
Subject: 2021 Turbo Blower Technology in Niagara Region Wastewater Treatment Plants

Report to: Public Works Committee

Report date: Tuesday, March 9, 2021

Recommendations

1. That Report PW 14-2021 **BE RECEIVED** for information.

Key Facts

- Niagara Region's wastewater treatment plants currently utilize mechanical aeration and three different blowers types in diffused aeration systems; the selection is based on the size, design and age of the plant (Appendix 1).
- Currently Niagara Region operates APG Neuros turbo blowers at the Crystal Beach and Niagara-on-the-Lake wastewater treatment plants.
- As of January 17, 2021, the APG Neuros air bearing turbo blower has been added to the Approved Product and Equipment List (APEL) as the only unconditionally approved product in that category following a successful one year pilot at the Niagara-on-the-Lake plant.
- A pilot of the Sulzer magnetic bearing turbo blower product is to be undertaken as part of the Port Dalhousie Wastewater Treatment Plant Upgrades (2020-T-116) awarded to Maple Reinders Constructors Limited on December 17, 2020.

Financial Considerations

The costs associated with turbo blowers are included as part of existing projects in the approved capital budget.

Analysis

The Aeration Process in Wastewater

The activated sludge process is a type of wastewater treatment process for treating sewage or wastewaters using aeration and a biological floc composed of bacteria and protozoa. The activated sludge process is the conventional form of wastewater secondary treatment and is currently used at each of Niagara's wastewater treatment plants.

All activated sludge processes require a form of aeration. Aeration involves air being circulated through, mixed with and dissolved in wastewater in order to promote microbial growth. The microbes feed on the organic material, forming floc which can easily settle out. Aeration provides oxygen to bacteria for treating and stabilizing the wastewater. Oxygen is needed by the bacteria to allow biodegradation to occur. Without the presence of sufficient oxygen, bacteria are not able to biodegrade the incoming organic matter in a reasonable time resulting in septic conditions which are toxic, odorous, and do not effectively remove pollutants. These conditions can also lead to low pH making the water more difficult to treat, cause odours and lead to possible compliance issues.

Aeration is the most critical component of the activated sludge process. A well designed aeration system has a direct impact on the level of treatment achieved. Having appropriate and effective blowers incorporated into the design of an aeration system is key to achieving good wastewater treatment outcomes.

There are two main types of aeration systems in an activated sludge wastewater treatment plant; mechanical aeration and diffused aeration. Mechanical aeration operates from the surface of a tank or lagoon, whereas diffused aeration typically operates from the bottom. Diffused aeration systems offer many important advantages over their mechanical counterparts including a more efficient use of electricity, reduced maintenance and operating costs, uniform mixing and increased oxygen transfer which promotes the proliferation of helpful micro-organisms that are necessary for efficient biological decomposition. Blowers are a critical component of a diffused aeration system and are sometimes also used in the backwashing process at water treatment plants.

Blower Technology in Niagara Region Wastewater Treatment Plants

Niagara uses three types of blowers in diffused aeration systems: positive displacement, centrifugal and turbo blowers. The type of blowers currently in service is dependant on the plant's designed capacity, influent flow/composition and the available technologies at the time of installation.

Turbo blowers are relatively new in the water-wastewater industry; however, industry case studies indicate that turbo blowers show potential benefits over centrifugal or positive displacement blowers. Turbo blower technologies reduce maintenance and installation costs and provide up to 40% energy savings for plant aeration processes which account for between 40-70% of the total energy used in a conventional activated

sludge wastewater treatment plant. That said, the type of blower used is determined by a variety of engineering and environmental variables and, ultimately, selecting the proper blower for a particular site and application is paramount in decision making. The evaluation and decision on which blower should be used is part of the design process as the choice must be compatible with related and connected design decisions.

Many of our wastewater treatment plants currently operate older, less efficient blowers or mechanical mixing systems. Operational improvements and energy savings can be realized with the use of turbo blowers; therefore migration to new, higher efficiency technologies is a priority.

Turbo blowers are currently used at Crystal Beach and Niagara-on-the-Lake wastewater treatment plants.

The first turbo blower installation was at the Port Colborne Wastewater Treatment Plant in 2011. A second installation was completed at the Crystal Beach Wastewater Treatment Plant in 2012. Both of these initial experiences with turbo blowers resulted in performance, reliability and operational issues. These failures caused several process upset events putting the facility's ability to meet the Ministry of Environment, Conservation and Parks (MECP) effluent quality requirements at risk. As a result, the first turbo blower installation in Port Colborne was decommissioned in 2015 and replaced with salvaged conventional blowers as an interim operational setup until a new permanent conventional system could be designed, built and put in service.

Turbo blowers have more recently been installed at the Niagara-on-the-Lake Wastewater Treatment Plant where a 12-month study that concluded January 17, 2021 found no operational issues with the blowers.

Turbo blowers, as part of another pilot study, were recently included in the Port Dalhousie Wastewater Treatment Plant Tender (2020-T-116) issued on Aug. 28, 2020.

Decision Making for Equipment - Overview

Staff's review and decisions around the inclusion of different types of blowers in our wastewater facilities have consistently focused on ensuring that the most appropriate and trusted technology is used to provide an efficient and effective aeration process for wastewater decomposition. Due diligence is exercised to evaluate the integrity of new technologies before wide-scale adoption into our treatment plants.

The Product Review Committee (PRC) plays a crucial part in our due diligence in their role of reviewing and approving only reliable and quality equipment for inclusion on the APEL. Per the committee's [Terms of Reference](#) (<https://www.niagararegion.ca/business/tenders/prc/tor.aspx>) the intent of the PRC and APEL is to ensure "that equipment that is specified in future contracts is appropriate in nature, represents best value and whenever possible, is similar to the equipment that is already incorporated in these facilities."

One of the prime objectives of the PRC is to ensure value for money through competitive procurement by having multiple products per equipment category.

The PRC through the APEL provides guidance on equipment to the designers. It may conditionally approve equipment, have equipment under evaluation, and recommend trial studies and pilots. In addition, the PRC may remove equipment from the APEL for performance issues and threats to process reliability. It is the purview of the committee to make recommendations and compile the APEL; however, per the Terms of Reference, inclusion of a product into the Approved Product Equipment List does not constitute mandatory use of the product. It is not intended nor appropriate for the APEL to be the sole determinant for equipment selection. Designers may deviate from the APEL providing an acceptable rationale is provided.

Ultimately the Divisional leadership team, informed by the APEL and design considerations, economic and resource factors, determines the strategic direction including which products to pilot and the most appropriate location for the pilot.

Decision Making on Turbo Blowers in Water-Wastewater

Staff and the PRC have been eager to gain confidence in turbo blowers through evidence of consistent performance, in order to realize potential savings through the energy efficiencies and reduced maintenance costs expected from this new technology. However, due to a history of performance issues resulting in multiple repairs and service interruptions, a cautious approach to implementing this technology in plant refurbishment projects was needed to ensure operational difficulties and maintenance issues would not negate any potential benefits and savings.

The recent industry introduction of magnetic bearing technology, has led to additional consideration for the potential use of turbo blowers in wastewater plants. The apparent benefits of magnetic bearing technology include extended life and service intervals, no

need for additional cooling systems, built in condition/vibration monitoring systems, high bearing damping and overload capacity and enhanced operational flexibility.

Pursuing a cautious approach to the evaluation and adoption of turbo blowers led to a series of decisions regarding their standing on the APEL and their inclusion in project design (Appendix 2).

Details of various decision points were outlined in memorandum PWC-C 49-2020. The decision points outlined per PWC-C 49-2020 were as follows:

“As a result, in 2015 the PRC, at the direction of the Director of W-WW Services of the time, temporarily removed the turbo blower sub-category and the two previously approved manufacturers from the APEL. Staff were directed to redesign all on-going capital works projects to use conventional blowers where feasible.

The Director agreed to proceed with the installation of turbo blowers at the Niagara-on-the-Lake WWTP as a trial study to continue to test the technology and because the plant was already under construction. He made this decision based on the substantial cost and time delay for the Region to change the design specifications at that phase of the project. The installation of the APG Neuros turbo blowers at the Niagara-on-the-Lake WWTP was agreed to be a 12-month trial study to assess and evaluate the performance of this product with consideration to reinstate them on the APEL if the equipment performed well... Recent advances in turbo blowers, specifically the introduction of the magnetic bearing technology, has led to new potential for the use of this technology in wastewater. On April 26, 2018 the PRC reviewed a submission for Sulzer ABS Turbo Blowers where the committee decided that the product would remain under evaluation during the completion of a 12-month pilot study. A key factor in this decision was the unique design features of the product, specifically the use of magnetic bearing technology in comparison to air bearings used by the Region’s previous turbo blower manufacturers... The PRC identified an upcoming capital project at a facility suitable for the pilot. Similar to the approach with the Niagara on the Lake WWTP and the APG Neuros product, the Port Dalhousie Wastewater Treatment Plant was chosen as a suitable test site and Sulzer ABS Turbo Blowers were included as the sole acceptable turbo blower manufacturer in Tender 2020-T-116 to facilitate the pilot study.”

