55	< 0.55		0	0.55	< 0.55		0	0.55	< 0.55		0	0.55	< 0.55		0	0.55
Methylene chloride	**0.6**		0.6		**0.6**		0.6		< 0.53		0	0.53	**1.4**		1.4		**1.3**		1.3	
o-Xylene	**0.71**		0.71		**5.2**		5.2		**5.7**		5.7		**30**		30		**1.6**		1.6	
Propylene	< 0.26		0	0.26	< 0.26		0	0.26	< 0.26		0	0.26	< 0.26		0	0.26	< 0.26		0	0.26
Styrene	**0.48**	J	0.48		< 0.65		0	0.65	< 0.65		0	0.65	< 0.65		0	0.65	< 0.65		0	0.65
Tetrachloroethylene	**8.8**		8.8		< 1.00		0	1	< 1.00		0	1	**1.5**		1.5		< 1.00		0	1
Tetrahydrofuran	**12**		12		**5.5**		5.5		**8.4**		8.4		**4.2**		4.2		**6.5**		6.5	
Toluene	**4**		4		**21**	J	21		**21**		21		**39**		39		**2.2**		2.2	
trans-1,2-Dichloroethene	**1**		1		< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6	**1.1**		1.1	
trans-1,3-Dichloropropene	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69
Trichloroethene	**32**		32		< 0.82		0	0.82	< 0.82		0	0.82	**3.2**		3.2		**0.49**	J	0.49	
Vinyl acetate	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54
Vinyl Bromide	< 0.67		0	0.67	< 0.67		0	0.67	< 0.67		0	0.67	< 0.67		0	0.67	< 0.67		0	0.67
Vinyl chloride	< 0.39		0	0.39	**2.3**		2.3		**1.6**		1.6		**2.6**		2.6		**2.3**		2.3	
Cumulative VOCs ($\mu g/m^3$)[2]	138.44				126.28				84.5				231.32				123.57			
Cum % Removal	NA				86%				87%				92%				82%			
Target VOCs ($\mu g/m^3$)[3]	65.8				0				0				5.14				64.59			
Target % Removal	NA				100%				100%				100%				88%			

Effluent

Volatile Organic[1] Compounds ($\mu g/m^3$)	1/28/2011	Q	Value used for calcs	Reporting Limit	2/23/2011	Q	Value used for calcs	Reporting Limit	4/4/2011	Q	Value used for calcs	Reporting Limit	7/7/2011	Q	Value used for calcs	Reporting Limit	10/12/2011	Q	Value used for calcs	Reporting Limit
1,1,1-Trichloroethane	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83
1,1,2,2-Tetrachloroethane	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1
1,1,2-Trichloroethane	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83	< 0.83		0	0.83
1,1-Dichloroethane	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62	**17**		17	
1,1-Dichloroethene	< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6	**0.48**	J	0.48	
1,2,4-Trichlorobenzene	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1
1,2,4-Trimethylbenzene	**1.5**		1.5		**3.7**		3.7		**1.3**		1.3		**3.3**		3.3		< 0.75		0	0.75
1,2-Dibromoethane	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
1,2-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,2-Dichloroethane	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62
1,2-Dichloropropane	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7
1,3,5-Trimethylbenzene	**0.65**	J	0.65		**1.4**		1.4		**0.65**	J	0.65		**1.3**		1.3		< 0.75		0	0.75
1,3-butadiene	< 0.34		0	0.34	< 0.34		0	0.34	< 0.34		0	0.34	< 0.34		0	0.34	< 0.34		0	0.34
1,3-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,4-Dichlorobenzene	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
1,4-Dioxane	**1.6**		1.6		< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1
2,2,4-trimethylpentane	< 0.71		0	0.71	**0.81**		0.81		< 0.71		0	0.71	< 0.71		0	0.71	< 0.71		0	0.71
4-ethyltoluene	< 0.75		0	< 0.75	**0.95**		0.95		**0.8**		0.8		**0.95**		0.95		< 0.75		0	0.75
Acetone	**100**		100		**27**		27		**8.5**		8.5		**6.2**		6.2		**4.4**		4.4	
Allyl chloride	< 0.48		0	0.48	< 0.48		0	0.48	< 0.48		0	0.48	< 0.48		0	0.48	< 0.48		0	0.48
Benzene	**1.1**		1.1	0.49	**1.2**		1.2		< 0.49		0	0.49	< 0.49		0	0.49	< 0.49		0	0.49
Benzyl chloride	< 0.88		0	0.88	< 0.88		0	0.88	< 0.88		0	0.88	< 0.88		0	0.88	< 0.88		0	0.88
Bromodichloromethane	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1	< 1.00		0	1
Bromoform	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6
Bromomethane	< 0.59		0	0.59	< 0.59		0	0.59	< 0.59		0	0.59	< 0.59		0	0.59	< 0.59		0	0.59
Carbon disulfide	< 0.47		0	0.47	< 0.47		0	0.47	< 0.47		0	0.47	**0.47**		0.47		**0.38**	J	0.38	
Carbon tetrachloride	< 0.96		0	0.96	< 0.96		0	0.96	< 0.96		0	0.96	< 0.96		0	0.96	< 0.96		0	0.96
Chlorobenzene	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7	< 0.70		0	0.7
Chloroethane	< 0.40		0	0.4	< 0.40		0	0.4	< 0.40		0	0.4	< 0.40		0	0.4	**0.54**		0.54	
Chloroform	< 0.74		0	0.74	< 0.74		0	0.74	< 0.74		0	0.74	< 0.74		0	0.74	**4.2**		4.2	
Chloromethane	**1.3**		1.3		**0.8**		0.8		**0.94**		0.94		**1.2**		1.2		**0.92**		0.92	
cis-1,2-Dichloroethene	**9.7**	J	9.7		< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6	**32**		32	
cis-1,3-Dichloropropene	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69
Cyclohexane	< 0.52		0	0.52	< 0.52		0	0.52	< 0.52		0	0.52	**0.66**		0.66		< 0.52		0	0.52
Dibromochloromethane	< 1.30		0	1.3	< 1.30		0	1.3	< 1.30		0	1.3	< 1.30		0	1.3	< 1.30		0	1.3
Ethyl acetate	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92	< 0.92		0	0.92
Ethylbenzene	**0.97**		0.97		**2.4**		2.4		**1.5**		1.5		**1.8**		1.8		< 0.66		0	0.66
Freon 11	< 0.86		0	0.86	< 0.86		0	0.86	< 0.86		0	0.86	< 0.86		0	0.86	**1.9**		1.9	
Freon 113	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	**22**		22	
Freon 114	**0.85**	J	0.85		< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1	< 1.10		0	1.1
Freon 12	**4.3**		4.3		**2.9**		2.9		**2.5**		2.5		**3.7**		3.7		**4.3**		4.3	
Heptane	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62	< 0.62		0	0.62
Hexachloro-1,3-butadiene	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6	< 1.60		0	1.6
Hexane	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54
Isopropyl alcohol	< 0.37		0	0.37	**6.7**		6.7		**4.2**		4.2		< 0.37		0	0.37	< 0.37		0	0.37
m&p-Xylene	**2.7**		2.7		**9.9**		9.9		**7.2**		7.2		**8.4**		8.4		< 1.30		0	1.3
Methyl Butyl Ketone	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
Methyl Ethyl Ketone	**22**		22		< 0.90		0	0.9	**2**		2		**1.9**		1.9		**1.5**		1.5	
Methyl Isobutyl Ketone	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2	< 1.20		0	1.2
Methyl tert-butyl ether	< 0.55		0	0.55	< 0.55		0	0.55	< 0.55		0	0.55	< 0.55		0	0.55	< 0.55		0	0.55
Methylene chloride	< 0.53		0	0.53	**0.64**		0.64		**1.2**		1.2		**2.4**		2.4		**0.95**		0.95	
o-Xylene	**0.88**		0.88		**3.8**		3.8		**1.8**		1.8		**2.5**		2.5		< 0.66		0	0.66
Propylene	< 0.26		0	0.26	< 0.26		0	0.26	< 0.26		0	0.26	< 0.26		0	0.26	< 0.26		0	0.26
Styrene	**0.65**		0.65		< 0.65		0	0.65	< 0.65		0	0.65	< 0.65		0	0.65	< 0.65		0	0.65
Tetrachloroethylene	**1.9**		1.9		**0.83**	J	0.83		< 1.00		0	1	< 1.00		0	1	**1.2**		1.2	
Tetrahydrofuran	**110**		110		**6.3**		6.3		**6**		6		**3.7**		3.7		**9.7**		9.7	
Toluene	**2.1**		2.1		**8.1**		8.1		**1.4**		1.4		**2.5**		2.5		**0.69**		0.69	
trans-1,2-Dichloroethene	< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6	< 0.60		0	0.6	**0.44**	J	0.44	
trans-1,3-Dichloropropene	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69	< 0.69		0	0.69
Trichloroethene	**21**		21		< 0.82		0	0.82	< 0.82		0	0.82	< 0.82		0	0.82	< 0.82		0	0.82
Vinyl acetate	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54	< 0.54		0	0.54
Vinyl Bromide	< 0.67		0	0.67	< 0.67		0	0.67	< 0.67		0	0.67	< 0.67		0	0.67	< 0.67		0	0.67
Vinyl chloride	< 0.39		0	0.39	**2.1**		2.1		**1**		1		**3.2**		3.2		**3.7**		3.7	
Cumulative VOCs ($\mu g/m^3$)[2]	283.2				79.53				40.99				44.18				106.3			
Cum % Removal	NA				91%				94%				98%				84%			
Target VOCs ($\mu g/m^3$)[3]	32.6				0.83				0				0				33.64			
Target % Removal	NA				100%				100%				100%				94%			

Notes:

1. Samples analyzed for VOCs using USEPA Method TO-15.
2. Cumulative VOCs calculated using only detected concentrations.
3. Target VOCs calculated using only detected concentrations of the following compounds: 1,1-dichloroethene, cis-1,2-dichloroethene, tetrachloroethylene, trans-1,2-dichloroethene, and trichloroethene.

BOLD indicates detected concentrations.

Definitions:

< - less than reporting limit listed

J - indicates concentration is estimated

$\mu g/m^3$ - micrograms per cubic meter

Table 7. Summary of Estimated Air Stripper Emissions, Former Lockheed Martin French Road Facility, Utica, NY.

Volatile Organic Compounds[1]	AGC[2] (µg/m^3)	SGC[2] (µg/m^3)	Maximum Effluent Concentration (µg/m^3)[3]	1/28/2011 Result (µg/m3)	2/23/2011 Result (µg/m3)	4/4/2011 Result (µg/m3)	7/7/2011 Result (µg/m3)	10/12/2011 Result (µg/m3)	Maximum Emission Rate (lb/day)[4]	Actual Annual Impact (µg/m^3)[5]	Actual Annual Impact Percentage of AGC (%)
1,1,1-Trichloroethane			0	0	0	0	0				
1,1,2,2-Tetrachloroethane			0	0	0	0	0				
1,1,2-Trichloroethane			0	0	0	0	0				
1,1-Dichloroethane	0.63	-	0	0	0	0	0		0.00E+00	0.00E+00	0.00
1,1-Dichloroethene			0	0	0	0	0		0.00E+00	0.00E+00	-
1,2,4-Trichlorobenzene			0	0	0	0	0		0.00E+00	0.00E+00	-
1,2,4-Trimethylbenzene	290	-	3.7	**1.5**	**3.7**	**1.3**	**3.3**	0	2.16E-04	2.63E-04	0.00
1,2-Dibromoethane			1.4	0	0	0	0		8.19E-05	9.94E-05	-
1,2-Dichlorobenzene			1.4	0	0	0	0		8.19E-05	9.94E-05	-
1,2-Dichloroethane	0.038	-	1.4	0	0	0	0		8.19E-05	9.94E-05	0.26
1,2-Dichloropropane			1.4	0	0	0	0		8.19E-05	9.94E-05	-
1,3,5-Trimethylbenzene	290	-	1.4	**0.65 J**	**1.4**	**0.65 J**	**1.3**	0	8.19E-05	9.94E-05	0.00
1,3-butadiene			0	0	0	0	0		0.00E+00	0.00E+00	-
1,3-Dichlorobenzene			0	0	0	0	0		0.00E+00	0.00E+00	-
1,4-Dichlorobenzene	0.09	-	0	0	0	0	0		0.00E+00	0.00E+00	0.00
1,4-Dioxane	0.13	3,000	1.6	**1.6**	0	0	0	0	9.36E-05	1.14E-04	0.09
2,2,4-trimethylpentane	3,300	-	0.81	0	**0.81**	0	0	0	4.74E-05	5.75E-05	0.00
4-ethyltoluene	-	-	0.95	0	**0.95**	**0.8**	**0.95**	0	5.55E-05	6.75E-05	-
Acetone	28,000	180,000	100	**100**	**27**	**8.5**	**6.2**	**4.4**	5.85E-03	7.10E-03	0.00
Allyl chloride			0	0	0	0	0		0.00E+00	0.00E+00	-
Benzene	0.13	1,300	1.2	**1.1**	**1.2**	0	0	0	7.02E-05	8.52E-05	0.07
Benzyl chloride			0	0	0	0	0		0.00E+00	0.00E+00	-
Bromodichloromethane			0	0	0	0	0		0.00E+00	0.00E+00	-
Bromoform			0	0	0	0	0		0.00E+00	0.00E+00	-
Bromomethane			0	0	0	0	0		0.00E+00	0.00E+00	-
Carbon disulfide	700	6,200	0.47	0	0	0	**0.47**		2.75E-05	3.34E-05	0.00
Carbon tetrachloride			0	0	0	0	0		0.00E+00	0.00E+00	-
Chlorobenzene			0	0	0	0	0		0.00E+00	0.00E+00	-
Chloroethane			0	0	0	0	0		0.00E+00	0.00E+00	-
Chloroform	0.043	150	0	0	0	0	0		0.00E+00	0.00E+00	0.00
Chloromethane	90	22,000	1.3	**1.3**	**0.8**	**0.94**	**1.2**	**0.92**	7.60E-05	9.23E-05	0.00
cis-1,2-Dichloroethene	63	-	32	**9.7 J**	0	0	0	**32**	1.87E-03	2.27E-03	0.00
cis-1,3-Dichloropropene			0	0	0	0	0		0.00E+00	0.00E+00	-
Cyclohexane	6,000	-	0.66	0	0	0	**0.66**		3.86E-05	4.69E-05	0.00
Dibromochloromethane			0	0	0	0	0		0.00E+00	0.00E+00	-
Ethyl acetate			0	0	0	0	0		0.00E+00	0.00E+00	-
Ethylbenzene	1,000	54,000	2.4	**0.97**	**2.4**	**1.5**	**1.8**	0	1.40E-04	1.70E-04	0.00
Freon 11	1,000	68,000	0	0	0	0	0		0.00E+00	0.00E+00	0.00
Freon 113	180,000	960,000	0	0	0	0	0		0.00E+00	0.00E+00	0.00
Freon 114	17,000	-	0.85	**0.85 J**	0	0	0	0	4.97E-05	6.04E-05	0.00
Freon 12	12,000	-	4.3	**4.3**	**2.9**	**2.5**	**3.7**	**4.3**	2.51E-04	3.05E-04	0.00
Heptane	3,900	210,000	0	0	0	0	0		0.00E+00	0.00E+00	0.00
Hexachloro-1,3-butadiene			0	0	0	0	0		0.00E+00	0.00E+00	-
Hexane	700	-	0	0	0	0	0		0.00E+00	0.00E+00	0.00
Isopropyl alcohol	7,000	98,000	6.7	0	**6.7**	**4.2**	0	0	3.92E-04	4.76E-04	0.00
m&p-Xylene	100	4,300	9.9	**2.7**	**9.9**	**7.2**	**8.4**	0	5.79E-04	7.03E-04	0.00
Methyl Butyl Ketone			0	0	0	0	0		0.00E+00	0.00E+00	-
Methyl Ethyl Ketone	5,000	13,000	22	**22**	0	**2**	**1.9**	**1.5**	1.29E-03	1.56E-03	0.00
Methyl Isobutyl Ketone			0	0	0	0	0		0.00E+00	0.00E+00	-
Methyl tert-butyl ether			0	0	0	0	0		0.00E+00	0.00E+00	-
Methylene chloride	2.1	14,000	2.4	0	**0.64**	**1.2**	**2.4**	**0.95**	1.40E-04	1.70E-04	0.01
o-Xylene	100	4,300	3.8	**0.88**	**3.8**	**1.8**	**2.5**	0	2.22E-04	2.70E-04	0.00
Propylene			0	0	0	0	0		0.00E+00	0.00E+00	-
Styrene	1,000	17,000	0.65	**0.65**	0	0	0	0	3.80E-05	4.62E-05	0.00
Tetrachloroethylene	1	1,000	1.9	**1.9**	**0.83 J**	0	0	1.2	1.11E-04	1.35E-04	0.01
Tetrahydrofuran	350	30,000	110	**110**	**6.3**	**6**	**3.7**	**9.7**	6.43E-03	7.81E-03	0.00
Toluene	5,000	37,000	8.1	**2.1**	**8.1**	**1.4**	**2.5**	**0.69**	4.74E-04	5.75E-04	0.00
trans-1,2-Dichloroethene			0	0	0	0	0		0.00E+00	0.00E+00	-
trans-1,3-Dichloropropene			0	0	0	0	0		0.00E+00	0.00E+00	-
Trichloroethene	0.5	14,000	21	**21**	0	0	0	0	1.23E-03	1.49E-03	0.30
Vinyl acetate			0	0	0	0	0		0.00E+00	0.00E+00	-
Vinyl Bromide			0	0	0	0	0		0.00E+00	0.00E+00	-
Vinyl chloride	0.1	180,000	37	0	**2.1**	**1**	**3.2**	**37**	2.16E-03	2.63E-03	2.63

Notes:

1. Volatile organic compounds shown are only those detected in effluent samples during 2011.
2. AGC and SGC values obtained from NYSDEC DAR-1 AGC/SGC Tables, dated 9/10/07.
3. Concentrations shown for each volatile organic compound are the maximum concentrations detected during 2011.
4. Maximum emission rate calculated using the maximum concentrations for each volatile organic compound and the average effluent flow rate (652 scfm) during 2011.
5. Actual annual impact calculated by following procedures described in NYSDEC DAR-1 Guidelines for the Control of Toxic Ambient Air Contaminants (NYSDEC 1991). Note effective stack height of 28 feet.

Definitions:

< - less than laboratory detection limit listed
"-" - indicates no guideline as been established
AGC - Annual Guideline Concentration
J - Indicates concentration is estimated
lb/day - pounds per day
Q - data qualifier
SGC - Short-term Guideline Concentration
µg/m^3 - micrograms per cubic meter

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Table 8. Water Treatment Chemical Consumption Summary, Former Lockheed Martin French Road Facility, Utica, NY.

Chemical Name - ARIES 2908
Chemical Specific Gravity - 1.04 to 1.09 1.065
Specific Weight of Water @ 60°F 8.3378 (lb/gallon)
Specific Weight of Chemical @ 60°F 8.8798 (lb/gallon)

Date	Drum #	Days	Volume in 30 Gallon Drum (gal.)	% Full	Δ Volume (gal.)	Δ Lbs	Consumption Rate (lbs/day)[1]	MH-1 Total Flow (gallons)	MH-2 Total Flow (gallons)	MH-3 Total Flow (gallons)	∑ Total Flows (gallons)	Δ Total Flow	Dose Rate This Period (ppm)[2]	Notes
4/20/2011	1	-	30	100%	-	-	-	51,271,950	9,102,881	224,649	60,599,480	-	-	Brought sequestering agent online for first time.
5/19/2011	1	29	18.5	62%	11.5	102.1	3.5	51,670,347	9,169,542	455,374	61,295,263	695,783	16.5	
6/2/2011	1	14	14.1	47%	4.4	39.1	2.8	51,837,640	9,189,887	534,242	61,561,769	266,506	16.5	
7/7/2011	1	35	12	40%	2.1	18.6	0.5	52,075,707	9,227,668	672,141	61,975,516	413,747	5.1	Under dosing due to CFP being offline due to noted past alarms.
8/11/2011	1	35	7	23%	5	44.4	1.3	52,243,445	9,265,879	787,928	62,297,252	321,736	15.5	
9/8/2011	1	28	0	0%	7	62.2	2.2	52,508,569	9,342,539	966,290	62,817,398	520,146	13.5	Drum #1 empty.
NEW DRUM BROUGHT ONLINE														
9/9/2011	2	-	30	100%	-	-	-	52,552,901	9,347,402	986,141	62,886,444	-	-	Brought Drum #2 online.
9/26/2011	2	17	26	87%	4	35.5	2.1	52,717,931	9,374,727	1,081,024	63,173,682	287,238	13.9	Low sequestering agent flow alarm occurs due to solidified chemical. See noted 3.
10/6/2011	2	10	26	87%	0	0.0	0.0	52,842,625	9,395,515	1,142,812	63,380,952	207,270	0.0	See Note 3.
NEW DRUM BROUGHT ONLINE														
10/6/2011	3	-	30	100%	-	-	-	52,842,625	9,395,515	1,142,812	63,380,952	-	-	Cleaned and inspected fittings/tubing; brought Drum #3 online.
11/1/2011	3	26	26	87%	4	35.5	1.4	53,071,145	9,435,095	1,258,735	63,764,975	384,023	10.4	Continue using 3rd drum.
12/1/2011	3	30	0	0%	26	230.9	7.7	53,349,688	9,469,794	1,371,989	64,191,471	426,496	61.0	3rd drum empty, reuse 2nd drum that was taken offline on 10/6/11
NEW/PREVIOUS DRUM BROUGHT ONLINE														
12/1/2011	2	-	26	87%	-	-	-	53,349,688	9,469,794	1,371,989	64,191,471	-	-	3rd drum empty, reuse 2nd drum that was taken offline on 10/6/11
12/22/2011	2		22	73%	4	35.5	1.7	53,525,286	9,491,900	1,437,180	64,454,366	262,895	15.2	
2011 Total	-	246	-	-	68	603.8	-	-	-	-	-	3,854,886	17.6	Through 12/22/11

Notes:

1) Maximum allowable daily loading rate of 12.5 lbs/day per WTC Usage Form dated 4/11/11.

2) Sequestering agent dosing rate is setup to be proportional to the aggregate flow transmitter value (not shown). However, this table utilizes the sum of the three individual pumping manhole flow transmitter values to calculate dose rate.

3) Sequestering agent low flow alarm occurred on 9/26/11 due to partial solidification of chemical within suction/injection fittings and tubing. Inspection not conducted until 10/6/11, during which time the fittings and tubing were cleaned. Drum #2 was taken offline until vendor could troubleshoot observation, in the interim Drum #3 was brought online.

Table 9. Groundwater Elevation Measurements, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

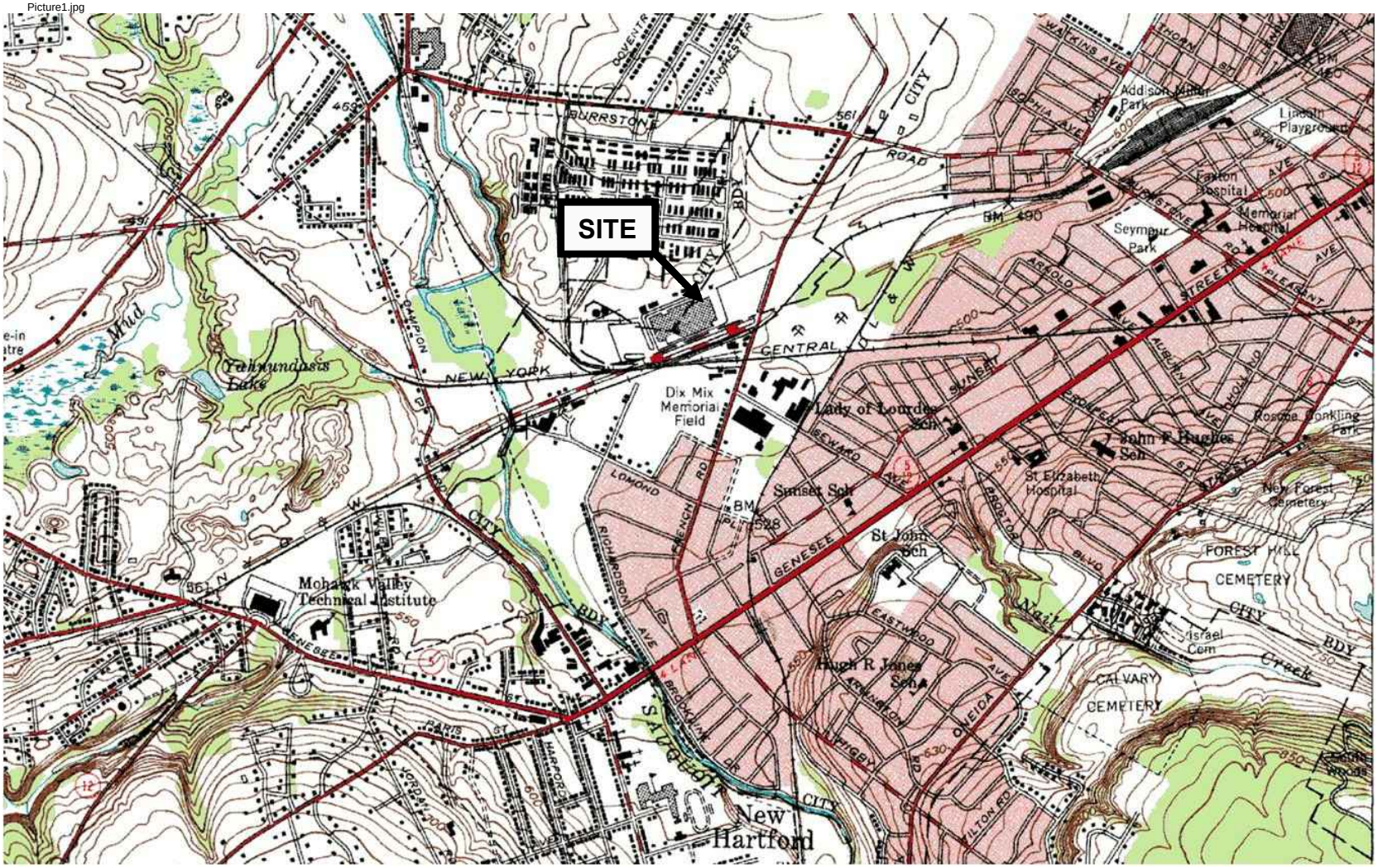
Monitoring Well	Top of PVC Riser Elevation	Depth to water (from top of PVC riser)	Groundwater Elevation (ft)	Depth to water (from top of PVC riser)	Groundwater Elevation (ft)	Depth to water (from top of PVC riser)	Groundwater Elevation (ft)	Depth to water (from top of PVC riser)	Groundwater Elevation (ft)
		February 23, 2011		April 1, 2011		July 5, 2011		September 26, 2011	
MW - 1	506.80	8.11	498.69	6.84	499.96	8.57	498.23	8.09	498.71
MW - 2	504.69	NM	--	4.05	500.64	5.89	498.80	5.42	499.27
MW - 3	509.30	10.58	498.72	9.30	500.00	10.98	498.32	10.58	498.72
MW - 4	506.73	NM	--	6.12	500.61	11.24	495.49	10.55	496.18
MW - 5	504.46	3.81	500.65	2.48	501.98	2.63	501.83	3.08	501.38
MW - 6	508.58	6.87	501.71	5.92	502.66	6.23	502.35	5.59	502.99
MW - 7	506.94	8.53	498.41	7.65	499.29	7.84	499.10	7.46	499.48
MW - 9	505.15	2.60	502.55	1.99	503.16	3.01	502.14	2.55	502.60
MW - 10	504.48	4.41	500.07	3.53	500.95	5.16	499.32	4.80	499.68
MW - 11	507.03	8.50	498.53	7.89	499.14	8.09	498.94	6.80	500.23
MW - 12	508.34	NM	--	10.90	497.44	12.08	496.26	NM	--
MW - 13S	506.03	NM	--	5.40	500.63	DRY	--	6.68	499.35
MW - 13BR	506.28	NM	--	9.55	496.73	10.67	495.61	10.94	495.34
MW - 14S	507.85	9.86	497.99	10.22	497.63	12.57	495.28	10.35	497.50
MW - 14BR	507.95	29.25	478.70	28.02	479.93	25.46	482.49	23.55	484.40
MW - 15S	507.46	8.04	499.42	8.24	499.22	8.38	499.08	8.28	499.18
MW - 15BR	507.29	34.23	473.06	33.48	473.81	31.94	475.35	30.79	476.50
PZ - 2	508.95	1.78	507.17	6.23	502.72	3.08	505.87	NM	--
PZ - 4	505.51	NM	--	NM	--	1.42	504.09	0.47	505.04
PZ - 5	508.29	9.13	499.16	8.99	499.30	8.94	499.35	8.83	499.46
PZ - 6	508.37	9.44	498.93	9.08	499.29	9.32	499.05	9.11	499.26
PZ - 7	508.36	8.98	499.38	8.80	499.56	9.00	499.36	8.89	499.47
PZ - 8	508.23	8.91	499.32	9.00	499.23	9.51	498.72	9.05	499.18
PZ - 9	508.08	8.22	499.86	7.88	500.20	8.02	500.06	7.86	500.22
PZ - 10	508.14	8.70	499.44	8.75	499.39	9.08	499.06	8.78	499.36
PZ - 11R	505.82	7.04	498.78	7.22	498.60	8.64	497.18	8.44	497.38
PZ - 13R	503.85	6.39	497.46	6.46	497.39	8.17	495.68	8.05	495.80
PZ - 17	504.05	5.66	498.39	5.68	498.37	6.17	497.88	6.47	497.58
PZ - 18	504.85	6.39	498.46	6.53	498.32	7.99	496.86	7.85	497.00
PZ - 19	504.60	6.60	498.00	6.65	497.95	7.36	497.24	7.09	497.51
PZ - 20	503.85	6.28	497.57	6.38	497.47	7.04	496.81	6.62	497.23
PZ - 21	505.70	8.90	496.80	DRY	--	DRY	--	DRY	--
PZ - 22	508.57	6.73	501.84	7.30	501.27	7.94	500.63	7.56	501.01
PZ - 23	510.07	6.81	503.26	6.09	503.98	6.82	503.25	6.12	503.95
PZ - 24	507.83	10.23	497.60	10.52	497.31	10.92	496.91	10.74	497.09
PZ - 25	510.62	6.52	504.10	5.96	504.66	6.67	503.95	6.05	504.57
PZ - 26	510.95	9.07	501.88	8.72	502.23	9.21	501.74	8.99	501.96
PZ - 27	510.13	8.80	501.33	10.08	500.05	11.13	499.00	11.47	498.66
PZ - 28	504.12	3.49	500.63	3.53	500.59	3.93	500.19	3.04	501.08
PZ - 29	503.84	NM	--	2.36	501.48	2.43	501.41	2.12	501.72
PZ - 30	504.72	3.68	501.04	3.56	501.16	4.10	500.62	3.54	501.18
PZ - 31	505.17	1.46	503.71	2.10	503.07	2.33	502.84	1.46	503.71
PZ - 32	504.90	0.65	504.25	0.53	504.37	1.84	503.06	0.45	504.45
PZ - 33	510.00	DRY	--	DRY	--	6.82	503.18	DRY	--
PZ - 34	503.88	2.30	501.58	2.34	501.54	3.11	500.77	2.41	501.47
PZ - 35	503.98	NM	--	0.98	503.00	2.09	501.89	1.04	502.94
PZ - 36	504.04	1.12	502.92	1.00	503.04	1.55	502.49	1.09	502.95
PZ - 39	504.51	2.75	501.76	1.90	502.61	3.53	500.98	2.62	501.89
PZ - 40	506.46	4.45	502.01	4.49	501.97	4.92	501.54	4.58	501.88
PZ - 41	506.27	4.12	502.15	4.10	502.17	4.51	501.76	4.22	502.05
PZ - 42	505.18	NM	--	0.30	504.88	0.62	504.56	0.28	504.90
A1-PZ1	503.77	NM	--	1.16	502.61	1.53	502.24	NM	--
A1-PZ2	503.00	1.92	501.08	2.33	500.67	2.30	500.70	2.00	501.00
A2-PZ1	509.74	NM	--	3.49	506.25	4.35	505.39	3.87	505.87
A2-PZ2	509.46	6.89	502.57	6.41	503.05	6.63	502.83	6.08	503.38
A2-PZ3	509.46	1.69	507.77	2.98	506.48	3.06	506.40	NM	--
A2-PZ4	509.40	0.40	509.00	0.81	508.59	1.86	507.54	0.65	508.75
A2-PZ5	510.03	2.13	507.90	7.68	502.35	7.88	502.15	5.81	504.22
A2-PZ6	509.74	1.21	508.53	0.54	509.20	3.25	506.49	1.20	508.54
A2-PZ7	509.59	1.63	507.96	5.74	503.85	6.27	503.32	NM	--
A2-PZ8	509.70	0.75	508.95	0.80	508.90	5.72	503.98	0.74	508.96

All elevations are reported as feet mean sea level (ft msl)
Survey data is referenced horizontally to the NAD83 and projected on the New York State Plane Coordinate System (Central Zone)
The reference vertical benchmark is the finished floor elevation of the southeasterly corner of the Boiler House Building (Elevation 506.50 feet)
NI - Not Installed
NM - Not Measured

ARCADIS

Figures

CITY:(MAHWAH) DIV/GROUP:(ENRI- 1) DB:(JG LD:(Opt) PIC:(Opt) PM:(CM) TM:(BM) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Mahwah\ACT\NJ001000\0001\00001\2012-02\FIG 1- SITE LOCATION.dwg LAYOUT: 1 SAVED: 2/20/2012 3:39 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 2/20/2012 3:39 PM BY: GONZALEZ, JAMES
XREFS: IMAGES: PROJECTNAME: ----
Picture1.jpg



GROUNDWATER COLLECTION AND TREATMENT SYSTEM ANNUAL REPORT
FORMER LOCKHEED MARTIN, FRENCH ROAD PROPERTY
UTICA, NEW YORK

SITE LOCATION MAP

ARCADIS

FIGURE
1

LEGEND:

BUILDING	MW-4 MONITORING WELL LOCATION
EDGE OF PAVEMENT	IW-1 INJECTION WELL
STORMWATER DRAINAGE SYSTEM	PZ-39 PIEZOMETER LOCATION
GROUNDWATER COLLECTION SYSTEM AND PIPING	A2-PZ-4 SOIL BORING/PIEZOMETER LOCATION (FOCUS AREAS A1 AND A2)
MH-4 MANHOLE	SG-23 SOIL GAS PROBE LOCATION

FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY
UTICA, NEW YORK

GROUNDWATER COLLECTION AND TREATMENT SYSTEM ANNUAL REPORT

SITE PLAN AND GROUNDWATER COLLECTION AND TREATMENT SYSTEM LAYOUT

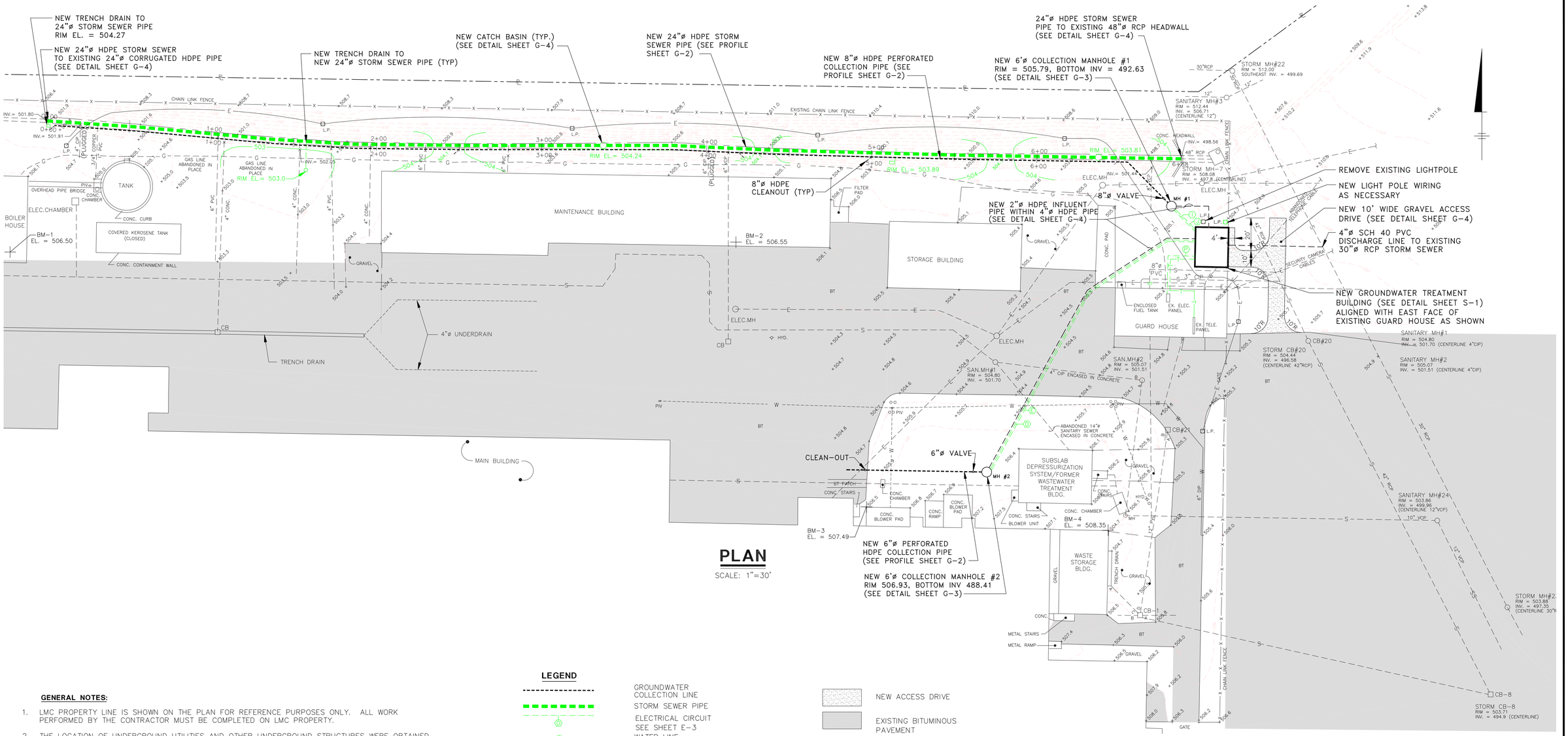
ARCADIS

FIGURE
2

Appendix A

Record Drawings

Original As-Built Drawings



PLAN

SCALE: 1"=30'

GENERAL NOTES:

1. LMC PROPERTY LINE IS SHOWN ON THE PLAN FOR REFERENCE PURPOSES ONLY. ALL WORK PERFORMED BY THE CONTRACTOR MUST BE COMPLETED ON LMC PROPERTY.
2. THE LOCATION OF UNDERGROUND UTILITIES AND OTHER UNDERGROUND STRUCTURES WERE OBTAINED BY FIELD MEASUREMENT WHERE POSSIBLE, OTHERWISE OBTAINED FROM OTHER SOURCES AND ARE APPROXIMATE ONLY. OTHER UNDERGROUND UTILITIES MAY EXIST, THE LOCATION OF WHICH AT THIS TIME ARE UNKNOWN. THE CONTRACTOR SHALL VERIFY THE LOCATION OF UTILITIES IN THE FIELD PRIOR TO INITIATING WORK UNDER THIS CONTRACT.
3. BASE MAP PREPARED FROM SURVEY INFORMATION GENERATED BY BLASLAND, BOUCK & LEE, INC. DATED 8/30/95. ELEVATIONS BASED ON BOILER HOUSE FIRST FLOOR ELEVATION OF 506.50 FROM A MAP BY O'BRIEN & GERE ENGINEERS ENTITLED "PAVEMENT AND DRAINAGE REHABILITATION PLAN" DATED 6/23/94. CONTOUR INTERVAL = 1 FOOT.

LEGEND

- GROUNDWATER COLLECTION LINE
- STORM SEWER PIPE
- ELECTRICAL CIRCUIT SEE SHEET E-3
- WATER LINE
- TELEPHONE LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING CHAIN LINK FENCE
- EXISTING PROPERTY LINE
- NEW ACCESS DRIVE
- EXISTING BITUMINOUS PAVEMENT
- HYD. EXISTING HYDRANT
- PIV EXISTING POSITION INDICATOR VALVE
- L.P. EXISTING LIGHT POLE
- MH #22 EXISTING MANHOLE
- CB#21 EXISTING CATCH BASIN

1"=30' 30' 0 30' 60'

RECORD DRAWING: MADE FROM BBL DRAWING G-1, FILE NUMBER 380.92.01F, DATED OCTOBER 13, 1995

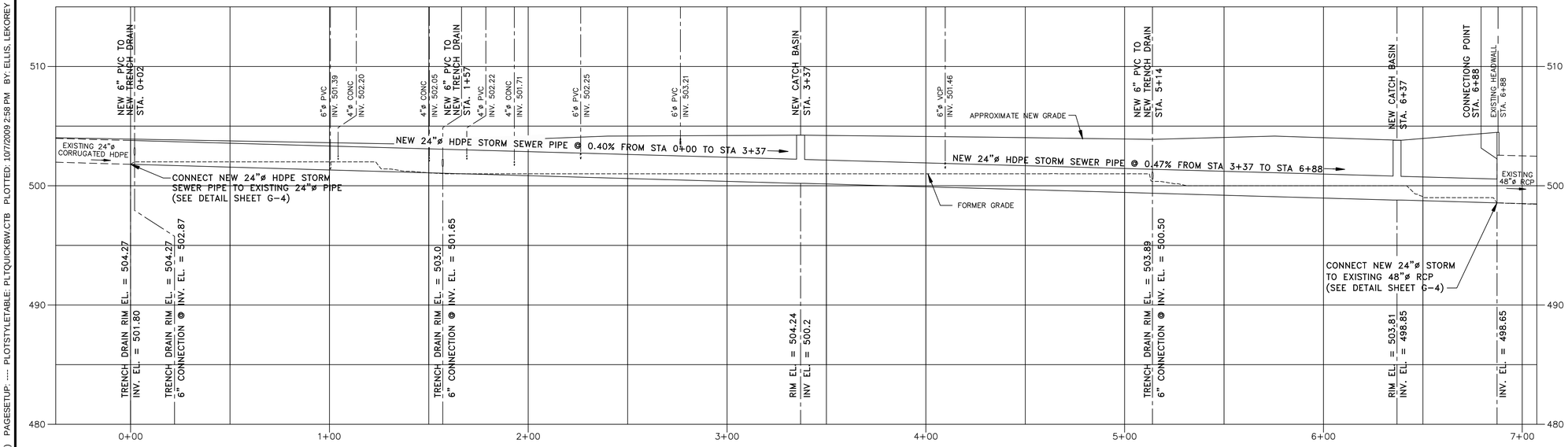
LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK

GROUNDWATER COLLECTION AND TREATMENT SYSTEM

SITE PLAN

ARCADIS

FIGURE
G-1

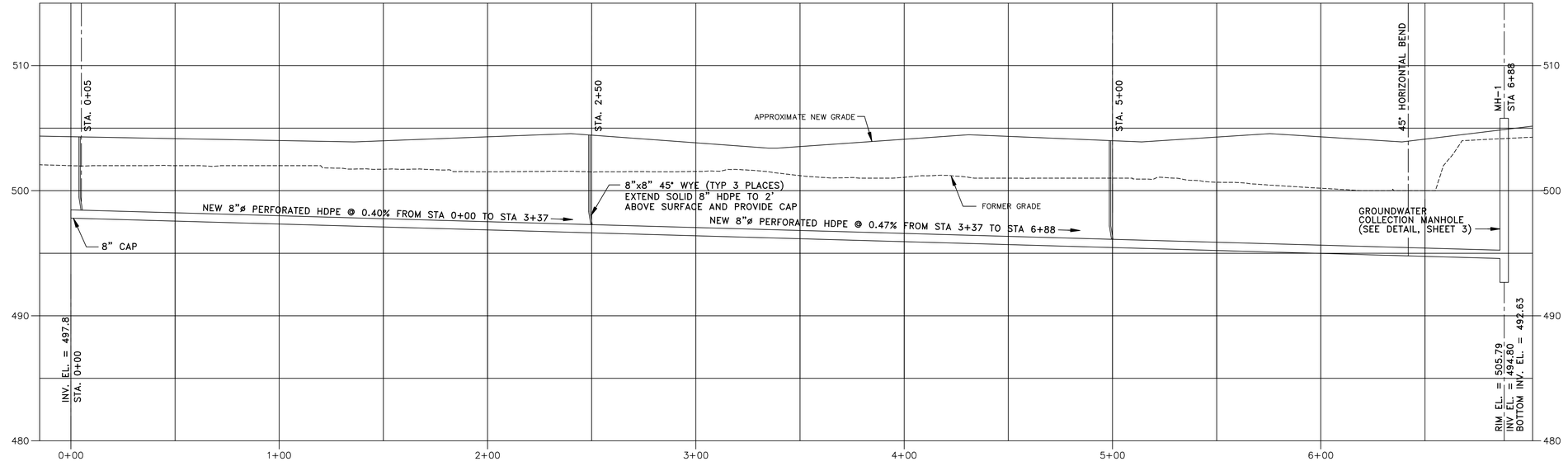


NOTES:

1. NEW GRADE ELEVATIONS ARE SHOWN AS REFERENCE ONLY. ACTUAL AS-BUILT GRADES MAY VARY.

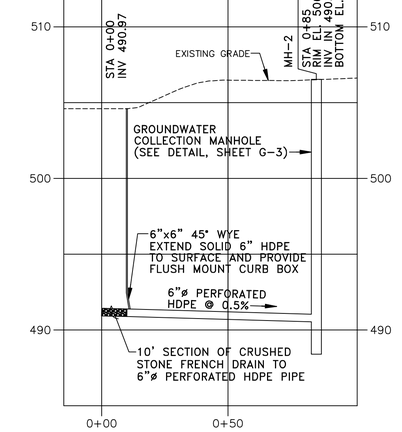
DRAINAGE DITCH AREA STORM SEWER PROFILE

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'



DRAINAGE DITCH AREA GROUND-WATER COLLECTION SYSTEM PROFILE

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'



SOLVENT DOCK AREA GROUND-WATER COLLECTION SYSTEM PROFILE

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'

SCALE: 1"=30' 0 30' 60'

SCALE: 1"=5' 0 5' 10'

RECORD DRAWING: MADE FROM BBL DRAWING G-2, FILE NUMBER 380.92.02F, DATED OCTOBER 13, 1995

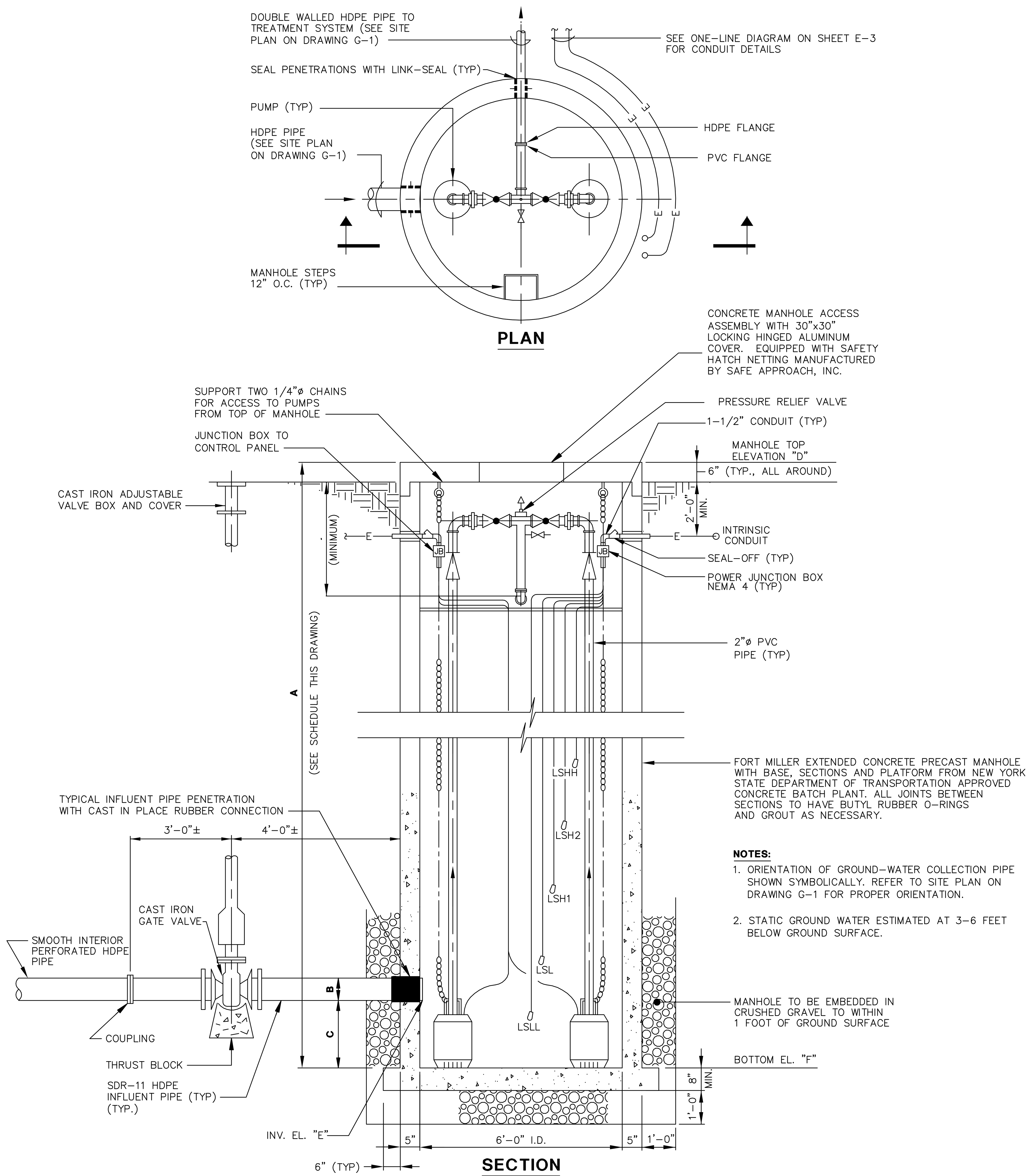
LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

PROFILES

ARCADIS

FIGURE
G-2

CITY:CARY DIV/GROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Cary\RETURN-TO\Newtown-NY\NJ001\00\000110\0002\MAP\REPORT\NONE\380975\01\380975G02.DWG LAYOUT: G-2 SAVED: 8/20/2009 6:55 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTQUICKBW.CTB PLOTTED: 10/7/2009 2:58 PM BY: ELLIS, LEKOREY
XREFS: 38097X00 IMAGES: PROJECTNAME: ----



NOTES:

1. ORIENTATION OF GROUND-WATER COLLECTION PIPE SHOWN SYMBOLICALLY. REFER TO SITE PLAN ON DRAWING G-1 FOR PROPER ORIENTATION.
2. STATIC GROUND WATER ESTIMATED AT 3-6 FEET BELOW GROUND SURFACE.

