Appendix H

Start-Up Plan

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Start-Up Plan

Dewey Loeffel Landfill Superfund Site
Nassau, New York

February 13, 2013
Last Revised November 12, 2013

Start-Up Plan

Dewey Loeffel Landfill
Superfund Site
Nassau, New York

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Date:
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Last Revised November 12, 2013

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1. Introduction

This Start-Up Plan has been prepared for the proposed treatment system at the Dewey Loeffel Landfill Superfund Site located in the Town of Nassau, Rensselaer County, New York (site). The work described herein is being completed pursuant to the Administrative Settlement Agreement and Order on Consent for a Removal Action (CERCLA Index No. 02-2012-2005) (Consent Order) executed by the United States Environmental Protection Agency (USEPA), General Electric Company (GE), and SI Group, Inc. (SI Group). (GE and SI Group are referred to herein as Respondents.)

This Start-Up Plan has been prepared to provide the following:

- A systematic approach to prove the functionality of the proposed treatment system including mechanical (e.g., tanks, pumps, vessels) and control (e.g., programmable logic controller [PLC], instruments) components;
- Clean water start-up of process equipment to confirm structural integrity and proper operation;
- Summary of activities to transition from current pump and truck operations;
- A sequential process to start up the treatment system with leachate and extracted groundwater from the three existing extraction wells and leachate collection tank; and
- The approach to start up the five new extraction wells.

1.1 Location and Description

The Dewey Loeffel Landfill (landfill) is located along the south side at 350 Mead Road between Nassau-Averill Park Road and Central Nassau Road. A map showing the location of the landfill and surrounding area is presented on Figure 1. Key features are presented on Figure 2.

The capped area of the landfill is roughly triangular in shape and situated in a low-lying area between two wooded hills. The landfill is bound to the north by Mead Road, and to the south, west and east by undeveloped forested land. The rural area surrounding the landfill is sparsely populated and contains few residential properties and a bowhunter's club lodge.

Topography in the area generally slopes downward from east to west. Surface water at the landfill mostly drains to the west toward the Valatie Kill via Tributary T11A. The Valatie Kill flows in a southwesterly direction to Nassau Lake, located approximately three miles downstream. Surface

water from a portion of the landfill flows to the south into a small unnamed tributary which discharges into Valley Stream and ultimately Nassau Lake.

The hydraulic gradient of groundwater in overburden soils in the vicinity of the landfill is generally to the west and/or southwest. The hydraulic gradient of groundwater in the bedrock is similar. However, based on the distribution of volatile organic compounds (VOCs) in a groundwater contaminant plume emanating from the landfill to the south, bedrock groundwater flows primarily to the south due to the influence of fractures within the bedrock.

1.2 History

As described in the Consent Order, from approximately 1952 to 1968, the landfill was owned and operated by several companies including the Loeffel Waste Oil and Removal Service Company (Loeffel Companies) as a waste disposal facility. During this time, the landfill consisted of two waste lagoons located in the western and central portions of the landfill, a 6-foot deep oil pit in the east central portion of the landfill, four 30,000 gallon aboveground storage tanks, and a drum disposal area located in the southeastern portion of the landfill.

Landfill disposal operations reportedly ceased in 1968 by order of the State of New York. Between 1970 and 1975, remedial actions undertaken by the Loeffel Companies included covering and grading the drum disposal area, oil pit and lagoons, and constructing a system of drainage ditches around the landfill. From 1974 to 1980, the Loeffel Companies reportedly also operated a waste oil transfer station utilizing the four 30,000 gallon aboveground storage tanks.

On September 23, 1980, GE entered into an agreement with the New York State Department of Environmental Conservation (NYSDEC) which required GE to perform field investigations, submit an engineering report which discussed the collected data, identify remedial alternatives, and recommend a remedial alternative. A remedy was subsequently selected by NYSDEC and involved the installation of soil-bentonite cutoff wall around the landfill, an overlying clay cap, and a landfill leachate collection system below the cap within the cutoff wall. The design of the remedy was performed by GE and approved by NYSDEC. The remedy was subsequently implemented by NYSDEC using funding provided by GE, Schenectady Chemicals, Inc. (now SI Group), and Bendix Corporation (now Honeywell International, Inc.). Beginning in 1983, NYSDEC and/or GE performed a variety of response actions at the site, some of which were performed in accordance with Records of Decision (RODs) issued by NYSDEC in January 2001 and January 2002. The response actions included, but were not limited to, the following:

- Installation and operation of a bedrock groundwater recovery well system involving three extraction wells located to the south of the landfill;

- Transportation of landfill leachate and groundwater for off-site treatment;
- Installation, operation, maintenance and monitoring of point-of-use treatment systems for five residential wells (located on four properties) to remove VOCs;
- Routine VOC monitoring of other residential wells located near the landfill; and
- Routine monitoring of many groundwater monitoring wells located outside the landfill's perimeter fence.

The current groundwater extraction system designed and constructed by NYSDEC is located along the approximate centerline of the VOC plume to the south of the landfill and includes three bedrock extraction wells (designated EW-1, EW-2 and EW-3, see Figure 2). Beginning in late March 2008 and through 2010, NYSDEC extracted groundwater from these three extraction wells on a seasonal basis, operating during the spring, summer, and fall months. Along with leachate from the landfill, extracted groundwater was transported for off-site treatment and disposal. NYSDEC transported landfill leachate for off-site treatment and disposal each year since 1991 with the exception of 1994. NYSDEC continued operation of the landfill leachate collection system through October 2011. Operation of the groundwater extraction system by NYSDEC did not resume after shutdown in the fall of 2010 until July 2011.

At the request of NYSDEC, USEPA proposed the site for inclusion on the National Priorities List (NPL) on March 4, 2010. The site was subsequently added to the NPL on March 10, 2011.

USEPA subsequently took over operation of the landfill leachate collection system and the groundwater extraction system to the south of the landfill on October 31, 2011. USEPA winterized the system, allowing groundwater extraction to continue during the winter months.

Pursuant to the Consent Order, GE and SI Group assumed responsibility from USEPA for continued operation and maintenance of the on-site leachate collection system and the off-site groundwater extraction system. The transition from USEPA to the Respondents occurred on August 1, 2012, and the first transportation of leachate and extracted groundwater by the Respondents occurred on August 2, 2012. The leachate and extracted groundwater will continue to be transported for off-site treatment and disposal until such time as an off-site treatment system is designed, constructed and approved for operation. Pursuant to the Consent Order, GE and SI Group will design and construct the treatment system to treat landfill leachate and extracted groundwater. Upon USEPA approval that the treatment system discharge meets the effluent discharge limits set under the Consent Order, routine transportation of leachate and extracted groundwater for off-site treatment will cease.

2. Preliminary Start-Up Activities

This section describes the preliminary start-up activities to prove the functionality of each component in the proposed treatment system prior to the clean water start-up. Detailed checklists are provided as attachments to this Start-Up Plan for use by construction and operating personnel.

2.1 Instrumentation and Controls Testing

Testing will be completed to verify that all instrumentation and associated inputs/outputs (I/O) at the extraction wells, leachate collection tank, and treatment system are functioning properly. Results of this testing will be recorded on the PLC testing checklist provided in Attachment A.

2.2 Filtration Media Commissioning

The proposed treatment system utilizes bag filters, vapor- and liquid-phase granular activated carbon (GAC), and vapor-phase potassium permanganate zeolite (PPZ) for contaminant removal. This preliminary start-up activity will verify that all media has been installed in the appropriate vessels and the units have been properly prepared to receive water or vapor. A filtration media checklist to document this process is provided in Attachment B.

2.3 Mechanical Commissioning

The mechanical commissioning portion of the preliminary start-up activities will serve to verify that all tanks, treatment units, pumps, piping, valves, and instrumentation are installed at the appropriate locations in the proposed treatment system. This process will also verify that all valves are in the proper operating position to allow water to flow through the system as intended. A mechanical commissioning checklist is provided in Attachment C.

3. Clean Water Start-Up

Following successful completion of preliminary start-up activities, a clean water system start-up will occur at the treatment system. The main objectives of the clean water system start-up are to verify that major equipment is operating in accordance with manufacturers' specifications and control systems are working properly. This verification will include a trial run of the liquid-phase GAC backwash system. It should be noted that the fixed-film bioreactor (T-300) will not contain any media for the clean water start-up. Media will be added to T-300 following successful completion of the clean water start-up. However, the nutrient dosing pumps (P-300 and P-301) associated with T-300 will be operated with water during the clean water start-up.

3.1 Tank Filling

Prior to filling any tanks with clean water, the treatment system piping downstream of analysis element/analysis indicating transmitter (AE/AIT-900) will be temporarily rerouted to the influent tank (T-200) using flexible hose to ensure clean water is not discharged from the treatment building. The leachate holding tank (T-100), T-200, T-300, clarifier (T-400), clarifier pump station tank (T-500), and backwash supply holding tank (T-800) will be filled with clean water prior to performing the clean water start-up. Clean water trucked in from off-site will be used to fill the tanks so that water from on-site sources is not used at any time during the clean water start-up. It is not required that all tanks be filled at the same time so some of the water used to fill one tank may be used to fill another. A tank filling checklist to document this process is provided in Attachment D.

3.2 Clean Water Start-Up Summary

The clean water system start-up will begin by placing all treatment controls in "Auto" mode at the operator interface in the control room. This process will start at the effluent pumps (P-820A/B) and work backwards through the treatment train to the treatment system feed pumps (P-200A/B). Once P-200A/B are placed in "Auto" mode, water should begin flowing from T-200 through the treatment system. The clean water system start-up will be completed when proper operation of all pumps, control valves, instrumentation, and interlocks has been verified. The following checklists are provided for this purpose:

- Clean water system start-up checklist - Attachment E;
- Interlock testing checklist – Attachment F; and
- Equipment and instrumentation setpoint and calibration checklist – Attachment G.

For reference, the piping and instrumentation diagrams from the Contract Drawings (Appendix C of the Design Report/Implementation Plan [DR/IP]) are included in Attachment I of this plan.

Following successful completion of the clean water start-up, all treatment controls will be placed in "Off" mode and as discussed in the Construction Plan (Appendix E of the DR/IP), USEPA representatives will then be notified to conduct an on-site inspection of the system near the conclusion of the system transition discussed in the next section.

4. System Transition

During the construction of the treatment system, a vault with piping and valves, located just southwest of the southern tip of the landfill as shown on Figure 2, were installed to allow pump and truck operations to continue in parallel with the construction activities. This installation required a relatively brief shutdown (e.g., less than five days) of the three existing extraction wells EW-1, EW-2, and EW-3. Leachate removal from the leachate collection tank was not impacted by the installation of this vault and associated appurtenances.

As much mechanical and electrical work as possible will be completed in order to minimize any other interruptions to the ongoing pump and truck operations. However, a shutdown of up to two weeks will be required to install and connect new pumps, piping, electrical service, and controls at the three existing extraction wells and the leachate collection tank. Any commissioning and tests described in Sections 2 and 3 that are unable to be finished due to piping and instrumentation not being in place will be completed at this time.

This transition work will be done after the clean water start-up is complete to ensure that the treatment system is ready to receive leachate and groundwater. Once the transition is complete, pump and truck operations using the existing frac tanks in the pole barn and leachate transfer station will be discontinued. Any further need for trucking will be performed from the treatment system area.

5. Initial Treatment System Start-Up

Initial treatment system start-up will occur using groundwater from existing extraction wells EW-1, EW-2, and EW-3 and leachate from the existing leachate storage tank at the landfill. Prior to start-up and while the transition steps discussed in Section 4 are being completed, media and activated sludge from a local publically owned treatment works (POTW) and/or another source will be added to T-300. Additionally, the discharge line from P-820A/B will be rerouted to either of two frac tanks located outside the treatment building but inside a fenced area. Based on the current rates of leachate and groundwater removal, at least two frac tanks are sufficient to store approximately six days of leachate and groundwater removal. A treatment system start-up and commissioning checklist is provided in Attachment H. Additional information regarding the treatment system is found in the Operation, Maintenance and Monitoring (OM&M) Plan (Appendix I of the DR/IP).

5.1 Treatment System Start-Up

Similar to the clean water start-up, the treatment system start-up will be initiated by placing controls in "Auto" mode at the operator interface in the control room. However, as long as T-200 has capacity, water will be fully recycled from the air stripper discharge back to T-200, Once P-200A/B are placed in "Auto" mode, water should begin flowing from T-200 through the treatment system. The landfill leachate extraction system will be brought online first. The existing extraction wells will then be brought online one at a time, starting with EW-1 followed by EW-3 and then EW-2. At each step, proper operation of communication, instrumentation and interlocks systems will be verified prior to proceeding to the next extraction well. It is anticipated that the start-up of the groundwater extraction and leachate collection system will take approximately one week to complete. Once T-200 reaches capacity, discharge to the frac tanks will be initiated.

5.2 System Sampling

Sampling of the treatment system will be conducted to demonstrate that the discharge meets the substantive requirements established pursuant to the Consent Order (see Appendix B of the DR/IP). As specified in Paragraph 54 of the Consent Order, treated water discharged from the system will be containerized on-site in at least two frac tanks near the treatment building during this shakedown period. Treated water in the tanks will be sampled and analyzed for the parameters in the substantive requirements by methods described in the revised Quality Assurance Project Plan (QAPP) that will be submitted to USEPA after this DR/IP, and may, with USEPA prior approval, be discharged to surface water in batches if the sampling data for a tank show that the substantive requirements have been met. Alternatively, treated water may be transported for off-site disposal or recycled back into the treatment system until USEPA provides notice to Respondents of interim approval to discharge treated water directly to surface water. Additional process monitoring samples

may also be collected during this shakedown period. Sampling locations, methods and frequencies are provided in Table 1. The sampling locations, methods and frequencies following USEPA approval to commence routine (i.e., direct) discharge to surface water are provided in the Performance Monitoring Plan (Appendix J of the DR/IP). Treatment system effluent will also be collected during the filling of each frac tank for analysis of VOCs. Following this shakedown period, Respondents will present data to USEPA in the Construction Completion Report discussed in Section 6.