“Port Dalhousie WWTP Upgrades Contract 1 project was executed through a competitive public tender process (2020-T-116) with included detailed specifications for this new blower technology adhering to the approved Product Review Committee (PRC)

Terms of Reference. Phase II Upgrades scheduled for 2023 will also be issued as a competitive procurement process.”

Further to that report, staff would like to correct misstated information, review those decision points, add some additional information, and provide further clarity.

The Port Dalhousie Wastewater Treatment Plant Tender (2020-T-116) was issued on August 28, 2020. The tendered specifications listed Sulzer Aeration Solutions as the only acceptable turbo blower product. There were no revisions or changes issued through addendums regarding acceptable manufacturers for turbo blowers.

The decision to remove the turbo blower category from the APEL and to include only Sulzer turbo blowers in the Port Dalhousie WWTP Upgrades project to facilitate a pilot study was not accurately reflected on the APEL when the tender was issued. This was not corrected until a revised APEL was issued in October 2020.

In respect to the above decision making, staff hereby present additional details and updates for further clarification.

Staff acknowledge that the April 26, 2018 decision to approve Sulzer ABS Turbo Blowers, was stated incorrectly in PWC-C 49-2020. The record of the decision in the minutes of the PRC (Appendix 2) does show an unconditional approval of the blowers. In addition, although not stated above, the same decision was recorded for APG Neuros Turbo Blowers on August 26, 2019.

The unconditional approval of the turbo blowers was due to new members of the committee not having the historical information of the earlier decisions and restrictions placed on this equipment sub-category in 2015.

The PRC membership composition underwent significant membership changes in November through December 2017, including a change in leadership. The decision to reinstate the installation of the turbo blowers at the NOTL WWTP on a trial basis made by the previous Director was never formally documented. This direction, and the removal of the turbo blower category pending the result of successful one year trial test, was not conveyed to new members. This resulted in the unconditional approval being incorrectly applied to Sulzer in 2018 and APG Neuros in 2019. The inappropriate decisions of the PRC to approve the turbo blowers was later identified and corrected to again remove the turbo blowers sub-category from the APEL pending the results of the respective pilot studies.

Since the time of the previous report to PWC on December 8, 2020 (PWC-C 49-2020), the pilot study of turbo blowers at the Niagara on the Lake WWTP has successfully concluded and APG Neuros was unconditionally approved as of January 17, 2021 (Appendix 3).

Should the pilot being undertaken as part of the Port Dalhousie WWTP Upgrades be successful, the Region would have two turbo blower options on the APEL. This would provide a competitive source of procurement for future projects.

A **detailed timeline** with supporting documentation of the history, experience, communication and decision-making processes surrounding turbo blowers and the adoption of the technology in Niagara's wastewater plants is presented in **Appendix 4**. This process ultimately led to the approach of including a specification for magnetic bearing turbo blowers as provided by Sulzer who were conditionally approved vendors under evaluation by the PRC.

Port Dalhousie WWTP Upgrades – Aeration Design

The need for the Port Dalhousie WWTP Upgrades project was identified in 2013. The business case included various process areas requiring improvements, with the main upgrade identified as replacement of the existing aeration system. In 2011, Insyght Systems Inc. prepared an energy analysis report for the Port Dalhousie WWTP aeration system. The report recommended that fine bubble (diffused) aeration be implemented in order to meet design capacity, improve energy efficiency/savings, resolve maintenance and possible compliance issues. Dissolved Oxygen levels in the existing aeration tanks have been historically low and the existing surface (mechanical) aerators currently do not transfer sufficient oxygen to meet existing demands. The structural, mechanical and electrical equipment have reached the end of their service life and are in need of replacement. Increased maintenance efforts are needed to keep the current system in service.

Maintenance staff continue to expend significant resources to maintain sufficient operation of the aeration tanks including the rental of numerous mechanical aerators to supplement the existing equipment.

On March 24, 2016, the Port Dalhousie WWTP Upgrade Request for Proposal (2016-RFP-14) was issued for a competitive bid to a subset of the Successful Roster Listing developed from Contract 2015-RFPQ-03, specifically Category #2. The objective of the

assignment was to upgrade various areas within the Port Dalhousie WWTP. The scope of work relating to the aeration process included:

- Analyze the optimum configuration and location to upgrade the process aeration to Fine Bubble Diffusion including:
 - All components associated with constructing a new aeration tank east of the existing tank;
 - New fine bubble diffusers and process air blowers, complete with piping and valving;
 - New Motor Control Centres (MCCs) including all power, control cables, and wiring related to the aeration system;
 - New building to house the new aeration blowers and new MCCs;
 - Replace all process and control valves associated with the aeration system;
 - SCADA architecture and process narrative; and
 - Decommission and remove obsolete electrical and mechanical equipment (there are two MCCs for the aeration system; one has aeration motors and Variable Frequency Drives (VFDs); the other has VFDs, motors, lighting panel, new chemical feed system, and other small loads). Review and make recommendations on the removal of all mechanical in the existing aeration tank. Provide recommendations and design for repairs to and cleaning of the existing concrete structure. Existing concrete aeration tank is to remain.

On June 10, 2016 Hatch Corporation was awarded the contract. From June 2016 until November 2018 the project proceeded from project initiation to 90% design. Hatch's design was based on the 2013 Project Design and Technical Specifications Manual and the March 9, 2016 APEL. The 2016 APEL listed approved manufacturers for centrifugal and positive displacement air blowers. During the 40% design review meeting, the Region and Hatch agreed upon the inclusion of positive displacement blowers in the design. Seven (7) rotary lobe positive displacement blowers, complete with all accessories were specified in the 90% design. The design included five (5) blowers to provide process air to the two aeration tanks and two (2) smaller blowers dedicated to channel aeration.

Staff had previously considered the possibility of using turbo blower technology and specifically Sulzer magnetic bearing blowers at the Anger Ave WWTP to replace the existing centrifugal blowers; however, capital upgrades for this project were pushed out of the 10 year capital forecast to 2027. The Port Dalhousie WWTP Upgrades project

was in the final stages of design and in immediate need for construction of a new aeration tank and diffused blower system. As such, the focus was shifted to consider installation of the Sulzer blowers at the Port Dalhousie WWTP under the strategic direction of the Divisional leadership team.

When specifically looking at Port Dalhousie WWTP as a possible location for use of turbo blowers, it was determined that the use of turbo blowers would be applicable to provide process air to the aeration tanks, however turbo blowers would not be suitable for the channel aeration.

Realizing the potential energy savings in the aeration process, an evaluation was performed to compare the Life Cycle (LCC) of the positive displacement and turbo blower alternatives. A comparison was conducted on the rotary lobe positive displacement blower and turbo blower for the new aeration tanks at Port Dalhousie WWTP by WWW Energy Management Project Manager. Based on a 25 year LCC period, 50% load factor for 4 duty blowers and taking electricity inflation costs into account, a LCC comparison determined over \$2.6M in savings could be realized by the use of turbo blowers compared to rotary lobe positive displacement blowers.

The comparison information presented by Hatch along with the LCC comparison developed by our Energy Management Project Manager was reviewed and discussed internally. Significant LCC savings would be realized with the use of turbo blowers and staff had a desire to trial the new magnetic bearing technology. Considering the benefits of having multiple approved turbo blower vendors, staff determined that updating the design and tender specifications to facilitate the pilot study of a second turbo blower vendor offered the greatest long-term return on investment for future projects. It was ultimately agreed upon that the Sulzer turbo blowers would be selected for the Port Dalhousie WWTP aeration tank process air design.

Upon internal agreement to proceed with the use of Sulzer turbo blowers at Port Dalhousie WWTP, Hatch was instructed to revise the design to replace the five (5) aeration tank positive displacement blowers with Sulzer turbo blowers. The design was completed and Port Dalhousie Wastewater Treatment Plant Tender (2020-T-116) was issued on Aug. 28, 2020. The tender issued documents included five (5) turbo blowers to provide process air to the two aeration tanks and two (2) smaller rotary lobe positive displacement blowers dedicated to channel aeration. The tendered contract documents listed Sulzer Aeration Solutions as the only acceptable manufacturer for turbo blowers. There were no revisions or changes issued through addendums regarding the acceptable manufacture for turbo blowers.

