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January 29, 2010

To: Cara Burton, Solvay Public Library (1 bound)
Holly Sammon, Onondaga CountyPublic Library (1 bound)
Samuel Sage, Atlantic States Legal Foundation (1 bound)
Gina Fredericks, Liverpool Public Library (1 bound)
Mary Ann Coogan, Camillus Town Hall (1 bound)
Stephen Weiter, Moon Library (1 bound)

Re: Letter of Transmittal – Onondaga Lake Document Depository

The below document has been approved by the New York State Department of Environmental Conservation (NYSDEC) and is enclosed for your document holdings:

- Onondaga Lake Remedial Design – SCA Water Treatment Plant (WTP) Intermediate Design Submittal (Site No. 734030) dated October 8, 2009.

Sincerely,

John P. McAuliffe by ccc

John P. McAuliffe, P.E.
Program Director, Syracuse

Enc.

cc: NYSDEC Project Manager

Nancy Autry - Document Repositories - SCA WTP Intermediate Design Document

From: "Richard Mustico" <rxmustic@gw.dec.state.ny.us>
To: <SchultPD@obg.com>
Date: 1/26/2010 10:49 AM
Subject: Document Repositories - SCA WTP Intermediate Design Document
CC: <RogersJS@obg.com>, "Brian White" <WhiteBE@obg.com>

Paul - As per our discussion today, please make sure the above subject document, and my comment letter on the document, are placed in the Onondaga Lake document repositories.

Thanks - Rick

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D
625 Broadway, Albany, New York 12233-7013
Phone: (518) 402-9676 • **FAX:** (518) 402-9020
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

November 17, 2009

Mr. John P. McAuliffe, P.E.
Program Director, Syracuse
Honeywell
5000 Brittonfield Parkway, Suite 700
East Syracuse, NY 13057

Re: Onondaga Lake Remedial Design - SCA Water Treatment Plant Intermediate Design Submittal (Site No. 734030)

Dear Mr. McAuliffe:

The New York State Department of Environmental Conservation (Department) has reviewed the October 2009 document entitled "Intermediate Design Submittal, Onondaga Lake Remedial Design, SCA Water Treatment Plant" (Intermediate Design). The following comments should be incorporated into, and/or taken into account in the production of, the detail engineering process design document "DP-1 Process Design":

1. Section 3.4.1. Conveyance to Metro and Monitoring. Greater detail should be provided in the detailed engineering process design document with regard to the 30-inch and 24-inch forcemain. It is envisioned that this forcemain will convey treated water from the SCA WTP to the Onondaga County sewer system for polishing (mainly for ammonia treatment). Honeywell should document that there is sufficient capacity in the forcemain to prevent backups or overflows.

2. Section 4.1.3. Filtration System (optional). Filtration units prior to the granular activated carbon (GAC) units are described as optional. Based on discussions with Honeywell and bench scale results, the Department recommends utilizing mulit-media filtration (MMF) units (or equivalent) prior to the GAC units in the treatment train systems. MMF units would also likely reduce operational problems with the GAC units.

3. Section 5.3.5. Alternate Discharge. Additional detail with regard to Outfall 021 should be provided in the detailed engineering process design document. Testing (*e.g.*, from the post water treatment basin, prior to discharge) and outfall location should be further discussed and depicted. Treated water discharged from Outfall 021 would be required to meet the Department's final SPDES equivalent discharge limits (draft limits are in Appendix F of the Intermediate Design).

Based on the approved scheduled for the SCA WTP, contained in your September 17, 2009 letter to the Department, the detailed engineering process design document is due to the Department for review by March 10, 2010. If have any questions regarding this letter, please feel free to contact me *via* telephone at 518-402-9676.

Sincerely,

Richard A. Mustico, P.E.
Project Manager
Remedial Bureau D
Division of Environmental Remediation

c: Timothy Larson - NYSDEC
Gregg Townsend - NYSDEC, Syracuse
Margaret Sheen, Esq. - NYSDEC, Syracuse
Sandra Lizlovs - NYSDEC, Syracuse
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Robert Nunes - USEPA, NYC
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Christopher Calkins - O'Brien & Gere
Steve Miller - Parsons
Brian Israel, Esq. - Arnold & Porter

bc: D. Hesler/File
R. Mustico

bec: R. Edwards
B. Baker - Water
e-Docs

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C:\MyFiles\Onondaga Lake\SCA WTP Intermediate Design Letter.wpd

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East Syracuse, NY 13057
315-431-4443
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October 8, 2009

Mr. Richard Mustico
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D
625 Broadway
Albany, NY 12233-7013

Re: Onondaga Lake Bottom Subsite – Onondaga County, NY
Consent Decree 89-CV-815
SCA Water Treatment Plant

Dear Mr. Mustico:

Please find enclosed the SCA WTP Intermediate Design Submittal (Report) for your review and approval. In addition, please find updated responses to the relevant NYSDEC comments on the Draft Onondaga Lake Dredging, Sediment Management and Water Treatment Initial Design Submittal dated February 3, 2009. The responses presented herein update those responses presented in a June 19, 2009 letter to the NYSDEC.

Comment 4.37: Page 4-50, Paragraphs 1 and 2, Section 4.6.4. It is stated in the first paragraph that the dredge shutdown would range from 17 to 32 days (for 15 events) with an effluent holding capacity of one day (roughly 6M gallons), consistent with Appendix H. Appendix H also presents an estimated shutdown of 10 to 17 days (for 7 events) based on a holding capacity of two days (roughly 13 M gallons). This should also be discussed in the text and carried forward into further design evaluations as a potential method of increasing annual production.

June 18, 2009 Response: Further details will be provided in the Water Treatment Intermediate Design.

October 8, 2009 Response: Dredge shutdown and effluent holding capacity are being addressed as part of the Sediment Management Intermediate Design Submittal.

Comment 4.38: Page 4-51, Section 4.6.4. The report notes that 50% sodium hydroxide will be stored on site. We note that the freezing point for this solution is 40F. Will a heated building be necessary to prevent crystallization or will the tanks contain an in-vessel heating system?

June 18, 2009 Response: Any winter operations will provide freeze protection. Details pertaining to necessary associated considerations will be provided in the final design.

October 8, 2009 Response: As stated in Section 4.1.7 in the Report, where necessary the chemical tanks and pumps will be provided with heating systems for freeze protection.

Comment 4.39: Page 4-52, Section 4.6.4. What is the anticipated amount of sludge that will be generated?

June 18, 2009 Response: Mass balance estimates, including sludge generation estimates, will be revised as part of the Intermediate Design, and will reflect additional information obtained from Phase IV bench studies.

October 8, 2009 Response: Referring to the mass balance shown on PFD-2, it is estimated that approximately 1,159 lbs/hr of TSS will be returned to the SCA. This consists of clarifier sludge, as well as MMF and GAC backwash waters.

Comment 4.40: Page 4-52, Section 4.6.5.1. Will any pre-loading be necessary prior to the construction of the WTP on Wastebed 13? If so, when will the pre-loading take place?

June 18, 2009 Response: The need for preloading will be evaluated following equipment selection, sizing, and siting. Preloading is not anticipated but, should it be required, it will be scheduled to allow system start-up in accordance with the dredge schedule.

October 8, 2009 Response: The Report is pending final geotech evaluation based on proposed equipment and layout. Refer to Section 4.3.

Comment 4.41: Page 4-53, Paragraph 5, Bullet 4, Section 4.6.5.3 (second full bullet on page 4-54). It is stated here that cold weather operation will not be required. However, on page 4-41 it is stated that the pre-treatment system would operate in the winter. In addition, with geotextile tube covers/blankets (see Appendix I), it is anticipated that the geotextile tubes would continue to drain in the winter. Please clarify.

June 18, 2009 Response: The reference on page 4-41 refers to the effluent holding/equalization basin, which is anticipated to be operational during winter operations to normalize flow to the winterized portion of the WTP. The pre-treatment process is not anticipated to be operated in the winter. It is anticipated that geotextile tubes will continue to dewater in the winter. The SCA will be designed to accommodate the winter flow, and the appropriate winterizing considerations will be included.

October 8, 2009 Response: Refer to Section 3.1 of the Report for a description of winter operations and flows.

Comment 4.49: Page 4-60, Paragraph 5, Section 4.7.3 and Figure 4.9. Since the same area within the eastern portion of Wastebed 13 is proposed for both the slurry preconditioning (i.e., hydrocyclone, gravity thickener, polymer addition, oil-water separators) and the WTP and the size of this area is limited, a conceptual sizing/layout of all these facilities should be provided with an indication of the grading and sub-base plans.

June 18, 2009 Response: The subject IDS is presenting the conceptual level of equipment placement by identification of area. The determination of type and size of equipment is continuing to be defined during the design process. Upon completion of preliminary equipment selection and sizing, general equipment arrangement drawings and plot plans will be developed as part of the Intermediate Design.

October 8, 2009 Response: The type and size of equipment for the SCA WTP will continue to be refined during the design process. Final selection will be determined during detailed design and performance based equipment procurement. The General Arrangement (GA) drawing G-2 shows a schematic layout of a technically feasible treatment system, which is estimated to require less than 4 acres. The equipment GA for the slurry preconditioning will be provided in the Sediment Management Intermediate Design Submittal.

Comment 4.51: Table 4.5. Although Note 1 indicates that the range of influent concentrations presented is "based on EET testing of settled supernatant," it is unclear as to what data these "SCA WTP Preliminary Estimated Untreated Influent" concentrations are based on. For example, according to the Honeywell Phase II Pre-Design Investigation SCA Supernatant Treatability Testing Report (O'Brien & Gere, 2008b), the maximum mercury value reported for the effluent elutriate testing (EET) data in Tables 1c through 30c is 2.9 mg/L (Table 15c, SMU-4, Site 40062) and the maximum mercury value reported for the supernatant data (in the sediment/water mixture) in Tables 49c through 53c is 3.8 mg/L (Table 51c). However, Table 4.5 of the IDS shows the maximum mercury value expected in the influent to be 0.94 mg/L. Please clarify.

June 18, 2009 Response: The referenced tables in the Treatability Testing Report (15c and 51c) report the mercury value for the sediment/water mixture (i.e. unsettled sediment/lake water mixture at time = 0). Table 4.5 reports the anticipated mercury level in the WTP influent based on the treatability testing results for settled supernatant.

October 8, 2009 Response: Refer to the June 18, 2009 response.

Comment 4.52: Figure 4.1. This figure should have shown the return of captured solids to the slurry preconditioning area from the WTP. This needs to be corrected in future submittals. (Also, note that Fig. 4.1 refers to Fig. 4.9 for the WTP, but that figure is Fig. 4.8).

June 18, 2009 Response: Figure 4.1 is a preliminary process flow diagram and does not contain all elements of the system. The finalized process flow diagram will include the return of captured solids. The incorrect reference to 4.90 instead of 4.8 is noted.

October 8, 2009 Response: The updated process flow diagram for the WTP, which includes the return of captured solids to the geotextile tubes, is included as drawing PFD-1 in Appendix B of the Report.

Comment H.1: It would be helpful if this document provided the actual number of days that the Metro influent exceeded the target volume for the time period reviewed. It would be a useful check to verify the report's conclusions. Also, it was unclear what the actual maximum flow for the WTP shutdown would be. Is it 118 MGD or 126MGD? These issues need to be included in the intermediate design submittal.

June 18, 2009 Response: The criteria for the WTP shutdown is 126 MGD. Further details pertaining to the estimate of the number of shutdown days will be provided in the Water Treatment Intermediate Design.

October 8, 2009 Response: Refer to Section 5.3.4 for the proposed Wet Weather Operating Plan for Metro which identifies the maximum flow at Metro before SCA WTP shutdown.

The actual number of days recorded for flows exceeding the allowable influent to Metro ranged from 38 to 70 days (average 56 days) over the expected dredge duration timeframe. The potential impacts to the treatment operations will be somewhat mitigated by the Water Treatment Influent and Effluent Basins.

Please note that the Onondaga Lake Pre-Design Investigation Phase IV Report – Addendum 5 Supplemental Water Treatability Testing will be issued as a separate document to NYSDEC on October 14, 2009, in accordance with the agreed upon schedule. The information presented in the Supplemental Treatability Testing Report has been used to support the selection of treatment technologies for the SCA Water Treatment Plant.

Honeywell is requesting your review and approval of the Intermediate Design Report prior to proceeding with the detailed design, procurement, construction and commissioning of the SCA Water Treatment Plant.

Sincerely,

John P. McAuliffe, P.E.
Program Director, Syracuse

cc:	Mr. Robert Nunes	USEPA (4 copies)
	Mr. Donald J. Hesler	NYSDEC, Albany
	Mr. Tim Larson	NYSDEC, Albany
	Ms. Sandy Lizlovs	NYSDEC, Syracuse
	Mr. James Burke	NYSDEC, Syracuse
	Ms. Patricia Pastella	OCDWEP, Syracuse
	Mr. Joseph Mastriano	OCDWEP, Syracuse
	Mr. Steve Martin	OCDWEP, Syracuse
	Joseph J. Heath, Esq.	(copy & CD)
	Thane Joyal, Esq.	(ec)
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	Ms. Heidi Kuhl	Onondaga Nation (ec)
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	Mr. William Hague	Honeywell
	Mr. Steve Miller	Parsons
	Mr. Christopher Calkins	O'Brien & Gere
	Mr. Jeffrey Rogers	O'Brien & Gere
	Mr. Brian White	O'Brien & Gere

INTERMEDIATE DESIGN SUBMITTAL

Onondaga Lake Remedial Design
SCA Water Treatment Plant

Honeywell

October 2009

1163/44523

INTERMEDIATE DESIGN SUBMITTAL

Onondaga Lake Remedial Design
SCA Water Treatment Plant

Honeywell

Jeffrey S. Rogers, P.E., Senior Vice President

October 2009

O'BRIEN & GERE

TABLE OF CONTENTS

Tables

Figures

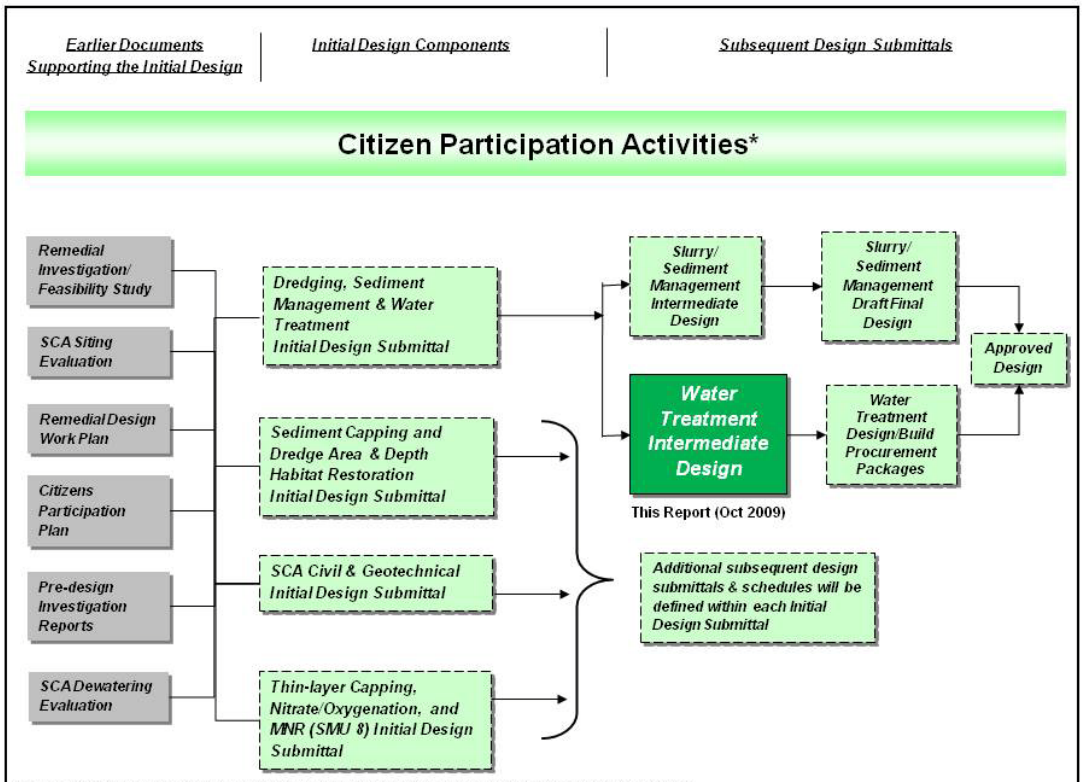
Appendices

Executive Summary

Honeywell International, Inc. (Honeywell) continues its progress toward achieving the goals of the Record of Decision (ROD), and the community's vision for a restored Onondaga Lake, with the development of this Draft Sediment Consolidation Area (SCA) Water Treatment Plant (WTP) Intermediate Design Submittal. In collaboration with a design team consisting of nationally recognized experts from various universities, research institutions, specialty engineering firms, and with input from community stakeholders, Honeywell is developing a Remedial Design which will meet the objectives as outlined in the ROD, provide long-lasting protection to the local community and environment, and restore Onondaga Lake to the community.

As outlined in the Draft Dredging, Sediment Management & Water Treatment Initial Design Submittal (Parsons, O'Brien & Gere and Anchor Environmental, 2009), the remedial design will include the preparation and submission of separate Intermediate Design Submittals, which will address various elements of the remedy. Separating the design into several submittals allows for expediting critical path activities such as the SCA WTP. Using this approach, the design, construction, and commissioning of the SCA WTP can be completed on an expedited schedule prior to the start of the dredging, which is scheduled to begin in the spring of 2012. This Intermediate Design Submittal has been prepared to address only the SCA WTP. The dredging, capping, and sediment dewatering at the SCA will be addressed in separate submittals. The water treatment Influent and Effluent Basins, and the infrastructure beyond the limits of the SCA WTP (e.g., electrical service, access roads, potable water supply, etc.) will also be addressed as part of the Sediment Management Intermediate Design Submittal. Figure ES-1 summarizes the remedial design components and submittals for the Onondaga Lake project.

Figure ES-1. *Onondaga Lake Remedial Design Components*



This SCA WTP Intermediate Design Submittal has been prepared in accordance with the Draft Remedial Design Work Plan (RDWP) for the Onondaga Lake Bottom Subsite (Parsons, 2008). This document presents necessary elements to obtain primary-level acceptance of the SCA WTP process design prior to proceeding with detailed design, procurement, construction, and commissioning of the SCA WTP.

Honeywell entered into a Consent Decree (89-CV-815) with the New York State Department of Environmental Conservation (NYSDEC) to implement the selected remedy for Onondaga Lake as outlined in the ROD issued on July 1, 2005. The ROD specified treatment of the SCA WTP effluent to meet NYSDEC permitted levels including compliance with the existing ammonia and phosphorus total maximum daily loads (TMDL) prior to being returned to the Lake. Compliance with the TMDL for ammonia is a critical driver for the WTP.

The TMDLs have also driven significant investments in the Onondaga County Department of Water Environment Protection (OCDWEP) Metropolitan Wastewater Treatment Plant (Metro), including the construction of enhanced ammonia and phosphorus removal systems. These new facilities have been in service since 2004/2005, have demonstrated excellent performance, and have capacity to accept additional loads. Honeywell has since worked with OCDWEP and obtained a draft Industrial Waste Discharge (IWD) permit (#800) to discharge the treated SCA effluent to Metro for enhanced ammonia removal.

In addition to obtaining a draft IWD permit to discharge the treated SCA effluent to Metro, several elements of the design were further developed since submission of the Draft Onondaga Lake Dredging, Sediment Management & Water Treatment Initial Design Submittal (Parsons, O'Brien & Gere and Anchor Environmental, 2009) including the following:

- The WTP will utilize multiple parallel treatment trains to allow for increasing or decreasing the plant throughput, in response to varying flows from the dredging operation. One treatment train will be installed inside of a heated structure for winter operations. The other treatment trains will be installed outdoors and will be idled and winterized when the dredge season ends.

- It is estimated that the winter flow, resulting from contact precipitation and seepage from the geotextile tubes, can be managed by a 500 GPM treatment train.

- During Phase II Treatability Testing it was concluded that filtration downstream of metals precipitation was not required to meet the mercury discharge objective.

- Field office trailers will be used as office and control room facilities for the WTP. Temporary modular units such as frac tanks will be used for tankage, where feasible.

- Rental of treatment units will be considered as an option. Performance-based specifications will be used to specify the treatment system allowing consideration of these options.

- Water Treatment Influent Basin, pumping and conveyance to the WTP, Water Treatment Effluent Basin, plant access, incoming power, potable water, and improvements to Wastebeds 12-15 will be included in the Sediment Management Intermediate Design Submittal.

As Honeywell moves forward with the design elements for the restoration of Onondaga Lake, community input will remain a vital component for a successful program. Honeywell is committed to working with community leaders, interested stakeholders and citizens to include input, recommendations, comments and perspectives into the technical design teams. In addition to Honeywell's ongoing community outreach program, the NYSDEC's Citizen Participation Plan provides a formal, yet flexible plan for communicating with the public during the remediation of the Onondaga Lake bottom. The NYSDEC has created a Lead Citizen Participation Work Group (Lead CPWG) consisting of interested community members, environmental and conservation leaders to take a broad overall look at project progress and associated community outreach activities. Honeywell remains committed to working with the NYSDEC and the Lead CPWG to provide a comprehensive program for obtaining and integrating public input into the Onondaga Lake bottom cleanup.

The Honeywell design team will interact with the personnel that will execute the operational phases of the remedial action so that the final design components are complete, implementable, and meet the project objectives, including protection of the nearby community and environment.

1. Introduction

On behalf of Honeywell, this Sediment Consolidation Area (SCA) Water Treatment Plant (WTP) Intermediate Design Submittal has been prepared in accordance with the Draft Remedial Design Work Plan (RDWP) for the Onondaga Lake Bottom Subsite (Parsons, 2008). Honeywell International, Inc. (Honeywell) entered into a Consent Decree (89-CV-815) with the New York State Department of Environmental Conservation (NYSDEC) to implement the selected remedy for Onondaga Lake as outlined in the Record of Decision (ROD) issued on July 1, 2005. The selected remedy includes dredging the Lake bottom, capping the dredged area, transporting and dewatering the dredged sediment at the SCA, treatment of the water generated by dredging and sediment dewatering (SCA WTP) and returning the treated water back to the Lake. Due to elevated ammonia levels projected to be in the dredge waters, Honeywell has since worked with the Onondaga County Department of Water Environment Protection (OCDWEP) and obtained a draft Industrial Water Discharge (IWD) permit (#800) to discharge the treated water to the OCDWEP Metropolitan Wastewater Treatment Plant (Metro) for enhanced ammonia removal.

This SCA WTP Intermediate Design Submittal expands upon the conceptual design previously presented in the Draft Onondaga Lake Dredging, Sediment Management Water Treatment Initial Design Submittal (Parsons, et. al, 2009) which was submitted to the NYSDEC for review in February 2009. This Intermediate Design Submittal addresses the proposed approach to the execution of detailed design procurement, construction, and commissioning of the SCA WTP. The objectives of this submittal are:

- To summarize performance objectives for the SCA WTP. The performance objectives will be used as the basis for the implementation of the project.
- Identify a technically feasible water treatment train that will meet the identified performance objectives.
- Summarize the proposed project execution strategy and proposed schedule for the SCA WTP.

This document presents necessary elements to obtain primary-level acceptance of the process design prior to proceeding with the detailed design, procurement, construction, and commissioning of the SCA WTP.

1.1. Project Execution Strategy

The implementation of the SCA WTP will be accelerated using a Design/Build Approach. This provides the advantage of allowing typical "construction" activities (i.e., equipment procurement and materials buy-out, etc.) to be conducted on a parallel path with design. Because the constructor is integrated with the engineer, the lag time of pre-construction activities (e.g., bid solicitation, review, negotiations, design clarification, etc.) is minimized. A proposed project schedule identifying the currently proposed sequencing of detailed design, procurement, construction, and commissioning activities is presented in Appendix A.

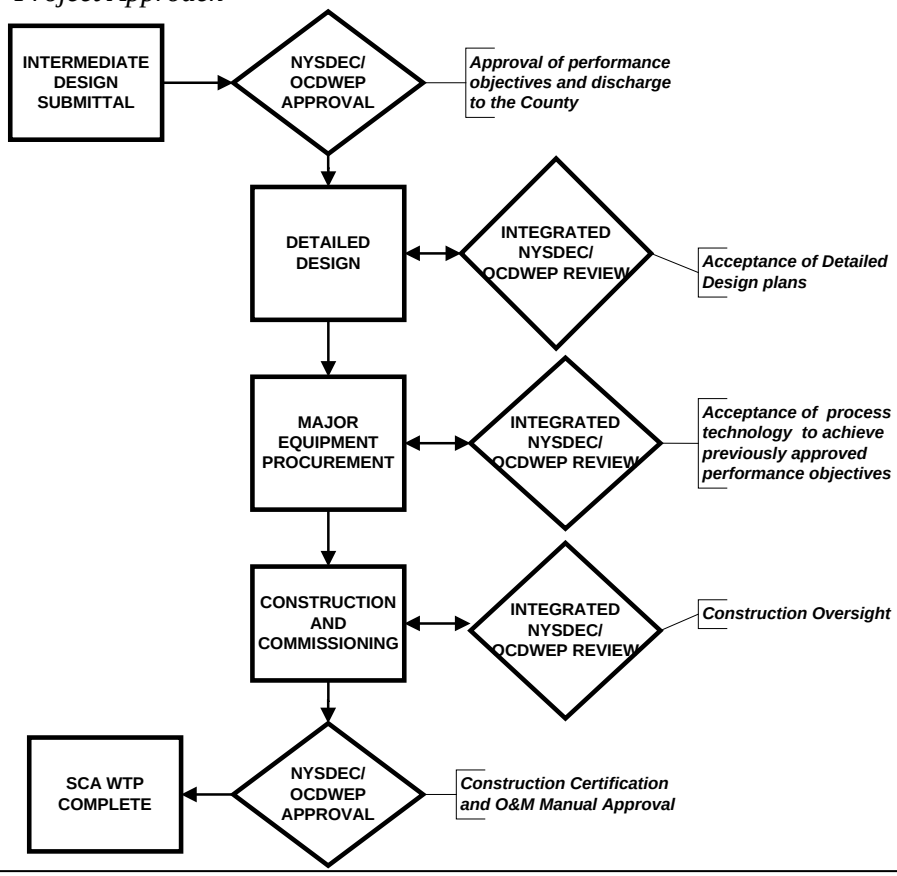
One of the significant drivers with respect to the overall project schedule will be the procurement of long-lead unit operations. Unit operations are defined as turn-key process systems, or sub-systems consisting of the necessary equipment and ancillary devices and controls required for the system/sub-

system to perform its intended function. Honeywell is proposing to initiate detailed design activities to facilitate procurement of long lead equipment following NYSDEC and OCDWEP approval of this Intermediate Design Submittal. All procurement specifications for the SCA WTP unit operations will be performance-based and will provide flexibility to make maximum use of proven process technologies. Process technologies for specific unit operations will be selected based on their demonstrated ability to meet the performance objectives, consideration of operation & maintenance requirements, reliability, and schedule requirements. The selection of these technologies may impact the layout and number of treatment trains.

The detailed design of the SCA WTP site infrastructure will be developed using building codes, industrial standards, the selected unit operation vendor(s) shop drawings, and other related information. As part of the Design/Build approach, detailed design packages will subsequently be used to solicit subcontractor quotes for field construction activities such as foundations, enclosures, pumping stations, piping, electrical, and related infrastructure required for a complete, functional SCA WTP.

Due to the highly interactive nature of a Design/Build project, the success of the SCA WTP will be driven by effective coordination and communication between the Design/Builder, Honeywell, OCDWEP, and the NYSDEC. To streamline the project schedule (by minimizing formal review/approval steps), the NYSDEC and OCDWEP will be integrated as members of the Project Team to facilitate interim reviews at key stages of the project. Based on the currently proposed project approach, it is anticipated that NYSDEC and OCDWEP participation will follow the general sequencing outlined in Figure 1-1.

Figure 1-1. *Project Approach*



Following NYSDEC and OCDWEP approval of the Intermediate Design Submittal, Honeywell will retain the appropriate Design/Build Contractor(s) for the project. The Design/Builder will develop a Project Execution Plan (PEP), which will provide a detailed procurement strategy, summarize proposed engineering deliverables, identify proposed construction sequencing, and present a detailed project schedule.

1.2. Submittal Organization

The following elements are incorporated into this submittal:

- Overview of Water Treatability Testing – Provides a summary of the work completed for treatability testing.
- Performance Objectives – Provides a summary of the technical information developed to support the WTP basis of design including design flow rates, projected influent criteria, effluent criteria, mass balance evaluations, and air emissions.
- Basis of Design – Provides the design requirements for the WTP including probable process unit operations and site infrastructure.
- Operation and Control Strategy – Provides a summary of the expected control system architecture, describes normal operations, and presents scenarios to address emergency operations for the WTP.
- Project Schedule – Provides an overview of schedule requirements for the execution of this project.

2. Water Treatability Testing

Previous testing efforts are summarized in the Draft Dredging, Sediment Management & Water Treatment Initial Design Submittal (Parsons, O'Brien & Gere and Anchor Environmental, 2009). Additional testing was performed following the Initial Design Submittal (IDS) to address data gaps (reference Section 4.6.3.1 of the IDS). This testing consisted of:

- Confirm settling characteristics of geotextile tube effluent
- Evaluate presence of silver and molybdenum for OCDWEP Metro Plant operations
- Evaluate metals removal performance for nickel and mercury
- Quantify total adsorptive capacity of granular activated carbon (GAC)

It should be noted that silver, nickel, and molybdenum are not constituents of concern, but were evaluated for purposes of OCDWEP Metro Plant operations and its management of biosolids.

The supplemental treatability testing was performed in accordance with the Onondaga Lake Pre-Design Investigation Phase IV Work Plan – Addendum 5 Supplemental Water Treatability Testing (O'Brien & Gere, 2008). Results of the testing are summarized in the Onondaga Lake Pre-Design Investigation Phase IV Report – Addendum 5 Supplemental Water Treatability Testing (O'Brien & Gere, 2009), which is being submitted to the NYSDEC under separate cover. A brief synopsis of the supplemental testing is presented below.

Settling Column Tests

Settling columns were evaluated to develop surface overflow rates (SORs) for clarifier sizing optimization. Testing was completed on both effluent elutriate test (EET) generated and geotextile tube filtrate with pH adjustment and co-precipitation chemicals (alum, polymer) added. The testing was used to assess whether pre-conditioning of the water for geotextile tube application would impact wastewater treatment chemistry for metals removal.

The testing indicated that the intended pre-conditioning for geotextile filtration had no noticeable impact on precipitation. Additionally, from this testing, projected SOR values of approximately 310 to 1040 gpd/ft^2 were developed to achieve >95% removal of total suspended solids (TSS).

Silver and Molybdenum

Silver was not present above the detection limit (<0.01mg/L) in the samples analyzed. Molybdenum was detected at approximately 2.5 mg/L in the samples collected.