PUMPING MANHOLE NO. 1 AND 2 DETAIL

NOT TO SCALE

SPECIFICATIONS AND NOTES (APPLICABLE TO DRAWINGS G-1 THROUGH E-3)

1. AIR STRIPPER SYSTEM TO BE MANUFACTURED BY SHALLOWTRAY MODEL 3631, 316 AS SPECIFIED IN MATERIAL AND PERFORMANCE SPECIFICATION MP-04006.
2. ALL PVC PIPES SHALL BE SCHEDULE 80 TYPE II UNLESS OTHERWISE SPECIFIED.
3. ALL PVC JOINTS TO BE SOLVENT WELDED.
4. ALL PVC PIPES SHALL BE SUPPORTED EVERY 5'-0" AND LOCATED 2'-0" (MAX) FROM JOINT LOCATIONS.
5. ALL CORRUGATED HDPE PIPE SHALL BE ADS N-12 SMOOTH INTERIOR OR EQUAL. ALL OTHER HDPE PIPE TO BE SDR-11 OR SDR-17 AS INDICATED.
6. ALL HDPE JOINTS TO BE BUTT FUSED.
7. ALL PIPE AND HOSE TO BE INSTALLED AND PRESSURE-TESTED AS PER MANUFACTURER'S SPECIFICATIONS. ZERO LEAKAGE IS ALLOWED FOR ALL JOINTS.
8. ALL PIPING AND MANIFOLDS TO BE LABELED WITH STENCIL OR ADHESIVE. FLOW ARROWS TO BE LABELED AT INLET AND DISCHARGE CONNECTIONS, PIPING AND DESCRIPTION (E.G., MANHOLE NO. 1 INFLUENT) SHALL ALSO BE CLEARLY LABELED AT ALL VALVE AND APPURTENANCE LOCATIONS.
9. FLOW METERS SHALL BE SIGNET ANALOG FLOW TOTALIZER, WHICH DISPLAYS FLOW RATE AND TOTALIZED FLOW VOLUME OR EQUAL. SIGNET INDICATOR SHALL BE A MODEL P57540. ASSOCIATED SIGNET SENSOR SHALL BE MODEL P51530-PO. FITTINGS AND DIAL RANGES ARE AS FOLLOWS:
   - A. MANHOLE NO. 1, 2 INCH DIAMETER INFLUENT LINE
     SENSOR FITTING – PV8T020
     DIAL RANGE – 0-60 GPM
   - B. MANHOLE NO. 2, 2 INCH DIAMETER INFLUENT LINE
     SENSOR FITTING – PV8T020
     DIAL RANGE – 0-30 GPM
   - C. SUMP PUMP 1-INCH DIAMETER INFLUENT LINE
     SENSOR FITTING – PV8T012
     DIAL RANGE – 0-30 GPM
10. ALL FLOW METERS SHALL HAVE STRAIGHT PIPE PRECEDING (10 TIMES PIPE DIAMETER) AND FOLLOWING (5 TIMES PIPE DIAMETER) THEM.
11. ALL SAMPLE TAPS AND DRAIN VALVES SHALL CONSIST OF A 1/2"ø PIPE EXTENSION AND BALL VALVE OR EQUAL. SAMPLE TAPS AND DRAIN VALVES SHALL BE LOCATED AT LOCATIONS SHOWN ON THE DRAWINGS AND AT ALL LOW ELEVATIONS IN PROCESS PIPING.
12. ALL BALL VALVES TO BE PVC TRUE UNION TYPE WITH VITON SEALS BY TRUE BLUE OR EQUAL.
13. ALL BALL CHECK VALVES TO BE PVC, TRUE UNION TYPE WITH VITON SEALS BY PLASTO-MATIC OR EQUAL.
14. ALL PRESSURE GAUGES TO BE TRERICE MODEL NO. 450 LFB (WET) SILICONE-FILLED OR EQUAL. DIAL RANGES ARE AS FOLLOWS:
   - A. MANHOLE NO. 1 INFLUENT LINE – (0-30 PSI)
   - B. MANHOLE NO. 2 INFLUENT LINE – (0-30 PSI)
   - C. SUMP PUMP INFLUENT LINE – (0-15 PSI)
15. SUMP PUMP SHALL BE A GRUNDFOG MODEL BOSS 210-A STAINLESS STEEL TOP-DISCHARGE SUBMERSIBLE SUMP PUMP WITH AUTOMATIC FLOAT SWITCH.
16. MANHOLE NO. 1 PUMPS SHALL BE GOULDS PUMPS MODEL 3887 WITH VITON SEALS AND CAST IRON IMPELLER (3/4 HP, 230 VOLTS, 1,750 RPM, 1 PHASE) CAPABLE OF 20 GPM @ 23 FEET TDH (ONE PUMP) AND 40 GPM @ 28 FEET TDH (TWO PUMPS) OR EQUAL.
17. MANHOLE NO. 2 PUMPS SHALL BE GOULDS PUMPS MODEL 3887 WITH VITON SEALS AND CAST IRON IMPELLER (3/4 HP, 230 VOLTS, 1,750 RPM, 1 PHASE) CAPABLE OF 10 GPM @ 26 FEET TDH (ONE PUMP) AND 20 GPM @ 30 FEET TDH (TWO PUMPS) OR EQUAL.
18. DUCTWORK
   - A. UNLESS SPECIFICALLY SHOWN OTHERWISE, DUCTWORK SHALL BE FABRICATED OF ASTM AA167 TYPE 316 STAINLESS STEEL, SCHEDULE 10.
   - B. DUCTWORK JOINTS, FABRICATION, AND SUPPORTS SHALL BE IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS.
   - C. ALL DUCTWORK TO BE AIR TIGHT.
19. POTABLE WATER LINE PIPING SHALL BE ASTM B88 TYPE L COPPER WITH ANSI/ASME B16.29 WROUGHT COPPER FITTINGS. JOINTS SHALL BE SOLDERED WITH GRADE 95TA SOLDER.
20. ITEMS OF SPECIFIC MANUFACTURERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE PRINTED INSTRUCTIONS AND/OR THE MANUFACTURERS REPRESENTATIVES DIRECTIONS.
21. ALL WALL PENETRATIONS SHALL BE SEALED WITH SILICONE AND COORDINATED WITH BUILDING MANUFACTURER SO AS NOT TO VOID BUILDING WARRANTEE.
22. ALL EXPOSED METALLIC SURFACES SHALL BE CORROSION RESISTANT OR CORROSION RESISTANT PAINTED.
23. ALL EQUIPMENT SHALL BE SUPPLIED AS SHOWN ON THE DRAWINGS. ANY PROPOSED DEVIATION FROM THE DRAWING MUST BE APPROVED BY LMC'S REPRESENTATIVE.
24. CONCRETE COATING SYSTEM TO BE PROVIDED AS PER SPECIFICATION MP-03002.
25. CONTRACTOR TO PROVIDE AND MOUNT ON WALL A FULLY-CHARGED DRY CHEMICAL TYPE FIRE EXTINGUISHER WITH AN A, B, C, RATING KIDDE OR EQUAL.
26. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL BUILDING CODES AND LOCAL HEALTH DEPARTMENT REGULATIONS.
27. SLOP SINK SHALL BE MUSTEE UTILATUB MODEL 18F OR EQUAL. PROVIDE WITH MANUFACTURERS FAUCET WITH SWING SPOUT 1-1/2" BASKET STRAINER AND P-TRAP.
28. NEW MANHOLES SHALL BE EXFILTRATION TESTED AS FOLLOWS: THE MANHOLE SHALL BE FILLED WITH POTABLE WATER FOR 8 HOURS AND WILL BE ACCEPTABLE IF, FOR A TWO-HOUR OBSERVATION PERIOD THE LEAKAGE RATE IN THE STRUCTURE IS BELOW ONE GALLON PER VERTICAL FOOT OF DEPTH OVER A CALCULATED 24-HOUR PERIOD, NO VISIBLE LEAKAGE OF ANY AMOUNT IS ACCEPTABLE.
29. DESIGN LOADS: ALL STRUCTURAL LOADS AND LOAD COMBINATIONS SHALL BE IN ACCORDANCE WITH THE NEW YORK STATE BUILDING CODE.
30. SEE MECHANICAL DRAWINGS FOR LOCATION OF ALL OPENINGS IN FLOOR AND WALLS NOT SHOWN ON STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL VERIFY THE NUMBER, SIZE AND LOCATION OF ALL OPENINGS BEFORE POURING ANY CONCRETE.
31. ALL BACKFILL REQUIRED AS THE RESULT OF OVER EXCAVATION, UNLESS DIRECTED BY REPRESENTATIVES OF LMC, SHALL BE MADE WITH COMPACTED SPECIAL BACKFILL OR LEAN CONCRETE FILL.
32. BACKFILL AT WALLS SHALL BE PLACED AND COMPACTED SIMULTANEOUSLY ON BOTH SIDES.
33. BACKFILL SHALL NOT BE PLACED AGAINST FOUNDATION WALLS UNTIL 28-DAY DESIGN STRENGTH IS REACHED OR THE WALLS ARE ADEQUATELY BRACED.
34. ALL STEEL REINFORCING SHALL BE SECURELY WIRED TOGETHER IN THE FORMS.
35. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4-INCH.
36. ALL SURFACES AT RECENTLY POURED CONCRETE RECEIVING NEW CONCRETE SHALL BE PREPARED BY CLEANING, WETTING AND TREATMENT WITH A NEAT CEMENT GROUT.
37. TRENCH DRAIN SHALL CONSIST OF A 24" WIDE , 11" DEEP AND 39" LONG PRECAST CONCRETE DRAIN WITH CAST IRON GRATING, AND 6"ø OUTLET.
38. PUMPING MANHOLES NO.1 AND NO.2 ARE ELECTRICALLY CLASSIFIED AS CLASS 1, DIVISION 1, GROUP D ATMOSPHERES.

LEGEND

- BALL VALVE
- CHECK VALVE
- NUT UNION
- SAMPLE/DRAIN TAP
- —E— POWER WIRING
- PRESSURE RELIEF VALVE

COLLECTION MANHOLE SCHEDULE

DESCRIPTION	MH-1	MH-2
DIST. A	13'-1"	18'-5"
DIST. B	0'-8"	0'-6"
DIST. C	2'-0"	2'-0"
TOP EL. D	505.79'	506.93'
INV. EL. E	494.66'	490.44'
BOT. EL. F	492.63'	488.41'
LSLL	494.13'	489.91'
LSL	495.13'	491.41'
LSH1	497.63'	493.41'
LSH2	499.63'	496.41'
LSHH	502.13'	499.41'

NOT TO SCALE

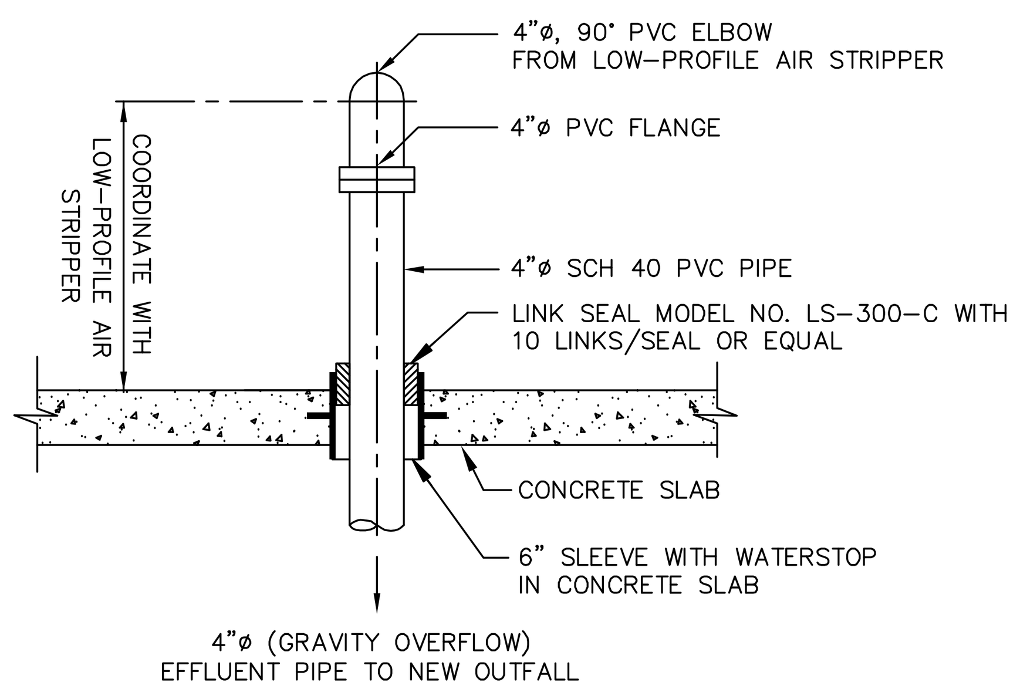
LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

PUMPING MANHOLE DETAILS AND SPECIFICATIONS

ARCADIS

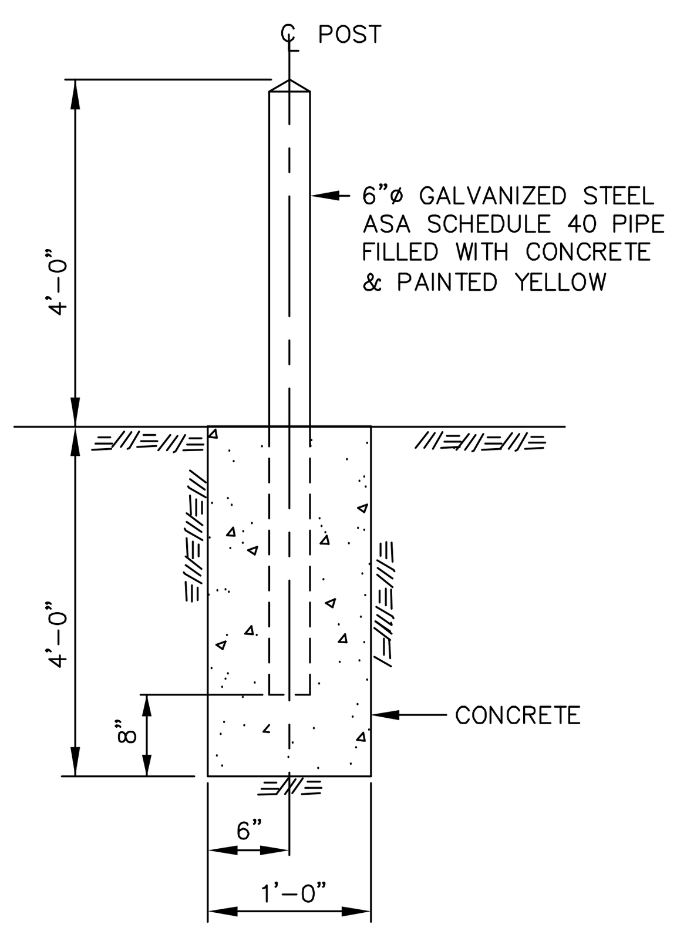
FIGURE
G-3

RECORD DRAWING: MADE FROM BBL DRAWING G-3, FILE NUMBER 380.92.03F, DATED OCTOBER 13, 1995



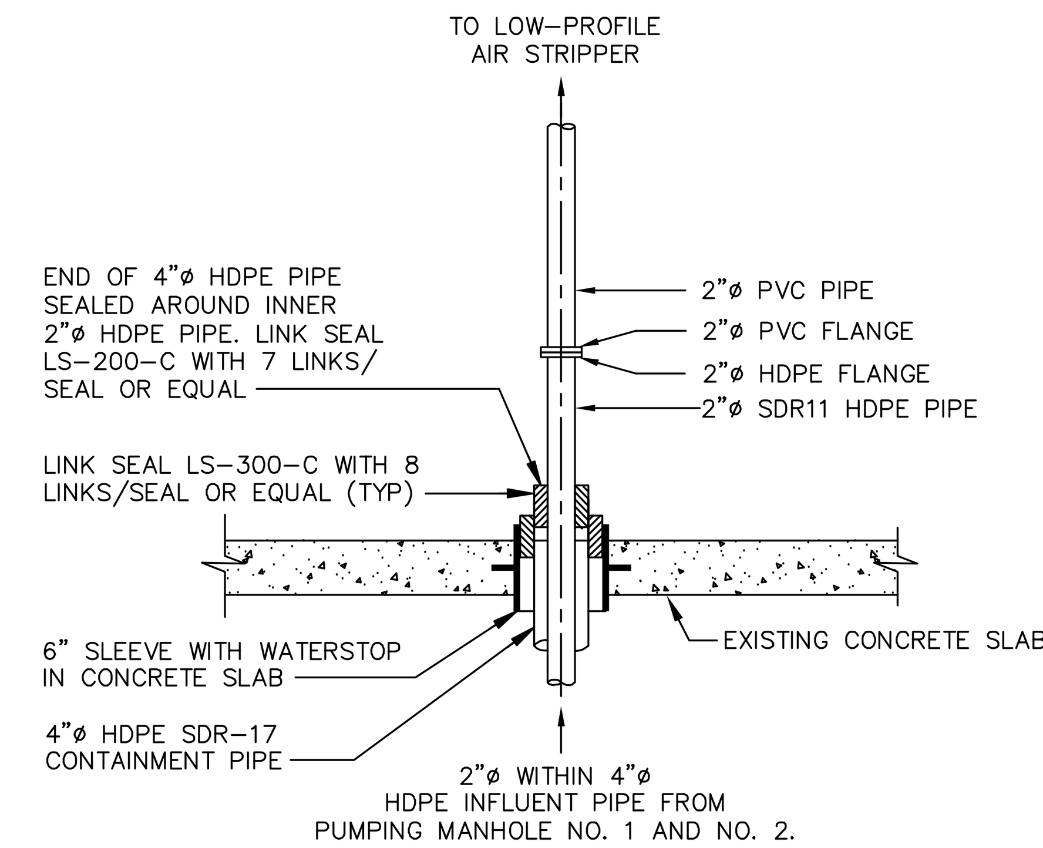
EFFLUENT PIPE DETAIL

NOT TO SCALE



BOLLARD DETAIL

NOT TO SCALE



INFLUENT PIPE DETAIL

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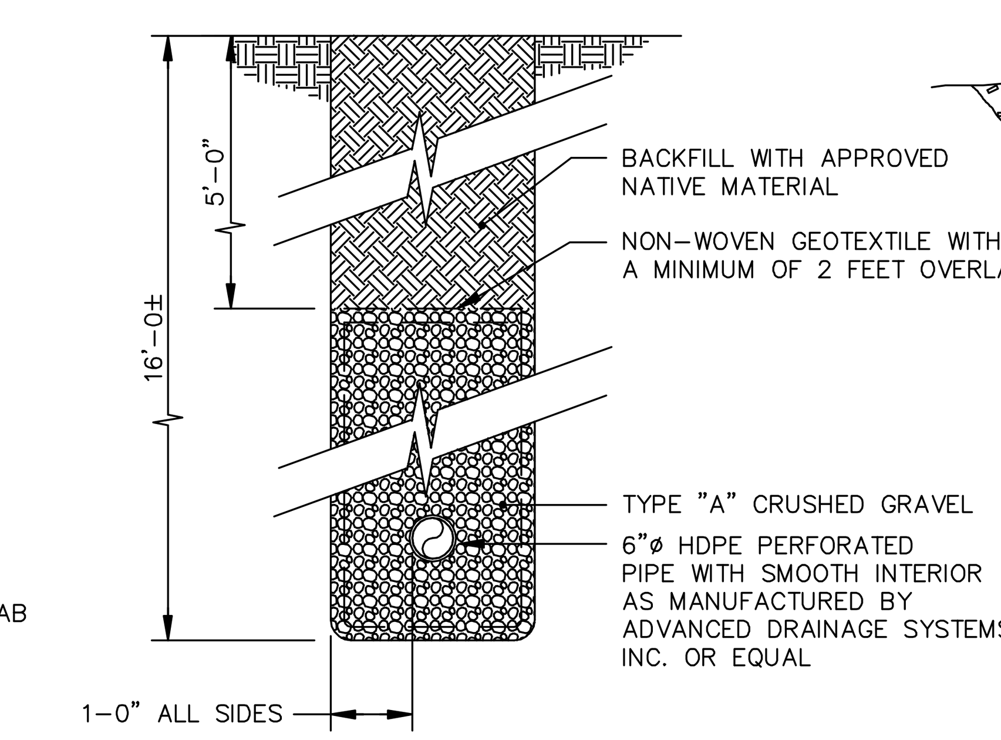
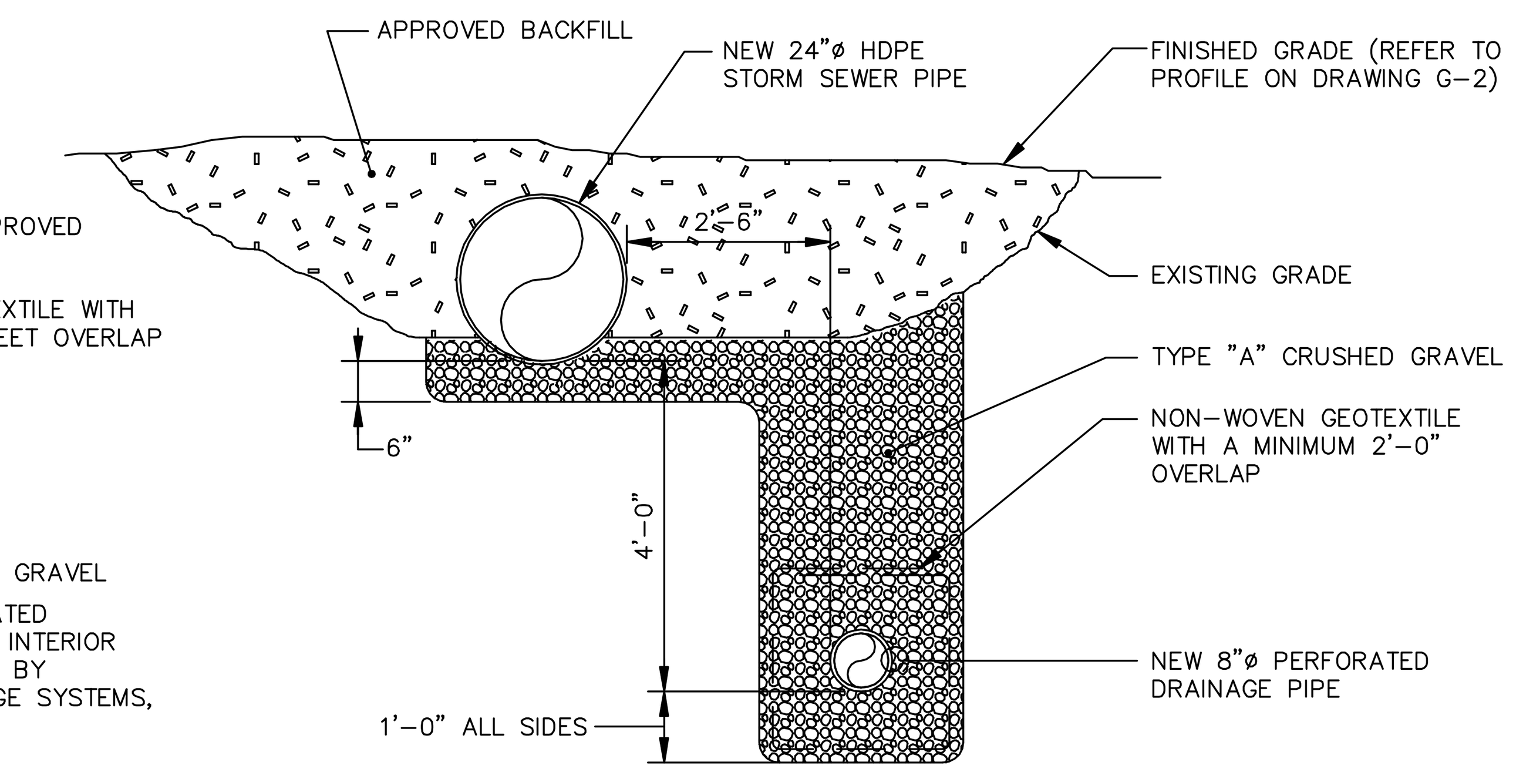


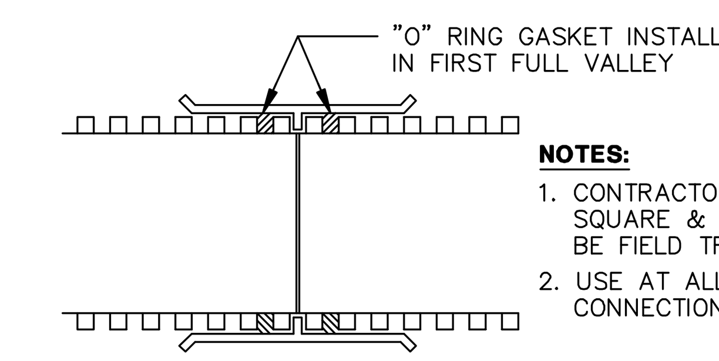
SOLVENT DOCK AREA TRENCH DETAIL

NOT TO SCALE



DRAINAGE DITCH AREA TRENCH DETAIL

NOT TO SCALE

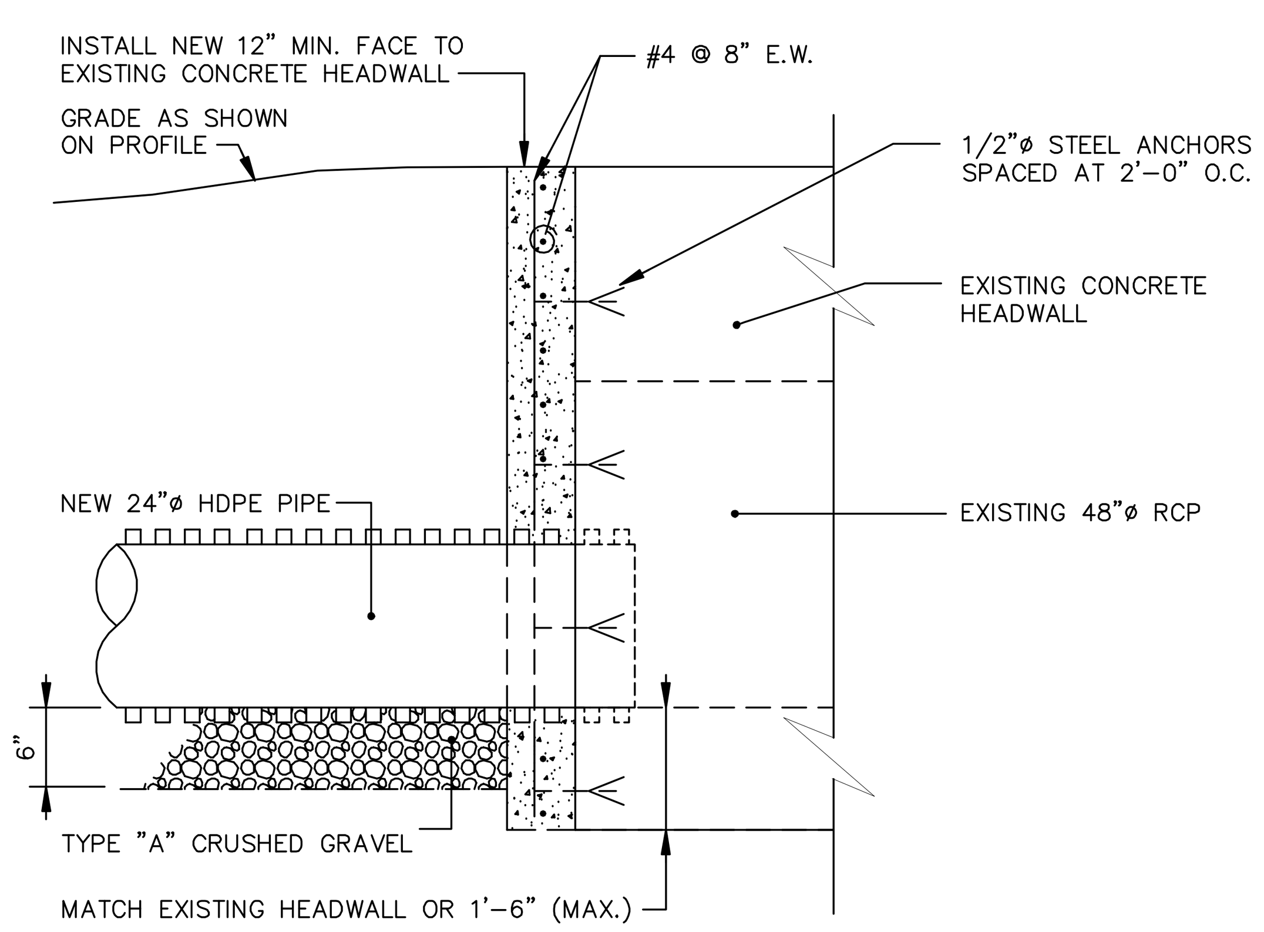


NOTES:

1. CONTRACTOR SHALL MAKE ALL JOINTS SQUARE & TIGHT. DAMAGED ENDS SHALL BE FIELD TRIMMED.
2. USE AT ALL STORM SEWER PIPE JOINTS & CONNECTION WITH EXISTING 24"ø STORM SEWER.

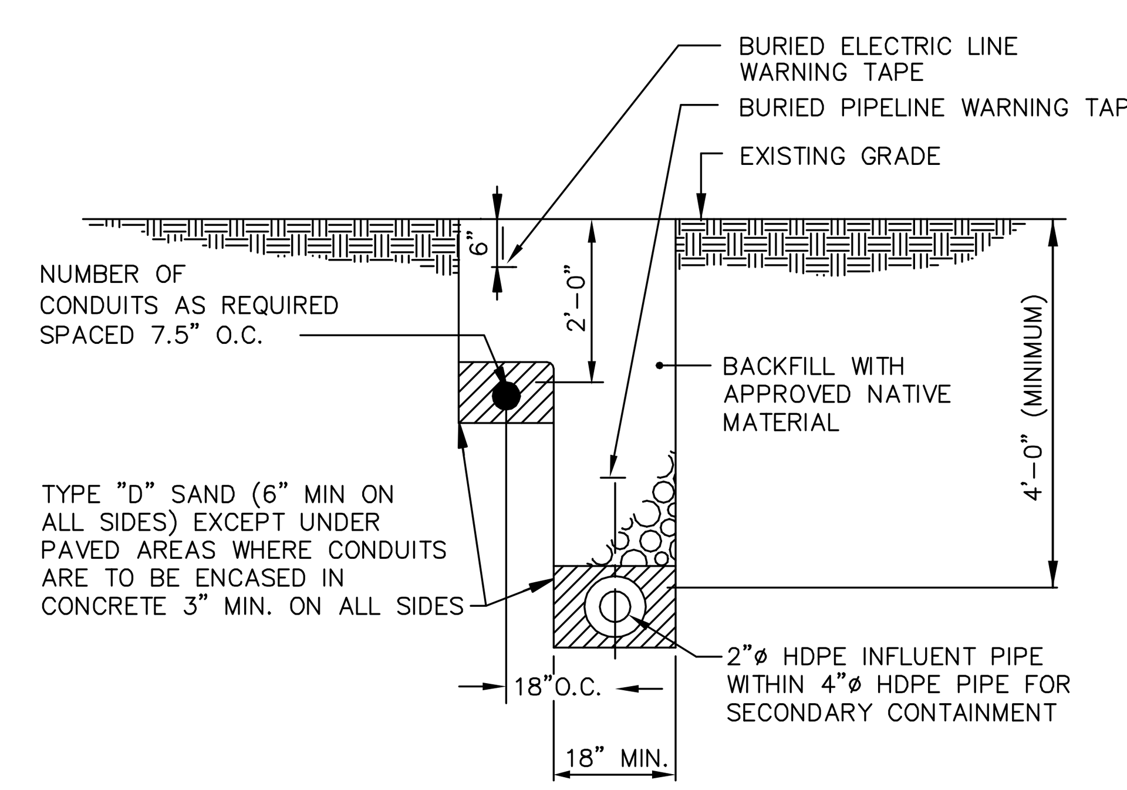
STORM SEWER PIPE COUPLING DETAIL

NOT TO SCALE



STORM SEWER CONNECTION TO EXISTING CONCRETE HEADWALL DETAIL

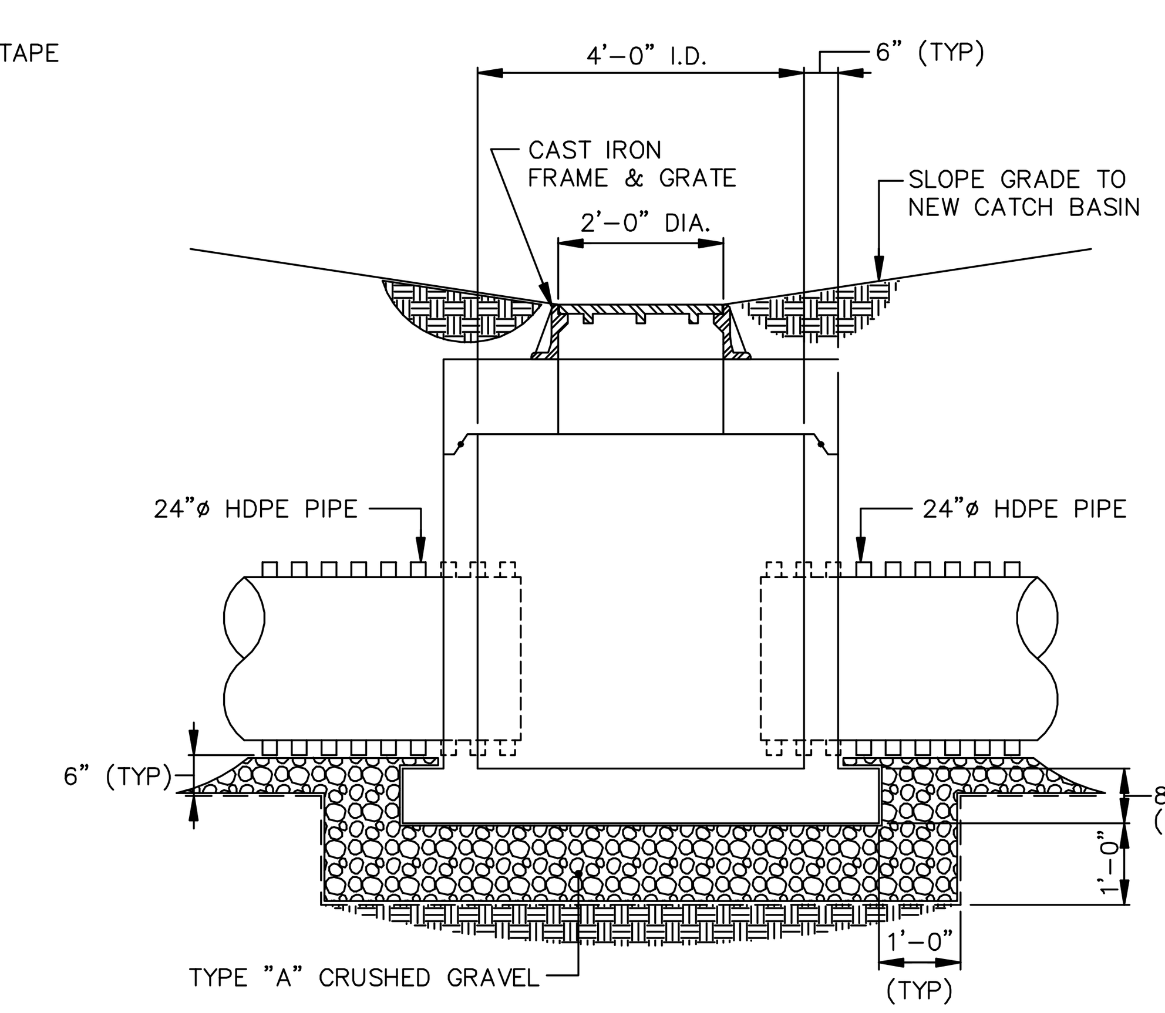
NOT TO SCALE



TYPICAL TRENCH DETAIL

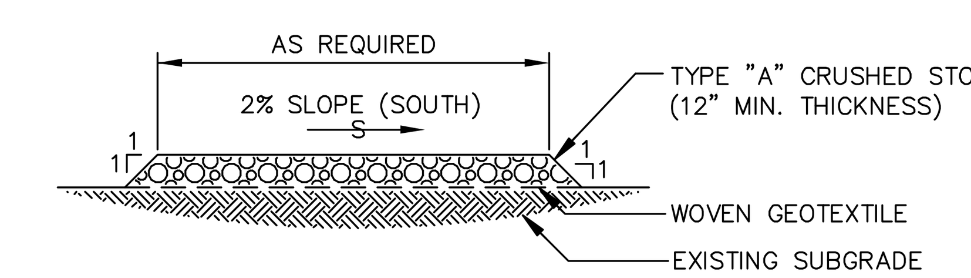
NOT TO SCALE

NOT TO SCALE



CATCH BASIN DETAIL

NOT TO SCALE



NOTES:

1. ROAD SUBGRADE SHALL BE STRIPPED OF NATIVE VEGETATION TO THE BOTTOM OF ROOT ZONE. THE SUBGRADE WILL THEN BE PROOF ROLLED WITH A SMOOTH DRUM VIBRATORY ROLLER WITH A MINIMUM STATIC WEIGHT OF 10 TONS.
2. AREAS THAT DO NOT PASS PROOF ROLLING WILL BE OVER EXCAVATED AND REPLACED WITH CRUSHED STONE AS DIRECTED BY LMC'S REPRESENTATIVE.
3. WOVEN GEOTEXTILE SHALL BE PLACED OVER THE PROPOSED ROAD SUBGRADE SO THAT IT IS FREE OF FOLD AND WRINKLES. MINIMUM OVERLAPS BETWEEN ROLLS OF GEOTEXTILE SHALL BE 3 FEET.
4. CRUSHED STONE WILL BE PLACED FROM TRUCKS ONTO EXISTING CRUSHED STONE AND THEN SPREAD ONTO THE GEOTEXTILE WITH A DOZER. UNDER NO CIRCUMSTANCE IS CONSTRUCTION EQUIPMENT TO DRIVE DIRECTLY ON THE GEOTEXTILE OR WITH LESS THAN 6-INCHES OF CRUSHED STONE OVER THE GEOTEXTILE.
5. AFTER COMPLETION OF FINISH GRADING ALL POINTS ON THE ROAD SURFACE SHALL BE ROLLED AT LEAST 4 TIMES WITH A SMOOTH DRUM VIBRATORY ROLLER WITH A MINIMUM STATIC WEIGHT OF AT LEAST 10 TONS.

GRAVEL ACCESS DRIVE DETAIL

NOT TO SCALE

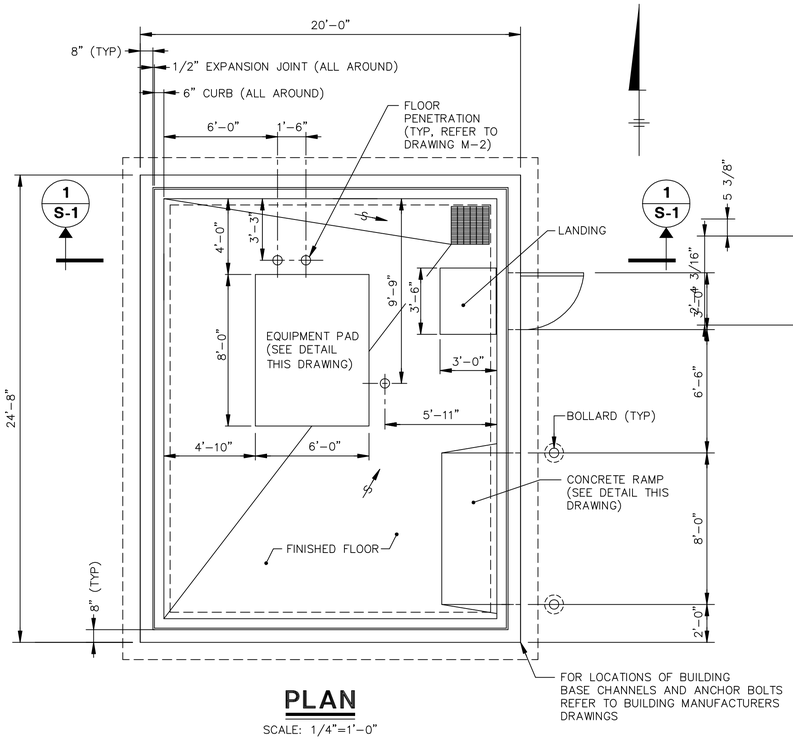
RECORD DRAWING: MADE FROM BBL DRAWING G-4, FILE NUMBER 380.92.04F, DATED OCTOBER 13, 1995

LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

MISCELLANEOUS DETAILS

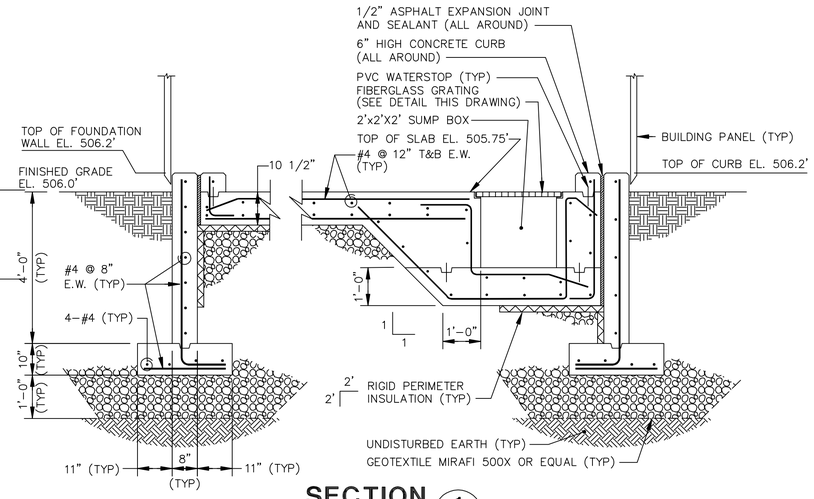
ARCADIS

FIGURE
G-4



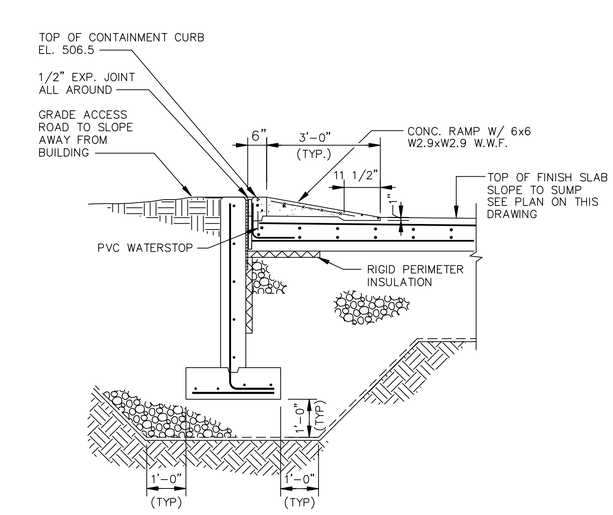
PLAN

SCALE: 1/4"=1'-0"



SECTION 1/S-1

SCALE: 1/2"=1'-0"

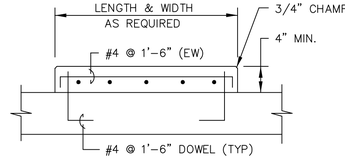


NOTES:

1. SEE SECTION 1 ON THIS DRAWING FOR REINFORCING, BAR SIZE & SPACING.
2. SLOPE SIDES OF RAMP DOWN TO BASE SLAB.

TYPICAL RAMP DETAIL

SCALE: 1/2" = 1'-0"

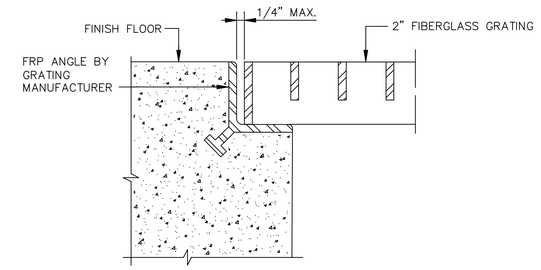


NOTE:

ANCHOR BOLTS FOR EQUIPMENT AND PAD SIZES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

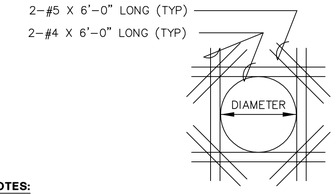
EQUIPMENT PAD DETAIL

NOT TO SCALE



GRATING DETAIL

NOT TO SCALE



NOTES:

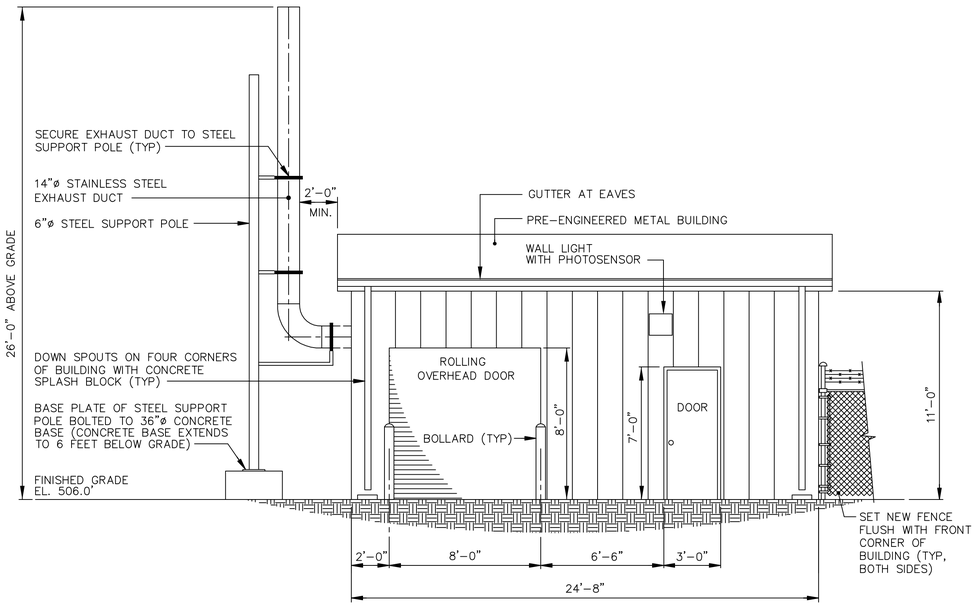
1. PROVIDE ADDITIONAL REINFORCEMENT WHEN OPENING SIZE OR DIAMETER IS EQUAL TO OR GREATER THAN SPECIFIED BAR SPACING.
2. PROVIDE ONE HALF THE AREA OF CUT BARS EACH SIDE, MINIMUM (2)-#4 @ 6" E.F.
3. EXTEND REINFORCEMENT A MINIMUM OF 48 BAR DIAMETERS BEYOND THE FACE OF THE OPENING. WHEN EMBEDMENT CAN NOT BE OBTAINED EXTEND BARS AS FAR AS POSSIBLE AND PROVIDE STANDARD HOOK.
4. ADDITIONAL DIAGONAL REINFORCEMENT FOR ALL OPENINGS GREATER THAN 4'-0", PROVIDE ONE HALF AREA OF CUT BARS EACH CORNER MINIMUM (2)-#6 @ 6" E.F.