Alternatives Reviewed

N/A

Relationship to Council Strategic Priorities

This report is being brought forth by staff in response to a request from Public Works Committee to provide clarity around the decision-making process for review and adoption of turbo blower technology into wastewater treatment plant capital upgrades. Sharing details and rationale of this decision-making aligns with Council's priorities including:

- Using sound asset management planning to ensure sustainable investments in the infrastructure needed to support existing residents and businesses future growth in Niagara; and
- To drive evidence informed decisions by building staff skills and capacity, and by making information and data accessible across the organization.

Other Pertinent Reports

PWA-182-2005
PW 44-2020
PWC-C 49-2020

Prepared by:

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Submitted by:

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Appendices

Appendix 1 Blower Types Currently in Service

Appendix 2 Meeting Minutes

July 23, 2015 – Maintenance Management Meeting

April 26, 2018 – Product Review Committee

August 26, 2019 – Product Review Committee

January 6, 2021 – Product Review Committee

January 18, 2021 – Product Review Committee

Appendix 3 January 18, 2021 Letter to APG Neuros re:APEL

Appendix 4 Timeline of Decision-making and Communication on Turbo Blowers

Blower Types Currently in Service at Wastewater Treatment Plants

| Wastewater Treatment Plant | Blower Types in Service for Aeration | Company |
|----------------------------|--|---|
| Anger Avenue | Multi-stage centrifugal blowers | Hoffman |
| Crystal Beach | Turbo blowers | APG Neuros |
| Grimsby | Multi-stage centrifugal blowers | OEM Houston Service Industries (now Atlas Copco) |
| Niagara Falls | No blowers used in aeration | |
| Niagara-on-the-Lake | Turbo blowers | APG Neuros |
| Port Dalhousie | No blowers used in aeration (mechanical mixing) | |
| Port Weller | No blowers used in aeration (mechanical mixing) | |
| Seaway | 2 positive displacement (rotor screw type) and 1 centrifugal | Aerzen (positive displacement) Atlas Copco (centrifugal) |
| Welland | Centrifugal blowers | Atlas Copco |

Public Works

Water & Wastewater Services

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Maintenance Management Meeting
Central Maintenance Facility
Minutes of Meeting
July 23, 2015
1:30 – 3:00 p.m.

Attendees:

| | | |
|-------------------|------|---|
| Paul Smeltzer | (PS) | Director, W&WW Services |
| Romaindra Mohabir | (RM) | Associate Director of W&WW Maintenance (Acting) |
| Craig Courteau | (CC) | Manager of SCADA Engineering and Technical Trades |
| Dan Locco | (DL) | Manager of W&WW Systems Maintenance |
| Zoltan Mod | (ZM) | Systems Maintenance Manager – Water South |
| Frank Vasko | (FV) | System Maintenance Manager – WW South |
| Craig Leppert | (CL) | Skilled Trades Manager |
| Steve Fry | (SF) | Skilled Trades Manager (Acting) |
| Foebel, Wesley | (WF) | System Maintenance Manager |
| Ron Gibbon | (RG) | Contract Administrator/Security Coordinator |
| Pennie Erb | (PE) | Maintenance Planning & Scheduling Coordinator |
| Lynne House | (LH) | Administrative Assistant (Recording) |

Regrets:

| | | |
|---------------|------|--|
| Mark Airhardt | (MA) | System Maintenance Manager – Water North |
| Scott Gabel | (SG) | Skilled Trades Manager |
| Barry Robbins | (BR) | System Maintenance Manager – WW North |

No. Item

Last meeting: April 24, 2015

Previous business:

I. WMT:

- a. Vacation policy: RM reminded managers to monitor staff vacation balances. Staff must utilize vacation time before lieu time.
- b. Performance Objectives: All staff have now received letters.

2. Purchasing updates:

Another EFMS update will be released soon. When finalized, it will be circulated to all staff.

RM will defer responding until the next Maintenance Managers Meeting on the previous item to clarify when money is encumbered if goods are not received at the end of the year, until feedback received from DMT.

Action: RM will clarify when money is encumbered if goods are not received at the end of the year, until feedback received from DMT.

3. Security incident reports: RM reiterated to managers to remind staff that they must report incident to their manager prior to logging a Security Incident Report with RG.

Action: Managers should remind staff to first discuss circumstances surrounding the need to prepare a Security Incident Report with their manager before asking RG to initiate the report.

4. Cell phones: Discussion surrounded text capable phones requested by staff. The Director suggested smart phones is being considered for all staff and is meeting with IT next week to discuss needs and submit the request. RG will provide a list of staff requiring cell phones to the Director by noon on Tuesday.

Action: RG will provide a list of staff requiring cell phones to the Director by noon on Tuesday.

Action: The Director will be discussing smart phones for all staff at next week's meeting with IT.

5. Visa purchases: RM reminded managers to monitor staff Visa purchases in accordance with established guidelines and policies.

6. PPE inspections: Discussions were held with Labour relations, who has approved the PPE equipment checklist that staff will be required to signed off on contents of their PPE bags. The form will be sent to CUPE 1287 for review and release to staff after inspections are completed next week.

7. Suggestions:

- a. Shortage of paper towels in change house: Follow-up to a suggestion received regarding a shortage of paper towels in the change house resulted in the contractor being brought back in to discuss restocking procedures. RG asked the contractor to monitor supply; no issues have since been reported.

- b. Cargo pants: Two versions of cargo pants available – one that is not fire retardant (poly blend) and one that is fire resistant (100% cotton). Staff can request to purchase cargo pants. There have been no adverse comments from staff.

- c. Bumper stickers for vehicles: Comment was not processed as it was deposited unsigned, therefore no response was issued. Managers were directed to communicate this decision to staff.

8. Central Pump Station – lifting device: FV advised that the crane that is currently on site has been disconnected and will be tagged out and remain on-site. A mechanical device has been installed.
9. PPE training: PPE training for Rope Grab Travel Restraint system has been completed, with the exception of two staff members. A follow-up session will be held for remaining staff that requires training. All Water and Wastewater sections will be advised of the additional training session so those requiring training can attend.
10. Mass RBO Meeting: A Mass RBO meeting is planned for September, 2015. The Director's objective will be noted and should be enforced.
11. Chair's visit: The Regional Chair will be meeting at Central Maintenance Facility on August 4th to receive a presentation on the CMMS System. Managers should ensure that all staff are aware of Council priorities.
12. 2015 Goals and Objectives: Managers should share 2015 common Goals and Objectives with staff.
13. Collective Bargaining Agreement (CBA): The CBA was ratified by Council. Managers should refer to updates that were circulated, until new books are issued.
14. Security upgrades capital forecast project: Security upgrades are ongoing.
15. iFix: CC noted that Maintenance staff requested read-only access to Operator SCADA screens when attending remote sites. The Director advised that all staff should be given read-only access. One generic username and password will be given to staff. Contractors and consultants will be held accountable for not maintaining proper security profiles.

Further discussion with the Director will involve remote system access for staff over the internet.
16. Standby pay: The Director has advised that stand-by pay is under review and CMF will not mirror current practices adopted by Transportation.
17. Spare keys for vehicles: RG has located a supplier that can provide a spare key with transponder for \$55. RG will conduct an inventory of keys, including keys issued at CMF. Contract specifications for the supply of spare keys will be reviewed.

Action: RG will conduct an inventory of keys, including keys issued at CMF.

18. Remote sites: RM reminded managers to advise PE of remote sites that are deemed “construction” areas. Grass will not be cut at those sites as the land is under the care of control of the contractor.
19. Financial Management Training: RM noted that there will be follow up sessions for Financial Management training.

New business:

20. Transparency: RM noted that the Director wants us to be open and transparent, an efficient world-class, top notch unit, productive, business-like, and reflect core values.

RM will circulate a document he prepared identifying customer service, strategic priorities of council, People First, and core values.

We are here to break down barriers, not put them up.

21. Vacation: A reminder was issued to managers regarding a memo issued last year by the Commissioner to be mindful of outstanding vacation hours for non-union staff. RM will ask the CMMS Administrators to prepare a report of vacation hour balances for unionized staff; managers should ensure staff compliance.
22. Training: The new training calendar has been issued. Managers should be aware legislative requirements; staff need 40 hours of training annually. Ensure that staff have training applicable to their jobs. Mandatory training must be taken first. Managers should monitor training.
23. Work Accommodation Policy: RM noted that the policy was sent out by the CLT and is under review.
24. Commute and wrench time: Planning and foresight should be used to maximize wrench time and minimize commute time to sites. All management are required to communicate the department’s overall objectives to reduce commute time by 20 per cent, and to maximize wrench time by end of 2016.
25. Development program: At a recent Senior Managers Meeting, it was brought to their attention that DMT discussions surrounded a new 270 Staff Development Program for future leaders, with a target group of non-managers. The program also involves union employees. RM will circulate information to all managers. The names submitted will be considered for the next iteration of this program.
26. Health & Safety:
 - a. Air sampling equipment: CC discussed Quantum Murray training for continuous air sampling. At a recent RBO meeting, staff discussed concerns over the

trainer's preferred methods and practices. It was reported that some staff were using sampling meters. RM re-iterated that legislation governing the use of air monitoring equipment must be adhered to. The current method of air sampling is sufficient using gas monitoring meters. The Inventory Management Technician will order five personal air sampling meters that staff can sign out. Managers should communicate to staff that the units will be available, and when used, must be done in accordance with the applicable regulations.