Metals Removal: Nickel and Mercury

Metals removal was evaluated on SMU-2 water generated from geotextile tube filtrate. The focus of the testing was to demonstrate removal efficiency for nickel and mercury. Nickel (spiked concentration of 3 mg/L) was removed 96% to 0.11 mg/L. In parallel, mercury (spiked concentration of 1000 ng/L) was removed >80% to <200 ng/L, below analytical practical quantitation limit (PQL) via EPA Method 7471A.

GAC Column: Estimated Carbon Usage

A long-term GAC column was operated at an empty bed contact time (EBCT) of 15 minutes. The column was 1 inch diameter and the flowrate was 17 mL/min. Approximately 4,600 bed volumes

were treated prior to effluent concentrations exceeding the Total Toxic Organics (TTO) limit of 100 µg/L. These data were used to predict full-scale carbon usage.

3. Performance Objectives

This section presents the performance objectives for the SCA WTP including design flow rates, projected influent criteria, discharge requirements, mass balance evaluations, and air emissions.

3.1. Design Flow Rates

The SCA WTP will provide treatment of the water generated by the sediment dredging and dewatering operations. Based on estimated flows, during the dredge season (April 15 through November 15), it is anticipated that the maximum influent flow to the WTP will be approximately 8.5 MGD. This includes flows from the dredging and dewatering operations, recycle streams from the SCA WTP, average daily incident precipitation, and attenuation that will be achieved via the Water Treatment Influent Basin. A complete water balance and basis of design for the Water Treatment Influent Basin will be provided in the Sediment Management Intermediate Design Submittal. The resulting WTP discharge of 6.5 MGD will be conveyed to Metro for enhanced ammonia removal. The process flow diagram (PFD) and mass balance, presented in Appendix B, summarize the anticipated maximum influent flows to the WTP.

During winter shut down of the dredge, November 15 through April 15, the geotextile tubes used to dewater the dredged sediment in the SCA will continue to drain. Precipitation and snowmelt at the SCA will result in additional flow during the winter shut down period. Several scenarios were evaluated and it was estimated that a 500 GPM treatment system should be sufficient for managing flows during the winter. Previously, it was planned to temporarily cap the SCA during the winter, which would have reduced the winter flow to approximately 150 GPM.

Additional information to further refine these estimates will be developed during future design activities and based on actual operating experience. Thus, the WTP will be designed with modularity and flexibility to accommodate expansion and contraction as the influent flow increases and decreases.

3.2. Influent Criteria

Projected influent characteristics for the proposed WTP, included as Appendix C, are based on the sampling and analytical characterization completed during water treatability testing. Two phases of water treatability testing were completed during the pre-design investigation activities and are summarized in the following reports: Phase II Pre-Design Investigation SCA Supernatant Treatability Testing (O'Brien & Gere, 2008) and Onondaga Lake Pre-Design Investigations Phase IV Report – Addendum 5 Supplemental Water Treatability Testing (O'Brien & Gere, 2009).

Phase II testing included effluent elutriate testing (EET) testing of settled supernatant from blended Lake water and sediment from SMUs 1, 4, 6, and 7. Phase IV testing included characterization of the effluent from simulated geotextile tube dewatering of blended Lake water and sediment from SMU 1B.

The influent characteristics presented in Appendix C represent the range of concentrations expected based on these two phases of treatability testing.

3.3. Mass Balance

A mass balance was developed to demonstrate that the proposed process train has the capability of achieving the effluent objectives under maximum daily flow conditions. The mass balance tracks the projected concentrations and loadings through the treatment process for the constituents identified in Appendix C. The mass balance is included in Appendix B. Data for the mass balance were primarily taken from the treatability testing results and from related laboratory analyses. Other data points were developed using general engineering design guidelines and typical removal efficiencies.

3.4. Discharge Requirements

As presented in the Draft Dredging, Sediment Management & Water Treatment Initial Design Submittal (IDS) (Parsons, et al., 2009), it is anticipated that the SCA WTP effluent will be discharged to Metro for ammonia removal. The following sections identify OCDWEP's requirements for operations of the SCA WTP.

3.4.1. Conveyance to Metro and Monitoring

Treated effluent will flow by gravity to the existing Honeywell Wastebed Leachate Overflow pumping station. The pump station is equipped with two pumps with a combined capacity of approximately 3 MGD. The pumps need to be replaced with two new pumps capable of a normal operating flow of 6.5 MGD to a maximum flow of 10 MGD. This work is outside the scope of this document.

Discharge from the pump station will be managed in accordance with the OCDWEP Draft IWD permit. During normal operation the discharge will be a maximum of 6.5 MGD. During wet weather events, the discharge from the SCA WTP may be shut down. (Refer to Section 5.3.4 for additional information on the Wet Weather Operating Plan). After a wet weather shut down of the SCA WTP, additional discharge up to 10 MGD may be allowed by OCDWEP, provided treatment capacity is available at Metro. This additional discharge capacity will allow start-up and operation of the SCA WTP while simultaneously emptying the Water Treatment Effluent Basin.

The pump station will convey the treated effluent to Metro via the existing Honeywell forcemain comprised of a 30-inch precast concrete cylinder pipe (PCCP) that transitions to a 24-inch PCCP. The integrity of this pipeline is currently being evaluated to assess its capacity to handle the additional flow from the SCA. Rehabilitation efforts will be performed on the pipeline, if necessary, based on the results of the evaluation. This work is outside the scope of this document.

A WTP effluent composite sampler will be utilized to collect samples for compliance with the sampling requirements of the OCDWEP IWD permit to confirm that the SCA WTP is treating the water to the pretreatment limits.

3.4.2. Effluent Criteria

The effluent limitations for the SCA WTP are identified in the OCDWEP Draft IWD Permit #800 included as Appendix D. Appendix C provides the OCDWEP Pretreatment Limitations compared to the anticipated influent concentrations.

3.5. Air Emissions

The SCA WTP was reviewed relative to odors and air emissions. A comparative AERMIC Model (AERMOD) modeling analysis was completed to evaluate the SCA WTP using uncovered unit processes. The results project that the estimated odors are below the odor threshold limit concentrations (7 odor units) and that the estimate air emission concentrations at off-site receptors are below the NYSDEC short term guideline concentrations (SGC's) and the annual guideline concentrations (AGC's).

4. Basis of Design

Water and sediments collected during dredging operations will be conveyed to a sediment consolidation area for the removal of suspended solids. The SCA WTP will receive the effluent for supplemental treatment. The SCA WTP will include provisions for the removal of suspended solids, precipitated metals species (including mercury), volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). The proposed treatment train is shown on the process flow diagram (PFD) in Appendix B. The treatment plant will utilize multiple parallel treatment trains, to accommodate fluctuations in flow rates and provide operational flexibility. A schematic general arrangement (GA) is provided in Appendix B as Drawing G-2. This section presents an overview of the process operations and the basis of design requirements for site infrastructure.

4.1. Overview of Treatment Process

The treatment system is proposed to consist of the following major unit processes:

- pH adjustment system
- Metals precipitation
- Filtration system (optional)
- VOC and SVOC removal system
- Treated water discharge system
- Residual solids management
- Chemical storage/feed systems

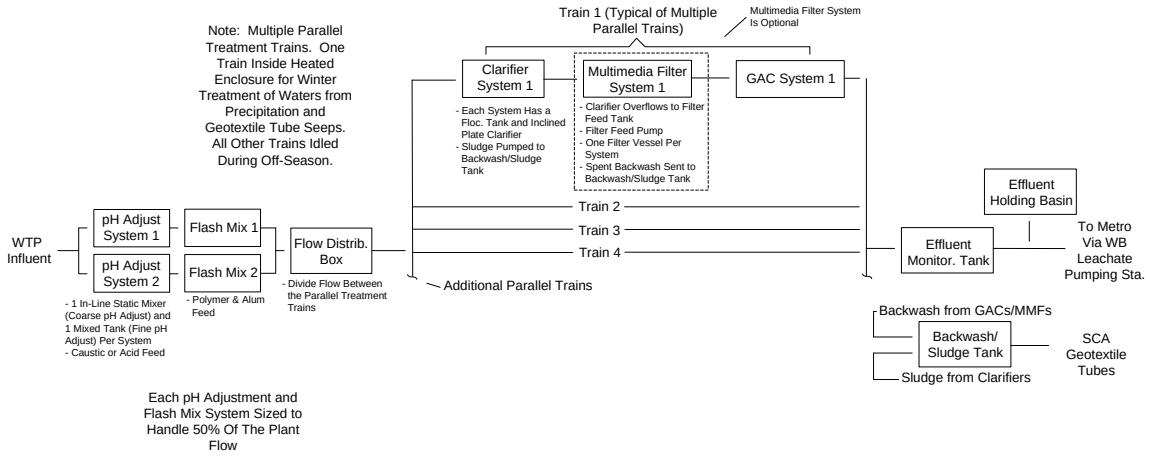
The key considerations in the selection of the proposed treatment system were:

- The use of technologies that have a demonstrated ability to achieve effluent performance goals.
- Operational flexibility to manage varying flows.
- Adaptability to the site conditions and the desire to minimize the need for deep foundations.
- Limited operational life span (four years).
- The minimization of site disturbances and ease of dismantling and demobilization.

The proposed collection of unit processes represents one potential option. The number of trains and layout may differ from what is proposed based upon final equipment selection and evaluation of the key considerations above. For example, gravity GAC basins in lieu of commercially available equipment may be used to achieve VOC and SVOC removal.

The facility will utilize multiple parallel treatment trains to allow for increasing or decreasing the plant throughput, in response to varying flows from the dredging operation. During winter months the dredging operation will be idled. Water resulting from contact precipitation and seepage from the geotextile tubes will require treatment during the winter. It is anticipated that one treatment train will be installed inside of a heated structure for winter operations. The other treatment trains will be installed outdoors and will be idled and winterized when the dredge season ends. Figure 4-1 illustrates the basic flow sequence for the SCA WTP.

Figure 4-1. *WTP Flow Sequence*



For additional information regarding the process equipment, refer to Appendix B for the process flow diagram and preliminary process and instrumentation drawings (P&IDs).

4.1.1. pH Adjustment System

The waters collected during dredging will exhibit a pH range of approximately 8 to 12.5 standard units (S.U.). To facilitate mercury and nickel precipitation, a pH of approximately 8.5 S.U. will be required. A sulfuric acid solution or a sodium hydroxide solution will be used to adjust the pH of the influent flow stream, as required. Water will be transferred from the Water Treatment Influent Basin via a pump station (by others) and will be divided between two pH adjustment tanks. Each of the tanks will have a volume of approximately 40,000 gallons and will be constantly mixed. The tanks will have vertical, cylindrical configurations. Coarse pH adjustment will occur in-line in the influent forcemain, with sulfuric acid or sodium hydroxide added to the pump discharge line upstream of a static inline mixer. Final pH adjustment will occur in the tanks. To accommodate varying flows, either one or both pH adjustment tanks can be operated.

4.1.2. Metals Precipitation

The pH adjusted water will flow by gravity from each of the pH adjustment tanks to a dedicated flash mix tank. Each tank will have a volume of approximately 10,000 gallons. Alum and polymer solutions will be added in the flash mix chambers. The tanks will be rapidly mixed.

The discharges from the two flash mix tanks will be directed to a distribution box. The distribution box will have a rectangular configuration. Water will enter a center chamber. The total flow will be divided (using telescoping valves or equivalent) and directed to the operating flocculation tanks, in which suspended solids and precipitated metals will be agglomerated. The water in each train will then be gravity fed to the corresponding inclined plate clarifiers (IPC). The IPCs will be designed with a SOR of 0.25 – 0.75 gpm/ft^2 based on the treatability testing results. To accommodate varying flows, either one or both flash mix tank(s) and one or more flocculation tank/IPC train(s) can be operated.

Gravity settling will occur in the IPCs. Supernatant will overflow from each of the clarifiers to the feed tanks. Settled solids will be pumped from the base of each clarifier to the backwash/sludge tank.

4.1.3. Filtration System (optional)

Phase II Treatability Testing concluded that filtration downstream of metals precipitation was not required to meet the mercury discharge objective; however, the design includes provisions for filtration if operational experience indicates polishing filtration is needed. The treatment train may utilize polishing filtration (multi-media or equivalent) vessels for the removal of solids carried over in the clarifier supernatant. The water would be pumped from the feed tanks to the filter vessels. Each IPC system would have a corresponding filter vessel. The vessels would periodically be backwashed with treated effluent water to remove accumulated solids. Backwashing would be initiated via either a timer, high differential pressure, or manually. The spent backwash water would be directed to the backwash/sludge tank.

4.1.4. VOC and SVOC Removal System

The water from the feed tanks will be pumped to a pair of granular activated carbon (GAC) vessels, which will be operated in series. The GACs will be designed for a hydraulic loading rate of 2-10 gpm/ft^2 and an empty bed contact time for both vessels of 15 minutes. Carbon adsorption will be used to remove VOCs and SVOCs. Either vessel may serve as the "lead" or "lag" unit. Once "break-through" of organic compounds is observed at the discharge of the lead unit, the treatment train will be temporarily idled and the spent carbon in the lead unit will be replaced. The (formerly) lead unit will be placed in the lag position, via the arrangement of valves. Backwashing with treated effluent water will be used to dislodge solids. Backwashing can be initiated via either a timer, high differential pressure, or manually. Spent backwash waters will discharge to the backwash/sludge tank.

4.1.5. Treated Water Discharge System

Treated water from the GAC vessels will discharge to the effluent monitoring tank. The pH of this tank and the effluent flow out of this tank will be monitored for effluent compliance. A composite sampler will be provided for effluent quality monitoring.

The effluent monitoring tank will be discharged by gravity to Honeywell's existing Wastebed Leachate Overflow Pumping Station for enhanced ammonia removal at Metro. Off-spec water can be recycled back to the Water Treatment Influent Basin via pumping. Backwash pumps will be provided to supply backwash water from the tank to the GAC (and polishing filter vessels if required).

4.1.6. Residual Solids Management System

As described above, the sludge from the clarifier bottoms and the solids-laden spent backwash waters will be discharged to the backwash/sludge tank. Frac tank(s) will be used for the backwash/sludge tank. The tank(s) will be constantly mixed, to prevent solids separation. The contents of the tank(s) will be pumped to the sediment consolidation area (geotextile tubes) for solids filtration. During winter operations, the solids will continue to be discharged to the geotextile tubes.

4.1.7. Chemical Storage/Feed Systems

The treatment plant will use sodium hydroxide (caustic), sulfuric acid, and alum solutions. These chemicals will be delivered to the site using bulk chemical tanker trucks. The chemicals will be stored in outdoor tanks located within concrete walled secondary containment areas as shown on drawing G-2 in Appendix B. The containment areas will have roofs to prevent the accumulation of rain water. The appropriate clearances will be maintained between chemicals and combustible materials for compliance with applicable codes. In addition, the tanks will be registered with the NYSDEC Chemical Bulk Storage (CBS) program by way of a modification to the existing license for other Honeywell CBS regulated storage tanks. Chemical metering pumps will be installed adjacent to

the tanks. Either caustic or sulfuric acid will be fed to the pH Adjustment Tanks via signals from pH controllers. Alum will be fed to the flash mix tanks at a constant dosage. The tank(s) and pumping system(s), as required, will be provided with heating systems for winter freeze protection. The treatment train will use polymer for flocculation at the inclined plate clarifiers. The polymer will be stored in totes or drums and be installed on top of secondary containment pallets.

4.2. Site Infrastructure

A preliminary review of the Building Code of New York was performed and is included as Appendix E. The results of the code review indicate a use classification "U" (Utility), which will apply to the site infrastructure requirements. The site infrastructure requirements include site development, structures/enclosures, utilities, structural, electrical, and permitting as presented below.

4.2.1. Site Development

In order to construct and support the proposed SCA WTP facility, several site development activities will be performed. These activities will consist of:

- installation of erosion and sedimentation controls (E&SC)
- installation of storm water controls, drainage facilities and storm water detention
- site clearing and grubbing activities
- site ingress and egress road improvements
- rough and final grading
- site preparation for construction activities
- construction of the SCA WTP facilities as indicated on Sheet G-2 and G-3
- extension of utilities (electric, water, influent and effluent pipelines, process pipelines) on the project site
- site stabilization

Upon site selection, the design details for the above items will be finalized.

4.2.2. Enclosures/Structures

The enclosure that will house the winter train will be heated for winter operation. It will be located as shown on Drawing G-2 in Appendix B.

Mobile trailers will be used for the offices and the lab facility as shown on Drawing G-2.

4.2.3. Utilities

The following utilities are proposed to support the SCA WTP.

Electrical

The electrical feeder will be connected at the limits of work as shown on the General Arrangement and be routed to the Switchgear/MCC pad. Refer to Section 4.4 for more details on the electrical distribution.

Potable Water
Potable water will be connected at the limits of work as shown on the General Arrangement and be routed to the emergency eyewash/safety showers required near chemical usage points. The exact number of eyewash/safety showers and their locations will be identified in the final design submittal.

Sanitary
Sanitary connections are not currently planned. Portable restrooms or a sanitary holding tank are proposed due to the temporary nature of the facility.

Compressed Air (optional)
Compressed air is not currently proposed. However, if polishing filtration is used, air scour would reduce the volume of backwash water required for the filters. If required, the size of the compressor system would be established in the final design submittal.

4.3. Structural

The structural design of the enclosure for the winter train and the foundations for the unit processes will follow the applicable and relevant codes listed below.

Structural Design Criteria:

Building Codes:
- Building Code of New York State, 2007 (BCNYS).
- ASCE 7-05

Structural Steel:
- AISC Steel Construction Manual, Allowable Stress Design, 13th Edition
- AISC Seismic Provisions for Structural Steel Buildings, March 9, 2005
- Design of Welded Structures, Blodgett
- Design Guide 9, Torsional Analysis of Structural Steel Members, Seaburg & Carter
- Design Guide 7, Industrial Buildings: Roofs to Column Anchorages, Fisher
- RCSC Structural Bolting Specification
- AWS D1.1, Structural Welding Code - Steel

Concrete:
- ACI 302.1R, Guide for Concrete Floor & Slab Construction
- ACI 318-02, Building Code Requirements for Structural Concrete
- ACI 350R, Environmental Engineering Concrete Structures
- ACI 350.1, Tightness Testing of Environmental Engineering Concrete Structures
- ACI 350.3/350.3R, Seismic Design of Liquid-Containing Concrete Structures
- ACI 360R-92, Design of Slabs on Grade
- ANSI/ASCE 3-91, Standard for the Structural Design of Composite Slabs
- Portland Cement Association (PCA) Design Standard for Circular and Rectangular Reinforced Concrete Structures
- PCI Design Handbook for Precast and Prestressed Concrete
- PCA Publication, Slab Thickness Design for Industrial Concrete Floors on Grade, R.G. Packard, 1976

- Sanitary Structures - Tanks and Reservoirs, Seidendstricker and Hoffman
- AWS D1.4, Structural Welding Code – Reinforcing Steel

Aluminum:

- Specification for Aluminum Structures, Pub. 30, Aluminum Assoc.

Metal Decking:

- SDI Design Manual for Composite Decks, Form Decks and Roof Decks
- SDI Manual of Construction with Steel Deck

OSHA Regulations

Loading Requirements:

Dead Loads:

- Weight of permanent structure.
- Weight of the fixed service equipment, such as plumbing stacks and risers, electrical feeders, heating, ventilating and air conditioning systems and fire sprinkler systems.

Roof Dead Loads:

- Roofing Material & Insulation 10 psf
- Selfweight of roof TBD
- M/E Allowance 10 psf

Live Loads:

- In accordance with the Building Code of New York State, Table 1607.1.

	Uniform (psf)	Concentrated (lbs.)
General Floor - First Floor	125[(1)]	2000
Corridor – First Floor	100[(1)]	2000
Office Space/ Personnel Assemb.	100[(1)]	2000
Walkways & Elevated Platforms	60	
Stairs	100	300
Minimum Roof	20	

(1) Minimum live loads for each occupancy. Actual loads of equipment (including impact and vibratory loading) shall be included in addition to designated loads.

Snow Loads: (BCNYS, Section 1608)

- Ground Snow Load, P_g = 50 *psf* ***(BCNYS, Figure 1608.2)***
- Snow Exposure Coefficient, ***(BCNYS, Table 1608.3.1)***
  Terrain Exposure = 0.8
- Thermal Factor, C_t ***(BCNYS, Table 1608.3.2)***
  Unheated structure = 1.2
  Structure kept just above freezing = 1.1
  All other structures = 1.0
- Importance Factor, I_s = 1.0 ***(BCNYS, Table 1604.5)***

- Flat Roof Snow, $P_f = 0.7C_e C_t I_s P_g$ ***(ASCE 7, Sect. 7.3)***
- Unbalanced Roof Snow Loads ***(ASCE 7, Sect. 7.6)***
- Drift Loads ***(ASCE 7 Section 7.7)***

Wind Load: (BCNYS, Section 1609)

- Basic Wind Speed = 90 *mph* ***(BCNYS, Figure 1609)***
- Exposure Category = C ***(BCNYS, Section 1609.4)***
- Importance Factor, $I_w = 1.0$ ***(BCNYS, Table 1604.5)***
- Simplified Procedure ***(BCNYS Section 1609.6)***
- Analytical Procedure ***(ASCE 7, Sect. 6.5)***

Seismic Loads: (BCNYS Sections 1613 - 1623)

Upon final selection of the site location, the geotech requirements and the foundation design criteria will be established.

4.4. Electrical

The section below identifies and describes electrical voltage characteristics, power distribution, motor control, hazardous locations, lighting and miscellaneous systems intended for the SCA WTP.

4.4.1. Voltage Characteristics

Electrical equipment operating voltages will be based on the following:

- Service voltage – to be determined pending utility coordination (by others).
- Distribution voltage – 480/277 VAC, 3 phase, 60 Hertz.
- Branch circuits for motors 1 horsepower and larger – 480 VAC, 3 phase.
- Branch circuits for motors less than 1 horsepower to ½ horsepower – 480 VAC, 3 phase or 208 VAC, 3 phase.
- Branch circuits for site lighting – 480 VAC, 1 phase.
- Branch circuits for interior lighting – 120 VAC, 1 phase.
- Branch circuits for convenience receptacles – 120 VAC, 1 phase.

4.4.2. Power Distribution

The power distribution system will include:

- Incoming 480 VAC, 3 phase feeder with connection to switchgear (switchgear by others)
- Secondary switchboard with insulated case and molded case circuit breakers.
- Motor control centers and power distribution panels.
- Dry type transformers and lighting panelboards for 120/208 VAC power.

See Drawing E-1 in Appendix B – Power Distribution One-Line Diagram for system configuration and ratings of selected equipment.

4.4.3. Motor Control

The feed pumps (for MMF or GAC) will be equipped with variable frequency drives for flow modulation. The feed pump variable frequency drives will include bypass starters to allow constant speed pumping in the event of variable frequency circuitry failure.

Specific motors not equipped with variable frequency drives will be equipped with solid state reduced voltage starters as necessary to meet utility starting current limitations and to provide starting current characteristics compatible with generator motor starting capabilities.

Other motors will have full voltage magnetic or manual starters.

Motors will have disconnecting means in accordance with the National Electrical Code.

4.4.4. Hazardous Locations

The SCA WTP equipment has been classified as ordinary; therefore, a hazard classification plan is not required.

4.4.5. Lighting

Site lighting will consist of photocell controlled pole mounted fixtures with high pressure sodium type lamps. The lighting design will consider minimization of off-site impacts of light pollution.

Interior lighting will consist of manually controlled fluorescent or high pressure sodium type fixtures. Interior illumination levels will be as follows:

- Offices/Laboratory – 50 footcandles.
- Process areas – 30 footcandles.
- Storage areas – 20 footcandles.

4.4.6. Miscellaneous Systems

Miscellaneous electrical systems will be as follows:

- Grounding – system and equipment grounding in accordance with the National Electrical Code.
- Fire detection and alarming – none.
- Communications – telephone service with telephones in offices.
- Intrusion detection and alarming – none.

4.5. Permitting

A review of permitting programs associated with construction of the water treatment plant on the two potential sites was performed. Pursuant to the Consent Decree (89-CV-815), Honeywell is implementing the cleanup remedy jointly selected by the United States Environmental Protection Agency (USEPA) and NYSDEC. Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and 6 NYCRR § 375-1.7 (Permitting Remedial Activities). O'Brien & Gere will coordinate with the design team to facilitate substantive compliance with regulatory programs under the jurisdictional authority of the United States Army Corps of Engineers (USACE), NYSDEC, and Town of Camillus.

In accordance with Paragraphs 88 and 89 of the Consent Decree, Honeywell "shall obtain all permits, easements, rights-of-way, rights-of-entry, approvals, or authorizations necessary to perform Honeywell's obligations under this Consent Decree… Notwithstanding the provisions of paragraph 88.(b), DEC may exempt Honeywell from the requirement to obtain a permit issued by DEC for any activity that is conducted on the Site and that DEC determines satisfies all substantive technical requirements applicable to like activity conducted pursuant to a permit. In addition, DEC may exempt Honeywell from the requirement to obtain any other State permit or local permit where there is demonstration that obtaining such permit will substantially delay or present a hardship…"

Applicable construction-phase permitting programs were identified based on a review of G-1 overlaid on the following resource mapping[1]:

- Federal wetlands (boundaries based on federal wetland delineation completed in June 2009[2]
- New York State Freshwater Wetlands (and 100-foot buffer)
- 100-year floodplain[2]
- Classified streams
- Significant natural communities, rare plants and rare animals
- Environmental justice areas.

Based on a review of the mapping, no wetlands, floodplains, or other protected/regulated water bodies were identified within the site plan footprint on either potential water treatment plant site. Regulated water bodies are located proximal and, in some cases, contiguous to the alternative sites; and work within these areas would trigger additional substantive compliance (i.e., NYSDEC: Article 15 and/or 24 permits, 401 Water Quality Certification; USACE: Section 404 of the Clean Water Act; Municipality: Floodplain Development Permit).

Table 4-1 summarizes permit programs that may apply to one or both of the alternative sites, and is based on the current site plan and anticipated limits of construction. Based on the site selected, O'Brien & Gere will identify substantive requirements of applicable federal, state and local permitting programs for incorporation into design documents.

[1] Sources: NYS GIS Clearinghouse, http://www.dec.ny.gov/imsmaps/ERM/viewer.htm, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/onondagaco.pdf

[2] See also Policy on Floodplains and Wetland Assessments for CERCLA Actions (USEPA 1985), including Executive Order 11988, Floodplain Management and Executive Order 11990, and Protection of Wetlands, for activities within the floodplain (*i.e.*, adjacent to Onondaga Lake) and within federal wetlands.

Table 4-1. *Water Treatment Plant – Potential Permits & Approvals*

	Permit	Activity	Agency	Site Applicability (✓ = yes)	
				Base Site	Alternate Site
1	Permit to Construct an Air Emission Source (Article 19 of ECL; 6 NYCRR Part 201)	Permit to construct and operate an air emission source.	NYSDEC	✓	✓
2	Hazardous Substance (Chemical) Bulk Storage Petroleum Bulk Storage (Articles 17, 37 & 40 of the ECL; 6 NYCRR Parts 595-599, 610, and 612-614)	Tank registrations (including construction-related) (SPR and/or SPCC Plan may be necessary depending upon quantities)	NYSDEC	✓	✓
3	SPDES General Permit for Storm Water Discharges from Construction Activity (GP-0-08-001)	Storm water discharges from construction phase activities disturbing one-acre or greater. Includes preparation and implementation of SWPPP (may include review of SWPPP by MS4) and submission of NOI/NOT.	NYSDEC	✓	✓
4	SPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (GP-0-06-002)	Storm water discharges from certain industrial activities. Includes preparation and implementation of SWPPP.	NYSDEC	✓	✓
5	Wastewater Disposal System (Approval of Plans & Specifications) (6 NYCRR Part 652)	Approval of wastewater facility designs (*i.e.*, filter backwash system).	NYSDEC	✓	✓
6	Federal & State Preservation Laws (36 CFR 800; 9 NYCRR Part 428; Sections 3.09 and 14.09 of the NYS Parks, Recreation and Historic Preservation Law)	Activities affecting historic, architectural, archaeological and cultural resources. Involved State agency determines need for consultation with SHPO. May require completion of Project Review Form (project description and location, photographs, and documentation of prior disturbance) and/or cultural resource investigation. Goal is to obtain "No Effect" letter from SHPO. Typically coordinated as part of SEQRA review.	NYSOPRHP – Field Services Bureau (SHPO)	✓	✓
	Local				
7	Site Plan Approval	Review and approval of site plan by Town Planning Board.	Town Planning Board	✓	✓
8	Variances	Approval of area (*i.e.*, encroachment on setbacks) and/or use variances.	Municipality (ZBA)	Depends on site layout.	Depends on site layout.

Table 4-1. *Water Treatment Plant – Potential Permits & Approvals*

	Permit	Activity	Agency	Site Applicability (✓ = yes)	
				Base Site	Alternate Site
9	GML 239-m	County Planning Board review of activities located within 500-feet of State or County highway, municipal boundary or park.	County Planning Board	✓	✓
10	Water and Wastewater System Improvements Approval of Plans	Approval of water and wastewater infrastructure improvements and connection (including reduced pressure zone [RPZ]).	NYSDOH NYSDEC County	✓	✓
11	Industrial Wastewater Discharge Permit (Local Sewer Use Ordinance & Federal Pretreatment Regulations)	Approval of process waste discharges to POTW.	Onondaga County	✓	✓
12	Building Permit	Building code compliance.	Local Code Enforcement Office	✓	✓
13	Certificate of Occupancy	Approval to occupy building.	Local Code Enforcement Office	✓	✓

Acronyms

EAF – Environmental Assessment Form
ECL – Environmental Conservation Law
GML – General Municipal Law
GP – General Permit
MS4 – Municipal Separate Storm Sewer Systems
NEPA – National Environmental Policy Act
NOI/NOT – Notice of Intent/Notice of Termination
NYCRR – New York Codes, Rules and Regulations
NYS – New York State
NYSDEC – New York State Department of Environmental Conservation
NYSDOH – New York State Department of Health
NYSOPRHP – New York State Office of Parks, Recreation and Historic Preservation
POTW – Publicly-Owned Treatment Works
SHPO – State Historic Preservation Office
SPCC – Spill Prevention, Control and Countermeasure
SPDES – State Pollutant Discharge Elimination System
SPR – Spill Prevention Report
SWPPP – Storm Water Pollution Prevention Plan
ZBA – Zoning Board of Appeals

5. Operation and Control Strategy

This section presents the operation and control strategy for the treatment system. The following sections include control system architecture, normal operation, and emergency operation.

5.1. Control system architecture

A Honeywell Experion Process Knowledge System (PKS) distributed control system (DCS) will be used to monitor and control the treatment system. The DCS consists of three layers, The Operator Interface Terminal (OIT), The Process Controllers, and field devices. The sections below define each layer of the control system.

Operator Interface Terminal
The Honeywell Experion PKS Operator Interface Terminal will utilize Experion Station graphical interface software, operating on Microsoft Windows XP professional operating system. The OIT will be located in the office trailer as shown on Drawing G-2 in Appendix B and provides the following functions:

- Communications to the treatment system Logic Controller.
- Graphical representation of the process for monitoring and control
- System Alarm Annunciation, Remote Notification, and Alarm Logging
- System Event Logging
- Process data collection, trending, and archiving
- Automatic Report Generation

Process Controllers
The Process Controller will house and execute the programming logic that allows for automatic, reliable, and repeatable control of the treatment system.