ADDITIONAL REINFORCING DETAIL AT SLAB OPENINGS

NOT TO SCALE

GENERAL NOTE:

FOR STRUCTURAL NOTES REFER TO DRAWING G-3



EAST ELEVATION

SCALE: 1/4"=1'-0"

SCALE:
1/4"=1'-0" 4' 2' 0 4' 8'
1/2"=1'-0" 2' 0 2' 4'

LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK

GROUNDWATER COLLECTION AND TREATMENT SYSTEM

BUILDING ELEVATION, SECTION AND DETAILS

ARCADIS

FIGURE
S-1

RECORD DRAWING: MADE FROM BBL DRAWING S-1, FILE NUMBER 380.92.05F, DATED OCTOBER 13, 1995

CITY:CARY DIV/GROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Read) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF* G:\ENVCAD\Cary\RETURN-TON\newtown-NY\NJ001001000100002\MAP\REPORT\NONE\380973S01\380973S01.DWG LAYOUT: S-1 SAVED: 8/21/2009 1:55 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTQUICKBW.CTB PLOTTED: 10/7/2009 2:57 PM BY: ELLIS, LEKOREY
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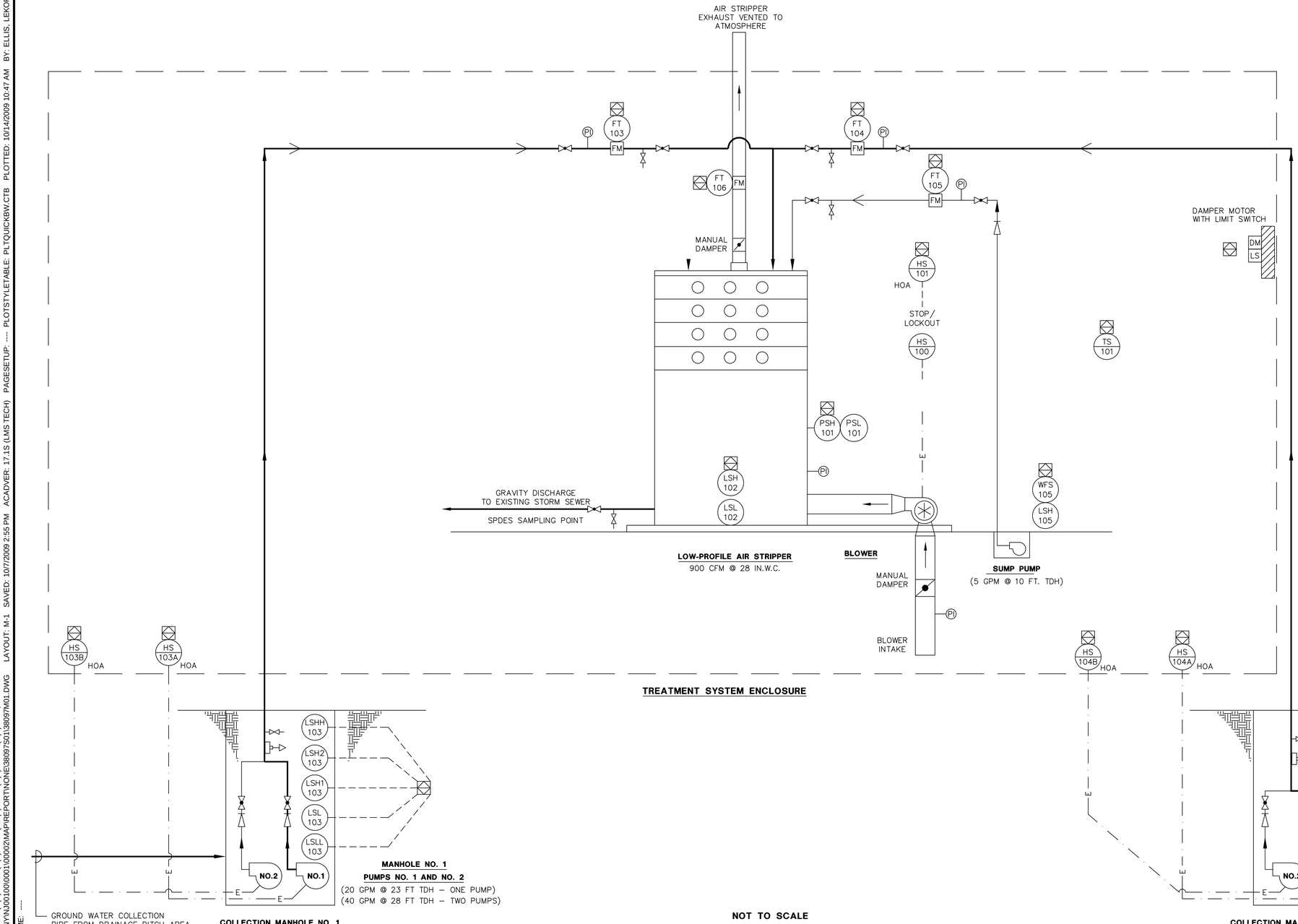


LEGEND

- PI — PRESSURE INDICATOR
- SAMPLE/DRAIN TAP
- CHECK VALVE
- BALL VALVE
- FM — FLOW METER
- -E- — POWER WIRING
- HOA — HAND–OFF–AUTO
- FT 100 — INSTRUMENT TAG No. (SEE CONTROL LOGIC ON OM&N APPENDIX)
- PLC (INTERLOCK)
- LSH 102 — FIELD MOUNTED
- HS 103B — PANEL MOUNTED
- FLOW DIRECTION
- PRESSURE RELIEF VALVE
- HS — HAND SWITCH
- LSH — LEVEL SENSOR HIGH
- LSHH — LEVEL SENSOR HIGH HIGH
- LSL — LEVEL SENSOR LOW
- LSLL — LEVEL SENSOR LOW LOW
- PSL — PRESSURE SENSOR LOW
- PSH — PRESSURE SENSOR HIGH
- TS — TEMPERATURE SENSOR
- PI — PRESSURE INDICATOR

NOT TO SCALE

RECORD DRAWING: MADE FROM BBL DRAWING M-1, FILE NUMBER 380.92.02F, DATED OCTOBER 13, 1995

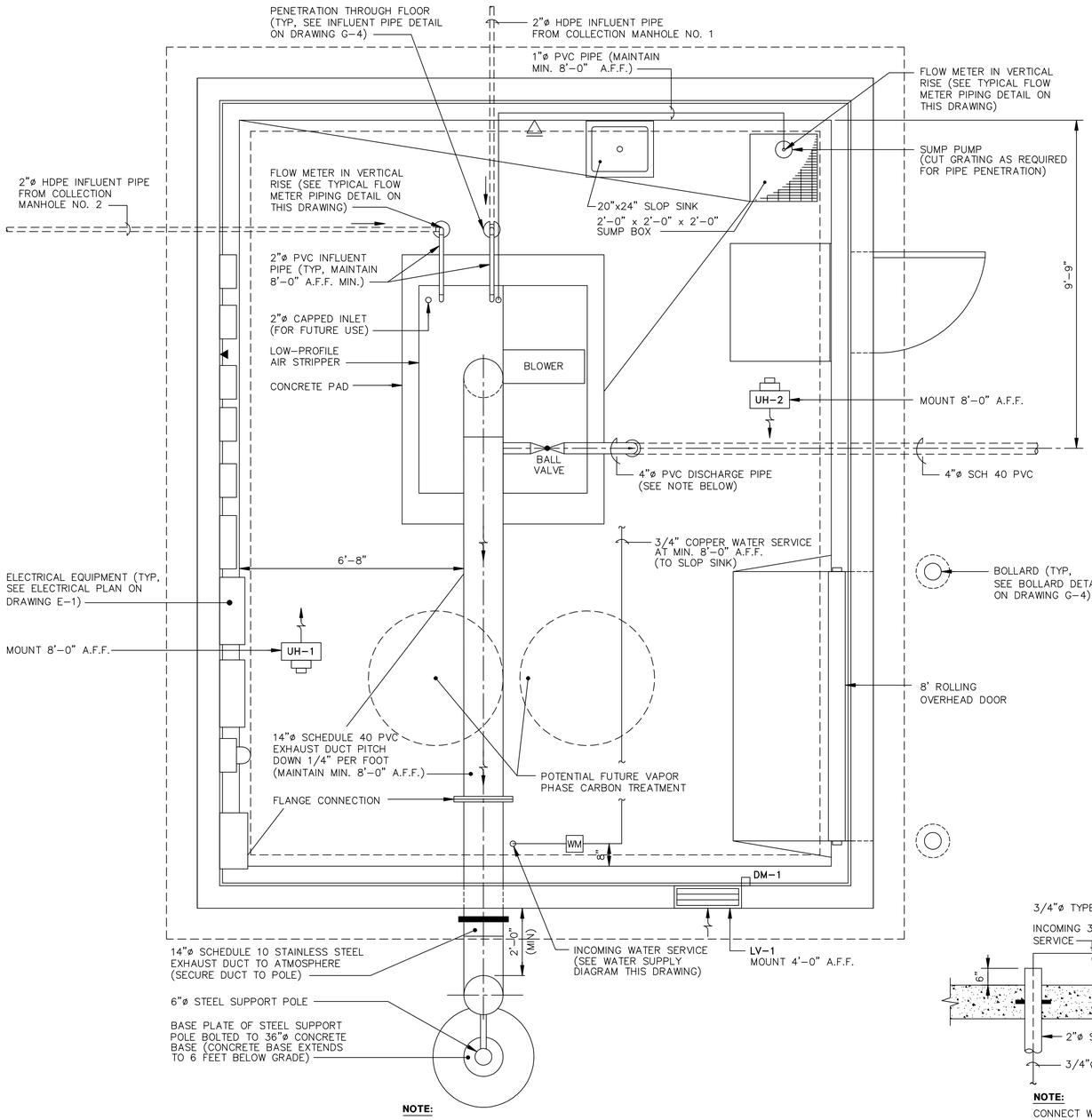
LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK

GROUNDWATER COLLECTION AND TREATMENT SYSTEM

PROCESS AND INSTRUMENTATION DIAGRAM

ARCADIS

FIGURE
M-1



NOTE:

CONTRACTOR SHALL VERIFY ALIGNMENT OF 4"ø DISCHARGE PIPE PENETRATION WITH AIR STRIPPER MANUFACTURER.

FLOOR PLAN

SCALE: 1/2"=1'-0"

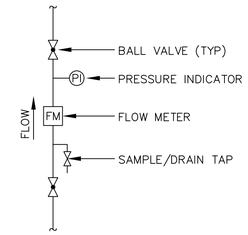
1/2"=1'-0" 1' 0 1' 2'

LEGEND

- DIRECTION OF FLOW
- AIR FLOW
- HOSE BIBB
- WM — WATER METER

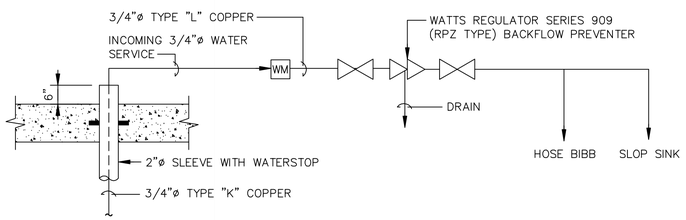
ABBREVIATIONS:

A.F.F.	ABOVE FINISHED FLOOR
MIN.	MINIMUM
DM	DAMPER MOTOR
LV	LOUVER
UH	UNIT HEATER
B.V.	BALL VALVE



TYPICAL FLOW METER PIPING DETAIL

NOT TO SCALE



NOTE:

CONNECT WATER SUPPLY SERVICE TO EXISTING GUARD HOUSE WATER SUPPLY LINE TO SPIGOT.

WATER SUPPLY DIAGRAM

NOT TO SCALE

HEATING AND VENTILATING EQUIPMENT SPECIFICATIONS:

A. UNIT HEATERS

UNIT HEATER (UH-2)

1. HEATER SHALL BE CHROMOLAX CATALOG NO. LUH-10-43 OR EQUAL
2. HEATER SHALL BE 10 kW, 460 VAC, THREE PHASE, CAPABLE OF 750 CFM 47° RISE AND 27° THROW.
3. PROVIDE WITH MANUFACTURER'S INTEGRAL THERMOSTAT AND HANGER KIT.

B. LOUVERS

LOUVER (LV-1)

1. LOUVER SHALL BE ARROW UNITED MODEL NO. 690, RUSKIN MODEL NO. ELC6375 D, OR EQUAL.
2. LOUVER SHALL BE ALUMINUM, COMBINATION TYPE WITH DRAINABLE BLADES.
3. LOUVER LV-1 SHALL HANDLE 900 CFM AT APPROXIMATELY 650 FPM FREE AREA VELOCITY AND A MAXIMUM PRESSURE DROP OF 0.05" W.C.

C. DAMPER MOTORS

DAMPER MOTOR (DM-1)

1. DAMPER MOTORS SHALL BE 120 VAC, 2 POSITION SPRING RETURN, 60-INCH POUNDS TORQUE WITH AUXILIARY SWITCH TO MAKE OR BREAK A CIRCUIT AT THE POWERED END OF STROKE.
2. DAMPER MOTORS SHALL BE BARBER COLEMAN MODEL NO. MA418-500.

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO ALL APPLICABLE RULES, REGULATIONS AND CODES INCLUDING, BUT NOT LIMITED TO, NEW YORK STATE BUILDING CODES AND LOCAL HEALTH DEPARTMENT REGULATIONS.
2. ITEMS OF SPECIFIC MANUFACTURERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE PRINTED INSTRUCTIONS AND/OR THE MANUFACTURER'S REPRESENTATIVES DIRECTIONS.
3. ALL ELECTRICAL EQUIPMENT SHALL BE U.L. LISTED AND LABELED.
4. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
5. ALL THERMOSTATS SHALL BE MOUNTED 5'-0" AFF.
6. DIMENSIONS SHOWN "AFF" INDICATE THE ACTUAL CLEAR DIMENSION FROM THE FINISHED FLOOR ELEVATION TO THE BOTTOM OF THE UNIT.
7. ALL INDOOR PROCESS EQUIPMENT EXHAUST DUCTS SHALL BE PVC. ALL OUTDOOR EXHAUST DUCTS SHALL BE STAINLESS STEEL.
8. PROTECT ALL HEATING AND VENTILATING EQUIPMENT FROM DAMAGE DURING CONSTRUCTION. DAMAGED UNITS SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
9. INTERIOR OF AIR STRIPPER AND AREA WITHIN 3-FEET OF BLOWER ARE ELECTRICALLY CLASSIFIED AS CLASS 1, DIVISION 1, GROUP D ATMOSPHERE.

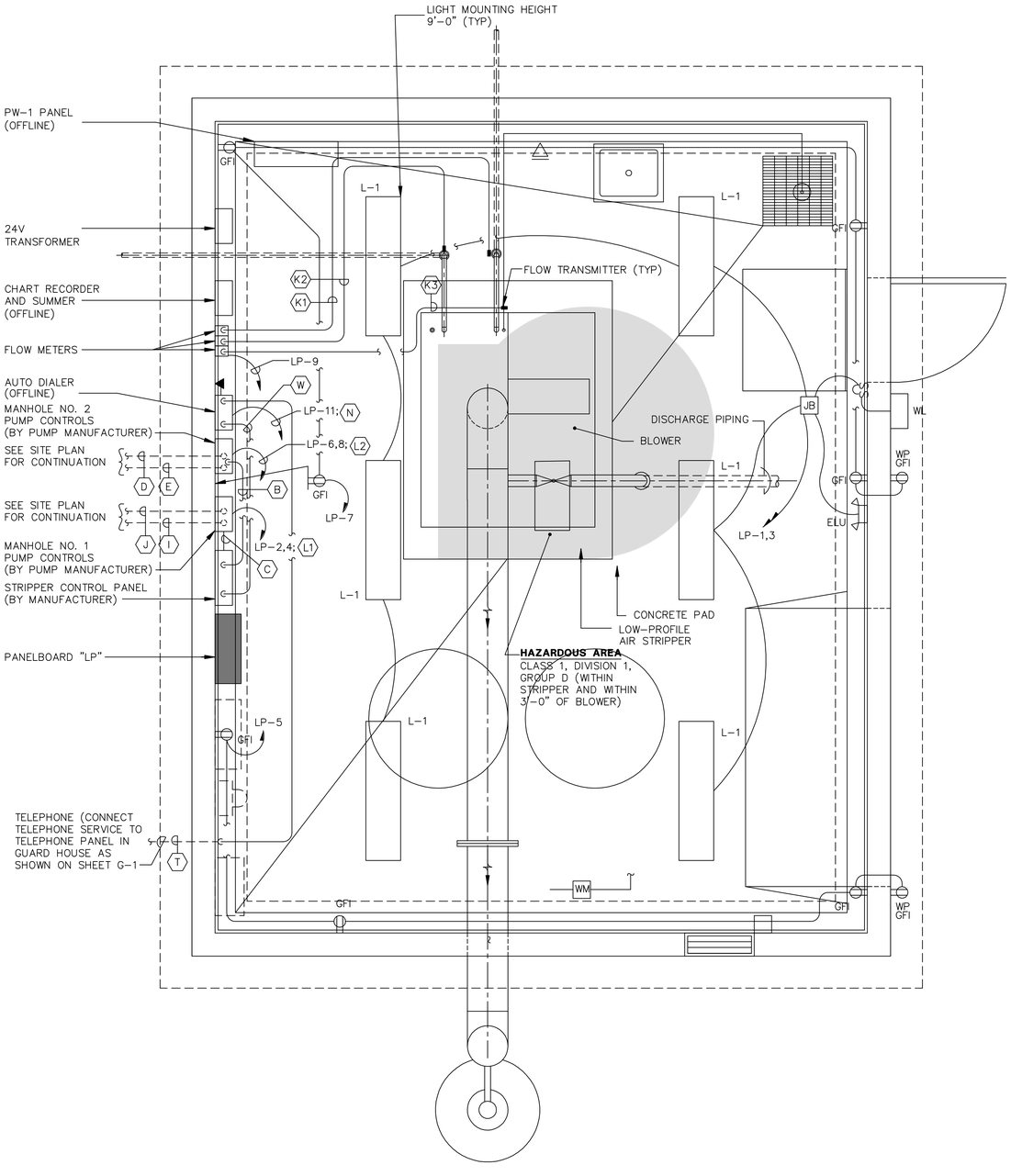
RECORD DRAWING: MADE FROM BBL DRAWING M-2, FILE NUMBER 380.92.07F, DATED OCTOBER 13, 1995

LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

FLOOR PLAN AND DETAILS

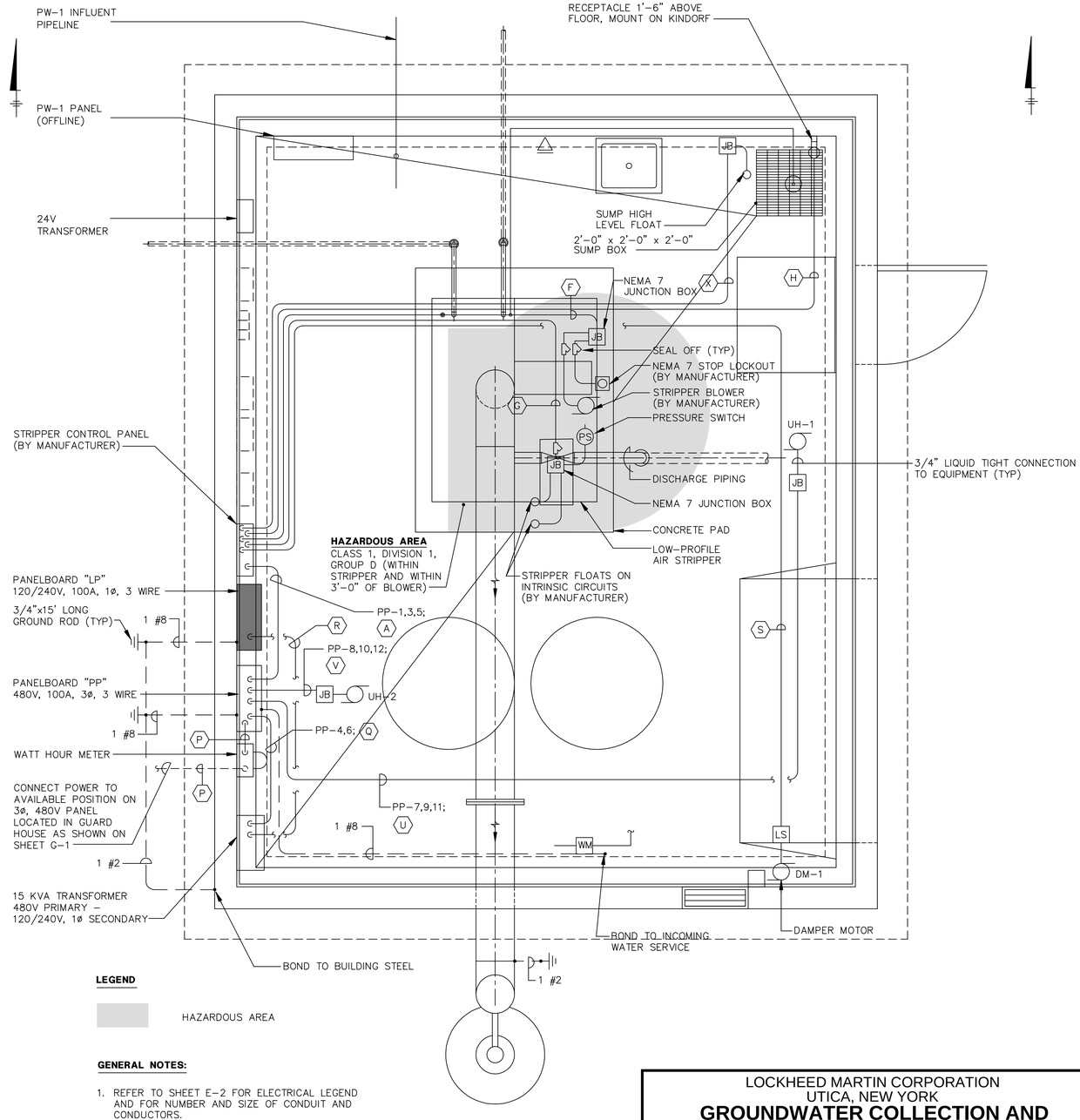
ARCADIS

FIGURE
M-2



LIGHTING PLAN

SCALE: 1/2" = 1'-0"



POWER PLAN

SCALE: 1/2" = 1'-0"

LEGEND

HAZARDOUS AREA

GENERAL NOTES:

1. REFER TO SHEET E-2 FOR ELECTRICAL LEGEND AND FOR NUMBER AND SIZE OF CONDUIT AND CONDUCTORS.

SCALE:

1/2"=1'-0" 2' 0 2' 4'

RECORD DRAWING: MADE FROM BBL DRAWING E-1, FILE NUMBER 380.92.08F, DATED OCTOBER 13, 1995

LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK

GROUNDWATER COLLECTION AND TREATMENT SYSTEM

ELECTRICAL FLOOR PLANS

ARCADIS

FIGURE
E-1

CITY:CARY DIV/GROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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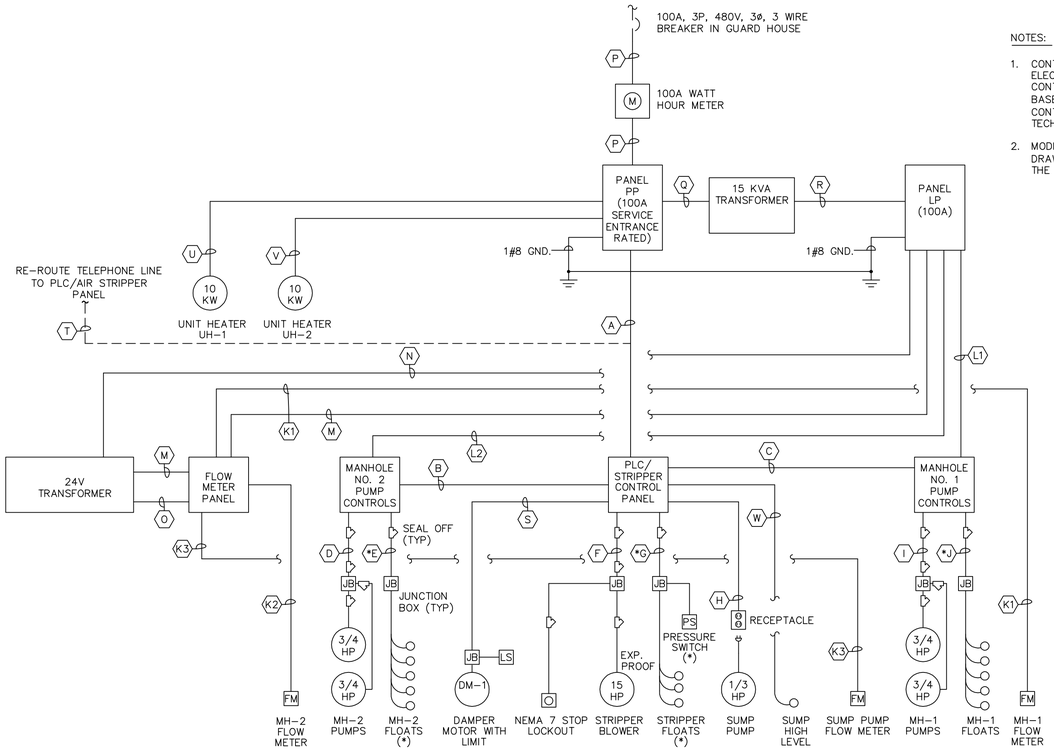

ONE-LINE DIAGRAM

NOT TO SCALE

NOTES:

1. CONTROLS WERE MODIFIED FROM A ELECTRICAL CIRCUIT RELAY. BASED CONTROL SYSTEM TO A MICROPROCESSOR BASED (PROGRAMMABLE LOGIC CONTROLLER) CONTROLS BY AZTECH TECHNOLOGIES, INC, IN DECEMEBR 2007.
2. MODIFIED CONTROL DETAILS AND LINE DRAWING/SCHEMATIC ARE PROVIDED IN THE APPENDIX OF OM&N MANUAL.

SWITCH

CIRCUIT ○	CONDUCTOR SIZE	CONDUIT SIZE	NAME
A	3 #10, #10G	3/4" EMT	BLOWER, SUMP PUMP, AND STRIPPER CONTROL POWER FEED
B	8 #14	3/4" EMT	CONTROL PANEL TO MANHOLE NO. 2 PUMP CONTROLS
C	8 #14	3/4" EMT	CONTROL PANEL TO MANHOLE NO. 1 PUMP CONTROLS
D	6 #12, 2 #12G	1-1/2" EMT (INDOORS) 1" RGS (OUTDOORS)	MANHOLE NO. 2 PUMP POWER
E*	10 #12	1-1/2" EMT (INDOORS) 1" RGS (OUTDOORS)	MANHOLE NO. 2 LEVEL SWITCHES
F	3 #8, 1 #12G 2 #14	1-1/2" RGS	BLOWER POWER AND CONTROL
G*	8 #14	3/4" RGS	BLOWER PRESSURE SWITCH & LEVEL SWITCHES
H	2 #12, 1 #12G	3/4" RGS	SUMP PUMP RECEPTACLE POWER
I	6 #12, 2 #12G	1" RGS	MANHOLE NO. 1 PUMP POWER
J*	10 #14	1" RGS	MANHOLE NO. 1 LEVEL SWITCHES
K1 K2 K3	MANUFACTURER'S CABLES	3/4" RGS	MANHOLE NO. 1 FLOW METER, MANHOLE NO. 2 FLOW METER, & SUMP PUMP FLOW METER

CIRCUIT ○	CONDUCTOR SIZE	CONDUIT SIZE	NAME
L1 L2	3 #10, 1 #10G	3/4" EMT	PUMP CONTROL PANEL POWER FEEDS
M	2 #12, 1 #12G	3/4" EMT	FLOW METER & CHART REC. POWER FEED
N	2 #12, 1 #12G	3/4" EMT	24V TRANSFORMER POWER FEED
O	3 TSP #16	3/4" EMT	FLOW SIGNALS
P	3 #2, 1 #6G	1-1/2" EMT (RGS OUTDOORS)	BUILDING POWER
Q	3 #8, 1 10G	1" SEAL TITE	TRANSFORMER FEED
R	3 #6, 1 #8G	1" SEAL TITE	PANEL LP FEED
S	2 #12, 1 #12G 2 #14	3/4" EMT	DAMPER MOTOR AND LIMIT SWITCH
T	6 #22	1-1/2" RGS	TELEPHONE SERVICE
U	3 #10, 1 #10G	3/4" EMT	UNIT HEATER (UH-1)
V	3 #10, 1 #10G	3/4" EMT	UNIT HEATER (UH-2)
W	10 #14	3/4" EMT	SUMP HIGH LEVEL

* INDICATES INTRINSICALLY SAFE SYSTEM PER NEC-504

CONDUCTOR SCHEDULE

NOT TO SCALE

NOT TO SCALE

PANELBOARD LP SCHEDULE

LOCATION : GROUND WATER TREATMENT BUILDING
MAIN BUS RATINGS : 100 AMPS , 240/120
MINIMUM SHORTCIRCUIT INTERUPTING RATING : 10,000
MAIN BREAKER TRIP : 60 AMPS ,
ESTIMATED CONNECTED LOAD : 7.1 KVA

FED FROM : PANEL "PP" CIRCUITS 4 & 6
VOLTS , 1 PHASE , 3 WIRE
RMS. SYMM. AMPS NQOD TYPE
INCOMING FEED : 3#6, 1#8 GND., 1"C
ENCLOSURE : SURFACE MOUNTED NEMA 1

DESCRIPTION	LOAD W-KW-HP	CB AMPS	CIR.	CIR.	CB AMPS	LOAD W-KW-HP	DESCRIPTION	
INDOOR LIGHTING	480W	20/1	1	2	30/2	1.5 HP	MANHOLE NO.1 PUMP CONTROLS	L1
OUTDOOR LIGHTING	300W	20/1	3	4				
RECEPTACLES (SOUTH)	720W	20/1	5	6	30/2	1.5 HP	MANHOLE NO.2 PUMP CONTROLS	L2
RECEPTACLES (NORTH)	900W	20/1	7	8				
FLOW METER & CHART RECORDER	–	20/1	9	10	20/1	–	SPARE	
SPARE	–	20/1	11	12	20/1	–	SPARE	
SPARE	–	20/1	13	14	20/1	–	SPARE	
SPARE	–	20/1	15	16	20/1	–	SPARE	
SPARE	–	20/1	17	18	20/1	–	SPARE	
SPARE	–	20/1	19	20	20/1	–	SPARE	

PANELBOARD PP SCHEDULE

LOCATION : GROUND WATER TREATMENT BUILDING
MAIN BUS RATINGS : 100 AMPS , 480
MINIMUM SHORTCIRCUIT INTERUPTING RATING : 10,000
MAIN BREAKER TRIP : 100 (SERVICE ENTRANCE RATED) AMPS ,
ESTIMATED CONNECTED LOAD : –

FED FROM : GUARD HOUSE PANEL CIRCUIT
VOLTS , 3 PHASE , 3 WIRE
RMS. SYMM. AMPS I-LINE HCN TYPE
INCOMING FEED : 3#2, 1#6 GND., 1-1/2"C
ENCLOSURE : SURFACE MOUNTED NEMA 1

	DESCRIPTION	LOAD W-KW-HP	CB AMPS	CIR.	CIR.	CB AMPS	LOAD W-KW-HP	DESCRIPTION	
A	BLOWER, STRIPPER CONTROLS	15HP	45/3	1	2			SPACE	
	SUMP PUMP, & DAMPER MOTOR			3	4	35/2	15KVA	TRANSFORMER FEED	Q
				5	6				
U	UNIT HEATER (UH-1)	10KW	30/3	7	8	30/3	10KW	UNIT HEATER (UH-2)	V
				9	10				
				11	12				

LEGEND

n	2 LAMP FLUORESCENT LIGHT FIXTURE, LETTER DENOTES FIXTURE TYPE
WL	EXTERIOR WALL PACK LIGHT FIXTURE
ELU	EMERGENCY LIGHT FIXTURE
S	SINGLE POLE SWITCH
	DUPLEX RECEPTACLE
GFI	GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE
JB	JUNCTION BOX
	MOTOR
	CIRCUIT HOMERUN
	TELEPHONE OUTLET
LS	LIMIT SWITCH
	CIRCUIT BREAKER

RECORD DRAWING: MADE FROM BBL DRAWING E-2, FILE NUMBER 380.92.09F, DATED OCTOBER 13, 1995
DRAWING E-3, FILE NUMBER 380.92.10F, DATED OCTOBER 13, 1995

LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

ONE LINE DIAGRAM, CONDUCTOR AND PANELBOARD SCHEDULES

ARCADIS

FIGURE
E-2

2010-2011 System Upgrade As-Built Drawings

CITY:SYRACUSE-NY DIV/GROUP:ENVCAD DB:G.STEINBERGER LD: PIC:D. SAUDA PM:C. MOTTA TM:J. BONSTEEL LYR:ON=*;OFF=*REF*
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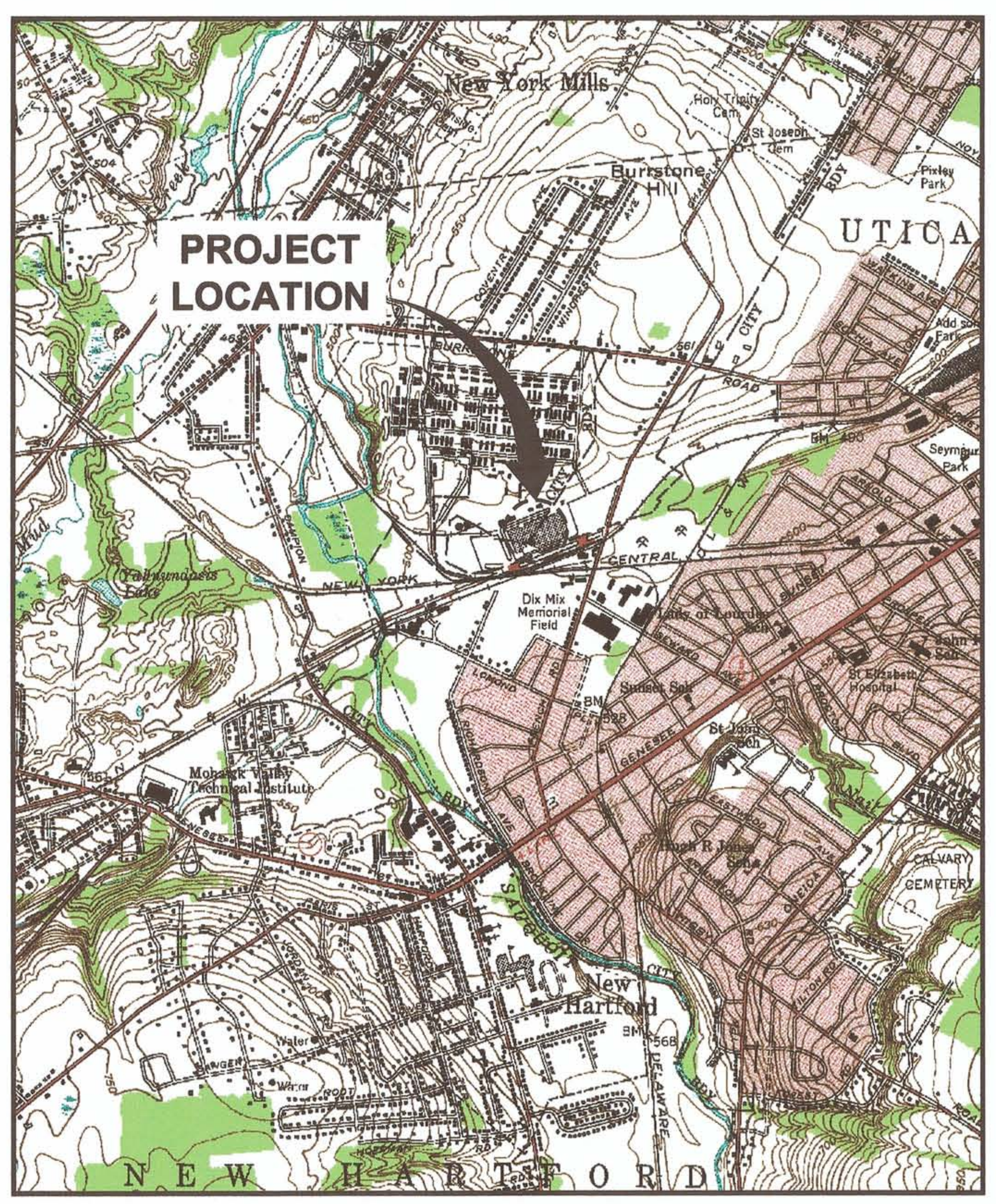
XREFS: IMAGES: NJ1010X01.tif

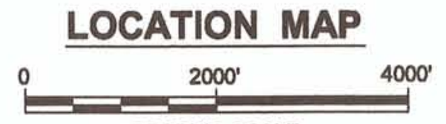
RECORD DRAWINGS

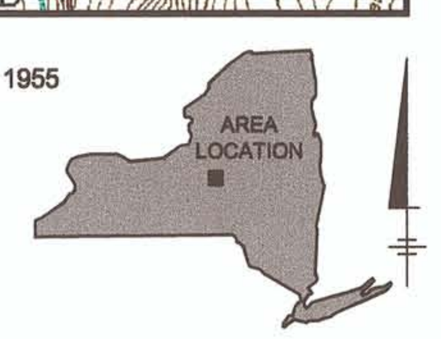
GROUNDWATER COLLECTION AND TREATMENT SYSTEM AT FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY



REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLE., UTICA WEST, 1955

LOCATION MAP





DATE ISSUED

MARCH 2011

LOCKHEED MARTIN CORPORATION
UTICA, NEW YORK

ARCADIS

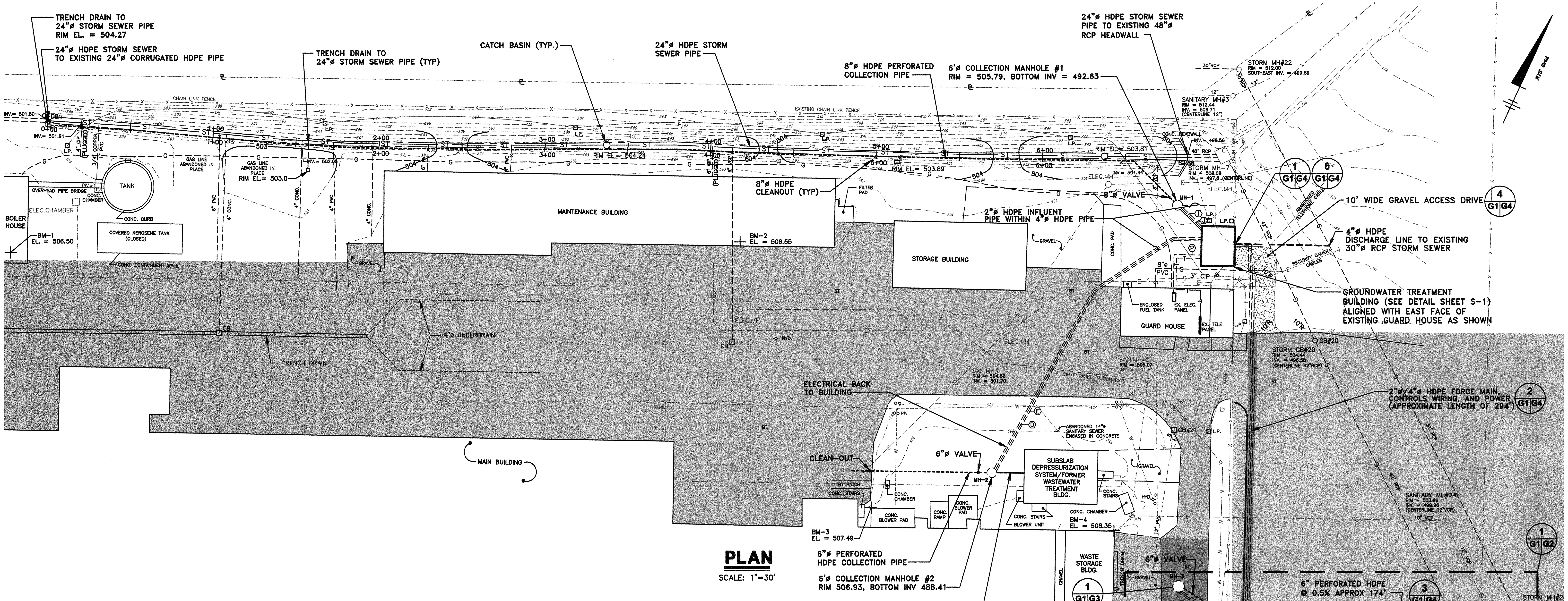
ARCADIS OF NEW YORK, INC.

INDEX TO DRAWINGS

RECORD DRAWINGS

TO THE BEST OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

DATE: 06/13/2011 BY: [signature]



PLAN

SCALE: 1"=30'

GENERAL NOTES:

1. PROPERTY LINE IS SHOWN ON THE PLAN FOR REFERENCE PURPOSES ONLY.
2. THE LOCATION OF UNDERGROUND UTILITIES AND OTHER UNDERGROUND STRUCTURES WERE OBTAINED BY FIELD MEASUREMENT WHERE POSSIBLE, OTHERWISE OBTAINED FROM OTHER SOURCES AND ARE APPROXIMATE ONLY. OTHER UNDERGROUND UTILITIES MAY EXIST, THE LOCATION OF WHICH AT THIS TIME ARE UNKNOWN.
3. BASE MAP PREPARED FROM SURVEY INFORMATION GENERATED BY BLASLAND, BOUCK & LEE, INC. DATED 8/30/95. ELEVATIONS BASED ON BOILER HOUSE FIRST FLOOR ELEVATION OF 506.50 FROM A MAP BY O'BRIEN & GERE ENGINEERS ENTITLED "PAVEMENT AND DRAINAGE REHABILITATION PLAN" DATED 6/23/94. CONTOUR INTERVAL = 1 FOOT.
4. THE ELEVATION DATUM SHOWN IS BASED ON SURVEY COMPLETED ON OCTOBER 28, 2009 BY THEW ASSOCIATES, LPS.

