New-Indy Catawba Mill Corrective Action Plan

Revision 2
Submitted: July 12, 2021

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1. EXECUTIVE SUMMARY

New-Indy Catawba LLC (New-Indy) submits this Corrective Action Plan report in response to paragraphs 3, 6 and 7 of the Order issued by the South Carolina Department of Health and Environmental Control (SCDHEC or DHEC) on May 7, 2021. By way of background, until late 2020, New-Indy and its predecessor owners of the mill in Catawba, South Carolina produced bleached paper at the facility. Given the substantial decrease in demand for such paper, the mill was becoming more economically unviable each day. Thus, New-Indy made the decision to convert from producing bleached white paper to unbleached containerboard at the mill. Commencing in spring 2020, the mill replaced the outdated bleached paper-making equipment with state-of-the-art equipment to make lightweight ultra-high strength containerboard and retrained its union workforce to operate and maintain this very sophisticated facility. While the mill began salable production on February 1, 2021, it is still working toward steady-state operations. In late January and February, New-Indy and SCDHEC began receiving complaints from local citizens regarding odors.

At that point, the mill began a concerted effort to identify potential sources of odors and to investigate those potential sources. The mill evaluated its seven (7) major operations and process areas: the woodyard, kraft pulp mill, paper machine, chemical recovery process, utilities, waste treatment, and miscellaneous sources. New-Indy evaluated the seven processes with a series of twelve (12) environmental consultants, including personnel from TRC Companies, Inc. (TRC), ALL4 LLC (ALL4), Weston Solutions, Inc. (Weston), National Council for Air and Stream Improvement (NCASI), Environmental Business Specialists, LLC (EBS), LDX Solutions (LDX), Environmental 360 Solutions, Inc. (E360), Trinity Consultants, Inc. (Trinity), Valmet and Rolf Ryham, SFC Contract Services, Saiia Construction Company and Hazardous Substance & Waste Management Research, Inc. (HSWMR). That evaluation included leak detection and repair (LDAR) evaluation, an ambient air screening evaluation and the installation of ambient air monitors, in addition to a focused evaluation of the wastewater treatment system. Based on the evaluation, the mill and its professionals concluded the wastewater treatment system was the most likely source of reported odors at the mill.

The mill has conducted numerous evaluations and process enhancements at the mill to address the odor issues. As noted above, the mill has engaged at least twelve environmental consulting firms to assist in the process, including three environmental air consultants, three wastewater consultants, two engineering firms and a toxicologist. Activities that the mill has undertaken to identify and address odors include the following: installing continuous ambient air monitors on the mill property and offsite; completing the screening analysis of hydrogen sulfide (H_2S) emissions at the mill; restarting the steam stripper; removing the layer of fiber from the surface of the ASB; injecting calcium nitrate and peroxide into the wastewater stream; and repairing existing aerators and installing two new aerators. Certain of those activities are ongoing and have been incorporated into the corrective action plan set forth herein. In addition to the ongoing activities, certain activities are planned that will round out the corrective action plan. Those ongoing and upcoming activities set forth in this corrective action plan include the following: feeding hydrogen peroxide, liquid oxygen, and ferric chloride into the wastewater stream; increasing the treatment capacity of the stripper; continuing repair of aerators; weekly advanced chemical and microbiological analysis to evaluate biomass health; and continuous ambient air monitoring onsite and offsite. New-Indy will obtain any required permit or agency approval prior to implementing any corrective actions, and a status update for each corrective action will be included in New-Indy's weekly update to DHEC.

2. BACKGROUND

New-Indy Catawba, LLC, (New-Indy) operates a kraft pulp and paper mill located at 5300 Cureton Ferry Rd, Catawba, SC, in York County (mill). The mill operates under Title V Operating Permit #2440-0005 that was issued by the South Carolina Department of Health and Environmental Control (DHEC) on May 7, 2019, became effective on July 1, 2019, and expires on June 30, 2024. New-Indy was issued Construction Permit #2440-0005-DF on July 23, 2019, in accordance with state and federal air quality regulations and standards, to allow the mill to modify its processes to convert from bleached paper production to brown paper production. The construction permit was revised on May 13, 2020, to allow the mill to hard pipe its condensates to the wastewater treatment plant. 40 CFR 63, Subpart S, allows this hard piping as a compliance option. New-Indy began start-up operations at the mill as an integrated pulp and paper facility manufacturing brown paper on February 1, 2021.

The Maximum Achievable Control Technology (MACT) standard allows hard piping of all the condensates to wastewater treatment plants as a compliance option. New-Indy projected in its construction permit application that the mill modifications and other operational changes could result in an increase in hydrogen sulfide emissions from the mill. The projected increase in hydrogen sulfide emissions was below the "significant net increase" threshold as outlined in S.C. Regulation 61-62.5, Standard 7, and therefore DHEC issued a minor construction air permit for the change on July 23, 2019.

As stated in DHEC's May 7, 2021 order, after the agency began receiving complaints in February 2021 regarding odor in York and Lancaster counties, described as rotten egg and chemical odors, DHEC began an investigation to determine the source of the odors. DHEC staff have also reported observing strong, offsite, odors in the vicinity of the mill and several miles away from the mill that are characteristic of hydrogen sulfide emissions from kraft pulp and paper facilities. On February 22, 23 and 24, 2021, DHEC conducted air, wastewater and landfill inspections at the mill.

On April 7, 2021, DHEC notified New-Indy that based on the results of DHEC's investigation into the odor complaints, it appeared to DHEC that New-Indy may be a contributor to the reported odors in the York and Lancaster area. DHEC requested that New-Indy evaluate its operations and identify and take corrective actions on any potential sources that could be contributing to the odors then being investigated in York and Lancaster counties.

On April 24-27, the US Environmental Protection Agency (EPA) conducted geospatial monitoring of hydrogen sulfide near the mill to identify sources of the odor in the nearby vicinity. EPA monitoring data detected hydrogen sulfide onsite and offsite. DHEC maintains that this validates the determination that the mill is a source of air contaminants at undesirable levels.

DHEC issued a Corrective Order to New-Indy on May 7, 2021, to correct what DHEC described as undesirable levels of air contaminants. On May 13, 2021, New-Indy received a Clean Air Act Section 303 Emergency Order from EPA. New-Indy submitted this Corrective Action Report to DHEC on June 15, 2021. DHEC provided comments to New-Indy on June 20, 2021. New-Indy has addressed each comment in this revision. DHEC completed its quarterly inspection of the landfill on June 18, 2021 without identifying any findings or deficiencies.

3. OPERATIONS AND PROCESS DESCRIPTION

3.1 SITE HISTORY

New-Indy operates an integrated pulp and paper mill located in Catawba, South Carolina. The original pulp mill was constructed in 1959, which included a woodyard area for the processing of raw material, a kraft mill to chemically process wood chips into pulp, a pulp dryer, a chemical recovery area to recycle process chemicals, a utilities area to generate steam and electricity, a waste treatment area, and other operations.

In 1962, a paper machine (No. 1 paper machine) and a groundwood pulping process were added to the facility to facilitate the production of paper. An additional paper machine (No. 3 paper machine) was installed in 1968, as well as the expansion of the groundwood pulping process. A thermo-mechanical pulping (TMP) process was added to the facility in 1978. Eight years later (1986), the groundwood and thermo-mechanical pulping processes were eliminated, while a new paper machine (No. 2 paper machine) was installed to increase the production of paper. Also in 1986, a new thermo-mechanical pulping process was added to replace the original TMP process.

In 2003, the original kraft pulping system and bleach plant were replaced with a state-of-the-art kraft fiber line and bleaching system. In addition, No. 3 paper machine was converted from newsprint to coated paper production, and TMP was also re-configured to support only coated paper production. In 2011, the kraft pulping system and bleaching system were modified to increase production, while using the same amount of wood furnish and cooking chemicals.

In 2020, the Catawba Mill was converted from manufacturing bleached pulp suitable for manufacturing bleached lightweight coated paper and market pulp to unbleached pulp suitable for manufacturing linerboard and other unbleached pulp and paper products. The conversion resulted in retirement of the bleaching system, the TMP plant, No. 1 paper machine and several other operations. Although not currently running, the No. 2 paper machine remains permitted and is in standby for potential future use as markets allow.

3.2 OVERALL PROCESS DESCRIPTION

The Catawba Mill is comprised of seven (7) distinct process areas, which include the following: the woodyard area, the kraft pulp mill area, the paper mill area, the chemical recovery area, the utilities area, the waste treatment area, and a miscellaneous area. A process flow diagram for these process areas has been included as Figure 3-1. An overall description of the process areas is below.

Southern pine logs and chips are received by the Catawba Mill at the woodyard. Logs are debarked, chipped, and the chips are screened prior to storage for use within the pulping processes. Likewise, wood chips received at the mill are screened, and processed as needed, prior to use within the pulping processes.

The kraft (sulfate) process area is used to produce pulp. Pulp from the kraft process is produced from "cooking" wood chips in a caustic solution at an elevated temperature and pressure.

Linerboard (the outside layer in a corrugated container) is produced in the paper mill area on one state-of-the-art paper machine. Unbleached market pulp is produced on one pulp dryer.

The recovery furnaces (chemical recovery area), which are auxiliary to the kraft process, burn the organics extracted from the chips and recover cooking chemicals. The causticizing area utilizes the chemicals recovered by the recovery furnaces, and after adding lime, provides the cooking chemicals for the kraft process.

Steam and electricity are produced for facility-wide use by two combination boilers. The recovery furnaces also generate steam.

A waste treatment area receives wastewater and mill waste (solid waste) from the various previously mentioned areas of the facility. Wastewater undergoes biological treatment to remove the dissolved organic wastes prior to discharge into the receiving stream. Mill solid waste is deposited within an on-site landfill for disposal.

The miscellaneous areas include all operations that are not captured in one of the aforementioned process operating areas, including the facility roads and the pulp storage tanks.

3.3 WOODYARD

Pulp and paper production operations require fibrous vegetative material, or furnish, as a raw material. The Catawba Mill receives virgin fibers in the form of southern pine logs (roundwood furnish) or chips via trucks or railcar. Southern pine materials are off-loaded and stored for processing.

To produce a homogeneous pulping feedstock, roundwood furnish (logs) are transported to the debarking drums for processing. The resulting debarked logs are then cut into chips of equal size through the use of chipper machines. As the wood chips exit the chipper, the material is screened for size using a series of vibrating screens. Oversized chips are isolated and reprocessed to generate acceptably resized chips. Undersized chips, along with the debarking waste, are conveyed to the utilities area for use as a fuel within the facility's boilers.

Raw materials, received in chip form, are screened and processed as noted above. Once the chips, either in-house produced or purchased, are screened, the accepted chips are stored in silos for use by the kraft pulp mill.

The woodyard area was part of the original mill construction in 1959. In 1985, half of the original process equipment was replaced with new equipment. The other half of the woodyard equipment was replaced in 1991. As a result of these changes, the log slashing operation constructed in 1959 was eliminated.

No modifications were required to the woodyard to support manufacturing unbleached pulp. The woodyard operation does not require the use of emission control devices.

3.4 FIBER LINE

The fiber line utilizes "state-of-the-art" technology for production, process control, environmental control, and energy conservation. Cooking of chips is accomplished in one continuous Kamyr digester. The digester utilizes steam heat and white liquor (a caustic solution) to cook the wood chips into pulp. The outgoing pulp goes to a blow tank for storage at near atmospheric pressure conditions. The pulp is then washed to remove the spent cooking chemicals and dissolved organics (including lignin, the "glue" in wood) extracted from the chips. The washed pulp (called "brown stock") undergoes additional processing to separate fiber bundles. The brown stock is adjusted for percent solids and stored in high-density storage chests prior to use in the paper mill.

In late 2020, the fiber line was converted from producing virgin fiber suitable for brightening (bleaching) used to manufacture lightweight coated paper to producing virgin fiber suitable for manufacturing unbleached linerboard. The conversion increased the virgin pulp yield by tripling the Kappa number from less than 30 for bleached pulp to over 90 for unbleached pulp. The Kappa number indicates the "harshness" of the cook: lower Kappa resulting from a harsher cook than higher Kappa. The higher Kappa number (less harsh cooking conditions) dissolves fewer organics from the wood, thereby producing more tons of virgin pulp using the same amount of wood with fewer cooking chemicals.

The oxygen delignification system, bleaching system and chlorine dioxide plant were shut down and retired from service in September 2020 to facilitate the conversion to unbleached paper grades. During the conversion, the washers in the retired oxygen delignification system and bleaching system were repurposed to serve as two parallel three-stage brown stock washers. New refiners and screw presses were also installed to facilitate processing the higher Kappa pulp.

Process vapors from the continuous digester, washers, refiners and other sources in the fiber line are collected and routed to the non-condensable gases (NCG) collection system and then routed to the combination boilers for destruction of total reduced sulfur (TRS) compounds and hazardous air pollutants (HAPs). The fiber line NCG collection system was modified to collect process vapors from the new refiners and screw presses and the repurposed brown stock washers.

3.5 PAPER MILL

3.5.1 Paper Machines

The No. 3 paper machine utilizes stock (pulp) prepared in the fiber line. Screens, cleaners, and refiners precede the paper machine to develop a uniform stock inventory. The stock is fed to a headbox that evenly distributes the diluted stock across the width of the paper machine. After the headbox, a sheet forms as water is drained via the forming fabric, located on the wet end of the paper machine. After the free-standing water is removed, the sheet proceeds through presses which remove entrained water. The sheet then enters the dryer sections, which consist of a series of steam heated rotating cylinders, causing the sheet to "snake" around from one dryer to the other. The sheet exits the dryers and is wound onto a jumbo roll which is later cut down to smaller rolls on the winder. The finished rolls are then prepared for shipping.

The No. 3 paper machine was extensively modified to convert from manufacturing coated paper to linerboard. The coating equipment installed in 2003 was removed and the remaining systems were either replaced or upgraded to support linerboard production. The No. 3 paper machine operation does not require emission control devices.

The No. 2 paper machine was not modified and is not operating but remains available should a market develop for its production capabilities. The No. 2 paper machine operation does not require emission control devices.

3.5.2 Pulp Dryer

The pulp dryer utilizes stock prepared in the fiber line. Screens precede the pulp dryer to allow for a uniform stock inventory. The pulp dryer is a cylinder machine in which the stock is fed to a "vat" headbox. After the headbox, a sheet forms as water is drained via the vacuum drum located on the wet end of the pulp dryer. After the free-standing water is removed, the sheet proceeds through presses which remove entrained water. The sheet then enters the dryer sections where a Flakt air flotation system is utilized. The pulp dryer has a steam heated booster oven which allows for additional drying, thus ensuring the final product meets customer specifications for percent moisture. The sheet exits the dryers and is cut into sheets and packaged for shipping.

The pulp dryer stock screening system was put into service by modifying the stock supply system from the No. 1 paper machine (which was retired) to support manufacturing unbleached market pulp. The pulp dryer operation does not require emission control devices.

3.6 CHEMICAL RECOVERY

3.6.1 Evaporator System

The three evaporator sets receive dilute (weak) spent cooking liquor and dissolved organics, otherwise known as black liquor, from the fiber line. The evaporator sets, which are multiple shell and tube heat exchangers, utilize steam to evaporate water and thicken the weak black liquor. This thickened black liquor undergoes additional concentrating in the concentrators until enough water has been removed from the black liquor so it can sustain its own combustion process in the recovery furnaces. This concentrated black liquor is then injected into the two recovery furnaces where the dissolved organics are burned, chemicals are recovered, and steam is produced.

The black liquor soap is comprised of dissolved organic solids. The soap is skimmed and separated in soap separating tanks. As the soap separates and accumulates in the tanks, it is loaded into railcars for shipment to offsite byproduct customers. Because the black liquor soap is comprised of dissolved organic solids, it does not contribute to the current suspended solids issue at the wastewater treatment plant.

Emissions from the processing of black liquor through the evaporator sets are collected and treated in the low volume high concentration (LVHC) NCG system. The LVHC NCG System collects vapors from the evaporator hotwells and turpentine system vents, while emissions from the weak black liquor tanks are collected in the high volume low concentration (HVLC) system for destruction in one of the Combination Boilers. The LVHC NCG system is equipped with an in-line caustic scrubber to capture non-condensable sulfur compound vapors from the gas stream prior to incineration in either the No. 1 or No. 2 Combination Boiler. The caustic solutions from the smelt dissolving tank scrubber and LVHC in-line scrubber are recycled for the processing of wood chips.

The No. 1 evaporator set was modified to increase the evaporation rate to account for the reduction in the solids content of the weak black liquor from the repurposed washers following the conversion to unbleached pulp. No modifications were required to the No. 2 and No. 3 evaporator sets to support manufacturing unbleached pulp. No modifications were required for the LVHC NCG system to support manufacturing unbleached pulp.

3.6.2 Recovery Furnaces

The No. 2 and No. 3 recovery furnaces combust black liquor from the evaporator sets to remove dissolved organic compounds, recover the sodium and sulfur compounds used in the cooking liquor, and generate steam to operate the kraft pulp mill. The recovery furnaces also have the potential to burn No. 6 fuel oil and natural gas. Each recovery furnace is equipped with an electrostatic precipitator (ESP) to collect and recover the dried sodium and sulfur compounds and control particulate matter emissions.

No modifications were required to the recovery furnaces to support manufacturing unbleached pulp. No modifications were required for the ESPs serving the No. 2 and No. 3 recovery furnaces to support manufacturing unbleached pulp.

3.6.3 Smelt Dissolving Tanks

Molten sodium and sulfur compounds are collected from the recovery furnace as smelt from the combustion of the black liquor. The resulting smelt is then transported from the recovery furnaces into the two smelt dissolving tanks where the smelt is dissolved with recycled weak cooking chemicals to generate green liquor. This green liquor is then pumped to the Causticizing Area for further processing and re-use in the kraft process.

Smelt dissolving tanks No. 2 and No. 3 are equipped with a caustic scrubber to recycle non-condensable sulfur compounds and prevent these sources from being an odor source. Vapors from the weak black liquor tanks are collected by the HVLC system for destruction in one of the Combination Boilers. The caustic solution from the smelt dissolving tank scrubber is collected to supplement the cooking chemicals used in the fiber line for the processing of wood chips.

No modifications were required to the smelt dissolving tanks to support manufacturing unbleached pulp. No modifications were required for the caustic scrubber serving the No. 2 and No. 3 smelt dissolving tanks to support manufacturing unbleached pulp.

3.6.4 Precipitator Mix Tanks

The precipitator mix tanks recover the dried sodium and sulfur compounds collected from the recovery furnaces for reuse within the kraft pulping process. No modifications were required to the precipitator mix tanks to support manufacturing unbleached pulp. The precipitator mix tanks vent through the recovery furnaces and no modifications to the venting were required to support manufacturing unbleached pulp.

3.6.5 Causticizing Area

The Causticizing Area is designed to regenerate the cooking chemicals for the kraft pulping process. Sodium and sulfur compounds are recovered at the recovery furnaces from the burning of black liquor and are pumped from the smelt dissolving tanks to the Causticizing Area as “green liquor.” Hydrated lime is added to the green liquor to form “white liquor” and calcium carbonate (lime mud). The white liquor, which is a strong caustic/sulfide solution, is used in the fiber line digester for the cooking of chips. The sodium/sulfide chemicals are contained in a closed loop within the green, white, and black liquors. The lime slaker is equipped with a wet scrubber to control dust.

No modifications were required to the causticizing area to support manufacturing unbleached pulp. No modifications were required for the slaker scrubber to support manufacturing unbleached pulp.

3.6.6 Lime Kiln

The Lime Kiln No. 2 is designed to assist in regenerating the cooking chemicals for the kraft pulping process. Hydrated lime is added to the green liquor to form “white liquor” and calcium carbonate (lime mud). The lime mud is separated from the white liquor, thickened, washed, and then reburned in the Lime Kiln to again form lime for converting recovered green liquor to white liquor. The calcium chemicals are contained in a closed loop within the lime, hydrated lime, white liquor, and lime mud constituents. The lime kiln is equipped with an electrostatic precipitator to control particulate emissions.

No modifications were required to the lime kiln to support manufacturing unbleached pulp. No modifications were required for the lime kiln ESP to support manufacturing unbleached pulp.

3.7 UTILITIES

Wood waste, such as bark, sawdust, and undersized chip fractions, is screened at the Woodyard to assure acceptable quality to burn in the No. 1 and No. 2 Combination Boilers. This wood waste is conveyed to the Util/Misc. area. Fuel oil is transported to the facility via truck or rail tanker. Natural gas is supplied by pipeline. Tire derived fuel (TDF) is transported by truck. Each combination boiler is equipped with an ESP to control particulate emissions.

Steam produced by the boilers goes into a common header and a portion is then throttled into the extraction turbine generators. These units receive high pressure steam, extract part of the energy, and discharge steam at lower temperatures and pressures. The lower pressure steam is utilized throughout the facility for process heating purposes. The condensate is returned to the Util/Misc. area for reuse.

The combination boilers also incinerate the NCG gases collected from the kraft pulp mill, the chemical recovery evaporator sets and turpentine recovery system, and the foul condensate steam stripper to control emissions of TRS compounds and HAPs. Incineration of the NCG gases is continuously monitored using the flame failure systems on each boiler. The NCG collection systems are also monitored monthly and annually for leaks following the Catawba Mill Leak Detection and Repair (LDAR) program. The LDAR inspection reports are included in Appendix A.

This area is also responsible for providing the high quality, high purity water which is required for steam production. This is accomplished through the use of flocculation beds, sand filters, and demineralizers.

No modifications were required to the combination boilers to support manufacturing unbleached pulp. No modifications were required for the ESPs serving the No. 1 and No. 2 combination boilers to support manufacturing unbleached pulp.

The fiber line NCG collection system was modified to collect process vapors from the new refiners and screw presses and the repurposed brown stock washers.

3.8 WASTE TREATMENT

3.8.1 Condensate Collection and Treatment System

The Catawba Mill utilizes a condensate collection tank to accumulate kraft pulping process foul condensate prior to treatment. The condensate collection tank acts as a feed tank for the foul condensate steam stripper and/or the hard pipe to the wastewater treatment system. Materials from the foul condensate can be removed in the steam stripper and combusted within a combination boiler or treated biologically in the wastewater system aerated stabilization basin (ASB). “Clean condensate” from the stripper column is recycled back to the brown stock washers for use as shower water.

The foul condensate treatment system was modified to use the hard piping option to biologically treat the foul condensate in the ASB. This modification was approved by DHEC with permit TV-2440-0005-DF. The hard pipe has no emissions points. The mill is not required by regulation to analyze the foul condensate that is hard piped to the ASB for temperature, pH, or other parameters. Likewise, the mill has not analyzed the foul condensate to determine its consistency or concentration of constituents other than methanol and TRS compounds.

Elevated terpene levels were identified in one foul condensate sample, which is not uncommon in evaporator systems processing black liquor from a modern digester system. New Indy is evaluating options to reprocess some of the foul condensate for improved turpentine recovery. The mill has confirmed that current terpene levels have not increased as a result of the conversion project, and are in fact lower than historical values.

The foul condensate steam stripper was cleaned, repaired, thoroughly checked for proper process control functionality, and returned to service in May 2021. The evaluation process also included a complete Pre-Startup Safety Review, requisite Management of Change documentation, P&ID drawing validations, interlock validations, instrumentation calibrations, instrument performance validation, and operator training reviews. No modifications to the stripper-off-gases (SOG) NCG system were required to support returning the steam stripper to service.

3.8.2 Wastewater Treatment System

The Wastewater Treatment System is designed to collect all of the wastewaters from the mill, remove settleable solids, and biologically treat the dissolved organics. Most of the wastewater collects within the mill sewers. The sewers gravity flow to the primary clarifier. The clarifier allows solids to settle to the bottom and be removed and clarified water to overflow to either the equalization (EQ) basin or directly to the aerated stabilization basin (ASB). The solids from the primary clarifier, otherwise known as "sludge," are pumped to the EQ basin that allows additional separation (thickening) of the solids. Decant from the EQ basin flows into the aeration basin along with clarified wastewater from the clarifier. The condensate hard pipe discharges below the liquid surface of the ASB to biologically treat contaminants in the foul condensate. The treated wastewater from the aeration basin flows into holding ponds. From the holding ponds, the treated wastewater flows by gravity through a post-aeration basin where mechanical aerators increase the dissolved oxygen content of the wastewater prior to discharge into a receiving stream.

Primary clarifier solids that thicken in the EQ basin are dredged and deposited in the No. 4 sludge pond.

The original hard pipe was installed in 1999 under construction permit CK to comply with the condensate treatment requirements under MACT Subpart S (40 CFR 63.446). The hard pipe was routed into the EQ basin below liquid surface level. In 2000, the original hard pipe was replaced with the condensate steam stripper as the Subpart S compliance option (construction permit CN), prior to the April 16, 2001 initial compliance date. The original hard pipe remained in place, but was not used for demonstrating compliance with Subpart S. Upon decommissioning the stripper operation as a part of the mill's conversion to unbleached production, the hard pipe discharge was relocated to the ASB to comply with the Subpart S requirement that it be routed directly into an active part of the wastewater treatment plant. The ASB was reconfigured by increasing the diameter of the hard pipe below the liquid surface near the entrance to the ASB. The wastewater treatment system does not operate with emission control devices.

3.8.3 Industrial Landfill

A 15-acre industrial landfill is located west of the paper machines at the mill. Paper, bark, and other wood product wastes are deposited within the landfill on a daily basis. Fly ash, grits, and dregs are also approved for disposal in the landfill. While mill refuse is disposed on-site, commercial and office waste streams are collected and transported off-site for disposal. Fill dirt is removed from the on-site borrow pits and deposited atop the refuse as daily cover.

No modifications were required to the industrial landfill to support manufacturing unbleached pulp. The landfill does not operate with emission control devices.

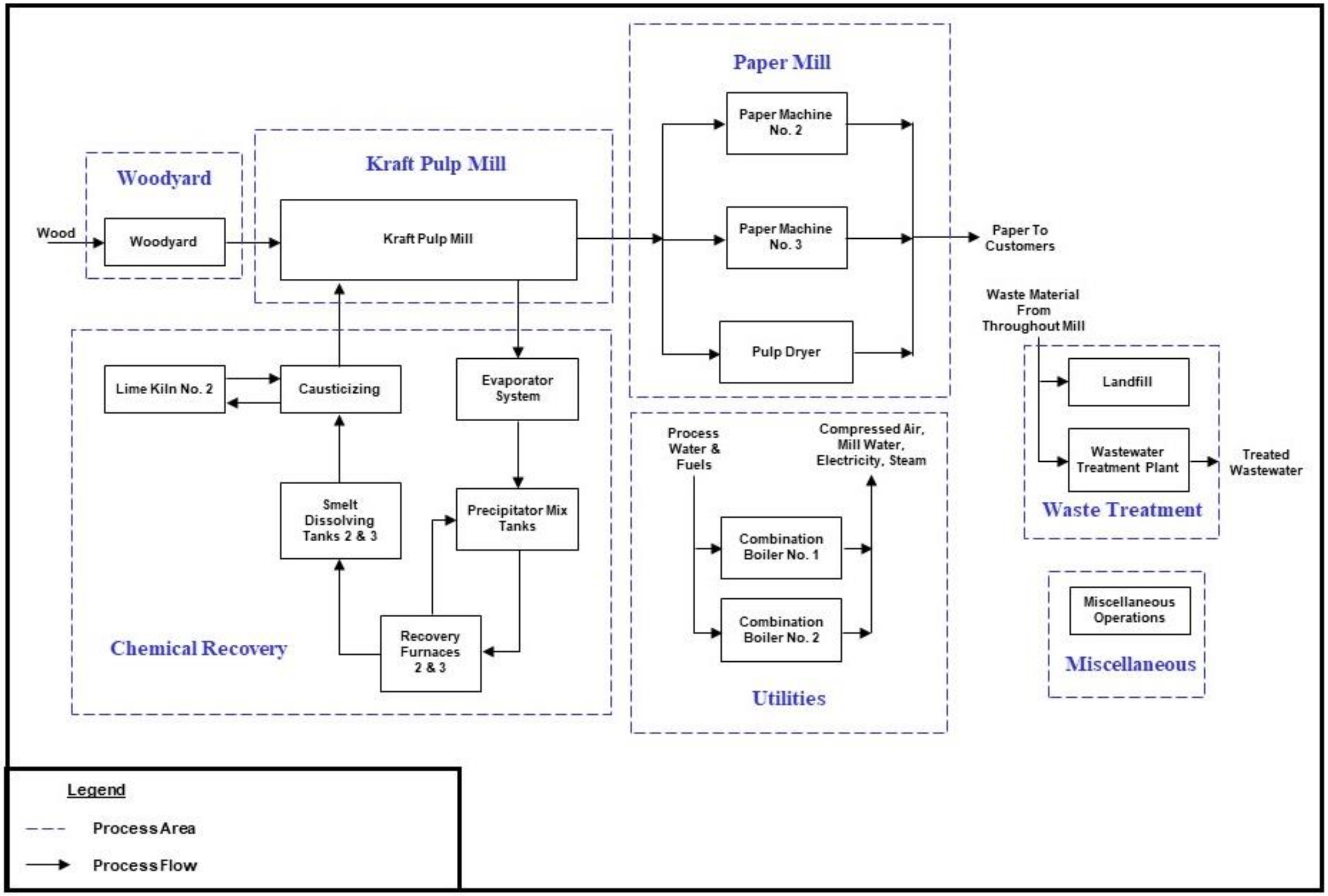
3.9 MISCELLANEOUS SOURCES

The Catawba Mill includes miscellaneous equipment and operations such as facility roads, emergency generators, storage tanks, facility maintenance activities, and lab activities.

The pumps and piping to the high density (HD) pulp storage tanks were modified to re-direct pulp from the retired No. 1 paper machine and better support unbleached pulp. The agitators in each tank were also rebuilt or replaced and the No. 4 HD storage tank was repurposed as a low density (LD) storage tank.

No modifications were required to the tanks storing black liquor, green liquor, or white liquor. The spare and weak liquor tanks are vented to the HVLC system for treatment. The pulp tank and other liquor storage tanks do not operate with emission control devices.

Figure 3-1
Simplified Mill Flow Diagram



4. NEW-INDY EVALUATION OF OPERATIONS AND PROCESSES

4.1 NEW-INDY EVALUATION OF OPERATIONS AND PROCESSES TO IDENTIFY POTENTIAL ODORS CONDUCTED IN CONSULTATION WITH NCASI

Paragraph 3 of DHEC's May 7, 2021 Order reads:

> 3. On or before June 1, 2021, complete an evaluation conducted in consultation with a nationally recognized organization, such as the National Council for Air and Stream Improvement (NCASI), to fully evaluate the current operations and processes at the Facility to identify all potential sources that could be contributing to the odors and elevated levels of H_2S on and off Facility property. The evaluation must include the recent change in operation from making bleached paper to brown paper, the wastewater treatment plant operations, the recent modifications related to the steam stripper and the hard piping of the foul condensate tank to the wastewater treatment plant, any increases in stack emissions, any changes in operation of pollution control equipment, and any uncontrolled emissions to determine if these changes are contributing to the odors in the vicinity of the Facility.

New-Indy submitted an evaluation to DHEC on June 1, 2021. This Section of the CAP describes in additional detail New-Indy's efforts in consultation with NCASI to fully evaluate current operations at the New-Indy mill to identify potential sources that could be contributing to reported odors and hydrogen sulfide emissions. As explained in Section 3, the Catawba Mill is comprised of seven distinct process areas, including the woodyard area, the kraft pulp mill area, the paper mill area, the chemical recovery area, the utilities area, the waste treatment area, and the miscellaneous area. In consultation with numerous consultants and advisors, including NCASI personnel, New-Indy conducted an evaluation of each process area to identify potential sources that could be contributing to reported odors.

New-Indy understands that the majority of odor complaints describe a "rotten egg" odor that generally is associated with H_2S. New-Indy conducted its evaluation of operations and processes as they might relate to the different types of odors generally associated with integrated kraft pulping and chemical recovery operation.

New-Indy conducted the odor evaluation, but New-Indy also engaged the assistance of eight (8) consultant and engineering firms to assist in the evaluation and corrective action planning, including TRC Consultants (air and wastewater), ALL4, Weston, NCASI personnel, EBS, LDX

LDX, E360 and Trinity. This evaluation included an intensive LDAR evaluation by E360, installation of three mobile ambient monitors and meteorological stations by TRC and a screening analysis by Weston, among many other efforts.

4.2 LDAR EVALUATION

Pursuant to the mill's Title V air permit, the mill is subject to LDAR requirements under Federal law. Leaks from manufacturing and related equipment, particularly pipes and flanges, can be potential sources of odors. After receiving the initial round of odor complaints in January and February of 2021, New-Indy engaged its LDAR consultant, E360, to conduct an intensive LDAR evaluation at the mill. The LDAR consultant conducted the evaluation of each of the mill's identified potential leak points and discovered no deficiencies in the mill's program or in the equipment. *See* Appendix A for E360's LDAR Evaluation Report.

4.3 SCREENING ANALYSIS

To attempt to identify concentrations and locations of H_2S at the mill, New-Indy engaged Weston to conduct a screening analysis of H_2S emissions. Weston conducted ambient air sampling and drafted a report that is attached hereto as Appendix B.

4.4 AMBIENT AIR MONITORS

After New-Indy conducted its initial screening with Weston, New-Indy determined that it needed additional data to quantify the impact of potential odor sources at the mill. New-Indy engaged TRC to install two ambient monitors, one on mill property, but across the road from the mill entrance at an adjacent baseball field, and one on-site near the ASB. The unit at the baseball field contained a meteorological station. Later, New-Indy determined that it needed additional monitoring data, so it installed a third monitoring station to the northeast of the mill near the Highway 5 bridge and a new meteorological monitoring station on top of the kraft pulp mill digester structure (250 feet above ground elevation, unencumbered by any nearby building structures).

The onsite ambient air monitor at Station 1 began collecting data on April 9, 2021, and the monitor at Station 2 began collecting data on April 10, 2021. The monitor at Station 3 began collecting data on April 27, 2021. The monitors at stations 2 and 3 were relocated to meet EPA's requirement to obtain fence-line data. The monitor at Station 3 remained in place. Maps of the original and current locations of those three monitors are attached hereto as Appendix C. Detailed ambient monitoring data from the three monitors is attached hereto as Appendix D. The data includes hourly average values for H_2S concentration and meteorological data. Initially, New-Indy only had a meteorological station on monitoring station 1 while the meteorological station instruments were being secured for installation on Stations 2 and 3. Now each station includes an ambient air monitor and a meteorological station.

The wind data from the meteorological station on top of the kraft digester structure has not been included due to the fact that there are individually localized meteorological stations at each of the fence line monitoring stations, which more accurately reflect the conditions at the monitors. The station on top of the digester was purchased early in the odor investigation process as a means of obtaining some site-specific data rather than that from either the Lancaster County or Rock Hill regional airports. The meteorological data from each monitoring station is more accurate since it is measured at the specific ambient monitoring station and reflects variable gradients across the mill site within each day. Therefore, no correlation has been made between the top of the digester and the site-specific meteorological data at each monitoring station. There is also a significant difference in elevation between the top of the digester and each fence-line monitoring station, adding to the incompatibility of the digester station readings to the meteorological stations.

4.5 PROCESS AREA REVIEW

As noted above, New-Indy reviewed its seven process areas to evaluate potential odor issues:

- Woodyard - Odors typically associated with the woodyard are "pine" or "wood" type odors, similar to logging and wood milling operations. These are not the types of odors about which complaints are being made. New-Indy, in consultation with its consulting professionals, concluded that the woodyard was not a likely source of the subject odors.

- Kraft pulp mill - A kraft pulping process can produce odors similar to "rotten eggs." However, the chemicals that create these odors are treated in air emission control equipment. The mill is in full compliance with its air permit conditions, including LDAR. New-Indy, in consultation with its consulting professionals, concluded that the kraft pulping process likely was not the source of the subject odors.

- Paper mill - A paper machine process can affect the wastewater treatment plant's operation, but typically only as a result of the impact of sewered waste losses on the wastewater treatment plant system. The dilution water (white water) from the paper machine overflows into the sewer to the wastewater treatment plant. Upset operating conditions in the pulp mill can cause organic and chemical carryover to the paper machine operations which will get drained out of the pulp on the machine and into the process sewer. Operational upsets in the paper machine operation can also result in pulp fiber being released to the process sewer. Both of these upset scenarios can have an impact on the wastewater treatment plant efficiencies. New-Indy, in consultation with its consulting professionals, concluded that the paper machine process itself likely was not the source of the subject odors.

- Chemical Recovery - The Chemical Recovery processes can emit odors similar to "rotten eggs." However, the chemicals that create these odors are treated in air emission control equipment. The mill is in full compliance with its air permit conditions, including LDAR. New-Indy, in consultation with its consulting professionals, concluded that the chemical recovery process likely was not the source of the subject odors.

- Utilities - The utilities process does not emit the type of odors about which complaints are being made. New-Indy, in consultation with its consulting professionals, concluded that the utilities likely were not the source of the subject odors.

- Miscellaneous sources - The miscellaneous sources do not emit the type of odors about which complaints are being made. New-Indy, in consultation with its consulting professionals, concluded that the miscellaneous sources likely were not the source of the subject odors.

- Waste Treatment - The waste treatment system can emit odors similar to "rotten eggs." These odors can occur when the wastewater is not efficiently treated in the wastewater treatment process. New-Indy and its consulting professionals concluded that the waste treatment system may be the cause of the subject odors. These low-level odors, though, do not explain the intense reactions being reported by local residents who live at long distances from the plant.

After review of the various operations and processes, and upon consultation with NCASI and its other professional consultants, New-Indy narrowed its focus to the wastewater system.

5. NEW-INDY EFFORTS TO ADDRESS ODOR COMPLAINTS

This section details New-Indy's considerable efforts to address odor complaints. New-Indy received the first odor complaint on January 22, 2021. Since that time, New-Indy has worked tirelessly to respond to the complaints, evaluate New-Indy's operations and address reported odors.

Around the time that New-Indy began receiving odor complaints, South Carolina DHEC conducted an air quality inspection, on February 22 and 23, 2021, and a wastewater inspection, on March 15, 2021, at the mill. The wastewater inspection identified a fiber layer on the surface of the ASB. The layer of fiber on the ASB was the result of initial startup operations following the conversion from bleached paper to unbleached containerboard. The layer of fiber made it difficult for personnel to reach the aerators in the ASB and conduct preventive maintenance and repairs. As a result, several aerators became inoperable.

Beginning on March 1, 2021, New-Indy began removing the layer of fiber from the surface of the ASB. This effort has continued using various methods, including cutting the rim from the forty or so feet of fiber closest to the edge of the basin and using a barge to dredge and push the fiber layer toward the edge of the ASB. That fiber layer is hauled to the No. 4 sludge pond where it is processed with other similar waste. These continuing efforts to remove the fiber layer, along with New-Indy's use of an air boat have allowed personnel to reach the aerators, conduct maintenance and repairs on those aerators and return them to service. The ASB has fifty-two aerators, and at present, 38 of those aerators are operating. In the past 30 days, New-Indy has put 10 aerators back into operation.

Also, when New-Indy began receiving odor complaints, New-Indy established a community service hotline to identify complaints. New-Indy began logging complaints, including location, time, date, mill operations assessment and wind speed and direction.

On March 5, 2021, New-Indy conducted a full odor survey with its LDAR consultant, E360. The consultant determined that there were no significant leaks that could cause offsite odors and that the plant was in compliance with its LDAR requirements under Federal law. The mill continues to complete monthly LDAR inspections with no significant leaks having been detected, and when minor leaks are discovered during the inspection, repairs are made as quickly as possible and within compliance guidelines for those repairs.

On March 8, 2021, New-Indy contacted NCASI for assistance in evaluating operations. The next day, on March 9, the mill contacted Trinity Consultants to assist in the evaluation of odor issues. The following day on March 10, 2021, Senior DHEC management visited the mill and met with mill personnel. The DHEC representatives and mill personnel reviewed the mill's progress toward identifying sources of odors, and abating odors.

On March 12, 2021, New-Indy began consultation with LDX regarding utilization of the stripper as opposed to hard piping the foul condensate. With the approval of permit TV-2440-0005-DF in July of 2019, New-Indy previously had obtained DHEC approval to idle the foul condensate steam stripper and hard pipe foul condensate to the ASB.

On March 17, 2021, New-Indy hosted two environmental consultants onsite. The first was Weston for sampling ambient emissions and emissions from process vents and stacks and multiple ambient locations throughout the mill property. The second was TRC for onsite ambient monitoring, working in concert with Weston to guide the ambient air monitoring effort and observe the wastewater treatment system. TRC returned on March 19, 2021, to observe the wastewater system and again on March 24, 2021, for additional onsite monitoring evaluations. On March 25, 2021, New-Indy purchased an odor measurement drone and hand-held equipment. Although the drone system has been purchased, only the drone has been received, as the mobile DR2000 lab measurement device has been on backorder with the manufacturing company. Therefore, New-Indy does not have odor measurement results from these devices. On March 30, 2021, TRC and another consultant (ALL4) conducted a review of the back-trajectory modeling conducted by DHEC. In accordance with Condition 5 of the Order, New-Indy will be completing an air dispersion modeling analysis following the completion of the stack testing. New-Indy will provide a report of that analysis to DHEC when it is complete.

It was important for New-Indy to determine the emissions at New-Indy's property boundary and onsite. As such, New-Indy engaged TRC to install three mobile monitoring units at the property.

One unit was located on mill property but across the road from the main entrance in a nearby baseball field. That monitor was equipped with a meteorological station. The second monitor was located in the plant property. On April 28, 2021, the third monitor was located on the property near the I-5 bridge. Appendix C indicates the location of the monitors. Appendix D provides the monitoring data for the three monitoring stations. The first onsite data was generated on approximately April 9, 2021. The monitoring data from the original monitor location begins on page 8 of Appendix D.

On April 9, 2021, New-Indy began removing solids from the equalization basin. Four days later, on April 13, 2021, New-Indy began optimizing liquor sulfidity control in the ASB. Ten days later, on April 19, 2021, New-Indy began adding calcium nitrate in the ASB to supplement oxygen as an electronic acceptor and reduce the formation of hydrogen sulfide. The mill stopped adding calcium nitrate to the ASB on June 30, 2021 because the need was eliminated after additional aerators came online and the addition of hydrogen peroxide and liquid oxygen proved successful.

During this time, New-Indy requested that Weston conduct a screening analysis to determine if high levels of H_2S were being generated at and around the mill. Weston took air samples and generated a screening report that New-Indy provided to DHEC on April 19, 2021. The Weston report is attached as Appendix B. On April 21, 2021, New-Indy began an operations project to return the stripper to operation. On April 28, 2021, TRC installed the third ambient monitor at a location near the bridge on Highway 5.

The foul condensate steam stripper was returned to operation on May 3, 2021. On that same day, New-Indy hosted consultants Valmet and Rolf Ryham to provide guidance for optimizing the performance of the recovery furnace.

On May 7, 2021, New-Indy received the DHEC order and immediately began implementing the order's requirements, in addition to continuing its odor mitigation efforts independent of the DHEC order. On May 11, 2021, New-Indy continued its No. 1 holding pond oxygen improvement levels by feeding calcium nitrate into the ASB. The site also had an air modeling meeting with TRC and a meeting with NCASI to discuss the need for NCASI to verify the emissions factors the mill used to calculate the actual and potential emissions included in the construction permit application for the change to containerboard. New-Indy had another meeting with NCASI on May

14, 2021, in which NCASI verified the mill used the correct emission factors and validated the calculations.

On May 13, 2021, New-Indy received an order from EPA. Immediately, New-Indy began implementing the requirements of the May 13 EPA order, in addition to implementing the DHEC order and continuing the mill's independent odor mitigation efforts. New-Indy engaged SFC to use a "push boat" that was mobilized on May 16, 2021, to push the fiber layer at the ASB toward the bank. SFC worked with Saiia to transport the solids from the ASB to the No. 4 sludge dewatering pond. This push boat was successful for several days, but as it moved progressively deeper into the surface solids, it reached a point where it could no longer push the material toward the dike for removal by the long arm excavator. Throughout April and May, New-Indy continued to return aerators to service. On May 26, 2021, New-Indy moved its three ambient air monitors to new locations pursuant to the EPA order. Attached as Appendix C is the current location of the monitors. Attached as Appendix D is the air emissions data generated by the monitors.

On May 26, 2021, New-Indy launched a website dedicated to facilitating communication and transparency with local residents and regulatory agencies (www.newindycatawba.com). This website includes daily reports explaining the EPA's independent hydrogen sulfide data collection as well as information about the mill. The mill also posts its daily ambient air emissions monitoring report on the website in an effort to provide transparency to the public. The website also includes public notices of any mill activities that may generate increased odor levels.

On June 8, 2021, New-Indy consulted with LDX regarding current stripper capacity and the repaired trim reflux condenser, which is used to polish the methanol capture efficiency for the stripper operation. On June 8, 2021, New-Indy personnel participated in Scentroid TR8 + Pollutracker training to learn how to use the instrument to measure ambient concentrations on both instantaneous and longer term (24-hour) measurement periods. New-Indy also removed the trim reflux condenser from the stripper for repairs in an effort to increase stripper capacity. These repairs are ongoing and the unit has not been reinstalled. Any potential increase in capacity resulting from those repairs will be evaluated and confirmed once the unit is operational. The pilot study requests and DHEC approvals for the new aerators and the hydrogen peroxide feed are provided in Appendix E. On June 9, 2021, New-Indy improved the oxygen transfer into No. 1

holding pond by installing two aerators and injecting peroxide into the waste stream. On June 9, 2021, the Post-Aeration Basin tank at the wastewater outfall was upfitted with a new cover and carbon filter. Also on that day, personnel began using the TR8 + Pollutracker handheld device in the field to measure ambient levels of H_2S at various locations and evaluate the initial inlet and discharge concentrations around the pilot activated carbon filtration system. Also in June, the plant continued to remove ASB fiber layer using a barged-mounted long-reach excavator in addition to a long-reach excavator from the bank.

6. CORRECTIVE ACTION PLAN – CONDITION 6

6.1 H_2S SOURCE EVALUATION

Condition 3 of the DHEC Order required New-Indy to complete the following:

> On or before June 1, 2021, complete an evaluation conducted in consultation with a nationally recognized organization, such as the National Council for Air and Stream Improvement (NCASI), to fully evaluate the current operations and processes at the Facility to identify all potential sources that could be contributing to the odors and elevated levels of H_2S on and off Facility property. The evaluation must include the recent change in operation from making bleached paper to brown paper, the wastewater treatment plant operations, the recent modifications related to the steam stripper and the hard piping of the foul condensate tank to the wastewater treatment plant, any increases in stack emissions, any changes in operation of emission control equipment, and any uncontrolled emissions to determine if these changes are contributing to the odors in the vicinity of the Facility.

New-Indy consulted with NCASI in May 2021 and confirmed the emissions estimates contained in the 2019 and 2020 air permit applications were correctly applied and generally representative of the conversion from manufacturing bleached paper to brown paper.

The H_2S and TRS (H_2S, methyl mercaptan, dimethyl disulfide and dimethyl sulfide) emissions from each area of the mill are reviewed in the following sections. A summary of the H_2S and TRS emissions are provided in Table 6-1.

6.1.1 Woodyard

No modifications were required to the woodyard to support manufacturing unbleached pulp. The woodyard does not operate with emission control devices. There are no known H_2S or TRS emissions from the woodyard.

6.1.2 Kraft Pulp Mill

The conversion to brown paper increased the virgin pulp yield by tripling the Kappa number from less than 30 for bleached pulp to over 90 for unbleached pulp. Kappa number is a key test method for determining the level of lignin remaining in a sample of digested pulp. The Kappa number indicates the “harshness” of the cook, lower Kappa being a harsher cook than higher Kappa. The higher Kappa number (less harsh cooking conditions) dissolves fewer organics from the wood, thereby producing more tons of virgin pulp using the same amount of raw materials (wood and with fewer cooking liquor chemicals).

With the exception of the pulp storage tanks after pulp washing, the kraft pulp mill sources are collected and routed to the non-condensable (NCG) system, and H_2S and TRS emissions are controlled through incineration in the combination boilers.

Source testing of both the No. 1 and No. 2 combination boilers will be conducted by New-Indy, in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from, and verified by, NCASI. The No. 1 and No. 2 combination boilers will also be tested for SO_2 while combusting NCG and SOG together and NCG alone.

6.1.3 No. 2 Paper Machine

The No. 2 paper machine was not modified and remains available should market conditions create an opportunity for its production capabilities to be utilized. The No. 2 off-machine coaters have been retired from service. The No. 2 paper machine does not operate with emission control devices. The No. 2 paper machine has not returned to operation following the conversion.

6.1.4 No. 3 Paper Machine

The No. 3 paper machine was extensively modified to convert from manufacturing coated paper to linerboard. The No. 3 paper machine does not operate with emission control devices. New-Indy conducted a screening study of one No. 3 paper machine vent, and no measurable TRS emissions were present in the vent gases. Source testing of the No. 3 paper machine will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI.

6.1.5 Pulp Dryer

The pulp dryer stock screening system was configured by modifying the stock screening system from the No. 1 paper machine (which was retired) to support manufacturing unbleached market pulp. The pulp dryer does not operate with emission control devices. Source testing of the pulp dryer will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI.

6.1.6 Evaporator System

The No. 1 evaporator set was modified to operate as a five-effect system to increase the evaporation rate to account for the reduction in the solids content of the weak black liquor from the repurposed washers following the conversion to unbleached pulp. No modifications were required to the No. 2 and No. 3 evaporator sets to support manufacturing unbleached pulp.

Emissions from the processing of black liquor through the evaporator sets are collected and treated in the low volume high concentration (LVHC) NCG system. The LVHC NCG System collects vapors from the evaporator hotwells and turpentine system vents. The LVHC NCG system is equipped with an in-line caustic scrubber to capture non-condensable sulfur compound vapors from the gas stream prior to incineration in either the No. 1 or No. 2 combination boiler.

No modifications were required for the LVHC NCG system to support manufacturing unbleached pulp. The Kappa change results in TRS emissions 16% lower per ton of pulp production based on information provided by NCASI.

Source testing of both the No. 1 and No. 2 combination boilers will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI. The No. 1 and No. 2 combination boilers will also be tested for SO_2 while combusting NCG and SOG together and NCG alone.

6.1.7 Recovery Furnaces

No modifications were required to the No. 2 and No. 3 recovery furnaces to support manufacturing unbleached pulp. No modifications were required for the ESPs serving the No. 2 and No. 3 recovery furnaces to support manufacturing unbleached pulp.

6.1.8 Smelt Dissolving Tanks

Smelt dissolving tanks No. 2 and No. 3 are equipped with a caustic scrubber to reduce particulate matter (PM) and TRS emissions.

No modifications were required to the smelt dissolving tanks to support manufacturing unbleached pulp. No modifications were required for the caustic scrubber serving the No. 2 and No. 3 smelt dissolving tanks to support manufacturing unbleached pulp.

New-Indy will conduct source testing of the smelt dissolving tank vent to confirm the original H_2S and TRS emissions estimates based on information from NCASI.

6.1.9 Precipitator Mix Tanks

No modifications were required to the precipitator mix tanks to support manufacturing unbleached pulp. The precipitator mix tanks vent through the recovery furnaces, and no modifications to the venting were required to support manufacturing unbleached pulp. Therefore, emissions reported from the recovery furnaces reflect the emissions from these sources.

6.1.10 Causticizing Area

No modifications were required to the causticizing area to support manufacturing unbleached pulp. No modifications were required for the slaker scrubber to support manufacturing unbleached pulp. The causticizing area is a high pH process, and no H_2S emissions are expected. In addition, the causticizing area uses fresh water and no change in TRS emissions is expected.

6.1.11 Lime Kiln

No modifications were required to the No. 2 lime kiln to support manufacturing unbleached pulp. No modifications were required for the lime kiln ESP to support manufacturing unbleached pulp.

6.1.12 Combination Boilers

The combination boilers also incinerate the NCG gases collected from the kraft pulp mill, the chemical recovery evaporator sets and turpentine recovery system, and the foul condensate steam stripper to control emissions of TRS compounds and HAPs. The kraft pulp mill NCG collection system was modified to collect gases from the new refiners and screw presses and the repurposed brown stock washers.

No modifications were required to the combination boilers to support manufacturing unbleached pulp. No modifications were required for the ESPs serving the No. 1 and No. 2 combination boilers to support manufacturing unbleached pulp.

Incineration of the NCG gases is continuously monitored using the flame failure systems on each boiler. The NCG collection systems are also monitored monthly and annually for leaks following the Catawba Mill LDAR program.

Source testing of both the No. 1 and No. 2 combination boilers will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI. The No. 1 and No. 2 combination boilers will also be tested for SO_2 while combusting NCG and SOG together and NCG alone.

6.1.13 Condensate Collection and Treatment System

The condensate treatment system was modified to use the hard piping option to biologically treat the foul condensate in the ASB. The hard pipe has no emissions points.

The foul condensate steam stripper was repaired and returned to service in May 2021. No modifications to the stripper-off-gases (SOG) NCG system were required to support returning the steam stripper to service or manufacturing unbleached pulp.

Source testing of the steam stripper will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI.

6.1.14 Wastewater Treatment System

The ASB was modified by increasing the diameter of the hard pipe below the liquid surface near the entrance to the ASB. The wastewater treatment system does not operate with emission control devices.

Please see Section 7 for a detailed discussion of the wastewater treatment system.

6.1.15 Industrial Landfill

No modifications were required to the industrial landfill to support manufacturing unbleached pulp. The landfill does not operate with emission control devices. There are no known H_2S or TRS emissions from the landfill. The landfill is permitted for disposal of industrial wastes, reburned lime, lime mud, boiler ash, green liquor dregs and slaker grits. The landfill wastes are covered to minimize windblown materials, landfill odors, and attracting vectors. These wastes are mostly inert materials with elevated pH having little potential for generating H_2S when covered. The landfill is also permitted for disposal of the belt press sludge, however in practice, the sludge is deposited in the No. 4 sludge pond in the wastewater treatment system, not the industrial landfill. The landfill does not operate with emission control devices. There are no known H2S or TRS emissions from the landfill. Liquor sludges have not been deposited in the landfill. Therefore, a landfill gas study is not planned.

6.1.16 Miscellaneous Sources

The pumps and piping to the high density (HD) pulp storage tanks were modified to re-direct pulp from the retired No. 1 paper machine and better support unbleached pulp. The agitators in each tank were also rebuilt or replaced, and the No. 4 HD storage tank was repurposed as a low density (LD) storage tank.

No modifications were required to the tanks storing black liquor, green liquor, or white liquor. Emissions from the spare and weak liquor tanks are vented to the HVLC system for treatment. The remaining pulp and liquor storage tanks do not operate with emission control devices. The emissions from all storage tanks were estimated using information from NCASI. No change to the storage tank emissions is expected based on the reduction in TRS due to the Kappa change.

No modifications were required to the other miscellaneous sources to support manufacturing unbleached pulp.

6.2 CORRECTIVE ACTION PLAN – CONDITION 6

Condition 6 of the DHEC Order required New-Indy to complete the following:

> On or before June 15, 2021, submit to the Department a report of the evaluation conducted in Step 3 above and, for review, comment, and approval; a corrective action plan (CAP) (developed and stamped by a South Carolina-registered Professional Engineer (PE)) and a schedule of implementation, which addresses operational issues identified in the above-referenced evaluation as contributing to the odor. The schedule of implementation shall include specific dates or timeframes for initiation and the completion of each action and details as to how each action addresses the odor and operational issues noted above.

The corrective actions for each area of the mill are reviewed in the following sections.

6.2.1 Woodyard

No operational issues or corrective actions have been identified for the woodyard.

6.2.2 Kraft Pulp Mill

Source testing of both the No. 1 and No. 2 combination boilers will be conducted by New-Indy in accordance with Condition 5 of the DHEC Order to confirm the original H_2S and TRS emissions estimates based on information from NCASI. The No. 1 and No. 2 combination boilers will also be tested for SO_2 while combusting NCG and SOG together and NCG alone.

No operational issues or corrective actions have been identified for the kraft pulp mill pending the results of the source testing required by Condition 5 of the DHEC Order.

6.2.3 No. 2 Paper Machine

No operational issues or corrective actions have been identified for the No. 2 paper machine.

6.2.4 No. 3 Paper Machine

Source testing of the No. 3 paper machine will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI.

No operational issues or corrective actions have been identified for the No. 3 paper machine pending the results of the source testing required by Condition 5 of the DHEC Order.

6.2.5 Pulp Dryer

Source testing of the pulp dryer will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI.

No operational issues or corrective actions have been identified for the pulp dryer pending the results of the source testing required by Condition 5 of the DHEC Order.

6.2.6 Evaporator System

Source testing of both the No. 1 and No. 2 combination boilers will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI. The No. 1 and No. 2 combination boilers will also be tested for SO_2 while combusting NCG and SOG together and NCG alone.

No operational issues or corrective actions have been identified for the evaporator system pending the results of the source testing required by Condition 5 of the DHEC Order.

6.2.7 Recovery Furnaces

As required by Title V Permit Conditions C.54 and C.55, the TRS emissions from the recovery furnaces are continuously monitored and recorded to verify continuous compliance. Semi-annual reports are submitted to DHEC including all 12-hour average TRS concentrations exceeding the applicable TRS emissions limits. The mill calibrates, maintains, and operates the TRS monitors in accordance with the applicable requirements of 40 CFR 60.284(f), 40 CFR 60.13, and Performance Specifications 1, 3, and 5 of Appendix B of 40 CFR, Part 60. The Mill will continue to meet the applicable TRS emissions limits for both recovery furnaces.

No operational issues or corrective actions have been identified for the No. 2 and No. 3 recovery furnaces.

6.2.8 Smelt Dissolving Tanks

New-Indy will conduct source testing of the smelt dissolving tank vent to confirm the original H_2S and TRS emissions estimates based on information from NCASI.

No operational issues or corrective actions have been identified for the No. 2 and No. 3 smelt dissolving tanks pending the results of the source testing conducted by New-Indy.

6.2.9 Precipitator Mix Tanks

The precipitator mix tanks are vented through the recovery furnaces and would be reflected in the emissions from those sources.

No operational issues or corrective actions have been identified for the precipitator mix tanks.

6.2.10 Causticizing Area

The causticizing area is a high pH process, and no H_2S emissions are expected. The causticizing area uses fresh water, and no change in TRS emissions is expected.

No operational issues or corrective actions have been identified for the causticizing area.

6.2.11 Lime Kiln

As required by Title V Permit Condition C.58, the TRS emissions from the lime kiln are continuously monitored and recorded to verify continuous compliance. Semi-annual reports are submitted to DHEC including all 12-hour average TRS concentrations exceeding the applicable TRS emissions limit. The mill calibrates, maintains, and operates the TRS monitor in accordance with the applicable requirements of 40 CFR 60.284(f), 40 CFR 60.13, and Performance Specifications 1, 3, and 5 of Appendix B of 40 CFR, Part 60. The Mill will continue to meet the applicable TRS emissions limits for the lime kiln. No operational issues or corrective actions have been identified for the No. 2 Lime Kiln.

6.2.12 Combination Boilers

Incineration of the NCG gases is continuously monitored using the flame failure systems on each boiler. The NCG collection systems are also monitored monthly and annually for leaks following the Catawba Mill LDAR program.

Source testing of both the No. 1 and No. 2 combination boilers will be conducted by New-Indy, in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI. The No. 1 and No. 2 combination boilers will also be tested for SO_2 while combusting NCG and SOG together and NCG alone. No operational issues or corrective actions have been identified for the No. 1 and No. 2 combination boilers pending the results of the source testing required by Condition 5 of the DHEC Order.

6.2.13 Condensate Collection and Treatment System

Source testing of the foul condensate steam stripper will be conducted by New-Indy in accordance with Condition 5 of the DHEC order to confirm the original H_2S and TRS emissions estimates based on information from NCASI.

No operational issues or corrective actions have been identified for the foul condensate steam stripper pending the results of the source testing required by Condition 5 of the DHEC Order.

6.2.14 Wastewater Treatment System

Please see Section 7 for a detailed discussion of the wastewater treatment system operational issues and corrective actions.

6.2.15 Industrial Landfill

No operational issues or corrective actions have been identified for the landfill.

6.2.16 Miscellaneous Sources

No operational issues or corrective actions have been identified for the miscellaneous sources.

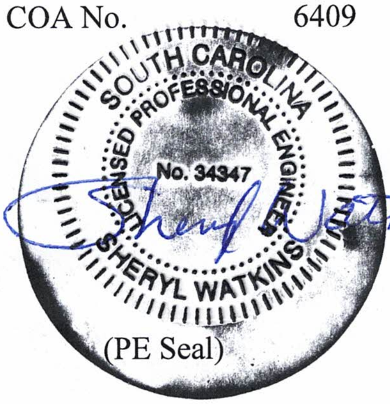
6.3 PROFESSIONAL ENGINEERING CERTIFICATION

Name: Sheryl Watkins, P.E.

S.C. Registration No. 34347

Company: ALL4 LLC

COA No. 6409



Sheryl Watkins

7-12-21

(PE Seal)

Table 6-1
Summary of H_2S and Other TRS Compound Emissions

SOURCE OF H2S	H2S Bleached Mill (Stripper) Controlled maximum lb/hr	H2S Bleached Mill (Stripper) Percent percent of total	H2S Brown Mill (Hard Pipe) Controlled maximum lb/hr	H2S Brown Mill (Hard Pipe) Percent percent of total	H2S Brown Mill (Combo) Controlled maximum lb/hr	H2S Brown Mill (Combo) Percent percent of total	TRS Bleached Mill (Stripper) Controlled maximum lb/hr	TRS Bleached Mill (Stripper) Percent percent of total	TRS Brown Mill (Hard Pipe) Controlled maximum lb/hr	TRS Brown Mill (Hard Pipe) Percent percent of total	TRS Brown Mill (Combo) Controlled maximum lb/hr	TRS Brown Mill (Combo) Percent percent of total	TRS/H2S Control	Compliance Monitoring	Condition 3 Operational Evaluation	Condition 6 Corrective Action Plan
Kraft Mill NCG System	0.35	6.7%	0.43	8.1%	0.43	8.2%	1.24	1.9%	1.60	2.8%	1.60	3.1%	Incineration in Combination Boilers	Flame Failure System CMS	Source test required by Condition 5 to confirm expected emissions	No corrective actions identified pending source test results
Stripper Off Gases	0.70	13.3%	N/A	N/A	0.37	7.0%	3.48	5.4%	N/A	N/A	1.84	3.5%	Incineration in Combination Boilers	Flame Failure System CMS	Source test required by Condition 5 to confirm expected emissions	No corrective actions identified pending source test results
Recovery Furnace #2	0.16	3.0%	0.16	3.0%	0.16	3.0%	0.27	0.4%	0.27	0.5%	0.27	0.5%	Good combustion practices	TRS CEMS	maintain TRS emissions limit and monitoring	No corrective actions identified
Smelt Dissovling Tank #2	0.28	5.4%	0.28	5.3%	0.28	5.3%	0.37	0.6%	0.37	0.7%	0.37	0.7%	scrubber flow and pressure drop	Stack testing and scrubber CMS	Source test being conducted to confirm current emissions	No corrective actions identified pending source test results
Recovery Furnace #3	0.29	5.5%	0.29	5.4%	0.29	5.5%	0.49	0.8%	0.49	0.9%	0.49	0.9%	Good combustion practices	TRS CEMS	maintain TRS emissions limit and monitoring	No corrective actions identified
Smel Dissolving Tank #3	0.51	9.7%	0.51	9.6%	0.51	9.7%	0.67	1.0%	0.67	1.2%	0.67	1.3%	scrubber flow and pressure drop	Stack testing and scrubber CMS	Source test being conducted to confirm current emissions	No corrective actions identified pending source test results
Lime Kiln #2	0.97	18.4%	0.97	18.2%	0.97	18.3%	0.97	1.5%	0.97	1.7%	0.97	1.9%	Good combustion practices	TRS CEMS	maintain TRS emissions limit and monitoring	No corrective actions identified
Causticizing Area	N/A	N/A	N/A	N/A	N/A	N/A	0.40	0.6%	0.40	0.7%	0.40	N/A	none	none	no change in emissions identified	No corrective actions identified
Precipitator Mix Tanks	N/A	N/A	N/A	N/A	N/A	N/A	0.02	0.0%	0.02	0.0%	0.02	N/A	none	none	no vents to atmosphere, sources vent into recovery furnaces	No corrective actions identified
Paper Machine #2	N/A	N/A	N/A	N/A	N/A	N/A	0.75	1.2%	0.75	1.3%	0.75	N/A	none	none	source not currently in operation	No corrective actions identified
Paper Machine #3	N/A	N/A	N/A	N/A	N/A	N/A	3.13	4.8%	3.13	5.6%	3.13	N/A	none	none	Source test required by Condition 5 to confirm expected emissions	No corrective actions identified pending source test results
Pulp Dryer	N/A	N/A	N/A	N/A	N/A	N/A	0.85	1.3%	0.85	1.5%	0.85	N/A	none	none	Source test required by Condition 5 to confirm expected emissions	No corrective actions identified pending source test results
HD Pulp Storage Tanks	N/A	N/A	N/A	N/A	N/A	N/A	9.20	14.2%	9.20	16.4%	9.20	N/A	none	none	no change in emissions identified	No corrective actions identified
LD Pulp Storage Tanks	N/A	N/A	N/A	N/A	N/A	N/A	3.30	5.1%	3.30	5.9%	3.30	N/A	none	none	no change in emissions identified	No corrective actions identified
Weak Black Liquor StorageTanks	0.15	2.9%	0.15	2.9%	0.15	2.9%	1.41	2.2%	1.41	2.5%	1.41	2.7%	none	none	no change in emissions identified	No corrective actions identified
Strong Black Liquor Storage Tanks	0.25	4.6%	0.25	4.6%	0.25	4.6%	1.35	2.1%	1.35	2.4%	1.35	2.6%	none	none	no change in emissions identified	No corrective actions identified
White Liquor Storage Tanks	0.02	0.3%	0.02	0.3%	0.02	0.3%	1.77	2.7%	1.77	3.2%	1.77	3.4%	none	none	no change in emissions identified	No corrective actions identified
Green Liquor Storage Tanks	N/A	N/A	N/A	N/A	N/A	N/A	0.20	0.3%	0.20	0.4%	0.20	0.4%	none	none	no change in emissions identified	No corrective actions identified
ASB Zone 1	0.81	15.4%	1.64	30.7%	1.22	23.2%	17.76	27.4%	21.22	37.8%	15.46	29.7%	none	none	See Condition 7	See Condition 7
ASB Zone 2	0.44	8.4%	0.36	6.8%	0.36	6.7%	9.75	15.0%	4.66	8.3%	4.49	8.6%	none	none	See Condition 7	See Condition 7
ASB Zone 3	0.34	6.5%	0.27	5.2%	0.27	5.1%	7.47	11.5%	3.56	6.3%	3.43	6.6%	none	none	See Condition 7	See Condition 7
TOTAL EMISSIONS (stk + fug)	5.27		5.33		5.28		64.85		56.18		51.98					

7. CORRECTIVE ACTION PLAN – WASTEWATER TREATMENT IMPROVEMENTS NEW-INDY – CATAWBA, SC

7.1 INTRODUCTION

Paragraph 7 of the SC DHEC's May 7, 2021 Order reads:

> On or before June 15, 2021, and to the extent not included in Step 6 above, submit to the Department, for review, comment and approval, a corrective action plan (CAP) (developed and stamped by a South Carolina-registered Professional Engineer (PE)) and a schedule of implementation, which addresses operational issues at the Facility wastewater treatment plant that may be causing or contributing to odor and elevated levels of H_2S. This CAP shall include, but not be limited to, a comprehensive evaluation of the wastewater treatment plant to determine if adequate and appropriate facultative waste treatment is occurring in the aerated stabilization basin (ASB) and the potential for odors resulting from the discharge of foul condensate into the wastewater treatment plant. The CAP shall address the significant fiber and sludge accumulation and foam occurring in the ASB and identify their respective source(s). Additionally, the CAP shall include a study of the microbial concentration in the ASB to determine if there is an adequate microbial population to aid in the reduction of foam on the ASB. The schedule of implementation shall include specific dates or timeframes for initiation and the completion of each action and details as to how each action addresses the odor and wastewater treatment system operational issues noted above. The schedule of implementation of specific corrective action steps proposed under the CAP will be evaluated by the Department and comments provided to New-Indy within five calendar days. New-Indy shall address all comments by the Department and submit a final approvable CAP within five calendar days of Department comment. Upon Department approval, the schedules(s) and corrective actions contained within the CAP shall be incorporated into and become an enforceable part of this Order.

This CAP has been written to meet the requirements of Paragraph 7.

7.2 COMPREHENSIVE EVALUATION OF WASTEWATER TREATMENT SYSTEM

New-Indy retained EBS and TRC to evaluate the wastewater treatment system with regard the following:

- Operational issues that may be causing or contributing to odor and elevated levels of hydrogen sulfide;
- Whether adequate and appropriate waste treatment is occurring in the ASB;
- The potential for odors resulting from the discharge of foul condensate into the treatment system;
- The accumulation of fiber, foam, and sludge accumulation and their sources; and

- A study of the microbial population in the ASB with regard to reducing the fiber layer and providing biological degradation of BOD_5.

New-Indy's wastewater treatment system is comprised of primary bar screening, a primary clarifier, a primary solids EQ basin (historically referred to as the No. 3 sludge basin), the ASB, two treated effluent holding ponds (No. 1 and No. 2 holding ponds), the temporary treated effluent storage basin (No. 5 basin), a tertiary treatment color removal plant (currently out of service), a post-aeration basin, the No. 4 sludge pond, and a multi-port effluent diffuser in the river. The No. 1 sludge pond currently receives backwash and river mud from the mill's raw water filtration plant, and the No. 2 sludge pond is currently out of service.

A wastewater treatment system process flow diagram is provided as Appendix F Over the last several years the process flow diagram has changed, most notably as the management of primary clarifier solids and foul condensates has changed.

Prior to 2016, primary solids were either pumped to the No. 4 sludge pond directly for settling and decanting or were pumped to a sludge dewatering system where the dewatered solids were placed in No. 4 sludge pond. In 2016, clarifier solids were redirected to the EQ basin in an effort to thicken and homogenize the sludge before being excavated through hydraulic dredging and dewatering or long-reach excavators for placement in No. 4 sludge pond. The process flow diagram submitted for NPDES and construction permitting was revised accordingly.

The process flow diagram has also been revised to reflect changes in the way foul condensates have been managed. The original hard pipe was installed in 1999 (as described in Section 3.8.2 above) and conveyed foul condensates to the EQ basin (which at the time was used as a wastewater EQ basin). In 2000, the foul condensate steam stripper was installed as the MACT Subpart S compliance option. The original hard pipe remained in place but was not used for demonstrating compliance with Subpart S. During the mill conversion outage in 2020, a new hard pipe was installed to cell 1 of the ASB to replace the stripper for MACT compliance. This change was not reflected on the process flow diagram submitted to DHEC as part of the September 2019 NPDES permit modification application package reflecting conversion to unbleached operations because at the time, the decision to discontinue use of the stripper had not been made by the mill. The process flow diagram was revised to reflect the new ASB hard pipe in revisions to the mill O&M

manual in May 2021. The current process flow diagram reflecting anticipated wastewater flowrates and current wastewater treatment system layout is included in Appendix F.

7.2.1 Operational issues that may be causing or contributing to odor and elevated levels of hydrogen sulfide

H_2S emissions can originate in a wastewater treatment basin in two ways. The first source of emissions is H_2S that has been produced upstream of the wastewater treatment system and volatilizes when exposed to mixing or agitation in the aeration basin or holding pond. Minimization of this source of H_2S is generally accomplished via subservice diffusion and oxygenation of the wastewater through proper aeration and mixing. The second source of H_2S is the formation of H_2S by sulfate reducing bacteria in unaerated or less aerated areas in the ASB or holding pond.

An aerobic biological treatment system utilizes aeration and bacterial metabolism to convert biodegradable compounds (BOD) in the wastewater into additional bacteria, water, and carbon dioxide, an odorless gas. In the absence of sufficient dissolved oxygen, the bacterial population will shift to a sulfate reducing scenario, where sulfate replaces oxygen as the terminal electron acceptor, with resultant H_2S formation.

TRC performed site visits to the facility on March 17 and March 19, 2021, to observe the conditions of the wastewater treatment system. EBS performed site visits on May 11, May 25, and June 9, 2021, to observe system conditions and to collect process evaluation samples. Discussions regarding EBS's process control data is provided in Section 7.2.2 below, but in general, the conditions observed indicated a floating layer of fiber on portions of the ASB and accumulated solids in the EQ basin. Effluent from the primary clarifier weir appeared typical of effluent from paper mill primary clarifiers.

The predominant issues that have hindered aeration and mixing in the ASB have been the formation of the floating layer of fiber and the accumulation of settled solids. Excess fiber loading into the ASB combined with production liquor losses has led to the formation of a thick, floating layer of fiber and covering areas of the early aerated zone. The fiber and liquors losses arose during mill conversion and recommissioning. The floating solids layer contributed to the breakdown of multiple aerators in the front end of the system. This loss of aeration capacity led to a reduction in biological treatment capacity and resulted in reduced aerobic or anaerobic conditions. Sulfate reducing bacteria when present under anaerobic conditions metabolize BOD by utilizing sulfate as a terminal electron acceptor when there is no dissolved oxygen present, thus producing H_2S as a byproduct. The floating solids also represent biodegradable material that dissolve over time, adding additional oxygen demand to the system.

The accumulated solids in the ASB have reduced the hydraulic residence time in the basin for treatment and impacted the flow path through the basin. Solids accumulation occurs from solids loading in the influent as well as settling of biomass generated as part of normal biological treatment. The influent loading comes from solids that may not have been removed during the primary clarification process or primary solids that have become re-entrained in wastewater due to the primary clarifier underflow in the EQ basin.

The reduced treatment efficiency and less aerated conditions caused by the floating fiber layer and accumulated solids and H_2S production appears to have contributed to elevated concentrations of H_2S in the effluent from the ASB to No. 1 holding pond. No. 1 holding pond retains wastewater prior to undergoing post-treatment aeration in the post-aeration basin. In the post-aeration basin, large surface aerator/mixers aerate the wastewater in a rectangular, concrete basin. This aeration has the potential of releasing hydrogen sulfide that may be in the wastewater.

Additionally, the reduced retention time, inoperable aerators, and biodegradable solids (floating sludge) all may have contributed to higher-than-normal soluble BOD levels in the water leaving the ASB and entering the No. 1 holding pond. While the BOD levels of this water met the requirement for discharge to the receiving stream, the additional BOD served as an oxygen demand in the unaerated No. 1 holding pond, which appears to have resulted in additional sulfate reduction and H_2S formation.

On June 9, 2021, the facility installed a flexible cover, blower and carbon filtration system to capture emissions from the post-aeration basin and treat the off gasses through a carbon filtration system to reduce the H_2S concentration. This is a temporary solution until a permanent solution is identified. Based on initial feedback from New-Indy's consultants, a carbon (or other media) filtration system may not be required in the long-term, depending upon the final conditioning of No. 1 holding pond's contents. Additionally, New-Indy is investigating alternative solutions to media filtration. The ultimate need (or lack of) for treatment at the post aeration basin will be determined by the data collected from the ambient monitoring Station 1. Short-term results continue to indicate that capturing and filtering the air from the post aeration basin is reducing the amount of H_2S at Station 1.

New-Indy has collected isolated grab samples at both the inlet and discharge of the temporary filtration unit to validate its ability to scrub H_2S. However, the unit has been operating for too short a period to draw scientific conclusions. With time, New-Indy will establish valid operating parameters once enough data points are available to establish a baseline. New-Indy is currently measuring the removal efficiency of the filtration system once every two weeks. After the filter has been operating for four months, the testing frequency will increase to every week. Although, the few data points established are helpful in determining the first replacement cycle for the filtration media, which is expected to be after six months of use. New-Indy is also evaluating better media options for extended operation of this temporary system.

The increase of foul condensate loading to the ASB through the hard pipe option under the Title V permit and MACT Subpart S appears to have increased the load of both BOD_5 and sulfur compounds. The loading of the anticipated foul condensate and anticipated wastewater from the converted, unbleached manufacturing operations into the ASB was modeled in 2019 utilizing NCASI’s Simulated Aerated Stabilization Basin Model (Version 4.2). The ASB parameters in the model were established using the 2015 solids survey results based on the facility’s assumption that additional sludge accumulation since 2015 was approximately equal to the amount of sludge that was removed as part of maintenance dredging since that time. The 2019 modeling indicated that the ASB could sufficiently treat the foul condensate and enable the wastewater treatment system and comply with current (and anticipated) NPDES permit requirements. After the conversion and restarting of the mill, however, the thick layer of fiber formed on the basin reducing the aeration capacity of the basin. This reduced aeration capacity and sludge accumulation that has reduced mixing and disruption of the flow path through the basin have hindered the basin’s ability to perform as modeled. The two main operational issues in the ASB that pose the potential of causing or contributing to elevated levels of hydrogen sulfide have been the formation of the floating fiber layer and the accumulation of settled solids. Addressing the floating fiber layer and regaining a portion of treatment volume by removing sufficient solids in strategic areas of the ASB are recommended and included as corrective actions in Section 7.3.

7.2.2 Adequacy and appropriateness of waste treatment that is occurring in the Aerated Stabilization Basin

New-Indy's ASB is of typical design for an integrated pulp and paper mill. An ASB operates by both providing sufficient residence time for biological treatment of organic wastes as well as providing for the settling and digestion of biomass essential to the operation of the basin. An ASB accomplishes biological treatment and sludge digestion through two layers. The upper layer is typically well mixed and aerated with the use of floating aerators. Soluble BOD_5 serves as a food source to microscopic biota in this upper layer thus reducing the BOD_5 concentration in the wastewater. As the BOD_5 is consumed, additional biomass is produced to continue the treatment process.

As biomass accumulates in the lower layer, some of the solids settle to the basin bottom and begin to undergo digestion in anoxic conditions, which are by design out of reach of the aeration and mixing energy from the surface aerators. As the biomass degrades, it releases some BOD_5 and nutrients. As this layer is anaerobic, there is the potential for H_2S to form. NCASI's Technical Bulletin No. 1000 discusses H_2S formation in the bottom, anaerobic layer. *See* "Mechanistic Approach for Estimating Hydrogen Sulfide Emissions from Wastewater Treatment Plants" (December 2012). As described in the Technical Bulletin, H_2S can form in the pore water of the settled sludge in this anaerobic layer because of low oxygen conditions and the presence of sulfates and organic matter. The fractionation between H_2S and HS- is pH dependent, as pH increases less H_2S is formed. H_2S is highly soluble in water. During normal operations with a well aerated upper layer, the soluble H_2S is oxidized in the upper, aerobic layer of the ASB. Some H_2S formed in the bottom layer can also become entrained in bubbles formed from the digestion of sludge. These bubbles can reach the surface but are mostly comprised of methane, carbon dioxide, and nitrogen with only trace amounts of H_2S.

Along with H_2S, BOD_5 released during sludge digestion gets treated in the upper layer, and nutrients released during sludge digestion are reused in the process to support continued biomass growth. This release of nutrients and BOD_5 from the degradation of biomass at the bottom is referred to as "benthic feedback" and is an important step in the ASB treatment process. Not all the biomass that settles to the basin bottom digests, and this accumulated sludge can begin reducing the working volume of the basin thus reducing the residence time for treatment.

Unlike an activated sludge system that concentrates biomass in the mixed liquor through the return of a portion of settled secondary sludge, an ASB operates with a much lower density of biomass and achieves high removal efficiencies, not through high concentrations of mixed liquor biomass but instead through extended residence times. The large volumes of typical ASBs that provide the high residence time for treatment also make ASBs less susceptible to slug discharges of high organic strength, pH swings, and hydraulic loading spikes that can plague activated sludge systems. In addition, by design, ASBs generate less sludge for disposal than activated sludge systems and require less energy to operate. ASBs also require less nutrient loading because of the inherent "benthic feedback" nutrient recycle process.

New-Indy has routinely collected samples from the ASB influent, effluent and within the ASB for process control parameters such as BOD_5, TSS, pH and temperature. A summary of this data is provided as follows:

- February 2021:
  - ASB Inlet
    - Monthly Average Flow: 26 MGD
    - Monthly Average Total BOD Concentration: 407 mg/L
    - Monthly Average Filtered BOD Concentration: 369 mg/L
    - Monthly Average Temperature: 95 °F
    - Monthly pH Range: 5.8 – 10.5 s.u.
  - ASB Outlet
    - Monthly Average Total BOD Concentration: 146 mg/L
    - Monthly Filtered BOD Average Concentration: 102 mg/L
    - Monthly Average Temperature: 75 °F

- Monthly pH Range: 6.7 – 7.5 s.u.

- March 2021:
  - ASB Inlet
    - Monthly Average Flow: 26 MGD
    - Monthly Average Total BOD Concentration: 407 mg/L
    - Monthly Average Filtered BOD Concentration: 364 mg/L
    - Monthly Average Temperature: 101 °F
    - Monthly pH Range: 7.9 – 10.2 s.u.
  - ASB Outlet
    - Monthly Average Total BOD Concentration: 143 mg/L
    - Monthly Filtered BOD Average Concentration: 132 mg/L
    - Monthly Average Temperature: 82 °F
    - Monthly pH Range: 7.0 – 7.8 s.u.
- April 2021:
  - ASB Inlet
    - Monthly Average Flow: 25 MGD
    - Monthly Average Total BOD Concentration: 578 mg/L
    - Monthly Average Filtered BOD Concentration: 476 mg/L
    - Monthly Average Temperature: 101 °F
    - Monthly pH Range: 7.1 – 10.9 s.u.
  - ASB Outlet
    - Monthly Average Total BOD Concentration: 181 mg/L
    - Monthly Filtered BOD Average Concentration: 146 mg/L

- Monthly Average Temperature: 87 °F
- Monthly pH Range: 7.3 – 7.9 s.u.

- May 2021:
  - ASB Inlet
    - Monthly Average Flow: 27 MGD
    - Monthly Average Total BOD Concentration: 333 mg/L
    - Monthly Average Filtered BOD Concentration: 276 mg/L
    - Monthly Average Temperature: 106 °F
    - Monthly pH Range: 6.9 – 9.8 s.u.
  - ASB Outlet
    - Monthly Average Total BOD Concentration: 71 mg/L
    - Monthly Filtered BOD Average Concentration: 40 mg/L
    - Monthly Average Temperature: 83 °F
    - Monthly pH Range: 7.4 – 8.6 s.u.
- June 2021:
  - ASB Inlet
    - Monthly Average Flow: 26 MGD
    - Monthly Average Total BOD Concentration: 324 mg/L
    - Monthly Average Filtered BOD Concentration: 282 mg/L
    - Monthly Average Temperature: 109 °F
    - Monthly pH Range: 5.7 – 10.2 s.u.
  - ASB Outlet
    - Monthly Average Total BOD Concentration: 55 mg/L

- Monthly Filtered BOD Average Concentration: 37 mg/L
- Monthly Average Temperature: 88 °F
- Monthly pH Range: 7.2 – 8.9 s.u.

- July 2021 (available as of July 9, 2021):
  - ASB Inlet
    - Monthly Average Flow: 24 MGD
    - Monthly Average Total BOD Concentration: 216 mg/L
    - Monthly Average Filtered BOD Concentration: 197 mg/L
    - Monthly Average Temperature: 108 °F
    - Monthly pH Range: 7.2 – 10.0 s.u.
  - ASB Outlet
    - Monthly Average Total BOD Concentration: 21 mg/L
    - Monthly Filtered BOD Average Concentration: (no data available yet)
    - Monthly Average Temperature: 85 °F
    - Monthly pH Range: 7.3 – 7.5 s.u.

As part of preparations for full scale unbleached operations and foul condensate hard pipe loading, New-Indy revised the ASB sampling regimen to include methanol sampling as well as sampling of the foul condensate stream in January 2021.

In terms of BOD loading to the ASB, the conversion from bleached paper to unbleached containerboard included two considerations for determining the ASB's ability to support the converted mill operations. Although the planned hard pipe solution would result in a higher loading of BOD to the ASB from the chemical recovery operations, the overall BOD loading to the ASB would not change due to correspondingly reduced BOD loading from the paper operation (elimination of starch, coatings and sub-sized fibrous "fines" from the paper machine operation). By design, this validated the decision to implement the hard pipe solution for methanol destruction, as the ASB would continue to be more than adequate to treat the planned post-construction BOD loading.

The mill experienced a more difficult operational startup than was anticipated. Additional factors that complicated the wastewater treatment plant startup conditions were the time of year (cold weather) and an anomalous influx of solids from the EQ basin (because the primary clarifier was out of service). The normal flow of effluent from the primary clarifier is to route the underflow sludge to the EQ basin for solids settling with the clarifier overflow going directly to the ASB inlet. With the primary clarifier out of service for rake repairs, all mill effluent was routed through the EQ basin, which resulted in a hydraulic washing of solids from that basin into the ASB. Fiber losses from the mill's operational startup compounded the buildup of solids in the ASB. The fibrous sludge floated and matted on the ASB surface, which caused certain of the surface aerators to shut down. The floating solids mat then built to the point where access to the aerators was inhibited, and the aerators could not be returned to service quickly. This situation was further exacerbated by extremely wet weather in January through March 2021, which resulted in restricted access to the No. 4 sludge holding pond, thus preventing solids removal from the ASB surface until March 2021. Therefore, the ASB's reduced aeration efficiency was a primary factor in creating treatment inefficiencies through the ASB.

New-Indy retained EBS to evaluate the treatment system in May 2021. EBS collected samples from the ASB inlet, effluent, ASB midpoint and from the No. 1 holding pond and analyzed for pH, temperature, dissolved oxygen, Oxidation-Reduction Potential (ORP), ammonia, ortho-phosphate, Sulfide, dissolved oxygen uptake rate, TSS, Volatile Suspended Solids (VSS) and Chemical Oxygen Demand (COD). These samples were collected on May 11, May 25 and June 9, 2021. Continued sampling is conducted weekly going forward. EBS also evaluated the microbiology of samples from the ASB midpoint and ASB effluent during each sampling event, and the details of the microbiology evaluation are discussed more in Section 7.2.5. The complete EBS reports are provided in Appendix G but are summarized below for COD removal along with estimates of loading calculated by TRC based on information provided by the facility and EBS.

- May 11, 2021 EBS Evaluation:

- Wastewater flow into the ASB (minus foul condensate) was recorded at 27.4 MGD, the measured soluble COD in that influent (minus foul condensate) was 873 mg/L, giving a soluble COD loading in the ASB influent (minus foul condensate) of approximately 200,000 pounds per day (lbs./day).

- The foul condensate hard pipe flow that day was approximately 0.158 MGD. The COD of the foul condensate was not measured that day, but the average from the four measurements collected that month was approximately 3,850 mg/L for total COD, giving a COD loading of approximately 5,100 lbs./day from the foul condensate.

- The total influent COD loading was approximately 205,100 lbs./day.

- The ASB effluent soluble COD concentration that day was 510 mg/L, giving an approximate mass loading from the ASB of 117,200 lbs./day, or a removal efficiency of approximately 43%.

- May 25, 2021 EBS Evaluation:

  - Wastewater flow into the ASB (minus foul condensate) was recorded at 30 MGD, the measured soluble COD in that influent (minus foul condensate) was 1303 mg/L, giving a soluble COD loading in the ASB influent (minus foul condensate) of approximately 326,000 pounds per day (lbs./day).

  - The foul condensate hard pipe flow that day was approximately 0.307 MGD. The COD of the foul condensate that day was measured to be 4,300 mg/L for total COD, giving a COD loading of approximately 11,000 lbs./day from the foul condensate.

  - The total influent COD loading was approximately 337,000 lbs./day.

  - The ASB effluent soluble COD concentration that day was 231 mg/L, giving an approximate mass loading from the ASB of 58,388 lbs./day, or a removal efficiency of approximately 83%.

- June 9, 2021 EBS Evaluation:

  - Wastewater flow into the ASB (minus foul condensate) was recorded at 29.4 MGD, the measured soluble COD in that influent (minus foul condensate) was 1,059 mg/L, giving a soluble COD loading in the ASB influent (minus foul condensate) of approximately 260,000 pounds per day (lbs./day).

  - The foul condensate hard pipe flow that day was approximately 0.307 MGD. A total COD value for the foul condensate was not available for that day as of the writing of this CAP; therefore, the average of the previous three measurements was used (4,733 mg/L), giving a COD loading of approximately 16,600 lbs./day from the foul condensate.

- The total influent COD loading was approximately 276,000 lbs./day.

- The ASB effluent soluble COD concentration that day was 376 mg/L, giving an approximate mass loading from the ASB of 93,500 lbs./day, or a removal efficiency of approximately 66%.

Figure 7-1 tracks soluble BOD removal in the ASB since January 2021. The soluble BOD concentrations in the ASB effluent have been less than 40 mg/L for the last month. Historically, the ASB has generally removed greater than 85% of the influent BOD. The ASB is capable of treating mill wastewater as demonstrated by historical sampling and modeling. A properly operated and maintained primary clarifier, ASB and treated effluent retaining capabilities along with management and disposal of primary clarifier solids is an appropriate treatment regimen and can provide adequate treatment for this type of wastewater to enable compliance with the NPDES permit. Continued efforts to address the floating fiber layer, strategic maintenance dredging, and continuing the revised monitoring of ASB process control parameters is recommended and included as corrective actions in Section 7.3.

COD is commonly used in the pulp and paper industry as a “surrogate test” for BOD, as BOD is a 5-day test, and the time delay makes it impractical to be used for process control. BOD_5 is a measure of the amount of oxygen required to biologically oxidize the organic material in the wastewater within a 5-day period and is the standard parameter for determining effective biological treatment. COD is a measure of all the material that can be chemically oxidized and includes organic materials that are not readily biodegradable, such as lignins and tannins, and inorganic reducing compounds, such as H2S and TRS compounds. The COD test takes 2 – 3 hours to complete providing same-day results, which are particularly valuable in determining the occurrence and magnitude of sudden loading spikes. While the correlation between COD and BOD_5 has limitations, its utilization supports proactive responses to prevent a release from passing through the ASB unaddressed.

COD is always greater than the BOD. Because there is considerable color in pulp and paper wastewater, there is typically a portion of the COD that will always be present in the wastewater even when the soluble BOD concentration is very low. For example, it is common for a treated kraft mill effluent to have a soluble COD of 200-400 mg/L and a soluble BOD of 20-40 mg/L.

The fraction of COD that is due to color is fairly constant from the influent to the effluent, and a large fraction of the change in soluble COD is due to soluble BOD removal. Due to this reality, mills generally monitor the delta/change in soluble COD across the system as an indication of BOD conversion rather than focus on absolute BOD or COD values. Previous research has shown that the ratio of biodegradable COD to BOD is approximately 1.7:1. Therefore, if the influent soluble COD is 900 mg/L, and the effluent soluble COD is 250 mg/L, then approximately 650 mg/L of soluble COD was removed, and 382 mg/L of BOD was removed in the treatment system.

7.2.3 The potential for odors resulting from the discharge of foul condensate into the treatment system

The foul condensate represents an organic and sulfide load to the ASB. In a system facing aeration challenges due to the floating fiber layer and lost volume due to solids accumulation, this additional organic loading can exacerbate the aeration challenges leading to less aerobic or anaerobic conditions. These conditions can cause the bacteria population to shift to sulfate reducing bacteria where sulfate replaces oxygen as the terminal electron acceptor resulting in H_2S formation. The additional sulfide from the foul condensate provides an additional sulfur source to the system. Improving conditions in the ASB, including addressing the floating fiber layer and regaining treatment volume through removal of solids will improve the ability of the ASB to treat foul condensate in an aerobic environment reducing the biological factors that contribute to the formation of H_2S.

The 2019 ASB modeling of the loading from the unbleached mill operations and the full foul condensate loading indicated the ASB as modeled could meet the oxygen demand requirements of BOD_5 in maintaining aerobic conditions in the upper pond layer as designed. H_2S emissions was estimated using NCASI's Wastewater Hydrogen Sulfide Emissions Simulator (H2SSIM, version 1.3) in January 2020. As with the 2019 ASB modeling, the ASB inputs were based on anticipated wastewater and H_2S loading and that the accumulated solids conditions in January 2020 were approximately the same as those observed in 2015 based on the facility's assumption that additional accumulation was approximately equal to the amount of solids removed through maintenance dredging conducted since 2015. That modeling indicated that based on the assumptions and inputs used, the additional emissions of hydrogen sulfide with the addition of the full condensate stream would be less than 1 ton per year.

With the understanding that ASB conditions have changed since early 2020 when the H_2S modeling was performed and that there is actual data for the foul condensate and process wastewater characteristics from unbleached operations, additional ASB treatment and H_2S emissions modeling is recommended and included as part of the corrective actions in Section 7.3.

7.2.4 The accumulation of fiber and sludge and their sources

As discussed above, the formation of the floating layer of fiber has contributed to the reduction in aeration and mixing capacity in the ASB, while accumulated sludge has impacted the flow path of wastewater through the basin and reduced the effectiveness of mixing and aeration in the basin. The floating layer is a combination of excessive fiber in the wastewater and foaming caused by production liquors, fatty acid soaps, and cellulose breakdown products. Production upsets during recommissioning contributed to the high losses of fiber and production material the facility's process sewer system. Addressing fiber and process liquor losses in the mill is recommended and included as corrective actions in Section 7.3.

The accumulation of sludge in the ASB is a result of elevated primary solids loading in the influent to the ASB and biomass generation from BOD_5 treatment. The source of the elevated solids in the influent flow is from solids being entrained in effluent from the primary solids EQ basin. Sludge from the primary clarifier is pumped to the EQ basin to thicken and homogenize before being removed and placed in the No. 4 sludge pond. If the solids are not removed frequently, suspended solids can be entrained in the supernatant that leaves the EQ basin into the ASB inlet ditch ultimately settling out in the ASB. While the use of the EQ basin served as a means of addressing primary sludge dewatering issues, ultimately managing primary solids in an alternative manner is recommended and is included as corrective action in Section 7.3.