In addition to the process controller, the control system will also consist of Input/Output (I/O) and communications modules for interfacing to the field devices. The following types of modules will be included:

- Communications modules such as Ethernet and ControlNet will be utilized to allow the OIT to communicate with the process controller.
- Analog input (4-20 mA) for monitoring pH, ORP, flow, level, turbidity, temperature, etc.
- Analog output (4-20 mA) for controlling modulating valve positions, pump speeds, chemical feed rates, etc.
- Digital inputs for monitoring: level switches, flow switches, pressure switches, motor run status, pump run, valve positions, etc.
- Digital outputs for controlling pump and agitator start/stop, valve positions, indicating lights, alarm horns, etc.

Interlocks between the SCA WTP and the SCA will be provided to prevent overfilling of SCA WTP tanks or dry operation of pumps.

Field Devices
Field devices include primary elements such as flow, turbidity, pH, ORP, level and temperature transmitters, and level, temperature, and pressure switches. Other field devices associated with the overall control system for the treatment facility include motor starters, variable frequency drives, valves, hand switches, pilot lights, chemical feed systems, etc. The field devices will be interfaced with the process controller via the appropriate I/O module.

5.2. Normal operation

The system will be designed with automated controls to support potential operation of the plant 24 hours/day, 7 days/week. This approach will accommodate the expected operations of the SCA dewatering facilities.

5.3. Emergency Operation

The SCA WTP will likely encounter emergency operations through the four years of operation including power loss, equipment failure, and wet weather events. The following sections describe the actions relative to each scenario.

5.3.1. Power Loss
The SCA WTP project does not have provisions for the installation of an emergency generator. Power loss to the dredging operations will stop the flow of dredge water; therefore, the SCA WTP will not be required to operate. As such, neither the dredging operations nor the SCA WTP will operate during a power outage.

5.3.2. Equipment Failure
In the event that a piece of equipment is down for maintenance or failure, the influent flow will be equally distributed to the operating trains on a temporary basis until the piece of equipment is repaired.

5.3.3. Off-Spec Treated Water
The pH of the treated water in the effluent monitoring tank and the effluent flow from the tank will be monitored for effluent compliance. In the event of off-spec water, the treatment system will be idled and the problem diagnosed and corrected. Prior to resuming normal operations, off-spec water captured in the effluent monitoring tank will be recycled back to the Water Treatment Influent Basin via the effluent recycle pumps. Activation of the recycle pumps and shutdown of the treatment system will be a manual operation. Once resolved, the treatment system will be brought back on line and the effluent recycle terminated.

5.3.4. Wet Weather Operating Plan
The Metro WWTP is designed to accept combined sanitary and storm water flows from the public sewer system. Metro's current SPDES permit includes a 12-month rolling average daily flow of 84.2 MGD. During dry weather periods the flows are typically well below the permitted average. The major treatment operations at Metro are designed to effectively treat wastewater flows well in excess of the permitted average daily flow and limited-duration high flows. This additional design capacity is used so that Metro has the capability to manage the "first flush" from storm events.

During periods of rain, snow, and/or snowmelt, the influent flows will significantly increase and may, at times, exceed the design capacities of the various treatment operations. Under these conditions wastewater can be by-passed with varying degrees of treatment. Metro's SPDES permit requires that the OCDWEP implement Best Management Practices (BMPs), which are intended to maximize pollutant capture and minimize water quality impacts from combined sewer overflows. To this end, the OCDWEP has developed a draft Wet Weather Operating Plan that describes operational adjustments to be made to individual unit operations to maximize treatment during wet weather events. In addition, the OCDWEP currently implements flow restrictions on some of the permitted industrial dischargers to maximize capture during wet weather conditions.

Current Industrial Discharge Management Practices

Approximately ten percent of the incoming flow to Metro is County-permitted industrial sources. Some of the permitted industrial sources are characterized as "batch" discharges. As a condition of the IWD permit for these industrial sources, the OCDWEP requires the submittal of a wet weather operating plan that will provide for coordination and contact information to discontinue discharges to the County sewer system during Metro WWTP by-pass events. Honeywell's existing Wastebed Leachate Overflow (ref. IWD Permit #801) is currently operated in this manner.

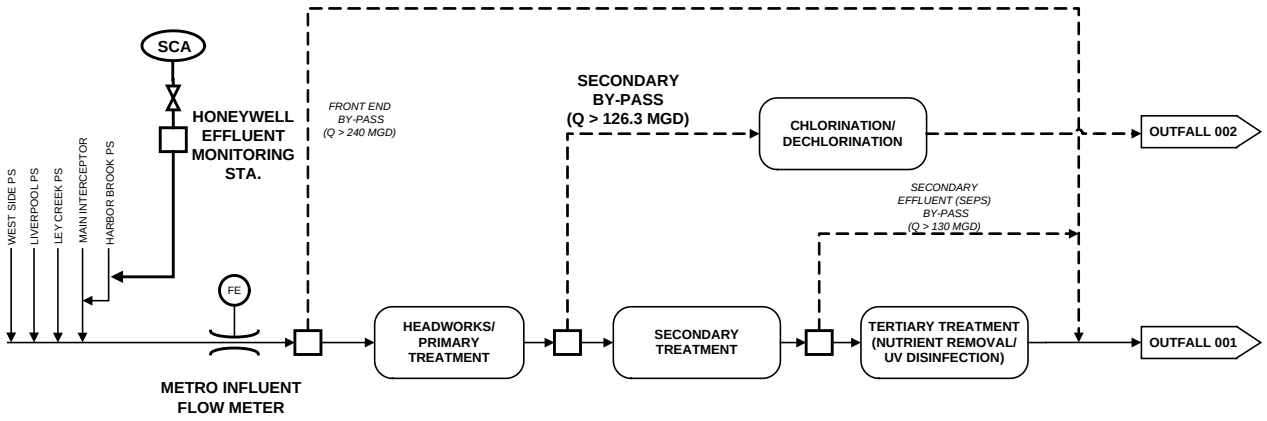
SCA Discharge: Wet Weather Operating Strategy

The treated SCA effluent will be conveyed to the public sewer system using Honeywell's existing Wastebed Leachate Overflow pumping station and forcemain. Treated SCA effluent will be stored in an effluent holding basin prior to being pumped to the existing point of connection of Honeywell's forcemain to the County's Harbor Brook Interceptor (i.e., at the existing tie-in point located adjacent to Hiawatha Boulevard). Honeywell will provide for effluent monitoring at the existing Wastebed Leachate Overflow pumping station.

During the period of active dredging, the SCA WTP will be operated on a seven-day per week, 24-hour per day basis. Flow rates will vary seasonally, with the highest flows being generated during the active dredging season (i.e., April through November).

The general configuration of the pretreated SCA discharge with respect to the County sewer system and Metro WWTP is outlined below.

Figure 5-1. *Pretreated SCA Discharge Configuration*



Honeywell's proposed wet weather operating strategy will consist of establishing progressive thresholds aimed at curtailing the pretreated SCA discharge during periods when Metro is experiencing high flows that could trigger a by-pass of the secondary treatment system. The secondary by-pass occurs when Metro flows exceed approximately 126.3 MGD. Under these conditions, influent flows to the Secondary Treatment System in excess of 126.3 MGD spill over a weir and are disinfected (on a seasonal basis) and discharged through Metro's Outfall 002.

To provide a framework for communication, operational flexibility, and "reaction time" to implement flow control measures, Honeywell is proposing to establish multiple wet weather operating conditions that will include:

- Normal Operation
- Metro High Flow Alert
- SCA Shutdown
- SCA Discharge Re-Start
- SCA Flow Recovery

Proposed wet weather operating guidelines for each of the pretreated SCA discharge operating conditions are outlined in the table below. These guidelines have been developed to provide a preliminary, high-level outline of the wet weather operating strategy. Honeywell will prepare and submit a detailed wet weather operating plan for the pretreated SCA discharge following issuance of the IWD permit by the OCDWEP.

Table 5-1. *SCA Discharge: Wet Weather Operating Guidelines*

OPERATION MODE		FLOW (MGD)		ACTIONS
		Metro (1)	SCA (2)	
1	**NORMAL OPERATION**	≤ 110	≤ 6.5	• Metro influent flow stable. Flow not trending upward for more than 30 minutes. • Metro operations staff monitoring local weather. No indications of pending Wet Weather event. • Pretreated SCA supernatant discharged in accordance with IWD permit
2	**METRO HIGH FLOW ALERT**	± 110 *(Trending Up)*	≤ 6.5	• Metro influent flow at, or about 110 MGD and trending up over a 30 minute period. • Metro operations staff monitoring local weather and comparing conditions to previous operating experience. • Metro contacts Honeywell to communicate "Alert" condition. • Honeywell mobilizes pretreatment system operations staff and implements measures to prepare for system shutdown. - *Ready for shutdown within a 1 hour period*

Table 5-1. *SCA Discharge: Wet Weather Operating Guidelines*

	OPERATION MODE	FLOW (MGD) Metro (1)	FLOW (MGD) SCA (2)	ACTIONS
3	**SCA SHUTDOWN**	± 125	0	• Metro influent flow at 125 MGD for 30 minute period *-OR-* • Metro monitors water levels in the Secondary By-Pass overflow box. [Requires installation of new level monitoring instrumentation w/connection to SCADA] - Target SCA shutdown when water level is within XX inches of the by-pass overflow weir • Metro operations staff monitoring local weather and comparing conditions to previous operating experience. • Metro contacts Honeywell to confirm immediate shutdown of the pretreated SCA discharge (within 1 hour response time).
4	**SCA DISCHARGE RE-START**	≤ 120 *(Trending Dn)*	≤ 5.0	• Following shutdown, Metro influent flow at 120 MGD and trending down for 30 minute period. • Metro operations staff monitoring local weather and comparing conditions to previous operating experience. • Metro contacts Honeywell to re-start pretreated SCA discharge. • Honeywell ramps flow up to 5 MGD for first 2 hours, then return to Normal Operation.
5	**SCA FLOW RECOVERY** *(Post Shutdown)*	≤ 100	±10.0	Typical guideline for post-shutdown events: • Metro influent flow below 100 MGD. • Metro operations staff monitoring local weather. No indications of pending Wet Weather event. • Honeywell requests permission to increase pretreated SCA discharge to maximum level.

NOTES:

1. Combined influent as measured by the influent flow meters (includes SCA effluent discharge to Harbor Brook Interceptor).
2. SCA discharge flow rate as measured at Honeywell's Effluent Monitoring station location.

5.3.5. Alternate discharge

In the event that treated water cannot be discharged to Metro (e.g., very wet year with Metro shutting down the SCA WTP more than the estimated 32 days/yr identified in the IDS), the flexibility will be provided to allow discharge to the Lake via Outfall 021. Notification would be provided to NYSDEC and OCDWEP that this would be occurring and the treated water would then need to meet the effluent requirements as identified in Appendix F. To comply with the effluent requirements at the Lake, the SCA WTP will monitor ammonia in the effluent monitoring tank, (in addition to flow and pH) prior to discharging.

6. Project Schedule

A proposed project schedule has been developed and is included in Appendix A. Significant project milestones which have been identified include the following:

- OCDWEP/NYSDEC Review and Acceptance of the Intermediate Design Submittal
- Development of Detailed Design
- Procurement of Long Lead Equipment
- WTP Construction Start (5/31/2011 per Consent Decree)
- WTP Construction Complete (1/4/2012 per Consent Decree)
- WTP Commissioning (5/30/2012 per Consent Decree)

As discussed in Section 1.1, the proposed project schedule presented herein has been developed based on a high degree of interaction between Honeywell, OCDWEP, and the NYSDEC. As such, formal OCDWEP and NYSDEC review and approvals have been streamlined to the Intermediate Design Submittal and the final construction certification deliverables. Additional OCDWEP/ NYSDEC interaction will be accommodated via "integrated" reviews to be performed by OCDWEP/ NYSDEC concurrent with the detailed design, procurement, and construction phases of the project.

References

1. O'Brien & Gere. 2008. *Phase II Pre-Design Investigation SCA Supernatant Treatability Testing.* June 2008.
2. O'Brien & Gere. 2008. *Onondaga Lake Pre-Design Investigation Phase IV Work Plan – Addendum 5 Supplemental Water Treatability Testing*. November 2008.
3. O'Brien & Gere. 2009. *Onondaga Lake Pre-Design Investigation Phase IV Report – Addendum 5 Supplemental Water Treatability Testing.* October 2009.
4. Parsons. 2008. *Draft Remedial Design Work Plan for the Onondaga Lake Bottom Subsite.* Draft October 2008.
5. Parsons, O'Brien & Gere, and Anchor Environmental. 2009. *Draft Onondaga Lake Dredging, Sediment Management & Water Treatment Initial Design Submittal.* Draft February 2009.

APPENDIX A

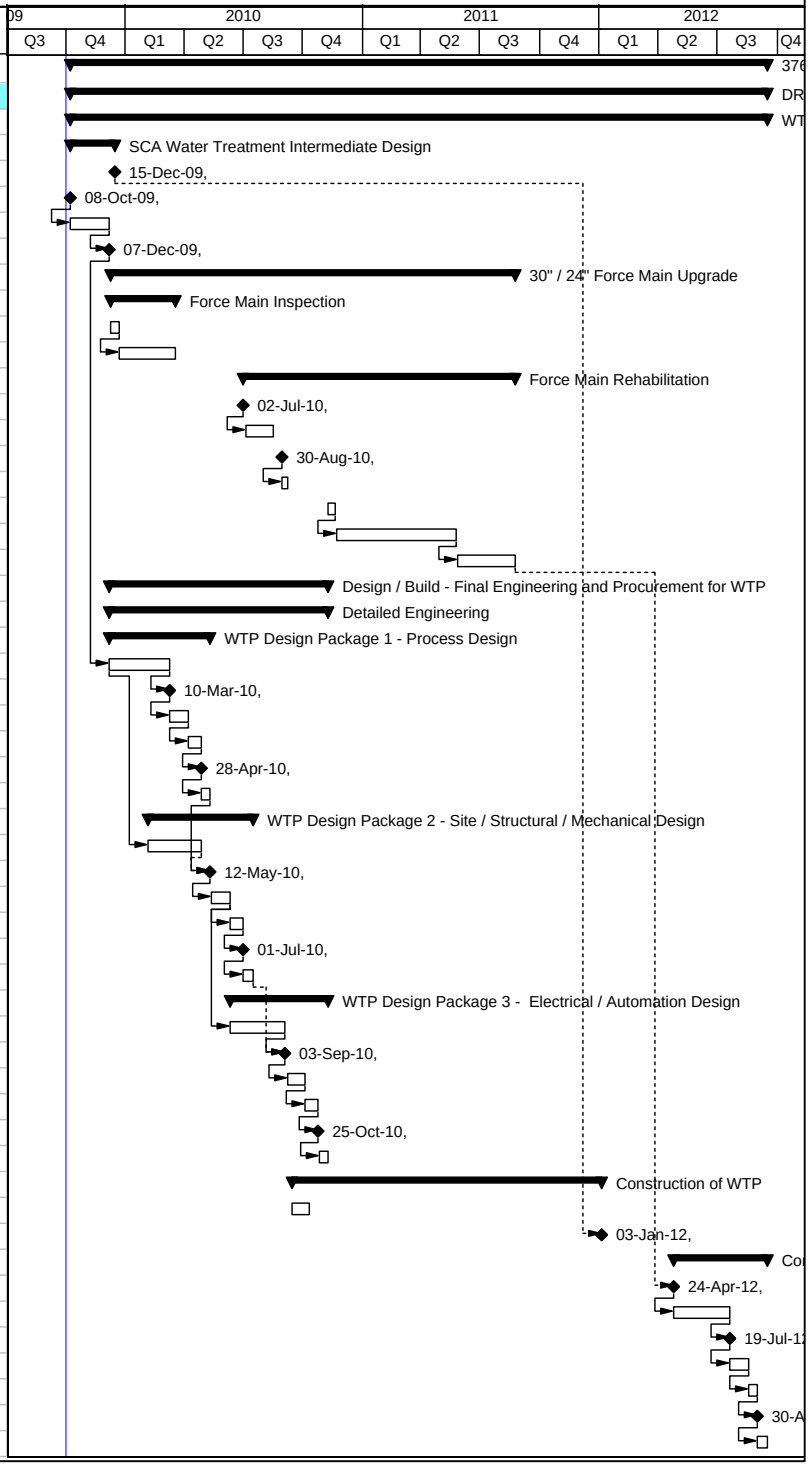
Project Schedule

37676 Onondaga Lake

Data Date: 01-Oct-09

Version: 05-Oct-09 14:47

Activity ID	Activity Name	Rem. Days	Total Float	Start	Finish
37676 Onondaga Lake		745	34	08-Oct-09	14-Sep-12
DREDGING / SCA OPS / WATER TREATMENT PLANT and OPS		745	34	08-Oct-09	14-Sep-12
WTP Design and Construction		745	34	08-Oct-09	14-Sep-12
SCA Water Treatment Intermediate Design		46	520	08-Oct-09	15-Dec-09
WT 0560	OCDWEP Issue Final IWD Permit	0	520		15-Dec-09
WT 0620	Submit Intermediate Design Report (WTP) to NYSDEC	0	0		08-Oct-09*
WT 0624	NYSDEC Comment Period	40	1	09-Oct-09	07-Dec-09
WT 0628	DEC Comment / Approval Of SCA Water Treatment Intermediate Design	0	1		07-Dec-09
30" / 24" Force Main Upgrade		434	194	09-Dec-09	23-Aug-11
Force Main Inspection		70	194	09-Dec-09	18-Mar-10
FM 2010	Contractor Mobilization for Force Main Inspection	10	194	09-Dec-09	22-Dec-09
FM 2020	Clean / Televise / Pressure Test Force Mains	60	194	23-Dec-09	18-Mar-10
Force Main Rehabilitation		289	194	02-Jul-10	23-Aug-11
FM 3040	Submit Rehabilitation Plan to NYSDEC	0	194		02-Jul-10
FM 3050	NYSDEC Review Rehabilitation Plan	30	194	06-Jul-10	16-Aug-10
FM 3070	Submit Final Rehabilitation Plan to NYSDEC	0	194		30-Aug-10
FM 3080	NYSDEC Review of Rehabilitation Plan / Issue Approval	5	194	31-Aug-10	07-Sep-10
FM 3110	Mobilization for Rehabilitation of 30" / 24" Force Mains	9	194	09-Nov-10	19-Nov-10
FM 3120	Rehabilitation of 30" / 24" Force Mains	130	194	22-Nov-10	26-May-11
FM 3130	Prepare Completion Report for Rehabilitation of 30" / 24" Force Mains	61	194	27-May-11	23-Aug-11
Design / Build - Final Engineering and Procurement for WTP		235	166	08-Dec-09	08-Nov-10
Detailed Engineering		235	166	08-Dec-09	08-Nov-10
WTP Design Package 1 - Process Design		110	1	08-Dec-09	12-May-10
WT 0812	DP - 1 Process Design	65	1	08-Dec-09	10-Mar-10
WT 0816	Submit DP - 1 Process Design to NYSDEC	0	1		10-Mar-10
WT 0820	DEC Review of DP - 1 Process Design	20	1	11-Mar-10	07-Apr-10
WT 0824	Incorporate DEC Comments into DP - 1 Process Design	15	1	08-Apr-10	28-Apr-10
WT 0828	Re-submit DP - 1 Process Design to NYSDEC for Approval	0	1		28-Apr-10
WT 0829	DEC Final Review of DP - 1 Process Design	10	1	29-Apr-10	12-May-10
WTP Design Package 2 - Site / Structural / Mechanical Design		115	36	04-Feb-10	16-Jul-10
WT 0822	DP - 2 Site / Structural / Mechanical Design	60	11	04-Feb-10	28-Apr-10
WT 0826	Submit DP - 2 Site / Structural / Mechanical Design to NYSDEC	0	1		12-May-10
WT 0830	DEC Review of DP - 2 Site / Structural / Mechanical Design	20	1	13-May-10	10-Jun-10
WT 0834	Incorporate DEC Comments into DP - 2 Site / Structural / Mechanical Design	15	36	11-Jun-10	01-Jul-10
WT 0838	Re-submit DP - 2 Site / Structural / Mechanical Design to NYSDEC for Approval	0	36		01-Jul-10
WT 0839	DEC Final Review of DP - 2 Site / Structural / Mechanical Design	10	36	02-Jul-10	16-Jul-10
WTP Design Package 3 - Electrical / Automation Design		105	166	11-Jun-10	08-Nov-10
WT 0832	DP - 3 Electrical / Automation Design	60	131	11-Jun-10	03-Sep-10
WT 0836	Submit DP - 3 Electrical / Automation Design to NYSDEC	0	131		03-Sep-10
WT 0840	DEC Review of DP - 3 Electrical / Automation Design	20	131	07-Sep-10	04-Oct-10
WT 0854	Incorporate DEC Comments into DP - 3 Electrical / Automation Design	15	166	05-Oct-10	25-Oct-10
WT 0858	Re-submit DP - 3 Electrical / Automation Design to NYSDEC for Approval	0	166		25-Oct-10
WT 0859	DEC Final Review of DP - 3 Electrical / Automation Design	10	166	26-Oct-10	08-Nov-10
Construction of WTP		330	1	14-Sep-10	03-Jan-12
WT 0920	Mobilization for Construction of Water Treatment System - Site / Civil	20	1	14-Sep-10	11-Oct-10
WT 0964	Water Treatment System Construction Complete (RDWP)	0	1		03-Jan-12*
Commissioning of WTP		100	34	24-Apr-12	14-Sep-12
WT 1018	SCA Water Treatment Plant Commissioning Complete (RDWP)	0	24		24-Apr-12*
WT 1022	Prepare SCA WTP Completion Report	60	34	25-Apr-12	19-Jul-12
WT 1024	SCA WTP Completion Report Submittal to NYSDEC	0	34		19-Jul-12
WT 1032	NYSDEC Review WTP Completion Report	20	34	20-Jul-12	16-Aug-12
WT 1042	Incorporate DEC Comments into SCA WTP Completion Report	10	34	17-Aug-12	30-Aug-12
WT 1044	Re-submit SCA WTP Completion Report to NYSDEC	0	34		30-Aug-12
WT 1052	NYSDEC Final Review of WTP Completion Report	10	34	31-Aug-12	14-Sep-12*



APPENDIX B

Drawings

ISSUED FOR INTERMEDIATE DESIGN SUBMITTAL

SCA
WATER TREATMENT PLANT

TOWN OF CAMILLUS, NEW YORK

HONEYWELL INTERNATIONAL, INC.
MORRISTOWN, NEW JERSEY

OCTOBER 2009

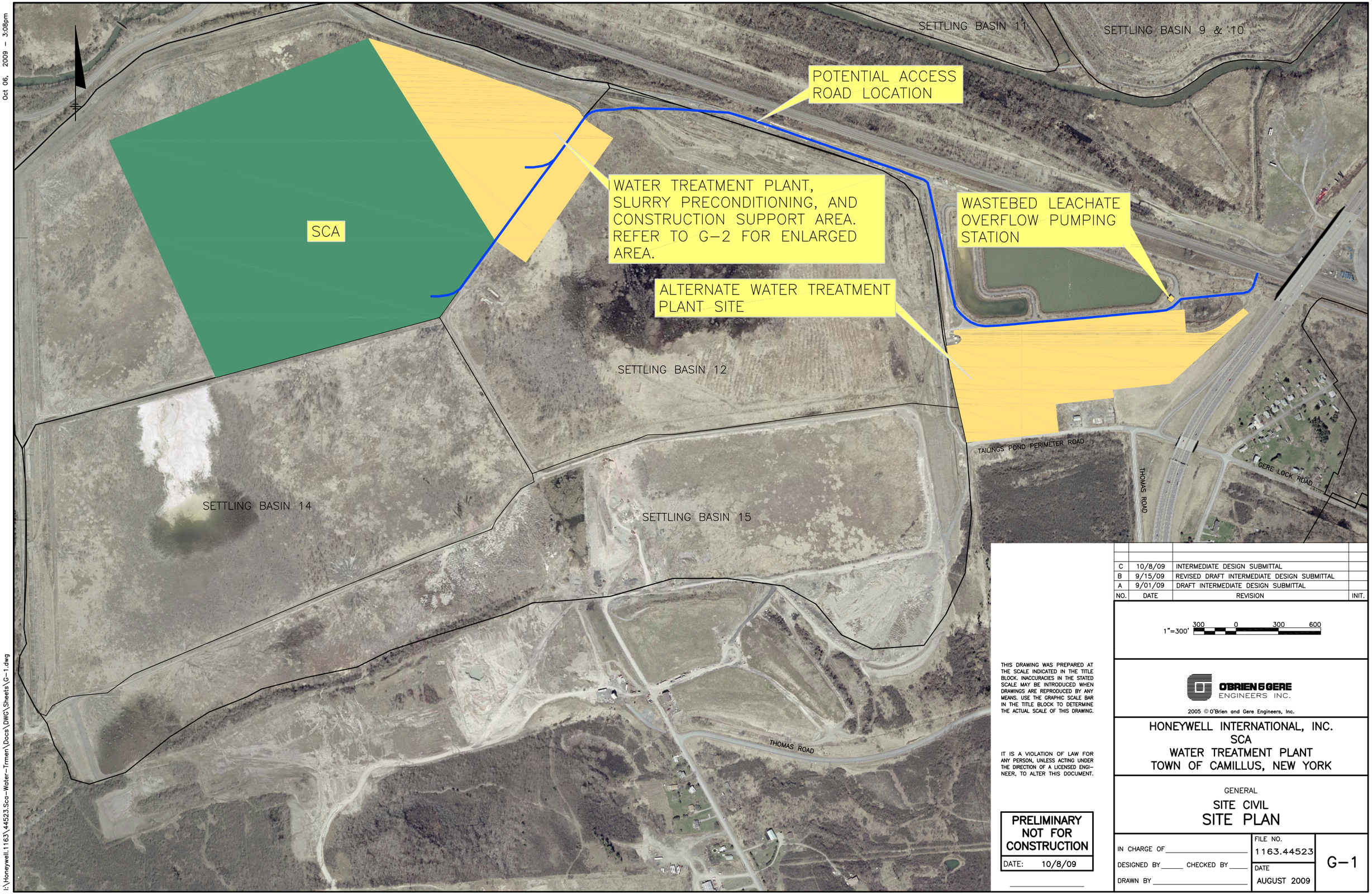
O'BRIEN & GERE
ENGINEERS INC.