Concern over training methods will be expressed to Corey Canham and Deanna Barrow. Trainers should adhere to legislated requirements and not their own preferences. The Health & Safety Committee will address the matter with trainers. It was agreed that competent and responsible staff correlates with lower probability for accidents. Managers are required to reinforce matters relating to safety, especially when there is a deviation in practice to ensure consistency.

- b. Fall protection training: At recent fall protection training given as a result of changes to construction regulations, staff were shown an accessory to attach to the full body harness. Managers should be made aware of such items prior to training being delivered. CMF has agreed to purchase a few at approximately \$20 each. It was suggested that any new mandatory training be delivered first to managers. It was noted that at recent confined space training, proper fall protection was not used. The Director agreed that managers should see training content in advance and will discuss the matters with Corey Canham and Deanna Barrow.
- c. Emergency lighting: Managers were asked to encourage staff to use their flashlights in the event of a power failure. It will allow them to get to a safe location until power is restored if no emergency lighting is available.
- d. All managers were advised to have, engage, and encourage discussion with their team members the subject of travel restraint and fall protection and arrest as per recently concluded Fall Protection Training.

All W&WW personnel will be provided with their own PPE bag.

- e. Fall protection training: It was noted that Xtirpa was on site at CMF yesterday to make a presentation on guard rails, safety barriers, and davits. Staff should use devices and provide feedback by the end of August. It enhances our safe practices for duck bills, man holes, and hatches. A decision will be made whether or not to move forward with this as standard practice. Depending on feedback, for repairs to davits, portable units may be the most cost effective way to move forward.

27. Budgets: The mandate of council this year is a zero per cent increase. Senior managers have met and considered possible options for savings to offset increases in operating costs. Managers and staff are encouraged to work collaboratively to find ways that improve on our efficiencies. Managers were advised that they should monitor their individual cost center variances and address appropriately.
28. First Initiative Team (FIT): The Director recently presented nine action areas to DMT. He noted that the FIT team replicated some work from open houses and other events; nine areas for improvement were identified. Nine high level initiatives were compiled. Over the next four days, he will meet with FIT team members to discuss project charters and an action plan that will be presented to leaders at the end of the month. It is very important to the Director that improvements identified are made. The plan will be formally rolled out in September to all union and non-union staff. All of our performance objectives have a FIT component and he wants all staff to volunteer and assist. There will be areas of common interest to all of us. The DMT sponsor will be a champion to provide assistance, support, and push; to enable the task group to perform duties and facilitate getting it done.
29. Contracts: RG noted current contracts that are under review: PPE, lifting devices, and ETQ, and encouraged feedback from contract review.

The Director suggested using a Request for Proposal, instead of a contract as it provides more flexibility and could result in cost savings.

30. Expenditure Authorization Process: Discussion surrounded the amount of spending allowed outside of the EA process. RM noted that the latest amendment of the Purchasing By-Law indicates very clear guidelines. The Director noted that the process and limits will change in October 2015.
31. Inspections: Discussion surrounded results of inspections and the process following failed inspections. FV asked to be part of the results review before following up. Inspections are done based on regulations in the contract. RM and FV will meet tomorrow morning to discuss the inspection follow-up process and how certificates are printed and posted.

RM noted that concern was raised at a recent Joint Occupational Health & Safety meeting that staff are unable to see the sticker if too high. The inspection certificate will be lowered and placed closer to the lifting device. For now they will be laminated and affixed to the wall. A binder with a list of all inspection reports will also be sent to each plant.

Action: *RM and FV will meet to discuss the inspection follow-up process and how certificates are printed and posted.*

32. Turbo blowers: The Director and Associate Director of W&WW Engineering will meet with representatives this Friday. They will be removing the entire turbo blower category from the Approved Product and Equipment List (APEL).

33. Paging system down: SF noted that the paging system is currently down. CC will send an email to staff to ensure that protocol is followed. Managers should send an email to Operations managers and the Maintenance Manager on call to call cell phones.
34. Training catalogue course contents: ZM asked that the training catalogue be refreshed with different courses to provide staff with greater choice. RM will discuss mandatory training matrix and programs offered with the W&WW Training Coordinator.

Action: RM will contact the W&WW Training Coordinator and request a mandatory training matrix, and to request that the training catalogue be refreshed with a new variety of courses.

35. Labour Pool staffing: The Director indicated that there are currently five employees in the Labour Pool and more interviews are planned. ZM suggested that Labour Pool employees receive mandatory training a.s.a.p. so they can be put to immediate use when assigned to positions. RM will be discussing with HR.
36. Wrench time – Department Objective “To Maximize Wrench Time”: ZM suggested that the previous EMA Yard Rationalization Study be used for suggestions to increase wrench time.
37. Non-union job descriptions: The Director noted the Job Evaluation Committee has conducted a review of non-union job descriptions; external comparators (chosen by Council) will then review. He indicated that the process was productive.
38. Performance Objectives: RM reminded managers of Performance Objectives Meetings and that the five performance objectives must be completed in the time frame given.
39. Communications will come from the Human Resources Director reinforcing the “One Team” approach to doing business and breaking down barriers. RM will send information to senior managers to communicate with their respective team members.

Action: RM will send senior managers information to communicate with all staff.

Next meeting date: Thursday, August 27, 2015

Meeting Minutes: Product Review Committee

Meeting Date / Time: 2018/04/26; 2:30 p.m. – 4:30p.m.
Location: Niagara Falls Waste Water Treatment Plant

Minutes Prepared by: Laura Graham

Attendance:

Chair: Tony Cimino, Associate Director Engineering, W-WW Services

Attendees:

- John Brunet, Manager Water Operations
- Mark Airhardt, Manager Water System Maintenance
- Wesley Foebel, Manager Biosolids
- John Macpherson, Manager Wastewater Operations
- Berny Portolesi, Manager W-WW Skilled Trades (Instrumentation)
- Jeff Carl, Manager System Water Maintenance
- Rick Niesink, Manager Wastewater Operations
- Doug Johnson, Manager Wastewater System Maintenance
- Frank Vasko, Manager Wastewater System Maintenance
- Barry Robbins, Manager Wastewater System Maintenance
- Scott Gabel, Manager W-WW Skilled Trades (Technical Trades)
- Jim Grieve, Project Manager, Buildings
- Laura Graham, Administrative Assistant W-WW

Regrets:

- Mike Makin, Manager Water Operations
- Adrian Rittner, Manager Water Operations
- Zoli Mod, Manager System Water Maintenance
- Ed VanVliet, Manager Technical Trades (SCADA)
- Romaindra Mohabir, Manager W-WW Maintenance Support
- Robert Daw, Manager Wastewater Operations

| Matters Discussed & Action Items | Action By |
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| <p><u>Presentation</u></p> <p>Sulzer Turbocompressor Type ABS HST 20 & 40</p> <ul style="list-style-type: none"> • Discussed main applications • Features and Benefits • Design and performance <p>Committee has deemed product approved and will be added to the APEL</p> <p>LobePro Rotary Pumps – Positive Displacement Rotary Pumps</p> <ul style="list-style-type: none"> • Discussed LobePro vs other Lobe Pumps • Important key points for LobePro Pumps <ul style="list-style-type: none"> ➢ Forward and reverse pumping operation ➢ Space-saving design ➢ Excellent for abrasives, compressible solids and viscous fluids ➢ Low Maintenance ➢ Run Dry Ability ➢ Parts shipped within two working days, or parts are free <p>Committee has deemed this product conditionally approved and will be listed on the APEL with the condition, product requires “pre-approved application” clearly noted with a future pending trial at one of our facilities</p> | <p>Landy Lu</p> <p><i>Action: Laura to provide letter</i></p> <p>Bill Blodgett</p> <p><i>Action: Laura to provide letter</i></p> |