Biomass generated in the ASB during the BOD_5 treatment process settles to the basin bottom and undergoes digestion. Digestion alone does not eliminate the solids, as some of it is inert, so maintenance dredging must be performed to manage accumulation. If maintenance dredging does not keep up with the accumulation of solids in the basin, the settled solids will begin reducing the working volume of the basin available for treatment. Increasing the maintenance dredging program in the ASB, and even dredging to recover lost volume to regain sufficient treatment volume, is recommended and is included as corrective action in Section 7.3.

7.2.5 A study of the microbial population in the ASB with regards to reducing the fiber layer and providing biological degradation of BOD_5

As part of their evaluations on May 11, May 25, and June 9, 2021, EBS performed microscopic examinations. Their reports can be found in Appendix G and are summarized with regards to the microscopic exams below.

- May 11, 2021 EBS Evaluation: The micro exam showed a moderate to high abundance of dispersed bacteria in the ASB Midpoint and ASB Effluent samples, as well as a moderate abundance of pin floc in both samples. No higher life forms (protozoa/metazoa) were observed at the ASB Midpoint, but the ASB Effluent showed several flagellates and a few free-swimming ciliates. Ciliates are generally considered indicators of aerobic, non-toxic conditions in ASB treatment systems. A low to moderate abundance of fiber was observed at the ASB midpoint sample, and a moderate abundance of grit and debris were observed in both samples.

- May 25, 2021 EBS Evaluation: The micro exam showed higher life forms (protozoa) in both the ASB midpoint and ASB Effluent. Two stalked ciliates were observed at the ASB Midpoint: these are sensitive microorganisms that generally exist in non-toxic, aerobic environments. Two free swimming ciliates were observed at the ASB Outfall as well. The ASB midpoint sample showed a high abundance of grit and debris, as well as pin floc and a few small compact pieces of floc. There was no floc larger than pin floc observed at the ASB Outfall, and the abundance of grit/debris decreased in this sample. Dispersed bacteria abundance was high in the midpoint (2.5 out of 3) and moderate to high in the ASB Effluent (2 out of 3).

- June 9, 2021 EBS Evaluation: The micro exam showed stalked ciliates and free-swimming ciliates at the ASB Mid and ASB Out sample points. Stalked ciliates are generally considered indicators of good biomass health, as they are sensitive microorganisms that don't survive in toxic or anaerobic conditions. There was abundant grit and debris observed in the ASB Mid sample, with the abundance decreasing in the ASB Out sample. This corresponds with the lower percent VSS (volatile suspended solids) observed in the ASB Mid sample, as there is a higher fraction of inorganic grit/debris in this part of the ASB.

The terms “several” and “few” are used above because in evaluating the biomass in ASBs, the microscopic examinations are typically conducted to evaluate the “quality” of the biomass, not the “quantity.” The purpose of the microscopic exams is to look at floc size and structure, the abundance of flocculated bacteria versus dispersed bacteria, and the abundance of protozoa and metazoa which are sensitive “indicator” organisms, which provide clues into the biological and environmental conditions in the wastewater pond. Stalked ciliates and free swimming ciliates have been commonly observed in recent microscopic exams at the ASB midpoint. These organisms feed on the bacteria in the water and are sensitive to low dissolved oxygen and toxic conditions. In addition to the qualitative assessments used to analyze data, EBS also utilizes a Maturity Index to better quantify changes in the microbial population (indicator organisms). Now that the system has stabilized microbiologically, EBS will implement the Maturity Index in the near future.

Evaluating biomass quantity is typically done with Total Suspended Solids (TSS), Volatile Suspended Solids (VSS) testing, and culturable cell counts. TSS is the measure of the concentration of all solids in the water that are greater than 1.5 microns. The VSS test burns off all organic material from the TSS filter pad, to show what fraction of the TSS solids is organic in nature. The concentration of organic solids in the ASB is generally equated to the biomass concentration in the water. It should be noted that if there is abundant fiber in a sample, then the fiber will also register as VSS and be a confounding variable in measuring the biomass concentration. Over the last several EBS service visits, the VSS at the ASB midpoint sample has been between 130 mg/L and 210 mg/L, which is within a normal range observed in ASB systems in the pulp and paper industry. New-Indy has begun utilizing EBS to conduct weekly culturable counts starting the week of June 21, 2021, which will provide counts of all viable bacteria in the wastewater.

As discussed, ASBs do not have the highly concentrated population of microbial life in the mixed liquor that activated sludge systems require for treatment.

Continued evaluations of the ASB mixed liquor microbiology is recommended along with continuous, in situ biomonitoring, and are included to support corrective actions in Section 7.3.

7.3 CORRECTIVE ACTIONS AND TIMELINE

An aerobic biological treatment system utilizes aeration and bacterial metabolism to convert biodegradable compounds (BOD) in the wastewater into additional bacteria, water, and carbon dioxide, an odorless gas. In the absence of sufficient dissolved oxygen, the bacterial population can shift to a sulfate reducing scenario, where sulfate replaces oxygen as the terminal electron acceptor resulting in H_2S formation. The floating layer of fiber appears to have contributed to the reduction in aeration and mixing capacity in the ASB. The accumulation of settled solids in the ASB appears to have contributed to the reduction in treatment residence time, reduced mixing efficiency, and altered the flow path of wastewater undergoing treatment through the ASB.

The ASB previously contained curtains to direct the flow of water within the basin. They reportedly were frail and tore from the support cables sometime prior to 2011. The curtains cannot be installed until more than ~ >10 feet of free water exists over the entire basin, requiring a removal of 750,000 – 1,000,000 cubic yards of sludge if the entire basin is to be used for treatment, although that is not necessary for sufficient treatment. Replacement of the curtains also may not be necessary as serpentine flow can be re-established with less sludge removal and the use of directional mixers. The following corrective actions have been developed to address these operational issues. Successful actions will be included in the mill's odor abatement plan as responses to be considered for implementation in the event elevated odors become an issue in the future.

This corrective action plan employs the concept of the Eight Growth Pressures necessary for optimum aerobic metabolism as outlined in "Aerated Stabilization Basins in the Pulp and Paper Industry" by Paul Klopping and Michael Foster published in 2003. Each of the eight growth pressures (BOD Loading, pH, Hydraulic Retention Time, Dissolved Oxygen, Nutrients, Temperature, Toxicity, and Biomass Viability) play a role in the health of a system with BOD Loading, Dissolved Oxygen, pH, Temperature, and Hydraulic Retention Time being most impactful in terms of H_2S formation and emission. The intent of this document is to provide a corrective action plan to improve the health of the wastewater treatment system and mitigate H_2S formation. At this time, it is too early to define exact timelines and deadlines for many of the included corrective actions, as they are dependent on the completion of other identified corrective actions and require long-term financial planning. Additionally, the success of initial actions may eliminate the need for other potential actions that have been identified below. Finally, many of the corrective actions identified below are actions that will be investigated to determine if they are necessary or the best action for the mill to take.

Item 1: Removal of Floating Solids in the Aerated Stabilization Basin (ASB)

Basic Description:

- Remove floating solids in the ASB. Floating solids removal will allow access to out-of-commission aerators.

Technical Rationale:

- Excess fiber loading into the ASB has led to floating solids covering much of the early aerated zone. The floating solids have contributed to the breakdown of multiple aerators in the front end of the system. Removal of these solids will be necessary to repair the aerators, which will lead to higher BOD removal efficiency, more aerobic conditions in the wastewater treatment system and reduce the potential for H_2S formation. The floating solids also represent biodegradable material that dissolve over time, adding additional oxygen demand to the system.
- The removal of surface solids has been ongoing for some time. Upcoming activities are extensions of this continuing and well-established solids removal process. Although very short-term spikes are possible when disturbing the oldest solids area, this potential is mitigated with the addition of peroxide, oxygen, and calcium nitrate and bringing additional aerators online. As a precaution, employees are equipped with personal H_2S monitors and are capable of demobilizing should temporary spikes in H_2S make this necessary. Property boundary H_2S monitoring stations near the ASB at Stations 2 and 3 have not indicated any appreciable off-site data from the ongoing solids removal process.

Timeline:

- Long arm excavators are currently removing solids that can be reached from shore. In addition, two other contracting firms will begin work over the next weeks to remove the floating solids from barge and vessel-based equipment. The floating solids are expected to be sufficiently mitigated on or before September 1, 2021.

- Fiber and liquor losses in production may have contributed to the formation of the floating fiber layer. The causes and remedies for these fiber and liquor losses will be investigated as a corrective action. This evaluation occurs daily and will be permanently ongoing. The previous quantity of fiber and liquor loss from start-up following the process conversion is not expected to be repeated as the mill progresses toward steady-state operations.
- Install two Turbulator, high speed floating mixers within cell 1 of the ASB as part of a pilot study to evaluate the performance of the two mixers to help break up the floating fiber layer and improve mixing in the first part of the ASB in cell 1. The pilot study for this project was approved by DHEC on June 8, 2021 and can continue through December 31, 2021. During the study, New-Indy will evaluate the effect on breaking up the floating layer of fiber facilitating easier removal by mechanical excavators. New-Indy will also observe the impact on physically observable mixing within cell 1. The Turbulator mixers have an 8-10 week lead time and with DHEC approval, they can now be ordered.

Item 2: Removal of Settled Solids in the Aerated Stabilization Basin (ASB)

Basic Description:

- Remove sufficient settled solids in the ASB to meet treatment and sludge management needs. Dredging settled sludge will improve the hydraulic retention time of the ASB, improve mixing, and the flow path through the ASB. In addition, a sludge accumulation rate needs to be estimated to plan maintenance dredging rates to outpace accumulation.

- A portion of newly generated sludge is currently being moved from the EQ basin and the ASB to the No. 4 sludge pond to ensure proper operation of the ASB while pilot projects are being conducted and evaluated. Long term sludge disposal will depend on potential wastewater treatment system modifications that may impact ASB operation and sludge volume. Current sludge movement is not related to management of dioxin-containing sludge under the Voluntary Cleanup Contract (VCC). An environmental risk assessment is currently being performed to determine potential risks to human health and the environment associated with movement of the dioxin-containing sludge. New-Indy will provide DHEC with the risk assessment assumptions by July 15, 2021. The volume of solids to be removed is currently under analysis as part of the VCC. Upon completion of this study, sludge management plans will be presented to DHEC for approval.

- All sludge that is currently being placed in the No. 4 sludge pond and sludge that may be placed in the No. 4 sludge pond in the future, whether it be recently generated sludge or dioxin-containing sludge associated with the VCC, will remain in the No. 4 sludge pond. New-Indy intends to close the No. 4 sludge pond upon completion of sludge placement. Geotechnical studies performed on the No. 4 sludge pond berm and existing sludge indicated that they are stable and capable of accepting the placement of additional sludge. Closure of Sludge Lagoon 4 will be completed in accordance with the VCC following the completion of the risk assessment, expected in October of 2021, and DHEC's acceptance. Compliance with the VCC is separate from the efforts the mill is taking to address the odor issues. Additionally, New-Indy will comply with the other agreed upon requirements in the VCC.

Technical Rationale:

- Settled solids removal will be necessary to provide additional retention time for BOD removal. Additional volume in the ASB will be created by dredging solids from the bottom of the basin.
- The excess sludge inventory is one of several interrelated drivers that impact not only the potential formation of H_2S and other odorous compounds, but also the overall performance of the wastewater treatment system in terms of meeting normal NPDES compliance for TSS and BOD. New-Indy will be evaluating the system from a comprehensive perspective with the intent of determining the proper conditions that must be achieved and maintained to meet both routine discharge compliance and acceptable air emission targets. This includes volume requirements of the holding pond and ASB, aeration and mixing requirements, and Layers of Protection, such as in basin monitoring and supplemental additives (CN9, hydrogen peroxide, ferric sulfate, nutrients, and/or bacterial formulations).

Timeline:

- Long arm excavators began removing solids that can be reached from shore in March 2021 and will continue until removal is completed.
- Sludge maintenance dredging is ongoing. The facility is currently in the process of identifying a dredging contractor(s) that can dredge at a faster rate.

- EBS began a lithium tracer study on June 8, 2021 to determine the hydraulic retention time of the ASB. In addition, lithium profile samples were collected throughout the ASB five and twenty-four hours after the lithium was introduced to determine the current flow patterns.
    - Preliminary results from the lithium profile sampling were received on July 6, 2021. The mill will submit the complete results once they have been received.
- Perform ASB modeling using up-to-date information regarding the ASB to guide settled solids removal actions. This modeling will include an evaluation of the ASB as a long-term treatment alternative for managing foul condensate including evaluating the formation of H_2S as compared to use of the steam stripper.

- Periodic dredging and excavation activities have been performed in the ASB. A summary of settled solids removed from the ASB since 2015 is provided in Appendix H.

<u>Item 3: Primary Clarifier Sludge Handling Improvements</u>

Basic Description:

- While solids removal from the ASB is important, it will be subsequently important to ensure solids loading is minimized in the future. Improving primary clarification and preventing dumps of process solids that bypass or overwhelm the primary clarifier will decrease the amount of fiber and other solids that are entering the ASB from the mill. In the short term, this can be mitigated by dredging the EQ basin into which the underflow of the primary clarifier feeds. In the long term, the underflow of the primary clarifier will be pressed and removed from the wastewater treatment system. Reducing non-wastewater loads of solids to the primary clarifier, such as boiler ash, lime mud, grits and slaker dregs will also reduce the solids loading.

Technical Rationale:

- The underflow of the primary clarifier is currently feeding into an EQ basin that has a significant accumulation of solids. The lack of settling volume in the EQ basin appears to be leading to elevated TSS entering the ASB. These solids will settle in the ASB and reduce the hydraulic retention time. Especially during/after dredging, this will be important as the volume gained from dredging will be quickly cancelled out if influent solids are not reduced.

  - Keeping primary sludge removed in the clarifier from becoming remixed with wastewater is important.
  - Mechanical dewatering through the use of a belt press is essential to improving the solids removal.
  - Returning the EQ basin to use for attenuating hydraulic and concentration swings in the primary clarifier effluent will provide a more evenly distributed loading to the ASB.

Timeline:

- Periodic dredging and excavation events have been performed in the EQ basin since prior to 2016 when the basin was used for clarifier overflow and since 2016 when the basin was converted into a primary sludge EQ basin. A summary of settled solids removed from the EQ basin since 2015 is provided in Appendix H.

- The long-term plan for pressing and removing the sludge from the primary clarifier is a major project that does not currently have an estimated timeline.
- The mill does not yet have a timeline for reducing the non-wastewater loads to the primary clarifier.
- New-Indy will investigate as a corrective action the proper handling method for the non-wastewater loads that will no longer be sent to the primary clarifier. New-Indy has determined that the non-wastewater loads being sent to the primary clarifier do not cause H_2S emissions. Therefore, this investigation is no longer necessary to address the odor issues.

<u>Item 4: Existing Aeration Repair</u>

Basic Description:

- Repair out-of-commission splash aerators in the north end of the ASB.

Technical Rationale:

- Each hp of aeration in the ASB theoretically removes 25-35 lbs. of BOD per day. Using the midpoint of 30 lbs. of BOD removal per hp, each 75 hp splash aerator that is repaired will remove approximately 2,250 lbs. of additional BOD per day. Sulfate reducing bacteria when present under anaerobic conditions metabolize BOD by utilizing sulfate as a terminal electron acceptor when there is no dissolved oxygen present and produce H_2S as a byproduct. Repairing aerators will decrease the oxygen demand in the ASB and No. 1 holding pond, promoting the growth of aerobic bacteria and reduce the conditions favorable to sulfate-reducing bacteria.

Timeline:

- Aerator repairs are ongoing.
- On June 18, 2021 the next phase of surface solids removal was initiated, utilizing two excavator barges to remove the solids in the middle of the north end of the basin. This process allows maintenance personnel to access the non-functioning aerators and return them to service.
- As of June 25, 2021, there are 38 aerators operating.
- On April 19, 2021, New-Indy began adding ammonium calcium nitrate in the ASB to supplement oxygen as an electronic acceptor and reduce the formation of hydrogen sulfide. The mill stopped adding calcium nitrate to the ASB on June 30, 2021 because the need was eliminated after additional aerators came online and the addition of hydrogen peroxide and liquid oxygen proved successful.
- On June 9, 2021, New-Indy began adding hydrogen peroxide and supplemental oxygen to the ASB inlet as part of a pilot study to provide supplemental dissolved oxygen until aerators can be returned to service. DHEC provided initial approval of the pilot study via email on June 7, 2021. The pilot study request and DHEC approval are provided in Appendix E.
- A Letter of Approval for the pilot study was issued on June 17, 2021. The pilot study is approved until October 31, 2021. During this study New-Indy will regularly measure the dissolved oxygen and sulfide concentrations within the ASB and at the ASB effluent. The feed rate of hydrogen peroxide and oxygen may be adjusted as part of the study and will be discontinued when sufficient mechanical aerators are returned to service. The threshold for sufficient surface aerators in service will be evaluated during the pilot study by

monitoring the BOD_5 removal efficiency across the basin and measuring the dissolved oxygen and sulfide concentrations within and leaving the ASB.

Item 5: Add Aeration to No. 1 Holding Pond

Basic Description:

- Add two 75 hp splash aerators to the front end of the No. 1 holding pond.
- The No. 1 holding pond chemistry and operation continue to be investigated. There has been minimal historical testing on this pond, as there is typically minimal treatment across a holding pond. The intent is for this basin to serve as a holding reservoir in times when the Catawba River flows are low, restricting the volume of the mill's discharge. New-Indy's initial focus was to measure the sulfide ion content and dissolved oxygen level at the discharge of the basin. The results of this investigation led to a proactive program of installing two aerators, feeding ferric chloride to the influent to the pond, and establishing a hydrogen peroxide system at the pond outlet structure to control sulfide generation and increase dissolved oxygen levels in the pond.
- No. 1 holding pond appears to be off-gassing H_2S for two reasons which result in sulfides forming or releasing into the water column of the holding pond where the potential for release to the atmosphere is a function of pH, temperature, turbulence, and dissolved oxygen/ oxidation-reduction potential of the water column.
    - Sulfate reducing bacteria utilizing sulfate as the terminal election acceptor (TEA) instead of dissolved oxygen to degrade the remaining BOD that remains in the water column after treatment in the ASB. The preferred TEA for aerobic treatment, such as an ASB, is dissolved oxygen which produces carbon dioxide as a byproduct.
    - The sludge layer in a basin (aerated or not) is generally anaerobic and constantly in a state of digestion, which is expected and desirable when the system is operating under acceptable loading rates, etc.
- EBS performed sulfide testing on the No. 1 holding pond effluent on May 25, 2021 with a result of 1.94 mg/L, June 9, 2021 with a result of 2.5 mg/L, and June 17, 2021 with a result of 2.2 mg/L.

- New-Indy grabbed water samples at the No. 1 holding pond and outfall 001 on June 23, 2021 for sulfides, sulfates, and sulfites analysis at Pace Labs. The results were provided to DHEC at the end of June.

Technical Rationale:

- Adding additional aerators to the No. 1 holding pond will provide additional dissolved oxygen that will reduce the potential for H_2S formation from sulfate reducing bacteria. These aerators will be installed in the early zones of the No. 1 holding pond to prevent stirring up solids before the outfall. The permanent need for these will be evaluated as treatment efficiencies improve in the ASB.
- Because of the complexity, variability, and site specificity of this situation, there is a learning curve regarding the relative impact of the various driving forces. However, New-Indy is taking numerous actions to minimize the H_2S formation in the pond and potential for air emissions, including:
    - Utilizing supplements such as alternate TEA's (nitrate and peroxide) and sulfide scavengers (ferric salts),
    - Reducing the oxygen demand in the No. 1 holding pond by reducing the soluble BOD leaving the ASB, which has been decreasing over the past few months,
    - Adding aeration and mixing to reduce anaerobic zones in the No. 1 holding pond, and
    - Reducing sludge inventory in the No.1 holding pond.

Timeline:

- Two 75 hp splash aerators were installed June 9, 2021 as part of a pilot study to evaluate the impact of the aeration on basin dissolved oxygen. They were installed near the inlet of No. 1 Holding Pond along the eastern berm.
- The pilot study was approved on June 9, 2021 and can run until December 31, 2021. During the pilot study, New-Indy will regularly measure organic loading, dissolved oxygen, and H_2S concentrations in the inlet to the No. 1 holding pond, dissolved oxygen and H_2S within the No. 1 holding pond, and dissolved oxygen and H_2S at the outlet from the No. 1 holding pond to the post-aeration basin. The study may be discontinued early

based on factors such as the organic loading and dissolved oxygen concentrations in the inlet to the holding pond, the water level within the pond, etc.

- The pilot study request and DHEC approval for these aerators are provided in Appendix E.

Item 6: ASB Biomass Monitoring: EBS Advanced Microscopic and Chemical Analysis (Weekly)

Basic Description:

- ASB influent, ASB midpoint, and ASB outfall samples will be sent to EBS weekly for an advanced chemical and microbiological analysis that evaluates biomass health and related parameters.

Technical Rationale:

- These analyses will provide weekly trended data on parameters related to wastewater performance. This analysis will evaluate biomass health, biomass abundance, soluble BOD removal efficiency, and other parameters related to wastewater treatment performance.
    - The analysis will include:
        - *Microscopic Examination* – Protozoa/Metazoa abundance, floc formation, and dispersed bacteria abundance
        - *Flow Cytometry* – Analysis of percent live/dead bacterial cells in the sample
        - *Culturable Cell Counts*
        - *Total Cell Counts*
        - *Live Cell Counts*
        - *Basic chemical analysis*
            - *Soluble BOD*
            - *NH_3-N and PO_4^{3-}-P Concentrations*
            - *DOUR*
            - *TSS/VSS*

- New-Indy will measure the parameters as identified in the chart below and provide the results in the weekly update to DHEC.

Parameter	Target Range	Corrective Action
pH	ASB Mid and ASB Effluent: 6.5-8.5	Add acid/caustic to influent stream to mitigate pH swings
Soluble COD	Influent sCOD > 1500 mg/L	Add CN-9 to ASB Influent while loading is elevated
Dissolved Oxygen	Number of required operational aerators to be determined by the results of the IPT	Add CN-9 or peroxide to influent daily until aerators are repaired
Sulfide Concentration	Holding Pond Sulfide Concentration > 2 mg/L	Increase ferric chloride addition to ASB Effluent

Timeline:

- Weekly sample shipment began on June 24, 2021.

Item 7: ASB Biomass Monitoring: Sentry Probe Installation

Basic Description:

- EBS will install an in-line probe which will monitor biomass activity at the ASB Midpoint sample. *SENTRY: Bio-Electrode Technology* monitors biological activity by measuring electron transfer as the resident ASB biomass metabolizes soluble organic compounds. This data can be viewed at all times on the online SENTRY data page.

Technical Rational:

- The SENTRY unit consists of a metal screen that allows biological material to grow on the screen. As the biology consumes organic material, the electrons that normally would be accepted by oxygen/nitrate/sulfate enter an anode and are measured by the unit. This electron transfer will fluctuate based on how much soluble BOD is present at this point in the system. The electron transfer is measured as MET (microbial electron transfer) and is plotted out on the SENTRY data page. This data can also help alert New-Indy to potential inhibitory/toxic compounds moving through the system, as that will decrease oxygen uptake/electron transfer.

Timeline:

- EBS will install the Sentry Probe by mid-July 2021.

Item 8: Addressing No. 1 Holding Pond H_2S

Basic Description:

- The elevated loading of organic material from the ASB into the No. 1 holding pond during recommissioning activities and from the floating fiber condition appears to have contributed to the formation of temporary, elevated concentrations of H_2S in the unaerated, treated effluent holding pond. This soluble H_2S can volatilize in the pond and by aeration in the post-aeration basin. The addition of ferric chloride into the inlet to the No. 1 holding pond will react with the H_2S to form insoluble iron sulfide.

Technical Rational:

- The use of iron salts to control H_2S has been widely used in the wastewater collection and treatment industry. Ferric chloride reacts with hydrogen sulfide to form insoluble iron sulfide, which precipitates and settles reducing the concentration of H_2S that can be released to the atmosphere.

Timeline:

- A ferric chloride addition pilot study was approved on June 17, 2021 to address the temporary, elevated concentration of H_2S in the No. 1 holding pond. The DHEC letter of approval and pilot study request are provided in Appendix E.
- The pilot study was initiated on June 17, 2021 and is approved until October 31, 2021. During this study, New-Indy will regularly measure H_2S concentrations in the inlet to the No. 1 holding pond before and after the addition location, within the No. 1 holding pond, and at the outlet from the No. 1 holding pond to the post-aeration basin. The feed rate of ferric chloride may be adjusted as part of the study, and the study may be discontinued early if organic loading from the ASB return to pre-upset conditions and H_2S

concentrations in the No. 1 holding pond sufficiently reduce. The threshold level of concern concentration of H_2S in the No. 1 holding pond will also be evaluated during the pilot study.

- As a corrective action, the mill intends to evaluate flow patterns in the No. 1 holding pond. This pond is not intended to provide treatment and only serves as a retaining basin for managing the mill's hydrograph-controlled release NPDES permit that essentially regulates discharge flow based on river flow. Part of this evaluation will be to determine if improving flow patterns is necessary for the basin to serve its role, and if so, options for improving flow patterns within the basin. The surface movement of the pond is not indicative of the flow within the entire pond due to its depth. The flow in the No. 1 holding pond has been determined to not be a concern based on the observed flow rates into and out of the pond; therefore, no changes will be made to the flow pattern.

Item 9: Updating the Wastewater Treatment System Operations and Maintenance Manual

Basic Description:

- Part II.E.3 of the mill's NPDES permit requires an operations and maintenance (O&M) manual to be developed for the wastewater treatment system. The mill's O&M manual is currently under revision and will address DHEC's comments regarding the contents, specifically, "overall and detailed process flow descriptions, all influent into the waste treatment system and its characteristics, qualitative and quantitative conditions that represent a properly operated system, for each unit operation and as an overall system, qualitative and quantitative conditions that require corrective action; corrective actions to be taken and timeframes to complete corrective actions."

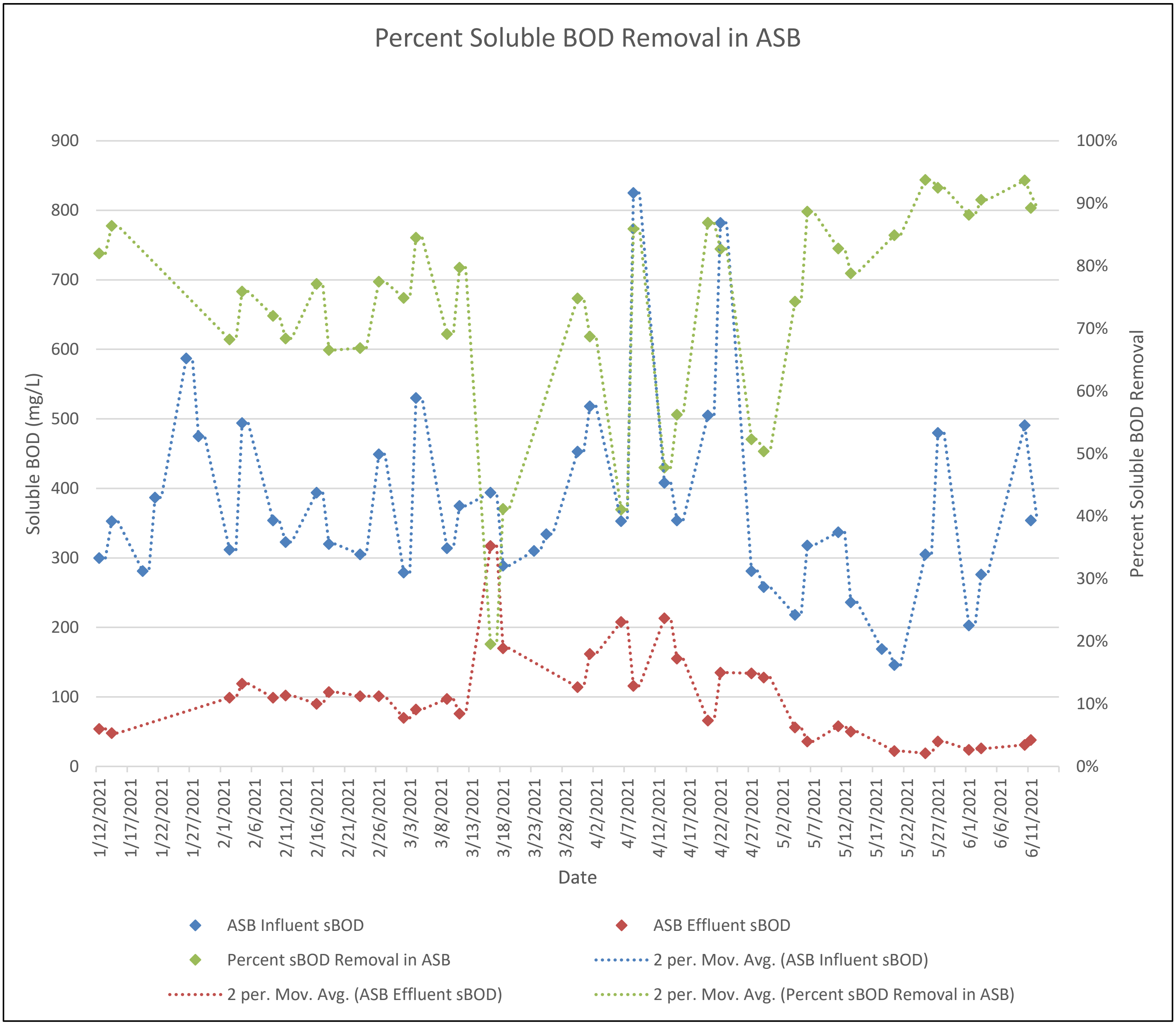
Technical Rational:

- An O&M manual's intent is to provide the wastewater operators the understanding, responsibilities, and reference materials necessary to operate the wastewater treatment system safely, efficiently, and in compliance with wastewater regulations and NPDES permit requirements. The O&M manual will be updated to include the successful corrective actions described herein, as it is important in providing wastewater operators and mill management with additional resources in responding to odor and solids related issues should they occur in the future.

Timeline:

- The O&M manual in under revision and includes a revised odor control plan and new overall appearance. The manual will be updated to include additional information on wastewater flow characteristics; operating conditions that may warrant odor-related responses; and the corrective action measures that prove successful in responding to odor-related issues.
- Some of the updates to the O&M manual can be incorporated over the next few weeks, while others require the performance of the corrective actions and pilot studies. The O&M manual is a living document that will be updated as the process and wastewater treatment system change and lessons are learned.

Figure 7-1
Percent Soluble BOD Removal in ASB Chart



7.4 WASTEWATER PROFESSIONAL ENGINEERING CERTIFICATION

Name:	James M. Kirlin, P.E.
S.C. Registration No.	19,829
Company:	TRC Environmental Corporation

(Seal) (TRC COA Seal)

APPENDIX A – LEAK DETECTION AND REPAIR (LDAR) INSPECTION REPORTS

Inspection Date: January 26-27, 2021

New Indy Containerboard - Catawba Mill
5300 Cureton Ferry Rd.
Catawba, SC 29704

2021 Monthly LDAR Inspection Summary Report

Table 1: Visual Inspection Summary Table

Equipment Number	Date	Description of Leak or Visual Defect	
MV-1137	1/26/2021	Manual Valve MV-1137 is located on foul condensate line at outlet of HVLC Foul Condensate Tank No. 3 and prior to the pump. The drain valve is open and dripping from spout.	
NA	1/27/2021	The 1A Screw Press Dilution Conveyor is puffing from top hatch door.	
NA	1/27/2021	The 1B Screw Press Dilution Conveyor is puffing from top hatch door.	
NA	1/27/2021	The 1A Brown Stock Washer is puffing from three open hatch doors.	
NA	1/27/2021	The 1B Brown Stock Washer is puffing from four open hatch doors.	
NA	1/27/2021	The 2A Brown Stock Washer is puffing from four open hatch doors.	
NA	1/27/2021	The 2B Brown Stock Washer is puffing from four open hatch doors.	
NA	1/27/2021	The 3A Brown Stock Washer is puffing from one open hatch door.	
NA	1/27/2021	The 3B Brown Stock Washer is puffing from four open hatch doors	
First Attempt to Repair must be completed by:		5 Days from Inspection Date	Not Applicable if no leaks were found.
Repairs must be completed by:		15 Days from Inspection Date	Not Applicable if no leaks were found.

This report provides a summary of leaks and visual defects found during the visual inspection of the closed-vent and condensate-collection systems and complies with the record keeping requirements of 63.454(b)(1-2, 4-5).

The facility must initiate repairs to any defects within five (5) calendar days from this inspection and the defects must be repaired within fifteen (15) calendar days of the inspection. If the leak or defect requires the system to be shutdown in order to make repairs, or more emissions would occur from attempting the repair than delaying the repair, then the repairs may be delayed until the next process unit shutdown. A report must be supplied with the repair date and associated information, or the reason for the delay if the repairs are not completed within the 15-day period. These response requirements are specific to 40 CFR 63, specifically 63.453(k)(6), 63.453(l)(3), and 63.964(b)(1-2). Documentation of all repair attempts made and any leaks/defects requiring a process unit shutdown must be completed according to 63.454(b)(6-11).

I certify that the results of the visual inspection are accurate and complete to the best of my knowledge.

Inspector Name: Josh Howard

Signature: Josh Howard

Inspection QA/QC Procedure

E360 Project Number?	New Indy Catawba
Task Number (if applicable)?	January 2021 Monthly LDAR

Purpose of Form

To verify field work meets each critical element.

Visual Work Flow (WF)

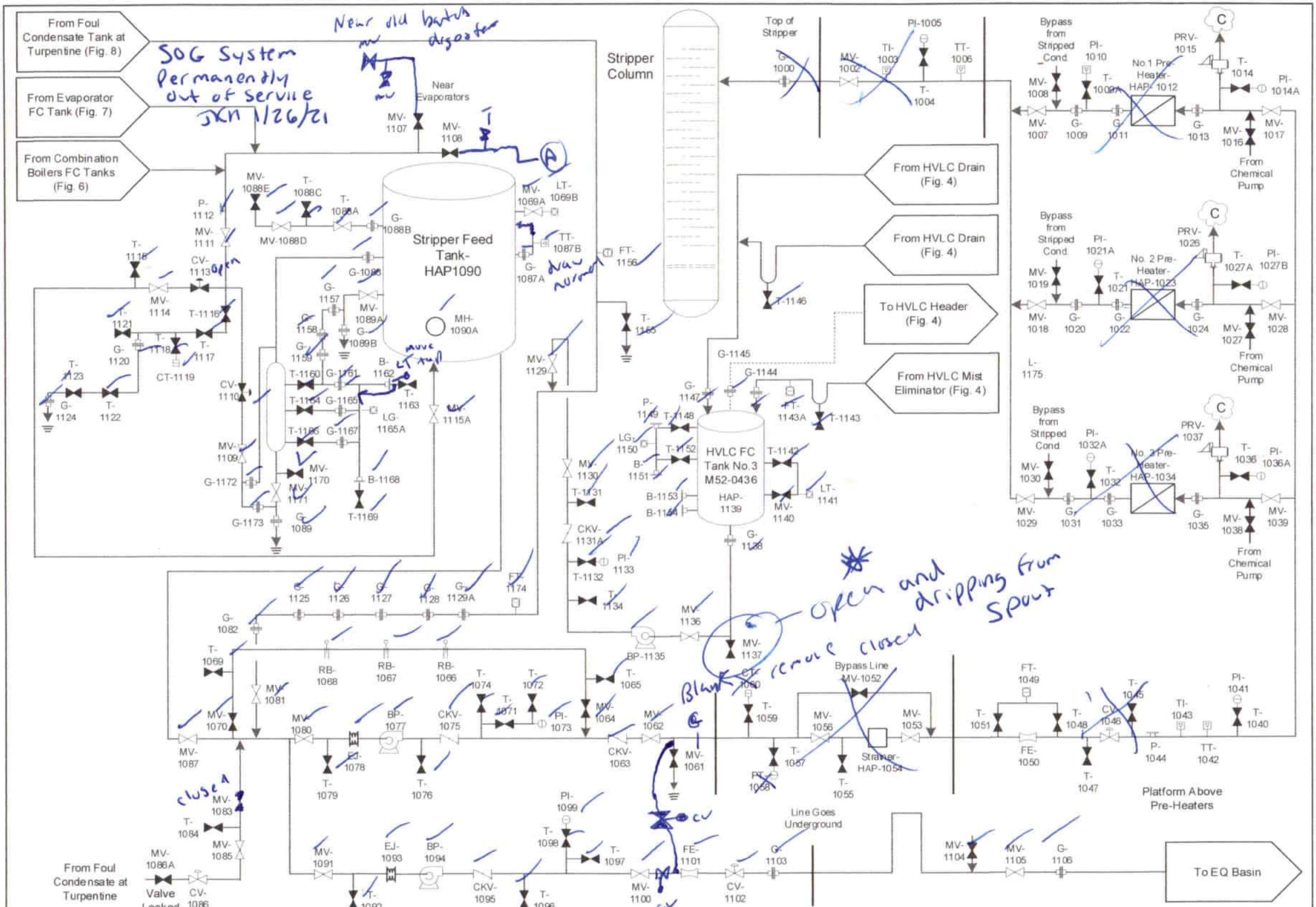
Step 1
R - Verify field work by checking "X" each WF No.

Verification of Critical Elements

WF No.	Requirement	Yes?
	Work-flow step	1
	Verifier of critical elements for work-flow step	R
1	Was a bump test performed on the personal H_2S monitor?	✓
2	Have the most recent versions of the inspection forms been used?	✓
3	Were all inspection points identified correctly and inspected correctly?	✓
4	Did the operator/ contact verify to our inspector that all equipment was operating under normal operating conditions?	✓
5	Were any deficiencies identified in person to the client?	✓
6	Were all inspection questions answered with either a Yes, No, or NA?	NA
7	Were inspections performed during the required regulatory time frame?	✓

Approvals

Role	WF Step	Name	Approval (insert date)
Responsible Person (R)	1	Josh Howard	1/27/21



Vent Gases / Condensates / Liquor/Stock Lines / Process Lines	To Another Page and Indicated Equipment / From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New-Indy – Catawba Mill / LDAR Inspection and Testing Diagrams / Stripper System Foul Condensate

Rev. Date July 2020

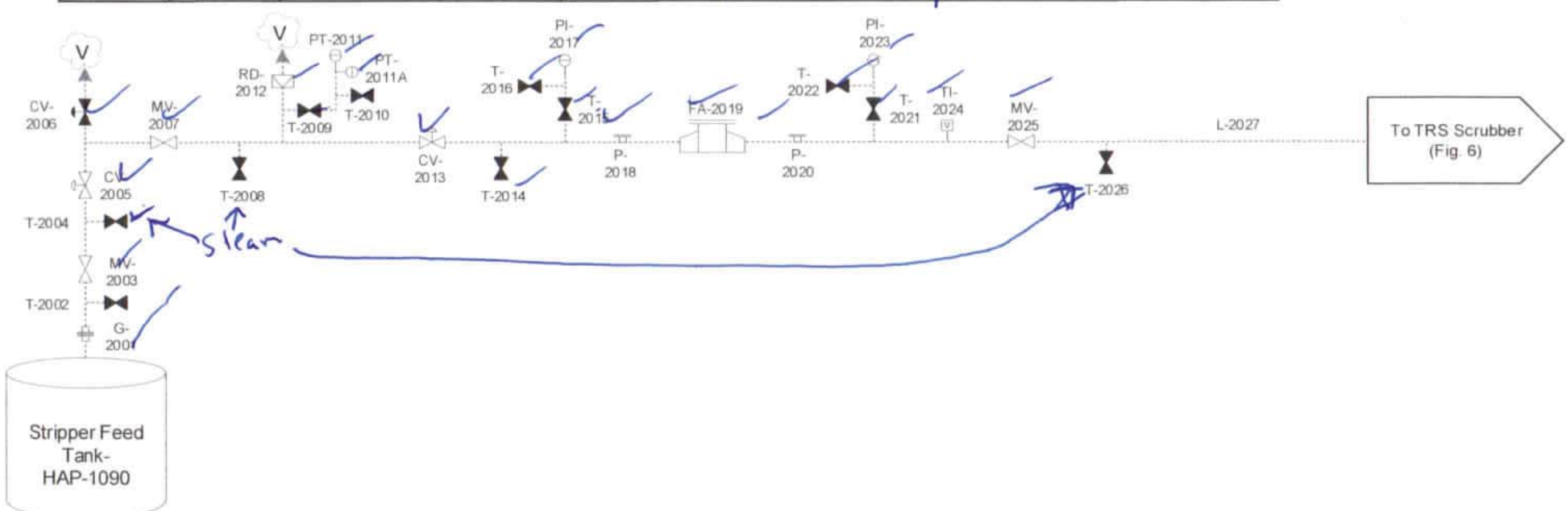
Figure 1

Stripper System Foul Condensate
Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
1000	G					Remove	
1002	MV	51-MV-0580					
1003	TI	TI-032B					
1004	T						
1005	PI	PI-031B					
1006	TT						
1007	MV	51-MV-0550					
1008	MV	51-MV-0541					
1009	G						
1009A	T						
1010	PI						
1011	G						
1012	HAP						
1013	G						
1014	T						
1014A	PI						
1015	PRV	PSV-034A					
1016	MV	51-MV-0554					
1017	MV	51-MV-0563					
1018	MV	51-MV-0567					
1019	MV	51-MV-0549					
1020	G						
1021	T						
1021A	PI						
1022	G						
1023	HAP						
1024	G						
1026	PRV	PSV-034C					
1027	MV	51-MV-0555					
1027A	T						
1027B	PI						
1028	MV	51-MV-0564					
1029	MV						
1030	MV	51-MV-0548					
1031	G						
1032	T						
1032A	PI						
1033	G						
1034	HAP						
1035	G						
1036	T						
1036A	PI						
1037	PRV	PSV-034E					
1038	MV	51-MV-0556					
1039	MV	51-MV-0565					
1040	T						
1041	PI	PI-031D					
1042	TT						
1043	TI						
1044	P						
1045	T						
1046	CV	51-FCV-001					
1047	T	51-MV-0562					
1048	T						
1049	FT	51-FT-001					
1050	FE						
1051	T						
1052	MV	51-MV-0560					yes
1053	MV	51-MV-0561					y
1054	HAP						y
1055	T	51-MV-0578					y
1056	MV	51-MV-0559					y
1057	T						y
1058	PT	51-AT-007					y
1059	T						y
1060	CT						y
1061	MV	24-MV-0361					y
1062	MV	24-MV-0359					y
1063	CKV						y
1064	MV	24-MV-0445					y
1065	T						y
1066	RB						y
1067	RB						y
1068	RB						y
1069	T						y
1069A	MV						y
1069B	LT	51-LT-265					y
1070	MV	24-MV-445					y
1071	T						y
1072	T						y
1073	PI						y
1074	T						y
1075	CKV						y
1076	T						y
1077	BP						y
1078	EJ						y
1079	T						y
1080	MV	24-MV-363					y
1081	MV						y
1082	G						y
1083	MV	V704F					y
1084	T						Remove y
1085	MV						
1086	CV	51-HV-269					
1086A	MV						
1087	MV	24-MV-362					y
1087A	G						y
1087B	TT	51-TT-266				Yes	
1088	G					y	
1088A	T					y	
1088B	G					y	
1088C	T					y	
1088D	MV					y	
1088E	MV					y	
1089	G					y	
1089A	MV	24-MV-0352				y	
1089B	G					y	
1090	HAP					y	
1090A	MH					y	
1091	MV	24-MV-0365				y	
1092	T					y	
1093	EJ					y	
1094	BP					y	
1095	CKV	V884F				y	
1096	T					y	
1097	T					y	
1098	T					y	
1099	PI					y	
1100	MV	24-MV-360				y	
1101	FE					y	
1102	CV	51-FCV-267				y	
1103	G					y	
1104	MV					y	
1105	MV					y	
1106	G					y	
1107	MV					y	
1108	MV					y	
1109	MV					y	
1110	CV					y	
1111	MV					y	
1112	P					y	
1113	CV					y	
1114	MV					y	
1115	T					y	
1115A	MV					y	
1116	T					y	
1117	T					y	
1118	T					y	
1119	CT					y	
1120	G					y	
1121	T					y	
1122	T					y	
1123	T					y	
1124	G					y	
1125	G					y	
1126	G					y	
1127	G					y	
1128	G					y	
1129	MV					y	
1129A	G					y	
1130	MV					y	
1131	T					y	
1131A	CKV					y	
1132	T					y	
1133	PI					y	
1134	T					y	
1135	BP					y	
1136	MV					y	
1137	MV					No	opened dripping from spout
1138	G					y	
1139	HAP	M52-0436				y	
1140	MV					y	
1141	LT					y	
1142	T					y	
1143	T					y	
1143A	FT					y	
1144	G					y	
1145	G					y	
1146	T					y	
1147	G					y	
1148	T					y	
1149	P					y	
1150	LG					y	
1151	B					y	
1152	T					y	
1153	B					y	
1154	B					y	
1155	T					y	
1156	FT					y	
1157	G					y	
1158	G					y	
1159	G					y	
1160	T					y	
1161	G					y	
1162	B					y	
1163	T					y	
1164	T					y	
1165	G					y	
1165A	LG					y	
1166	T					y	
1167	G					y	
1168	B					y	
1169	T					y	
1170	MV					y	
1171	MV					y	
1172	G					y	
1173	G					y	
1174	FT					y	
1175	L					y	

Stripper Feed Tank
Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
2001	G					Yes	
2002	T					y	
2003	MV					y	
2004	T					y	
2005	CV	51-PCV-264				y	
2006	CV	51-HV-262				y	
2007	MV	51-MV-0672				y	
2008	T					y	
2009	T					y	
2010	T					y	
2011	PT	51-PSH-261				y	
2011A	PT					y	
2012	RD					y	
2013	CV	51-HV-260				y	
2014	T	51-MV-0675				y	
2015	T					y	
2016	T					y	
2017	PI					y	
2018	P					y	
2019	FA	M51-0546				y	
2020	P					y	
2021	T					y	
2022	T					y	
2023	PI	51-PI-268B				y	
2024	TI	01-TI-274				y	
2025	MV	51-MV-0673				y	
2026	T	24-MV-0353				y	
2027	L					y	



* Indicates car seal present

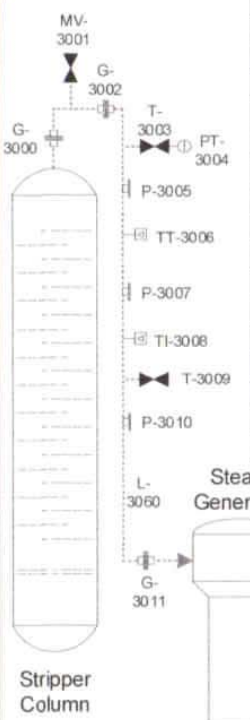
Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New-Indy – Catawba Mill LDAR Inspection and Testing Diagrams Stripper Feed Tank	Rev. Date July 2020 Figure 2

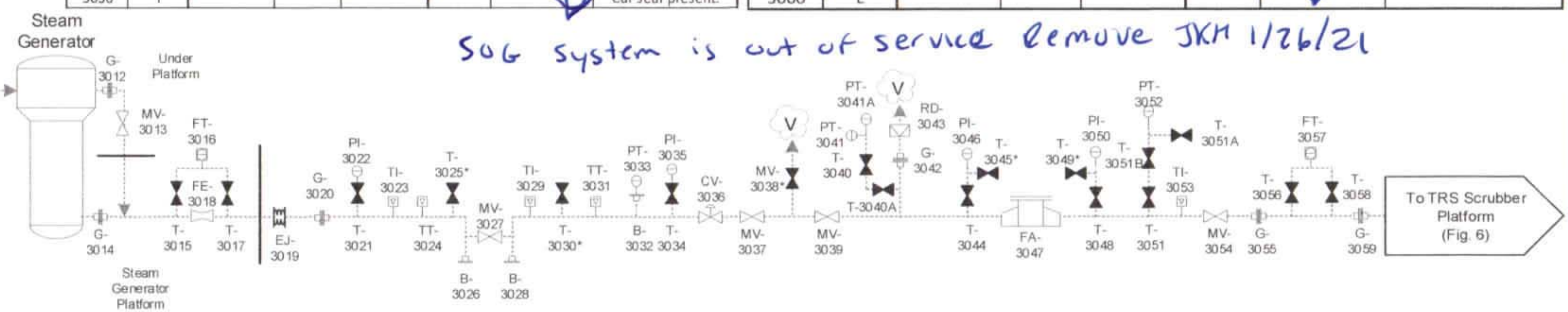
Stripper Column SOGs

Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
3000	G					Remove	
3001	MV						
3002	G						
3003	T						
3004	PT	51-PT-015					
3005	P						
3006	TT						
3007	P						
3008	TI	TI-032F					
3009	T						
3010	P						
3011	G						
3012	G						
3013	MV						
3014	G						
3015	T						
3016	FT	51-FT-023					
3017	T						
3018	FE						
3019	EJ						
3020	G						
3021	T						
3022	PI						
3023	TI						
3024	TT	51-TT-027					
3025	T						Car seal present.
3026	B						
3027	MV	51-MV-0600					
3028	B						
3029	TI	TI-032M					
3030	T						Car seal present.
3031	TT	51-TT-028				Remove	
3032	B						
3033	PT						
3034	T						
3035	PI						
3036	CV	51-PCV-030					
3037	MV	51-MV-0602					
3038	MV	51-MV-0633					Car seal present.
3039	MV	51-MV-0632					
3040	T						
3040A	T						
3041	PT	51-PSH-036					
3041A	PT						
3042	G						
3043	RD						
3044	T						
3045	T						Car seal present.
3046	PI						
3047	FA						
3048	T						
3049	T						Car seal present.
3050	PI						
3051	T						
3051A	T						
3051A	T						
3052	PT	51-PT-038					
3053	TI						
3054	MV	51-MV-0634					
3055	G						
3056	T						
3057	FT	51-FT-040					
3058	T						
3059	G						
3060	L						

SOG system is out of service Remove JKH 1/26/21





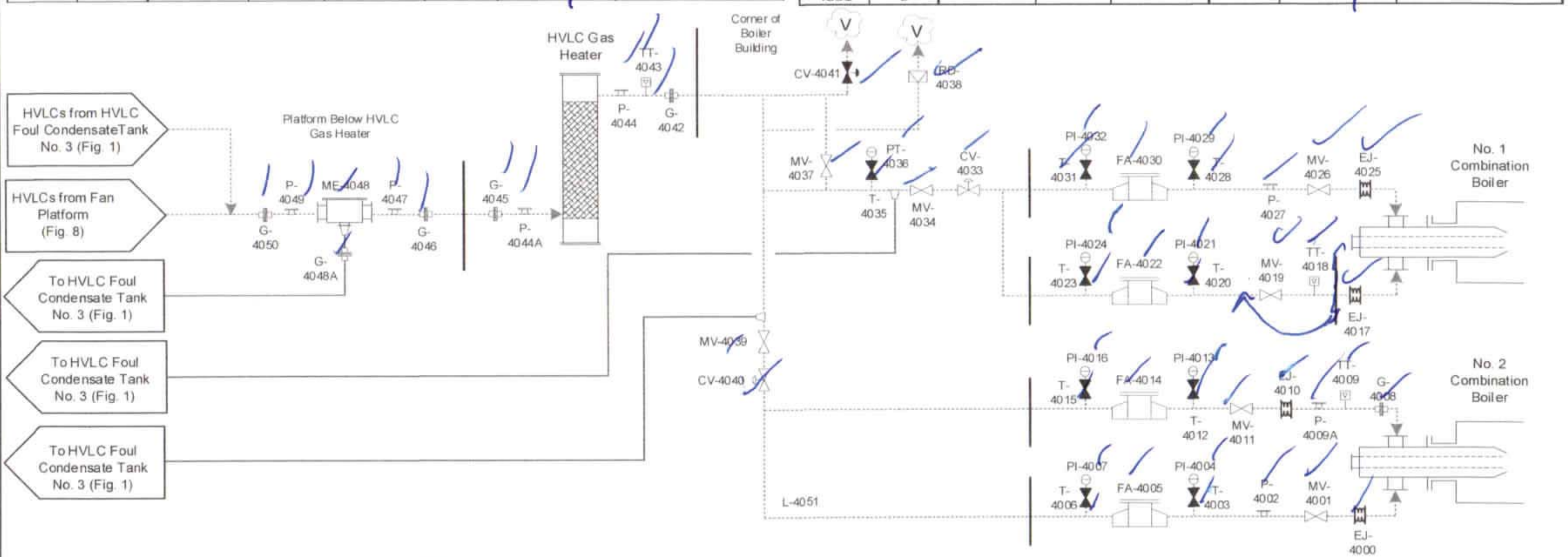
* Indicates car seal present

Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New-Indy – Catawba Mill LDAR Inspection and Testing Diagrams Stripper Column SOGs
			Rev. Date July 2020 Figure 3

Combination Boiler HVLC Incinerator
Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
4000	EJ					yes	
4001	MV	37-MV-0271				y	
4002	P					y	
4003	T					y	
4004	PI					y	
4005	FA					y	
4006	T					y	
4007	PI					y	
4008	G					y	
4009	TT					y	
4009A	P					y	
4010	EJ					y	
4011	MV	37-MV-0270				y	
4012	T					y	
4013	PI					y	
4014	FA					y	
4015	T					y	
4016	PI					y	
4017	EJ					y	
4018	TT					y	
4019	MV	26-MV-0628				y	
4020	T	BOP271				y	
4021	PI					y	
4022	FA	M52-0426				y	
4023	T	BOP270				y	

4024	PI	52-PI-930				yes	
4025	EJ					y	
4026	MV					y	
4027	P					y	
4028	T					y	
4029	PI					y	
4030	FA					y	
4031	T					y	
4032	PI					y	
4033	CV					y	
4034	MV	26-MV-0626				y	
4035	T					y	
4036	PT	52-PSH-960				y	
4037	MV	52-MV-0625				y	
4038	RD					y	
4039	MV					y	
4040	CV					y	
4041	CV					y	
4042	G					y	
4043	TT	52-TT-965				y	
4044	P					y	
4044A	P					y	
4045	G					y	
4046	G					y	
4047	P					y	
4048	ME					y	
4048A	G					y	
4049	P					y	
4050	G					y	
4051	L					y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL 360

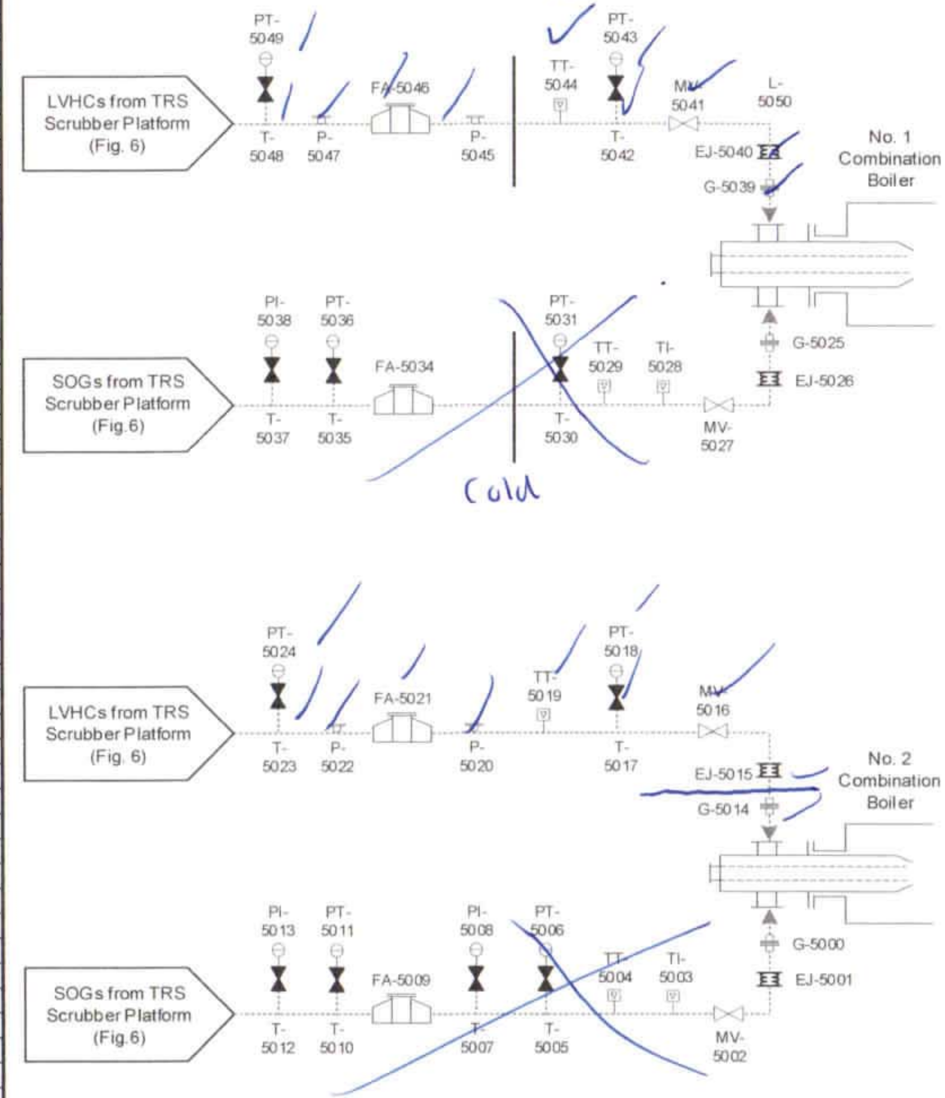
New-Indy – Catawba Mill
LDAR Inspection and Testing Diagrams
Combination Boiler HVLC Incineration

Rev. Date July 2020
Figure 4

Combination Boiler SOG and LVHC Incineration
Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
5000	G					Remove	
5001	EJ						
5002	MV	37-MV-0283					
5003	TI						
5004	TT						
5005	T						
5006	PT	37-PT-032					
5007	T						
5008	PI						
5009	FA						
5010	T						
5011	PT						
5012	T						
5013	PI						
5014	G					Yes	
5015	EJ					y	
5016	MV	37-MV-0313				y	
5017	T					y	
5018	PT	37-PT-385				y	
5019	TT	37-TT-384				y	
5020	P					y	
5021	FA					y	
5022	P					y	
5023	T					y	
5024	PT	37-PT-383				y	
5025	G						Remove
5026	EJ						
5027	MV						
5028	TI						
5029	TT	26-TT-034					
5030	T						
5031	PT	26-PT-033					
5034	FA						
5035	T						
5036	PT	26-PT-031					
5037	T						
5038	PI						
5039	G					yes	
5040	EJ					y	
5041	MV	26-MV-0532				y	
5042	T					y	
5043	PT	26-PT-377				y	
5044	TT					y	
5045	P					y	
5046	FA					y	
5047	P					y	
5048	T					y	
5049	PT	26-PT-375				y	
5050	L					y	

SOG System permanently out of Service
~~eto~~ JKM 1/26/21

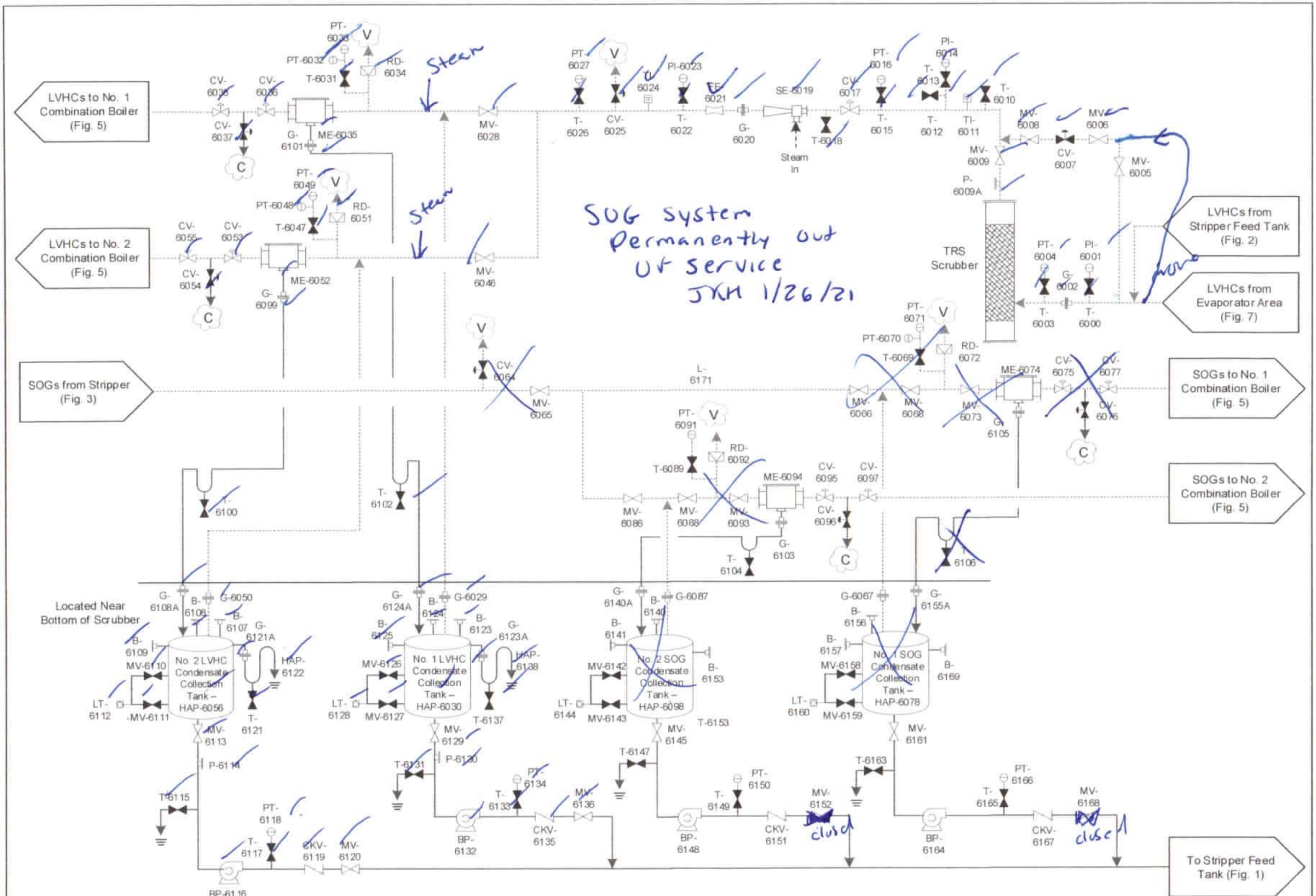


Vent Gases / Condensates / Liquor/Stock Lines / Process Lines	To Another Page and Indicated Equipment / From Another Page and Indicated Equipment	ENVIRONMENTAL 360	

New-Indy – Catawba Mill
LDAR Inspection and Testing Diagrams
Combination Boiler SOG and LVHC Incineration

Rev. Date July 2020

Figure 5



Vent Gases	To Another Page and Indicated Equipment	ENVIRONMENTAL 360	
Condensates			
Liquor/Stock Lines	From Another Page and Indicated Equipment		
Process Lines			

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

TRS Scrubber Platform

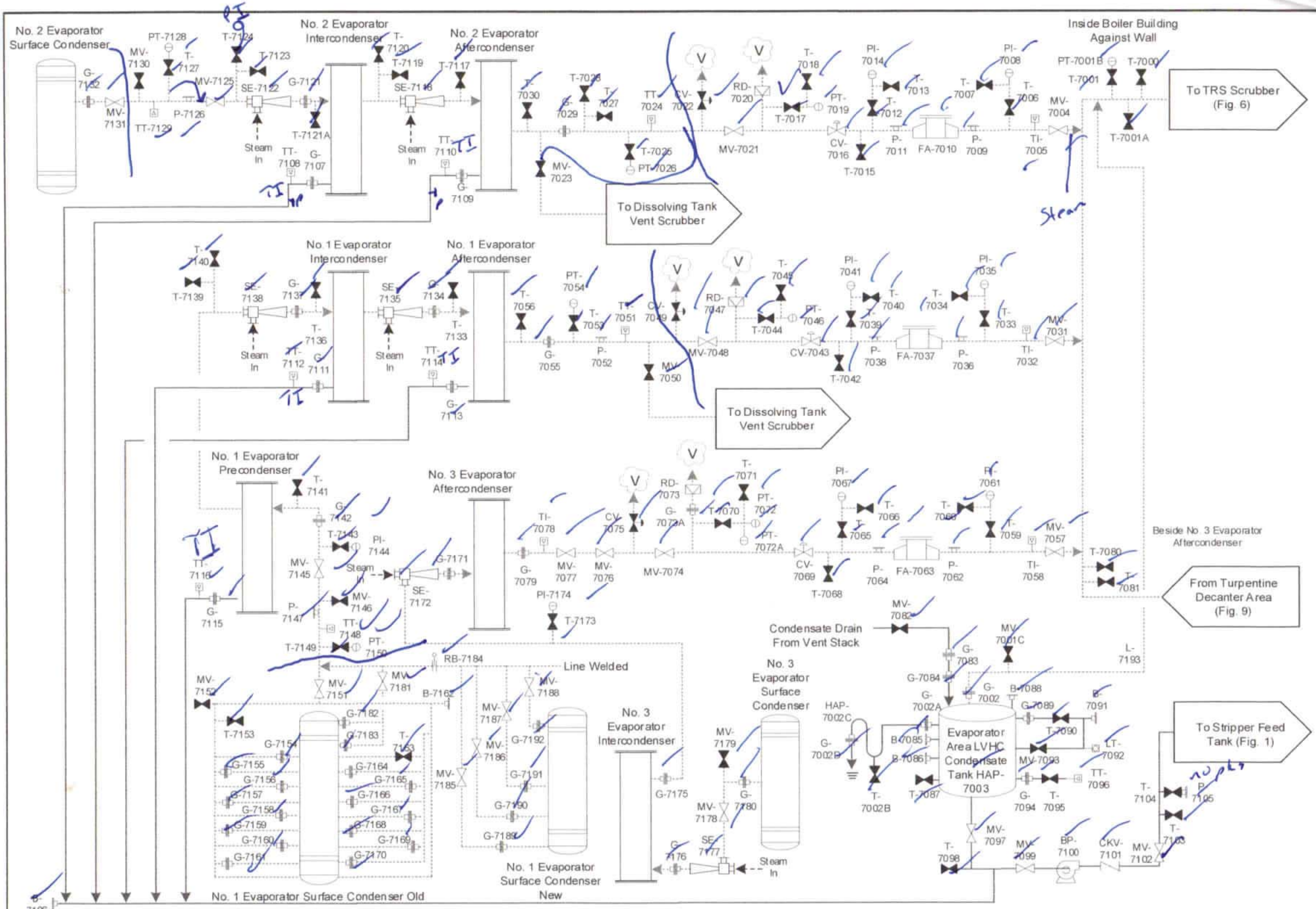
Rev. Date
July 2020

Figure 6

TRS Scrubber Platform
Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
6000	T					yes	
6001	PI					y	
6002	G					y	
6003	T					y	
6004	PT					y	
6005	MV	26-MV-0485				y	
6006	MV	26-MV-0486				y	
6007	CV	26-HV-364				y	
6008	MV	26-MV-0575				y	
6009	MV	26-MV-0507				y	
6009A	P					y	
6010	T					y	
6011	TI					y	
6012	T					y	
6013	T					y	
6014	PI					y	
6015	T					y	
6016	PT					y	
6017	CV	26-PCV-365				y	
6018	T					y	
6019	SE					y	
6020	G					y	
6021	FE					y	
6022	T					y	
6023	PI					y	
6024	TI					y	
6025	CV					y	
6026	T					y	
6027	PT	26-PT-372				y	
6028	MV					y	
6029	G					y	
6030	HAP					y	
6031	T					y	
6032	PT					y	
6033	PT	26-PSH-373				y	
6034	RD					y	
6035	ME					y	
6036	CV					y	
6037	CV					y	
6038	CV					y	
6046	MV					y	
6047	T					y	
6048	PT	37-PSH-381				y	
6049	PT					y	
6050	G					y	
6051	RD					y	
6052	ME					y	
6053	CV	37-HV-382A				y	
6054	CV	37-HV-043				y	
6055	CV	37-HV-382B				y	
6056	HAP					y	
6064	CV						Remove
6065	MV	51-MV-637					
6066	MV	51-MV-638					
6067	G						
6068	MV	51-MV-474					
6069	T						
6070	PT	26-PSH-028					
6071	PT						
6072	RD						
6073	MV	26-MV-0475					
6074	ME						
6075	CV	26-HV-030A					
6076	CV	26-HV-043					
6077	CV	26-HV-030B					
6078	HAP						
6086	MV	51-MV-0283					
6087	G						
6088	MV						
6089	T						
6091	PT	37-PSH-025					
6092	RD						
6093	MV	37-MV-0282					
6094	ME						

6095	CV	37-HV-027A					Remove
6096	CV						
6097	CV						
6098	HAP						
6099	G					yes	
6100	T					y	
6101	G					y	
6102	T					y	
6103	G					~~y~~	Remove
6104	T					~~y~~	Remove
6105	G					~~y~~	Remove
6106	T						Remove
6107	B					y	
6108	B					y	
6108A	G					y	
6109	B					y	
6110	MV					y	
6111	MV					y	
6112	LT					y	
6113	MV					y	
6114	P					y	
6115	T					y	
6116	BP					y	
6117	T					y	
6118	PT					y	
6119	CKV					y	
6120	MV					y	
6121	T					y	
6121A	G					y	
6122	HAP					y	
6123	B					y	
6123A	G					y	
6124	B					y	
6124A	G					y	
6125	B					y	
6126	MV					y	
6127	MV					y	
6128	LT					y	
6129	MV					y	
6130	P					y	
6131	T					y	
6132	BP					y	
6133	T					y	
6134	PT					y	
6135	CKV					y	
6136	MV					y	
6137	T					y	
6138	HAP					y	
6140	B					Remove	
6140A	G						
6141	B						
6142	MV						
6143	MV						
6144	LT						
6145	MV						
6147	T						
6148	BP						
6149	T						
6150	PT						
6151	CKV						
6152	MV					yes	
6153	B					Remove	
6155A	G						
6156	B						
6157	B						
6158	MV						
6159	MV						
6160	LT						
6161	MV						
6163	T						
6164	BP						
6165	T						
6166	PT						
6167	CKV						
6168	MV					yes	
6169	B					Remove	
6171	L					yes	



Vent Gases	To Another Page and Indicated Equipment
Condensates	From Another Page and Indicated Equipment
Liquor/Stock Lines	
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Evaporator System

Rev. Date July 2020

Figure 7

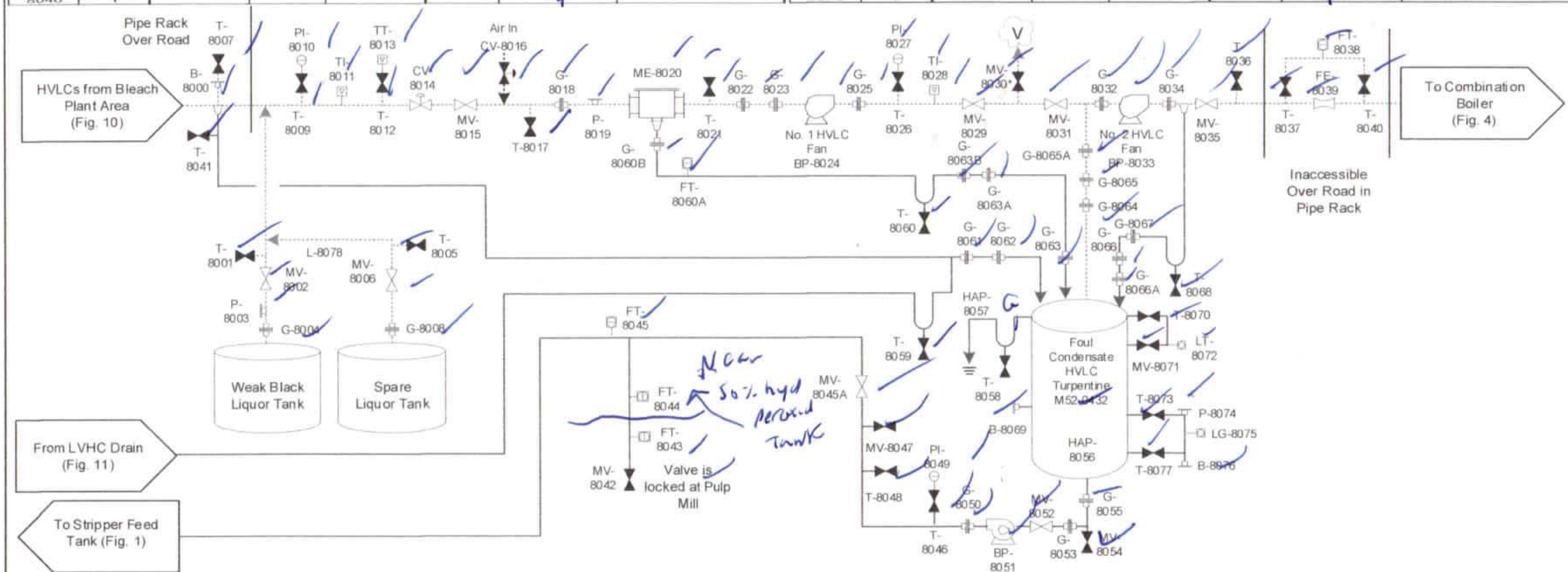
Evaporator System
Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
7000	T					Yes	
7001	T					y	
7001A	T					y	
7001B	PT					y	
7001C	MV					y	
7002	G					y	
7002A	G					y	
7002B	T					y	
7002C	HAP					y	
7002D	G					y	
7003	HAP					y	
7004	MV					y	
7005	TI					y	
7006	T					y	
7007	T					y	
7008	PI					y	
7009	P					y	
7010	FA					y	
7011	P					y	
7012	T					y	
7013	T					y	
7014	PI					y	
7015	T	24-MV-0380				y	
7016	CV	24-HV-334				y	
7017	T					y	
7018	T					y	
7019	PT					y	
7020	RD					y	
7021	MV	24-MV-0378				y	
7022	CV	24-HV-336				y	
7023	MV					y	
7024	TT	24-TE-358				y	
7025	T					y	
7026	PT	24-PT-357				y	
7027	T					y	
7028	T					y	
7029	G					y	
7030	T					y	
7031	MV	24-MV-0389				y	
7032	TI					y	
7033	T					y	
7034	T					y	
7035	PI					y	
7036	P					y	
7037	FA					y	
7038	P					y	
7039	T					y	
7040	T					y	
7041	PI					y	
7042	T	24-MV-0388				y	
7043	CV	24-HV-329				y	
7044	T					y	
7045	T					y	
7046	PT					y	
7047	RD					y	
7048	MV	24-MV-0387				y	
7049	CV	24-HV-331				y	
7050	MV					y	
7051	TT	24-TT-364				y	
7052	P					y	
7053	T					y	
7054	PT	24-PT-363				y	
7055	G					y	
7056	T					y	
7057	MV	51-MV-0660				y	
7058	TI					y	
7059	T					y	
7060	T					y	
7061	PI					y	
7062	P					y	
7063	FA					y	
7064	P					y	
7065	T					y	
7066	T					y	
7067	PI					y	
7068	T	51-MV-0659				y	
7069	CV	24-HV-339				y	
7070	T					y	
7071	T					y	
7072	PT					y	
7072A	PT					y	
7073	RD					y	
7073A	G					y	
7074	MV	51-MV-0658				y	
7075	CV	24-HV-341				y	
7076	MV	51-MV-0657				y	
7077	MV	51-MV-769				y	
7078	TI					y	
7079	G					y	
7080	T					y	
7081	T					y	
7082	MV					y	
7083	G					y	
7084	G					y	
7085	B					y	
7086	B					y	
7087	T					y	
7088	B					y	
7089	G					y	
7090	T					y	
7091	B					Yes	
7092	LT					y	
7093	MV					y	
7094	G					y	
7095	T					y	
7096	TT					y	
7097	MV					y	
7098	T					y	
7099	MV					y	
7100	BP					y	
7101	CKV					y	
7102	MV					y	
7103	T					y	
7104	T					y	
7106	B					y	
7107	G					y	
7108	TT					y	
7109	G					y	
7110	TT					y	
7111	G					y	
7112	TT					y	
7113	G					y	
7114	TT					y	
7115	G					y	
7116	TT					y	
7117	T					y	
7118	SE					y	
7119	T					y	
7120	T					y	
7121	G					y	
7121A	T					y	
7122	SE					y	
7123	T					y	
7124	T					y	
7125	MV					y	
7126	P					y	
7127	T					y	
7128	PT					y	
7129	TT					y	
7130	MV					y	
7131	MV					y	
7132	G					y	
7133	T					y	
7134	G					y	
7135	SE					y	
7136	T					y	
7137	G					y	
7138	SE					y	
7139	T					y	
7140	T					y	
7141	T					y	
7142	G					y	
7143	T					y	
7144	PI					y	
7145	MV					y	
7146	MV					y	
7147	P					y	
7148	TT					y	
7149	T					y	
7150	PT					y	
7151	MV					y	
7152	MV	24-MV-0399				y	
7153	T					y	
7154	G					y	
7155	G					y	
7156	G					y	
7157	G					y	
7158	G					y	
7159	G					y	
7160	G					y	
7161	G					y	
7162	B					y	
7163	T					y	
7164	G					y	
7165	G					y	
7166	G					y	
7167	G					y	
7168	G					y	
7169	G					y	
7170	G					y	
7171	G					y	
7172	SE					y	
7173	T	51-MV-0774				y	
7174	PI					y	
7175	G					y	
7176	G					y	
7177	SE					y	
7178	MV	51-MV-0783				y	
7179	MV	51-MV-0782				y	
7180	G					y	
7181	MV					y	
7182	G					y	
7183	G					y	
7184	RB					y	
7185	MV					y	
7186	MV					y	
7187	MV					y	
7188	MV					y	
7189	G					y	
7190	G					y	
7191	G					y	
7192	G					y	
7193	L					y	

HVLC Blower Platform
Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8000	B					yes y	
8001	T					y y	
8002	MV					y y	
8003	P					y y	
8004	G					y y	
8005	T					y y	
8006	MV					y y	
8007	T					y y	
8008	G					y y	
8009	T					y y	
8010	PI					y y	
8011	TI					y y	
8012	T					y y	
8013	TT					y y	
8014	CV	54-PV-953				y y	
8015	MV	26-MV-0618				y y	
8016	CV					y y	
8017	T	26-MV-0619				y y	
8018	G					y y	
8019	P					y y	
8020	ME					y y	
8021	T					y y	
8022	G					y y	
8023	G					y y	
8024	BP	M52-0412				y y	
8025	G					y y	
8026	T					y y	
8027	PI	52-PI-958				y y	
8028	TI					y y	
8029	MV	26-MV-0670				y y	
8030	MV					y y	Car seal present.
8031	MV					y	
8032	G					y y	
8033	BP	M52				y y	
8034	G					y y	
8035	MV	26-MV-0622				y y	
8036	T					y y	
8037	T					y y	
8038	FT					y y	
8039	FE					y y	
8040	T					y y	

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8041	T					y y	
8042	MV					y y	
8043	FT					y y	
8044	FT					y y	
8045	FT					y y	
8045A	MV					y y	
8046	T					y y	
8047	MV					y y	
8048	T					y y	
8049	PI					y y	
8050	G					y y	
8051	BP					y y	
8052	MV					y y	
8053	G					y y	
8054	MV					y y	
8055	G					y y	
8056	HAP					y y	
8057	HAP					y y	
8058	T					y y	
8059	T					y y	
8060	T					y y	
8060A	FT					y y	
8060B	G					y y	
8061	G					y y	
8062	G					y y	
8063	G					y y	
8063A	G					y y	
8063B	G					y y	
8064	G					y y	
8065	G					y y	
8065A	G					y y	
8066	G					y y	
8066A	G					y y	
8067	G					y y	
8068	T					y y	
8069	B					y y	
8070	T					y y	
8071	MV					y y	
8072	LT					y y	
8073	T					y y	
8074	P					y y	
8075	LG					y y	
8076	B					y y	
8077	T					y y	
8078	L					y y	



* Indicates car seal present

Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams
HVLC Blower Platform

Rev. Date July 2020

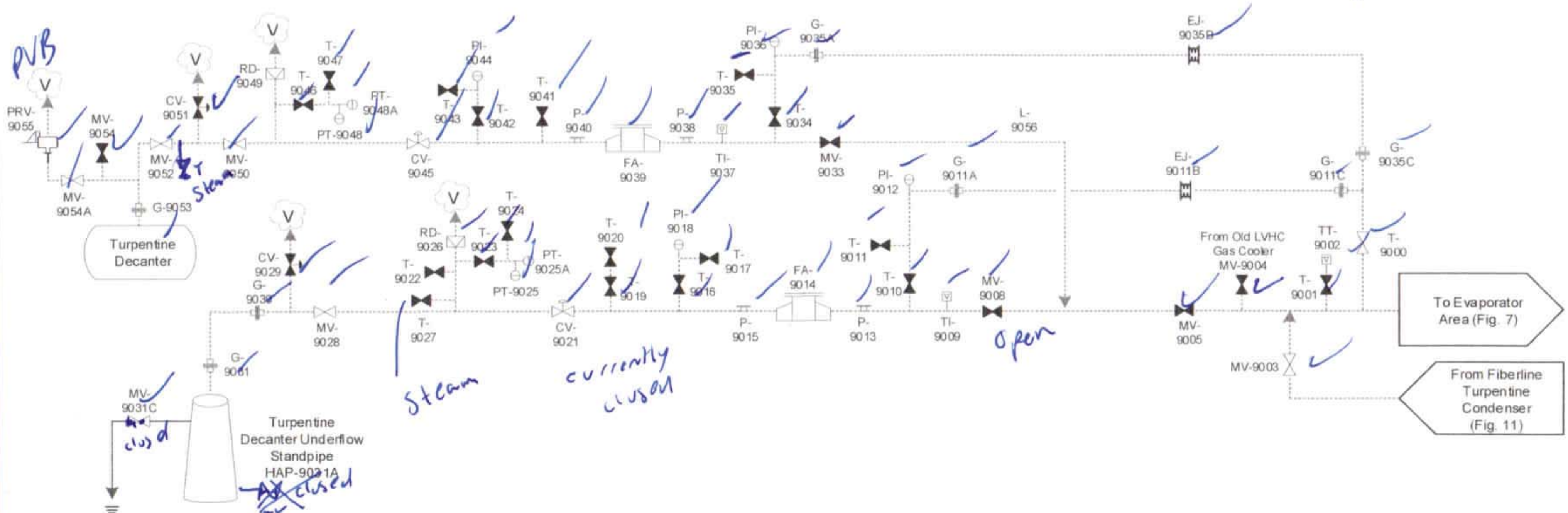
Figure 8

Turpentine Decanter and Standpipe

Completed Date/Time: 1/26/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
9000	T					y es	
9001	T					y y	
9002	TT						
9003	MV	14-MV-0312				y y	
9004	MV					y y	
9005	MV					y y	
9008	MV	14-TI/TW-125				y y	
9009	TI					y y	
9010	T					y y	
9011	T					y y	
9011A	G					y	
9011B	EJ						
9011C	G					y	
9012	PI					y y	
9013	P					y y	
9014	FA					y y	
9015	P					y y	
9016	T					y	
9017	T					y y	
9018	PI	14-PI-125A				y y	
9019	T					y y	
9020	T					y y	
9021	CV	14-HV-127				y y	
9022	T					y y	
9023	T					y y	
9024	T					y	
9025	PT	14-PSH-122				y y	
9025A	PT	14-PSH-122				y y	
9026	RD						
9027	T					y y	
9028	MV						

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
9029	CV	14-HV-126				y y	
9030	G						
9031	G					y y	
9031A	HAP						
9031C	MV						
9033	MV	14-MV-0330				y y	
9034	T					y y	
9035	T					y y	
9035A	G					y y	
9035B	EJ						
9035C	G					y y	
9036	PI					y	
9037	TI	14-TI/TW-304B				y y	
9038	P						
9039	FA	M14-0121				y y	
9040	P						
9041	T					y y	
9042	T						
9043	T					y y	
9044	PI						
9045	CV	14-HV-314				y y	
9046	T						
9047	T					y y	
9048	PT	14-PSH-313					
9048A	PT	14-PSH-313				y y	
9049	RD						
9050	MV	14-MV-0342				y y	
9051	CV	14-HV-312					
9052	MV	14-MV-0343				y y	
9053	G						
9054	MV					y y	
9054A	MV						
9055	PRV					y y	
9056	L						



Vent Gases		To Another Page and Indicated Equipment	
Condensates			
Liquor/Stock Lines		From Another Page and Indicated Equipment	
Process Lines			

ENVIRONMENTAL 360

New-Indy – Catawba Mill

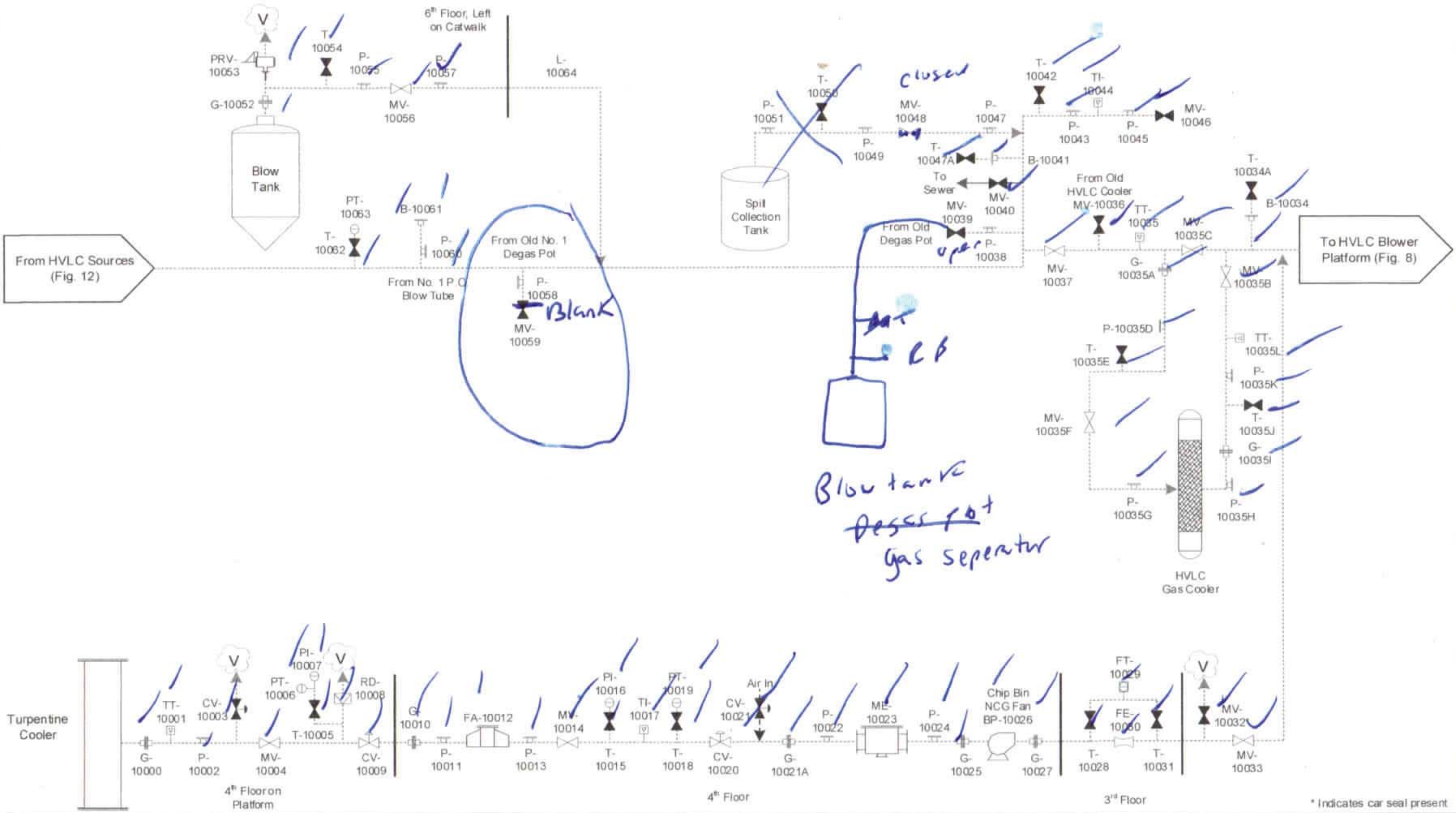
LDAR Inspection and Testing Diagrams

Turpentine Decanter and Standpipe

Rev. Date

July 2020

Figure 9



* Indicates car seal present

Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Turpentine Cooler and Blow Tank

Rev. Date July 2020

Figure 10

Turpentine Cooler and Blow Tank

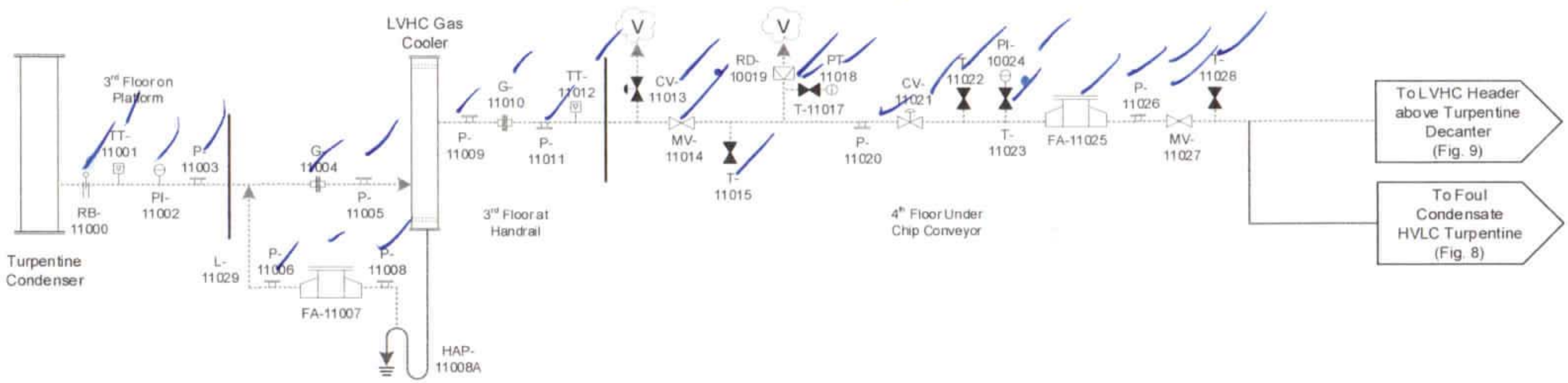
Completed Date/Time: 1/27/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
10000	G					Yes	
10001	TT	52-TE-230				y	
10002	P					y	
10003	CV	52-QV-937				y	
10004	MV	52-MV-1021				y	
10005	T					y	
10006	PT	52-PSH-934				y	
10007	PI					y	
10008	RD					y	
10009	CV	52-EV-938				y	
10010	G					y	
10011	P					y	
10012	FA	M52-0429				y	
10013	P					y	
10014	MV	52-MV-1022				y	
10015	T					y	
10016	PI					y	
10017	TI					y	
10018	T					y	
10019	PT					y	
10020	CV	52-PV-941				y	
10021	CV					y	
10021A	G					y	
10022	P					y	
10023	ME	M52-0415				y	
10024	P					y	
10025	G					y	
10026	BP	M52-0411				y	
10027	G					y	
10028	T					y	
10029	FT					y	
10030	FE					y	
10031	T					y	
10032	MV					y	Car seal present.
10033	MV					y	
10034	B					y	
10034A	T					y	
10035	TT	52-TT-947				y	
10035A	G					y	
10035B	MV					y	
10035C	MV					y	
10035D	P					Yes	
10035E	T					y	
10035F	MV					y	
10035G	P					y	
10035H	P					y	
10035I	G					y	
10035J	T					y	
10035K	P					y	
10035L	TT					y	
10036	MV					y	
10037	MV					y	
10038	P					y	
10039	MV					y	
10040	MV					y	
10041	B					y	
10042	T					y	
10043	P					y	
10044	TI					y	
10045	P					y	
10046	MV					y	
10047	P					y	
10047A	T					y	
10048	MV	A507				y	
10049	P					Remove	
10050	T						
10051	P						
10052	G					y	
10053	PRV					y	
10054	T					y	
10055	P					y	
10056	MV					y	
10057	P					y	
10058	P					y	
10059	~~MV~~ Blank					y	
10060	P					y	
10061	B					y	
10062	T					y	
10063	PT	52-PT-215				y	
10064	L					y	

Turpentine Condenser and LVHC Gas Cooler

Completed Date/Time: 1/27/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
11000	RB					yes	
11001	TT	52-TE-222A				y	
11002	PI					y	
11003	P					y	
11004	G					y	
11005	P					y	
11006	P					y	
11007	FA	M52-0512				y	
11008	P					y	
11008A	HAP					y	
11009	P					y	
11010	G					y	
11011	P					y	
11012	TT	52-TE-225				y	
11013	CV	52-HV-174B				y	
11014	MV	52-A-368				y	
11015	T					y	
11017	T					y	
11018	PT	52-PSH-226				y	
11019	RD					y	
11020	P					y	
11021	CV	52-HV-174A				y	
11022	T	52-A-428				y	
11023	T					y	
11024	PI	52-PI-226				y	
11025	FA	Z00-0395M				y	
11026	P					y	
11027	MV	52-A-541				y	
11028	T	52-A-437				y	
11029	L					y	