5000 BRITTONFIELD PKWY
EAST SYRACUSE, NY 13057
PHONE: 315-437-6100

INDEX TO DRAWINGS

1163.44523

Oct 06, 2009 - 3:08pm



NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

1"=300' 300 0 300 600

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PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

GENERAL

SITE CIVIL

SITE PLAN

IN CHARGE OF _____

DESIGNED BY _____ CHECKED BY _____

DRAWN BY _____

FILE NO. 1163.44523

DATE AUGUST 2009

G-1

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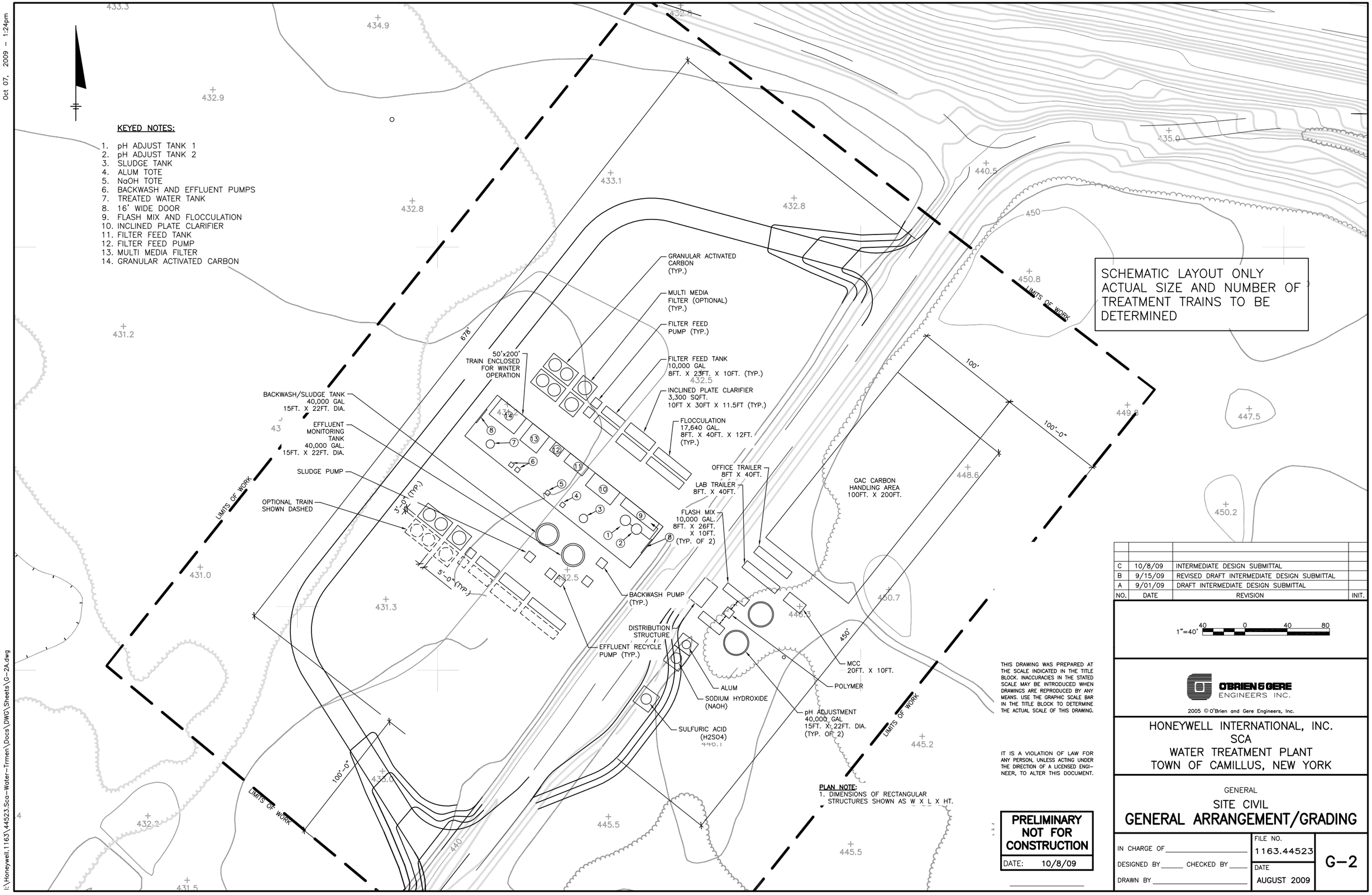
Oct 07, 2009 - 1:24pm



NO.	DATE	REVISION	INIT.
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B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

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DATE: 10/8/09

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

GENERAL
SITE CIVIL
GENERAL ARRANGEMENT/GRADING

IN CHARGE OF _____
DESIGNED BY _____ CHECKED BY _____
DRAWN BY _____

FILE NO. 1163.44523
DATE AUGUST 2009

G-2

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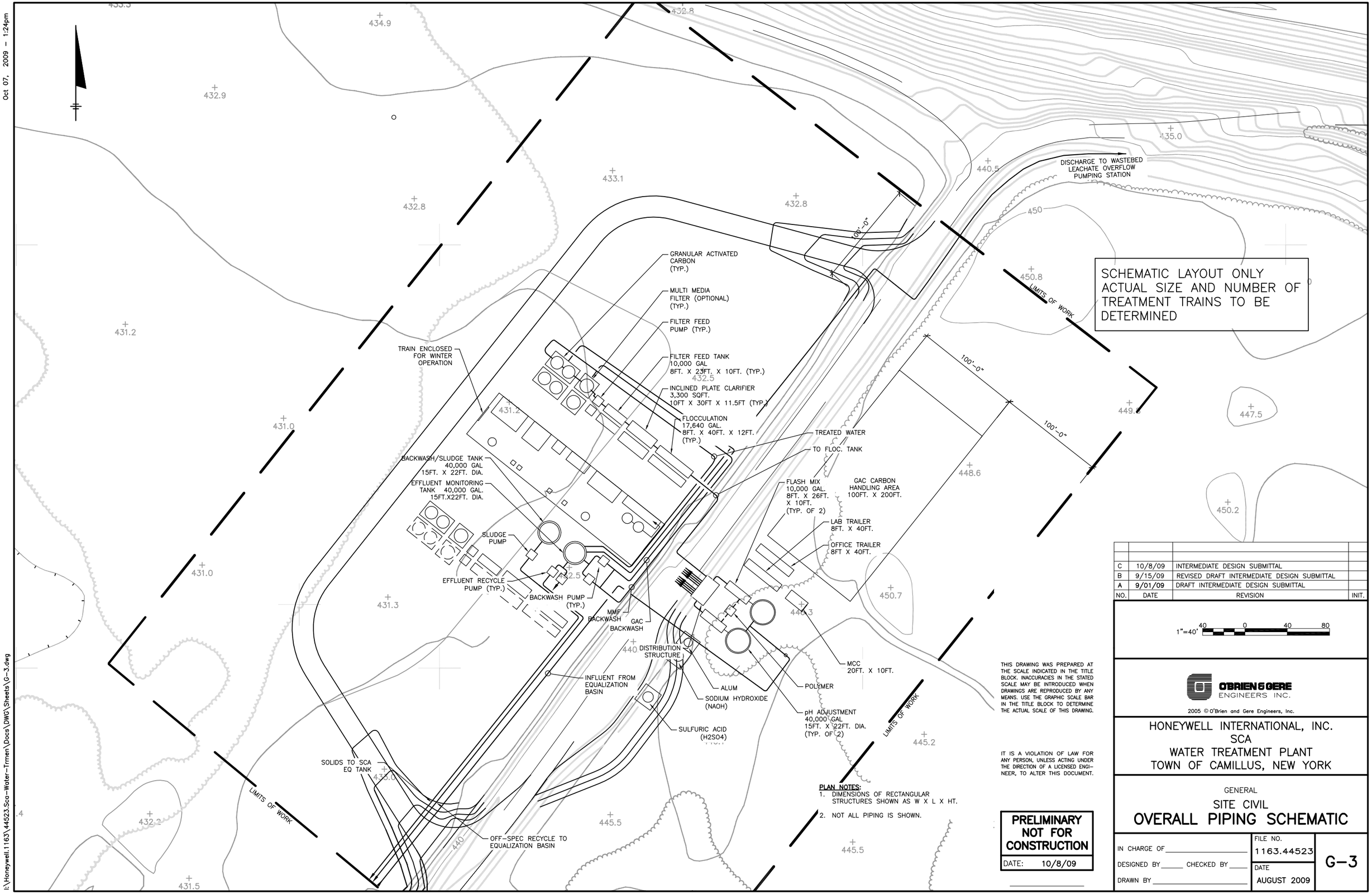

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A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

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HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

GENERAL
SITE CIVIL
OVERALL PIPING SCHEMATIC

IN CHARGE OF _____
DESIGNED BY _____ CHECKED BY _____
DRAWN BY _____

FILE NO. 1163.44523
DATE AUGUST 2009

G-3

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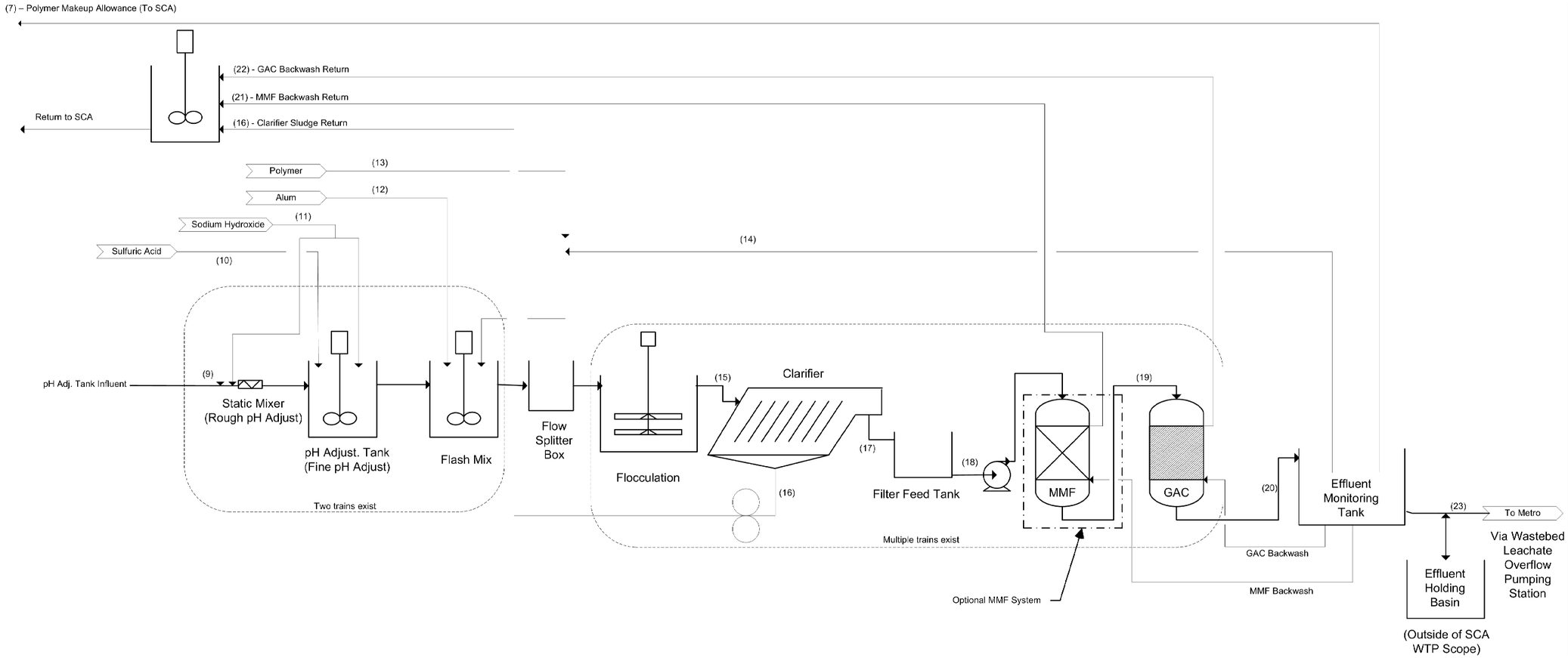

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B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/1/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

GENERAL
PROCESS

PROCESS FLOW DIAGRAM

IN CHARGE OF _____
DESIGNED BY _____ CHECKED BY _____
DRAWN BY _____

FILE NO. 1163.44523

DATE AUGUST 2009

PFD-1

Oct 07, 2009 - 1:26pm

Honeywell SCA WTP
Mass Balance Maximum Flow - Based on Phase II Pre-Design Investigation Report
Rev. 3, 10/6/09

PARAMETER	Polymer Makeup Allowance		pH Adj Tank Influent		H2SO4 Add to pH Adj Tk		NaOH Add to pH Adj Tk		Alum Add'n to Floc		Polymer Add'n to Floc		Polymer Makeup Water		I.P. Clarifier Influent		I.P. Clarifier Sludge		I.P. Clarifier Effluent		Filter Feec Tank Disch		MMF Effluent	
Line Number	7		9		10		11		12		13		14		15		16		17		18		19	
Column Designation	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr	Concent	lb/hr	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr
GENERAL																								
Flow Rate	---	150,120	---	2,940,476	---	61.8	---	0.0	---	58.8	---	1.47	---	1,095	---	2,941,693	---	367,712	---	2,573,981	---	2,573,981	---	2,573,981
Flow Rate (GPM)	---	300.1	---	5,878	---	0.067	---	0.000	---	0.089	---	0.003	---	2.188	---	5,880	---	735.0	---	5,145	---	5,145	---	5,145
Flow Rate (MGD)	---	0.432	---	8.46	---	0.000	---	0.000	---	0.000	---	0.000	---	0.003	---	8.47	---	1.058	---	7.41	---	7.41	---	7.41
Temp (deg F)	---	Ambient	---	Ambient	---	Ambient	---	Ambient	---	Ambient	---	Ambient	---	Ambient	---	Ambient	---	Ambient	---	Ambient	---	Ambient	---	Ambient
Specific Gravity	---	1.00	---	1.00	---	1.84	---	1.53	---	1.32	---	1.00	---	1.00	---	1.00	---	1.00	---	1.00	---	1.00	---	1.00
Design pH (S.U.)	9.0 - 10.0	---	9.0 - 10.0	---	< 1	---	> 13	---	---	---	6.5 - 7.5	---	9.0 - 10.0	---	8.5	---	8.5	---	8.5	---	8.5	---	8.5	---
CATIONS / ANIONS (mg/L)																								
Aluminum	0.162	0.024	4.119	12.12	0.0	0.0	0.0	0.0	28.875	1.3	0.0	0.0	0.162	0.000	4.555	13.409	11.241	4.137	3.599	9.272	3.599	9.272	3.239	8.345
Cadmium	0.000	0.000	0.009	0.025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000	0.000	0.009	0.025	0.009	0.003	0.008	0.022	0.008	0.022	0.008	0.022
Chlorides	758.7	114.0	720.3	2119.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	758.74	114.0	758.7	2233.7	758.7	279.2	758.7	1954.5	758.7	1954.5	758.7	1954.5
Chromium	0.001	0.000	0.017	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.001	0.000	0.017	0.050	0.018	0.007	0.017	0.044	0.017	0.044	0.017	0.043
Hex Chromium	0.000	0.000	0.009	0.025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000	0.000	0.009	0.025	0.009	0.003	0.008	0.022	0.008	0.022	0.008	0.022
Copper	0.010	0.002	0.205	0.604	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.010	0.002	0.206	0.606	0.220	0.081	0.204	0.525	0.204	0.525	0.202	0.520
Lead	0.003	0.000	0.060	0.176	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.003	0.000	0.060	0.177	0.064	0.024	0.059	0.153	0.059	0.153	0.059	0.152
Mercury	0.000	0.000	0.015	0.044	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000	0.000	0.015	0.044	0.118	0.044	1.492E-04	3.843E-04	1.49E-04	3.84E-04	1.48E-04	3.80E-04
Molybdenum	0.113	0.017	2.311	6.800	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.113	0.017	2.316	6.817	2.478	0.912	2.293	5.906	2.293	5.906	2.270	5.847
Nickel	0.025	0.004	0.566	1.665	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.025	0.004	0.567	1.669	0.964	0.355	0.510	1.314	0.510	1.314	0.505	1.301
Silver	0.000	0.000	0.009	0.025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000	0.000	0.009	0.025	0.009	0.003	0.008	0.022	0.008	0.022	0.008	0.022
Zinc	0.004	0.001	0.086	0.252	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.004	0.001	0.086	0.252	0.092	0.034	0.085	0.219	0.085	0.219	0.084	0.217
Total Tracked Cations / Anions	759.1	114.0	727.7	2141.5	0.0	0.0	0.0	0.0	28.875	1.3	0.0	0.0	759.1	114.0	766.6	2256.8	774.0	284.8	765.5	1972.0	765.5	1972.0	765.1	1971.0
VOC (ug/L)																								
TTO	0.013	0.002	13.61	40.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.013	0.002	13.60	40.05	14.56	5.36	13.47	34.69	13.47	34.69	13.33	34.35
TOTAL ORGANICS	0.013	0.002	13.61	40.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.013	0.002	13.60	40.05	14.56	5.36	13.47	34.69	13.47	34.69	13.33	34.35
OTHER																								
TBOD5 (mg/L)	161.8	24.3	165.6	487.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	161.8	24.3	173.7	511.5	185.9	68.4	172.0	443.1	172.0	443.1	170.3	438.7
TSS (mg/L)	2.0	0.3	195.2	574.4	0.0	0.0	0.0	0.0	0.0	0.0	1000	0.0015	2.0	0.3	395.2	1163.5	3017.9	1110.6	20.6	52.9	20.6	52.9	5.0	12.9
TP (mg/L)	0.7	0.1	0.711	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.7	2.2	0.8	0.3	0.7	1.9	0.7	1.9	0.7	1.9
TKN (mg/L)	44.7	6.7	45.8	134.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.7	6.7	48.0	141.4	51.4	18.9	47.6	122.5	47.6	122.5	47.1	121.3

PARAMETER	GAC Effluent		Spent MMF B/Wash		Spent GAC B/Wash		Eff. Tanks Discharge		PERMIT LIMIT
Line Number	20		21		22		23		
Column Designation	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr	Concent.	lb/hr	
GENERAL									
Flow Rate	---	2,573,981	---	83,172	---	82,338	---	2,257,257	NA
Flow Rate (GPM)	---	5,145	---	166.3	---	164.6	---	4,512	
Flow Rate (MGD)	---	7.41	---	0.239	---	0.237	---	6.50	
Temp (deg F)	---	Ambient	---	Ambient	---	Ambient	---	Ambient	< 150
Specific Gravity	---	1.00	---	1.00	---	1.00	---	1.00	
Design pH (S.U.)	9.0 - 10.0	---	8.5	---	9.0 - 10.0	---	9.0 - 10.0	---	5.5-10.5
CATIONS / ANIONS (mg/L)									
Aluminum	0.162	0.417	11.301	0.941	96.4	7.941	0.162	0.366	---
Cadmium	0.000	0.001	0.003	0.000	0.250	0.021	0.000	0.001	2.000
Chlorides	758.7	1954.5	758.7	63.15	758.7	62.52	758.74	1714.00	---
Chromium	0.001	0.002	0.006	0.001	0.500	0.041	0.001	0.002	0.300
Hex Chromium	0.000	0.001	0.003	0.000	0.250	0.021	0.000	0.001	4.000
Copper	0.010	0.026	0.073	0.006	6.002	0.495	0.010	0.023	0.700
Lead	0.003	0.008	0.021	0.002	1.750	0.144	0.003	0.007	0.200
Mercury	7.38E-06	1.90E-05	5.36E-05	4.46E-06	0.004	3.62E-04	0.00001	0.00002	0.0002
Molybdenum	0.113	0.292	0.823	0.069	67.518	5.564	0.113	0.256	
Nickel	0.025	0.065	0.183	0.015	15.02	1.238	0.025	0.057	0.350
Silver	0.000	0.001	0.003	0.000	0.250	0.021	0.000	0.001	1.000
Zinc	0.004	0.011	0.030	0.003	2.501	0.206	0.004	0.009	0.400
Total Tracked Cations / Anions	759.1	1955.3	771.2	64.2	949.2	78.2	759.1	1714.7	---
VOC (ug/L)									
TTO	0.013	0.034	4.181	0.348	416.40	34.31	0.013	0.030	0.100
TOTAL ORGANICS	0.013	0.034	4.181	0.348	416.40	34.31	0.013	0.030	---
OTHER									
TBOD5 (mg/L)	161.8	416.7	215.0	17.9	427.9	35.3	161.8	365.4	NA
TSS (mg/L)	2.0	5.2	483.3	40.2	95.8	7.9	2.0	4.5	NA
TP (mg/L)	0.7	1.8	0.9	0.1	1.8	0.2	0.7	1.6	NA
TKN (mg/L)	44.7	115.2	59.4	4.9	118.3	9.7	44.7	101.0	NA

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/1/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

PRELIMINARY
NOT FOR CONSTRUCTION
DATE: 10/8/09

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

GENERAL
PROCESS
MASS BALANCE

IN CHARGE OF _____
DESIGNED BY _____ CHECKED BY _____
DRAWN BY _____

FILE NO. 1163.44523
DATE AUGUST 2009

PFD-2

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PIPING SYMBOLS

PIPE LINES

- NEW PIPING
- EXISTING PIPING
- SECONDARY HOSE
- FLUID DESTINATION / CONN. P&ID NO. (COL., ROW ON CONN. P&ID) — OFF-DRAWING PIPING CONNECTOR
- FL CODE / P&ID — OFF-DRAWING UTILITY CONNECTOR
- TIE-IN POINT
- PIPING AND/OR EQUIPMENT TO BE REMOVED
- M.S. — INDICATES SCOPE BREAK FOR MECHANICAL SUB-CONTRACTOR
- FL CODE / P&ID — OFF-DRAWING DRAIN CONNECTOR

VALVES

- GATE VALVE
- EXTENDED BODY GATE VALVE
- VENT/DRAIN GATE VALVE
- BLANK GATE VALVE
- BUTTERFLY VALVE
- KNIFE GATE VALVE
- SLIDE VALVE
- 3-WAY SLIDE VALVE
- GLOBE VALVE
- ANGLE GLOBE VALVE
- Y GLOBE VALVE
- 3-WAY GLOBE VALVE
- NEEDLE VALVE
- HOSE VALVE
- ANGLE HOSE VALVE
- BALL VALVE
- 3-WAY BALL VALVE
- ANGLE BLOWDOWN VALVE
- Y BLOWDOWN VALVE
- TANK DRAIN VALVE
- PLUG VALVE
- 3-WAY PLUG VALVE
- 4-WAY PLUG VALVE
- DIAPHRAGM VALVE
- PINCH VALVE
- CHECK VALVE
- WAFER CHECK VALVE
- ANGLE CHECK VALVE
- STOP CHECK VALVE
- ANGLE STOP CHECK VALVE
- Y STOP CHECK VALVE
- BACKFLOW PREVENTER
- AUTOMATIC RECIRCULATION VALVE
- MULTIVANE DAMPER OR LOUVER VALVE
- SINGLE DAMPER OR LOUVER VALVE
- ANGLE VALVE
- 3-WAY VALVE
- 4-WAY VALVE
- EXCESS FLOW VALVE
- PULSATION DAMPENERS
- FE — BALANCING VALVE
- LC — FLOAT VALVE
- CSV — CSV CONSERVATION BREATHER VENT
- FLAPPER VALVE
- DIAPHRAGM AIR RELEASE VALVE
- BLAST GATE
- AUTOMATIC AIR RELIEF VALVE

PIPING SEGMENT LABELS

2-XXX-0000-XXX-XX-XX

- HEAT TRACING
- INSULATION PURPOSE
- MATERIAL SPECIFICATION
- LINE NUMBER
- FLUID CODE
- LINE SIZE (IN INCHES)

BOUNDARY LINES

- PACKAGE
- SYSTEM BOUNDARY
- VENDOR

PIPING

MATERIAL	DESIGNATION	PRESSURE RANGE
ALLOY	AL6XN	TBD
COPPER TUBING (TYPE K)	C4	420# AT 250°F
CAST IRON	CI	ATMOS AT AMB
CS	CS1	150# ANSI B16.5
CS	CS2	125# ANSI B16.1
CS	CS3	300# AT 550°F
CS	CS4	AT 350°F
CS	CS5	300# AT 550°F
CS	CS6	SCHED 20
SCH80 CPVC	CPVC	100# AT 100°F
DUCTILE IRON	DI	ATMOS AT 75°F
FRP PIPE	FRP	150# AT 100°F
FRP DUCT W/ LINER	FRP2	±" TBD WC
GALVANIZED STEEL	GS	
POLYETHYLENE TUBING	PE	90# AT 73°F
PTFE LINED	PTFE	TBD
SCH80 PVC	PVC	100# AT 100°F
304L S/S TUBING	SS2	1000# AT 150°F
304 S/S	SS1	150# AT 300°F
304 S/S	SS3	150# ANSI B16.5 AT -320°F THRU 120°F
316L S/S TUBING	SS4	125# AT 250°F
316L S/S TUBING	SS5	150# AT 350°F
316L S/S	SS6	150# AT (-)100°F
316 S/S	SS7	150# ANSI B16.5 AT -20°F THRU 100°F
316L S/S CORE W/VAC INSULATION & 304 SS JACKET	SS8	150# AT (-)300°F
316 S/S CS	SS9	SHEETMETAL DUCTING
TEFLON TUBING	TF	75# AT 73°F

INSULATION PURPOSE DESIGNATIONS

- IC – COLD CONSERVATION/ANTISWEAT
- IH – HEAT CONSERVATION
- IP – PERSONAL PROTECTION

PIPELINE TRACING DESIGNATIONS

- ST – STEAM TRACING
- ET – ELECTRIC TRACING
- CT – COLD FLUID TRACING
- JK – JACKETED PIPE

PIPING FLUID CODE DESIGNATIONS

AIR	–	ATMOSPHERIC AIR
AF	–	ANTIFOAM
BA	–	AERATION AIR
BW	–	BACKWASH WASTE
C125	–	CONDENSATE, 125 PSIG
C50	–	CONDENSATE, 50 PSIG
CH4	–	NATURAL GAS
CHS,-R	–	HVAC CHILLED WATER SUPPLY, RETURN, 42°F
CNTC	–	CONTAMINATED CONDENSATE
COAG	–	COAGULANT
CS	–	CLEAN STEAM
DE	–	DIATOMACEOUS EARTH
DIW	–	DEIONIZED WATER
DNAPL	–	DENSE NON-AQUEOUS PHASE LIQUID
DR	–	DRAIN
FA	–	FERMENTATION AIR
FILTR	–	BFP FILTRATE/FLOOR SUMP
FW	–	FIRE WATER
GW	–	GROUND WATER
H2O2	–	HYDROGEN PEROXIDE
H2SO4	–	SULFURIC ACID
HYD	–	HYDRAULIC FLUID
IA	–	INSTRUMENT AIR
LNAPL	–	LIGHT NON-AQUEOUS PHASE LIQUID
MACT	–	MACT REGULATED WW
MICRO	–	MICRONUTRIENT
N2G,-L	–	NITROGEN GAS, LIQUID
NaOCL	–	SODIUM HYPOCHLORITE
NAOH	–	SODIUM HYDROXIDE SOL'N
P	–	PROCESS
PA	–	PLANT AIR
PC	–	PROCESS CHEMICAL
PHOS	–	PHOSPHORIC ACID
POLY	–	POLYMER
POLY A	–	POLYMER (ANIONIC)
POLY C	–	POLYMER (CATIONIC)
PS	–	PROCESS SEWER
PV	–	PROCESS VACUUM
PW	–	PLANT WATER
RF	–	REFRIGERENT
S125	–	STEAM, 125 PSIG
S40	–	STEAM, 40 PSIG
SA	–	STERILE AIR
SAN	–	SANITARY SEWER
SEQ	–	SEQUESTERING AGENT
SF	–	SEAL FLUID
SL	–	SCRUBBER LIQUOR
SLUDGE	–	SLUDGE
SOL	–	SOLVENT
SW	–	STORM WATER
THIO	–	SODIUM THIOSULFATE
TRWW	–	TREATED WASTEWATER
TWS,-R	–	TOWER WATER SUPPLY,-RETURN
UR	–	UREA
VOC	–	VAPOR ORGANIC COMPOUNDS
VT	–	VENT
WAS	–	WASTE ACTIVATED SLUDGE DOMESTIC WATER
WD,-CW	–	SUPPLY,-RETURN
WDH	–	HOT DOMESTIC WATER
WFI	–	WATER FOR INJECTION
WFIS	–	PURE STEAM
WP	–	PROCESS WATER
WPH	–	HOT PROCESS WATER
WPUR	–	PURIFIED WATER
WW	–	WASTE WATER

FITTINGS

- FLANGE
- ORIFICE FLANGE
- FIX UNION
- BLIND FLANGE
- OPEN SPECTACLE BLANK
- CLOSE SPECTACLE BLANK
- SPACER
- PADDLE BLANK
- PLUG
- CAP
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER (FLAT ON TOP)
- HOSE CONNECTION
- TRICLAMP STERILE CONNECTION
- INGOLD CONNECTION W/TRICLAMP
- SLIP ON HOSE CONNECTION
- BAYONET CONNECTION FOR TUBING
- FLEX CONNECTOR
- QUICK CONNECTION
- CLEANOUT
- HARNESSED COUPLING

SPECIALITY

- WEATHER CAP
- EXPANSION JOINT
- Y STRAINER
- T — STEAM TRAP
- PULSATION DAMPENER
- CALIBRATION TUBE
- SNUBBER
- FILTER
- FILTER/REGULATOR/GAUGE
- EJECTOR
- CHEMICAL SEAL
- DRAIN

PUMP SEAL TYPES

- SEAL TYPE 1 — SINGLE MECHANICAL SEAL, NO FLUID FLUSH
- SEAL TYPE 2 — SINGLE SEAL OR PACKING, FLUSH LIQUID FROM PUMP DISCHARGE
- SEAL TYPE 3 — SINGLE SEAL OR PACKING, EXTERNAL FLUSH LIQUID
- SEAL TYPE 4 — DOUBLE MECHANICAL SEAL, FLUSH EXTERNAL FLUSH LIQUID
- SEAL TYPE 5 — DOUBLE MECHANICAL SEAL, FLUSH LIQUID FROM PUMP DISCHARGE
- SEAL TYPE 6 — SEAL-LESS PUMP
- SEAL TYPE 7 — DOUBLE SEAL, FLUSH LIQUID FROM LOCAL CONTAINER
- SEAL TYPE 8 — DOUBLE SEAL FOR AGITATOR WITH PRESSURE CONVECTION COOLER
- SEAL TYPE 9 — DRY SEAL

EQUIPMENT SYMBOL

- CENTRIFUGAL FAN
- M — CENTRIFUGAL PUMP
- DIAPHRAGM OR TUBULAR METERING PUMP
- M — MIXER OR FLOCCULATOR WITH ELECTRIC MOTOR

EQUIPMENT SYMBOL

- PROCESS VESSEL (NON-PRESSURIZED)
- PROCESS VESSEL (PRESSURIZED)
- AIR OPERATED DIAPHRAM (AOD) PUMP
- ROTARY LOBE PUMP
- ROTARY POSITIVE DISPLACEMENT BLOWER
- EJECTOR/EDUCTOR
- PERISTALTIC PUMP
- SPILL TRAY

SIGNAL LINES

- CONNECTION TO PROCESS LINE
- CAPILLARY TUBE
- ELECTRIC
- PNEUMATIC
- HYDRAULIC
- SOFTWARE OR DATA LINK
- MECHANICAL LINK

CONTROL VALVES AND REGULATORS

- SELF CONTAINED PRESSURE REDUCING REGULATOR
- PRESSURE REDUCING REGULATOR WITH EXTERNAL TAP
- PRESSURE REDUCING REGULATOR WITH INTEGRAL OUTLET PRESSURE RELIEF VALVE
- SELF CONTAINED BACKPRESSURE REGULATOR
- BACKPRESSURE REGULATOR WITH EXTERNAL TAP
- DIFFERENTIAL PRESSURE REDUCING REGULATOR WITH INTERNAL AND EXTERNAL TAPS
- FILLED SYSTEM TEMPERATURE REGULATOR
- LEVEL REGULATOR WITH MECHANICAL LINKAGE
- INSTRUMENT AIR SUPPLY WITH REGULATOR
- ON/OFF FLOW CONTROL VALVE (PNEUMATIC ACT. W/ SPRING RETURN)
- E — ON/OFF FLOW CONTROL VALVE (ELECTRIC ACT. W/ SPRING RETURN)

RELIEF DEVICES

- ANGLE PRESSURE RELIEF VALVE
- STRAIGHT-THRU PRESSURE RELIEF VALVE OR CONSERVATION VENT
- VACUUM RELIEF VALVE OR CONSERVATION VENT
- PRESSURE AND VACUUM RELIEF VALVE
- PRESSURE AND VACUUM RELIEF MANHOLE COVER
- PRESSURE RELIEF RUPTURE DISK
- VACUUM RELIEF RUPTURE DISK
- TEMPERATURE FUSIBLE PLUG OR DISK

PIPING SEGMENT LABELS

- FLAME ARRESTOR
- DETONATION FLAME ARRESTER
- HAMMER ARRESTOR
- EXHAUST HEAD
- BREATHER CAP
- WEATHER CAP
- WEATHER CAP
- MIXING TEE
- SPRAY NOZZLE
- RS — REMOVABLE SPOOL
- SWING ELBOW
- EXPANSION JOINT
- MOTOR
- DRESSER COUPLING
- FLEXIBLE HOSE
- SAMPLE COOLER
- CARTRIDGE FILTER
- TWIN BASKET STRAINER
- T STRAINER
- Y STRAINER
- BASKET STRAINER
- CONE STRAINER
- FLAT PLATE STRAINER
- SUMP STRAINER
- FILTER
- STILLING WELL WITH PROBE INSERT
- VB — VACUUM BREAKER
- T — STEAM TRAP
- IBT — INVERTED BUCKET STEAM TRAP
- TST — THERMOSTATIC STEAM TRAP
- TDT — THERMODYNAMIC STEAM TRAP
- IT — IMPULSE STEAM TRAP
- GENERIC COMPONENT
- T1 — STEAM TRAP ASSEMBLY INCLUDING STRAINER, BLOCK VALVES AND BYPASS WITH VALVE CARBON STEEL
- T2 — STEAM TRAP ASSEMBLY STAINLESS STEEL
- S — SAMPLE PROBE
- SCO — SECONDARY CONTAINMENT
- HT — INSULATED, HEAT TRACED
- IT — INSULATED
- STATIC MIXER

LETTER DESIGNATION OF EQUIPMENT

AG	–	AGITATOR
BL	–	BLOWER / FAN
CE	–	CENTRIFUGE
CF	–	CHEMICAL FEED UNIT
CMP	–	COMPRESSOR
CV	–	CHEMICAL VESSEL
D	–	SCRUBBER
DE	–	DECANTER
FP	–	FILTER PRESS
GAC	–	GRANULAR ACTIVATED CARBON VESSEL
GR	–	GRINDER
HP	–	HYDRAULIC PUMP
IE	–	ION EXCHANGE
IPC	–	INCLINED PLATE CLARIFIER
LGAC	–	LIQ. PHASE GRANULAR ACTIVATED CARBON UNITS
MH	–	MAINTENANCE SHOP HAND HOIST
MIX	–	MIXER
MMF	–	MULTIMEDIA FILTER VESSEL
PB	–	POLYMER BLENDING
PLF	–	PRESSURE LEAF FILTER
PM	–	PIPING MANIFOLD
PU	–	PUMP
R	–	REACTOR
RTO	–	REGENERATIVE THERMAL OXIDIZER
SK	–	SPRAY COOLER
SI	–	SILENCER
SM	–	STATIC MIXER
SP	–	COMPOSITE SAMPLER
ST	–	AIR STRIPPER
STI	–	STEAM INJECTOR
T	–	TANK
TB	–	TOTE
TD	–	ELECTRIC HOIST
TK	–	PROCESS VESSEL
TZ	–	DIESEL GENERATOR
VGAC	–	VAPOR PHASE CARBON UNIT
W	–	ROLLOFF WINCH
X	–	FUME HOOD
ZZ	–	LAB INSTRUMENTS