5.3 Additional Extraction Well Start-Up

The primary purpose of the treatment system is to eliminate the need for continued off-site trucking of leachate from the existing leachate collection tank and groundwater from the three existing extraction wells. In addition, additional hydrogeologic testing is planned during installation of the five new extraction wells (EW-4 through EW-8) (see Appendix F of the DR/IP). Thus, the new extraction wells will not be operational and connected to the treatment system until after initial start-up.

The “pump off” setpoint at each of the new extraction wells will initially be set at about 20 feet below the top of bedrock, which is expected to be about 50 to 70 feet below grade based on information for the three existing extraction wells. Each new extraction will be started, one at a time on different days, and allowed to operate for 4 to 8 hours to collect additional information. During this period, proper operation of communication, instrumentation and interlocks systems will be verified. Additionally, the specific capacity of each new extraction well will be estimated. Prior to shutting down each well, a water sample will be collected for analysis of VOCs, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), 1,4-dioxane and Target Analyte List (TAL) metals by methods described in the revised QAPP that will be submitted to USEPA after this DR/IP.

Based on the analytical results and specific capacity estimates, a start-up sequence will be established for the five new extraction wells. This process will be designed to avoid any upset to the treatment system operations. After a new extraction well is placed into operation and has been operating for at least one week, samples will be collected from that extraction well along with the treatment system influent and effluent. Additional process monitoring samples will also be collected. Sampling locations, methods and frequencies are provided in the Performance Monitoring Plan (Appendix J of the DR/IP).

A minimum of one set of analytical results from the treatment system will be obtained before the next extraction well is placed into operation, which will be about 4 or 5 weeks after initial start-up of the previous extraction well. After all of the new extraction wells are placed into operation using the initial pump set points, those set points will be adjusted incrementally and sequentially based on treatment system data, extraction well data (flow rates and groundwater quality), and groundwater monitoring

data (water level elevations and groundwater quality), the latter collected under the Groundwater Monitoring Plan (Appendix J of the DR/IP).

6. Construction Completion Report

Pursuant to Paragraph 63 of the Consent Order, within 30 days of the shakedown period discussed in Section 5, Respondents will submit to USEPA a Construction Completion Report. The report will include, but not be limited to, post-construction (aka record or as-built) drawings for the treatment system, data collected during the shakedown period, and a final OM&M Plan for the system. Unless approval is granted earlier as described in Section 5.2 and Paragraph 54 of the Consent Order, Respondents my begin discharge of treated water directly to surface water and discontinue the pump and truck operations following USEPA approval of the Construction Completion Report.

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Table

TABLE 1
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
TREATMENT SYSTEM START-UP SAMPLING SCHEDULE

Frac Tank (# in Sequence)	Frac Tank Sampling (When Full)	Treatment System Effluent Sampling (Once per Frac Tank at Approx. Midpoint of Frac Tank Fill Time)[1]	Treatment System Influent Sampling (Concurrent with Treatment System Effluent Sampling)[2]	Fixed-Film Bioreactor/Clarifier Discharge Sampling (Concurrent with Treatment System Effluent Sampling)[3]	Air Stripper Discharge Sampling (Concurrent with Treatment System Effluent Sampling)[4]
1	Full Suite[5]	VOCs			
2	Full Suite[5]	VOCs			
3	Full Suite[5]	Full Suite[5]	VOCs, select SVOCs	VOCs, select SVOCs	VOCs
4	Full Suite[5]	VOCs			
5	Full Suite[5]	VOCs			
6	Full Suite[5]	Full Suite[5]	VOCs, select SVOCs	VOCs, select SVOCs	VOCs
7[6]	Full Suite[5]	VOCs			
8[6]	Full Suite[5]	VOCs			
9[6]	Full Suite[5]	Full Suite[5]	VOCs, select SVOCs	VOCs, select SVOCs	VOCs

Notes:

1. Treatment system effluent samples will be collected from discharge pump P-820A/B.
2. Treatment system influent samples will be collected from equalization tank pump P-200A/A.
3. Fixed-film bioreactor/clarifier discharge samples will be collected from pump P-410A/B.
4. Air stripper discharge samples will be collected from pump P-500A/B.
5. Full Suite = Field parameters (pH and dissolved oxygen [DO]); total suspended solids (TSS); total dissolved solids (TDS); ammonia as NH3; oil & grease; 5-day biological oxygen demand (BOD5); chemical oxygen demand (COD) (as a more rapid surrogate for BOD5); select metals (Including mercury); volatile organic compounds (VOCs); 1,4-dioxane; select semi-volatile organic compounds (SVOCs); polychlorinated biphenyls (PCBs); and select pesticides. See Appendix B of the Design Report/Implementation Plan (DR/IP) for additional Information.
6. Shaded rows (Frac Tanks 7 through 9) indicate that the sequence will continue as needed until USEPA approval is obtained for routine (i.e., direct) discharge from the treatment system to surface water (i.e., Outfall 002) and that approval will not be requested until six frac tanks have been filled and sampled, and the substantive requirements have been achieved for at least three consecutive frac tanks

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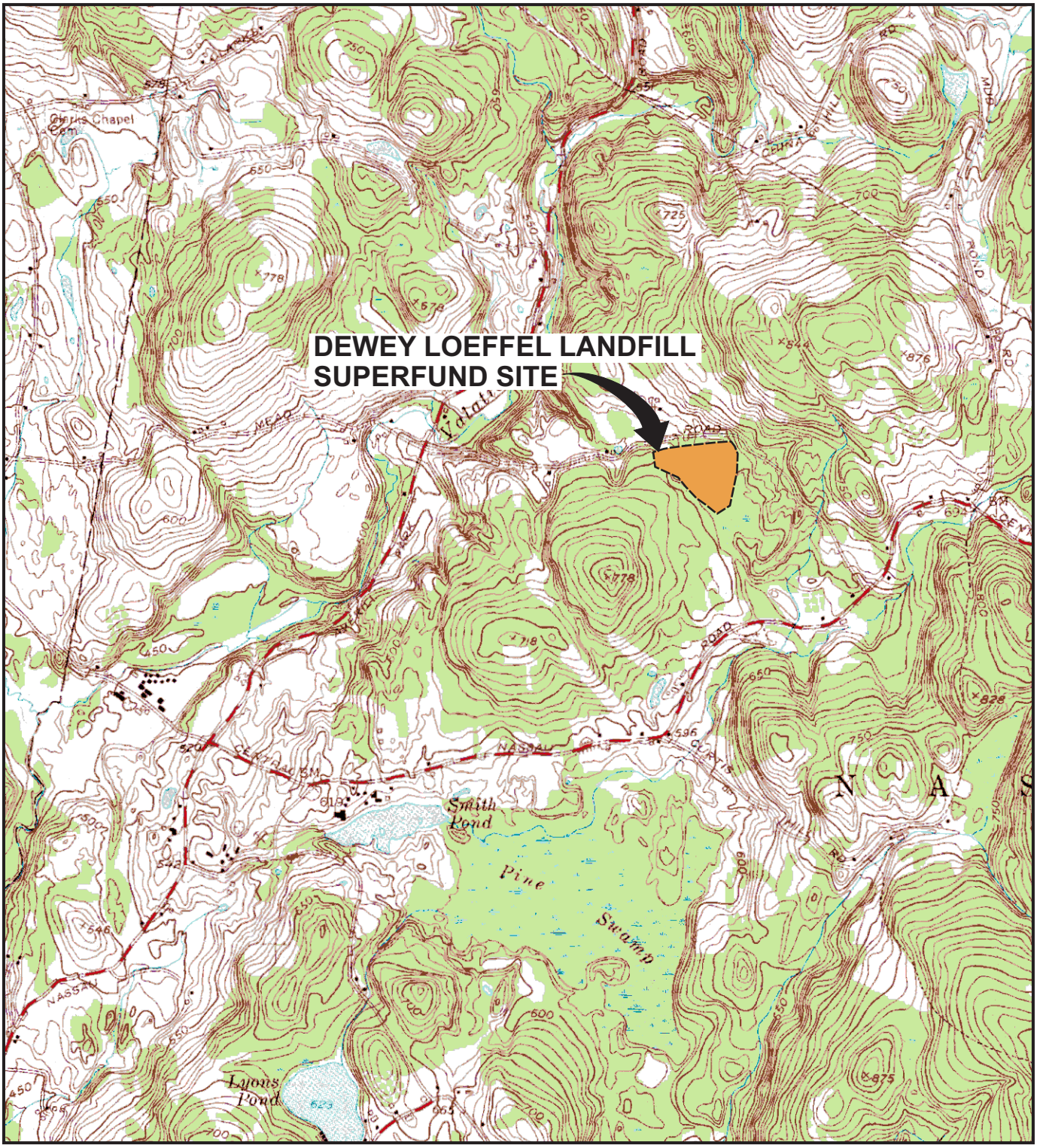
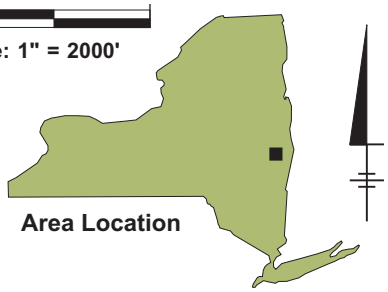
Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., NASSAU, NY, 1953, PHOTOREVISED 1978.

2000' 0 2000'

Approximate Scale: 1" = 2000'



DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK

SITE LOCATION MAP

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FIGURE
1

04/116/2012 SYRACUSE, NY-ENV/CAD-141, DJHOWES
B0031174/0000/00001/CDR/31174N01.CDR

EXISTING UNDERGROUND GROUNDWATER TRANSFER PIPELINE AND CONTROL LINES (TO BE TAKEN OUT OF SERVICE AFTER TREATMENT SYSTEM START-UP)

EXISTING DOUBLE-WALLED FRAC TANKS WITHIN POLE BARN

NEW VALVE VAULT – TIE IN NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED HDPE FORCEMAINS INTO EXISTING 2" SDR 11 X 4" SDR 17 DUAL-CONTAINED FORCEMAIN

NEW UNDERGROUND ELECTRICAL AND INSTRUMENTATION CONDUIT

EXISTING ELECTRICAL SERVICE COMPOUND (TO BE TAKEN OUT OF SERVICE)

EXISTING SLURRY WALL

EXISTING LEACHATE UNDERGROUND STORAGE TANK

NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED FORCEMAIN FOR NEW EXTRACTION WELLS EW-4 THROUGH EW-8

NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED HDPE FORCEMAINS

NEW ELECTRIC SERVICE POLE, UTILITY TRANSFORMER, AND METER INSTALLED BY NATIONAL GRID (TYP. OF THREE)

NEW TREATMENT BUILDING

NEW GRAVEL PAD AND DRIVE

NEW 3"ø SDR 11 HDPE DISCHARGE LINE

TO VALATIE KILL

MEAD ROAD

ALLAN M. SMITH (REPUTED OWNER) L. 1267 P. 1025 TM191-5-20

THE COUNTY OF RENSSELAER (REPUTED OWNER) L. 1372 P. 557 TM 191-5-16.1

TRI-VILLAGE BOWHUNTERS L. 1696 P. 85 TM 191-5-16.2

TRI-VILLAGE BOWHUNTERS L. 1696 P.85 TM, NO. 2000-00013464 TM 191-5-16.2

ISIDORO MARRA AND GAIL A. MARRA (REPUTED OWNERS) L. 1259 P. 753 TM 191-5-21

ALLAN SMITH (REPUTED OWNER) L. 1351 P. 88 TM 191-5-14.2

POND ELEV. 607.4

WOODED AREA

BRUSH

TRAIL

CONSTRUCTION AREA

OMW-101 OMW-102 OMW-103 OMW-105 OMW-106 OMW-107 OMW-108 OMW-110 OMW-202 OMW-205 OMW-206 OMW-207 OMW-208 OMW-209 OMW-210 OMW-211 OMW-212 OMW-213 OMW-214 OMW-215 OMW-216 OMW-218 OMW-219 OMW-220

OPZ-104 OPZ-109 OPZ-110 OPZ-207 OPZ-208 OPZ-217

EW-1 EW-2 EW-3 EW-4 EW-5 EW-6 EW-7 EW-8

DB-9 DB-9A DB-9B DB-9C DB-10 DB-11A DB-11B

GMW-1B GMW-2B GMW-10B GMW-11 GMW-11A GMW-11B GMW-12B

PW-1 PW-2 PW-3 PW-4

PO-1 PO-2 PO-3 PO-4

PTW-1 PTW-2

OB-1 OB-2 OB-3 OB-4 OB-5 OB-6

S-1

14C 14F

DB-1I DB-1S DB-3I DB-3S DB-4S DB-5S DB-6I DB-6S DB-7I DB-7S DB-8I DB-8S

LEGEND

- NEW FORCEMAIN
- NEW UNDERGROUND ELECTRIC SERVICE
- NEW CHAIN LINK FENCE
- PROPERTY LINES
- EXISTING ROADWAY
- EXISTING EXTRACTION WELL
- NEW EXTRACTION WELL
- EXISTING MONITORING WELL
- NEW ELECTRICAL SERVICE POLE

1"=100' 100' 0 100' 200'

DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK

SITE PLAN

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FIGURE 2

CITY:SYRACUSE-NY DIV/GROUP:ENVCAD DB:G.STEINBERGER LD:G.STEINBERGER PIC:P.FARR PM:D.SAUDA TM:S.BATTAGLIA LYR:ON=*;OFF=*REF*
V:\ENVCAD\SYRACUSE\ACTIVE\B003117\4\0003\0002\DWG\REPORT\31174G02.dwg LAYOUT: 2 SAVED: 9/6/2013 4:38 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: PDF-02B PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 9/6/2013 4:38 PM BY: KOWALCZYK, STEVE
XREFS: 31174X00 31174X01 IMAGES: PROJECTNAME: ---

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Attachments

Attachment A

PLC Testing Checklist

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

Date:	**Time:**	**Operator Initials:**			**Third Party Initials:**	
DISCRETE INPUTS						
RACK: 1						
SLOT: 2						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	-	-	PUSHBUTTON	E-STOP PUSHBUTTON (ON MCP DOOR)		
01	P	400	MTR. STR.	P-400 RUNNING		
02	P	400	MTR. STR.	P-400 TROUBLE (OVERLOAD)		
03	P	410A	MTR. STR.	P-410A RUNNING		
04	P	410A	MTR. STR.	P-410A TROUBLE (OVERLOAD)		
05	P	410B	MTR. STR.	P-410B RUNNING		
06	P	410B	MTR. STR.	P-410B TROUBLE (OVERLOAD)		
07	P	420	MTR. STR.	P-420 RUNNING		
08	P	420	MTR. STR.	P-420 TROUBLE (OVERLOAD)		
09	P	800	MTR. STR.	P-800 RUNNING		
10	P	800	MTR. STR.	P-800 TROUBLE (OVERLOAD)		
11	P	900	MTR. STR.	P-900 RUNNING		
12	P	900	MTR. STR.	P-900 TROUBLE (OVERLOAD)		
13	B	300	MTR. STR.	B-300 RUNNING		
14	B	300	MTR. STR.	B-300 TROUBLE (OVERLOAD)		
15	-	-	-	<SPARE>		

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

DISCRETE INPUTS						
RACK: 1						
SLOT: 3						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	P	200A	VFD	P-200A RUNNING		
01	P	200A	VFD	P-200A TROUBLE (VFD)		
02	P	200B	VFD	P-200B RUNNING		
03	P	200B	VFD	P-200B TROUBLE (VFD)		
04	P	501A	VFD	P-501A RUNNING		
05	P	501A	VFD	P-501A TROUBLE (VFD)		
06	P	501B	VFD	P-501B RUNNING		
07	P	501B	VFD	P-501B TROUBLE (VFD)		
08	EF	1	MTR. STR.	EF-1 RUNNING		
09	EF	2	MTR. STR.	EF-2 RUNNING		
10	ZS	901	LIMIT SW.	CONTROL ROOM MAN-DOOR OPEN		
11	ZS	902	LIMIT SW.	EQUIPMENT ROOM MAN-DOOR OPEN		
12	LSHH	200	FLOAT SW.	T-200 HIGH-HIGH LEVEL		
13	LSLL	200	FLOAT SW.	T-200 LOW-LOW LEVEL		
14	P	810	MTR. STR.	P-810 RUNNING		
15	P	810	MTR. STR.	P-810 TROUBLE (OVERLOAD)		

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

DISCRETE INPUTS						
RACK: 1						
SLOT: 4						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	LSH	300	FLOAT SW.	T-300 HIGH LEVEL		
01	LSHH	410	FLOAT SW.	T-410 HIGH-HIGH LEVEL		
02	LSLL	410	FLOAT SW.	T-410 LOW-LOW LEVEL		
03	LSH	500	FLOAT SW.	AIR STRIPPER HIGH LEVEL		
04	PSH	500	PRESS. SW.	AIR STRIPPER HIGH PRESSURE		
05	PSL	500	PRESS. SW.	AIR STRIPPER LOW PRESSURE		
06	LSH	800	FLOAT SW.	T-800 HIGH LEVEL		
07	LSL	800	FLOAT SW.	T-800 LOW LEVEL		
08	LSH	900	FLOAT SW.	SUMP 900 HIGH LEVEL		
09	LSL	900	FLOAT SW.	SUMP 900 LOW LEVEL		
10	LSH	101	FLOAT SW.	EW-1 HIGH LEVEL		
11	LSH	102	FLOAT SW.	EW-2 HIGH LEVEL		
12	LSH	103	FLOAT SW.	EW-3 HIGH LEVEL		
13	LSH	104	FLOAT SW.	EW-4 HIGH LEVEL		
14	LSH	105	FLOAT SW.	EW-5 HIGH LEVEL		
15	LSH	106	FLOAT SW.	EW-6 HIGH LEVEL		

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

DISCRETE INPUTS						
RACK: 1						
SLOT: 5						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	LSH	107	FLOAT SW.	EW-7 HIGH LEVEL		
01	-	-	RELAY	POWER LOSS		
02	MV	200	ACTUATOR	FULL OPEN		
03	MV	200	ACTUATOR	FULL CLOSE		
04	MV	500	ACTUATOR	FULL OPEN		
05	MV	500	ACTUATOR	FULL CLOSE		
06	MV	510	ACTUATOR	FULL OPEN		
07	MV	510	ACTUATOR	FULL CLOSE		
08	LSH	108	FLOAT SW.	EW-8 HIGH LEVEL		
09	LSH	001	FLOAT SW.	LEACHATE SUMP HIGH LEVEL		
10	LSHH	100	FLOAT SW.	T-100 HIGH-HIGH LEVEL		
11	LSLL	100	FLOAT SW.	T-100 LOW-LOW LEVEL		
12	P	820A	VFD	P-820A RUNNING		
13	P	820A	VFD	P-820A TROUBLE (VFD)		
14	P	820B	VFD	P-820B RUNNING		
15	P	820B	VFD	P-820B TROUBLE (VFD)		

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

DISCRETE INPUTS						
RACK: 1						
SLOT: 6						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	MV	100	ACTUATOR	FULL OPEN		
01	MV	100	ACTUATOR	FULL CLOSE		
02	MV	410A	ACTUATOR	FULL OPEN		
03	MV	410A	ACTUATOR	FULL CLOSE		
04	MV	410B	ACTUATOR	FULL OPEN		
05	MV	410B	ACTUATOR	FULL CLOSE		
06	MV	410C	ACTUATOR	FULL OPEN		
07	MV	410C	ACTUATOR	FULL CLOSE		
08	MV	410D	ACTUATOR	FULL OPEN		
09	MV	410D	ACTUATOR	FULL CLOSE		
10	-	-	-	<SPARE>		
11	-	-	-	<SPARE>		
12	-	-	-	<SPARE>		
13	-	-	-	<SPARE>		
14	-	-	-	<SPARE>		
15	-	-	-	<SPARE>		

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

DISCRETE OUTPUTS						
RACK: 1						
SLOT: 7						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	P	400	P-400 RUN COMMAND			
01	P	410A	P-410A RUN COMMAND			
02	P	410B	P-410B RUN COMMAND			
03	P	420	P-420 RUN COMMAND			
04	P	800	P-800 RUN COMMAND			
05	P	900	P-900 RUN COMMAND			
06	B	300	B-300 RUN COMMAND			
07	P	200A	P-200A RUN COMMAND			
08	P	200B	P-200B RUN COMMAND			
09	P	501A	P-501A RUN COMMAND			
10	P	501B	P-501B RUN COMMAND			
11	-	-	AUTODIALER OUTPUT ALERT			
12	P	100	P-100 RUN COMMAND			
13	P	300	P-300 RUN COMMAND			
14	P	301	P-301 RUN COMMAND			
15	-	-	<SPARE>			

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

DISCRETE OUTPUTS						
RACK: 1						
SLOT: 8						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	MV	200	OPEN COMMAND			
01	MV	200	CLOSE COMMAND			
02	MV	500	OPEN COMMAND			
03	MV	500	CLOSE COMMAND			
04	MV	510	OPEN COMMAND			
05	MV	510	CLOSE COMMAND			
06	MV	100	OPEN COMMAND			
07	MV	100	CLOSE COMMAND			
08	MV	410A	OPEN COMMAND			
09	MV	410A	CLOSE COMMAND			
10	MV	410B	OPEN COMMAND			
11	MV	410B	CLOSE COMMAND			
12	MV	410C	OPEN COMMAND			
13	MV	410C	CLOSE COMMAND			
14	MV	410D	OPEN COMMAND			
15	MV	410D	CLOSE COMMAND			

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

DISCRETE OUTPUTS						
RACK: 1						
SLOT: 9						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	P	820A	P-820A RUN COMMAND			
01	P	820B	P-820B RUN COMMAND			
02	-	-	<SPARE>			
03	-	-	<SPARE>			
04	-	-	<SPARE>			
05	-	-	<SPARE>			
06	-	-	<SPARE>			
07	-	-	<SPARE>			
08	-	-	<SPARE>			
09	-	-	<SPARE>			
10	-	-	<SPARE>			
11	-	-	<SPARE>			
12	-	-	<SPARE>			
13	-	-	<SPARE>			
14	-	-	<SPARE>			
15	-	-	<SPARE>			

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

ANALOG INPUTS						
RACK: 2						
SLOT: 1						
ADDRESS	ID	LOOP	SOURCE	DESCRIPTION	CHECKED (Y/N)	NOTES
00	FIT	200	0 - __ GPM	P-200A/B DISCHARGE FLOW		
01	LIT	200	0 - __ FT	T-200 LEVEL		
02	AE	300	0 - 14	T-300 pH		
03	AE	300	0 - 100%	T-300 DO		
04	TT	300	0 - __ DEG	T-300 TEMPERATURE		
05	PT	300C	0 - __ PSI	B-300 DISCHARGE PRESSURE		
06	PIT	410	0 - __ PSI	P-410A/B DISCHARGE PRESSURE		
07	FIT	410	0 - __ GPM	P-410A/B DISCHARGE FLOW		
ANALOG INPUTS						
RACK: 2						
SLOT: 2						
ADDRESS	ID	LOOP	SOURCE	DESCRIPTION	CHECKED (Y/N)	NOTES
00	LT	410	0 - __ FT	T-410 LEVEL		
01	TT	500	0 - __ DEG	AIR STRIPPER INFLUENT AIR TEMPERATURE		
02	LT	500	0 - __ FT	AIR STRIPPER LEVEL		
03	FIT	500	0 - __ GPM	B-500 INFLUENT FLOW		
04	FIT	510	0 - __ GPM	P-501A/B DISCHARGE FLOW		
05	PIT	510	0 - __ PSI	B-500 INFLUENT PRESSURE		
06	PIT	520	0 - __ PSI	P-501A/B DISCHARGE PRESSURE		
07	TT	900	0 - __ DEG	EQUIP ROOM AMBIENT TEMPERATURE		

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

ANALOG INPUTS						
RACK: 2						
SLOT: 3						
ADDRESS	ID	LOOP	SOURCE	DESCRIPTION	CHECKED (Y/N)	NOTES
00	FIT	900	0 - __ GPM	SURFACE WATER DISCHARGE FLOW		
01	AE	900	0 - 14	SURFACE WATER DISCHARGE pH		
02	LT	101	0 - __ FT	EXTRACTION WELL EW-1 LEVEL		
03	LT	102	0 - __ FT	EXTRACTION WELL EW-2 LEVEL		
04	LT	103	0 - __ FT	EXTRACTION WELL EW-3 LEVEL		
05	LT	104	0 - __ FT	EXTRACTION WELL EW-4 LEVEL		
06	LT	105	0 - __ FT	EXTRACTION WELL EW-5 LEVEL		
07	LT	106	0 - __ FT	EXTRACTION WELL EW-6 LEVEL		
ANALOG INPUTS						
RACK: 2						
SLOT: 4						
ADDRESS	ID	LOOP	SOURCE	DESCRIPTION	CHECKED (Y/N)	NOTES
00	LT	107	0 - __ FT	EXTRACTION WELL EW-7 LEVEL		
01	FT	101	0 - __ GPM	EXTRACTION WELL EW-1 FLOW		
02	FT	102	0 - __ GPM	EXTRACTION WELL EW-2 FLOW		
03	FT	103	0 - __ GPM	EXTRACTION WELL EW-3 FLOW		
04	FT	104	0 - __ GPM	EXTRACTION WELL EW-4 FLOW		
05	FT	105	0 - __ GPM	EXTRACTION WELL EW-5 FLOW		
06	FT	106	0 - __ GPM	EXTRACTION WELL EW-6 FLOW		
07	FT	107	0 - __ GPM	EXTRACTION WELL EW-7 FLOW		

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

ANALOG INPUTS						
RACK: 2						
SLOT: 5						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	P	200A	0 - 100%	SPEED FEEDBACK		
01	P	200B	0 - 100%	SPEED FEEDBACK		
02	P	501A	0 - 100%	SPEED FEEDBACK		
03	P	501B	0 - 100%	SPEED FEEDBACK		
04	LT	108	0 - __ FT	EXTRACTION WELL EW-8 LEVEL		
05	LT	001	1 - __ FT	LEACHATE SUMP LEVEL		
06	FT	108	0 - __ GPM	EXTRACTION WELL EW-8 FLOW		
07	FT	001	0 - __ GPM	LEACHATE SUMP FLOW		
ANALOG INPUTS						
RACK: 2						
SLOT: 6						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	PIT	420	0 - __ PSI	PF-410A/B DISCHARGE PRESSURE		
01	FIT	100	0 - __ GPM	P-100 FLOW		
02	FIT	800	0 - __ GPM	P-800 FLOW		
03	P	820A	0 - 100%	SPEED FEEDBACK		
04	P	820B	0 - 100%	SPEED FEEDBACK		
05	-	-	-	<SPARE>		
06	-	-	-	<SPARE>		
07	-	-	-	<SPARE>		