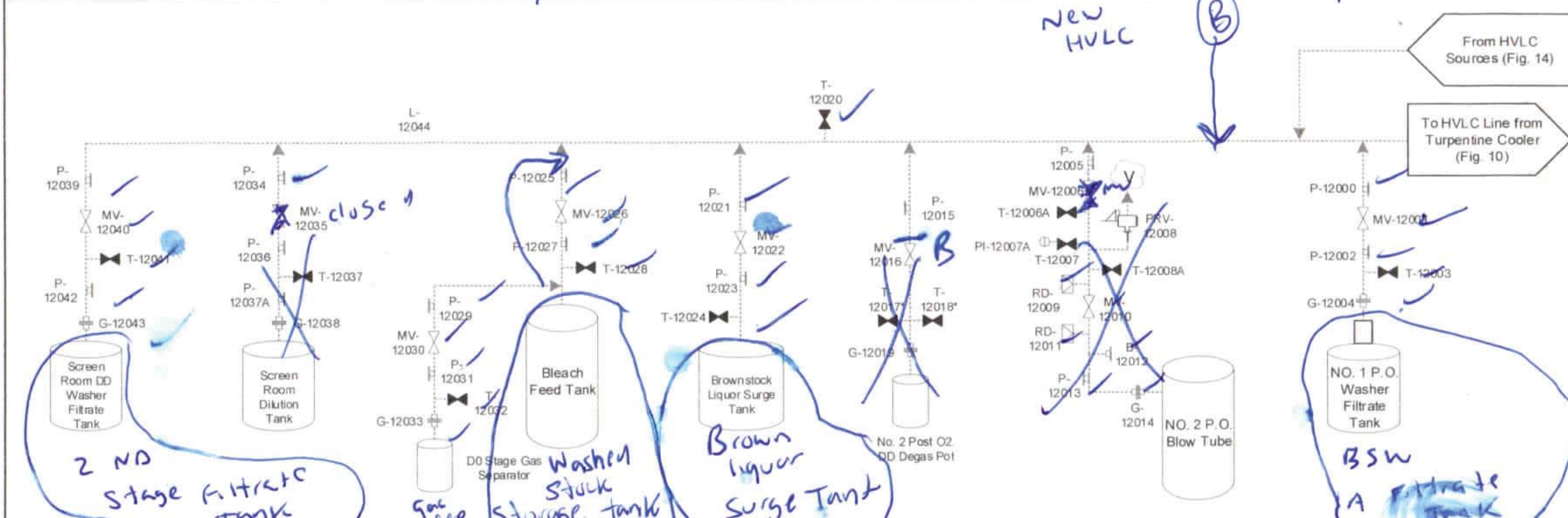
Vent Gases / Condensates / Liquor/Stock Lines / Process Lines — To Another Page and Indicated Equipment / From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New-Indy – Catawba Mill; LDAR Inspection and Testing Diagrams Turpentine Condenser and LVHC Gas Cooler	Rev. Date July 2020; Figure 11

HVLC System at Pulp Mill (1 of 2)

Completed Date/Time: 1/27/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12000	P					yes	
12001	MV					y	
12002	P					y	
12003	T	X182				y	
12004	G					y	
12005	P					y	
12006	MV					y	
12006A	T						Remove
12007	T						
12007A	PI						
12008	PRV						
12008A	T						
12009	RD						
12010	MV						
12011	RD						
12012	B						
12013	P						
12014	G						
12015	P					yes	
12016	MV Blank					y	
12017	T					Remove	Car seal present.
12018	T	X176					Car seal present.
12019	G						
12020	T	V4454				yes	

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12021	P					yes	
12022	MV	0598-22-HY				y	
12023	P					y	
12024	T	D060				y	
12025	P					y	
12026	MV					y	
12027	P					y	
12028	T					y	
12029	P					y	
12030	MV	F543				y	
12031	P					y	
12032	T	F541				y	
12033	G					y	
12034	P					y	
12035	MV	SR307				y	
12036	P						Remove
12037	T	SR314					
12037A	P						
12038	G						
12039	P					yes	
12040	MV	SR308				y	
12041	T					y	
12042	P					y	
12043	G					y	
12044	L					y	



Vent Gases	....
Condensates	———
Liquor/Stock Lines	———
Process Lines	———

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL 360

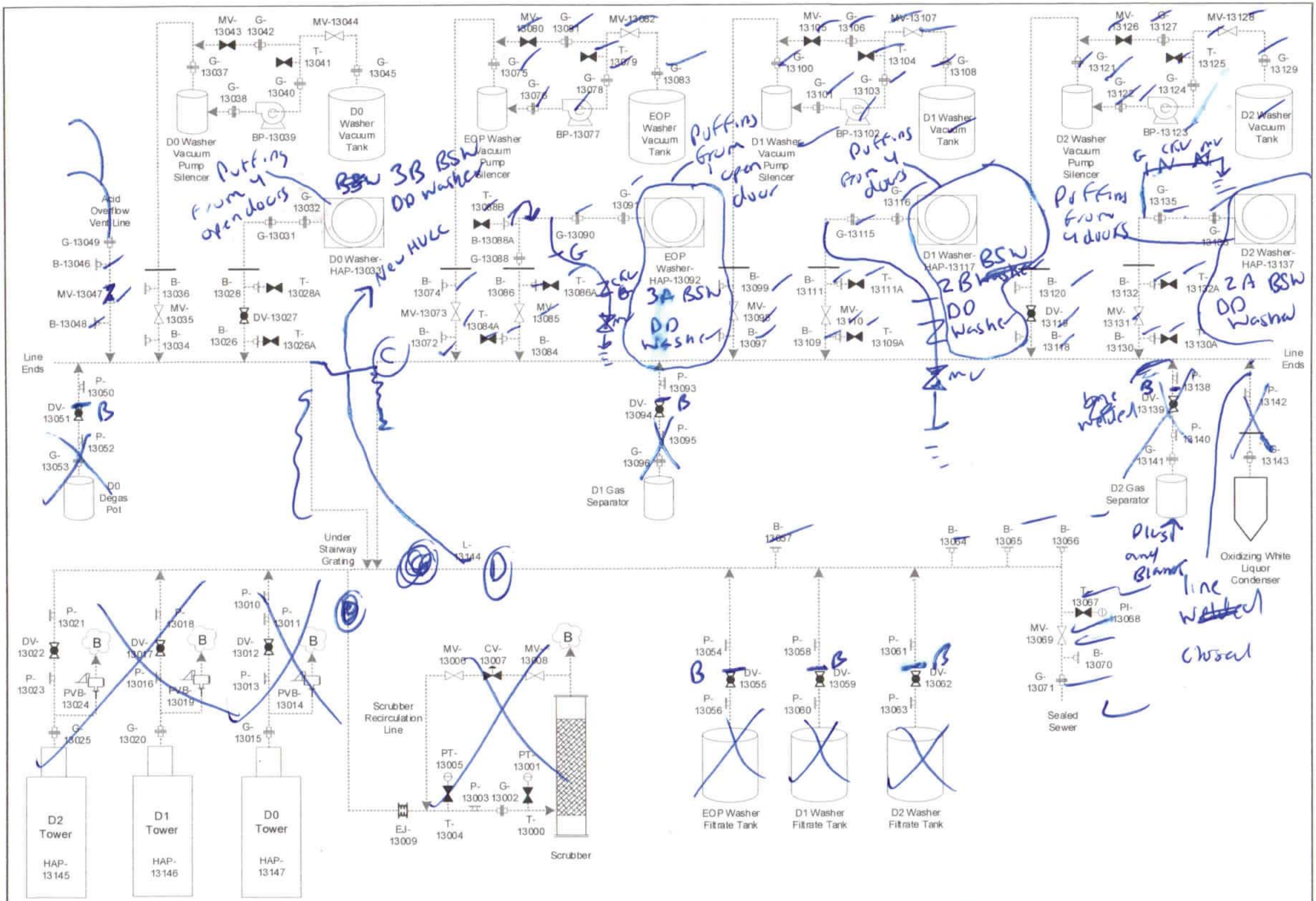
New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

HVLC System at Pulp Mill (1 of 2)

Rev. Date July 2020

Figure 12



Vent Gases Bleach Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	New-Indy – Catawba Mill LDAR Inspection and Testing Diagrams Bleach Plant	Rev. Date July 2020 Figure 13

Bleach Plant
Completed Date/Time: 1/27/21

Bleach Plant changed to Pulp mill

All LDAR components inspected

JKH 1/27/21

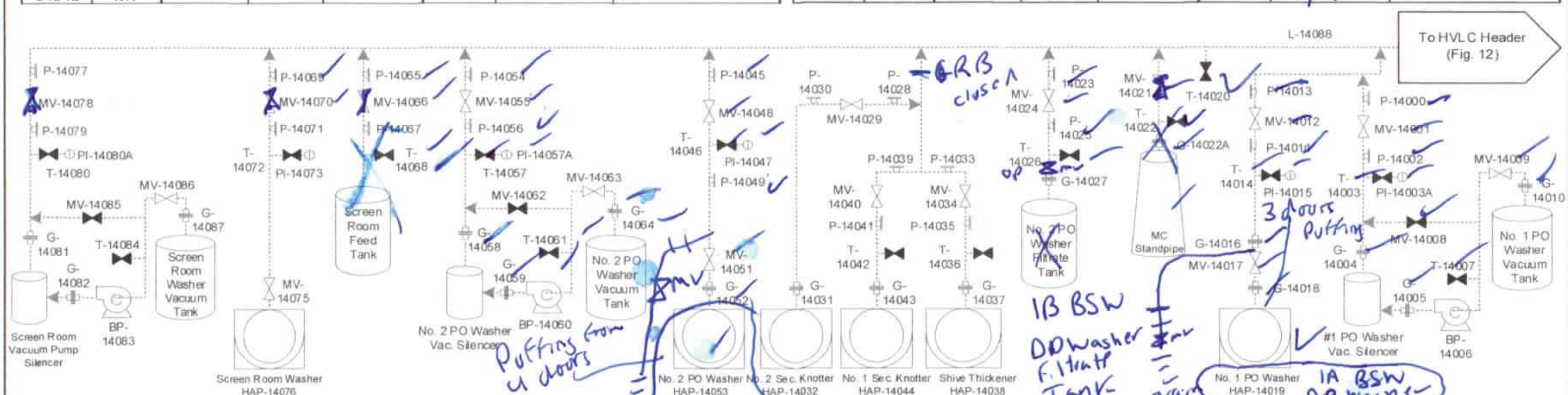
Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
13000	T						
13001	PT	53-PT-322					
13002	G						
13003	P						
13004	T						
13005	PT	53-PT-320					
13006	MV	F420					
13007	CV						
13008	MV	F421					
13009	EJ						
13010	P						
13011	P						
13012	DV	F522					
13013	P						
13014	PVB						
13015	G						
13016	P						
13017	DV	F521					
13018	P						
13019	PVB						
13020	G						
13021	P						
13022	DV	F520					
13023	P						
13024	PVB						
13025	G						
13026	B						
13026A	T						
13027	DV						
13028	B						
13028A	T						
13031	G						
13032	G						
13033	HAP						
13034	B						
13035	MV	F532					
13036	B						
13037	G						
13038	G						
13039	BP	E53-0021					
13040	G						
13041	T	F56					
13042	G						
13043	MV	F99					
13044	MV						
13045	G						
13046	B						
13047	MV						
13048	B						
13049	G						
13050	P						
13051	DV						
13052	P						
13053	G						
13054	P						
13055	DV						
13056	P						
13057	B						
13058	P						
13059	DV						
13060	P						
13061	P						
13062	DV						
13063	P						
13064	B						
13065	B						
13066	B						
13067	T						
13068	PI						
13069	MV						
13070	B						
13071	G						

13072	B						
13073	MV	F530					
13074	B						
13075	G						
13076	G						
13077	BP	E53-0046					
13078	G						
13079	T	F195					
13080	MV	F101					
13081	G						
13082	MV						
13083	G						
13084	B						
13084A	T						
13085	MV	F529					
13086	B						
13086A	T						
13088	G						
13088A	B						
13088B	T						
13090	G						
13091	G						
13092	HAP						
13093	P						
13094	DV	F528					
13095	P						
13096	G						
13097	B						
13098	MV	F527					
13099	B						
13100	G						
13101	G						
13102	BP						
13103	G						
13104	T	F262					
13105	MV	F248					
13106	G						
13107	MV						
13108	G						
13109	B						
13109A	T						
13110	MV						
13111	B						
13111A	T						
13115	G						
13116	G						
13117	HAP						
13118	B						
13119	DV	F524					
13120	B						
13121	G						
13122	G						
13123	BP	E53-0106					
13124	G						
13125	T	F356					
13126	MV	F293					
13127	G						
13128	MV						
13129	G						
13130	B						
13130A	T						
13131	MV						
13132	B						
13132A	T						
13135	G						
13136	G						
13137	HAP						
13138	P						
13139	DV						
13140	P						
13141	G						
13142	P						
13143	G						
13144	L						
13145	HAP						
13146	HAP						
13147	HAP						

HVLC System at Pulp Mill (2 of 2)
Completed Date/Time: 1/27/21

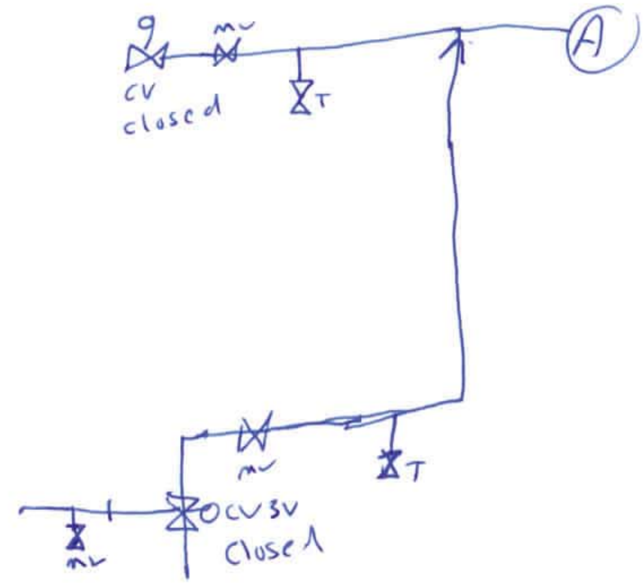
Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
14000	P					yes	
14001	MV	X170				y	
14002	P					y y	
14003	T					y	
14003A	PI	52-PI-353				y	
14004	G					y	
14005	G					y y	
14006	BP	M52-0092				y	
14007	T	X74				y	
14008	MV	X240				y	
14009	MV					y	
14010	G					y	
14011	P					y	
14012	MV	X169				y	
14013	P					y	
14014	T	X179				y	
14015	PI					y	
14016	G					y	
14017	MV					y	
14018	G					y	
14019	~~HAP~~ NA					NO	Puffing
14020	T					y	
14021	MV					y	
14022	T						Remove
14022A	G						Remove
14023	P					y	
14024	MV	X171				y	
14025	P					y	
14026	T					y	
14027	G					y	
14028	P						Remove
14029	MV						
14030	P						
14031	G						
14032	HAP						
14033	P						
14034	MV						
14035	P						
14036	T	SR316					
14037	G						
14038	HAP						
14039	P						
14040	MV						

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
14041	P						Remove
14042	T	SR317					
14043	G						
14044	HAP						
14045	P						
14046	T						
14047	PI						
14048	MV	X168					
14049	P						
14051	MV						
14052	G						
14053	~~HAP~~ NA					NO	Puffing
14054	P					yes	
14055	MV	X167				y	
14056	P					y	
14057	T					y	
14057A	PI					y	
14058	G					y	
14059	G					y	
14060	BP	E52-0128				y	
14061	T	X159				y	
14062	MV	X265				y	
14063	MV					y	
14064	G					y	
14065	P					yes	
14066	MV	SR313				yes	
14067	P						Remove
14068	T	SR320					Remove
14069	P					yes	
14070	MV	SR312					Keep
14071	P						Remove
14072	T	SR319					
14073	PI						
14075	MV						
14076	HAP						
14077	P						
14078	MV	SR311				yes yes	~~Remove~~ Keep
14079	P						
14080	T	SR318					Remove
14080A	PI						
14081	G						
14082	G						
14083	BP	E52-0194					
14084	T	SR265					
14085	MV	SR276					
14086	MV						
14087	G						
14088	L					yes	



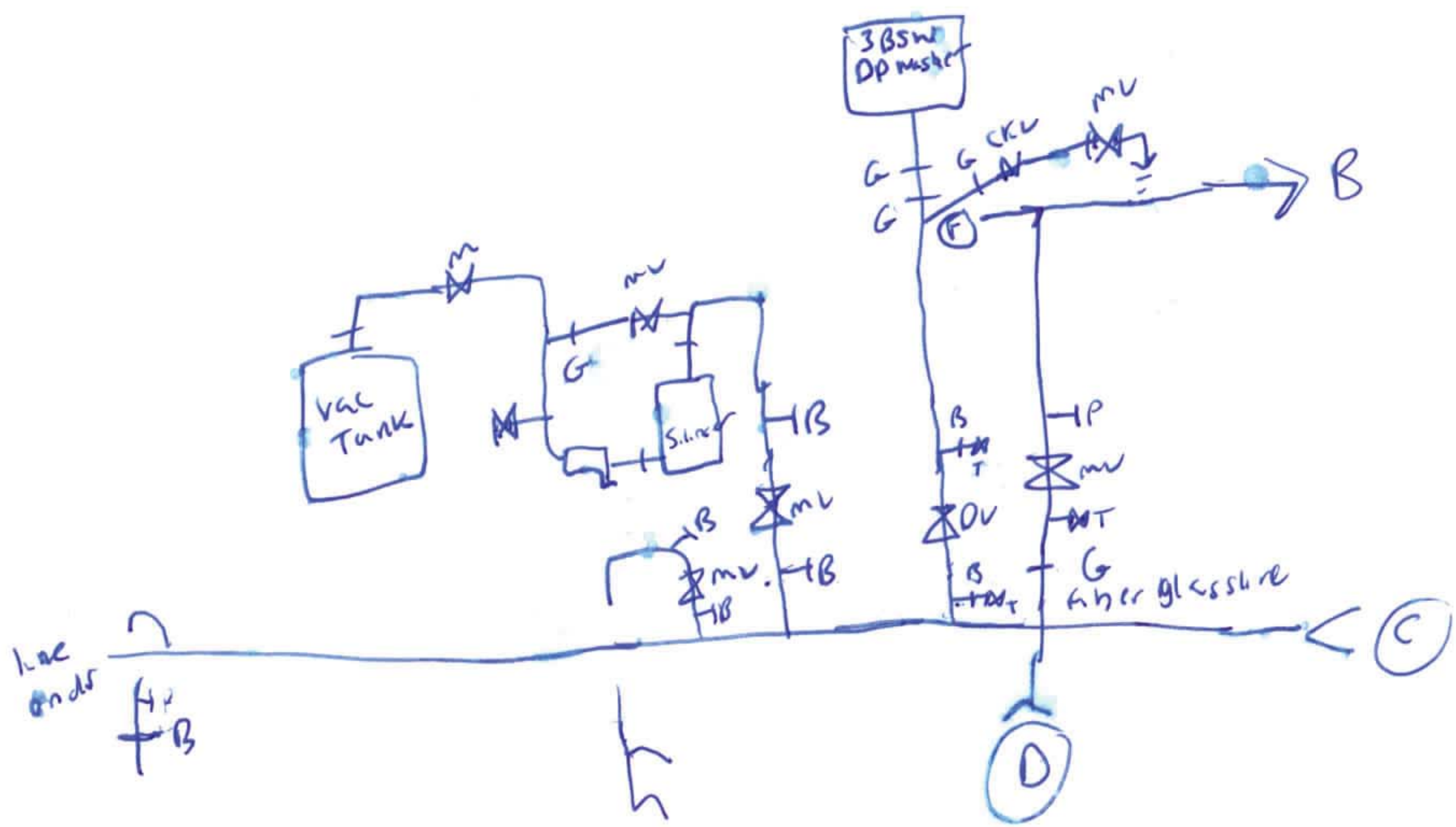
Vent Gases	To Another Page and Indicated Equipment	New-Indy – Catawba Mill	Rev. Date July 2020
Condensates			
Liquor/Stock Lines	From Another Page and Indicated Equipment	LDAR Inspection and Testing Diagrams HVLC System at Pulp Mill (2 of 2)	Figure 14
Process Lines			

ENVIRONMENTAL 360

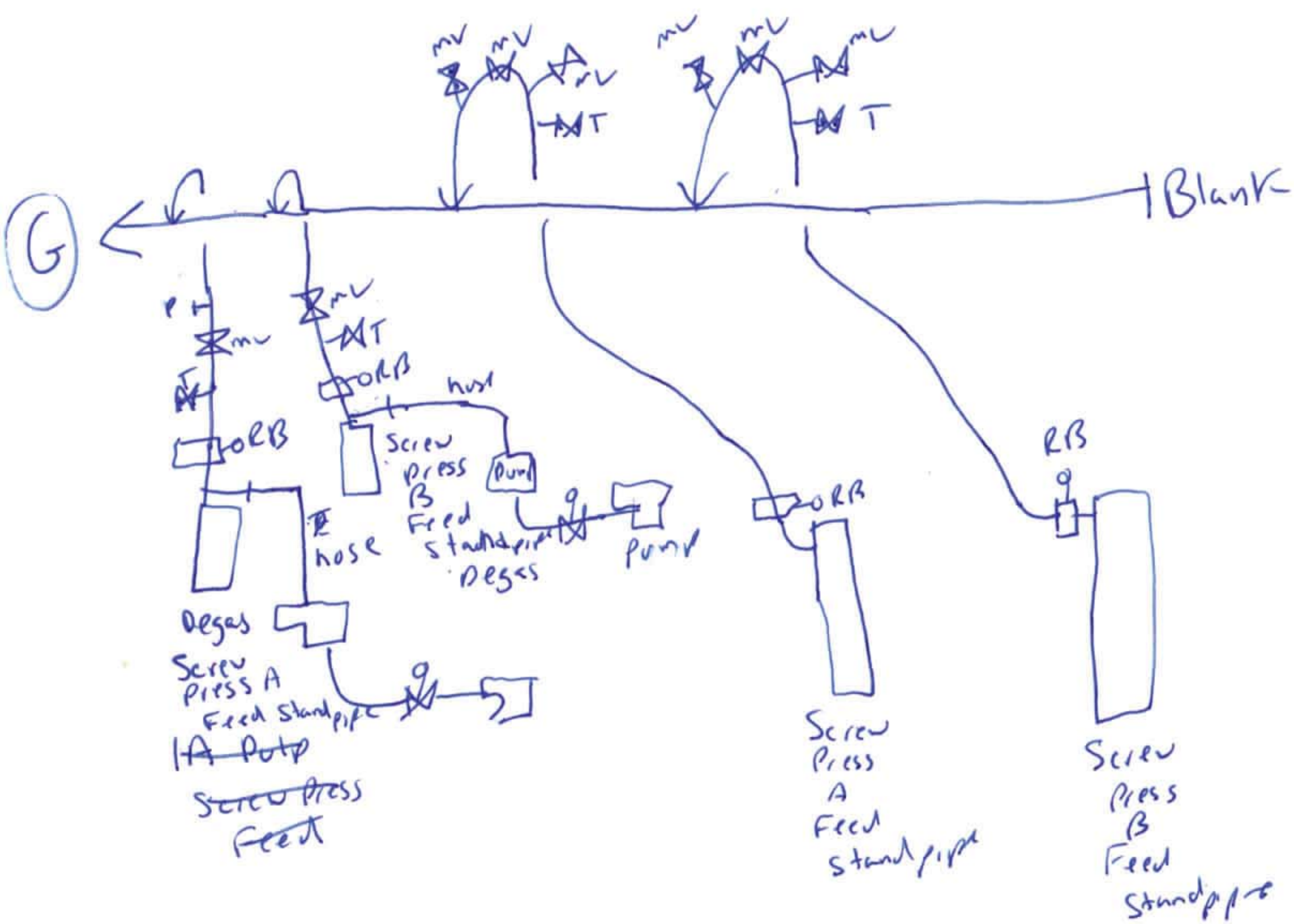


9
mv
CV
closed
T
A
mv
T
CV 3V
Close 1
mv

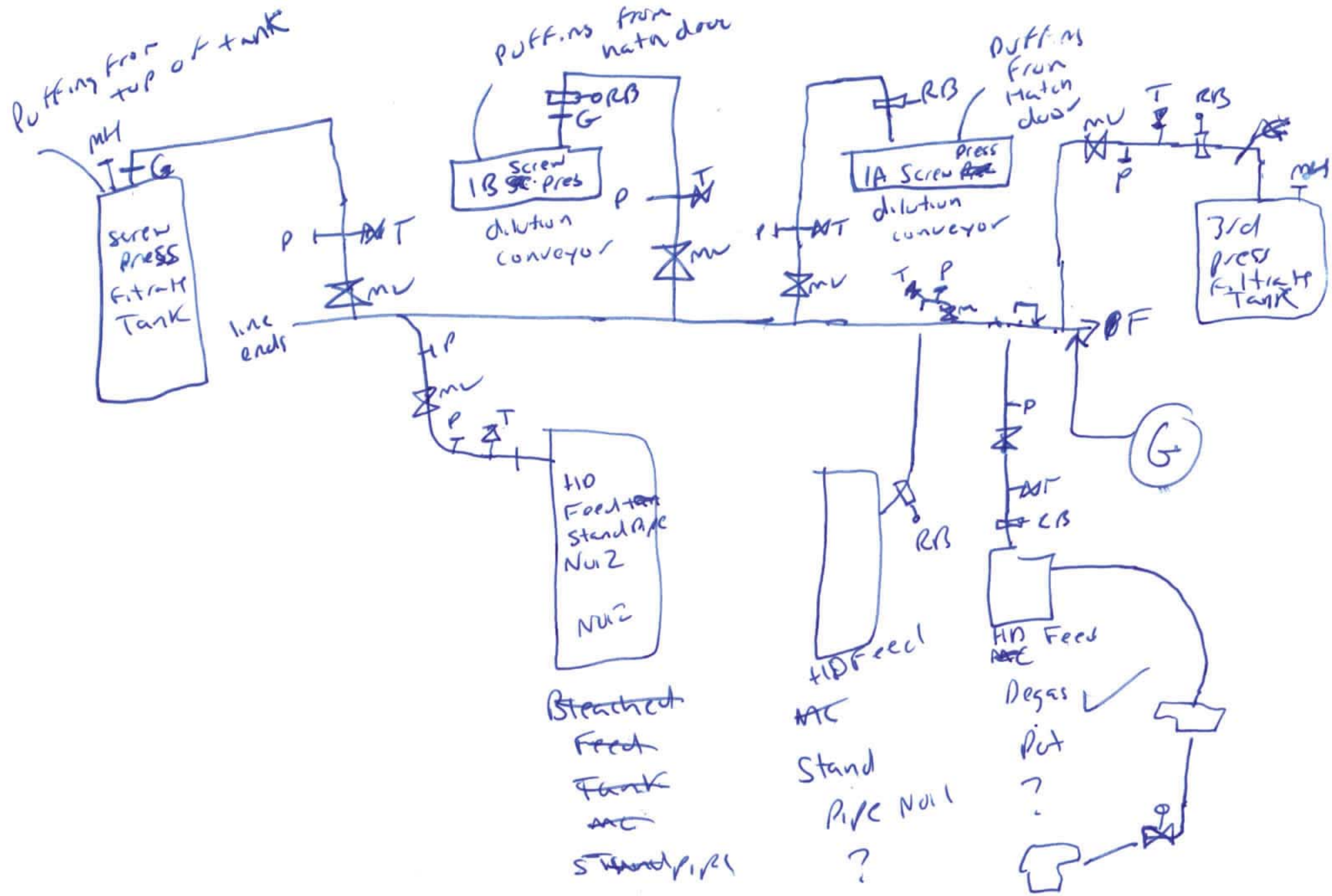
last washer



3BSW DP washer
G
G
G
CKV
MV
F
B
Vac Tank
M
MV
G
Sliner
B
MV
B
MV
B
B
B
T
OV
B
T
P
MV
T
G
fiberglass line
C
D
line ends
HP
B



G
Blank
mv
mv
mv
mv
T
mv
mv
mv
T
P
mv
mv
T
ORB
ORB
hose
Screw press B Feed standpipe
Pump
Degas
hose
Pump
ORB
RB
Degas
Screw Press A Feed Standpipe
~~1A Pump~~
~~Screw Press Feed~~
Screw Press A Feed standpipe
Screw Press B Feed Standpipe


Puffing from top of tank
MH
G
Screw press Filtrate Tank
line ends
P
T
MV
puffins from hatch door
RB
G
1B Screw press
dilution conveyor
Puffins from Hatch door
RB
1A Screw press
dilution conveyor
MV
T
RB
P
MH
3rd press Filtrate Tank
F
G
HD Feed standpipe No 2
No 2
~~Bleached~~
~~Feed~~
~~Tank~~
~~AAC~~
~~Stand~~pipe
HD Feed
~~AAC~~
Stand
Pipe No 1
?
CB
HD Feed
~~AAC~~
Degas
Pit
?

Inspection Date: February 17, 2021

New Indy Containerboard - Catawba Mill
5300 Cureton Ferry Rd.
Catawba, SC 29704

2021 Monthly LDAR Inspection Summary Report

Table 1: Visual Inspection Summary Table

Equipment Number	Date	Description of Leak or Visual Defect
T-8060	2/17/2021	Tap valve T-8060 is located on foul condensate low point drain, coming from mist eliminator on HVLC line at inlet of No. 1 HVLC fan. The valve is open and dripping.
T-8068	2/17/2021	Tap valve T-8068 is located on foul condensate low point drain, coming from HVLC line at outlet of No. 2 HVLC fan. The valve is open and dripping.
HAP13007	2/17/2021	The 1A Screw Press Dilution Conveyor is puffing from top hatch door.
HAP-13013	2/17/2021	The 1B Screw Press Dilution Conveyor is puffing from top hatch door.
HAP-13117	2/17/2021	The 2B Brown Stock Washer is puffing from four open hatch doors.

First Attempt to Repair must be completed by:	5 Days from Inspection Date	Not Applicable if no leaks were found.
Repairs must be completed by:	15 Days from Inspection Date	Not Applicable if no leaks were found.

This report provides a summary of leaks and visual defects found during the visual inspection of the closed-vent and condensate-collection systems and complies with the record keeping requirements of 63.454(b)(1-2, 4-5).

The facility must initiate repairs to any defects within five (5) calendar days from this inspection and the defects must be repaired within fifteen (15) calendar days of the inspection. If the leak or defect requires the system to be shutdown in order to make repairs, or more emissions would occur from attempting the repair than delaying the repair, then the repairs may be delayed until the next process unit shutdown. A report must be supplied with the repair date and associated information, or the reason for the delay if the repairs are not completed within the 15-day period. These response requirements are specific to 40 CFR 63, specifically 63.453(k)(6), 63.453(l)(3), and 63.964(b)(1-2). Documentation of all repair attempts made and any leaks/defects requiring a process unit shutdown must be completed according to 63.454(b)(6-11).

I certify that the results of the visual inspection are accurate and complete to the best of my knowledge.

Inspector Name: Josh Howard

Signature: Josh Howard

ENVIRONMENTAL 360

Inspection QA/QC Procedure

E360 Project Number?	New Indy Catawba
Task Number (if applicable)?	February 2020 Monthly LDAR

Purpose of Form

To verify field work meets each critical element.

Visual Work Flow (WF)

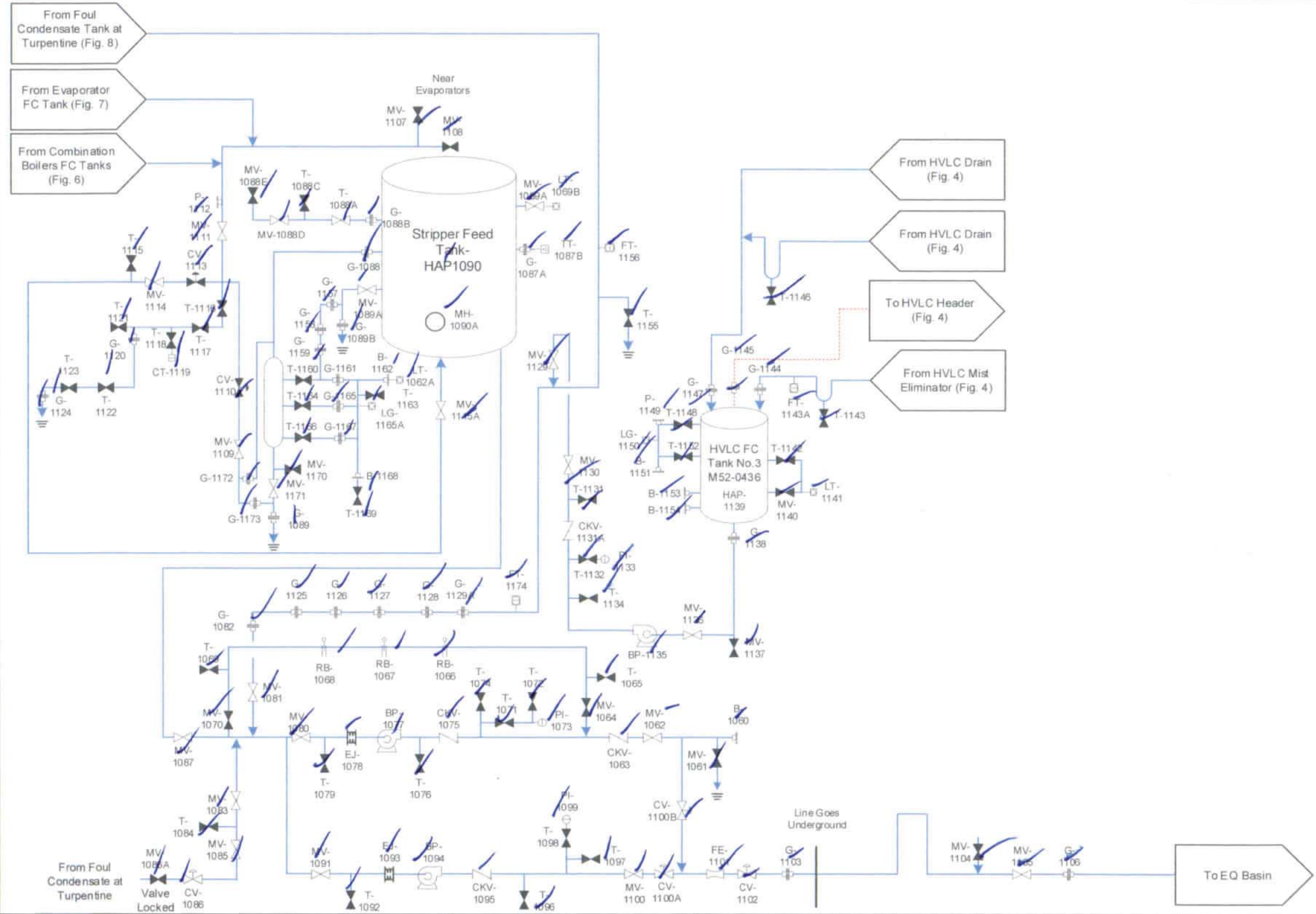
Step 1
R - Verify field work by checking "X" each WF No.

Verification of Critical Elements

WF No.	Requirement	Yes?
	Work-flow step	1
	Verifier of critical elements for work-flow step	R
1	Was a bump test performed on the personal H_2S monitor?	✓
2	Have the most recent versions of the inspection forms been used?	✓
3	Were all inspection points identified correctly and inspected correctly?	✓
4	Did the operator/ contact verify to our inspector that all equipment was operating under normal operating conditions?	✓
5	Were any deficiencies identified in person to the client?	✓
6	Were all inspection questions answered with either a Yes, No, or NA?	✓
7	Were inspections performed during the required regulatory time frame?	✓

Approvals

Role	WF Step	Name	Approval (insert date)
Responsible Person (R)	1		2/17/2021



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Stripper System Foul Condensate

Rev. Date January 2021

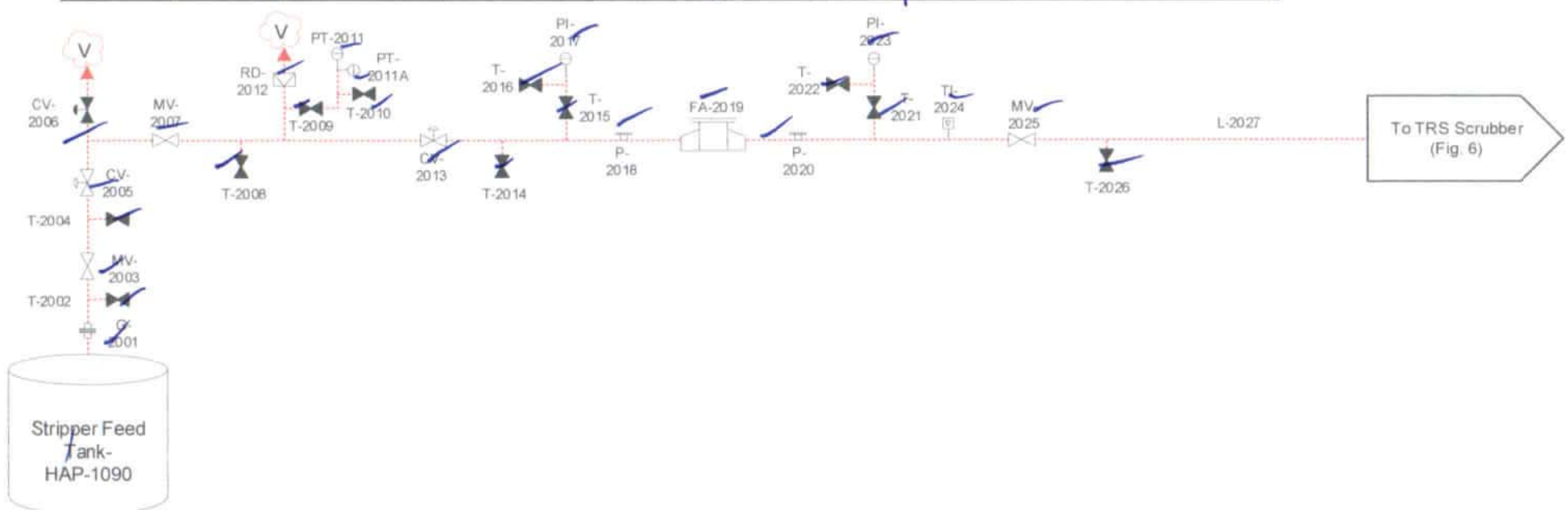
Figure 1

Stripper System Foul Condensate
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
1060	B					yes	
1061	MV	24-MV-0361				y	
1062	MV	24-MV-0359				y	
1062A	LT					y	
1063	CKV					y	
1064	MV	24-MV-0445				y	
1065	T					y	
1066	RB					y	
1067	RB					y	
1068	RB					y	
1069	T					y	
1069A	MV					y	
1069B	LT	51-LT-265				y	
1070	MV	24-MV-445				y	
1071	T					y	
1072	T					y	
1073	PI					y	
1074	T					y	
1075	CKV					y	
1076	T					y	
1077	BP					y	
1078	EJ					y	
1079	T					y	
1080	MV	24-MV-363				y	
1081	MV					y	
1082	G					y	
1083	MV	V704F				y	
1084	T					y	
1085	MV					y	
1086	CV	51-HV-269				y	
1086A	MV					y	
1087	MV	24-MV-362				y	
1087A	G					y	
1087B	TT	51-TT-266				y	
1088	G					y	
1088A	T					y	
1088B	G					y	
1088C	T					y	
1088D	MV					y	
1088E	MV					y	
1089	G					y	
1089A	MV	24-MV-0352				y	
1089B	G					y	
1090	HAP					y	
1090A	MH					y	
1091	MV	24-MV-0365				y	
1092	T					y	
1093	EJ					y	
1094	BP					y	
1095	CKV	V884F				y	
1096	T					y	
1097	T					y	
1098	T					y	
1099	PI					y	
1100	MV	24-MV-360				y	
1100A	CV					y	
1100B						y	
1101	FE					y	
1102	CV	51-FCV-267				y	
1103	G					y	
1104	MV					y	
1105	MV					y	
1106	G					y	
1107	MV					y	
1108	MV					y	
1109	MV					y	
1110	CV					y	
1111	MV					yes	
1112	P					y	
1113	CV					y	
1114	MV					y	
1115	T					y	
1115A	MV					y	
1116	T					y	
1117	T					y	
1118	T					y	
1119	CT					y	
1120	G					y	
1121	T					y	
1122	T					y	
1123	T					y	
1124	G					y	
1125	G					y	
1126	G					y	
1127	G					y	
1128	G					y	
1129	MV					y	
1129A	G					y	
1130	MV					y	
1131	T					y	
1131A	CKV					y	
1132	T					y	
1133	PI					y	
1134	T					y	
1135	BP					y	
1136	MV					y	
1137	MV					y	
1138	G					y	
1139	HAP	M52-0436				y	
1140	MV					y	
1141	LT					y	
1142	T					y	
1143	T					y	
1143A	FT					y	
1144	G					y	
1145	G					y	
1146	T					y	
1147	G					y	
1148	T					y	
1149	P					y	
1150	LG					y	
1151	B					y	
1152	T					y	
1153	B					y	
1154	B					y	
1155	T					y	
1156	FT					y	
1157	G					y	
1158	G					y	
1159	G					y	
1160	T					y	
1161	G					y	
1162	B					y	
1163	T					y	
1164	T					y	
1165	G					y	
1165A	LG					y	
1166	T					y	
1167	G					y	
1168	B					y	
1169	T					y	
1170	MV					y	
1171	MV					y	
1172	G					y	
1173	G					y	
1174	FT					y	
1175	L					y	

Stripper Feed Tank
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
2001	G					Yes	
2002	T					y	
2003	MV					y	
2004	T					y	
2005	CV	51-PCV-264				y	
2006	CV	51-HV-262				y	
2007	MV	51-MV-0672				y	
2008	T					y	
2009	T					y	
2010	T					y	
2011	PT	51-PSH-261				y	
2011A	PT					y	
2012	RD					y	
2013	CV	51-HV-260				y	
2014	T	51-MV-0675				y	
2015	T					y	
2016	T					y	
2017	PI					y	
2018	P					y	
2019	FA	M51-0546				y	
2020	P					y	
2021	T					y	
2022	T					y	
2023	PI	51-PI-268B				y	
2024	TI	01-TI-274				y	
2025	MV	51-MV-0673				y	
2026	T	24-MV-0353				y	
2027	L					y	



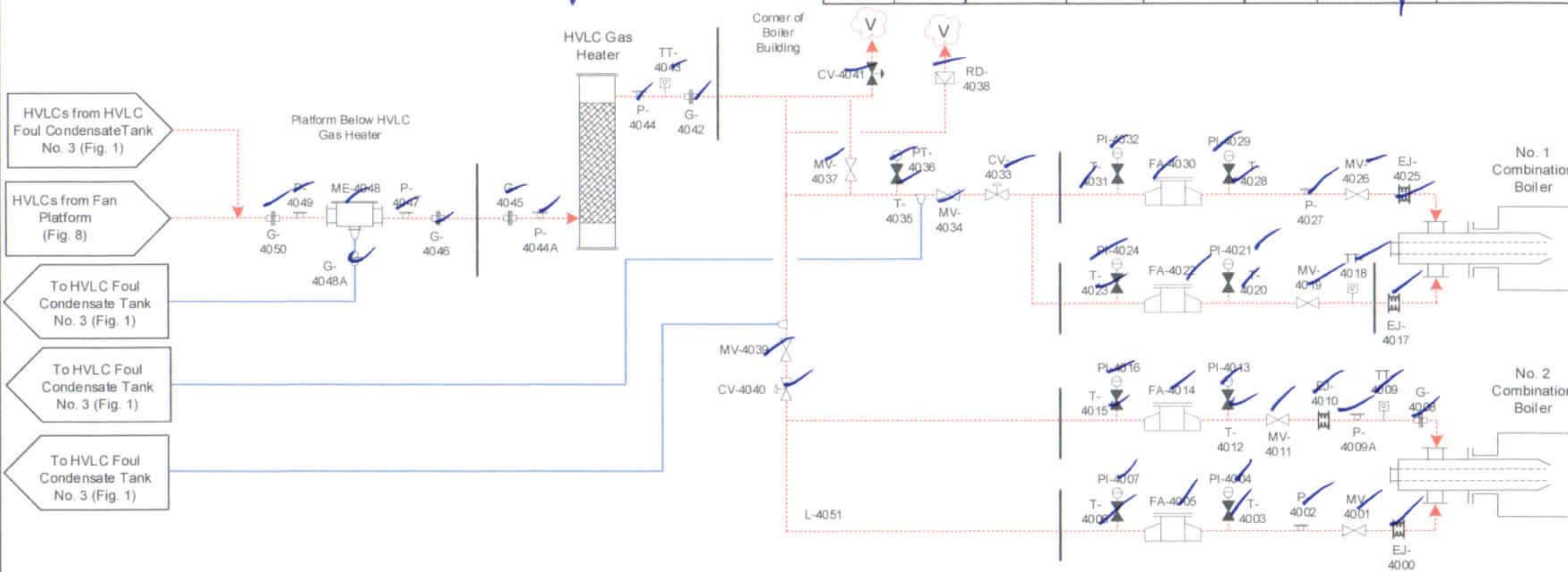
* Indicates car seal present

Vent Gases / Condensates / Liquor/Stock Lines / Process Lines; To Another Page and Indicated Equipment; From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New-Indy – Catawba Mill LDAR Inspection and Testing Diagrams Stripper Feed Tank	Rev. Date January 2021 Figure 2

Combination Boiler HVLC Incinerator
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
4000	EJ					Yes	
4001	MV	37-MV-0271				y	
4002	P					y	
4003	T					y	
4004	PI					y	
4005	FA					y	
4006	T					y	
4007	PI					y	
4008	G					y	
4009	TT					y	
4009A	P					y	
4010	EJ					y	
4011	MV	37-MV-0270				y	
4012	T					y	
4013	PI					y	
4014	FA					y	
4015	T					y	
4016	PI					y	
4017	EJ					y	
4018	TT					y	
4019	MV	26-MV-0628				y	
4020	T	BOP271				y	
4021	PI					y	
4022	FA	M52-0426				y	
4023	T	BOP270				y	

4024	PI	52-PI-930				y	
4025	EJ					y	
4026	MV					y	
4027	P					y	
4028	T					y	
4029	PI					y	
4030	FA					y	
4031	T					y	
4032	PI					y	
4033	CV					y	
4034	MV	26-MV-0626				y	
4035	T					y	
4036	PT	52-PSH-960				y	
4037	MV	52-MV-0625				y	
4038	RD					y	
4039	MV					y	
4040	CV					y	
4041	CV					y	
4042	G					y	
4043	TT	52-TT-965				y	
4044	P					y	
4044A	P					y	
4045	G					y	
4046	G					y	
4047	P					y	
4048	ME					y	
4048A	G					y	
4049	P					y	
4050	G					y	
4051	L					y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Combination Boiler HVLC Incineration

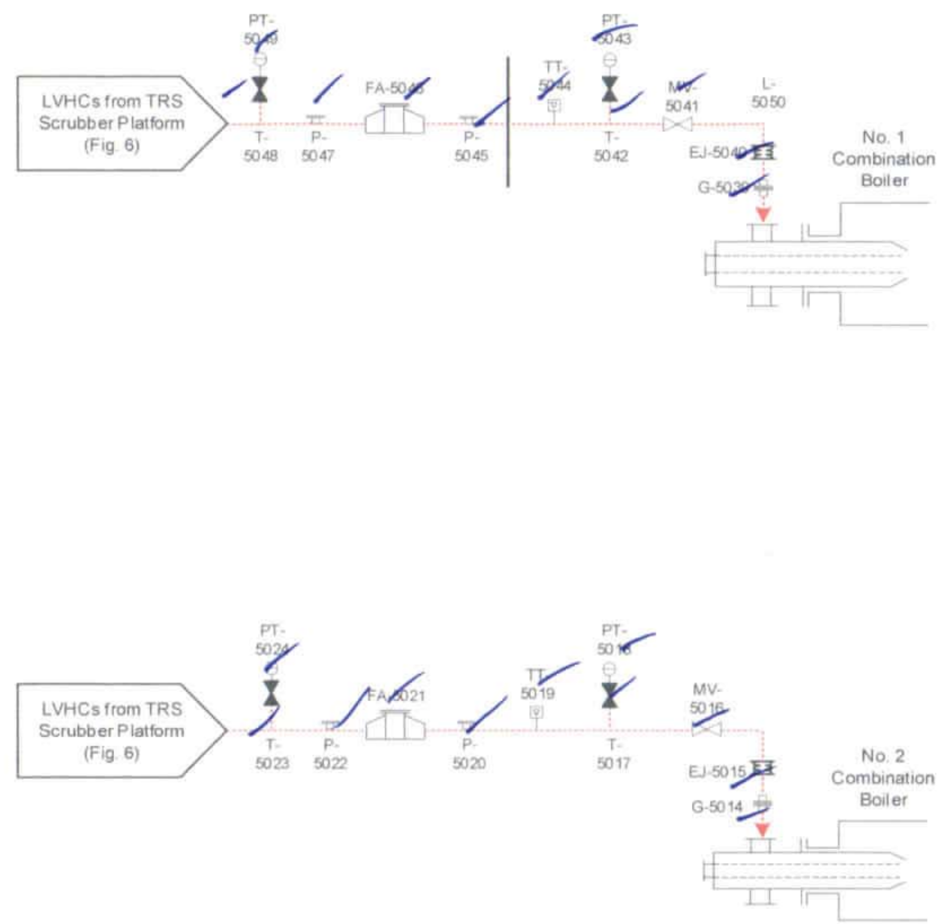
Rev. Date January 2021

Figure 4

Combination Boiler SOG and LVHC Incineration

Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
5014	G					Yes	
5015	EJ					y	
5016	MV	37-MV-0313				y	
5017	T					y	
5018	PT	37-PT-385				y	
5019	TT	37-TT-384				y	
5020	P					y	
5021	FA					y	
5022	P					y	
5023	T					y	
5024	PT	37-PT-383				y	
5039	G					y	
5040	EJ					y	
5041	MV	26-MV-0532				y	
5042	T					y	
5043	PT	26-PT-377				y	
5044	TT					y	
5045	P					y	
5046	FA					y	
5047	P					y	
5048	T					y	
5049	PT	26-PT-375				y	
5050	L					y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

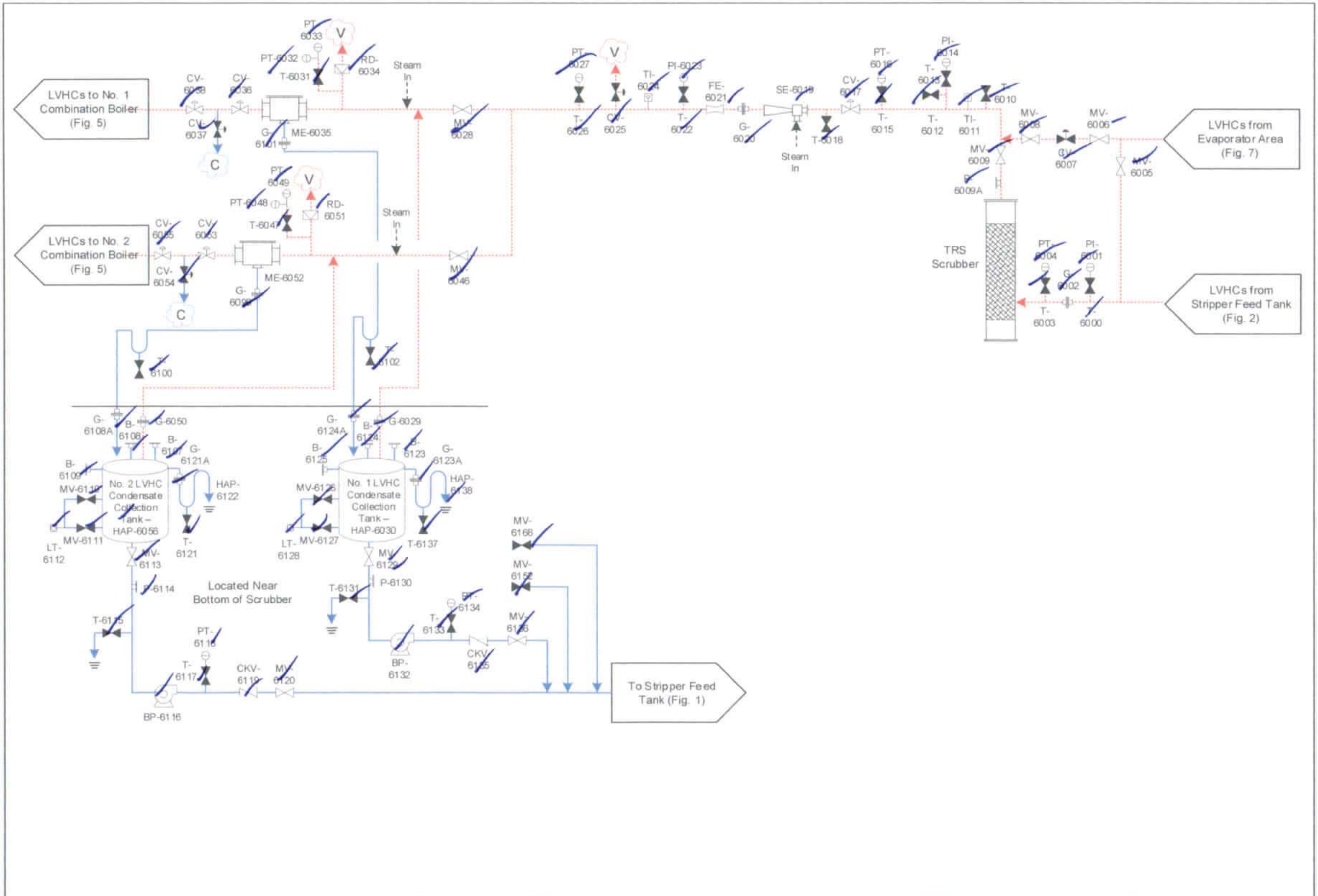
To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New-Indy – Catawba Mill
LDAR Inspection and Testing Diagrams
Combination Boiler SOG and LVHC Incineration

Rev. Date January 2021

Figure 5



Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

TRS Scrubber Platform

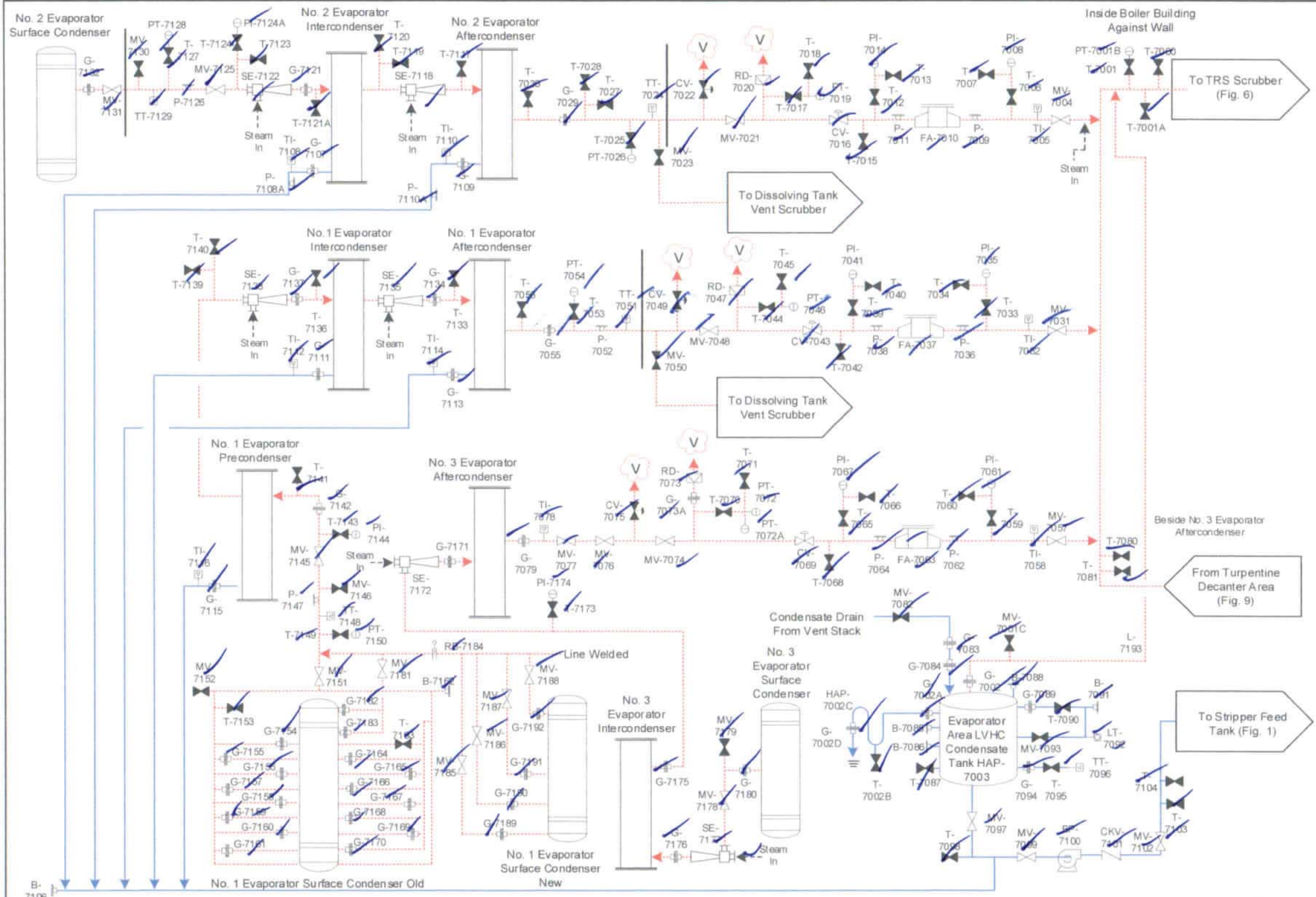
Rev. Date January 2021

Figure 6

TRS Scrubber Platform
Completed Date/Time: 2/17/20

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
6000	T					yes	
6001	PI					y	
6002	G					y	
6003	T					y	
6004	PT					y	
6005	MV	26-MV-0485				y	
6006	MV	26-MV-0486				y	
6007	CV	26-HV-364				y	
6008	MV	26-MV-0575				y	
6009	MV	26-MV-0507				y	
6009A	P					y	
6010	T					y	
6011	TI					y	
6012	T					y	
6013	T					y	
6014	PI					y	
6015	T					y	
6016	PT					y	
6017	CV	26-PCV-365				y	
6018	T					y	
6019	SE					y	
6020	G					y	
6021	FE					y	
6022	T					y	
6023	PI					y	
6024	TI					y	
6025	CV					y	
6026	T					y	
6027	PT	26-PT-372				y	
6028	MV					y	
6029	G					y	
6030	HAP					y	
6031	T					y	
6032	PT					y	
6033	PT	26-PSH-373				y	
6034	RD					y	
6035	ME					y	
6036	CV					y	
6037	CV					y	
6038	CV					y	
6046	MV					y	
6047	T					y	
6048	PT	37-PSH-381				y	
6049	PT					y	
6050	G					y	

6051	RD					yes	
6052	ME					y	
6053	CV	37-HV-382A				y	
6054	CV	37-HV-043				y	
6055	CV	37-HV-382B				y	
6056	HAP					y	
6099	G					y	
6100	T					y	
6101	G					y	
6102	T					y	
6107	B					y	
6108	B					y	
6108A	G					y	
6109	B					y	
6110	MV					y	
6111	MV					y	
6112	LT					y	
6113	MV					y	
6114	P					y	
6115	T					y	
6116	BP					y	
6117	T					y	
6118	PT					y	
6119	CKV					y	
6120	MV					y	
6121	T					y	
6121A	G					y	
6122	HAP					y	
6123	B					y	
6123A	G					y	
6124	B					y	
6124A	G					y	
6125	B					y	
6126	MV					y	
6127	MV					y	
6128	LT					y	
6129	MV					y	
6130	P					y	
6131	T					y	
6132	BP					y	
6133	T					y	
6134	PT					y	
6135	CKV					y	
6136	MV					y	
6137	T					y	
6138	HAP					y	
6152	MV					y	
6168	MV					y	
6171	L					y	



ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Evaporator System

Rev. Date
January 2021

Figure 7

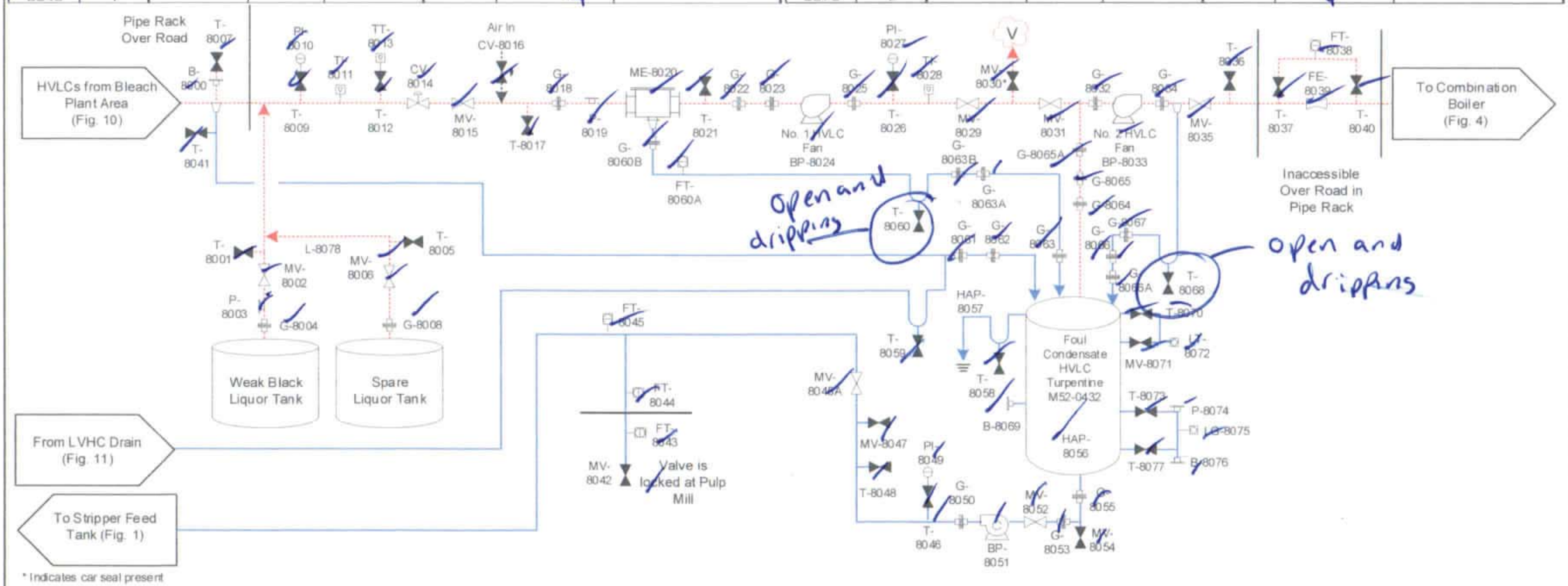
Evaporator System
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
7000	T					yes	
7001	T					Y	
7001A	T					Y	
7001B	PT					Y	
7001C	MV					Y	
7002	G					Y	
7002A	G					Y	
7002B	T					Y	
7002C	HAP					Y	
7002D	G					Y	
7003	HAP					Y	
7004	MV					Y	
7005	TI					Y	
7006	T					Y	
7007	T					Y	
7008	PI					Y	
7009	P					Y	
7010	FA					Y	
7011	P					Y	
7012	T					Y	
7013	T					Y	
7014	PI					Y	
7015	T	24-MV-0380				Y	
7016	CV	24-HV-334				Y	
7017	T					Y	
7018	T					Y	
7019	PT					Y	
7020	RD					Y	
7021	MV	24-MV-0378				Y	
7022	CV	24-HV-336				Y	
7023	MV					Y	
7024	TT	24-TE-358				Y	
7025	T					Y	
7026	PT	24-PT-357				Y	
7027	T					Y	
7028	T					Y	
7029	G					Y	
7030	T					Y	
7031	MV	24-MV-0389				Y	
7032	TI					Y	
7033	T					Y	
7034	T					Y	
7035	PI					Y	
7036	P					Y	
7037	FA					Y	
7038	P					Y	
7039	T					Y	
7040	T					Y	
7041	PI					Y	
7042	T	24-MV-0388				Y	
7043	CV	24-HV-329				Y	
7044	T					Y	
7045	T					Y	
7046	PT					Y	
7047	RD					Y	
7048	MV	24-MV-0387				Y	
7049	CV	24-HV-331				Y	
7050	MV					Y	
7051	TT	24-TT-364				Y	
7052	P					Y	
7053	T					Y	
7054	PT	24-PT-363				Y	
7055	G					Y	
7056	T					Y	
7057	MV	51-MV-0660				Y	
7058	TI					Y	
7059	T					Y	
7060	T					Y	
7061	PI					Y	
7062	P					Y	
7063	FA					Y	
7064	P					Y	
7065	T					Y	
7066	T					Y	
7067	PI					Y	
7068	T	51-MV-0659				Y	
7069	CV	24-HV-339				Y	
7070	T					Y	
7071	T					Y	
7072	PT					Y	
7072A	PT					Y	
7073	RD					Y	
7073A	G					Y	
7074	MV	51-MV-0658				Y	
7075	CV	24-HV-341				Y	
7076	MV	51-MV-0657				Y	
7077	MV	51-MV-769				Y	
7078	TI					Y	
7079	G					Y	
7080	T					Y	
7081	T					Y	
7082	MV					Y	
7083	G					Y	
7084	G					Y	
7085	B					Y	
7086	B					Y	
7087	T					Y	
7088	B					Y	
7089	G					Y	
7090	T					Y	
7091	B					Y	
7092	LT					Yes	
7093	MV					Y	
7094	G					Y	
7095	T					Y	
7096	TT					Y	
7097	MV					Y	
7098	T					Y	
7099	MV					Y	
7100	BP					Y	
7101	CKV					Y	
7102	MV					Y	
7103	T					Y	
7104	T					Y	
7106	B					Y	
7107	G					Y	
7108	TI					Y	
7108A	P					Y	
7109	G					Y	
7110	TI					Y	
7110A	P					Y	
7111	G					Y	
7112	TI					Y	
7113	G					Y	
7114	TI					Y	
7115	G					Y	
7116	TI					Y	
7117	T					Y	
7118	SE					Y	
7119	T					Y	
7120	T					Y	
7121	G					Y	
7121A	T					Y	
7122	SE					Y	
7123	T					Y	
7124	T					Y	
7124A	PI					Y	
7125	MV					Y	
7126	P					Y	
7127	T					Y	
7128	PT					Y	
7129	TT					Y	
7130	MV					Y	
7131	MV					Y	
7132	G					Y	
7133	T					Y	
7134	G					Y	
7135	SE					Y	
7136	T					Y	
7137	G					Y	
7138	SE					Y	
7139	T					Y	
7140	T					Y	
7141	T					Y	
7142	G					Y	
7143	T					Y	
7144	PI					Y	
7145	MV					Y	
7146	MV					Y	
7147	P					Y	
7148	TT					Y	
7149	T					Y	
7150	PT					Y	
7151	MV					Y	
7152	MV	24-MV-0399				Y	
7153	T					Y	
7154	G					Y	
7155	G					Y	
7156	G					Y	
7157	G					Y	
7158	G					Y	
7159	G					Y	
7160	G					Y	
7161	G					Y	
7162	B					Y	
7163	T					Y	
7164	G					Y	
7165	G					Y	
7166	G					Y	
7167	G					Y	
7168	G					Y	
7169	G					Y	
7170	G					Y	
7171	G					Y	
7172	SE					Y	
7173	T	51-MV-0774				Y	
7174	PI					Y	
7175	G					Y	
7176	G					Y	
7177	SE					Y	
7178	MV	51-MV-0783				Y	
7179	MV	51-MV-0782				Y	
7180	G					Y	
7181	MV					Y	
7182	G					Y	
7183	G					Y	
7184	RB					Y	
7185	MV					Y	
7186	MV					Y	
7187	MV					Y	
7188	MV					Y	
7189	G					Y	
7190	G					Y	
7191	G					Y	
7192	G					Y	
7193	L					Y	

HVLC Blower Platform
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8000	B					yes	
8001	T					y	
8002	MV					y	
8003	P					y	
8004	G					y	
8005	T					y	
8006	MV					y	
8007	T					y	
8008	G					y	
8009	T					y	
8010	PI					y	
8011	TI					y	
8012	T					y	
8013	TT					y	
8014	CV	54-PV-953				y	
8015	MV	26-MV-0618				y	
8016	CV					y	
8017	T	26-MV-0619				y	
8018	G					y	
8019	P					y	
8020	ME					y	
8021	T					y	
8022	G					y	
8023	G					y	
8024	BP	M52-0412				y	
8025	G					y	
8026	T					y	
8027	PI	52-PI-958				y	
8028	TI					y	
8029	MV	26-MV-0670				y	
8030	MV					y	Car seal present.
8031	MV					y	
8032	G					y	
8033	BP	M52				y	
8034	G					y	
8035	MV	26-MV-0622				y	
8036	T					y	
8037	T					y	
8038	FT					y	
8039	FE					y	
8040	T					y	

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8041	T					yes	
8042	MV					y	
8043	FT					y	
8044	FT					y	
8045	FT					y	
8045A	MV					y	
8046	T					y	
8047	MV					y	
8048	T					y	
8049	PI					y	
8050	G					y	
8051	BP					y	
8052	MV					y	
8053	G					y	
8054	MV					y	
8055	G					y	
8056	HAP					y	
8057	HAP					y	
8058	T					y	
8059	T					y	
8060	T					NO	open + dripping
8060A	FT					y	
8060B	G					y	
8061	G					y	
8062	G					y	
8063	G					y	
8063A	G					y	
8063B	G					y	
8064	G					y	
8065	G					y	
8065A	G					y	
8066	G					y	
8066A	G					y	
8067	G					y	
8068	T					NO	open + dripping
8069	B					y	
8070	T					y	
8071	MV					y	
8072	LT					y	
8073	T					y	
8074	P					y	
8075	LG					y	
8076	B					y	
8077	T					y	
8078	L					y	



* Indicates car seal present

Vent Gases / Condensates / Liquor/Stock Lines / Process Lines	To Another Page and Indicated Equipment / From Another Page and Indicated Equipment	ENVIRONMENTAL 360	

New-Indy – Catawba Mill

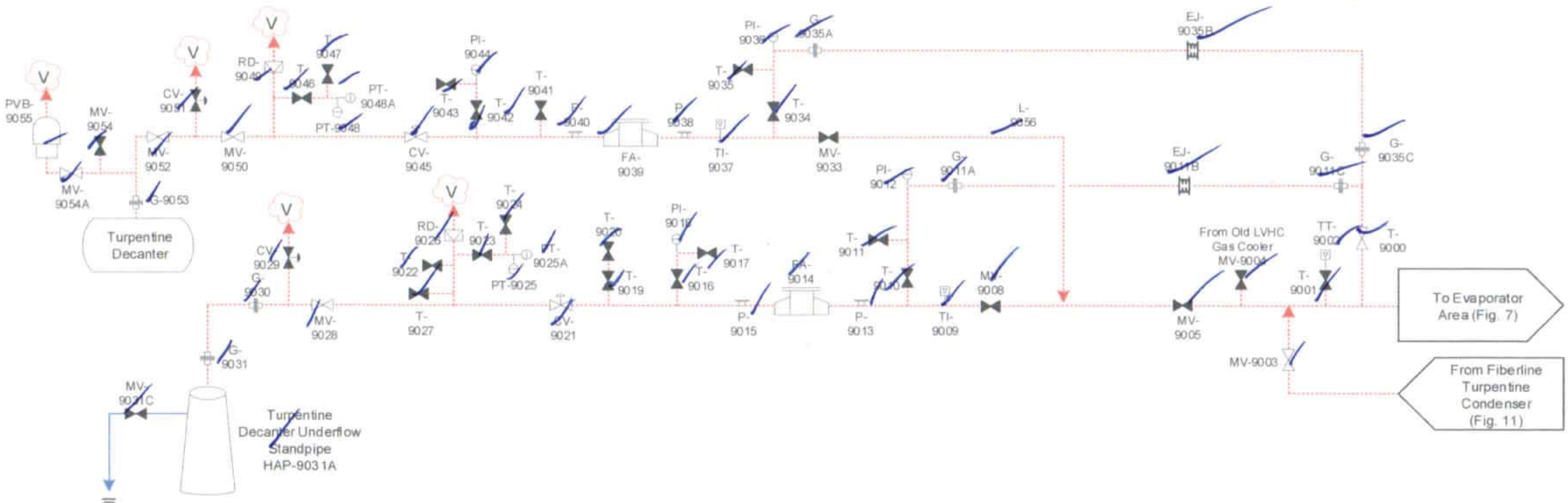
LDAR Inspection and Testing Diagrams
HVLC Blower Platform

Rev. Date January 2021

Figure 8

Turpentine Decanter and Standpipe
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
9000	T					yes	
9001	T					y	
9002	TT					y	
9003	MV	14-MV-0312				y	
9004	MV					y	
9005	MV					y	
9008	MV	14-TI/TW-125				y	
9009	TI					y	
9010	T					y	
9011	T					y	
9011A	G					y	
9011B	EJ					y	
9011C	G					y	
9012	PI					y	
9013	P					y	
9014	FA					y	
9015	P					y	
9016	T					y	
9017	T					y	
9018	PI	14-PI-125A				y	
9019	T					y	
9020	T					y	
9021	CV	14-HV-127				y	
9022	T					y	
9023	T					y	
9024	T					y	
9025	PT	14-PSH-122				y	
9025A	PT	14-PSH-122				y	
9026	RD					y	
9027	T					y	
9028	MV					y	
9029	CV	14-HV-126				yes	
9030	G					y	
9031	G					y	
9031A	HAP					y	
9031C	MV					y	
9033	MV	14-MV-0330				y	
9034	T					y	
9035	T					y	
9035A	G					y	
9035B	EJ					y	
9035C	G					y	
9036	PI					y	
9037	TI	14-TI/TW-304B				y	
9038	P					y	
9039	FA	M14-0121				y	
9040	P					y	
9041	T					y	
9042	T					y	
9043	T					y	
9044	PI					y	
9045	CV	14-HV-314				y	
9046	T					y	
9047	T					y	
9048	PT	14-PSH-313				y	
9048A	PT	14-PSH-313				y	
9049	RD					y	
9050	MV	14-MV-0342				y	
9051	CV	14-HV-312				y	
9052	MV	14-MV-0343				y	
9053	G					y	
9054	MV					y	
9054A	MV					y	
9055	PRV					y	
9056	L					y	



Vent Gases	To Another Page and Indicated Equipment	
Condensates		
Liquor/Stock Lines	From Another Page and Indicated Equipment	
Process Lines		

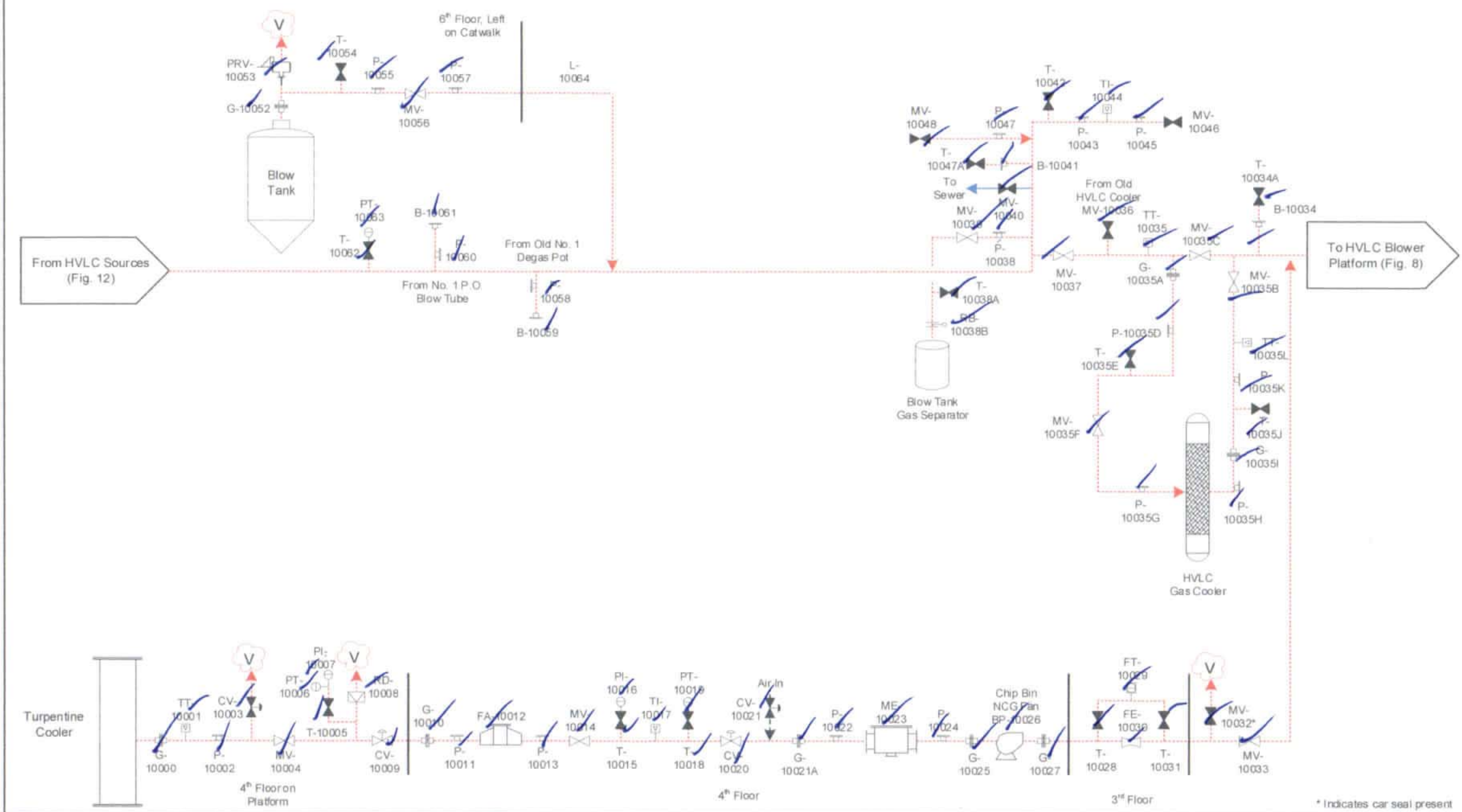
ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams
Turpentine Decanter and Standpipe

Rev. Date
January 2021

Figure 9



* Indicates car seal present

Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Turpentine Cooler and Blow Tank

Rev. Date

January 2021

Figure 10

Turpentine Cooler and Blow Tank

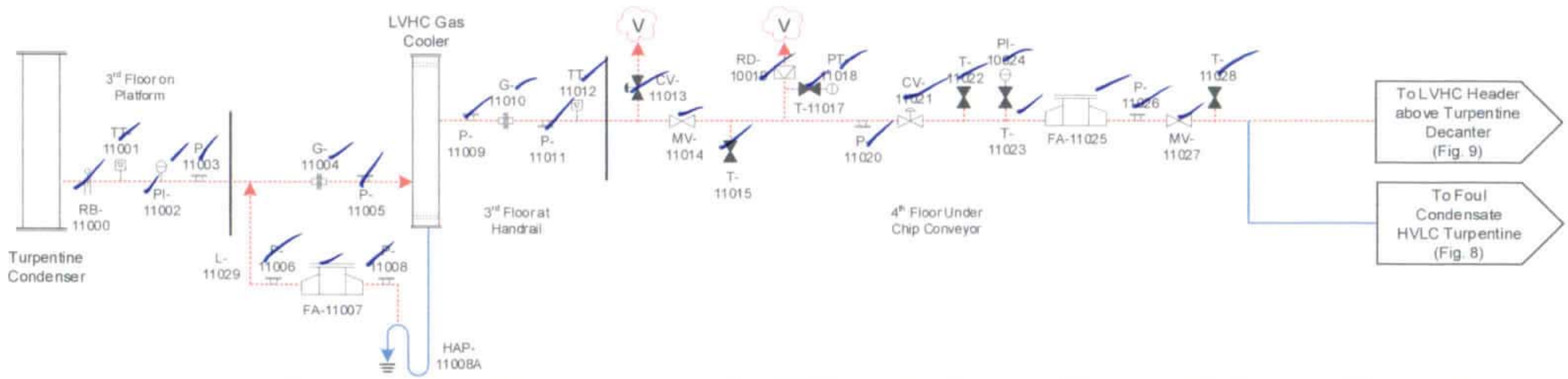
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
10000	G					yes	
10001	TT	52-TE-230				y	
10002	P					y	
10003	CV	52-QV-937				y	
10004	MV	52-MV-1021				y	
10005	T					y	
10006	PT	52-PSH-934				y	
10007	PI					y	
10008	RD					y	
10009	CV	52-EV-938				y	
10010	G					y	
10011	P					y	
10012	FA	M52-0429				y	
10013	P					y	
10014	MV	52-MV-1022				y	
10015	T					y	
10016	PI					y	
10017	TI					y	
10018	T					y	
10019	PT					y	
10020	CV	52-PV-941				y	
10021	CV					y	
10021A	G					y	
10022	P					y	
10023	ME	M52-0415				y	
10024	P					y	
10025	G					y	
10026	BP	M52-0411				y	
10027	G					y	
10028	T					y	
10029	FT					y	
10030	FE					y	
10031	T					y	
10032	MV					y	Car seal present.
10033	MV					y	
10034	B					y	
10034A	T					y	
10035	TT	52-TT-947				y	
10035A	G					yes	
10035B	MV					y	
10035C	MV					y	
10035D	P					y	
10035E	T					y	
10035F	MV					y	
10035G	P					y	
10035H	P					y	
10035I	G					y	
10035J	T					y	
10035K	P					y	
10035L	TT					y	
10036	MV					y	
10037	MV					y	
10038	P					y	
10039	MV					y	
10039A	T					y	
10039B	RB					y	
10040	MV					y	
10041	B					y	
10042	T					y	
10043	P					y	
10044	TI					y	
10045	P					y	
10046	MV					y	
10047	P					y	
10047A	T					y	
10048	MV	A507				y	
1052	G					y	
1053	PRV					y	
1054	T					y	
1055	P					y	
1056	MV					y	
1057	P					y	
1058	P					y	
1059	B					y	
1060	P					y	
1061	B					y	
1062	T					y	
1063	PT	52-PT-215				y	
1064	L					y	

Turpentine Condenser and LVHC Gas Cooler

Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
11000	RB					yes	
11001	TT	52-TE-222A				y	
11002	PI					y	
11003	P					y	
11004	G					y	
11005	P					y	
11006	P					y	
11007	FA	M52-0512				y	
11008	P					y	
11008A	HAP					y	
11009	P					y	
11010	G					y	
11011	P					y	
11012	TT	52-TE-225				y	
11013	CV	52-HV-174B				y	
11014	MV	52-A-368				y	
11015	T					y	
11017	T					y	
11018	PT	52-PSH-226				y	
11019	RD					y	
11020	P					y	
11021	CV	52-HV-174A				y	
11022	T	52-A-428				y	
11023	T					y	
11024	PI	52-PI-226				y	
11025	FA	Z00-0395M				y	
11026	P					y	
11027	MV	52-A-541				y	
11028	T	52-A-437				y	
11029	L					y	

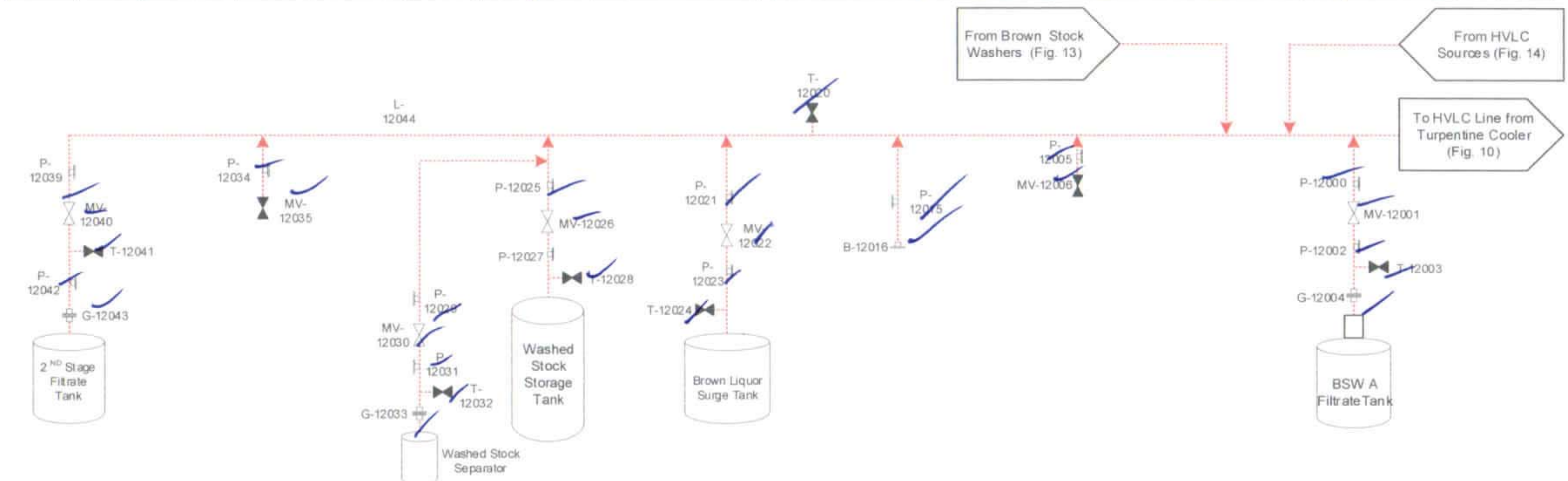


Vent Gases / Condensates / Liquor/Stock Lines / Process Lines	To Another Page and Indicated Equipment / From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New-Indy – Catawba Mill LDAR Inspection and Testing Diagrams Turpentine Condenser and LVHC Gas Cooler	Rev. Date January 2021 Figure 11

HVLC System at Pulp Mil (1 of 2)

Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12000	P					yes	
12001	MV					y	
12002	P					y	
12003	T	X182				y	
12004	G					y	
12005	P					y	
12006	MV					y	
12015	P					y	
12016	B					y	
12020	T	V4454				y	
12021	P					y	
12022	MV	0598-22-HY				y	
12023	P					y	
12024	T	D060				y	
12025	P					yes	
12026	MV					y	
12027	P					y	
12028	T					y	
12029	P					y	
12030	MV	F543				y	
12031	P					y	
12032	T	F541				y	
12033	G					y	
12034	P					y	
12035	MV	SR307				y	
29039	P					y	
29040	MV	SR308				y	
29041	T					y	
29042	P					y	
29043	G					y	
29044	L					y	



Vent Gases	To Another Page and Indicated Equipment	New-Indy – Catawba Mill	Rev. Date January 2021
Condensates	From Another Page and Indicated Equipment	LDAR Inspection and Testing Diagrams HVLC System at Pulp Mill (1 of 2)	Figure 12
Liquor/Stock Lines			
Process Lines			

ENVIRONMENTAL 360

Legend	
Vent Gases	
Bleach Gases	
Condensates	
Liquor/Stock Lines	
Process Lines	
To Another Page and Indicated Equipment	
From Another Page and Indicated Equipment	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams
Pulp Mill BSWs

Rev. Date
January 2021

Figure 13

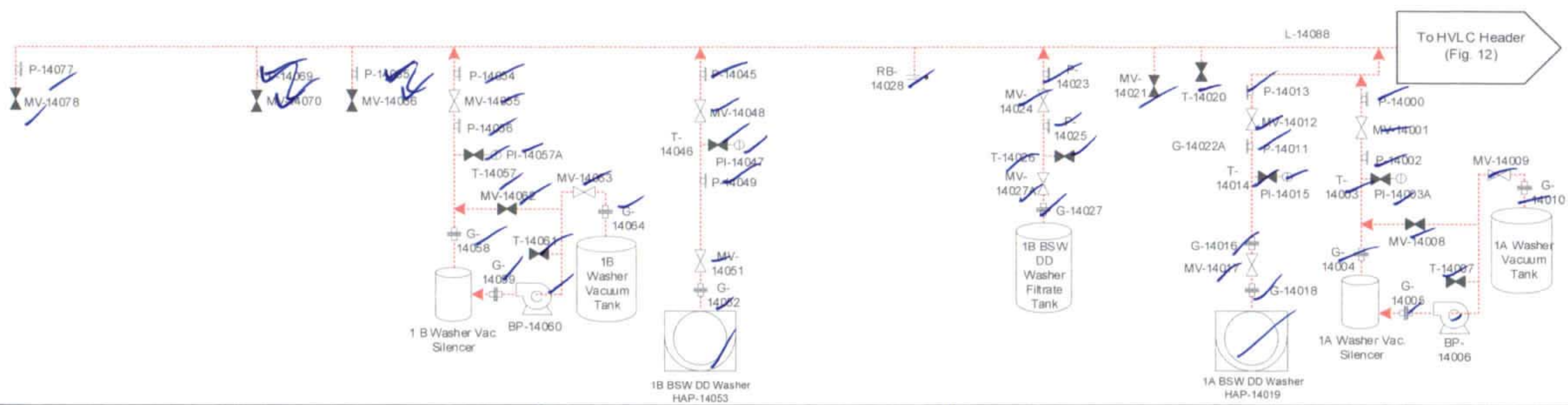
Bleach Plant
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
13026	B					yes	
13026A	T					y	
13027	DV					y	
13028	B					y	
13028A	T					y	
13031	G					y	
13032	G					y	
13033	HAP					y	
13034	B					y	
13035	MV	F532				y	
13036	B					y	
13037	G					y	
13038	G					y	
13039	BP	E53-0021				y	
13040	G					y	
13041	T	F56				y	
13042	G					y	
13043	MV	F99				y	
13044	MV					y	
13045	G					y	
13046	B					y	
13047	MV					y	
13050	P					y	
13051	B					y	
13054	P					y	
13055	B					y	
13057	B					y	
13058	P					y	
13059	B					y	
13061	P					y	
13062	B					y	
13064	B					y	
13065	B					y	
13066	B					y	
13067	T					y	
13068	PI					y	
13069	MV					y	
13070	B					y	
13071	G					y	
13072	B					y	
13073	MV	F530				y	
13074	B					y	
13075	G					y	
13076	G					y	
13077	BP	E53-0046				y	
13078	G					y	
13079	T	F195				y	
13080	MV	F101				y	
13081	G					y	
13082	MV					y	
13083	G					y	
13084	B					y	
13084A	T					y	
13085	MV	F529				y	
13086	B					y	
13086A	T					y	
13088	G					y	
13088A	B					y	
13088B	T					y	
13090	G					y	
13091	G					y	
13092	HAP					y	
13093	P					y	
13094	B	F528				yes	
13097	B					y	
13098	MV	F527				y	
13099	B					y	
13100	G					y	
13101	G					y	
13102	BP					y	
13103	G					y	
13104	T	F262				y	
13105	MV	F248				y	
13106	G					y	
13107	MV					y	
13108	G					y	
13109	B					y	
13109A	T					y	
13110	MV					y	
13111	B					y	
13111A	T					y	
13115	G					y	
13116	G					y	
13117	HAP					y	
13118	B					y	
13119	DV	F524				y	
13120	B					y	
13121	G					y	
13122	G					y	
13123	BP	E53-0106				y	
13124	G					y	
13125	T	F356				y	
13126	MV	F293				y	
13127	G					y	
13128	MV					y	
13129	G					y	
13130	B					y	
13130A	T					y	
13131	MV					y	
13132	B					y	
13132A	T					y	
13135	G					y	
13136	G					y	
13137	HAP					y	
13138	P					y	
13139	B					y	
13144	L					y	
13145	HAP					y	
13146	HAP					y	
13147	HAP					y	

HVLC System at Pulp Mil (2 of 2)
Completed Date/Time: 2/17/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
14000	P					yes	
14001	MV	X170				y	
14002	P					y	
14003	T					y	
14003A	PI	52-PI-353				y	
14004	G					y	
14005	G					y	
14006	BP	M52-0092				y	
14007	T	X74				y	
14008	MV	X240				y	
14009	MV					y	
14010	G					y	
14011	P					y	
14012	MV	X169				y	
14013	P					y	
14014	T	X179				y	
14015	PI					y	
14016	G					y	
14017	MV					y	
14018	G					y	
14019	HAP					y	
14020	T					y	
14021	MV					y	
14023	P					y	
14024	MV	X171				y	
14025	P					y	
14026	T					y	

14027	G					yes	
14027A	MV					y	
14028	RB					y	
14045	P					y	
14046	T					y	
14047	PI					y	
14048	MV	X168				y	
14049	P					y	
14051	MV					y	
14052	G					y	
14053	HAP					y	
14054	P					y	
14055	MV	X167				y	
14056	P					y	
14057	T					y	
14057A	PI					y	
14058	G					y	
14059	G					y	
14060	BP	E52-0128				y	
14061	T	X159				y	
14062	MV	X265				y	
14063	MV					y	
14064	G					y	
14065	P					y	
14066	MV	SR313				y	
14069	P					y	
14070	MV	SR312				y	
14077	P					y	
14078	MV					y	
14088	L					y	



Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL 360
New-Indy – Catawba Mill		Rev. Date January 2021
LDAR Inspection and Testing Diagrams HVLC System at Pulp Mill (2 of 2)		Figure 14

Inspection Date: March 15, 2021

New Indy Containerboard - Catawba Mill
5300 Cureton Ferry Rd.
Catawba, SC 29704

2021 Monthly LDAR Inspection Summary Report

Table 1: Visual Inspection Summary Table

Equipment Number	Date	Description of Leak or Visual Defect
HAP-13092	3/15/2021	The 3A Brown Stock Washer is puffing from hatch door
HAP-13117	3/15/2021	The 2B Brown Stock Washer is puffing from hatch door.
HAP-14053	3/15/2021	The 1B Brown Stock Washer is puffing from hatch door.

First Attempt to Repair must be completed by:	5 Days from Inspection Date	Not Applicable if no leaks were found.
Repairs must be completed by:	15 Days from Inspection Date	Not Applicable if no leaks were found.

This report provides a summary of leaks and visual defects found during the visual inspection of the closed-vent and condensate-collection systems and complies with the record keeping requirements of 63.454(b)(1-2, 4-5).

The facility must initiate repairs to any defects within five (5) calendar days from this inspection and the defects must be repaired within fifteen (15) calendar days of the inspection. If the leak or defect requires the system to be shutdown in order to make repairs, or more emissions would occur from attempting the repair than delaying the repair, then the repairs may be delayed until the next process unit shutdown. A report must be supplied with the repair date and associated information, or the reason for the delay if the repairs are not completed within the 15-day period. These response requirements are specific to 40 CFR 63, specifically 63.453(k)(6), 63.453(l)(3), and 63.964(b)(1-2). Documentation of all repair attempts made and any leaks/defects requiring a process unit shutdown must be completed according to 63.454(b)(6-11).

I certify that the results of the visual inspection are accurate and complete to the best of my knowledge.