LETTER DESIGNATION OF VALVES

- ARV – AUTOMATIC AIR RELIEF VALVE
- BPV – BACK PRESSURE VALVE
- CKV – CHECK VALVE
- HV – HAND VALVE
- FCV – FLOW CONTROL VALVE
- FV – FLOW VALVE
- LCV – LEVEL CONTROL VALVE
- PRV – PRESSURE REDUCING VALVE
- PSV – PRESSURE RELIEF VALVE
- TCV – TEMPERATURE CONTROL VALVE

EQUIPMENT NUMBER IDENTIFICATION

AAA-XXYY B

- ALPHA SUFFIX
- FOUR DIGIT LETTER EQUIPMENT NO. XXX = P&ID NO. YY = SEQUENTIAL EQUIPMENT NO. (01 – 99)
- ONE, TWO, THREE, OR FOUR LETTER EQUIPMENT DESIGNATION

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

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PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

INSTRUMENTATION

LEGEND & SYMBOLS

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523-IA

DATE AUGUST 2009

I-A

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SYMBOLS

IN-LINE INSTRUMENTS

- ORIFICE PLATE
- ORIFICE PLATE IN QUICK CHANGE FITTING
- FLOW NOZZLE
- VENTURI TUBE
- SINGLE PORT PITOT TUBE
- PITOT-VENTURI TUBE
- AVERAGING PITOT TUBE
- VALVE WITH RESTRICTION ORIFICE

IN-LINE INSTRUMENTS

- ROTAMETER WITHOUT ADJUSTABLE VALVE
- ROTAMETER WITH ADJUSTABLE VALVE
- FLOW GAUGE
- POSITIVE DISPLACEMENT FLOW SENSOR
- TARGET FLOW SENSOR
- TURBINE OR PROPELLER FLOW SENSOR
- VORTEX FLOW SENSOR
- ULTRASONIC FLOW SENSOR
- MASS FLOW SENSOR
- MAGNETIC FLOW TUBE
- FLUME
- WEIR
- SEGMENTAL WEDGE
- FLOW STRAIGHTENING VANE
- ORIFICE PLATE WITH FLANGES
- CALIBRATION CYLINDER
- SIGHT FLOW INDICATOR
- PULSATION DAMPENER
- ORIFICE PLATE W/FLANGES

INSTRUMENT COMPONENT LABELS

- BALLOON WITH TAG NUMBER
- EXISTING
- TOP MOUNTED ACCESSORY
- SIDE MOUNTED ACCESSORY
- DIAPHRAGM ACTUATOR
- PRESSURE-BALANCED DIAPHRAGM ACTUATOR
- 2-WAY SOLENOID VALVE
- ANGLE SOLENOID VALVE
- 3-WAY SOLENOID VALVE
- POSITIONER ACCESSORY
- INTERLOCK WITH IDENTIFICATION NUMBER
- CAPACITANCE SENSOR ACCESSORY
- BALL FLOAT ACCESSORY
- DISPLACEMENT FLOAT ACCESSORY
- DUAL-FLOAT ACCESSORY
- DIAPHRAGM SEAL ACCESSORY
- PADDLE WHEEL ACTUATOR
- SHEET NUMBER
- I-XX / TAG# — SIGNAL CONTINUATION / CORESPONDING INSTRUMENT
- OPERATOR STATION INDICATOR/CONTROL
- AI — PLC ANALOG INPUT
- DI — PLC DIGITAL INPUT
- AO — PLC ANALOG OUTPUT
- DO — PLC DIGITAL OUTPUT

INSTRUMENT COMPONENT LABELS

- I/P — CONVERTS ELECTRICAL INPUT TO PNEUMATIC
- LEVEL SWITCH (FLOAT TYPE)
- ZS — POSITION SWITCH
- ZSC — POSITION SWITCH CLOSED
- ZSO — POSITION SWITCH OPEN
- ZI — POSITION INDICATOR

ELECTRIC SWITCH DESIGNATION

- HS – HAND SWITCH
- HPS – HAND PNEUMATIC SWITCH
- HOA – HAND OFF AUTOMATIC SWITCH
- PB – PUSH BUTTON
- PBL – PUSH BUTTON W/LIGHT
- PB2 – TWO PUSH BUTTONS
- PB2L – TWO PUSH BUTTONS W/LIGHT
- SS – SELECTOR SWITCH
- OCA – OPEN CLOSED AUTO

OFF-LINE INSTRUMENTS

- FIELD MOUNTED INSTRUMENT
- DISCRETE INSTRUMENT PRIMARY LOCATION ACCESSIBLE TO OPERATOR
- DISCRETE INSTRUMENT AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR
- SINGLE FUNCTION INSTRUMENT LOCATED IN LOCAL CONTROL ROOM OR BACKUP PANEL (NOT NORMALLY ACCESSABLE) REAR OF PANEL
- SHARED DISPLAY/CONTROL FUNCTION, PRIMARY LOCATION ACCESSIBLE TO OPERATOR
- SHARED DISPLAY/CONTROL FUNCTION, AUXILIARY LOCATION ACCESSIBLE TO OPERATOR
- PROGRAMMABLE LOGIC CONTROL FUNCTION, PRIMARY LOCATION ACCESSIBLE TO OPERATOR
- PROGRAMMABLE LOGIC CONTROL FUNCTION, AUXILIARY LOCATION ACCESSIBLE TO OPERATOR
- PROGRAMMABLE LOGIC CONTROL FUNCTION, FIELD MOUNTED
- FIELD INDICATION LIGHT
- PANEL MOUNTED INDICATION LIGHT

INSTRUMENT IDENTIFICATION

PIC – XXX YY A

- A — SUFFIX IF REQUIRED
- YY — SEQUENTIAL No. ON P&ID
- XXX — No. OF P&ID ON WHICH INSTRUMENT APPEARS
- PIC — MEASURED VARIABLE AND INSTRUMENT FUNCTION

PANEL IDENTIFICATION

XXX A B

- B — ALPHA SUFFIX
- A — ASSOCIATED LOCAL CONTROL ROOM
- XXX — PANEL TYPE

PANEL TYPES :

- MBP – MANUAL BACKUP PANEL (HPS & HIC)
- DIP – DIGITAL INDICATOR PANEL (LCD'S)
- CVIB – CONTROL VALVE INTERFACE BOX (EV'S & I/P)
- MP – MARSHALLING PANEL
- TTP – TEMPERATURE TRANSMITTER PANEL

LETTER IDENTIFICATION OF INSTRUMENTS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	
D	USER'S CHOICE	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE	MOMENTARY			MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

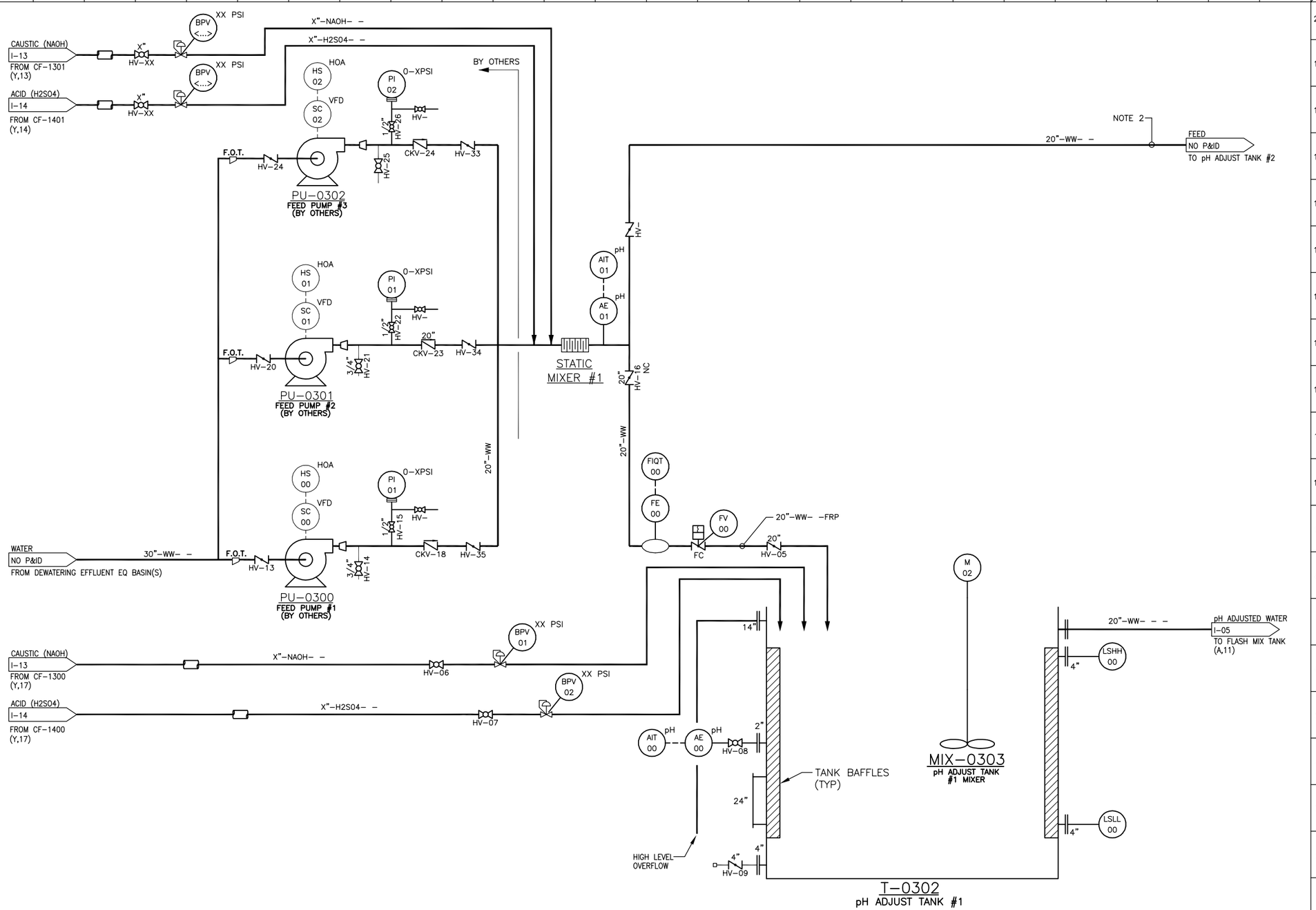
INSTRUMENTATION

LEGEND & SYMBOLS

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523-IB
DATE AUGUST 2009

I-B



NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "03" AND ENDING WITH INDEX NUMBER ON DEVICE.

2. INFLUENT TO BE SPLIT BETWEEN TWO PAIRS OF pH ADJUST SYSTEMS (I.E., STATIC MIXER FOR ROUGH pH ADJUSTMENT AND MIXED TANK FOR FINE pH ADJUSTMENT). ONLY ONE SYSTEM CURRENTLY SHOWN ON P&IDS.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

pH ADJUSTMENT TANK #1

P&ID

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

IN CHARGE OF JSR

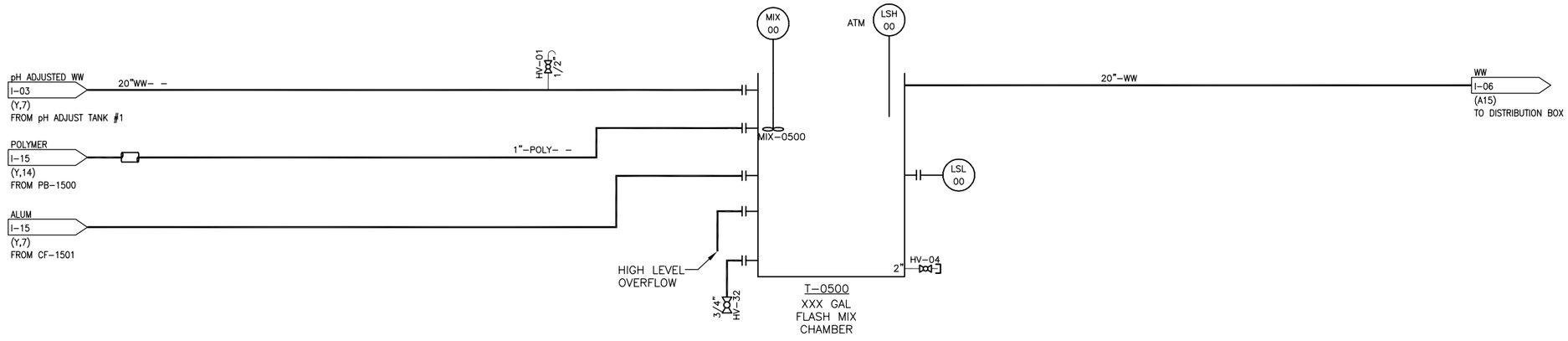
DESIGNED BY GBE CHECKED BY PDS

DRAWN BY LMW

FILE NO. 1163.44523-I03

DATE AUGUST 2009

I-03



NOTES:

1. MULTIPLE PARALLEL TREATMENT SYSTEMS ARE PROPOSED. ACTUAL QUANTITY OF SYSTEMS TO BE CONFIRMED.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

FLASH MIX TANK

P&ID

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

IN CHARGE OF JSR

DESIGNED BY GBE CHECKED BY PDS

DRAWN BY LMW

FILE NO. 1163.44523-I05

DATE AUGUST 2009

I-05

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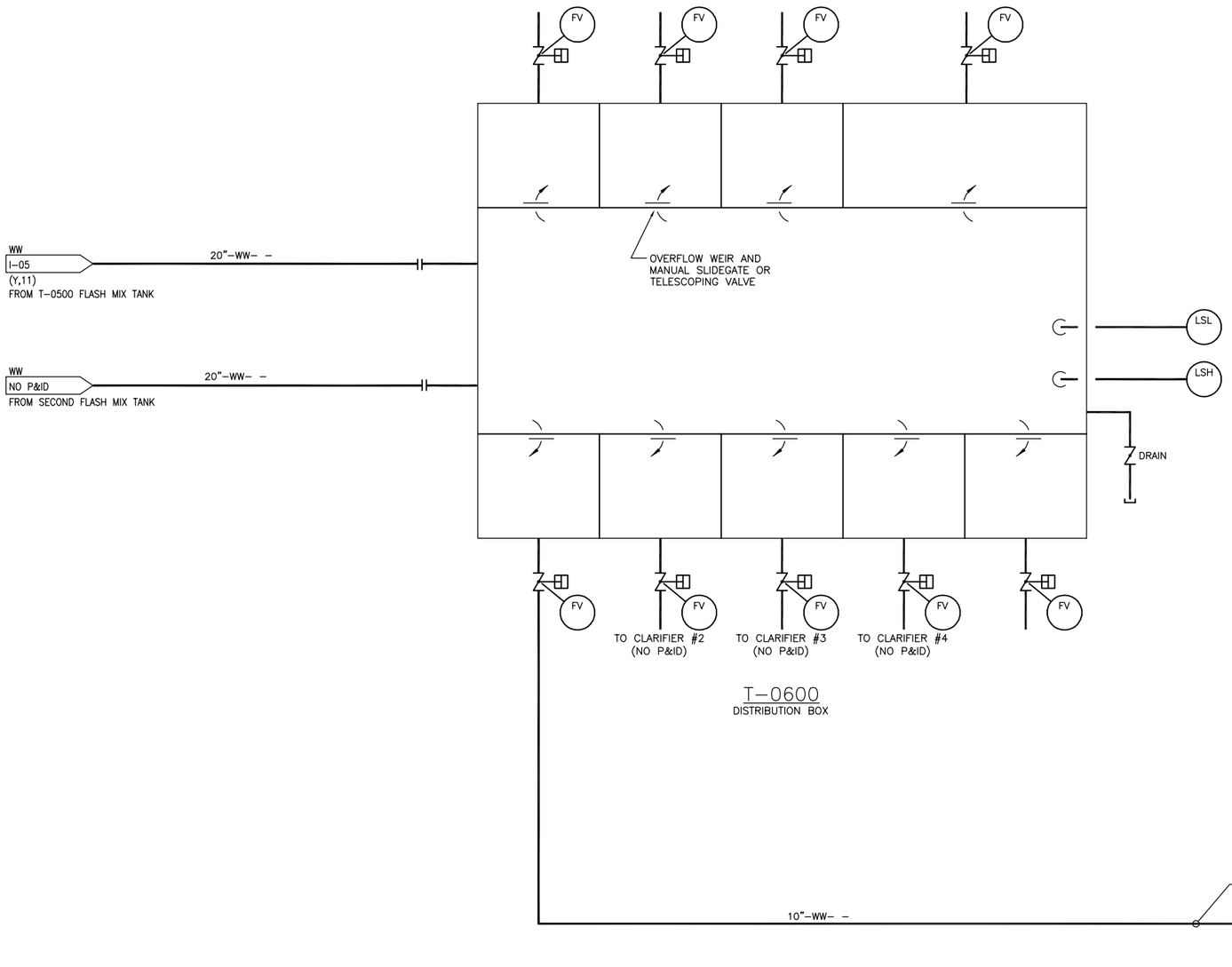


NOTES:

1. MULTIPLE PARALLEL TREATMENT SYSTEMS ARE PROPOSED. ACTUAL QUANTITY OF SYSTEMS TO BE CONFIRMED.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION
DISTRIBUTION BOX
P&ID

PRELIMINARY NOT FOR CONSTRUCTION

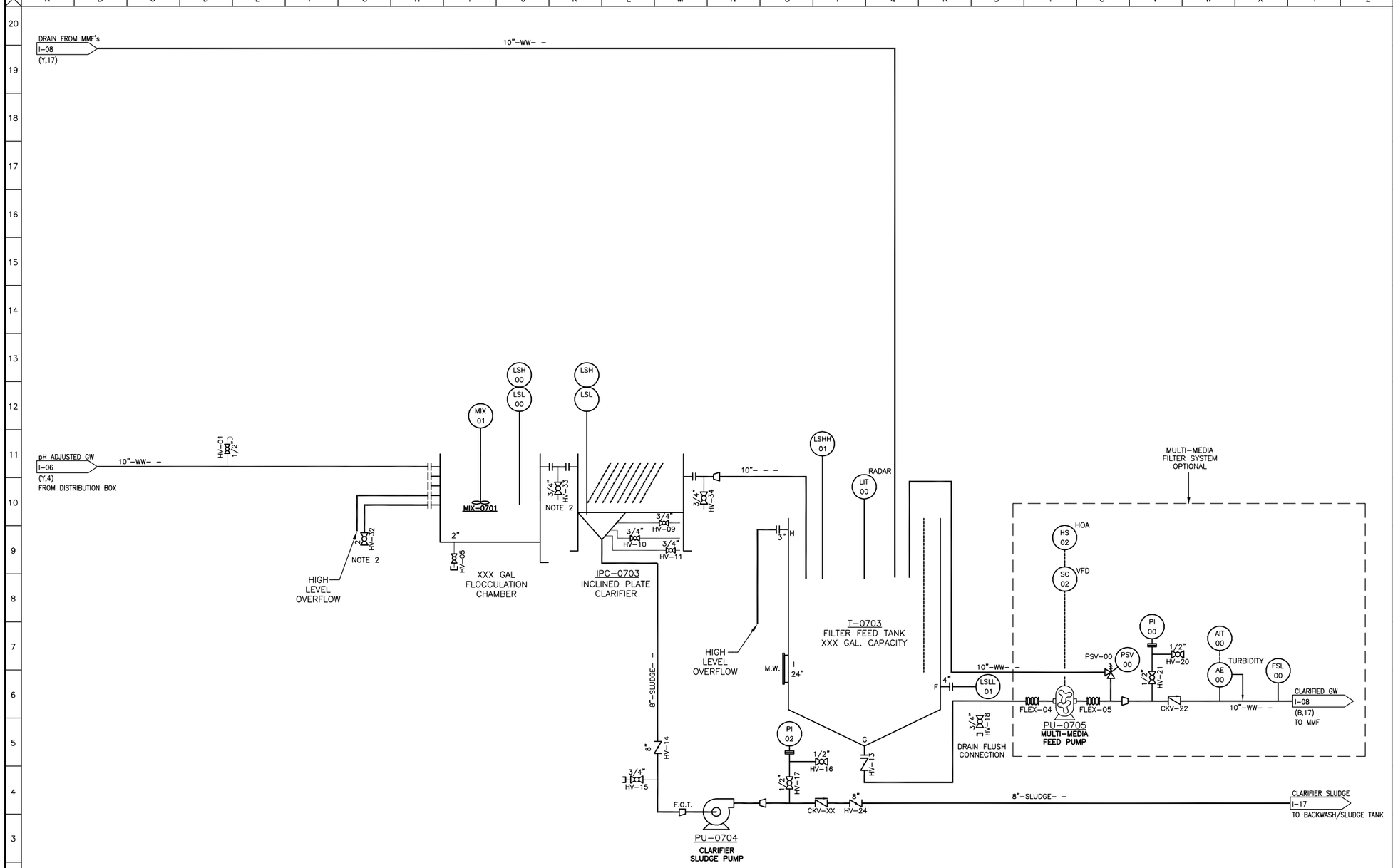
DATE: 10/8/09

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523-I06
DATE AUGUST 2009

I-06

I:\Honeywell.1163\44523.Sca-Water-Trmen\Docs\DWG\P&IDs\I-06.dwg Oct 07, 2009 - 1:25pm



NOTES:

1. VENDOR SUPPLIED FLOC/IPC SYSTEM TO BE INSTALLED PER VENDOR'S DRAWINGS AND INSTRUCTIONS.
2. SAMPLE POINTS AT FLASH MIX TANK, FLOC AND IPC DISCHARGES.
3. MULTIPLE PARALLEL TREATMENT SYSTEMS ARE PROPOSED. ACTUAL QUANTITY OF SYSTEMS TO BE CONFIRMED.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

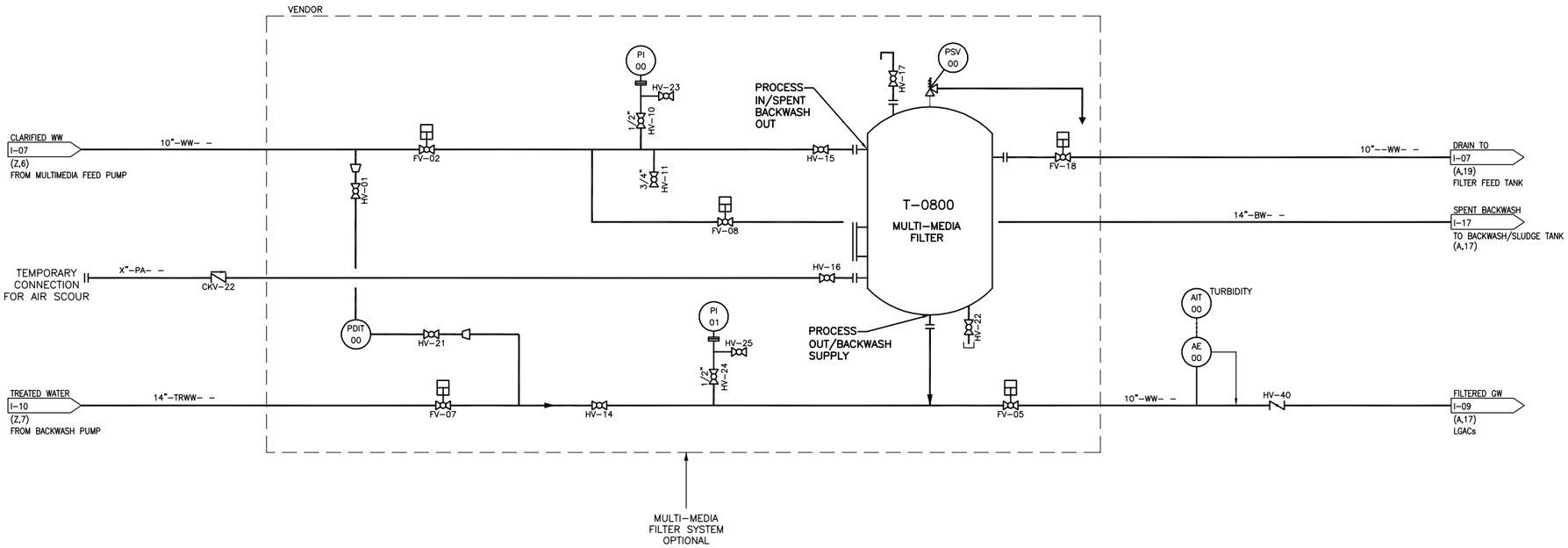
CLARIFICATION AND FILTER FEED P&ID

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523–I07

DATE AUGUST 2009

I–07



NOTES:

1. FL = FAIL LAST. TYPICAL FOR ALL FV's ON VENDOR PACKARE SHOWN ON THIS SHEET.
2. VENDOR SUPPLIED MULTI–MEDIA FILTER SYSTEM TO BE INSTALLED PER VENDOR'S APPROVED SHOP DRAWINGS AND INSTRUCTIONS.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

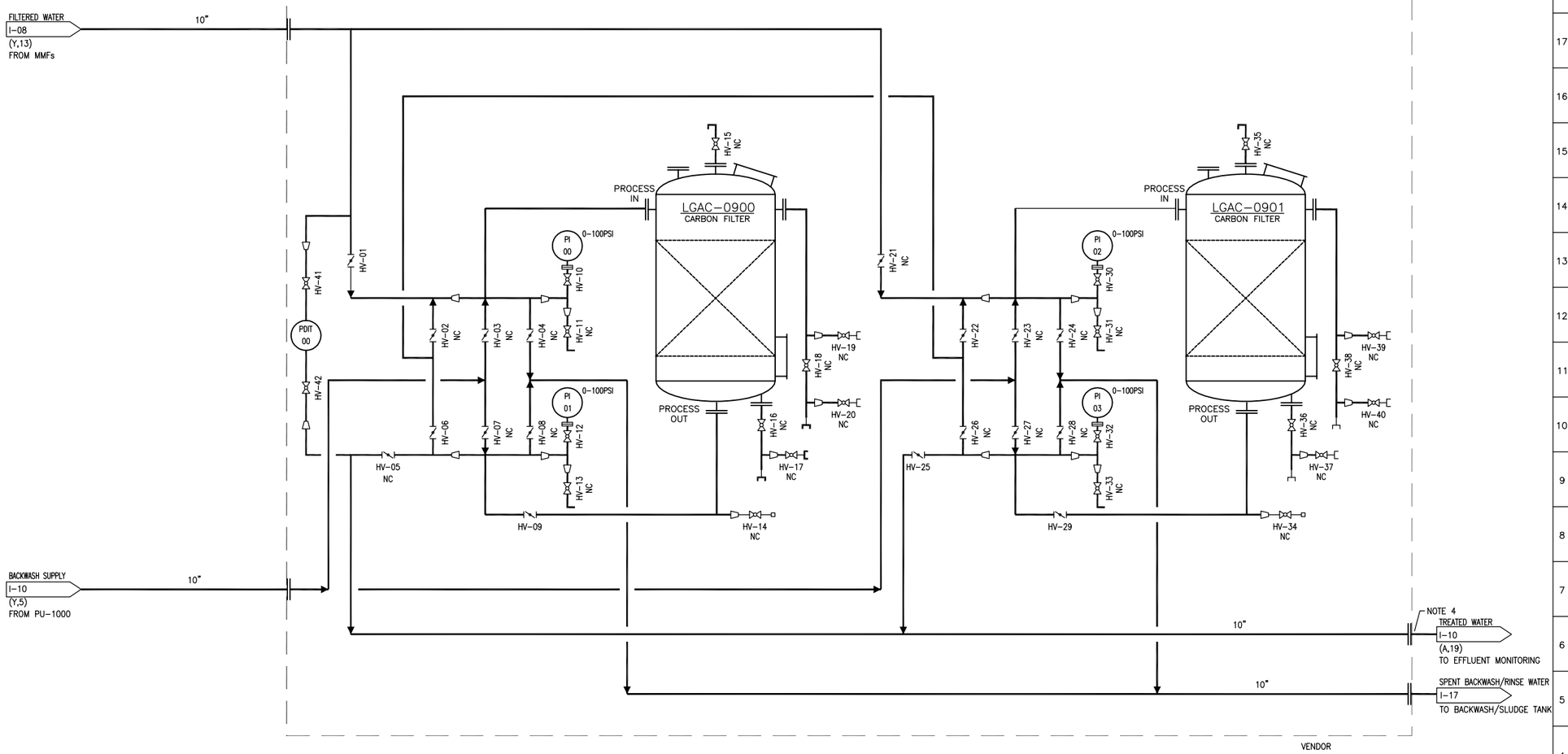
PROCESS AND INSTRUMENTATION
MULTIMEDIA FILTER (OPTIONAL)
P&ID

PRELIMINARY NOT FOR CONSTRUCTION
DATE: 10/8/09

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523–I08
DATE AUGUST 2009

I–08



NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "09" AND ENDING WITH INDEX NUMBER SHOWN ON DEVICE.
2. NORMAL VALVE POSITIONS ARE SHOWN ASSUMING LGAC-0900 IS THE LEAD VESSEL.
3. VENDOR SUPPLIED GAC SYSTEM TO BE INSTALLED PER VENDOR'S APPROVED SHOP DRAWINGS AND INSTRUCTIONS.
4. TRANSITION TO 24" HEADER.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