ATTACHMENT A
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
PLC TESTING CHECKLIST

ANALOG OUTPUTS						
RACK: 2						
SLOT: 8						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	P	200A	0 - 100%	P-200A VFD SPEED CONTROL		
01	P	200B	0 - 100%	P-200B VFD SPEED CONTROL		
02	P	501A	0 - 100%	P-501A VFD SPEED CONTROL		
03	P	501B	0 - 100%	P-501B VFD SPEED CONTROL		
ANALOG OUTPUTS						
RACK: 2						
SLOT: 9						
ADDRESS	**ID**	**LOOP**	**SOURCE**	**DESCRIPTION**	**CHECKED (Y/N)**	**NOTES**
00	P	820A	0 - 100%	P-820A VFD SPEED CONTROL		
01	P	820B	0 - 100%	P-820B VFD SPEED CONTROL		
02	-	-	-	<SPARE>		
03	-	-	-	<SPARE>		

Attachment B

Filtration Media Commissioning Checklist

ATTACHMENT B
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
FILTRATION MEDIA COMMISSIONING CHECKLIST

Date:	**Time:**	**Operator Initials:**	**Third Party Initials:**

Item Description	**Response/Reading**	**Comments**
PF-400		
50 micron bags installed in PF-400 **(yes/no)**		
PF-400 vessel lid sealed and ready for water **(yes/no)**		
PF-410A/B		
10 micron bags installed in PF-410A **(yes/no)**		
10 micron bags installed in PF-410B **(yes/no)**		
PF-410A vessel lid sealed and ready for water **(yes/no)**		
PF-410B vessel lid sealed and ready for water **(yes/no)**		
GAC-501		
GAC-501 filled with 4,000 lbs TIGG 5CC 0408 Carbon **(yes/no)**		
GAC-502		
GAC-502 filled with 4,000 lbs TIGG 5CC 0408 Carbon **(yes/no)**		
GAC-503		
GAC-503 filled with 4,000 lbs TIGG 5CC 0408 Carbon **(yes/no)**		
PPZ-504		
PPZ-504 filled with 3,500 lbs TIGG PPM Potassium Permanganate **(yes/no)**		
PPZ-505		
PPZ-505 filled with 3,500 lbs TIGG PPM Potassium Permanganate **(yes/no)**		
GAC-601		
GAC-601 filled with 2,000 lbs TIGG 5DC 830 Carbon **(yes/no)**		
GAC-601 media soaked for 24 hours prior to being placed into service **(yes/no)**		
GAC-602		
GAC-602 filled with 2,000 lbs TIGG 5DC 830 Carbon **(yes/no)**		
GAC-602 media soaked for 24 hours prior to being placed into service **(yes/no)**		

Attachment C

Mechanical Commissioning Checklist

ATTACHMENT C
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
MECHANICAL COMMISSIONING CHECKLIST

Date:	**Time:**	**Operator Initials:**	**Third Party Initials:**

Item Description	**Response/Reading**	**Comments**
General		
All piping, equipment and instrumentation installed in accordance with Contract Drawings P3 and P4 **(yes/no)**		
Verify that all sample ports are closed **(yes/no)**		
Verify that all isolation valves for instrumentation are open **(yes/no)**		
Verify that pretreatment system effluent isolation valve downstream of AE/AIT 900 is open **(yes/no)**		
Leachate Tank (T-100)		
Verify that inlet isolation valve is open **(yes/no)**		
Verify that inlet motorized valve is open **(yes/no)**		
Verify that effluent isolation valve is open **(yes/no)**		
Verfiy that drain valve is closed and locked **(yes/no)**		
Verfiy that inlet and effluent valves for P-100 are open **(yes/no)**		
Verfiy that influent and effluent valves for FE/FIT-100 are open and bypass valve is closed **(yes/no)**		
Equalization Tank (T-200)		
Verify that inlet isolation valves are open **(yes/no)**		
Verify that inlet motorized valve is open **(yes/no)**		
Verify that effluent isolation valve is open **(yes/no)**		
Verfiy that drain valve is closed and locked **(yes/no)**		
Verfiy that inlet and effluent valves for P-200A/B are open **(yes/no)**		
Equalization Tank (T-200)		
Verfiy that influent and effluent valves for FE/FIT-200 are open and bypass valve is closed **(yes/no)**		
Fixed-Film Bioreactor (T-300)		
Verify that water inlet valves are open **(yes/no)**		
Verify that nitrogen and phosphoric acid inlet valves are open **(yes/no)**		
Verify that air inlet valves are open **(yes/no)**		
Verify that valve on tank vent is open **(yes/no)**		
Verify that water effluent valve is open **(yes/no)**		
Verfiy that drain valve is closed and locked **(yes/no)**		
Verfiy that effluent valve for B-300 is open **(yes/no)**		

ATTACHMENT C
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
MECHANICAL COMMISSIONING CHECKLIST

Item Description	Response/Reading	Comments
Clarifier (T-400)		
Verify that inlet valve is open **(yes/no)**		
Verify that top decant valve is open **(yes/no)**		
Verify that bottom (3) decant valves are closed **(yes/no)**		
Verfiy that solids effluent valve is closed and locked **(yes/no)**		
Verfiy that inlet and effluent valves for P-400 are open **(yes/no)**		
Pressure Filter Unit (PF-400)		
Verify that inlet valve is open **(yes/no)**		
Verify that bypass valves are closed **(yes/no)**		
Verfiy that drain valve is closed and locked **(yes/no)**		
Verfiy that effluent valves for P-400 are open **(yes/no)**		
Clarifier Pump Station Tank (T-410)		
Verify that inlet valve is open **(yes/no)**		
Verify that effluent valve is open **(yes/no)**		
Verfiy that drain valve is closed and locked **(yes/no)**		
Verfiy that inlet and effluent valves for P-410A/B are open **(yes/no)**		
Verfiy that inlet and effluent valves for P-420 are open **(yes/no)**		
Verfiy that influent and effluent valves for FE/FIT-410 are open and bypass valve is closed **(yes/no)**		
Pressure Filter Units (PF-410A/B)		
Verify that PF-410A is selected as lead vessel at operator interface in control room **(yes/no)**		
Verify that motorized valves MV-410A and MV-410B at PF-410A are open **(yes/no)**		
Verify that motorized valves MV-410C and MV-410D at PF-410B are closed **(yes/no)**		
Air Stripper (AS-500)		
Verify that inlet water valve is open **(yes/no)**		
Verify that effluent water valve is open **(yes/no)**		
Verfiy that drain valve is closed and locked **(yes/no)**		
Verfiy that influent and effluent valves for B-500 are open **(yes/no)**		
Verfiy that inlet and effluent valves for P-500A/B are open **(yes/no)**		
Verfiy that influent and effluent valves for FE/FIT-510 are open and bypass valve is closed **(yes/no)**		
Verfiy that recycle and feed forward isolation valves are open **(yes/no)**		
Verfiy that recycle and feed forward motorized valves are open **(yes/no)**		

ATTACHMENT C
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
MECHANICAL COMMISSIONING CHECKLIST

Item Description	Response/Reading	Comments
Vapor-Phase Granular Activated Carbon Vessels (GAC-501/502/503)		
Verify that hoses are connected such that all (3) vessels are in series **(yes/no)**		
Vapor-Phase Potassium Permanganate Vessels (PPZ-504/505)		
Verify that hoses are connected such that both vessels are in series **(yes/no)**		
Liquid-Phase Granular Activated Carbon Vessels (GAC-601/602)		
Verify that valves in piping manifold are set such that vessels are in series **(yes/no)**		
Verify that valves in piping manifold associated with backwash are closed and locked **(yes/no)**		
Verfiy that drain valves are closed and locked **(yes/no)**		
Backwash Supply Holding Tank (T-800)		
Verify that inlet valve is open **(yes/no)**		
Verify that effluent valves are open **(yes/no)**		
Verfiy that drain valve is closed and locked **(yes/no)**		
Verfiy that inlet and effluent valves for P-800 are open **(yes/no)**		
Verfiy that inlet and effluent valves for P-810 are open **(yes/no)**		
Verfiy that inlet and effluent valves for P-820A/B are open **(yes/no)**		
Verfiy that influent and effluent valves for FE/FIT-900 are open and bypass valve is closed **(yes/no)**		
Verfiy that influent and effluent valves for AE/AIT-900 are open and bypass valve is closed **(yes/no)**		

Attachment D

Tank Filling Checklist

ATTACHMENT D
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
TANK FILLING CHECKLIST

Date:	**Time:**	**Operator Initials:**	**Third Party Initials:**

Item Description	**Response/Reading**	**Comments**
General		
Treatment system discharge rerouted to T-200 **(yes/no)**		
Leachate Tank (T-100)		
Verify that tank effluent valve is closed **(yes/no)**		
Tank filled with approximately 500 gallons of potable water **(yes/no)**		
Leakage noted around any tank bulkhead fittings **(yes/no)**		
Equalization Tank (T-200)		
Verify that tank effluent valve is closed **(yes/no)**		
Tank filled with approximately 1,500 gallons of potable water **(yes/no)**		
Leakage noted around any tank bulkhead fittings **(yes/no)**		
Fixed-Film Bioreactor (T-300)		
Verify that tank effluent valve is closed **(yes/no)**		
Tank filled with approximately 4,500 gallons of potable water **(yes/no)**		
Leakage noted around any tank bulkhead fittings **(yes/no)**		
Clarifier (T-400)		
Verify that tank effluent valve is closed **(yes/no)**		
Tank filled with approximately 3,000 gallons of potable water **(yes/no)**		
Leakage noted around any tank bulkhead fittings **(yes/no)**		
Clarifier Pump Station Tank (T-500)		
Verify that tank effluent valve is closed **(yes/no)**		
Tank filled with approximately 4,500 gallons of potable water **(yes/no)**		
Leakage noted around any tank bulkhead fittings **(yes/no)**		
Backwash Supply Holding Tank (T-800)		
Verify that tank effluent valve is closed **(yes/no)**		
Tank filled with approximately 500 gallons of potable water **(yes/no)**		
Leakage noted around any tank bulkhead fittings **(yes/no)**		

Note:
It is not required that all tanks be filled at the same time so some of the water used to fill one tank may be used to fill another.

Attachment E

Clean Water System Start-Up Checklist

ATTACHMENT E
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
CLEAN WATER SYSTEM START-UP CHECKLIST

Date:	**Time:**	**Operator Initials:**	**Third Party Initials:**

Item Description	**Response/Reading**	**Comments**
General		
Influent Tank Filling Checklist completed **(yes/no)**		
Treatment system discharge rerouted to frac tanks with flexible hose **(yes/no)**		
All interlocks tested and results recorded on Interlock Testing Checklist **(yes/no)**		
All piping, valves, vessels and equipment free of leaks **(yes/no)**		
Recorded values for pump/blower operating voltage and amperage in conformance with manufacturers' specifications **(yes/no)**		
Verify all instrumentation is calibrated according to manufacturers' specifications **(yes/no)**		
Verify all flow, pressure and level setpoints are in acceptable ranges as defined in Setpoint Table **(yes/no)**		
Equipment Mode Selection at Operator Interface		
Building sump pump P-900 placed in "Auto" mode **(yes/no)**		
Pumps P-820A/B placed in "Auto" mode **(yes/no)**		
Blower B-500 placed in "Auto" mode **(yes/no)**		
Pumps P-500A/B placed in "Auto" mode **(yes/no)**		
Lead/Lag filters selected at PF-410A/B and system placed in "Auto" mode **(yes/no)**		
Pumps P-410A/B placed in "Auto" mode **(yes/no)**		
Blower B-300 placed in "Auto" mode **(yes/no)**		
Pump P-300 placed in "Auto" mode **(yes/no)**		
Pump P-301 placed in "Auto" mode **(yes/no)**		
Pumps P-200A/B placed in "Auto" mode **(yes/no)**		
Pump P-100 placed in "Auto" mode **(yes/no)**		
Leachate Tank (T-100)		
Flow rate for P-100 set to 25 GPH **(yes/no)**		
Equalization Tank (T-200)		
Operating flow reading at FE/FIT-200 **(GPM)**		
Operating amperage of P-200A **(Amps)**		
Operating voltage of P-200A **(Volts)**		
Operating pressure at PI-200A **(psi)**		
Operating amperage of P-200B **(Amps)**		
Operating voltage of P-200B **(Volts)**		
Operating pressure at PI-200B **(psi)**		

ATTACHMENT E
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
CLEAN WATER SYSTEM START-UP CHECKLIST

Item Description	Response/Reading	Comments
Fixed-Film Bioreactor (T-300)		
Airflow throttled to 10 SCFM at FI-300A **(yes/no)**		
Airflow throttled to 10 SCFM at FI-300B **(yes/no)**		
Airflow throttled to 10 SCFM at FI-300C **(yes/no)**		
Operating amperage of B-300 **(Amps)**		
Operating voltage of B-300 **(Volts)**		
Flow rate for P-300 set to 0.5 GPH **(yes/no)**		
Flow rate for P-301 set to 0.5 GPH **(yes/no)**		
Clarifier (T-400)		
Operating amperage of P-400 **(Amps)**		
Operating voltage of P-400 **(Volts)**		
Operating pressure at PI-400 **(psi)**		
Clarifier Pump Station Tank (T-410)		
Operating flow reading at FE/FIT-410 **(GPM)**		
Operating amperage of P-410A **(Amps)**		
Operating voltage of P-410A **(Volts)**		
Operating pressure at PI-410A **(psi)**		
Operating amperage of P-410B **(Amps)**		
Operating voltage of P-410B **(Volts)**		
Operating pressure at PI-410B **(psi)**		
Air Stripper (AS-500)		
Airflow at FE/FIT-500 throttled to 600 SCFM **(yes/no)**		
Vaccum at VI-500 throttled to 0.5" Hg **(yes/no)**		
Operating amperage of B-500 **(Amps)**		
Operating voltage of B-500 **(Volts)**		
Operating flow reading at FE/FIT-510 **(GPM)**		
Operating amperage of P-500A **(Amps)**		
Operating voltage of P-500A **(Volts)**		
Operating pressure at PI-500A **(psi)**		
Operating amperage of P-500B **(Amps)**		
Operating voltage of P-500B **(Volts)**		
Operating pressure at PI-500B **(psi)**		
Liquid-Phase GAC (GAC-601/602)		
Trial run of the backwash system **(yes/no)**		