Inspector Name: Josh Howard

Signature: Josh Howard

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Inspection QA/QC Procedure

E360 Project Number?	New Indy Catawba
Task Number (if applicable)?	March 2021 Monthly LDAR

Purpose of Form

To verify field work meets each critical element.

Visual Work Flow (WF)

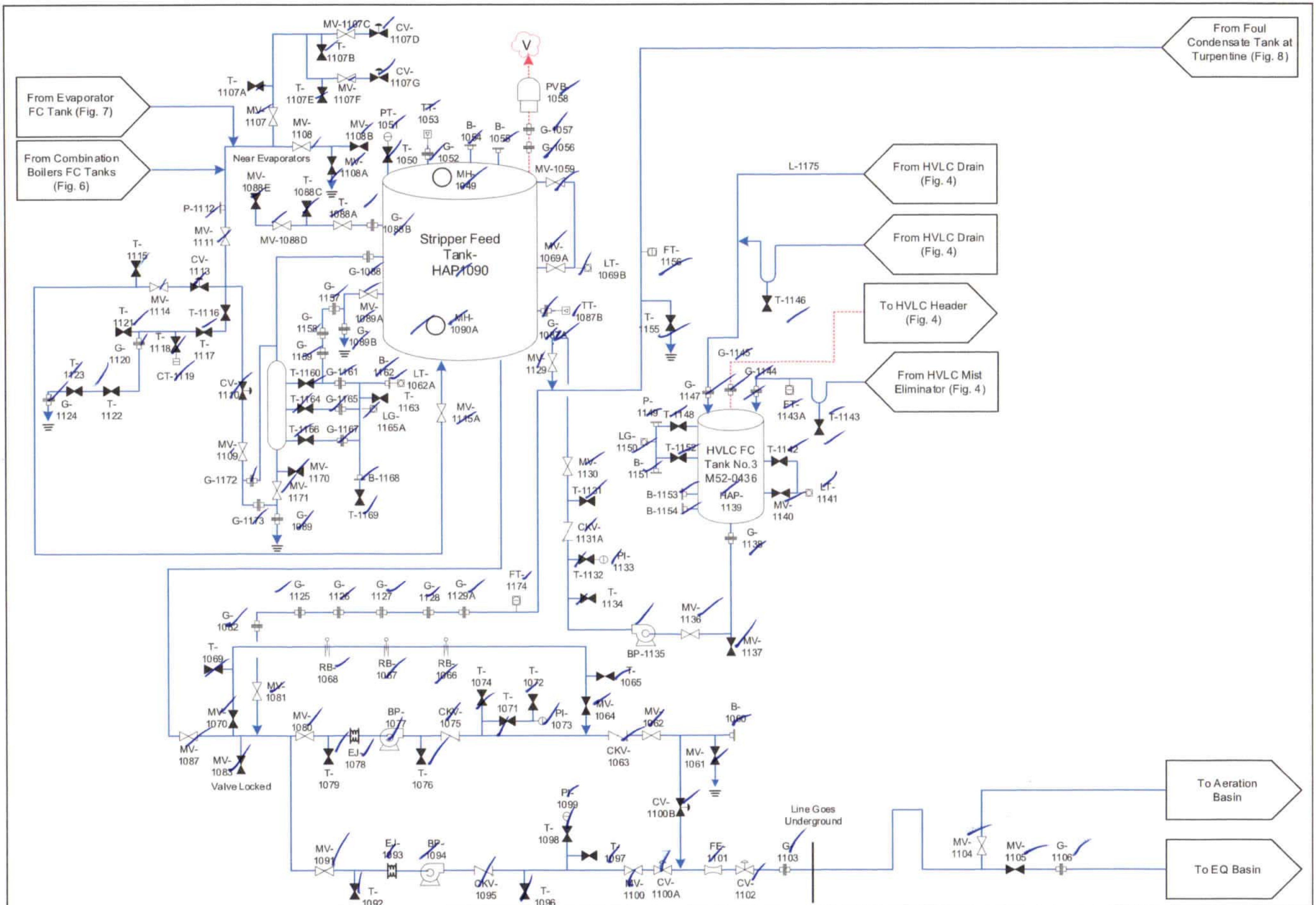
Step 1
R - Verify field work by checking "X" each WF No.

Verification of Critical Elements

WF No.	Requirement	Yes?
	Work-flow step	1
	Verifier of critical elements for work-flow step	R
1	Was a bump test performed on the personal H_2S monitor?	✓
2	Have the most recent versions of the inspection forms been used?	✓
3	Were all inspection points identified correctly and inspected correctly?	✓
4	Did the operator/ contact verify to our inspector that all equipment was operating under normal operating conditions?	✓
5	Were any deficiencies identified in person to the client?	✓
6	Were all inspection questions answered with either a Yes, No, or NA?	✓
7	Were inspections performed during the required regulatory time frame?	✓

Approvals

Role	WF Step	Name	Approval (insert date)
Responsible Person (R)	1	Josh [illegible]	03/15/2021



ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Stripper System Foul Condensate

Rev. Date February 2021

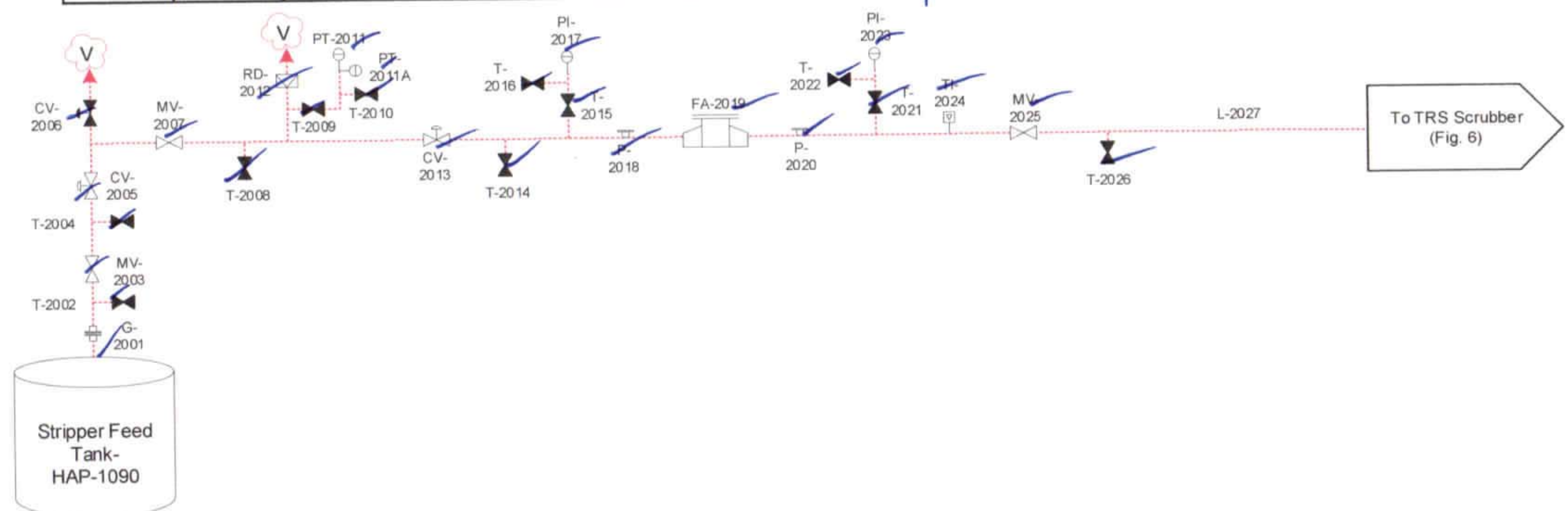
Figure 1

Stripper System Foul Condensate
Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
1049	MH					Yes	
1050	T					y	
1051	PT					y	
1052	G					y	
1053	TT					y	
1054	B					y	
1055	B					y	
1056	G					y	
1057	G					y	
1058	PVB					y	
1059	MV					y	
1060	B					y	
1061	MV	24-MV-0361				y	
1062	MV	24-MV-0359				y	
1062A	LT					y	
1063	CKV					y	
1064	MV	24-MV-0445				y	
1065	T					y	
1066	RB					y	
1067	RB					y	
1068	RB					y	
1069	T					y	
1069A	MV					y	
1069B	LT	51-LT-265				y	
1070	MV	24-MV-445				y	
1071	T					y	
1072	T					y	
1073	PI					y	
1074	T					y	
1075	CKV					y	
1076	T					y	
1077	BP					y	
1078	EJ					y	
1079	T					y	
1080	MV	24-MV-363				y	
1081	MV					y	
1082	G					y	
1083	MV	V704F				y	
1087	MV	24-MV-362				y	
1087A	G					y	
1087B	TT	51-TT-266				y	
1088	G					y	
1088A	T					y	
1088B	G					y	
1088C	T					y	
1088D	MV					y	
1088E	MV					y	
1089	G					y	
1089A	MV	24-MV-0352				y	
1089B	G					y	
1090	HAP					y	
1090A	MH					y	
1091	MV	24-MV-0365				y	
1092	T					y	
1093	EJ					y	
1094	BP					y	
1095	CKV	V884F				y	
1096	T					y	
1097	T					y	
1098	T					y	
1099	PI					y	
1100	MV	24-MV-360				y	
1100A	CV					y	
1100B	CV					y	
1101	FE					y	
1102	CV	51-FCV-267				y	
1103	G					y	
1104	MV					y	
1105	MV					y	
1106	G					y	
1107	MV					y	
1107A	T					y	
1107B	T					y	
1107C	MV					y	
1107E	T					Yes	
1107F	MV					y	
1107G	CV					y	
1108	MV					y	
1108A	MV					y	
1108B	MV					y	
1109	MV					y	
1110	CV					y	
1111	MV					y	
1112	P					y	
1113	CV					y	
1114	MV					y	
1115	T					y	
1115A	MV					y	
1116	T					y	
1117	T					y	
1118	T					y	
1119	CT					y	
1120	G					y	
1121	T					y	
1122	T					y	
1123	T					y	
1124	G					y	
1125	G					y	
1126	G					y	
1127	G					y	
1128	G					y	
1129	MV					y	
1129A	G					y	
1130	MV					y	
1131	T					y	
1131A	CKV					y	
1132	T					y	
1133	PI					y	
1134	T					y	
1135	BP					y	
1136	MV					y	
1137	MV					y	
1138	G					y	
1139	HAP	M52-0436				y	
1140	MV					y	
1141	LT					y	
1142	T					y	
1143	T					y	
1143A	FT					y	
1144	G					y	
1145	G					y	
1146	T					y	
1147	G					y	
1148	T					y	
1149	P					y	
1150	LG					y	
1151	B					y	
1152	T					y	
1153	B					y	
1154	B					y	
1155	T					y	
1156	FT					y	
1157	G					y	
1158	G					y	
1159	G					y	
1160	T					y	
1161	G					y	
1162	B					y	
1163	T					y	
1164	T					y	
1165	G					y	
1165A	LG					y	
1166	T					y	
1167	G					y	
1168	B					y	
1169	T					y	
1170	MV					y	
1171	MV					y	
1172	G					y	
1173	G					y	
1174	FT					y	
1175	L					y	

Stripper Feed Tank
Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
2001	G					yes	
2002	T					y	
2003	MV					y	
2004	T					y	
2005	CV	51-PCV-264				y	
2006	CV	51-HV-262				y	
2007	MV	51-MV-0672				y	
2008	T					y	
2009	T					y	
2010	T					y	
2011	PT	51-PSH-261				y	
2011A	PT					y	
2012	RD					y	
2013	CV	51-HV-260				y	
2014	T	51-MV-0675				y	
2015	T					y	
2016	T					y	
2017	PI					y	
2018	P					y	
2019	FA	M51-0546				y	
2020	P					y	
2021	T					y	
2022	T					y	
2023	PI	51-PI-268B				y	
2024	TI	01-TI-274				y	
2025	MV	51-MV-0673				y	
2026	T	24-MV-0353				y	
2027	L					y	



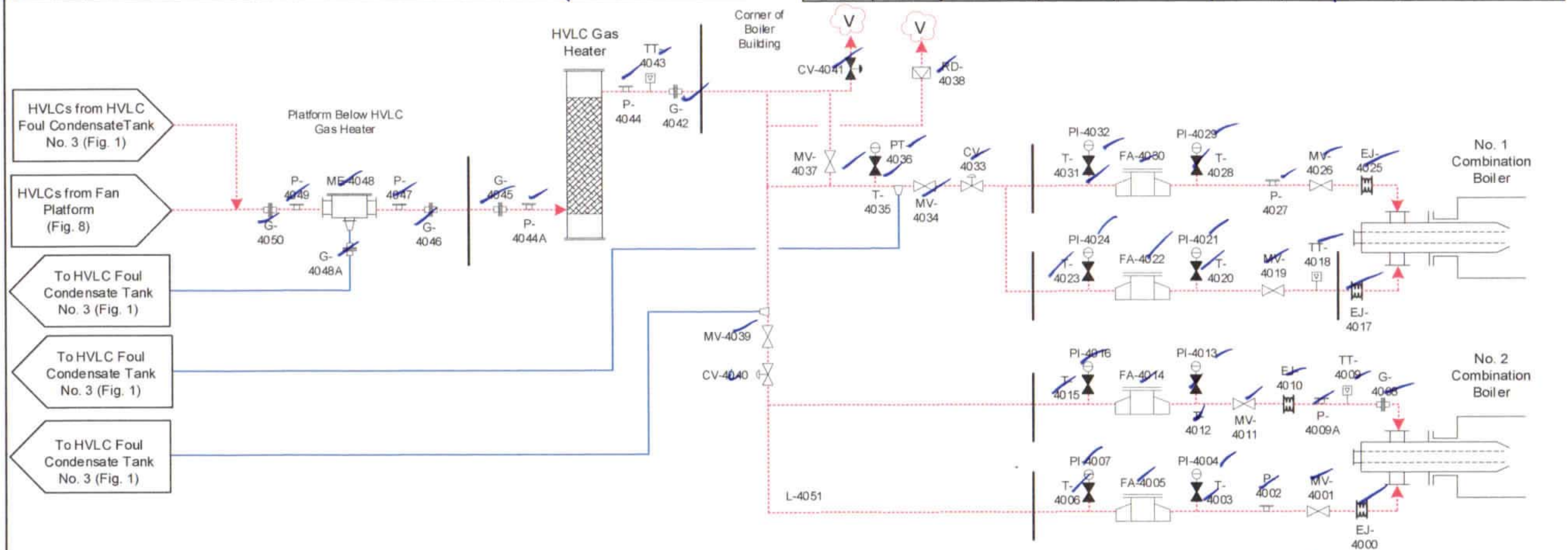
* Indicates car seal present

Vent Gases Condensates Liquor/Stock Lines Process Lines To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New-Indy – Catawba Mill LDAR Inspection and Testing Diagrams Stripper Feed Tank	Rev. Date February 2021 Figure 2

Combination Boiler HVLC Incinerator
Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
4000	EJ					yes	
4001	MV	37-MV-0271				y	
4002	P					y	
4003	T					y	
4004	PI					y	
4005	FA					y	
4006	T					y	
4007	PI					y	
4008	G					y	
4009	TT					y	
4009A	P					y	
4010	EJ					y	
4011	MV	37-MV-0270				y	
4012	T					y	
4013	PI					y	
4014	FA					y	
4015	T					y	
4016	PI					y	
4017	EJ					y	
4018	TT					y	
4019	MV	26-MV-0628				y	
4020	T	BOP271				y	
4021	PI					y	
4022	FA	M52-0426				y	
4023	T	BOP270				y	

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
4024	PI	52-PI-930				yes	
4025	EJ					y	
4026	MV					y	
4027	P					y	
4028	T					y	
4029	PI					y	
4030	FA					y	
4031	T					y	
4032	PI					y	
4033	CV					y	
4034	MV	26-MV-0626				y	
4035	T					y	
4036	PT	52-PSH-960				y	
4037	MV	52-MV-0625				y	
4038	RD					y	
4039	MV					y	
4040	CV					y	
4041	CV					y	
4042	G					y	
4043	TT	52-TT-965				y	
4044	P					y	
4044A	P					y	
4045	G					y	
4046	G					y	
4047	P					y	
4048	ME					y	
4048A	G					y	
4049	P					y	
4050	G					y	
4051	L					y	



Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Combination Boiler HVLC Incineration

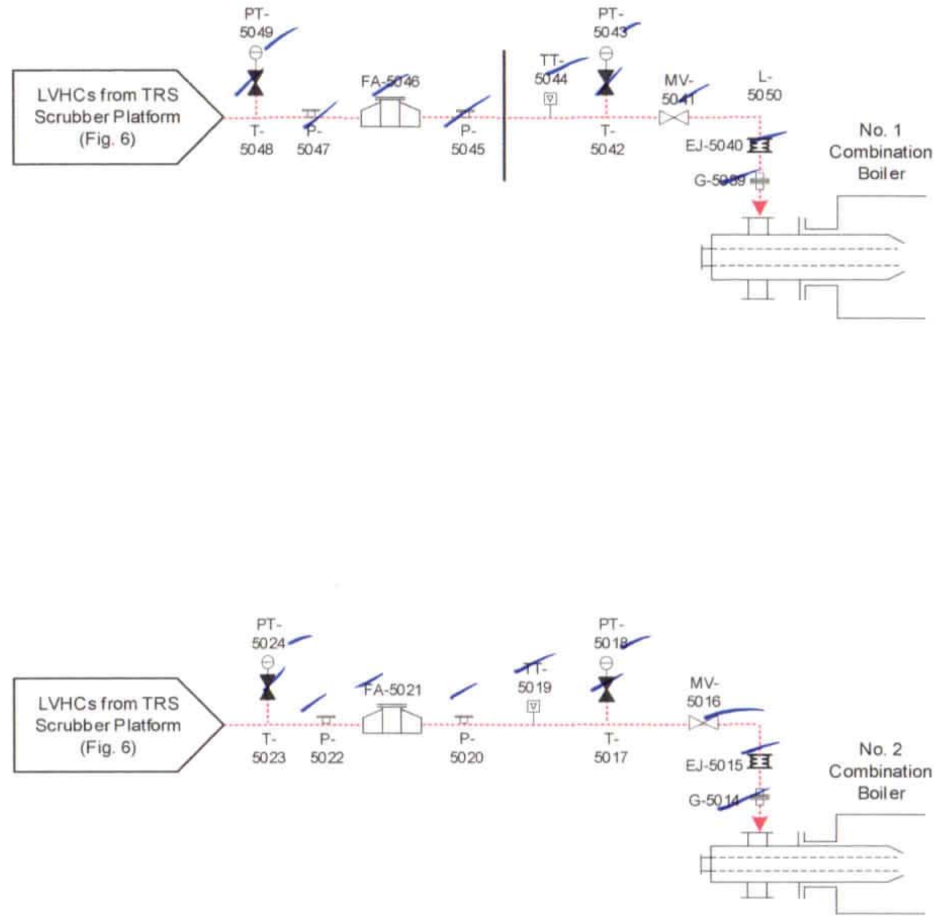
Rev. Date
February 2021

Figure 4

Combination Boiler LVHC Incineration

Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
5014	G					Yes	
5015	EJ					Y	
5016	MV	37-MV-0313				Y	
5017	T					Y	
5018	PT	37-PT-385				Y	
5019	TT	37-TT-384				Y	
5020	P					Y	
5021	FA					Y	
5022	P					Y	
5023	T					Y	
5024	PT	37-PT-383				Y	
5039	G					Y	
5040	EJ					Y	
5041	MV	26-MV-0532				Y	
5042	T					Y	
5043	PT	26-PT-377				Y	
5044	TT					Y	
5045	P					Y	
5046	FA					Y	
5047	P					Y	
5048	T					Y	
5049	PT	26-PT-375				Y	
5050	L					Y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL 360

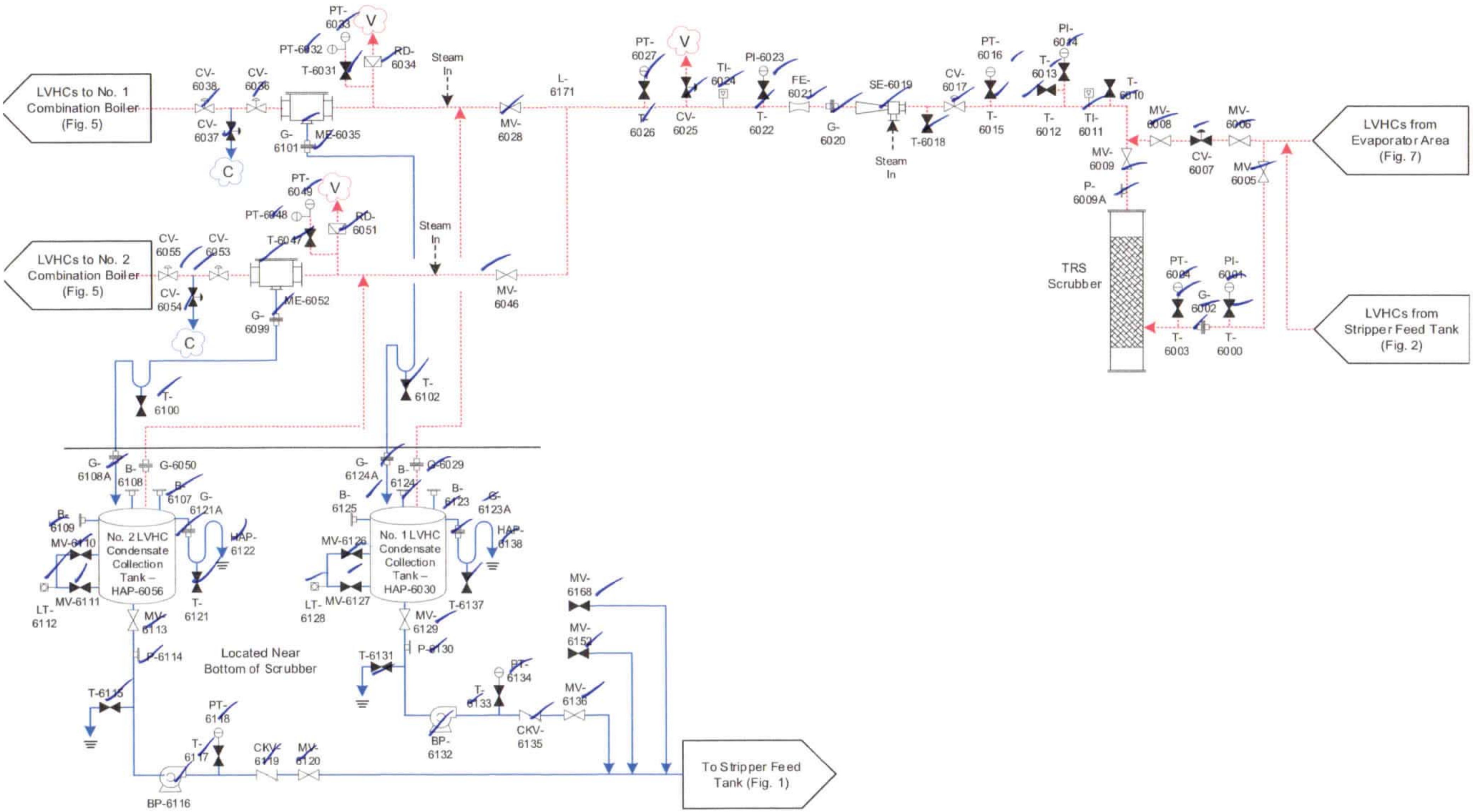
New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Combination Boiler LVHC Incineration

Rev. Date February 2021

Figure 5



Vent Gases		To Another Page and Indicated Equipment
Condensates		
Liquor/Stock Lines		From Another Page and Indicated Equipment
Process Lines		

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

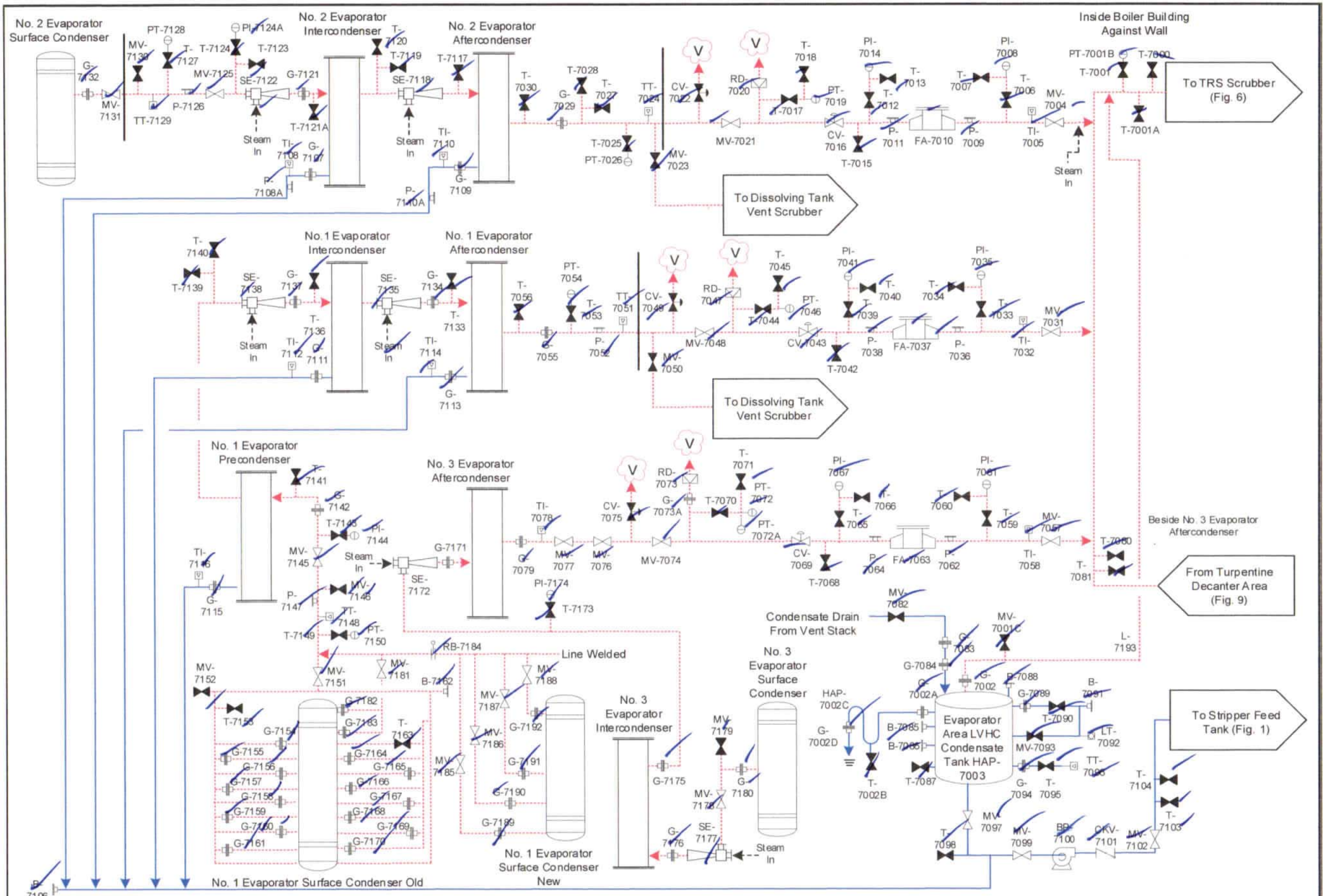
TRS Scrubber Platform

Rev. Date
February 2021

Figure 6

TRS Scrubber Platform
Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
6000	T					yes	
6001	PI					y	
6002	G					y	
6003	T					y	
6004	PT					y	
6005	MV	26-MV-0485				y	
6006	MV	26-MV-0486				y	
6007	CV	26-HV-364				y	
6008	MV	26-MV-0575				y	
6009	MV	26-MV-0507				y	
6009A	P					y	
6010	T					y	
6011	TI					y	
6012	T					y	
6013	T					y	
6014	PI					y	
6015	T					y	
6016	PT					y	
6017	CV	26-PCV-365				y	
6018	T					y	
6019	SE					y	
6020	G					y	
6021	FE					y	
6022	T					y	
6023	PI					y	
6024	TI					y	
6025	CV					y	
6026	T					y	
6027	PT	26-PT-372				y	
6028	MV					y	
6029	G					y	
6030	HAP					y	
6031	T					y	
6032	PT					y	
6033	PT	26-PSH-373				y	
6034	RD					y	
6035	ME					y	
6036	CV					y	
6037	CV					y	
6038	CV					y	
6046	MV					y	
6047	T					y	
6048	PT	37-PSH-381				y	
6049	PT					y	
6050	G					y	
6051	RD					yes	
6052	ME					y	
6053	CV	37-HV-382A				y	
6054	CV	37-HV-043				y	
6055	CV	37-HV-382B				y	
6056	HAP					y	
6099	G					y	
6100	T					y	
6101	G					y	
6102	T					y	
6107	B					y	
6108	B					y	
6108A	G					y	
6109	B					y	
6110	MV					y	
6111	MV					y	
6112	LT					y	
6113	MV					y	
6114	P					y	
6115	T					y	
6116	BP					y	
6117	T					y	
6118	PT					y	
6119	CKV					y	
6120	MV					y	
6121	T					y	
6121A	G					y	
6122	HAP					y	
6123	B					y	
6123A	G					y	
6124	B					y	
6124A	G					y	
6125	B					y	
6126	MV					y	
6127	MV					y	
6128	LT					y	
6129	MV					y	
6130	P					y	
6131	T					y	
6132	BP					y	
6133	T					y	
6134	PT					y	
6135	CKV					y	
6136	MV					y	
6137	T					y	
6138	HAP					y	
6152	MV					y	
6168	MV					y	
6171	L					y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Evaporator System

Rev. Date
February 2021

Figure 7

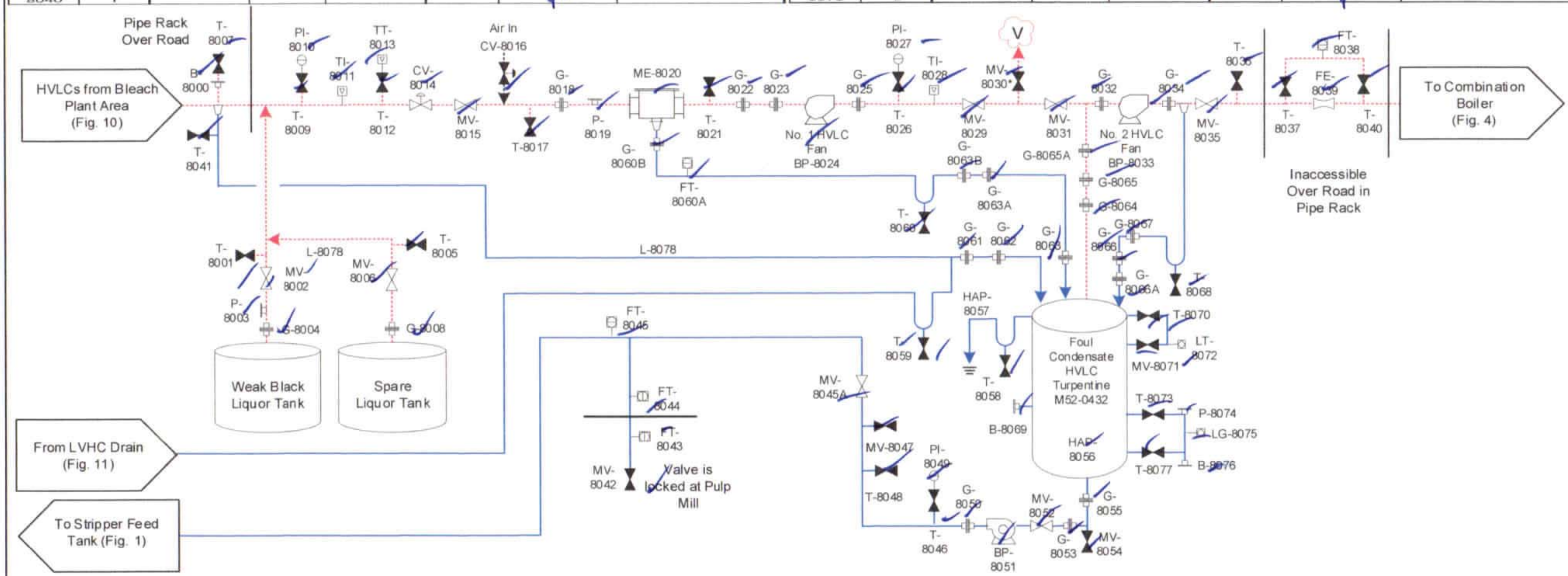
Evaporator System
Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
7000	T					yes	
7001	T					y	
7001A	T					y	
7001B	PT					y	
7001C	MV					y	
7002	G					y	
7002A	G					y	
7002B	T					y	
7002C	HAP					y	
7002D	G					y	
7003	HAP					y	
7004	MV					y	
7005	TI					y	
7006	T					y	
7007	T					y	
7008	PI					y	
7009	P					y	
7010	FA					y	
7011	P					y	
7012	T					y	
7013	T					y	
7014	PI					y	
7015	T	24-MV-0380				y	
7016	CV	24-HV-334				y	
7017	T					y	
7018	T					y	
7019	PT					y	
7020	RD					y	
7021	MV	24-MV-0378				y	
7022	CV	24-HV-336				y	
7023	MV					y	
7024	TT	24-TE-358				y	
7025	T					y	
7026	PT	24-PT-357				y	
7027	T					y	
7028	T					y	
7029	G					y	
7030	T					y	
7031	MV	24-MV-0389				y	
7032	TI					y	
7033	T					y	
7034	T					y	
7035	PI					y	
7036	P					y	
7037	FA					y	
7038	P					y	
7039	T					y	
7040	T					y	
7041	PI					y	
7042	T	24-MV-0388				y	
7043	CV	24-HV-329				y	
7044	T					y	
7045	T					y	
7046	PT					y	
7047	RD					y	
7048	MV	24-MV-0387				y	
7049	CV	24-HV-331				y	
7050	MV					y	
7051	TT	24-TT-364				y	
7052	P					y	
7053	T					y	
7054	PT	24-PT-363				y	
7055	G					y	
7056	T					y	
7057	MV	51-MV-0660				y	
7058	TI					y	
7059	T					y	
7060	T					y	
7061	PI					y	
7062	P					y	
7063	FA					y	
7064	P					y	
7065	T					y	
7066	T					y	
7067	PI					y	
7068	T	51-MV-0659				y	
7069	CV	24-HV-339				y	
7070	T					y	
7071	T					y	
7072	PT					y	
7072A	PT					y	
7073	RD					y	
7073A	G					y	
7074	MV	51-MV-0658				y	
7075	CV	24-HV-341				y	
7076	MV	51-MV-0657				y	
7077	MV	51-MV-769				y	
7078	TI					y	
7079	G					y	
7080	T					y	
7081	T					y	
7082	MV					y	
7083	G					y	
7084	G					y	
7085	B					y	
7086	B					y	
7087	T					y	
7088	B					y	
7089	G					y	
7090	T					y	
7091	B					y	
7092	LT					yes	
7093	MV					y	
7094	G					y	
7095	T					y	
7096	TT					y	
7097	MV					y	
7098	T					y	
7099	MV					y	
7100	BP					y	
7101	CKV					y	
7102	MV					y	
7103	T					y	
7104	T					y	
7106	B					y	
7107	G					y	
7108	TI					y	
7108A	P					y	
7109	G					y	
7110	TI					y	
7110A	P					y	
7111	G					y	
7112	TI					y	
7113	G					y	
7114	TI					y	
7115	G					y	
7116	TI					y	
7117	T					y	
7118	SE					y	
7119	T					y	
7120	T					y	
7121	G					y	
7121A	T					y	
7122	SE					y	
7123	T					y	
7124	T					y	
7124A	PI					y	
7125	MV					y	
7126	P					y	
7127	T					y	
7128	PT					y	
7129	TT					y	
7130	MV					y	
7131	MV					y	
7132	G					y	
7133	T					y	
7134	G					y	
7135	SE					y	
7136	T					y	
7137	G					y	
7138	SE					y	
7139	T					y	
7140	T					y	
7141	T					y	
7142	G					y	
7143	T					y	
7144	PI					y	
7145	MV					y	
7146	MV					y	
7147	P					y	
7148	TT					y	
7149	T					y	
7150	PT					y	
7151	MV					y	
7152	MV	24-MV-0399				y	
7153	T					y	
7154	G					y	
7155	G					y	
7156	G					y	
7157	G					y	
7158	G					y	
7159	G					y	
7160	G					y	
7161	G					y	
7162	B					y	
7163	T					y	
7164	G					y	
7165	G					y	
7166	G					y	
7167	G					y	
7168	G					y	
7169	G					y	
7170	G					y	
7171	G					y	
7172	SE					y	
7173	T	51-MV-0774				y	
7174	PI					y	
7175	G					y	
7176	G					y	
7177	SE					y	
7178	MV	51-MV-0783				y	
7179	MV	51-MV-0782				y	
7180	G					y	
7181	MV					y	
7182	G					y	
7183	G					y	
7184	RB					y	
7185	MV					y	
7186	MV					y	
7187	MV					y	
7188	MV					y	
7189	G					y	
7190	G					y	
7191	G					y	
7192	G					y	
7193	L					y	

HVLC Blower Platform
Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8000	B					yes	
8001	T					y	
8002	MV					y	
8003	P					y	
8004	G					y	
8005	T					y	
8006	MV					y	
8007	T					y	
8008	G					y	
8009	T					y	
8010	PI					y	
8011	TI					y	
8012	T					y	
8013	TT					y	
8014	CV	54-PV-953				y	
8015	MV	26-MV-0618				y	
8016	CV					y	
8017	T	26-MV-0619				y	
8018	G					y	
8019	P					y	
8020	ME					y	
8021	T					y	
8022	G					y	
8023	G					y	
8024	BP	M52-0412				y	
8025	G					y	
8026	T					y	
8027	PI	52-PI-958				y	
8028	TI					y	
8029	MV	26-MV-0670				y	
8030	MV					y	Car seal present.
8031	MV					y	
8032	G					y	
8033	BP	M52				y	
8034	G					y	
8035	MV	26-MV-0622				y	
8036	T					y	
8037	T					y	
8038	FT					y	
8039	FE					y	
8040	T					y	

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8041	T					yes	
8042	MV					y	
8043	FT					y	
8044	FT					y	
8045	FT					y	
8045A	MV					y	
8046	T					y	
8047	MV					y	
8048	T					y	
8049	PI					y	
8050	G					y	
8051	BP					y	
8052	MV					y	
8053	G					y	
8054	MV					y	
8055	G					y	
8056	HAP					y	
8057	HAP					y	
8058	T					y	
8059	T					y	
8060	T					y	
8060A	FT					y	
8060B	G					y	
8061	G					y	
8062	G					y	
8063	G					y	
8063A	G					y	
8063B	G					y	
8064	G					y	
8065	G					y	
8065A	G					y	
8066	G					y	
8066A	G					y	
8067	G					y	
8068	T					y	
8069	B					y	
8070	T					y	
8071	MV					y	
8072	LT					y	
8073	T					y	
8074	P					y	
8075	LG					y	
8076	B					y	
8077	T					y	
8078	L					y	



* Indicates car seal present

Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams
HVLC Blower Platform

Rev. Date
February 2021

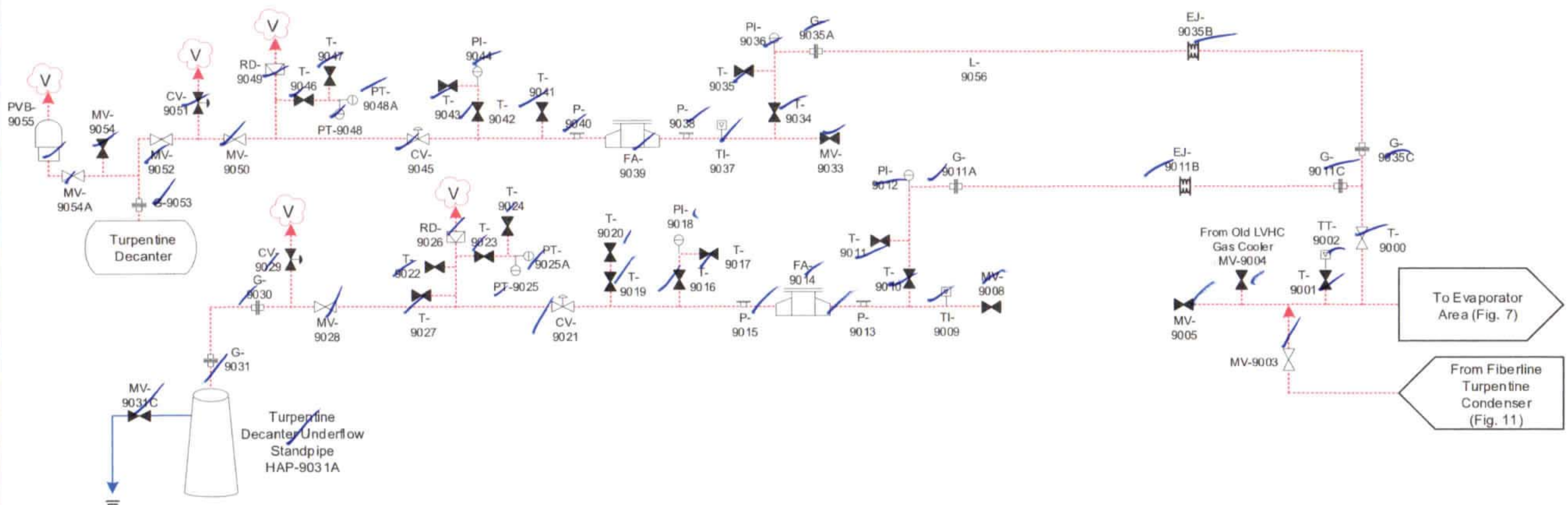
Figure 8

Turpentine Decanter and Standpipe

Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
9000	T					yes	
9001	T					y	
9002	TT					y	
9003	MV	14-MV-0312				y	
9004	MV					y	
9005	MV					y	
9008	MV	14-TI/TW-125				y	
9009	TI					y	
9010	T					y	
9011	T					y	
9011A	G					y	
9011B	EJ					y	
9011C	G					y	
9012	PI					y	
9013	P					y	
9014	FA					y	
9015	P					y	
9016	T					y	
9017	T					y	
9018	PI	14-PI-125A				y	
9019	T					y	
9020	T					y	
9021	CV	14-HV-127				y	
9022	T					y	
9023	T					y	
9024	T					y	
9025	PT	14-PSH-122				y	
9025A	PT	14-PSH-122				y	
9026	RD					y	
9027	T					y	
9028	MV					y	

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
9029	CV	14-HV-126				yes	
9030	G					y	
9031	G					y	
9031A	HAP					y	
9031C	MV					y	
9033	MV	14-MV-0330				y	
9034	T					y	
9035	T					y	
9035A	G					y	
9035B	EJ					y	
9035C	G					y	
9036	PI					y	
9037	TI	14-TI/TW-304B				y	
9038	P					y	
9039	FA	M14-0121				y	
9040	P					y	
9041	T					y	
9042	T					y	
9043	T					y	
9044	PI					y	
9045	CV	14-HV-314				y	
9046	T					y	
9047	T					y	
9048	PT	14-PSH-313				y	
9048A	PT	14-PSH-313				y	
9049	RD					y	
9050	MV	14-MV-0342				y	
9051	CV	14-HV-312				y	
9052	MV	14-MV-0343				y	
9053	G					y	
9054	MV					y	
9054A	MV					y	
9055	PRV					y	
9056	L					y	



Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

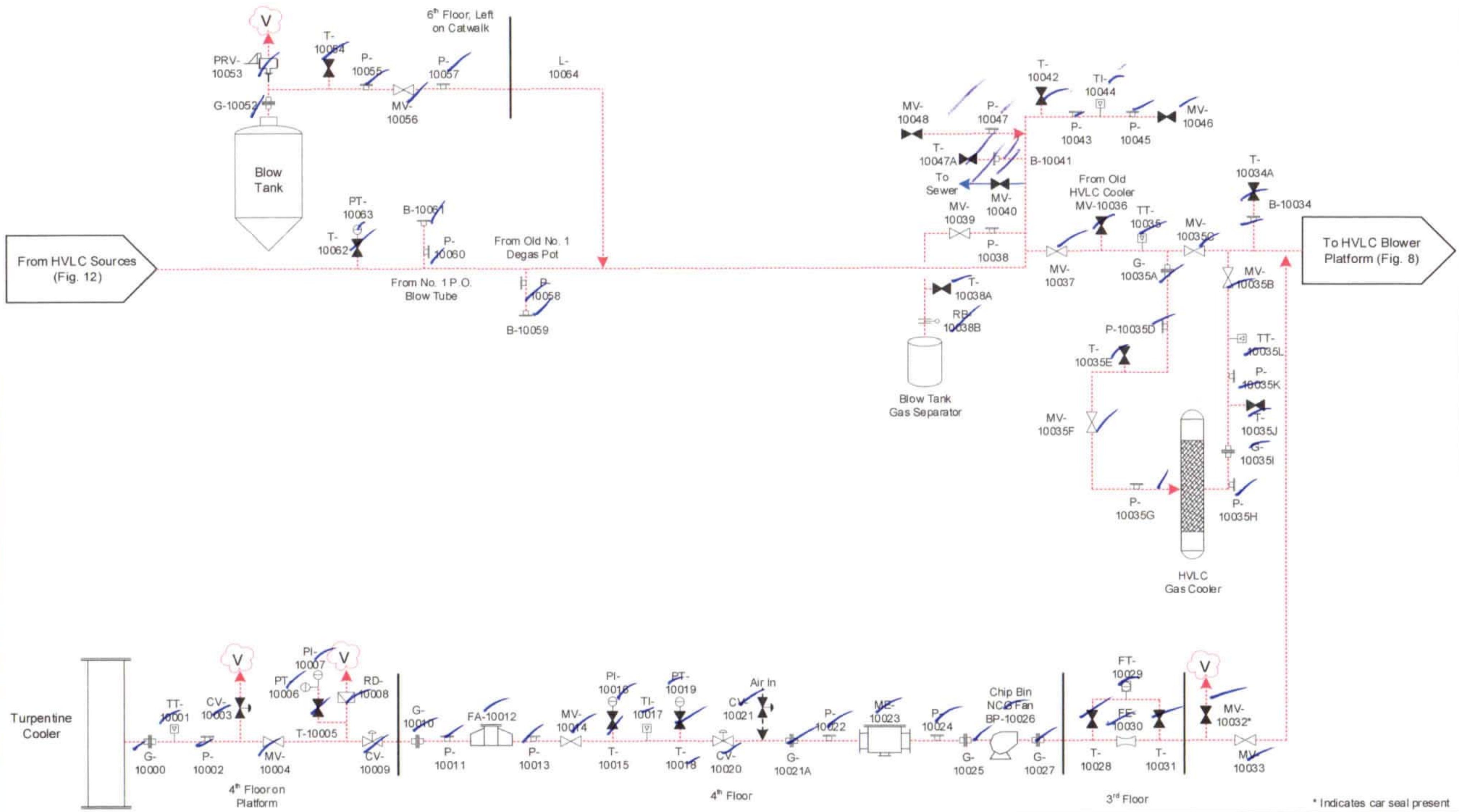
New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Turpentine Decanter and Standpipe

Rev. Date February 2021

Figure 9



* Indicates car seal present

Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Turpentine Cooler and Blow Tank

Rev. Date

February 2021

Figure 10

Turpentine Cooler and Blow Tank

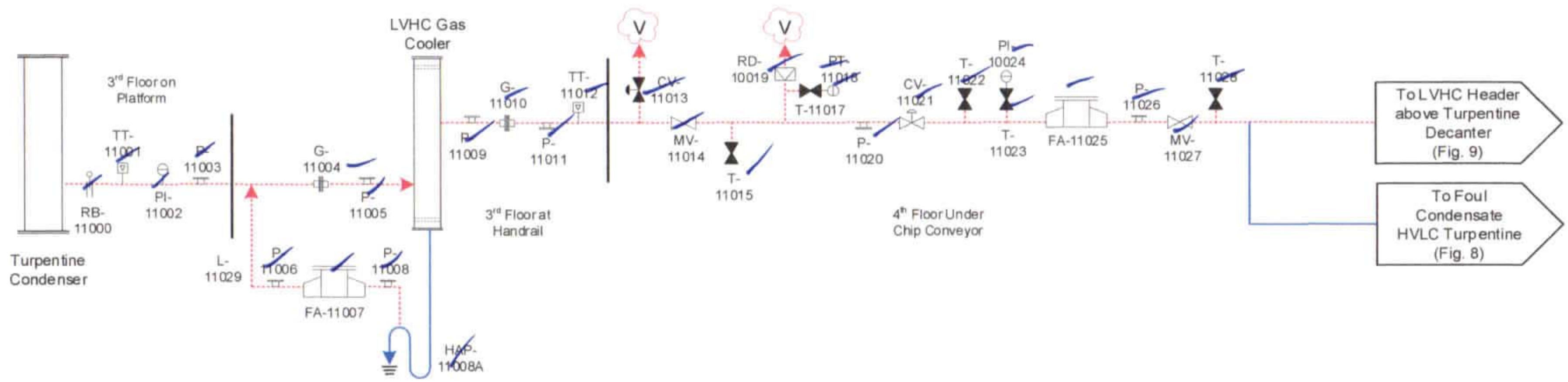
Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
10000	G					yes	
10001	TT	52-TE-230				y	
10002	P					y	
10003	CV	52-QV-937				y	
10004	MV	52-MV-1021				y	
10005	T					y	
10006	PT	52-PSH-934				y	
10007	PI					y	
10008	RD					y	
10009	CV	52-EV-938				y	
10010	G					y	
10011	P					y	
10012	FA	M52-0429				y	
10013	P					y	
10014	MV	52-MV-1022				y	
10015	T					y	
10016	PI					y	
10017	TI					y	
10018	T					y	
10019	PT					y	
10020	CV	52-PV-941				y	
10021	CV					y	
10021A	G					y	
10022	P					y	
10023	ME	M52-0415				y	
10024	P					y	
10025	G					y	
10026	BP	M52-0411				y	
10027	G					y	
10028	T					y	
10029	FT					y	
10030	FE					y	
10031	T					y	
10032	MV					y	Car seal present.
10033	MV					y	
10034	B					y	
10034A	T					y	
10035	TT	52-TT-947				y	
10035A	G					y	
10035B	MV					y	
10035C	MV					y	
10035D	P					y	
10035E	T					y	
10035F	MV					y	
10035G	P					y	
10035H	P					y	
10035I	G					y	
10035J	T					y	
10035K	P					y	
10035L	TT					y	
10036	MV					y	
10037	MV					y	
10038	P					y	
10038A	T					y	
10038B	RB					y	
10039	MV					y	
10040	MV					y	
10041	B					y	
10042	T					y	
10043	P					y	
10044	TI					y	
10045	P					y	
10046	MV					y	
10047	P					y	
10047A	T					y	
10048	MV	A507				y	
10052	G					y	
10053	PRV					y	
10054	T					y	
10055	P					y	
10056	MV					y	
10057	P					y	
10058	P					y	
10059	B					y	
10060	P					y	
10061	B					y	
10062	T					y	
10063	PT	52-PT-215				y	
10064	L					y	

Turpentine Condenser and LVHC Gas Cooler

Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
11000	RB					Yes	
11001	TT	52-TE-222A				Y	
11002	PI					Y	
11003	P					Y	
11004	G					Y	
11005	P					Y	
11006	P					Y	
11007	FA	M52-0512				Y	
11008	P					Y	
11008A	HAP					Y	
11009	P					Y	
11010	G					Y	
11011	P					Y	
11012	TT	52-TE-225				Y	
11013	CV	52-HV-174B				Y	
11014	MV	52-A-368				Y	
11015	T					Y	
11017	T					Y	
11018	PT	52-PSH-226				Y	
11019	RD					Y	
11020	P					Y	
11021	CV	52-HV-174A				Y	
11022	T	52-A-428				Y	
11023	T					Y	
11024	PI	52-PI-226				Y	
11025	FA	Z00-0395M				Y	
11026	P					Y	
11027	MV	52-A-541				Y	
11028	T	52-A-437				Y	
11029	L					Y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams
Turpentine Condenser and LVHC Gas Cooler

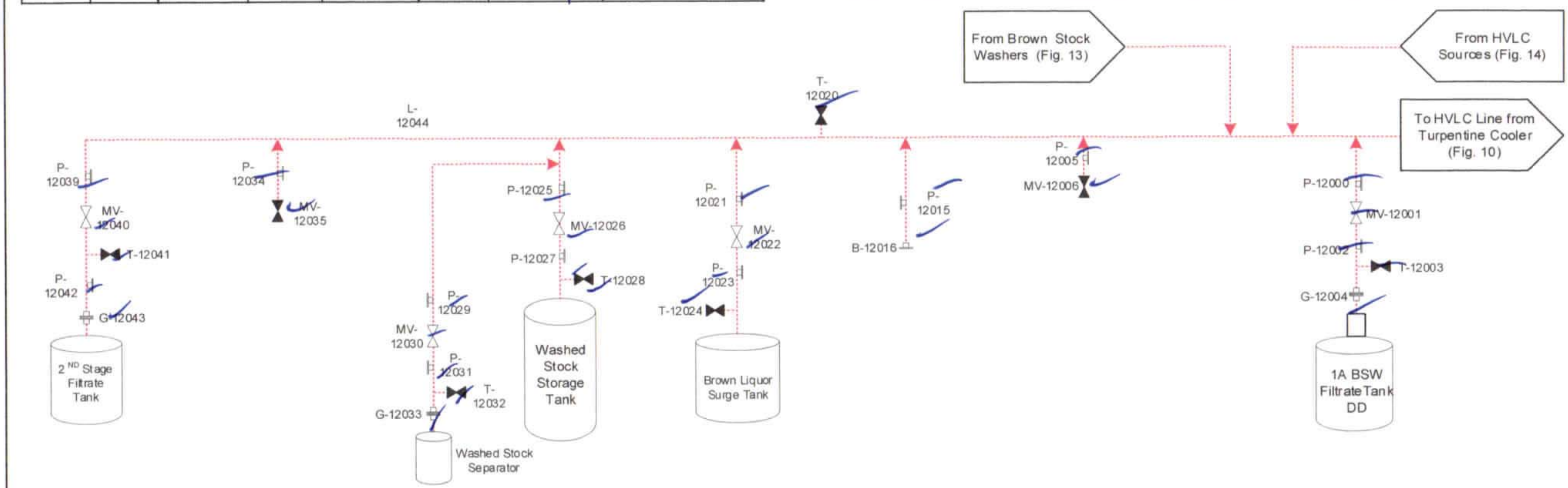
Rev. Date
February 2021

Figure 11

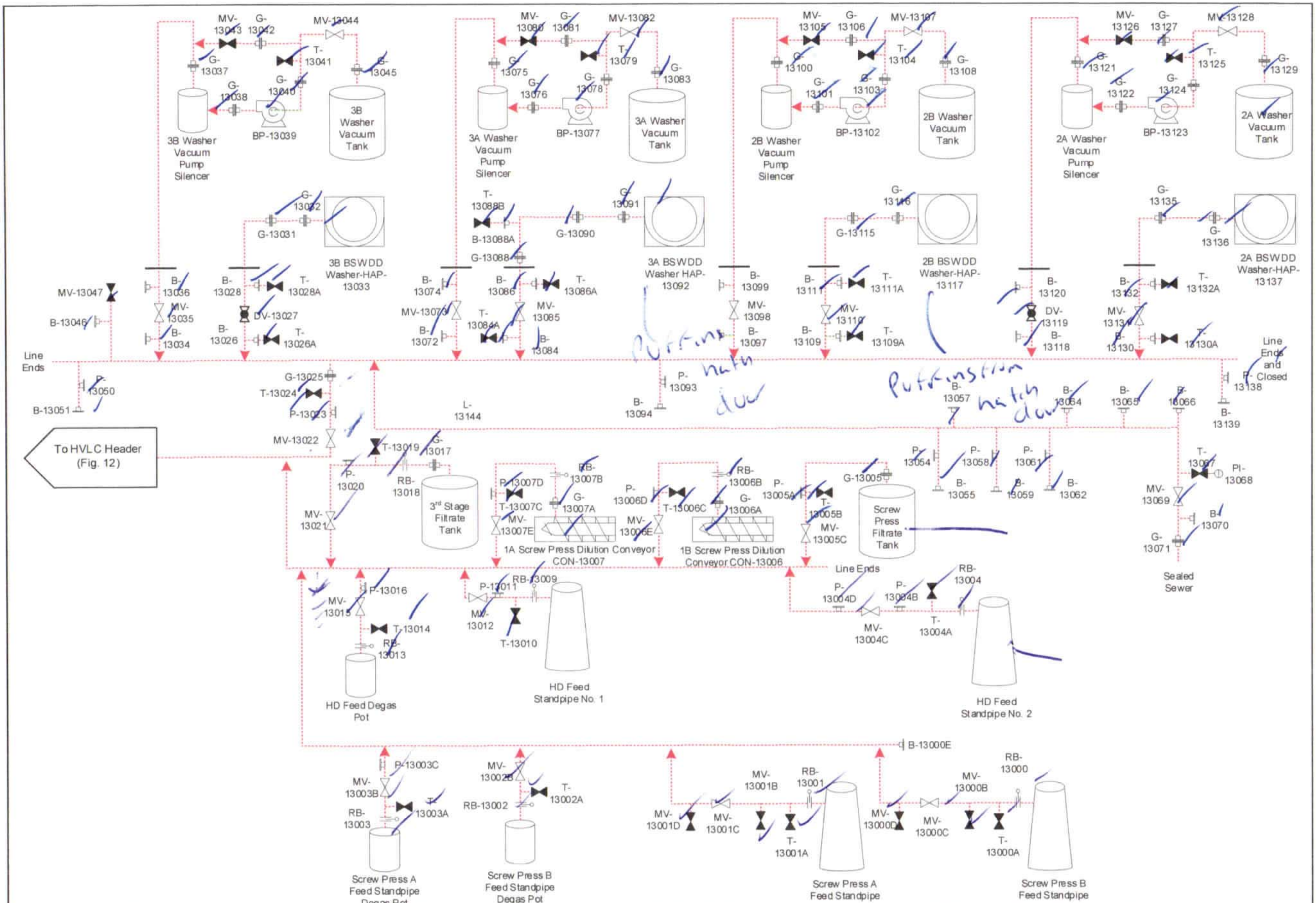
HVLC System at Pulp Mil (1 of 2)

Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12000	P					yes	
12001	MV					y	
12002	P					y	
12003	T	X182				y	
12004	G					y	
12005	P					y	
12006	MV					y	
12015	P					y	
12016	B					y	
12020	T	V4454				y	
12021	P					y	
12022	MV	0598-22-HY				y	
12023	P					y	
12024	T	D060				y	
12025	P					yes	
12026	MV					y	
12027	P					y	
12028	T					y	
12029	P					y	
12030	MV	F543				y	
12031	P					y	
12032	T	F541				y	
12033	G					y	
12034	P					y	
12035	MV	SR307				y	
12039	P					y	
12040	MV	SR308				y	
12041	T					y	
12042	P					y	
12043	G					y	
12044	L					y	



Vent Gases / Condensates / Liquor/Stock Lines / Process Lines	To Another Page and Indicated Equipment / From Another Page and Indicated Equipment	ENVIRONMENTAL 360
New-Indy – Catawba Mill		Rev. Date February 2021
LDAR Inspection and Testing Diagrams HVLC System at Pulp Mill (1 of 2)		Figure 12



Vent Gases	
Bleach Gases	
Condensates	
Liquor/Stock Lines	
Process Lines	

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Pulp Mill BSWs

Rev. Date
February 2021

Figure 13

Pulp Mill BSWs
Completed Date/Time: 3/15/21

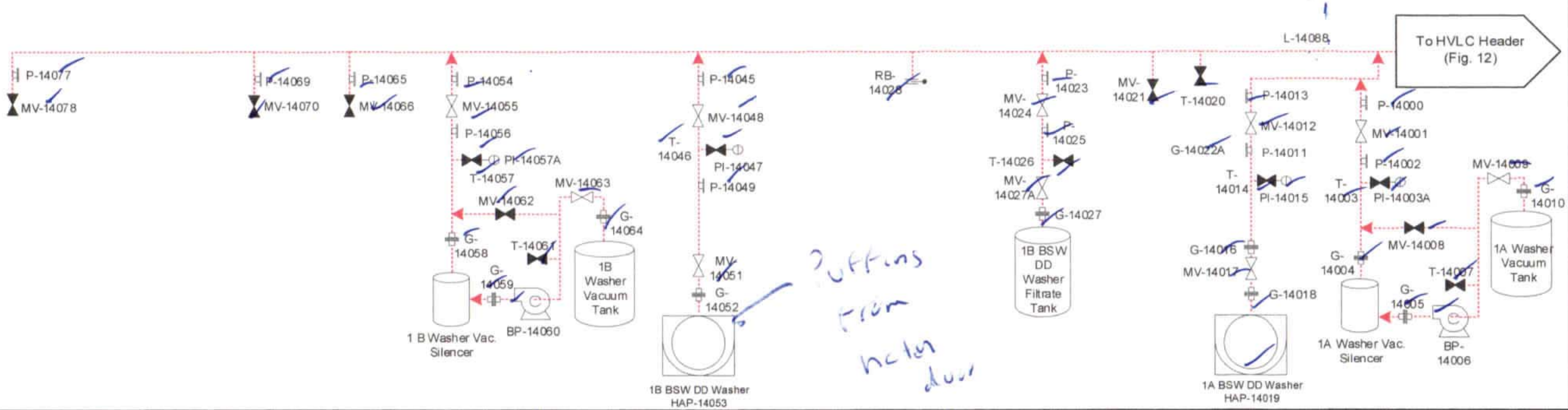
Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
13000	RB					Yes	
13000A	T					y	
13000B	MV					y	
13000C	MV					y	
13000D	MV					y	
13000E	B					y	
13001	RB					y	
13001A	T					y	
13001B	MV					y	
13001C	MV					y	
13001D	MV					y	
13002	RB					y	
13002A	T					y	
13002B	MV					y	
13003	RB					y	
13003A	T					y	
13003B	MV					y	
13003C	P					y	
13004	RB					y	
13004A	T					y	
13004B	P					y	
13004C	MV					y	
13004D	P					y	
13005	G					y	
13005A	P					y	
13005B	T					y	
13005C	MV					y	
13006	CON					y	
13006A	G					y	
13006B	RB					y	
13006C	T					y	
13006D	P					y	
13006E	MV					y	
13007	CON					y	
13007A	A					y	
13007B	RB					y	
13007C	T					y	
13007D	P					y	
13007E	MV					y	
13009	RB					y	
13010	T					y	
13011	P					y	
13012	MV					y	
13013	RB					y	
13014	T					y	
13015	MV					y	
13016	P					y	
13017	G					y	
13018	RB					y	
13019	T					y	
13020	P					y	
13021	MV					y	
13022	MV					y	
13023	P					y	
13024	T					y	
13025	G					y	
13026	B					y	
13026A	T					y	
13027	DV					y	
13028	B					y	
13028A	T					y	
13031	G					y	
13032	G					y	
13033	HAP					y	
13034	B					y	
13035	MV	F532				y	
13036	B					y	
13037	G					y	
13038	G					y	
13039	BP	E53-0021				y	
13040	G					y	
13041	T	F56				y	
13042	G					y	
13043	MV	F99				y	
13044	MV					y	
13045	G					y	
13046	B					y	
13047	MV					y	
13050	P					y	
13051	B					y	
13054	P					Yes	
13055	B					y	
13057	B					y	
13058	P					y	
13059	B					y	
13061	P					y	
13062	B					y	
13064	B					y	
13065	B					y	
13066	B					y	
13067	T					y	
13068	PI					y	
13069	MV					y	
13070	B					y	
13071	G					y	
13072	B					y	
13073	MV	F530				y	
13074	B					y	
13075	G					y	
13076	G					y	
13077	BP	E53-0046				y	
13078	G					y	
13079	T	F195				y	
13080	MV	F101				y	
13081	G					y	
13082	MV					y	
13083	G					y	
13084	B					y	
13084A	T					y	
13085	MV	F529				y	
13086	B					y	
13086A	T					y	
13088	G					y	
13088A	B					y	
13088B	T					y	
13090	G					y	
13091	G					y	
13092	HAP					No	Puffing
13093	P					y	
13094	B	F528				y	
13097	B					y	
13098	MV	F527				y	
13099	B					y	
13100	G					y	
13101	G					y	
13102	BP					y	
13103	G					y	
13104	T	F262				y	
13105	MV	F248				y	
13106	G					y	
13107	MV					y	
13108	G					y	
13109	B					y	
13109A	T					y	
13110	MV					y	
13111	B					y	
13111A	T					y	
13115	G					y	
13116	G					y	
13117	HAP					No	Puffing
13118	B					y	
13119	DV	F524				y	
13120	B					y	
13121	G					y	
13122	G					y	
13123	BP	E53-0106				y	
13124	G					y	
13125	T	F356				y	
13126	MV	F293				y	
13127	G					y	
13128	MV					y	
13129	G					y	
13130	B					y	
13130A	T					y	
13131	MV					y	
13132	B					y	
13132A	T					y	
13135	G					y	
13136	G					y	
13137	HAP					y	
13138	P					y	
13139	B					y	
13144	L					y	

HVLC System at Pulp Mill (2 of 2)

Completed Date/Time: 3/15/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
14000	P					yes	
14001	MV	X170				y	
14002	P					y	
14003	T					y	
14003A	PI	52-PI-353				y	
14004	G					y	
14005	G					y	
14006	BP	M52-0092				y	
14007	T	X74				y	
14008	MV	X240				y	
14009	MV					y	
14010	G					y	
14011	P					y	
14012	MV	X169				y	
14013	P					y	
14014	T	X179				y	
14015	PI					y	
14016	G					y	
14017	MV					y	
14018	G					y	
14019	HAP					y	
14020	T					y	
14021	MV					y	
14023	P					y	
14024	MV	X171				y	
14025	P					y	
14026	T					y	

14027	G					yes	
14027A	MV					y	
14028	RB					y	
14045	P					y	
14046	T					y	
14047	PI					y	
14048	MV	X168				y	
14049	P					y	
14051	MV					y	
14052	G					y	
14053	HAP					No	Puffing
14054	P					y	
14055	MV	X167				y	
14056	P					y	
14057	T					y	
14057A	PI					y	
14058	G					y	
14059	G					y	
14060	BP	E52-0128				y	
14061	T	X159				y	
14062	MV	X265				y	
14063	MV					y	
14064	G					y	
14065	P					y	
14066	MV	SR313				y	
14069	P					y	
14070	MV	SR312				y	
14077	P					y	
14078	MV					y	
14088	L					y	



Vent Gases		To Another Page and Indicated Equipment
Condensates		
Liquor/Stock Lines		From Another Page and Indicated Equipment
Process Lines		

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New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

HVLC System at Pulp Mill (2 of 2)

Rev. Date February 2021

Figure 14

Inspection Date: April 5, 2021

New Indy Containerboard - Catawba Mill
5300 Cureton Ferry Rd.
Catawba, SC 29704

2021 Monthly LDAR Inspection Summary Report

Table 1: Visual Inspection Summary Table

Equipment Number	Date	Description of Leak or Visual Defect
N/A	4/5/2021	No leaks or defects to report.

First Attempt to Repair must be completed by:	5 Days from Inspection Date	Not Applicable if no leaks were found.
Repairs must be completed by:	15 Days from Inspection Date	Not Applicable if no leaks were found.

This report provides a summary of leaks and visual defects found during the visual inspection of the closed-vent and condensate-collection systems and complies with the record keeping requirements of 63.454(b)(1-2, 4-5).

The facility must initiate repairs to any defects within five (5) calendar days from this inspection and the defects must be repaired within fifteen (15) calendar days of the inspection. If the leak or defect requires the system to be shutdown in order to make repairs, or more emissions would occur from attempting the repair than delaying the repair, then the repairs may be delayed until the next process unit shutdown. A report must be supplied with the repair date and associated information, or the reason for the delay if the repairs are not completed within the 15-day period. These response requirements are specific to 40 CFR 63, specifically 63.453(k)(6), 63.453(l)(3), and 63.964(b)(1-2). Documentation of all repair attempts made and any leaks/defects requiring a process unit shutdown must be completed according to 63.454(b)(6-11).

I certify that the results of the visual inspection are accurate and complete to the best of my knowledge.

Inspector Name: Josh Howard

Signature: Josh Howard

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Inspection QA/QC Procedure

E360 Project Number?	New Indy Catawba
Task Number (if applicable)?	April 2021 ~~August~~ JM LDAR monthly

Purpose of Form

To verify field work meets each critical element.

Visual Work Flow (WF)

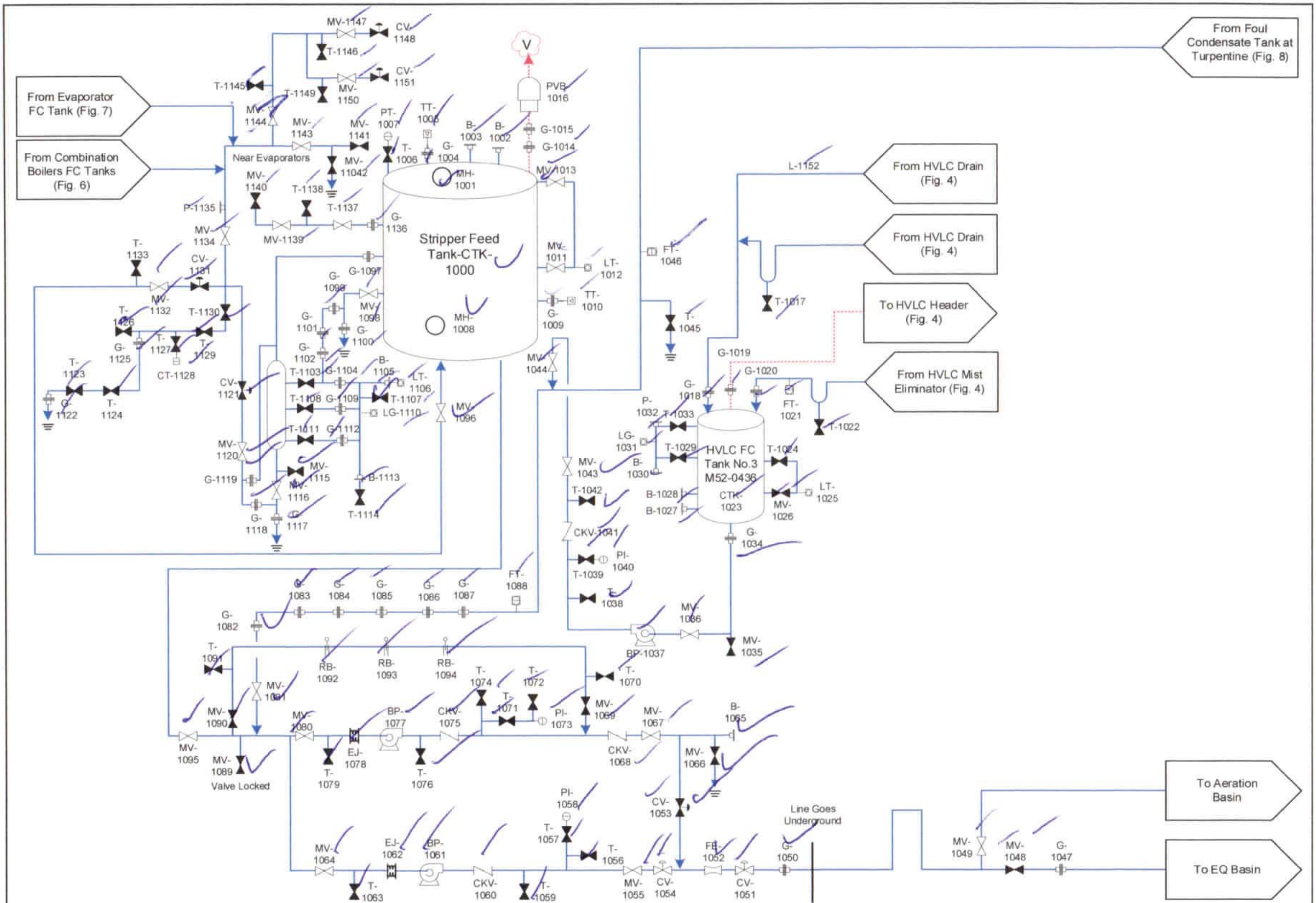
Step 1
R - Verify field work by checking "X" each WF No.

Verification of Critical Elements

WF No.	Requirement	Yes?
	Work-flow step	1
	Verifier of critical elements for work-flow step	R
1	Was a bump test performed on the personal H_2S monitor?	✓
2	Have the most recent versions of the inspection forms been used?	✓
3	Were all inspection points identified correctly and inspected correctly?	✓
4	Did the operator/ contact verify to our inspector that all equipment was operating under normal operating conditions?	✓
5	Were any deficiencies identified in person to the client?	NA
6	Were all inspection questions answered with either a Yes, No, or NA?	✓
7	Were inspections performed during the required regulatory time frame?	✓

Approvals

Role	WF Step	Name	Approval (insert date)
Responsible Person (R)	1	Josh [illegible]	04/05/2021



Vent Gases	To Another Page and Indicated Equipment	New-Indy – Catawba Mill	Rev. Date March 2021
Condensates	From Another Page and Indicated Equipment	LDAR Inspection and Testing Diagrams	Figure 1
Liquor/Stock Lines		Stripper System Foul Condensate	
Process Lines			

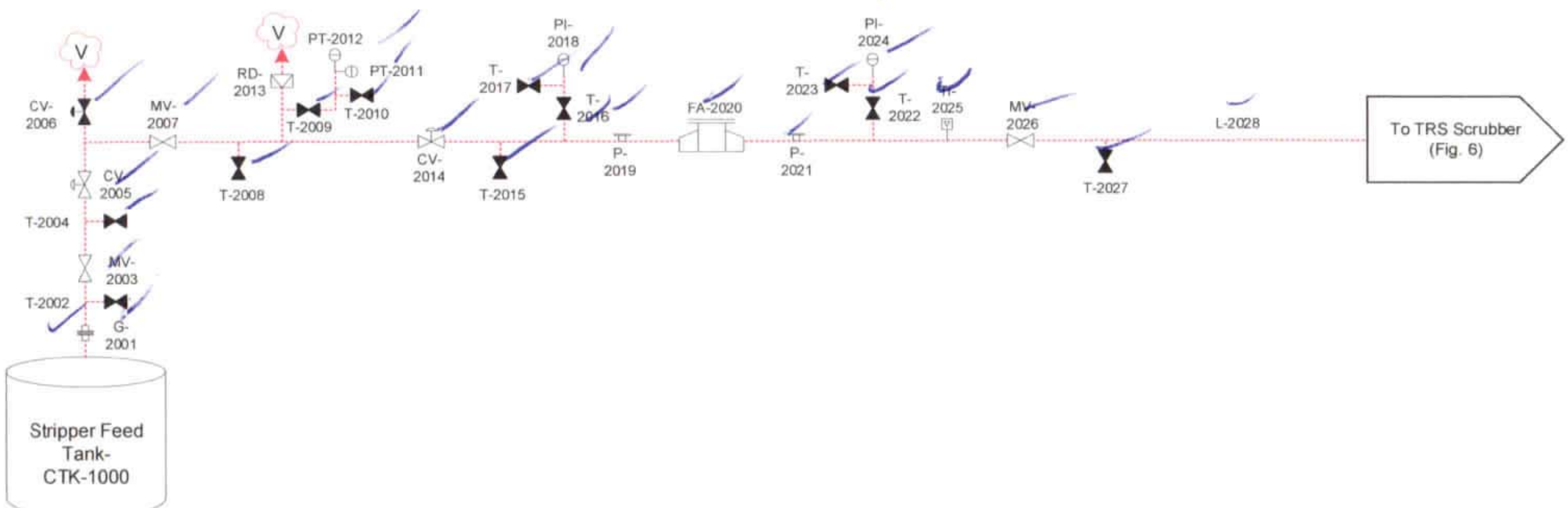
ENVIRONMENTAL360

Stripper System Foul Condensate
Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
1000	TK					yes	
1001	MH					Y	
1002	B					Y	
1003	B					Y	
1004	G					Y	
1005	TT					Y	
1006	T					Y	
1007	PT					Y	
1008	MH					Y	
1009	G					Y	
1010	TT					Y	
1011	MV					Y	
1012	LT					Y	
1013	MV					Y	
1014	G					Y	
1015	G					Y	
1016	PVG					Y	
1017	T					Y	
1018	G					Y	
1019	G					Y	
1020	G					Y	
1021	FT					Y	
1022	T					Y	
1023	CTK					Y	
1024	T					Y	
1025	LT					Y	
1026	MV					Y	
1027	B					Y	
1028	B					Y	
1029	T					Y	
1030	B					Y	
1031	LG					Y	
1032	P					Y	
1033	T					Y	
1034	G					Y	
1035	MV					Y	
1036	MV					Y	
1037	BP					Y	
1038	T					Y	
1039	T					Y	
1040	PI					Y	
1041	CKV					Y	
1042	T					Y	
1043	MV					Y	
1044	MV					Y	
1045	T					Y	
1046	FT					Y	
1047	G					Y	
1048	MV					Y	
1049	MV					Y	
1050	G					Y	
1051	CV					Y	
1052	FE					Y	
1053	CV					Y	
1054	CV					Y	
1055	MV					Y	
1056	T					Y	
1057	T					Y	
1058	PI					Y	
1059	T					Y	
1060	CKV					Y	
1061	BP					Y	
1062	EJ					Y	
1063	T					Y	
1064	NV					Y	
1065	B					Y	
1066	MV					Y	
1067	MV					Y	
1068	CKV					Y	
1069	MV					Y	
1070	T					Y	
1071	T					Y	
1072	T					Y	
1073	PI					Y	
1074	T					Y	
1075	CKV					yes	
1076	T					Y	
1077	BP					Y	
1078	EJ					Y	
1079	T					Y	
1080	MV					Y	
1081	MV					Y	
1082	G					Y	
1083	G					Y	
1084	G					Y	
1085	G					Y	
1086	G					Y	
1087	G					Y	
1088	FT					Y	
1089	MV					Y	
1090	MV					Y	
1091	T					Y	
1092	RB					Y	
1093	RB					Y	
1094	RB					Y	
1095	MV					Y	
1096	MV					Y	
1097	G					Y	
1098	MV					Y	
1099	T					Y	
1100	G					Y	
1101	G					Y	
1102	G					Y	
1103	T					Y	
1104	G					Y	
1105	B					Y	
1106	LT					Y	
1107	T					Y	
1108	T					Y	
1109	G					Y	
1110	LG					Y	
1111	T					Y	
1112	G					Y	
1113	B					Y	
1114	T					Y	
1115	MV					Y	
1116	MV					Y	
1117	G					Y	
1118	G					Y	
1119	G					Y	
1120	MV					Y	
1121	CV					Y	
1122	G					Y	
1123	T					Y	
1124	T					Y	
1125	G					Y	
1126	T					Y	
1127	T					Y	
1128	CTK					Y	
1129	T					Y	
1130	T					Y	
1131	CV					Y	
1132	MV					Y	
1133	T					Y	
1134	MV					Y	
1135	P					Y	
1136	G					Y	
1137	T					Y	
1138	T					Y	
1139	MV					Y	
1140	MV					Y	
1141	MV					Y	
1142	MV					Y	
1143	MV					Y	
1144	MV					Y	
1145	T					Y	
1146	T					Y	
1147	MV					Y	
1148	CV					Y	
1149	T					Y	
1150	MV					Y	
1151	CV					Y	
1152	L					Y	

Stripper Feed Tank
Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
2001	G					Yes	
2002	T					Y	
2003	MV					Y	
2004	T					Y	
2005	CV					Y	
2006	CV					Y	
2007	MV					Y	
2008	T					Y	
2009	T					Y	
2010	T					Y	
2011	PT					Y	
2012	PT					Y	
2013	RD					Y	
2014	CV					Y	
2015	T					Y	
2016	T					Y	
2017	T					Y	
2018	PI					Y	
2019	P					Y	
2020	FA					Y	
2021	P					Y	
2022	T					Y	
2023	T					Y	
2024	PI					Y	
2025	TI					Y	
2026	MV					Y	
2027	T					Y	
2028	L					Y	



* Indicates car seal present

Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL360

New-Indy – Catawba Mill

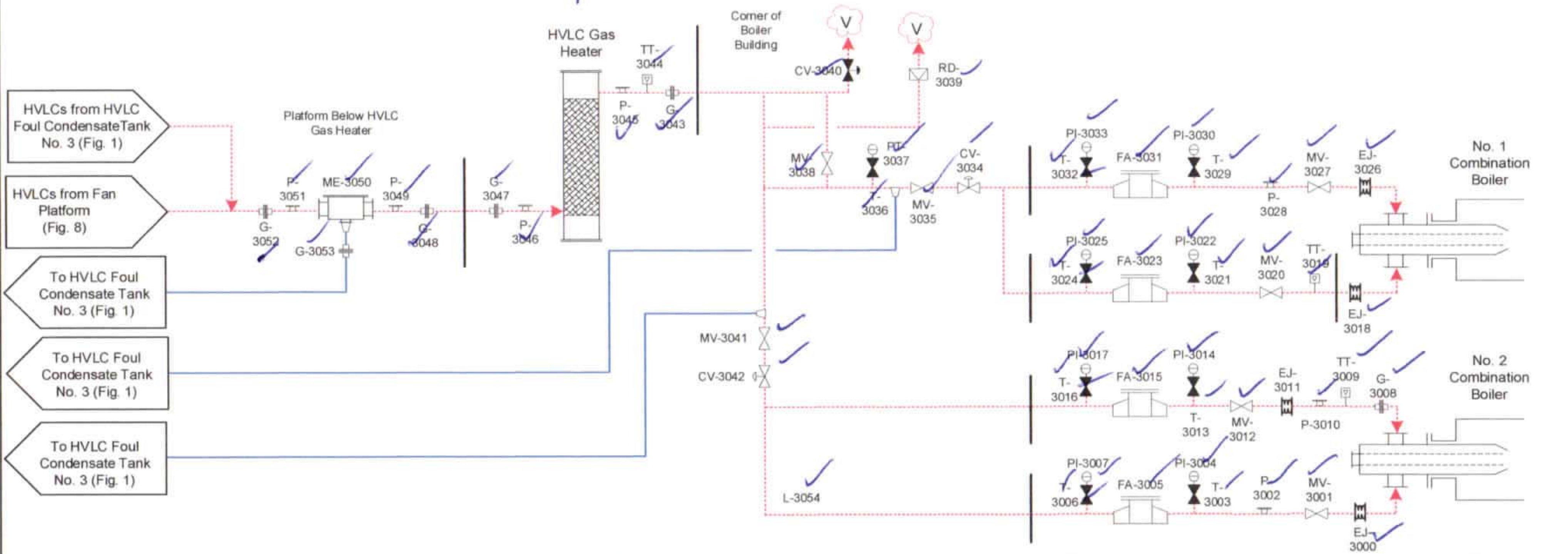
LDAR Inspection and Testing Diagrams
Stripper Feed Tank

Rev. Date
March 2021

Figure 2

Combination Boiler HVLC Incinerator
Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
3000	EJ					yes	
3001	MV					y	
3002	P					y	
3003	T					y	
3004	PI					y	
3005	FA					y	
3006	T					y	
3007	PI					y	
3008	G					y	
3009	TT					y	
3010	P					y	
3011	EJ					y	
3012	MV					y	
3013	T					y	
3014	PI					y	
3015	FA					y	
3016	T					y	
3017	PI					y	
3018	EJ					y	
3019	TT					y	
3020	MV					y	
3021	T					y	
3022	PI					y	
3023	FA					y	
3024	T					y	
3025	PI					y	
3026	EJ					yes	
3027	MV					y	
3028	P					y	
3029	T					y	
3030	PI					y	
3031	FA					y	
3032	T					y	
3033	PI					y	
3034	CV					y	
3035	MV					y	
3036	T					y	
3037	PT					y	
3038	MV					y	
3039	RD					y	
3040	CV					y	
3041	MV					y	
3042	CV					y	
3043	G					y	
3044	TT					y	
3045	P					y	
3046	P					y	
3047	G					y	
3048	G					y	
3049	P					y	
3050	ME					y	
3051	P					y	
3052	G					y	
3053	G					y	
3054	L					y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

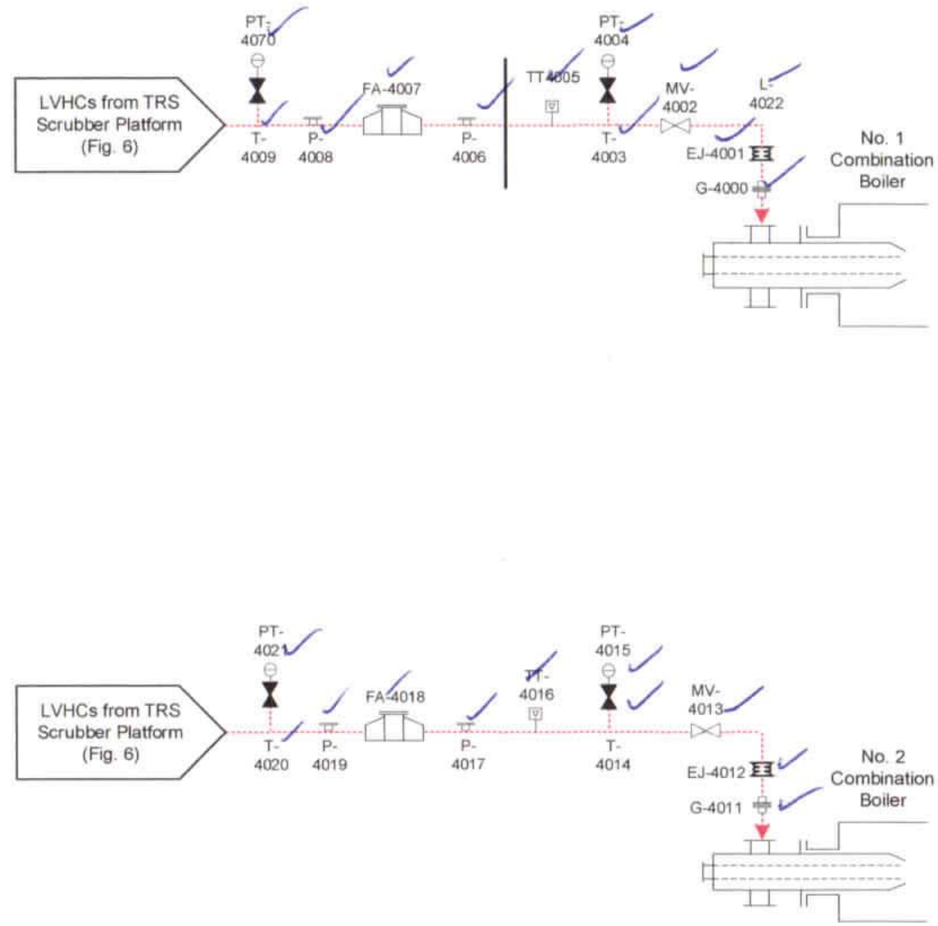
Combination Boiler HVLC Incineration

Rev. Date
March 2021

Figure 3

Combination Boiler LVHC Incineration
Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
4000	G					yes	
4001	EJ					Y	
4002	MV					Y	
4003	T					Y	
4004	PT					Y	
4005	TT					Y	
4006	P					Y	
4007	FA					Y	
4008	P					Y	
4009	T					Y	
4010	PT					Y	
4011	G					Y	
4012	EJ					Y	
4013	MV					Y	
4014	T					Y	
4015	PT					Y	
4016	TT					Y	
4017	P					Y	
4018	FA					Y	
4019	P					Y	
4020	T					Y	
4021	PT					Y	
4022	L					Y	



Vent Gases		To Another Page and Indicated Equipment	
Condensates			
Liquor/Stock Lines		From Another Page and Indicated Equipment	
Process Lines			

ENVIRONMENTAL 360

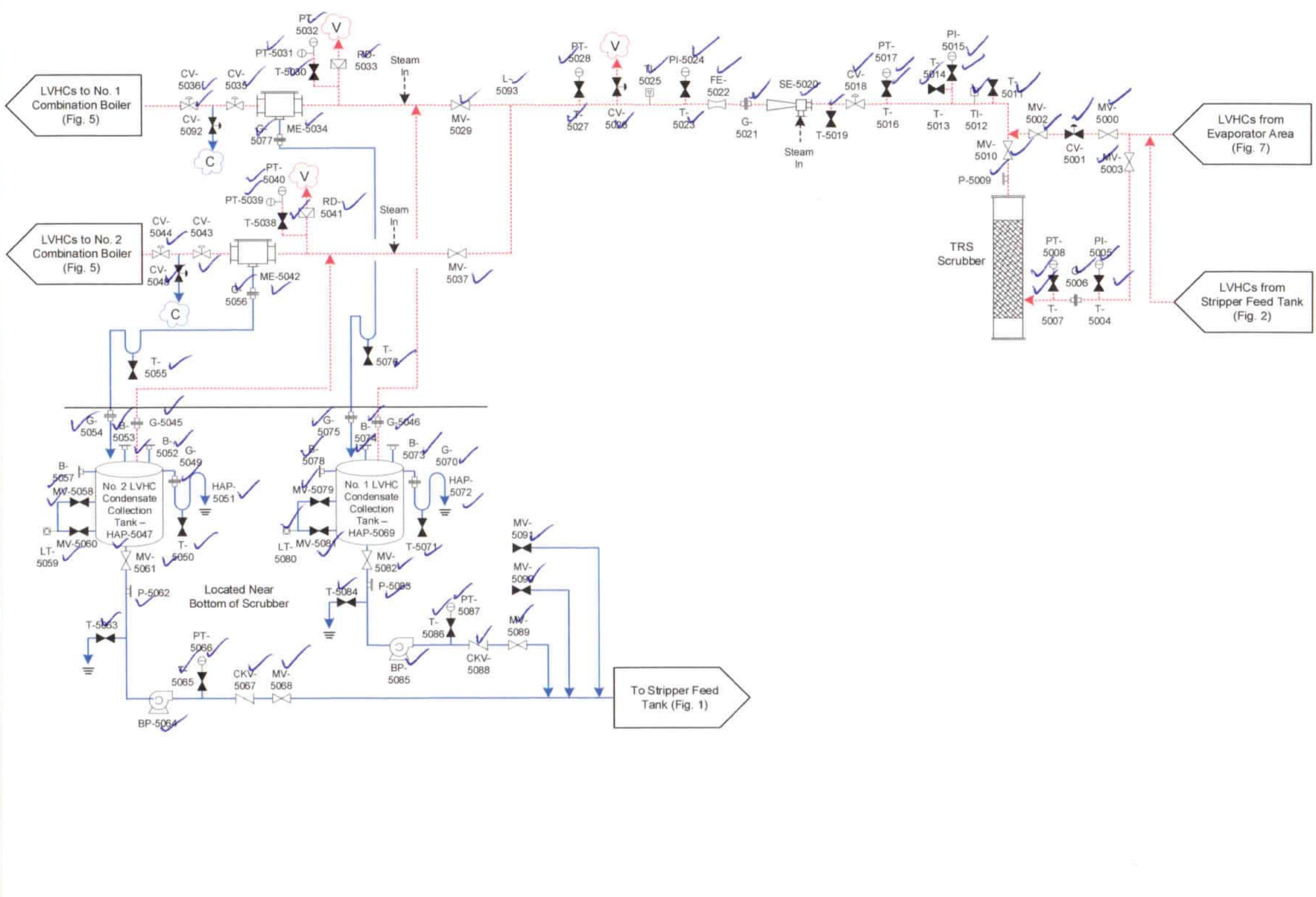
New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Combination Boiler LVHC Incineration

Rev. Date March 2021

Figure 4



Vent Gases	To Another Page and Indicated Equipment
Condensates	From Another Page and Indicated Equipment
Liquor/Stock Lines	
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