CARBON VESSELS

P&ID

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523-I09
DATE AUGUST 2009

I-09

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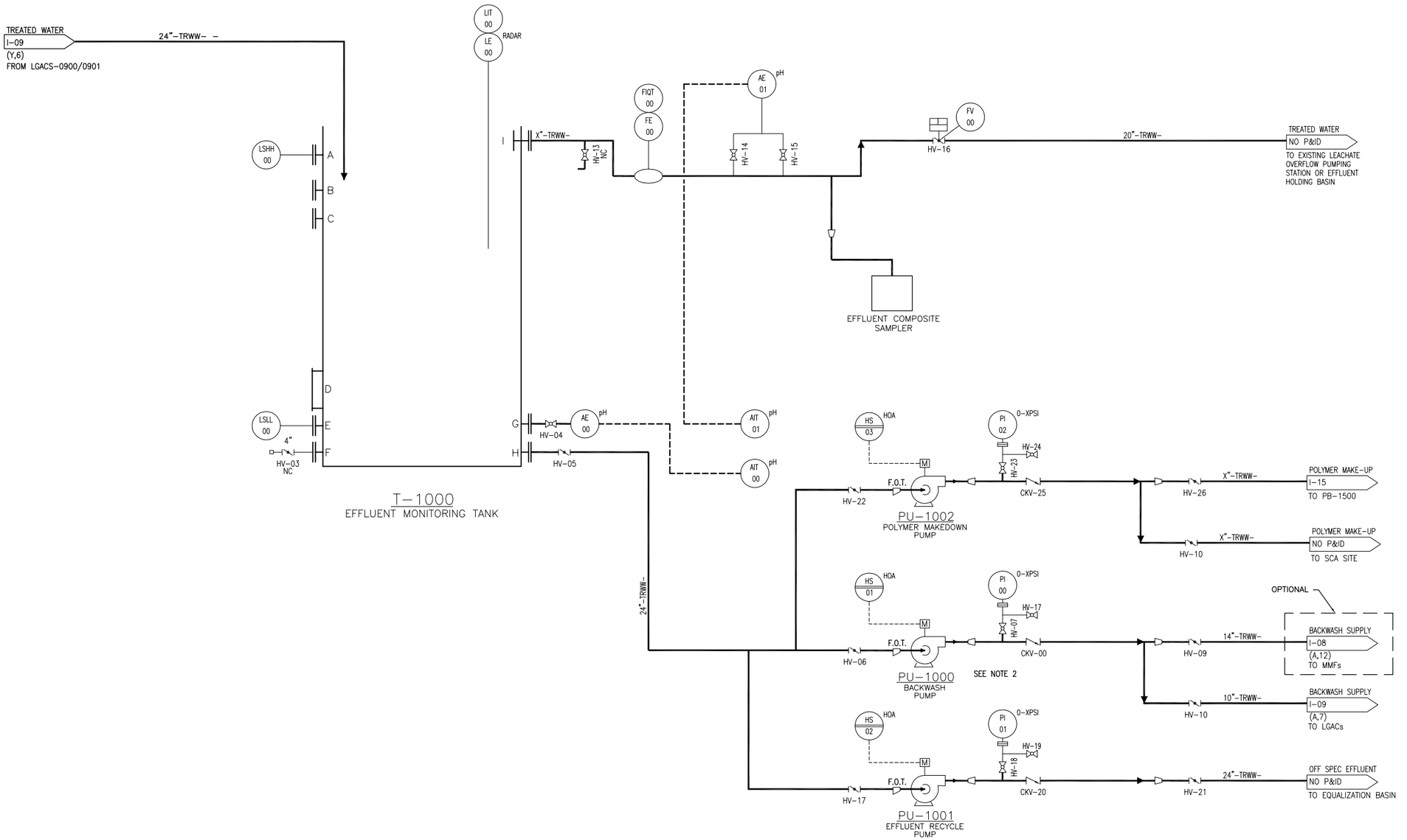


NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "10" AND ENDING WITH INDEX NUMBER SHOWN ON DEVICE.
2. MULTIPLE BACKWASH PUMPS TO BE PROVIDED.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION
EFFLUENT MONITORING TANK
P&ID

PRELIMINARY NOT FOR CONSTRUCTION

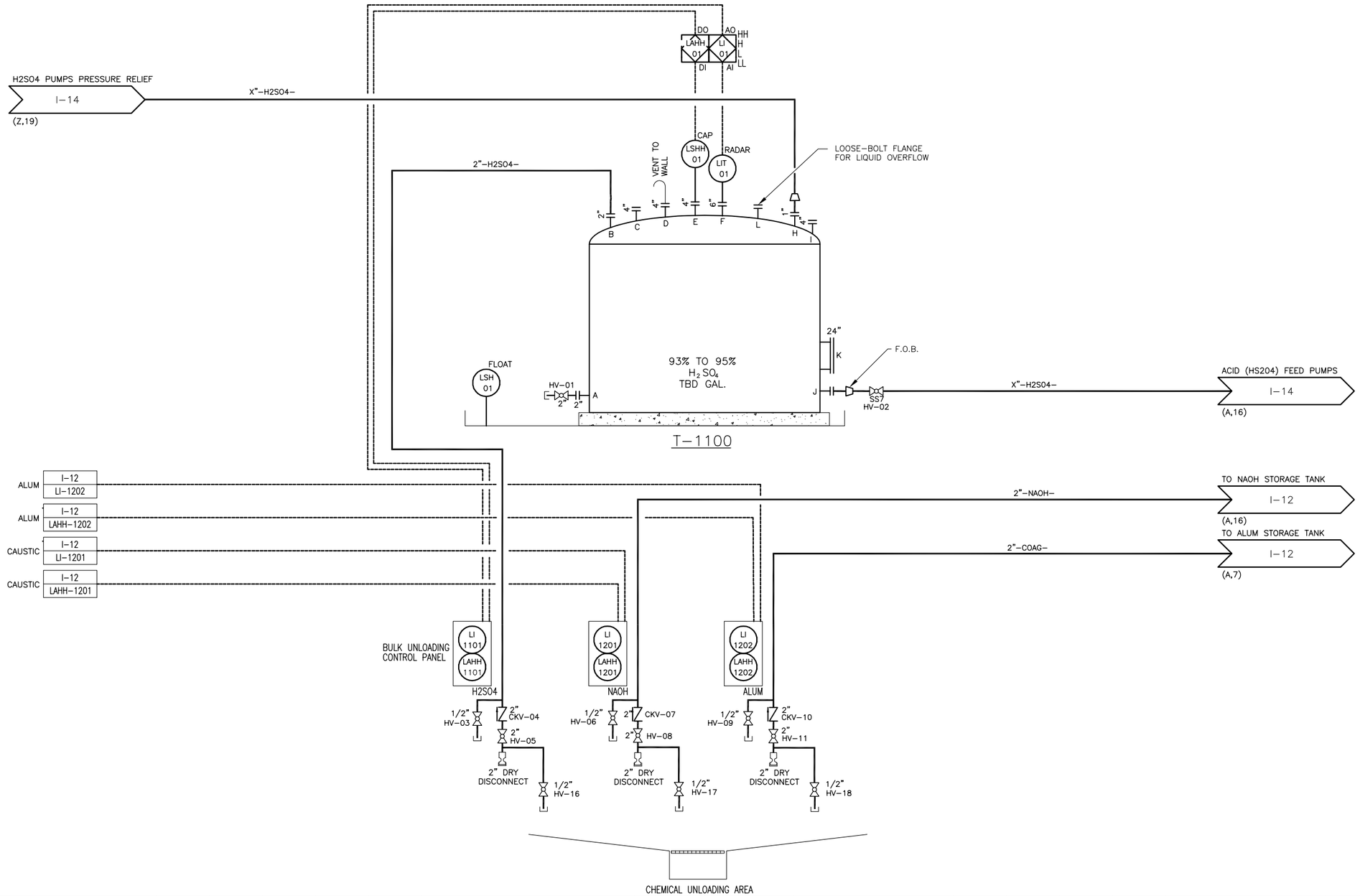
DATE: 10/8/09

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523-I10
DATE AUGUST 2009

I-10

I:\Honeywell.1163\44523.Sca-Water-Trmen\Docs\DWG\P&IDs\I-10.dwg Oct 07, 2009 - 1:25pm



NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "11" AND ENDING WITH INDEX NUMBER ON DEVICE.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

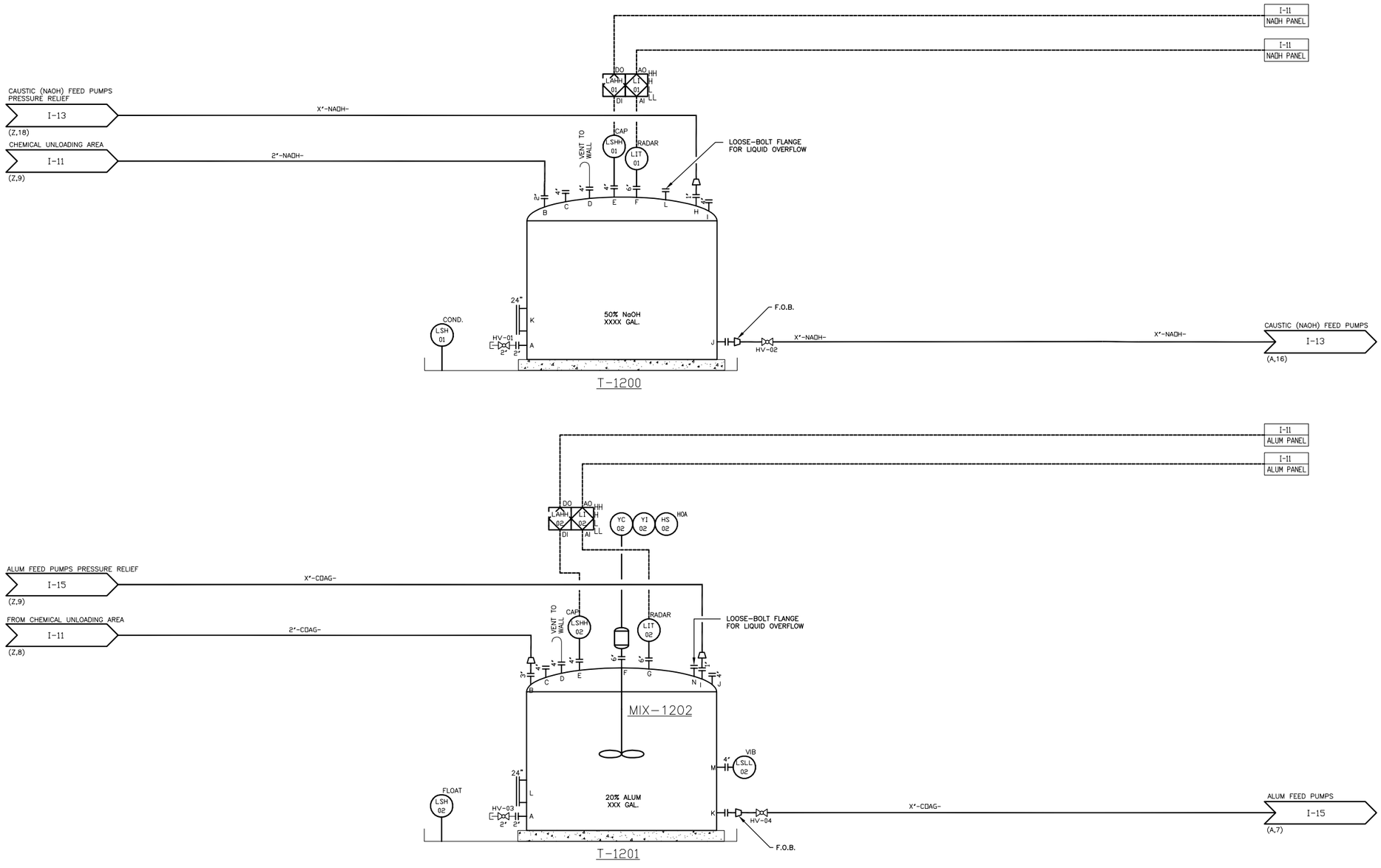
CHEMICAL STORAGE – H2S04/UNLOADING
P&ID

PRELIMINARY NOT FOR CONSTRUCTION
DATE: 10/8/09

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523–I11
DATE AUGUST 2009

I–11



NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "12" AND ENDING WITH INDEX NUMBER ON DEVICE.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

CHEMICAL STORAGE – NAOH/ALUM

P&ID

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

IN CHARGE OF JSR

DESIGNED BY GBE CHECKED BY PDS

DRAWN BY LMW

FILE NO. 1163.44523-I12

DATE AUGUST 2009

I-12

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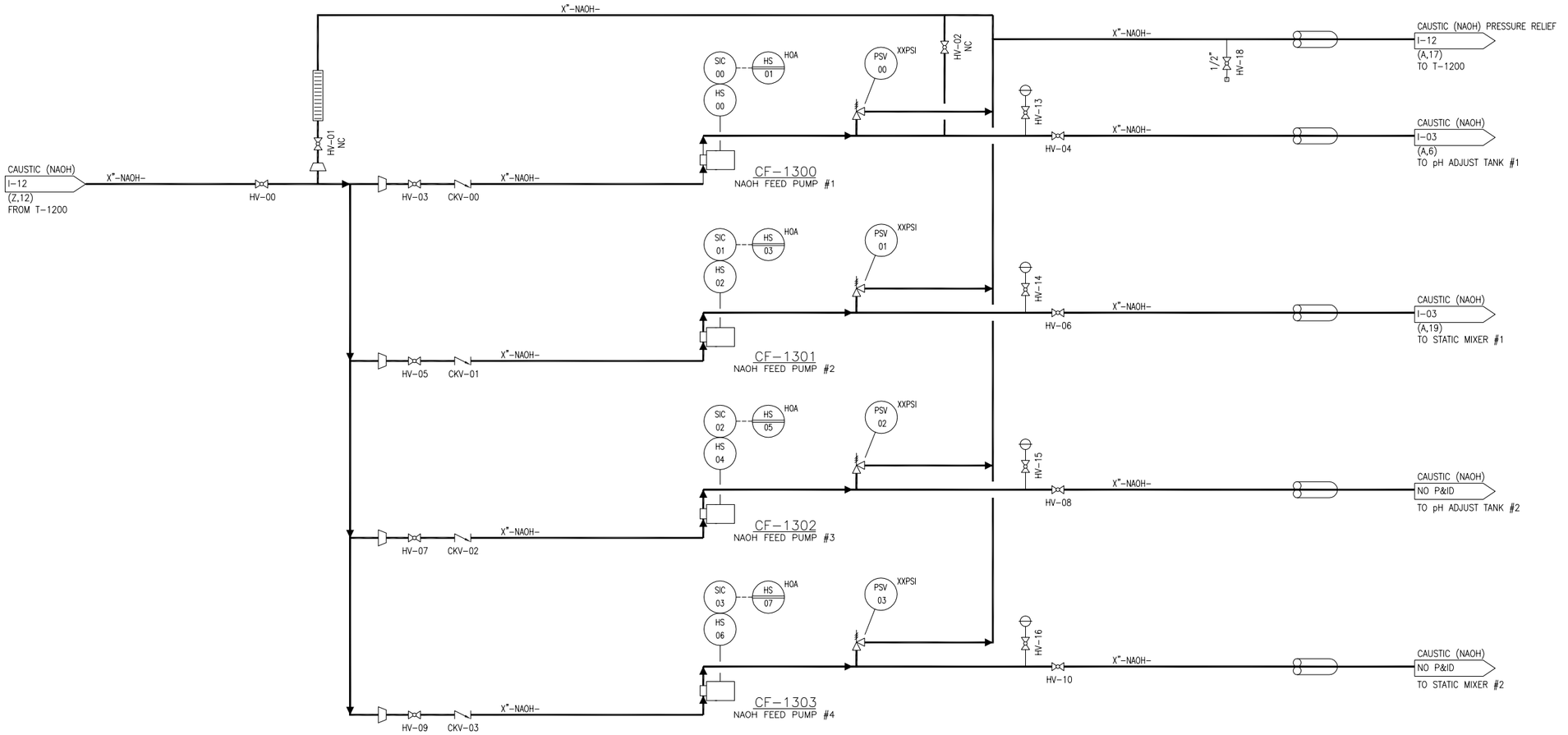

NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "13" AND ENDING WITH INDEX NUMBER SHOWN ON DEVICE.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

CHEMICAL FEED SYSTEMS – NAOH

P&ID

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

IN CHARGE OF JSR

DESIGNED BY GBE CHECKED BY PDS

DRAWN BY LMW

FILE NO. 1163.44523-I13

DATE AUGUST 2009

I-13

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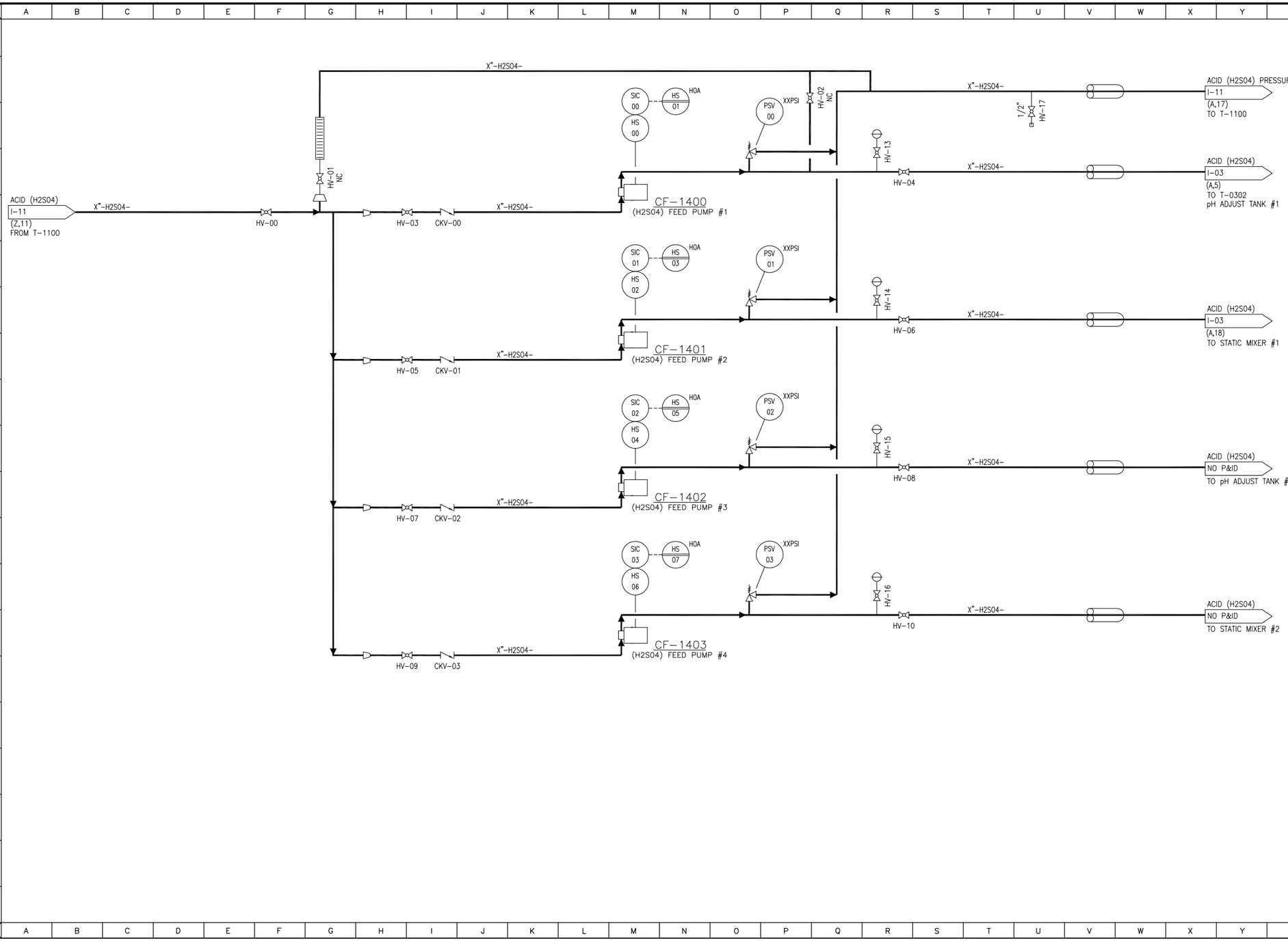


NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "14" AND ENDING WITH INDEX NUMBER SHOWN ON DEVICE.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

CHEMICAL FEED SYSTEMS – H2S04

P&ID

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

IN CHARGE OF JSR

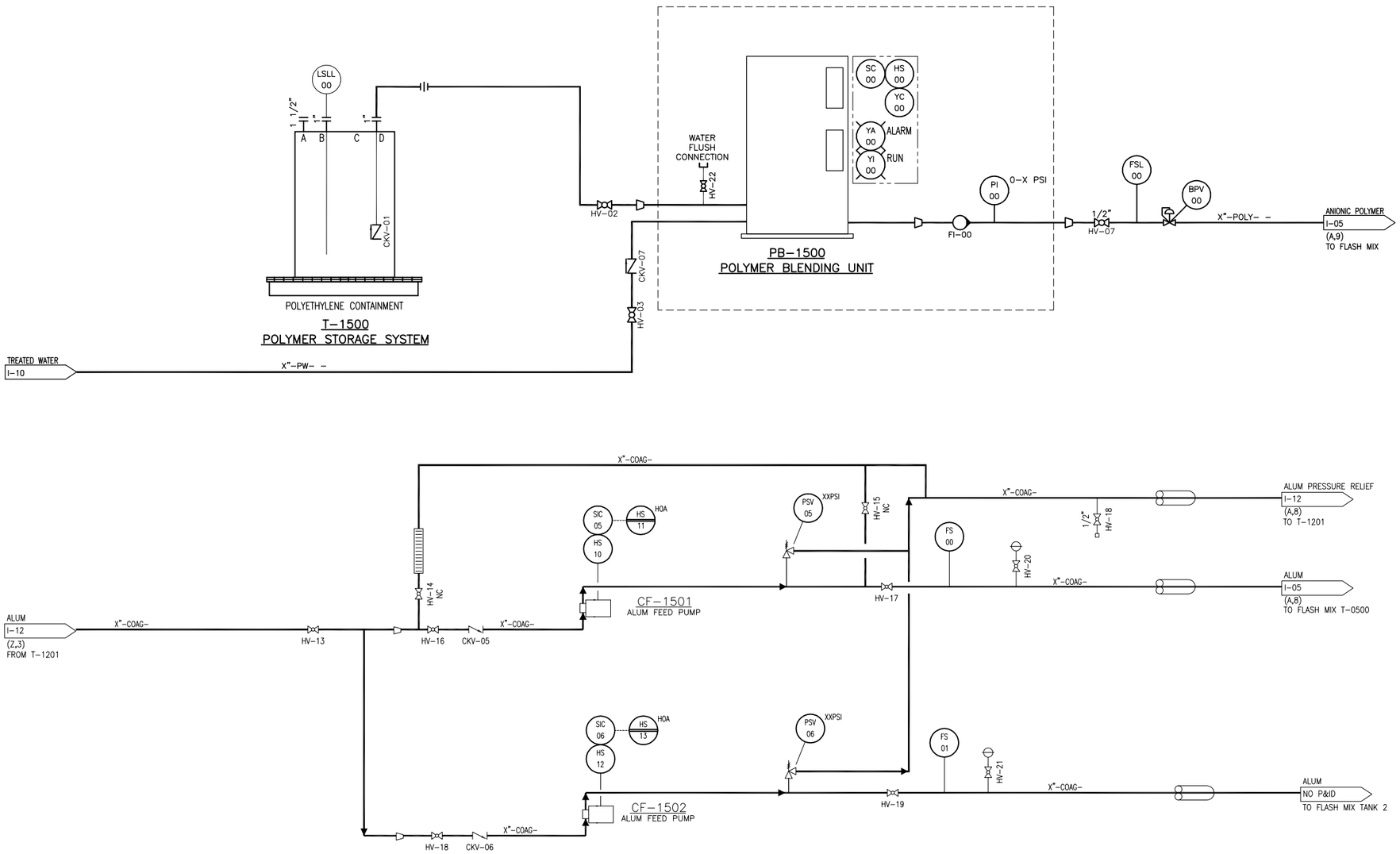
DESIGNED BY GBE CHECKED BY PDS

DRAWN BY LMW

FILE NO. 1163.44523-I14

DATE AUGUST 2009

I-14



NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "15" AND ENDING WITH INDEX NUMBER ON DEVICE.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

CHEMICAL FEED – ALUM/POLYMER P&ID

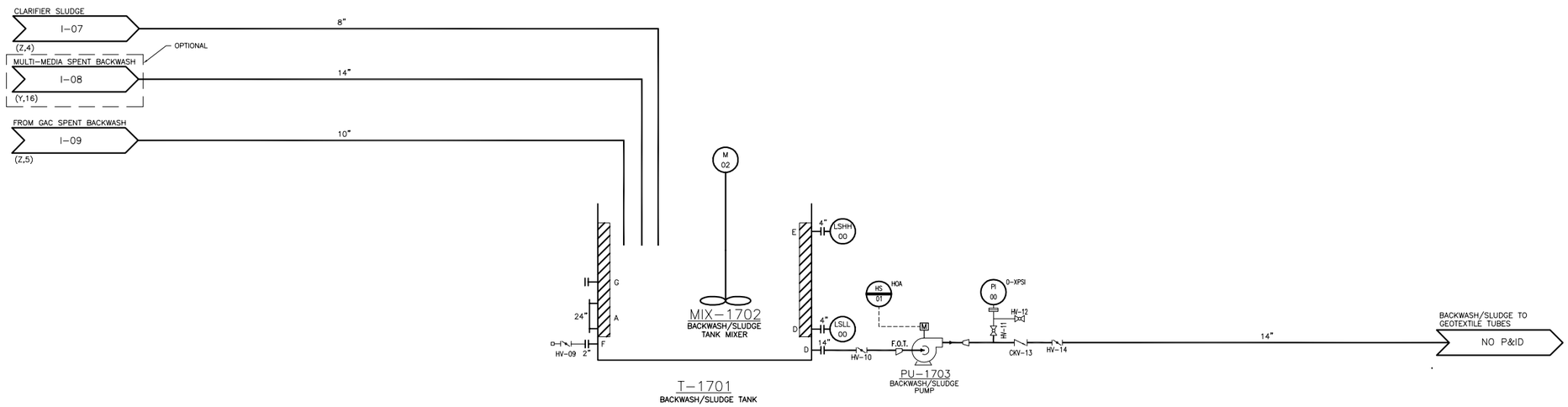
PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

IN CHARGE OF JSR
DESIGNED BY GBE CHECKED BY PDS
DRAWN BY LMW

FILE NO. 1163.44523-I15
DATE AUGUST 2009

I-15



NOTES:

1. ALL DEVICE TAG NUMBERS ON THIS DRAWING ARE 4 DIGITS STARTING WITH "17" AND ENDING WITH INDEX NUMBER ON DEVICE.

INTERLOCKS:

PENDING

NO.	DATE	REVISION	INIT.
C	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
B	9/15/09	REVISED DRAFT INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

BACKWASH/SLUDGE TANK

P&ID

IN CHARGE OF JSR

DESIGNED BY GBE CHECKED BY PDS

DRAWN BY LMW

FILE NO. 1163.44523-I17

DATE AUGUST 2009

I-17

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

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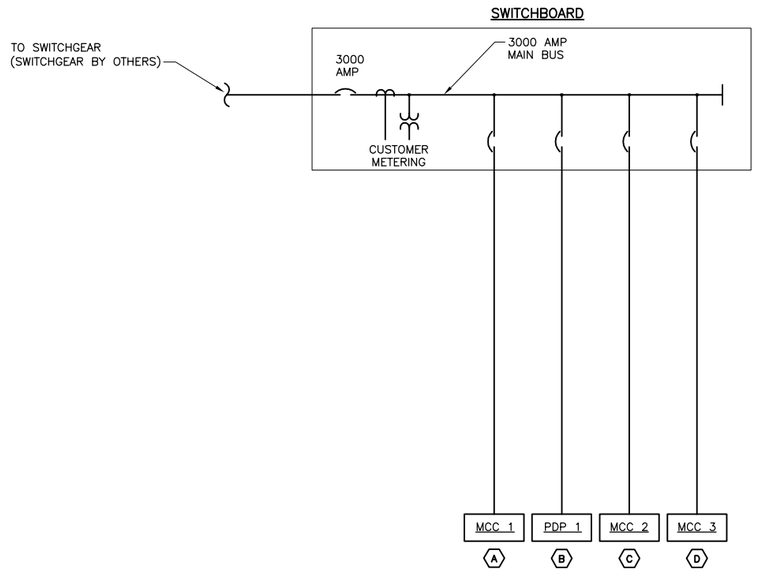

NOTES:

LEGEND

MCC _	NORMAL POWER MOTOR CONTROL CENTER
PDP _	NORMAL POWER POWER DISTRIBUTION PANEL

MAJOR LOADS SERVED

(A)	• pH ADJUST • FLASH MIX • FLOCCULATION • CLARIFICATION
(C)	• INTERMEDIATE PUMPING
(C)	• PROCESS BUILDING
(D)	• BACKWASH PUMPS • EFFLUENT RECYCLE PUMPS

NO.	DATE	REVISION	INIT.
B	10/8/09	INTERMEDIATE DESIGN SUBMITTAL	
A	9/01/09	DRAFT INTERMEDIATE DESIGN SUBMITTAL	

O'BRIEN & GERE ENGINEERS INC.

HONEYWELL INTERNATIONAL, INC.
SCA
WATER TREATMENT PLANT
TOWN OF GEDDES, NEW YORK

ELECTRICAL

POWER DISTRIBUTION
ONE–LINE DIAGRAM

PRELIMINARY NOT FOR CONSTRUCTION

DATE: 10/8/09

IN CHARGE OF JSR

DESIGNED BY JJC CHECKED BY JJC

DRAWN BY DJF

FILE NO. 1163.44523–E–5

DATE JULY 2009

E–1

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APPENDIX C

Influent Concentrations/ Effluent Criteria

Honeywell SCA Water Treatment Plant
Intermediate Design Submittal
10/2009

Estimated Influent Concentrations & Effluent Criteria

	SCA WTP *Estimated Untreated Influent*[(1)] (mg/L)	**SCA WTP *Treated Effluent Criteria*[(2)] (mg/L)**
5-day Biochemical Demand (BOD_5)	9 - 170	[(3)]
Total Suspended Solids (TSS)	<5 - 200	[(3)]
Total Kjeldahl Nitrogen (TKN)	11 - 47	[(3)]
Total Phosphorus (TP)	<0.01 - 0.73	[(3)]
Total Toxic Organics (TTOs)	0.06 - 16	0.1
Metals		
Total Cadmium	<0.01	2
Total Chromium	<0.01 - 0.02	0.3
Hexavalent Chromium	<0.01	4
Total Copper	0.01 - 0.24	0.7
Total Lead	<0.01 - 0.07	0.2
Total Mercury	0.02 - 0.94	0.0002
Total Molybdenum	2.7	Reserved[(4)]
Total Nickel	0.02 - 0.67	0.35
Total Silver	<0.01	1
Total Zinc	0.01 - 0.10	0.4

Notes:

[(1)] Range of influent concentration expected based on:
a) EET testing of settled supernatant from blended lake water and sediment from SMUs 1, 4, 6, and 7 as provided in the Phase II Pre-Design Investigation SCA Supernatant Treatability Testing Report (OBG, June 2008).
b) Initial characterization of geotube filtrate from SMU 1B as provided in the Onondaga Lake Pre-Design Investigation Phase IV Report - Addendum 5 Supplemental Water Treatability Testing (OBG, October 2009)

[(2)] SCA WTP Treated Effluent limits based on OCDWEP Pretreatment Standards.

[(3)] In accordance with modifications to the Onondaga County Rules and Regulations approved by EPA in 02/1998, concentration based limits not established for BOD_5, TSS, TP and TKN.

[(4)] Effluent limit to be specified pending outcome of supplemental dewatering and water treatability testing.

APPENDIX D

OCDWEP Draft IWD
Permit #800

Onondaga County Department of
WATER ENVIRONMENT PROTECTION

Joanne M. Mahoney, County Executive
Randy R. Ott, P.E., Commissioner
650 Hiawatha Blvd. West
Syracuse, NY 13204-1194
(315) 435-2260 or (315) 435-6820
FAX (315) 435-5023
http://www.ongov.net/wep/

June 9, 2008

Mr. Al Labuz
Honeywell International
5000 Brittonfield Parkway, Suite 700
East Syracuse, New York 13057

JUN 11 2008

Re: Draft Industrial Wastewater Discharge Permit for the Sediment Containment Area

Mr. Labuz:

Please find enclosed revised Industrial Wastewater Discharge Permit #800 for the Honeywell International Sediment Containment Area (SCA).