ATTACHMENT E
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
CLEAN WATER SYSTEM START-UP CHECKLIST

Item Description	Response/Reading	Comments
Backwash Supply Holding Tank (T-800)		
Operating flow reading at FE/FIT-900 **(GPM)**		
Operating amperage of P-800 **(Amps)**		
Operating voltage of P-800 **(Volts)**		
Operating pressure at PI-800 **(psi)**		
Operating amperage of P-820A **(Amps)**		
Operating voltage of P-820A **(Volts)**		
Operating pressure at PI-820A **(psi)**		
Operating amperage of P-820B **(Amps)**		
Operating voltage of P-820B **(Volts)**		
Operating pressure at PI-820B **(psi)**		
Preparation for Initial Extracted Groundwater Test		
Pump P-100 placed in "Off" mode **(yes/no)**		
Pumps P-200A/B placed in "Off" mode **(yes/no)**		
Pump P-301 placed in "Off" mode **(yes/no)**		
Pump P-300 placed in "Off" mode **(yes/no)**		
Blower B-300 placed in "Off" mode **(yes/no)**		
Pumps P-410A/B placed in "Off" mode **(yes/no)**		
Pumps P-500A/B placed in "Off" mode **(yes/no)**		
Blower B-500 placed in "Off" mode **(yes/no)**		
Pumps P-820A/B placed in "Off" mode **(yes/no)**		
Building sump pump P-900 placed in "Off" mode **(yes/no)**		
Treatment system discharge redirected to frac tanks **(yes/no)**		

Attachment F

Interlock Testing Checklist

ATTACHMENT F
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
INTERLOCK TESTING CHECKLIST

Date:	**Time:**	**Operator Initials:**	**Third Party Initials:**

Interlock #	Description	Operation Confirmed
1	IF HIGH LEVEL AT EXTRACTION WELL VAULT (LAH-1XX), SIGNAL ALARM AT MAIN CONTROL PANEL (MCP) AND TURN OFF ALL EXTRACTION WELLS. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
2	IF PUMP RUN SIGNAL DETECTED (YI-1XX) AT EXTRACTION WELLS AND RESPECTIVE FLOW RATE IS 0 AFTER 5 MINUTES, SIGNAL ALARM AT MCP (FAL-1XX) AND TURN OFF ALL EXTRACTION WELLS.	
3	IF LOW LEVEL IN EXTRACTION WELL (LAL-1XX), SIGNAL ALARM AT MCP AND TURN OFF EXTRACTION WELL PUMP.	
4	IF HIGH-HIGH LEVEL ALARM SWITCH ACTIVATED AT T-200 (LAHH-200), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B, P-400, P-410A/B, P-420, P-500A/B, AND P-800 TURN OFF ALL EXTRACTION WELL PUMPS, TURN OFF BUILDING SUMP PUMP P-900, AND CLOSE MV-200 AND MV-500. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
5	IF HIGH LEVEL ALARM AT T-200 (LAH-200), SIGNAL ALARM AT MCP AND TURN OFF ALL EXTRACTION WELL PUMPS, TURN OFF PUMPS P-400 AND P-800, AND CLOSE MV-200.	
6	IF LOW LEVEL ALARM AT T-200 (LAL-200), SIGNAL ALARM AT MCP, TURN OFF PUMPS P-200A /B AND P-800, TURN OFF ALL EXTRACTION WELL PUMPS, TURN OFF BUILDING SUMP PUMP P-900, AND CLOSE MV-200.	
7	IF LOW-LOW LEVEL ALARM SWITCH ACTIVATED AT T-200 (LALL-200), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B AND P-800, TURN OFF ALL EXTRACTION WELL PUMPS, AND CLOSE MV-200. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
8	IF HIGH LEVEL SETPOINT #1 AT T-200, TURN ON LEAD PUMP (P-200A OR B) - LEAD/LAG PUMPS SHALL BE ALTERNATING.	
9	IF LOW LEVEL SETPOINT #1 AT T-200, TURN OFF PUMPS P-200A/B.	
10	IF HIGH LEVEL SETPOINT #2 AT T-200, OPEN MV-510 AND CLOSE MV-500.	
11	IF LOW LEVEL SETPOINT #2 AT T-200, OPEN MV-500 AND CLOSE MV-510.	
12	IF T-200 LEVEL TRANSMITTER SIGNAL (LT-200) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B, TURN OFF EXTRACTION WELL PUMPS, AND CLOSE MV-200.	
13	IF HIGH LEVEL ALARM (LAH-900) AT BUILDING SUMP, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B, P-400, P-410A/B, P-420, P-500A/B, AND P-800, TURN OFF ALL EXTRACTION WELL PUMPS, AND CLOSE MV-200. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
14	IF LOW FLOW ALARM AT T-200 DISCHARGE (FAL-200), SIGNAL ALARM AT MCP, TURN OFF PUMPS P-200A/B, TURN OFF ALL EXTRACTION WELL PUMPS, AND CLOSE MV-200.	
15	IF HIGH FLOW ALARM AT T-200 DISCHARGE (FAH-200), SIGNAL ALARM AT MCP, TURN OFF PUMPS P-200A/B, TURN OFF ALL EXTRACTION WELL PUMPS, AND CLOSE MV-200.	
16	IF HIGH LEVEL ALARM SWITCH ACTIVATED AT T-300 (LAH-300), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
17	IF LOW BLOWER DISCHARGE PRESSURE (PAL-300) AT T-300, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B.	
18	IF HIGH BLOWER DISCHARGE PRESSURE (PAH-300) AT T-300, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B.	
19	IF HIGH LEVEL ALARM SWITCH ACTIVATED AT T-400 (LAH-400), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
20	IF HIGH-HIGH LEVEL ALARM SWITCH ACTIVATED AT T-410 (LAHH-410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B, P-400, P-410A/B, P-420, P-500A/B, AND P-800 TURN OFF ALL EXTRACTION WELL PUMPS, TURN OFF BUILDING SUMP PUMP P-900, AND CLOSE MV-200 AND MV-500. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
21	IF HIGH LEVEL ALARM AT T-410 (LAH-410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B.	
22	IF LOW LEVEL ALARM AT T-400 (LAL-400), SIGNAL ALARM AT MCP, TURN OFF PUMPS P-200A/B AND P-410A/B.	
23	IF LOW-LOW LEVEL ALARM SWITCH ACTIVATED AT T-400 (LALL-400), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B, P-410A/B AND P-420. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
24	IF HIGH LEVEL SETPOINT #1 AT T-410, TURN ON LEAD PUMP (P-410A OR B) - LEAD/LAG PUMPS SHALL BE ALTERNATING.	
25	IF LOW LEVEL SETPOINT #1 AT T-410, TURN OFF PUMPS P-410A/B.	
26	IF T-410 LEVEL TRANSMITTER SIGNAL (LT-410) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B AND P-410A/B.	
27	IF LOW FLOW ALARM AT T-410 DISCHARGE (FAL-410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B.	

ATTACHMENT F
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
INTERLOCK TESTING CHECKLIST

Interlock #	Description	Operation Confirmed
28	IF HIGH FLOW ALARM AT T-410 DISCHARGE (FAH-410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B	
29	IF LOW PRESSURE ALARM AT T-410 EFFLUENT (PAL-410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B.	
30	IF HIGH PRESSURE ALARM AT T-410 EFFLUENT, (PAH-410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B.	
31	IF HIGH TEMPERATURE ALARM (TAH-500) AT AIR STRIPPER INLET DUCT, SIGNAL ALARM AT MCP AND TURN OFF P-410A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
32	IF LOW TEMPERATURE ALARM (TAL-500) AT AIR STRIPPER INLET DUCT, SIGNAL ALARM AT MCP AND TURN OFF P-410A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
33	IF HIGH PRESSURE ALARM ACROSS AIR STRIPPER SYSTEM (PAH-500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410 A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
34	IF LOW PRESSURE ALARM ACROSS AIR STRIPPER SYSTEM (PAL-500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410 A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
35	IF HIGH AIR STRIPPER SUMP SWITCH ALARM (LAH-500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410 A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
36	IF AIR STRIPPER SUMP HIGH LEVEL SETPOINT #1 ACTIVATED, TURN ON LEAD AIR STRIPPER DISCHARGE PUMP P-500A/B.- LEAD/LAG PUMPS SHALL BE ALTERNATING.	
37	IF AIR STRIPPER SUMP LOW LEVEL SETPOINT #1 ACTIVATED, TURN OFF AIR STRIPPER DISCHARGE PUMPS P-500A/B.	
38	IF LOW BLOWER AIR FLOW ALARM AT AIR STRIPPER (FAL-500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
39	IF HIGH BLOWER AIR FLOW ALARM AT AIR STRIPPER (FAH-500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
40	IF HIGH BLOWER DISCHARGE PRESSURE ALARM AT AIR STRIPPER (PAH-510), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
41	IF LOW FLOW ALARM AT AIR STRIPPER DISCHARGE (FAL-510), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-500A/B AND P-410A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
42	IF HIGH FLOW ALARM AT AIR STRIPPER DISCHARGE (FAH-510), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-500A/B AND P-410A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
43	IF LOW PRESSURE ALARM AT P-500A/B DISCHARGE (PAL-520), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B AND P-500A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
44	IF HIGH PRESSURE ALARM AT P-500A/B DISCHARGE (PAH-520), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-410A/B AND P-500A/B AND TURN OFF BLOWERS B-300 AND B-500 AFTER 10 MINUTE DELAY.	
45	IF HIGH LEVEL ALARM SWITCH ACTIVATED AT T-800 (LAHH-800), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-500A/B AND P-410A/B. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
46	IF LOW LEVEL ALARM SWITCH ACTIVATED AT T-800 (LAL-400), SIGNAL ALARM AT MCP AND TURN OFF PUMP P-800. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
47	IF HIGH BUILDING TEMPERATURE ALARM (TAH-900), SIGNAL ALARM AT MCP.	
48	IF LOW BUILDING TEMPERATURE ALARM (TAH-900), SIGNAL ALARM AT MCP AND TURN OFF ALL EXTRACTION WELL PUMPS AND CLOSE MV-200.	
49	IF UNAUTHORIZED BUILDING ENTRY ALARM ACTIVATED, SIGNAL ALARM AT MCP.	
50	IF LOSS OF SYSTEM POWER DETECTED, SIGNAL ALARM AT MCP AND CLOSE MV-200.	
51	HIGH pH ALARM AT DISCHARGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-500A/B, AND P-410A/B.	
52	LOW pH ALARM AT DISCHARGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-500A/B, AND P-410A/B.	
53	HIGH pH ALARM AT T-300 (AAH-300), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B.	
54	LOW pH ALARM AT T-300 (AAL-300), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B.	
55	HIGH DISSOLVED O2 ALARM AT T-300 (AAH-310), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B.	
56	LOW DISSOLVED O2 ALARM AT T-300 (AAL-310), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-200A/B.	
57	HIGH TEMPERATURE ALARM AT T-300 (TAH-300), SIGNAL ALARM AT MCP.	