LEGEND

- DISCHARGE WATER LINE
- GROUNDWATER COLLECTION LINE
- STORM SEWER PIPE
- ELECTRICAL CIRCUIT
- WATER LINE
- TELEPHONE LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING ELECTRIC LINE
- EXISTING CHAIN LINK FENCE
- EXISTING PROPERTY LINE
- ACCESS DRIVE
- EXISTING BITUMINOUS PAVEMENT
- REPLACED ASPHALT
- HYD. EXISTING HYDRANT
- PIV EXISTING POSITION INDICATOR VALVE
- L.P. EXISTING LIGHT POLE
- MH-22 EXISTING MANHOLE
- CB#21 EXISTING CATCH BASIN

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYR:ON=*;OFF=*REF* G:\ENVCAD\SYRACUSE\RETURN-TO\Mahesh-NJ\NJ001024\0001\00005\2011_3\B09\G01.dwg LAYOUT: G-1 SAVED: 3/29/2011 12:14 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: — PLOTTED: 3/29/2011 12:15 PM BY: SAMIOS, ALEX
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GRAPHIC SCALE: 0 30' 60'

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No.	Date	Revisions	By	Ckd
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2	02/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	01/06/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/02/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name: MOH MOHIUDDIN PhD, PE, DEE
Professional Engineer's No.: 074527
State: NY | Date Signed: 06/13/2011 | Project Mgr.: P.MILIONIS
Designed by: T.CARIGNAN | Drawn by: J.GONZALEZ | Checked by: E.PANHORST

STATE OF NEW YORK · MOH MOHIUDDIN · 074527 · LICENSED PROFESSIONAL ENGINEER

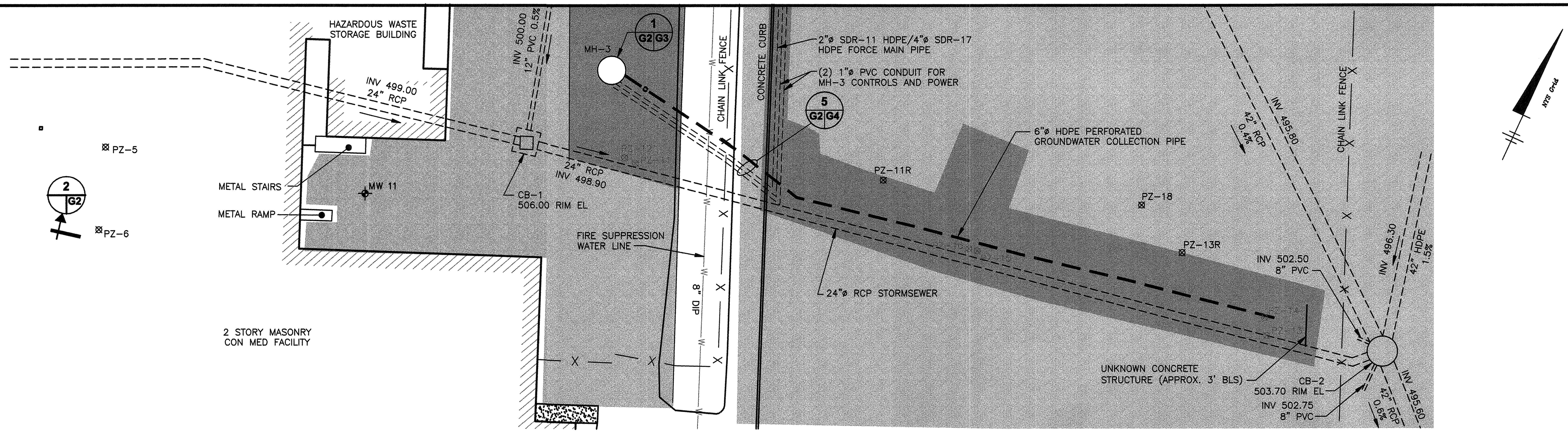
ARCADIS
ARCADIS OF NEW YORK, INC.

FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

SITE PLAN AND DETAILS

ARCADIS Project No. NJ001024.0001.00005
Date: MARCH 2011
ARCADIS OF NEW YORK, INC.
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

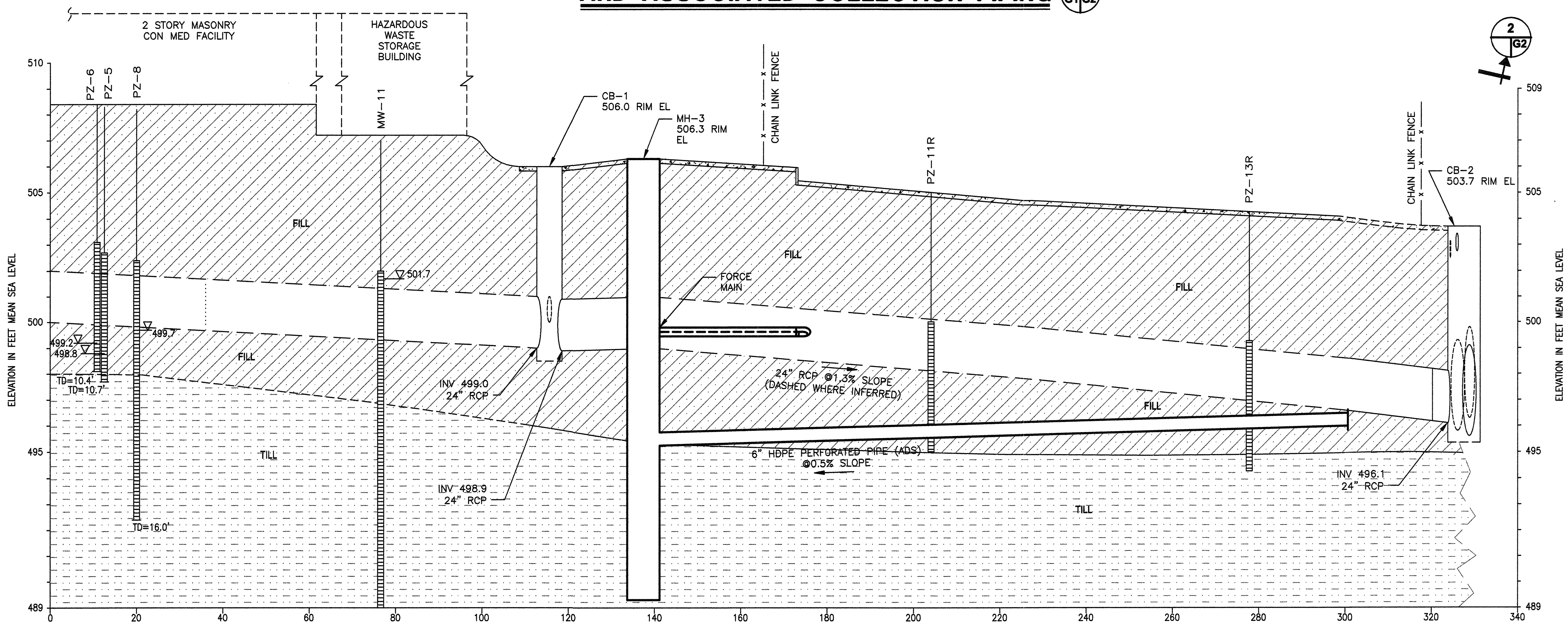
G-1



PLAN VIEW OF MANHOLE NO.3 AND ASSOCIATED COLLECTION PIPING (1/G1 G2)

LEGEND:

- MW 11 — MONITORING WELL LOCATION
- PZ-5 — PIEZOMETER LOCATION
- PZ-16 — FORMER PIEZOMETER LOCATION
- ∇ 501.7 — GROUNDWATER LEVEL, 11/18/08
- FILL
- TILL
- WELL DESIGNATION
- EXISTING LAND SURFACE (DASHED WHERE INFERRED)
- GEOLOGIC CONTACT (DASHED WHERE INFERRED)
- SCREENED INTERVAL
- END OF BOREHOLE



ELEVATION VIEW OF MANHOLE NO.3 AND ASSOCIATED COLLECTION PIPING (2/G2)

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XREFS: X00-2 PPX2 IMAGES: PROJECTNAME: —

0 15' 30' HORIZONTAL SCALE
0 2.5' 5' VERTICAL SCALE

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2	02/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	01/06/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/02/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name: MOH MOHIUDDIN PhD, PE, DEE
Professional Engineer's No.: 074527
State: NY | Date Signed: 06/13/2011 | Project Mgr.: P.MILIONIS
Designed by: T.CARIGNAN | Drawn by: J.GONZALEZ | Checked by: E.PANHORST

STATE OF NEW YORK · MOH MOHIUDDIN · 074527 · LICENSED PROFESSIONAL ENGINEER

ARCADIS
ARCADIS OF NEW YORK, INC.

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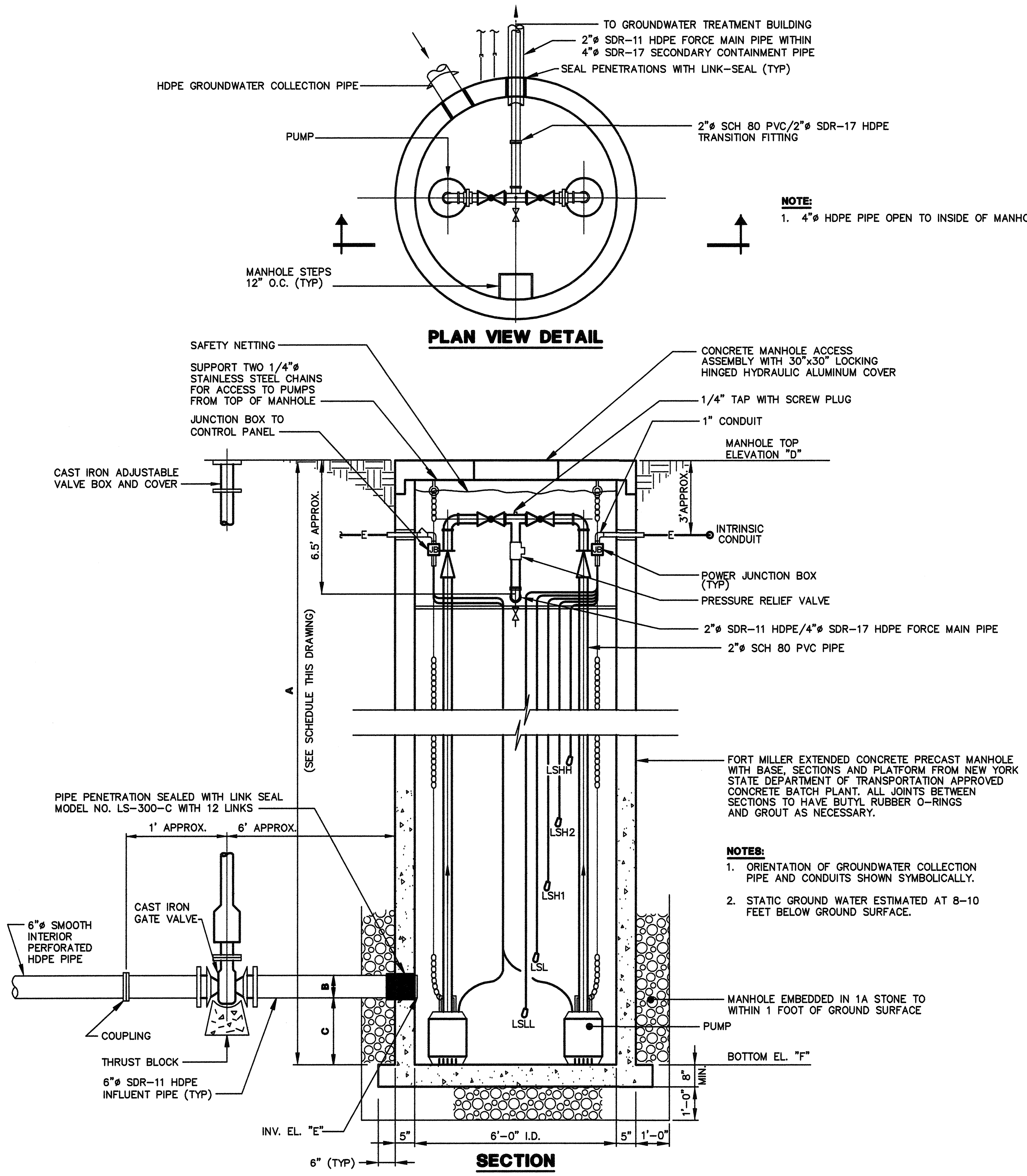
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

PLAN & PROFILE OF MH-3 AND GROUNDWATER COLLECTION TRENCH

ARCADIS Project No. NJ001024.0001.00005
Date: MARCH 2011
ARCADIS OF NEW YORK, INC.
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

G-2



NOTE:
1. 4"ø HDPE PIPE OPEN TO INSIDE OF MANHOLE.

NOTES:
1. ORIENTATION OF GROUNDWATER COLLECTION PIPE AND CONDUITS SHOWN SYMBOLICALLY.
2. STATIC GROUND WATER ESTIMATED AT 8-10 FEET BELOW GROUND SURFACE.

PUMPING MANHOLE NO. 3 DETAIL

1 G2 G3

NOT TO SCALE

LEGEND
- BALL VALVE
- CHECK VALVE
- NUT UNION
- SAMPLE/DRAIN TAP
- E — POWER WIRING
- PRESSURE RELIEF VALVE

COLLECTION MANHOLE SCHEDULE	
DESCRIPTION	MH-3
DIST. A	17'-0"
DIST. B	0'-6"
DIST. C	6'-0"
TOP EL. D	506.3'
INV. EL. E	503.3'
BOT. EL. F	489.3'
LSLL	490.8'
LSL	491.8'
LSH1	494.3'
LSH2	496.3'
LSHH	498.8'

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
3	3/17/11	AS-BUILT RECORD DRAWINGS	CD	CM
2	2/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name: MOH MOHIUDDIN PhD, PE, DEE
Professional Engineer's No.: 074527
State: NY | Date Signed: 5/13/2011 | Project Mgr.: P.MILIONIS
Designed by: T.CARIGNAN | Drawn by: J.GONZALEZ | Checked by: E.PANHORST

STATE OF NEW YORK — MOH MOHIUDDIN — 074527 — LICENSED PROFESSIONAL ENGINEER

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GROUNDWATER COLLECTION AND TREATMENT SYSTEM

PUMPING MANHOLE DETAILS AND SPECIFICATIONS

ARCADIS Project No. NJ001024.0001.00005
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ALBANY, NEW YORK
TEL. 518.452.7826

G-3

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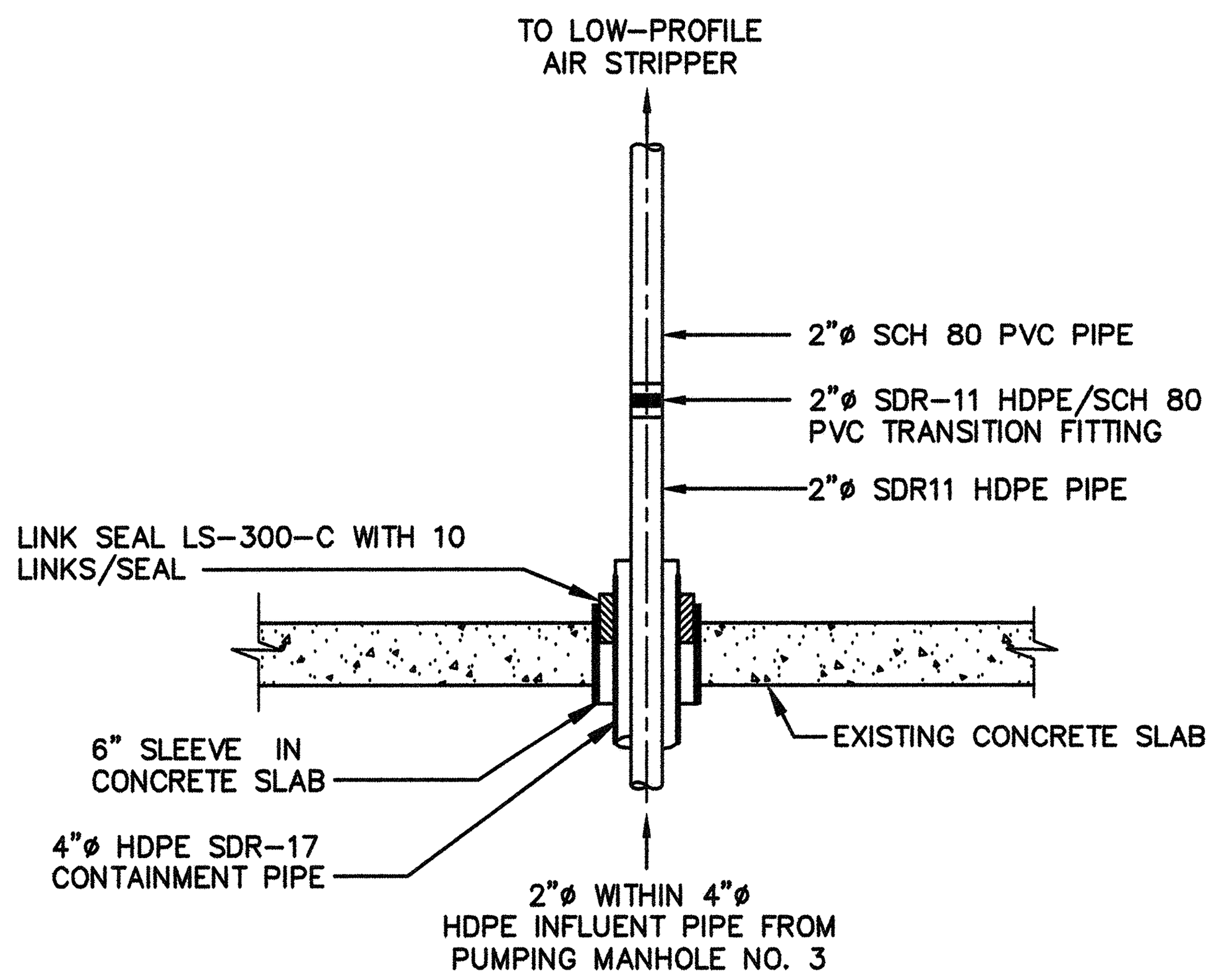
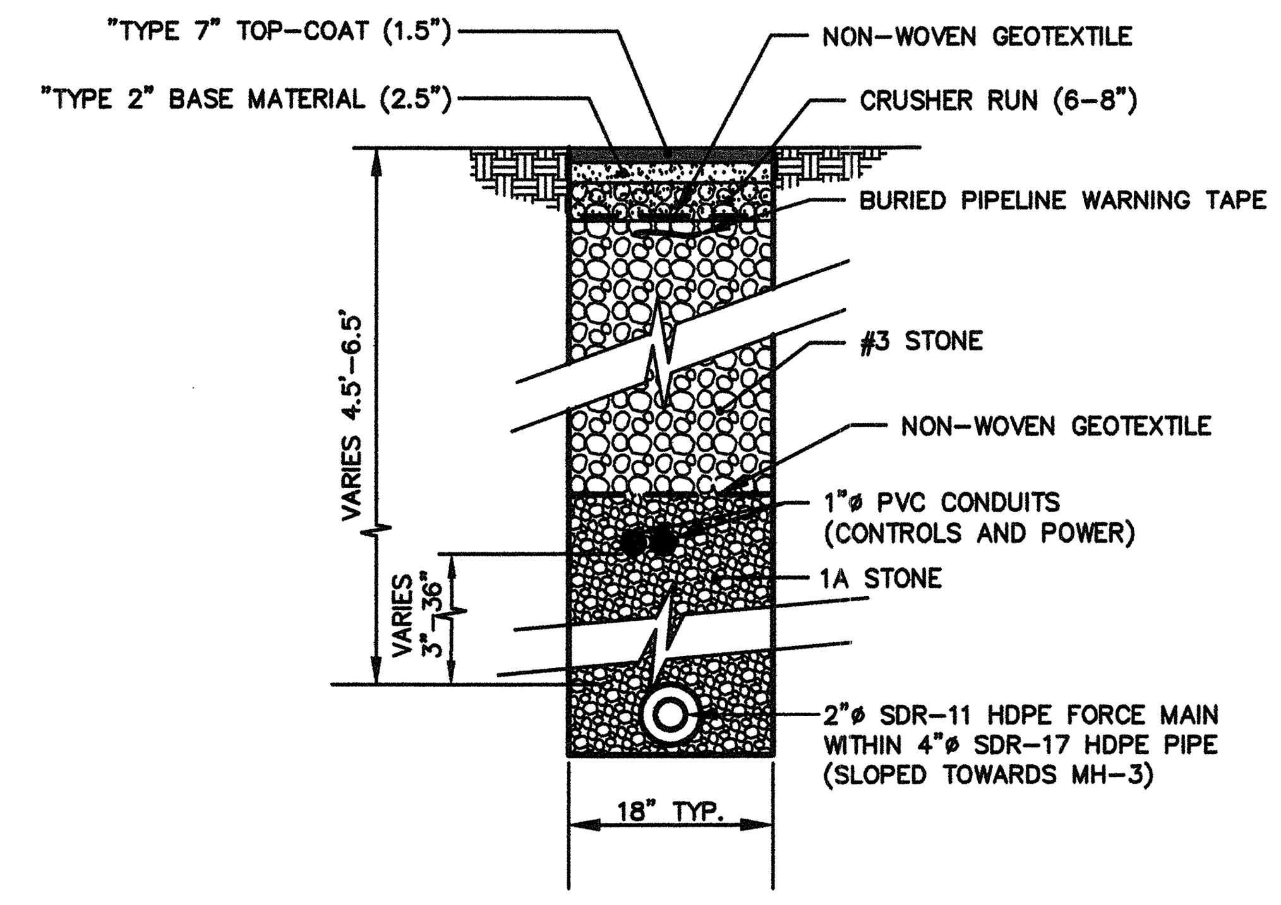


MANHOLE NO. 3 DISCHARGE PIPE FLOOR PENETRATION DETAIL (1, G1/G4)

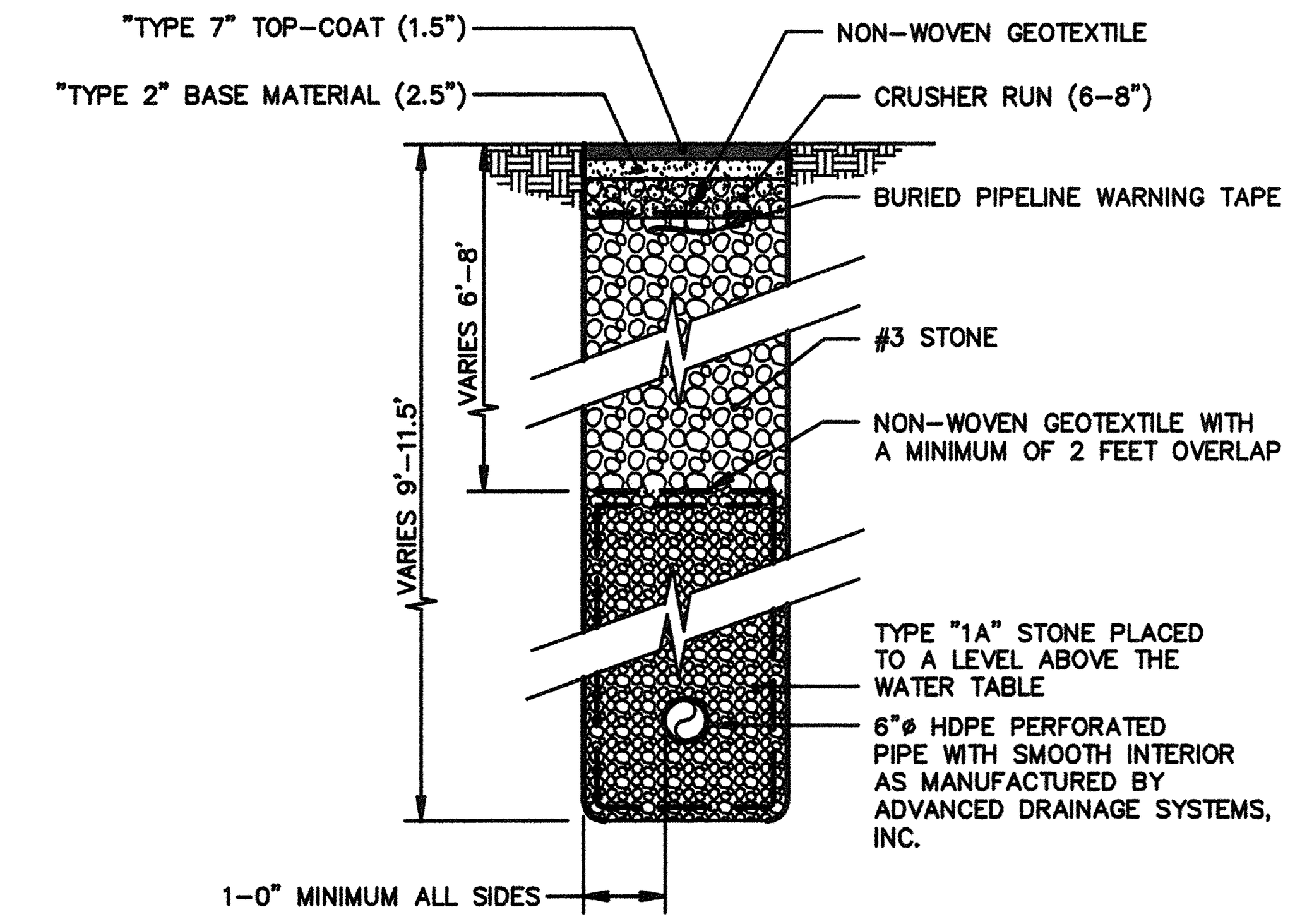
NOT TO SCALE



NOTE:
1. IN NON-PAVED AREAS, CRUSHER RUN, TYPE 2, AND TYPE 7 MATERIAL REPLACED WITH NATIVE MATERIAL.

MANHOLE NO. 3 DISCHARGE TRENCH DETAIL (TYPICAL) (2, G1/G4)

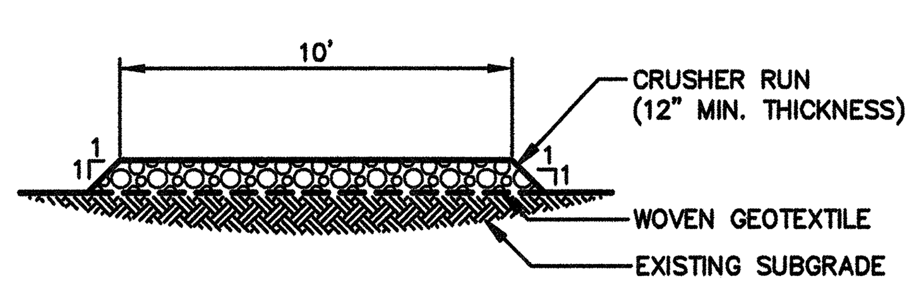
NOT TO SCALE



NOTE:
1. IN NON-PAVED AREAS, CRUSHER RUN, TYPE 2, AND TYPE 7 MATERIAL REPLACED WITH NATIVE MATERIAL.

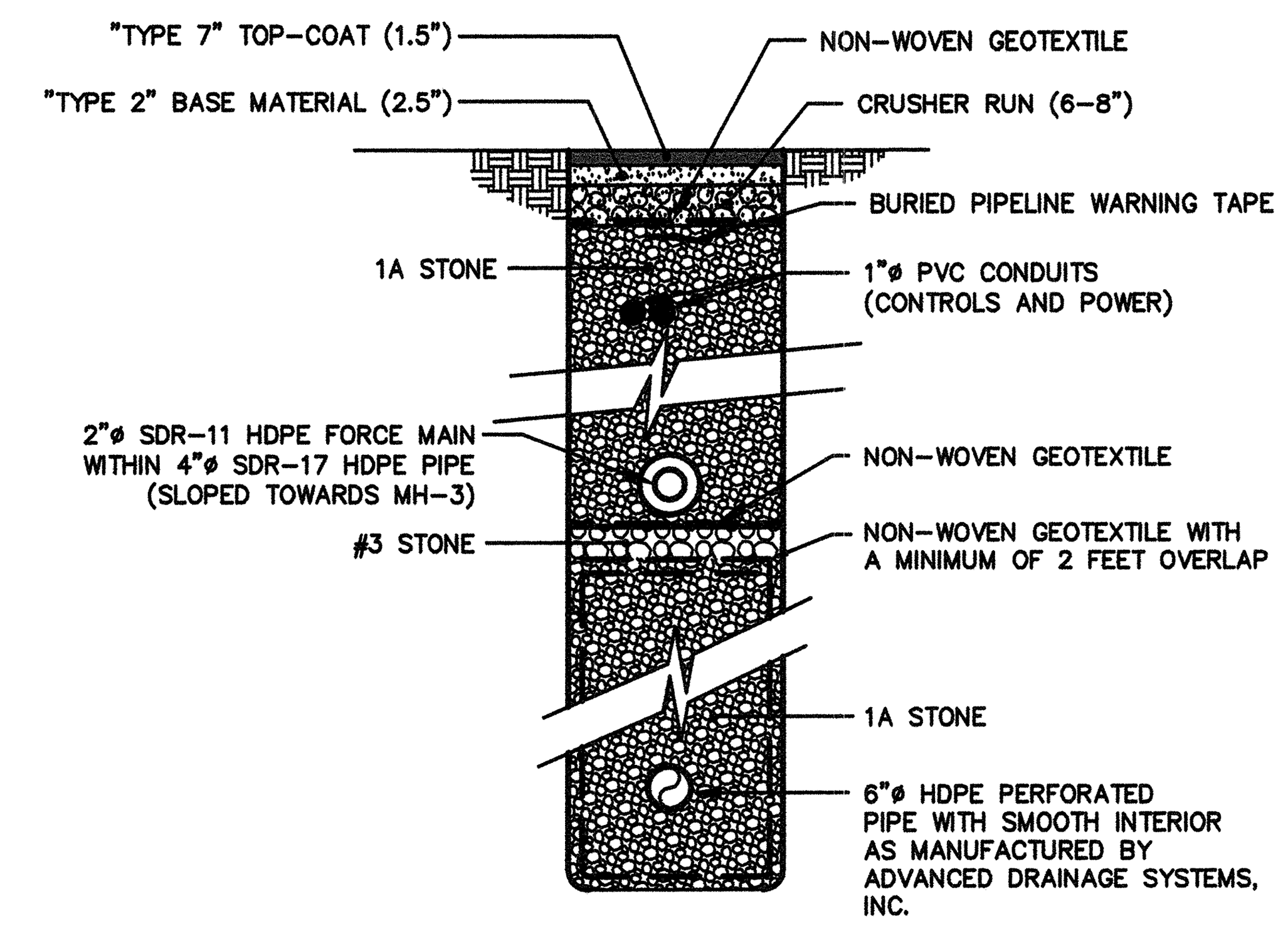
MANHOLE NO. 3 COLLECTION TRENCH DETAIL (TYPICAL) (3, G1/G4)

NOT TO SCALE



GRAVEL ACCESS DRIVE DETAIL (4, G1/G4)

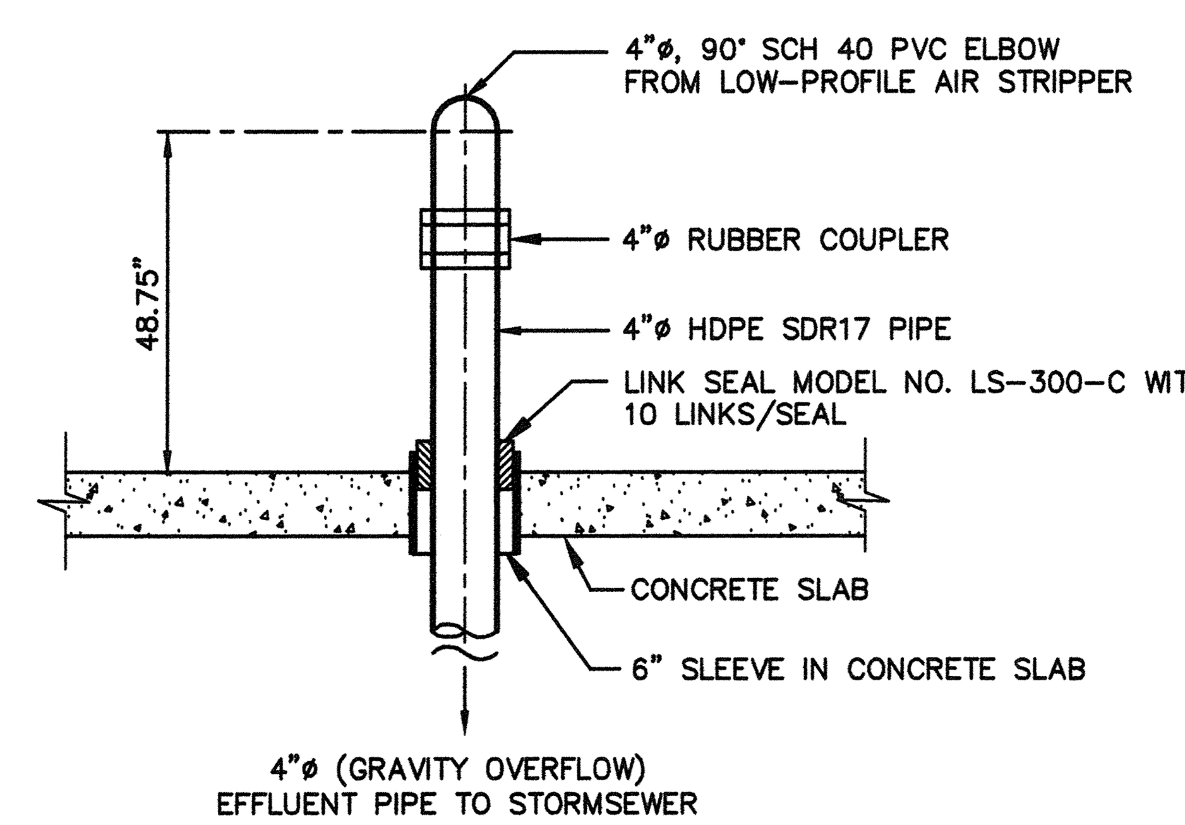
NOT TO SCALE



NOTE:
1. IN NON-PAVED AREAS, CRUSHER RUN, TYPE 2, AND TYPE 7 MATERIAL REPLACED WITH NATIVE MATERIAL.

COMBINED MANHOLE NO. 3 DISCHARGE AND COLLECTION TRENCH DETAIL (TYPICAL) (5, G2/G4)

NOT TO SCALE



EFFLUENT PIPE FLOOR PENETRATION DETAIL (6, G1/G4)

NOT TO SCALE

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\RETURN-TO\Maheeh-NJ\NJ001024\0001\00005\38097G04.dwg LAYOUT: G-4 SAVED: 3/29/2011 12:45 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: — PLOTSTYLETABLE: — PLOTTED: 3/29/2011 12:45 PM BY: SAMIOS, ALEX
XREFS: X00-2 IMAGES: PROJECTNAME: —

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No.	Date	Revisions	By	Ckd
3	3/17/11	AS-BUILT RECORD DRAWINGS	CD	CM
2	2/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name		
MOH MOHIUDDIN PhD, PE, DEE		
Professional Engineer's No. 074527		
State: NY	Date Signed: 06/13/2011	Project Mgr.: P.MILIONIS
Designed by: T.CARIGNAN	Drawn by: J.GONZALEZ	Checked by: E.PANHORST

STATE OF NEW YORK · MOH MOHIUDDIN · 074527 · LICENSED PROFESSIONAL ENGINEER

ARCADIS

ARCADIS OF NEW YORK, INC.

FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK

GROUNDWATER COLLECTION AND TREATMENT SYSTEM

PIPING AND TRENCHING DETAILS

ARCADIS Project No. NJ001024.0001.00005

Date MARCH 2011

ARCADIS OF NEW YORK, INC.
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

G-4

GENERAL NOTES:

1. AIR STRIPPER SYSTEM MANUFACTURED BY QED MODEL EZ-TRAY 12.4 STAINLESS STEEL FABRICATION.
2. ALL PIPING AND MANIFOLDS LABELED WITH STENCIL OR ADHESIVE. FLOW ARROWS LABELED AT INLET AND DISCHARGE CONNECTIONS, PIPING AND DESCRIPTION (E.G., MANHOLE NO. 3 INFLUENT) CLEARLY LABELED AT ALL VALVE AND APPURTENANCE LOCATIONS.
3. FLOW TRANSMITTERS ARE SIGNET ANALOG FLOW TOTALIZER, WHICH DISPLAYS FLOW RATE AND TOTALIZED FLOW VOLUME OR EQUAL. SIGNET INDICATOR ARE A MODEL 8511. ASSOCIATED SIGNET SENSORS ARE MODEL 3-2536-PO. FITTINGS AND DIAL RANGES ARE AS FOLLOWS:
   - A. MANHOLE NO. 1, 2 INCH DIAMETER INFLUENT LINE
SENSOR FITTING – PV8T020 (SALVAGED FROM DEMOLITION)
DIAL RANGE – 3-180 GPM
   - B. MANHOLE NO. 2, 2 INCH DIAMETER INFLUENT LINE
SENSOR FITTING – PV8T020 (SALVAGED FROM DEMOLITION)
DIAL RANGE – 3-180 GPM
   - C. MANHOLE NO. 3, 2 INCH DIAMETER INFLUENT LINE
SENSOR FITTING – PV8T020 (NEW)
DIAL RANGE – 3-180 GPM
   - D. COMBINED FLOW, 3 INCH DIAMETER INFLUENT LINE
SENSOR FITTING – PV8T020 (NEW)
DIAL RANGE – 7-400 GPM
   - E. SUMP PUMP 1-INCH DIAMETER INFLUENT LINE
SENSOR FITTING – PV8T012 (EXISTING)
DIAL RANGE – 3-180 GPM
4. ALL FLOW METERS HAVE STRAIGHT PIPE PRECEDING (10 TIMES PIPE DIAMETER) AND FOLLOWING (5 TIMES PIPE DIAMETER) THEM.
5. MANHOLE NO. 3 PUMPS ARE GOULDS PUMPS MODEL 3887 WITH VITON SEALS AND CAST IRON IMPELLER (3/4 HP, 230 VOLTS, 1,750 RPM, 1 PHASE) CAPABLE OF 50 GPM @ 25 FEET TDH (ONE PUMP) OR EQUAL.
6. DUCT HEATER IS HEAT EXCHANGE AND TRANSFER, INC. MODEL ADH-12-483 (12KW, 480V, 3 PHASE).
7. ALL SURFACES AT RECENTLY POURED CONCRETE RECEIVING NEW CONCRETE SHALL BE PREPARED BY CLEANING, WETTING AND TREATMENT WITH A NEAT CEMENT GROUT.
8. VAPOR PHASE CARBON VESSELS SIEMENS FB-1000 1,000 LB VESSELS. VESSELS UTILIZE SIEMENS VOCARB 36C VAPOR PHASE GRANULAR ACTIVATED CARBON.

ABBREVIATIONS:

A.F.F	ABOVE FINISHED FLOOR
BV	BALL VALVE
BFV	BUTTERFLY VALVE
CMP	CHEMICAL METERING PUMP
FS	FLOW SENSOR
FT	FLOW TRANSMITTER
HS	HAND SWITCH
LI	LEVEL INDICATOR
LSH	LEVEL SENSOR HIGH
LSL	LEVEL SENSOR LOW
LV	LOUVER
MIN.	MINIMUM
PI	PRESSURE INDICATOR
PT	PRESSURE TRANSMITTER
SP	SAMPLE PORT
TE	TEMPERATURE ELEMENT
TI	TEMPERATURE INDICATOR
TT	TEMPERATURE TRANSMITTER
UH	UNIT HEATER

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYR:ON=*;OFF=*REF*
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XREFS: X00-2 IMAGES: PROJECTNAME: ---

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
2	3/18/11	AS-BUILT RECORD DRAWINGS	CM	MM
1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name: MOH MOHIUDDIN PhD, PE, DEE
Professional Engineer's No.: 074527
State: NY | Date Signed: 06/13/2011 | Project Mgr.: P.MILIONIS
Designed by: T.CARIGNAN | Drawn by: J.GONZALEZ | Checked by: E.PANHORST

STATE OF NEW YORK · MOH MOHIUDDIN · 074527 · LICENSED PROFESSIONAL ENGINEER

ARCADIS

ARCADIS OF NEW YORK, INC.

FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

GENERAL NOTES AND ABBREVIATIONS

ARCADIS Project No. NJ001024.0001.00005
Date MARCH 2011

ARCADIS OF NEW YORK, INC.
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

G-5

ELECTRICAL LEGEND

- 2 LAMP FLUORESCENT LIGHT FIXTURE, LETTER n DENOTES FIXTURE TYPE
- WL — EXTERIOR WALL PACK LIGHT FIXTURE
- ELU — EMERGENCY LIGHT FIXTURE
- S — SINGLE POLE SWITCH
- DUPLEX RECEPTACLE
- GFI — GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE
- JB — JUNCTION BOX
- MOTOR
- CIRCUIT HOMERUN
- TELEPHONE OUTLET
- LS — LIMIT SWITCH
- CIRCUIT BREAKER
- DISCONNECTED, UNFUSED

SECTION AND DETAIL LEGEND

SECTION CUT

- X — SECTION IDENTIFICATION
- Y — DRAWING WHERE DETAIL IS LOCATED
- Z — DRAWING WHERE DETAIL IS CALLED OUT

MECHANICAL LEGEND

INSTRUMENTATION SYMBOLS

- LOCALLY MOUNTED
- PANEL MOUNTED
- HOA — ON-OFF HAND SWITCH
- PLC (INTERLOCK)

MOTORIZED EQUIPMENT

- MANHOLE PUMP
- BLOWER
- METERING PUMP

PIPING COMPONENTS

- REDUCER
- SAMPLING/PRESSURE ASSEMBLY
- FM — FLOW METER
- E — POWER WIRING
- PI — PRESSURE INDICATOR
- SAMPLE/DRAIN TAP
- CHECK VALVE
- BALL VALVE
- BUTTERFLY VALVE
- FLOW DIRECTION
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- AIR FLOW
- HOSE BIBB
- UNION
- WM — WATER METER

OTHER EQUIPMENT

- VAPOR-PHASE GAC VESSEL
- AIR STRIPPER
- SEQUESTERING AGENT

CIVIL LEGEND

SITE PLAN LEGEND

Symbol	Description
	MANHOLE DISCHARGE WATER LINE
	GROUNDWATER COLLECTION LINE
ST	STORM SEWER PIPE
	ELECTRICAL CIRCUIT
W	WATER LINE
T	TELEPHONE LINE
SS	EXISTING SANITARY SEWER
S	EXISTING STORM SEWER
W	EXISTING WATER LINE
G	EXISTING GAS LINE
G	EXISTING ELECTRIC LINE
x	EXISTING CHAIN LINK FENCE
	EXISTING PROPERTY LINE
	ACCESS DRIVE
	EXISTING BITUMINOUS PAVEMENT
HYD.	EXISTING HYDRANT
PIV	EXISTING POSITION INDICATOR VALVE
LP.	EXISTING LIGHT POLE
MH #22	EXISTING MANHOLE
CB#21	EXISTING CATCH BASIN
MW 11	MONITORING WELL LOCATION
PZ-5	PIEZOMETER LOCATION
	TEST PIT LOCATION

PROFILE LEGEND

Symbol	Description
501.7	GROUNDWATER LEVEL, 11/18/08
	OUTLINE OF TEST PIT PROFILE
	FILL
	TILL

MW-11

- WELL DESIGNATION
- EXISTING LAND SURFACE (DASHED WHERE INFERRED)
- GEOLOGIC CONTACT (DASHED WHERE INFERRED)
- SCREENED INTERVAL
- END OF BOREHOLE

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYR:ON=*;OFF=*REF*
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No.	Date	Revisions	By	Ckd
2	3/18/11	AS-BUILT RECORD DRAWINGS	CM	MM
1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name: MOH MOHIUDDIN PhD, PE, DEE
Professional Engineer's No.: 074527
State: NY | Date Signed: 06/13/2011 | Project Mgr.: P.MILIONIS
Designed by: T.CARIGNAN | Drawn by: J.GONZALEZ | Checked by: E.PANHORST

STATE OF NEW YORK · MOH MOHIUDDIN · 074527 · LICENSED PROFESSIONAL ENGINEER

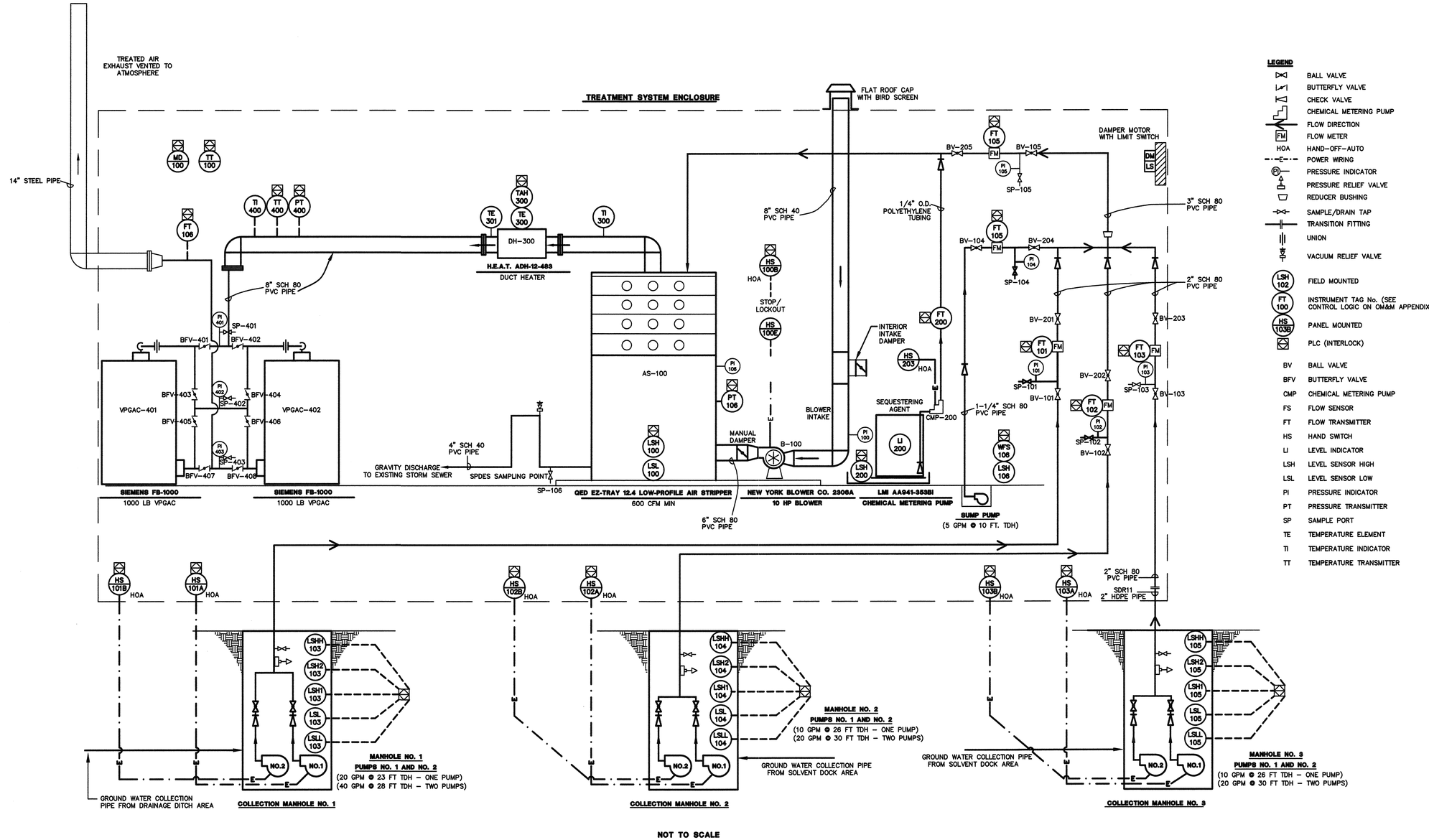
ARCADIS
ARCADIS OF NEW YORK, INC.

FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

LEGEND AND SYMBOLS

ARCADIS Project No. NJ001024.0001.00005
Date MARCH 2011
ARCADIS OF NEW YORK, INC.
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

G-6



NOT TO SCALE

LEGEND

- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- CHEMICAL METERING PUMP
- FLOW DIRECTION
- FM — FLOW METER
- HOA — HAND-OFF-AUTO
- POWER WIRING
- PI — PRESSURE INDICATOR
- PRESSURE RELIEF VALVE
- REDUCER BUSHING
- SAMPLE/DRAIN TAP
- TRANSITION FITTING
- UNION
- VACUUM RELIEF VALVE
- LSH 102 — FIELD MOUNTED
- FT 100 — INSTRUMENT TAG No. (SEE CONTROL LOGIC ON OM&M APPENDIX)
- HS 103B — PANEL MOUNTED
- PLC (INTERLOCK)

BV	BALL VALVE
BFV	BUTTERFLY VALVE
CMP	CHEMICAL METERING PUMP
FS	FLOW SENSOR
FT	FLOW TRANSMITTER
HS	HAND SWITCH
LI	LEVEL INDICATOR
LSH	LEVEL SENSOR HIGH
LSL	LEVEL SENSOR LOW
PI	PRESSURE INDICATOR
PT	PRESSURE TRANSMITTER
SP	SAMPLE PORT
TE	TEMPERATURE ELEMENT
TI	TEMPERATURE INDICATOR
TT	TEMPERATURE TRANSMITTER

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: ——— USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
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1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name: MOH MOHIUDDIN PhD, PE, DEE
Professional Engineer's No.: 074527
State: NY | Date Signed: 04/13/2011 | Project Mgr.: P.MILIONIS
Designed by: C.MCLAUGHLIN | Drawn by: J.GONZALEZ | Checked by: E.PANHORST

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GROUNDWATER COLLECTION AND TREATMENT SYSTEM

PIPING AND INSTRUMENTATION DIAGRAM

ARCADIS Project No.: NJ001024.0001.00005
Date: MARCH 2011

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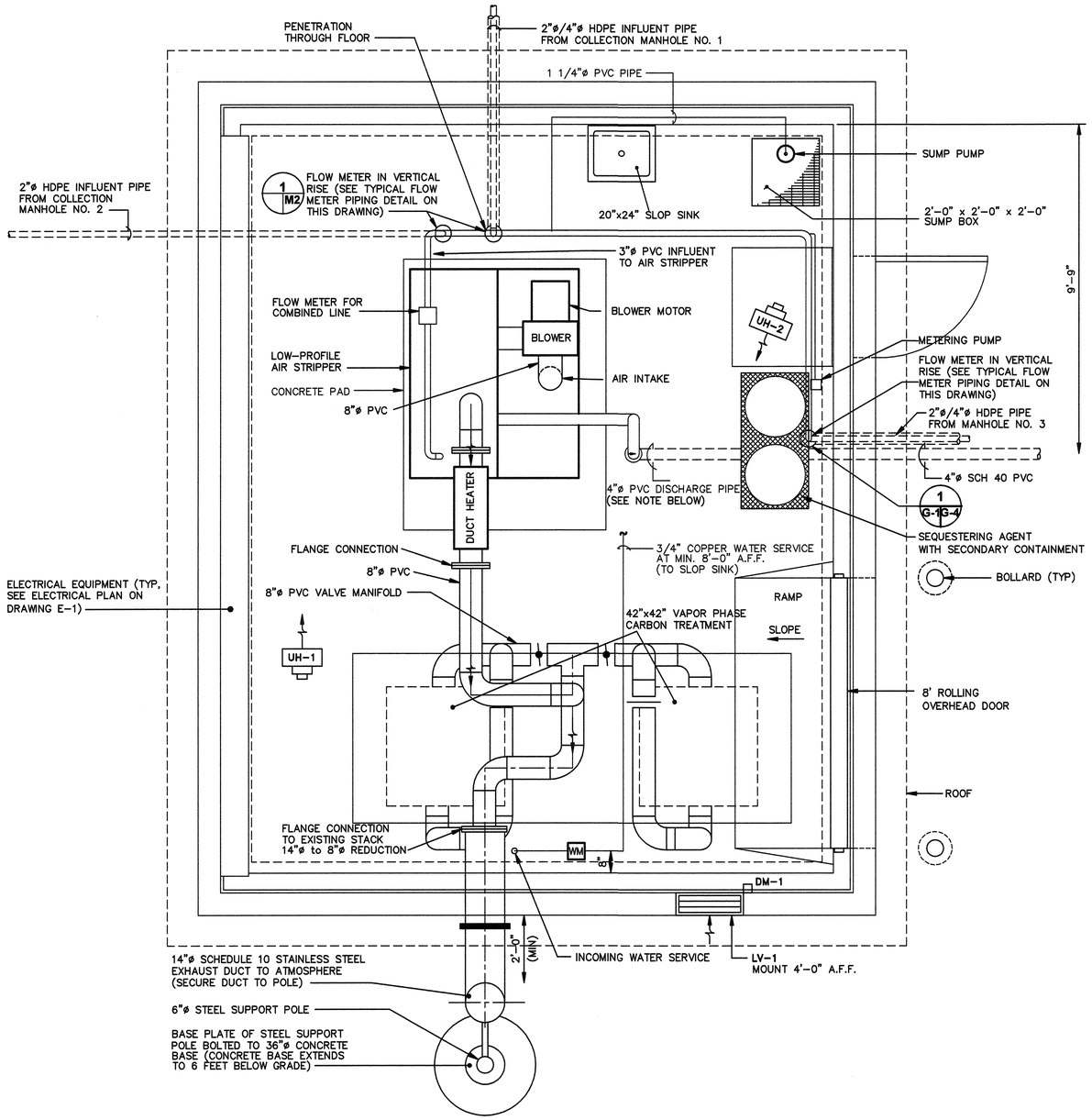
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

M-1



FLOOR PLAN

SCALE: 1/2"=1'-0"

1/2"=1'-0" 2' 0 2' 4'

NTS 0404

LEGEND

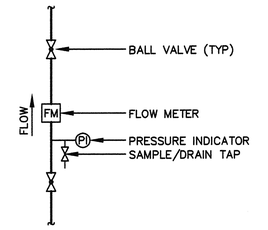
- DIRECTION OF FLOW
- AIR FLOW
- HOSE BIBB
- WM WATER METER

ABBREVIATIONS:

A.F.F.	ABOVE FINISHED FLOOR
MIN.	MINIMUM
DM	DAMPER MOTOR
LV	LOUVER
UH	UNIT HEATER

GENERAL NOTES:

1. REFER TO DRAWING G-5 FOR SPECIFICATIONS AND NOTES.



TYPICAL FLOW METER PIPING DETAIL

1 M2

NOT TO SCALE

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XREFS:
IMAGES:
PROJECTNAME: —
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3	3/14/11	AS-BUILT RECORD DRAWINGS	CD	CM
2	2/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	1/6/10	DRAFT 100% DESIGN PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN PLAN	CM	MM

Professional Engineer's Name: MOH MOHIUDDIN PhD, PE, DEE
Professional Engineer's No.: 074527
State: NY | Date Signed: 04/13/2011 | Project Mgr.: P.MILIONIS
Designed by: C.MCLAUGHLIN | Drawn by: J.GONZALEZ | Checked by: E.PANHORST

STATE OF NEW YORK · MOH MOHIUDDIN · 074527 · LICENSED PROFESSIONAL ENGINEER

ARCADIS

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FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

FLOOR PLAN AND DETAILS

ARCADIS Project No.: NJ001024.0001.00005
Date: MARCH 2011

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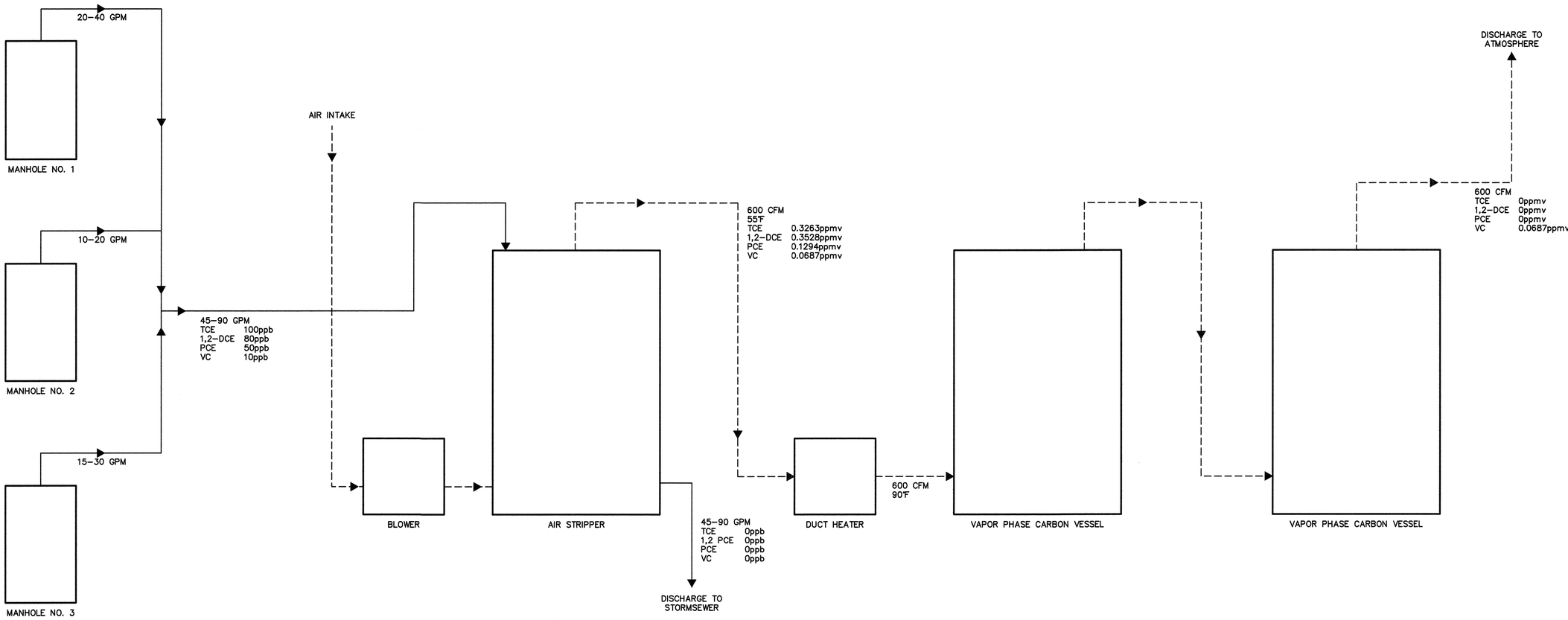
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

M-2



LEGEND

——— WATER

– – – – VAPOR

NOTES

1. OFF GAS CONCENTRATIONS BASED ON QED AIR STRIPPER MODEL VERSION 2.01 AT 90 GPM PROVIDED IN APPENDIX A OF GROUNDWATER COLLECTION AND TREATMENT SYSTEM 100% DESIGN WORKPLAN.

SCALE(S) AS INDICATED

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No.	Date	Revisions	By	Ckd
3	3/14/11	AS-BUILT RECORD DRAWINGS	CD	CM
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0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

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Professional Engineer's No.: 074527
State: NY | Date Signed: 04/13/2011 | Project Mgr.: P.MILIONIS
Designed by: C.MCLAUGHLIN | Drawn by: J.GONZALEZ | Checked by: E.PANHORST

STATE OF NEW YORK · MOH MOHIUDDIN · 074527 · LICENSED PROFESSIONAL ENGINEER

ARCADIS

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FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

PROCESS FLOW DIAGRAM

ARCADIS Project No.
NJ001024.0001.00005

Date
MARCH 2011

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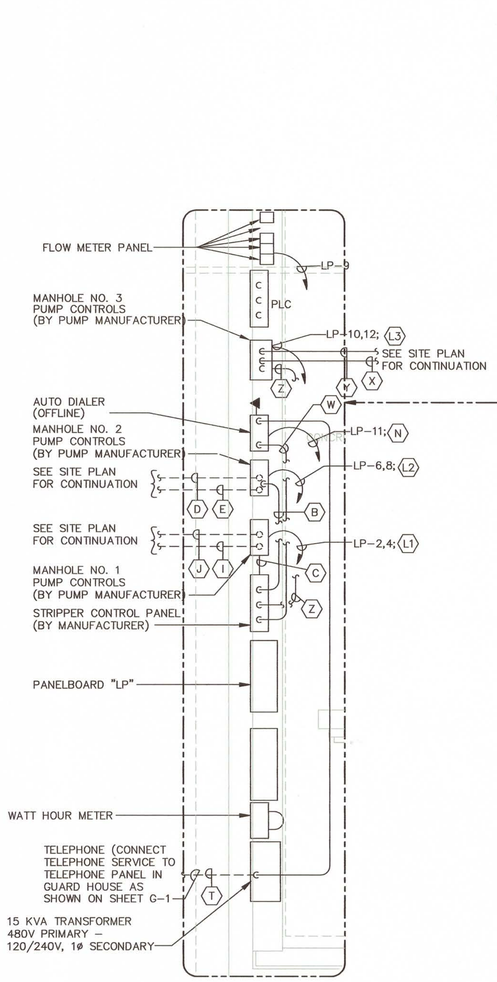
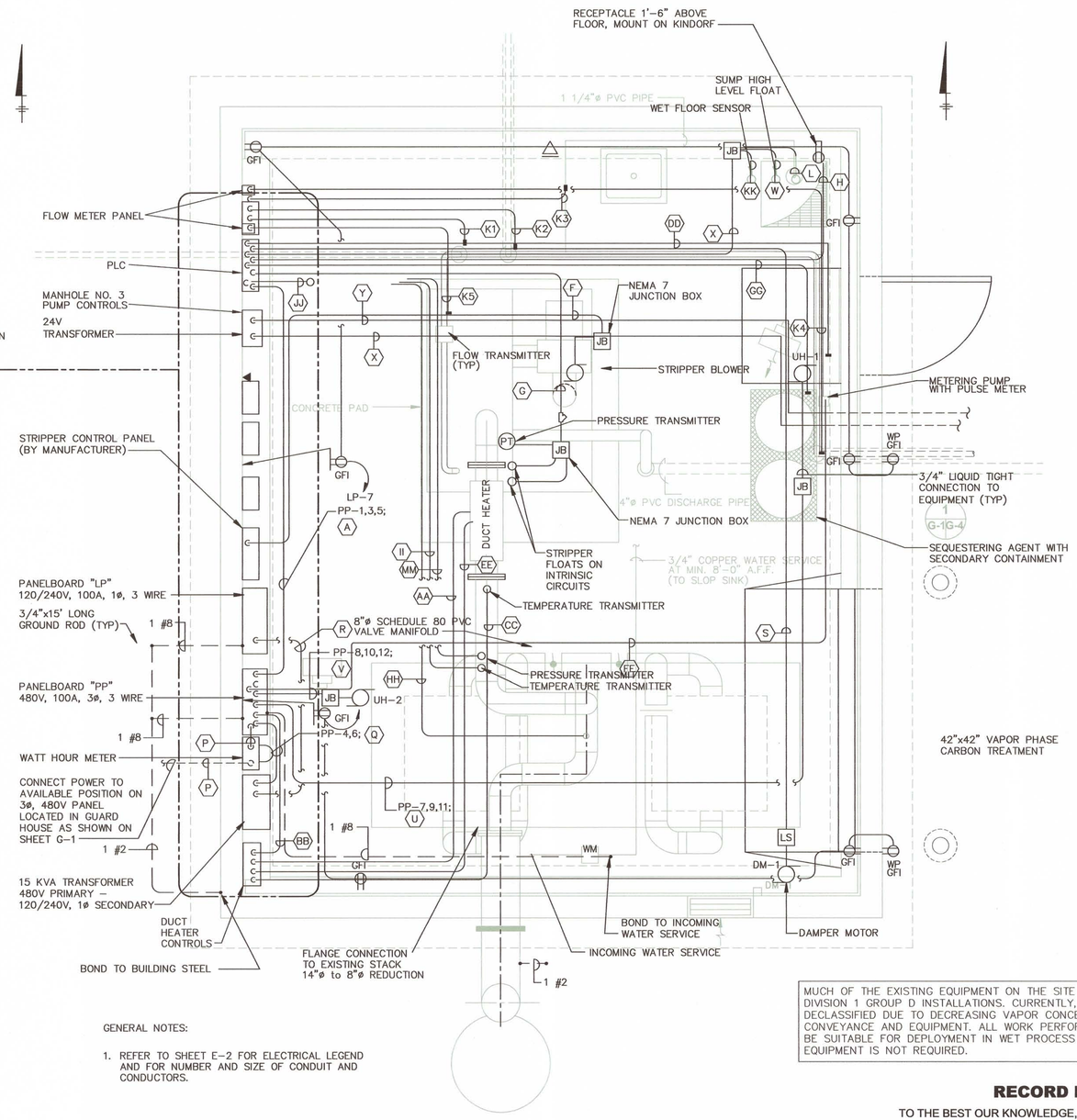
ALBANY, NEW YORK
TEL. 518.452.7826

M-3





GENERAL NOTES:

1. REFER TO SHEET E-2 FOR ELECTRICAL LEGEND AND FOR NUMBER AND SIZE OF CONDUIT AND CONDUCTORS.

MUCH OF THE EXISTING EQUIPMENT ON THE SITE IS SUITABLE FOR CLASS 1, DIVISION 1 GROUP D INSTALLATIONS. CURRENTLY, THE SITE HAS BEEN DECLASSIFIED DUE TO DECREASING VAPOR CONCENTRATIONS IN PROCESS CONVEYANCE AND EQUIPMENT. ALL WORK PERFORMED IN THIS PHASE SHALL BE SUITABLE FOR DEPLOYMENT IN WET PROCESS LOCATIONS, AND NEMA 7 EQUIPMENT IS NOT REQUIRED.

RECORD DRAWINGS

TO THE BEST OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

DATE: 6/13/11 BY: Michael E. Currie

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYR:ON=*;OFF=*REF*
\\N12FP1\Data\-DATA\WIPLM\Utica\final as builts\GCS\01024E01.DWG LAYOUT: E-1 SAVED: 6/11/2011 7:52 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: 6030FULL.CTB PLOTTED: 6/13/2011 7:24 AM BY: CURRIE, MIKE

XREFS: 01024X00 01024M02
IMAGES:
PROJECTNAME: ----

1/2"=1'-0" (2' 0 2' 4')

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2	2/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name		
MICHAEL E. CURRE		
Professional Engineer's No.		
082521		
State	Date Signed	Project Mgr.
NY	6/13/11	P.MILIONIS
Designed by	Drawn by	Checked by
C.MCLAUGHLIN	J.GONZALEZ	M.CURRIE

STATE OF NEW YORK MICHAEL E. CURRE NO. 082521 LICENSED PROFESSIONAL ENGINEER

ARCADIS

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GROUNDWATER COLLECTION AND TREATMENT SYSTEM

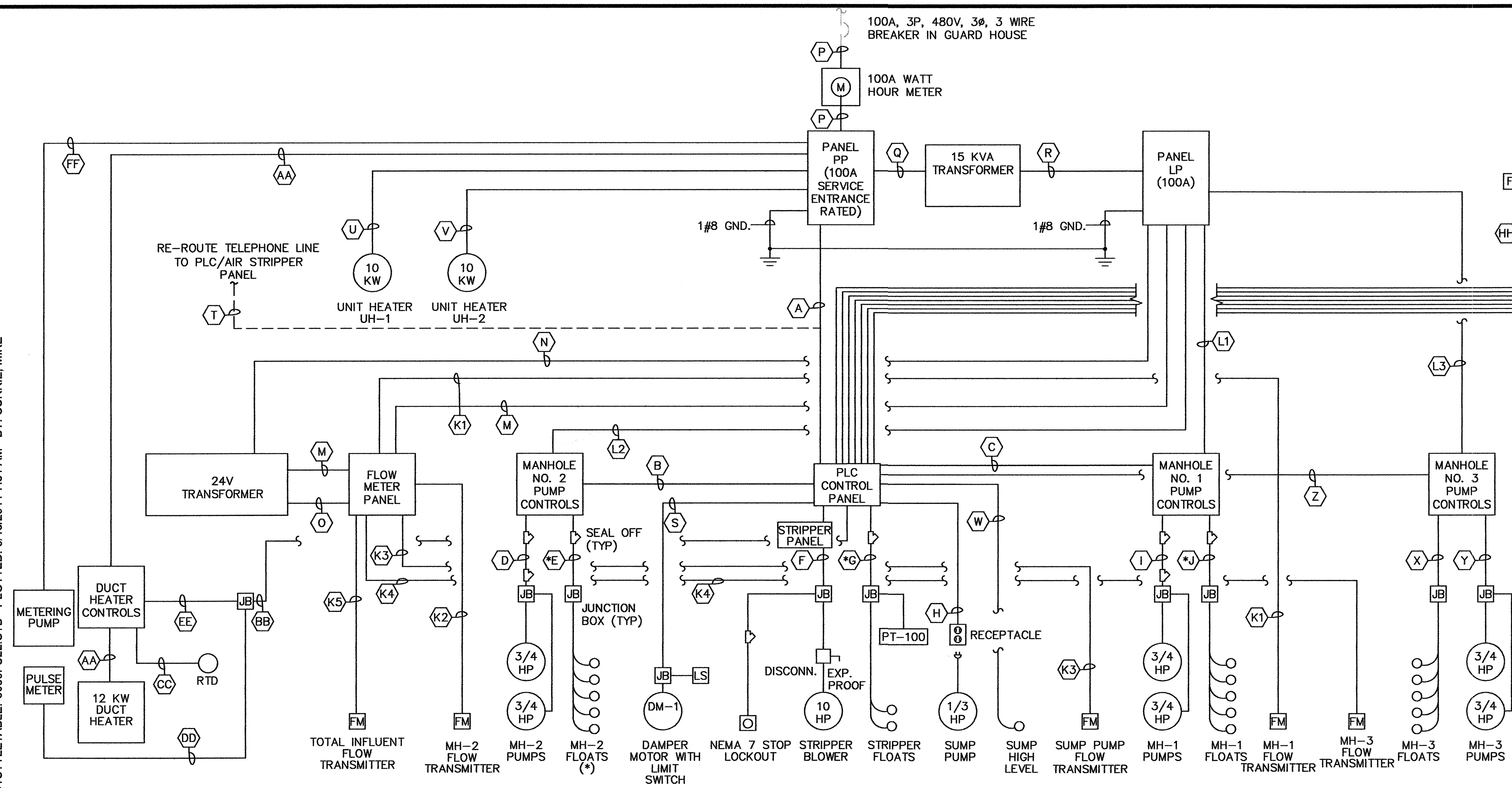
ELECTRICAL FLOOR PLANS

ARCADIS Project No. NJ001024.0001.00005

Date MARCH 2011

ARCADIS OF NEW YORK, INC.
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

E-1



ONE-LINE DIAGRAM

NOT TO SCALE

LEGEND

- 2 LAMP FLUORESCENT LIGHT FIXTURE, LETTER n DENOTES FIXTURE TYPE
- WL — EXTERIOR WALL PACK LIGHT FIXTURE
- ELU — EMERGENCY LIGHT FIXTURE
- S — SINGLE POLE SWITCH
- DUPLEX RECEPTACLE
- GFI — GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE
- JB — JUNCTION BOX
- MOTOR
- CIRCUIT HOMERUN
- TELEPHONE OUTLET
- LS — LIMIT SWITCH
- CIRCUIT BREAKER
- DISCONNECTED, UNFUSED

LOAD SERVICE – 480V CONNECTED LOADS					
LOAD/ITEM DESCRIPTION	LOAD (KW)	LOAD (HP)	LOAD (F.L.A.)	CB	SERVICE FACTOR
DUCT HEATER (12 KW)	12.0	--	67.7	30	50%
A/S BLOWER (NEW)	--	10	14.0	30	100%
UNIT HEATER (UH-1)	10.0	--	12.1	20	50%
UNIT HEATER (UH-2)	10.0	--	12.1	20	50%
WELL PUMPS (6)	--	3/4 (EA)	20.7	10	50%
MISC 1ø LOADS	--	--	4.6	20	50%
TOTAL	--	--	81.2A	--	--

CONDUIT/CONDUCTOR SCHEDULE

CIRCUIT	CONDUCTOR SIZE	CONDUIT SIZE	NAME
A	3 #10, #10G	3/4" EMT	BLOWER, SUMP PUMP, AND STRIPPER CONTROL POWER FEED
B	8 #14	3/4" EMT	CONTROL PANEL TO MANHOLE NO. 2 PUMP CONTROLS
C	8 #14	3/4" EMT	CONTROL PANEL TO MANHOLE NO. 1 PUMP CONTROLS
D	6 #12, 2 #12G	1-1/2" EMT (INDOORS) 1" RGS (OUTDOORS)	MANHOLE NO. 2 PUMP POWER
E*	10 #12	1-1/2" EMT (INDOORS) 1" RGS (OUTDOORS)	MANHOLE NO. 2 LEVEL SWITCHES
F	3 #8, 1 #12G 2 #14	1-1/2" RGS	BLOWER POWER AND CONTROL
G*	8 #14	3/4" RGS	BLOWER PRESSURE SWITCH & LEVEL SWITCHES
H	2 #12, 1 #12G	3/4" RGS	SUMP PUMP RECEPTACLE POWER
I	6 #12, 2 #12G	1" RGS	MANHOLE NO. 1 PUMP POWER
J*	10 #14	1" RGS	MANHOLE NO. 1 LEVEL SWITCHES
K1 K2 K3 K4 K5	MANUFACTURER'S CABLES	3/4" RGS	MANHOLE NO. 1 FLOW METER, MANHOLE NO. 2 FLOW METER, & SUMP PUMP FLOW METER MANHOLE NO. 3 FLOW METER TOTAL INFLUENT FLOW METER
L1 L2 L3	3 #10, 1 #10G 3 #10, 1 #10G	3/4" EMT	PUMP CONTROL PANEL POWER FEEDS
M	2 #12, 1 #12G	3/4" EMT	FLOW METER & CHART REC. POWER FEED
N	2 #12, 1 #12G	3/4" EMT	24V TRANSFORMER POWER FEED

CIRCUIT	CONDUCTOR SIZE	CONDUIT SIZE	NAME
O	3 TSP #16	3/4" EMT	FLOW SIGNALS (SEE NOTE 1)
P	3 #2, 1 #6G	1-1/2" EMT (RGS OUTDOORS)	BUILDING POWER
Q	3 #8, 1 10G	1" SEAL TITE	TRANSFORMER FEED
R	3 #6, 1 #8G	1" SEAL TITE	PANEL LP FEED
S	2 #12, 1 #12G 2 #14	3/4" EMT	DAMPER MOTOR AND LIMIT SWITCH
T	6 #22	1-1/2" RGS	TELEPHONE SERVICE
U	3 #10, 1 #10G	3/4" EMT	UNIT HEATER (UH-1)
V	3 #10, 1 #10G	3/4" EMT	UNIT HEATER (UH-2)
W	10 #14	3/4" EMT	SUMP HIGH LEVEL
X	10 #14 1 #14G	1" RGS (SEE NOTE 9)	MANHOLE NO. 3 LEVEL SWITCHES
Y	6 #10 2 #10G	1" RGS (SEE NOTE 9)	MANHOLE NO. 3 PUMP POWER
Z	8 #14 1 #14G	3/4" EMT	CONTROL PANEL TO MANHOLE NO. 3 PUMP CONTROLS
AA	3 #8 1 #8G	1" RGS	DUCT HEATER POWER
BB	6 #14 1 #14G	3/4" RGS	DUCT HEATER HOMERUN
CC	#18 SHIELDED TWISTED PAIR	1" RGS	DUCT HEATER TEMP SENSOR
DD	2 #14 1 #14G	1" RGS	METERING PUMP CONTROLS AND PULSE METER
EE	4 #14 1 #14G	3/4" RGS	DUCT HEATER CONTROLS

CIRCUIT	CONDUCTOR SIZE	CONDUIT SIZE	NAME
FF	2 #14 1 #14G	3/4" RGS	METERING PUMP POWER
GG	2 #22	3/4" EMT	WET PALLET SENSOR
HH	1 #18	3/4" EMT	AIR FLOW TRANSMITTER
II	1 #18	3/4" EMT	TEMPERATURE TRANSMITTER
JJ	1 #20	3/4" EMT	TEMPERATURE TRANSMITTER
KK	1 #18 1 #18G	3/4" EMT	WET FLOOR SENSOR
LL	1 #22	3/4" EMT	MOTION DETECTOR
MM	1 #18	3/4" EMT	PRESSURE TRANSMITTER

* INDICATES INTRINSICALLY SAFE SYSTEM PER NEC-504

CONDUIT/CONDUCTOR SCHEDULE

NOT TO SCALE

PANELBOARD LP SCHEDULE

LOCATION : GROUND WATER TREATMENT BUILDING
FED FROM : PANEL "PP" CIRCUITS 4 & 6
MAIN BUS RATINGS : 100 AMPS , 240/120 VOLTS , 1 PHASE , 3 WIRE
MINIMUM SHORTCIRCUIT INTERUPTING RATING : 10,000 RMS. SYMM. AMPS
NQOD TYPE
MAIN BREAKER TRIP : 60 AMPS ,
INCOMING FEED : 3#6, 1#8 GND., 1"C
ESTIMATED CONNECTED LOAD : 7.1 KVA
ENCLOSURE : SURFACE MOUNTED NEMA 1

DESCRIPTION	LOAD W-KW-HP	CB AMPS	CIR.	B C	CIR.	CB AMPS	LOAD W-KW-HP	DESCRIPTION	
INDOOR/OUTDOOR LIGHTING	480W	20 / 1	1		2	30 / 2	1.5 HP	MANHOLE NO.1 PUMP CONTROLS	L1
SPARE		20 / 1	3		4				
A RECEPTS (SOUTH)	720W	20 / 1	5		6	30 / 2	1.5 HP	MANHOLE NO.2 PUMP CONTROLS	L2
B RECEPTS & MTRG PMPS (NORTH)	900W	20 / 1	7		8				
	–	20 / 1	9		10	30 / 2	1.5 HP	MANHOLE NO.3 PUMP CONTROLS	L3
FLOW METER & CHART RECORDER	–	20 / 1	11		12				
SPARE	–	20 / 1	13		14	20 / 1	–	MANHOLE NO.3 FLOW METER	K4
UPS & CONTROLS IN ASMCP	–	15 / 1	15		16	20 / 1	–	C RECEPTS	K5
SPARE	–	20 / 1	17		18	20 / 1	–	SPARE	
SPACE	–		19		20	20 / 1	–	SPARE	
MAIN	–	60 / 2							

PANELBOARD PP SCHEDULE

LOCATION : GROUND WATER TREATMENT BUILDING
FED FROM : GUARD HOUSE PANEL CIRCUIT
MAIN BUS RATINGS : 100 AMPS , 480 VOLTS , 3 PHASE , 3 WIRE
MINIMUM SHORTCIRCUIT INTERUPTING RATING : 10,000 RMS. SYMM. AMPS
I-LINE HCN TYPE
MAIN BREAKER TRIP : 100 (SERVICE ENTRANCE RATED) AMPS ,
INCOMING FEED : 3#2, 1#6 GND., 1-1/2"C
ESTIMATED CONNECTED LOAD : –
ENCLOSURE : SURFACE MOUNTED NEMA 1

	DESCRIPTION	LOAD W-KW-HP	CB AMPS	CIR.	A B C	CIR.	CB AMPS	LOAD W-KW-HP	DESCRIPTION	
AA	DUCT HEATER	12KW	40 / 3	1		2				
				3		4	20 / 3		WELL PUMP TRANSFORMER FEED	
				5		6				
A	BLOWER, STRIPPER CONTROLS	15HP	45 / 3	7		8				
				9		10	35 / 2	15KVA	TRANSFORMER FEED	Q
				11		12				
U	UNIT HEATER (UH-1)	10KW	30 / 3	13		14	30 / 3	10 KW	UNIT HEATER (UH-2)	V
				15		16				
				17		18				

RECORD DRAWINGS

TO THE BEST OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

DATE: 6/13/11 BY: [signature]

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB: PIC: PM: P. MILIONIS TM: J. BONSTEEL TR: C. DAVERN LYR:ON=*;OFF=*REF*
\\NJ01FP1\Data\-DATA\WIP\LMC\Utica\final as builts\GCS01024E02.dwg LAYOUT: E-2 SAVED: 6/12/2011 8:39 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: 6030FULL.CTB PLOTTED: 6/13/2011 7:31 AM BY: CURRIE, MIKE

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
4	6/12/11	AS-BUILT RECORD DRAWINGS	MEC	MEC
3	3/14/11	AS-BUILT RECORD DRAWINGS	CD	CM
2	2/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name: MICHAEL E. CURRE
Professional Engineer's No.: 082521
State: NY | Date Signed: 6/13/11 | Project Mgr.: P.MILIONIS
Designed by: C.MCLAUGHLIN | Drawn by: J.GONZALEZ | Checked by: M.CURRIE

STATE OF NEW YORK • MICHAEL E. CURRE • LICENSED PROFESSIONAL ENGINEER • No. 082521

ARCADIS

ARCADIS OF NEW YORK, INC.

FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

ONE LINE DIAGRAM, CONDUCTOR AND PANELBOARD SCHEDULES

ARCADIS Project No. NJ001024.0001.00005
Date MARCH 2011
ARCADIS OF NEW YORK, INC. 465 NEW KARNER ROAD ALBANY, NEW YORK TEL. 518.452.7826

E-2

LOGIC FOR MANHOLE NO. 1

PUMP NO. 1 SHALL NOT OPERATE IF:

1. PUMP NO. 1 HOA SWITCH (HS-101A) IS IN AUTO POSITION, AND FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 1 HOA SWITCH (HS-101A) IS IN OFF POSITION
3. MANHOLE NO. 1 LEVEL IS BELOW LOW LEVEL FLOAT (LSL-103)
4. MANHOLE NO. 1 LEVEL IS BELOW LOW-LOW LEVEL FLOAT (LSLL-103)

PUMP NO. 1 SHALL OPERATE IF:

1. PUMP NO. 1 HOA SWITCH (HS-101A) IS IN AUTO POSITION AND MANHOLE NO. 1 LEVEL IS ABOVE HIGH-1 LEVEL FLOAT (LSH1-103) AND PUMP NO. 1 IS DESIGNATED BY PLC AS LEAD PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 1 HOA SWITCH (HS-101A) IS IN AUTO POSITION AND MANHOLE NO. 1 LEVEL IS ABOVE HIGH-2 LEVEL FLOAT (LSH2-103) AND PUMP NO. 1 IS DESIGNATED BY PLC AS LAG PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
3. PUMP NO. 1 HOA SWITCH (HS-102A) IS IN HAND POSITION

PUMP NO. 2 SHALL NOT OPERATE IF:

1. PUMP NO. 2 HOA SWITCH (HS-101B) IS IN AUTO POSITION, AND FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 2 HOA SWITCH (HS-101B) IS IN OFF POSITION
3. MANHOLE NO. 1 LEVEL IS BELOW LOW LEVEL FLOAT (LSL-103)
4. MANHOLE NO. 1 LEVEL IS BELOW LOW-LOW LEVEL FLOAT (LSLL-103)

PUMP NO. 2 SHALL OPERATE IF:

1. PUMP NO. 2 HOA SWITCH (HS-101B) IS IN AUTO POSITION AND MANHOLE NO. 1 LEVEL IS ABOVE HIGH-1 LEVEL FLOAT (LSH1-103) AND PUMP NO. 2 IS DESIGNATED BY PLC AS LEAD PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 2 HOA SWITCH (HS-101B) IS IN AUTO POSITION AND MANHOLE NO. 1 LEVEL IS ABOVE HIGH-2 LEVEL FLOAT (LSH2-103) AND PUMP NO. 2 IS DESIGNATED BY PLC AS LAG PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
3. PUMP NO. 2 HOA SWITCH (HS-101B) IS IN HAND POSITION

LOGIC FOR MANHOLE NO. 2

PUMP NO. 1 SHALL NOT OPERATE IF:

1. PUMP NO. 1 HOA SWITCH (HS-102A) IS IN AUTO POSITION, AND FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 1 HOA SWITCH (HS-102A) IS IN OFF POSITION
3. MANHOLE NO. 2 LEVEL IS BELOW LOW LEVEL FLOAT (LSL-104)
4. MANHOLE NO. 2 LEVEL IS BELOW LOW-LOW LEVEL FLOAT (LSLL-104)

PUMP NO. 1 SHALL OPERATE IF:

1. PUMP NO. 1 HOA SWITCH (HS-102A) IS IN AUTO POSITION AND MANHOLE NO. 2 LEVEL IS ABOVE HIGH-1 LEVEL FLOAT (LSH1-104) AND PUMP NO. 1 IS DESIGNATED BY PLC AS LEAD PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 1 HOA SWITCH (HS-102A) IS IN AUTO POSITION AND MANHOLE NO. 2 LEVEL IS ABOVE HIGH-2 LEVEL FLOAT (LSH2-104) AND PUMP NO. 1 IS DESIGNATED BY PLC AS LAG PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
3. PUMP NO. 1 HOA SWITCH (HS-102A) IS IN HAND POSITION

PUMP NO. 2 SHALL NOT OPERATE IF:

1. PUMP NO. 2 HOA SWITCH (HS-102B) IS IN AUTO POSITION, AND FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 2 HOA SWITCH (HS-102B) IS IN OFF POSITION
3. MANHOLE NO. 2 LEVEL IS BELOW LOW LEVEL FLOAT (LSL-104)
4. MANHOLE NO. 2 LEVEL IS BELOW LOW-LOW LEVEL FLOAT (LSLL-104)

PUMP NO. 2 SHALL OPERATE IF:

1. PUMP NO. 2 HOA SWITCH (HS-102B) IS IN AUTO POSITION AND MANHOLE NO. 2 LEVEL IS ABOVE HIGH-1 LEVEL FLOAT (LSH1-104) AND PUMP NO. 2 IS DESIGNATED BY PLC AS LEAD PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 2 HOA SWITCH (HS-102B) IS IN AUTO POSITION AND MANHOLE NO. 2 LEVEL IS ABOVE HIGH-2 LEVEL FLOAT (LSH2-104) AND PUMP NO. 2 IS DESIGNATED BY PLC AS LAG PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
3. PUMP NO. 2 HOA SWITCH (HS-102B) IS IN HAND POSITION

LOGIC FOR MANHOLE NO. 3

PUMP NO. 1 SHALL NOT OPERATE IF:

1. PUMP NO. 1 HOA SWITCH (HS-103A) IS IN AUTO POSITION, AND FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 1 HOA SWITCH (HS-103A) IS IN OFF POSITION
3. MANHOLE NO. 3 LEVEL IS BELOW LOW LEVEL FLOAT (LSL-105)
4. MANHOLE NO. 3 LEVEL IS BELOW LOW-LOW LEVEL FLOAT (LSLL-105)

PUMP NO. 1 SHALL OPERATE IF:

1. PUMP NO. 1 HOA SWITCH (HS-103A) IS IN AUTO POSITION AND MANHOLE NO. 3 LEVEL IS ABOVE HIGH-1 LEVEL FLOAT (LSH1-105) AND PUMP NO. 1 IS DESIGNATED BY PLC AS LEAD PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 1 HOA SWITCH (HS-103A) IS IN AUTO POSITION AND MANHOLE NO. 3 LEVEL IS ABOVE HIGH-2 LEVEL FLOAT (LSH2-105) AND PUMP NO. 1 IS DESIGNATED BY PLC AS LAG PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
3. PUMP NO. 1 HOA SWITCH (HS-103A) IS IN HAND POSITION

PUMP NO. 2 SHALL NOT OPERATE IF:

1. PUMP NO. 2 HOA SWITCH (HS-103B) IS IN AUTO POSITION, AND FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 2 HOA SWITCH (HS-103B) IS IN OFF POSITION
3. MANHOLE NO. 3 LEVEL IS BELOW LOW LEVEL FLOAT (LSL-105)
4. MANHOLE NO. 3 LEVEL IS BELOW LOW-LOW LEVEL FLOAT (LSLL-105)

PUMP NO. 2 SHALL OPERATE IF:

1. PUMP NO. 2 HOA SWITCH (HS-103B) IS IN AUTO POSITION AND MANHOLE NO. 3 LEVEL IS ABOVE HIGH-1 LEVEL FLOAT (LSH1-105) AND PUMP NO. 2 IS DESIGNATED BY PLC AS LEAD PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
2. PUMP NO. 2 HOA SWITCH (HS-103B) IS IN AUTO POSITION AND MANHOLE NO. 3 LEVEL IS ABOVE HIGH-2 LEVEL FLOAT (LSH2-105) AND PUMP NO. 2 IS DESIGNATED BY PLC AS LAG PUMP AND NO FATAL ALARMS (SHOWN BELOW) ARE INDICATED AT PLC
3. PUMP NO. 2 HOA SWITCH (HS-103B) IS IN HAND POSITION

LOGIC FOR AIR STRIPPER BLOWER (B-100)

BLOWER SHALL OPERATE IF:

1. BLOWER HOA SWITCH (HS-100) IS IN HAND POSITION
2. BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND [MANHOLE NO. 1 PUMP NO. 1 HOA SWITCH (HS-101A) IS IN AUTO POSITION AND MANHOLE NO. 1 PUMP NO. 1 HAS BEEN RUNNING WITHIN LAST TEN MINUTES]
3. BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND [MANHOLE NO. 1 PUMP NO. 2 HOA SWITCH (HS-101B) IS IN AUTO POSITION AND MANHOLE NO. 1 PUMP NO. 2 HAS BEEN RUNNING WITHIN LAST TEN MINUTES]
4. BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND [MANHOLE NO. 2 PUMP NO. 1 HOA SWITCH (HS-102A) IS IN AUTO POSITION AND MANHOLE NO. 2 PUMP NO. 1 HAS BEEN RUNNING WITHIN LAST TEN MINUTES]
5. BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND [MANHOLE NO. 2 PUMP NO. 2 HOA SWITCH (HS-102B) IS IN AUTO POSITION AND MANHOLE NO. 2 PUMP NO. 2 HAS BEEN RUNNING WITHIN LAST TEN MINUTES]
6. BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND [MANHOLE NO. 3 PUMP NO. 1 HOA SWITCH (HS-103A) IS IN AUTO POSITION AND MANHOLE NO. 3 PUMP NO. 1 HAS BEEN RUNNING WITHIN LAST TEN MINUTES]
7. BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND [MANHOLE NO. 3 PUMP NO. 2 HOA SWITCH (HS-103B) IS IN AUTO POSITION AND MANHOLE NO. 3 PUMP NO. 2 HAS BEEN RUNNING WITHIN LAST TEN MINUTES]

BLOWER SHALL NOT OPERATE IF:

1. BLOWER HOA SWITCH (HS-100) IS IN OFF POSITION
2. BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND FATAL ALARMS (SHOWN ON THIS DRAWING) HAVE BEEN INDICATED AT PLC FOR GREATER THAN TEN MINUTES
3. BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND NONE OF THE STATEMENTS LISTED ABOVE ARE TRUE

LOGIC FOR DUCT HEATER (DH-300)

DUCT HEATER SHALL OPERATE IF:

1. DUCT HEATER HEAT ON/OFF SWITCH IS IN ON POSITION AND BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND BLOWER (B-100) IS RUNNING

DUCT HEATER SHALL NOT OPERATE IF:

1. DUCT HEATER HEAT ON/OFF SWITCH IS IN OFF POSITION
2. DUCT HEATER HEAT ON/OFF SWITCH IS IN ON POSITION AND BLOWER HOA SWITCH (HS-100) IS IN AUTO POSITION AND BLOWER (B-100) IS NOT RUNNING

LOGIC FOR CHEMICAL METERING PUMP (CMP-200)

CHEMICAL METERING PUMP SHALL OPERATE IF:

1. AGGREGATE FLOW TRANSMITTER (FT-105) IS REGISTERING AN INSTANTANEOUS FLOWRATE

CHEMICAL METERING PUMP SHALL NOT OPERATE IF:

1. AGGREGATE FLOW TRANSMITTER (FT-105) IS NOT REGISTERING AN INSTANTANEOUS FLOWRATE

FATAL ALARMS:

1. HIGH AIR STRIPPER SUMP PRESSURE (PT-106)
2. LOW AIR STRIPPER SUMP PRESSURE (PT-106)
3. HIGH AIR STRIPPER SUMP LEVEL (LSH-100)
4. LOW AIR STRIPPER SUMP LEVEL (LSL-100)
5. HIGH AIR FLOWRATE (FT-106)
6. LOW AIR FLOWRATE (FT-106)
7. PRE-CARBON HIGH TEMPERATURE (TT-400)
8. PRE-CARBON LOW TEMPERATURE (TT-400)
9. PRE-CARBON HIGH PRESSURE (PT-400)
10. PRE-CARBON LOW PRESSURE (PT-400)
11. BUILDING WET FLOOR SENSOR ALARM (WFS-106)

NOTES:

1. CONTROLS WERE MODIFIED FROM AN ELECTRICAL CIRCUIT RELAY. BASED CONTROL SYSTEM TO A MICROPROCESSOR BASED (PROGRAMMABLE LOGIC CONTROLLER) CONTROLS BY AZTECH TECHNOLOGIES, INC, IN DECEMBER 2007.
2. MODIFIED CONTROL DETAILS AND LINE DRAWINGS/SCHEMATIC ARE PROVIDED IN THE APPENDIX OF OM&M MANUAL.
3. PLC PROGRAMMING WILL BE PERFORMED BY ARCADIS.

RECORD DRAWINGS

TO THE BEST OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

DATE: 6/13/11 BY:

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYR:ON=*;OFF=*REF*
\\N2FP1\Data-DAT4\WIPLM\C\Ulica\final as builts\GCS\01024E03.DWG LAYOUT: E-3 SAVED: 6/11/2011 7:52 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: 6030FULL.CTB PLOTTED: 6/13/2011 7:33 AM BY: CURRIE, MIKE
XREFS:
0102AX00
IMAGES: PROJECTNAME: ----

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: ——— USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
4	6/12/11	AS-BUILT RECORD DRAWINGS	MEC	MEC
3	3/14/11	AS-BUILT RECORD DRAWINGS	CD	CM
2	2/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name: MICHAEL E. CURRE
Professional Engineer's No.: 082521
State: NY | Date Signed: 6/13/11 | Project Mgr.: P.MILIONIS
Designed by: C.MCLAUGHLIN | Drawn by: J.GONZALEZ | Checked by: M.CURRIE

STATE OF NEW YORK · MICHAEL E. CURRE · LICENSED PROFESSIONAL ENGINEER · NO. 082521

ARCADIS

ARCADIS OF NEW YORK, INC.

FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK

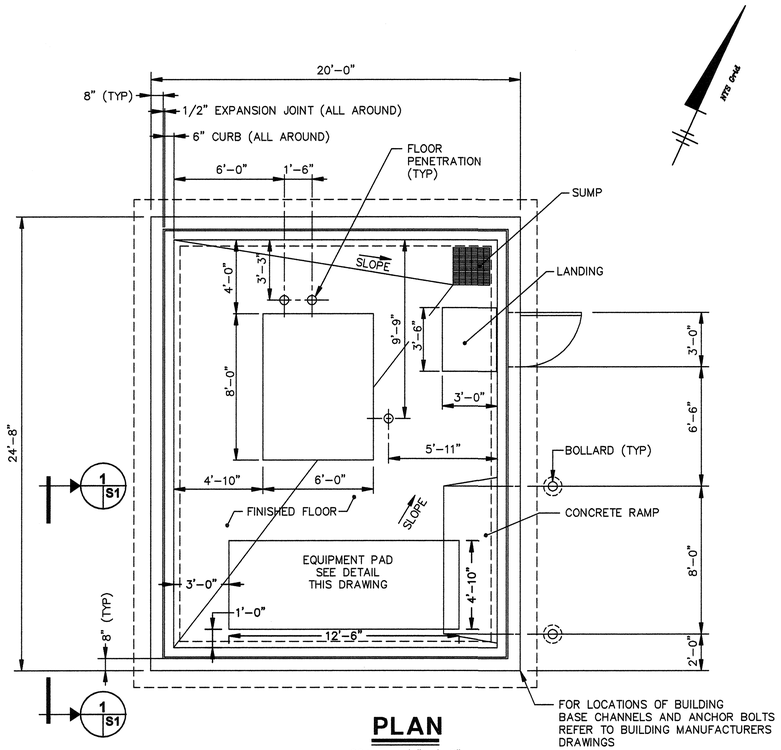
GROUNDWATER COLLECTION AND TREATMENT SYSTEM

CONTROL LOGIC

ARCADIS Project No.: NJ001024.0001.00005
Date: MARCH 2011

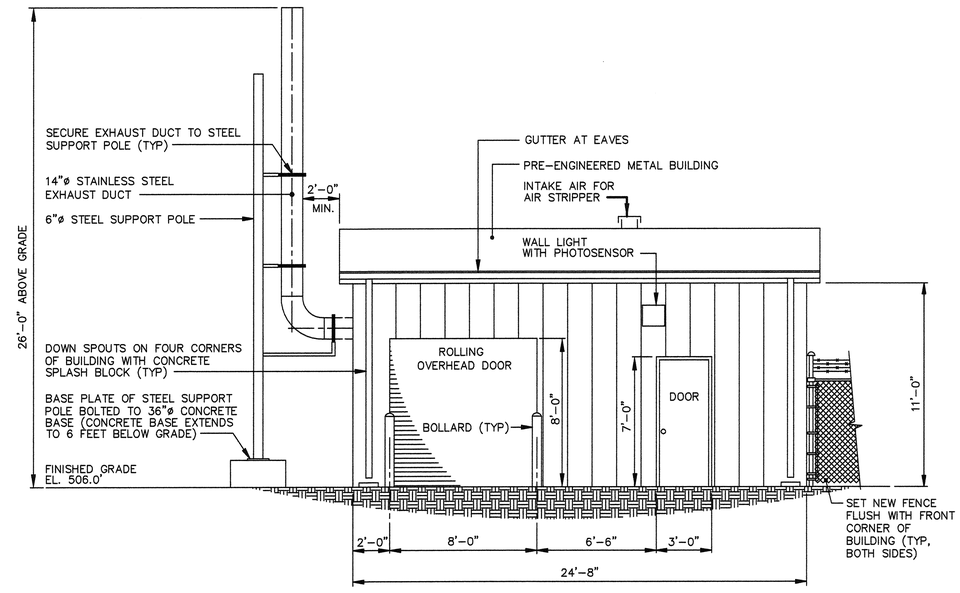
ARCADIS OF NEW YORK, INC.
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

E-3



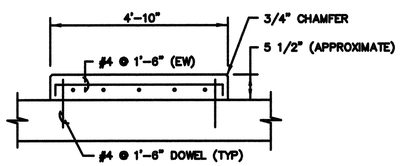
PLAN

SCALE: 1/4"=1'-0"



EAST ELEVATION

SCALE: 1/4"=1'-0"



EQUIPMENT PAD DETAIL 1 S1

NOT TO SCALE

SCALE: 1/4"=1'-0" 4' 2' 0 4' 8'

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYRON="OFF="REF"
G:\ENVCAD\SYRACUSE\ACTIVE\NJ001024\0001\00005\CONTRACT\AS-BUILT\01024S01.dwg LAYOUT: S-1 SAVED: 3/30/2011 2:58 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---PLOTSTYLETABLE: ARCADIS (SIZE C-E).CTB PLOTTED: 3/30/2011 3:01 PM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
01024X00

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: ——— USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
3	3/14/11	AS-BUILT RECORD DRAWINGS	CD	CM
2	2/11/10	FINAL 100% REMEDIAL DESIGN SUBMITTAL TO NYSDEC	CM	MM
1	1/6/10	DRAFT 100% DESIGN WORK PLAN	CM	MM
0	12/2/09	DRAFT 60% DESIGN WORK PLAN	CM	MM

Professional Engineer's Name	MOH MOHIUDDIN PhD, PE, DEE	
Professional Engineer's No.	074527	
State	Date Signed	Project Mgr.
NY	06/13/2011	P.MILIONIS
Designed by	Drawn by	Checked by
C.MCLAUGHLIN	J.GONZALEZ	E.PANHORST

STATE OF NEW YORK · MOH MOHIUDDIN · 074527 · LICENSED PROFESSIONAL ENGINEER

ARCADIS

ARCADIS OF NEW YORK, INC.

FORMER LOCKHEED MARTIN FRENCH ROAD FACILITY • UTICA, NEW YORK

GROUNDWATER COLLECTION AND TREATMENT SYSTEM

BUILDING ELEVATION, SECTION AND DETAILS

ARCADIS Project No. NJ001024.0001.00005

Date MARCH 2011

ARCADIS OF NEW YORK, INC.
465 NEW KARNER ROAD
ALBANY, NEW YORK
TEL. 518.452.7826

S-1

ARCADIS

Appendix B

Monthly O&M Checklists

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/22/2011
Time: 0915
Technician: D. Zuck/D. Nodine

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? No
Alarms? (list) None

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	28	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	14.5 -> 14.75	(inches)
Blower intake line vacuum [PI-100]	-1.5	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2	(inches)
Interior dilution damper position *(0" is shut, 3" is open)*	3/8	(inches)

Is white "POWER ON" light on air stripper control panel lit? (Y/N) Y
Is air stripper hand-off-auto switch [HS-100] in "AUTO" position? (Y/N) N (Manual/Hand)
Note scaling inside liquid effluent pipe from access port Slight
Note scaling observed inside air stripper via clear tray access door Some

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) Y
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) All But HS-103A + 103B

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	3/22/11 1018	→	→	→	→
Instantaneous Flowrate [gpm]	21.56	27.12	NA	NA	38.47
Permanent Flow (gallons)	11,294,008	1,952,453	78,745	1513	873,020
Total Flow (gallons)	1,297,828	288,715	78,745	199	872,881
Pump 1 Running (Y/N)?	Y	Y	N	-	-
Pump 2 Running (Y/N)?	N	N	N	-	-

- Flowrate, Permanent Flow, and Total Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) Y *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) N *(located on duct heater control panel door)*

ADDITIONAL NOTES

Blower Velocity: 4069 (cfm)
Effluent Velocity: 2188 (cfm)

Flowrate Via PLC:	
FT-101	20.27 (gpm)
FT-102	25.30 (gpm)
FT-103	0.00 (gpm)
FT-105	39.96 (gpm)

Monthly OM&M Checklist, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/22/2011
Time: 0915
Technician: D. Zuck/D. Nodine

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	68	(°F)	
Pre-Carbon Temperature	TI-400	90	(°F)	
Duct Heater Temperature Setpoint	-	91	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	86	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	10	(in. W.C.)	
Mid-Carbon Pressure	PI-402	4.5	(in. W.C.)	
Effluent Pressure	PI-403	2	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	26.16	(in. W.C.)	
Vapor Flowrate	FT-106	668	(cfm)	
Pre-Carbon Temperature	TT-400	93.9	(°F)	
Pre-Carbon Pressure	PT-400	4.3	(in. W.C.)	
Building Temperature	TT-100	58.6	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	N	
Is low flow alarm present? (Y/N)	N	
Is pump in external mode? (Y/N)	N	
If in external mode, record one set of mA and stroke speed values	4 (mA) NA (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	NA	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	Full	
Quantity of additional full drums	1	

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.): None, not active

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	Y
pH of effluent sample	8.10 / Temp: 9.3 °C
Model of pH meter	Hanna 991001
Calibration notes / method used	Cal 7.00 & 4.00: OK

Monthly OM&M Checklist, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/22/2011
Time: 0915
Technician: D. Zuck/D. Nodine

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N)	Y
Monthly manhole inspections conducted? (Y/N)	Y
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	No
Do level floats appear to be in good condition and hanging freely? (Y/N)	Yes
Observe groundwater inside each manhole and note odor and appearance	MH-1, MH-3: None/Clear water MH-2: Shows sheans & Oil Blebs on water surface
Is confined space entry signage present at each manhole? (Y/N)	Yes, Should be replaced @ MH-1 None, @ MH-23
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	Working on MH-1 & MH-2 Off on MH-2&3
With pump(s) running, listen for any unusual sounds	None
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	OK
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	None
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	Yes
List any notable observations	Well Oil Check: MW-4: Clean / MW-3: Clean / MW-2: Clean / MW-13BR: Clean / MW-5: Clean

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	Y
Is eyewash/shower station operational and unobstructed? (Y/N)	Y
Is interior emergency lighting operational? (Y/N)	Y
Is first aid kit present and in good condition? (Y/N)	Y
Is lockout/tagout equipment available? (Y/N)	Y
Have electrical GFIs been tested and reset? (Y/N)	Y
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	Y
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	HASP 11/08 OM&M 12/10
Is emergency spill kit available? (Y/N)	Y
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	Y
Is current SPDES permit onsite? (Y/N) (note date)	Y 11/10

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 4/5/2011
Time: 9:15
Technician: DZ/DN

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* AUTO
System currently cycling? Yes
Alarms? (list) None

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	29	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	17.75	(inches)
Blower intake line vacuum [PI-100]	0.5	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2	(inches)
Interior dilution damper position *(0° is shut, 90° is open)*	10	(°)

Is white "POWER ON" light on air stripper control panel lit? Y
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? Y
Note scaling inside liquid effluent pipe from access port present
Note scaling observed inside air stripper via clear tray access door present

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) yes, except MH-2
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) yes, except 102s

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	4/5/2011 10:30				
Instantaneous Flowrate [gpm]	45.76	0	29.02	0	74.33
Permanent Flow (gallons)	11,452,117	1,955,047	78,749	1,513	1,012,904
Pump 1 Running (Y/N)?	N	N	Y	N	NA
Pump 2 Running (Y/N)?	Y	N	Y	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) Y *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) N *(located on duct heater control panel door)*

Monthly OM&M Checklist, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 4/5/2011
Time: 13:00
Technician: DZ/DN

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	70	(°F)	
Pre-Carbon Temperature	TI-400	103	(°F)	
Duct Heater Temperature Setpoint	-	91	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	90	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	10	(in. W.C.)	
Mid-Carbon Pressure	PI-402	4.5	(in. W.C.)	
Effluent Pressure	PI-403	0.5	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	26.7	(in. W.C.)	
Vapor Flowrate	FT-106	632 - 694	(cfm)	
Pre-Carbon Temperature	TT-400	99.5	(°F)	
Pre-Carbon Pressure	PT-400	2.7	(in. W.C.)	
Building Temperature	TT-100	65.3	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	N	
Is low flow alarm present? (Y/N)	N	
Is pump in external mode? (Y/N)	N	
If in external mode, record one set of mA and stroke speed values	- (mA) - (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	-	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	FULL	
Quantity of additional full drums	ONE	

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.): OK

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	yes, @ 12:56
pH of effluent sample	8.05
Model of pH meter	Hanna 991001
Calibration notes / method used	2-point span calibration at pH 4 and pH 7; okay.

Monthly OM&M Checklist, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 4/5/2011
Time: 12:07
Technician: DN

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N)	yes
Monthly manhole inspections conducted? (Y/N)	yes
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	no
Do level floats appear to be in good condition and hanging freely? (Y/N)	yes, hanging freely
Observe groundwater inside each manhole and note odor and appearance	MH-1: moderately clear, no odor. MH-2: murky, solids floating on top, no odor. MH-3: No odor, turbid.
Is confined space entry signage present at each manhole? (Y/N)	Yes, except MH-3.
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	all appear good
With pump(s) running, listen for any unusual sounds	all sound fine; MH-2 offline.
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	all appear good
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	Okay.
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	Yes.
List any notable observations	
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Y

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	Y
Is eyewash/shower station operational and unobstructed? (Y/N)	Y
Is interior emergency lighting operational? (Y/N)	Y
Is first aid kit present and in good condition? (Y/N)	Y
Is lockout/tagout equipment available? (Y/N)	Y
Have electrical GFIs been tested and reset? (Y/N)	Y
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	Y
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	HASP - 3/11, OM&M 3/11
Is emergency spill kit available? (Y/N)	Y
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	Y
Is current SPDES permit onsite? (Y/N) (note date)	Y 11/2010

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 4/5/11 - 4/6/11
Time: -
Technician: DZ/DN/CD/TC

QUARTERLY OM&M TASKS

Quarterly liquid influent samples collected for MH-1, MH-2, and MH-3? (Y/N) MH-1 and MH-3

MH-1 influent pH 7.16
MH-2 influent pH NA
MH-3 influent pH 7.39

Quarterly vapor samples collected pre-carbon, mid-carbon, and effluent? (Y/N) Y

Quarterly catch basin samples collected for CB-1, CB-2, and CB-3? (Y/N) Y

Quarterly groundwater elevation levels collected? (Y/N) Y

Blower bearings greased? (Y/N) N

Indicate air velocity measurement collected from 8" effluent pipe (*plug located on wall side of vertical portion of effluent pipe*) 2030 (fpm) / 644 (cfm)

QUARTERLY CRITICAL DEVICE / ALARM TESTING

Liquid flow transmitters FT-101, FT-102, FT-103, and FT-105 calibrated? (Y/N) *(should be done after flow sensor cleaning)* Y, except FT-102.

If yes, document testing and note any changes in sensor calibration factors: Performed pumpdown tests consistent with GCTS SOP-09. Changed both K-factors for MH-1 from 66.739 to 81.4. Did not change any other K-factors.

Manhole floats tested? (Y/N) Y

Test the following critical alarms *(note that system must be in AUTO to observe proper alarm response):*

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Air Stripper Sump High Pressure	PT-106	PA_106	fatal	Y	Y	Y
	Notes: Adjusted high setpoint to 26. Observed 45 second delay. Lit up "BLOWER PRESSURE HH or LL ALARM" light on blower panel. Shutdown.					
Air Stripper Sump Low Pressure	PT-106	PA_106	fatal	Y	Y	Y
	Notes: Adjusted low setpoint to 29. Observed 45 second delay. Lit up "BLOWER PRESSURE HH or LL ALARM" light on blower panel. Shutdown.					
Air Stripper High Liquid Level	LSH-100	LA_100	fatal	NA	NA	NA
	Notes: Verified that input works. Confirmed alarm within last couple of weeks, although it is currently disabled while new tethered level float is ordered.					
Air Stripper Low Liquid Level	LSL-100	LA_100	fatal	Y	Y	Y
	Notes: Closed BFV-401. LSL-100 state changes when level drops below 13.25" on site gauge. Observed 25 second delay and shutdown. Lit up "AERATOR SUMP LEVEL ALARM" light on blower panel.					
High Air Flowrate	FT-106	FA_106	fatal	Y	Y	Y
	Notes: Opened blower damper. Observed 5 second delay and shutdown.					

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 4/6/11 - 4/7/11
Time: -
Technician: CD/TC

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Low Air Flowrate	FT-106	FA_106	fatal	Y	Y	Y
	Notes: Closed BFV-401. Observed 5 second delay and system shutdown.					
Pre-Carbon High Temperature	TT-400	TAH400	fatal	Y	Y	Y
	Notes: Changed high setpoint to 80. Observed 1 minute delay and shutdown.					
Pre-Carbon Low Temperature	TT-400	TAL400	fatal	Y	Y	Y
	Notes: Changed low setpoint to 95. Observed 3 minute delay and shutdown.					
Pre-Carbon High Pressure	PT-400	PA_400	fatal	Y	Y	Y
	Notes: Adjusted high setpoint to 4. Observed 45 second delay and shutdown. Adjusted time delay to 10 seconds.					
Pre-Carbon Low Pressure	PT-400	PA_400	fatal	Y	Y	Y
	Notes: Adjusted low setpoint to 15. Observed 45 second delay and shutdown. Adjusted time delay to 10 seconds.					
MH-1 Low Flowrate	FT-101	FA_101	warning	Y	N	Y
	Notes: While running automatically, turned HOA switches for both MH-1 pumps to off position. Observed 30 second delay. No shutdown.					
MH-2 Low Flowrate	FT-102	FA_102	warning	Y	N	Y
	Notes: While running automatically, turned HOA switches for both MH-2 pumps to off position. Observed 30 second delay. No shutdown.					
MH-3 Low Flowrate	FT-103	FA_103	warning	Y	N	Y
	Notes: While running automatically, turned HOA switches for both MH-3 pumps to off position. Observed 30 second delay. No shutdown.					
Aggregate Low Flowrate	FT-105	FA_105	warning	Y	N	Y
	Notes: Tested while testing others. Observed 15 second delay and no shutdown.					
Building Wet Floor Sensor Alarm	WFS-106	WFS106	fatal	Y	N	Y
	Notes: Filled sump with sink water. Observed shutdown.					

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 4/6/11 - 4/7/11
Time: -
Technician: CD/TC

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Building Sump High Level	LSH-106	LSH106	warning	Y	N	Y
	Notes: Filled sump with water. Observed non-shutdown alarm.					
Sequestering Agent Low Flow	FT-200	FA_200	warning	Y	N	Y
	Notes: Removed suction tubing from water supply. Observed E2 error message locally at pump, 2 minute delay, then non-fatal alarm at PLC.					
Spill Pallet Wet Sensor Alarm	LSH-200	LSH200	warning	Y	N	Y
	Notes: Dipped in water. Observed 10 second delay. Non shutdown.					
MH-1 High Level	LSHH-103	LA_MH1	warning	Y	N	Y
	Notes: Tipped float. Observed alarm occur, no shutdown.					
MH-1 Low Level	LSLL-103	LA_MH1	warning	Y	N	Y
	Notes: Should force off both MH-1 pumps. Lifted float while pump running automatically. Turned off pump and triggered alarm. No system shutdown.					
MH-2 High Level	LSHH-104	LA_MH2	warning	Y	N	Y
	Notes: Float tipped naturally as MH-2 has been offline for over 1 week. Alarm present, no shutdown.					
MH-2 Low Level	LSLL-104	LA_MH2	warning	NA	NA	NA
	Notes: Should force off both MH-2 pumps. Did not test because MH-2 pumps currently locked out/tagged out.					
MH-3 High Level	LSHH-105	LA_MH3	warning	Y	N	Y
	Notes: Tipped float. Observed alarm occur, no shutdown.					
MH-3 Low Level	LSLL-105	LA_MH3	warning	Y	N	Y
	Notes: Should force off both MH-3 pumps. Lifted float while pump running automatically. Turned off pump and triggered alarm. No system shutdown.					

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 4/6/11 - 4/7/11
Time: -
Technician: CD/TC

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Building High Temperature	TT-100	TA_100	shutdown	Y	Y	Y
	Notes: Changed high setpoint to 55. Observed 2 minute delay and system shutdown.					
Building Low Temperature	TT-100	TA_100	shutdown	Y	Y	Y
	Notes: Held ice/snow up to probe. Observed 2 minute delay and shutdown.					

ARCADIS

Water Level Record

Staff: D. Zuck

Project LMC Utica, NY

Date 4/1/2011

Well (s)	Depth to Water (ft) (TIC)/MP	Time	Remarks
MW - 1	6.84	1358	
MW - 2	4.05	1402	
MW - 3	9.30	1357	
MW - 4	6.12	1355.00	
MW - 5	2.48	1405	
MW - 6	5.92	1458	Bailer in well.
MW - 7	7.65	1626	
MW - 9	1.99	1407	
MW - 10	3.53	1403	Replace and tap larger bolts/holes
MW - 11	7.89	1353	Replace bolts, J-Plug.
MW - 12	10.90	1643.00	
MW - 13S	5.40	1400.00	
MW - 13T	Unable to locate		
MW - 13BR	9.55	1359.00	
MW - 14S	10.22	1636	
MW - 14BR	28.02	1638	
MW - 15S	8.24	1630	
MW - 15BR	33.48	1632	Under pressure *caution when opening, replace all bolts.
PZ - 2	6.23	1415	
PZ - 4	Under water		
PZ - 5	8.99	1546	Conmed
PZ - 6	9.08	1552	Conmed
PZ - 7	8.80	1554	Conmed
PZ - 8	9.00	1556	Conmed
PZ - 9	7.88	1537	Conmed
PZ - 10	8.75	1540	Conmed
PZ - 11R	7.22	1743	No ID
PZ - 13R	6.46	1620	No ID
PZ - 17	5.68	1616	
PZ - 18	6.53	1618	
PZ - 19	6.65	1624	
PZ - 20	6.38	1622	
PZ - 21	Dry	1755	IHOP
PZ - 22	7.30	1420	
PZ - 23	6.09	1423	

ARCADIS

Water Level Record

Staff: D. Zuck

Project LMC Utica, NY

Date 4/1/2011

Well (s)	Depth to Water (ft) (TIC)/MP	Time	Remarks
PZ - 24	10.52	1424	
PZ - 25	5.96	1428	
PZ - 26	8.72	1434	
PZ - 27	10.08	1444	
PZ - 28	3.53	1418	
PZ - 29	2.36	1422	
PZ - 30	3.56	1427	
PZ - 31	2.10	1430	
PZ - 32	0.53	1431	
PZ - 33	Dry	1442	
PZ - 34	2.34	1411	
PZ - 35	0.98	1409	Cut down IC
PZ - 36	1.00	1408	Cut down IC
PZ - 39	1.90	1406	
PZ - 40	4.49	1451	(In building)
PZ - 41	4.10	1448	(In building
PZ - 42	0.30	1446	(In building)
A1-PZ1	1.16	1416.00	
A1-PZ2	2.33	1417	
A2-PZ1	3.49	1436.00	
A2-PZ2	6.41	1437	
A2-PZ3	2.98	1441	
A2-PZ4	0.81	1437	
A2-PZ5	7.68	1440	
A2-PZ6	0.54	1435	
A2-PZ7	5.74	1439	
A2-PZ8	0.80	1438	

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 5/12/11
Time:
Technician: DZ

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? NO (Put in Hand to collect Data/sample)
Alarms? (list) none

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	26.5	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	20.5 → 20.75	(inches)
Blower intake line vacuum [PI-100]	−1.5	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2"	(inches)
Interior dilution damper position *(~~0° is shut, 90°~~ is open)* 0 = Shut 2.5 = ½ Open	2/8	~~X~~ "

Is white "POWER ON" light on air stripper control panel lit? Y
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? Y
Note scaling inside liquid effluent pipe from access port Slight
Note scaling observed inside air stripper via clear tray access door Slight

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) Y
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) Y

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	5/12/11 1445	→	→	→	→
Instantaneous Flowrate [gpm]	36.15	16.00	20.42	0	71.72
* Permanent Flow (gallons)	11980051	~~2014063~~ (1)	~~438196~~ (2)	~~1602~~	19 20162
* Pump 1 Running (Y/N)?	Y	Y	Y	N	NA
* Pump 2 Running (Y/N)?	N, But works	N, But works	N, But works	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) N *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) N *(located on duct heater control panel door)*

* System off During Collection, Put in Hand to collect Data/sample.
(1) 2014063 (2) 438196

- Blower velocity: 3489 fpm x .19 = (738.9)
- Effluent velocity: 2206 fpm x .33 = (727.98)

FT-101: 35.36 gpm
FT-102: 17.46
FT-103: 16.56
FT-105: 66.12

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 5/12/11
Time:
Technician: DB

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N) (*only as needed*)	Inspected, NO scaling evident.
Monthly manhole inspections conducted? (Y/N)	Y
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	None in 1, 2+3, XXXXXXXXXX
Do level floats appear to be in good condition and hanging freely? (Y/N)	Yes Floats up: MH 1:2, MH-2:1, MH-3:2
Observe groundwater inside each manhole and note odor and appearance	MH-1+3: Clear, Sheen/haze on MH-2.
Is confined space entry signage present at each manhole? (Y/N)	Yes, Added New on all 3 MH's
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	None in MH 2+3, trace leaking from pressure Relief @ MH-1 + threaded fittings
With pump(s) running, listen for any unusual sounds	None
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	OK
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	None
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	Yes functioning
List any notable observations	None
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Too warm to activate Normally functioning when normally activated, turned circuit breaker off for season.

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	Y
Is eyewash/shower station operational and unobstructed? (Y/N)	Y
Is interior emergency lighting operational? (Y/N)	Y
Is first aid kit present and in good condition? (Y/N)	Y
Is lockout/tagout equipment available? (Y/N)	Y
Have electrical GFIs been tested and reset? (Y/N)	Y
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	Y
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	O/M+M: 3/2011 HASP: 3/2011
Is emergency spill kit available? (Y/N)	Y
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	Y
Is current SPDES permit onsite? (Y/N) (note date)	11/19/2010

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 5/12/11
Time:
Technician: DZ

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	60	(°F)	(No Tag)
Pre-Carbon Temperature	TI-400	68	(°F)	
Duct Heater Temperature Setpoint	-	85	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	59	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	6	(in. W.C.)	
Mid-Carbon Pressure	PI-402	3	(in. W.C.)	
Effluent Pressure	PI-403	0.5	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	26.30	(in. W.C.)	
Vapor Flowrate	FT-106	535-571	(cfm)	
Pre-Carbon Temperature	TT-400	52.5	(°F)	
Pre-Carbon Pressure	PT-400	6.8	(in. W.C.)	
Building Temperature	TT-100	73.9	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	Y	
Is low flow alarm present? (Y/N)	N	
Is pump in external mode? (Y/N)	Y	
If in external mode, record one set of mA and stroke speed values	10 (mA) / 5.6 (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	100	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	~~1/3 → 1/2~~ 2/3 (TC)	
Quantity of additional full drums	1	

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.): Suspected, No Issues to note.

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	
pH of effluent sample	6.91
Model of pH meter	Hanna HI 99101
Calibration notes / method used	4.01 + 7.00 : OK

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 6/2/11
Time: 1300
Technician: DZ/JG

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? Y
Alarms? (list) NA

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	26.5	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	17.5	(inches)
Blower intake line vacuum [PI-100]	1.5	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	~2.15	(inches)
Interior dilution damper position *(0° is shut, 90° is open)*	0.1" 2.1"	(°)

Is white "POWER ON" light on air stripper control panel lit? Y
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? Y
Note scaling inside liquid effluent pipe from access port Trace scaling
Note scaling observed inside air stripper via clear tray access door Trace scaling

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) Y
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) Y

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	15 15	1515	1515	1515	1515
Instantaneous Flowrate [gpm]	35.65	16.86	19.13	0	61.29
"Total" Flow (resettable, gal)	228,836	28,250	120,251	0	363,107
"Perm" Flow (gal)	12,208,887	2,043,313	558,447	1,602	2,283,269
Pump 1 Running (Y/N)?	Y	N (Manual: Y)	N (Manual: Y)	N	NA
Pump 2 Running (Y/N)?	N	N	N	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) Y *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) N *(located on duct heater control panel door)*

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 6/2/11
Time: 1300
Technician: DZ/JC

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	[redacted]	(°F)	*60°F
Pre-Carbon Temperature	TI-400	75°	(°F)	
Duct Heater Temperature Setpoint	-	85	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	85	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	11	(in. W.C.)	
Mid-Carbon Pressure	PI-402	5	(in. W.C.)	
Effluent Pressure	PI-403	0	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	30.46	(in. W.C.)	
Vapor Flowrate	FT-106	617.8	(cfm)	
Pre-Carbon Temperature	TT-400	77.1	(°F)	
Pre-Carbon Pressure	PT-400	8.4	(in. W.C.)	
Building Temperature	TT-100	68.6	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	Yes	
Is low flow alarm present? (Y/N)	NO	
Is pump in external mode? (Y/N)	Yes	
If in external mode, record one set of mA and stroke speed values	4.3 (mA) 1 (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	100	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	14g.	level indicator not working properly *
Quantity of additional full drums	1	

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.): Good

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	Yes
pH of effluent sample	6.79
Model of pH meter	HI 991001
Calibration notes / method used	4.00 / 7.00 OK

* TC onsite 6/7/11, adjusted sight gauge float operational range.

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 6/2/11
Time: 1300
Technician: DZ/IG

MONTHLY OM&M TASKS (continued)

Task	Notes		
Liquid flow sensors cleaned? (Y/N) (*only as needed*)	Y, all cleaned, could replace FS-102		
Monthly manhole inspections conducted? (Y/N)	Yes		
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	MH-2 None	MH-1 None	MH-3 None
Do level floats appear to be in good condition and hanging freely? (Y/N)	MH-2 Yes	MH-1 Yes	MH-3 Yes
Observe groundwater inside each manhole and note odor and appearance	MH-2 No odor Water on surface	MH-1 No odor Clear	MH-3 No odor Clear
Is confined space entry signage present at each manhole? (Y/N)	MH-2 Yes	MH-1 Yes	MH-3 Yes
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	MH-2 Good	MH-1 Good	MH-3 Good
With pump(s) running, listen for any unusual sounds	MH-2 None	MH-1 None	MH-3 None
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	MH-2 Good	MH-1 Good	MH-3 Good
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	Y, None		
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	Yes		
List any notable observations	BV-104 Does not close completely		
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Off for Summer Season.		

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	Yes
Is eyewash/shower station operational and unobstructed? (Y/N)	Yes
Is interior emergency lighting operational? (Y/N)	Yes
Is first aid kit present and in good condition? (Y/N)	Yes
Is lockout/tagout equipment available? (Y/N)	Yes
Have electrical GFIs been tested and reset? (Y/N)	Yes
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	Yes
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	Yes
Is emergency spill kit available? (Y/N)	Yes
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	Yes
Is current SPDES permit onsite? (Y/N) (note date)	Yes 11/16/10

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/7/11
Time: 0900
Technician: D. Ehret/Jason G.

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? NO
Alarms? (list) None on plc; Acid Pump: E2 Non-operational

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	25.2	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	18	(inches)
Blower intake line vacuum [PI-100]	1.9	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2.1	(inches)
Interior dilution damper position *(0° is shut, 90° is open)*	0.1" (closed)	(°)

Is white "POWER ON" light on air stripper control panel lit? Yes
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? Yes
Note scaling inside liquid effluent pipe from access port Light
Note scaling observed inside air stripper via clear tray access door Medium

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) yes
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) yes

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	7/7/11 0900	→	→	→	→
Instantaneous Flowrate [gpm]	36.5	16-17.5	17-18	NA	68-71.5
* "Total" Flow (resettable, gal)	238194	37698	142986	1	392191
* "Perm" Flow (gal)	12447081	2080011	7014133	1603	2675461
Pump 1 Running (Y/N)?	Y	Y	Y	N	NA
Pump 2 Running (Y/N)?	N	N	N	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

* Collected when system was off.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) Y *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) N *(located on duct heater control panel door)*

EMON: 57026 KWH

Monthly OM&M Checklist, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/7/11
Time: 0900
Technician: D. Zack / Jason C.

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	80	(°F)	
Pre-Carbon Temperature	TI-400	80	(°F)	
Duct Heater Temperature Setpoint	-	85	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	85	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	10	(in. W.C.)	
Mid-Carbon Pressure	PI-402	5	(in. W.C.)	
Effluent Pressure	PI-403	0	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	27.50	(in. W.C.)	
Vapor Flowrate	FT-106	635.5	(cfm)	
Pre-Carbon Temperature	TT-400	81.4	(°F)	
Pre-Carbon Pressure	PT-400	8.5	(in. W.C.)	
Building Temperature	TT-100	76.7	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	~~Y~~ N	Pump not operational (EZ Arer)
Is low flow alarm present? (Y/N)	Y	
Is pump in external mode? (Y/N)	Y	
If in external mode, record one set of mA and stroke speed values	N/A (mA) N/A (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	100	
Sequestering agent drum level [LI-200]	.35 / 12gal.	
Quantity of additional full drums	1	

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.): Inspected / NO leaks, NO Buildup

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	Yes
pH of effluent sample	8.10
Model of pH meter	Hanna HI 99100
Calibration notes / method used	4.01 / 7.01

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/7/11
Time: 0900
Technician: D. Zuk Jason G.

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N) (*only as needed*)	Yes
Monthly manhole inspections conducted? (Y/N)	
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	MH 1: None MH 2: None MH 3: None
Do level floats appear to be in good condition and hanging freely? (Y/N)	yes
Observe groundwater inside each manhole and note odor and appearance	MH-3 - clear no odors. MH-2: three on sides; MH-1: Clear
Is confined space entry signage present at each manhole? (Y/N)	yes
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	ok MH-1 trace leaks @ pressure Relase
With pump(s) running, listen for any unusual sounds	None
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	Good
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	No leaks / Issues
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	Y
List any notable observations	No issues
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Breakers turned off for season

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	Y
Is eyewash/shower station operational and unobstructed? (Y/N)	Y
Is interior emergency lighting operational? (Y/N)	Y
Is first aid kit present and in good condition? (Y/N)	Y
Is lockout/tagout equipment available? (Y/N)	Y
Have electrical GFIs been tested and reset? (Y/N)	Y
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	Y
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	Y/3/11/11 (Both)
Is emergency spill kit available? (Y/N)	Y
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	Y
Is current SPDES permit onsite? (Y/N) (note date)	4/1/11

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/7/11-7/8/11
Time: —
Technician: CD

QUARTERLY OM&M TASKS

Quarterly liquid influent samples collected for MH-1, MH-2, and MH-3? (Y/N) Yes

MH-1 influent pH 6.59
MH-2 influent pH 6.84
MH-3 influent pH 7.07

Quarterly vapor samples collected pre-carbon, mid-carbon, and effluent? (Y/N) Yes

Quarterly catch basin samples collected for CB-1, CB-2, and CB-3? (Y/N) Yes

Quarterly groundwater elevation levels collected? (Y/N) Yes

Blower bearings greased? (Y/N) No

Indicate air velocity measurement collected from 8" effluent pipe (*plug located on wall side of vertical portion of effluent pipe, 1 fpm = 0.317 cfm*) 2283 (fpm) / 724 (cfm)

QUARTERLY CRITICAL DEVICE / ALARM TESTING

Liquid flow transmitters FT-101, FT-102, FT-103, and FT-105 calibrated? (Y/N) *(should be done after flow sensor cleaning)* Y

If yes, document testing and note any changes in sensor calibration factors

FT-103 → Pumpdown test, Δ volume per DTW = 787.6 gallons [44.75"]
Δ volume per FT-103 = 803 gallons
= 2.0% = OKAY!

FT-102 → Pumpdown test: Δ volume [per DTW] = 492.8 gallons (28"), Δ volume [per FT-102] = 497 gallons → 0.8% → OKAY!

FT-101 → Pumpdown test: Δ volume [per DTW] = 651.2 gallons [37"], Δ volume [per FT-101] = 627 gallons → 3.7% OKAY!

FT-105 → instantaneous snapshot → FT-101 = 32-33 gpm, FT-103 = 20-22 gpm, FT-105 = 50-52 gpm → OKAY

Manhole floats tested? (Y/N) Yes

Test the following critical alarms *(note that system must be in AUTO to observe proper alarm response)*:

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Air Stripper Sump High Pressure	PT-106	PA_106	fatal	Y	Y	Y
	Notes: Changed setpoint					
Air Stripper Sump Low Pressure	PT-106	PA_106	fatal	Y	Y	Y
	Notes: Changed setpoint					
Air Stripper High Liquid Level	LSH-100	LA_100	fatal	Y	Y	Y
	Notes: ~~Closed BFV-101~~ Sensor not installed.					

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/7/11
Time: 16:30
Technician: CD/DZ

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Air Stripper Low Liquid Level	LSL-100	LA_100	fatal	Y	Y	Y
	Notes: Closed BFV-401					
High Air Flowrate	FT-106	FA_106	fatal	Y	Y	Y
	Notes: Damper @ 2.15" [tick mark on moveable handle]. Changed high setpoint					
Low Air Flowrate	FT-106	FA_106	fatal	Y	Y	Y
	Notes: Changed setpoint.					
Pre-Carbon High Temperature	TT-400	TAH400	fatal	Y	Y	Y
	Notes: Changed setpoint.					
Pre-Carbon Low Temperature	TT-400	TAL400	fatal	Y	Y	Y
	Notes: Changed setpoint.					
Pre-Carbon High Pressure	PT-400	PA_400	fatal	Y	Y	Y
	Notes: Changed setpoint.					
Pre-Carbon Low Pressure	PT-400	PA_400	fatal	Y	Y	Y
	Notes: Changed setpoint					
MH-1 Low Flowrate	FT-101	FA_101	warning	Y	N	Y
	Notes: Turned both MH-1 HOA's to off w/ HI-1 float up.					
MH-2 Low Flowrate	FT-102	FA_102	warning	Y	N	Y
	Notes: Turned both MH-2 HOA's to off w/ High-1 float up.					
MH-3 Low Flowrate	FT-103	FA_103	warning	Y	N	Y
	Notes: Turned both MH-3 H-O-A's to off w/ High-1 float up.					

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/7/11
Time: 16:45
Technician: ~~16:45~~ CD/DZ

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Aggregate Low Flowrate	FT-105	FA_105	warning	Y	N	Y
	Notes: Alarm occurred during FA_101 thru FA_103 tests.					
Building Wet Floor Sensor Alarm	WFS-106	WFS106	fatal	Y	Y	Y
	Notes: ~~Flt.~~ Overflowed sump. Good.					
Building Sump High Level	LSH-106	LSH106	warning	Y	N	Y
	Notes: Filled w/ pump unplugged.					
Sequestering Agent Low Flow	FT-200	FA_200	warning	Y	N	Y
	Notes:					
Spill Pallet Wet Sensor Alarm	LSH-200	LSH200	warning	Y	N	Y
	Notes: Dipped in water.					
MH-1 High Level	LSHH-103	LA_MH1	warning	Y	N	Y
	Notes: Manually tested.					
MH-1 Low Level	LSLL-103	LA_MH1	warning	Y	N	Y
	Notes: Should force off both MH-1 pumps ✓ Manually tested.					
MH-2 High Level	LSHH-104	LA_MH2	warning	Y	N	Y
	Notes: Manually tested.					
MH-2 Low Level	LSLL-104	LA_MH2	warning	Y	N	Y
	Notes: Should force off both MH-2 pumps Manually tested.					
MH-3 High Level	LSHH-105	LA_MH3	warning	Y	N	Y
	Notes: Manually raised.					

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/7/11
Time: 16:50
Technician: CD/DZ

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
MH-3 Low Level	LSLL-105	LA_MH3	warning	Y	N	Y
	Notes: Should force off both MH-3 pumps Manually tested.					
Building High Temperature	TT-100	TA_100	shutdown	Y	Y	Y
	Notes: Changed setpoint.					
Building Low Temperature	TT-100	TA_100	shutdown	Y	Y	Y
	Notes: Held ice up to probe.					

ARCADIS

Water Level Record

Staff: D. Zuck/J. Gutkowski

Project LMC Utica, NY

Date 7/5/2011

Well (s)	Depth to Water (ft) (TIC)/MP	Time	Remarks
MW - 1	8.57	1040	
MW - 2	5.89	1030	Replace 1 Bolt (Retap)
MW - 3	10.98	1523	
MW - 4	11.24	1016	
MW - 5	2.63	1052	
MW - 6	6.23	1159	Bailer in well. Replace 1 of 1 Lock
MW - 7	7.84	1510	
MW - 9	3.01	1110	
MW - 10	5.16	1056	Replace and tap larger bolts/holes
MW - 11	8.09	1010	Replace bolts, J-Plug.
MW - 12	12.08	1444	
MW - 13S	6.99 - Dry	1037	
MW - 13T			
MW - 13BR	10.67	1024	
MW - 14S	12.57	1448	
MW - 14BR	25.46	1452	
MW - 15S	8.38	1458	
MW - 15BR	31.94	1456	Under pressure *caution when opening, replace all bolts.
PZ - 2	3.08	1145	
PZ - 4	1.42	1114	
PZ - 5	8.94	1558	Conmed
PZ - 6	9.32	1601	Conmed
PZ - 7	9.00	1604	Conmed
PZ - 8	9.51	1556	Conmed
PZ - 9	8.02	1546	Conmed
PZ - 10	9.08	1550	Conmed
PZ - 11R	8.64	1419	No ID
PZ - 13R	8.17	1428	No ID
PZ - 17	6.17	1413	Full of Bentonite
PZ - 18	7.99	1424	
PZ - 19	7.36	1437	
PZ - 20	7.04	1434	
PZ - 21	Dry	1504	IHOP
PZ - 22	7.94	1206	
PZ - 23	6.82	1209	

ARCADIS

Water Level Record

Staff: D. Zuck/J. Gutkowski

Project LMC Utica, NY

Date 7/5/2011

Well (s)	Depth to Water (ft) (TIC)/MP	Time	Remarks
PZ - 24	10.92	1212	
PZ - 25	6.67	1214	
PZ - 26	9.21	1226	
PZ - 27	11.13	1229	
PZ - 28	3.93	1204	Missing Bolt
PZ - 29	2.43	1210	
PZ - 30	4.10	1216	
PZ - 31	2.33	1220	
PZ - 32	1.84	1224	
PZ - 33	6.82	1518	
PZ - 34	3.11	1137	
PZ - 35	2.09	1130	Cut down IC Adj. Plug
PZ - 36	1.55	1124	Cut down IC Needs ID
PZ - 39	3.53	1103	Needs ID
PZ - 40	4.92	1245	(In building)
PZ - 41	4.51	1242	(In building (Missing Bolt)
PZ - 42	0.62	1234	(In building)
A1-PZ1	1.53	1150	
A1-PZ2	2.30	1156	
A2-PZ1	~~4.33~~ 4.35	1250	
A2-PZ2	6.63	1253	
A2-PZ3	3.06	1256	
A2-PZ4	1.86	1251	
A2-PZ5	7.88	1255	
A2-PZ6	3.25	1247	
A2-PZ7	6.27	1254	
A2-PZ8	5.72	1252	

(27)

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 8/11/11
Time: 0800
Technician: Jason Gotkowski

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? NO
Alarms? (list) None

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	26.5	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	17.5	(inches)
Blower intake line vacuum [PI-100]	2.0	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2.1	(inches)
Interior dilution damper position *(0° is shut, 90° is open)*	0.5	(°)

Is white "POWER ON" light on air stripper control panel lit? yes
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? yes
Note scaling inside liquid effluent pipe from access port light
Note scaling observed inside air stripper via clear tray access door light

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) yes
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) yes

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	8/11/11				
Instantaneous Flowrate [gpm]	36.6	16.5	19.57	N/A	72.1
"Total" Flow (resettable, gal)	169153	38461	121023	37	2967415
"Perm" Flow (gal)	12616234	2184472	822459	1639	291945
Pump 1 Running (Y/N)?	Y	Y	Y	N	NA
Pump 2 Running (Y/N)?	N	N	N	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) yes *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) NO *(located on duct heater control panel door)*

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 8/11/11
Time: 0900
Technician: Jason Gutkowski

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	72	(°F)	
Pre-Carbon Temperature	TI-400	80	(°F)	
Duct Heater Temperature Setpoint	-	85	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	85	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	11	(in. W.C.)	
Mid-Carbon Pressure	PI-402	41	(in. W.C.)	
Effluent Pressure	PI-403	0	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	24.27	(in. W.C.)	
Vapor Flowrate	FT-106	651.2	(cfm)	
Pre-Carbon Temperature	TT-400	87.8	(°F)	
Pre-Carbon Pressure	PT-400	8.1	(in. W.C.)	
Building Temperature	TT-100	73.6	(°F)	

- *Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.*

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	yes	
Is low flow alarm present? (Y/N)	No	
Is pump in external mode? (Y/N)	yes	
If in external mode, record one set of mA and stroke speed values	4.4 (mA) ~~100~~ 1 (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	100	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	7gal.	
Quantity of additional full drums	1	

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.): Inspected, NO leaks, NO Build up. Checked & cleaned @ point of entry

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	yes
pH of effluent sample	6.2
Model of pH meter	Hanna HI 991001
Calibration notes / method used	4.01/7.01

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 8/11/11
Time: 1240
Technician: Jason Gutkowski

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N) *(only as needed)*	NO
Monthly manhole inspections conducted? (Y/N)	Yes
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	MH1: MH2: None MH3: None
Do level floats appear to be in good condition and hanging freely? (Y/N)	Yes
Observe groundwater inside each manhole and note odor and appearance	MH1: MH2: MH3: Clear No Odor
Is confined space entry signage present at each manhole? (Y/N)	Yes
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	Yes
With pump(s) running, listen for any unusual sounds	Yes
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	Yes
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	Yes
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	Yes
List any notable observations	No Issues
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Breakers turned off for Season

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	Yes
Is eyewash/shower station operational and unobstructed? (Y/N)	yes
Is interior emergency lighting operational? (Y/N)	yes NW wall Mounted light Dim
Is first aid kit present and in good condition? (Y/N)	yes
Is lockout/tagout equipment available? (Y/N)	yes
Have electrical GFIs been tested and reset? (Y/N)	yes
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	yes 3/11/11 (Both)
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	yes
Is emergency spill kit available? (Y/N)	yes
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	yes
Is current SPDES permit onsite? (Y/N) (note date)	yes 4/1/11

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 9/8/11
Time: 0945
Technician: Jason Gutkowski

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? Yes
Alarms? (list) None

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	28.5	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	18.5	(inches)
Blower intake line vacuum [PI-100]	2.0	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2.1	(inches)
Interior dilution damper position *(0° is shut, 90° is open)*	0.1	(°)

Is white "POWER ON" light on air stripper control panel lit? Yes
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? Yes
Note scaling inside liquid effluent pipe from access port light
Note scaling observed inside air stripper via clear tray access door light

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) Yes
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) Yes

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	9/8/11 0950	→	→	→	→
Instantaneous Flowrate [gpm]	42.80	N/A	27.21	N/A	62.3+067.38
"Total" Flow (resettable, gal)	429578	115304	303734	37	763854
"Perm" Flow (gal)	12876683	2195315	1005199	1639	3439305
Pump 1 Running (Y/N)?	Y	N	Y	N	NA
Pump 2 Running (Y/N)?	Y	N	Y	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) Yes *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) NO *(located on duct heater control panel door)*

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 9/8/11
Time: 1015
Technician: Jason Gutkowski

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	69	(°F)	
Pre-Carbon Temperature	TI-400	79	(°F)	
Duct Heater Temperature Setpoint	-	85	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	85	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	9	(in. W.C.)	
Mid-Carbon Pressure	PI-402	3	(in. W.C.)	
Effluent Pressure	PI-403	0	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	30.40	(in. W.C.)	
Vapor Flowrate	FT-106	609.3	(cfm)	
Pre-Carbon Temperature	TT-400	76.6	(°F)	
Pre-Carbon Pressure	PT-400	7.5	(in. W.C.)	
Building Temperature	TT-100	72.6	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	Yes	Pump was off, Turned on. Pump was reading E2 (low flow)
Is low flow alarm present? (Y/N)	Yes	(E2) low sequestering Agent, changed drums
Is pump in external mode? (Y/N)	Yes	
If in external mode, record one set of mA and stroke speed values	5.6 (mA) 10 (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	100	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	New/Full 30 gal.	
Quantity of additional full drums	0	on order

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.) No leaks or Buildup. Checked & cleaned entry point

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	Yes
pH of effluent sample	7.9
Model of pH meter	Hanna HI 991001
Calibration notes / method used	4.01 / 7.01

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 9/8/11
Time: 1100
Technician: Jason Gotkowski

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N) (*only as needed*)	NO
Monthly manhole inspections conducted? (Y/N)	Yes
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	MH1: None MH2: None MH3: None
Do level floats appear to be in good condition and hanging freely? (Y/N)	yes
Observe groundwater inside each manhole and note odor and appearance	MH1, MH2, MH3 } clear No odor
Is confined space entry signage present at each manhole? (Y/N)	yes
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	yes
With pump(s) running, listen for any unusual sounds	yes NO unusual sounds
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	yes
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	yes
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	yes
List any notable observations	no issues
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Breakers turned off for season

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	yes
Is eyewash/shower station operational and unobstructed? (Y/N)	yes
Is interior emergency lighting operational? (Y/N)	yes
Is first aid kit present and in good condition? (Y/N)	yes
Is lockout/tagout equipment available? (Y/N)	yes
Have electrical GFIs been tested and reset? (Y/N)	yes
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	yes
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	yes 3/11/11 for Both
Is emergency spill kit available? (Y/N)	yes
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	yes
Is current SPDES permit onsite? (Y/N) (note date)	yes 4/1/11

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 10/11/11
Time: 1355
Technician: J Gutkowski

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? Yes
Alarms? (list)

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	27	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	18 1/2	(inches)
Blower intake line vacuum [PI-100]	2	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2 3/8	(inches)
Interior dilution damper position *(0° is shut, 90° is open)*	0	(°)

Is white "POWER ON" light on air stripper control panel lit? Yes
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? Yes
Note scaling inside liquid effluent pipe from access port: little scaling, Clean Glass door
Note scaling observed inside air stripper via clear tray access door: & four trays & Cleaned

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) Yes all Three
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) Yes all six

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	10/11/11 1355	→	→	→	→
Instantaneous Flowrate [gpm]	0	19	20	0	34-38
"Total" Flow (resettable, gal)	811288	173219	511522	37	~~34-38~~ 1370680
"Perm" Flow (gal)	13258369	2253237	(B) ~~119~~ 1212948	1639	4046130
Pump 1 Running (Y/N)?	(M) ~~Yes~~ NO	Yes	Yes	NO	NA
Pump 2 Running (Y/N)?	No	No	No	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) Yes *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) No *(located on duct heater control panel door)*

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 10/6/11
Time: 9:10
Technician: CD

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	64	(°F)	
Pre-Carbon Temperature	TI-400	79	(°F)	
Duct Heater Temperature Setpoint	-	85	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	85	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	10.8	(in. W.C.)	
Mid-Carbon Pressure	PI-402	4.3	(in. W.C.)	
Effluent Pressure	PI-403	<1	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	31.14	(in. W.C.)	
Vapor Flowrate	FT-106	670-760	(cfm)	
Pre-Carbon Temperature	TT-400	81.8	(°F)	
Pre-Carbon Pressure	PT-400	9.4	(in. W.C.)	
Building Temperature	TT-100	67.5	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running) Recorded 10/7/11, following

Parameter	Status	Notes
Is pump operating? (Y/N)	Yes	
Is low flow alarm present? (Y/N)	No	
Is pump in external mode? (Y/N)	Yes	
If in external mode, record one set of mA and stroke speed values	4A (mA) 5 (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	100	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	30 gal	Drum #3
Quantity of additional full drums	zero ~~one~~	Drum #2 on pallet, but chemical bad; 26 gallons left

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.) On 10/6/11, low chemical flow alarm was present. Alarm caused due to partial solidification of chemical in bottom of drum (#2), suction tubing, pump fittings, and part of discharge tubing. Most was soup-like consistency, except in the intake screen inside drum, where it was fairly hardened. No problem on injection fitting. CD cleaned fittings, replaced suction tubing, installed new 4-function valve, and began use of drum #3.