The enclosed draft permit should be used for discussion purposes only. A formal draft permit will be issued prior to the commencement of SCA operations, provided that the County deems the SCA wastewater acceptable for treatment at the Metropolitan Syracuse Wastewater Treatment Plant (Metro).

Please note the following items need to be addressed further:

- Flow Management Plan: As discussed in our meetings, a formal, County-approved plan will be required to manage flows discharged to Metro in lieu of a flow limitation.
- Table I: A technical evaluation needs to be conducted for Cadmium, Cyanide, Phenol, and Oil & Grease limits. The local limits specified for these parameters in Table I may be modified based on the results of the technical evaluation.
- Although it is not currently required in the enclosed draft permit, the Department may require Honeywell to report the amount of dredged material pumped to the SCA in addition to the volume of wastewater pumped to Metro.

If you have any questions or comments, please contact Sandra Tuori-Bell or David Colbert at this office.

Sincerely,
DEPARTMENT OF WATER ENVIRONMENT PROTECTION

RANDY R. OTT, P. E.
Commissioner

DRC/
Attach.
cc w/ attach: File #802 - Honeywell International - SCA
W:\DAVE\Industries\Allied-Honeywell\Honeywell SCA Permit 060308.wpd

Onondaga County Department of
WATER ENVIRONMENT PROTECTION

650 Hiawatha Boulevard West
Syracuse, New York 13204-1194
Phone (315) 435-2260 or (315) 435-6820
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Joanne M. Mahoney
County Executive

Randy R. Ott, P.E.
Commissioner

ONONDAGA COUNTY INDUSTRIAL WASTEWATER DISCHARGE PERMIT

PERMIT NUMBER: 802 **DATE ISSUED:** _____

INDUSTRIAL CODE: _____ **EXPIRATION DATE:** _____

NAICS: NA

Pursuant to Article IV, Section 4.01 of the Rules and Regulations Relating to the Use of the Public Sewer System issued by the County of Onondaga, Department of Water Environment Protection,

Honeywell International Inc., SCA Treatment Plant

NAME OF COMPANY

is authorized by the Commissioner to discharge industrial wastewater from the industrial facility located at

5000 Brittonfield Parkway, Suite 700, East Syracuse, New York 13057

ADDRESS OF COMPANY FACILITY DISCHARGING WASTEWATER

to the **Metropolitan Syracuse Wastewater Treatment Facility (Metro)**

NAME OF RECEIVING TREATMENT PLANT

in accordance with the conditions contained herein.

TABLE OF CONTENTS

LIST OF TABLES

I. AUTHORITY

A. This permit is hereby promulgated by the Commissioner of the Onondaga County Department of Water Environment Protection (OCDWEP) to regulate the discharge of wastewater, polluted or unpolluted, to the County sewer system, under the authority of **The Onondaga County Rules and Regulations Relating to the Use of the Public Sewer System** dated September 15, 1983 (the Rules and Regulations) and the **Onondaga County Administrative Code**.

B. Article VII of the Rules and Regulations provides that any violation of this permit may subject the permittee to a fine of one thousand dollars per day per violation. In addition, Articles VI and VII of the Rules and Regulations specify other penalties and procedures the Department may employ for any violation of this permit or the Rules and Regulations.

II. PERMITTED WASTEWATER DISCHARGE

A. The permittee is authorized to discharge groundwater from hydraulic dredging of Onondaga Lake sediments to the OCDWEP sanitary sewer system after the groundwater has been pretreated to meet the conditions of this permit.

B. Discharge shall comply with an OCDWEP approved Flow Management Plan. The discharge of wastewater to the OCDWEP sanitary sewer system may be limited or prohibited when the Metropolitan Syracuse Wastewater Treatment Facility or the sanitary sewer system are experiencing wet weather operating conditions.

C. The locations of all monitoring facilities are shown in Appendix C – Honeywell International Inc. SCA WWTP Site Map.

D. All wastewater discharged to the sanitary sewer system must comply with the effluent limitations set forth in Section IV of this permit and Article III of the Rules and Regulations, unless otherwise indicated in this permit expressly or by implication. In the event that there is a discrepancy between a limit contained in this permit and a limit contained in the Rules and Regulations, the more stringent limit shall apply.

III. PROHIBITED DISCHARGES

A. In accordance with Article III of the Rules and Regulations, the following shall not be introduced into the County Sewer System:

1. Wastewater constituents which cause pass-through (pursuant to Sections 3.01(d), 3.01(f), and 3.01(g));

2. Wastewater constituents which cause interference (pursuant to Sections 3.01(b), 3.01(d), 3.01(i), and 3.01(j));

3. Wastewater which has the potential to create a fire or explosion hazard in the publicly-owned treatment works (POTW), including wastewater having a closed-cup flashpoint less than 140°F (pursuant to Section 3.01(a));

4. Wastewater having a pH lower than 5.5 or higher than 10.5 S.U. (pursuant to Section 3.01(c));

5. Wastewater constituents which result in the presence of toxic gases, vapors or fumes within the POTW in a quantity that may cause acute worker health and safety problems (pursuant to Sections 3.01(a), 3.01(d), and 3.01(e));

6. Batch discharges of unpermitted materials without prior written approval from the Commissioner. Any request to discharge such wastewater must be submitted in writing to this office and is subject to approval on a case-by-case basis (see section XV.B.4).

7. Wastewater having a temperature greater than 150 °F or at a quantity such that the temperature at the headworks of the POTW exceeds 104 °F (pursuant to Section 3.01(l)).

8. Non-contact cooling water and other unpolluted wastewater (pursuant to Section 3.02) other than those permitted in Section II.

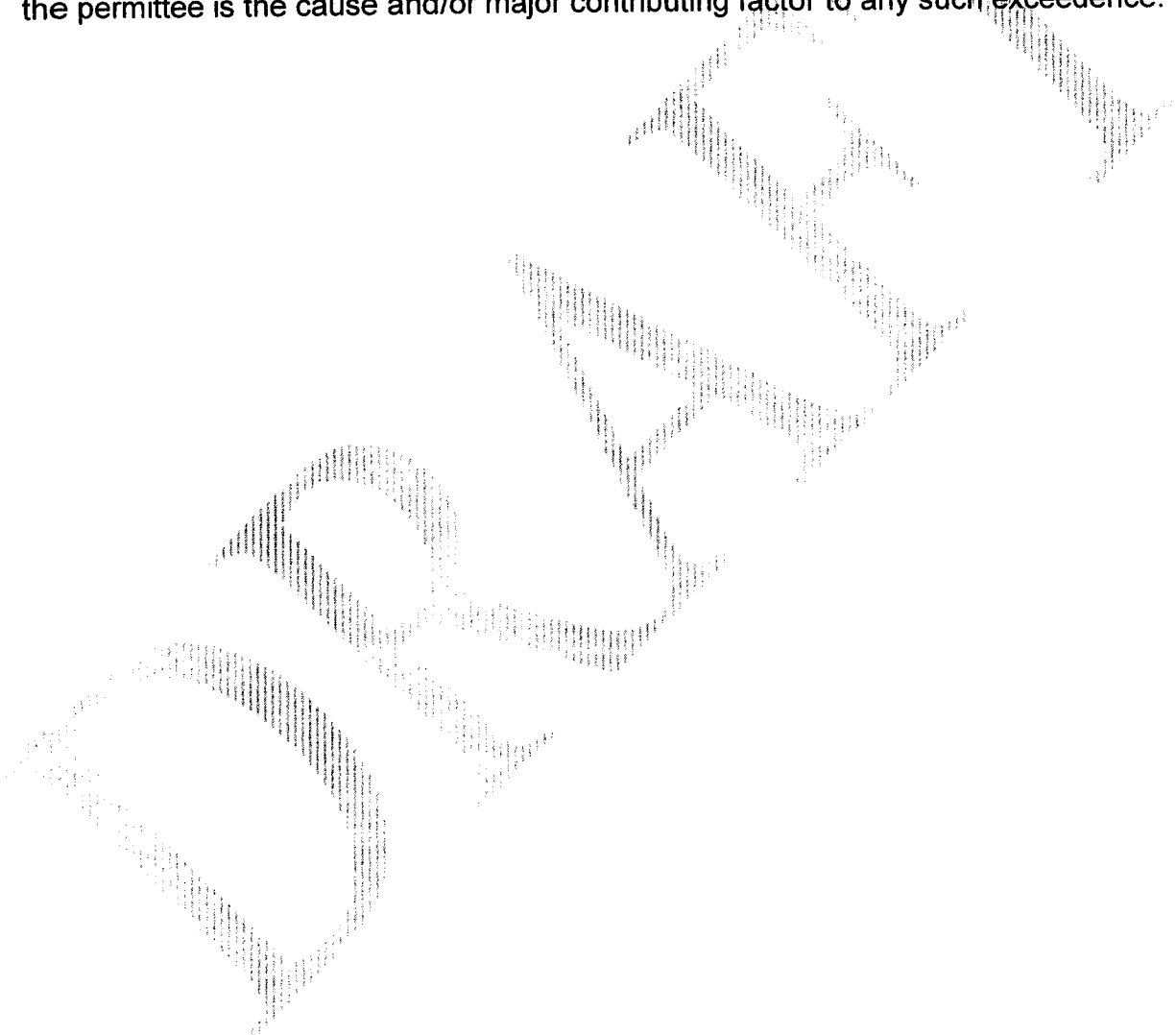
9. Any wastewater that will subject the receiving POTW to reporting and permitting regulations of the Resource Conservation and Recovery Act (RCRA) (40 CFR 270.1 (c) and 270.60 (c)).

10. Any other wastewater which is prohibited by Article III of the Rules and Regulations.

B. In addition to the above prohibitions, dilution shall not be used as a substitute for pretreatment.

III. PROHIBITED DISCHARGES (continued)

C. Wastewater discharges are prohibited which are sufficient in quantity or concentration to cause an exceedence of the ammonia or phosphorus limitations established for the discharge from the County's Metro Plant under the Amended Consent Judgement (ACJ) in the case of Atlantic States Legal Foundation, et al. v. Onondaga County Department of Drainage and Sanitation, et al. (Civil Action No. 88-CV-0066). In the event that the Department determines that the permittee's discharges caused or were the major contributing factor to such an exceedence, the permittee shall become liable to reimburse the Department costs associated with the Department's violation of said limits, including the payment of applicable stipulated penalties required to be paid by the Department pursuant to the ACJ. Nothing contained herein shall prohibit the permittee from contesting any determination by the Department that the permittee is the cause and/or major contributing factor to any such exceedence.



IV. EFFLUENT LIMITATIONS AND PRETREATMENT STANDARDS

A. The permittee shall comply with the following pretreatment standards at the point where the discharge (Sewer #1) enters the County sanitary sewer system.

Table I: Onondaga County Effluent Limitations

Parameter	Sewer #1 SCA WWTP Monitoring Station	
	Daily Allowable (mg/l)[1]	Instantaneous Allowable (mg/l)[2]
Total Cadmium (Cd)[6]	2.0	3.0
Total Chromium (Cr)[7]	0.3	0.3
Hexavalent Chromium (Hex-Cr)[7]	4.0	6.0
Total Copper (Cu)[7]	0.7	0.7
Total Lead (Pb)[7]	0.2	0.2
Total Mercury (Hg)[7]	0.0002	0.0002
Total Cyanide (T-CN)	Not Applicable	3.0
Total Nickel (Ni)[7]	0.35	0.35
Total Zinc (Zn)[7]	0.4	0.4
Total Silver (Ag)[6]	1.0	1.5
Total Molybdenum (Mo)	Reserved	Reserved
Total Phenolic Compounds[6]	Not Applicable	4.5
Total Oil and Grease (O&G)[6]	Not Applicable	150
pH	Not Applicable	5.5 - 10.5 S.U.
Temperature	Not Applicable	150°F
5-Day Biochemical Oxygen Demand (BOD_5)	[3]	[3]
Total Suspended Solids (TSS)	[3]	[3]
Total Kjeldahl Nitrogen (TKN)	[3]	[3]
Total Phosphorus (TP)	[3]	[3]
Total Toxic Organics (TTOs)	0.1[4]	0.1[4]
Flowrate	Note[5]	Note[5]

1 As determined by a composite sample (as defined by Article II, Section 2.02 of the Rules and Regulations) of the permittee's daily discharge over the operational and/or production period.

2 As determined by a grab sample (as defined by Article II, Section 2.02 of the Rules and Regulations) of the permittee's discharge at any time during the daily operational and/or production period.

3 In accordance with the modifications to the Onondaga County Rules and Regulations (Section 3.07, Special Conditions) approved by the USEPA in February 1998, concentration-based limits will not be established for BOD5, TSS, TP, TKN. An Industrial Wastewater Surcharge will be assessed based upon the pre-established loading charge rates in excess of the threshold concentrations for these parameters in order to recover costs incurred by the POTW for treatment of the wastewater constituents (refer to Article V of the Rules and Regulations). The Commissioner reserves the right to place concentration-based or mass-based limitations upon the discharge of the above wastewater constituents if deemed necessary.

4 Compliance with the TTO limitation shall be determined by the sum of quantities of pollutants at or above the laboratory MDL as measured by USEPA Method 8260.

5 Discharge shall comply with an OCDWEP approved Flow Management Plan.

6 Limits may be modified pending the outcome of a technical evaluation.

7 Limits based on Table 3-7 of the O'Brien and Gere Engineers *Metro Process Evaluation* report, April 2008.

V. NOTICE OF SLUG OR ACCIDENTAL DISCHARGE

A. In accordance with Article IV, Section 4.10 of the Rules and Regulations, the permittee shall, at its own expense, provide protection from slug or accidental discharge of prohibited materials to the County Sewer System as defined in Section III of this permit and Article III of the Rules and Regulations.

B. Any wastewater released in accordance with the following conditions shall require the permittee to provide notification in accordance with Section V, Part C of this permit:

- Breakdown of industrial waste pretreatment equipment;
- Accident caused by human error or mechanical failure; and
- Other causes, such as acts of nature.

C. Notification Procedures

1. In the event of any slug or accidental discharge (as defined above), the permittee shall **immediately** notify the Commissioner by telephoning pretreatment program personnel at **435-2260** between the hours of 8:00 a.m.-4:00 p.m. weekdays or the operator of the Metropolitan Syracuse Wastewater Treatment Facility at **435-3142 or 435-3182** between the hours of 4:00 p.m.-8:00 a.m. weekdays or all day on weekends and holidays.

2. In accordance with Article IV, Section 4.10, of the Rules and Regulations, following the telephone notification, the Commissioner shall be notified **in writing** within five (5) business days. The written notification shall include the following information.

   a. The cause of the slug or accidental discharge;

   b. A description of the slug or accidental discharge;

   c. Anticipated time the condition is expected to continue, or if such condition has been corrected, the duration of the period of slug or accidental discharge;

   d. Steps taken by the permittee to reduce and/or eliminate the discharge; and

   e. Steps to be taken by the permittee to prevent recurrence of the condition which caused the slug or accidental discharge.

D. Nothing in this section of the permit shall be construed to relieve the permittee from the penalties for noncompliance with this permit or the Rules and Regulations (Article VII Enforcement and Penalties).

VI. CHANGE IN WASTEWATER DISCHARGE

A. In accordance with Article III Section 3.12 of the Rules and Regulations, the permittee shall notify the POTW in advance of any change in the volume or characteristics of wastewater discharge practices not explicitly permitted under Section II.

B. All discharges authorized herein shall comply with the terms and conditions of this permit.

C. Any industrial facility expansions, production increases or process modifications which result in new, different or increased discharges of pollutants must be reported by submission of a new industrial waste disposal questionnaire pursuant to Article IV, Section 4.02, of the Rules and Regulations.

D. This permit may be modified to specify and limit any new or increased pollutant discharges.

VII. TRANSFER OF OWNERSHIP CONTROL

A. At least thirty (30) days prior to any change in the ownership of the industrial facilities (including pretreatment facilities) from which the authorized discharges emanate, the permittee must notify this office in writing of the pending transfer.

B. The current owner shall then notify the succeeding owner or controller of the existence of this permit by letter, with a copy of the permit enclosed. In addition, notification of the impending transfer must be made to this office by a copy of the letter.

C. The new owner must acknowledge receipt of the letter and the conditions and provisions of the discharge permit in writing to the previous owner and to this department.

D. Once this office is notified of the transfer of the title, the Commissioner will provide written permitting procedures for the new owners.

VIII. RIGHT OF ENTRY

A. In accordance with Article IV, Section 4.08, of the Rules and Regulations, the permittee shall allow duly authorized employees or representatives of the County to enter the permittee's premises at all reasonable times for the purpose of inspection, observation, flow measurement, sampling and testing.

B. In accordance with Article VII, Section 7.05 of the Rules and Regulations, the permittee shall allow duly authorized employees of the County to enter the permittee's premises without delay for purposes of investigating any condition or activity which in the Commissioner's (or his designee's) judgment presents an imminent danger to the public health, safety or welfare, or to the environment, or is likely to result in damage to the public sewer system.

IX. COUNTY MONITORING

A. The monitoring of each industrial discharge and the recording of quantitative values shall be performed by authorized employees or representatives of the County according to schedules established by this office.

B. The County monitoring effort does not in any way relieve the permittee of any of the self-monitoring requirements contained in Section XV of this permit.

C. Composite and/or grab samples will be collected whenever possible over the production day, including clean-up periods.

D. The flow (in gallons per day) shall be measured during each sampling period.

E. All samples shall be collected in accordance with the procedures set forth by the New York State Department of Health Environmental Laboratory Approval Program (NYSDOH-ELAP) and/or Title 40 Part 136 of the Code of Federal Regulations (40 CFR 136).

F. All analyses shall be performed by a NYSDOH certified laboratory in accordance with USEPA approved analytical methods (40 CFR 136) as stated in the latest approved edition of the following references:

STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, American Public Health Association, New York, New York 10019.

METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTES, Environmental Monitoring and Support Laboratory, Office of Research and Development, March 1983, Environmental Protection Agency, Cincinnati, Ohio 45268.

X. PRETREATMENT FACILITIES

A. The permittee shall provide and maintain wastewater pretreatment facilities at its expense pursuant to Article IV, Section 4.09, of the Rules and Regulations.

B. All reports, plans and/or specifications for new or modified pretreatment facilities or changes in method of operation must be approved by the Commissioner or his designee prior to implementation.

C. The Honeywell International Inc., Sediment Containment Area (SCA) Wastewater Treatment Plant (WWTP) shall operate and maintain pretreatment systems utilizing:

- pH neutralization
- Solids separation
- Metals precipitation
- Volatile and semi volatile organic compound removal via carbon adsorption

XI. PERMIT MODIFICATIONS

A. In accordance with Article IV of the Rules and Regulations this permit may be modified, suspended, or revoked in whole or part during its term for causes including, but not limited to, the following:

1. Violation of any of the terms or conditions of this permit, or the Rules and Regulations;

2. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;

3. A pretreatment, effluent, or toxic effluent standard being established under any local, state, or federal law for any pollutant which is present in the permittee's discharge where said standard or prohibition is more stringent than the limitation for the pollutant in this permit or the Rules and Regulations;

4. Failure to make payments of the Industrial Waste Surcharge; and/or,

5. Failure to supply information to this office in accordance with Article IV, Section 4.03 (Permit Conditions) of the Rules and Regulations.

XII. MONITORING FACILITIES

A. In accordance with Article IV, Section 4.07, of the Rules and Regulations, the permittee is hereby required to provide wastewater monitoring facilities for the collection of representative grab and composite wastewater samples and accurate flow and pH measurements by OCDWEP.

B. The monitoring facilities and any modifications must be approved by OCDWEP before installation.

D. The permittee shall be responsible for all maintenance of monitoring facilities and calibration of monitoring equipment.

D. The permittee shall operate and maintain continuous monitoring flow and pH instruments to monitor the effluent from the SCA WWTP.

XIII. WASTE MATERIAL DISPOSAL

A. Any screenings, sludges, solids, waste oils, or other waste materials removed or separated from the permittee's authorized discharge or generated as a result of the wastewater treatment process shall be disposed of in such a manner as to prevent entry of such materials into navigable waters, ground water, storm drains, and the County Sewer System.

B. The following information regarding the disposal of waste materials as defined in part A above shall be reported to OCDWEP on the dates detailed in Table II. This information is to be listed on Form E of the self-monitoring report.

1. List the source(s) of waste materials to be disposed of.

2. Describe the nature of the waste (hazardous or non-hazardous).

   a. If nonhazardous, describe the waste and how it is created.

   b. If hazardous, provide the 40 CFR Part 261, Subpart C designation for the waste removed (i.e. characteristic waste, listed waste or a mixture). If it is listed, provide the F,K,P or U listing for the waste material removed.

   c. List the facility's hazardous waste generator identification number.

3. Include the approximate volumes or weights of each waste material disposed of.

4. Describe the method by which the wastes were removed and transported.

5. Report the company contracted to remove such materials and the final disposal or recovery location.

XIV. COMPUTATION AND PAYMENT OF INDUSTRIAL WASTEWATER SURCHARGE

A. The permittee shall pay its proportionate share of the cost of operation and maintenance and local debt retirement of the department treatment system.

B. These charges shall be computed by this office using the surcharge formulae in Article V, Section 5.02, of the Rules and Regulations. In addition, the permittee shall be subject to the sewer unit charge fee at the annual rate determined by the Onondaga County Legislature.

C. Payments shall be made to the County of Onondaga by the permittee no less often than annually unless prior written approval has been granted by the Commissioner.

XV. PERMITTEE SELF-MONITORING AND REPORTING REQUIREMENTS

A. Self-Monitoring Reports

1. The permittee shall submit semi-annual Self-Monitoring Reports (SMR's) in accordance with the timetable established in Table II: Self Monitoring Report Schedule. Failure to submit the SMR by the due date shall subject the permittee to the fines and penalties prescribed under Article VII of the Rules and Regulations.

Table II: Self Monitoring Report Schedule

Period Covered		Date Report is Due
Beginning	**Ending**	
January 1	January 31	February 28
February 1	February 28	March 31
March 1	March 31	April30
April1	April30	May 31
May1	May 31	June 30
June1	June 30	July 31
July1	July 31	August 31
August 1	August 31	September 30
September 1	September 30	October 31
October 1	October 31	November 30
November 1	November 30	December 31
December 1	December 31	January 31

2. The SMR shall be transmitted on the forms provided in Appendix A. Supplemental information, explanations, or clarifications may be provided in addition to the required information. Official laboratory and calibration reports (or copies thereof) must be included with the SMR.

B. Self-Monitoring Report Requirements

The permittee must submit a Self-Monitoring Report that shall include the following.

1. Laboratory Sample Analyses

   a. Each SMR shall contain the results of independent laboratory analyses of wastewater samples for the parameters listed in Table III and IV **(Form B)**.

   b. Sampling and analyses must be conducted in accordance with the methodologies detailed in 40 CFR 136 and amendments thereto.

XV. PERMITTEE SELF-MONITORING AND REPORTING REQUIREMENTS (continued)

c. Samples to be collected on more than one day per reporting period must be collected on consecutive days typical of normal production.

d. Copies of official laboratory reports, including chain of custody records, must be included with each SMR.

e. The contract laboratory must be certified by the New York State Department of Health (NYSDOH) for each parameter to be analyzed.

Table III: Self Monitoring Sampling Schedule
Sewer #1 SCA WWTP Effluent

Discharge Locations	Parameters	Minimum Frequency of Analysis	Type of Sample
Sewer #1 SCA WWTP Efffluent	Total Cadmium (Cd)	Once Monthly	Composite
	Total Chromium (Cr)	Once Monthly	Composite
	Hexavalent Chromium (Hex-Cr)	Once Monthly	Composite
	Total Copper (Cu)	Once Monthly	Composite
	Total Cyanide (T-CN)	Once Monthly	Composite
	Amenable Cyanide (CN-A)	Once Monthly	Composite
	Total Lead (Pb)	Once Monthly	Composite
	Total Nickel (Ni)	Once Monthly	Composite
	Total Silver (Ag)	Once Monthly	Composite
	Total Zinc (Zn)	Once Monthly	Composite
	Total Molybdenum (Mo)	Once Monthly	Composite
	Total Mercury (Hg) Method 1631	Once Monthly	Composite
	5-Day Biochemical Oxygen Demand (BOD_5)	Once Monthly	Composite
	Total Suspended Solids (TSS)	Once Monthly	Composite
	Total Phosphorus (TP)	Once Monthly	Composite
	Ammonia (NH_3-N)	Once Weekly	Composite
	Total Kjeldahl Nitrogen (TKN)	Once Weekly	Composite
	Total Phenolic Compounds	Once Monthly	Grab
	TTO's by USEPA Method 8260	Once Weekly	Grab
	pH (Standard Units)	Daily	Continuous
	Flow	Daily	Continuous

PERMITTEE SELF-MONITORING AND REPORTING REQUIREMENTS (continued)

Table IV: Self Monitoring Sampling Schedule Sewer #2 SCA WWTP Influent

Discharge Locations	Parameters	Minimum Frequency of Analysis	Type of Sample
Sewer #2 SCA WWTP Influent	Total Cadmium (Cd)	Once Monthly	Composite
	Total Chromium (Cr)	Once Monthly	Composite
	Hexavalent Chromium (Hex-Cr)	Once Monthly	Composite
	Total Copper (Cu)	Once Monthly	Composite
	Total Cyanide (T-CN)	Once Monthly	Composite
	Amenable Cyanide (CN-A)	Once Monthly	Composite
	Total Lead (Pb)	Once Monthly	Composite
	Total Nickel (Ni)	Once Monthly	Composite
	Total Silver (Ag)	Once Monthly	Composite
	Total Zinc (Zn)	Once Monthly	Composite
	Total Mercury (Hg) Method 1631	Once Monthly	Composite
	5-Day Biochemical Oxygen Demand (BOD_5)	Once Monthly	Composite
	Total Suspended Solids (TSS)	Once Monthly	Composite
	Total Phosphorus (TP)	Once Monthly	Composite
	Ammonia (NH_3-N)	Once Weekly	Composite
	Total Kjeldahl Nitrogen (TKN)	Once Weekly	Composite
	Total Phenolic Compounds	Once Monthly	Grab
	TTO's by USEPA Method 8260	Once Weekly	Grab

f. Each SMR must include a summary of sampling and analytical methodologies employed **(Form A)**. Note that composite samples must be collected at a minimum rate of one sample aliquot every 30 minutes.

g. The concentration of any parameter in Table III shall not exceed the effluent limitations detailed in Section IV (Table I) of this permit.

h. Total Toxic Organics (TTO) is currently defined by the County as Control Authority, to be the sum of the detectable concentrations of parameters detected by USEPA Method 8260.

XV. PERMITTEE SELF-MONITORING AND REPORTING REQUIREMENTS (continued)

i. The County must be notified in writing if any of the USEPA Priority Pollutants (Appendix B) are to be discharged to the sanitary sewer system. The County must be notified in order to evaluate the impact of any change in discharge pursuant to Section VI of this permit.

j. Additional sampling and flow measurement of wastewater discharges may be performed by the permittee. Any data collected using certified methods must be submitted to this office with the required self-monitoring data for the corresponding period to evaluate compliance with permit effluent limitations and pretreatment standards. Additional data may be used for computations of the Industrial Wastewater Surcharge.

2. Wastewater pH Monitoring (**Form G**)

a. Each SMR must include a summary of pH excursions.

(1) Include the date, time, and duration of the excursions.

(2) Include the cause of the excursion and the steps that have been taken to prevent a future recurrence.

(3) pH excursions must be reported as self-monitoring violations subject to the notification requirements detailed in Section V.C of this permit.

b. pH must be measured daily utilizing a continuously recording pH meter. Instantaneous pH must also be measured at the time of sampling on days of self monitoring at Sewer #1, and be reported on Form B.

3. Batch Wastewater Discharges (**Form D – Not Applicable**)

4. Waste Material Disposal (**Form E**)

a. In accordance with the provisions of Section XIII of this permit, each Self-Monitoring Report must contain detailed information regarding the handling and disposal of waste material removed or separated from the permittee's wastewater discharges **(Form E).**

5. Water Usage/Wastewater Effluent Monitoring **(Form C)**

a. The volume of wastewater discharged to the sewer system from the SCA WWTP shall be continuously monitored by the permittee at Sewer #1.

b. The daily volume, and average and maximum daily flow rates of wastewater discharged to the sewer system on each day during the reporting period shall be reported on **Form C.**

XV. PERMITTEE SELF-MONITORING AND REPORTING REQUIREMENTS (continued)

6. Compliance Certification (**Form A**)

   a. Each Self-Monitoring Report requires a statement that compliance with all applicable effluent limitations has been maintained throughout the reporting period. If the permittee fails to maintain compliance, the following requirements must be adhered to.

      (1) The permittee is required to notify the County within twenty-four (24) hours upon becoming aware of a self-monitoring violation.

      (2) The permittee must repeat sampling for all parameters exceeding applicable discharge limitations. The permittee shall submit the results of the repeat analysis within thirty (30) days of becoming aware of the violation. Note that the results of the repeat analysis may be submitted separately in order to avoid submitting a late Self-Monitoring Report.

      (3) The permittee must submit a report to the County that includes a description of the cause of the noncompliance and information as to what additional operation and maintenance and/or pretreatment equipment is necessary to return to and maintain consistent compliance.

      (4) Upon request, the permittee must provide the County with any information relating to the noncompliance that is deemed necessary.

   b. Each Self-Monitoring Report requires a statement that only wastewater sources permitted in Section II of this permit were discharged to the County Sanitary Sewer System.

7. Certification Statement (**Form A**)

   a. Each self-monitoring report must contain a statement certifying its accuracy.

   b. Each self-monitoring report must contain a certification statement that methods for sampling and analyses conform to the methodology contained in 40 CFR Part 136 (Guidelines Establishing Test Procedures for the Analysis of Pollutants).

   c. Each self-monitoring report must contain a statement certifying that the permittee is in full compliance with all effluent limitations as stated in this permit or follow the procedures for reporting and abating non-compliant discharges as detailed in Section XV.B.7 of this permit.

   d. Each self-monitoring report must contain a statement certifying that the permittee conformed to the OCDWEP approved Flow Management Plan.

e. In accordance with Section XVIII -- Signatory Requirements, the authorized representative of the permitted facility must sign the certification statements.

f. Self-monitoring reports submitted without adequate certification will not be accepted.

8. Wastewater Monitoring Equipment Calibration (**Form F**)

a. Each SMR must include the results of the calibration of equipment used to monitor wastewater discharges to the County sewer system during the reporting period.

b. The calibration of wastewater monitoring equipment must be conducted at least once per quarter by a certified manufacturer's representative or other qualified third-party, for all instrumentation used to monitor the permittee's wastewater discharge. The permittee must conduct regular "bench-top" calibrations per manufacturer's specifications using buffer solutions, etc.

c. Each calibration summary must contain the written results of the calibration, including at least the following:

(1) The date of calibration;

(2) The amount of drift detected; and,

(4) The signature and title of the person performing the calibration and certifying the accuracy of the results.

d. Calibration to manufacturer's specifications shall be performed at a minimum on the following equipment:

- Effluent pH monitor
- Effluent flow monitor

XVI. RECORD KEEPING

A. Records of all information resulting from self-monitoring activities as required above, or any other discretionary self-monitoring, shall be maintained for a minimum of three (3) years. The required record keeping period may be extended during the course of unresolved litigation or by order of this department.