| Products Not Approved | |
|---|---|
| HTS – Loren Cook Exhaust Fans <ul style="list-style-type: none"> Product was under elevation After reviewing submission committee has deemed product not approved The exhaust fan category will be removed from the APEL. | Action - Laura to provide decision letter |
| Corix Water Products – Flowtite Fiberglass Reinforced Pipe <ul style="list-style-type: none"> Committee reviewed submission and has deemed product not approved. No category on the APEL | Action - Laura to provide decision letter |
| SPD Sales Ltd. – Kurz Instruments – Air Flow Transmitter and Mass Flow Meter <ul style="list-style-type: none"> Committee reviewed submission Product is not approved No category on the APEL | Action - Laura to provide decision letter |
| Integrity Pipeline Products - Trace-Safe Locating System Products <ol style="list-style-type: none"> Model CSS8 & 12 Stainless Casing Spacer Model CSS8 & CSS12 Stainless Steel Casing Spacer Model CSP Polyethylene Casing Spacer <ul style="list-style-type: none"> Committee reviewed products and deemed these products not approved No category on the APEL | Action - Laura to provide decision letter |
| Products Conditional Approved | |
| Atlas Copco – Air Blowers / Positive Displacement <ul style="list-style-type: none"> Product was under elevation After reviewing submission committee has deemed product conditional approved After pending trial at Rosehill Water Treatment Plant, the committee will review | Action - Laura to provide decision letter |
| Products Approved | |
| Ovivo USA, LLC – Ovivo Clarifiers and Thickeners <ul style="list-style-type: none"> Committee reviewed product submission and deemed product approved Product will be listed on the APEL | Action - Laura to provide decision letter |
| Engineered Air – Air Conditioning and Heating (FW / DJ Models) <ul style="list-style-type: none"> Committee reviewed product submission and deemed product approved Product will be listed on the APEL | Action - Laura to provide decision letter |
| Claro Fine Step Screening Systems <ul style="list-style-type: none"> Committee reviewed product and deemed product approved Product will be listed on the APEL | Action - Laura to provide decision letter |
| New Products - Pending Committee Review | |
| EFI Concepts Products <ol style="list-style-type: none"> MK Plastics – Fans (Category removed from APEL) Arrow Industries – Motorized dampers Heatrex – Air Heating Schischek Explosion Proof – Motorized dampers Nortek Air Solutions - Custom Air Handling & Energy Recovery Ventilators FLO-FAB –Pumps Twin City Fan & Blower Company - Fans (Category removed from APEL) Action <ul style="list-style-type: none"> Jim Grieve to review and provide feedback on Heatrex, Nortek Air Solutions and FLO-FAB Scott Gabel & Berny Portolesi to review and provide feedback on Arrow Industries and Schischek Explosion Proof | Action: Jim Grieve, Scott Gabel & Berny Portolesi to review submissions and provide feedback |
| Hach - TU5300 Turbidity Analyzer <ul style="list-style-type: none"> Review next meeting | Committee |

Other Business

- Committee members in attendance at the April 26th meeting discussed and agreed that under the Category “Ventilation / Heating Equipment” Exhaust Fans will be removed from the APEL,

Committee

Next Meeting:**Date:** 2018/08/28 2:00p.m. – 4:00 p.m.**Location:** Integrated Systems Portable

Notice of any errors or omissions in this document should be communicated by attendees to minute taker within two (2) days issues of these minutes.

- c. Attendees (by email), Sherpa

Meeting Minutes: Product Review Committee Meeting

Date/Time: August 26th, 2019 2:00pm – 4:00pm

Location: Integrated Systems Portable

Participants

Chair: Tony Cimino, Associate Director Engineering Water & Wastewater Services

Invitees: John Brunet, Manager Water Operations – Area 1
 Jeff Carl, Manager Water Operations – Area 2
 Adrian Rittner, Manager Water Operations – Area 3
 Tim Peyton, Manager Water Maintenance – Area 1
 Zoli Mod, Manager Water Maintenance – Area 2
 Adam Allcock, Manager Water Maintenance – Area 3
 Robert Daw, Manager Wastewater Operations – Area 1
 Wes Foebel, Manager Biosolids Program
 John MacPherson, Manager Wastewater Operations – Area 2
 Gerry Atkinson, Manager Wastewater Operations – Area 3
 Doug Johnson, Manager Wastewater Operations – Area 1
 Frank Vasko, Manager Wastewater Operations – Area 2
 Barry Robbins, Manager Wastewater Operations – Area 3
 Ed VanVliet, Manager Technical Trades (SCADA)
 Berny Portolesi, Manager Skilled Trades (Instrumentation)
 Scott Gabel, Manager Skilled Trades (Technical Trades)
 Jessica Young, W-WW Security and Contract Administrator
 Ron Gibbon, W-WW Security and Contract Administrator
 Tom Huppunen, Project Manager, Engineering Area 2
 Laura Graham, Administrative Assistant W-WW

Regrets: Adrian Rittner, Manager Water Operations – Area 3
 Jeff Carl, Manager Water Operations – Area 2
 Adam Allcock, Manager Water Maintenance – Area 3
 Robert Daw, Manager Wastewater Operations – Area 1

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| <p>Security Equipment listed on the APEL</p> <ul style="list-style-type: none"> Discussed pro and cons of having Security Equipment listed on the APEL R. Gibbon will need to gather information and prepare security product list Security standards will need to be met for products, fencing, door contacts, locks, hardware and camera's....Etc. More discussion on this topic at a later date. <p>Action – R. Gibbon to start preparing security product list.</p> | <p>R. Gibbon</p> |
| <p>Not Approved Submissions</p> <p>Pro Aqua - Boerger, LLC BLUEline Rotary Lobe Pumps</p> <p>Discussed disadvantages</p> <ul style="list-style-type: none"> Need to train staff on repairs and rebuilding Stocking parts Parts are already stocked for approved pumps on the APEL. <p>Action – L. Graham to send out decision letter</p> | <p>Committee</p> <p>Action L Graham</p> |
| <p>Shand & Jurs Emergency Vent and Manhole Cover (Hinged)</p> <ul style="list-style-type: none"> Reviewed product, committee deemed this product not approved No category on the APEL <p>Action – L. Graham to send out decision letter</p> | <p>Committee</p> <p>Action: L. Graham</p> |

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| <p>Shand & Jurs_Combination, Conservation Vent & Flame Arrester</p> <ul style="list-style-type: none"> Reviewed product, committee deemed this product not approved No category on the APEL <p>Action – L. Graham to send out decision letter</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Shand & Jurs_Horizontal Inline Deflagration Flame Arrester</p> <ul style="list-style-type: none"> Reviewed product, committee deemed this product not approved No category on the APEL <p>Action – L. Graham to send out decision letter</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Shand & Jurs_Thermal Valve</p> <ul style="list-style-type: none"> Reviewed product, committee deemed this product not approved No category on the APEL <p>Action – L. Graham to send out decision letter</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Shand & Jurs Single Port Regulator</p> <ul style="list-style-type: none"> Reviewed product, committee deemed this product not approved No category on the APEL <p>Action – L. Graham to send out decision letter</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Shand & Jurs Gas Handling Equipment</p> <ul style="list-style-type: none"> Reviewed product, committee deemed this product not approved No category on the APEL <p>Action – L. Graham to send out decision letter</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Approved New Submissions</p> <p>APG Neuros High Speed Turbo Blower</p> <ul style="list-style-type: none"> Reviewed product, committee deemed this product approved Product to be listed on the APEL <p>Action – L. Graham to send approval letter and list the product on APEL</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Require more information</p> <ul style="list-style-type: none"> JWC Environmental - Monster Chain and Rake Committee has requested information on this product Is the Monster Chain and rake installed locally Committee would like some references <p>Action – L. Graham to request information</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Update - Dice Chemical Feed Board Trial/Pilot</p>  <ul style="list-style-type: none"> Zoli and Adam to provide update at next committee meeting | <p>A. Allcock & Z. Mod</p> |
| <p>Update –Devine & Associates - Vent-Tech Air Valve</p> <ul style="list-style-type: none"> Trial installed at NOTL Barry to update after 90 days At this point trail seems good Unit is pricey | <p>B. Robbins</p> |
| <p>New Business</p> <p>Vortex Grit Removal System</p> <ul style="list-style-type: none"> Retro fit at Pt Weller and Baker Rd. Issues with service delivery approximately 8-9 months. B. Robbins to reach out to Gino Giancola, Project Manager and request some information. | <p>B. Robbins</p> |

Next Meeting November 18th, 2019 2:00pm – 4:00pm

Location: Integrated Systems Portable

Meeting Minutes: Product Review Committee Meeting

Date/Time: January 6, 2021 1:30 – 3:30pm
Location: Zoom Meeting

Participants

Chair: Tony Cimino, Associate Director Engineering Water & Wastewater Services

Invitees: Robert Daw, Manager Wastewater Operations – Area 1
 Brad Stewart, Manager Biosolids Program (T)
 Barry Robbins, Manager Wastewater Operations– Area 1
 John MacPherson, Manager Wastewater Operations – Area 2
 Frank Vasko, Manager Wastewater Operations – Area 2
 Gerry Atkinson, Manager Wastewater Operations – Area 3
 John Daniels, Manager Wastewater Operations – Area 3
 Dave Haley, Manager Water Operations – Area 3
 Zoli Mod, Manager Water Maintenance – Area 3
 Adrian Rittner, Manager Water Operations – Area 2
 Tim Peyton, Manager Water Maintenance – Area 2
 Jeff Carl, Manager Water Operations – Area 1
 Adam Allcock, Manager Water Maintenance – Area 1
 Frank Gazzola, Energy Management Project Manager
 Ed VanVliet, Manager Technical Trades (SCADA)
 Berny Portolesi, Manager Skilled Trades (Instrumentation)
 Scott Gabel, Manager Skilled Trades (Technical Trades)
 Laura Graham, Administrative Assistant W-WW