TRS Scrubber Platform

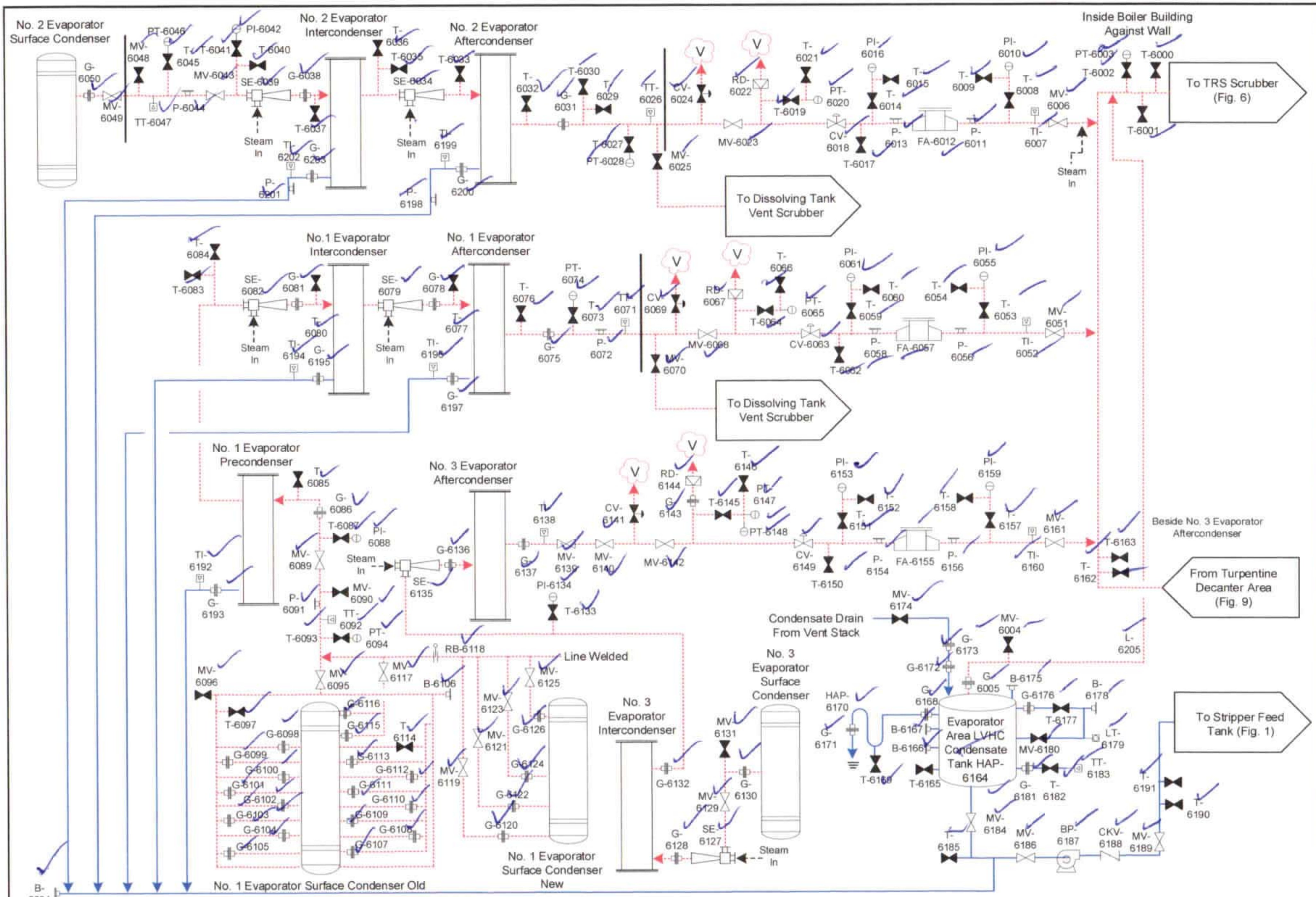
Rev. Date
March 2021

Figure 5

TRS Scrubber Platform

Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
5000	MV					yes	
5001	CV					Y	
5002	MV					Y	
5003	MV					Y	
5004	T					Y	
5005	PI					Y	
5006	G					Y	
5007	T					Y	
5008	PT					Y	
5009	P					Y	
5010	MV					Y	
5011	T					Y	
5012	TI					Y	
5013	T					Y	
5014	T					Y	
5015	PI					Y	
5016	T					Y	
5017	PT					Y	
5018	T					Y	
5019	SE					Y	
5020	G					Y	
5021	FE					Y	
5022	T					Y	
5023	PI					Y	
5024	TI					Y	
5025	TI					Y	
5026	CV					Y	
5027	T					Y	
5028	PT					Y	
5029	MV					Y	
5030	T					Y	
5031	PT					Y	
5032	PT					Y	
5033	RD					Y	
5034	ME					Y	
5035	CV					Y	
5036	CV					Y	
5037	MV					Y	
5038	T					Y	
5039	PT					Y	
5040	PT					Y	
5041	RD					Y	
5042	ME					Y	
5043	CV					Y	
5044	CV					Y	
5045	G					Y	
5046	G					Y	
5047	HAP					yes	
5048	CV					Y	
5049	G					Y	
5050	T					Y	
5051	HAP					Y	
5052	B					Y	
5053	B					Y	
5054	G					Y	
5055	T					Y	
5056	G					Y	
5057	B					Y	
5058	MV					Y	
5059	LT					Y	
5060	MV					Y	
5061	MV					Y	
5062	P					Y	
5063	T					Y	
5064	BP					Y	
5065	T					Y	
5066	PT					Y	
5067	CKV					Y	
5068	MV					Y	
5069	HAP					Y	
5070	G					Y	
5071	T					Y	
5072	HAP					Y	
5073	B					Y	
5074	B					Y	
5075	G					Y	
5076	T					Y	
5077	G					Y	
5078	B					Y	
5079	MV					Y	
5080	LT					Y	
5081	MV					Y	
5082	MV					Y	
5083	P					Y	
5084	T					Y	
5085	BP					Y	
5086	T					Y	
5087	PT					Y	
5088	CKV					Y	
5089	MV					Y	
5090	MV					Y	
5091	MV					Y	
5092	CV					Y	
5093	L					Y	



Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Evaporator System

Rev. Date
March 2021

Figure 6

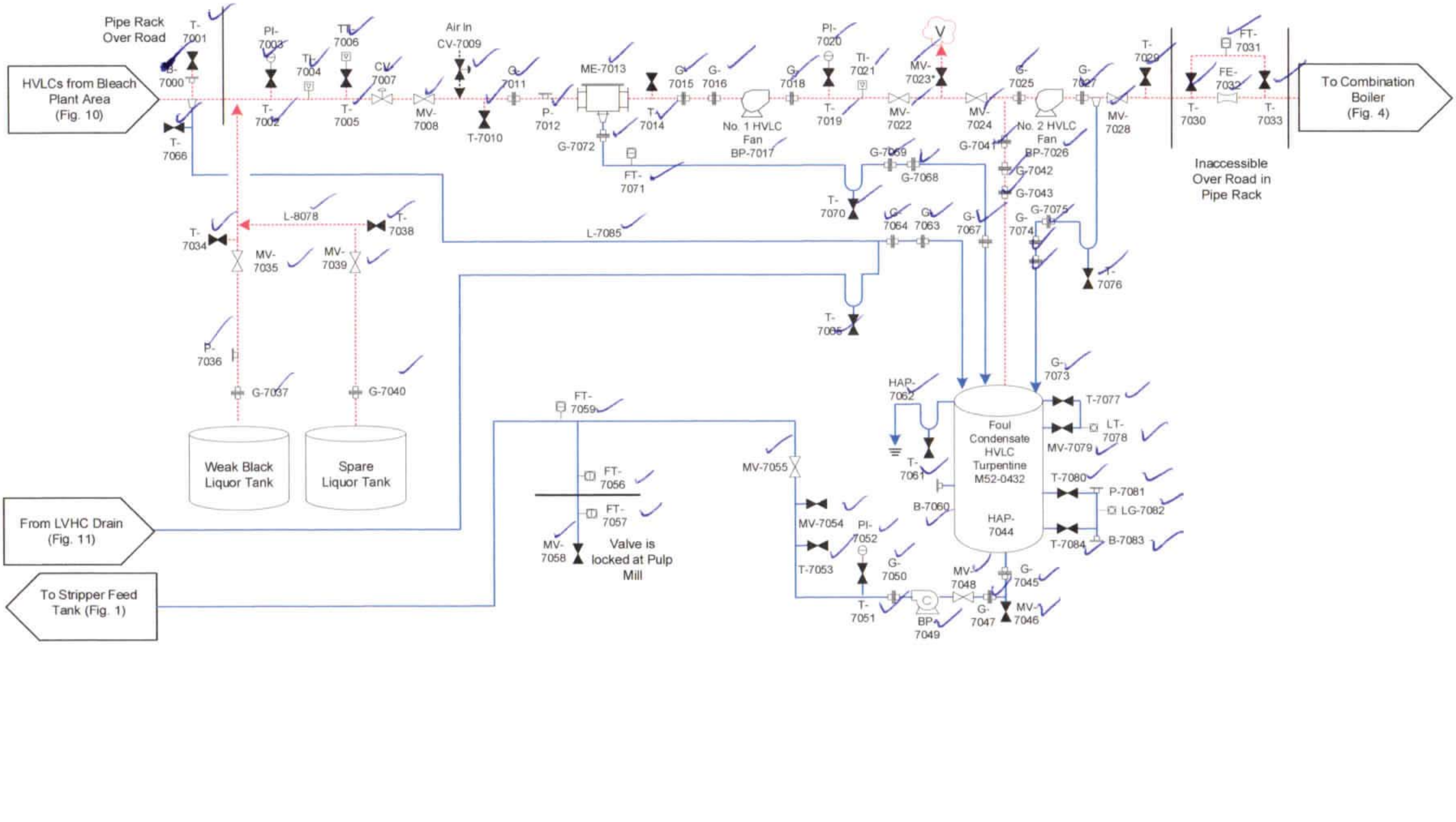
Evaporator System
Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
6000	T					yes	
6001	T					Y	
6002	T					Y	
6003	PT					Y	
6004	MV					Y	
6005	G					Y	
6006	MV					Y	
6007	TI					Y	
6008	T					Y	
6009	T					Y	
6010	PI					Y	
6011	P					Y	
6012	FA					Y	
6013	P					Y	
6014	T					Y	
6015	T					Y	
6016	PI					Y	
6017	T					Y	
6018	CV					Y	
6019	T					Y	
6020	PT					Y	
6021	T					Y	
6022	RD					Y	
6023	MV					Y	
6024	CV					Y	
6025	MV					Y	
6026	TT					Y	
6027	T					Y	
6028	PT					Y	
6029	T					Y	
6030	T					Y	
6031	G					Y	
6032	T					Y	
6033	T					Y	
6034	SE					Y	
6035	T					Y	
6036	T					Y	
6037	T					Y	
6038	G					Y	
6039	SE					Y	
6040	T					Y	
6041	T					Y	
6042	PI					Y	
6043	MV					Y	
6044	P					Y	
6045	T					Y	
6046	PT					Y	
6047	TT					Y	
6048	MV					Y	
6049	MV					yes	
6050	G					Y	
6051	MV					Y	
6052	TI					Y	
6053	T					Y	
6054	T					Y	
6055	PI					Y	
6056	P					Y	
6057	FA					Y	
6058	P					Y	
6059	T					Y	
6060	T					Y	
6061	PI					Y	
6062	T					Y	
6063	CV					Y	
6064	T					Y	
6065	PT					Y	
6066	T					Y	
6067	RD					Y	
6068	MV					Y	
6069	CV					Y	
6070	MV					Y	
6071	TT					Y	
6072	P					Y	
6073	T					Y	
6074	PT					Y	
6075	G					Y	
6076	T					Y	
6077	T					Y	
6078	G					Y	
6079	SE					Y	
6080	T					Y	
6081	G					Y	
6082	SE					Y	
6083	T					Y	
6084	T					Y	
6085	T					Y	
6086	G					Y	
6087	T					Y	
6088	PI					Y	
6089	MV					Y	
6090	MV					Y	
6091	P					Y	
6092	TT					Y	
6093	T					Y	
6094	PT					Y	
6095	MV					Y	
6096	MV					Y	
6097	T					Y	
6098	G					Y	
6099	G					Y	

4/5/2021

6100	G					yes	
6101	G					Y	
6102	G					Y	
6103	G					Y	
6104	G					Y	
6105	G					Y	
6106	B					Y	
6107	G					Y	
6108	G					Y	
6109	G					Y	
6110	G					Y	
6111	G					Y	
6112	G					Y	
6113	G					Y	
6114	T					Y	
6115	G					Y	
6116	G					Y	
6117	MV					Y	
6118	RB					Y	
6119	MV					Y	
6120	G					Y	
6121	MV					Y	
6122	G					Y	
6123	MV					Y	
6124	G					Y	
6125	MV					Y	
6126	G					Y	
6127	SE					Y	
6128	G					Y	
6129	MV					Y	
6130	G					Y	
6131	MV					Y	
6132	G					Y	
6133	T					Y	
6134	PI					Y	
6135	SE					Y	
6136	G					Y	
6137	G					Y	
6138	TI					Y	
6139	MV					Y	
6140	MV					Y	
6141	CV					Y	
6142	MV					Y	
6143	G					Y	
6144	RD					Y	
6145	T					Y	
6146	T					Y	
6147	PT					Y	
6148	PT					Y	
6149	CV					Y	
6150	T					Y	
6151	T					Y	
6152	T					Y	

6153	PI					yes	
6154	P					Y	
6155	FA					Y	
6156	P					Y	
6157	T					Y	
6158	T					Y	
6159	PI					Y	
6160	TI					Y	
6161	MV					Y	
6162	T					Y	
6163	T					Y	
6164	HAP					Y	
6165	T					Y	
6166	B					Y	
6167	B					Y	
6168	G					Y	
6169	T					Y	
6170	HAP					Y	
6171	G					Y	
6172	G					Y	
6173	G					Y	
6174	MV					Y	
6175	B					Y	
6176	G					Y	
6177	T					Y	
6178	B					Y	
6179	LT					Y	
6180	MV					Y	
6181	G					Y	
6182	T					Y	
6183	TT					Y	
6184	MV					Y	
6185	T					Y	
6186	MV					Y	
6187	BP					Y	
6188	CKV					Y	
6189	MV					Y	
6190	T					Y	
6191	T					Y	
6192	TAA					Y	
6193	G					Y	
6194	TI					Y	
6195	G					Y	
6196	TI					Y	
6197	G					Y	
6198	P					Y	
6199	TI					Y	
6200	G					Y	
6201	P					Y	
6202	TI					Y	
6203	G					Y	
6204	B					Y	
6205	LT					Y	



* Indicates car seal present

Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

HVLC Blower Platform

Rev. Date March 2021

Figure 7

HVLC Blower Platform

Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
7000	B					yes	
7001	Type					Y	
7002	Type					Y	
7003	PI					Y	
7004	TI					Y	
7005	T					Y	
7006	TT					Y	
7007	CV					Y	
7008	MV					Y	
7009	CV					Y	
7010	T					Y	
7011	G					Y	
7012	PI					Y	
7013	ME					Y	
7014	T					Y	
7015	G					Y	
7016	G					Y	
7017	BP					Y	
7018	G					Y	
7019	T					Y	
7020	PI					Y	
7021	TI					Y	
7022	MV					Y	
7023	MV					Y	Car seal present
7024	MV					Y	
7025	G					Y	
7026	BP					Y	
7027	G					Y	
7028	MV					Y	
7029	T					Y	
7030	T					Y	
7031	FT					Y	
7032	FE					Y	
7033	T					Y	
7034	T					Y	
7035	MV					Y	
7036	P					Y	
7037	G					Y	
7038	T					Y	
7039	MV					Y	

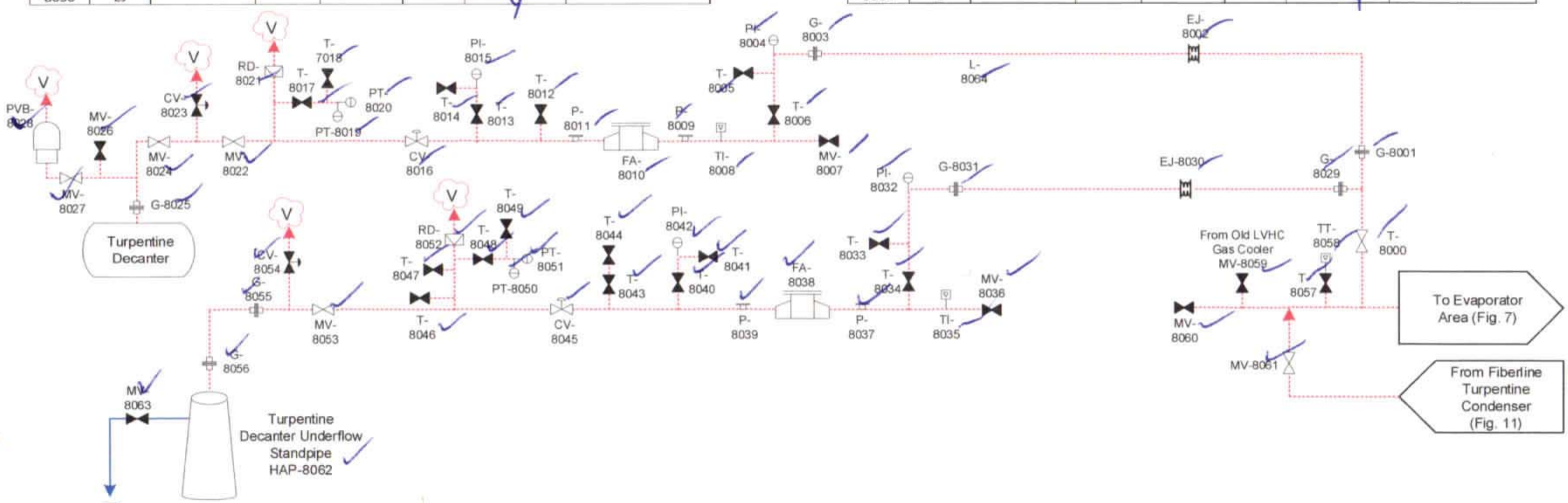
7040	G					yes	
7041	G					Y	
7042	G					Y	
7043	G					Y	
7044	HAP					Y	
7045	G					Y	
7046	MV					Y	
7047	G					Y	
7048	MV					Y	
7049	BP					Y	
7050	G					Y	
7051	T					Y	
7052	PI					Y	
7053	T					Y	
7054	MV					Y	
7055	MV					Y	
7056	FT					Y	
7057	FT					Y	
7058	MV					Y	
7059	FT					Y	
7060	B					Y	
7061	T					Y	
7062	HAP					Y	
7063	G					Y	
7064	G					Y	
7065	T					Y	
7066	T					Y	
7067	G					Y	
7068	G					Y	
7069	G					Y	
7070	T					Y	
7071	FT					Y	
7072	G					Y	
7073	G					Y	
7074	G					Y	
7075	G					Y	
7076	T					Y	
7077	T					Y	
7078	LT					Y	
7079	MV					Y	
7080	T					Y	
7081	P					Y	
7082	LG					Y	
7083	B					Y	
7084	T					Y	
7085	L					Y	

Turpentine Decanter and Standpipe

Completed Date/Time: 4/3/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8000	Type					Yes	
8001	G					Y	
8002	EJ					Y	
8003	G					Y	
8004	PI					Y	
8005	Type					Y	
8006	Type					Y	
8007	MV					Y	
8008	TI					Y	
8009	PI					Y	
8010	FA					Y	
8011	PI					Y	
8012	T					Y	
8013	T					Y	
8014	T					Y	
8015	PI					Y	
8016	CV					Y	
8017	T					Y	
8018	T					Y	
8019	PT					Y	
8020	PT					Y	
8021	RD					Y	
8022	MV					Y	
8023	CV					Y	
8024	MV					Y	
8025	G					Y	
8026	MV					Y	
8027	MV					Y	
8028	PVB					Y	
8029	G					Y	
8030	EJ					Y	

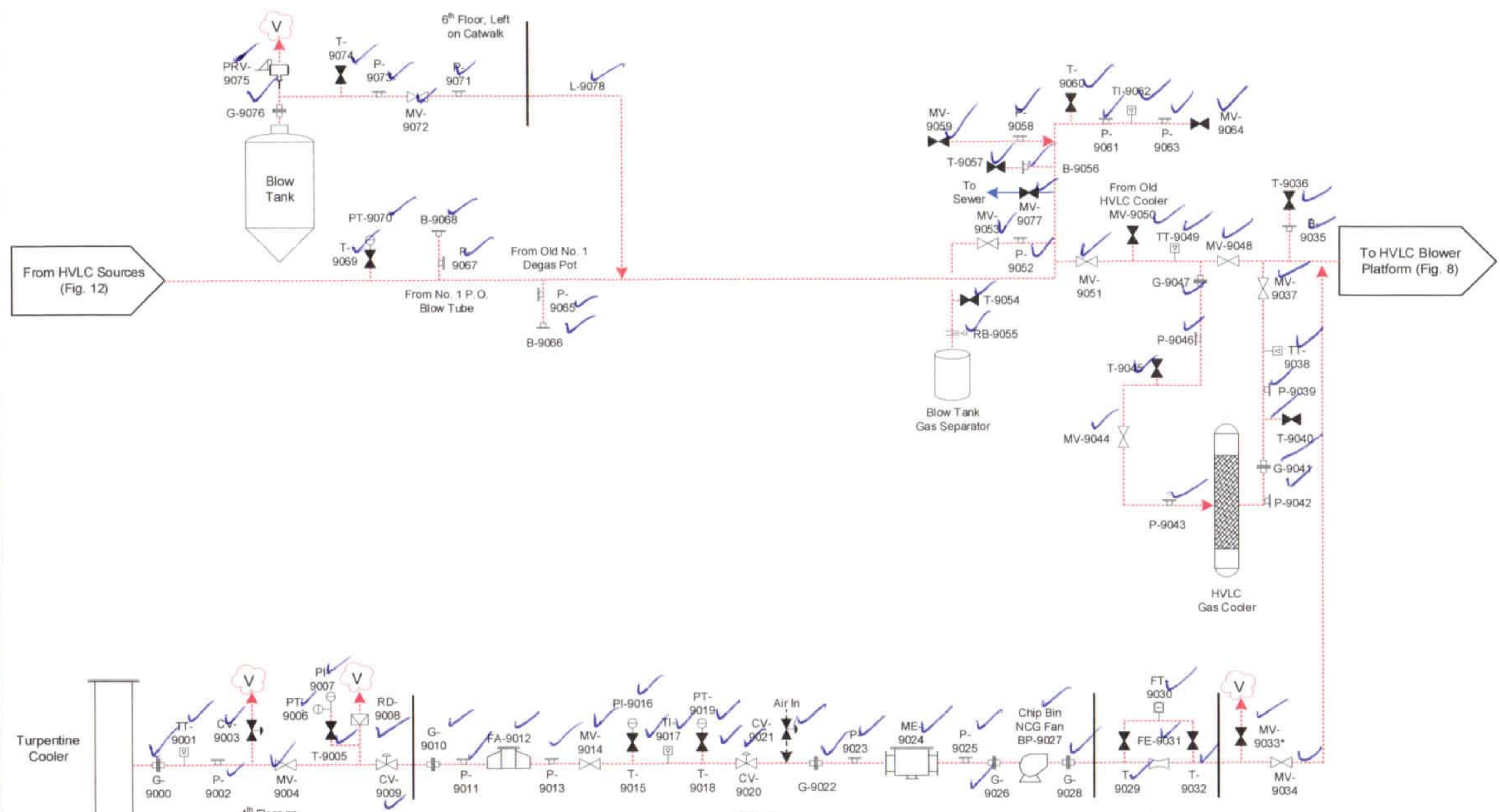
8031	G					Yes	
8032	PI					Y	
8033	T					Y	
8034	T					Y	
8035	TI					Y	
8036	MV					Y	
8037	P					Y	
8038	FA					Y	
8039	P					Y	
8040	T					Y	
8041	T					Y	
8042	PI					Y	
8043	T					Y	
8044	T					Y	
8045	CV					Y	
8046	T					Y	
8047	T					Y	
8048	T					Y	
8049	T					Y	
8050	PT					Y	
8051	PT					Y	
8052	RD					Y	
8053	MV					Y	
8054	CV					Y	
8055	G					Y	
8056	G					Y	
8057	T					Y	
8058	TT					Y	
8059	MV					Y	
8060	MV					Y	
8061	MV					Y	
8062	HAP					Y	
8063	MV					Y	
8064	L					Y	



Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL360	New-Indy – Catawba Mill LDAR Inspection and Testing Diagrams Turpentine Decanter and Standpipe

Rev. Date March 2021

Figure 8



* Indicates car seal present

Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams
Turpentine Cooler and Blow Tank

Rev. Date
March 2021

Figure 9

Turpentine Cooler and Blow Tank

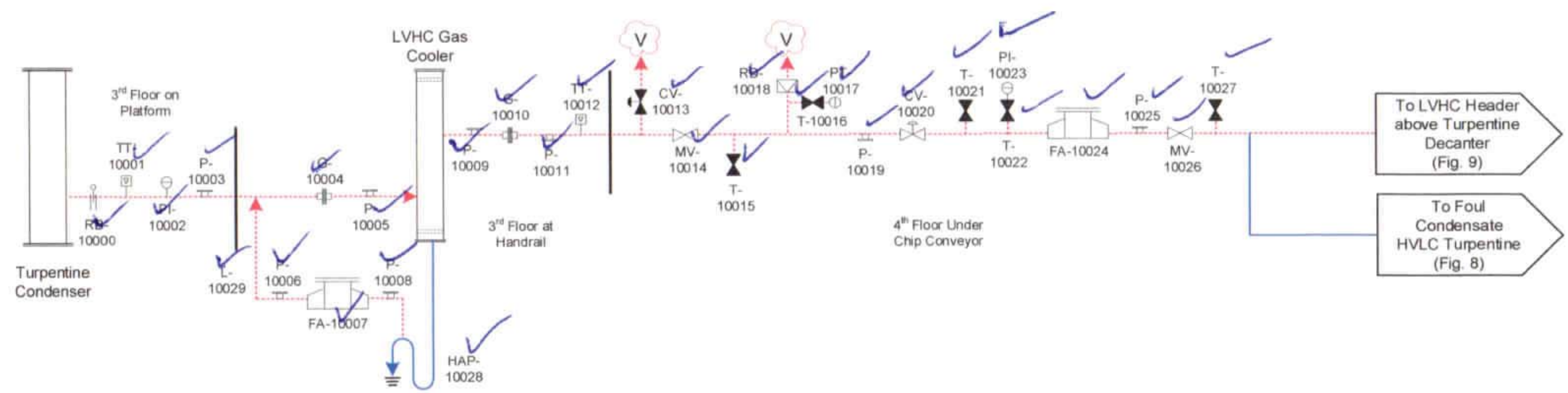
Completed Date/Time: 4/8/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
9000	G					yes	
9001	TT					Y	
9002	P					Y	
9003	CV					Y	
9004	MV					Y	
9005	T					Y	
9006	OT					Y	
9007	PI					Y	
9008	RD					Y	
9009	CV					Y	
9010	G					Y	
9011	P					Y	
9012	FA					Y	
9013	P					Y	
9014	MV					Y	
9015	T					Y	
9016	PI					Y	
9017	TI					Y	
9018	T					Y	
9019	PT					Y	
9020	CV					Y	
9021	CV					Y	
9022	G					Y	
9023	P					Y	
9024	ME					Y	
9025	P					Y	
9026	G					Y	
9027	BP					Y	
9028	G					Y	
9029	T					Y	
9030	FT					Y	
9031	FE					Y	
9032	T					Y	
9033	MV					Y	Car seal present
9034	MV					Y	
9035	BP					Y	
9036	G					yes	
9037	MV					Y	
9038	TT					Y	
9039	P					Y	
9040	T					Y	
9041	G					Y	
9042	P					Y	
9043	P					Y	
9044	MV					Y	
9045	T					Y	
9046	P					Y	
9047	G					Y	
9048	MV					Y	
9049	TT					Y	
9050	MV					Y	
9051	MV					Y	
9052	P					Y	
9053	MV					Y	
9054	T					Y	
9055	RB					Y	
9056	BP					Y	
9057	T					Y	
9058	P					Y	
9059	MV					Y	
9060	T					Y	
9061	P					Y	
9062	TI					Y	
9063	P					Y	
9064	MV					Y	
9065	P					Y	
9066	BP					Y	
9067	P					Y	
9068	BP					Y	
9069	T					Y	
9070	PT					Y	
9071	P					Y	
9072	MV					Y	
9073	P					Y	
9074	T					Y	
9075	PRV					Y	
9076	G					Y	
9077	MV					Y	
9078	L					Y	

Turpentine Condenser and LVHC Gas Cooler

Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
10000	RB					yes	
10001	TT					Y	
10002	PI					Y	
10003	PI					Y	
10004	G					Y	
10005	PI					Y	
10006	PI					Y	
10007	FA					Y	
10008	PI					Y	
10009	PI					Y	
10010	G					Y	
10011	PI					Y	
10012	TT					Y	
10013	CV					yes	
10014	MV					Y	
10015	T					Y	
10016	T					Y	
10017	PT					Y	
10018	RD					Y	
10019	P					Y	
10020	CV					Y	
10021	T					Y	
10022	T					Y	
10023	PI					Y	
10024	FA					Y	
10025	P					Y	
10026	MV					Y	
10027	T					Y	
10028	HAP					Y	
10029	L					Y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams
Turpentine Condenser and LVHC Gas Cooler

Rev. Date
March 2021

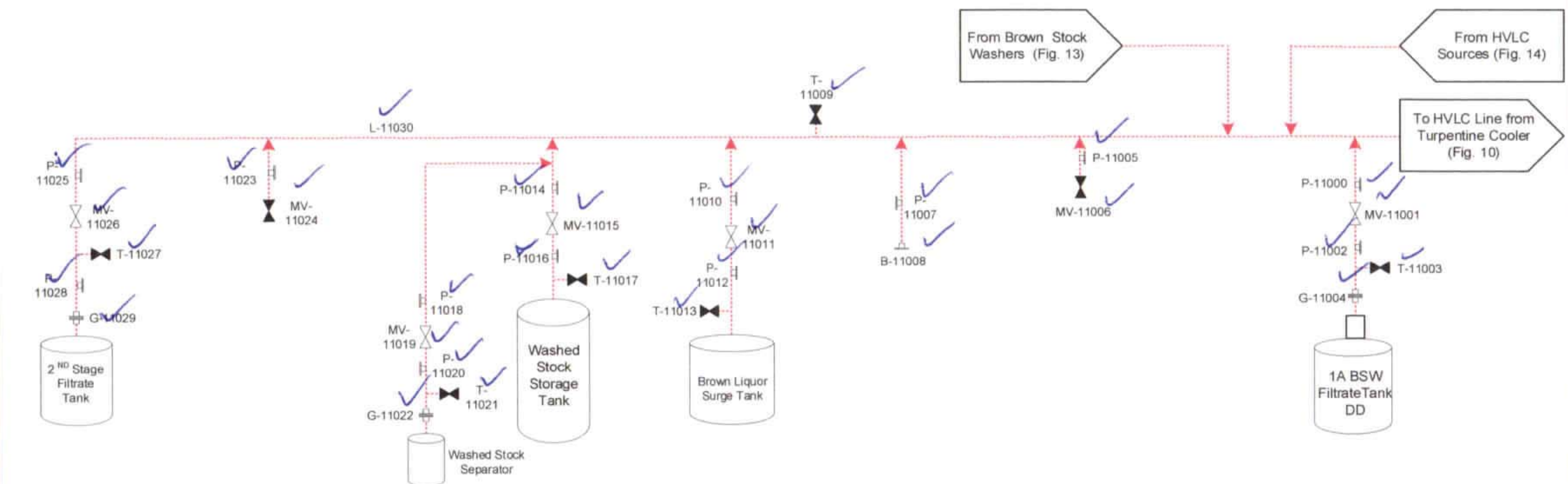
Figure 10

HVLC System at Pulp Mil (1 of 2)

Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
11000	P					yes	
11001	MV					Y	
11002	P					Y	
11003	T					Y	
11004	G					Y	
11005	P					Y	
11006	MV					Y	
11007	P					Y	
11008	B					Y	
11009	T					Y	
11010	P					Y	
11011	MV					Y	
11012	P					Y	

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
11013	T					yes	
11014	P					Y	
11015	MV					Y	
11016	P					Y	
11017	T					Y	
11018	P					Y	
11019	MV					Y	
11020	P					Y	
11021	T					Y	
11022	G					Y	
11023	P					Y	
11024	MV					Y	
11025	P					Y	
11026	MV					Y	
11027	T					Y	
11028	P					Y	
11029	G					Y	
11030	L					Y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL 360

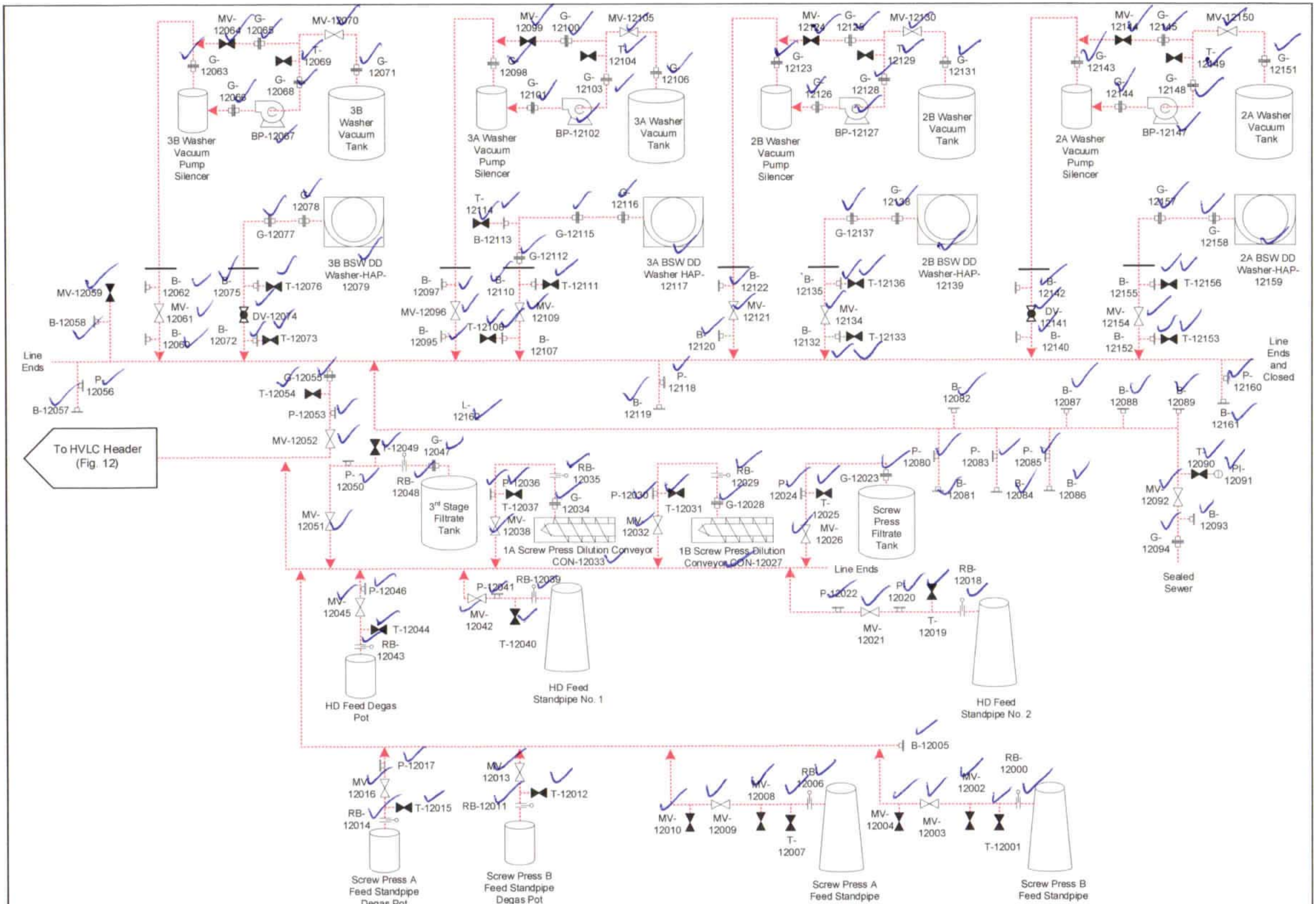
New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

HVLC System at Pulp Mill (1 of 2)

Rev. Date March 2021

Figure 11



Vent Gases	
Bleach Gases	
Condensates	
Liquor/Stock Lines	
Process Lines	

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Pulp Mill BSWs

Rev. Date March 2021

Figure 12

Pulp Mill BSWs

Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12000	RB					yes	
12001	T					y	
12002	MV					y	
12003	MV					y	
12004	MV					y	
12005	B					y	
12006	RB					y	
12007	T					y	
12008	MV					y	
12009	MV					y	
12010	MV					y	
12011	RB					y	
12012	T					y	
12013	MV					y	
12014	RB					y	
12015	T					y	
12016	MV					y	
12017	P					y	
12018	RB					y	
12019	T					y	
12020	P					y	
12021	MV					y	
12022	P					y	
12023	G					y	
12024	P					y	
12025	T					y	
12026	MV					y	
12027	CON					y	
12028	G					y	
12029	RB					y	
12030	P					y	
12031	T					y	
12032	MV					y	
12033	CON					y	
12034	G					y	
12035	RB					y	
12036	P					y	
12037	T					y	
12038	MV					y	
12039	RB					y	
12040	T					y	
12041	P					y	
12042	MV					yes	
12043	RB					y	
12044	T					y	
12045	MV					y	
12046	P					y	
12047	G					y	
12048	RB					y	
12049	T					y	
12050	P					y	
12051	MV					y	
12052	MV					y	
12053	P					y	
12054	T					y	
12055	G					y	
12056	P					y	
12057	B					y	
12058	B					y	
12059	MV					y	
12060	B					y	
12061	MV					y	
12062	B					y	
12063	G					y	
12064	MV					y	
12065	G					y	
12066	G					y	
12067	BP					y	
12068	G					y	
12069	T					y	
12070	MV					y	
12071	G					y	
12072	B					y	
12073	T					y	
12074	DV					y	
12075	T					y	
12076	T					y	
12077	G					y	
12078	G					y	
12079	HAP					y	
12080	P					y	
12081	B					y	
12082	B					y	
12083	P					y	
12084	B					y	
12085	P					y	
12086	B					y	

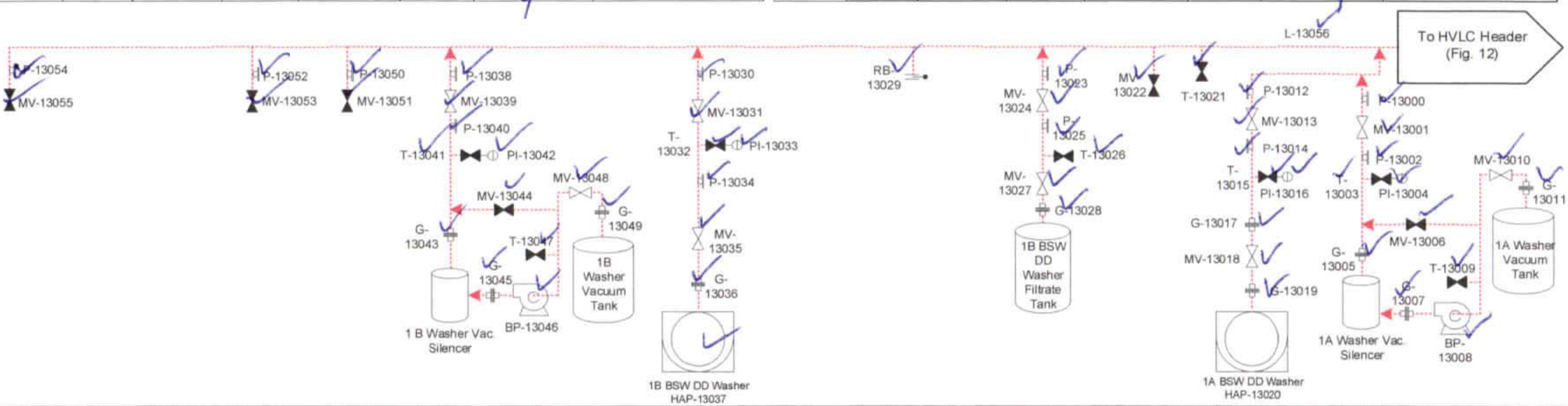
12087	B		4/5/2021			yes	
12088	B					Y	
12089	B					Y	
12090	T					Y	
12091	PI					Y	
12092	MV					Y	
12093	B					Y	
12094	G					Y	
12095	B					Y	
12096	MV					Y	
12097	B					Y	
12098	G					Y	
12099	MV					Y	
12100	G					Y	
12101	G					Y	
12102	BP					Y	
12103	G					Y	
12104	T					Y	
12105	MV					Y	
12106	G					Y	
12107	B					Y	
12108	T					Y	
12109	MV					Y	
12110	B					Y	
12111	T					Y	
12112	G					Y	
12113	B					Y	
12114	T					Y	
12115	G					Y	
12116	G					Y	
12117	HAP					Y	
12118	P					Y	
12119	B					Y	
12120	B					Y	
12121	MV					Y	
12122	B					Y	
12123	G					Y	
12124	MV					Y	
12125	G					Y	
12126	G					Y	
12127	BP					Y	
12128	G					Y	
12129	T					Y	

12130	MV					yes	
12131	G					Y	
12132	B					Y	
12133	T					Y	
12134	MV					Y	
12135	B					Y	
12136	T					Y	
12137	G					Y	
12138	G					Y	
12139	HAP					Y	
12140	B					Y	
12141	DV					Y	
12142	B					Y	
12143	G					Y	
12144	MV					Y	
12145	G					Y	
12146	G					Y	
12147	BP					Y	
12148	G					Y	
12149	T					Y	
12150	MV					Y	
12151	G					Y	
12152	B					Y	
12153	T					Y	
12154	MV					Y	
12155	B					Y	
12156	T					Y	
12157	G					Y	
12158	G					Y	
12159	HAP					Y	
12160	P					Y	
12161	B					Y	
12162	L					Y	

HVLC System at Pulp Mil (2 of 2)

Completed Date/Time: 4/5/2021

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
13000	P					yes	
13001	MV					Y	
13002	P					Y	
13003	T					Y	
13004	PI					Y	
13005	G					Y	
13006	MV					Y	
13007	G					Y	
13008	BP					Y	
13009	T					Y	
13010	MV					Y	
13011	G					Y	
13012	P					Y	
13013	MV					Y	
13014	P					Y	
13015	T					Y	
13016	PI					Y	
13017	G					Y	
13018	MV					Y	
13019	G					Y	
13020	HAP					Y	
13021	T					Y	
13022	MV					Y	
13023	P					Y	
13024	MV					Y	
13025	P					yes	
13026	T					Y	
13027	MV					Y	
13028	G					Y	
13029	RB					Y	
13030	P					Y	
13031	MV					Y	
13032	T					Y	
13033	PI					Y	
13034	P					Y	
13035	MV					Y	
13036	G					Y	
13037	HAP					Y	
13038	P					Y	
13039	MV					Y	
13040	P					Y	
13041	T					Y	
13042	PI					Y	
13043	G					Y	
13044	MV					Y	
13045	G					Y	
13046	BP					Y	
13047	T					Y	
13048	MV					Y	
13049	G					Y	
13050	P					Y	
13051	MV					Y	
13052	P					Y	
13053	MV					Y	
13054	P					Y	
13055	MV					Y	
13056	L					Y	



Vent Gases	To Another Page and Indicated Equipment	New-Indy – Catawba Mill	Rev. Date March 2021
Condensates	From Another Page and Indicated Equipment	LDAR Inspection and Testing Diagrams HVLC System at Pulp Mill (2 of 2)	Figure 13
Liquor/Stock Lines			
Process Lines			

ENVIRONMENTAL360

Inspection Date: May 3-7, 2021

New Indy Containerboard - Catawba Mill
5300 Cureton Ferry Rd.
Catawba, SC 29704

ENVIRONMENTAL360

2021 LDAR Annual Method 21 Testing and Negative-Pressure Certification Summary Report

Equipment Number	Date	Description of Leak or Visual Defect
CV-5026	5/4/2021	Control valve CV-5026 is located on the LVHC line at outlet of Steam Ejector and prior to the mist eliminators. The valve is not collecting gasses and had a VOC reading of 1558 ppm. Maintenance made first attempt by tightening shaft of valve, but was unsuccessful.
WSR-12079	5/3/2021	The 3B BSW DD Washer is puffing from an open hatch door.

First Attempt to Repair must be completed by:	5 Days from Inspection Date	Not Applicable if no leaks were found.
Repairs must be completed by:	15 Days from Inspection Date	Not Applicable if no leaks were found.

This report provides a summary of leaks and defects found during the Annual Method 21 Testing, Negative-Pressure Certification, and Visual inspection of the closed-vent and condensate collection systems and complies with the record keeping requirements of 63.454(b)(1-5).

The facility must initiate repairs to any defects within five (5) calendar days from this inspection and the defects must be repaired within fifteen (15) calendar days of the inspection. If the leak or defect requires the system to be shutdown in order to make repairs, or more emissions would occur from attempting the repair than delaying the repair, then the repairs may be delayed until the next process unit shutdown. A report must be supplied with the repair date and associated information, or the reason for the delay if the repairs are not completed within the 15-day period. These response requirements are specific to 40 CFR 63, specifically 63.453(k)(6), 63.453(l)(3), and 63.964(b)(1-2). Documentation of all repair attempts made and any leaks/defects requiring a process unit shutdown must be completed according to 63.454(b)(6-11).

I certify that the results of the Annual Method 21 Testing, Negative-Pressure Certification, and Visual inspection are accurate and complete to the best of my knowledge.

Inspector Name: Josh Howard

Signature: Josh Howard

Daily Calibration Sheet ENVIRONMENTAL 360

Name: Josh Howard

Company: Environmental 360, Inc.

Date: 5/4/2021

Time: 9.26Am

Client Name: NewIndy Containerboard
Closed-Vent and Condensate-Collection Systems Catawba
Method 21 Testing

VOC Analyzer Model #: TVA2020-A2S1B1
VOC Analyzer Serial #: 202050 6799

		Expiration Date:	Lot#:	Actual Value:
Zero Gas Concentration:	Zero Grade Air	9/24/24	304-401906627-1	<0.1
Span Gas Concentration:	500 PPM Methane	5/01/24	304-401804749-1	506
Span Gas Concentration:	<10,000 PPM Methane	11/20/24	304-401969514-1	9989

Cylinder calibration gases must be analyzed and certified by the manufacturer within 2% accuracy.

	Reading	Actual Value	Precision (%)
500 PPM Methane Calibration Precision 1:	499	506	1
500 PPM Methane Calibration Precision 2:	498	506	2
500 PPM Methane Calibration Precision 3:	497	506	2
500 PPM Methane Calibration Precision 1 w/ Tubing:	483	506	5
500 PPM Methane Calibration Precision 2 w/ Tubing:	489	506	3
500 PPM Methane Calibration Precision 3 w/ Tubing:	488	506	4
<10,000 PPM Methane Calibration Precision 1:	9993	9989	0
<10,000 PPM Methane Calibration Precision 2:	9983	9988	0
<10,000 PPM Methane Calibration Precision 3:	9884	9989	1
<10,000 PPM Methane Calibration Precision 1 w/ Tubing:	9964	9989	0
<10,000 PPM Methane Calibration Precision 2 w/ Tubing:	9950	9989	0
<10,000 PPM Methane Calibration Precision 3 w/ Tubing:	9996	9989	0

The Calibration Precision must **not** have variability greater than 10%.

Response Factor: 1

The Response Factor must **not** be greater than 10.

Response Time: 3 sec

Response Time with 20 Ft. Extension Tubing: 8 sec

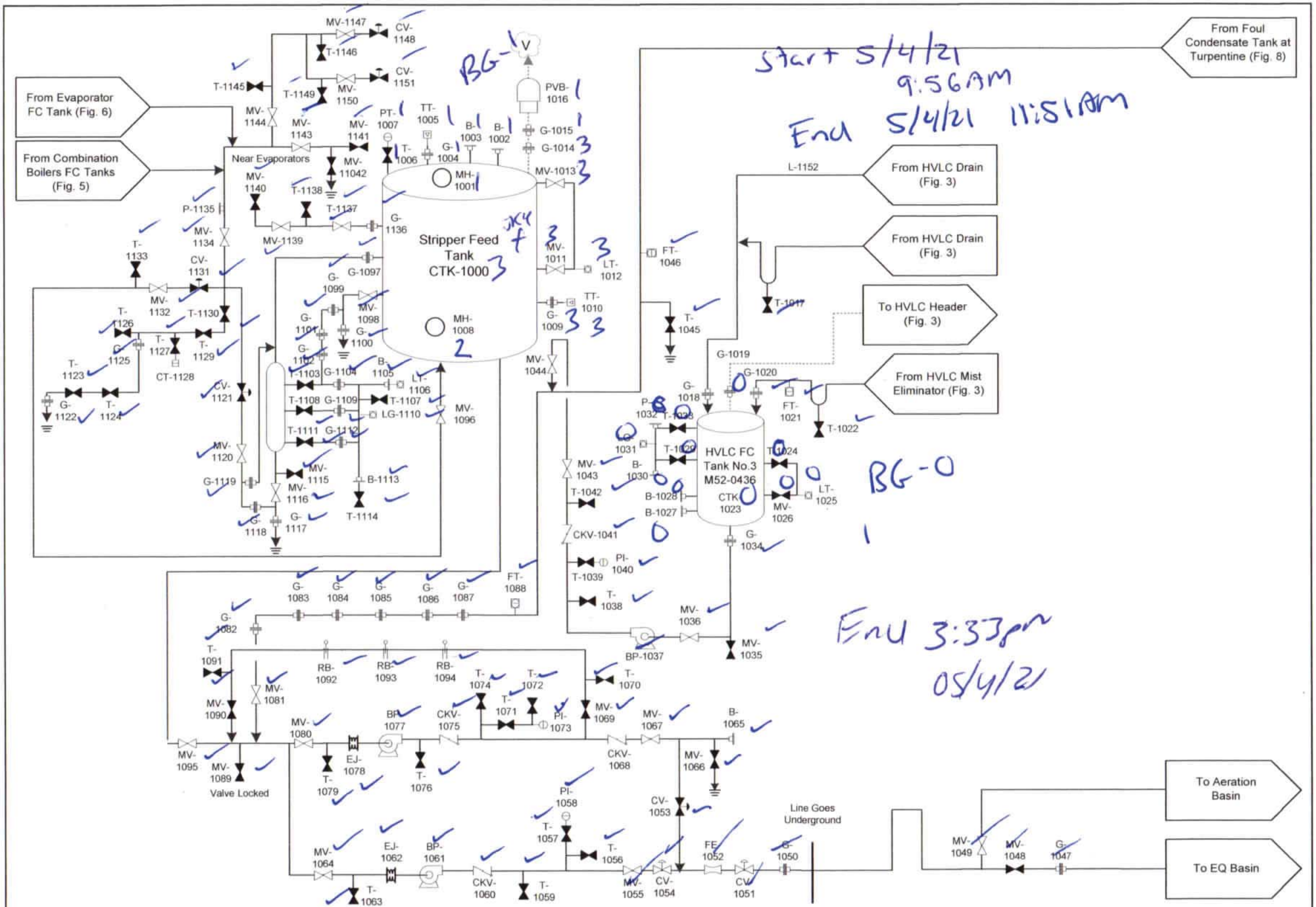
The Response Time must **not** be greater than 30 seconds. All probes and extensions used during the testing must be attached while measuring the response time.

Calibration Check: 481 506 = 5 %
Calibration Check Time: 6:39 PM

Comments: ______

I certify that calibration occurred prior to use and that all regulations and requirements were met.

Signed: Josh Ho



Vent Gases	To Another Page and Indicated Equipment
Condensates	From Another Page and Indicated Equipment
Liquor/Stock Lines	
Process Lines	

ENVIRONMENTAL 360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams

Stripper System Foul Condensate

Rev. Date March 2021

Figure 1

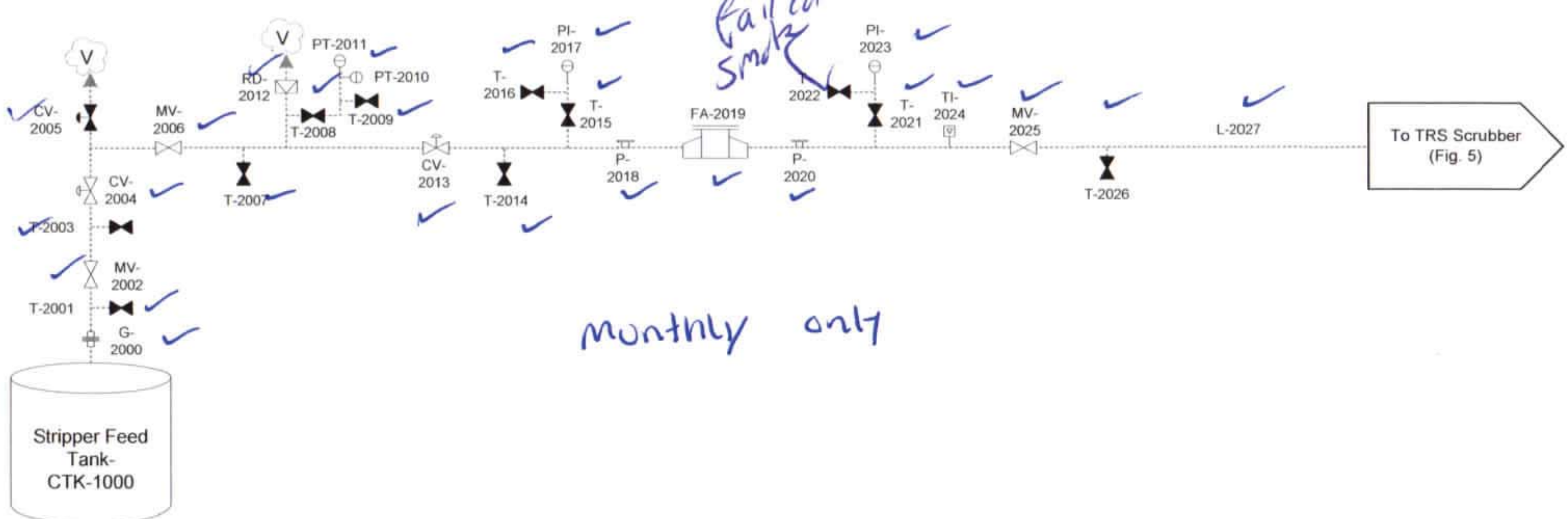
Stripper System Foul Condensate
Completed Date/Time: 5/4/2021 3:33pm

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
1000	CTK	Cond	1	3	yes	
1001	MH			1	Y	
1002	B			1	Y	
1003	B			1	Y	
1004	G			1	Y	
1005	TT			1	Y	
1006	T			1	Y	
1007	PT			1	Y	
1008	MH			2	Y	
1009	G			3	Y	
1010	TT			3	Y	
1011	MV			3	Y	
1012	LT			3	Y	
1013	MV			3	Y	
1014	G			3	Y	
1015	G			1	Y	
1016	PVB	Cond		1	Y	
1017	T				Y	
1018	G				Y	
1019	G				Y	
1020	G		0	0	Y	
1021	FT	Cond			Y	
1022	T				Y	
1023	CTK		0	0	Y	
1024	T	Cond		3	Y	
1025	LT	Cond			Y	
1026	MV	Cond			Y	
1027	B	Cond	0	0	Y	
1028	B		0	0	Y	
1029	T		0	0	Y	
1030	B		0	0	Y	
1031	LG		0	0	Y	
1032	P		0	0	Y	
1033	T		0	0	Y	
1034	G				Y	
1035	MV				Y	
1036	MV				Y	
1037	BP				Y	
1038	T				Y	
1039	T				Y	
1040	PI				Y	
1041	CKV				Y	
1042	T				Y	
1043	MV				Y	
1044	MV				Y	
1045	T				Y	
1046	FT				Y	
1047	G				Y	
1048	MV				Y	
1049	MV				Y	
1050	G				Y	
1051	CV				Y	
1052	FE				Y	
1053	CV				Y	
1054	CV				Y	
1055	MV				Y	
1056	T				Y	
1057	T				Y	
1058	PI				Y	
1059	T				Y	
1060	CKV				Y	
1061	BP				Y	
1062	EJ				Y	
1063	T				Y	
1064	MV				Y	
1065	B				Y	
1066	MV				Y	
1067	MV				Y	
1068	CKV				Y	
1069	MV				Y	
1070	T				Y	
1071	T				Y	
1072	T				Y	
1073	PI				Y	
1074	T				Y	

1075	CKV	Cond			yes	
1076	T				Y	
1077	BP				Y	
1078	EJ				Y	
1079	T				Y	
1080	MV				Y	
1081	MV				Y	
1082	G				Y	
1083	G				Y	
1084	G				Y	
1085	G				Y	
1086	G				Y	
1087	G				Y	
1088	FT				Y	
1089	MV				Y	
1090	MV				Y	
1091	T				Y	
1092	RB				Y	
1093	RB				Y	
1094	RB				Y	
1095	MV				Y	
1096	MV				Y	
1097	G				Y	
1098	MV				Y	
1099	G				Y	
1100	G				Y	
1101	G				Y	
1102	G				Y	
1103	T				Y	
1104	G				Y	
1105	B				Y	
1106	LT				Y	
1107	T				Y	
1108	T				Y	
1109	G				Y	
1110	LG				Y	
1111	T				Y	
1112	G				Y	
1113	B				Y	
1114	T				Y	
1115	MV				Y	
1116	MV				Y	
1117	G				Y	
1118	G				Y	
1119	G				Y	
1120	MV				Y	
1121	CV				Y	
1122	G				Y	
1123	T				Y	
1124	T				Y	
1125	G				Y	
1126	T				Y	
1127	T				Y	
1128	CT				Y	
1129	T				Y	
1130	T				Y	
1131	CV				Y	
1132	MV				Y	
1133	T				Y	
1134	MV				Y	
1135	P				Y	
1136	G				Y	
1137	T				Y	
1138	T				Y	
1139	MV				Y	
1140	MV				Y	
1141	MV				Y	
1142	MV				Y	
1143	MV				Y	
1144	MV				Y	
1145	T				Y	
1146	T				Y	
1147	MV				Y	
1148	CV				Y	
1149	T				Y	
1150	MV				Y	
1151	CV				Y	
1152	L	NA			Y	

Stripper Feed Tank
Completed Date/Time: 5/4/2021 / ND

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
2000	G				yes	
2001	T				Y	
2002	MV				Y	
2003	T				Y	
2004	CV				Y	
2005	CV				Y	
2006	MV				Y	
2007	T				Y	
2008	T				Y	
2009	T				Y	
2010	PT				Y	
2011	PT				Y	
2012	RD				Y	
2013	CV				Y	
2014	T				Y	
2015	T				Y	
2016	T				Y	
2017	PI				Y	
2018	P				Y	
2019	FA				Y	
2020	P				Y	
2021	T				Y	
2022	T				Y	Failed smoke
2023	PI				Y	
2024	TI				Y	
2025	MV				Y	
2026	T				Y	
2027	L				Y	



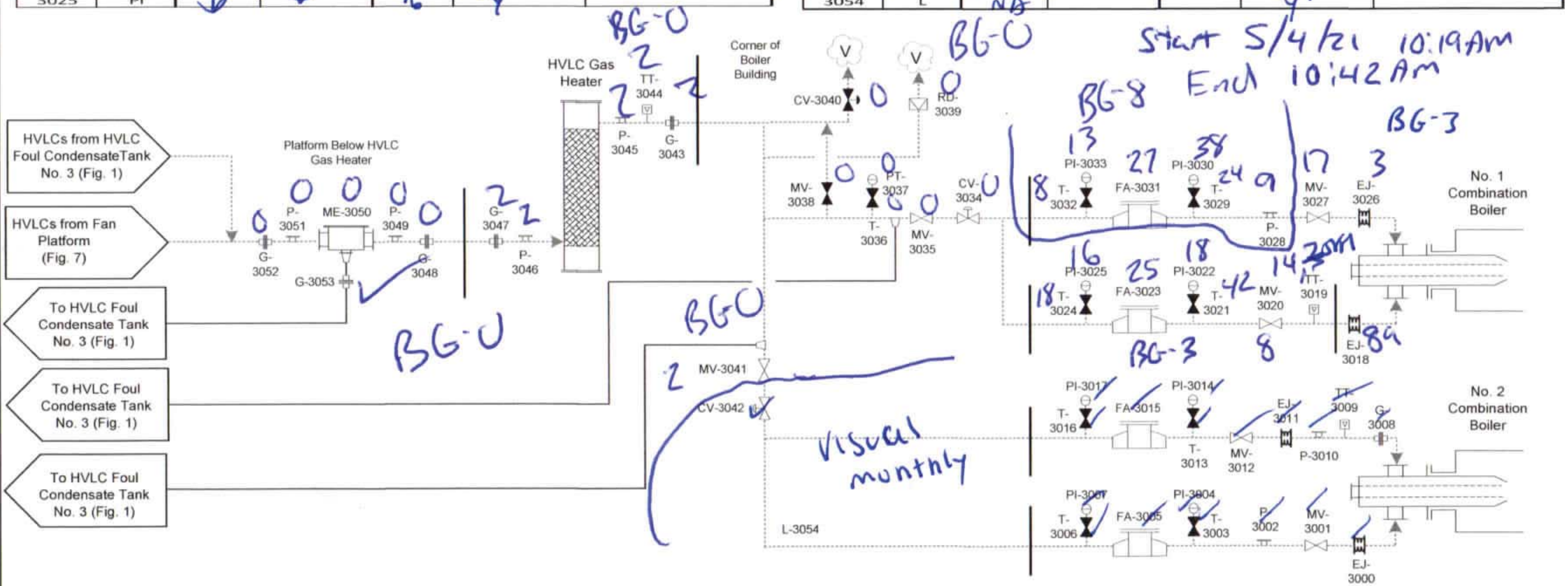
Monthly only

Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New Indy Containerboard – Catawba Mill LDAR Inspection and Testing Diagrams Stripper Feed Tank	Rev. Date March 2021 Figure 2

Combination Boiler HVLC Incinerator
Completed Date/Time: 05/4/21 10:42am

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
3000	EJ				yes	monthly visual
3001	MV				Y	
3002	P				Y	
3003	T				Y	
3004	PI				Y	
3005	FA				Y	
3006	T				Y	
3007	PI				Y	
3008	G				Y	
3009	TT				Y	
3010	P				Y	
3011	EJ				Y	
3012	MV				Y	
3013	T				Y	
3014	PI				Y	
3015	FA				Y	
3016	T				Y	
3017	PI	+ am	-3 am		Y	
3018	EJ			84	Y	
3019	TT			14	Y	
3020	MV			8	Y	
3021	T			42	Y	
3022	PI			18	Y	
3023	FA			25	Y	
3024	T			18	Y	
3025	PI			16	Y	

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
3026	EJ	+	-0 am 3	3	yes	
3027	MV		3	17	Y	
3028	P		8	9	Y	
3029	T			24	Y	
3030	PI			38	Y	
3031	FA			27	Y	
3032	T			18	Y	
3033	PI			13	Y	
3034	CV		0	0	Y	
3035	MV			0	Y	
3036	T			0	Y	
3037	PT			0	Y	
3038	MV			0	Y	
3039	RD			0	Y	
3040	CV			0	Y	
3041	MV	+		0	Y	
3042	CV	cond. am			Y	visual / monthly
3043	G	+	0	2	Y	
3044	TT			3	Y	
3045	P			2	Y	
3046	P			2	Y	
3047	G			2	Y	
3048	G			0	Y	
3049	P			0	Y	
3050	ME			0	Y	
3051	P			8	Y	
3052	G			0	Y	
3053	G	Cond ND			Y	
3054	L				Y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New Indy Containerboard – Catawba Mill
LDAR Inspection and Testing Diagrams
Combination Boiler HVLC Incineration

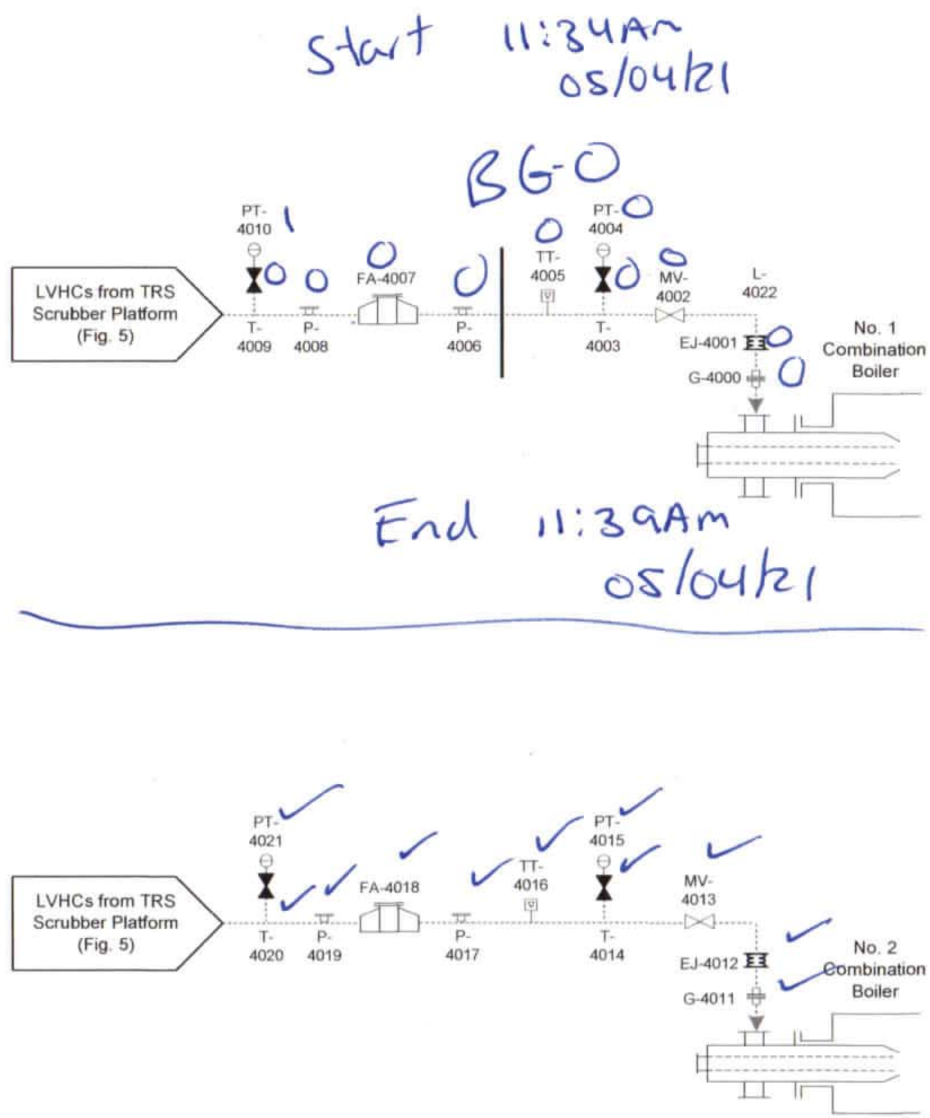
Rev. Date March 2021

Figure 3

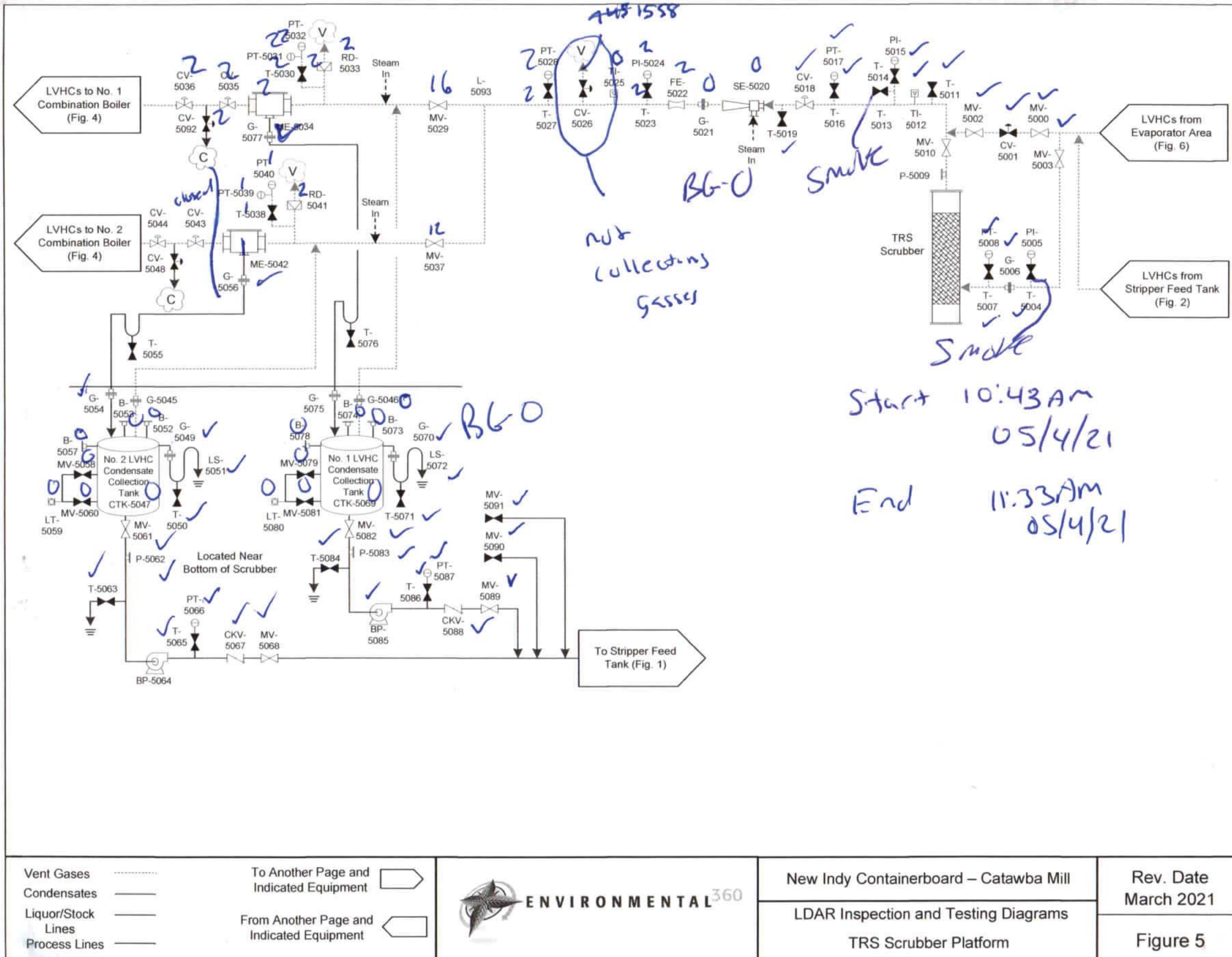
Combination Boiler LVHC Incineration

Completed Date/Time: 5/4/21 11:39Am

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
4000	G	+	0	0	yes	
4001	EJ			0	Y	
4002	MV			0	Y	
4003	T			0	Y	
4004	PT			0	Y	
4005	TT			0	Y	
4006	P			0	Y	
4007	FA			0	Y	
4008	P			0	Y	
4009	T			0	Y	
4010	PT			1	Y	
4011	G				Y	monthly
4012	EJ				Y	
4013	MV				Y	
4014	T				Y	
4015	PT				Y	
4016	TT				Y	
4017	P				Y	
4018	FA				Y	
4019	P				Y	
4020	T				Y	
4021	PT				Y	
4022	L	NA			Y	



Vent Gases / Condensates / Liquor/Stock Lines / Process Lines; To Another Page and Indicated Equipment; From Another Page and Indicated Equipment	ENVIRONMENTAL360	New Indy Containerboard – Catawba Mill LDAR Inspection and Testing Diagrams Combination Boiler LVHC Incineration	Rev. Date March 2021 Figure 4



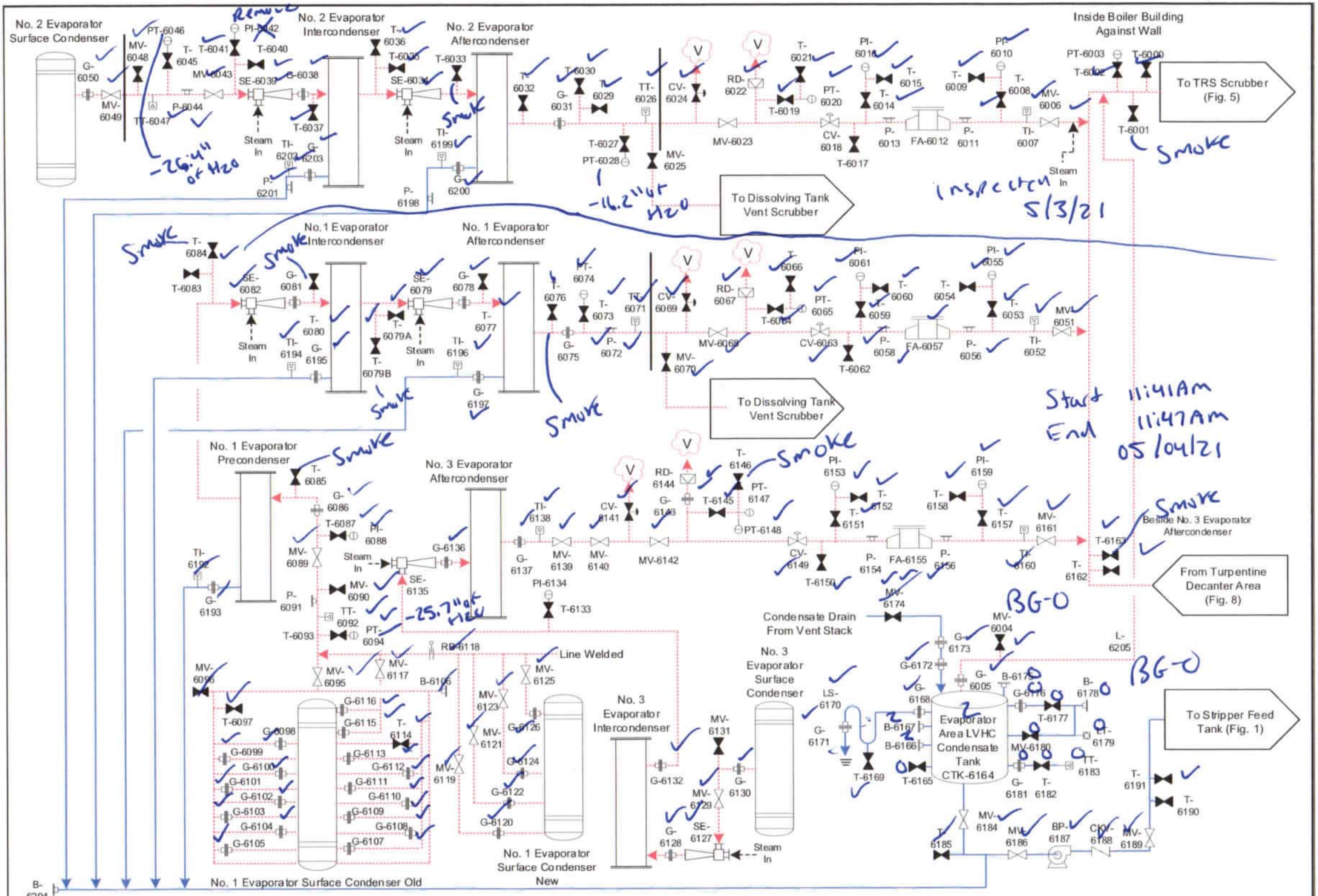
LVHCs to No. 1 Combination Boiler (Fig. 4)
LVHCs to No. 2 Combination Boiler (Fig. 4)
LVHCs from Evaporator Area (Fig. 6)
LVHCs from Stripper Feed Tank (Fig. 2)
To Stripper Feed Tank (Fig. 1)
TRS Scrubber
No. 2 LVHC Condensate Collection Tank CTK-5047
No. 1 LVHC Condensate Collection Tank CTK-5069
Located Near Bottom of Scrubber
Steam In
CV-5036
CV-5035
CV-5092
PT-5031
PT-5032
T-5030
RD-5033
G-5077
ME-5034
MV-5029
L-5093
PT-5028
T-5027
CV-5026
TI-5025
PI-5024
T-5023
FE-5022
G-5021
SE-5020
T-5019
CV-5018
PT-5017
T-5016
PI-5015
T-5014
T-5013
TI-5012
T-5011
MV-5010
P-5009
MV-5002
CV-5001
MV-5000
MV-5003
PT-5008
PI-5005
G-5006
T-5007
T-5004
CV-5044
CV-5043
CV-5048
PT-5040
PT-5039
T-5038
RD-5041
ME-5042
G-5056
MV-5037
T-5055
T-5076
G-5054
B-5053
G-5045
B-5052
G-5049
B-5057
MV-5058
MV-5060
LT-5059
LS-5051
T-5050
MV-5061
P-5062
T-5063
PT-5066
T-5065
CKV-5067
MV-5068
BP-5064
G-5075
B-5074
G-5046
B-5073
G-5070
B-5078
MV-5079
MV-5081
LT-5080
LS-5072
T-5071
MV-5082
P-5083
T-5084
PT-5087
T-5086
BP-5085
CKV-5088
MV-5089
MV-5090
MV-5091
Vent Gases
Condensates
Liquor/Stock Lines
Process Lines
To Another Page and Indicated Equipment
From Another Page and Indicated Equipment
ENVIRONMENTAL 360
New Indy Containerboard – Catawba Mill
LDAR Inspection and Testing Diagrams
TRS Scrubber Platform
Rev. Date March 2021
Figure 5
4451558
closed
not collecting gasses
BG-0
BG 0
Smoke
Smoke
Start 10:43AM 05/4/21
End 11:33AM 05/4/21

TRS Scrubber Platform

Completed Date/Time: 5/4/21 11:33 AM

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
5000	MV	—			yes	
5001	CV				Y	
5002	MV				Y	
5003	MV				Y	
5004	T				Y	Smoke
5005	PI				Y	
5006	G				Y	
5007	T				Y	
5008	PT				Y	
5009	P				Y	
5010	MV				Y	
5011	T				Y	
5012	TI				Y	
5013	T				Y	Smoke
5014	T				Y	
5015	PI				Y	
5016	T				Y	
5017	PT				Y	
5018	CV				Y	
5019	T				Y	
5020	SE	+	0	0	Y	
5021	G			0	Y	
5022	FE			2	Y	
5023	T			2	Y	
5024	PI			2	Y	
5025	TI			0	Y	
5026	CV			1558	NO	Not collecting
5027	T			2	yes	gasses
5028	PT			2	Y	
5029	MV			16	Y	
5030	T			2	Y	
5031	PT			2	Y	
5032	PT			2	Y	
5033	RD			2	Y	
5034	ME			2	Y	
5035	CV			2	Y	
5036	CV			2	Y	
5037	MV			12	Y	
5038	T			1	Y	
5039	PT			1	Y	
5040	PT			1	Y	
5041	RD			2	Y	
5042	ME			1	Y	
5043	CV		JM		Y	Visual monthly
5044	CV				Y	

5045	G	+	0		yes	
5046	G	+	0		Y	
5047	CTK	cont	0		Y	
5048	CV	cont			Y	
5049	G				Y	
5050	T				Y	
5051	LS				Y	
5052	B		0		Y	
5053	B		0		Y	
5054	G				Y	
5055	T				Y	
5056	G				Y	
5057	B		0		Y	
5058	MV		0		Y	
5059	LT		0		Y	
5060	MV		0		Y	
5061	MV				Y	
5062	P				Y	
5063	T				Y	
5064	BP				Y	
5065	T				Y	
5066	PT				Y	
5067	CKV				Y	
5068	MV				Y	
5069	CTK		0		Y	
5070	G				Y	
5071	T				Y	
5072	LS				Y	
5073	B		0		Y	
5074	B		0		Y	
5075	G				Y	
5076	T				Y	
5077	G		JK7		Y	
5078	B		0		Y	
5079	MV		0		Y	
5080	LT		0		Y	
5081	MV		0		Y	
5082	MV				Y	
5083	P				Y	
5084	T				Y	
5085	BP				Y	
5086	T				Y	
5087	PT				Y	
5088	CKV				Y	
5089	MV				Y	
5090	MV				Y	
5091	MV				Y	
5092	CV	Cont			Y	
5093	L	NR			Y	



Vent Gases	To Another Page and Indicated Equipment
Condensates	From Another Page and Indicated Equipment
Liquor/Stock Lines	
Process Lines	

ENVIRONMENTAL360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams

Evaporator System

Rev. Date March 2021

Figure 6

Evaporator System

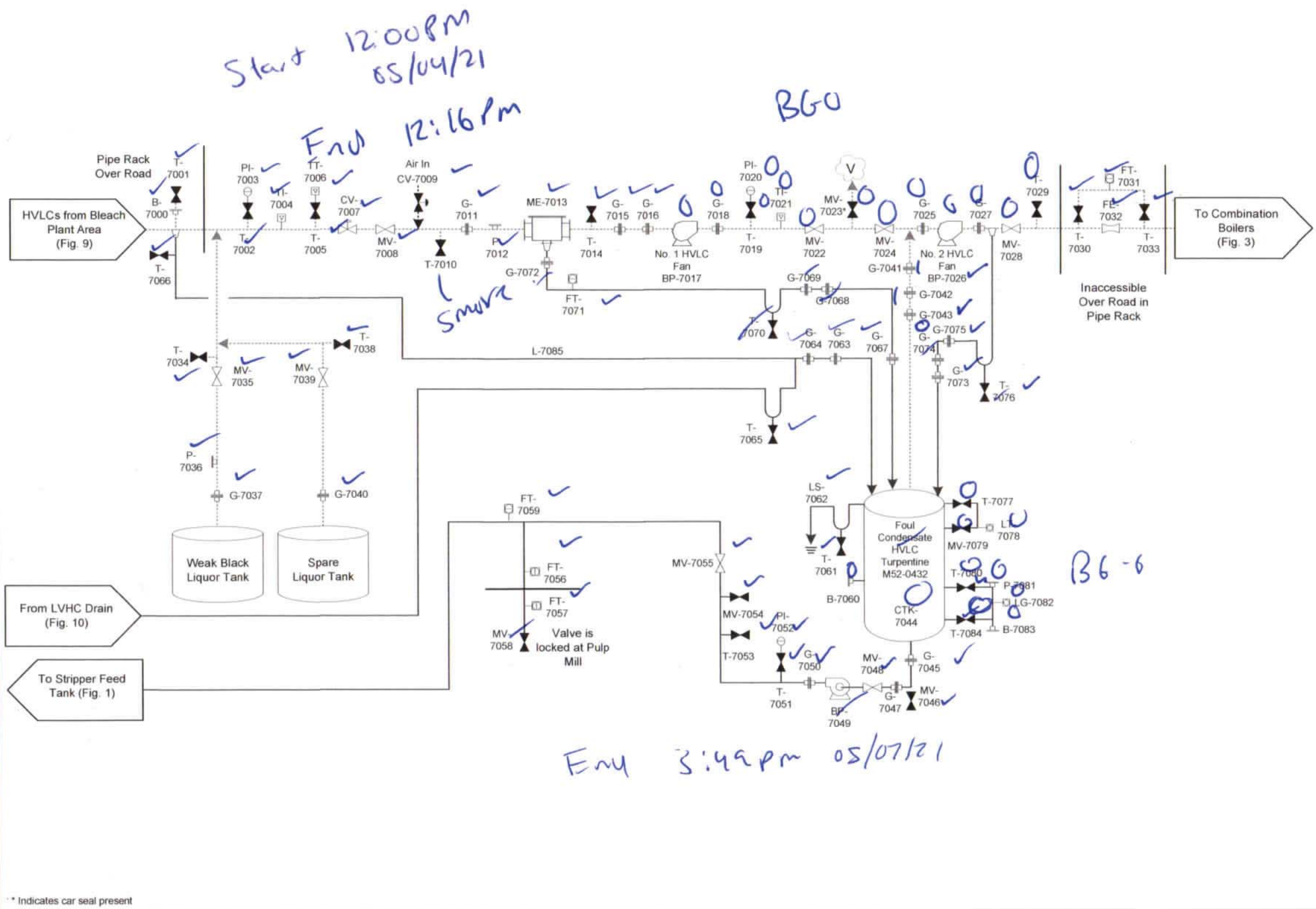
Completed Date/Time: ~~5/3/21~~ okn 5/4/21 11:47 Am

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
6000	T	—			yes	
6001	T				Y	Smoke
6002	T				Y	
6003	PT				Y	
6004	MV				Y	
6005	G				Y	
6006	MV				Y	
6007	TI				Y	
6008	T				Y	
6009	T				Y	
6010	PI				Y	
6011	P				Y	
6012	FA				Y	
6013	P				Y	
6014	T				Y	
6015	T				Y	
6016	PI				Y	
6017	T				Y	
6018	CV				Y	
6019	T				Y	
6020	PT				Y	
6021	T				Y	
6022	RD				Y	
6023	MV				Y	
6024	CV				Y	
6025	MV				Y	
6026	TT				Y	
6027	T				Y	
6028	PT				Y	-26.2" of H2O
6029	T				Y	
6030	T				Y	
6031	G				Y	
6032	T				Y	
6033	T				Y	Smoke
6034	SE				Y	
6035	T				Y	
6036	T				Y	
6037	T				Y	
6038	G				Y	
6039	SE				Y	
6040	T				Y	
6041	T				Y	
6042	PI					Remvd
6043	MV	—			yes	
6044	P				Y	
6045	T				Y	
6046	PT				Y	-26.4" of H2O
6047	TT				Y	
6048	MV				Y	

6049	MV	—			Yes	
6050	G				Y	
6051	MV				Y	
6052	TI				Y	
6053	T				Y	
6054	T				Y	
6055	PI				Y	
6056	P				Y	
6057	FA				Y	
6058	P				Y	
6059	T				Y	
6060	T				Y	
6061	PI				Y	
6062	T				Y	
6063	CV				Y	
6064	T				Y	
6065	PT				Y	
6066	T				Y	
6067	RD				Y	
6068	MV				Y	
6069	CV				Y	
6070	MV				Y	
6071	TT				Y	
6072	P				Y	
6073	T				Y	
6074	PT				Y	
6075	G				Y	
6076	T				Y	Smoke
6077	T				Y	
6078	G				Y	
6079	SE				Y	
6079A	T				Y	
6079B	T				Y	Smoke
6080	T				Y	
6081	G				Y	Smoke
6082	SE				Y	
6083	T				Y	
6084	T				Y	Smoke
6085	T				Y	Smoke
6086	G				Y	
6087	T				Y	
6088	PI				Y	
6089	MV				Y	
6090	MV				Y	
6091	P				Y	
6092	TT				Y	
6093	T				Y	
6094	PT				Y	-25.7" of H2O
6095	MV				Y	
6096	MV				Y	
6097	T				Y	
6098	G				Y	
6099	G				Y	

Evaporator System
Completed Date/Time: 5/4/21 · 11:47AM

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
6100	G	–			Yes	
6101	G				Y	
6102	G				Y	
6103	G				Y	
6104	G				Y	
6105	G				Y	
6106	B				Y	
6107	G				Y	
6108	G				Y	
6109	G				Y	
6110	G				Y	
6111	G				Y	
6112	G				Y	
6113	G				Y	
6114	T				Y	
6115	G				Y	
6116	G				Y	
6117	MV				Y	
6118	RB				Y	
6119	MV				Y	
6120	G				Y	
6121	MV				Y	
6122	G				Y	
6123	MV				Y	
6124	G				Y	
6125	MV				Y	
6126	G				Y	
6127	SE				Y	
6128	G				Y	
6129	MV				Y	
6130	G				Y	
6131	MV				Y	
6132	G				Y	
6133	T				Y	
6134	PI				Y	
6135	SE				Y	
6136	G				Y	
6137	G				Y	
6138	TI				Y	
6139	MV				Y	
6140	MV				Y	
6141	CV				Y	
6142	MV				Y	
6143	G				Y	
6144	RD				Y	
6145	T				Y	Smore
6146	T				Y	26.4 [illegible]
6147	PT				Y	
6148	PT				Y	
6149	CV				Y	
6150	T				Y	
6151	T				Y	
6152	T				Y	
6153	PI	–			Yes	
6154	P				Y	
6155	FA				Y	
6156	P				Y	
6157	T				Y	
6158	T				Y	
6159	PI				Y	
6160	TI				Y	
6161	MV				Y	
6162	T				Y	
6163	T				Y	Smore
6164	CTK	Cond	0	2	Y	
6165	T			0	Y	
6166	B			2	Y	
6167	B			2	Y	
6168	G				Y	
6169	T				Y	
6170	LS				Y	
6171	G				Y	
6172	G				Y	
6173	G				Y	
6174	MV				Y	
6175	B			0	Y	
6176	G			0	Y	
6177	T			0	Y	
6178	B			0	Y	
6179	LT			0	Y	
6180	MV			0	Y	
6181	G			0	Y	
6182	T			0	Y	
6183	TT			0	Y	
6184	MV				Y	
6185	T				Y	
6186	MV				Y	
6187	BP				Y	
6188	CKV				Y	
6189	MV				Y	
6190	T				Y	
6191	T				Y	
6192	TI				Y	
6193	G				Y	
6194	TI				Y	
6195	G				Y	
6196	TI				Y	
6197	G				Y	
6198	P				Y	
6199	TI				Y	
6200	G				Y	
6201	P				Y	
6202	TI				Y	
6203	G				Y	
6204	B				Y	
6205	L				Y	



Vent Gases	To Another Page and Indicated Equipment	ENVIRONMENTAL360	New Indy Containerboard – Catawba Mill	Rev. Date March 2021
Condensates				
Liquor/Stock Lines	From Another Page and Indicated Equipment		LDAR Inspection and Testing Diagrams HVLC Blower Platform	Figure 7
Process Lines				

HVLC Blower Platform

Completed Date/Time: JM 5/4/21 5/7/21 3:49pm

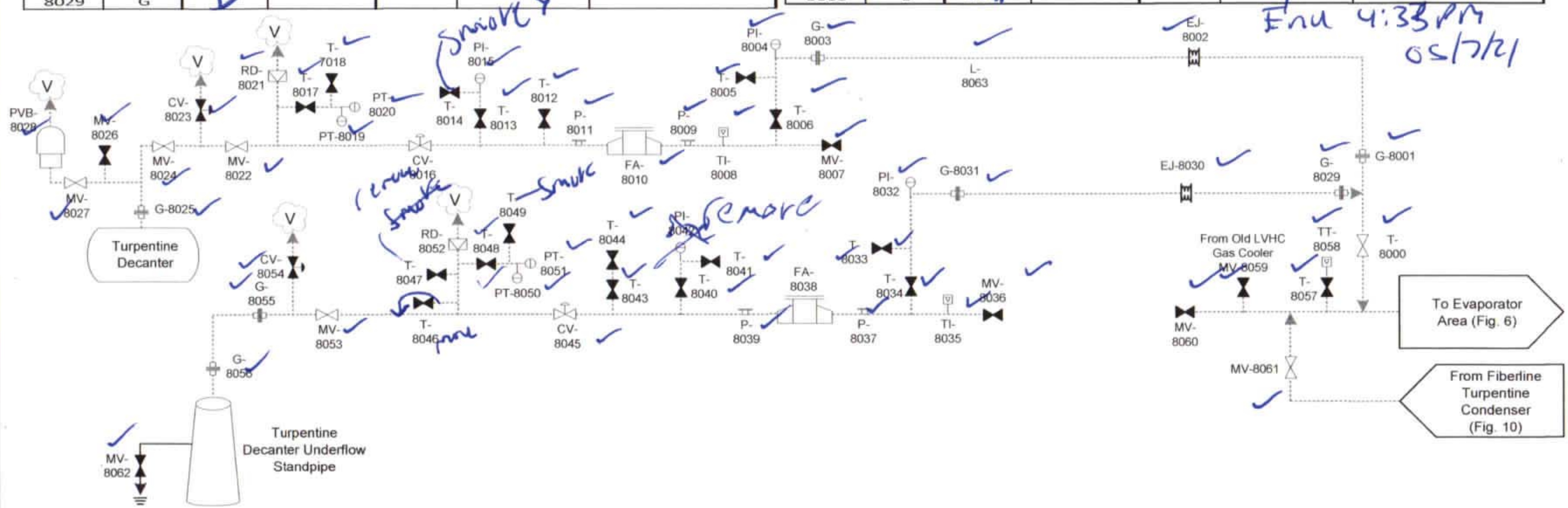
Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
7000	B	-			yes	
7001	T	-			Y	
7002	T				Y	
7003	PI				Y	
7004	TI				Y	
7005	T				Y	
7006	TT				Y	
7007	CV				Y	
7008	MV				Y	
7009	CV				Y	
7010	T				Y	Smoke
7011	G				Y	
7012	P				Y	
7013	ME				Y	
7014	T				Y	
7015	G				Y	
7016	G				Y	
7017	BP	+	0	0	Y	
7018	G			0	Y	
7019	T			0	Y	
7020	PI			0	Y	
7021	TI			0	Y	
7022	MV			0	Y	
7023	MV			0	Y	Car seal present
7024	MV			0	Y	
7025	G			0	Y	
7026	BP			0	Y	
7027	G			0	Y	
7028	MV			0	Y	
7029	T			0	Y	
7030	T				Y	Inaccessible
7031	FT				Y	
7032	FE				Y	
7033	T				Y	
7034	T	-			Y	
7035	MV	-			Y	
7036	P	-			Y	
7037	G	-			Y	
7038	T	-			Y	
7039	MV	-			Y	
7040	G	-			yes	
7041	G	+	0	1	Y	
7042	G	+	0	1	Y	
7043	G	+	0	0	Y	
7044	CTK	Cond	0	0	Y	
7045	G				Y	
7046	MV				Y	
7047	G				Y	
7048	MV				Y	
7049	BP				Y	
7050	G				Y	
7051	T				Y	
7052	PI				Y	
7053	T				Y	
7054	MV				Y	
7055	MV				Y	
7056	FT				Y	
7057	FT				Y	
7058	MV				Y	
7059	FT				Y	
7060	B		0	0	Y	
7061	T				Y	
7062	LS				Y	
7063	G				Y	
7064	G				Y	
7065	T				Y	
7066	T				Y	
7067	G				Y	
7068	G				Y	
7069	G				Y	
7070	T				Y	
7071	FT				Y	
7072	G				Y	
7073	G				Y	
7074	G				Y	
7075	G				Y	
7076	T				Y	
7077	T		0	0	Y	
7078	LT		0	0	Y	
7079	MV		0	0	Y	
7080	T		0	0	Y	
7081	P		0	0	Y	
7082	LG		0	0	Y	
7083	B		0	0	Y	
7084	T		0	0	Y	
7085	L	NA			Y	

Turpentine Decanter and Standpipe
Completed Date/Time: 5/7/21 4:33 pm

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8000	T	—			yes	
8001	G				Y	
8002	EJ				Y	
8003	G				Y	
8004	PI				Y	
8005	T				Y	
8006	T				Y	
8007	MV				Y	
8008	TI				Y	
8009	P				Y	
8010	FA				Y	
8011	P				Y	
8012	T				Y	
8013	T				Y	
8014	T				Y	Smore
8015	PI				Y	
8016	CV				Y	
8017	T				Y	
8018	T				Y	
8019	PT				Y	
8020	PT				Y	
8021	RD				Y	
8022	MV				Y	
8023	CV				Y	
8024	MV				Y	
8025	G				Y	
8026	MV				Y	
8027	MV				Y	
8028	PVB				Y	
8029	G				Y	

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
8030	EJ	—			yes	
8031	G				Y	
8032	PI				Y	
8033	T				Y	
8034	T				Y	
8035	TI				Y	
8036	MV				Y	
8037	P				Y	
8038	FA				Y	
8039	P				Y	
8040	T				Y	
8041	T				Y	
~~8042~~	~~PI~~					Remov
8043	T				yes	
8044	T				Y	
8045	CV				Y	
8046	T				Y	
~~8047~~	~~T~~					Remve
8048	T				yes	
8049	T				Y	Smke
8050	PT				Y	
8051	PT				Y	
8052	RD				Y	
8053	MV				Y	
8054	CV				Y	
8055	G				Y	
8056	G				Y	
8057	T				Y	
8058	TT				Y	
8059	MV				Y	
8060	MV				Y	
8061	MV				Y	
8062	MV	Conn			Y	
8063	L	N/P			Y	