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	Yes 10/11/11
pH of effluent sample	7.80
Model of pH meter	Hanna HI 991301
Calibration notes / method used	7.00, 4.00, 10.00 OK

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 10/11/11
Time: 9:00
Technician: CD/JG

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N) (*only as needed*)	N
Monthly manhole inspections conducted? (Y/N)	Y
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	1 N 2 N 3 N
Do level floats appear to be in good condition and hanging freely? (Y/N)	1 Y 3 Y 2 Y
Observe groundwater inside each manhole and note odor and appearance	1 clear/no odor 3 clear/no odor 2 organic sheen, slight odor
Is confined space entry signage present at each manhole? (Y/N)	Yes
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	1 OK 2 OK 3 OK
With pump(s) running, listen for any unusual sounds	1 ~~With~~ Piping shakes upon startup 3 OK 2 OK
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	1 OK 2 OK 3 OK
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	No leaks observed
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	Yes
List any notable observations	
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Yes

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	Yes
Is eyewash/shower station operational and unobstructed? (Y/N)	Yes
Is interior emergency lighting operational? (Y/N)	Yes
Is first aid kit present and in good condition? (Y/N)	Yes
Is lockout/tagout equipment available? (Y/N)	Yes
Have electrical GFIs been tested and reset? (Y/N)	Yes
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	Yes
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	Yes 3/11/11 (BOTH)
Is emergency spill kit available? (Y/N)	Yes
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	Yes
Is current SPDES permit onsite? (Y/N) (note date)	Yes 4/4/11

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 10/7/11
Time: 11:45
Technician: CD

QUARTERLY OM&M TASKS

Quarterly liquid influent samples collected for MH-1, MH-2, and MH-3? (Y/N) Yes 10/11/11
MH-1 influent pH 6.85
MH-2 influent pH 7.22
MH-3 influent pH 7.27
Quarterly vapor samples collected pre-carbon, mid-carbon, and effluent? (Y/N) Yes, 10/12/11
Quarterly catch basin samples collected for CB-1, CB-2, and CB-3? (Y/N) Yes 10/11/11
Quarterly groundwater elevation levels collected? (Y/N) Yes
Blower bearings greased? (Y/N) Yes
Indicate air velocity measurement collected from 8" effluent pipe (*plug located on wall side of vertical portion of effluent pipe, 1 fpm = 0.317 cfm*) 2250 (fpm) 3583 (cfm) Blower.

QUARTERLY CRITICAL DEVICE / ALARM TESTING

Liquid flow transmitters FT-101, FT-102, FT-103, and FT-105 calibrated? (Y/N) *(should be done after flow sensor cleaning)* yes (10/17/11)

If yes, document testing and note any changes in sensor calibration factors: Pumpdown tests in each manhole with collection lines closed. Measured DTW in manhole w/ tape and compared Δ volume with the Δ from flow transmitter totalizers.

MH-1 [FT-101]; $DTW_i = 119\frac{7}{8}$", $DTW_f = 150\frac{7}{8}$", ΔDTW = 31" = 546 gal. ΔFT-101 = 523 gal. 4.2% difference = OK!
MH-2 [FT-102]; $DTW_i = 170\frac{1}{2}$", $DTW_f = 190\frac{1}{2}$", ΔDTW = 20" = 352 gal. ΔFT-102 = 341 gal. 3.0% difference = OK!
MH-3 [FT-103]; $DTW_i = 152\frac{3}{4}$", $DTW_f = 168\frac{3}{4}$", ΔDTW = 16" = 282 gal. ΔFT-103 = 279 gal. 1.0% difference = OK!
[FT-105]; ΔFT-105 = 528 gal during FT-101 test where ΔDTW = 31" = 546 gal. 3.3% difference = OK!

Manhole floats tested? (Y/N) Yes, during critical alarm testing.

Test the following critical alarms *(note that system must be in AUTO to observe proper alarm response)*:

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Air Stripper Sump High Pressure	PT-106	PA_106	fatal	Yes.	Yes	Yes
	Notes: Current setpoint = 34 in w.c. Switched to 25 in w.c. PA_106 alarm set off; Blower pressure HH/LL Alarm lit on main blower c.p.					
Air Stripper Sump Low Pressure	PT-106	PA_106	fatal	Y	Y	Y
	Notes: Current setpoint = 15 inwc. Switched to 33 in w.c. PA_106 alarm set off. Blower Pressure HH/LL alarm light lit up on blower MCP.					
Air Stripper High Liquid Level	LSH-100	LA_100	fatal	NA	NA	NA
	Notes: Currently not in use.					

NA - not applicable

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 10/7/11
Time: 12:10
Technician: CD

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Air Stripper Low Liquid Level	LSL-100	LA_100	fatal	Y	Y	Y
	Notes: Closed BFV-401 partially while system cycling. Observed LSL100 switch off at around 13.25" in site gauge. Alarm LA_100 initiated and AErater Sump Level Alarm light on MCP lit up.					
High Air Flowrate	FT-106	FA_106	fatal	Y	Y	Y
	Notes: Current setpoint 1000 cfm. Changed to 500 cfm. Triggered FA_106 alarm.					
Low Air Flowrate	FT-106	FA_106	fatal	Y	Y	Y
	Notes: Current setpoint is 400 cfm. Changed to 900 cfm. Triggered FA_106 alarm.					
Pre-Carbon High Temperature	TT-400	TAH400	fatal	Y	Y	Y
	Notes: Current setpoint is 110°F. Switched to 75°F. Observed roughly 1 min. delay. Alarm TAH400 triggered.					
Pre-Carbon Low Temperature	TT-400	TAL400	fatal	Y	Y	Y
	Notes: Current setpoint is 60°F. Changed to 90°F. Observed 3 minute delay. Alarm TAL400 triggered.					
Pre-Carbon High Pressure	PT-400	PA_400	fatal	Y	Y	Y
	Notes: Current setpoint 25 inwc. Changed to 7 inwc. Observed 45 sec delay. PA_400 indicated.					
Pre-Carbon Low Pressure	PT-400	PA_400	fatal	Y	Y	Y
	Notes: Current setpoint is 1 inwc. Changed to 11 inwc. Observed 45 sec delay. PA_400 indicated.					
MH-1 Low Flowrate	FT-101	FA_101	warning	Y	N	Y
	Notes: With MH-1 pump A running in AUTO, switch both MH-1 pump HOA's to off. Observed 30 second delay. FA_101 triggered.					
MH-2 Low Flowrate	FT-102	FA_102	warning			
	Notes: With MH-2 pump A running in auto, switched both MH-2 pump HOA's to off. Observed 30 second delay. FA_102 triggered.					
MH-3 Low Flowrate	FT-103	FA_103	warning	Y	N	Y
	Notes: With MH-3 pump running in AUTO, switched both MH-3 pumps to off via HOA switch. 30 sec. delay. FA_103 triggered.					

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 10/7/11
Time: 12:30
Technician: CD

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
Aggregate Low Flowrate	FT-105	FA_105	warning	Y	N	Y
	Notes: This alarm, FA_105, occurred during testing of individual low manhole flow alarms.					
Building Wet Floor Sensor Alarm	WFS-106	WFS106	fatal	Y	Y	Y
	Notes: Following testing of LSH-106, continued filling sump. Triggered WFS-106 input and WFS106 alarm output to change state. Also lit up Wet Floor Sensor Alarm light on MCP.					
Building Sump High Level	LSH-106	LSH106	warning	Y	N	Y
	Notes: With sump pump unplugged, begin filling sump with sink water. LSH106 input state turns on, and LSH106 alarm output turns on.					
Sequestering Agent Low Flow	FT-200	FA_200	warning	Y	N	Y
	Notes: Was real-lite confirmed yesterday, FA_200 output was on.					
Spill Pallet Wet Sensor Alarm	LSH-200	LSH200	warning	Y	N	Y
	Notes: Put sensor into cup of water. LSH200 input turns on, LSH200 alarm output turns on.					
MH-1 High Level	LSHH-103	LA_MH1	warning	Y	N	Y
	Notes: Manually tested. LA_MH1 triggered. 10/11/11					
MH-1 Low Level	LSLL-103	LA_MH1	warning	Y	N	Y
	Notes: Should force off both MH-1 pumps 10/11/11 Manually tested w/ pump on; pump turned off. LA_MH1 triggered.					
MH-2 High Level	LSHH-104	LA_MH2	warning	Y	N	Y
	Notes: 10/11/11 Manually tested. LA_MH2 triggered.					
MH-2 Low Level	LSLL-104	LA_MH2	warning	Y	N	Y
	Notes: Should force off both MH-2 pumps 10/11/11 Manually tested w/ pump on; pump turned off. LA_MH2 triggered.					
MH-3 High Level	LSHH-105	LA_MH3	warning	Y	N	Y
	Notes: 10/11/11 Manually tested. LA_MH3 triggered.					

Quarterly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 10/7/11
Time: 12:50
Technician: CD

QUARTERLY CRITICAL DEVICE / ALARM TESTING (continued)

Alarm	Corresponding Transmitter / Sensor	PLC Alarm Output Name	Alarm Type	Caused PLC Alarm Output State Change? (Y/N)	Caused System Shutdown? (Y/N)	Passed (Y/N)
MH-3 Low Level	LSLL-105	LA_MH3	warning	Y	N	Y
	Notes: Should force off both MH-3 pumps 10/11/11 Manually tested w/ pump on; pump turned off. LA_MH3 triggered					
Building High Temperature	TT-100	TA_100	shutdown	Y	Y	Y
	Notes: Current setpoint is 110°F. Changed to 70°F. Observed 2 min delay. TA_100 indicated.					
Building Low Temperature	TT-100	TA_100	shutdown			
	Notes: Current setpoint is 40°F. Changed to 88°F. Observed 2 min delay. TA_100 indicated.					

10/11/11 CD/JG

via "outputs locked" switch & clicking on LA_MH1

MH-3
- Lift H1 — 1st Pump On — #2 — 18 gpm
- Lift H2 — 2nd Pump On — #1 — 20 gpm
- Lift HH — Alarm? — LA_MH3 ✓
- Drop All — Remain on; L still tilted.
- Raise L — Pumps off.
- Lift H1 — 1st Pump On — #2 — 18 gpm
- Raise LL — Pump off, Alarm. ✓ LA_MH3

MH-1
- Tilt H1 — Pump #1 on; 34 gpm
- Tilt H2 — Pump #2 on; 42 gpm
- Tilt HH — Received LA_MH1 ~~Reset LA_MHH~~
- Drop All — Reset LA_MH1
- Lift L — Pumps off.
- ~~Tilt~~ Tilt H1 — Pump #2 on.
- Lift LL — Pump off, LA_MH1 on.

MH-2 FT-102
- Tilt H1 — Pump #1 on 20 gpm
- Tilt H2 — Pump #2 on 23 gpm
- Tilt HH — Received LA-MH2
- Drop All — Reset LA_MH2
- Lift L — Pumps off
- Tilt H1 — Pump #2 on
- Lift LL — Pump off LA_MH2 on

This is procedure used to test ~~flow~~ floats and float logic for each manhole.

ARCADIS

Water Level Record

Project LMC Utica, NY

Date 9/26/11 - 9/27/11 Staff: D. Nadine / D. Zuk

Well (s)	Depth to Water (ft) (TIC)/MP	Time	Remarks
MW - 1	8.09	10:45	
MW - 2	5.42	11:18	
MW - 3	10.58	1534	
MW - 4	10.55	10:20	
MW - 5	3.08	11:32	
MW - 6	5.59	0903 9/27	Bailer in well 2' to bailer, could not get water level
MW - 7	7.46	15:45	
MW - 9	2.55	12:04	
MW - 10	4.80	11:57	
MW - 11	6.80	10:09	
MW - 12	—	—	Not on figure - Not Required Based on Figure
MW - 13S	6.68	11:10	
MW - 13BR	10.94	11:04	
MW - 14S	10.35	16:10	
MW - 14BR	13.55	16:05	
MW - 15S	8.28	15:00	
MW - 15BR	30.79	15:10	Under pressure *caution when opening, Bolts Do not tighten
PZ - 2	~~6.68~~	~~—~~	Covered by equipment
PZ - 4	0.47	12:12	
PZ - 5	8.83	17:05	(Conmed)
PZ - 6	9.11	17:10	(Conmed)
PZ - 7	8.89	17:15	(Conmed)
PZ - 8	9.05	16:51	(Conmed)
PZ - 9	7.86	16:41	(Conmed)
PZ - 10	8.18	17:18	(Conmed)
PZ - 11R	~~6.8~~ 8.44	~~10:09~~	Car parked on top of well 1645 collected wl
PZ - 13R	8.05	9:22	
PZ - 17	6.47	9:18	Bentonite cleared.
PZ - 18	~~7.85~~	~~1425~~	~~Car parked on top of well~~
PZ - 19	7.09	9:49	
PZ - 20	6.62	9:32	
PZ - 21	Dry	0900	(Outside IHOP) ~~Not visible to gauge, tube intact~~
PZ - 22	7.56	15:23	
PZ - 23	6.12	15:15	
PZ - 24	10.74	15:12	

ARCADIS

Water Level Record

Project LMC Utica, NY

Date 9/26/11 & 9/27/11 Staff: D. Nodine / P. Zak

Well (s)	Depth to Water (ft) (TIC)/MP	Time	Remarks
PZ - 25	6.05	15:05	
PZ - 26	8.99	14:58	
PZ - 27	16.47	14:41	
PZ - 28	3.04	15:A	
PZ - 29	2.12	0905 9/27	Could not locate
PZ - 30	3.54	15:10	
PZ - 31	1.46	15.00	
PZ - 32	0.45	14:50	
PZ - 33	6.8 (DTB)	13:53	Dry Bottom
PZ - 34	2.41	14:38	Basement Hatch to be re-tapped
PZ - 35	1.04	14:45	
PZ - 36	~~1.09~~ 1.09	12:15	
PZ - 39	2.82	11:52	
PZ - 40	4.58	17:25	(In building)
PZ - 41	~~4~~ 4.22	17:20	(In building)
PZ - 42	0.28	0907 9/27	(In building)
A1-PZ1	~~3.87~~	~~14:30~~	Caved in by equipment
A1-PZ2	2.00	15:13	
A2-PZ1	5.87	14:30	
A2-PZ2	6.08	14:21	
A2-PZ3	—	—	IC Missing
A2-PZ4	0.65	14:38	
A2-PZ5	5.81	14:00	
A2-PZ6	1.2	14:32	
A2-PZ7	12.09	1405	
A2-PZ8	0.74	14:25	

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/1/11
Time: 0800
Technician: Jason Gutkowski

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? yes
Alarms? (list) None

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	27.0	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	15.25	(inches)
Blower intake line vacuum [PI-100]	2.0	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2.1	(inches)
Interior dilution damper position *(0° is shut, 90° is open)*	~~0.1~~	(°)

Closed

Is white "POWER ON" light on air stripper control panel lit? Yes
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? Yes
Note scaling inside liquid effluent pipe from access port light
Note scaling observed inside air stripper via clear tray access door light

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) yes all three
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) yes all six

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	11/1/11 0800				
Instantaneous Flowrate [gpm]	~~4.48~~ 35.24	N/A	N/A	N/A	35.40
"Total" Flow (resettable, gal)	1000431	208112	613684	37	1665301
"Perm" Flow (gal)	13447511	2288123	1315120	1639	4340771
Pump 1 Running (Y/N)?	Yes	No	No	No	NA
Pump 2 Running (Y/N)?	NO	No	No	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) Yes *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) NO *(located on duct heater control panel door)*

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/1/11
Time: 1400
Technician: Jason Gutkowski

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N) (*only as needed*)	Yes
Monthly manhole inspections conducted? (Y/N)	Yes
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	MH1: None MH2: None MH3: None
Do level floats appear to be in good condition and hanging freely? (Y/N)	MH1: All Good MH3: All good MH2: All Good
Observe groundwater inside each manhole and note odor and appearance	clear w/ No odor in all three
Is confined space entry signage present at each manhole? (Y/N)	Yes
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	Yes
With pump(s) running, listen for any unusual sounds	Yes, No unusual sounds
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	All Good
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	All Good
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	Yes
List any notable observations	NO Issues
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Heater working in GCTS Building ~~No Heater in SSDS Building~~

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	Yes
Is eyewash/shower station operational and unobstructed? (Y/N)	Yes
Is interior emergency lighting operational? (Y/N)	Yes
Is first aid kit present and in good condition? (Y/N)	Yes
Is lockout/tagout equipment available? (Y/N)	Yes
Have electrical GFIs been tested and reset? (Y/N)	Yes
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	Yes
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	Yes 3/11/11
Is emergency spill kit available? (Y/N)	Yes
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	Yes Posted on wall
Is current SPDES permit onsite? (Y/N) (note date)	Yes 4/1/11 Posted on wall

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/1/11
Time: 0830
Technician: Jason Gutkowski

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	628	(°F)	
Pre-Carbon Temperature	TI-400	81	(°F)	
Duct Heater Temperature Setpoint	-	85	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	85	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	12	(in. W.C.)	
Mid-Carbon Pressure	PI-402	5	(in. W.C.)	
Effluent Pressure	PI-403	0	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	28.88	(in. W.C.)	
Vapor Flowrate	FT-106	784.7	(cfm)	
Pre-Carbon Temperature	TT-400	83.6	(°F)	
Pre-Carbon Pressure	PT-400	10.6	(in. W.C.)	
Building Temperature	TT-100	67.3	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	Yes	
Is low flow alarm present? (Y/N)	No	
Is pump in external mode? (Y/N)	Yes	
If in external mode, record one set of mA and stroke speed values	4.0 (mA) 5 (spm)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
Stroke length	100	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	26gal	
Quantity of additional full drums	1	

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.): No leaks or buildup checked

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	Yes 11/1/11 @ 0830
pH of effluent sample	7.83
Model of pH meter	PH Sensor 30
Calibration notes / method used	Auto cal

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/1/11
Time: 0830
Technician: J. Gutkowski

SYSTEM STATUS

System operational? *(PLC screen indicating system in "AUTO" or "MANUAL")* Auto
System currently cycling? yes
Alarms? (list) None

AIR STRIPPER PARAMETERS (record while air stripper is running)

Parameter	Value	Units
Air stripper sump pressure [PI-106]	27.0	(in. W.C.)
Air stripper sump water elevation *(record from site gauge)*	15.50	(inches)
Blower intake line vacuum [PI-100]	2.0	(in. W.C.)
Main damper position *(record distance from center of wingnut to outside of blower housing)*	2.1	(inches)
Interior dilution damper position *(0° is shut, 90° is open)*	90°	(°)

Is white "POWER ON" light on air stripper control panel lit? yes
Is air stripper hand-off-auto switch [HS-100B] in "AUTO" position? yes
Note scaling inside liquid effluent pipe from access port light
Note scaling observed inside air stripper via clear tray access door light

FLOWMETER / PUMP PARAMETERS

Are white power lights lit on MH-1, MH-2, and MH-3 control panels? (Y/N) yes all three
Are pump hand-off-auto switches [HS-101A, HS-101B, HS-102A, HS-102B, HS-103A, and HS-103B] in "auto" position? (Y/N) HS-102A off All others set to Auto

Parameter	MH-1 [FT-101]	MH-2 [FT-102]	MH-3 [FT-103]	Sump [FT-104]	Cumulative [FT-105]
Date/Time	12/1/11/0850	→	→	→	→
Instantaneous Flowrate [gpm]	38.50	18.60	16.44	N/A	73.81
"Total" Flow (resettable, gal)	1,276,899	242,880	117,208	50	2,035,276
"Perm" Flow (gal)	13,723,980	2,322,891	1,432,329	1652	4,710,809
Pump 1 Running (Y/N)?	yes	yes	yes	NA	NA
Pump 2 Running (Y/N)?	NO	NO	NO	NA	NA

- Flowrate and Permanent Flow can be viewed locally from wall-mounted flow transmitters FT-101 through FT-105 using up/down arrows.

VAPOR PHASE PARAMETERS (record while air stripper is running)

Is duct heater "HEAT ON/OFF" light lit? (Y/N) yes *(located on duct heater control panel door)*
Is duct heater "HI TEMP" alarm light on? (Y/N) NO *(located on duct heater control panel door)*

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/1/11
Time: 1345
Technician: J. Gutkowski

VAPOR PHASE PARAMETERS (continued)

Parameter	PID Tag	Value	Units	Notes
Pre-Duct Heater Temperature	TI-300	62	(°F)	
Pre-Carbon Temperature	TI-400	85	(°F)	
Duct Heater Temperature Setpoint	-	85	(°F)	*(located in green on duct heat control panel)*
Duct Heater Temperature Transmitter	-	85	(°F)	*(located in red on duct heat control panel)*
Pre-Carbon Pressure	PI-401	11	(in. W.C.)	
Mid-Carbon Pressure	PI-402	4	(in. W.C.)	
Effluent Pressure	PI-403	0	(in. W.C.)	

TRANSMITTER READINGS (record from ProControl)

Parameter	PID Tag	Value	Units	Notes
Air Stripper Sump Pressure	PT-106	31.04	(in. W.C.)	
Vapor Flowrate	FT-106	739.6	(cfm)	
Pre-Carbon Temperature	TT-400	83.8	(°F)	
Pre-Carbon Pressure	PT-400	9.0	(in. W.C.)	
Building Temperature	TT-100	66.5	(°F)	

- Press the "I/O" up/down arrows on the ProControl screen until the desired transmitter value is displayed.

SEQUESTERING AGENT (record while air stripper is running)

Parameter	Status	Notes
Is pump operating? (Y/N)	yes	
Is low flow alarm present? (Y/N)	NO	
Is pump in external mode? (Y/N)	Yes	
If in external mode, record one set of mA and stroke speed values	4.9 (mA)	*(display screen should automatically be switching back and forth between mA and stroke speed)*
	5 (spm)	
Stroke length	100	*(record from local stroke length knob on pump)*
Sequestering agent drum level [LI-200]	3/4 Full	Drum empty, place new drum online.
Quantity of additional full drums	0	

Inspect sequestering agent components for signs of leaking or wear (tubing [suction, injection, bleed return], injection check valve fitting, spill pallet, etc.): No leaks or buildup checked, all good

MONTHLY OM&M TASKS

Task	Notes
Monthly liquid effluent sample collected? (Y/N)	Yes @ 1340
pH of effluent sample	7.71
Model of pH meter	PH Sensor 30
Calibration notes / method used	Auto cal.

Monthly OM&M Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/1/11
Time: 1400
Technician: J. Gutkowski

MONTHLY OM&M TASKS (continued)

Task	Notes
Liquid flow sensors cleaned? (Y/N) (*only as needed*)	Yes FS-103 Had Slight Buildup All others were clean
Monthly manhole inspections conducted? (Y/N)	Yes
Leaking/dripping of water observed from double-walled HDPE discharge pipe located inside manhole? (Y/N)	MH1: None MH2: None MH3: None
Do level floats appear to be in good condition and hanging freely? (Y/N)	MH1: All Good MH3: All Good MH2: All Good
Observe groundwater inside each manhole and note odor and appearance	Clear w/ No odor in All Three
Is confined space entry signage present at each manhole? (Y/N)	yes
With pump(s) running, visually inspect discharge piping, pipe fittings, and pressure relief valve for leaks	yes All Good
With pump(s) running, listen for any unusual sounds	No unusual sounds
Inspect condition of collection line gate valve protection flush-mount covers for each manhole	All Good
With system running, visually inspect all piping within the treatment system for leaks, signs of distress, or any other notable observations	All Good
Treatment system valves exercised? (Y/N) *(should be conducted with system in-between batch cycles)*	yes
List any notable observations	No Issues
Are both building heaters working properly? (Y/N) *(adjust respective wall-mounted thermostats for both heaters and confirm proper heater response)*	Heater is working in GCTS Building Thermostat checked, Good

HEALTH AND SAFETY

Item	Status
Is fire extinguisher charged, unobstructed, and possessing an inspection tag? (Y/N)	yes
Is eyewash/shower station operational and unobstructed? (Y/N)	yes
Is interior emergency lighting operational? (Y/N)	yes
Is first aid kit present and in good condition? (Y/N)	yes
Is lockout/tagout equipment available? (Y/N)	yes
Have electrical GFIs been tested and reset? (Y/N)	yes
Do all electrical panels have 36" of open floor space in front of them? (Y/N)	yes
Are both the OM&M Manual and HASP onsite? (Y/N) *(note dates for each)*	yes 3/11/11
Is emergency spill kit available? (Y/N)	yes
Is H&S signage including emergency contact list, eye protection hearing protection, and automatic equipment present? (Y/N)	yes Posted on wall
Is current SPDES permit onsite? (Y/N) (note date)	yes 4/1/11 Posted on wall

ARCADIS

Appendix C

Alarm-Response Log Sheets

Alarm Response Log, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/14/2011
Time: 10:30
Technician: TC/CD

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 3/14/11 Time: NA

Alarm Condition:

Automated daily efax was not received by operator

Cause of Alarm:

Data logger indicates fax failed.

Corrective Action:

Log into system and verify communication settings and initiate a fax now command to further test line.

Changed time for daily log/efax to be sent to operators at 01:00 versus 06:00.

May need to contact efax to obtain a new # if problem persists?

Alarm Response Log, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/15/2011
Time: 8:00
Technician: TC/CD

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	3/14/11	Time:	0:43:32
	3/14/11		23:53:58

Alarm Condition:

Process 32 / LSL-100

Cause of Alarm:

Low water level in air stripper sump due to sump pressure setting to be high.

Corrective Action:

Restart system remotely on 3/14/11 at 10:31

Monitor system remotely.

Restart system remotely on 3/15/11 at 9:14

Interim corrective action taken on 3/15/11 to adjust influent blower damper to reduce pressure in sump.

Permanent corrective action will involve replacing currently installed rigid level sensors LSL-100 and LSH-100 with tethered mechanical floats to provide a greater range for the water level in the air stripper sump, which is required for the gravity discharge and varying sump pressures associated with this system.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 23:53:58 ON 03/14/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD : LAST SHUTDOWN @ 00:43:32 ON 03/14/2011 BY LSL100
FAX REPORT INITIATED BY PROCESS 32

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
MH1_HH is OFF	FA_101 is OFF	MH2_HH is OFF	FA_102 is OFF
MH3_HH is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is ON
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	673070	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	150108	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	75425	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	687120	GAL				
FT_106 is 763	CFM	LIMITS are	L: 400	CFM	H: 1000	CFM		
PT_106 is 25.46	IWC	LIMITS are	L: 15.00	IWC	H: 30.00	IWC		
TT_400 is 77.4	DEG	LIMITS are	L: 60.0	DEG	H: 105.0	DEG		
PT_400 is 6.0	IWC	LIMITS are	L: 1.0	IWC	H: 25.0	IWC		
TT_100 is 57.8	DEG	LIMITS are	L: 40.0	DEG	H: 120.0	DEG		

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/20/2011
Time: 13:00
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 3/20/11 Time: 7:26:00

Alarm Condition:

Process 32 / LSL-100

Cause of Alarm:

Low water level in air stripper sump due to sump pressure setting to be high.

Corrective Action:

Restart system remotely on 3/20/11 at 12:49

Monitor system remotely.

Permanent corrective action will involve replacing currently installed rigid level sensors LSL-100 and LSH-100 with tethered mechanical floats to provide a greater range for the water level in the air stripper sump, which is required for the gravity discharge and varying sump pressures associated with this system.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 12:49:40 ON 03/20/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P07 : LAST SHUTDOWN @ 07:26:37 ON 03/20/2011 BY LSL100
FAX REPORT INITIATED BY REMOTE

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is ON	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
MH1_HH is OFF	FA_101 is OFF	MH2_HH is OFF	FA_102 is OFF
MH3_HH is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 43.74	GPM	TOTAL FLOW is	754263	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	172240	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	75425	GAL				
FT_105 is 43.83	GPM	TOTAL FLOW is	784620	GAL				
FT_106 is 700	CFM	LIMITS are	L: 400	CFM	H: 1000	CFM		
PT_106 is 26.43	IWC	LIMITS are	L: 15.00	IWC	H: 30.00	IWC		
TT_400 is 86.5	DEG	LIMITS are	L: 60.0	DEG	H: 105.0	DEG		
PT_400 is 4.8	IWC	LIMITS are	L: 1.0	IWC	H: 25.0	IWC		
TT_100 is 57.7	DEG	LIMITS are	L: 40.0	DEG	H: 120.0	DEG		

Analog Outputs:

INJSPD 47.3 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/20/2011
Time: 15:00
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 3/20/11 & 3/26/11 Time: 7:26 & (3:21 & 21:38)

Alarm Condition:

Process 32 / LSL-100 (low air stripper sump level)

Cause of Alarm:

Low water level in air stripper sump occurs due to operating range between low and high sump levels being too narrow.

Corrective Action:

Restart system remotely on 3/20/11 at 12:49, on 3/26/11 at 9:37, and on 3/29/11 at 9:52.

Monitor system remotely.

Permanent corrective action will involve replacing currently installed rigid level sensor LSH-100 with tethered mechanical float to provide greater range for the water level in the air stripper sump, which is required for the gravity discharge and varying sump pressures associated with the system.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 12:49:40 ON 03/20/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P07 : LAST SHUTDOWN @ 07:26:37 ON 03/20/2011 BY LSL100
FAX REPORT INITIATED BY REMOTE

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is ON	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
MH1_HH is OFF	FA_101 is OFF	MH2_HH is OFF	FA_102 is OFF
MH3_HH is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 43.74	GPM	TOTAL FLOW is	754263	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	172240	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	75425	GAL				
FT_105 is 43.83	GPM	TOTAL FLOW is	784620	GAL				
FT_106 is 700	CFM	LIMITS are	L: 400	CFM	H: 1000	CFM		
PT_106 is 26.43	IWC	LIMITS are	L: 15.00	IWC	H: 30.00	IWC		
TT_400 is 86.5	DEG	LIMITS are	L: 60.0	DEG	H: 105.0	DEG		
PT_400 is 4.8	IWC	LIMITS are	L: 1.0	IWC	H: 25.0	IWC		
TT_100 is 57.7	DEG	LIMITS are	L: 40.0	DEG	H: 120.0	DEG		

Analog Outputs:

INJSPD 47.3 PCT PRO

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 03:21:37 ON 03/26/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD : LAST SHUTDOWN @ 06:57:24 ON 03/23/2011 BY B_100
FAX REPORT INITIATED BY PROCESS 32

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is ON
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is OFF
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
MH1_HH is OFF	FA_101 is OFF	MH2_HH is OFF	FA_102 is ON
MH3_HH is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is ON
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	823257	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	180635	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	75429	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	847045	GAL				
FT_106 is 807	CFM	LIMITS are	L: 400	CFM	H: 1000	CFM		
PT_106 is 25.21	IWC	LIMITS are	L: 15.00	IWC	H: 30.00	IWC		
TT_400 is 82.3	DEG	LIMITS are	L: 60.0	DEG	H: 105.0	DEG		
PT_400 is 6.1	IWC	LIMITS are	L: 1.0	IWC	H: 25.0	IWC		
TT_100 is 57.7	DEG	LIMITS are	L: 40.0	DEG	H: 120.0	DEG		

Analog Outputs:

INJSPD 0.0 PCT PRO

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 21:38:04 ON 03/26/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD : LAST SHUTDOWN @ 03:31:37 ON 03/26/2011 BY LSL100
FAX REPORT INITIATED BY PROCESS 32

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is ON	MH2_H1 is ON
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
MH1_HH is OFF	FA_101 is OFF	MH2_HH is OFF	FA_102 is ON
MH3_HH is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is ON
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	830901	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	180635	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	75429	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	851989	GAL				
FT_106 is 754	CFM	LIMITS are	L: 400	CFM	H: 1000	CFM		
PT_106 is 24.97	IWC	LIMITS are	L: 15.00	IWC	H: 30.00	IWC		
TT_400 is 92.9	DEG	LIMITS are	L: 60.0	DEG	H: 105.0	DEG		
PT_400 is 5.3	IWC	LIMITS are	L: 1.0	IWC	H: 25.0	IWC		
TT_100 is 58.5	DEG	LIMITS are	L: 40.0	DEG	H: 120.0	DEG		

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/23/2011
Time: 15:00
Technician: CD

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 3/23/11 Time: 6:47:00

Alarm Condition:

Process 42 / LSH-100 (high air stripper sump level)

Cause of Alarm:

High water level in air stripper sump occurs due to operating range between low and high sump levels being too narrow.

Corrective Action:

Restart system remotely on 3/23/11 at 11:42.

Monitor system remotely.

Permanent corrective action will involve replacing currently installed rigid level sensor LSH-100 with tethered mechanical float to provide greater range for the water level in the air stripper sump, which is required for the gravity discharge and varying sump pressures associated with the system.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 23:53:58 ON 03/14/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD : LAST SHUTDOWN @ 00:43:32 ON 03/14/2011 BY LSL100
FAX REPORT INITIATED BY PROCESS 32

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
MH1_HH is OFF	FA_101 is OFF	MH2_HH is OFF	FA_102 is OFF
MH3_HH is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is ON
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	673070	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	150108	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	75425	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	687120	GAL				
FT_106 is 763	CFM	LIMITS are	L: 400	CFM	H: 1000	CFM		
PT_106 is 25.46	IWC	LIMITS are	L: 15.00	IWC	H: 30.00	IWC		
TT_400 is 77.4	DEG	LIMITS are	L: 60.0	DEG	H: 105.0	DEG		
PT_400 is 6.0	IWC	LIMITS are	L: 1.0	IWC	H: 25.0	IWC		
TT_100 is 57.8	DEG	LIMITS are	L: 40.0	DEG	H: 120.0	DEG		

Analog Outputs:

INJSPD 0.0 PCT PRO

Quarterly OM&M Checklist, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/14/2011
Time: 11:35
Technician: CD

ALARM RESPONSE / CRITICAL DEVICE CORRECTIVE ACTION LOG SHEET

Date: 3/14/11 Time: 6:30:00

Alarm Condition / Critical Device Failure:

Daily fax report did not occur.

Cause of Alarm / Device Failure:

Cause of fax failure related to recent re-configuration of control unit, as well as recent plugging / unplugging of phone line.

Corrective Action:

Will implement as part of SOPs that the control unit is rebooted following any re-configuration of unit or adjustment of phone line connections.

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/20/2011
Time: 15:00
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 3/20/11 & 3/26/11 Time: 7:26 & (3:21 & 21:38)

Alarm Condition:

Process 32 / LSL-100 (low air stripper sump level)

Cause of Alarm:

Low water level in air stripper sump occurs due to operating range between low and high sump levels being too narrow.

Corrective Action:

Restart system remotely on 3/20/11 at 12:49, on 3/26/11 at 9:37, and on 3/29/11 at 9:52.

Monitor system remotely.

Permanent corrective action will involve replacing currently installed rigid level sensor LSH-100 with tethered mechanical float to provide greater range for the water level in the air stripper sump, which is required for the gravity discharge and varying sump pressures associated with the system.

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 3/23/2011
Time: 15:00
Technician: CD

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 3/23/11 Time: 6:47:00

Alarm Condition:

Process 42 / LSH-100 (high air stripper sump level)

Cause of Alarm:

High water level in air stripper sump occurs due to operating range between low and high sump levels being too narrow.

Corrective Action:

Restart system remotely on 3/23/11 at 11:42.

Monitor system remotely.

Permanent corrective action will involve replacing currently installed rigid level sensor LSH-100 with tethered mechanical float to provide greater range for the water level in the air stripper sump, which is required for the gravity discharge and varying sump pressures associated with the system.

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 6/12/2011
Time: 11:30
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 6/11/11 Time: 16:52:58

Alarm Condition:

Power Outage

Cause of Alarm:

Power failure due to local lightning storms.

Corrective Action:

6/12/11 - Log into system remotely and restart system at 11:40.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 11:47:03 ON 06/12/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P21 : LAST SHUTDOWN @ 16:52:58 ON 06/11/2011 BY LSL100
FAX REPORT INITIATED BY REMOTE

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is ON	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is ON	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	51894665	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9198545	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	565324	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	2299194	GAL				
PT_106 is 26.98	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 57.9	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 10.1	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 65.7	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 746.2	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 6/13/2011
Time: 7:00
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 6/12/11 Time: 19:16:49

Alarm Condition:

Process - 57 - Aggregate low flowrate, FT-105

(Non-Fatal Alarm)

Cause of Alarm:
Most likely attributed to delay in aggregate flowmeter registering flow within 15 second time delay period with only MH-3 online.

Corrective Action:
6.14.11 - Inspect flow transmitter data logger for to compare aggregate flows to MH-3 flows. Appears that this alarm condition was a anomaly.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 19:16:49 ON 06/12/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P57 : LAST SHUTDOWN @ 11:57:15 ON 06/12/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 57

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	51901642	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9198545	GAL				
FT_103 is 19.78	GPM	TOTAL FLOW is	569890	GAL				
FT_105 is 6.93	GPM	TOTAL FLOW is	2310141	GAL				
PT_106 is 27.66	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 61.3	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 9.6	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 69.4	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 671.2	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 1.3 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 6/12/2011
Time: 11:30
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	6/12/11	Time:	11:51:00
	6/12/11		22:58:29

Alarm Condition:

Process - 47 - Pre-Carbon temperature alarm, TT-400

Cause of Alarm:

Power failure due to local lightning storms. Power outage to duct heater MCP triggered a false internal duct heater temperature alarm.

Corrective Action:

6/12/11 - Log into system remotely and DZ onsite to inspect duct heater and restart system.

6/13/11 - Log into system remotely and temporarily adjust TT-400 low temperature set point form 60 F to 50 F and restart system. Local electrician (Usmail) onsite to reset internal temperature alarm at duct heater MCP.

6/14/11 - Login to system remotely and reset TT-400 low set point back to 60 F.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 11:51:00 ON 06/12/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD P02 : LAST SHUTDOWN @ 16:52:58 ON 06/11/2011 BY LSL100
FAX REPORT INITIATED BY PROCESS 47

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is ON	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is ON	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	51894665	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9198545	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	565324	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	2299194	GAL				
PT_106 is 26.16	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 59.1	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 10.6	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 65.9	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 751.3	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 22:58:29 ON 06/12/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD P-1 : LAST SHUTDOWN @ 11:57:15 ON 06/12/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 47

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is ON	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	51901795	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9198545	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	570603	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	2310518	GAL				
PT_106 is 26.95	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 57.0	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 10.4	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 67.3	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 727.6	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 6/13/2011
Time: 9:30
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 6/13/11 Time: 8:10:06

Alarm Condition:

Process - 53 - Sequestering agent low flow, FT-200

(Non-Fatal Alarm)

Cause of Alarm:

Pump lost prime.

Corrective Action:

6/13/11 - DZ onsite to Inspect alarm condition. Sequestering agent drum is approx. 1/3 full. However, a large air bubble was noted in the sunction line of the pump. DZ manually primed the chemcial feed pump until the air bubble was removed. Alarm was cleared remotely.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 08:10:06 ON 06/13/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P53 : LAST SHUTDOWN @ 07:03:26 ON 06/13/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 53

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is ON	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 38.97	GPM	TOTAL FLOW is	51904196	GAL				
FT_102 is 17.92	GPM	TOTAL FLOW is	9199663	GAL				
FT_103 is 19.73	GPM	TOTAL FLOW is	571934	GAL				
FT_105 is 71.18	GPM	TOTAL FLOW is	2315148	GAL				
PT_106 is 30.56	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 57.1	DEG	LIMITS are	L: 50.0	DEG	H:	110.0	DEG	
PT_400 is 8.1	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 67.3	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 539.7	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 11.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date:	6/20/2011
Time:	12:00
Technician:	TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	6/20/11	Time:	9:42:17
	6/22/11		12:58:00
	6/23/11		9:25:59

Alarm Condition:

Process - 53 - Sequestering agent low flow alarm FA-200 via transmitter FT-200.

(Non-Fatal Alarm)

Cause of Alarm:
Pump has lost prime or flowrate has been reduced.

Corrective Action:
6/20/11 - DZ onsite to Inspect alarm condition. Sequestering agent drum is approx. 1/3 full. No air bubble noted in the suction line of the pump. DZ manually re-primes the chemical feed pump and alarm is cleared.

6/22/11 - Alarm returned - DZ onsite to Inspect alarm condition. Sequestering agent drum is approx. 1/3 full. No air bubble noted in the suction line of the pump. DZ manually re-primes the chemical feed pump and alarm is cleared but returns after returning to external mode whether being call to pump by PLC or not? Inspect priming bleed valve for proper operation, observed adjustment knob broken off, however valve still appears to operational and can be adjust with pliers. Following several failed attempts to clear flow alarm condition following SOP and manufacturers troubleshooting sections ARCADIS contacted Aries Chemical to ask for troubleshooting assistance and also to order a replacement multifunction valve. Aries Chemical discussed the alarm condition with the onsite ARCADIS personnel and was unable to determine any obvious reasons why the alarm would not clear?

6/23/11 - Looking into if Aries Chemical can provide a technician tomorrow to come out to the site to look at the pump and flow monitoring device. In addition, we are planning on temporarily taking the pump offline to inspect the discharge tubing and injection port for fouling/partial blockage that may be reducing the flow and triggering the alarm condition.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 09:25:59 ON 06/23/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P53 : LAST SHUTDOWN @ 07:03:26 ON 06/13/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 53

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	51964584	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9209851	GAL				
FT_103 is 20.46	GPM	TOTAL FLOW is	609214	GAL				
FT_105 is 19.66	GPM	TOTAL FLOW is	2416889	GAL				
PT_106 is 27.41	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 80.3	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 9.0	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 70.0	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 686.5	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 3.2 PCT PRO

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 12:58:00 ON 06/22/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P53 : LAST SHUTDOWN @ 07:03:26 ON 06/13/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 53

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	51956063	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9207440	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	601360	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	2398642	GAL				
PT_106 is 25.98	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 79.8	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 10.3	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 70.7	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 725.0	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 09:42:17 ON 06/20/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P53 : LAST SHUTDOWN @ 07:03:26 ON 06/13/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 53

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is ON
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	51945850	GAL				
FT_102 is 18.88	GPM	TOTAL FLOW is	9206987	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	594341	GAL				
FT_105 is 11.17	GPM	TOTAL FLOW is	2382622	GAL				
PT_106 is 27.35	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 76.4	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 8.9	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 72.8	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 648.1	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 1.7 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date:	6/24/2011
Time:	17:25
Technician:	TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:		Time:	
	6/20/11		9:42:17
	6/22/11		12:58:00
	6/23/11		9:25:59

Alarm Condition:

Process - 53 - Sequestering agent low flow alarm FA-200 via transmitter FT-200.

(Non-Fatal Alarm)

Cause of Alarm:
Pump has lost prime or flowrate has been reduced.

Corrective Action:
6/20/11 - DZ onsite to Inspect alarm condition. Sequestering agent drum is approx. 1/3 full. No air bubble noted in the suction line of the pump. DZ manually re-primes the chemical feed pump and alarm is cleared.

6/22/11 - Alarm returned - DZ onsite to Inspect alarm condition. Sequestering agent drum is approx. 1/3 full. No air bubble noted in the suction line of the pump. DZ manually re-primes the chemical feed pump and alarm is cleared but returns after returning to external mode whether being call to pump by PLC or not? Inspect priming bleed valve for proper operation, observed adjustment knob broken off, however valve still appears to operational and can be adjust with pliers. Following several failed attempts to clear flow alarm condition following SOP and manufacturers troubleshooting sections ARCADIS contacted Aries Chemical to ask for troubleshooting assistance and also to order a replacement multifunction valve. Aries Chemical discussed the alarm condition with the onsite ARCADIS personnel and was unable to determine any obvious reasons why the alarm would not clear?