B. Records shall be made available immediately upon request for inspection and copying by the Department of Water Environment Protection as the Control Authority.

XVII. AVAILABILITY OF BUSINESS RECORDS TO DISCLOSURE

A. The New York State Freedom of Information Law (FOIL) provides the public with access to government records, as do subpoenas for County records made relative to litigation. Therefore, information submitted to Onondaga County Department of Water Environment Protection (OCDWEP) by a commercial enterprise may be subject to public disclosure unless it falls within a protected category or is otherwise nondisclosable pursuant to state or federal law.

B. Certain business information may be considered confidential if it concerns trade secrets or information which, if disclosed, would injure the competitive position of a business. This information which is obtained by OCDWEP in the course of regulating use of the County Sewer System may be protected from disclosure via FOIL requests. To do so, an assertion of confidentiality must be made at the time information is received by OCDWEP using OCDWEP guidelines. If no such request is made by a commercial enterprise, all information will be made available to the public by OCDWEP upon receipt of a FOIL request. Guidelines for the assertion of a confidentiality claim may be obtained upon request to OCDWEP.

XVIII. SIGNATORY REQUIREMENTS

A. An authorized representative must sign all reports and correspondence submitted by the permittee in accordance with this permit. The authorized representative of the user shall be an individual who is:

1. A responsible corporate officer, if the Industrial User submitting the report is a corporation. For the purpose of this paragraph, a responsible corporate officer means:

    a. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or,

    b. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for control mechanism requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. A general partner or proprietor if the Industrial User submitting the report is a partnership, or sole proprietorship, respectively.

3. By a duly authorized representative of the individual designated in paragraph 1 or 2 of this section if:

    a. The authorization is made in writing by the individual described in paragraph 1 or 2 of this section;

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the Industrial Discharge originates, such as the position of plant manager, operator of a well, or well field superintendent, or a position of equivalent responsibility, or having overall responsibility for environmental matters for the company; and

    c. The written authorization is submitted to the Department.

4. If an authorization under paragraph 3 of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, or overall responsibility for environmental matters for the company, a new authorization satisfying the requirements of paragraph 3 of this section must be submitted to the Control Authority prior to or together with any reports to be signed by an authorized representative.

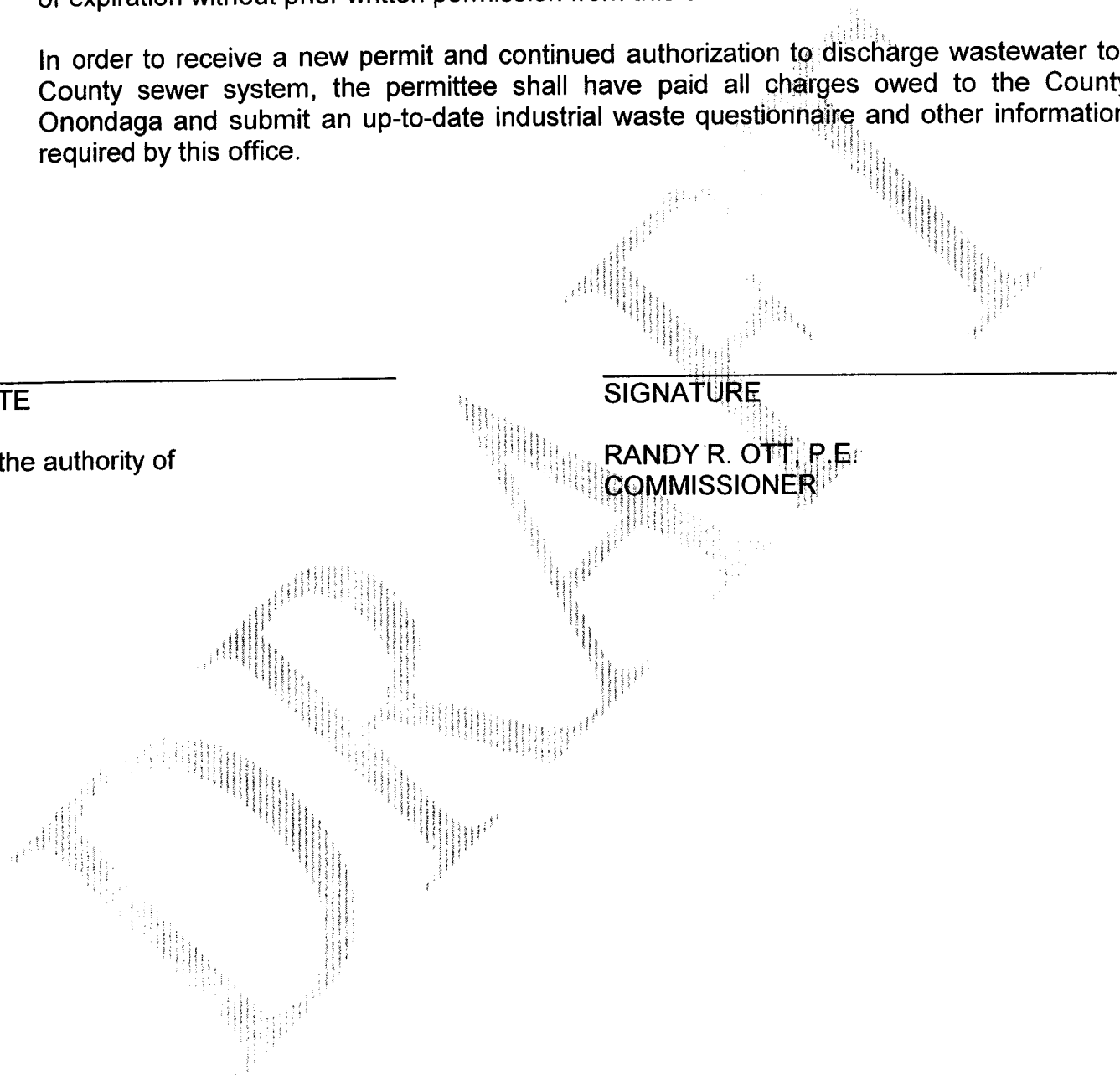
B. The permittee shall notify the Department in writing within three business days of any changes regarding the authorization to sign and certify reports submitted pursuant to this permit.

XIX. AUTHORIZATION

A. This permit and the authorization to discharge industrial wastewater into the County Sewer System shall be legally binding upon the permittee.

B. This permit shall expire on January 1, 2015. The permittee shall not discharge after the date of expiration without prior written permission from this office.

C. In order to receive a new permit and continued authorization to discharge wastewater to the County sewer system, the permittee shall have paid all charges owed to the County of Onondaga and submit an up-to-date industrial waste questionnaire and other information as required by this office.



DATE

SIGNATURE

By the authority of

RANDY R. OTT, P.E.
COMMISSIONER

Appendix A:
Self-Monitoring Report Forms

Honeywell International, Inc. – SCA (IC #800)
Self-Monitoring Report – Form A

Period Covered	From:		To:
Date Due:		Date Submitted:	

Explain Sampling Methods

Water Usage:

Water Use During Reporting Period (gallons):	
Source(s) of Water (water retailer):	

Water Consumed and Not Discharged to the County Sewer System:

Part of Product:		Boiler Make-Up:	
Evaporation:		SPDES Outfall:	
Off-Site Disposal:		Other (specify):	

Total Wastewater Discharged To County Sewer System:

Sewer #:						
Gallons:						

Number of Operating Days:		Number of Employees:	

Do the monitoring results show full compliance? (Yes/No):	

If No, please explain:

Was any wastewater pollutant analyzed more frequently than required by the permit using a NYSDOH certified laboratory during this reporting period? If yes, the analytical results must be submitted with the SMR. (Yes/No):	

Certification: I certify under penalty of law that this document and its attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility monetary penalties and/or imprisonment for knowing of such violations. I further certify that sampling, analytical, and equipment calibration methodologies employed during the collection of data required for this submission conform to accepted methods established by the United States Environmental Protection Agency (USEPA) and/or the New York State Department of Health (NYSDOH).

Signature of Authorized Representative:	
Typed or Printed Name:	
Title:	

Form B: Industrial SMR/NOV Data Sheet

Industry:	Honeywell International, Inc. – SCA	Industry Code:	800

	*** ALL UNITS ARE IN (mg/l) UNLESS OTHERWISE NOTED ***	DAY _____	DAY _____	DAY _____	DAY _____
SAMPLE DATA	S.M.R. OR N.O.V.				
	COMPOSITE OR GRAB				
	START DATE				
	START TIME				
	STOP DATE				
	STOP TIME				
	CONTRACT LAB				
	SEWER NUMBER				
	FLOW (GPD)				
CONVENTIONALS	pH-FIELD (S.U.)				
	BOD_5				
	TSS				
	TP				
	TKN				
	NH_3-N				
	TOTAL CYANIDE (CN-T)				
	AMENABLE CYANIDE (CN-A)				
	PHENOL				
	OIL AND GREASE (O&&G)				
METALS	SILVER (Ag)				
	CADMIUM (Cd)				
	CHROMIUM (Cr)				
	HEXAVALENT CHROMIUM (Cr-HEX)				
	COPPER (Cu)				
	MERCURY (Hg)				
	NICKEL (Ni)				
	LEAD (Pb)				
	ZINC (Zn)				
	MOLYBDENUM (Mo)				
MISC.	FLASHPOINT (°F OR °C)				
	SULFIDES (S=)				
	SULFATE				
	TTO SCAN (EPA # _____)				

The Following Lines Are For OCDDS Use Only				
OCDDS Sample Number				
Data Forwarded To Lab	date:		Engineer:	
Data Entered In Database	date:		DEO:	
Batch Number:				

Form C: Water Discharge Data for the Month of _____ for Sewer # _____			
Date	Average Flow Rate (gpm)	Maximum Flow Rate (gpm)	Daily Wastewater Discharge (gallons)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
Monthly Average			

Form D: Batch Discharge Summary for the Month of _____		
Date	pH	Daily Wastewater Discharge (gallons)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
Monthly Total		

Form E: Waste Material Disposal

Date	Location/Source of Waste	Approximate Volume (Gallons)	Method of Disposal

Form F: Equipment Calibration Summary

Date of Calibration	Instrument Description	Results of Calibration			Signature and Title of Representative
	Instrument Type (pH/Flow):		As Found	As Left	Who Performed Calibration:
		pH 4			
	Location/Description:	pH 7			Company:
		pH 10			
		Comments:			Signature:
	Instrument Type (pH/Flow):		As Found	As Left	Who Performed Calibration:
		pH 4			
	Location/Description:	pH 7			Company:
		pH 10			
		Comments:			Signature:
	Instrument Type (pH/Flow):		As Found	As Left	Who Performed Calibration:
		pH 4			
	Location/Description:	pH 7			Company:
		pH 10			
		Comments:			Signature:
	Instrument Type (pH/Flow):		As Found	As Left	Who Performed Calibration:
		pH 4			
	Location/Description:	pH 7			Company:
		pH 10			
		Comments:			Signature:
	Instrument Type (pH/Flow):		As Found	As Left	Who Performed Calibration:
		pH 4			
	Location/Description:	pH 7			Company:
		pH 10			
		Comments:			Signature:

Attach Official Calibration Reports

Form G: pH Excursions

Date of Excursion	Time and Duration of Excursion	Max/Min pH (Limit 5.5-9.5)	Explanation for Excursion	Date/Time County Notified

pH violations must be reported to the County in accordance with the notification procedures contained in Section V.C of the permittee's industrial Wastewater Discharge Permit. Attach continuous recording pH charts where applicable.

Appendix B:
USEPA PRIORITY POLLUTANTS

USEPA Priority Pollutants

001 Acenaphthene
002 Acrolein
003 Acrylonitrile
004 Benzene
005 Benzidine
006 Carbon tetrachloride (Tetrachloromethane)
007 Chlorobenzene
008 1,2,4-trichlorobenzene
009 Hexachlorobenzene
010 1,2-dichloroethane
011 1,1,1-trichloroethane
012 Hexachloroethane
013 1,1-dichloroethane
014 1,1,2-trichloroethane
015 1,1,2,2-tetrachloroethane
016 Chloroethane
018 Bis(2-chloroethyl) ether
019 2-chloroethly vinyl ether (mixed)
020 2-chloronaphthalene
021 2,4,6-trichlorophenol
022 Parachlorometa cresol
023 Chloroform (Trichloromethane)
024 2-chlorophenol
025 1,2-dichlorobenzene
026 1,3-dichlorobenzene
027 1,4-dichlorobenzene
028 3,3-dichlorobenzidine
029 1,1-dichloroethylene
030 1,2-trans-dichloroethylene
031 2,4-dichlorophenol
032 1,2-dichloropropane
033 1,2-dichloropropylene (1,3-dichloropropene)
034 2,4-dimethylphenol
035 2,4-dinitrotoluene
036 2,6-dinitrotoluene
037 1,2-diphenylhydrazine
038 Ethylbenzene
039 Fluoranthene
040 4-chlorophenyl phenyl ether
041 4-bromophenyl phenyl ether
042 Bis(2-chloroisopropyl) ether
043 Bis(2-chloroethoxy) methane
044 Methylene chloride (Dichloromethane)
045 Methyl chloride (Chloromethane)
046 Methyl bromide (Bromomethane)
047 Bromoform (Tribromomethane)
048 Dichlorobromomethane
051 Chlorodibromomethane
052 Hexachlorobutadiene
053 Hexachloromyclopentadiene
054 Isophorone
055 Naphthalene
056 Nitrobenzene
057 2-nitrophenol
058 4-nitrophenol
059 2,4-dinitrophenol
060 4,6-dinitro-o-cresol
061 N-nitrosodimethylamine
062 N-nitrosodiphenylamine
063 N-nitrosodi-n-propylamine
064 Pentachlorophenol
065 Phenol
066 Bis(2-ethylhexyl) phthalate
067 Butyl benzyl phthalate
068 Di-n-butyl phthalate
069 Di-n-octyl phthalate
070 Diethyl phthalate
071 Dimethyl phthalate
072 1,2-benzanthracene (Benzo(a) anthracene)
073 Benzo(a)pyrene (3,4-benzo-pyrene)
074 3,4-benzofluoranthene (Benzo(b) fluoranthene)
075 11,12-benzofluoranthene Benzo(k) fluoranthene)
076 Chrysene
077 Acenaphthylene
078 Anthracene
079 1,12-benzoperylene (Benzo(ghi) perylene)
080 Fluorene
081 Phenanthrene
082 1,2,5,6-dibenzanthracene (Dibenzo(h) anthracene)
083 Indeno (1,2,3-cd) pyrene (2,3-o-pheynylene pyrene)
084 Pyrene
085 Tetrachloroethylene
086 Toluene
087 Trichloroethylene
088 Vinyl chloride (Chloroethylene)
089 Aldrin
090 Dieldrin
091 Chlordane (technical mixture and metabolites)
092 4,4-DDT
093 4,4-DDE (p,p-DDX)
094 4,4-DDD (p,p-TDE)
095 Alpha-endosulfan
096 Beta-endosulfan
097 Endosulfan sulfate
098 Endrin
099 Endrin aldehyde
100 Heptachlor
101 Heptachlor epoxide (BHC-hexachlorocyclohexane)
102 Alpha-BHC
103 Beta-BHC
104 Gamma-BHC (lindane)
105 Delta-BHC (PCB-polychlorinated biphenyls)
106 PCB-1242 (Arochlor 1242)
107 PCB-1254 (Arochlor 1254)
108 PCB-1221 (Arochlor 1221)
109 PCB-1232 (Arochlor 1232)
110 PCB-1248 (Arochlor 1248)
111 PCB-1260 (Arochlor 1260)
112 PCB-1016 (Arochlor 1016)
113 Toxaphene
114 Antimony
115 Arsenic
116 Asbestos
117 Beryllium
118 Cadmium
119 Chromium
120 Copper
121 Cyanide, Total
122 Lead
123 Mercury
124 Nickel
125 Selenium
126 Silver
127 Thallium
128 Zinc
129 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD)

Appendix C:
Honeywell International Inc.
Sediment Containment Area Wastewater Treatment Plant
Site Map

APPENDIX E

Preliminary Code Review Memo

Honeywell International, Inc.
SCA WTP
Town of Camillus
PROJECT NO.: 1163/44523

Subject: Code Review Memo –Water Treatment Plant
Prepared by: Nicholas J. DeSantis, IA, Associate AIA
Date: August 3, 2009

APPLICABLE CODES AND STANDARDS

The facility will be designed to meet the applicable prevailing codes and regulations of the 2007 New York State Series of Codes. This code review memo based on information from "The Building Code of New York State".

ADA BARRIER FREE DESIGN

The sole purpose of the proposed building is to house water treatment processes. Access to these buildings and the process areas are not available to the general public and access to the entire site is restricted.

This building will **NOT** be designed to be totally accessible by physically disabled persons. See code section 1103.2.9 which indicates that water, or sewage, treatment rooms and stations are exempt from accessibility requirements.

BUILDING OUTLINE DESCRIPTIONS:

WATER TREATMENT PLANT

Usage:	Houses the treatment operations and a small testing area for lake water treatment.
Foundation:	Post foundations for support poles
Walls:	Metal panel wall system over wood framing with flexible batt insulation.
Roof:	Standing Seam Metal Panels on wood truss framing
Approximate Area:	5,000 SF.

WATER TREATMENT PLANT – Chemical Storage Area

Usage:	Weather Protection Structure for the exterior chemical storage
Foundation:	Integral concrete containment/foundation
Walls:	Metal panel wall system over non-combustible construction.
Roof:	Standing Seam Metal Panels on non-combustible framing
Approximate Area:	1,500 SF. Maximum area

Code Classification & Considerations:

Use Classification:	"U" - Utility (Section 302)	
Construction Type:	Type "V" Unprotected (Any materials of construction 602.5) (Note: Weather protection structure over sulfuric acid tank storage must be non-combustible construction)	(Table 601)
Occupancy Separation:	Not Required.	(Table 302.3.3)
Separation Distance:	10' < 30' or 30' + - Zero rating for exterior walls	(Table 602)
Allowable Floor Area:	Utility Occupancy – Type "U" 5,500 SF.	(Table 503)
Allowable Height:	Single Story – 40'-0" Maximum	(Table 503)
Occupant Load:	**Industrial Areas** 100 S.F./ Person @ 5,000 S.F. = 50 occupants.	
	Total: 50 occupants for exiting calculation purposes.	
	Actual Occupant Load – 4 Persons	
Fire Protection Systems:	Automatic Sprinkler Systems, (Or alternate extinguishing means) **NOT** required for Utility "U" Occupancy.	
	Fire Alarm and Detection Systems **NOT** required for Utility "U" Occupancy.	
Corridors:	One-hour construction walls, with 3/4 hour opening protective. Minimum required corridor width 44"	(1004.3.2.2)
	Maximum Travel to Exits: U – 300' Unsprinklered 400' Sprinklered	(Table 1004.2.4)
Dead End Corridor:	"U" Occupancy – 20'-0" maximum.	
Panic Hardware:	Not Required for use group "U".	

General Note:

1. The total square footages shown reflect the gross building square footage.

APPENDIX F

Draft SPDES Effluent Discharge Limits

EFFLUENT LIMITS, LEVELS AND MONITORING: CONVENTIONALS AND METALS

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OUTFALL NUMBER	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
021	Treated Wastewater from Dredged Sediment Dewatering Operations	Onondaga Lake	Treatment System Startup Date (TSSD)	TSSD + 5 years

PARAMETER	MINIMUM	MAXIMUM	UNITS	SAMPLE FREQUENCY	SAMPLE TYPE	FOOTNOTES (FN)
pH	6.0	9.0	SU	Weekly	Grab	

PARAMETER	EFFLUENT LIMIT		PQL	MONITORING ACTION LEVEL		UNITS	SAMPLE FREQUENCY	SAMPLE TYPE	FN
	Monthly Avg.	Daily Max.	Daily Max.	TYPE I	TYPE II				
Flow	Monitor	6.5				MGD	Continuous	Meter	
Solids, Total Suspended	Monitor	50				mg/l	Weekly	Grab	
Solids, Total Dissolved	Monitor	Monitor				mg/l	Weekly	Grab	
Chloride	Monitor	Monitor				mg/l	Weekly	Grab	
Nitrogen-Nitrate	Monitor	Monitor				mg/l	Weekly	Grab	
Nitrogen, Total Kjeldahl (TKN)	Monitor	Monitor				mg/l	Weekly	Grab	
Ammonia (as N)	Monitor	2				mg/l	Weekly	Grab	8
Ammonia (as N)	Monitor	100				lb/day	Weekly	Grab	8
Phosphorus, Total, as P	Monitor	0.2				mg/l	Weekly	Grab	
BOD, 5-day	30	45				mg/l	Weekly	Grab	
COD	30	45				mg/l	Weekly	Grab	
Chlorine, Total Residual	Monitor	2				mg/l	Weekly	Grab	
Aluminum, Total	Monitor	4				mg/l	Weekly	Grab	
Arsenic, Total	Monitor	0.1				mg/l	Weekly	Grab	
Cadmium, Total	Monitor	0.1				mg/l	Weekly	Grab	
Chromium, Total	Monitor	0.5				mg/l	Weekly	Grab	
Copper, Total	Monitor	0.4				mg/l	Weekly	Grab	
Iron, Total	Monitor	4.0				mg/l	Weekly	Grab	
Lead, Total	Monitor	0.4				mg/l	Weekly	Grab	
Mercury, Total	Monitor	0.0002				mg/l	Weekly	Grab	4
Nickel, Total	Monitor	2				mg/l	Weekly	Grab	
Thallium, Total	Monitor	0.1				mg/l	Weekly	Grab	
Vanadium, Total	Monitor	0.1				mg/l	Weekly	Grab	
Zinc, Total	Monitor	0.4				mg/l	Weekly	Grab	
Cyanide, Free	Monitor	0.1				mg/l	Weekly	Grab	

Footnotes for this outfall: see page 3

DRAFT

EFFLUENT LIMITS, LEVELS AND MONITORING: VOLATILES AND SEMIVOLATILES

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OUTFALL NUMBER	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
021	Treated Wastewater from Dredged Sediment Dewatering Operations	Onondaga Lake	Treatment System Startup Date (TSSD)	TSSD + 5 years

PARAMETER	EFFLUENT LIMIT		PQL	MONITORING ACTION LEVEL		UNITS	SAMPLE FREQUENCY	SAMPLE TYPE	FN
	Monthly Avg.	Daily Max.	Daily Max.	TYPE I	TYPE II				
Benzene	Monitor	5				µg/l	Weekly	Grab	
Chlorobenzene	Monitor	10				µg/l	Weekly	Grab	
Dichlorobenzene, 1,2-	Monitor	10				µg/l	Weekly	Grab	
Dichlorobenzene, 1,3-	Monitor	10				µg/l	Weekly	Grab	
Dichlorobenzene, 1,4-	Monitor	10				µg/l	Weekly	Grab	
Trichlorobenzene, 1,2,3-	Monitor	10				µg/l	Weekly	Grab	
Trichlorobenzene, 1,2,4-	Monitor	10				µg/l	Weekly	Grab	
Trimethylbenzene, 1,3,5-	Monitor	10				µg/l	Weekly	Grab	
Toluene	Monitor	5				µg/l	Weekly	Grab	
Xylenes, Total	Monitor	15				µg/l	Weekly	Grab	
Naphthalene	Monitor	10				µg/l	Weekly	Grab	
Phenol	Monitor	25				µg/l	Weekly	Grab	
Phenols, Total Unchlorinated	Monitor	Monitor				µg/l	Weekly	Grab	
Phenols, Total Chlorinated	Monitor	Monitor				µg/l	Weekly	Grab	
PCB, Aroclor 1016	Monitor	0.3				µg/l	Weekly	Grab	9
PCB, Aroclor 1221	Monitor	0.3				µg/l	Weekly	Grab	9
PCB, Aroclor 1232	Monitor	0.3				µg/l	Weekly	Grab	9
PCB, Aroclor 1242	Monitor	0.3				µg/l	Weekly	Grab	9
PCB, Aroclor 1248	Monitor	0.3				µg/l	Weekly	Grab	9
PCB, Aroclor 1254	Monitor	0.3				µg/l	Weekly	Grab	9
PCB, Aroclor 1260	Monitor	0.3				µg/l	Weekly	Grab	9

Footnotes for this outfall: see page 3

Special Conditions and Footnotes

(1) Discharge is not authorized until such time as an engineering submission showing the method of treatment is approved by the Department. The discharge rate may not exceed the effective or design treatment system capacity. All monitoring data, engineering submissions and modification requests must be submitted to:

Project Manager, Onondaga Lake Bottom Site
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, N.Y. 12233

With a copy sent to:

Region 7 Regional Water Engineer
NYSDEC
615 Erie Boulevard West
Syracuse, NY 13204

(2) Only site generated wastewater is authorized for treatment and discharge.

(3) Authorization to discharge is valid only for the period noted above but may be renewed if appropriate. A request for renewal must be received 6 months prior to the expiration date to allow for a review of monitoring data and reassessment of monitoring requirements.

(4) A. Mercury Limit, Outfalls 021:

The mercury limit for Outfall 021 is an enforceable compliance limit. The calculated effluemt limit for total mercury is 0.0007 µg/l based on the water quality evaluation at this outfall. In accordance with current DEC practice, the enforceable mercury effluent limit has been set at 0.2 µg/l.

B. Analytical Method:

The permittee shall use EPA Method 1631 (ML=0.0005 ug/l) whenever mercury samples for this Outfall are required.

C. Additional Monitoring and Pollutant Minimization

Periodic monitoring designed to quantify and, over time, track the reduction of discharges of Mercury. Minimum required monitoring is as follows: monthly monitoring of wastewater treatment system influent and sludge. This monitoring shall be performed using EPA Method 1631 and shall be coordinated with routine compliance monitoring, if applicable, so that the results can be compared. For sludge sampling, EPA Method SW-846 7471A or other sampling method as approved by DER may be used in lieu of EPA Method 1631. Additional Mercury monitoring must be completed as may be required elsewhere in this document.

D. Treatment System Operation - The periodic monitoring required in item C and elsewhere in this permit shall also be used, and supplemented if appropriate, to determine the most effective way to operate the wastewater treatment system(s) to ensure the greatest removal of Mercury while maintaining compliance with other permit requirements. For example, monitoring data may indicate that greater Mercury removals are achieved when the system(s) are operated below certain hydraulic loading thresholds.

(5) Both concentration (mg/l or µg/l) and mass loadings (lbs/day) must be reported to the Department for all parameters except flow and pH.

(6) Any use of corrosion/scale inhibitors or biocidal-type compounds used in the treatment process must be approved by the department prior to use.

(7) This discharge and adminstration of this discharge must comply with the substantive requirements of 6NYCRR Part 750.

(8) The proposed draft ammonia limits of 2 mg/l and 100 lb/d are based upon a water quality evaluation using the existing TMDL, which was approved in 1998, and on available treatment technology. The Department is providing this number strictly for design purposes. The final ammonia effluent limit will be determined during the TMDL revision, scheduled to be released in January 2009.

The Department will consider several possible permitting options including a summed limit for all Honeywell outfalls discharging into Onondaga Lake for purposes of both loading calculation and treatment system design flexibility.

Special Conditions and Footnotes ctd.

(9) a. Honeywell must monitor this discharge for PCBs using USEPA laboratory method 608. The permittee shall use 0.065 µg/l as the Minimum Detection Limit (MDL) for each Aroclor in the absence of a site specific MDL, which has been approved for use by the Department on the basis of an effluent specific MDL study performed in accordance with Appendix B of 40 CFR 136. The MDL which is achieved (the site specific MDL) must be repeatable, technically sound, and consider the effects of site specific matrix interference and intra-laboratory variability. Requirements for use of analytical procedures to determine compliance with Aroclor limits and requirements may be modified in the future if the Department approves a method different from 608 which has received prior approval of the USEPA Regional Administrator in accordance with 40 CFR 136.3(a).

b. The permittee shall provide a written detection report within the corresponding Monitoring Report. The report shall contain a description of any PCB detection, the exact date(s) of PCB detection(s) and whether there is a known or probable cause. If there is a known or probable cause, the report shall include the short term steps taken or planned to reduce, eliminate, and prevent the detection and its reoccurrence.

c. The enforceable PCB limit is 0.3 µg/l per Aroclor. Non-detect at the higher of 0.065 µg/l or the site specific MDL is the discharge goal. As outlined in 1.b., the permittee shall report all values above the higher of 0.065 µg/l or the site specific MDL. Following three consecutive months that include analytical results above the higher of 0.065 µg/l or the site specific MDL, the permittee shall (i) evaluate the treatment system and/or the wastewater source to determine if there is an identifiable and/or controllable cause of the detectable level of PCBs in the discharge, and (ii) prepare an approvable report identifying any long-term measures that could be undertaken, if necessary and feasible (both technically and economically), to reduce, eliminate, and prevent the recurrence of such detections. This report shall be submitted to the Department within 60 days following the receipt of sampling results from the third detection monitoring period and, where appropriate, shall include a proposed schedule for implementing the identified long-term measures. When the Department has approved a report required under this paragraph and the Department so states in the approval, the permittee shall not be required to submit any further reports under this paragraph unless the reason for the detection of PCBs varies from that set forth in the approved report..

d. If the Department determines that the level of PCBs detected above the higher of 0.065 µg/l or the site specific MDL can be reduced, eliminated, or prevented by the implementation of the technically and economically feasible measures proposed by the permittee in 1.c., the permittee shall implement such additional measures in accordance with the schedule that has been proposed by the permittee and approved by the Department.

e. As treatment technology improvements become available, the permittee shall, at the Department's written request, review the available technology and evaluate whether the technology would be both feasible (both technically and economically) and provide a tangible environmental benefit at this site. The evaluation report shall be submitted by the permittee within one year of the permittee's receipt of written notification by the Department.

f. This limit is a phased Total Maximum Daily Loading limit, prepared in accordance with 6 NYCRR 702.16(b).

g. Modification of requirements for use of analytical procedures (note 1.a.) and requirements for use of improved treatment technologies as such technologies become available (note 1.e.) will be implemented as a permit modification in accordance with 6 NYCRR Part 621.

h. To the extent practicable, the permittee shall not be required to implement any additional remedial measures under this Special Condition and Footnote #1 other than in a manner which is consistent with the overall remediation strategy at the site.

i. Honeywell shall conduct quarterly monitoring of wastewater treatment system influent, effluent, and sludge to quantify and, over time, track the reduction of discharges of total PCBs. As EPA Method 608 does not determine Total PCBs, monitoring using EPA Method 1668A is required to determine the level of Total PCBs in the discharge. This monitoring shall be performed using EPA Method 1668A and shall be coordinated with routine EPA Method 608 compliance monitoring, if applicable, so that the results can be compared. The facility may use sampling data generated as part of the overall remediation plan to satisfy these requirements.