End 4:33 PM 05/7/21



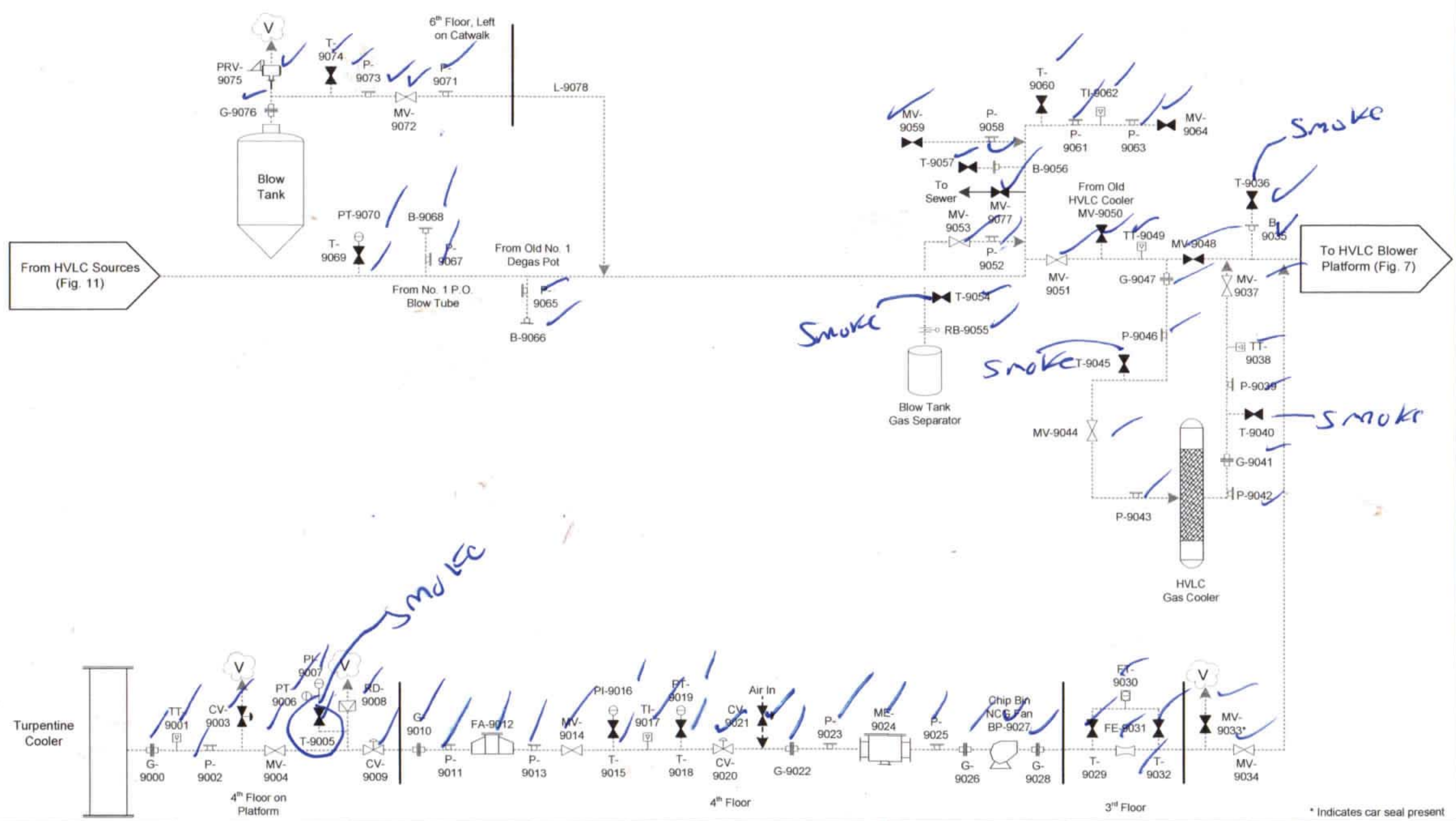
Vent Gases	To Another Page and Indicated Equipment		
Condensates			
Liquor/Stock Lines	From Another Page and Indicated Equipment		
Process Lines			

ENVIRONMENTAL 360

New Indy Containerboard – Catawba Mill
LDAR Inspection and Testing Diagrams
Turpentine Decanter and Standpipe

Rev. Date March 2021

Figure 8



* Indicates car seal present

Vent Gases / Condensates / Liquor/Stock Lines / Process Lines	To Another Page and Indicated Equipment / From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New Indy Containerboard – Catawba Mill
			LDAR Inspection and Testing Diagrams
			Turpentine Cooler and Blow Tank

Rev. Date March 2021

Figure 9

Turpentine Cooler and Blow Tank

Completed Date/Time: 5/3/21 / NH

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
9000	G	–			yes	
9001	TT				Y	
9002	P				Y	
9003	CV				Y	
9004	MV				Y	
9005	T				Y	Smore
9006	PT				Y	
9007	PI				Y	
9008	RD				Y	
9009	CV				Y	
9010	G				Y	
9011	P				Y	
9012	FA				Y	
9013	P				Y	
9014	MV				Y	
9015	T				Y	
9016	PI				Y	
9017	TI				Y	
9018	T				Y	
9019	PT				Y	
9020	CV				Y	
9021	CV				Y	
9022	G				Y	
9023	P				Y	
9024	ME				Y	
9025	P				Y	
9026	G				Y	
9027	BP				Y	monthly/visual
9028	G				Y	
9029	T				Y	
9030	FT				Y	
9031	FE				Y	
9032	T				Y	
9033	MV				Y	Car seal present
9034	MV				Y	monthly/visual
9035	B	–			Y	
9036	T	–			yes	Smore
9037	MV				Y	
9038	TT				Y	
9039	P				Y	
9040	T				Y	Smore
9041	G				Y	
9042	P				Y	
9043	P				Y	
9044	MV				Y	
9045	T				Y	Smore
9046	P				Y	
9047	G				Y	
9048	MV				Y	
9049	TT				Y	
9050	MV				Y	
9051	MV				Y	
9052	P				Y	
9053	MV				Y	
9054	T				Y	Smore
9055	RB				Y	
9056	B				Y	
9057	T				Y	
9058	P				Y	
9059	MV				Y	
9060	T				Y	
9061	P				Y	
9062	TI				Y	
9063	P				Y	
9064	MV				Y	
9065	P				Y	
9066	B				Y	
9067	P				Y	
9068	B				Y	
9069	T				Y	
9070	PT				Y	
9071	P				Y	
9072	MV				Y	
9073	P				Y	
9074	T				Y	
9075	PRV				Y	
9076	G				Y	
9077	MV	Cont			Y	
9078	L	NH			Y	

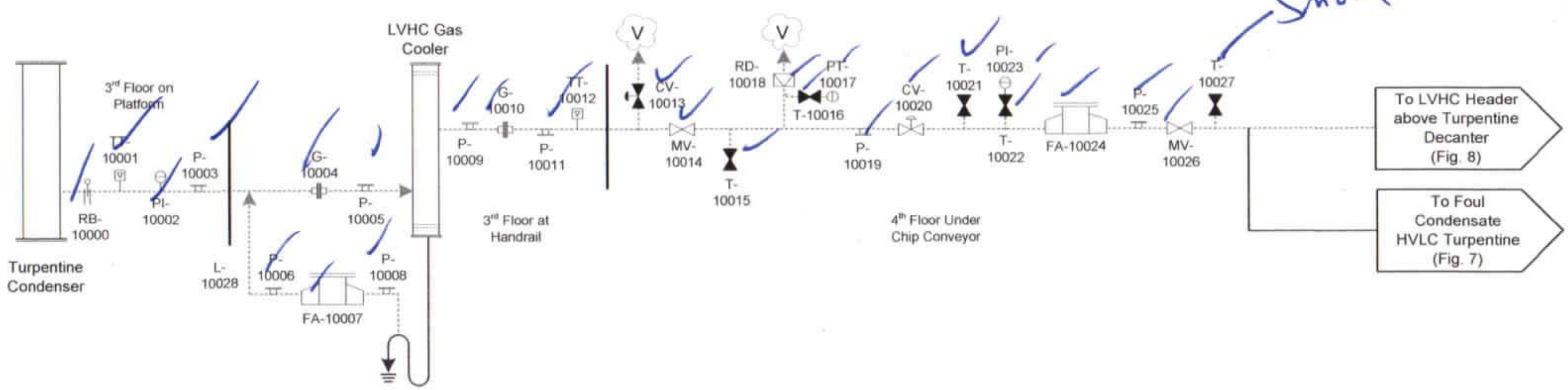
Turpentine Condenser and LVHC Gas Cooler

Completed Date/Time: 5/3/21 11:07 AM

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
10000	RB	—			yes	
10001	TT				Y	
10002	PI				Y	
10003	P				Y	
10004	G				Y	
10005	P				Y	
10006	P				Y	
10007	FA				Y	
10008	P				Y	
10009	P				Y	
10010	G				Y	
10011	P				Y	
10012	TT				Y	

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
10013	CV	—			yes	
10014	MV				Y	
10015	T				Y	
10016	T				Y	
10017	PT				Y	
10018	RD				Y	
10019	P				Y	
10020	CV				Y	
10021	T				Y	
10022	T				Y	
10023	PI				Y	
10024	FA				Y	
10025	P				Y	
10026	MV				Y	
10027	T				Y	Smoke
10028	L	NA			Y	

End 11:07AM
05/3/21



Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New Indy Containerboard – Catawba Mill LDAR Inspection and Testing Diagrams Turpentine Condenser and LVHC Gas Cooler

Rev. Date March 2021

Figure 10

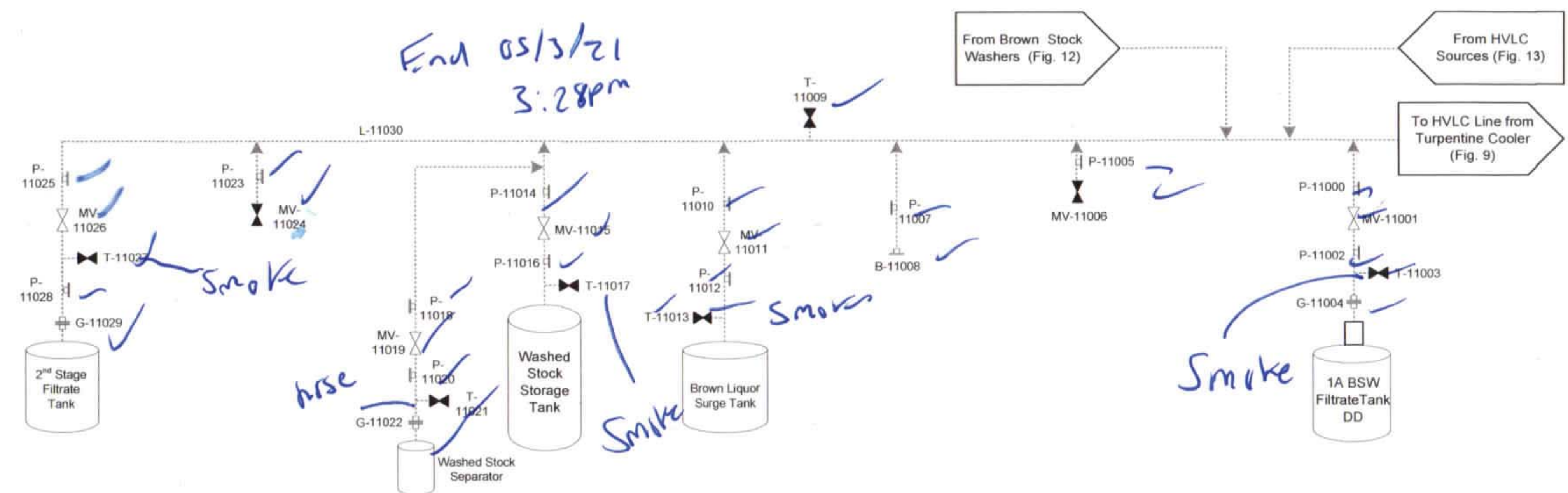
HVLC System at Pulp Mil (1 of 2)

Completed Date/Time: 5/3/21 3:28 PM

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
11000	P	—			yes	
11001	MV				Y	
11002	P				Y	
11003	T				Y	Smoke
11004	G				Y	
11005	P				Y	
11006	MV				Y	
11007	P				Y	
11008	B				Y	
11009	T				Y	
11010	P				Y	
11011	MV				Y	
11012	P				Y	
11013	T				Y	Smoke

11014	P	—			Yes	
11015	MV				Y	
11016	P				Y	
11017	T				Y	Smoke
11018	P				Y	
11019	MV				Y	
11020	P				Y	
11021	T				Y	
11022	G				Y	
11023	P				Y	
11024	MV				Y	
11025	P				Y	
11026	MV				Y	
11027	T				Y	Smoke
11028	P				Y	
11029	G				Y	
11030	L	NA			Y	

End 05/3/21 3:28pm



Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New Indy Containerboard – Catawba Mill LDAR Inspection and Testing Diagrams HVLC System at Pulp Mill (1 of 2)

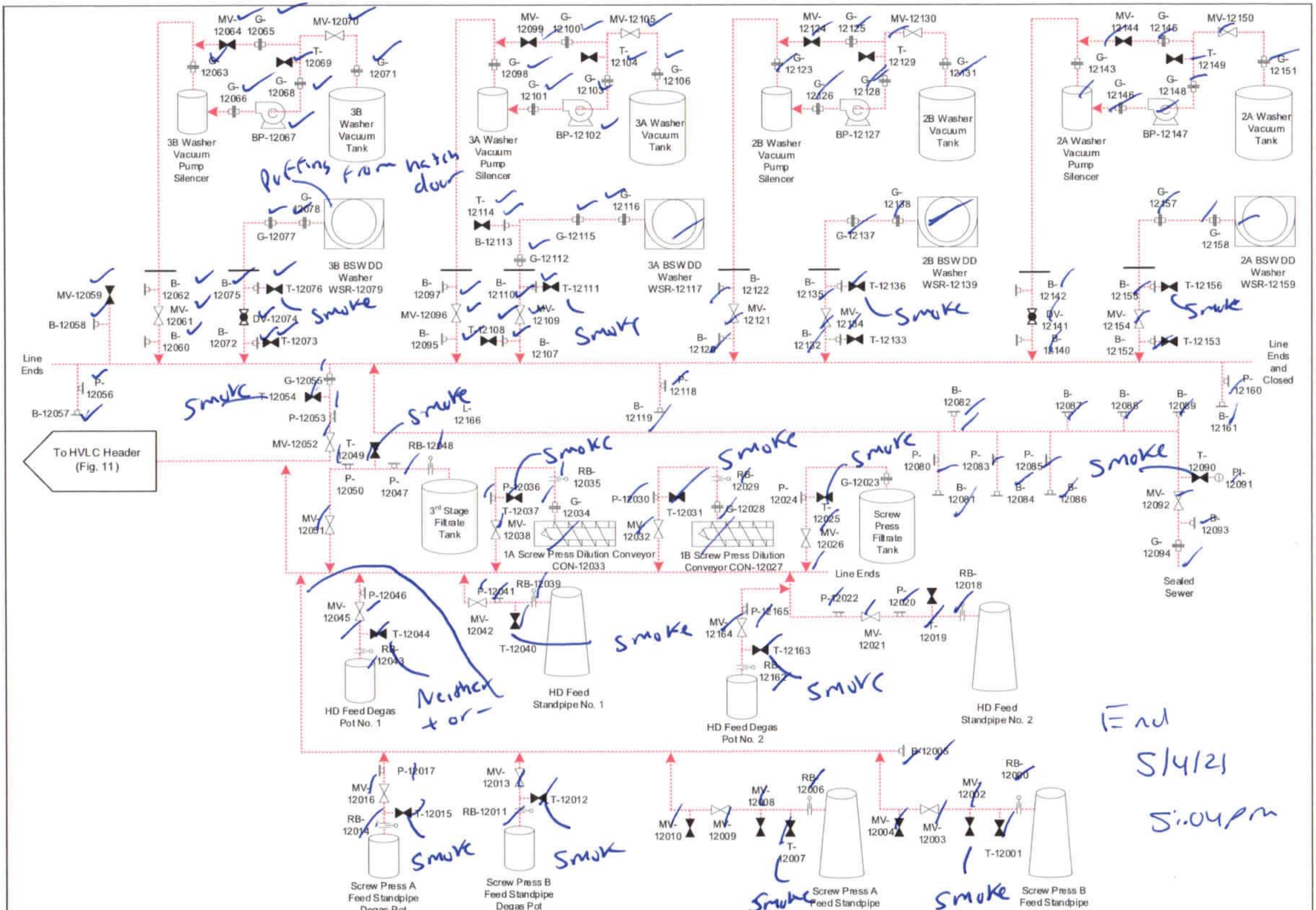
Rev. Date March 2021

Figure 11

Pulp Mill BSWs

Completed Date/Time: 5/4/21 5:03pm

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12081	B	—			yes	
12082	B				Y	
12083	P				Y	
12084	B				Y	
12085	P				Y	
12086	B				Y	
12087	B				Y	
12088	B				Y	
12089	B				Y	
12090	T				Y	Smok
12091	PI				Y	
12092	MV				Y	
12093	B				Y	
12094	G				Y	
12095	B				Y	
12096	MV				Y	
12097	B				Y	
12098	G				Y	
12099	MV				Y	
12100	G				Y	
12101	G				Y	
12102	BP				Y	
12103	G				Y	
12104	T				Y	
12105	MV				Y	
12106	G				Y	
12107	B				Y	
12108	T				Y	
12109	MV				Y	
12110	B				Y	
12111	T				Y	Smoke
12112	G				Y	
12113	B				Y	
12114	T				Y	
12115	G				Y	
12116	G				Y	
12117	WSR				Y	
12118	P				Y	
12119	B				Y	
12120	B				Y	
12121	MV				Y	
12122	B				Y	
12123	G				Y	
12124	MV	—			yes	
12125	G				Y	
12126	G				Y	
12127	BP				Y	
12128	G				Y	
12129	T				Y	
12130	MV				Y	
12131	G				Y	
12132	B				Y	
12133	T				Y	
12134	MV				Y	
12135	B				Y	
12136	T				Y	Smoke
12137	G				Y	
12138	G				Y	
12139	WSR				Y	
12140	B				Y	
12141	DV				Y	
12142	B				Y	
12143	G				Y	
12144	MV				Y	
12145	G				Y	
12146	G				Y	
12147	BP				Y	
12148	G				Y	
12149	T				Y	
12150	MV				Y	
12151	G				Y	
12152	B				Y	
12153	T				Y	
12154	MV				Y	
12155	B				Y	
12156	T				Y	Smoke
12157	G				Y	
12158	G				Y	
12159	WSR				Y	
12160	P				Y	
12161	B				Y	
12162	RB				Y	
12163	T				Y	Smoke
12164	MV				Y	
12165	P				Y	
12166	L	N/A			Y	



Vent Gases	
Bleach Gases	
Condensates	
Liquor/Stock Lines	
Process Lines	

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams
Pulp Mill BSWs

Rev. Date
March 2021

Figure 12

Pulp Mill BSWs

Completed Date/Time: 5/4/21 5:03pm

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12000	RB	—			yes	
12001	T				Y	
12002	MV				Y	Smoke
12003	MV				Y	
12004	MV				Y	
12005	B				Y	
12006	RB				Y	
12007	T				Y	Smoke
12008	MV				Y	
12009	MV				Y	
12010	MV				Y	
12011	RB				Y	
12012	T				Y	Smoke
12013	MV				Y	
12014	RB				Y	
12015	T				Y	Smoke
12016	MV				Y	
12017	P				Y	
12018	RB				Y	
12019	T				Y	
12020	P				Y	
12021	MV				Y	
12022	P				Y	
12023	G				Y	
12024	P				Y	
12025	T				Y	Smoke
12026	MV				Y	
12027	CON				Y	
12028	G				Y	
12029	RB				Y	
12030	P				Y	
12031	T				Y	Smoke
12032	MV				Y	
12033	CON				Y	
12034	G				Y	
12035	RB				Y	
12036	P				Y	
12037	T				Y	Smoke
12038	MV				Y	
12039	RB	—			yes	
12040	T				Y	Smoke
12041	P				Y	
12042	MV				Y	
12043	RB				Y	Monthly/Visual
12044	T				Y	
12045	MV				Y	
12046	P				Y	
12047	P	—			Y	
12048	RB				Y	
12049	T				Y	Smoke
12050	P				Y	
12051	MV				Y	
12052	MV				Y	
12053	P				Y	
12054	T				Y	Smoke
12055	G				Y	
12056	P				Y	
12057	B				Y	
12058	B				Y	
12059	MV				Y	
12060	B				Y	
12061	MV				Y	
12062	B				Y	
12063	G				Y	
12064	MV				Y	
12065	G				Y	
12066	G				Y	
12067	BP				Y	
12068	G				Y	
12069	T				Y	
12070	MV				Y	
12071	G				Y	
12072	B				Y	
12073	T				Y	
12074	DV				Y	
12075	B				Y	
12076	T				Y	Smoke
12077	G				Y	
12078	G				Y	
12079	WSR				NO	Puffing
12080	P				Yes	

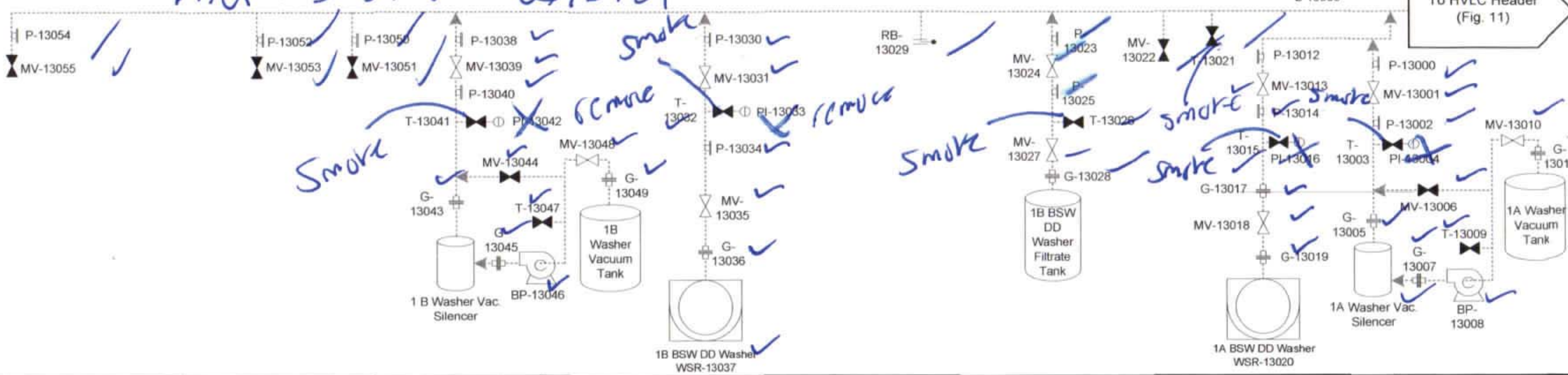
HVLC System at Pulp Mil (2 of 2)

Completed Date/Time: 5/3/21 3:37pm

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
13000	P	—			yes	
13001	MV				Y	
13002	P				Y	
13003	T				Y	Smoke
13004	PI					Remove
13005	G	—			yes	
13006	MV				Y	
13007	G				Y	
13008	BP				Y	
13009	T				Y	
13010	MV				Y	
13011	G				Y	
13012	P				Y	
13013	MV				Y	
13014	P				Y	
13015	T				Y	Smoke
13016	PI					Remove
13017	G	—			Y	
13018	MV				Y	
13019	G				Y	
13020	WSR				Y	
13021	T				Y	Smoke
13022	MV				Y	
13023	P				Y	
13024	MV				Y	

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
13025	P	—			yes	
13026	T				Y	Smoke
13027	MV				Y	
13028	G				Y	
13029	RB				Y	
13030	P				Y	
13031	MV				Y	
13032	T				Y	Smoke
13033	PI					Remove
13034	P	—			Y	
13035	MV				Y	
13036	G				Y	
13037	WSR				Y	
13038	P				Y	
13039	MV				Y	
13040	P				Y	
13041	T				Y	Smoke
13042	PI					Remove
13043	G	—			Y	
13044	MV				Y	
13045	G				Y	
13046	BP				Y	
13047	T				Y	
13048	MV				Y	
13049	G				Y	
13050	P				Y	
13051	MV				Y	
13052	P				Y	
13053	MV				Y	
13054	P				Y	
13055	MV				Y	
13056	L	NA			Y	

End: 3:37 pm 05/3/21



Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL 360	New Indy Containerboard – Catawba Mill LDAR Inspection and Testing Diagrams HVLC System at Pulp Mill (2 of 2)

Rev. Date March 2021

Figure 13

Inspection Date: June 7th, 2021

New Indy Containerboard - Catawba Mill
5300 Cureton Ferry Rd.
Catawba, SC 29704

2021 Monthly LDAR Inspection Summary Report

Table 1: Visual Inspection Summary Table

Equipment Number	Date	Description of Leak or Visual Defect
CTK-1000	6/7/2021	Stripper Feed Tank CTK-1000 is puffing from top of tank.
MV-1008 (Old ID Number)	6/7/2021	Manual Valve (old MV-1008) is located on the foul condensate line at the outlet of No. 1 Pre-Heater). The valve is the bypass valve for the stripped condensate and is dripping from valve stem.
T-3030 (Old ID Number)	6/7/2021	Tap valve (old T-3030) is located on SOG line near Trim Reflux Condenser and above the Stripper Column. The valve is leaking from threaded connection with a VOC reading of 788 ppm.
CV-5026	6/7/2021	Control valve CV-5026 is located on the LVHC line at outlet of Steam Ejector and prior to the mist eliminators. The valve is not collecting gases.
PT-5032	6/7/2021	Pressure transmitter PT-5032 is located on LVHC line between mist eliminator and rupture disc on steam ejector platform. The transmitter is puffing from threaded connection.
WSR-12079	6/7/2021	The 3B BSW DD Washer is puffing around hatch door.

First Attempt to Repair must be completed by:	5 Days from Inspection Date	Not Applicable if no leaks were found.
Repairs must be completed by:	15 Days from Inspection Date	Not Applicable if no leaks were found.

This report provides a summary of leaks and visual defects found during the visual inspection of the closed-vent and condensate-collection systems and complies with the record keeping requirements of 63.454(b)(1-2, 4-5).

The facility must initiate repairs to any defects within five (5) calendar days from this inspection and the defects must be repaired within fifteen (15) calendar days of the inspection. If the leak or defect requires the system to be shutdown in order to make repairs, or more emissions would occur from attempting the repair than delaying the repair, then the repairs may be delayed until the next process unit shutdown. A report must be supplied with the repair date and associated information, or the reason for the delay if the repairs are not completed within the 15-day period. These response requirements are specific to 40 CFR 63, specifically 63.453(k)(6), 63.453(l)(3), and 63.964(b)(1-2). Documentation of all repair attempts made and any leaks/defects requiring a process unit shutdown must be completed according to 63.454(b)(6-11).

I certify that the results of the visual inspection are accurate and complete to the best of my knowledge.

Inspector Name: Josh Howard

Signature: Josh Howard

ENVIRONMENTAL 360

Daily Calibration Sheet

Name: Josh Howard

Company: Environmental 360, Inc.

Date: 6/7/2021

Time: 3:14PM

Client Name: New Indy Catawba
Closed-Vent and Condensate-Collection Systems
Method 21 Testing

VOC Analyzer Model #: TVA2020 A2S1B1
VOC Analyzer Serial #: 202015010799

		Expiration Date:	Lot#:	Actual Value:
Zero Gas Concentration:	Zero Grade Air	09/24/24	304401906627-1	<0.1
Span Gas Concentration:	500 PPM Methane	11/20/24	304-401969513-1	503
Span Gas Concentration:	<10,000 PPM Methane	11/20/24	304-401969514-1	9989

Cylinder calibration gases must be analyzed and certified by the manufacturer within 2% accuracy.

	Reading	Actual Value	Precision (%)
500 PPM Methane Calibration Precision 1:	505	503	0
500 PPM Methane Calibration Precision 2:	502	503	0
500 PPM Methane Calibration Precision 3:	502	503	0
500 PPM Methane Calibration Precision 1 w/ Tubing:	496	503	1
500 PPM Methane Calibration Precision 2 w/ Tubing:	495	503	2
500 PPM Methane Calibration Precision 3 w/ Tubing:	496	503	1
<10,000 PPM Methane Calibration Precision 1:	9952	9989	0
<10,000 PPM Methane Calibration Precision 2:	9962	9989	0
<10,000 PPM Methane Calibration Precision 3:	9983	9989	0
<10,000 PPM Methane Calibration Precision 1 w/ Tubing:	9975	9989	0
<10,000 PPM Methane Calibration Precision 2 w/ Tubing:	9990	9989	0
<10,000 PPM Methane Calibration Precision 3 w/ Tubing:	9953	9989	0

The Calibration Precision must **not** have variability greater than 10%.

Response Factor: 1

The Response Factor must **not** be greater than 10.

Response Time: 3 sec

Response Time with 20 Ft. Extension Tubing: 8 sec

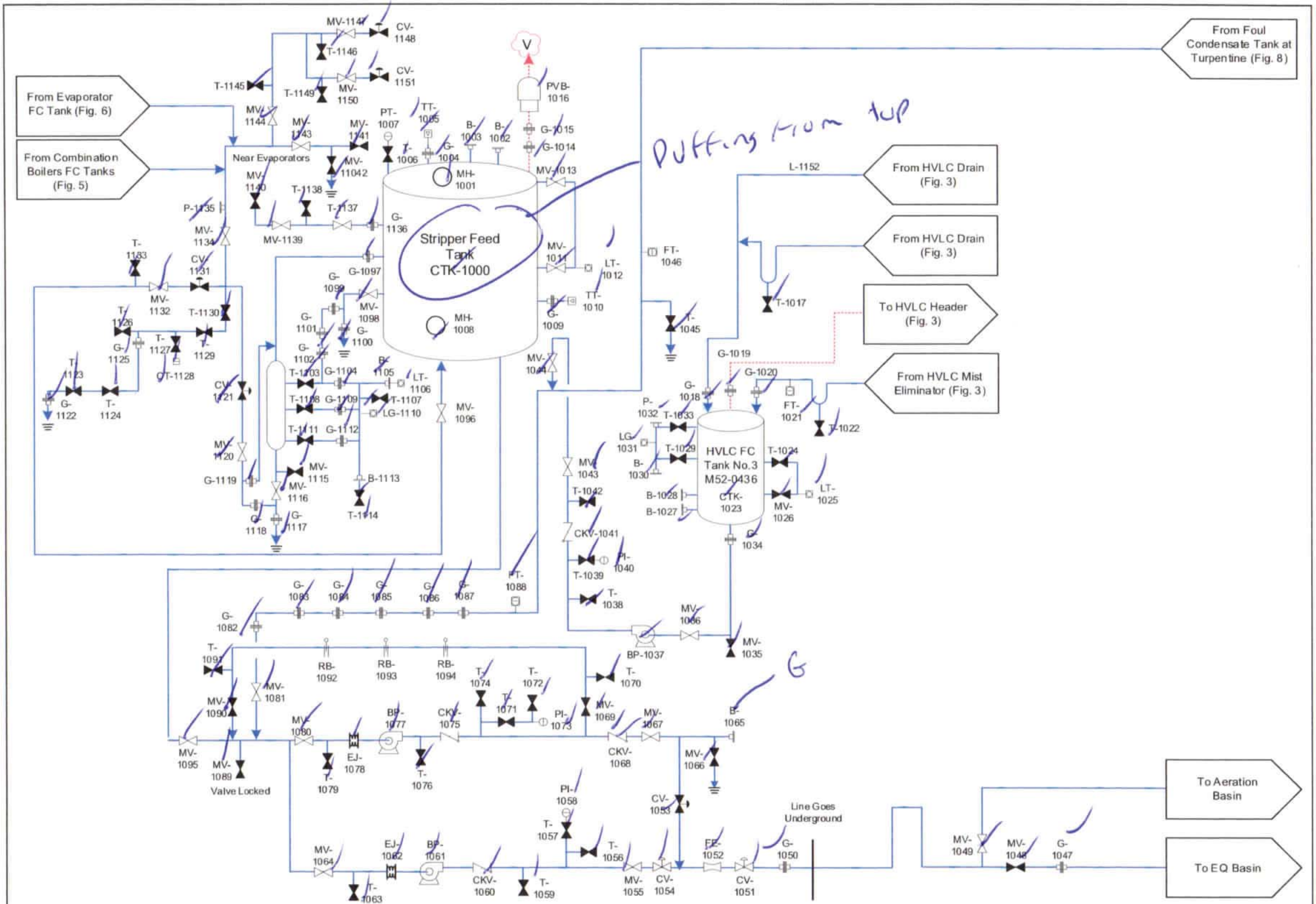
The Response Time must **not** be greater than 30 seconds. All probes and extensions used during the testing must be attached while measuring the response time.

Calibration Check: 488 / 503 = 3 %
Calibration Check Time: 8:11PM

Comments: ______________________________

I certify that calibration occurred prior to use and that all regulations and requirements were met.

Signed: Josh Howard



Vent Gases	To Another Page and Indicated Equipment
Condensates	From Another Page and Indicated Equipment
Liquor/Stock Lines	
Process Lines	

ENVIRONMENTAL 360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams

Stripper System Foul Condensate

Rev. Date May 2021

Figure 1

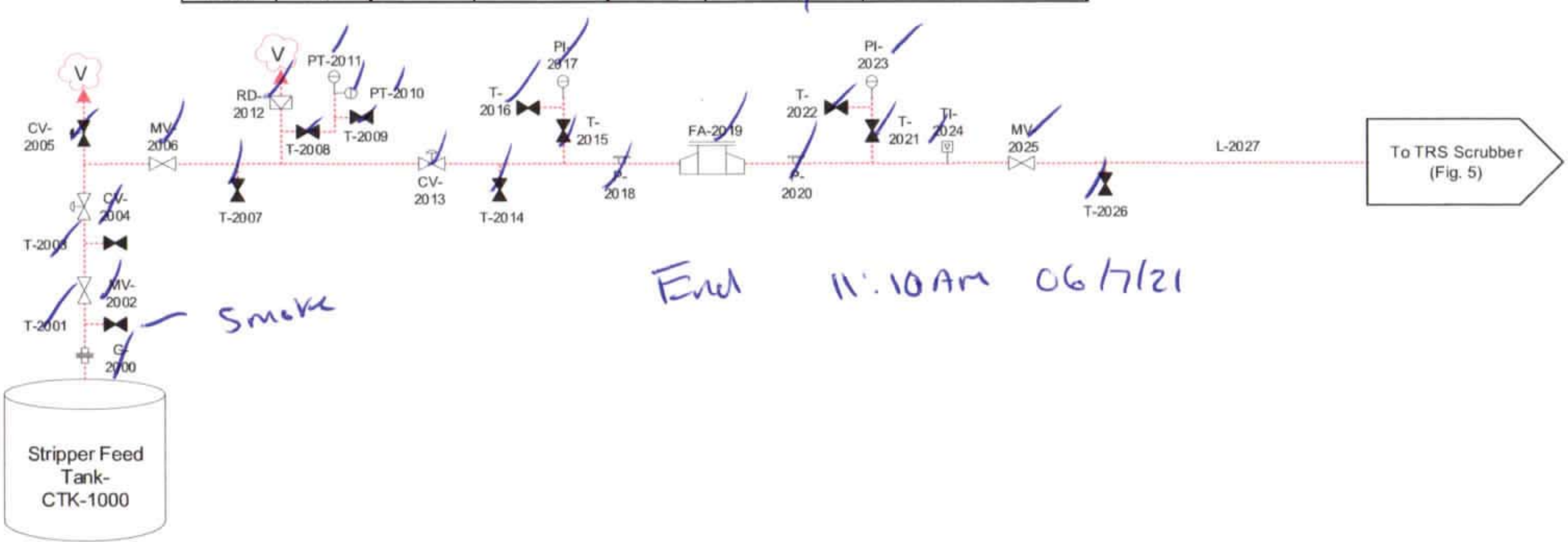
Stripper System Foul Condensate

Completed Date/~~Time~~: 06/07/21 ~~12:15~~ PM TK1

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
1000	CTK				~~Yes~~ NO	Puffing from top of tank
1001	MH				Y	
1002	B				Y	
1003	B				Y	
1004	G				Y	
1005	TT				Y	
1006	T				Y	
1007	PT				Y	
1008	MH				Y	
1009	G				Y	
1010	TT				Y	
1011	MV				Y	
1012	LT				Y	
1013	MV				Y	
1014	G				Y	
1015	G				Y	
1016	PVB				Y	
1017	T				Y	
1018	G				Y	
1019	G				Y	
1020	G				Y	
1021	FT				Y	
1022	T				Y	
1023	CTK				Y	
1024	T				Y	
1025	LT				Y	
1026	MV				Y	
1027	B				Y	
1028	B				Y	
1029	T				Y	
1030	B				Y	
1031	LG				Y	
1032	P				Y	
1033	T				Y	
1034	G				Y	
1035	MV				Y	
1036	MV				Y	
1037	BP				Y	
1038	T				Y	
1039	T				Y	
1040	PI				Y	
1041	CKV				Y	
1042	T				Y	
1043	MV				Y	
1044	MV				Y	
1045	T				Y	
1046	FT				Y	
1047	G				Y	
1048	MV				Y	
1049	MV				Y	
1050	G				Y	
1051	CV				Y	
1052	FE				Y	
1053	CV				Y	
1054	CV				Y	
1055	MV				Y	
1056	T				Y	
1057	T				Y	
1058	PI				Y	
1059	T				Y	
1060	CKV				Y	
1061	BP				Y	
1062	EJ				Y	
1063	T				Y	
1064	MV				Y	
1065	~~B~~ G				Y	
1066	MV				Y	
1067	MV				Y	
1068	CKV				Y	
1069	MV				Y	
1070	T				Y	
1071	T				Y	
1072	T				Y	
1073	PI				Y	
1074	T				Y	
1075	CKV				Yes	
1076	T				Y	
1077	BP				Y	
1078	EJ				Y	
1079	T				Y	
1080	MV				Y	
1081	MV				Y	
1082	G				Y	
1083	G				Y	
1084	G				Y	
1085	G				Y	
1086	G				Y	
1087	G				Y	
1088	FT				Y	
1089	MV				Y	
1090	MV				Y	
1091	T				Y	
1092	RB				Y	
1093	RB				Y	
1094	RB				Y	
1095	MV				Y	
1096	MV				Y	
1097	G				Y	
1098	MV				Y	
1099	G				Y	
1100	G				Y	
1101	G				Y	
1102	G				Y	
1103	T				Y	
1104	G				Y	
1105	B				Y	
1106	LT				Y	
1107	T				Y	
1108	T				Y	
1109	G				Y	
1110	LG				Y	
1111	T				Y	
1112	G				Y	
1113	B				Y	
1114	T				Y	
1115	MV				Y	
1116	MV				Y	
1117	G				Y	
1118	G				Y	
1119	G				Y	
1120	MV				Y	
1121	CV				Y	
1122	G				Y	
1123	T				Y	
1124	T				Y	
1125	G				Y	
1126	T				Y	
1127	T				Y	
1128	CT				Y	
1129	T				Y	
1130	T				Y	
1131	CV				Y	
1132	MV				Y	
1133	T				Y	
1134	MV				Y	
1135	P				Y	
1136	G				Y	
1137	T				Y	
1138	T				Y	
1139	MV				Y	
1140	MV				Y	
1141	MV				Y	
1142	MV				Y	
1143	MV				Y	
1144	MV				Y	
1145	T				Y	
1146	T				Y	
1147	MV				Y	
1148	CV				Y	
1149	T				Y	
1150	MV				Y	
1151	CV				Y	
1152	L				Y	

Stripper Feed Tank
Completed Date/Time: 06/07/21 11:10 Am

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
2000	G				yes	
2001	T				y	
2002	MV				y	
2003	T				y	
2004	CV				y	
2005	CV				y	
2006	MV				y	
2007	T				y	
2008	T				y	
2009	T				y	
2010	PT				y	
2011	PT				y	
2012	RD				y	
2013	CV				y	
2014	T				y	
2015	T				y	
2016	T				y	
2017	PI				y	
2018	P				y	
2019	FA				y	
2020	P				y	
2021	T				y	
2022	T				y	
2023	PI				y	
2024	TI				y	
2025	MV				y	
2026	T				y	
2027	L				y	



Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams
Stripper Feed Tank

Rev. Date
May 2021

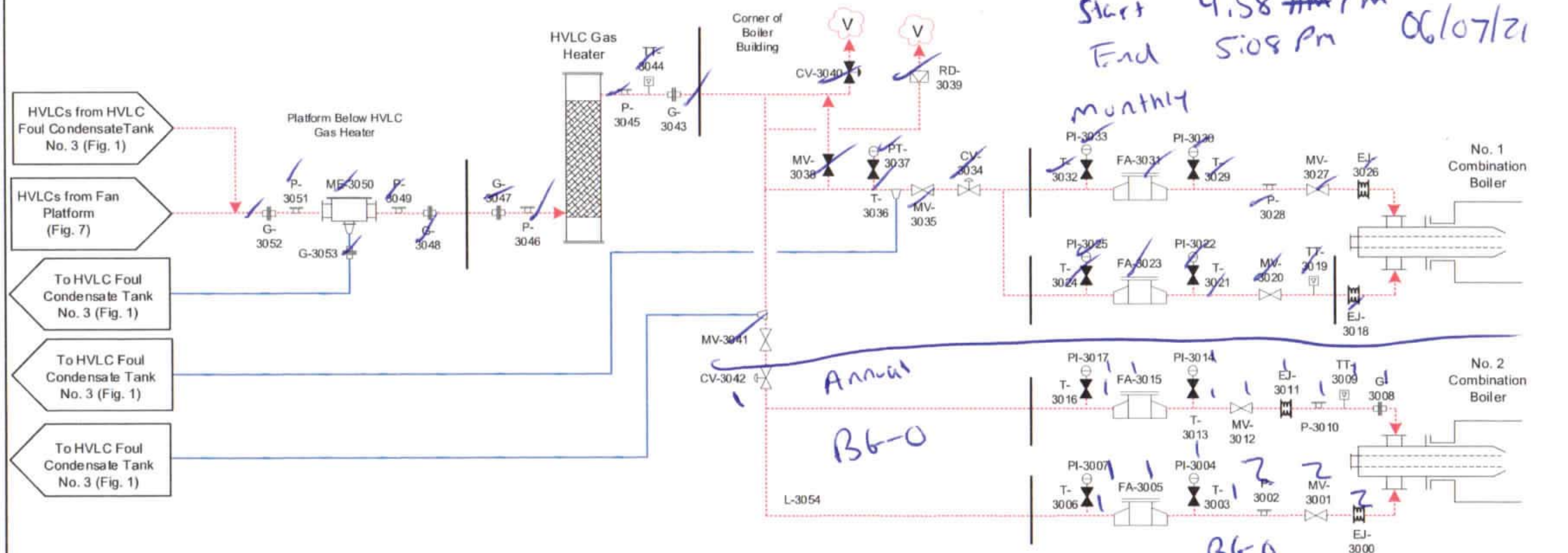
Figure 2

Combination Boiler HVLC Incinerator
Completed Date/Time: 06/07/21 5:08 PM

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
3000	EJ	+	0	2	yes	
3001	MV			2	y y	
3002	P			2	y y	
3003	T			2	y y	
3004	PI			1	y y	
3005	FA			1	y y	
3006	T			1	y y	
3007	PI			1	y y	
3008	G			1	y y	
3009	TT			1	y y	
3010	P			1	y y	
3011	EJ			1	y y	
3012	MV			1	y y	
3013	T			1	y y	
3014	PI			1	y y	
3015	FA			1	y y	
3016	T			1	y y	
3017	PI			1	y y	
3018	EJ				y	monthly
3019	TT				y y	
3020	MV				y y	
3021	T				y y	
3022	PI				y y	
3023	FA				y y	
3024	T				y y	
3025	PI				y	

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
3026	EJ				yes	monthly
3027	MV				y	
3028	P				y y	
3029	T				y y	
3030	PI				y y	
3031	FA				y y	
3032	T				y y	
3033	PI				y y	
3034	CV				y	
3035	MV				y y	
3036	T				y y	
3037	PT				y y	
3038	MV				y y	
3039	RD				y y	
3040	CV				y y	
3041	MV				y y	
3042	CV	+	0	1	yes	
3043	G				y	Monthly
3044	TT				y y	
3045	P				y y	
3046	P				y y	
3047	G				y y	
3048	G				y y	
3049	P				y y	
3050	ME				y	
3051	P				y	
3052	G				y y	
3053	G				y y	
3054	L				y y	

Start 4:58 ~~AM~~ PM
End 5:08 PM
06/07/21



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment
From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New Indy Containerboard – Catawba Mill
LDAR Inspection and Testing Diagrams
Combination Boiler HVLC Incineration

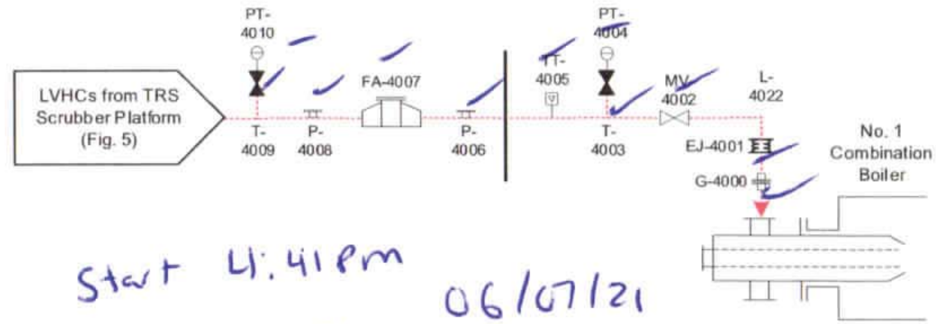
Rev. Date May 2021

Figure 3

Combination Boiler LVHC Incineration

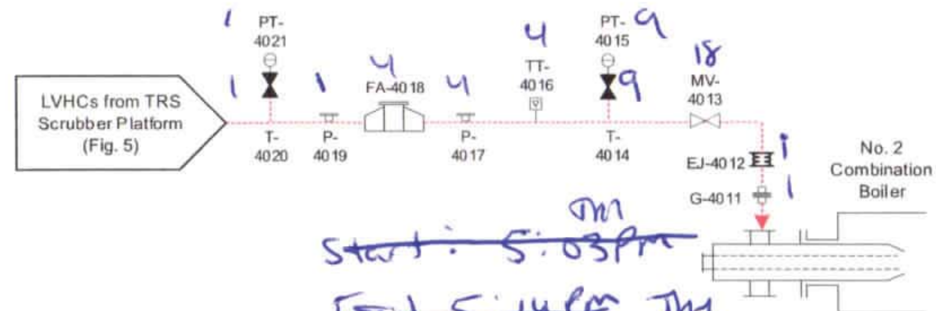
Completed Date/Time: 06/07/21 5:14pm

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
4000	G				yes	Monthly
4001	EJ				y	
4002	MV				y	
4003	T				y	
4004	PT				y	
4005	TT				y	
4006	P				y	
4007	FA				y	
4008	P				y	
4009	T				y	
4010	PT				y	
4011	G	+	1	1	y	
4012	EJ			1	y	
4013	MV			18	y	
4014	T			9	y	
4015	PT			9	y	
4016	TT			4	y	
4017	P			4	y	
4018	FA			4	y	
4019	P			1	y	
4020	T			1	y	
4021	PT			1	y	
4022	L	sh-l NA			y	



Start 4:41pm
End 4:50pm
06/07/21
~~Start~~ JKU

BG-1

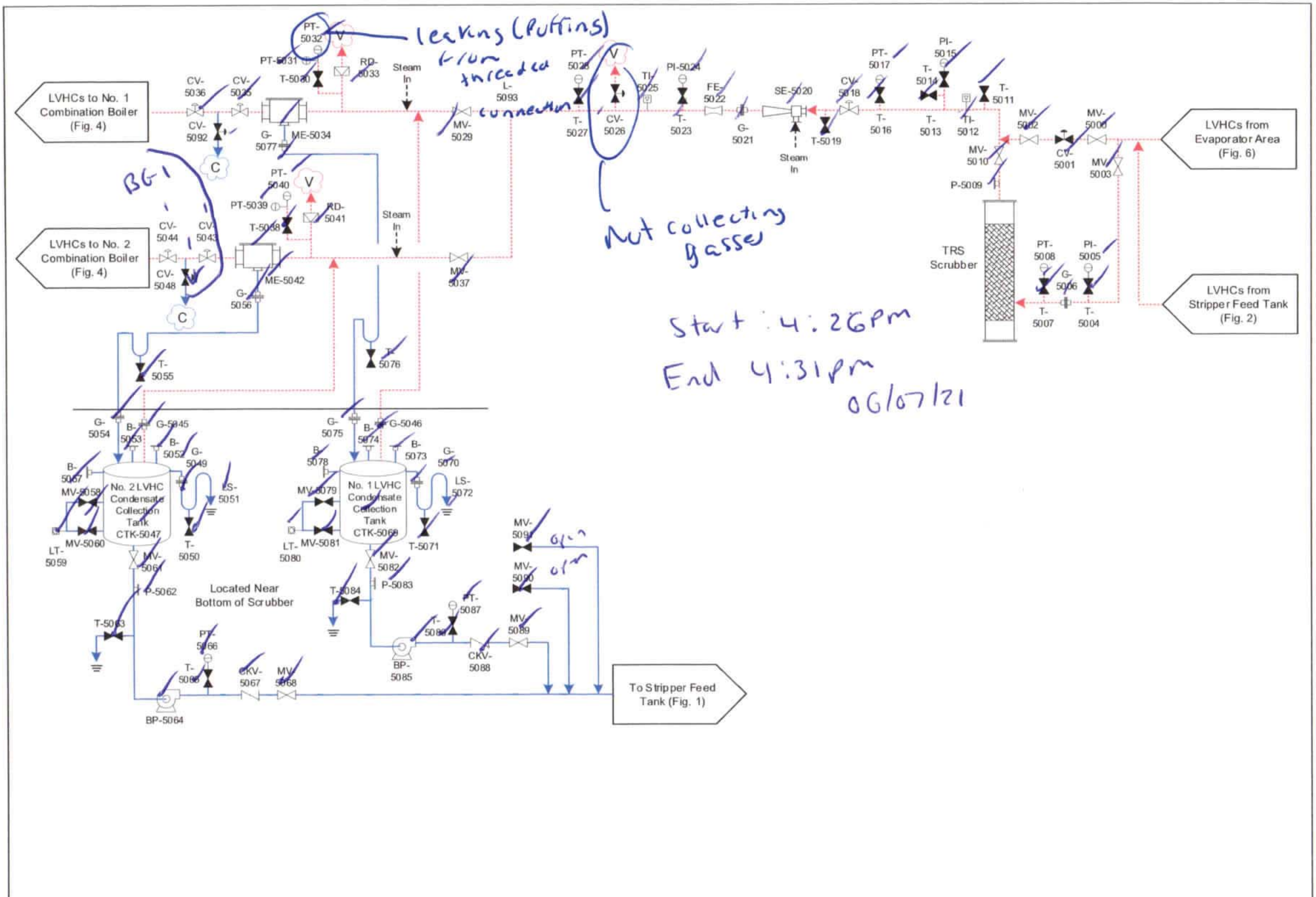


JM
~~Start: 5:03pm~~
~~End 5:14pm~~ JM
06/07/21

Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL360	New Indy Containerboard – Catawba Mill LDAR Inspection and Testing Diagrams Combination Boiler LVHC Incineration

Rev. Date
May 2021

Figure 4



Vent Gases Condensates Liquor/Stock Lines Process Lines	To Another Page and Indicated Equipment From Another Page and Indicated Equipment	ENVIRONMENTAL360	New Indy Containerboard – Catawba Mill LDAR Inspection and Testing Diagrams TRS Scrubber Platform

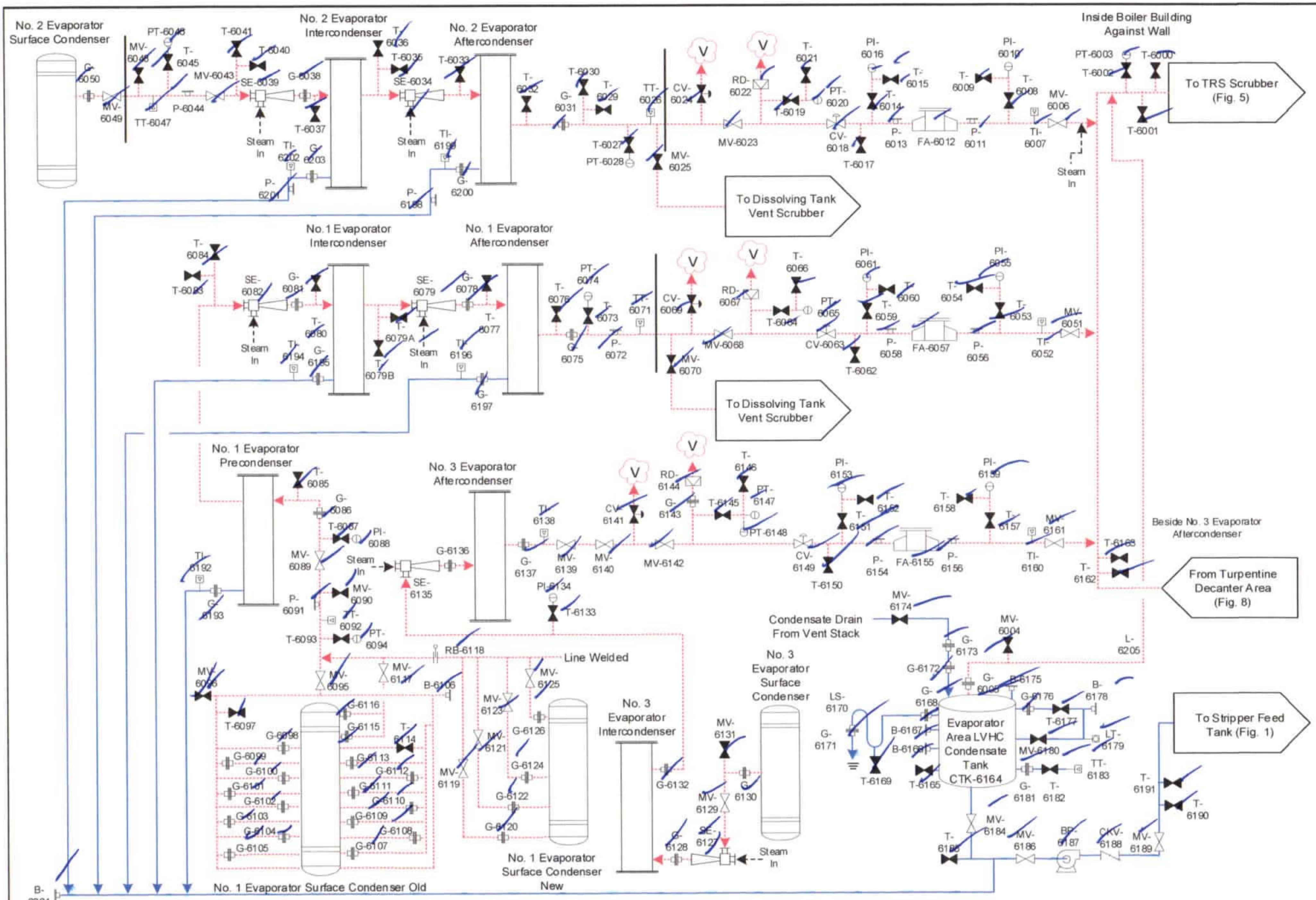
Rev. Date
May 2021

Figure 5

TRS Scrubber Platform

Completed Date/Time: 06/07/21 4:31pm

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
5000	MV				yes	Monthly
5001	CV				y	
5002	MV				y	
5003	MV				y	
5004	T				y	
5005	PI				y	
5006	G				y	
5007	T				y	
5008	PT				y	
5009	P				y	
5010	MV				y	
5011	T				y	
5012	TI				y	
5013	T				y	
5014	T				y	
5015	PI				y	
5016	T				y	
5017	PT				y	
5018	CV				y	
5019	T				y	
5020	SE				y	
5021	G				y	
5022	FE				y	
5023	T				y	
5024	PI				y	
5025	TI				y	
5026	CV				NO	Not collecting gasses
5027	T				y	
5028	PT				y	
5029	MV				y	
5030	T				y	
5031	PT				y	Puffing from
5032	PT				NO	threaded
5033	RD				y	connection
5034	ME				y	
5035	CV				y	
5036	CV				y	
5037	MV				y	
5038	T				y	
5039	PT				y	
5040	PT				y	
5041	RD				y	
5042	ME	-			y	
5043	CV	+	-	-	y	
5044	CV	+	-	-	y	
5045	G				yes	Monthly
5046	G				y	
5047	CTK				y	
5048	CV	Cond			y	
5049	G				y	monthly
5050	T				y	
5051	LS				y	
5052	B				y	
5053	B				y	
5054	G				y	
5055	T				y	
5056	G				y	
5057	B				y	
5058	MV				y	
5059	LT				y	
5060	MV				y	
5061	MV				y	
5062	P				y	
5063	T				y	
5064	BP				y	
5065	T				y	
5066	PT				y	
5067	CKV				y	
5068	MV				y	
5069	CTK				y	
5070	G				y	
5071	T				y	
5072	LS				y	
5073	B				y	
5074	B				y	
5075	G				y	
5076	T				y	
5077	G				y	
5078	B				y	
5079	MV				y	
5080	LT				y	
5081	MV				y	
5082	MV				y	
5083	P				y	
5084	T				y	
5085	BP				y	
5086	T				y	
5087	PT				y	
5088	CKV				y	
5089	MV				y	
5090	MV				y	
5091	MV				y	
5092	CV				y	
5093	L				y	



Vent Gases
Condensates
Liquor/Stock Lines
Process Lines

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL 360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams

Evaporator System

Rev. Date May 2021

Figure 6

Evaporator System

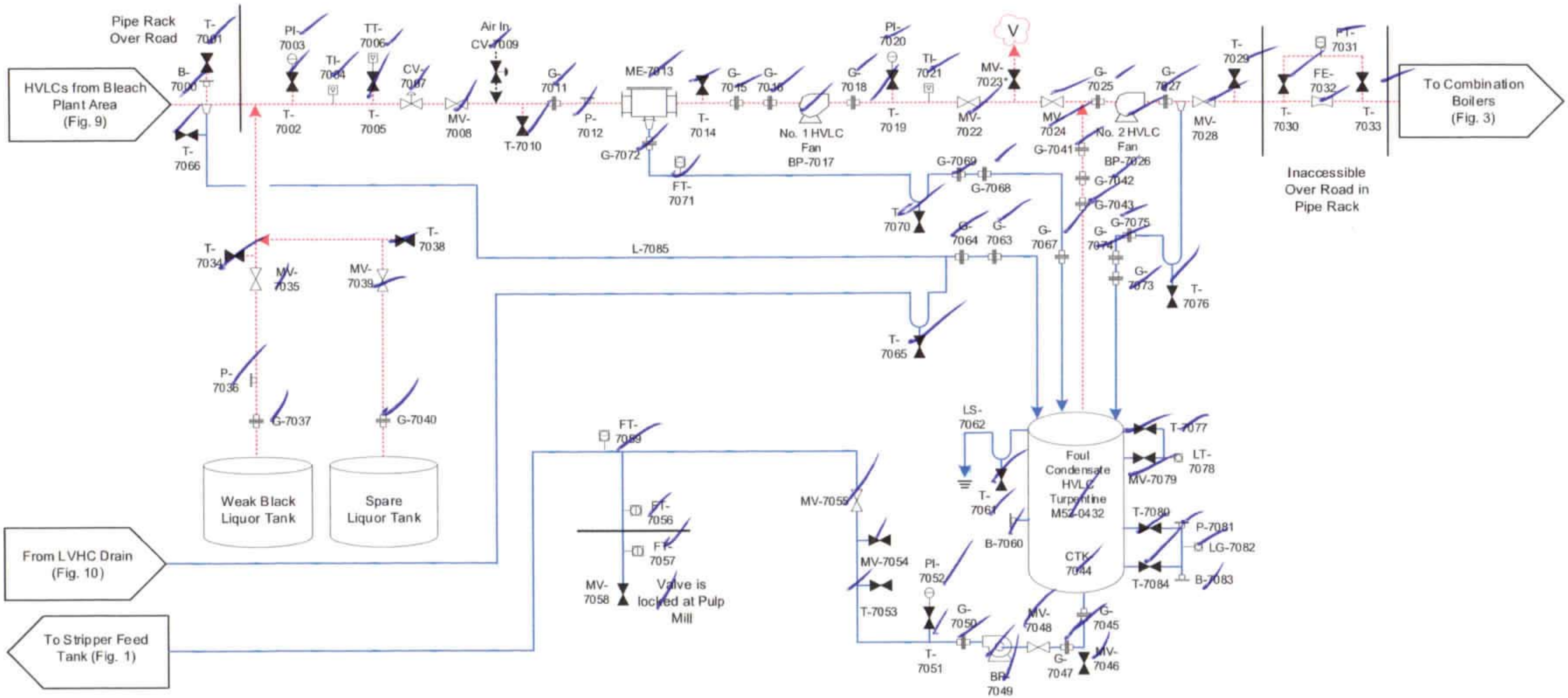
Completed Date/Time: 06/07/21

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
6000	T				yes	
6001	T				y	
6002	T				y	
6003	PT				y	
6004	MV				y	
6005	G				y	
6006	MV				y	
6007	TI				y	
6008	T				y	
6009	T				y	
6010	PI				y	
6011	P				y	
6012	FA				y	
6013	P				y	
6014	T				y	
6015	T				y	
6016	PI				y	
6017	T				y	
6018	CV				y	
6019	T				y	
6020	PT				y	
6021	T				y	
6022	RD				y	
6023	MV				y	
6024	CV				y	
6025	MV				y	
6026	TT				y	
6027	T				y	
6028	PT				y	
6029	T				y	
6030	T				y	
6031	G				y	
6032	T				y	
6033	T				y	
6034	SE				y	
6035	T				y	
6036	T				y	
6037	T				y	
6038	G				y	
6039	SE				y	
6040	T				y	
6041	T				y	
6043	MV				y	
6044	P				y	
6045	T				y	
6046	PT				y	
6047	TT				y	
6048	MV				y	
6049	MV				yes	
6050	G				y	
6051	MV				y	
6052	TI				y	
6053	T				y	
6054	T				y	
6055	PI				y	
6056	P				y	
6057	FA				y	
6058	P				y	
6059	T				y	
6060	T				y	
6061	PI				y	
6062	T				y	
6063	CV				y	
6064	T				y	
6065	PT				y	
6066	T				y	
6067	RD				y	
6068	MV				y	
6069	CV				y	
6070	MV				y	
6071	TT				y	
6072	P				y	
6073	T				y	
6074	PT				y	
6075	G				y	
6076	T				y	
6077	T				y	
6078	G				y	
6079	SE				y	
6079A	T				y	
6079B	T				y	
6080	T				y	
6081	G				y	
6082	SE				y	
6083	T				y	
6084	T				y	
6085	T				y	
6086	G				y	
6087	T				y	
6088	PI				y	
6089	MV				y	
6090	MV				y	
6091	P				y	
6092	TT				y	
6093	T				y	
6094	PT				y	
6095	MV				y	
6096	MV				y	
6097	T				y	
6098	G				y	
6099	G				y	

Evaporator System

Completed Date/Time: 6/7/21

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
6100	G				yes	
6101	G				y	
6102	G				y	
6103	G				y	
6104	G				y	
6105	G				y	
6106	B				y	
6107	G				y	
6108	G				y	
6109	G				y	
6110	G				y	
6111	G				y	
6112	G				y	
6113	G				y	
6114	T				y	
6115	G				y	
6116	G				y	
6117	MV				y	
6118	RB				y	
6119	MV				y	
6120	G				y	
6121	MV				y	
6122	G				y	
6123	MV				y	
6124	G				y	
6125	MV				y	
6126	G				y	
6127	SE				y	
6128	G				y	
6129	MV				y	
6130	G				y	
6131	MV				y	
6132	G				y	
6133	T				y	
6134	PI				y	
6135	SE				y	
6136	G				y	
6137	G				y	
6138	TI				y	
6139	MV				y	
6140	MV				y	
6141	CV				y	
6142	MV				y	
6143	G				y	
6144	RD				y	
6145	T				y	
6146	T				y	
6147	PT				y	
6148	PT				y	
6149	CV				y	
6150	T				y	
6151	T				y	
6152	T				y	
6153	PI				yes	
6154	P				y	
6155	FA				y	
6156	P				y	
6157	T				y	
6158	T				y	
6159	PI				y	
6160	TI				y	
6161	MV				y	
6162	T				y	
6163	T				y	
6164	CTK				y	
6165	T				y	
6166	B				y	
6167	B				y	
6168	G				y	
6169	T				y	
6170	LS				y	
6171	G				y	
6172	G				y	
6173	G				y	
6174	MV				y	
6175	B				y	
6176	G				y	
6177	T				y	
6178	B				y	
6179	LT				y	
6180	MV				y	
6181	G				y	
6182	T				y	
6183	TT				y	
6184	MV				y	
6185	T				y	
6186	MV				y	
6187	BP				y	
6188	CKV				y	
6189	MV				y	
6190	T				y	
6191	T				y	
6192	TI				y	
6193	G				y	
6194	TI				y	
6195	G				y	
6196	TI				y	
6197	G				y	
6198	P				y	
6199	TI				y	
6200	G				y	
6201	P				y	
6202	TI				y	
6203	G				y	
6204	B				y	
6205	L				y	



* Indicates car seal present

Vent Gases	To Another Page and Indicated Equipment
Condensates	
Liquor/Stock Lines	From Another Page and Indicated Equipment
Process Lines	

ENVIRONMENTAL360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams

HVLC Blower Platform

Rev. Date May 2021

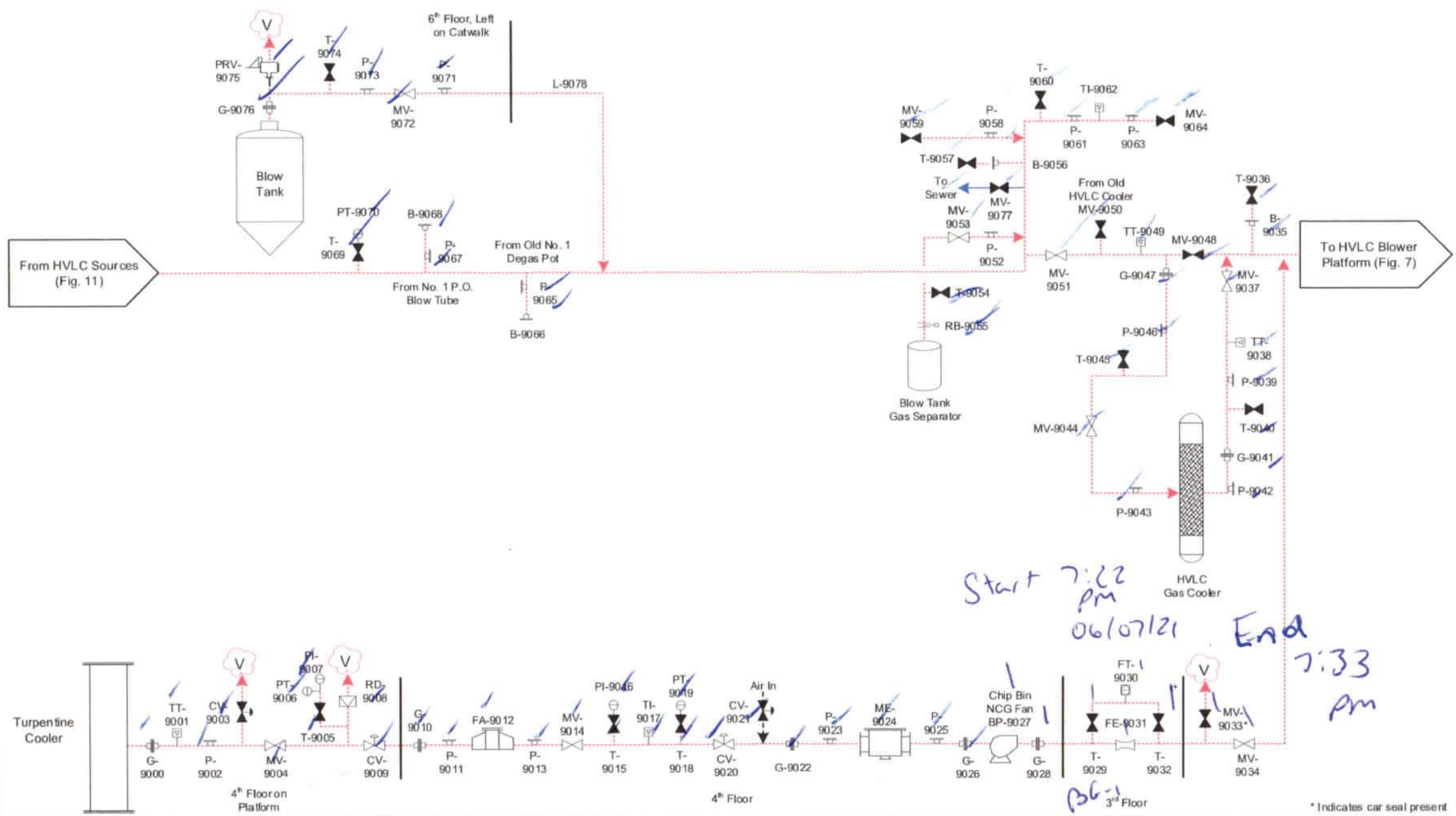
Figure 7

HVLC Blower Platform

Completed Date/Time: 06/7/21

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
7000	B				Yes	
7001	T				y	
7002	T				y	
7003	PI				y	
7004	TI				y	
7005	T				y	
7006	TT				y	
7007	CV				y	
7008	MV				y	
7009	CV				y	
7010	T				y	
7011	G				y	
7012	P				y	
7013	ME				y	
7014	T				y	
7015	G				y	
7016	G				y	
7017	BP				y	
7018	G				y	
7019	T				y	
7020	PI				y	
7021	TI				y	
7022	MV				y	
7023	MV				y	Car seal present
7024	MV				y	
7025	G				y	
7026	BP				y	
7027	G				y	
7028	MV				y	
7029	T				y	
7030	T				y	
7031	FT				y	
7032	FE				y	
7033	T				y	
7034	T				y	
7035	MV				y	
7036	P				y	
7037	G				y	
7038	T				y	
7039	MV				y	

7040	G				y	
7041	G				y	
7042	G				y	
7043	G				y	
7044	CTK				y	
7045	G				y	
7046	MV				y	
7047	G				y	
7048	MV				y	
7049	BP				y	
7050	G				y	
7051	T				y	
7052	PI				y	
7053	T				y	
7054	MV				y	
7055	MV				y	
7056	FT				y	
7057	FT				y	
7058	MV				y	
7059	FT				y	
7060	B				y	
7061	T				y	
7062	LS				y	
7063	G				y	
7064	G				y	
7065	T				y	
7066	T				y	
7067	G				y	
7068	G				y	
7069	G				y	
7070	T				y	
7071	FT				y	
7072	G				y	
7073	G				y	
7074	G				y	
7075	G				y	
7076	T				y	
7077	T				y	
7078	LT				y	
7079	MV				y	
7080	T				y	
7081	P				y	
7082	LG				y	
7083	B				y	
7084	T				y	
7085	L				y	



* Indicates car seal present

Legend	
Vent Gases	To Another Page and Indicated Equipment
Condensates	From Another Page and Indicated Equipment
Liquor/Stock Lines	
Process Lines	

ENVIRONMENTAL360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams

Turpentine Cooler and Blow Tank

Rev. Date May 2021

Figure 9

Turpentine Cooler and Blow Tank

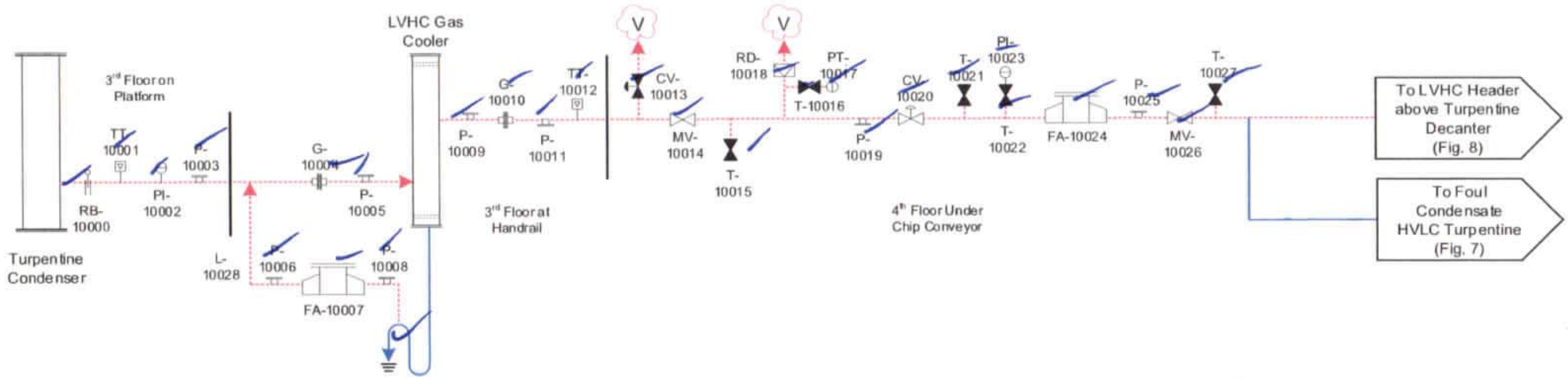
Completed Date/Time: 06/07/~~22~~ 21 JKI 7:33PM

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
9000	G				Yes	monthly
9001	TT				y	
9002	P				y	
9003	CV				y	
9004	MV				y	
9005	T				y	
9006	PT				y	
9007	PI				y	
9008	RD				y	
9009	CV				y	
9010	G				y	
9011	P				y	
9012	FA				y	
9013	P				y	
9014	MV				y	
9015	T				y	
9016	PI				y	
9017	TI				y	
9018	T				y	
9019	PT				y	
9020	CV				y	
9021	CV				y	
9022	G				y	
9023	P				y	
9024	ME				y	
9025	P				y	
9026	G				y	
9027	BP	+	|	|	y y	
9028	G	+		|	y	
9029	T	+		|	y y	
9030	FT	+		|	y	
9031	FE	+		|	y	
9032	T	+		|	y	
9033	MV	+		|	y	Car seal present
9034	MV	+		|	y y	
9035	B					monthly
9036	T				Yes	monthly
9037	MV				y	
9038	TT				y	
9039	P				y	
9040	T				y	
9041	G				y	
9042	P				y	
9043	P				y	
9044	MV				y	
9045	T				y	
9046	P				y	
9047	G				y	
9048	MV				y	
9049	TT				y	
9050	MV				y	
9051	MV				y	
9052	P				y	
9053	MV				y	
9054	T				y	
9055	RB				y	
9056	B				y	
9057	T				y	
9058	P				y	
9059	MV				y	
9060	T				y	
9061	P				y	
9062	TI				y	
9063	P				y	
9064	MV				y	
9065	P				y	
9066	B				y	
9067	P				y	
9068	B				y	
9069	T				y	
9070	PT				y	
9071	P				y	
9072	MV				y	
9073	P				y	
9074	T				y	
9075	PRV				y	
9076	G				y	
9077	MV				y	
9078	L				y	~~NA~~ JKI

Turpentine Condenser and LVHC Gas Cooler

Completed Date/Time: 06/07/21

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
10000	RB				yes	
10001	TT				y	
10002	PI				y	
10003	P				y	
10004	G				y	
10005	P				y	
10006	P				y	
10007	FA				y	
10008	P				y	
10009	P				y	
10010	G				y	
10011	P				y	
10012	TT				y	
10013	CV				yes	
10014	MV				y	
10015	T				y	
10016	T				y	
10017	PT				y	
10018	RD				y	
10019	P				y	
10020	CV				y	
10021	T				y	
10022	T				y	
10023	PI				y	
10024	FA				y	
10025	P				y	
10026	MV				y	
10027	T				y	
10028	L				y	



Vent Gases	To Another Page and Indicated Equipment	
Condensates	From Another Page and Indicated Equipment	
Liquor/Stock Lines		
Process Lines		

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New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams
Turpentine Condenser and LVHC Gas Cooler

Rev. Date
May 2021

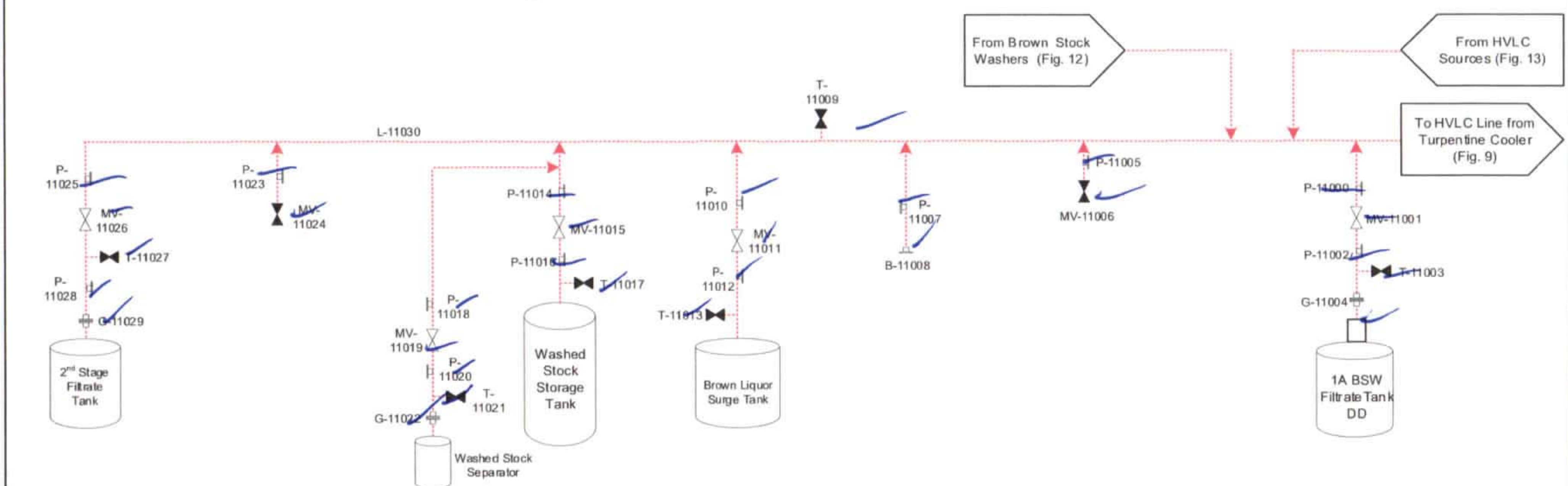
Figure 10

HVLC System at Pulp Mil (1 of 2)

Completed Date/Time: 06/07/21

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
11000	P				yes	
11001	MV				y	
11002	P				y	
11003	T				y	
11004	G				y	
11005	P				y	
11006	MV				y	
11007	P				y	
11008	B				y	
11009	T				y	
11010	P				y	
11011	MV				y	
11012	P				y	
11013	T				y	

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
11014	P				yes	
11015	MV				y	
11016	P				y	
11017	T				y	
11018	P				y	
11019	MV				y	
11020	P				y	
11021	T				y	
11022	G				y	
11023	P				y	
11024	MV				y	
11025	P				y	
11026	MV				y	
11027	T				y	
11028	P				y	
11029	G				y	
11030	L				y	



Vent Gases	To Another Page and Indicated Equipment
Condensates	From Another Page and Indicated Equipment
Liquor/Stock Lines	
Process Lines	

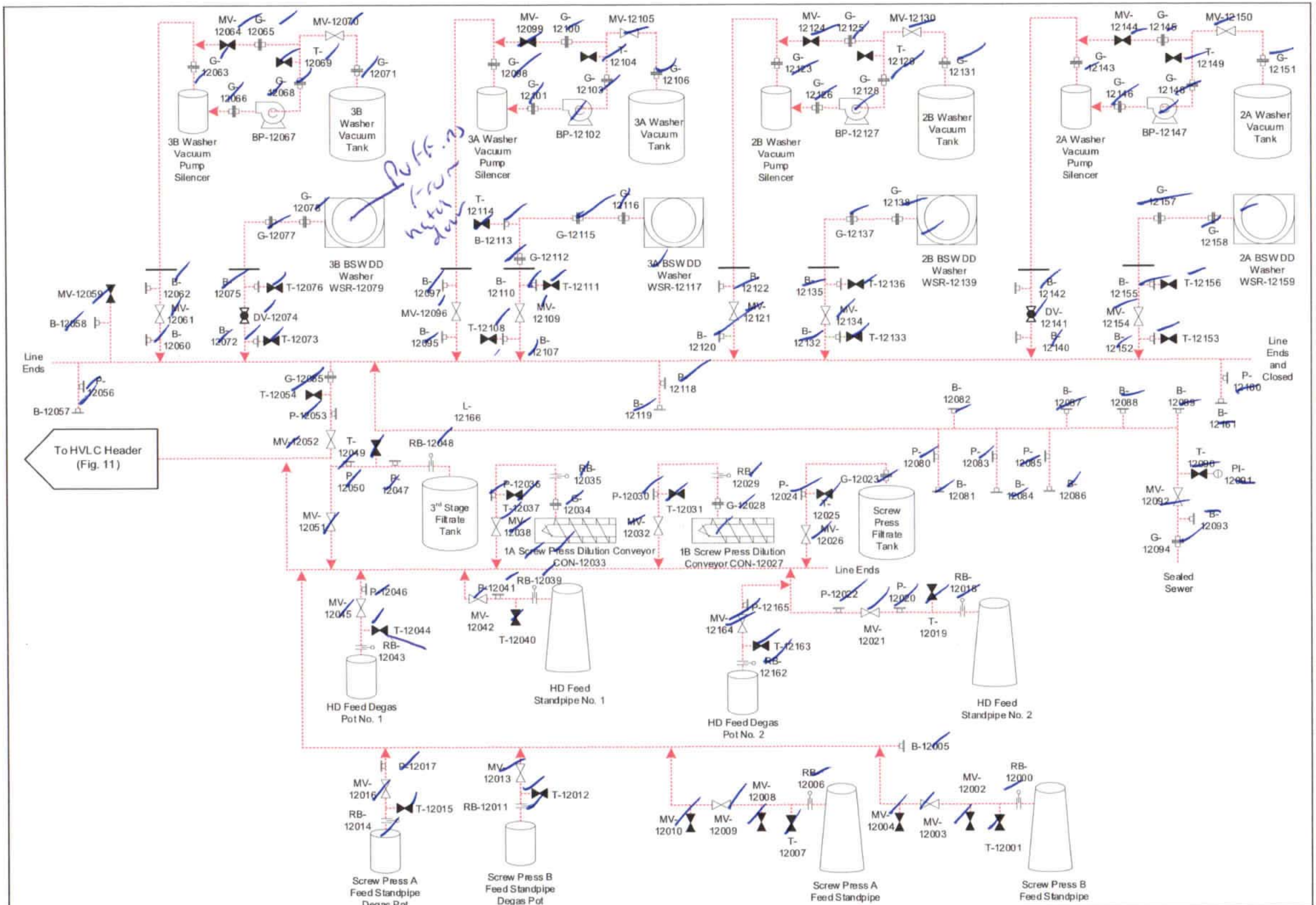
ENVIRONMENTAL 360

New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams
HVLC System at Pulp Mill (1 of 2)

Rev. Date May 2021

Figure 11



Vent Gases		To Another Page and Indicated Equipment	
Bleach Gases			
Condensates		From Another Page and Indicated Equipment	
Liquor/Stock Lines			
Process Lines			

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New Indy Containerboard – Catawba Mill

LDAR Inspection and Testing Diagrams
Pulp Mill BSWs

Rev. Date
May 2021

Figure 12

Pulp Mill BSWs

Completed Date/Time: 6/7/21

Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12000	RB				Yes	
12001	T				Y	
12002	MV				Y	
12003	MV				Y	
12004	MV				Y	
12005	B				Y	
12006	RB				Y	
12007	T				Y	
12008	MV				Y	
12009	MV				Y	
12010	MV				Y	
12011	RB				Y	
12012	T				Y	
12013	MV				Y	
12014	RB				Y	
12015	T				Y	
12016	MV				Y	
12017	P				Y	
12018	RB				Y	
12019	T				Y	
12020	P				Y	
12021	MV				Y	
12022	P				Y	
12023	G				Y	
12024	P				Y	
12025	T				Y	
12026	MV				Y	
12027	CON				Y	
12028	G				Y	
12029	RB				Y	
12030	P				Y	
12031	T				Y	
12032	MV				Y	
12033	CON				Y	
12034	G				Y	
12035	RB				Y	
12036	P				Y	
12037	T				Y	
12038	MV				Y	
12039	RB				Yes	
12040	T				Y	
12041	P				Y	
12042	MV				Y	
12043	RB				Y	
12044	T				Y	
12045	MV				Y	
12046	P				Y	
12047	P				Y	
12048	RB				Y	
12049	T				Y	
12050	P				Y	
12051	MV				Y	
12052	MV				Y	
12053	P				Y	
12054	T				Y	
12055	G				Y	
12056	P				Y	
12057	B				Y	
12058	B				Y	
12059	MV				Y	
12060	B				Y	
12061	MV				Y	
12062	B				Y	
12063	G				Y	
12064	MV				Y	
12065	G				Y	
12066	G				Y	
12067	BP				Y	
12068	G				Y	
12069	T				Y	
12070	MV				Y	
12071	G				Y	
12072	B				Y	
12073	T				Y	
12074	DV				Y	
12075	B				Y	
12076	T				Y	
12077	G				Y	
12078	G				Y	
12079	WSR				NO	Puffing from hatch door
12080	P				Y	

Pulp Mill BSWs

Completed Date/Time: 06/07/21

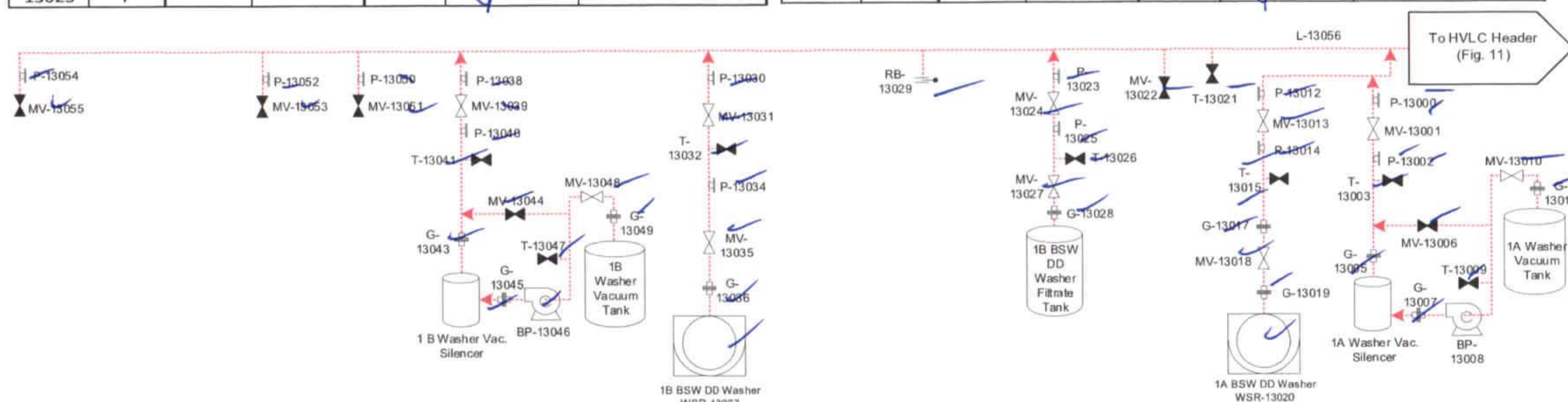
Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
12081	B				yes	
12082	B				y	
12083	P				y	
12084	B				y	
12085	P				y	
12086	B				y	
12087	B				y	
12088	B				y	
12089	B				y	
12090	T				y	
12091	PI				y	
12092	MV				y	
12093	B				y	
12094	G				y	
12095	B				y	
12096	MV				y	
12097	B				y	
12098	G				y	
12099	MV				y	
12100	G				y	
12101	G				y	
12102	BP				y	
12103	G				y	
12104	T				y	
12105	MV				y	
12106	G				y	
12107	B				y	
12108	T				y	
12109	MV				y	
12110	B				y	
12111	T				y	
12112	G				y	
12113	B				y	
12114	T				y	
12115	G				y	
12116	G				y	
12117	WSR				y	
12118	P				y	
12119	B				y	
12120	B				y	
12121	MV				y	
12122	B				y	
12123	G				y	
12124	MV				y	
12125	G				y	
12126	G				y	
12127	BP				y	
12128	G				y	
12129	T				y	
12130	MV				y	
12131	G				y	
12132	B				y	
12133	T				y	
12134	MV				y	
12135	B				y	
12136	T				y	
12137	G				y	
12138	G				y	
12139	WSR				y	
12140	B				y	
12141	DV				y	
12142	B				y	
12143	G				y	
12144	MV				y	
12145	G				y	
12146	G				y	
12147	BP				y	
12148	G				y	
12149	T				y	
12150	MV				y	
12151	G				y	
12152	B				y	
12153	T				y	
12154	MV				y	
12155	B				y	
12156	T				y	
12157	G				y	
12158	G				y	
12159	WSR				y	
12160	P				y	
12161	B				y	
12162	RB				y	
12163	T				y	
12164	MV				y	
12165	P				y	
12166	L				y	

HVLC System at Pulp Mil (2 of 2)

Completed Date/Time: 06/07/21

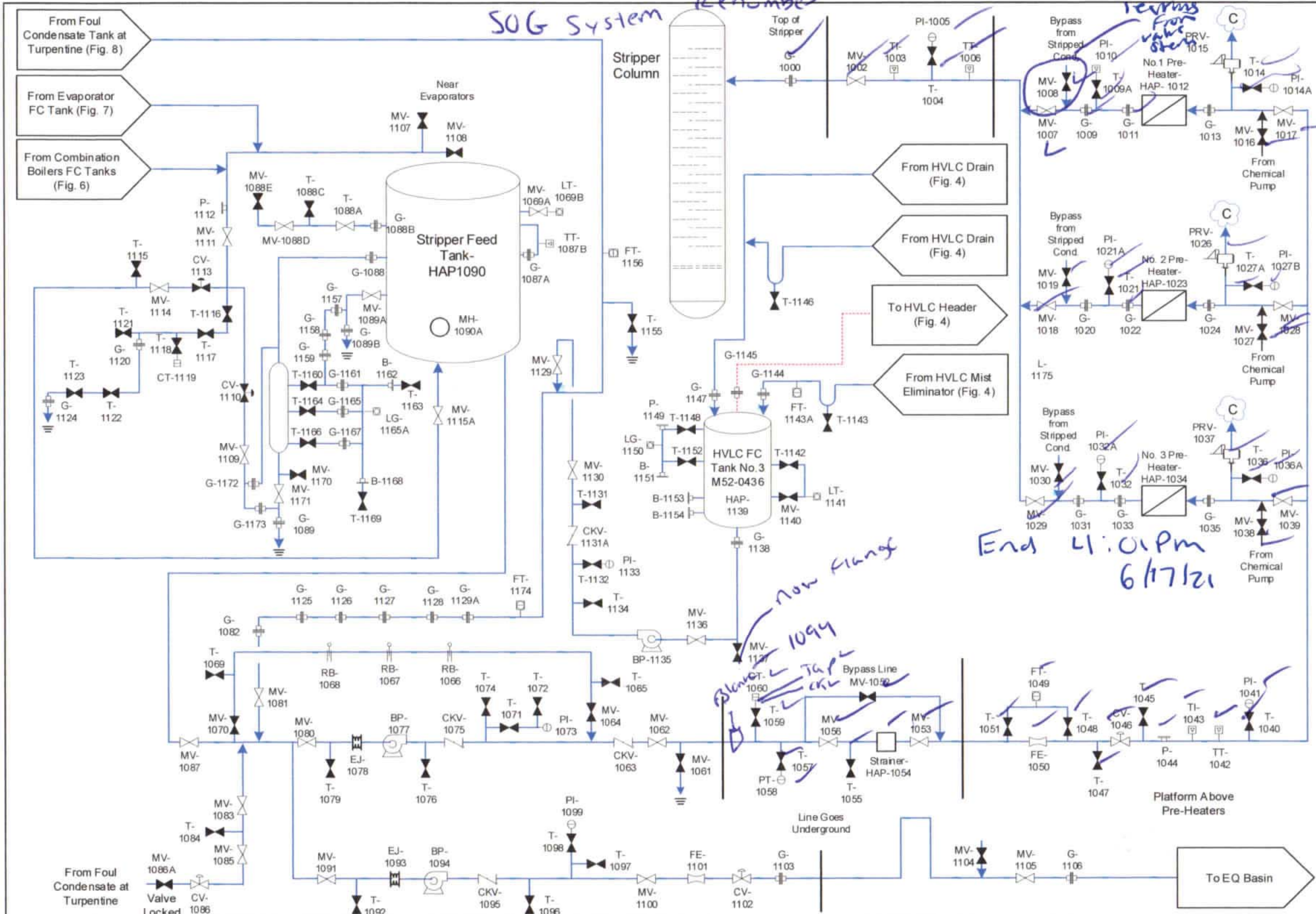
Number	Type	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
13000	P				Yes	
13001	MV				Y	
13002	P				Y	
13003	T				Y	
13005	G				Y	
13006	MV				Y	
13007	G				Y	
13008	BP				Y	
13009	T				Y	
13010	MV				Y	
13011	G				Y	
13012	P				Y	
13013	MV				Y	
13014	P				Y	
13015	T				Y	
13017	G				Y	
13018	MV				Y	
13019	G				Y	
13020	WSR				Y	
13021	T				Y	
13022	MV				Y	
13023	P				Y	
13024	MV				Y	
13025	P				Y	

13026	T				Yes	
13027	MV				Y	
13028	G				Y	
13029	RB				Y	
13030	P				Y	
13031	MV				Y	
13032	T				Y	
13034	P				Y	
13035	MV				Y	
13036	G				Y	
13037	WSR				Y	
13038	P				Y	
13039	MV				Y	
13040	P				Y	
13041	T				Y	
13043	G				Y	
13044	MV				Y	
13045	G				Y	
13046	BP				Y	
13047	T				Y	
13048	MV				Y	
13049	G				Y	
13050	P				Y	
13051	MV				Y	
13052	P				Y	
13053	MV				Y	
13054	P				Y	
13055	MV				Y	