Guests: Bruce Zvaniga, Commissioner of Public Works
 Joe Tonellato, Director Water and Wastewater Services
 Omar Hammoud, CEO and President of APG Neuros

Declined: Gerry Atkinson, Jeff Carl, Adam Allcock, Frank Gazzola

| Matters for Discussion | Lead |
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| Presentation | |
| <p>APG Neuros Turbo Blowers - Presentation</p> <p>Discusses company history and facilities Engineering capabilities Discussed 2019-2020 secured products in Canada Horsepower of products offered Product improvements and product reliability Discussed Turbo Blowers at the Crystal Beach WWTP and NOTL WWTP Both sites having no issues at present time Questions from the committee T. Cimino - Energy Efficiency of the blower - 30-35% Air bearing Turbo Blower have multiply start and stop options, have you done anything to correct the issue from the bearing being damage. Reply - Our Turbo Blowers have no issues with air bearings and with the multiply start stops. We make both bearings for Turbo Blowers</p> <p>B. Robbins –NOTL WWTP blower is good and reliable having no issues at present time. This site has the Preventive Maintenance Service (PM) on the product. Question which bearing air and magnetic is more reliable. Reply - Both bearings are reliable, air bearings are installed more often since these are much simpler.</p> | <p>Omar Hammoud</p> |

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| <p>B. Robbins - If the product fails, do you have Technicians that come to site. Reply - Technicians are located in Ontario they are certified and trained to complete replacements and are able to trouble shoot issues. At this time the Company does not employ their own Technicians, third party. Replacement parts would be at site within a 48hrs timeframe.</p> <p>Question F. Vasko – Comparison of the magnetic bearing and air bearing, both have a life limit. What is the limited factor in the air bearings, any parts consumable? Reply - Air bearing has no life limit. Magnetic bearing limiting factor would be the capacitors and the magnetic controls due to the energy going through at a high rate. About every 7-10 years parts need replacement (electrical components)</p> <p>Question T. Peyton - Does the magnetic bearing require a battery backup. Reply - yes it requires battery backup.</p> <p>Question T. Cimino – Service Contracts, are all parts and labour included in the services contracts? Reply – Yes, all parts and labour are included except for filters and consumable items. Also included in the service contract are product upgrades.</p> <p>Discussed the Preventive Maintenance Plans and Asset Management Programs. These can be discussed at a further time.</p> <p>B. Robbins – Would be interested learning more about the PM plans/contracts.</p> <p>T. Cimino - The pilot study at the NOTL WWTP ends on Jan 17, 2021 and we look forward to putting APG Neuros Turbo Blowers on the Approved Product List (APEL) the committee will have a brief discussion after the presentation ends and notification to confirm the product inclusion on the APEL will follow.</p> <p>O. Hammoud would like to offer Niagara Region a gas turbine blower at one of the W-WW facilities free of charge to see performance operation, and is also offering assessments on a location.</p> <p>Presentation ended at 14:30</p> | |
| <p>Presentation Discussion from the Committee Presentation went well. Good information and questions asked, product looks favourable Discusses the offer that Mr. Hammoud announced regarding the free installation pilot of the gas turbine blower. T. Cimino asked committee members to identify a location where a pilot study could be of value and this will be discussed at a future committee meeting. D. Johnson – he would require more information regarding site evaluation (biogas) the Company offered a free location assessment. Concerning questions mentioned from committee members; Is there installation costs involved? Any additional costs we would need a breakdown on costs. F. Vasko stated that their preventative maintenance plan does not include parts, wastewater has been paying for parts. Committee will discuss this offer in more detail at a future meeting</p> | All |
| <p>Chair Update Attendance at committee meetings is required so we can make proper decisions and evaluate products. Need to receive comments in advance. If you can't attend, send your comments to L. Graham or T. Cimino or send someone on your behalf to attend the meeting. Reminder to the committee that all new trials and new products submissions must go through this committee. In order to properly document the trial and track performance as per the terms of reference.</p> | T. Cimino |
| <p>New Submissions</p> | |

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| <p>Company - ABB Inc Manufacturer - ABB (previously GE) Product - Evolution E9000 Product Use - Evolution Series E9000 motor control centers (MCC) provide safe and flexible centralizing of motor starters and related control equipment. It combines motor control units, feeder units, distribution transformers, lighting panels, relays, remote and local control, sophisticated communications, metering and other miscellaneous devices to be contained in a single floor-mounted structural assembly fed from a common enclosed main bus. APEL Category - Electric Manager Feedback (Scott Gabel) No issue with adding ABB Motor Control Centers to our approved list. We use several ABB products already.</p> <p><u>Meeting Discussion</u> Committee has agreed and sees the benefit to add this product to the APEL Committee deemed product approved</p> <p>Action L. Graham to send letter and advise the company that product will be placed on the APEL</p> | <p>Committee</p> <p>Action: L Graham</p> |
| <p>Company - Indachem Inc. Manufacturer - UGSI Chemical Feed Inc. Product - PolyBlend DD4/DP800 Product Use - Polymer Make-Down and Feed System. PolyBlend models are installed at the NFWWTP</p> <p>APEL Category – No category Manager(s) Feedback <i>Barry Robbins - Units are installed in the Niagara Falls WWTP and would recommend the feedback from the Area I WW Ops and Maintenance. There is no category for these types of units on the APEL. Perhaps there should be.</i></p> <p><i>John McPherson - no issue with adding product this to the list. Niagara Falls is or has trialed it and we have no similar system of this type on the list. Contacted Rob Daw and waiting on a reply to get a sense of his satisfaction with the unit. I may have a need for one coming up in Crystal Beach, so having this available would help.</i></p> <p><u>Meeting Discussion</u> F. Vasko – how much detailed products to we need on this list. Our list is for major products. Keep 3-4 products under a category. No category for this product, committee a deemed that creating a category for this type of equipment is not required at this time.</p> <p>L. Graham to send letter and advise the company that product will not be placed on the APEL</p> | <p>Committee</p> <p>Action: L Graham</p> |
| <p>Company - Vector Process Equipment Inc. Manufacturer - Kusters Water Product - Clarifier Sludge and Scum Removal Equipment Product Use - Used to remove solid particulates or suspended solids from liquid for clarification and/or thickening APEL Category - Process Equipment Manager(s) Feedback <i>Barry Robbins - An interesting design, and from a maintenance perspective, it looks to be easier to replace the blades because there are so few of them.</i> <i>Our APEL could use more options for sludge/scum collection systems for the primary and secondary clarifiers.</i></p> <p><i>John McPherson - Pre-pandemic, we had a review for a company that also manufactures (or at least supplies) this type of equipment. It was rejected at the time and we have since installed similar equipment on upgrades (Seaway WWTP). On that basis, there would be no need to place this requestor on the APEL either.</i></p> <p><u>Meeting Discussion</u> Do we want an additional supplier, are they offering anything different. J. MacPherson – We have turned the last vendor down that applied under this category B. Robbins - looks like a nice design, may want to consider. Could be more parts to maintain? We do have others on the list that are good.</p> | <p>Committee</p> |