ATTACHMENT F
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
INTERLOCK TESTING CHECKLIST

Interlock #	Description	Operation Confirmed
58	LOW TEMPERATURE ALARM AT T-300 (TAL-300), SIGNAL ALARM AT MCP.	
59	IF HIGH-HIGH LEVEL ALARM SWITCH ACTIVATED AT T-100 (LAHH-100), SIGNAL ALARM AT MCP, TURN OFF P-001 AND CLOSE MV-100. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
60	IF HIGH LEVEL ALARM AT T-100 (LAH-100), SIGNAL ALARM AT MCP, TURN OFF P-001 AND CLOSE MV-100.	
61	IF LOW LEVEL ALARM AT T-100 (LAL-100), SIGNAL ALARM AT MCP, TURN OFF BUILDING SUMP PUMP P-900, TURN OFF P-001 AND CLOSE MV-100.	
62	IF LOW-LOW LEVEL ALARM SWITCH ACTIVATED AT T-100 (LALL-100), SIGNAL ALARM AT MCP, TURN OFF BUILDING SUMP PUMP P-900, TURN OFF P-001 AND CLOSE MV-100. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.	
63	IF HIGH LEVEL SETPOINT AT T-100, TURN ON P-100.	
64	IF LOW LEVEL SETPOINT AT T-100, TURN OFF P-100.	
65	IF T-100 LEVEL TRANSMITTER SIGNAL (LT-100) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP, TURN OFF P-001 AND CLOSE MV-100.	
66	IF HIGH LEVEL ALARM AT LEACHATE UNDERGROUND STORAGE TANK (LAH-001), SIGNAL ALARM AT MCP AND TURN OFF P-001.	
67	IF LOW LEVEL ALARM AT LEACHATE UNDERGROUND STORAGE TANK (LAL-001), SIGNAL ALARM AT MCP AND TURN OFF P-001.	
68	IF HIGH LEVEL SETPOINT AT LEACHATE UNDERGROUND STORAGE TANK, TURN ON P-001.	
69	IF LOW LEVEL SETPOINT AT LEACHATE UNDERGROUND STORAGE TANK, TURN OFF P-001.	
70	IF PUMP RUN SIGNAL DETECTED (YI-001) AND FLOW RATE IS 0 AFTER 5 MINUTES, SIGNAL ALARM AT MCP (FAL-1XX) AND TURN OFF P-001.	
71	IF LEVEL TRANSMITTER SIGNAL (LT-001) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP AND TURN OFF P-001.	
72	IF HIGH DIFFERENTIAL PRESSURE ALARM ACROSS PF-410A/B (DAH-420), SWITCH FROM LEAD VESSEL TO LAG VESSEL.	
73	IF HIGH LEVEL ALARM AT T-800 (LAH-800), SIGNAL ALARM AT MCP, TURN OFF P-500A/B AND CLOSE MV-510.	
74	IF LOW LEVEL ALARM AT T-800 (LAL-800), SIGNAL ALARM AT MCP, TURN OFF PUMPS P-500A/B AND P-820A/B AND CLOSE MV-510.	
75	IF T-800 LEVEL TRANSMITTER SIGNAL (LT-800) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P-500A/B AND P-820A/B.	
76	IF HIGH LEVEL SETPOINT #1 AT T-800, TURN ON LEAD PUMP (P-820A OR B) - LEAD/LAG PUMPS SHALL BE ALTERNATING.	
77	IF LOW LEVEL SETPOINT #1 AT T-800, TURN OFF PUMPS P-820A/B.	
--	VERIFY THAT EXTRACTION WELLS SHUT DOWN AND DO NOT RESTART FOLLOWING SIMULATED POWER OUTAGE	

Attachment G

Equipment and Instrumentation
Setpoint and Calibration Checklist

ATTACHMENT G
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
EQUIPMENT AND INSTRUMENTATION SETPOINT AND CALIBRATION CHECKLIST

Date:		Time:		Operator Initials:				Third Party Initials:		
Instrument	**Unit of Measure**	**Operating Range**	**Calibrated According to Manufacturer's Procedure (Y/N)[1]**	**High Alarm Setpoint**	**Low Alarm Setpoint**	**Upper Operational Setpoint**	**Lower Operational Setpoint**	**High/Low Alarm Setpoints Set (Y/N)**	**High/Low Operational Setpoints Set (Y/N)**	**Comments**
Leachate Tank (T-100)										
LE/LIT-100	ft	0-7.5		6.5	2.5	6	3			
LSHH-100	ft	NA		7	NA	NA	NA			
LSLL-100	ft	NA		NA	2	NA	NA			
Equalization Tank (T-200)										
LE/LIT-200	ft	0-10		9	2.5	NA	NA			
LSHH-200	ft	NA		9.5	NA	NA	NA			
LSLL-200	ft	NA		NA	2	NA	NA			
FE/FIT-200	gpm	0.3-93		25	5	15	NA			
Fixed-Film Bioreactor (T-300)										
AE/AIT-300	SU	0-14		8	6	NA	NA			
AE/AIT-310	mg/L	0-20		NA	2	NA	NA			
TT/TI-300	deg F	-40-185		NA	NA	NA	NA			
PT-300C	psi	0-150		25	0	NA	NA			
Clarifier (T-400)										
LSH-400	ft	NA		NA	NA	7	NA			
Clarifier Pump Station Tank (T-410)										
LE/LIT-410	ft	0-4		3	1.5	NA	NA			
LSHH-410	ft	NA		3.5	NA	NA	NA			
LSLL-410	ft	NA		NA	1	NA	NA			
FE/FIT-410	gpm	0.3-93		25	5	15	NA			
PIT-410	psi	0-150		25	5	NA	NA			
PIT-420	psi	0-150		25	5	NA	NA			
Air Stripper (AS-500)										
LE/LIT-500	ft	0-3		2.5	0.5	2	1			
LSH-500	ft	NA		3	NA	NA	NA			
PSH-500	psi	NA		5	NA	NA	NA			
PSL-500	psi	NA		NA	0	NA	NA			
FE/FIT-510	gpm	0.3-93		25	5	NA	NA			
PIT-520	psi	0-150		25	5	NA	NA			
Backwash Supply Holding Tank (T-800)										
LE/LIT-800	ft	0-7.5		6.5	2.5	6	3			
LSHH-800	ft	NA		7	NA	NA	NA			
LSLL-800	ft	NA		NA	2	NA	NA			
FE/FIT-800	gpm	0.3-93		NA	NA	NA	NA			
FE/FIT-900	gpm	0.3-93		25	5	NA	NA			
AE/AIT-900	SU	0-14		8	6	NA	NA			

Notes:
1. If instrument does not require calibration, fill out column as "NA".
2. If operational or alarm setpoints require adjustments during start-up activities, note in the comments column.

Attachment H

Treatment System Start-Up and Commissioning Checklist

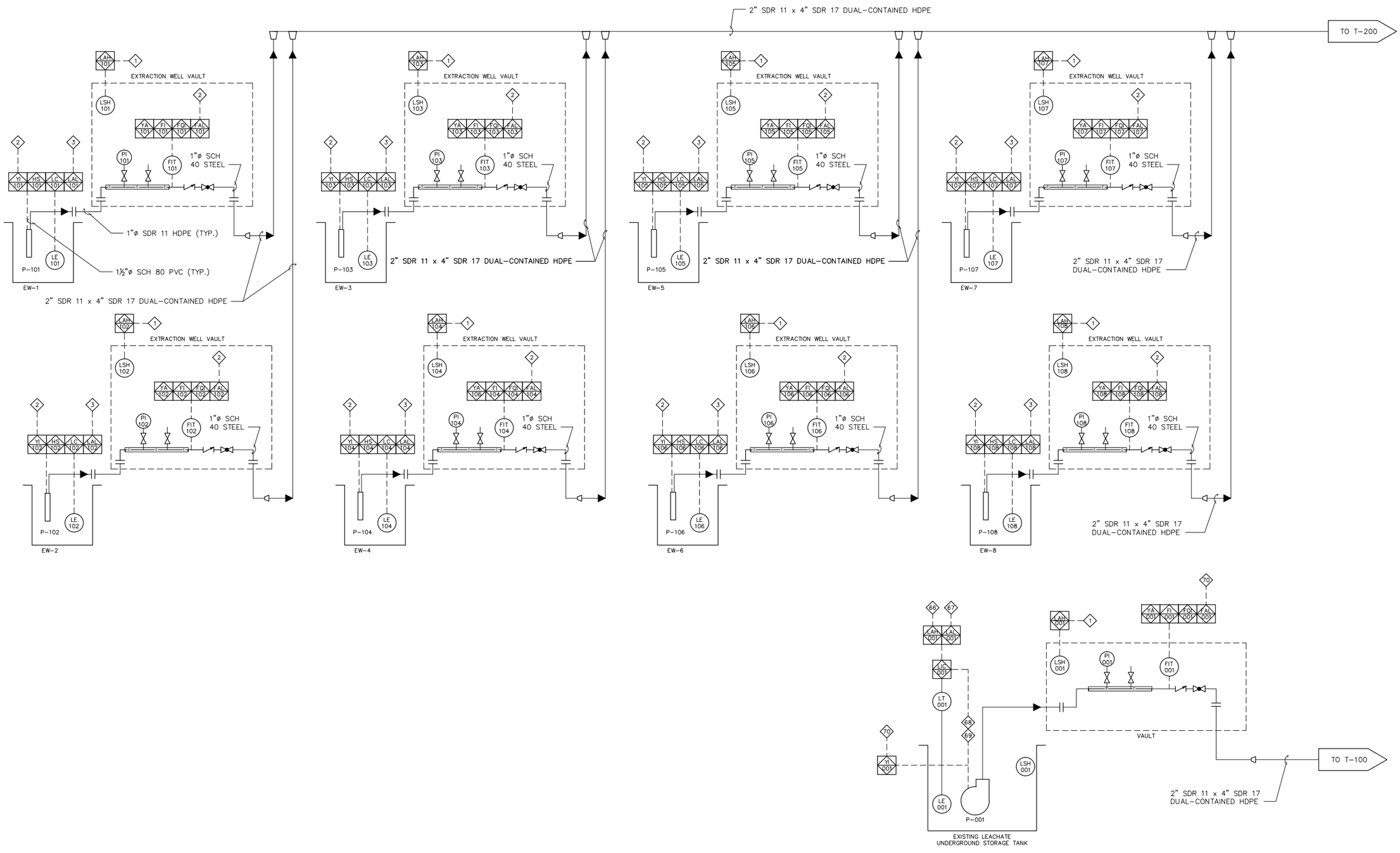
ATTACHMENT H
DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK
TREATMENT SYSTEM START-UP AND COMMISSIONING CHECKLIST

Date:	**Time:**	**Operator Initials:**	**Third Party Initials:**

Item Description	**Response/Reading**	**Comments**
General		
Confirm forcemain containment pipe has been pressure tested **(yes/no)**		
Confirm forcemain carrier pipe has been pressure tested **(yes/no)**		
Verify that all treatment system components are in "Auto" mode **(yes/no)**		
Extraction Well EW-1		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between extraction well and MCP is operating properly **(yes/no)**		
All interlocks tested at extraction well and results recorded on Interlock Testing Checklist (yes/no)		
Extraction Well EW-2		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between extraction well and MCP is operating properly **(yes/no)**		
All interlocks tested at extraction well and results recorded on Interlock Testing Checklist (yes/no)		
Extraction Well EW-3		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between extraction well and MCP is operating properly **(yes/no)**		
All interlocks tested at extraction well and results recorded on Interlock Testing Checklist (yes/no)		
Leachate Collection Sump		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between sump and MCP is operating properly **(yes/no)**		
All interlocks tested at sump and results recorded on Interlock Testing Checklist (yes/no)		
Extraction Well EW-4		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between extraction well and MCP is operating properly **(yes/no)**		
All interlocks tested at extraction well and results recorded on Interlock Testing Checklist (yes/no)		
Extraction Well EW-5		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between extraction well and MCP is operating properly **(yes/no)**		
All interlocks tested at extraction well and results recorded on Interlock Testing Checklist (yes/no)		
Extraction Well EW-6		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between extraction well and MCP is operating properly **(yes/no)**		
All interlocks tested at extraction well and results recorded on Interlock Testing Checklist (yes/no)		
Extraction Well EW-7		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between extraction well and MCP is operating properly **(yes/no)**		
All interlocks tested at extraction well and results recorded on Interlock Testing Checklist (yes/no)		
Extraction Well EW-8		
All components installed in accordance with contract drawings **(yes/no)**		
Verify that communication between extraction well and MCP is operating properly **(yes/no)**		
All interlocks tested at extraction well and results recorded on Interlock Testing Checklist (yes/no)		

Attachment I

Piping and Instrumentation Diagrams



SUBMITTED FOR APPROVAL

NOT TO SCALE

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

No.	Date	Revisions	By	Ckd
2	09/2013	GENERAL REVISIONS		
1	04/2013	GENERAL REVISIONS		

Professional Engineer's Name	DONALD F. SAUDA	
Professional Engineer's No.	084145	
State	Date Signed	Project Mgr.
NY		DFS
Designed by	Drawn by	Checked by
SAB	KLS	TEM

STATE OF NEW YORK · DONALD F. SAUDA · No. 084145 · LICENSED PROFESSIONAL ENGINEER

ARCADIS

ARCADIS OF NEW YORK, INC.

DEWEY LOEFFEL LANDFILL SUPERFUND SITE • NASSAU, NEW YORK

GROUNDWATER AND LEACHATE TREATMENT SYSTEM

TREATMENT SYSTEM PIPING AND INSTRUMENTATION DIAGRAM (1 OF 3)

PROCESS

ARCADIS Project No.
B00311174.0003.00002

Date
FEBRUARY 2013

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214
Tel: 315.446.9120

P2

FROM GAC-601/602
FROM PF-400
2"ø SCH 80 PVC
VENT TO ATMOSPHERE
FROM BUILDING SUMP
RECYCLE FROM AIR STRIPPER SEE DWG P4
2"ø SCH 80 PVC
3"ø SCH 80 PVC
FROM EXTRACTION WELLS SEE DWG P2
MV-200
T-200 EQUALIZATION TANK 1,900 GALLONS
DRAIN
1 1/2"ø SCH 80 PVC
P-200A
P-200B
VFD
VFD
1 1/4"ø SCH 80 PVC
2"ø SCH 80 PVC
2"ø SCH 80 PVC
FROM LEACHATE UNDERGROUND STORAGE TANK
VENT TO ATMOSPHERE
T-100 LEACHATE TANK 550 GALLONS
DRAIN
P-100
1"ø SCH 80 PVC
2"ø SCH 80 PVC
VENT TO BLOWER B-500
T-300 FIXED-FILM BIOREACTOR
DRAIN
P-300
P-301
NITROGEN DRUM
PHOSPHORIC ACID DRUM
2"ø SCH 80 PVC
1"ø SCH 80 PVC
B-300
S.P.
HOSE CONNECTION
TO T-200
2"ø SCH 80 PVC
P-900
BUILDING SUMP
VENT TO ATMOSPHERE
T-400 CLARIFIER 4000 GALLONS
STILLING WELL
2"ø SCH 80 PVC
VENT TO ATMOSPHERE
1"ø SCH 80 PVC
T-410 CLARIFIER PUMP STATION TANK 550 GALLONS
1 1/4"ø SCH 80 PVC
P-410A
P-410B
VFD
VFD
DRAIN
1"ø SCH 80 PVC
2"ø SCH 80 PVC
2" MV-410A
2" MV-410B
MV-410C 2"
MV-410D 2"
PF-410-A
PF-410-B
DRAIN
DRAIN
PRESSURE FILTER PF-410 A & B
2" SCH 80 PVC
TO AIR STRIPPER AS-500 SEE DRAWING P4
3/4"ø SCH 80 PVC
HOA
P-400
3/4"ø SCH 80 PVC
1"ø SCH 80 PVC
P-420
1 1/2"ø SCH 80 PVC
1 1/4"ø SCH 80 PVC
PF-400 PRESSURE FILTER
DRAIN
TO T-200

SUBMITTED FOR APPROVAL

NOT TO SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	04/2013	GENERAL REVISIONS		

Professional Engineer's Name: **DONALD F. SAUDA**
Professional Engineer's No.: 084145

State	Date Signed	Project Mgr.
NY		DFS
Designed by	Drawn by	Checked by
SAB	KLS	TEM

ARCADIS OF NEW YORK, INC.