Vent Gases	To Another Page and Indicated Equipment	New Indy Containerboard – Catawba Mill	Rev. Date May 2021
Condensates			
Liquor/Stock Lines	From Another Page and Indicated Equipment	LDAR Inspection and Testing Diagrams HVLC System at Pulp Mill (2 of 2)	Figure 13
Process Lines			

ENVIRONMENTAL360



Legend	
Vent Gases	To Another Page and Indicated Equipment
Condensates	From Another Page and Indicated Equipment
Liquor/Stock Lines	
Process Lines	

ENVIRONMENTAL360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Stripper System Foul Condensate

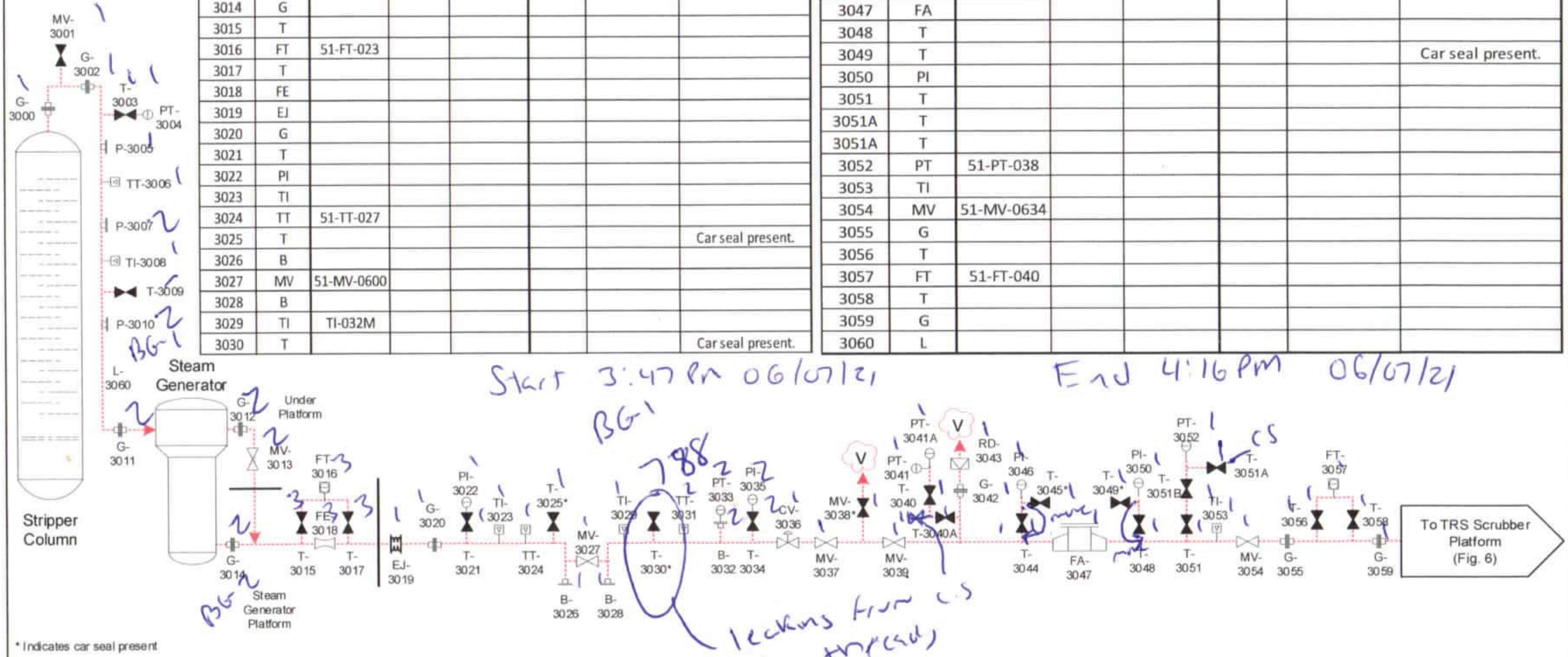
Rev. Date July 2020

Figure 1

Stripper Column SOGs

Completed Date/Time: End 4:16PM 6/07/21

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
3000	G						
3001	MV						
3002	G						
3003	T						
3004	PT	51-PT-015					
3005	P						
3006	TT						
3007	P						
3008	TI	TI-032F					
3009	T						
3010	P						
3011	G						
3012	G						
3013	MV						
3014	G						
3015	T						
3016	FT	51-FT-023					
3017	T						
3018	FE						
3019	EJ						
3020	G						
3021	T						
3022	PI						
3023	TI						
3024	TT	51-TT-027					
3025	T						Car seal present.
3026	B						
3027	MV	51-MV-0600					
3028	B						
3029	TI	TI-032M					
3030	T						Car seal present.
3031	TT	51-TT-028					
3032	B						
3033	PT						
3034	T						
3035	PI						
3036	CV	51-PCV-030					
3037	MV	51-MV-0602					
3038	MV	51-MV-0633					Car seal present.
3039	MV	51-MV-0632					
3040	T						
3040A	T						
3041	PT	51-PSH-036					
3041A	PT						
3042	G						
3043	RD						
3044	T						
3045	T						Car seal present.
3046	PI						
3047	FA						
3048	T						
3049	T						Car seal present.
3050	PI						
3051	T						
3051A	T						
3051A	T						
3052	PT	51-PT-038					
3053	TI						
3054	MV	51-MV-0634					
3055	G						
3056	T						
3057	FT	51-FT-040					
3058	T						
3059	G						
3060	L						



* Indicates car seal present

Vent Gases		To Another Page and Indicated Equipment	
Condensates			
Liquor/Stock Lines		From Another Page and Indicated Equipment	
Process Lines			

ENVIRONMENTAL360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams
Stripper Column SOGs

Rev. Date
July 2020

Figure 3

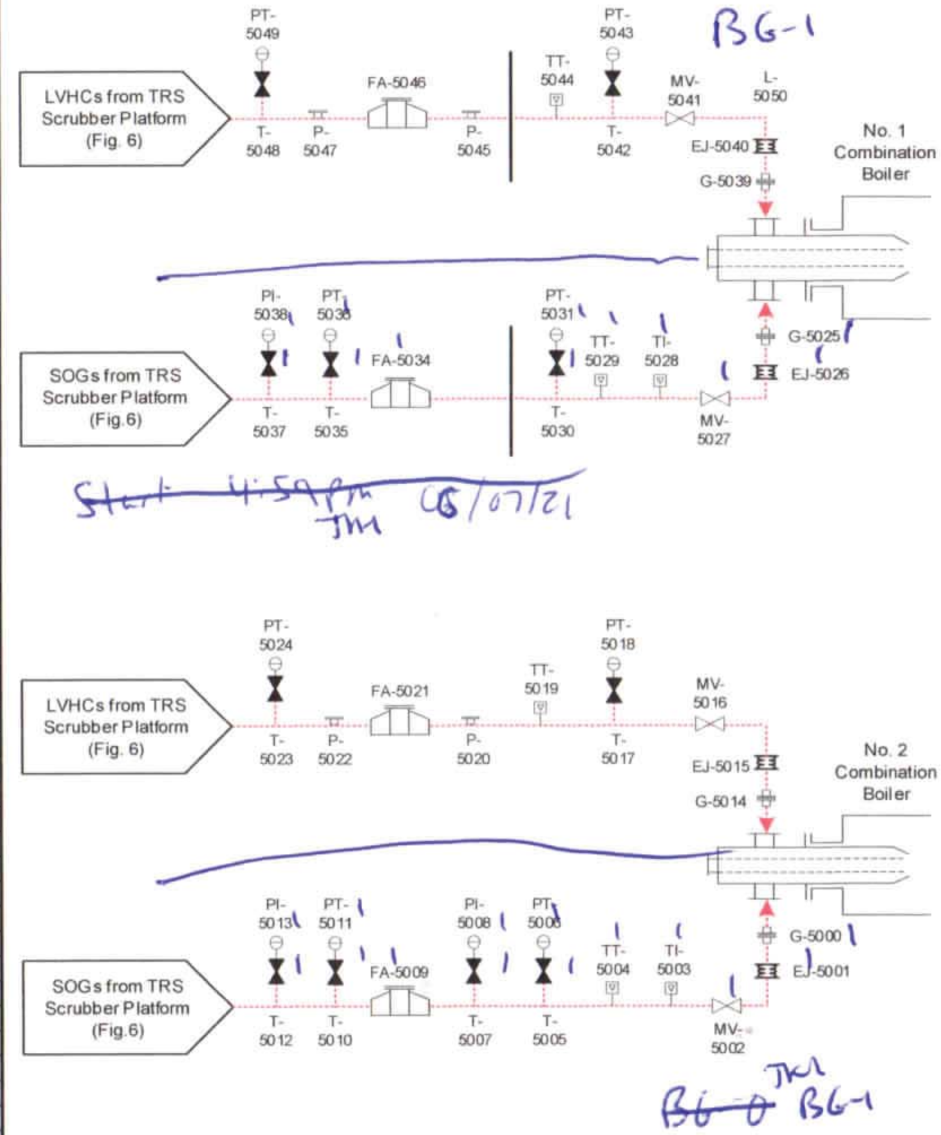
Combination Boiler SOG and LVHC Incineration

Completed Date/Time: 06/7/21 5:14pm

Number	Type	Equip. Number	Pressure (+/-)	Background	VOC Reading	Is Component Free of Leaks or Defects?	Comments
5000	G						Renumbered
5001	EJ						
5002	MV	37-MV-0283					
5003	TI						
5004	TT						
5005	T						
5006	PT	37-PT-032					
5007	T						
5008	PI						
5009	FA						
5010	T						
5011	PT						
5012	T						
5013	PI						
5014	G						
5015	EJ						
5016	MV	37-MV-0313					
5017	T						
5018	PT	37-PT-385					
5019	TT	37-TT-384					
5020	P						
5021	FA						
5022	P						
5023	T						
5024	PT	37-PT-383					
5025	G						
5026	EJ						
5027	MV						
5028	TI						
5029	TT	26-TT-034					
5030	T						
5031	PT	26-PT-033					
5034	FA						
5035	T						
5036	PT	26-PT-031					
5037	T						
5038	PI						
5039	G						
5040	EJ						
5041	MV	26-MV-0532					
5042	T						
5043	PT	26-PT-377					
5044	TT						
5045	P						
5046	FA						
5047	P						
5048	T						
5049	PT	26-PT-375					
5050	L						

Start 4:35PM 06/7/21

End 5:14PM



Vent Gases	Condensates	Liquor/Stock Lines	Process Lines

To Another Page and Indicated Equipment

From Another Page and Indicated Equipment

ENVIRONMENTAL 360

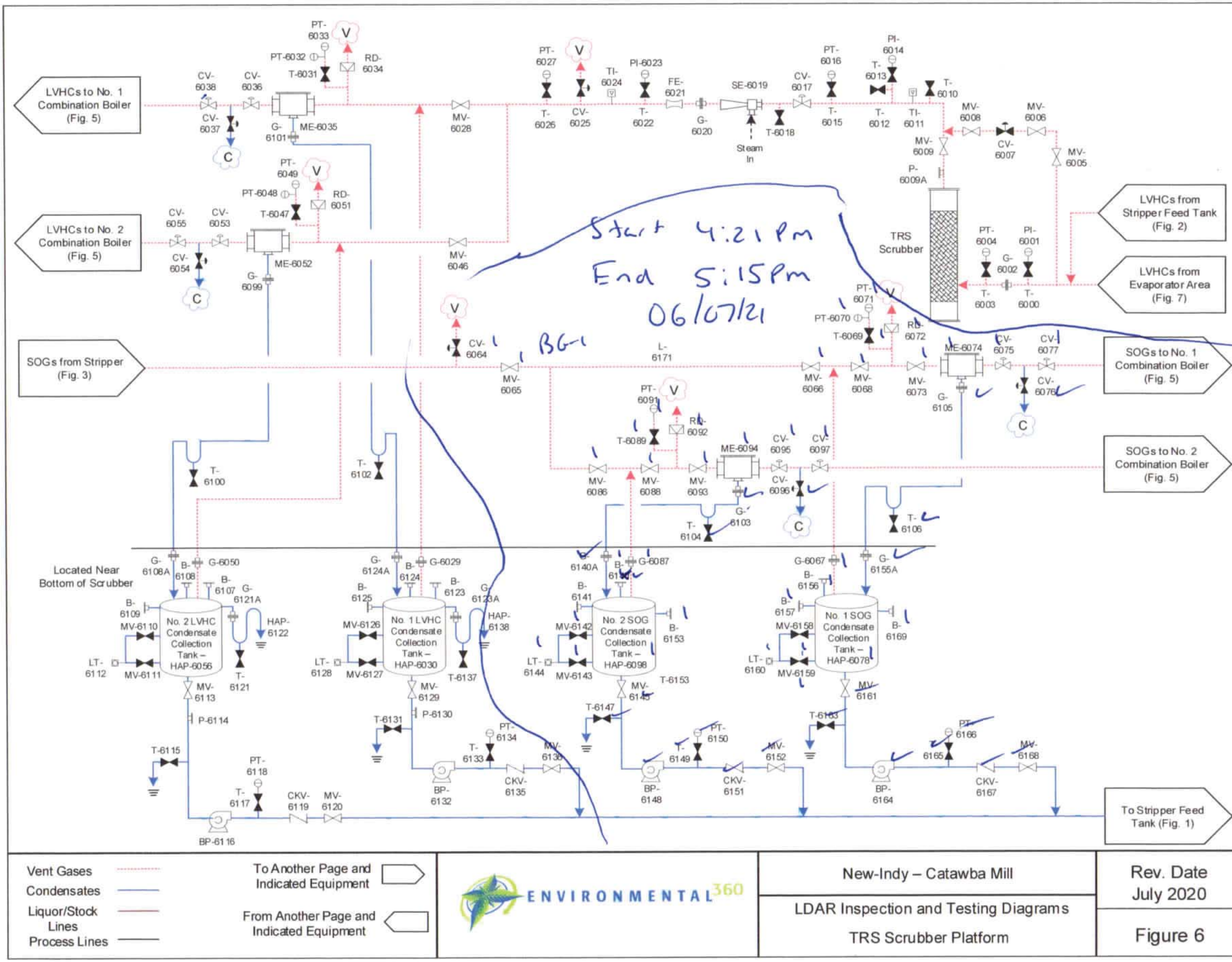
New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

Combination Boiler SOG and LVHC Incineration

Rev. Date July 2020

Figure 5



ENVIRONMENTAL360

New-Indy – Catawba Mill

LDAR Inspection and Testing Diagrams

TRS Scrubber Platform

Rev. Date
July 2020

Figure 6

APPENDIX B – WESTON SOLUTIONS AIR EMISSIONS ANALYSIS REPORT

NEW INDY
CONTAINERBOARD

April 16, 2021

Via Electronic Mail (reecemc@dhec.sc.gov)

Myra Reece
Director of Environmental Affairs
South Carolina Department of
Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Re: New-Indy Catawba LLC – Weston Solutions, Inc. Odor Testing Report

Dear Myra:

As we have discussed, New-Indy has been diligently investigating its operations to determine whether the mill could be the source of odor complaints submitted to DHEC, New-Indy and others. In connection with that review, New-Indy has engaged consultants to evaluate New-Indy's processes for potential odor sources. Consistent with our goal of working cooperatively and professionally with DHEC to identify potential sources of these odors, we introduced one of our consultants to DHEC staff last week to facilitate frank discussion regarding the consultant's work and findings. As we noted in our call last Friday, our consultant Weston Solutions, Inc. is an experienced environmental engineering firm that has been performing testing with respect to odor-related issues since the late 1980's. Weston Solutions personnel who conducted the testing and developed the Testing Report have a combined total of 75 years of emission testing experience. Following up on our conversation last Friday, please find enclosed Weston Solutions' Odor Testing Report.

We engaged Weston Solutions to conduct an expedited screening analysis to determine if the mill is generating significant odors. As you will see from the Testing Report, during the periods of March 16 through 18 and 23 through 25, 2021, Weston Solutions observed mill operations, collected samples from a variety of sources in and around the mill and its wastewater treatment operations, and performed testing to determine if the compounds typically associated with the odor described in the complaints (total reduced sulfur, methanol and terpenes) are present at the New-Indy mill in significant concentrations that would cause such intense odors many miles from the mill. Please note that, although New-Indy still is involved with significant construction and ramp-up activities, the consultants' work was conducted while the mill was in operation. As the Testing Report indicates, Weston Solutions did not detect those compounds in any meaningful concentration that would equate to intense odors. To understand the odor complaints better, Weston Solutions personnel also traveled to several off-site locations. As indicated in the Testing Report, Weston Solutions personnel did not detect off-site mill-type odors, but did detect odors from a fire, and sewage-related odors.

While the Weston Solutions report is a helpful and encouraging screening tool, we are continuing to investigate mill operations and off-site sources in an effort to resolve this situation and will provide additional data as it becomes available. For example, using the Weston Test Report as a basis for further analysis, we have engaged TRC to conduct continuous ambient monitoring of compounds typically associated with odor for an extended monitoring period.

Given the public interest in this topic and our interest in working together to resolve this, we would be grateful if you would include Weston's Test Report on DHEC's website with the other reports on this issue. (https://scdhec.gov/environment/environmental-sites-projects-permits-interest/lancaster-york-counties-odor-investigation).

Sincerely,

Tony Hobson
Vice President of Manufacturing

Enclosure

Weston Solutions, Inc.
1625 Pumphrey Avenue
Auburn, Alabama 36832-4303
334-466-5600 ♦ Fax 334-466-5660
www.westonsolutions.com

13 April 2021

Mr. Tony Hobson
New-Indy Catawba, LLC
5300 Cureton Ferry Road
Catawba, South Carolina 29704

Work Order No. 15730.001.006

Re: New-Indy Catawba Mill Odor Testing

Dear Mr. Hobson:

This letter with attachments constitutes our report of odor testing performed at the New-Indy Catawba, South Carolina facility. In an effort to identify potential sources of odor and the constituents, WESTON set up an EPA Method 16 GC to monitor total reduced sulfur (TRS). Data was collected from a single GC with the capability to move to different locations based on wind direction. No significant or sustained ambient TRS was detected at the mill. Wastewater and condensate samples were also collected and analyzed for methanol and terpenes by the Auburn, Alabama laboratory. Mr. Templeton Simpkins, Mr. Chris Hartsky, and Mr. Jack Short of Weston Solutions, Inc. (WESTON®) performed the testing during 16-18 and 23-25 March 2021 for in-house engineering use by New-Indy personnel. The mill was in operation during sampling.

Along with the TRS, methanol, and terpenes testing, New-Indy personnel requested that WESTON travel to several off-site locations in the local area around the mill to determine if there were odors. On Monday, 22 March 2021, WESTON personnel travelled to Rock Hill, South Carolina and stopped at a Marathon gas station at approximately 18:30. An acrid sulfur dioxide (SO_2) smell was detected that WESTON presumes was from a fire in the area. Haze from the presumed fire was observed by WESTON personnel. Several customers were observed rubbing their eyes and commenting on the smoke-like odor. On Wednesday, 24 March 2021, WESTON personnel travelled to Waxhaw, North Carolina and stopped at 16:35 at the Food Lion parking lot, and no odor was detected. WESTON personnel then drove to Indian Land, South Carolina and arrived at 2024 Drawbridge Drive at 18:30. An odor from a possible sewage leak was detected.

Attachment A to this letter presents the results of the testing in tabular form. Attachments B, C, and D include copies of field, laboratory, and quality control data, respectively.

Total reduced sulfur sampling and analysis were conducted according to EPA Reference Method 16. The methanol and terpenes condensate samples were analyzed by NCASI Method DI/MeOH-94.03 and NIOSH Method 1552, respectively.

We appreciate the opportunity to serve you on this project. If you have any questions or require additional information, please call me at 334-466-5627.

Sincerely,

WESTON SOLUTIONS, INC.

Templeton Simpkins
Client Service Manager

Sincerely,

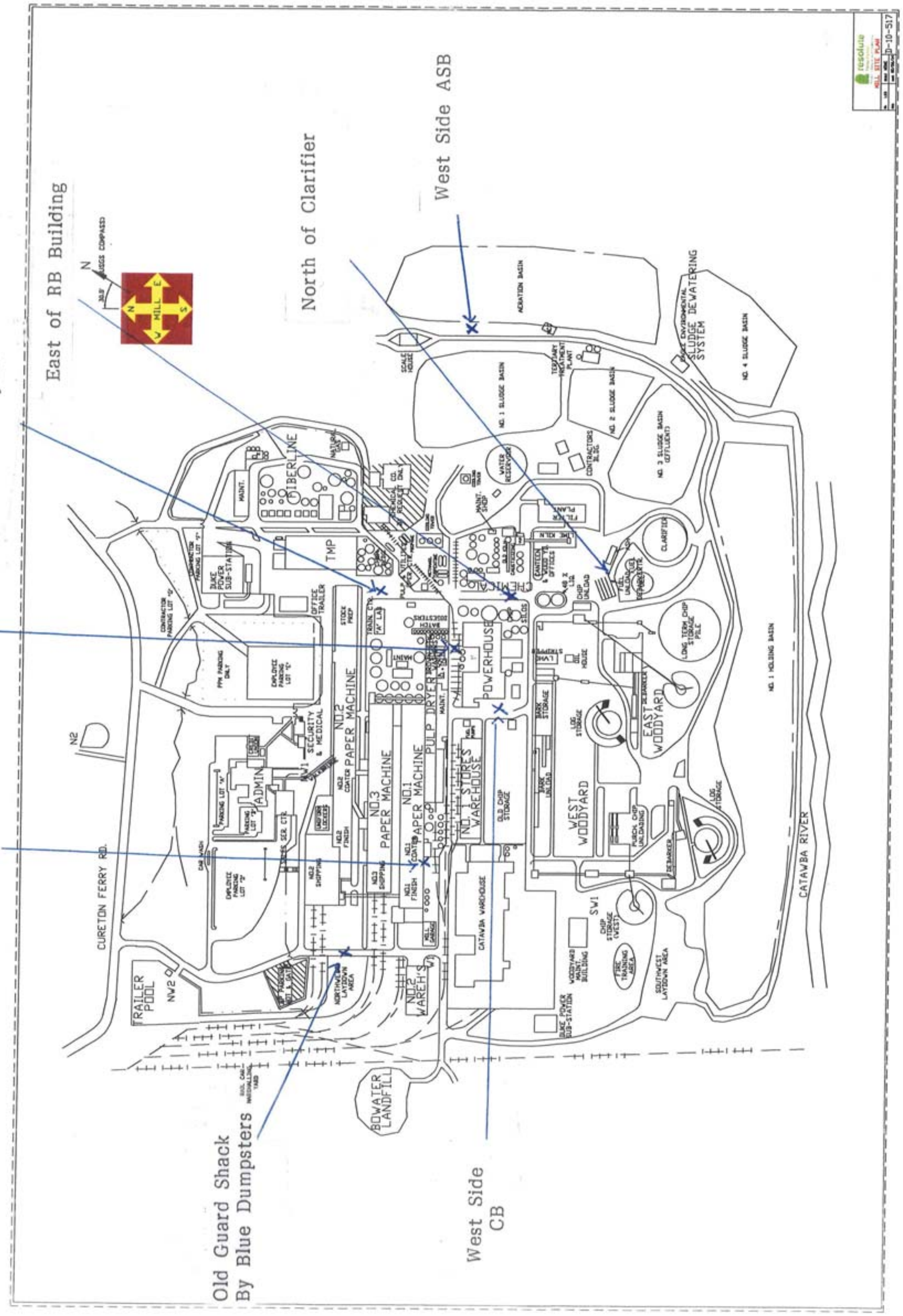
WESTON SOLUTIONS, INC.

Natalie Hammonds

Natalie Hammonds
Quality Assurance Manager

jb
Enclosure

SAMPLING LOCATIONS FOR TRS TESTING


West Side ASB
North of Clarifier
East of RB Building
Main Courtyard
NW of #3 RB
Railcar Area
Old Guard Shack
By Blue Dumpsters
West Side
CB
FIBERLINE
TMP
POWERHOUSE
CHEMICAL
PULP DRYER
NO.1 PAPER MACHINE
NO.2 PAPER MACHINE
NO.3 PAPER MACHINE
NO.1 STORES WAREHOUSE
ADMIN
EAST WOODYARD
WEST WOODYARD
SLUDGE DEWATERING SYSTEM
CLARIFIER
CATAWBA RIVER
CURETON FERRY RD.
TRAILER POOL
BOWATER LANDFILL
MILL

WESTON SOLUTIONS, INC. (WESTON®) QUALIFICATIONS

Since the company's inception in 1957, WESTON has provided high quality environmental engineering and consulting services to a variety of commercial, industrial and governmental clients. We have been performing emissions testing for more than 40 years and have developed an extensively experienced team of professionals, dedicated to partnering with our clients to achieve their regulatory compliance and operational goals.

WESTON's Auburn Alabama operations has been performing emission testing in support of odor-related compounds including but not limited to speciated sulfur compounds since the late 80's and was instrumental in development of the gas chromatograph (GC) methods such as EPA Method 16 for total reduced sulfur sampling and analysis. Since that time, WESTON has performed hundreds of test programs where we implemented online and continuous GC measurement and analysis for compliance and industrial engineering applications.

Our emissions testing group has over 60 professionals dedicated principally to conducting emissions testing services. Many of our client service managers, project managers, and project leaders have over 20 to 40 years of stack testing experience.

Over the past 40 years, we have performed emissions testing for a wide variety of commercial, industrial, and governmental clients including:

- Power/Utility
- Pulp & Paper
- Chemical
- Wood Products
- Petrochemical/Refineries
- Cement
- Pharmaceutical
- Steel/Specialty Metals
- Manufacturing
- Air Pollution Control Equipment Vendors

WESTON is certified as an Air Emissions Testing Body (AETB) under ASTM D7036 "Standard Practice for Competence of Air Emission Testing Bodies". We have over 25 employees who are certified as Qualified Individuals (QI) in accordance with ASTM D7036 as required by 40 CFR Part 75. Additionally, we have several employees who have received certification as Qualified Stack Testing Individuals (QSTI) from the Source Evaluation Society (SES). QSTI certification is not required by regulation but is an additional step in the assurance of the quality of our staff.

WESTON is a sustaining member of the National Council for Air and Stream Improvement (NCASI) - independent research institute for the forest products industry.

Emission testing services are conducted using resources in three WESTON offices: Auburn, Alabama; West Chester, Pennsylvania; and Houston, Texas.

WESTON SOLUTIONS, INC. (WESTON®)
EMISSION TESTING PRACTICE – AUBURN OPERATIONS
ACCREDITATION STIPULATION

Laboratory:	Weston Solutions, Inc.
Accreditor(s):	Louisiana Environmental Laboratory Accreditation Program (LELAP) – Laboratory and Emission Testing Practice
Accreditation ID:	LELAP – 03024
Scope:	Total Reduced Sulfur, Methanol, and Terpenes Sampling and Analysis
Effective:	LELAP – 21 December 2001
Expires:	LELAP – 30 June 2021

These results meet all requirements of TNI unless otherwise specified.

The results within this report relate only to the samples listed in the body of this report.

Data Qualifiers

The following are general reporting notes that are applicable to all WESTON reports, unless otherwise noted.

- **NL** denotes data that was not from a LELAP accredited method.
- **LNL** denotes lab results that are not from an accredited LELAP laboratory.
- **NN** denotes data that was not from The NELAC Institute (TNI) accredited method.
- **NNL** denotes lab results that are not from an accredited TNI laboratory.
- **ED** denotes data that is not to be used for compliance purposes and may deviate from approved procedures.
- **Q** denotes data whose QA/QC check did not fall within the specified range. This data is still considered valid.
- **A** denotes data that is anomalously high with no explanation for the outlier.
- **BDL** denotes values that were below the limit of detection of the analyzer and 2% of the span gas was used to calculate an emission rate.
- **DF** denotes a dilution factor.
- **NAP** denotes emission testing performed by personnel from a non-TNI accredited laboratory.
- **S** denotes analysis that has been subcontracted.
- All values are reported on a "dry" basis, unless otherwise designated as "actual" or "wet" basis.

ATTACHMENT A
SUMMARY OF RESULTS

Tables A-1 through A-4 present detailed summaries of the results of the emission testing. Measurement uncertainty is not shown in results but has been taken into consideration during method development. Any differences between the calculated results presented in the appendices and the results reported in the summary tables are due to rounding for presentation.

TABLE A-1
SUMMARY OF AMBIENT TRS MONITORING

Date/Time	Location	TRS (ppm)
3/16/21 & 3/17/21 1815-0805	West Side ASB	0.02
3/17/21 0946-1553	West Side ASB	0.02
3/17/21 & 3/18/21 1645-0759	North Clarifier	0.02
3/18/21 1021-1428	Trailer South of Old Guard Shack by Blue Dumpsters	0.03
3/23/21 & 3/24/21 0906-0810	Multiple Locations: East of RB Building in Ally; West Side CB; NW of No. 3 RB Stack; Rail Car Area	0.07
3/24/21 0931-1014	Rail Car Area	0.10
3/24/21 1017-1029	PM Roof Edge	0.00
3/24/21 1031-1043	PM Roof Vent 2	0.00
3/24/21 1058-1540	Multiple Locations: NW Side of Mill	0.03

Table A-2 presents the results of a TRS purge conducted on various process liquids. The purge analysis was conducted to determine the concentration of TRS in each of the liquid samples.

TABLE A-2
SUMMARY OF TRS RESULTS
(25 MARCH 2021)

Source ID	H_2S (µg/mL)	MeSH (µg/mL)	DMS (µg/mL)	DMDS (µg/mL)	TRS as S (µg/mL)
Stripper Feed	48.8	9.3	11.7	6.1	62.2
Acid Sewer	0.13	<0.07	<0.06	0.20	0.26
Clarifier Overflow	0.25	<0.1	1.2	0.57	1.24
ASB Effluent	0.20	<0.1	<0.08	<0.06	0.18
ASB Influent	0.10	<0.06	0.65	0.23	0.58
Screw Press Filtrate	0.14	<0.05	<0.04	<0.03	0.13
PM3 Whitewater	0.04	<0.05	0.18	<0.03	0.13

Table A-3 presents the results of the methanol analysis conducted on various wastewater samples collected during the test program. The samples were prepared and analyzed in accordance with NCASI Method DI/MeOH-94.03.

TABLE A-3
SUMMARY OF METHANOL LABORATORY RESULTS

Source ID	Concentration (µg/mL)
No. 3 Foul Condensate	7,170
No. 3 Combined Condensate	1,210
No. 2 Foul Condensate	2,320
No. 2 Combined Condensate	188
No. 2 Condenser Condensate	1,590
No. 1 Old Condensate	1,340
No. 1 Foul Condensate	688
No. 1 Combined Condensate	103
No. 1 Auxiliary Condensate	2,510
M52-0453 Combined Condensate	539
M52-0432 HVLC Condensate	160
Stripper Feed Tank	1,860
Acid Sewer	43.8
Clarifier Overflow	185
ASB Effluent	49.4
ASB Influent	117
Screw Press Filtrate	54.1
PM3 Whitewater	14.5

Table A-4 presents the results of the terpenes analysis conducted on various wastewater samples collected during the test program. The samples were prepared and analyzed in accordance with NCASI Method 1552.

TABLE A-4
SUMMARY OF TERPENES LABORATORY RESULTS

Source ID	Total Concentration (µg/mL)
No. 3 Foul Condensate	6011
No. 3 Combined Condensate	229
No. 2 Foul Condensate	196
No. 2 Combined Condensate	127
No. 2 Condenser Condensate	516
No. 1 Old Condensate	265
No. 1 Foul Condensate	132
No. 1 Combined Condensate	142
No. 1 Auxiliary Condensate	422
M52-0453 Combined Condensate	166
M52-0432 HVLC Condensate	62.0
Stripper Feed Tank	2,396
Acid Sewer	29.1

ATTACHMENT B
FIELD DATA

TOTAL REDUCED SULFUR

ATTACHMENT B

16-17 MARCH 2021

RUN SUMMARY

Number 1

Client:	**New Indy**			Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Method	**16**	Operator:	**T. Simpkins**
Source:		Calibration	**1**	Date:	**16 Mar 2021**

Start Time 18:15 **End Time** 08:05

Average Measured TRS Conc. 0.02 **ppm**
Recovery Missing

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **16 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
				West Side ASB					
18:15	3	0.04	<2	<0.025	<2	<0.035	2	0.01	0.07
18:18	3	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
18:21	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
18:24	3	0.04	<2	<0.025	<2	<0.035	4	0.01	0.07
18:27	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
18:30	6	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
18:33	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
18:36	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
18:39	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
18:42	2	0.04	<2	<0.025	<2	<0.035	5	0.02	0.07
18:45	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
18:48	<2	<0.035	<2	<0.025	<2	<0.035	2	0.01	0.02
18:51	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
18:54	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
18:57	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
19:00	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
19:03	6	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
19:06	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
19:09	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
19:12	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
19:15	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
19:18	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
19:21	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
19:24	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
19:27	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
19:30	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
19:33	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
19:36	2	0.04	<2	<0.025	<2	<0.035	3	0.01	0.06
19:39	2	0.03	<2	<0.025	<2	<0.035	<2	<0.009	0.03
19:42	4	0.05	<2	<0.025	4	0.05	<2	<0.009	0.10
19:45	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
19:48	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
19:51	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
19:54	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
19:57	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:00	<2	<0.035	<2	<0.025	<2	<0.035	4	0.01	0.03
20:03	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:06	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:09	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **16 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
20:12	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:15	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
20:18	2	0.04	<2	<0.025	4	0.05	<2	<0.009	0.09
20:21	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:24	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:28	<2	<0.035	<2	<0.025	5	0.06	<2	<0.009	0.06
20:31	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
20:34	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:37	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:40	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:43	7	0.07	<2	<0.025	<2	<0.035	<2	<0.009	0.07
20:46	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
20:49	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
20:52	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:55	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
20:58	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:01	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:04	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:07	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:10	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
21:13	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:16	2	0.04	<2	<0.025	<2	<0.035	5	0.02	0.07
21:19	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:22	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.02
21:25	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:28	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:31	5	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
21:34	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
21:37	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:40	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:43	<2	<0.035	<2	<0.025	<2	<0.035	2	0.01	0.02
21:46	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:49	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:52	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:55	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
21:58	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
22:01	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
22:04	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
22:07	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
22:10	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **16 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
22:13	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
22:16	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
22:19	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
22:22	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
22:25	3	0.05	<2	<0.025	<2	<0.035	7	0.02	0.09
22:28	5	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
22:31	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
22:34	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
22:37	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
22:40	5	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
22:43	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
22:46	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
22:49	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
22:52	5	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
22:55	6	0.06	<2	<0.025	5	0.06	<2	<0.009	0.12
22:58	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
23:01	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.02
23:04	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
23:07	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
23:10	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
23:13	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
23:16	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
23:19	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
23:22	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
23:25	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
23:28	2	0.04	<2	<0.025	2	0.04	11	0.03	0.13
23:31	7	0.07	<2	<0.025	3	0.05	<2	<0.009	0.12
23:34	2	0.04	2	0.03	<2	<0.035	<2	<0.009	0.06
23:37	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
23:40	8	0.07	<2	<0.025	<2	<0.035	<2	<0.009	0.07
23:43	4	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
23:46	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
23:49	9	0.08	<2	<0.025	<2	<0.035	<2	<0.009	0.08
23:52	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
23:55	5	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
23:58	<2	<0.035	<2	<0.025	5	0.06	<2	<0.009	0.06
00:01	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:04	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
00:07	<2	<0.035	<2	<0.025	6	0.06	2	0.01	0.08
00:10	<2	<0.035	<2	<0.025	3	0.04	<2	<0.009	0.04

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **16 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
00:13	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:16	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
00:19	35	0.18	<2	<0.025	<2	<0.035	<2	<0.009	0.18
00:22	8	0.07	<2	<0.025	2	0.04	<2	<0.009	0.11
00:25	3	0.04	<2	<0.025	2	0.04	<2	<0.009	0.08
00:28	<2	<0.035	<2	<0.025	5	0.06	<2	<0.009	0.06
00:31	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:34	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:37	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:40	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:43	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:46	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
00:49	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:52	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:55	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
00:58	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:01	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:04	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
01:07	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:10	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.02
01:13	<2	<0.035	3	0.03	<2	<0.035	<2	<0.009	0.03
01:16	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:19	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
01:22	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:25	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
01:28	7	0.07	<2	<0.025	<2	<0.035	<2	<0.009	0.07
01:31	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:34	2	0.04	<2	<0.025	4	0.05	<2	<0.009	0.09
01:37	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:40	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:43	6	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
01:46	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:49	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
01:52	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
01:55	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.02
01:58	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:01	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:04	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
02:07	4	0.05	<2	<0.025	<2	<0.035	3	0.01	0.08
02:10	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **16 Mar 2021**

Time	H_2S		MeSH		DMS		DMDS		TRS
	area	ppm	area	ppm	area	ppm	area	ppm	ppm
02:13	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:16	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.02
02:19	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:22	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:25	<2	<0.035	<2	<0.025	<2	<0.035	7	0.02	0.04
02:29	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:32	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:35	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:38	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:41	<2	<0.035	<2	<0.025	3	0.04	<2	<0.009	0.04
02:44	6	0.07	<2	<0.025	<2	<0.035	<2	<0.009	0.07
02:47	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:50	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
02:53	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:56	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
02:59	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:02	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
03:05	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.02
03:08	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:11	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	[illegible]
03:14	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:17	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:20	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:23	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:26	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:29	3	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
03:32	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:35	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:38	<2	<0.035	7	0.05	<2	<0.035	<2	<0.009	0.05
03:41	<2	<0.035	<2	<0.025	<2	<0.035	4	0.01	0.03
03:44	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:47	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:50	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
03:53	3	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
03:56	<2	<0.035	<2	<0.025	<2	<0.035	2	0.01	0.02
03:59	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:02	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:05	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:08	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:11	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-

WESTON SOLUTIONS

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **16 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
04:14	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:17	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:20	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
04:23	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
04:26	5	0.06	<2	<0.025	3	0.04	<2	<0.009	0.10
04:29	7	0.07	<2	<0.025	<2	<0.035	<2	<0.009	0.07
04:32	5	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
04:35	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:38	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
04:41	2	0.04	<2	<0.025	<2	<0.035	2	0.01	0.06
04:44	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:47	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:50	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
04:53	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:56	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
04:59	3	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
05:02	<2	<0.035	<2	<0.025	<2	<0.035	2	0.01	0.02
05:05	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:08	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:11	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:14	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:17	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
05:20	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:23	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:26	<2	<0.035	<2	<0.025	3	0.04	<2	<0.009	0.04
05:29	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:32	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.02
05:35	<2	<0.035	<2	<0.025	<2	<0.035	4	0.01	0.03
05:38	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:41	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:44	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:47	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:50	4	0.05	<2	<0.025	<2	<0.035	<2	<0.009	0.05
05:53	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:56	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
05:59	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.02
06:02	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:05	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:08	6	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
06:11	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **16 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
06:14	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:17	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:20	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.03
06:23	3	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
06:26	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:29	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:32	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:35	3	0.05	<2	<0.025	<2	<0.035	2	0.01	0.07
06:38	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:41	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:44	<2	<0.035	<2	<0.025	<2	<0.035	3	0.01	0.03
06:47	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:50	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:53	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
06:56	2	0.04	<2	<0.025	<2	<0.035	<2	<0.009	0.04
06:59	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:02	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:05	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:08	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:11	<2	<0.035	4	0.04	<2	<0.035	<2	<0.009	0.04
07:14	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:17	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:20	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:23	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:26	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:29	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:32	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:35	6	0.07	<2	<0.025	<2	<0.035	2	0.01	0.09
07:38	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:41	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:44	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:47	6	0.06	<2	<0.025	<2	<0.035	<2	<0.009	0.06
07:50	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:53	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
07:56	<2	<0.035	<2	<0.025	<2	<0.035	2	0.01	0.02
07:59	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
08:02	<2	<0.035	<2	<0.025	<2	<0.035	<2	<0.009	-
Average		**<0.035**		**<0.025**		**<0.035**		**<0.009**	-

WESTON SOLUTIONS

CALIBRATION DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **15 Mar 2021**

Ambient Temperature: 72°C **Barometric Pressure:** 30.20 in. Hg

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Perm. Device ID	T-53950	33-56671	89-56661	89-56665
Perm. Rate, nL/min	422	455	306	217
Ret. Time, sec	19.0	32.5	70.0	125.0

1 Flow = **49.5** mL/Min	**8.53** ppm	**9.20** ppm	**6.18** ppm	**4.39** ppm
Time: 13:19	**Peak Areas, mv-sec**			
	32537	39496	20950	58413
	32418	39230	21200	58902
	31825	38696	21077	58586
Average Area	**32260**	**39141**	**21076**	**58634**

2 Flow = **108** mL/Min	**3.92** ppm	**4.22** ppm	**2.83** ppm	**2.01** ppm
Time: 13:46	**Peak Areas, mv-sec**			
	8799	12079	5689	18833
	9054	11850	5632	17770
	8930	11712	5606	17267
Average Area	**8928**	**11880**	**5642**	**17956**

3 Flow = **263** mL/Min	**1.61** ppm	**1.73** ppm	**1.16** ppm	**0.83** ppm
Time: 13:59	**Peak Areas, mv-sec**			
	1643	2427	1065	3746
	1726	2386	1071	3552
	1698	2306	1049	3468
Average Area	**1689**	**2373**	**1062**	**3589**

AW

WESTON SOLUTIONS

CALIBRATION SUMMARY

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **15 Mar 2021**

H_2S	1	2	3		
Time	13:19	13:46	13:59		
Concentration, ppm	8.53	3.92	1.61		
Area, mv-sec	32260	8928	1689		
Calc. Conc., ppm	8.38	4.05	1.58		
% Error	-1.8	3.5	-1.6		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.7682	2.8763	0.9994	2	0.035

MeSH	1	2	3		
Time	13:19	13:46	13:59		
Concentration, ppm	9.20	4.22	1.73		
Area, mv-sec	39141	11880	2373		
Calc. Conc., ppm	8.98	4.42	1.69		
% Error	-2.4	4.7	-2.1		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.6811	2.9904	0.9989	2	0.025

DMS	1	2	3		
Time	13:19	13:46	13:59		
Concentration, ppm	6.18	2.83	1.16		
Area, mv-sec	21076	5642	1062		
Calc. Conc., ppm	6.09	2.92	1.15		
% Error	-1.5	2.9	-1.3		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.7909	2.9192	0.9996	2	0.035

DMDS	1	2	3		
Time	13:19	13:46	13:59		
Concentration, ppm	4.39	2.01	0.83		
Area, mv-sec	58634	17956	3589		
Calc. Conc., ppm	4.28	2.11	0.81		
% Error	-2.5	4.9	-2.2		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.6755	3.7107	0.9988	2	0.009

CALIBRATION DATA

Number 2

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Ambient Temperature: 72°C **Barometric Pressure:** 30.20 in. Hg

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Perm. Device ID	T-53950	33-56671	89-56661	89-56665
Perm. Rate, nL/min	422	455	306	217
Ret. Time, sec	19.0	32.5	70.0	125.0

1 Flow = **43.1** mL/Min	**9.80** ppm	**10.6** ppm	**7.09** ppm	**5.04** ppm
Time: 08:28		**Peak Areas, mv-sec**		
	32885	40065	21703	62655
	32377	40847	22337	64423
	33445	40700	22722	65189
Average Area	**32902**	**40537**	**22254**	**64089**
2 Flow = **91.6** mL/Min	**4.61** ppm	**4.97** ppm	**3.34** ppm	**2.37** ppm
Time: 08:45		**Peak Areas, mv-sec**		
	10234	12405	6217	19301
	9896	12664	6278	19254
	10029	12369	6218	19511
Average Area	**10053**	**12479**	**6238**	**19355**
3 Flow = **215** mL/Min	**1.96** ppm	**2.12** ppm	**1.42** ppm	**1.01** ppm
Time: 09:10		**Peak Areas, mv-sec**		
	2028	2745	1321	4433
	2061	2708	1308	4367
	2026	2706	1300	4291
Average Area	**2038**	**2720**	**1310**	**4364**

CALIBRATION SUMMARY

Number 2

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

H_2S	1	2	3		
Time	08:28	08:45	09:10		
Concentration, ppm	9.80	4.61	1.96		
Area, mv-sec	32902	10053	2038		
Calc. Conc., ppm	9.56	4.83	1.92		
% Error	-2.4	4.7	-2.1		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.7338	2.8171	0.9988	2	0.035

MeSH	1	2	3		
Time	08:28	08:45	09:10		
Concentration, ppm	10.6	4.97	2.12		
Area, mv-sec	40537	12479	2720		
Calc. Conc., ppm	10.4	5.15	2.08		
% Error	-1.9	3.6	-1.6		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.6833	2.8984	0.9993	2	0.029

DMS	1	2	3		
Time	08:28	08:45	09:10		
Concentration, ppm	7.09	3.34	1.42		
Area, mv-sec	22254	6238	1310		
Calc. Conc., ppm	7.01	3.41	1.41		
% Error	-1.1	2.2	-1.0		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.7640	2.8552	0.9997	2	0.036

DMDS	1	2	3		
Time	08:28	08:45	09:10		
Concentration, ppm	5.04	2.37	1.01		
Area, mv-sec	64089	19355	4364		
Calc. Conc., ppm	4.97	2.43	1.00		
% Error	-1.3	2.5	-1.2		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.6735	3.6414	0.9996	2	0.010

ANALYTES AND STANDARDS

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **15 Mar 2021**

Analyte	H_2S	MeSH	DMS	DMDS
Molecular Weight	34.08	48.11	62.14	94.20
Retention Time, sec	19.0	32.5	70.0	125.0
Peak Detection Window, sec	3.0	5.0	10.0	10.0
Minimum Peak Area, mv-sec	2	2	2	2
Minimum Peak Height, mv	1	1	1	1
Beginning Peak Width, sec	1.0	1.0	2.0	3.0
Ending Peak Width, sec	2.0	3.0	4.0	5.0
Permeation Device ID	T-53950	33-56671	89-56661	89-56665
Permeation Rate, ng/min	600	913	792	852
Permeation Rate, nL/min*	422	455	306	217

Barometric Pressure: 30.20 in. Hg **Ambient Temperature:** 72 °F
No Oxygen Correction

*Permeation rates are gravimetrically determined by the manufacturer with results by weight in ng/min. Permeation rates by volume, in nL/min, are calculated from the permeation rates by weight as follows:

$$PR_{nl} = PR_{ng} \times (V_{mol} / W_{mol}) \times [(460° + T_a) / T_s] \times (P_s / P_b)$$

Where:

PR_{nl} = Permeation Rate by volume, nL/min
PR_{ng} = Permeation Rate by weight, ng/min
V_{mol} = Molar Volume of any gas @32 °F & 29.92 mm Hg = 22.4 L/mole
W_{mol} = Molecular Weight of compound
T_a = Ambient Temperature, °F
T_s = Standard Temperature = 492°R (32 °F)
P_s = Standard Pressure = 29.92 in Hg
P_b = Barometric Pressure, in Hg

For example, H_2S:

$$PR_{nl} = 600 \times (22.4 / 34.08) \times [(460 + 72) / 492] \times (29.92 / 30.20)$$
$$= 422 \text{ nL/min}$$

To calclate concentrations:

$$C = PR_{nl} / F_d$$

Where:

C = Concentration, ppmv
PR_{nl} = Permeation Rate by volume, nL/min
F_d = Flow rate of diluent, mL/min

WESTON SOLUTIONS

INSTRUMENT INFORMATION

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **15 Mar 2021**

File: C:\Data\TrsData1.trs
Program Version: 2.0, built 15 May 2017 **File Version:** 2.0
Computer: DESKTOP-A1IJDGT **Trailer:** 88

Analog Input Device: Keithley KUSB-3108 **GC Channel:** 16

Sampling Rate: 0.050 sec. **Data Interval:** 0.5 sec.

Gas Chromatograph: Shimadzu GC8A **Serial No.** GC 1
Detector Range: 10

Gases

	Press. psi	Flow mL/min
H_2	30	50
Air	30	60
Carrier	50	30

Temperatures, °C

Column: 100
Detector: 120

Columns

Primary: Carbopack
Secondary: N/A
Sample Loop: 4"

Injection Cycle

Total Length: 180 sec **Sampling Time:** 170 sec **Load/Backflush Time:** 80 sec

Default Integration Parameters

Signal Threshold 0.67 mv **Peak detection window** ±10 sec
Minimum peak area 2 mv-sec **Minimum peak height** 1 mv above baseline

Dynacalibrator

Chamber Temperature 50.0°C
Ambient Temperature 72.0°F
Barometric Pressure 30.20 in. Hg

17-18 MARCH 2021

RUN SUMMARY

Number 1

Client:	**New Indy**			Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Method	**16**	Operator:	**T. Simpkins**
Source:		Calibration	**1**	Date:	**17 Mar 2021**

Start Time 09:46 **End Time** 15:53

Average Measured TRS Conc. 0.02 **ppm**
Recovery Missing

RUN SUMMARY

Number 3

Client: **New Indy**		Project Number: **15730.001.006**
Location: **Catawba, SC**	Method **16**	Operator: **T. Simpkins**
Source:	Calibration **1**	Date: **17 Mar 2021**

Start Time 16:45 **End Time** 07:59

Average Measured TRS Conc. 0.02 **ppm**
Recovery Missing

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
,Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S		MeSH		DMS		DMDS		TRS
	area	ppm	area	ppm	area	ppm	area	ppm	ppm
09:46	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
09:46	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
09:49	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
09:52	4	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
09:55	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
09:58	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
10:01	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
10:04	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
10:07	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
10:10	2	0.03	<2	<0.024	<2	<0.030	2	0.01	0.05
10:13	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
10:16	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
10:19	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
10:22	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
10:25	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
10:28	5	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
10:31	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
10:34	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
10:37	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
10:41	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
10:44	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
10:47	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
10:50	5	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
10:53	6	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
10:56	3	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
10:59	7	0.06	<2	<0.024	<2	<0.030	<2	<0.008	0.06
11:02	5	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
11:05	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:08	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:11	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
11:14	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:17	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:20	<2	<0.029	3	0.03	<2	<0.030	<2	<0.008	0.03
11:23	8	0.06	<2	<0.024	2	0.03	6	0.02	0.13
11:26	<2	<0.029	3	0.03	<2	<0.030	3	0.01	0.05
11:29	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:32	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:35	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:38	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
11:44	3	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
11:47	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:50	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:53	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:56	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
11:59	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:02	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:05	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:08	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:11	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:14	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:17	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
12:20	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:23	3	0.04	<2	<0.024	2	0.03	<2	<0.008	0.07
12:26	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
12:29	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
12:32	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:35	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:38	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:44	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:47	7	0.06	<2	<0.024	<2	<0.030	<2	<0.008	0.06
12:50	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:53	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:56	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
12:59	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:02	3	0.04	<2	<0.024	4	0.04	<2	<0.008	0.08
13:05	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:08	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
13:11	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:14	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
13:17	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:20	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
13:23	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:26	<2	<0.029	<2	<0.024	<2	<0.030	2	0.01	0.02
13:29	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:32	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:35	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:38	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
13:44	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:47	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:50	7	0.06	<2	<0.024	<2	<0.030	<2	<0.008	0.06
13:53	9	0.07	2	0.03	<2	<0.030	<2	<0.008	0.10
13:56	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
13:59	<2	<0.029	3	0.03	<2	<0.030	3	0.01	0.05
14:02	8	0.07	<2	<0.024	<2	<0.030	<2	<0.008	0.07
14:05	7	0.06	<2	<0.024	2	0.03	<2	<0.008	0.09
14:08	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:11	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
14:14	4	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
14:17	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:20	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:23	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:26	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
14:29	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:32	6	0.06	<2	<0.024	<2	<0.030	<2	<0.008	0.06
14:35	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:38	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:44	3	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
14:47	3	0.04	<2	<0.024	<2	<0.030	3	0.01	0.06
14:50	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:53	2	0.03	2	0.03	<2	<0.030	<2	<0.008	0.06
14:56	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
14:59	<2	<0.029	<2	<0.024	<2	<0.030	4	0.01	0.03
15:02	<2	<0.029	<2	<0.024	2	0.03	<2	<0.008	0.03
15:05	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
15:08	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
15:11	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
15:14	<2	<0.029	<2	<0.024	3	0.03	<2	<0.008	0.03
15:17	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
15:20	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
15:23	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
15:26	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
15:29	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
15:32	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
15:35	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
15:38	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
15:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
15:44	3	0.04	<2	<0.024	<2	<0.030	5	0.01	0.06
15:47	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
15:50	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
Average		**<0.029**		**<0.024**		**<0.030**		**<0.008**	-

RUN DATA
Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H2S area	H2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
					North Clarifier				
16:45	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
16:48	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
16:51	3	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
16:54	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
16:57	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
17:00	6	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
17:03	<2	<0.029	<2	<0.024	<2	<0.030	4	0.01	0.03
17:06	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:09	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:12	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:15	<2	<0.029	<2	<0.024	<2	<0.030	2	0.01	0.02
17:18	3	0.04	<2	<0.024	<2	<0.030	3	0.01	0.06
17:21	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
17:24	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:27	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:30	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:33	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
17:36	<2	<0.029	<2	<0.024	<2	<0.030	5	0.01	0.03
17:39	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:42	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:45	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
17:48	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:51	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
17:54	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
17:57	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:00	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:03	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:06	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
18:09	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:12	6	0.06	<2	<0.024	<2	<0.030	<2	<0.008	0.06
18:15	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:18	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:21	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:24	<2	<0.029	<2	<0.024	8	0.06	<2	<0.008	0.06
18:27	6	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
18:30	<2	<0.029	4	0.03	<2	<0.030	<2	<0.008	0.03
18:33	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:36	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:39	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-

RUN DATA
Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
18:42	<2	<0.029	<2	<0.024	3	0.04	<2	<0.008	0.04
18:45	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
18:48	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:51	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:54	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
18:57	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:00	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:03	<2	<0.029	3	0.03	<2	<0.030	<2	<0.008	0.03
19:06	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
19:09	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:12	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:15	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:18	<2	<0.029	2	0.02	<2	<0.030	5	0.01	0.05
19:21	2	0.03	<2	<0.024	<2	<0.030	2	0.01	0.05
19:24	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
19:27	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:30	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:33	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:36	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:39	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:42	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:45	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:48	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:51	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:54	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
19:57	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:00	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
20:03	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:06	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:09	5	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
20:12	<2	<0.029	<2	<0.024	3	0.04	<2	<0.008	0.04
20:15	4	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
20:18	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:21	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:24	8	0.06	<2	<0.024	7	0.06	<2	<0.008	0.12
20:27	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:30	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:33	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
20:36	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:39	6	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05

RUN DATA
Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
20:42	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:45	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:48	4	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
20:51	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:54	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
20:57	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:00	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:03	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:06	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
21:09	<2	<0.029	<2	<0.024	3	0.03	<2	<0.008	0.03
21:12	7	0.06	<2	<0.024	<2	<0.030	<2	<0.008	0.06
21:15	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:18	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
21:21	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:24	<2	<0.029	<2	<0.024	2	0.03	<2	<0.008	0.03
21:27	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:30	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:33	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
21:36	4	0.05	2	0.02	<2	<0.030	<2	<0.008	0.07
21:39	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:42	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:45	<2	<0.029	<2	<0.024	3	0.03	<2	<0.008	0.03
21:48	<2	<0.029	2	0.02	<2	<0.030	<2	<0.008	0.02
21:51	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:54	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
21:57	9	0.07	<2	<0.024	2	0.03	<2	<0.008	0.10
22:00	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:04	<2	<0.029	<2	<0.024	3	0.04	<2	<0.008	0.04
22:07	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:10	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:13	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:16	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:19	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:22	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:25	<2	<0.029	<2	<0.024	<2	<0.030	4	0.01	0.02
22:28	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:31	<2	<0.029	3	0.03	<2	<0.030	<2	<0.008	0.03
22:34	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:37	<2	<0.029	<2	<0.024	10	0.07	<2	<0.008	0.07
22:40	<2	<0.029	<2	<0.024	2	0.03	<2	<0.008	0.03

RUN DATA
Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
22:43	10	0.07	<2	<0.024	<2	<0.030	<2	<0.008	0.07
22:46	<2	<0.029	<2	<0.024	<2	<0.030	5	0.02	0.03
22:49	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:52	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
22:55	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
22:58	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:01	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:04	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
23:07	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:10	<2	<0.029	<2	<0.024	5	0.05	<2	<0.008	0.05
23:13	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:16	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
23:19	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
23:22	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:25	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
23:28	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:31	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:34	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:37	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
23:40	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:43	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:46	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:49	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:52	4	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
23:55	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
23:58	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:01	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:04	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
00:07	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:10	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:13	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:16	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:19	7	0.06	<2	<0.024	<2	<0.030	<2	<0.008	0.06
00:22	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:25	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:28	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
00:31	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:34	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:37	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:40	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-

RUN DATA
Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
00:43	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:46	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:49	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:52	<2	<0.029	<2	<0.024	<2	<0.030	4	0.01	0.02
00:55	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
00:58	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
01:01	4	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
01:04	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
01:07	3	0.04	<2	<0.024	<2	<0.030	10	0.02	0.08
01:10	3	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
01:13	<2	<0.029	<2	<0.024	<2	<0.030	4	0.01	0.03
01:16	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
01:19	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
01:22	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
01:25	<2	<0.029	3	0.03	<2	<0.030	<2	<0.008	0.03
01:28	<2	<0.029	<2	<0.024	3	0.04	<2	<0.008	0.04
01:31	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
01:34	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
01:37	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
01:40	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
01:43	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
01:46	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
01:49	<2	<0.029	<2	<0.024	2	0.03	<2	<0.008	0.03
01:52	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
01:55	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
01:58	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:01	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:04	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:07	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:10	<2	<0.029	<2	<0.024	2	0.03	<2	<0.008	0.03
02:13	3	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
02:16	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:19	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:22	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:25	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:28	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
02:31	<2	<0.029	<2	<0.024	<2	<0.030	2	0.01	0.02
02:34	<2	<0.029	<2	<0.024	<2	<0.030	2	0.01	0.02
02:37	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:40	<2	<0.029	<2	<0.024	<2	<0.030	9	0.02	0.04

RUN DATA
Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
02:43	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
02:46	5	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
02:49	4	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
02:52	2	0.03	<2	<0.024	<2	<0.030	6	0.02	0.06
02:55	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
02:58	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:01	<2	<0.029	<2	<0.024	4	0.05	<2	<0.008	0.05
03:04	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:07	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
03:10	<2	<0.029	<2	<0.024	<2	<0.030	2	0.01	0.02
03:13	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:16	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:19	4	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
03:22	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:25	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
03:28	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:31	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
03:34	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:37	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:40	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:43	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:46	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
03:49	<2	<0.029	<2	<0.024	<2	<0.030	2	0.01	0.02
03:52	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:55	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
03:58	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
04:01	<2	<0.029	<2	<0.024	2	0.03	<2	<0.008	0.03
04:05	3	0.03	<2	<0.024	<2	<0.030	2	0.01	0.05
04:08	<2	<0.029	<2	<0.024	2	0.03	<2	<0.008	0.03
04:11	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
04:14	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:17	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:20	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
04:23	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:26	5	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
04:29	5	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
04:32	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:35	<2	<0.029	<2	<0.024	<2	<0.030	5	0.01	0.03
04:38	<2	<0.029	<2	<0.024	3	0.04	<2	<0.008	0.04
04:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-

RUN DATA

Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
04:44	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:47	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:50	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:53	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:56	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
04:59	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
05:02	9	0.07	<2	<0.024	<2	<0.030	<2	<0.008	0.07
05:05	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
05:08	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
05:11	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
05:14	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
05:17	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
05:20	3	0.04	<2	<0.024	<2	<0.030	4	0.01	0.06
05:23	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
05:26	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
05:29	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
05:32	3	0.04	5	0.04	2	0.03	<2	<0.008	0.11
05:35	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
05:38	<2	<0.029	2	0.02	<2	<0.030	5	0.01	0.05
05:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
05:44	4	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
05:47	2	0.03	<2	<0.024	<2	<0.030	2	0.01	0.05
05:50	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
05:53	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
05:56	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
05:59	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
06:02	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:05	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
06:08	3	0.03	3	0.03	<2	<0.030	<2	<0.008	0.06
06:11	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:14	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:17	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:20	6	0.05	<2	<0.024	<2	<0.030	<2	<0.008	0.05
06:23	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:26	2	0.03	<2	<0.024	<2	<0.030	<2	<0.008	0.03
06:29	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:32	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
06:35	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
06:38	3	0.04	<2	<0.024	<2	<0.030	4	0.01	0.07
06:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-

RUN DATA
Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
06:44	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:47	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:50	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:53	<2	<0.029	<2	<0.024	<2	<0.030	3	0.01	0.02
06:56	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
06:59	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:02	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:05	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:08	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
07:11	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:14	3	0.03	<2	<0.024	<2	<0.030	5	0.01	0.06
07:17	4	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
07:20	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
07:23	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:26	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:29	3	0.04	<2	<0.024	<2	<0.030	<2	<0.008	0.04
07:32	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:35	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:38	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:41	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:44	<2	<0.029	<2	<0.024	3	0.04	<2	<0.008	0.04
07:47	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:50	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
07:53	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
	815 wind moving toward NE- trailer N of Clarifier								
07:56	<2	<0.029	<2	<0.024	<2	<0.030	<2	<0.008	-
Average		**<0.029**		**<0.024**		**<0.030**		**<0.008**	**-**

CALIBRATION DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Ambient Temperature: 72°C **Barometric Pressure:** 30.20 in. Hg

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Perm. Device ID	T-53950	33-56671	89-56661	89-56665
Perm. Rate, nL/min	422	455	306	217
Ret. Time, sec	19.0	32.5	70.0	125.0

1 Flow = **51.7** mL/Min	**8.17** ppm	**8.80** ppm	**5.91** ppm	**4.20** ppm
Time: 08:28		**Peak Areas, mv-sec**		
	32885	40065	21703	62655
	32377	40847	22337	64423
	33445	40700	22722	65189
Average Area	**32902**	**40537**	**22254**	**64089**
2 Flow = **110** mL/Min	**3.84** ppm	**4.14** ppm	**2.78** ppm	**1.98** ppm
Time: 08:45		**Peak Areas, mv-sec**		
	10234	12405	6217	19301
	9896	12664	6278	19254
	10029	12369	6218	19511
Average Area	**10053**	**12479**	**6238**	**19355**
3 Flow = **258** mL/Min	**1.64** ppm	**1.76** ppm	**1.18** ppm	**0.84** ppm
Time: 09:10		**Peak Areas, mv-sec**		
	2028	2745	1321	4433
	2061	2708	1308	4367
	2026	2706	1300	4291
Average Area	**2038**	**2720**	**1310**	**4364**

CALIBRATION SUMMARY

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

H_2S	1	2	3		
Time	08:28	08:45	09:10		
Concentration, ppm	8.17	3.84	1.64		
Area, mv-sec	32902	10053	2038		
Calc. Conc., ppm	7.97	4.02	1.60		
% Error	-2.4	4.7	-2.1		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.7333	2.9545	0.9988	2	0.029

MeSH	1	2	3		
Time	08:28	08:45	09:10		
Concentration, ppm	8.80	4.14	1.76		
Area, mv-sec	40537	12479	2720		
Calc. Conc., ppm	8.64	4.29	1.74		
% Error	-1.9	3.6	-1.6		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.6829	3.0318	0.9993	2	0.024

DMS	1	2	3		
Time	08:28	08:45	09:10		
Concentration, ppm	5.91	2.78	1.18		
Area, mv-sec	22254	6238	1310		
Calc. Conc., ppm	5.85	2.84	1.17		
% Error	-1.1	2.2	-1.0		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.7636	2.9950	0.9997	2	0.030

DMDS	1	2	3		
Time	08:28	08:45	09:10		
Concentration, ppm	4.20	1.98	0.84		
Area, mv-sec	64089	19355	4364		
Calc. Conc., ppm	4.14	2.03	0.83		
% Error	-1.3	2.5	-1.2		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.6731	3.7739	0.9996	2	0.008

AW

CALIBRATION DATA

Number 2

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

Ambient Temperature: 72°C **Barometric Pressure:** 30.20 in. Hg

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Perm. Device ID	T-53950	33-56671	89-56661	89-56665
Perm. Rate, nL/min	422	455	306	217
Ret. Time, sec	19.0	32.5	70.0	125.0

1 Flow = **55.0** mL/Min	**7.68** ppm	**8.28** ppm	**5.56** ppm	**3.95** ppm
Time: 08:30	**Peak Areas, mv-sec**			
	37217	48066	25482	71756
	38155	47820	25458	71884
	37886	48063	25691	71544
Average Area	**37753** ✓	**47983** ✓	**25544** ✓	**71728** ✓
2 Flow = **108** mL/Min	**3.91** ppm	**4.21** ppm	**2.83** ppm	**2.01** ppm
Time: 08:53	**Peak Areas, mv-sec**			
	11220	15593	6415	19990
	11626	15400	6404	19931
	11251	15235	6408	19816
Average Area	**11366** ✓	**15409** ✓	**6409** ✓	**19912** ✓
3 Flow = **234** mL/Min	**1.80** ppm	**1.95** ppm	**1.31** ppm	**0.93** ppm
Time: 09:08	**Peak Areas, mv-sec**			
	2385	3436	1360	4560
	2307	3358	1346	4470
	2361	3302	1307	4384
Average Area	**2351** ✓	**3365** ✓	**1338** ✓	**4471** ✓

aw

WESTON SOLUTIONS

CALIBRATION SUMMARY

Number 2

Client:	**New Indy**	Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Operator:	**T. Simpkins**
Source:		Date:	**18 Mar 2021**

Method **16**

H_2S	1	2	3		
Time	08:30	08:53	09:08		
Concentration, ppm	7.68	3.91	1.80		
Area, mv-sec	37753	11366	2351		
Calc. Conc., ppm	7.55	4.04	1.78		
% Error	-1.7	3.3	-1.5		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.9202	2.8914	0.9993	2	0.045

MeSH	1	2	3		
Time	08:30	08:53	09:08		
Concentration, ppm	8.28	4.21	1.95		
Area, mv-sec	47983	15409	3365		
Calc. Conc., ppm	8.11	4.37	1.91		
% Error	-2.0	3.8	-1.7		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.8384	3.0096	0.9990	2	0.034

DMS	1	2	3		
Time	08:30	08:53	09:08		
Concentration, ppm	5.56	2.83	1.31		
Area, mv-sec	25544	6409	1338		
Calc. Conc., ppm	5.57	2.82	1.31		
% Error	0.1	-0.3	0.1		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	2.0366	2.8888	>0.9999	2	0.054

DMDS	1	2	3		
Time	08:30	08:53	09:08		
Concentration, ppm	3.95	2.01	0.93		
Area, mv-sec	71728	19912	4471		
Calc. Conc., ppm	3.94	2.02	0.93		
% Error	-0.2	0.4	-0.2		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.9169	3.7145	>0.9999	2	0.017

ANALYTES AND STANDARDS

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Molecular Weight	34.08	48.11	62.14	94.20
Retention Time, sec	19.0	32.5	70.0	125.0
Peak Detection Window, sec	3.0	5.0	10.0	10.0
Minimum Peak Area, mv-sec	2	2	2	2
Minimum Peak Height, mv	1	1	1	1
Beginning Peak Width, sec	1.0	1.0	2.0	3.0
Ending Peak Width, sec	2.0	3.0	4.0	5.0
Permeation Device ID	T-53950	33-56671	89-56661	89-56665
Permeation Rate, ng/min	600	913	792	852
Permeation Rate, nL/min*	422	455	306	217

Barometric Pressure: 30.20 in. Hg **Ambient Temperature:** 72 °F
No Oxygen Correction

*Permeation rates are gravimetrically determined by the manufacturer with results by weight in ng/min. Permeation rates by volume, in nL/min, are calculated from the permeation rates by weight as follows:

$$PR_{nl} = PR_{ng} \times (V_{mol} / W_{mol}) \times [(460° + T_a) / T_s] \times (P_s / P_b)$$

Where:

- PR_{nl} = Permeation Rate by volume, nL/min
- PR_{ng} = Permeation Rate by weight, ng/min
- V_{mol} = Molar Volume of any gas @32 °F & 29.92 mm Hg = 22.4 L/mole
- W_{mol} = Molecular Weight of compound
- T_a = Ambient Temperature, °F
- T_s = Standard Temperature = 492°R (32 °F)
- P_s = Standard Pressure = 29.92 in Hg
- P_b = Barometric Pressure, in Hg

For example, H_2S:

$$PR_{nl} = 600 \times (22.4 / 34.08) \times [(460 + 72) / 492] \times (29.92 / 30.20)$$
$$= 422 \text{ nL/min}$$

To calclate concentrations:

$$C = PR_{nl} / F_d$$

Where:

- C = Concentration, ppmv
- PR_{nl} = Permeation Rate by volume, nL/min
- F_d = Flow rate of diluent, mL/min

INSTRUMENT INFORMATION

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **17 Mar 2021**

File: C:\Data\NIC\Trs Data 17 March 2021 A.trs
Program Version: 2.0, built 15 May 2017 **File Version:** 2.0
Computer: DESKTOP-A1IJDGT **Trailer:** 88

Analog Input Device: Keithley KUSB-3108 **GC Channel:** 16

Sampling Rate: 0.050 sec. **Data Interval:** 0.5 sec.

Gas Chromatograph: Shimadzu GC8A **Serial No.** GC 1
Detector Range: 10

Gases

	Press. psi	Flow mL/min
H_2	30	50
Air	30	60
Carrier	50	30

Temperatures, °C

Column: 100
Detector: 120

Columns

Primary: Carbopack
Secondary: N/A
Sample Loop: 4"

Injection Cycle

Total Length: 180 sec **Sampling Time:** 170 sec **Load/Backflush Time:** 80 sec

Default Integration Parameters

Signal Threshold 0.67 mv **Peak detection window** ±10 sec
Minimum peak area 2 mv-sec **Minimum peak height** 1 mv above baseline

Dynacalibrator

Chamber Temperature 50.0°C
Ambient Temperature 72.0°F
Barometric Pressure 30.20 in. Hg

WESTON SOLUTIONS

18 MARCH 2021

RUN SUMMARY

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

Start Time 10:21 **End Time** 14:28

Average Measured TRS Conc. 0.03 **ppm**
Recovery Missing

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
			trailer south of old guard shack- by blue dumpsters wind from south to north						
10:21	4	0.06	<2	<0.030	<2	<0.049	<2	<0.015	0.06
10:24	<2	<0.041	<2	<0.030	<2	<0.049	5	0.02	0.05
10:27	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
10:30	3	0.05	<2	<0.030	<2	<0.049	2	0.02	0.08
10:33	<2	<0.041	5	0.05	<2	<0.049	<2	<0.015	0.05
10:36	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
10:39	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
10:42	2	0.04	<2	<0.030	<2	<0.049	<2	<0.015	0.04
10:45	2	0.04	2	0.03	<2	<0.049	<2	<0.015	0.08
10:48	<2	<0.041	<2	<0.030	<2	<0.049	4	0.02	0.04
10:51	5	0.07	<2	<0.030	<2	<0.049	<2	<0.015	0.07
10:54	<2	<0.041	<2	<0.030	<2	<0.049	2	0.02	0.03
10:57	<2	<0.041	2	0.03	<2	<0.049	<2	<0.015	0.03
11:00	12	0.11	<2	<0.030	<2	<0.049	<2	<0.015	0.11
11:03	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:06	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:09	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:12	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:15	4	0.06	<2	<0.030	<2	<0.049	<2	<0.015	0.06
11:18	2	0.04	<2	<0.030	<2	<0.049	<2	<0.015	0.04
11:21	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:24	<2	<0.041	<2	<0.030	3	0.06	<2	<0.015	0.06
11:27	2	0.04	5	0.05	<2	<0.049	5	0.02	0.14
11:30	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:33	<2	<0.041	<2	<0.030	<2	<0.049	2	0.02	0.03
11:36	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:39	<2	<0.041	<2	<0.030	3	0.06	<2	<0.015	0.06
11:42	2	0.04	<2	<0.030	<2	<0.049	<2	<0.015	0.04
11:45	7	0.08	<2	<0.030	<2	<0.049	<2	<0.015	0.08
11:48	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:51	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:54	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
11:57	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:00	2	0.04	<2	<0.030	<2	<0.049	<2	<0.015	0.04
12:03	<2	<0.041	3	0.04	<2	<0.049	2	0.02	0.07
12:06	<2	<0.041	3	0.04	<2	<0.049	<2	<0.015	0.04
12:09	3	0.05	<2	<0.030	<2	<0.049	<2	<0.015	0.05
12:12	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
12:15	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:18	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:21	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:24	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:27	<2	<0.041	<2	<0.030	2	0.05	2	0.02	0.08
12:30	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:33	3	0.05	<2	<0.030	<2	<0.049	<2	<0.015	0.05
12:37	<2	<0.041	<2	<0.030	<2	<0.049	3	0.02	0.04
12:40	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:43	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:46	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:49	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
12:52	<2	<0.041	<2	<0.030	5	0.08	<2	<0.015	0.08
12:55	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
				moving trailer					
12:58	<2	<0.041	3	0.03	<2	<0.049	<2	<0.015	0.03
13:01	3	0.05	<2	<0.030	<2	<0.049	<2	<0.015	0.05
13:04	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:07	3	0.05	<2	<0.030	<2	<0.049	<2	<0.015	0.05
13:10	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:13	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:16	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:19	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
				lower contractor parking					
13:22	<2	<0.041	<2	<0.030	25	0.17	<2	<0.015	0.17
13:25	<2	<0.041	5	0.05	<2	<0.049	<2	<0.015	0.05
13:28	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
				upper contractor parking lot					
13:31	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:34	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:37	4	0.06	<2	<0.030	<2	<0.049	<2	<0.015	0.06
13:40	<2	<0.041	4	0.04	<2	<0.049	<2	<0.015	0.04
13:43	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:46	2	0.04	<2	<0.030	<2	<0.049	<2	<0.015	0.04
13:49	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:52	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:55	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
13:58	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
14:01	3	0.05	<2	<0.030	<2	<0.049	<2	<0.015	0.05
14:04	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

Time	H_2S		MeSH		DMS		DMDS		TRS
	area	ppm	area	ppm	area	ppm	area	ppm	ppm
14:07	4	0.06	<2	<0.030	<2	<0.049	<2	<0.015	0.06
14:10	<2	<0.041	4	0.04	<2	<0.049	2	0.02	0.08
14:13	<2	<0.041	2	0.03	<2	<0.049	<2	<0.015	0.03
14:16	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
14:19	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
14:22	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
14:25	<2	<0.041	<2	<0.030	<2	<0.049	<2	<0.015	-
Average		**<0.041**		**<0.030**		**<0.049**		**<0.015**	**-**

CALIBRATION DATA

Number 1

Client:	**New Indy**	Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Operator:	**T. Simpkins**
Source:	Method **16**	Date:	**18 Mar 2021**

Ambient Temperature: 72°C **Barometric Pressure:** 30.20 in. Hg

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Perm. Device ID	T-53950	33-56671	89-56661	89-56665
Perm. Rate, nL/min	422	455	306	217
Ret. Time, sec	19.0	32.5	70.0	125.0

1 Flow = **53.0** mL/Min	**7.97** ppm	**8.59** ppm	**5.77** ppm	**4.10** ppm
Time: 08:30		**Peak Areas, mv-sec**		
	37217	48066	25482	71756
	38155	47820	25458	71884
	37886	48063	25691	71544
Average Area	**37753**	**47983**	**25544**	**71728**

2 Flow = **106** mL/Min	**3.98** ppm	**4.29** ppm	**2.88** ppm	**2.05** ppm
Time: 08:53		**Peak Areas, mv-sec**		
	11220	15593	6415	19990
	11626	15400	6404	19931
	11251	15235	6408	19816
Average Area	**11366**	**15409**	**6409**	**19912**

3 Flow = **234** mL/Min	**1.80** ppm	**1.95** ppm	**1.31** ppm	**0.93** ppm
Time: 09:08		**Peak Areas, mv-sec**		
	2385	3436	1360	4560
	2307	3358	1346	4470
	2361	3302	1307	4384
Average Area	**2351**	**3365**	**1338**	**4471**

CALIBRATION SUMMARY

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

H_2S	1	2	3		
Time	08:30	08:53	09:08		
Concentration, ppm	7.97	3.98	1.80		
Area, mv-sec	37753	11366	2351		
Calc. Conc., ppm	7.83	4.12	1.78		
% Error	-1.8	3.4	-1.6		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.8723	2.9040	0.9992	2	0.041

MeSH	1	2	3		
Time	08:30	08:53	09:08		
Concentration, ppm	8.59	4.29	1.95		
Area, mv-sec	47983	15409	3365		
Calc. Conc., ppm	8.41	4.46	1.91		
% Error	-2.0	4.0	-1.8		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.7925	3.0232	0.9990	2	0.030

DMS	1	2	3		
Time	08:30	08:53	09:08		
Concentration, ppm	5.77	2.88	1.31		
Area, mv-sec	25544	6409	1338		
Calc. Conc., ppm	5.77	2.88	1.31		
% Error	0.1	-0.2	0.1		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.9859	2.8950	>0.9999	2	0.049

DMDS	1	2	3		
Time	08:30	08:53	09:08		
Concentration, ppm	4.10	2.05	0.93		
Area, mv-sec	71728	19912	4471		
Calc. Conc., ppm	4.09	2.06	0.93		
% Error	-0.3	0.5	-0.2		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.8692	3.7132	>0.9999	2	0.015

ANALYTES AND STANDARDS

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Molecular Weight	34.08	48.11	62.14	94.20
Retention Time, sec	19.0	32.5	70.0	125.0
Peak Detection Window, sec	3.0	5.0	10.0	10.0
Minimum Peak Area, mv-sec	2	2	2	2
Minimum Peak Height, mv	1	1	1	1
Beginning Peak Width, sec	1.0	1.0	2.0	3.0
Ending Peak Width, sec	2.0	3.0	4.0	5.0
Permeation Device ID	T-53950	33-56671	89-56661	89-56665
Permeation Rate, ng/min	600 ✓	913 ✓	792 ✓	852 ✓
Permeation Rate, nL/min*	422	455	306	217

Barometric Pressure: 30.20 in. Hg **Ambient Temperature:** 72 °F
No Oxygen Correction

*Permeation rates are gravimetrically determined by the manufacturer with results by weight in ng/min. Permeation rates by volume, in nL/min, are calculated from the permeation rates by weight as follows:

$$PR_{nl} = PR_{ng} \times (V_{mol} / W_{mol}) \times [(460° + T_a) / T_s] \times (P_s / P_b)$$

Where:

- PR_{nl} = Permeation Rate by volume, nL/min
- PR_{ng} = Permeation Rate by weight, ng/min
- V_{mol} = Molar Volume of any gas @32 °F & 29.92 mm Hg = 22.4 L/mole
- W_{mol} = Molecular Weight of compound
- T_a = Ambient Temperature, °F
- T_s = Standard Temperature = 492°R (32 °F)
- P_s = Standard Pressure = 29.92 in Hg
- P_b = Barometric Pressure, in Hg

For example, H_2S:

$$PR_{nl} = 600 \times (22.4 / 34.08) \times [(460 + 72) / 492] \times (29.92 / 30.20)$$
$$= 422 \text{ nL/min}$$

To calclate concentrations:

$$C = PR_{nl} / F_d$$

Where:

- C = Concentration, ppmv
- PR_{nl} = Permeation Rate by volume, nL/min
- F_d = Flow rate of diluent, mL/min

WESTON SOLUTIONS

INSTRUMENT INFORMATION

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

File: C:\Data\NIC\Trs Data 18 March 2021 A.trs
Program Version: 2.0, built 15 May 2017 **File Version:** 2.0
Computer: DESKTOP-A1IJDGT **Trailer:** 88

Analog Input Device: Keithley KUSB-3108 **GC Channel:** 16

Sampling Rate: 0.050 sec. **Data Interval:** 0.5 sec.

Gas Chromatograph: Shimadzu GC8A **Serial No.** GC 1
Detector Range: 10

Gases

	Press. psi	Flow mL/min
H_2	30	50
Air	30	60
Carrier	50	30

Temperatures, °C

Column: 100
Detector: 120

Columns

Primary: Carbopack
Secondary: N/A
Sample Loop: 4"

Injection Cycle

Total Length: 180 sec **Sampling Time:** 170 sec **Load/Backflush Time:** 80 sec

Default Integration Parameters

Signal Threshold 0.67 mv **Peak detection window** ±10 sec
Minimum peak area 2 mv-sec **Minimum peak height** 1 mv above baseline

Dynacalibrator

Chamber Temperature 50.0°C
Ambient Temperature 72.0°F
Barometric Pressure 30.20 in. Hg

ATTACHMENT B

23-24 MARCH 2021

RUN SUMMARY

Number 1

Client:	**New Indy**			Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Method	**16**	Operator:	**T. Simpkins**
Source:		Calibration	**1**	Date:	**23 Mar 2021**

Start Time 09:06 **End Time** 08:10

Average Measured TRS Conc. 0.07 **ppm**
Recovery Missing

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
09:06	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
East of RB Building in ally									
09:06	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
09:09	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
09:12	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
09:15	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
09:18	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
09:21	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
09:24	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
09:27	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
west of CB's									
west of cb's									
09:30	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
09:33	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
09:36	3	0.06	<2	<0.053	<2	<0.053	3	0.02	0.10
09:39	2	0.06	<2	<0.053	<2	<0.053	2	0.02	0.10
09:42	3	0.06	<2	<0.053	<2	<0.053	2	0.02	0.10
09:46	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
09:49	<2	<0.053	<2	<0.053	2	0.06	<2	<0.019	0.06
09:52	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
09:55	2	0.06	<2	<0.053	<2	<0.053	2	0.02	0.10
09:58	2	0.06	<2	<0.053	<2	<0.053	3	0.02	0.10
10:01	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
10:04	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
10:07	6	0.09	<2	<0.053	<2	<0.053	<2	<0.019	0.09
sdtv bag sample taken from 950-1000									
10:10	<2	<0.053	3	0.07	<2	<0.053	6	0.03	0.14
10:13	<2	<0.053	6	0.10	<2	<0.053	9	0.04	0.18
10:16	<2	<0.053	4	0.07	<2	<0.053	7	0.04	0.14
west side cb's- o citrate									
10:19	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
10:22	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
10:25	2	0.05	<2	<0.053	<2	<0.053	3	0.02	0.10
10:28	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
10:31	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
10:34	7	0.10	<2	<0.053	<2	<0.053	<2	<0.019	0.10
10:37	2	0.05	<2	<0.053	<2	<0.053	3	0.02	0.10
10:40	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
10:43	5	0.09	<2	<0.053	<2	<0.053	<2	<0.019	0.09
10:46	13	0.14	<2	<0.053	<2	<0.053	<2	<0.019	0.14

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
10:49	<2	<0.053	<2	<0.053	<2	<0.053	4	0.03	0.05
10:52	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
10:55	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
10:58	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
11:01	2	0.05	<2	<0.053	25	0.18	<2	<0.019	0.24
11:04	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
11:07	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
11:10	<2	<0.053	<2	<0.053	2	0.06	<2	<0.019	0.06
11:13	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
11:16	<2	<0.053	2	0.05	<2	<0.053	<2	<0.019	0.05
11:19	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
11:22	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
11:25	<2	<0.053	<2	<0.053	<2	<0.053	2	0.02	0.04
11:28	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
11:31	<2	<0.053	<2	<0.053	3	0.06	<2	<0.019	0.06
11:34	<2	<0.053	2	0.05	<2	<0.053	<2	<0.019	0.05
11:37	2	0.06	<2	<0.053	<2	<0.053	3	0.02	0.10
11:40	<2	<0.053	<2	<0.053	<2	<0.053	4	0.03	0.05
11:43	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
11:46	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
11:49	6	0.10	<2	<0.053	<2	<0.053	<2	<0.019	0.10
11:52	<2	<0.053	<2	<0.053	<2	<0.053	2	0.02	0.04
11:55	<2	<0.053	<2	<0.053	<2	<0.053	4	0.03	0.05
11:58	6	0.09	<2	<0.053	<2	<0.053	<2	<0.019	0.09
12:01	6	0.09	<2	<0.053	<2	<0.053	<2	<0.019	0.09
12:04	<2	<0.053	<2	<0.053	<2	<0.053	4	0.03	0.06
12:07	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
12:10	<2	<0.053	5	0.08	<2	<0.053	<2	<0.019	0.08
12:13	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
12:16	5	0.09	<2	<0.053	<2	<0.053	<2	<0.019	0.09
12:19	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
12:22	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
12:25	<2	<0.053	<2	<0.053	3	0.07	<2	<0.019	0.07
12:28	4	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
12:31	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
12:34	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
12:37	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
12:40	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
12:43	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
12:46	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
12:49	<2	<0.053	<2	<0.053	<2	<0.053	3	0.02	0.05
1254 wind still blowing west									
12:52	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
12:55	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
12:58	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:01	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:04	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:07	<2	<0.053	<2	<0.053	<2	<0.053	3	0.02	0.05
13:10	6	0.09	<2	<0.053	<2	<0.053	<2	<0.019	0.09
13:13	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
moving trailer									
13:16	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:19	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:22	8	0.11	<2	<0.053	<2	<0.053	<2	<0.019	0.11
13:25	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:28	49	0.27	246	0.62	49	0.25	4	0.03	1.20
13:31	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:34	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
13:37	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:40	<2	<0.053	<2	<0.053	<2	<0.053	3	0.02	0.05
13:43	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
NW of No. 3 RB Stack across street									
13:46	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
wind blowing toward NW									
13:49	3	0.07	<2	<0.053	<2	<0.053	2	0.02	0.11
13:52	14	0.14	96	0.39	23	0.18	6	0.03	0.77
13:55	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
13:58	4	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
14:01	78	0.34	180	0.53	32	0.21	<2	<0.019	1.07
14:04	<2	<0.053	3	0.07	<2	<0.053	<2	<0.019	0.07
14:07	5	0.08	<2	<0.053	3	0.06	<2	<0.019	0.14
14:10	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
14:13	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
14:16	62	0.30	6	0.09	6	0.09	<2	<0.019	0.48
14:19	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
14:22	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
14:25	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
14:28	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
14:31	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
14:34	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
14:37	844	1.13	235	0.61	52	0.26	<2	<0.019	2.00
14:40	<2	<0.053	223	0.59	51	0.26	5	0.03	0.91
14:43	<2	<0.053	407	0.81	118	0.39	6	0.03	1.26
14:46	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
14:49	107	0.40	69	0.33	4	0.08	<2	<0.019	0.80
14:52	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
14:55	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
14:58	394	0.77	419	0.82	76	0.32	6	0.03	1.97
15:01	<2	<0.053	8	0.11	3	0.07	2	0.02	0.21
15:04	6	0.10	2	0.06	4	0.07	<2	<0.019	0.23
15:07	166	0.50	56	0.29	5	0.08	<2	<0.019	0.87
15:10	22	0.18	8	0.11	4	0.08	<2	<0.019	0.36
15:13	5	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
15:16	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
15:19	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
15:22	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
15:25	<2	<0.053	<2	<0.053	<2	<0.053	4	0.02	0.05
15:28	121	0.42	83	0.36	6	0.09	<2	<0.019	0.87
15:31	<2	<0.053	2	0.05	<2	<0.053	<2	<0.019	0.05
15:34	<2	<0.053	3	0.06	4	0.07	<2	<0.019	0.14
15:37	15	0.15	4	0.08	2	0.06	<2	<0.019	0.28
15:40	3	0.07	<2	<0.053	<2	<0.053	5	0.03	0.13
15:43	<2	<0.053	<2	<0.053	2	0.06	<2	<0.019	0.06
15:47	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
15:50	<2	<0.053	2	0.06	<2	<0.053	<2	<0.019	0.06
15:53	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
15:56	<2	<0.053	2	0.05	<2	<0.053	<2	<0.019	0.05
15:59	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
16:02	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
16:05	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
16:08	<2	<0.053	4	0.08	<2	<0.053	<2	<0.019	0.08
16:11	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
16:14	278	0.64	162	0.50	32	0.20	<2	<0.019	1.35
16:17	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
16:20	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
16:23	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
				rail car area					
				Wind Direction NW					
16:26	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
16:29	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-

WESTON SOLUTIONS

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
16:32	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
16:35	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
16:38	<2	<0.053	<2	<0.053	5	0.08	<2	<0.019	0.08
16:41	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
16:44	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
16:47	3	0.06	<2	<0.053	<2	<0.053	4	0.03	0.11
16:50	3	0.06	<2	<0.053	<2	<0.053	3	0.02	0.11
16:53	<2	<0.053	<2	<0.053	<2	<0.053	3	0.02	0.04
16:56	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
16:59	<2	<0.053	3	0.07	<2	<0.053	<2	<0.019	0.07
17:02	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:05	7	0.10	<2	<0.053	<2	<0.053	<2	<0.019	0.10
17:08	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
17:11	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
17:14	7	0.10	<2	<0.053	<2	<0.053	<2	<0.019	0.10
17:17	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
17:20	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
17:23	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:26	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:29	<2	<0.053	<2	<0.053	36	0.22	<2	<0.019	0.22
17:32	3	0.06	<2	<0.053	<2	<0.053	5	0.03	0.12
17:35	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:38	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
17:41	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:44	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:47	<2	<0.053	<2	<0.053	12	0.13	<2	<0.019	0.13
17:50	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:53	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:56	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
17:59	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:02	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:05	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:08	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:11	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:14	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
18:17	<2	<0.053	<2	<0.053	3	0.07	<2	<0.019	0.07
18:20	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:23	2	0.05	<2	<0.053	<2	<0.053	3	0.02	0.10
18:26	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:29	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-

WESTON SOLUTIONS

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
18:32	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:35	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:38	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:41	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:44	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:47	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:50	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:53	<2	<0.053	4	0.07	<2	<0.053	<2	<0.019	0.07
18:56	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
18:59	<2	<0.053	<2	<0.053	<2	<0.053	5	0.03	0.06
19:02	<2	<0.053	<2	<0.053	<2	<0.053	3	0.02	0.05
19:05	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:08	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:11	3	0.07	5	0.08	<2	<0.053	3	0.02	0.19
19:14	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
19:17	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:20	<2	<0.053	<2	<0.053	3	0.06	4	0.03	0.12
19:23	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:26	<2	<0.053	<2	<0.053	<2	<0.053	4	0.03	0.05
19:29	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:32	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:35	<2	<0.053	<2	<0.053	4	0.07	<2	<0.019	0.07
19:38	<2	<0.053	9	0.11	<2	<0.053	<2	<0.019	0.11
19:41	5	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
19:44	5	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
19:47	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:50	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:53	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
19:56	5	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
19:59	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
20:02	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
20:05	4	0.07	<2	<0.053	<2	<0.053	5	0.03	0.13
20:08	3	0.07	<2	<0.053	<2	<0.053	3	0.02	0.11
20:11	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
20:14	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
20:17	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
20:20	<2	<0.053	<2	<0.053	4	0.07	<2	<0.019	0.07
20:23	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
20:26	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
20:29	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
20:32	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
20:35	5	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
20:38	<2	<0.053	<2	<0.053	<2	<0.053	2	0.02	0.04
20:41	4	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
20:44	<2	<0.053	<2	<0.053	<2	<0.053	2	0.02	0.04
20:47	<2	<0.053	2	0.05	<2	<0.053	<2	<0.019	0.05
20:50	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
20:53	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
20:56	2	0.06	<2	<0.053	<2	<0.053	3	0.02	0.10
20:59	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:02	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:05	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:08	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:11	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:14	4	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
21:17	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:20	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:23	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:26	2	0.06	<2	<0.053	<2	<0.053	8	0.04	0.13
21:29	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:32	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
21:35	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:38	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:41	<2	<0.053	<2	<0.053	<2	<0.053	4	0.03	0.05
21:44	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:48	<2	<0.053	<2	<0.053	<2	<0.053	2	0.02	0.04
21:51	3	0.06	<2	<0.053	4	0.07	<2	<0.019	0.13
21:54	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
21:57	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:00	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:03	<2	<0.053	<2	<0.053	5	0.08	<2	<0.019	0.08
22:06	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:09	2	0.06	<2	<0.053	2	0.06	<2	<0.019	0.12
22:12	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
22:15	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:18	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:21	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:24	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
22:27	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:30	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-

WESTON SOLUTIONS

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
22:33	4	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
22:36	<2	<0.053	3	0.06	<2	<0.053	<2	<0.019	0.06
22:39	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:42	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
22:45	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:48	4	0.07	5	0.09	<2	<0.053	<2	<0.019	0.16
22:51	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:54	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
22:57	<2	<0.053	<2	<0.053	<2	<0.053	3	0.02	0.04
23:00	<2	<0.053	4	0.08	<2	<0.053	<2	<0.019	0.08
23:03	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
23:06	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
23:09	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
23:12	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:15	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
23:18	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:21	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
23:24	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:27	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:30	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:33	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:36	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:39	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
23:42	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:45	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
23:48	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:51	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:54	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
23:57	<2	<0.053	2	0.06	<2	<0.053	<2	<0.019	0.06
00:00	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:03	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:06	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:09	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:12	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:15	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
00:18	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:21	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
00:24	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
00:27	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:30	5	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08

WESTON SOLUTIONS

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
00:33	<2	<0.053	<2	<0.053	<2	<0.053	3	0.02	0.05
00:36	4	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
00:39	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:42	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:45	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
00:48	<2	<0.053	4	0.08	<2	<0.053	<2	<0.019	0.08
00:51	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
00:54	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
00:57	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
01:00	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:03	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:06	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:09	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:12	<2	<0.053	4	0.07	<2	<0.053	<2	<0.019	0.07
01:15	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:18	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:21	<2	<0.053	<2	<0.053	<2	<0.053	4	0.03	0.05
01:24	2	0.06	<2	<0.053	4	0.08	<2	<0.019	0.13
01:27	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:30	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:33	<2	<0.053	<2	<0.053	<2	<0.053	5	0.03	0.06
01:36	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:39	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:42	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:45	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
01:48	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:51	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
01:54	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
01:57	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:00	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:03	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:06	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:09	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:12	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
02:15	8	0.10	<2	<0.053	<2	<0.053	<2	<0.019	0.10
02:18	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:21	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:24	<2	<0.053	<2	<0.053	<2	<0.053	2	0.02	0.04
02:27	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:30	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-

WESTON SOLUTIONS

RUN DATA
Number 1

Client:	**New Indy**		Project Number: **15730.001.006**
Location:	**Catawba, SC**	Method **16**	Operator: **T. Simpkins**
Source:		Calibration **1**	Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
02:33	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:36	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:39	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:42	4	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
02:45	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:48	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:51	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:54	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
02:57	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:00	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:03	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:06	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:09	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:12	3	0.07	<2	<0.053	<2	<0.053	2	0.02	0.11
03:15	11	0.12	<2	<0.053	<2	<0.053	<2	<0.019	0.12
03:18	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:21	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
03:24	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:27	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:30	6	0.10	<2	<0.053	<2	<0.053	<2	<0.019	0.10
03:33	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:36	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
03:39	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:42	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:45	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:49	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:52	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:55	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
03:58	<2	<0.053	2	0.05	<2	<0.053	3	0.02	0.10
04:01	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:04	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:07	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
04:10	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:13	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
04:16	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:19	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:22	<2	<0.053	<2	<0.053	3	0.06	<2	<0.019	0.06
04:25	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:28	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:31	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
04:34	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:37	<2	<0.053	3	0.07	<2	<0.053	<2	<0.019	0.07
04:40	4	0.08	<2	<0.053	<2	<0.053	3	0.02	0.12
04:43	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:46	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
04:49	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
04:52	<2	<0.053	<2	<0.053	<2	<0.053	3	0.02	0.04
04:55	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
04:58	7	0.10	<2	<0.053	<2	<0.053	<2	<0.019	0.10
05:01	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
05:04	2	0.05	<2	<0.053	<2	<0.053	<2	<0.019	0.05
05:07	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:10	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:13	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:16	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:19	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
05:22	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:25	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
05:28	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:31	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:34	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:37	5	0.08	<2	<0.053	<2	<0.053	<2	<0.019	0.08
05:40	7	0.10	<2	<0.053	<2	<0.053	<2	<0.019	0.10
05:43	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:46	<2	<0.053	<2	<0.053	<2	<0.053	6	0.03	0.06
05:49	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:52	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
05:55	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
05:58	<2	<0.053	<2	<0.053	<2	<0.053	5	0.03	0.06
06:01	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
06:04	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:07	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:10	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:13	3	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
06:16	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:19	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:22	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
06:25	<2	<0.053	<2	<0.053	22	0.17	<2	<0.019	0.17
06:28	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:31	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
06:34	2	0.06	<2	<0.053	<2	<0.053	<2	<0.019	0.06
06:37	2	0.06	<2	<0.053	<2	<0.053	2	0.02	0.10
06:40	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:43	3	0.07	<2	<0.053	4	0.07	<2	<0.019	0.14
06:46	<2	<0.053	<2	<0.053	<2	<0.053	4	0.03	0.05
06:49	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:52	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:55	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
06:58	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:01	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:04	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:07	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:10	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
07:13	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:16	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:19	4	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
07:22	<2	<0.053	<2	<0.053	34	0.21	<2	<0.019	0.21
07:25	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:28	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:31	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:34	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:37	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
07:40	6	0.09	<2	<0.053	<2	<0.053	<2	<0.019	0.09
07:43	<2	<0.053	<2	<0.053	<2	<0.053	2	0.02	0.04
07:46	3	0.07	<2	<0.053	<2	<0.053	<2	<0.019	0.07
07:49	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:52	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
				wind blowing SW					
07:55	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
07:58	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
08:01	<2	<0.053	<2	<0.053	2	0.06	<2	<0.019	0.06
08:04	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
08:07	<2	<0.053	<2	<0.053	<2	<0.053	<2	<0.019	-
Average		**<0.053**		**<0.053**		**<0.053**		**<0.019**	**-**

CALIBRATION DATA

Number 1

Client:	**New Indy**	Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Operator:	**T. Simpkins**
Source:	Method **16**	Date:	**22 Mar 2021**

Ambient Temperature: 72°C **Barometric Pressure:** 30.12 in. Hg

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Perm. Device ID	T-53950	33-56671	89-56661	89-56665
Perm. Rate, nL/min	423	456	307	218
Ret. Time, sec	19.0	32.5	70.0	125.0

1 Flow = **55.0** mL/Min	**7.70** ppm	**8.30** ppm	**5.57** ppm	**3.96** ppm
Time: 07:30	**Peak Areas, mv-sec**			
	36921	39362	26024	72542
	36710	38779	26172	73474
	36242	38902	26190	73390
Average Area	**36624**	**39014**	**26129**	**73135**

2 Flow = **104** mL/Min	**4.06** ppm	**4.37** ppm	**2.94** ppm	**2.09** ppm
Time: 08:01	**Peak Areas, mv-sec**			
	11400	11116	6663	22616
	11123	11403	6907	21518
	11213	11305	6812	21056
Average Area	**11245**	**11275**	**6794**	**21730**

3 Flow = **291** mL/Min	**1.46** ppm	**1.57** ppm	**1.05** ppm	**0.75** ppm
Time: 08:12	**Peak Areas, mv-sec**			
	1408	1530	914	2577
	1343	1487	875	2882
	1360	1474	866	2897
Average Area	**1370**	**1497**	**885**	**2785**

CALIBRATION SUMMARY

Number 1

Client:	**New Indy**	Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Operator:	**T. Simpkins**
Source:	Method **16**	Date:	**22 Mar 2021**

H_2S	1	2	3		
Time	07:30	08:01	08:12		
Concentration, ppm	7.70	4.06	1.46		
Area, mv-sec	36624	11245	1370		
Calc. Conc., ppm	7.57	4.17	1.44		
% Error	-1.7	2.8	-1.0		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.9802	2.8229	0.9996	2	0.053

MeSH	1	2	3		
Time	07:30	08:01	08:12		
Concentration, ppm	8.30	4.37	1.57		
Area, mv-sec	39014	11275	1497		
Calc. Conc., ppm	8.28	4.39	1.57		
% Error	-0.2	0.4	-0.2		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.9584	2.7936	>0.9999	2	0.053

DMS	1	2	3		
Time	07:30	08:01	08:12		
Concentration, ppm	5.57	2.94	1.05		
Area, mv-sec	26129	6794	885		
Calc. Conc., ppm	5.62	2.89	1.06		
% Error	0.9	-1.5	0.6		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	2.0280	2.8960	0.9999	2	0.053

DMDS	1	2	3		
Time	07:30	08:01	08:12		
Concentration, ppm	3.96	2.09	0.75		
Area, mv-sec	73135	21730	2785		
Calc. Conc., ppm	3.92	2.12	0.74		
% Error	-0.9	1.4	-0.5		
Calibration Curve	**Slope**	**Intercept**	**Corr. Coeff.**	**Min. Area**	**Det. Lim.**
	1.9658	3.6972	0.9999	2	0.019

AW

ANALYTES AND STANDARDS

Client:	**New Indy**	Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Operator:	**T. Simpkins**
Source:	Method **16**	Date:	**22 Mar 2021**

Analyte	H_2S	MeSH	DMS	DMDS
Molecular Weight	34.08	48.11	62.14	94.20
Retention Time, sec	19.0	32.5	70.0	125.0
Peak Detection Window, sec	3.0	5.0	10.0	10.0
Minimum Peak Area, mv-sec	2	2	2	2
Minimum Peak Height, mv	1	1	1	1
Beginning Peak Width, sec	1.0	1.0	2.0	3.0
Ending Peak Width, sec	2.0	3.0	4.0	5.0
Permeation Device ID	T-53950	33-56671	89-56661	89-56665
Permeation Rate, ng/min	600 ✓	913 ✓	792 ✓	852 ✓
Permeation Rate, nL/min*	423	456	307	218

Barometric Pressure: 30.12 in. Hg **Ambient Temperature:** 72 °F
No Oxygen Correction

*Permeation rates are gravimetrically determined by the manufacturer with results by weight in ng/min. Permeation rates by volume, in nL/min, are calculated from the permeation rates by weight as follows:

$$PR_{nl} = PR_{ng} \times (V_{mol} / W_{mol}) \times [(460° + T_a) / T_s] \times (P_s / P_b)$$

Where:

PR_{nl} = Permeation Rate by volume, nL/min
PR_{ng} = Permeation Rate by weight, ng/min
V_{mol} = Molar Volume of any gas @32 °F & 29.92 mm Hg = 22.4 L/mole
W_{mol} = Molecular Weight of compound
T_a = Ambient Temperature, °F
T_s = Standard Temperature = 492°R (32 °F)
P_s = Standard Pressure = 29.92 in Hg
P_b = Barometric Pressure, in Hg

For example, H_2S:

$$PR_{nl} = 600 \times (22.4 / 34.08) \times [(460 + 72) / 492] \times (29.92 / 30.12)$$
$$= 423 \text{ nL/min}$$

To calclate concentrations:

$$C = PR_{nl} / F_d$$

Where:

C = Concentration, ppmv
PR_{nl} = Permeation Rate by volume, nL/min
F_d = Flow rate of diluent, mL/min

INSTRUMENT INFORMATION

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **22 Mar 2021**

File: C:\Data\NIC\Trs Data 23 March 2021.trs
Program Version: 2.0, built 15 May 2017 **File Version:** 2.0
Computer: DESKTOP-A1IJDGT **Trailer:** 88

Analog Input Device: Keithley KUSB-3108 **GC Channel:** 16

Sampling Rate: 0.050 sec. **Data Interval:** 0.5 sec.