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| <p>F. Vasko – had two (2) new clarifiers installed at SeawayWWTP that are similar in design to this product. Do we want another supplier? What is their history like on this product, are they reliable? Product is very similar to the others on the list. Do these different blades even apply to our industry?</p> <p>J. Daniels – too many sites having different products, We would need to house inventory and parts, and have the knowledge to work on so many different products. Costs are high if we have so many products.</p> <p>Does this product have any other benefits then the other products already approved in this category</p> <p>The committee has deemed this product not approved, the committee is satisfied with the products listed on the APEL and at this time we will not be adding to the category.</p> <p>Action L. Graham to send letter and advise the company that product will not be placed on the APEL</p> | <p>Action: L Graham</p> |
| <p>Company - IndusControl Incorporated Manufacturer - Cerlic Product - Automatic Optical Sludge Blanket/Suspended Solids Meter Product Use - Cerlic CBX is a reliable stationary sludge blanket meter that detects sediment or thickened sludge at various positions in wastewater plants. It can also be used for applications measuring an interface in a floating medium. Uses NIR technology, as sensor travels through fluff layers until it finds the present blanket solids concentration. Also provides sludge profile in which fluff layers can be seen and has an automated self cleaning mechanism for both sensor and cable, which reduces maintenance cost to minimal. APEL Category - No Category</p> <p><u>Meeting Discussion</u> No category for this product and a category for this type of equipment is not required at this time</p> <p>Action L. Graham to send letter and advise the company that product will not be placed on the APEL</p> | <p>Committee</p> <p>Action: L Graham</p> |
| <p>Company - IndusControl Incorporated Manufacturer - Draeger Product - Gas Monitoring Product Use – Fixed combustible gas detection - infrared APEL Category - Control and Instrumentation Manager Feedback - (B. Portolesi) we will maintain the existing region gas monitoring systems and equipment listing. Albeit the presented equipment line does not offer any characteristics that are above and beyond our existing devices thus there is no present requirement to add them to our listing.</p> <p><u>Meeting Discussion</u> B. Portolesi – If placed on list, we will have to start to change our system on how we communicate between the field devices and the OIC. They use a different system network. If the product is approved we will have to increase inventory. No benefit to this product. Committee has deemed this product not approved, this product would change our system communication and the network.</p> <p>Action L. Graham to send letter and advise the company that product will not be placed on the APEL</p> | <p>Committee</p> <p>Action: L Graham</p> |
| <p>Company - Pro-Line Fittings, Manufacturer - Szuster System Product - Check Valve (Elbow Ball & In-line Ball) Product Use - Excellent wastewater check valve, non-clogging, non-vibrating, low flow operation, easy to maintain, space saving design. Available 90 degree style, combi type with knife gate & in-line. APEL Category – Valves</p> <p><u>Meeting Discussion</u> No ball checks on the APEL F. Vasko - one advantage that product can be ordered with the isolation valve attached</p> | <p>Committee</p> |

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| <p>B. Robbins and J. Daniels - No trouble with others products that are currently on the APEL. Would need to stock more parts and a new subcategory would need to be added to the APEL Committee has deemed that a subcategory is not required at this time.</p> <p>Action L. Graham to send letter and advise the company that product will not be placed on the APEL</p> | <p>Action: L Graham</p> |
| <p>Company – Bisan Inc. Manufacturer - EMEC/ BISAN, Inc. Product - Chemical Feed pumps & systems, plus Instrumentation Product Use - Chemical Feed system used for injecting chemicals into process, W&WW and other applications. BISAN offers and manufactures packaged chemical feed systems under the trade name Sure' n Safe. APEL Category - Control and Instrumentation</p> <p><u>Meeting Discussion</u> Z. Mod – on the water side, we have Grundfos products that we are standardizing. Would need to stock parts and see no additional benefit to add this product. B. Portolesi – looking at the Instrumentation part of this package, we would require changes to the installation since this is a whole system, (pump feed system). Could not just replace one part, would require a complete replacement. This product would not merry to our current system. It would require a big change for W-WWW Committee has deemed this product not approved, it will not merry to our current system many changes would be needed.</p> <p>Action L. Graham to send letter and advise the company that product will not be placed on the APEL</p> | <p>Committee</p> <p>Action: L Graham</p> |
| <p>DEFER TO NEXT MEETING Company – Bisan Inc. Manufacturer - Westfall Product - Static Mixers Product Use - Westfall static mixer offers motionless mixing in process water for chemical. Westfall mixers are widely used in water and wastewater applications. APEL Category – No Category</p> | <p>Committee</p> |
| <p>NEXT MEETING Presentation Company – Vector Process Equipment Inc. Manufacturer - HAUS Centrifuge Technologies Product - HAUS Turbo Blower Product Use – Centrifugal Compressor with magnetic bearings and variable speed, is one of the most advanced technology blowers. Blowers and air compressors are extensively used in treatment plant for aeration and ventilation pools and the sludge treatment. APEL Category - Process Equipment Chair - Requested presentation, confirmed virtual presentation to be held on Jan 18, 2021</p> | <p>Committee</p> |
| <p>New Business</p> | |
| <p>Reminder on “how to” view PRC information and submissions on the Vine All submissions are available to view on the Vine use this link Product Review Submissions click on the vendor name and open the attachment.</p> <p>If we have any products on the APEL that are not providing valve, these products can be discussed/review.</p> <p>It is this committees responsibility/duty to police contractors to make sure all products in use, are listed on the APEL</p> <p>Question FV – asked about housing comments/information in one place on the PRC Team Site</p> <p>Note – L. Graham sent an email (Jan 7. 2021) to committee members stating At the PRC meeting yesterday it was mentioned about housing all comments/feedback for product submissions in one location. On the PRC Team Site we can start using the “General Discussion” section to provide comments/feedback.</p> | <p>Committee</p> |

Under "General Discussion" click on *Electronic Submittals* then *add a new discussion* and enter your information.

Next Meeting:

Date: Presentation HAUS Turbo Blowers Jan 18th, Next Committee meeting April 12, 2021

Location: Skype Meeting

Meeting Agenda: Product Review Committee Meeting

Date/Time: January 18, 2021 1:30 – 3:30pm
Location: Zoom Meeting

Participants

Chair: Tony Cimino, Associate Director Engineering Water & Wastewater Services

Invitees:

- Joe Tonellato, Director Water and Wastewater Services
- Robert Daw, Manager Wastewater Operations – Area 1
- Brad Stewart, Manager Biosolids Program (T)
- Barry Robbins, Manager Wastewater Operations– Area 1
- John MacPherson, Manager Wastewater Operations – Area 2
- Frank Vasko, Manager Wastewater Operations – Area 2
- Gerry Atkinson, Manager Wastewater Operations – Area 3
- John Daniels, Manager Wastewater Operations – Area 3
- Dave Haley, Manager Water Operations – Area 3
- Zoli Mod, Manager Water Maintenance – Area 3
- Adrian Rittner, Manager Water Operations – Area 2
- Tim Peyton, Manager Water Maintenance – Area 2
- Jeff Carl, Manager Water Operations – Area 1
- Adam Allcock, Manager Water Maintenance – Area 1
- Frank Gazzola, Energy Management Project Manager
- Ed VanVliet, Manager Technical Trades (SCADA)
- Berny Portolesi, Manager Skilled Trades (Instrumentation)
- Scott Gabel, Manager Skilled Trades (Technical Trades)
- Laura Graham, Administrative Assistant W-WWW

Guests: Narayan Venkatesh, Archer Separation
 Carrett Cahill, Archer Separation
 Cynthia Nwabuokei, Vector Process Equipment
 Andre Osborne, Vector Process Equipment

Absent: Scott Gabel, Manager Skilled Trades (Technical Trades)

| Matters for Discussion | Lead |
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| <p>Presentation</p> <p>Company – Vector Process Equipment Inc. Manufacturer - HAUS Centrifuge Technologies, HAUS Turbo Blower Presentation Centrifugal Compressor with magnetic bearings and variable speed. Blowers and air compressors are extensively used in treatment plants for aeration and ventilation pools and sludge treatment Blower Selection - Site elevation, relative humidity, ambient temp, flow requirements, discharge pressure Discussed Motor Cooling System Magnetic vs Air Foil. Discussed Bearing Technology Comparison between Air Foil Blower vs Magnetic Bearing technology. Magnetic Bearing Blowers are more efficient capable of achieving up to 85% efficiency where as Air Foil Blowers can only achieve between 68-75% efficiency. Main Design Features - highest efficiency impeller and casing in the market using adjusting vanes in the diffuser making it more energy efficient than competitors. Compact foot print Discussed main equipment/electric and magnetic Presentation was very informative and great information.</p> | <p>Narayan Venkatesh, Carrett Cahill, Cynthia Nwabuokei,</p> |