DEWEY LOEFFEL LANDFILL SUPERFUND SITE • NASSAU, NEW YORK
GROUNDWATER AND LEACHATE TREATMENT SYSTEM

TREATMENT SYSTEM PIPING AND INSTRUMENTATION DIAGRAM (2 OF 3)

PROCESS

ARCADIS Project No.
B0031174.0003.00002

Date
FEBRUARY 2013

ARCADIS
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Tel: 315.446.9120

P3

VENT FROM FIXED-FILM BIOREACTOR T-300

VI 500

FRESH AIR INLET

DUCT HEATER

6"ø SCH 80 PVC

HS 500 YI 500

B-500

40 PAH 510 PIT 510

6"ø SCH 80 PVC

6"ø HOSE

S.P.

6"ø SCH 80 PVC

TO ATMOSPHERE

PI 505

31 TAH 500 TI 500 TT 500

32 TAL 500

FIT 500 FI 500

FAL 500 FAH 500

38 39

GAC-501
VAPOR-PHASE GRANULAR ACTIVATED CARBON VESSEL

PI 501

GAC-502
VAPOR-PHASE GRANULAR ACTIVATED CARBON VESSEL

PI 502

GAC-503
VAPOR-PHASE GRANULAR ACTIVATED CARBON VESSEL

PI 503

PPZ-504
VAPOR-PHASE POTASSIUM PERMANGANATE VESSEL

PI 504

PPZ-505
VAPOR-PHASE POTASSIUM PERMANGANATE VESSEL

33 PAL 500 PSH 500

34 PAH 500 PSL 500

LSH 500 LAH 500 35

LT 500 LI 500 36 37

AS-500
LOW-PROFILE AIR STRIPPER

DRAIN

VFD

PI 500A

P-500A

YI 500A HS 500A

VFD

PI 500B

P-500B

YI 500B HS 500B

FROM PF-410A/410B SEE DRAWING P3

2"ø SCH 80 PVC

1 1/4"ø SCH 80 PVC

2"ø SCH 80 PVC

1"ø SCH 80 PVC

FAH 510 42

FI 510 FAL 510 41

FIT 510 FM

FAH 520 44

PI 520 FAL 520 43

PIT 520

RECYCLE TO T-200 SEE DRAWING P3

2"ø SCH 80 PVC

MV-500 M ZI 500

2"ø SCH 80 PVC

MV-510 M ZI 510

TO T-200 SEE DRAWING P3

PI 601A PI 602A

GAC 601
LIQUID-PHASE GRANULAR ACTIVATED CARBON VESSEL

GAC 602
LIQUID-PHASE GRANULAR ACTIVATED CARBON VESSEL

PI 601B S.P. PI 602B S.P.

NC

73 AI 800 AH 800 74

LT 800 LIC 800 76 77

75

VENT TO ATMOSPHERE

1 1/2"ø SCH 80 PVC

LSH 800 LAH 800 45

LSL 800 LAL 800 46

HS 810

P-810

HOSE CONNECTION

1"ø SCH 80 PVC

DRAIN TO SUMP

LE 800

2"ø SCH 80 PVC

FI 800 FQI 800

FIT 800 FE

PI 800

YI 800 HS 800

P-800

DRAIN

T-800
BACKWASH SUPPLY HOLDING TANK
2,000 GALLONS

PROCESS WASH VESSEL

1 1/4"ø SCH 80 PVC

VFD

PI 820A

P-820A

YI 820A HS 820A

VFD

PI 820B

P-820B

YI 820B HS 820B

FAH 900 FAL 900

FI 900 FQI 900

FIT 900 FE

AI 900 pH AAH 900 51 AAL 900 52

AIT 900 pH AE

3"ø SCH 80 PVC

DISCHARGE TO SURFACE WATER

3"ø SDR 11 HDPE

TAH 900 47

TT 900 TAL 900 48

UNAUTHORIZED BUILDING ENTRY

ZS 900 ZA 900 49

LOSS OF POWER

JS 900 JA 900 50

SUBMITTED FOR APPROVAL

NOT TO SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	04/2013	GENERAL REVISIONS		

Professional Engineer's Name: **DONALD F. SAUDA**
Professional Engineer's No.: 084145
State: NY | Date Signed | Project Mgr.: DFS
Designed by: SAB | Drawn by: KLS | Checked by: TEM

ARCADIS OF NEW YORK, INC.

DEWEY LOEFFEL LANDFILL SUPERFUND SITE • NASSAU, NEW YORK
GROUNDWATER AND LEACHATE TREATMENT SYSTEM

TREATMENT SYSTEM PIPING AND INSTRUMENTATION DIAGRAM (3 OF 3)

PROCESS

ARCADIS Project No.: B0031174.0003.00002
Date: FEBRUARY 2013

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214
Tel: 315.446.9120

P4

EQUIPMENT LEGEND:

- HEAT–TRACED PROCESS PIPING
- PROCESS PIPING
- INSTRUMENTATION SIGNAL
- SKID MOUNTED EQUIPMENT
- SAMPLE TAP
- PRESSURE GAUGE (PI 100)
- VACUUM GAUGE (VI 100)
- MOTOR CONTROLLED BALL VALVE (M)
- BALL VALVE
- CHECK VALVE
- UNION
- REDUCER
- BUTTERFLY VALVE
- HOSE CONNECTION
- BOOSTER PUMP
- PRESSURE RELIEF VALVE
- FLANGE
- LOCAL, FIELD MOUNT
- MAIN PLC CONTROLLER (LAH 100)
- MAIN PLC INTERLOCK (1)
- CENTRIFUGAL PUMP
- BLOWER
- METERING PUMP
- SUBMERSIBLE WELL PUMP
- PROGRESSIVE CAVITY PUMP
- VACUUM RELIEF VALVE

ABBREVIATIONS:

A	AIR
AAH	ANALYSIS ALARM HIGH
AAL	ANALYSIS ALARM LOW
AE	ANALYSIS ELEMENT
AIT	ANALYSIS INDICATING TRANSMITTER
AS	AIR STRIPPER
BF	BAG FILTER
ø	DIAMETER
DC	DOUBLE–CONTAINED
EW	EXTRACTION WELL
FAH	FLOW ALARM HIGH
FAL	FLOW ALARM LOW
FE	FLOW ELEMENT
FI	FLOW INDICATOR
FIT	FLOW INDICATING TRANSMITTER
FM	FLOW METER
FO	FAIL OPEN
FP	FLOOR PENETRATION
FQI	TOTALIZED FLOW INDICATOR
GAC	GRANULAR ACTIVATED CARBON
GA	GAUGE
HDPE	HIGH DENSITY POLYETHYLENE
HOA	HAND–OFF–AUTO
HP	HORSEPOWER
HS	HAND SWITCH
INS	INSULATED
KI	PUMP RUN TIME INDICATOR
KW	KILOWATT
LAH	LEVEL ALARM HIGH
LAHH	LEVEL ALARM HIGH–HIGH
LAL	LEVEL ALARM LOW
LALL	LEVEL ALARM LOW–LOW
LE	LEVEL ELEMENT
LI	LEVEL INDICATOR
LIC	LEVEL INDICATING CONTROLLER
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LT	LEVEL TRANSMITTER
MV	MOTORIZED VALVE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PAH	PRESSURE ALARM HIGH
PAL	PRESSURE ALARM LOW
PF	PRESSURE FILTER
PT	PRESSURE TRANSMITTER
PI	PRESSURE INDICATOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
PPZ	POTASSIUM PERMANANATE ZEOLITE
PSL	PRESSURE SWITCH LOW
PSH	PRESSURE SWITCH HIGH
PVC	POLYVINYL CHLORIDE
SCH	SCHEDULE
SDR	STANDARD DIMENSION RATIO
TAL	TEMPERATURE ALARM LOW
TI	TEMPERATURE INDICATOR
TT	TEMPERATURE INDICATING TRANSMITTER
TYP	TYPICAL
UG	UNDERGROUND
VFD	VARIABLE FREQUENCY DRIVE
W	WATER
YI	RUN INDICATION
ZI	POSITION INDICATOR

CONTROL SYSTEM INTERLOCKS

INTERLOCK #	DESCRIPTION
1	IF HIGH LEVEL AT EXTRACTION WELL VAULT (LAH–1XX), SIGNAL ALARM AT MAIN CONTROL PANEL (MCP) AND TURN OFF ALL EXTRACTION WELLS. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
2	IF PUMP RUN SIGNAL DETECTED (YI–1XX) AT EXTRACTION WELLS AND RESPECTIVE FLOW RATE IS 0 AFTER 5 MINUTES, SIGNAL ALARM AT MCP (FAL–1XX) AND TURN OFF ALL EXTRACTION WELLS.
3	IF LOW LEVEL IN EXTRACTION WELL (LAL–1XX), SIGNAL ALARM AT MCP AND TURN OFF EXTRACTION WELL PUMP.
4	IF HIGH–HIGH LEVEL ALARM SWITCH ACTIVATED AT T–200 (LAHH–200), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B, P–400, P–410A/B, P–420, P–500A/B, AND P–800 TURN OFF ALL EXTRACTION WELL PUMPS, TURN OFF BUILDING SUMP PUMP P–900, AND CLOSE MV–200 AND MV–500. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
5	IF HIGH LEVEL ALARM AT T–200 (LAH–200), SIGNAL ALARM AT MCP AND TURN OFF ALL EXTRACTION WELL PUMPS, TURN OFF PUMPS P–400 AND P–800, AND CLOSE MV–200.
6	IF LOW LEVEL ALARM AT T–200 (LAL–200), SIGNAL ALARM AT MCP, TURN OFF PUMPS P–200A /B AND P–800, TURN OFF ALL EXTRACTION WELL PUMPS, TURN OFF BUILDING SUMP PUMP P–900, AND CLOSE MV–200.
7	IF LOW–LOW LEVEL ALARM SWITCH ACTIVATED AT T–200 (LALL–200), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B AND P–800, TURN OFF ALL EXTRACTION WELL PUMPS, AND CLOSE MV–200. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
8	IF HIGH LEVEL SETPOINT #1 AT T–200, TURN ON LEAD PUMP (P–200A OR B) – LEAD/LAG PUMPS SHALL BE ALTERNATING.
9	IF LOW LEVEL SETPOINT #1 AT T–200, TURN OFF PUMPS P–200A/B.
10	IF HIGH LEVEL SETPOINT #2 AT T–200, OPEN MV–510 AND CLOSE MV–500.
11	IF LOW LEVEL SETPOINT #2 AT T–200, OPEN MV–500 AND CLOSE MV–510.
12	IF T–200 LEVEL TRANSMITTER SIGNAL (LT–200) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B, TURN OFF EXTRACTION WELL PUMPS, AND CLOSE MV–200.
13	IF HIGH LEVEL ALARM (LAH–900) AT BUILDING SUMP, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B, P–400, P–410A/B, P–420, P–500A/B, AND P–800, TURN OFF ALL EXTRACTION WELL PUMPS, AND CLOSE MV–200. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
14	IF LOW FLOW ALARM AT T–200 DISCHARGE (FAL–200), SIGNAL ALARM AT MCP, TURN OFF PUMPS P–200A/B, TURN OFF ALL EXTRACTION WELL PUMPS, AND CLOSE MV–200.
15	IF HIGH FLOW ALARM AT T–200 DISCHARGE (FAH–200), SIGNAL ALARM AT MCP, TURN OFF PUMPS P–200A/B, TURN OFF ALL EXTRACTION WELL PUMPS, AND CLOSE MV–200.
16	IF HIGH LEVEL ALARM SWITCH ACTIVATED AT T–300 (LAH–300), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
17	IF LOW BLOWER DISCHARGE PRESSURE (PAL–300) AT T–300, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B.
18	IF HIGH BLOWER DISCHARGE PRESSURE (PAH–300) AT T–300, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B.
19	IF HIGH LEVEL ALARM SWITCH ACTIVATED AT T–400 (LAH–400), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
20	IF HIGH–HIGH LEVEL ALARM SWITCH ACTIVATED AT T–410 (LAHH–410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B, P–400, P–410A/B, P–420, P–500A/B, AND P–800 TURN OFF ALL EXTRACTION WELL PUMPS, TURN OFF BUILDING SUMP PUMP P–900, AND CLOSE MV–200 AND MV–500. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
21	IF HIGH LEVEL ALARM AT T–410 (LAH–410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B.
22	IF LOW LEVEL ALARM AT T–400 (LAL–400), SIGNAL ALARM AT MCP, TURN OFF PUMPS P–200A/B AND P–410A/B.
23	IF LOW–LOW LEVEL ALARM SWITCH ACTIVATED AT T–400 (LALL–400), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B, P–410A/B AND P–420. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
24	IF HIGH LEVEL SETPOINT #1 AT T–410, TURN ON LEAD PUMP (P–410A OR B) – LEAD/LAG PUMPS SHALL BE ALTERNATING.
25	IF LOW LEVEL SETPOINT #1 AT T–410, TURN OFF PUMPS P–410A/B.
26	IF T–410 LEVEL TRANSMITTER SIGNAL (LT–410) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B AND P–410A/B.
27	IF LOW FLOW ALARM AT T–410 DISCHARGE (FAL–410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B.
28	IF HIGH FLOW ALARM AT T–410 DISCHARGE (FAH–410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B
29	IF LOW PRESSURE ALARM AT T–410 EFFLUENT (PAL–410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B.
30	IF HIGH PRESSURE ALARM AT T–410 EFFLUENT, (PAH–410), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B.
31	IF HIGH TEMPERATURE ALARM (TAH–500) AT AIR STRIPPER INLET DUCT, SIGNAL ALARM AT MCP AND TURN OFF P–410A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
32	IF LOW TEMPERATURE ALARM (TAL–500) AT AIR STRIPPER INLET DUCT, SIGNAL ALARM AT MCP AND TURN OFF P–410A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
33	IF HIGH PRESSURE ALARM ACROSS AIR STRIPPER SYSTEM (PAH–500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410 A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
34	IF LOW PRESSURE ALARM ACROSS AIR STRIPPER SYSTEM (PAL–500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410 A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
35	IF HIGH AIR STRIPPER SUMP SWITCH ALARM (LAH–500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410 A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
36	IF AIR STRIPPER SUMP HIGH LEVEL SETPOINT #1 ACTIVATED, TURN ON LEAD AIR STRIPPER DISCHARGE PUMP P–500A/B.– LEAD/LAG PUMPS SHALL BE ALTERNATING.
37	IF AIR STRIPPER SUMP LOW LEVEL SETPOINT #1 ACTIVATED, TURN OFF AIR STRIPPER DISCHARGE PUMPS P–500A/B.
38	IF LOW BLOWER AIR FLOW ALARM AT AIR STRIPPER (FAL–500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
39	IF HIGH BLOWER AIR FLOW ALARM AT AIR STRIPPER (FAH–500), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
40	IF HIGH BLOWER DISCHARGE PRESSURE ALARM AT AIR STRIPPER (PAH–510), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
41	IF LOW FLOW ALARM AT AIR STRIPPER DISCHARGE (FAL–510), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–500A/B AND P–410A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
42	IF HIGH FLOW ALARM AT AIR STRIPPER DISCHARGE (FAH–510), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–500A/B AND P–410A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
43	IF LOW PRESSURE ALARM AT P–500A/B DISCHARGE (PAL–520), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B AND P–500A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
44	IF HIGH PRESSURE ALARM AT P–500A/B DISCHARGE (PAH–520), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–410A/B AND P–500A/B AND TURN OFF BLOWERS B–300 AND B–500 AFTER 10 MINUTE DELAY.
45	IF HIGH LEVEL ALARM SWITCH ACTIVATED AT T–800 (LAHH–800), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–500A/B AND P–410A/B. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.