6/23/11 - Looking into if Aries Chemical can provide a technician tomorrow to come out to the site to look at the pump and flow monitoring device. In addition, we are planning on temporarily taking the pump offline to inspect the discharge tubing and injection port for fouling/partial blockage that may be reducing the flow and triggering the alarm condition.

6/24/11 - Inspect injection tubing and port, identify fouling (sequestering agent solidified/crystallized) within injection port where it line ties into manifold. Clean and reinstall. Cleared alarm but it reoccurred after a few cycles. Discuss pump settings with Aries Chemical and they pointed out that we should adjust(decrease sensitivity) the alarm setpoint (i.e. if no or lesser flow is detected after 8 continuous cycles the internal flow alarm (E2) is triggered). The reason Aries recommended this is because this system is a batch type with varying dosing rates, thus we do not have a continuous flow and/or flowrate passing through the flow monitoring device, which Aries believes may be triggering the E2 alarm. Corrective action was to adjust low flow setpoint alarm from the factory default value of 8 to 50 cycles (Note: full alarm set point range is 8 to 220 cycles). Alarm cleared and pump operated alarm free for several cycles.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 13:14:53 ON 06/24/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P53 : LAST SHUTDOWN @ 10:54:37 ON 06/24/2011 BY LSL100
FAX REPORT INITIATED BY PROCESS 53

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is ON	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is ON	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is ON	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	51975808	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9212057	GAL				
FT_103 is 20.42	GPM	TOTAL FLOW is	615548	GAL				
FT_105 is 20.39	GPM	TOTAL FLOW is	2435722	GAL				
PT_106 is 26.95	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 81.5	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 8.6	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.3	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 616.7	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 2.9 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/13/2011
Time: 13:30
Technician: CD

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 7/9/11 Time: 6:58:00

Alarm Condition:

Low level in the air stripper sump.

Cause of Alarm:

Power outage occurred. This caused the status of various discrete inputs to change to the OFF position, regardless of actual site conditions. The low level sensor, as well as the three low-low level floats for the three pumping manholes each were displayed as being in the lowered position; not consistent with actual site conditions.

Corrective Action:

System restarted at 8:56 on 7/11/11.

ProControl Series II+

EOS Research Ltd.

Fax Report

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 10:30:00 ON 07/11/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P25 : LAST SHUTDOWN @ 07:08:32 ON 07/09/2011 BY LSL100

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is ON	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is ON	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is ON	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 40.05	GPM	TOTAL FLOW is	52088804	GAL				
FT_102 is 17.63	GPM	TOTAL FLOW is	9232128	GAL				
FT_103 is 25.64	GPM	TOTAL FLOW is	680968	GAL				
FT_105 is 78.69	GPM	TOTAL FLOW is	2622950	GAL				
PT_106 is 30.01	IWC	LIMITS are	L: 15.00	IWC	H: 34.00	IWC		
TT_400 is 62.1	DEG	LIMITS are	L: 60.0	DEG	H: 110.0	DEG		
PT_400 is 6.6	IWC	LIMITS are	L: 1.0	IWC	H: 25.0	IWC		
TT_100 is 75.5	DEG	LIMITS are	L: 40.0	DEG	H: 110.0	DEG		
FT_106 is 509.6	CFM	LIMITS are	L: 400.0	CFM	H:	CFM		

Analog Outputs:

INJSPD 11.6 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/13/2011
Time: 13:35
Technician: CD

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 7/12/11 Time: 22:13:00

Alarm Condition:

Low pre-carbon temperature.

Cause of Alarm:

Power outage occurred several days earlier. Even though system was restarted remotely, a local reset button must be pressed for the duct heater to restart following a power reset.

Corrective Action:

System restarted 12:53 on 7/13/11. Low temperature alarm temporarily changed from 60 F to 50 F while site visit is scheduled for 7/14/11 to initiate local reset of duct heater.

ProControl Series II+

EOS Research Ltd.

Fax Report

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 13:30:00 ON 07/13/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P21 : LAST SHUTDOWN @ 22:23:14 ON 07/12/2011 BY TT_400

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is ON	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is ON	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 39.32	GPM	TOTAL FLOW is	52106478	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9232868	GAL				
FT_103 is 23.37	GPM	TOTAL FLOW is	690310	GAL				
FT_105 is 59.00	GPM	TOTAL FLOW is	2649868	GAL				
PT_106 is 29.15	IWC	LIMITS are	L: 15.00	IWC	H: 34.00	IWC		
TT_400 is 62.6	DEG	LIMITS are	L: 50.0	DEG	H: 110.0	DEG		
PT_400 is 7.0	IWC	LIMITS are	L: 1.0	IWC	H: 25.0	IWC		
TT_100 is 76.6	DEG	LIMITS are	L: 40.0	DEG	H: 110.0	DEG		
FT_106 is 555.1	CFM	LIMITS are	L: 400.0	CFM	H:	CFM		

Analog Outputs:

INJSPD 9.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 7/19/2011
Time: 9:30
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	7/18/11	Time:	17:41:54
	7/19/11		6:34:08

Alarm Condition:

Process 57 - Low Flow Aggregate

Process 29 - Low Flow MH-1

Cause of Alarm:

Scaling on flowmeter paddlewheel sensor.

Corrective Action:

Staff onsite today and will inspect/clean sensors.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 17:41:54 ON 07/18/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P57 : LAST SHUTDOWN @ 22:23:14 ON 07/12/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 57

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is OFF	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	52130888	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9239453	GAL				
FT_103 is 19.56	GPM	TOTAL FLOW is	708235	GAL				
FT_105 is 0.06	GPM	TOTAL FLOW is	2693761	GAL				
PT_106 is 27.17	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 77.4	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 8.0	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 79.4	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 622.4	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.8 PCT PRO

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 06:34:08 ON 07/19/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P29 : LAST SHUTDOWN @ 22:23:14 ON 07/12/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 29

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is ON	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is ON	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	52133381	GAL				
FT_102 is 0.02	GPM	TOTAL FLOW is	9239453	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	710122	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	2697801	GAL				
PT_106 is 24.42	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 89.6	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 11.4	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 74.3	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 848.7	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 8/2/2011
Time: 12:00
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 8/2/11 Time: 1:30:30

Alarm Condition:

Process 57 - Low Flow Aggregate (FT-105)

Cause of Alarm:

Flow registered after 15 second delay with M-3 online.

Corrective Action:

Log into remotely and inspect flow/temporarily cycle alternate MH-3 pump to trigger flow sensor on 8/2/11. FT-105 registering flow with MH-3 online. Will inspect aggregate flow sensor position during next O&M visit to ensure that sensor is installed at the correct depth within the pipeline.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 01:30:30 ON 08/02/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P57 : LAST SHUTDOWN @ 22:23:14 ON 07/12/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 57

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	52200382	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9254839	GAL				
FT_103 is 19.66	GPM	TOTAL FLOW is	755328	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	2811929	GAL				
PT_106 is 27.96	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 76.8	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 8.9	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 76.7	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 652.6	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 1.2 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 8/2/2011
Time:
Technician: CD/TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 8/2/11 Time:

Alarm Condition:
Inconsistant daily and alarm fax reports since remedial enhancement construction upgrades completed in First Quarter.

Cause of Alarm:
Daily and alarm fax reports unsuccessful due to ProControl's modem not properly sensing when a phone line connection becomes disconnected (i.e. a hangup). When the modem senses that a phone line connection is present, a report or alarm fax will not be initiated.

Corrective Action:
Onsite troubleshooting conducted by Telecommunication Concepts, Inc. on 6/22/11 indicated that the materials used for the exterior/below-grade phone line installation presented the potential for phone line depletion. Attached is a quote pertaining to replacement of the phone line.

Follow-up testing conducted on 7/8/11 revealed that the quality of the phone line currently is fine, and that instead the ProControl modem may not be responding correctly to hangups. Troubleshooting of the fax-out sequence included temporarily changing the fax reporting frequency to once every 30 minutes, which resulted in a 100% success rate up until the very early morning of the following day (i.e. fax reports continuously successful at the desired 30 minute interval for greater than 16 hours until failing at 1:00-2:00 am). Once a fax report failure occurred, the fax report sequence would not return to schedule until a phoneline connection was attempted with the ProControl, thereby resetting the modem to allow for proper acknowledgement of a phoneline disconnection. Explanation as to why the modem would not properly sense a hangup during the early morning hours is unclear, although a potential contributing factor includes line noise caused by certain facility communications operations that occur during that time period. To serve as a modem reset action (by attempting a phoneline connection with), the SSDS ProControl fax report procedure was modified to call the GCTS phone number (in addition to its regular dial-out number) at 5:00 am. Initial observations indicate that GCTS daily and alarm fax reports are being sent with a high success rate. Should this not prove to be a sufficient solution for the modem deficiency, a modem replacement will be considered.

A verbal quote including parts and labor was obtained from EOS Research, Ltd of $125.00 on 7/13/11. This would require the temporary removal the PLC so that it could be shipped via overnight the EOS, thus resulting a temporary shutdown of the system for approximately 2.5 days.

Telecommunication Concepts, Inc.
329 Oriskany Blvd
Whitesboro, NY 13492

Voice: 315-736-8523
Fax: 315-736-8524

QUOTATION

Quote Number: 1094
Quote Date: Jun 24, 2011
Page: 1

Quoted To:

Arcadis
PO Box 66
6723 Towpath Rd
Syracuse, NY 13214-0066

Customer ID	Good Thru	Payment Terms	Sales Rep
TA1810	7/24/11	Net 10 Days	

Quantity	Item	Description	Unit Price	Amount
3.00	Svc Call	Install underground cable between Guard shack & shed at Conmed. Terminate & test.	90.00	270.00
25.00	WAD6PR24	Wire Aerial Duct 6 PR 24	4.00	100.00
2.00	JF4684	Jack Surface Md 4C	5.95	11.90
2.00	PLF104LR	Plug LC 4C for Solid Wire	1.00	2.00

Subtotal	383.90
Sales Tax	33.59
TOTAL	**417.49**

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 9/8/2011
Time: 12:00
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 9/7/11 Time: 19:58:29 PM

Alarm Condition:

Process 53 - Sequestering Agent Low Flow Alarm FA-200 (FT-200)

Cause of Alarm:

Sequestering agent drum was empty.

Corrective Action:
Changeout drum on 9/8/11.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 19:58:29 ON 09/07/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P53 : LAST SHUTDOWN @ 17:30:21 ON 08/11/2011 BY FT_106
FAX REPORT INITIATED BY PROCESS 53

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is ON	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is ON	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is ON	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is ON	LA_MH2 is OFF	FA_102 is ON
LA_MH3 is OFF	FA_103 is ON	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 38.93	GPM	TOTAL FLOW is	52469234	GAL				
FT_102 is 18.32	GPM	TOTAL FLOW is	9331270	GAL				
FT_103 is 21.78	GPM	TOTAL FLOW is	941666	GAL				
FT_105 is 72.44	GPM	TOTAL FLOW is	3297409	GAL				
PT_106 is 31.11	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 76.6	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 7.3	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.6	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 563.5	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 11.4 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 9/17/2011
Time: 12:30
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 9/17/11 Time: 10:58:03

Alarm Condition:

Process 56 - Low Flow Aggregate (FT-105)

Cause of Alarm:

Flow registered after 15 second delay with M-2 online.

Corrective Action:

Log into remotely and inspect flow, flowmeter registering flow. Will inspect aggregate flow sensor position during next O&M visit to ensure that sensor is installed at the correct depth within the pipeline and is clean of scale/debris.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 10:58:03 ON 09/17/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P56 : LAST SHUTDOWN @ 14:00:23 ON 09/16/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 56

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is OFF
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	52642187	GAL				
FT_102 is 21.00	GPM	TOTAL FLOW is	9359167	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1037789	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	3580368	GAL				
PT_106 is 29.12	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 79.8	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 9.9	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 68.9	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 726.9	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 9/26/2011
Time: 20:16
Technician: TC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 9/26/11 Time: 1:00:53

Alarm Condition:

Process 53 - Sequestering Agent Low Flow Alarm FA-200 (FT-200)

Cause of Alarm:

Not all air bubbles were purged within the suction line while re-priming the pump following the drum changeout on 9/8/11.

Corrective Action:

Log into remotely and clear alarm on 9/26/11 and see if alarm condition returns. If alarm returns the pump will be re-primed.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 01:00:53 ON 09/26/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P53 : LAST SHUTDOWN @ 14:00:23 ON 09/16/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 53

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	52712745	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9372454	GAL				
FT_103 is 18.95	GPM	TOTAL FLOW is	1078927	GAL				
FT_105 is 18.93	GPM	TOTAL FLOW is	3697810	GAL				
PT_106 is 28.45	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 85.2	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 9.2	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 72.3	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 700.6	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 2.8 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 10/20/2011
Time: 20:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	10/15/11	Time:	10:40:00
	10/19/11		14:29:00

Alarm Condition:

Process - 57 - FA-105 (Low Flow Alarm Aggregate Flowmeter FT-105)

Process - 56 - FA-105 (Low Flow Alarm Aggregate Flowmeter FT-105)

Cause of Alarm:

Suspect alarm conditions caused by low velocity in 3" diameter header pipe when only one MH pump in batching resulting in a delay for flow to registrar greater than 5 gpm before the alarm is trigger.

Corrective Action:

Increase time delay for alarm from 15 seconds to 30 seconds.

Continue to inspect the flowmeter on a monthly basis.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 10:40:59 ON 10/15/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P57 : LAST SHUTDOWN @ 10:59:21 ON 10/11/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 57

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is ON	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	52913478	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9406984	GAL				
FT_103 is 18.68	GPM	TOTAL FLOW is	1176926	GAL				
FT_105 is 5.86	GPM	TOTAL FLOW is	4013349	GAL				
PT_106 is 27.05	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 83.3	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 10.5	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 68.1	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 759.6	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 1.2 PCT PRO

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 14:29:02 ON 10/19/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P56 : LAST SHUTDOWN @ 16:14:05 ON 10/17/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 56

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is ON
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is ON
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	52954376	GAL				
FT_102 is 21.05	GPM	TOTAL FLOW is	9411847	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1196616	GAL				
FT_105 is 11.51	GPM	TOTAL FLOW is	4075785	GAL				
PT_106 is 28.08	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 77.5	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 9.4	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 68.4	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 698.1	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 1.6 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/2/2011
Time: 9:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 10/28/11 Time: 13:40:00

Alarm Condition:

Process 29 - MH-1 Low Flowrate

Cause of Alarm:

Mineral scale build up on the paddlewheel sensor.

Possible air pockets causing turbulent flow during initial pump startup until manifold is completely flooded.

Corrective Action:

Inspect and clean flowmeter on 11/1/11, a small amount of mineral scaling was noted on the paddlewheel.

Increase time delay for alarm from 30 seconds to 60 seconds.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 13:40:38 ON 10/28/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P29 : LAST SHUTDOWN @ 16:14:05 ON 10/17/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 29

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is ON
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is ON	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is ON	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 9.67	GPM	TOTAL FLOW is	53043119	GAL				
FT_102 is 17.63	GPM	TOTAL FLOW is	9428330	GAL				
FT_103 is 18.14	GPM	TOTAL FLOW is	1240715	GAL				
FT_105 is 41.24	GPM	TOTAL FLOW is	4216507	GAL				
PT_106 is 30.62	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 77.7	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 9.2	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 67.5	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 651.3	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 6.5 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/8/2011
Time: 10:25
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/8/11 Time: 5:30:00

Alarm Condition:

Daily scheduled system fax report was not received.

Cause of Alarm:

Faulty local phone connection resulted in a failed dialout by the PLC

Corrective Action:

Log into the system remotely and verify operation.

Initiate a fax now to test dialout connection/communication.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 09:36:57 ON 11/08/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P06 : LAST SHUTDOWN @ 16:14:05 ON 10/17/2011 BY KEYPAD
FAX REPORT INITIATED BY REMOTE

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is OFF	DH_300 is OFF
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53126731	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9441720	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1279673	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4333235	GAL				
PT_106 is 0.00	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 67.8	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 0.0	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 62.8	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 0.0	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/14/2011
Time: 9:15
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/13/11 Time: 18:05:00

Alarm Condition:

Process - 56 - FA-105 (Low Flow Alarm Aggregate Flowmeter FT-105)

Cause of Alarm:

Possible air pockets causing turbulent flow during initial pump startup until manifold is completely flooded.
Suspect alarm conditions caused by low velocity in 3" diameter header pipe when only one MH pump in batching resulting in a delay for flow to registrar greater than 5 gpm before the alarm is trigger.

Corrective Action:

Log into the system remotely and verify operation.

Continue to inspect the flowmeter on a monthly basis.

Continue to monitor the effectiveness of the sequestering agent.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 18:05:49 ON 11/13/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P56 : LAST SHUTDOWN @ 16:14:05 ON 10/17/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 56

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53161750	GAL				
FT_102 is 19.56	GPM	TOTAL FLOW is	9446206	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1296653	GAL				
FT_105 is 10.87	GPM	TOTAL FLOW is	4388122	GAL				
PT_106 is 28.72	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 94.2	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 9.0	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.0	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 712.8	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 1.2 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/15/2011
Time: 13:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/14/11 Time: 15:08:00

Alarm Condition:

Process - 55 - FA-105 (Low Flow Alarm Aggregate Flowmeter FT-105) with MH-1 online

Cause of Alarm:

Suspect alarm conditions caused by possible sediment and/or scaling on the paddlewheel sensor.

Corrective Action:

Log into the system remotely and verify operation.

11/15/11 - Remove and inspect flowmeter paddlewheel for scaling and clean as necessary.

Continue to inspect the flowmeter on a monthly basis.

Continue to monitor the effectiveness of the sequestering agent.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 15:08:52 ON 11/14/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P55 : LAST SHUTDOWN @ 16:14:05 ON 10/17/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 55

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is ON	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is ON	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 29.99	GPM	TOTAL FLOW is	53166773	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9448315	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1298737	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4396229	GAL				
PT_106 is 29.00	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 89.7	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 8.2	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 67.3	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 650.6	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/15/2011
Time: 7:45
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/15/11 Time: 5:30:00

Alarm Condition:

Daily scheduled system fax report was not received.

Cause of Alarm:

Faulty local phone connection resulted in a failed dial out by the PLC

Corrective Action:

Log into the system remotely and verify operation.

Initiate a fax now to test dial out connection/communication.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 08:31:48 ON 11/15/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P06 : LAST SHUTDOWN @ 16:14:05 ON 10/17/2011 BY KEYPAD
FAX REPORT INITIATED BY REMOTE

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is OFF	DH_300 is OFF
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53178291	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9448315	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1303332	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4396229	GAL				
PT_106 is 0.12	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 96.6	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 0.0	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 72.0	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 0.0	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/21/2011
Time: 12:35
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/20/11 Time: 8:11:00
11/21/11 9:09:00

Alarm Condition:

Process - 30 - FA-102 (Low Flow Alarm Aggregate Flowmeter FT-102) with MH-2 online

Cause of Alarm:

Suspect alarm conditions caused by possible sediment and/or scaling on the paddlewheel sensor.

Corrective Action:

Log into the system remotely and verify operation and bump paddlewheel with by manually turning on 2nd pump to increase velocity in pipe on 11/21/11, verify flowrate 22 gpm, place 2nd pump back to auto and flowrate remained at ~22 gpm.

Remove and inspect flowmeter paddlewheel for scaling and clean as necessary during the December Monthly OMM event.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 08:11:02 ON 11/20/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P30 : LAST SHUTDOWN @ 16:14:05 ON 10/17/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 30

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is ON
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is ON
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is ON	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53228268	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9455096	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1322900	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4457147	GAL				
PT_106 is 25.64	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 88.1	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 11.5	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.2	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 921.2	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN LOCKHEED UTICA @ 09:09:00 ON 11/21/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P30 : LAST SHUTDOWN @ 16:14:05 ON 10/17/2011 BY KEYPAD
FAX REPORT INITIATED BY PROCESS 30

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is ON
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53235859	GAL				
FT_102 is 21.54	GPM	TOTAL FLOW is	9455307	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1326114	GAL				
FT_105 is 10.59	GPM	TOTAL FLOW is	4467461	GAL				
PT_106 is 30.40	IWC	LIMITS are	L: 15.00	IWC	H:	34.00	IWC	
TT_400 is 97.5	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 9.1	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.4	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 791.7	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 1.6 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/23/2011
Time: 12:30
Technician: CD/TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/21/11 Time: 16:23:00

Alarm Condition:

PLC Reset to "Manual" for unknown reason, identified during remote login following no daily fax receipt.

Cause of Alarm:

Monday, 11/21/11 @ 16:23 – Something causes system to reset. I know the time and date because the earliest datalog entries are a “RESET” and “MANUAL” at that very time. No other events occurred until you logged in today. Noted events are below:

“BTD 6: Overflow” alarm box shows up repeatedly within the ProControl Software. Three clicks of okay and it would go away for a short period before returning.

All datalog information before 11/21/11 16:23 has been erased. Note: All logged data was downloaded and saved in the AM on 11/21/11 while drafting the monthly DMR.

Flow totalizers had been reset to zero at 11/21/11 16:23.

All analog input high/low alarm setpoints had been changed to 12/8.

Corrective Action:

Dan Zuck onsite 11/22/11 to inspect system locally, unable to log into local PLC interface.

TMC logs into the system remotely on 11/23/11 and observes the alarm condition noted above.

CD logs into the system remotely and reconfigures the PLC with the latest GCTS File #17 on 11/23/11.

Change all analog input alarm levels/timers to match the latest revised OMM Table 3.

Corrected totalizers. The last record of flow totalizers was provided in an alarm fax report about 1.5 hours before (11/21/11 14:56) the shutdown (11/21/11 16:23). These numbers were added to the current totalizers within the PLC.

Confirmed that totalizer logging period was still set to once every 6 hours. Also confirm datalogger setup for all analog and discrete I/O.

Restart system in "Auto" at 12:00 on 11/23/11 and watch each process control funciton/logic for proper operation/response.

ProControl Series II+

EOS Research Ltd.

Fax Report

To:

TODD CARIGNAN

From:

THE ARCADIS SYSTEM IN UTICA_NEW YORK @ 06:30:00 ON 11/24/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P06 : LAST SHUTDOWN @ 12:15:22 ON 11/23/2011 BY B_100

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is OFF	DH_300 is OFF
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53271106	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9461130	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1340470	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4519954	GAL				
PT_106 is 0.24	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 114.5	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 0.0	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 72.8	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 0.0	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/25/2011
Time: 10:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/24/11 Time: 16:10:00

Alarm Condition:

Process - 56 - FA-105 (Low Flow Alarm Aggregate Flowmeter FT-105) with MH-2 online

Cause of Alarm:

Suspect alarm conditions caused by possible sediment and/or scaling on the paddlewheel sensor.

Corrective Action:

Remove and inspect flowmeter paddlewheel for scaling and clean as necessary during the December Monthly OMM event.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS SYSTEM IN UTICA_NEW YORK @ 18:10:30 ON 11/24/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P56 : LAST SHUTDOWN @ 12:15:22 ON 11/23/2011 BY B_100
FAX REPORT INITIATED BY PROCESS 56

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is ON
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53279491	GAL				
FT_102 is 18.88	GPM	TOTAL FLOW is	9461907	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1343488	GAL				
FT_105 is 8.39	GPM	TOTAL FLOW is	4531697	GAL				
PT_106 is 29.64	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 85.3	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 9.8	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.6	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 760.3	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 16.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/28/2011
Time: 3:30
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/26/11 Time: 7:30:00

Alarm Condition:
Process - 30 - FA-102 (Low Flow Alarm Aggregate Flowmeter FT-102) with MH-2 Pump #1 online

Cause of Alarm:
Suspect alarm conditions caused by faulty pump or in-well check valve.

Corrective Action:
Log into the system remotely on 11/28/11 and verify proper control operation and bump paddlewheel with by manually turning on Pump #2 to increase velocity in pipe on 11/21/11, verify flowrate 22 gpm, place Pump #2 pump back to auto/off and flowrate returned to 0 gpm.

Monitor water level in MH-2 via H1 level sensor, no change in level position in a 1 hour period with only Pump #1 online/cycle. Note: based on datalogger high level sensor usually changes state after 4-5 minutes.

Turn on Pump #2 on manually and let it pump down the water level to the Low Low level sensor. Low Low level sensor turned off Pump 1 and Pump 2 and triggered an alarm (logic check).

Dan Zuck onsite to inspect MH-2 Pump #1 breaker, not tripped, pump motot contact pulls in when pump is placed in "HAND". Following an Inspection of the MH-2 vault it appears that Pump #1 is operating and may be recirculating water back through Pump #2's intake thus indicating a faulty/dirty (e.g. stuck open) Pump #2 check valve or dead heading against a faulty/dirty (e.g. stuck closed, scaled up) Pump #1 check valve?

Pump #1 HOA switch turned to the "OFF" position for the time being until the pump and check valves can be inspected/repaired.

ARCADIS contacted Paragon Environmental for a quote and schedule for confined space inspection in order to inspect Pump #1 and the Pump #2 check valve.

In the interim ARCADIS will continue to monitor MH-2 water levels. Note: MH-2 pump(s) typically only cycle one a day or every other day so the next cycling event should be until late tomorrow, in which case Pump #2 should be the next pump to cycle within the programming so we shouldn't see a MH-2 low flow alarm until Wednesday at the earliest.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS SYSTEM IN UTICA_NEW YORK @ 07:30:14 ON 11/26/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P30 : LAST SHUTDOWN @ 12:15:22 ON 11/23/2011 BY B_100
FAX REPORT INITIATED BY PROCESS 30

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is ON
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is ON	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is ON
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 27.52	GPM	TOTAL FLOW is	53295927	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9463275	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1350322	GAL				
FT_105 is 19.60	GPM	TOTAL FLOW is	4554123	GAL				
PT_106 is 30.10	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 86.4	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 9.8	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 71.9	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 728.8	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 100.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 11/28/2011
Time: 16:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 11/27/11 Time: 5:06:00

Alarm Condition:

Process - 31 - FA-103 (Low Flow Alarm FT-103) with MH-3 Pump #1 online.

Cause of Alarm:

Suspect alarm conditions caused by possible sediment and/or scaling on the paddlewheel sensor.

Note: Flow alarm occurred in the last minute of the pump cycle, otherwise FT-103 registered flow.

Corrective Action:

Log into the system remotely on 11/28/11 and review datalogger file to verify pump operation and water levels during time that the alarm occurred.

Remove and inspect flowmeter paddlewheel for scaling and clean as necessary during the December Monthly OMM event.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS SYSTEM IN UTICA_NEW YORK @ 05:06:28 ON 11/27/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P31 : LAST SHUTDOWN @ 12:15:22 ON 11/23/2011 BY B_100
FAX REPORT INITIATED BY PROCESS 31

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is ON
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is OFF	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is ON	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is ON
LA_MH3 is OFF	FA_103 is ON	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is ON	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53306291	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9463275	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1354175	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4567557	GAL				
PT_106 is 28.54	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 82.8	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 10.3	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.8	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 804.5	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/14/2011
Time: 16:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	12/8/11	Time:	10:06:00
	12/11/11		20:06:00
	12/13/11		3:50:00

Alarm Condition:

Process - 46, TAH400 (Pre Carbon High Temperature >105 F, via TT-400)

Cause of Alarm:

The data logger indicates that the blower was moving air through the piping during the time of each alarm. Therefore, it is unlikely that the actual air temperature was above 105F except if one the following conditions were occurring.

Suspect alarm conditions include: 1, result of the transmitter TT-400 requiring re-calibration/zeroing; 2, original high set point made to close to actual normal operation conditions; 3, internal duct heater thermometer is malfunctioning and is maintaining temp set point higher than desired?

Corrective Action:

Log into the system remotely on 12/9/11 @ 21:00 and restart system.

Log into the system remotely on 12/11/11 @ 20:13 and restart system. Download datalogger files to review events prior to alarm occurrence.

Log into the system remotely on 12/13/11 @ 8:16 and restart system. Download datalogger files to review events prior to alarm occurrence. Temporarily adjust TAH400 high alarm set point to 110 F from 105 F.

Continue to monitor the system remotely and inspect instrument during the next OM&M site visit.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 03:50:08 ON 12/13/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD P-2 : LAST SHUTDOWN @ 10:00:10 ON 12/12/2011 BY FT_106
FAX REPORT INITIATED BY PROCESS 46

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is ON	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is ON
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53448396	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9483141	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1408287	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4773784	GAL				
PT_106 is 29.64	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 104.6	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 10.0	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 70.8	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 843.6	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 20:06:18 ON 12/11/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD P-2 : LAST SHUTDOWN @ 10:16:30 ON 12/08/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 46

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is ON
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53439589	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9480970	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1404824	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4760171	GAL				
PT_106 is 29.33	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 104.5	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 10.3	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 71.1	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 853.2	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 10:06:29 ON 12/08/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD P-2 : LAST SHUTDOWN @ 12:08:03 ON 12/02/2011 BY REMOTE
FAX REPORT INITIATED BY PROCESS 46

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is ON	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is ON
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53410149	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9478034	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1394530	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4718115	GAL				
PT_106 is 28.82	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 108.8	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 9.4	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 57.0	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 807.7	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/14/2011
Time: 19:30
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 12/12/11 Time: 0:14:00

Alarm Condition:

Process - 56 - FA-105 (Low Flow Alarm Aggregate Flowmeter FT-105) with MH-2 online

Cause of Alarm:

Suspect alarm conditions caused by possible sediment and/or scaling on the paddlewheel sensor.

Corrective Action:

Remove and inspect flowmeter paddlewheel for scaling and clean as necessary during the next site visit.

Continue to monitor the effectiveness of the sequestering agent.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 00:14:15 ON 12/12/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P56 : LAST SHUTDOWN @ 20:16:18 ON 12/11/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 56

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is OFF
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is ON	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53442090	GAL				
FT_102 is 19.10	GPM	TOTAL FLOW is	9482377	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1405327	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4764384	GAL				
PT_106 is 30.34	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 92.5	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 9.9	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.9	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 818.6	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/14/2011
Time: 19:30
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 12/12/11 Time: 1:17:00

Alarm Condition:

Process - 45, FA-106 (Low or High Air Flow Alarm via FT-106)

Cause of Alarm:

Suspect alarm conditions due to flow exceeding the high set point value (1000 cfm), result most likely due two possibilities; 1, transmitter FT-106 may need to be re-calibrated/re-zeroed; 2, high set point to set to low/close to actual operation conditions.

Corrective Action:

Log into the system remotely on 12/12/11 @ 9:49 and restart system.

Download datalogger files to review events prior to alarm occurrence. Temporarily adjust FA-106 high alarm set point to 1200 CFM from 1000 CFM.

Continue to monitor remotely and check instruments during next monthly OM&M site visit.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 01:17:37 ON 12/12/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

SHUTD P-3 : LAST SHUTDOWN @ 20:16:18 ON 12/11/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 45

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is OFF	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is ON	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is ON	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53442090	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9483141	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1405333	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4764545	GAL				
PT_106 is 27.38	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 79.9	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 12.3	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 70.1	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 948.7	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/14/2011
Time: 21:15
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 12/12/11 Time: 19:40:00

Alarm Condition:

Process - 31, FA-103 (Low Flow Alarm Flowmeter FT-103) - Non-Fatal

Cause of Alarm:

Suspect alarm conditions caused by possible sediment and/or scaling on the paddlewheel sensor.

Corrective Action:

Remove and inspect flowmeter paddlewheel for scaling and clean as necessary during the next site visit.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 19:40:44 ON 12/12/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P31 : LAST SHUTDOWN @ 10:00:10 ON 12/12/2011 BY FT_106
FAX REPORT INITIATED BY PROCESS 31

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is ON	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is ON	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is OFF
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 29.91	GPM	TOTAL FLOW is	53447263	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9483141	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1407783	GAL				
FT_105 is 45.91	GPM	TOTAL FLOW is	4772136	GAL				
PT_106 is 31.81	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 91.6	DEG	LIMITS are	L: 60.0	DEG	H:	105.0	DEG	
PT_400 is 8.9	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 72.3	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 703.8	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 6.8 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/20/2011
Time: 16:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	12/15/11	Time:	11:22:00
	12/15/11		11:27:00

Alarm Condition:

Process 29 - MH-1 Low Flow Alarm

Process 55 - Low Flow Aggregate with MH-1 online

Cause of Alarm:

The discrete datalogger file indicated that at 3:40 am the MH-1 Low level float switch was toggling on/off every few seconds. Below are several possible causes of why the switch was sending the false signals. 1.Possible faulty/loose wire(s). 2. Faulty seal in the underground/manhole conduit/junction boxes allowing moisture to penetrate. 3. or the float switch may be faulty.

Corrective Action:

Dan Zuck was just on site 12/15 to look at the MH-1 Low and High 1 float switches. Both switches were suspended freely/submerged under the water and in the upright/on positions. Each float switch was removed from the manhole and successfully tested by exercising the mechanical switch on and off while monitoring the inputs at the PLC. After testing the switches the system was restarted in “Auto” and was observed for 15 minutes, the switches appeared to function properly (i.e. turned on one of the manhole pumps which remained on until both switches were in the off/down position).

On 12/16 the Low Float input began to toggle on/off again at 2:35 am. TMC has Dan Zuck stop back onsite to temporarily place the Low Float in the on (upright position) for the weekend to test the sensor and PLC input. The Low Float remained in the “ON” position all weekend without any interruptions. Dan Zuck placed the float back into its normal float position on 12/19 at ~12:00 pm and the PLC input immediately began to toggle on/off every few seconds, as noted last week. Two spare floats were ordered from Emerick Associates (local Goulds/Flygt vendor) with a expected 12/21 delivery date. In the interim ARCADIS will continue to monitor MH-1 water levels and pump operation remotely.

ARCADIS is tentatively planning on replacing the Low Float on 12/22 or 12/23, depending on confined space staff availability.

ALARM Fax Report

EOS Research Ltd. ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 11:22:36 ON 12/15/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P29 : LAST SHUTDOWN @ 04:00:08 ON 12/13/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 29

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is OFF
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is ON	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53463830	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9485303	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1414189	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4796211	GAL				
PT_106 is 27.69	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 81.6	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 10.6	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 72.9	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 869.9	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 11:27:00 ON 12/15/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P08 : LAST SHUTDOWN @ 04:00:08 ON 12/13/2011 BY TT_400
FAX REPORT INITIATED BY PROCESS 55

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is ON	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53463858	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9485303	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1414189	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4796230	GAL				
PT_106 is 28.24	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 81.8	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 10.0	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 73.4	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 798.7	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 5.2 PCT PRO

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/28/2011
Time: 21:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	12/15/11	Time:	11:22:00
	12/15/11		11:27:00

Alarm Condition:

Process 29 - MH-1 Low Flow Alarm

Process 55 - Low Flow Aggregate with MH-1 online

Cause of Alarm:

The discrete datalogger file indicated that at 3:40 am the MH-1 Low level float switch was toggling on/off every few seconds. Below are several possible causes of why the switch was sending the false signals. 1.Possible faulty/loose wire(s). 2. Faulty seal in the underground/manhole conduit/junction boxes allowing moisture to penetrate. 3. or the float switch may be faulty.

Corrective Action:

~~Dan Zuck was just on site 12/15 to look at the MH-1 Low and High 1 float switches. Both switches were suspended freely/submerged under the water and in the upright/on positions. Each float switch was removed from the manhole and successfully tested by exercising the mechanical switch on and off while monitoring the inputs at the PLC. After testing the switches the system was restarted in "Auto" and was observed for 15 minutes, the switches appeared to function properly (i.e. turned on one of the manhole pumps which remained on until both switches were in the off/down position).~~

~~On 12/16 the Low Float input began to toggle on/off again at 2:35 am. TMC has Dan Zuck stop back onsite to temporarily place the Low Float in the on (upright position) for the weekend to test the sensor and PLC input. The Low Float remained in the "ON" position all weekend without any interruptions. Dan Zuck placed the float back into its normal float position on 12/19 at ~12:00 pm and the PLC input immediately began to toggle on/off every few seconds, as noted last week. Two spare floats were ordered from Emerick Associates (local Goulds/Flygt vendor) with a expected 12/21 delivery date. In the interim ARCADIS will continue to monitor MH-1 water levels and pump operation remotely.~~

~~ARCADIS is tentatively planning on replacing the Low Float on 12/22 or 12/23, depending on confined space staff availability.~~ Two spare floats have been obtained and will kept at the site as future spares.

TMC onsite 12/22/11 to inspect MH-1 float switches. Based on physical inspection the Low Float mechanical switch appeared to work properly. After completing the physical inspection the intrinsically safe relay (ISR) switch (GEMS Part# ST64101) which powers the float switch was inspected and found to be potentially faulty. This finding was based on the output current for each of the other float ISRs was found to be 14v and the Low Float output current was reading less than 5v. As a result the Low Low Float PLC input was swapped with the faulty Low so that the pumps could operate normally over the holiday weekend until a new replacement ISR could be obtained. Two new ISRs were ordered on 12/27 and received on 12/28.

TMC scheduled to be onsite 12/29/11 to replace the presumed faulty Low Float ISR. If the new ISR doesn't solve the problem then the next step will be to replace the Low Float in parallel with the check valve cleaning tentatively scheduled for 12/30/11.

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/30/2011
Time: 13:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date:	12/15/11	Time:	11:22:00
	12/15/11		11:27:00

Alarm Condition:

Process 29 - MH-1 Low Flow Alarm

Process 55 - Low Flow Aggregate with MH-1 online

Cause of Alarm:

The discrete datalogger file indicated that at 3:40 am the MH-1 Low level float switch was toggling on/off every few seconds. Below are several possible causes of why the switch was sending the false signals. 1.Possible faulty/loose wire(s). 2. Faulty seal in the underground/manhole conduit/junction boxes allowing moisture to penetrate. 3. or the float switch may be faulty.

Corrective Action:

~~Dan Zuck was just on site 12/15 to look at the MH-1 Low and High 1 float switches. Both switches were suspended freely/submerged under the water and in the upright/on positions. Each float switch was removed from the manhole and successfully tested by exercising the mechanical switch on and off while monitoring the inputs at the PLC. After testing the switches the system was restarted in "Auto" and was observed for 15 minutes, the switches appeared to function properly (i.e. turned on one of the manhole pumps which remained on until both switches were in the off/down position).~~

~~On 12/16 the Low Float input began to toggle on/off again at 2:35 am. TMC has Dan Zuck stop back onsite to temporarily place the Low Float in the on (upright position) for the weekend to test the sensor and PLC input. The Low Float remained in the "ON" position all weekend without any interruptions. Dan Zuck placed the float back into its normal float position on 12/19 at ~12:00 pm and the PLC input immediately began to toggle on/off every few seconds, as noted last week. Two spare floats were ordered from Emerick Associates (local Goulds/Flygt vendor) with a expected 12/21 delivery date. In the interim ARCADIS will continue to monitor MH-1 water levels and pump operation remotely.~~

~~ARCADIS is tentatively planning on replacing the Low Float on 12/22 or 12/23, depending on confined space staff availability. Two spare floats have been obtained and will kept at the site as future spares.~~

~~TMC onsite 12/22/11 to inspect MH-1 float switches. Based on physical inspection the Low Float mechanical switch appeared to work properly. After completing the physical inspection the intrinsically safe relay (ISR) switch (GEMS Part# ST64101) which powers the float switch was inspected and found to be potentially faulty. This finding was based on the output current for each of the other float ISRs was found to be 14v and the Low Float output current was reading less than 5v. As a result the Low Low Float PLC input was swapped with the faulty Low so that the pumps could operate normally over the holiday weekend until a new replacement ISR could be obtained. Two new ISRs were ordered on 12/27 and received on 12/28.~~

~~TMC scheduled to be onsite 12/29/11 to replace the presumed faulty Low Float ISR. If the new ISR doesn't solve the problem then the next step will be to replace the Low Float in parallel with the check valve cleaning tentatively scheduled for 12/30/11.~~

TMC onsite 12/29/11, MH-1 Low Float ISR successfully replaced, float operating normally.

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/23/2011
Time: 16:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 12/23/11 Time: 13:44:00

Alarm Condition:
Process - 29 - FA-101 (Low Flow Alarm Aggregate Flowmeter FT-101) with MH-1 Pump #2 online

Cause of Alarm:
Suspect alarm conditions caused by faulty pump or in-well check valve or motor overload.

Corrective Action:
Log into the system remotely on 12/23/11 to verify proper logic and bump paddlewheel with by manually turning on Pump #1 to increase velocity in pipe, verify flowrate 38 gpm, place Pump #2 pump back to auto/off and flowrate returned to 0 gpm.

Dan Zuck onsite to inspect MH-1 Pump #2 breaker, not tripped, pump motor contact pulls in when pump is placed in "HAND". Following an Inspection of the MH-1 vault it appears that Pump #2 is operating and may be recirculating water back through Pump #1's intake thus indicating a faulty/dirty (e.g. stuck open) Pump #1 check valve or dead heading against a faulty/dirty (e.g. stuck closed, scaled up) Pump #2 check valve?

Pump #2 HOA switch turned to the "OFF" position for the time being until the pump and check valves can be inspected/repaired.

ARCADIS contact to contact subcontractors to schedule for a confined space entry/inspection in order to inspect Pump #1 and the Pump #2 check valves.

In the interim ARCADIS will continue to monitor MH-1 water levels.

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 13:44:48 ON 12/23/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P29 : LAST SHUTDOWN @ 14:25:06 ON 12/22/2011 BY B_100
FAX REPORT INITIATED BY PROCESS 29

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is ON	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is ON	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is OFF	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is ON	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53539911	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9496435	GAL				
FT_103 is 0.00	GPM	TOTAL FLOW is	1444274	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4890360	GAL				
PT_106 is 26.37	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 72.8	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 12.8	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 71.2	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 941.0	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT MAN

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/30/2011
Time: 12:30
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 12/23/11 Time: 13:44:00

Alarm Condition:
Process - 29 - FA-101 (Low Flow Alarm Aggregate Flowmeter FT-101) with MH-1 Pump #2 online

Cause of Alarm:
Suspect alarm conditions caused by faulty pump or in-well check valve or motor overload.

Corrective Action:
~~Log into the system remotely on 12/23/11 to verify proper logic and bump paddlewheel with by manually turning on Pump #1 to increase velocity in pipe, verify flowrate 38 gpm, place Pump #2 pump back to auto/off and flowrate returned to 0 gpm.~~

~~Dan Zuck onsite to inspect MH-1 Pump #2 breaker, not tripped, pump motor contact pulls in when pump is placed in "HAND". Following an Inspection of the MH-1 vault it appears that Pump #2 is operating and may be recirculating water back through Pump #1's intake thus indicating a faulty/dirty (e.g. stuck open) Pump #1 check valve or dead heading against a faulty/dirty (e.g. stuck closed, scaled up) Pump #2 check valve?~~

~~Pump #2 HOA switch turned to the "OFF" position for the time being until the pump and check valves can be inspected/repaired.~~

~~ARCADIS contact to contact subcontractors to schedule for a confined space entry/inspection in order to inspect Pump #1 and the Pump #2 check valves.~~

~~In the interim ARCADIS will continue to monitor MH-1 water levels.~~

TMC onsite 12/29/11 to replace MH-1 Low Float ISR and to inspect suspected stuck check valve. Following replacement of the ISR MH-1 was placed back in normal operation. 100% recirculation back through the Pump #1 intake was noted when Pump #2 was online. The Pump #1 CV was lightly tapped with a plastic rod from outside the MH and the check ball dislodged from the stuck open position, thus allowing Pump #2 to operate normally.

A quote for confined space entry/CV cleaning was received from Royal Environmental. ARCADIS to continue development of possible SOP for all confined space entries onsite.

ARCADIS will continue to monitor MH-1 pumps for proper operation.

Alarm Response Log Sheet, Groundwater Collection and Treatment System, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York

Date: 12/30/2011
Time: 14:00
Technician: TMC

ALARM RESPONSE / CORRECTIVE ACTION LOG SHEET

Date: 12/30/11 Time: 8:35:00

Alarm Condition:

Process - 57 - FA-105 (Low Flow Alarm Aggregate Flowmeter FT-105 with MH-3 online)

Cause of Alarm:

Possible air pockets causing turbulent flow within the 3" dia. Manifold.

Lower velocity in 3" diameter header pipe when only one MH-3 pump is batching (18-19 gpm), thus resulting in a flow of less than 3 gpm for a period greater than 30 seconds (alarm time delay set point) during the initial startup of batch cycle.

Corrective Action:

Consider replacing paddle wheel flow sensor with a more accurate/high sensitivity magmeter type (see attached spec sheet).

ALARM Fax Report

EOS Research Ltd. — ProControl Series II+

To:

TODD CARIGNAN

From:

THE ARCADIS GCTS SYSTEM IN UTICA_NEW YORK @ 08:35:16 ON 12/30/2011
SER NO 9539 : SETUP VER 1 : ROM 2.1996 : MODEL A2

System Status:

AUTO P57 : LAST SHUTDOWN @ 09:44:22 ON 12/29/2011 BY REMOTE
FAX REPORT INITIATED BY PROCESS 57

Discrete Inputs:

MH1_HH is OFF	MH1_H2 is OFF	MH1_H1 is OFF	MH1_LO is ON
MH1_LL is ON	MH2_HH is OFF	MH2_H2 is OFF	MH2_H1 is OFF
MH2_LO is ON	MH2_LL is ON	MH3_HH is OFF	MH3_H2 is OFF
MH3_H1 is OFF	MH3_LO is ON	MH3_LL is ON	WFS106 is OFF
MOTION is OFF	LSH106 is OFF	LSH100 is OFF	LSL100 is ON
FT_200 is OFF	LSH200 is OFF		

Discrete Outputs:

MH1_P1 is OFF	MH1_P2 is OFF	MH2_P1 is OFF	MH2_P2 is OFF
MH3_P1 is ON	MH3_P2 is OFF	B_100 is ON	DH_300 is ON
LA_MH1 is OFF	FA_101 is OFF	LA_MH2 is OFF	FA_102 is OFF
LA_MH3 is OFF	FA_103 is OFF	PA_106 is OFF	LA_100 is OFF
LSH106 is OFF	WFS106 is OFF	TA_100 is OFF	FA_105 is ON
FA_106 is OFF	FA_200 is OFF	MOTION is OFF	TAH400 is OFF
TAL400 is OFF	PA_400 is OFF	LSH200 is OFF	

Analog Inputs:

FT_101 is 0.00	GPM	TOTAL FLOW is	53613097	GAL				
FT_102 is 0.00	GPM	TOTAL FLOW is	9504590	GAL				
FT_103 is 16.97	GPM	TOTAL FLOW is	1472019	GAL				
FT_105 is 0.00	GPM	TOTAL FLOW is	4987838	GAL				
PT_106 is 30.49	IWC	LIMITS are	L: 8.00	IWC	H:	34.00	IWC	
TT_400 is 89.7	DEG	LIMITS are	L: 60.0	DEG	H:	110.0	DEG	
PT_400 is 11.1	IWC	LIMITS are	L: 1.0	IWC	H:	25.0	IWC	
TT_100 is 62.8	DEG	LIMITS are	L: 40.0	DEG	H:	110.0	DEG	
FT_106 is 850.0	CFM	LIMITS are	L: 400.0	CFM	H:	.....	CFM	

Analog Outputs:

INJSPD 0.0 PCT PRO