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| <p>T. Cimino requested a copy of the presentation and informed Haus that the PRC will be conducting a pilot study on magnetic blowers at one of the Region's Wastewater Treatment Upgrade projects and once a successful completion of the Pilot is achieved, then the PRC will evaluate the findings and determine the inclusion of magnetic blowers on the APEL.</p> | |
| <p>Chair Update The turbo blower pilot study from APG Neuros has ended on January 17, 2021 Committee discussed that the blowers have preformed well during the pilot study and had no major issues Chair recommended the addition of a Turbo Blower category to the APEL. A consensus was reached by the committee for the creation of a Turbo Blower Category Chair recommended the inclusion of the APG Neuros Turbo Blowlers to be included under this new category as a result of their successful Pilot. Consensus was reached by the committee to include the APG Neuros Blower making them the first product under this newly created category. Action – L. Graham to send out a letter to APG Neuros, advising that Turbo Blowlers will be added to the APEL.</p> <p>Sulzer Turbo Blowlers – Tender has closed for the Port Dalhousie WWTP Upgrade Project, the Chair would like to recommend to the committee that the Sulzer blowers start a one year pilot study at the Port Dalhousie WWTP Upgrade Project, (Pilot to commence after the acceptance of the commissioning on the TB at Project completion). Consensus to commence the Pilot Study on the Sulzer Blowlers at the location specified was reached by the PRC. Noted - Sulzer TB have magnetic bearings, and the pilot study will obtain reporting information on this type of technology, as the APG Neuros TB now approved uses Air Foil Bearing Technology. The PRC is seeking comparison between the two types of technology.</p> <p>Action – L. Graham to send out a letter to Sulzer regarding a TB pilot study conducted at the Port Dalhousie WWTP upgrade project.</p> | <p>T. Cimino</p> <p>Action: L. Graham</p> <p>Action: L. Graham</p> |
| <p>New Submissions</p> <p>Company - V. J. Pamensky Canada Ltd. Manufacturer - WEG Product - Single Phase and Three Phase Electric Motors Product Use - Drivers for pumping equipment (both horizontal and vertical mounted pumps) APEL Category – No</p> <p>Decision - Committee has decided and deemed product is not approved, since there is no category listed on the APEL and at this time we will not be adding a new category to the list.</p> <p>Action – L. Graham to send out a letter and advise product is not approved and will not be listed on the APEL.</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Company - Aquafy Water Technologies Inc. Manufacturer - Vulcan Industries Product - Model EWP Washing Press Product Use - The Model EWP Washing Press is a spiral press that washes organic matter out of Headworks or SPS Screenings material. Washes, dewateres, compacts and transports screenings to a conveyor, container or other suitable receiving device reliably—day in and day out. APEL Category - Process Equipment (but this category - Washing Press is not listed)</p> <p>Decision - Committee has decided and deemed product is not approved, we will not be adding a new category for washing press. Committee will monitor this type of product for future/upcoming projects and review manufactures</p> | <p>Committee</p> |

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| <p>Action – L. Graham to send out a letter and advise product is not approved and will not be listed on the APEL.</p> | <p>Action: L. Graham</p> |
| <p>Company - Pro-Tech Power Sales Manufacturer - Schweitzer Engineering Laboratories Product - SEL- 241 IP Product Use - Pump Automation Controller. The SEL-241 IP is a standalone, preconfigured, SCADA-ready system for control and monitoring of water and wastewater pump applications. It is a simple solution to monitor and control liquid level pump-up and pump-down applications, such as lift stations (pump-down) and wells or reservoirs (pump-up) APEL Category – No</p> <p>Decision - Committee has decided and deemed product not approved, Pump Automation Controller will give us limited control over a sewage PS and set-points are changed at the controller not remotely, this product is not a good fit for W-WW. Action – L. Graham to send out a letter and advise product is not approved and will not be listed on the APEL.</p> | <p>Committee</p> <p>Action: L. Graham</p> |
| <p>Company – Bisan Inc. Manufacturer - Westfall Product - Static Mixers Product Use - Westfall static mixer offers motionless mixing in process water for chemical. Westfall mixers are widely used in water and wastewater applications. APEL Category – No Category</p> <p>Decision - Committee has decided and deemed product not approved, at this point there is no need for this application in WW, a new category will not be added to the APEL Action – L. Graham to send out letter to advise this product is not approved and will not be listed on the APEL.</p> | <p>Committee</p> <p>Action: L. Graham</p> |

Next Meeting:

Date: Next Committee meeting April 12, 2021

Location: Skype Meeting

Public Works

Water and Wastewater Services

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January 18, 2021

APG Neuros
Mr. Omar Hammoud
1270 Boulevard Michèle-Bohec
Blainville, QC
J7C 5S4

Sent Via Email: OHammoud@apg-neuros.com

Attention: Mr. Omar Hammoud, CEO and President of APG Neuros
Subject: APG Neuros - High Speed Turbo Blower

Product Review Committee Decision Letter - A.03 0003.45

This letter is to advise APG Neuros that the Water and Wastewater Product Review Committee (PRC) has accepted the High Speed Turbo Blower. This product is approved for general use and will be placed on the Approved Product and Equipment List (APEL) of the Water and Wastewater Product Design Manual.

We look forward to working with APG Neuros on Water and Wastewater projects. Please let me know if you have any questions or concerns.

Sincerely,



Tony Cimino, C.E.T., CMM
Associate Director, Engineering Water & Wastewater Services
Product Review Committee Chair
tony.cimino@niagararegion.ca

Appendix 4 – Process and Decision Making Process for Turbo Blowers

1. **2009-03-10- PRC Evaluation/Decision**
Letter to John Meunier Inc. (distributor of APG Neuros turbo blowers) from Water/Wastewater Associate Director advising of conditional approval for a six month test period.
2. **2011-06-14 – Procurement**
Tender Closes for 2011-T-112 Crystal Beach Wastewater Treatment Plant Upgrades includes three APG Neuros turbo blowers.
3. **2011-10-15 thru 2020-06-03 Blower Performance Issues**
Work orders and service reports for turbo blower issues including K-Turbo Blowers at Port Colborne WWTP and APG Neuros Turbo Blowers at Crystal Beach WWTP.
4. **2012-10-16 – Status Update**
APG Neuros turbo blowers at Crystal Beach in-service date.
5. **2014-05-06 – Procurement**
Tender Closes for 2014-T-114 New Niagara on the Lake Wastewater Treatment Plant includes specification for APG Neuros turbo blowers.
6. **2015-07-23 – Update Communication to Staff**
Central Maintenance meeting minutes where W-WW Director (Paul Smeltzer) confirmed he and the W-WW Associate Director of W-WW would be meeting with representatives and removing turbo blowers from APEL.
7. **2015-07-24 – Evaluation/Decision**
Email discussing a meeting having taken place between the Director of Water-Wastewater and Mr. Omar Hammoud, CEO of APG Neuros. Email notes the following was discussed at the meeting “advised that we will be removing turbo blowers from our vendors list and will re-evaluate this decision one year from now. Any reconsideration will be based on continuous service of the existing turbo blowers for a one year period.”
8. **2015-08-05 – PRC Evaluation/Decision**
Letter from Associate Director Water-Wastewater to John Meunier Inc (distributor of APG Neuros) providing notice of turbo blower category deletion from approved equipment list stating: “could not ignore the facts regarding performance, service and maintenance issues associated with existing units in our system.”

2015-08-05
Versions of APEL have no turbo blower sub-category or turbo blower vendors listed.

9. **2017-11-20 PRC Leadership and membership composition changes**
10. **2018-04-26 – PRC Evaluation/Decision**
PRC Meeting Minutes detailing review and consideration of Sulzer turbo blowers.
11. **2018-05-31- PRC Evaluation/Decision Letter**
Letter from PRC to Landy Lu from Sulzer advising of approval on APEL.
12. **2019-08-26- PRC Evaluation/Decision**
PRC Meeting Minutes detailing review and reconsideration of APG Neuros turbo blowers.
13. **2019-09-20- PRC Evaluation/Decision Letter**
Letter from PRC to Phil Taschereau from APG Neuros advising of approval on APEL.
14. **2019-10-08- Blower Analysis for Port Dalhousie**
Staff email discussion on lifecycle cost analysis of blowers and confirmation of energy saving benefits of turbo blower installation and trial of magnetic bearing turbo blowers.
15. **2020-01-17 – Niagara-on-the Lake WWTP put into service**
12 month trial period for APG Neuros turbo blowers commences per 2015-07-24 decision
16. **2020-08-28 - 2020-T-116 Port Dalhousie Tender Issued**
Approved Manufacturers for each product were listed under each product specification. Sulzer was listed as the only approved product in the blower specifications to facilitate the 12-month pilot study.
17. **2020-10-01 – Enquiry Seeking Clarification of Tender**
Letter from APG Neuros to W-WW PRC seeking clarification on PDWWTP Tender specifications; included only Sulzer (competitor) for turbo blower manufacturers. Seeking to be added as a named supplier on 2020-T-116 (Port Dalhousie) closed on Oct. 14, 2020 (then extended to Nov 5); Section 11370 - Turbo Blowers
18. **2020-10-07 – Response to Enquiry About Tender**
PRC letter to Neuros Inquiry about W-WW APEL listings and confirms:
 - Removal from list pending outcome of NOTL performance trial (12 months, completes Jan. 17, 2021)
 - Region's intention to proceed with a trial with a competitor (project not named in response)
19. **2020-11-05 - 2020-T-116 Port Dalhousie Tender Closes**

20. 2021-01-06 – APG Neuros Presentation to PRC

PRC meeting minutes review presentation and questions/discussion.

21. 2021-01-17 – End of 12 month trial period for NOTL blowers

22. 2021-01-18 – PRC Evaluation/Decision

Minutes from PRC meeting documenting approval of turbo blower sub-category being reinstated on APEL and inclusion of approved APG Neuros turbo blowers.

23. 2021-01-18- PRC Decision Letter

Letter from PRC to Mr. Omar Hammoud, CEO and President of APG Neuros, confirming approval for turbo blowers on APEL.