CONTROL SYSTEM INTERLOCKS

INTERLOCK #	DESCRIPTION
46	IF LOW LEVEL ALARM SWITCH ACTIVATED AT T–800 (LAL–400), SIGNAL ALARM AT MCP AND TURN OFF PUMP P–800. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
47	IF HIGH BUILDING TEMPERATURE ALARM (TAH–900), SIGNAL ALARM AT MCP.
48	IF LOW BUILDING TEMPERATURE ALARM (TAH–900), SIGNAL ALARM AT MCP AND TURN OFF ALL EXTRACTION WELL PUMPS AND CLOSE MV–200.
49	IF UNAUTHORIZED BUILDING ENTRY ALARM ACTIVATED, SIGNAL ALARM AT MCP.
50	IF LOSS OF SYSTEM POWER DETECTED, SIGNAL ALARM AT MCP AND CLOSE MV–200.
51	HIGH pH ALARM AT DISCHARGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–500A/B, AND P–410A/B.
52	LOW pH ALARM AT DISCHARGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–500A/B, AND P–410A/B.
53	HIGH pH ALARM AT T–300 (AAH–300), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B.
54	LOW pH ALARM AT T–300 (AAL–300), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B.
55	HIGH DISSOLVED O2 ALARM AT T–300 (AAH–310), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B.
56	LOW DISSOLVED O2 ALARM AT T–300 (AAL–310), SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–200A/B.
57	HIGH TEMPERATURE ALARM AT T–300 (TAH–300), SIGNAL ALARM AT MCP.
58	LOW TEMPERATURE ALARM AT T–300 (TAL–300), SIGNAL ALARM AT MCP.
59	IF HIGH–HIGH LEVEL ALARM SWITCH ACTIVATED AT T–100 (LAHH–100), SIGNAL ALARM AT MCP, TURN OFF P–001 AND CLOSE MV–100. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
60	IF HIGH LEVEL ALARM AT T–100 (LAH–100), SIGNAL ALARM AT MCP, TURN OFF P–001 AND CLOSE MV–100.
61	IF LOW LEVEL ALARM AT T–100 (LAL–100), SIGNAL ALARM AT MCP, TURN OFF BUILDING SUMP PUMP P–900, TURN OFF P–001 AND CLOSE MV–100.
62	IF LOW–LOW LEVEL ALARM SWITCH ACTIVATED AT T–100 (LALL–100), SIGNAL ALARM AT MCP, TURN OFF BUILDING SUMP PUMP P–900, TURN OFF P–001 AND CLOSE MV–100. ALL LEVEL SWITCHES SHALL BE WIRED NORMALLY CLOSED SO THAT LOSS OF SIGNAL WILL CONSTITUTE ALARM.
63	IF HIGH LEVEL SETPOINT AT T–100, TURN ON P–100.
64	IF LOW LEVEL SETPOINT AT T–100, TURN OFF P–100.
65	IF T–100 LEVEL TRANSMITTER SIGNAL (LT–100) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP, TURN OFF P–001 AND CLOSE MV–100.
66	IF HIGH LEVEL ALARM AT LEACHATE UNDERGROUND STORAGE TANK (LAH–001), SIGNAL ALARM AT MCP AND TURN OFF P–001.
67	IF LOW LEVEL ALARM AT LEACHATE UNDERGROUND STORAGE TANK (LAL–001), SIGNAL ALARM AT MCP AND TURN OFF P–001.
68	IF HIGH LEVEL SETPOINT AT LEACHATE UNDERGROUND STORAGE TANK, TURN ON P–001.
69	IF LOW LEVEL SETPOINT AT LEACHATE UNDERGROUND STORAGE TANK, TURN OFF P–001.
70	IF PUMP RUN SIGNAL DETECTED (YI–001) AND FLOW RATE IS 0 AFTER 5 MINUTES, SIGNAL ALARM AT MCP (FAL–1XX) AND TURN OFF P–001.
71	IF LEVEL TRANSMITTER SIGNAL (LT–001) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP AND TURN OFF P–001.
72	IF HIGH DIFFERENTIAL PRESSURE ALARM ACROSS PF–410A/B (DAH–420), SWITCH FROM LEAD VESSEL TO LAG VESSEL.
73	IF HIGH LEVEL ALARM AT T–800 (LAH–800), SIGNAL ALARM AT MCP, TURN OFF P–500A/B AND CLOSE MV–510.
74	IF LOW LEVEL ALARM AT T–800 (LAL–800), SIGNAL ALARM AT MCP, TURN OFF PUMPS P–500A/B AND P–820A/B AND CLOSE MV–510.
75	IF T–800 LEVEL TRANSMITTER SIGNAL (LT–800) IS DETECTED OUT OF ACCEPTABLE RANGE, SIGNAL ALARM AT MCP AND TURN OFF PUMPS P–500A/B AND P–820A/B.
76	IF HIGH LEVEL SETPOINT #1 AT T–800, TURN ON LEAD PUMP (P–820A OR B) – LEAD/LAG PUMPS SHALL BE ALTERNATING.
77	IF LOW LEVEL SETPOINT #1 AT T–800, TURN OFF PUMPS P–820A/B.

CONTROL LOGIC

PUMP	DESCRIPTION
EXTRACTION WELL PUMPS	WELL PUMP OPERATION IS CONTROLLED BY THE LOCAL WELL PUMP CONTROL PANEL. PUMP OPERATION IS INITIATED WHEN THE PUMP ON LEVEL SETPOINT IS REACHED. PUMP OPERATION IS STOPPED WHEN THE PUMP OFF LEVEL SETPOINT IS REACHED.
P–001	LEACHATE COLLECTION SUMP PUMP OPERATION IS CONTROLLED BY THE LOCAL CONTROL PANEL. PUMP OPERATION IS INITIATED WHEN THE PUMP ON LEVEL SETPOINT IS REACHED. PUMP OPERATION IS STOPPED WHEN THE PUMP OFF LEVEL SETPOINT IS REACHED.
P–100	PUMP OPERATION SHALL BE CONTROLLED BASED ON LEVEL SETPOINT. PUMP OPERATION IS INITIATED WHEN THE PUMP ON LEVEL SETPOINT IS REACHED. PUMP OPERATION IS STOPPED WHEN THE PUMP OFF LEVEL SETPOINT IS REACHED. PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
P–200A/B	TRANSFER PUMP OPERATION SHALL BE ALTERNATING LEAD/LAG. LAG PUMP SHALL NOT TURN ON AUTOMATICALLY. PUMP OPERATION SHALL BE CONTROLLED BY VFD BASED ON FLOW SETPOINT. PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
MV–200	MOTORIZED VALVE MV–200 SHALL BE EITHER 100% OPEN OR CLOSED. PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST. IN THE EVENT OF A POWER LOSS, MV–200 SHALL BE CLOSED WITH POWER FROM UPS BACK–UP BATTERY.
B–300	BLOWER OPERATION SHALL BE CONSTANT AND NOT DEPENDENT UPON ANY SETPOINTS. BLOWER PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
P–400	TRANSFER PUMP OPERATION SHALL BE MANUALLY INITIATED AND TURNED OFF BY OPERATOR. PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
P–410A/B	TRANSFER PUMP OPERATION SHALL BE ALTERNATING LEAD/LAG. LAG PUMP SHALL NOT TURN ON AUTOMATICALLY. PUMP OPERATION SHALL BE CONTROLLED BY VFD BASED ON CONSTANT TANK T–410 LEVEL SETPOINT. PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
P–420	RECYCLE PUMP OPERATION SHALL BE CONSTANT AND NOT DEPENDENT UPON ANY SETPOINTS. PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
P–900	SUMP PUMP OPERATION SHALL BE AUTOMATIC BASED ON LOCAL SUMP LEVEL SWITCH POSITION. PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
B–500	BLOWER OPERATION SHALL BE CONSTANT AND NOT DEPENDENT UPON ANY SETPOINTS. BLOWER PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
P–500A/B	TRANSFER PUMP OPERATION SHALL BE ALTERNATING LEAD/LAG. LAG PUMP SHALL NOT TURN ON AUTOMATICALLY. PUMP OPERATION SHALL BE CONTROLLED BY VFD BASED ON CONSTANT AS–500 SUMP LEVEL SETPOINT. PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
MV–500	MOTORIZED VALVE MV–500 SHALL BE EITHER 100% OPEN OR CLOSED. PERMISSIVE CONIDTIONS ARE IDENTIFIED IN THE INTERLOCK LIST. IN THE EVENT OF A POWER LOSS, MV–200 SHALL BE CLOSED WITH POWER FROM UPS BACK–UP BATTERY.
MV–510	MOTORIZED VALVE MV–510 SHALL BE EITHER 100% OPEN OR CLOSED. PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST. IN THE EVENT OF A POWER LOSS, MV–200 SHALL BE CLOSED WITH POWER FROM UPS BACK–UP BATTERY.
P–800	TRANSFER PUMP OPERATION SHALL BE MANUALL INITIATED BY OPERATOR . PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.
P–820A/B	TRANSFER PUMP OPERATION SHALL BE ALTERNATING LEAD/LAG. LAG PUMP SHALL NOT TURN ON AUTOMATICALLY. PUMP OPERATION SHALL BE CONTROLLED BY VFD BASED ON FLOW SETPOINT. PUMP PERMISSIVE CONDITIONS ARE IDENTIFIED IN THE INTERLOCK LIST.

SUBMITTED FOR APPROVAL

CITY:SYRACUSE-NY DIV/GROUP:ENV/CAD DB:G.STEINBERGER LD:G.STEINBERGER PIC:P.FARR PM:D.SAUDA TM:S.BATTAGLIA LYR:ON=*;OFF=*REF*
R:\ENVCAD\SYRACUSE\ACTIC\B0031174\0003\0002\DWG\CONTRACT\31174P05.dwg LAYOUT: P5 SAVED: 2/12/2013 10:38 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: D2B-PDF PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 2/12/2013 4:22 PM BY: KOWALCZYK, STEVE
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NOT TO SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: **DONALD F. SAUDA**
Professional Engineer's No.: 084145
State: NY | Date Signed: | Project Mgr.: DFS
Designed by: SAB | Drawn by: KLS | Checked by: TEM

ARCADIS OF NEW YORK, INC.

DEWEY LOEFFEL LANDFILL SUPERFUND SITE • NASSAU, NEW YORK
GROUNDWATER AND LEACHATE TREATMENT SYSTEM

LEGEND, ABBREVIATIONS, AND INTERLOCKS

PROCESS

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