Gas Chromatograph: Shimadzu GC8A **Serial No.** GC 1
Detector Range: 10

Gases

	Press. psi	Flow mL/min
H_2	30	50
Air	30	60
Carrier	50	30

Temperatures, °C

Column: 100
Detector: 120

Columns

Primary: Carbopack
Secondary: N/A
Sample Loop: 4"

Injection Cycle

Total Length: 180 sec **Sampling Time:** 170 sec **Load/Backflush Time:** 80 sec

Default Integration Parameters

Signal Threshold 0.67 mv **Peak detection window** ±10 sec
Minimum peak area 2 mv-sec **Minimum peak height** 1 mv above baseline

Dynacalibrator

Chamber Temperature 50.0°C
Ambient Temperature 72.0°F
Barometric Pressure 30.12 in. Hg

24 MARCH 2021

RUN SUMMARY

Number 1

Client:	**New Indy**			Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Method	**16**	Operator:	**T. Simpkins**
Source:		Calibration	**1**	Date:	**24 Mar 2021**

Start Time 09:31 **End Time** 10:14

Average Measured TRS Conc. 0.10 **ppm**
Recovery Missing

RUN SUMMARY
Number 2

Client: **New Indy**		Project Number: **15730.001.006**	
Location: **Catawba, SC**	Method **16**	Operator: **T. Simpkins**	
Source:	Calibration **1**	Date: **24 Mar 2021**	

Start Time 10:17 **End Time** 10:29

Average Measured TRS Conc. 0.00 **ppm**
Recovery Missing

RUN SUMMARY

Number 3

Client:	**New Indy**			Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Method	**16**	Operator:	**T. Simpkins**
Source:		Calibration	**1**	Date:	**24 Mar 2021**

Start Time 10:31 **End Time** 10:43

Average Measured TRS Conc. 0.00 **ppm**
Recovery Missing

RUN SUMMARY

Number 4

Client:	**New Indy**			Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Method	**16**	Operator:	**T. Simpkins**
Source:		Calibration	**1**	Date:	**24 Mar 2021**

Start Time 10:58 **End Time** 15:40

Average Measured TRS Conc. 0.03 **ppm**
Recovery Missing

RUN DATA
Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
09:31	<2	<0.044	579	0.81	<2	<0.052	8	0.04	0.88
09:34	<2	<0.044	67	0.25	<2	<0.052	3	0.02	0.29
09:37	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
09:40	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
09:43	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
09:46	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
09:49	<2	<0.044	<2	<0.038	<2	<0.052	2	0.02	0.04
09:52	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
09:55	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
09:58	<2	<0.044	<2	<0.038	<2	<0.052	6	0.03	0.06
10:01	<2	<0.044	<2	<0.038	<2	<0.052	5	0.03	0.06
10:05	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
10:08	3	0.05	<2	<0.038	2	0.06	<2	<0.017	0.11
10:11	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
Average		**<0.044**		**0.08**		**<0.052**		**<0.017**	**0.10**

RUN DATA

Number 2

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

Time	H_2S		MeSH		DMS		DMDS		TRS
	area	ppm	area	ppm	area	ppm	area	ppm	ppm
				PM Roof Vent - Edge 935-940					
10:17	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
10:20	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
10:23	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
10:26	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
Average		**<0.044**		**<0.038**		**<0.052**		**<0.017**	**-**

RUN DATA

Number 3

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
				PM Roof Vent 2- 955-1000					
10:31	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
10:34	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
10:37	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
10:40	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
Average		**<0.044**		**<0.038**		**<0.052**		**<0.017**	**-**

RUN DATA
Number 4

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
				Moving trailer to NW side of mill					
10:58	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
				sdtv bag 2- 1045-1050					
11:01	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:04	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
				sdtv bag done					
11:07	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:10	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:13	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:16	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
				NW side of ill near old guard shack					
				stack plumes going straight up right now					
11:19	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:22	<2	<0.044	3	0.05	<2	<0.052	<2	<0.017	0.05
11:25	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:28	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:31	2	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
11:34	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:37	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:40	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:43	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:46	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:49	<2	<0.044	9	0.09	<2	<0.052	2	0.02	0.12
11:52	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:55	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
11:58	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:01	<2	<0.044	<2	<0.038	<2	<0.052	3	0.02	0.04
12:04	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:07	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:10	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:13	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:16	3	0.06	<2	<0.038	<2	<0.052	<2	<0.017	0.06
12:19	<2	<0.044	<2	<0.038	<2	<0.052	2	0.02	0.04
12:22	2	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
12:25	<2	<0.044	<2	<0.038	8	0.10	<2	<0.017	0.10
12:28	3	0.06	<2	<0.038	6	0.09	<2	<0.017	0.15
12:31	2	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
12:34	<2	<0.044	<2	<0.038	<2	<0.052	2	0.02	0.04
12:37	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:40	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-

WESTON SOLUTIONS

RUN DATA
Number 4

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
12:43	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:46	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:49	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
in main courtyard of mill next to Wood tent NE wins going toward									
12:52	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
12:55	4	0.06	<2	<0.038	<2	<0.052	3	0.02	0.10
12:58	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:01	2	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
13:04	<2	<0.044	<2	<0.038	2	0.05	<2	<0.017	0.05
13:07	<2	<0.044	<2	<0.038	5	0.08	<2	<0.017	0.08
13:10	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:13	4	0.06	<2	<0.038	<2	<0.052	7	0.03	0.12
13:16	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:19	3	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
13:22	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:25	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:28	2	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
13:31	5	0.07	<2	<0.038	27	0.19	<2	<0.017	0.26
13:34	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:37	<2	<0.044	<2	<0.038	<2	<0.052	4	0.02	0.05
13:40	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:43	4	0.06	<2	<0.038	<2	<0.052	<2	<0.017	0.06
13:46	7	0.09	<2	<0.038	25	0.19	4	0.02	0.32
13:49	<2	<0.044	<2	<0.038	3	0.06	<2	<0.017	0.06
13:52	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:55	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
13:58	<2	<0.044	<2	<0.038	<2	<0.052	3	0.02	0.04
14:01	2	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
14:04	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:07	13	0.12	<2	<0.038	<2	<0.052	<2	<0.017	0.12
14:10	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:13	5	0.07	<2	<0.038	<2	<0.052	<2	<0.017	0.07
14:16	8	0.09	<2	<0.038	<2	<0.052	<2	<0.017	0.09
14:19	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:22	3	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
14:25	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:28	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:31	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-

RUN DATA

Number 4

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
14:34	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:37	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:40	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:43	3	0.05	<2	<0.038	<2	<0.052	<2	<0.017	0.05
14:46	2	0.04	<2	<0.038	<2	<0.052	2	0.02	0.08
14:49	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
14:52	<2	<0.044	<2	<0.038	<2	<0.052	4	0.02	0.05
14:55	<2	<0.044	<2	<0.038	<2	<0.052	2	0.02	0.04
14:58	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
15:01	3	0.05	<2	<0.038	<2	<0.052	2	0.02	0.09
15:04	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
15:07	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
15:10	4	0.06	<2	<0.038	<2	<0.052	<2	<0.017	0.06
wind blowing toward NE									
15:13	4	0.06	<2	<0.038	<2	<0.052	<2	<0.017	0.06
15:16	<2	<0.044	<2	<0.038	<2	<0.052	3	0.02	0.05
15:19	<2	<0.044	<2	<0.038	30	0.20	<2	<0.017	0.20
15:22	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
15:25	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
15:28	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
15:31	<2	<0.044	<2	<0.038	<2	<0.052	4	0.02	0.05
15:34	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
15:37	<2	<0.044	<2	<0.038	<2	<0.052	<2	<0.017	-
Average		**<0.044**		**<0.038**		**<0.052**		**<0.017**	**-**

WESTON SOLUTIONS

CALIBRATION DATA

Number 1

Client:	New Indy	Project Number:	15730.001.006
Location:	Catawba, SC	Operator:	T. Simpkins
Source:	Method 16	Date:	24 Mar 2021

Ambient Temperature: 72°C **Barometric Pressure:** 30.12 in. Hg

Analyte	H_2S	MeSH	DMS	DMDS
Perm. Device ID	T-53950	33-56671	89-56661	89-56665
Perm. Rate, nL/min	423	456	307	218
Ret. Time, sec	19.0	32.5	70.0	125.0

1 Flow = 55.0 mL/Min	7.70 ppm	8.30 ppm	5.57 ppm	3.96 ppm
Time: 08:25	Peak Areas, mv-sec			
	36213	43418	23287	63725
	36413	42776	23331	64081
	36421	43380	23930	65240
Average Area	36349	43191	23516	64349

2 Flow = 120 mL/Min	3.53 ppm	3.80 ppm	2.55 ppm	1.81 ppm
Time: 08:40	Peak Areas, mv-sec			
	8717	10940	4796	15534
	9003	11114	4780	14544
	8846	10903	4727	14462
Average Area	8855	10986	4768	14847

3 Flow = 331 mL/Min	1.28 ppm	1.38 ppm	0.93 ppm	0.66 ppm
Time: 08:53	Peak Areas, mv-sec			
	1189	1564	654	2164
	1219	1539	643	2101
	1185	1516	632	2063
Average Area	1198	1540	643	2109

AM

CALIBRATION SUMMARY

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

H_2S	1	2	3		
Time	08:25	08:40	08:53		
Concentration, ppm	7.70	3.53	1.28		
Area, mv-sec	36349	8855	1198		
Calc. Conc., ppm	7.59	3.62	1.27		
% Error	-1.4	2.5	-1.1		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.9048	2.8836	0.9997	2	0.044

MeSH	1	2	3		
Time	08:25	08:40	08:53		
Concentration, ppm	8.30	3.80	1.38		
Area, mv-sec	43191	10986	1540		
Calc. Conc., ppm	8.16	3.91	1.36		
% Error	-1.6	2.9	-1.2		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.8614	2.9379	0.9996	2	0.038

DMS	1	2	3		
Time	08:25	08:40	08:53		
Concentration, ppm	5.57	2.55	0.93		
Area, mv-sec	23516	4768	643		
Calc. Conc., ppm	5.61	2.53	0.93		
% Error	0.6	-1.0	0.5		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	2.0039	2.8712	>0.9999	2	0.052

DMDS	1	2	3		
Time	08:25	08:40	08:53		
Concentration, ppm	3.96	1.81	0.66		
Area, mv-sec	64349	14847	2109		
Calc. Conc., ppm	3.94	1.83	0.66		
% Error	-0.4	0.7	-0.3		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.9051	3.6735	>0.9999	2	0.017

AW

WESTON SOLUTIONS

ANALYTES AND STANDARDS

Client:	**New Indy**	Project Number:	**15730.001.006**
Location:	**Catawba, SC**	Operator:	**T. Simpkins**
Source:	Method **16**	Date:	**24 Mar 2021**

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Molecular Weight	34.08	48.11	62.14	94.20
Retention Time, sec	19.0	32.5	70.0	125.0
Peak Detection Window, sec	3.0	5.0	10.0	10.0
Minimum Peak Area, mv-sec	2	2	2	2
Minimum Peak Height, mv	1	1	1	1
Beginning Peak Width, sec	1.0	1.0	2.0	3.0
Ending Peak Width, sec	2.0	3.0	4.0	5.0
Permeation Device ID	T-53950	33-56671	89-56661	89-56665
Permeation Rate, ng/min	600	913	792	852
Permeation Rate, nL/min*	423	456	307	218

Barometric Pressure: 30.12 in. Hg **Ambient Temperature:** 72 °F
No Oxygen Correction

*Permeation rates are gravimetrically determined by the manufacturer with results by weight in ng/min. Permeation rates by volume, in nL/min, are calculated from the permeation rates by weight as follows:

$$PR_{nl} = PR_{ng} \times (V_{mol} / W_{mol}) \times [(460° + T_a) / T_s] \times (P_s / P_b)$$

Where:

PR_{nl} = Permeation Rate by volume, nL/min
PR_{ng} = Permeation Rate by weight, ng/min
V_{mol} = Molar Volume of any gas @32 °F & 29.92 mm Hg = 22.4 L/mole
W_{mol} = Molecular Weight of compound
T_a = Ambient Temperature, °F
T_s = Standard Temperature = 492°R (32 °F)
P_s = Standard Pressure = 29.92 in Hg
P_b = Barometric Pressure, in Hg

For example, H_2S:

$$PR_{nl} = 600 \times (22.4 / 34.08) \times [(460 + 72) / 492] \times (29.92 / 30.12)$$
$$= 423 \text{ nL/min}$$

To calclate concentrations:

$$C = PR_{nl} / F_d$$

Where:

C = Concentration, ppmv
PR_{nl} = Permeation Rate by volume, nL/min
F_d = Flow rate of diluent, mL/min

AN

WESTON SOLUTIONS

INSTRUMENT INFORMATION

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

File: D:\NIC\Trs Data 24 March 2021 B.trs
Program Version: 2.0, built 15 May 2017 **File Version:** 2.0
Computer: DESKTOP-A1IJDGT **Trailer:** 88

Analog Input Device: Keithley KUSB-3108 **GC Channel:** 16

Sampling Rate: 0.050 sec. **Data Interval:** 0.5 sec.

Gas Chromatograph: Shimadzu GC8A **Serial No.** GC 1
Detector Range: 10

Gases

	Press. psi	Flow mL/min
H_2	30	50
Air	30	60
Carrier	50	30

Temperatures, °C

Column: 100
Detector: 120

Columns

Primary: Carbopack
Secondary: N/A
Sample Loop: 4"

Injection Cycle

Total Length: 180 sec **Sampling Time:** 170 sec **Load/Backflush Time:** 80 sec

Default Integration Parameters

Signal Threshold 0.67 mv **Peak detection window** ±10 sec
Minimum peak area 2 mv-sec **Minimum peak height** 1 mv above baseline

Dynacalibrator

Chamber Temperature 50.0°C
Ambient Temperature 72.0°F
Barometric Pressure 30.12 in. Hg

ATTACHMENT B

25 MARCH 2021

New Indy Catawba Sample Analysis
Work Order No. 15730.001.006
Analyzed 25 March 2021

Sample	H_2S µg / mL	MeSH µg / mL	DMS µg / mL	DMDS µg / mL	TRS as S µg / mL
Stripper Feed, AX3930	48.8	9.3	11.7	6.1	62.2
Acid Sewer, AX3931	0.13	<0.07	<0.06	0.20	0.26
Clarifier Overflow, AX3932	0.25	<0.1	1.2	0.57	1.24
ASB Effluent, AX3933	0.20	<0.1	<0.08	<0.06	0.18
ASB Influent, AX3934	0.10	<0.06	0.65	0.23	0.58
Screw Press Filtrate, AX3935	0.14	<0.05	<0.04	<0.03	0.13
PM 3 Whitewater, AX3936	0.04	<0.05	0.18	<0.03	0.13

New Indy Catawba Sample Analysis
Work Order No. 15730.001.006
Analyzed 25 March 2021

Sample	Stripper Feed, AX3930
Aliquot, mL	2.5
Purge	
Nitrogen Flow Rate, mL/min	948
Purge Time, min	10.00
Gas Volume in Bag, L	9.480

Analysis	H_2S	MeSH	DMS	DMDS	TRS as S
Conc. in Bag, ppm	9.08	1.23	1.19	0.41	12.32
Mass in Bag, µg	122 ✓	23.3 ✓	29.2 ✓	15.2 ✓	155 ✓
Conc. in Sample, µg/mL	48.8 ✓	9.3 ✓	11.7 ✓	6.1 ✓	62.2 ✓

✓

P ✓

RN ✓

New Indy Catawba Sample Analysis
Work Order No. 15730.001.006
Analyzed 25 March 2021

Sample	Acid Sewer, AX3931
Aliquot, mL	15.0
Purge	
Nitrogen Flow Rate, mL/min	945
Purge Time, min	2.00
Gas Volume in Bag, L	1.890

Analysis	H_2S	MeSH	DMS	DMDS	TRS as S
Conc. in Bag, ppm	0.73	<0.25	<0.16	0.40	1.53
Mass in Bag, µg	2.0 ✓	<0.95 ✓	<0.79 ✓	3.0 ✓	3.8 ✓
Conc. in Sample, µg/mL	0.13 ✓	<0.07 ✓	<0.06 ✓	0.20 ✓	0.26 ✓

✓ [illegible]

New Indy Catawba Sample Analysis
Work Order No. 15730.001.006
Analyzed 25 March 2021

Sample	Clarifier Overflow, AX3932
Aliquot, mL	10.0
Purge	
Nitrogen Flow Rate, mL/min	987
Purge Time, min	2.00
Gas Volume in Bag, L	1.974

Analysis	H_2S	MeSH	DMS	DMDS	TRS as S
Conc. in Bag, ppm	0.91	<0.25	2.33	0.74	4.72
Mass in Bag, µg	2.55	<1.0	11.9	5.72	12.4
Conc. in Sample, µg/mL	0.25	<0.1	1.2	0.57	1.24

✓ NB

New Indy Catawba Sample Analysis
Work Order No. 15730.001.006
Analyzed 25 March 2021

Sample	ASB Effluent, AX3933
Aliquot, mL	10.0
Purge	
Nitrogen Flow Rate, mL/min	962
Purge Time, min	2.00
Gas Volume in Bag, L	1.924

Analysis	H_2S	MeSH	DMS	DMDS	TRS as S
Conc. in Bag, ppm	0.72	<0.25	<0.16	<0.07	0.72
Mass in Bag, µg	2.0	<1.0	<0.8	<0.53	1.8
Conc. in Sample, µg/mL	0.20	<0.1	<0.08	<0.06	0.18

New Indy Catawba Sample Analysis
Work Order No. 15730.001.006
Analyzed 25 March 2021

Sample	ASB Influent, AX3934
Aliquot, mL	20.0
Purge	
Nitrogen Flow Rate, mL/min	1033
Purge Time, min	2.00
Gas Volume in Bag, L	2.066

Analysis	H_2S	MeSH	DMS	DMDS	TRS as S
Conc. in Bag, ppm	0.66	<0.25	2.43	0.58	4.25
Mass in Bag, µg	1.9 ✓	<1.04 ✓	13.0 ✓	4.7 ✓	11.7 ✓
Conc. in Sample, µg/mL	0.10 ✓	<0.06 ✓	0.65 ✓	0.23 ✓	0.58 ✓

✓ WCH

New Indy Catawba Sample Analysis
Work Order No. 15730.001.006
Analyzed 25 March 2021

Sample	Screw Press Filtrate, AX3935
Aliquot, mL	20.0
Purge	
Nitrogen Flow Rate, mL/min	985
Purge Time, min	2.00
Gas Volume in Bag, L	1.970

Analysis	H_2S	MeSH	DMS	DMDS	TRS as S
Conc. in Bag, ppm	0.99	<0.25	<0.16	<0.07	0.99
Mass in Bag, µg	2.8	<1.0	<0.82	<0.55	2.6
Conc. in Sample, µg/mL	0.14	<0.05	<0.04	<0.03	0.13

√ JKH

New Indy Catawba Sample Analysis
Work Order No. 15730.001.006
Analyzed 25 March 2021

Sample	PM 3 Whitewater, AX3936
Aliquot, mL	20.0
Purge	
Nitrogen Flow Rate, mL/min	998
Purge Time, min	2.00
Gas Volume in Bag, L	1.996

Analysis	H_2S	MeSH	DMS	DMDS	TRS as S
Conc. in Bag, ppm	0.27	<0.25	0.71	<0.07	0.98
Mass in Bag, µg	0.76	<1.0	3.7	<0.55	2.6
Conc. in Sample, µg/mL	0.04	<0.05	0.18	<0.03	0.13

√ JLB

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

Time	H_2S		MeSH		DMS		DMDS		TRS
	area	ppm	area	ppm	area	ppm	area	ppm	ppm
PM3 Whitewater AX3936									
10:49	4	0.23	<2	<0.25	35	0.68	<2	<0.070	0.91
10:52	4	0.23	<2	<0.25	41	0.73	<2	<0.070	0.96
10:55	8	0.34	<2	<0.25	40	0.72	<2	<0.070	1.06
Average		**0.27**		**<0.25**		**0.71**		**<0.070**	**0.98**

WESTON SOLUTIONS

RUN DATA
Number 2

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
				Screw Press Filtrate AX3935					
11:29	67	0.97	<2	<0.25	<2	<0.16	<2	<0.070	0.97
11:32	78	1.04	<2	<0.25	<2	<0.16	<2	<0.070	1.04
11:35	69	0.98	<2	<0.25	<2	<0.16	<2	<0.070	0.98
Average		**0.99**		**<0.25**		**<0.16**		**<0.070**	**0.99**

WESTON SOLUTIONS

RUN DATA
Number 3

Client: **New Indy**		Project Number:
Location: **Catawba, SC**	Method **16**	Operator: **J. Short**
Source:	Calibration **1**	Date: **25 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
				ASB Influent AX3934					
11:45	30	0.65	<2	<0.25	415	2.36	137	0.60	4.22
11:48	30	0.65	<2	<0.25	446	2.45	103	0.52	4.14
11:51	32	0.67	<2	<0.25	453	2.47	148	0.62	4.39
Average		**0.66**		**<0.25**		**2.43**		**0.58**	**4.25**

WESTON SOLUTIONS

RUN DATA
Number 6

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
ASB Effluent AX3933									
12:54	35	0.70	<2	<0.25	<2	<0.16	<2	<0.070	0.70
12:57	39	0.74	<2	<0.25	<2	<0.16	<2	<0.070	0.74
13:00	37	0.72	<2	<0.25	<2	<0.16	<2	<0.070	0.72
Average		**0.72**		**<0.25**		**<0.16**		**<0.070**	**0.72**

WESTON SOLUTIONS

RUN DATA

Number 7

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
				Clarifier overflow AX3932					
13:03	53	0.86	<2	<0.25	395	2.30	207	0.74	4.65
13:06	65	0.95	<2	<0.25	398	2.32	212	0.75	4.76
13:09	59	0.91	<2	<0.25	415	2.36	200	0.73	4.73
Average		**0.91**		**<0.25**		**2.33**		**0.74**	**4.71**

WESTON SOLUTIONS

RUN DATA
Number 8

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
Acid Sewer AX3931									
13:25	39	0.74	<2	<0.25	<2	<0.16	62	0.40	1.54
13:28	37	0.72	<2	<0.25	<2	<0.16	53	0.37	1.46
13:31	37	0.72	<2	<0.25	<2	<0.16	72	0.43	1.58
Average		**0.73**		**<0.25**		**<0.16**		**0.40**	**1.53**

WESTON SOLUTIONS

RUN DATA
Number 9

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
				Stripper Feed AX3930					
14:10	6015	8.99	50	1.16	115	1.24	63	0.40	12.2
14:13	5820	8.85	58	1.24	91	1.10	64	0.41	12.0
14:16	6579	9.40	63	1.30	113	1.23	68	0.42	12.8
Average		**9.08**		**1.23**		**1.19**		**0.41**	**12.3**

WESTON SOLUTIONS

CALIBRATION DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

Ambient Temperature: 72°C **Barometric Pressure:** 30.04 in. Hg

Analyte	**H_2S**	**MeSH**	**DMS**	**DMDS**
Perm. Device ID	T-53935	33-56672	89-56663	89-53970
Perm. Rate, nL/min	425	439	271	200
Ret. Time, sec	17.0	28.0	60.0	101.5

1 Flow = **30.8** mL/Min	**13.8** ppm	**14.3** ppm	**8.81** ppm	**6.49** ppm
Time: 08:51	**Peak Areas, mv-sec**			
	13428	8757	5211	13721
	14531	9664	5583	14836
	14535	9586	5637	15008
Average Area	**14165**	**9336**	**5477**	**14522**

2 Flow = **62.9** mL/Min	**6.76** ppm	**6.98** ppm	**4.31** ppm	**3.18** ppm
Time: 09:06	**Peak Areas, mv-sec**			
	3408	2165	1413	3808
	3446	2160	1465	3622
	3435	2121	1322	3658
Average Area	**3430**	**2149**	**1400**	**3696**

3 Flow = **118** mL/Min	**3.62** ppm	**3.74** ppm	**2.31** ppm	**1.70** ppm
Time: 09:22	**Peak Areas, mv-sec**			
	967	560	395	1069
	938	573	378	1018
	950	576	395	1055
Average Area	**951**	**570**	**389**	**1047**

WESTON SOLUTIONS

CALIBRATION SUMMARY

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

H_2S	1	2	3		
Time	08:51	09:06	09:22		
Concentration, ppm	13.8	6.76	3.62		
Area, mv-sec	14165	3430	951		
Calc. Conc., ppm	13.8	6.81	3.60		
% Error	-0.3	0.7	-0.4		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	2.0162	1.8561	>0.9999	2	0.17

MeSH	1	2	3		
Time	08:51	09:06	09:22		
Concentration, ppm	14.3	6.98	3.74		
Area, mv-sec	9336	2149	570		
Calc. Conc., ppm	14.2	7.03	3.72		
% Error	-0.3	0.7	-0.4		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	2.0875	1.5641	>0.9999	2	0.25

DMS	1	2	3		
Time	08:51	09:06	09:22		
Concentration, ppm	8.81	4.31	2.31		
Area, mv-sec	5477	1400	389		
Calc. Conc., ppm	8.74	4.38	2.29		
% Error	-0.7	1.6	-0.8		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.9730	1.8806	0.9998	2	0.16

DMDS	1	2	3		
Time	08:51	09:06	09:22		
Concentration, ppm	6.49	3.18	1.70		
Area, mv-sec	14522	3696	1047		
Calc. Conc., ppm	6.46	3.22	1.69		
% Error	-0.5	1.2	-0.6		
Calibration Curve	Slope	Intercept	Corr. Coeff.	Min. Area	Det. Lim.
	1.9629	2.5716	0.9999	2	0.070

ANALYTES AND STANDARDS

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

Analyte	H_2S	MeSH	DMS	DMDS
Molecular Weight	34.08	48.11	62.14	94.20
Retention Time, sec	17.0	28.0	60.0	101.5
Peak Detection Window, sec	5.0	5.0	10.0	10.0
Minimum Peak Area, mv-sec	2	2	2	2
Minimum Peak Height, mv	1	1	1	1
Beginning Peak Width, sec	1.0	1.0	2.0	3.0
Ending Peak Width, sec	2.0	3.0	4.0	5.0
Permeation Device ID	T-53935	33-56672	89-56663	89-53970
Permeation Rate, ng/min	600	876	699	781
Permeation Rate, nL/min*	425	439	271	200

Barometric Pressure: 30.04 in. Hg **Ambient Temperature:** 72 °F
No Oxygen Correction

*Permeation rates are gravimetrically determined by the manufacturer with results by weight in ng/min. Permeation rates by volume, in nL/min, are calculated from the permeation rates by weight as follows:

$$PR_{nl} = PR_{ng} \times (V_{mol} / W_{mol}) \times [(460° + T_a) / T_s] \times (P_s / P_b)$$

Where:

PR_{nl} = Permeation Rate by volume, nL/min
PR_{ng} = Permeation Rate by weight, ng/min
V_{mol} = Molar Volume of any gas @32 °F & 29.92 in. Hg = 22.4 L/mole
W_{mol} = Molecular Weight of compound
T_a = Ambient Temperature, °F
T_s = Standard Temperature = 492°R (32 °F)
P_s = Standard Pressure = 29.92 in. Hg
P_b = Barometric Pressure, in. Hg

For example, H_2S:

$$PR_{nl} = 600 \times (22.4 / 34.08) \times [(460 + 72) / 492] \times (29.92 / 30.04)$$
$$= 425 \text{ nL/min}$$

To calclate concentrations:

$$C = PR_{nl} / F_d$$

Where:

C = Concentration, ppmv
PR_{nl} = Permeation Rate by volume, nL/min
F_d = Flow rate of diluent, mL/min

WESTON SOLUTIONS

INSTRUMENT INFORMATION

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**

Project Number:
Operator: **J. Short**
Date: **25 Mar 2021**

File: J:\Misc\NewIndy\03-25-21.trs
Program Version: 2.0, built 28 Oct 2020 **File Version:** 2.0
Computer: JWS-PROGRAMMING **Trailer:** 221

Analog Input Device: MCC USB-1608G **GC Channel:** 16

Sampling Rate: 0.050 sec. **Data Interval:** 0.5 sec.

Gas Chromatograph: Shimadzu GC-8A **Serial No.** C10493414707
Detector Range: 10

Gases

	Press. psi	Flow mL/min
H_2	30	50
Air	30	60
Carrier	50	30

Temperatures, °C

Column: 100
Detector: 120

Columns

Primary: 6'
Secondary: none
Sample Loop: 6"

Injection Cycle

Total Length: 180 sec **Sampling Time:** 160 sec **Load/Backflush Time:** 70 sec

Default Integration Parameters

Signal Threshold 0.67 mv **Peak Detection Window** ±10 sec
Minimum Peak Area 2 mv-sec **Minimum Peak Height** 1 mv above baseline

Dynacalibrator

Chamber Temperature -1.0°C
Ambient Temperature 72.0°F
Barometric Pressure 30.04 in. Hg

WESTON SOLUTIONS

ATTACHMENT C
LABORATORY DATA

METHANOL

Inter-Office Memorandum

WESTON SOLUTIONS
1625 Pumphrey Avenue, Auburn, AL 36832
334.466.5600

TO: Temp Simpkins, Project Manager
cc: File

FROM: Staci Hickman, Laboratory Manager
Date: 23 March 2021

PROJECT: New Indy Catwaba

W.O. NO: 15730.001.006
JOB NO.: 2021-091

SUBJECT: Methanol Analysis Results

ACTION: Analysis of samples received on 20 March 2021
NELAC Accreditation ID: 03024

NARRATIVE:

This letter with analytical results constitutes our report for the analysis of the condensate samples collected by New Indy personnel and submitted to the laboratory on 20 March 2021 for methanol analysis. The samples arrived in accordance with the Chain-of-Custody. The samples were prepared and analyzed on 22 March 2021 according to NCASI Method DI/MeOH-94.03.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of these samples. Please note that any unused portion of the samples will be discarded 90 days after the date of receipt.

The results of this report relate only to the samples listed in the body of this report.

This report shall not be reproduced by any organization outside of Weston Solutions, Inc. in part or in full, without the written approval from Weston Solutions, Inc.

These results meet all requirements of TNI, unless otherwise specified.

QUALITY ASSURANCE AND QUALITY CONTROL:

Quality control procedures conformed to the requirements of the referenced method and our quality assurance program.

All quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results. The quality control analysis results as well as the acceptance criteria are shown in the Quality Control section.

We appreciate the opportunity to work with you in performing this analysis. If we can be of any other assistance, please contact me at (334) 466-5683.

Attachments

WESTON SOLUTIONS
Analytical Laboratory
1625 Pumphrey Ave. Auburn AL 36832
334-466-5600

Analysis Report

NCASI DI/MeOH 94.03

Client	: New Indy Catwaba	Instrument ID:	GC/FID-Lil Red
Proposal #	: 15730.001.006	Analyst:	SH
WESTON Lab Job #	: 2021-091	Date(s) Prepped:	3/22/2021
Dates Received	: 20-Mar-21	Date (s) Analyzed:	3/22/2021

Limit of Quantification for Methanol (µg/mL): 1.15

Source ID	Date Collected	Lab ID	**Sample Methanol Concentration (µg/mL)**
#3 Foul Condensate	3/17/2021	AX 3919	**7170**
#3 Combined Condensate	3/17/2021	AX 3920	**1210**
#2 Foul Condensate	3/17/2021	AX 3921	**2320**
#2 Combined Condensate	3/17/2021	AX 3922	**188**
#2 Condenser Condensate	3/17/2021	AX 3923	**1590**
#1 Old Condensate	3/17/2021	AX 3924	**1340**
#1 Foul Condensate	3/17/2021	AX 3925	**688**
#1 Combined Condensate	3/17/2021	AX 3926	**103**
#1 Auxillary Condensate	3/17/2021	AX 3927	**2510**
M52-0453 Combined Condensate	3/17/2021	AX 3928	**539**
M52-0432 HVLC Condensate	3/17/2021	AX 3929	**160**
Stripper Feed Tank	3/17/2021	AX 3930	**1860**
Acid Sewer	3/17/2021	AX 3931	**43.8**
Clarifying Overflow	3/17/2021	AX 3932	**185**
ASB Effluent	3/18/2021	AX 3933	**49.4**
ASB Influent	3/18/2021	AX 3934	**117**
Screw Press Filtrate	3/18/2021	AX 3935	**54.1**
PM3 Whitewater	3/18/2021	AX 3936	**14.5**

Some samples were diluted 1:5 to reduce potential interferences.

Staci Hickman

Staci Hickman, Laboratory Manager
Printed: 3/23/2021

Quality Control Report

NCASI DI/MeOH 94.03

Analytical Laboratory
1625 Pumphrey Ave. Auburn AL 36832
334-466-5600

Client: New Indy Catwaba WESTON Lab Job # 2021-091 WESTON W.O. # 15730.001.006

Table 1.1

Calibration Curve Verification Standards

Analysis Date	Laboratory ID	Methanol Actual Value (µg/mL)	Methanol Calculated Value (µg/mL)	Methanol Difference (%)
3/22/2021	9339-42-07	46.1	46.1	0.1%
3/22/2021	9339-42-05	576	578	0.4%
3/22/2021	LCS 5459400	2008	2008	0.0%
3/22/2021	9339-42-05	576	559	2.9%
3/22/2021	9339-42-05	576	547	5.0%
3/22/2021	9339-42-03	2303	2418	5.0%

Table 1.2

Replicate Analysis

Analysis Date	Laboratory ID	Methanol Original Value (µg/mL)	Methanol Replicate Value (µg/mL)	Methanol Difference (%)
3/22/2021	AX 3919	7165	7598	2.9%
3/22/2021	AX 3929	160	160	0.0%

Table 1.3

Duplicate Analysis

Analysis Date	Laboratory ID	Methanol Original Value (µg/mL)	Methanol Duplicate Value (µg/mL)	Methanol Difference (%)
3/22/2021	AX 3920	1207	1217	0.4%
3/22/2021	AX 3930	1859	1847	0.3%

Table 1.4

Spike Analysis

Analysis Date	Laboratory ID	Methanol Original Value (µg/mL)	Methanol Spiked Value (µg/mL)	Methanol Recovered Amount (µg/mL)	Methanol Spiked Amount (µg/mL)	Methanol Recovery (%)
3/22/2021	AX 3920	1207	2728	1521	1582	96%
3/22/2021	AX 3930	372	2825	2453	2373	103%

- Note- For QC purposes the actual analytical result rather than the LOQ was used when the analytical result was less than the LOQ.
- Consequently, certain differences in actual and calculated values may be skewed.

Calculations:

- Standard % Difference = ((|(Actual Value-Calculated Value)|)÷(Actual Amount))*100.
- Replicate/Duplicate % Difference = ((|Average Value - Original Value|) ÷ (Average Value))*100.
- Spike % Recovery = (Recovered Amount) ÷ (Spiked Amount) * 100

Acceptance Cirteria:

-The CCV Acceptance Criterion is ± 10 % for Methanol.

-The LCS Acceptance Criterion is ± 15 percent for methanol.

-The Replicate and Duplicate Percent Difference Acceptance Criterion is ± 10 percent.

-The Spike Recovery Acceptance Criterion is 100 percent ± 30 percent.

Lot #s:

Spike Lot #: Neat - 145647
Internal Lot #: 9339-39-00

Staci Hickman

Staci Hickman, Laboratory Manager
Printed: 3/23/2021

15730.001.006
New-Indy Catawba
Odor Testing

Lab Tracking Number

Chain-of-Custody Record/Lab Work Request

Page____ of____

Client	New Indy, Catwaba, SC		
Work Order Number	15730.001.006 ~~15730001.01~~ (SH)	Phone Number	334-728-0127
Contact Person	Templeton Simpkins	Turn Around Time	

Lab ID	Field Sample ID	Sample Collection Date	MeOH Analysis NCASI 94.03				Sample Check-off
AX 3919	NI-#3FoulCondensate	3/17/2021	X				
3920	NI-#3CombinedCondensate	3/17/2021	X				
3921	NI-#2FoulCondensate	3/17/2021	X				
3922	NI-#2CombinedCondensate	3/17/2021	X				
3923	NI-#2CondenserCondensate	3/17/2021	X				
3924	NI-#1OldCondensate	3/17/2021	X				
3925	NI-#1FoulCondensate	3/17/2021	X				
3926	NI-#1CombinedCondensate	3/17/2021	X				
3927	NI-#1AuxillaryCondensate	3/17/2021	X				
3928	NI-M52-0453CombinedCondensate	3/17/2021	X				
3929	NI-M52-0432HVLCCondensate	3/17/2021	X				
3930	NI-StripperFeedTank	3/17/2021	X				
3931	NI-AcidSewer	3/17/2021	X				
3932	NI-ClarifyingOverflow	3/17/2021	X				
3933	NI-ASBEffluent	3/18/2021	X				
3934	NI-ASBInfluent	3/18/2021	X				
3935	NI-ScrewPressFiltrate	3/18/2021	X				
3936	NI-PM3Whitewater	3/18/2021	X				

Notes:

LAB JOB NO: 2021-091
SAMPLE TEMP: 5.4°C

Relinquished By	Received By	Date	Time	Lab Use Only	
Templeton Simpkins	Stacie Hickman	3/20/21	14:00	Shipper	Air Bill #
				Opened By	Date/Time
				Temp °C	Condition
				Custody Seals: Yes No None N/A	

Laboratory Comments:

TERPENES

Inter-Office Memorandum

1625 Pumphrey Avenue, Auburn, AL 36832
334.466.5600

TO:	Temp Simpkins, Project Manager
FROM:	Staci Hickman, Laboratory Manager
PROJECT:	New Indy Catwaba
W.O. NO:	15370.001.006
SUBJECT:	Terpene Analysis Results
ACTION:	Analysis of samples received on 20 March 2021

Date: 12 April 2021

JOB NO.: 2021-094

NARRATIVE:

This memo with analytical results constitutes our report for the condensate samples submitted to the laboratory for terpene analysis. The samples arrived in accordance with the Chain-of-Custody. The samples were prepared on 22 March 2021 and analyzed on 23 March through 24 March 2021 per NIOSH Method 1552. Each sample was analyzed for α-pinene, ß-pinene and total terpenoids. The unidentified terpenoid amount was determined using the response factor for α-pinene to quantify individual terpenoid peaks and adding the combined concentrations to determine total unidentified terpenoid concentration.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of the samples. Please note that any unused portion of the sample will be discarded 90 days after the date of receipt.

These results of this report relate only to the samples listed in the body of this report.

This report shall not be reproduced by any organization outside of Weston Solutions, Inc. in part or in full, without the written approval from Weston Solutions, Inc.

This analysis is outside the scope of our TNI accreditation.

QUALITY ASSURANCE AND QUALITY CONTROL:

Quality control procedures conformed to the requirements of NIOSH 1552 modified for condensate terpenes and our quality assurance program. All samples were analyzed in replicate. The replicates had differences of 3.5% or less for α and ß-pinene, and 4.9% or less for the unidentified terpenoids.

All quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results. The quality control analysis results as well as the acceptance criteria are shown in the following tables of the Quality Control Report.

We appreciate the opportunity to work with you in performing these analyses. If we can be of any other assistance, please contact me at (334) 466-5683.

Sincerely,

WESTON SOLUTIONS

Staci Hickman

Staci Hickman
Laboratory Manager

WESTON SOLUTIONS
Analytical Laboratory
1625 Pumphrey Ave. Auburn, AL 36832
334 466 5600

Analysis Report

a-Pinene, b-Pinene, & Total Terpenoids
per NIOSH Method 1552

Client : New Indy Catwaba
WESTON W.O. # : 15370.001.006

Lab Job #: 2021-094

Date Received : 3/20/2021
Date Prepared : 3/22/2021

Instrument ID: GC/FID-Green Machine
Analyst: SH
Date(s) Analyzed: 3/23/2021-3/24/2021

Limit of Quantification for a-pinene(µg/mL): 0.69 µg/mL
Limit of Quantification for ß-pinene(µg/mL) 0.69 µg/mL

Source ID	Date Collected	Sample Volume (mL)	Dilution	Sample ID	Analyzed a-Pinene (µg/mL)	Analyzed ß-Pinene (µg/mL)	Total Terpenoids (µg/mL)	Analyzed Other Terpenoids (µg/mL)
#3 Foul Condensate	3/17/2021	43	1	AX 3937	3430	1308	6011	1274
#3 Combined Condensate	3/17/2021	43	1	AX 3938	25.8	11.2	229	192
#2 Foul Condensate	3/17/2021	43	1	AX 3939	1.57	0.88	196	194
#2 Combined Condensate	3/17/2021	43	1	AX 3940	<0.69	<0.69	127	127
#2 Condenser Condensate	3/17/2021	43	1	AX 3941	205	79.4	516	232
#1 Old Condensate	3/17/2021	43	1	AX 3942	76.2	35.4	265	154
#1 Foul Condensate	3/17/2021	43	1	AX 3943	2.67	1.25	132	128
#1 Combined Condensate	3/17/2021	43	1	AX 3944	<0.69	<0.69	142	142
#1 Auxillary Condensate	3/17/2021	43	1	AX 3945	113	53.8	422	255
M52-0453 Combined Condensat	3/17/2021	43	1	AX 3946	4.85	2.40	166	159
M52-0432 HVLC Condensate	3/17/2021	43	1	AX 3947	1.79	1.11	62.0	59.1
Stripper Feed Tank	3/17/2021	43	1	AX 3948	1309	512	2396	575
Acid Sewer	3/17/2021	43	1	AX 3949	2.85	1.28	29.1	25.0

Staci Hickman
Staci Hickman, Laboratory Manager

K:\CHEM_LAB\Methods-All\GC_Analysis\VOC\PRCSLIQD\OTHER\TERPENES\2021\2021-094_NewIndy_Terps

Printed on: 4/12/2021

15730.001.006
New-Indy Catawba
Odor Testing

WESTON SOLUTIONS
Analytical Laboratory
1625 Pumphrey Ave. Auburn, AL 36832
334.466.5600

Client: New Indy Catwaba | Weston Job #: 2021-094 | Weston WO#: 15370.001.006

Table 1.1
Continuing Calibration Curve Verification Standards

Analysis Date	Laboratory ID	α-Pinene Actual Value (μg/mL)	α-Pinene Calculated Value (μg/mL)	α-Pinene Difference (%)	ß-Pinene Actual Value (μg/mL)	ß-Pinene Calculated Value (μg/mL)	ß-Pinene Difference (%)
3/23/2021	9339-48-06	2.74	2.75	0.4%	2.76	2.77	0.4%
3/23/2021	9339-48-03	686	633	7.7%	689	634	8.0%
3/23/2021	LCS 9339-47-00	945	970	2.7%	923	914	1.0%
3/24/2021	9339-48-05	34.3	30.2	12%	34.5	30.7	11%
3/24/2021	9339-48-04	68.6	62.8	8.5%	68.9	63.1	8.4%
3/24/2021	9339-48-01	3428	3649	6.5%	3446	3702	7.4%
3/24/2021	9339-48-03	686	639	6.9%	689	641	6.9%

Table 1.2
Duplicate Analysis

Analysis Date	Laboratory ID	α-Pinene Original Value (μg/mL)	α-Pinene Duplicate Value (μg/mL)	α-Pinene Difference (%)	ß-Pinene Original Value (μg/mL)	ß-Pinene Duplicate Value (μg/mL)	ß-Pinene Difference (%)
3/23/2021	AX 3938	25.8	26.2	0.8%	11.2	11.5	1.1%
3/24/2021	AX 3948	1309	1341	1.2%	512	524	1.1%

Table 1.3
Spike Analysis

Analysis Date	Laboratory ID	α-Pinene Original Value (μg/mL)	α-Pinene Spiked Value (μg/mL)	α-Pinene Recovered Amount (μg/mL)	α-Pinene Spiked Amount (μg/mL)	α-Pinene Recovery (%)	ß-Pinene Original Value (μg/mL)	ß-Pinene Spiked Value (μg/mL)	ß-Pinene Recovered Amount (μg/mL)	ß-Pinene Spiked Amount (μg/mL)	ß-Pinene Recovery (%)
3/23/2021	AX 3938	25.8	94.7	68.9	68.6	100%	11.2	83.6	72.3	68.9	105%
3/24/2021	AX 3948	1341	1400	58.8	68.6	86%	512	589	76.3	68.9	111%

- Note the actual analytical result rather than the LOQ was used when the analytical result was less than the LOQ.
- Consequently, certain differences in actual and calculated values may be skewed.

Calculations:

- Standard % Difference = ((|(Actual Value-Calculated Value)|)÷(Actual Amount))*100.
- Duplicate %t Difference = ((|(Original Value + Duplicate Value) ÷ 2 - Original Value|) ÷ (Average Value))*100.
- Spike % Recovery = (Recovered Amount) ÷ (Spiked Amount) * 100.

Acceptance Cirteria:

- The CCV Acceptance Criterion is ± 15 percent.
- The LCS Acceptance Criterion is ± 15 percent.
- The Duplicate Percent Difference Acceptance Criterion is ± 10 percent.
- The Spike Recovery Acceptance Criterion is 100 percent ± 30 percent.

Staci Hickman

Staci Hickman, Laboratory Manager

15730.001.006
New-Indy Catawba

Lab Tracking Number

Chain-of-Custody Record/Lab Work Request

Page____of____

Client	New Indy, Catawba, SC		
Work Order Number 15730.001.006	~~15730001.01~~ (SH)	Phone Number	334-728-0127
Contact Person	Templeton Simpkins	Turn Around Time	

Lab ID	Field Sample ID	Sample Collection Date	Terpenes Analysis NIOSH 1552				Sample Check-off
AX 3937	NI-#3FoulCondensate	3/17/2021	X				
3938	NI-#3CombinedCondensate	3/17/2021	X				
3939	NI-#2FoulCondensate	3/17/2021	X				
3940	NI-#2CombinedCondensate	3/17/2021	X				
3941	NI-#2CondenserCondensate	3/17/2021	X				
3942	NI-#1OldCondensate	3/17/2021	X				
3943	NI-#1FoulCondensate	3/17/2021	X				
3944	NI-#1CombinedCondensate	3/17/2021	X				
3945	NI-#1AuxillaryCondensate	3/17/2021	X				
3946	NI-M52-0453CombinedCondensate	3/17/2021	X				
3947	NI-M52-0432HVLCCondensate	3/17/2021	X				
3948	NI-StripperFeedTank	3/17/2021	X				
3949	NI-AcidSewer	3/17/2021	X				
	NI-ClarifyingOverflow	3/17/2021					
	NI-ASBEffluent	3/18/2021					
	NI-ASBInfluent	3/18/2021					
	NI-ScrewPressFiltrate	3/18/2021					
	NI-PM3Whitewater	3/18/2021					
	NI-ASBEffluent	3/18/2021					

Notes:

LAB JOB NO: 2021-094
SAMPLE TEMP: 5.4°C

Relinquished By	Received By	Date	Time	Lab Use Only	
[signature]	Stacie Hickman	3/20/21	14:00	Shipper	Air Bill #
				Opened By	Date/Time
				Temp °C	Condition
				Custody Seals: Yes No None N/A	

Laboratory Comments:

ATTACHMENT D
QUALITY CONTROL DATA

ATTACHMENT D

AUDIT CYLINDER CERTIFICATE

Airgas Specialty Gases
Airgas USA, LLC
630 United Drive
Durham, NC 27713
Airgas.com

15730.001.006
New-Indy Catawba
Odor Testing

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02AI99E15A00U0	Reference Number:	122-401930615-1
Cylinder Number:	CC507346	Cylinder Volume:	146.2 CF
Laboratory:	124 - Durham (SAP) - NC	Cylinder Pressure:	2015 PSIG
PGVP Number:	B22020	Valve Outlet:	330
Gas Code:	H2S,O2,BALN	Certification Date:	Oct 21, 2020

Expiration Date: Oct 21, 2023

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
HYDROGEN SULFIDE	7.000 PPM	7.427 PPM	G1	+/- 0.9% NIST Traceable	10/14/2020, 10/21/2020
AIR	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
GMIS	122401645168101	CC163645	10.10 PPM HYDROGEN SULFIDE/NITROGEN	+/- 0.80	Jan 23, 2023
RGM	12332	CC183693	10.07 PPM HYDROGEN SULFIDE/NITROGEN	+/- 0.8%	Dec 18, 2017

The SRM, PRM or RGM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Applied Analytics OMA-406 AA210266	Ultraviolet	Oct 16, 2020

Triad Data Available Upon Request

Signature on file

Approved for Release

RUN DATA

Number 2

Client: New Indy
Location: Catawba, SC
Source:

Method 16
Calibration 1

Project Number: 15730.001.006
Operator: T. Simpkins
Date: 17 Mar 2021

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
16:32	32304	7.89	<2	<0.024	<2	<0.030	<2	<0.008	7.89
16:33	33396	8.04	<2	<0.024	<2	<0.030	<2	<0.008	8.04
Average		**7.96**		**<0.024**		**<0.030**		**<0.008**	**7.96**

RUN DATA

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **18 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
09:36	36240	7.66	<2	<0.030	<2	<0.049	<2	<0.015	7.66
09:39	36179	7.65	<2	<0.030	<2	<0.049	<2	<0.015	7.65
Average		**7.65**		**<0.030**		**<0.049**		**<0.015**	**7.65**

RUN DATA

Number 1

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **23 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
08:42	36227	7.53	<2	<0.053	<2	<0.053	<2	<0.019	7.53
08:45	36413	7.55	<2	<0.053	<2	<0.053	<2	<0.019	7.55
Average		**7.54**		**<0.053**		**<0.053**		**<0.019**	**7.54**

RUN DATA

Number 0

Client: **New Indy**
Location: **Catawba, SC**
Source:

Method **16**
Calibration **1**

Project Number: **15730.001.006**
Operator: **T. Simpkins**
Date: **24 Mar 2021**

Time	H_2S area	H_2S ppm	MeSH area	MeSH ppm	DMS area	DMS ppm	DMDS area	DMDS ppm	TRS ppm
09:13	33726	7.30	<2	<0.038	<2	<0.052	<2	<0.017	7.30
09:16	33952	7.32	<2	<0.038	<2	<0.052	<2	<0.017	7.32
09:19	34010	7.33	<2	<0.038	<2	<0.052	<2	<0.017	7.33
09:22	33998	7.33	<2	<0.038	<2	<0.052	<2	<0.017	7.33
Average		**7.32**		**<0.038**		**<0.052**		**<0.017**	**7.32**

ATTACHMENT D

PROJECT TEAM QUALIFICATIONS

Weston Solutions, Inc. Integrated Air Services Employee Qualifications

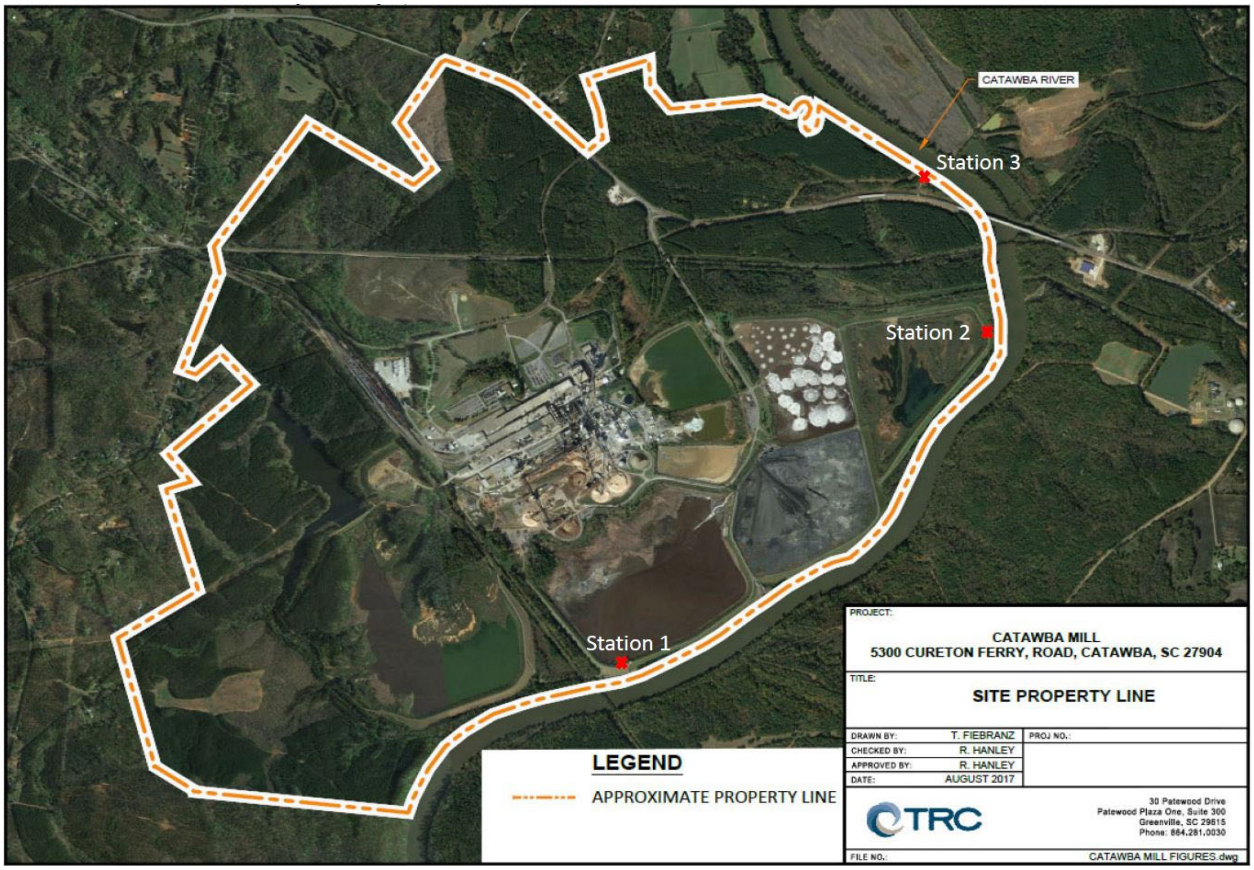
Name	Title/Position	Education/Training	QSTI	Years of Experience	
				Total	Emission Testing
Bryant, Ashley	Report Coordinator	BS - English Ed. - Jacksonville State University (2011) MA - English - Jacksonville State University (2012)	QSTI 1	8	8
Hammonds, Natalie	Quality Manager	BS - Environmental Science Auburn University (1998)	QSTI 1	23	18
Hartsky, Chris	Emission Testing Specialist	BA - Environmental Studies Washington College (2016)		10	5
Short, Jack	CEMS Operator	BS - Biology - Auburn University (1973) MS - Botany - Auburn University (1978)	QSTI 1, 2 & 3	32	32
Simpkins, Templeton	Project Manager	BS - Zoology Auburn University (1997)	QSTI 1 & 3	20	20

END
OF
DOCUMENT

APPENDIX C – ONSITE AMBIENT MONITOR LOCATIONS MAP

Ambient Monitoring Stations: Initial Locations

Ambient Monitoring Stations: Current “Fence Line” Locations



APPENDIX D – ONSITE AMBIENT MONITOR DATA

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	**Station 1**			**Station 2**			**Station 3**		
Location Description	No1 Holding Pond Outfall Structure			East of Wastewater Solids Pond			Catawba River, NE of Plant by Hwy 5		
Coordinates	34°49'58.5"N, 80°53'15.3"W			34°50'55.4"N, 80°52'05.3"W			34°51'21.60"N, 80°52'17.92"W		
Timestamp	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)
05/28/2021 00:00	85.40	1.50	135	0.20					
05/28/2021 01:00	18.09	4.56	209	0.20			6.24		
05/28/2021 02:00	70.37	4.24	224	0.50			9.82		
05/28/2021 03:00	35.54	3.27	225	0.20			10.75		
05/28/2021 04:00	48.80	2.71	213	0.20			6.61		
05/28/2021 05:00	40.31	6.23	211	0.20			0.48		
05/28/2021 06:00	19.47	8.96	209	0.20			0.48		
05/28/2021 07:00	29.59	10.35	212	0.20			17.15		
05/28/2021 08:00	17.32	11.67	214	3.95			17.93		
05/28/2021 09:00	10.04	16.35	228	4.34			12.04		
05/28/2021 10:00	4.54	18.26	236	6.84			1.11		
05/28/2021 11:00	2.85	24.00	237	10.67			4.07		
05/28/2021 12:00	2.33	16.36	240	10.36			5.53		
05/28/2021 13:00	7.11	10.99	209	0.20			11.50		
05/28/2021 14:00	8.16	11.31	210	1.02			17.65		
05/28/2021 15:00	7.19	12.49	221	4.84			18.06		
05/28/2021 16:00	4.70	11.97	229	19.00			10.83		
05/28/2021 17:00	8.64	8.18	232	22.09			5.76		
05/28/2021 18:00	28.05	5.69	225	22.25			1.00		
05/28/2021 19:00	26.30	7.41	217	3.83			27.01		
05/28/2021 20:00	62.71	4.76	214	4.35			37.12		
05/28/2021 21:00	31.36	7.15	217	3.88			19.11		
05/28/2021 22:00	38.41	6.12	213	0.52			46.01		
05/28/2021 23:00	35.85	5.10	214	0.20			42.98		
05/29/2021 00:00	23.65	5.93	245	8.11			20.14		
05/29/2021 01:00	10.72	6.04	233	14.51			2.78		
05/29/2021 02:00	19.31	3.36	244	18.44			1.37		
05/29/2021 03:00	17.88	3.94	225	14.00			1.51		
05/29/2021 04:00	35.21	4.17	207	0.20			19.60		
05/29/2021 05:00	13.36	5.55	226	19.16			16.72		
05/29/2021 06:00	15.20	5.07	221	23.73			6.15		
05/29/2021 07:00	10.52	4.91	234	16.62			0.63		
05/29/2021 08:00	4.67	4.47	248	9.82			0.20		
05/29/2021 09:00	7.57	5.02	250	6.31			1.93		
05/29/2021 10:00	7.27	5.19	228	2.85			1.98		
05/29/2021 11:00	8.18	5.59	226	2.20			3.41		
05/29/2021 12:00	10.11	5.53	212	0.85			5.96		
05/29/2021 13:00	9.77	5.48	224	1.22			3.92		
05/29/2021 14:00	6.58	5.98	240	4.15			3.07		
05/29/2021 15:00	9.94	6.72	257	7.05			0.51		
05/29/2021 16:00	3.90	8.06	239	11.50			2.29		
05/29/2021 17:00	7.55	6.98	265	9.01			0.60		
05/29/2021 18:00	8.24	5.54	240	20.56			0.20		
05/29/2021 19:00	11.32	4.23	268	7.75			0.20		
05/29/2021 20:00	233.45	14.30	68	0.20			0.20		
05/29/2021 21:00	346.25	14.53	35	0.20			0.20		
05/29/2021 22:00	274.05	15.15	46	0.20			0.20		
05/29/2021 23:00	324.35	15.83	36	0.20			0.20		
05/30/2021 00:00	285.25	14.89	45	0.20			0.20		
05/30/2021 01:00	251.65	15.30	49	0.20			0.20		
05/30/2021 02:00	319.80	16.82	41	0.20			0.61		
05/30/2021 03:00	311.00	14.69	38	0.70			1.05		
05/30/2021 04:00	311.90	13.62	39	0.20			0.20		
05/30/2021 05:00	301.35	13.43	34	0.20			0.20		
05/30/2021 06:00	282.85	12.57	39	0.20			0.20		
05/30/2021 07:00	200.20	10.10	50	0.20			0.20		
05/30/2021 08:00	169.30	12.27	52	0.20			0.20		
05/30/2021 09:00	234.70	14.20	50	0.20			0.20		
05/30/2021 10:00	273.60	11.85	39	0.20			0.20		
05/30/2021 11:00	173.95	11.24	52	0.20			0.20		
05/30/2021 12:00	152.30	8.53	56	0.20			0.20		
05/30/2021 13:00	174.40	9.04	81	0.20			0.20		
05/30/2021 14:00	168.75	9.01	140	0.20			0.20		
05/30/2021 15:00	153.20	9.39	192	0.20			0.20		
05/30/2021 16:00	193.10	9.53	142	0.20			0.20		
05/30/2021 17:00	207.50	10.11	131	0.20			1.07		
05/30/2021 18:00	228.15	10.17	143	0.20			0.32		
05/30/2021 19:00	217.25	7.67	147	0.20			0.20		
05/30/2021 20:00	256.65	5.81	38	0.20			2.39		
05/30/2021 21:00	134.30	2.33	161	0.20			0.31		
05/30/2021 22:00	173.40	1.79	183	0.20			0.20		
05/30/2021 23:00	92.80	1.51	181	0.20			0.20		
05/31/2021 00:00	98.55	1.54	158	0.20			0.20		
05/31/2021 01:00	142.30	2.40	111	0.20			0.20		
05/31/2021 02:00	90.60	1.40	169	0.20			0.62		
05/31/2021 03:00	62.42	1.66	156	0.20			0.20		
05/31/2021 04:00	24.47	2.17	177	0.20			0.20		
05/31/2021 05:00	15.76	1.88	157	0.20			0.20		
05/31/2021 06:00	8.00	2.33	136	0.20			0.20		
05/31/2021 07:00	4.51	2.26	106	0.20			0.20		
05/31/2021 08:00	7.09	3.49	104	0.20			0.20		
05/31/2021 09:00	10.91	3.28	159	0.20			0.20		
05/31/2021 10:00	48.12	2.40	200	1.46			0.20		
05/31/2021 11:00	28.70	2.56	149	0.20			1.63		
05/31/2021 12:00	15.88	2.29	153	6.14			4.74		
05/31/2021 13:00	7.04	3.50	165	5.12			7.71		
05/31/2021 14:00	23.48	3.46	146	1.79			1.46		

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1			Station 2			Station 3		
Location Description	No1 Holding Pond Outfall Structure			East of Wastewater Solids Pond			Catawba River, NE of Plant by Hwy 5		
Coordinates	34°49'58.5"N, 80°53'15.3"W			34°50'55.4"N, 80°52'05.3"W			34°51'21.60"N, 80°52'17.92"W		
Timestamp	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)
05/31/2021 15:00	20.60	3.72	117	3.56			3.03		
05/31/2021 16:00	13.72	3.35	225	0.46			0.66		
05/31/2021 17:00	5.33	3.27	111	0.20			0.20		
05/31/2021 18:00	7.17	1.80	113	0.20			0.20		
05/31/2021 19:00	73.88	1.74	146	0.20			0.61		
05/31/2021 20:00	217.85	2.33	196	0.20			0.48		
05/31/2021 21:00	205.15	2.02	200	0.20			0.20		
05/31/2021 22:00	110.50	2.13	184	0.20			0.77		
05/31/2021 23:00	100.45	1.73	186	1.10			2.69		
06/01/2021 00:00	58.82	1.75	175	5.35			1.96		
06/01/2021 01:00	116.40	1.89	174	4.97			2.22		
06/01/2021 02:00	69.20	1.44	184	2.60			3.06		
06/01/2021 03:00	150.25	2.71	164	2.03			1.74		
06/01/2021 04:00	23.90	2.03	224	20.99			18.62		
06/01/2021 05:00	75.89	1.80	192	12.84			10.72		
06/01/2021 06:00	74.33	1.40	174	7.43			13.06		
06/01/2021 07:00	164.25	1.29	116	6.87			15.15		
06/01/2021 08:00	132.85	1.03	124	25.69			13.80		
06/01/2021 09:00	145.62	1.80	141	19.87			8.99		
06/01/2021 10:00	9.16	2.32	214	22.16			24.24		
06/01/2021 11:00	14.72	2.46	156	4.80			7.84		
06/01/2021 12:00	9.09	2.21	175	3.56			6.55		
06/01/2021 13:00	15.70	3.21	108	7.63			7.78		
06/01/2021 14:00	7.74	4.09	144	6.92			6.87		
06/01/2021 15:00	7.99	3.54	127	1.68			3.72		
06/01/2021 16:00	10.92	2.20	161	1.42			5.83		
06/01/2021 17:00	9.57	2.25	207	0.78			2.67		
06/01/2021 18:00	27.34	2.44	226	0.28			2.01		
06/01/2021 19:00	67.57	2.49	194	0.20			2.29		
06/01/2021 20:00	75.23	2.40	192	0.20			0.71		
06/01/2021 21:00	152.65	1.82	196	0.20			1.22		
06/01/2021 22:00	76.70	1.82	193	0.21			2.27		
06/01/2021 23:00	80.26	1.62	180	1.90			4.47		
06/02/2021 00:00	119.55	1.89	209	0.37			5.45		
06/02/2021 01:00	151.90	2.63	196	0.20			3.68		
06/02/2021 02:00	153.20	1.58	213	0.55			1.75		
06/02/2021 03:00	172.00	1.20	205	0.20			0.87		
06/02/2021 04:00	120.85	1.51	166	0.20			0.47		
06/02/2021 05:00	131.35	1.34	138	0.20			0.44		
06/02/2021 06:00	94.25	1.12	140	0.20			1.15		
06/02/2021 07:00	29.36	2.09	75	0.20			0.98		
06/02/2021 08:00	48.47	2.35	98	0.20			0.40		
06/02/2021 09:00	20.15	2.77	106	0.20			0.24		
06/02/2021 10:00	37.42	2.75	100	0.20			0.35		
06/02/2021 11:00	24.53	2.92	122	0.20			0.34		
06/02/2021 12:00	25.39	2.87	155	0.20			0.23		
06/02/2021 13:00	10.76	3.37	147	0.20			0.24		
06/02/2021 14:00	32.88	2.39	127	0.20			0.21		
06/02/2021 15:00	45.93	2.50	123	0.20			1.59		
06/02/2021 16:00	25.64	2.59	121	0.20			0.39		
06/02/2021 17:00	4.52	2.45	122	0.20			0.20		
06/02/2021 18:00	0.99	3.46	127	0.20			0.21		
06/02/2021 19:00	4.84	4.08	142	0.20			0.21		
06/02/2021 20:00	154.85	2.56	159	0.20			0.23		
06/02/2021 21:00	192.35	2.00	195	0.20			0.26		
06/02/2021 22:00	199.85	1.94	188				0.43		
06/02/2021 23:00	360.35	2.46	189	1.23			0.44		
06/03/2021 00:00	141.20	2.23	199	0.20			1.85		
06/03/2021 01:00	76.65	2.27	207	0.20			1.15		
06/03/2021 02:00	189.73	2.58	215	0.20			1.91		
06/03/2021 03:00	189.95	2.27	203	0.20			0.77		
06/03/2021 04:00	38.57	1.80	221	0.20			0.80		
06/03/2021 05:00	65.94	1.72	218	3.53			2.94		
06/03/2021 06:00	84.83	1.41	193	1.55			6.89		
06/03/2021 07:00	101.15	2.18	198	0.20			0.86		
06/03/2021 08:00	98.00	2.84	194	0.20			1.09		
06/03/2021 09:00	79.18	3.77	196	0.20			1.36		
06/03/2021 10:00	45.32	4.93	203	1.30			23.44		
06/03/2021 11:00	52.25	5.54	257	8.81	2.02	175	7.02		
06/03/2021 12:00	17.64	5.29	247	13.57	3.55	255	0.79		
06/03/2021 13:00	71.40	3.78	216	49.07	1.58	195	18.32		
06/03/2021 14:00	86.45	3.10	194	21.62	0.88	142	55.36		
06/03/2021 15:00	26.74	6.96	142	0.33	1.15	120	0.75	1.83	161
06/03/2021 16:00	26.55	6.72	154	0.34	1.55	150	0.41	0.92	194
06/03/2021 17:00	34.96	7.79	164	0.22	2.14	182	0.40	1.26	200
06/03/2021 18:00	44.89	6.76	149	0.22	1.64	177	0.46	0.93	195
06/03/2021 19:00	77.32	4.95	157	0.47	0.90	193	0.42	0.32	179
06/03/2021 20:00	106.47	3.15	156	0.22	1.22	222	0.48	0.28	193
06/03/2021 21:00	119.55	2.56	179	0.20	0.91	218	0.55	0.30	182
06/03/2021 22:00	198.85	2.55	154	0.20	0.37	167	0.59	0.03	194
06/03/2021 23:00	413.05	5.13	191	0.61	1.27	198	3.64	0.43	208
06/04/2021 00:00	349.00	4.08	195	0.20	1.20	199	7.86	0.72	190
06/04/2021 01:00	43.85	3.02	244	11.44	2.01	250	10.13	0.36	221
06/04/2021 02:00	244.20	3.23	207	22.56	1.72	217	3.28	0.41	198
06/04/2021 03:00	244.95	4.50	246	11.47	1.55	190	0.81	0.56	207
06/04/2021 04:00	57.06	1.78	118	0.21	0.51	104	0.85	0.17	157
06/04/2021 05:00	259.30	3.82	170	1.29	0.67	189	1.50	0.16	229

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	**Station 1**			**Station 2**			**Station 3**		
Location Description	No1 Holding Pond Outfall Structure			East of Wastewater Solids Pond			Catawba River, NE of Plant by Hwy 5		
Coordinates	34°49'58.5"N, 80°53'15.3"W			34°50'55.4"N, 80°52'05.3"W			34°51'21.60"N, 80°52'17.92"W		
Timestamp	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)
06/04/2021 06:00	123.50	1.69	193	1.40	0.18	172	2.22	0.00	247
06/04/2021 07:00	80.26	1.62	198	0.43	0.53	244	1.78	0.05	247
06/04/2021 08:00	97.56	2.48	214	2.27	0.57	173	8.49	0.16	227
06/04/2021 09:00	117.90	4.05	189	0.95	1.33	220	22.47	0.85	224
06/04/2021 10:00	60.91	3.71	210	4.41	2.42	231	15.50	1.29	212
06/04/2021 11:00	34.16	3.12	269	4.83	2.31	253	1.39	0.70	200
06/04/2021 12:00	48.79	4.40	280	1.47	1.71	228	0.75	0.75	180
06/04/2021 13:00	48.91	2.40	161	2.25	0.58	168	0.63	0.88	148
06/04/2021 14:00	48.60	2.62	185	3.04	0.37	168	2.95	1.08	130
06/04/2021 15:00	36.94	5.16	269	1.80	1.81	226	0.70	0.85	220
06/04/2021 16:00	131.85	3.95	235	2.01	2.09	229	1.35	0.92	205
06/04/2021 17:00	55.46	3.85	256	2.79	3.19	270	0.29	0.81	215
06/04/2021 18:00	295.95	3.17	226	1.53	1.71	261	0.21	0.23	205
06/04/2021 19:00	1202.00	2.32	193	3.60	0.36	125	0.56	0.00	191
06/04/2021 20:00	840.15	2.91	190	6.48	0.35	124	0.65	0.03	191
06/04/2021 21:00	9.28	2.11	190	6.05	0.35	152	1.12	0.15	179
06/04/2021 22:00	33.21	2.24	207	4.22	0.23	127	2.79	0.00	201
06/04/2021 23:00	14.65	1.83	187	1.09	0.19	96	2.28	0.01	190
06/05/2021 00:00	4.37	3.57	193	0.41	0.82	221	2.18	0.15	228
06/05/2021 01:00	1.03	2.66	204	0.20	0.42	199	1.03	0.05	158
06/05/2021 02:00	1.02	2.33	186	0.19	0.28	128	1.66	0.08	132
06/05/2021 03:00	0.93	1.41	173	0.20	0.29	141	0.93	0.11	140
06/05/2021 04:00	27.77	2.22	218	0.63	0.72	146	1.01	0.09	209
06/05/2021 05:00	50.41	1.84	173	0.20	0.23	85	1.05	0.00	150
06/05/2021 06:00	20.89	1.57	101	0.20	0.19	110	0.75	0.00	204
06/05/2021 07:00	13.87	1.33	147	0.20	0.11	271	0.63	0.07	222
06/05/2021 08:00	5.13	2.57	191	0.22	0.23	241	2.40	0.06	223
06/05/2021 09:00	6.39	3.28	176	0.24	0.77	204	7.92	0.43	213
06/05/2021 10:00	24.52	1.08	206	11.63	0.38	177	5.44	0.36	135
06/05/2021 11:00	11.99	1.79	77	1.57	0.07	108	1.36	0.53	98
06/05/2021 12:00	3.26	2.00	123	0.55	0.07	145	0.67	0.40	136
06/05/2021 13:00	0.97	3.84	110	0.21	0.15	134	0.56	0.84	174
06/05/2021 14:00	0.78	4.49	122	0.20	0.33	156	0.60	1.27	151
06/05/2021 15:00	0.63	3.94	141	0.20	0.40	161	0.49	1.23	196
06/05/2021 16:00	0.64	4.73	169	0.20	0.41	157	0.22	0.95	163
06/05/2021 17:00	0.62	4.69	189	0.20	1.39	202	1.68	0.98	188
06/05/2021 18:00	0.61	5.35	181	0.20	1.93	201	1.50	1.05	194
06/05/2021 19:00	0.70	4.19	177	0.22	1.70	203	1.32	0.57	171
06/05/2021 20:00	0.63	7.06	157	0.20	2.16	196	0.28	0.88	162
06/05/2021 21:00	1.19	3.45	189	0.40	1.12	217	1.33	0.42	202
06/05/2021 22:00	0.64	3.43	196	10.70	0.85	173	27.93	0.84	203
06/05/2021 23:00	0.63	1.66	153	0.20	0.34	134	11.62	0.13	125
06/06/2021 00:00	0.71	1.06	153	0.20	0.00	63	1.18	0.07	126
06/06/2021 01:00	1.53	0.84	172	0.20	0.20	93	1.08	0.12	122
06/06/2021 02:00	0.77	1.04	137	0.20	0.14	169	1.31	0.01	109
06/06/2021 03:00	2.70	2.39	172	1.20	0.41	68	1.64	0.00	160
06/06/2021 04:00	1.19	2.36	159	0.21	0.26	95	0.89	0.00	168
06/06/2021 05:00	0.82	2.23	182	0.20	0.28	152	0.78	0.00	199
06/06/2021 06:00	0.75	1.68	201	0.20	0.37	171	0.68	0.00	136
06/06/2021 07:00	1.64	2.86	201	0.20	0.50	214	0.57	0.68	230
06/06/2021 08:00	0.84	3.42	172	0.22	1.15	203	0.72	0.77	206
06/06/2021 09:00	0.73	5.42	169	0.32	1.84	195	1.16	1.53	212
06/06/2021 10:00	0.71	4.40	161	0.20	1.42	201	0.66	1.04	217
06/06/2021 11:00	0.64	4.94	192	0.20	1.48	200	1.36	1.36	201
06/06/2021 12:00	0.69	4.07	210	2.22	2.94	242	8.62	1.90	213
06/06/2021 13:00	1.24	3.73	223	2.77	2.24	236	6.43	1.86	217
06/06/2021 14:00	2.00	3.10	213	2.84	1.89	229	7.18	1.65	214
06/06/2021 15:00	3.83	3.73	205	1.71	0.58	202	8.44	1.49	169
06/06/2021 16:00	0.76	4.82	166	0.20	1.72	194	1.89	1.92	200
06/06/2021 17:00	0.62	7.18	129	0.20	1.95	114	0.30	2.05	136
06/06/2021 18:00	0.60	4.27	138	0.20	1.08	98	0.22	0.78	124
06/06/2021 19:00	2.39	3.88	175	0.20	0.75	144	0.33	0.56	153
06/06/2021 20:00	0.83	4.96	180	0.20	1.15	213	0.46	0.51	199
06/06/2021 21:00	0.91	2.78	171	0.20	0.67	207	0.31	0.02	138
06/06/2021 22:00	0.99	2.75	192	0.20	0.85	213	0.56	0.18	170
06/06/2021 23:00	1.15	2.61	180	0.20	0.42	233	0.66	0.06	120
06/07/2021 00:00	1.18	1.75	198	0.20	0.18	208	0.58	0.00	129
06/07/2021 01:00	1.12	2.23	179	0.20	0.19	161	0.66	0.02	115
06/07/2021 02:00	1.01	2.16	166	0.20	0.51	173	1.53	0.12	159
06/07/2021 03:00	1.08	2.40	189	0.20	0.72	223	0.67	0.01	147
06/07/2021 04:00	1.40	1.17	175	0.20	0.39	239	0.64	0.06	209
06/07/2021 05:00	1.14	1.63	187	0.20	0.50	214	0.86	0.02	185
06/07/2021 06:00	0.78	2.09	193	0.20	0.58	214	0.65	0.06	158
06/07/2021 07:00	0.81	1.82	170	0.24	0.60	197	0.66	0.08	210
06/07/2021 08:00	0.76	3.52	196	0.22	1.61	218	2.54	1.01	224
06/07/2021 09:00	0.80	3.43	180	0.23	1.92	206	3.50	0.89	206
06/07/2021 10:00	0.77	3.88	178	0.29	1.59	190	3.10	0.96	196
06/07/2021 11:00	0.75	4.50	190	1.51	1.41	208	4.45	0.81	197
06/07/2021 12:00	0.72	5.76	188	0.77	1.76	212	7.63	1.37	202
06/07/2021 13:00	0.66	5.62	169	0.20	1.45	200	1.26	1.81	188
06/07/2021 14:00	0.73	6.40	161	0.21	0.82	164		1.52	194
06/07/2021 15:00	0.66	6.67	175	0.21	0.59	149	0.67	1.21	165
06/07/2021 16:00	0.66	6.54	152	0.20	0.61	152	0.64	0.75	174
06/07/2021 17:00	59.31	10.68	238	1.44	4.51	239	0.93	1.27	202
06/07/2021 18:00	68.10	3.98	209	30.55	1.26	191	4.41	0.49	224
06/07/2021 19:00	1.07	3.55	167	9.40	0.72	169	7.94	0.27	175
06/07/2021 20:00	0.98	2.36	126	0.20	0.29	118	0.90	0.07	174

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	**Station 1**			**Station 2**			**Station 3**		
Location Description	No1 Holding Pond Outfall Structure			East of Wastewater Solids Pond			Catawba River, NE of Plant by Hwy 5		
Coordinates	34°49'58.5"N, 80°53'15.3"W			34°50'55.4"N, 80°52'05.3"W			34°51'21.60"N, 80°52'17.92"W		
Timestamp	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)
06/07/2021 21:00	0.78	2.43	167	0.20	0.69	181	0.58	0.15	223
06/07/2021 22:00	1.27	2.70	208	0.20	0.66	228	0.57	0.08	210
06/07/2021 23:00	0.73	2.04	194	4.04	0.74	166	13.54	0.73	195
06/08/2021 00:00	0.93	2.54	173	1.85	0.56	163	10.53	0.04	151
06/08/2021 01:00	0.96	2.28	181	0.20	0.97	190	0.95	0.18	192
06/08/2021 02:00	0.96	3.35	179	0.21	0.98	184	4.22	0.07	173
06/08/2021 03:00	1.08	3.24	184	0.20	0.76	178	2.67	0.12	188
06/08/2021 04:00	1.03	2.94	192	0.20	0.67	192	11.54	0.47	225
06/08/2021 05:00	0.95	1.87	186	5.11	0.83	169	16.19	0.29	204
06/08/2021 06:00	0.94	2.07	189	0.80	0.77	182	9.01	0.15	226
06/08/2021 07:00	0.97	3.47	178	0.22	1.20	198	10.66	0.72	225
06/08/2021 08:00	0.83	3.85	199	1.26	1.73	208	22.09	1.36	214
06/08/2021 09:00	0.77	5.50	209	8.84	2.41	216	27.83	1.58	216
06/08/2021 10:00	0.75	4.40	190	1.55	1.84	202	19.56	0.87	210
06/08/2021 11:00	0.75	5.54	203	2.72	2.59	224	12.71	1.72	222
06/08/2021 12:00	0.85	3.72	202	5.52	2.37	220	12.94	1.40	204
06/08/2021 13:00	12.63	2.32	209	3.18	0.87	192	3.62	0.59	203
06/08/2021 14:00	4.58	2.44	205	2.51	0.49	200	1.72	0.64	146
06/08/2021 15:00	0.88	4.20	195	0.69	0.96	187	4.42	1.21	180
06/08/2021 16:00	0.78	6.23	181	0.21	1.75	202	2.12	1.21	204
06/08/2021 17:00	0.71	9.26	188	0.20	3.95	214	8.91	2.59	221
06/08/2021 18:00	0.72	6.57	180	0.21	2.64	192	13.91	1.55	200
06/08/2021 19:00	0.81	5.04	176	0.20	1.79	187	1.23	1.11	204
06/08/2021 20:00	0.89	3.27	178	0.20	0.89	205	0.78	0.18	138
06/08/2021 21:00	0.88	2.62	181	0.20	0.66	209	0.79	0.12	140
06/08/2021 22:00	0.88	3.93	190	0.20	1.02	211	3.70	0.46	174
06/08/2021 23:00	0.91	4.02	190	0.20	1.01	207	14.20	0.29	170
06/09/2021 00:00	0.95	3.53	190	0.20	0.90	192	29.74	0.60	193
06/09/2021 01:00	1.04	3.47	190	0.90	1.04	175	41.61	0.48	164
06/09/2021 02:00	1.75	1.96	168	0.22	0.55	143	1.86	0.03	180
06/09/2021 03:00	1.23	4.13	170	0.20	0.67	170	1.24	0.40	200
06/09/2021 04:00	0.85	4.20	202	2.86	1.74	217	37.19	1.45	221
06/09/2021 05:00	0.85	3.21	203	5.77	1.29	196	33.98	0.72	196
06/09/2021 06:00	0.80	3.39	195	2.67	1.56	206	23.25	1.07	210
06/09/2021 07:00	0.90	4.39	188	0.20	1.56	220	6.98	1.06	224
06/09/2021 08:00	0.79	5.28	187	0.21	2.60	219	10.74	1.55	221
06/09/2021 09:00	0.64	6.78	201	0.83	3.16	227	14.17	2.09	217
06/09/2021 10:00	0.67	5.92	205	5.47	3.48	230	20.15	2.49	216
06/09/2021 11:00		6.15	206	4.78	3.36	238	14.20	2.53	218
06/09/2021 12:00	2.74	6.44	224	8.80	4.25	235	11.24	1.91	208
06/09/2021 13:00	2.17	7.44	230		4.04	232	1.56	2.55	202
06/09/2021 14:00	2.38	6.81	226	10.45	4.29	248		2.21	211
06/09/2021 15:00	3.27	6.95	224	14.20	4.36	244		2.02	213
06/09/2021 16:00	2.65	6.91	238	14.04	4.44	243	0.99	2.14	218
06/09/2021 17:00	2.23	5.29	234	15.51	4.31	251	0.82	1.59	223
06/09/2021 18:00	0.82	4.37	227	22.10	3.40	248	0.79	1.12	222
06/09/2021 19:00	30.16	2.86	188	20.59	0.96	188	1.05	0.04	222
06/09/2021 20:00	112.03	2.23	180	0.86	0.46	149	42.56	0.04	172
06/09/2021 21:00	283.50	1.63	164	0.25	0.31	154	29.39	0.02	169
06/09/2021 22:00	160.20	3.28	188	0.28	0.54	238	1.81	0.02	172
06/09/2021 23:00	99.35	3.41	195	1.16	0.25	193	8.04	0.06	153
06/10/2021 00:00	67.75	3.32	193	0.39	0.58	211	60.23	0.42	187
06/10/2021 01:00	79.45	3.27	189	0.20	1.10	197	69.55	0.48	166
06/10/2021 02:00	49.11	2.04	169	19.00	0.77	163	50.65	0.07	147
06/10/2021 03:00	71.98	2.61	179	0.20	0.85	236	6.58	0.26	191
06/10/2021 04:00	39.30	2.82	192	0.20	0.40	224	1.24	0.07	168
06/10/2021 05:00	43.39	2.46	195	5.50	0.71	207	25.57	0.37	152
06/10/2021 06:00	53.52	2.54	195	0.42	0.61	208	26.97	0.23	146
06/10/2021 07:00	39.65	3.08	187	0.20	0.84	211	2.17	0.85	183
06/10/2021 08:00	30.16	4.41	206	1.82	2.14	223	24.52	1.76	225
06/10/2021 09:00	18.88	5.85	211	13.99	3.27	233		1.83	216
06/10/2021 10:00	13.55	6.04	212	12.31	3.24	231		2.04	221
06/10/2021 11:00	7.49	7.72	222	16.52	5.04	238	18.31	2.39	211
06/10/2021 12:00	26.26	6.04	231	39.59	4.17	214	13.59	1.92	204
06/10/2021 13:00	19.15	4.59	236	29.05	2.81	221	3.83	0.72	215
06/10/2021 14:00	7.05	5.86	224	19.76	2.88	229	9.54	0.97	200
06/10/2021 15:00	120.28	6.84	246	27.26	3.33	181	1.96	1.42	242
06/10/2021 16:00	19.12	4.97	200	21.68	2.19	209	47.53	1.17	217
06/10/2021 17:00	19.14	5.66	193	6.86	2.88	215	24.64	2.00	216
06/10/2021 18:00	27.99	5.20	190	2.77	1.50	184	44.57	0.72	224
06/10/2021 19:00	27.11	3.44	176	0.20	1.57	181	33.34	0.32	157
06/10/2021 20:00	46.61	3.93	190	0.20	0.72	183	14.42	0.16	171
06/10/2021 21:00	41.69	3.61	186	0.20	0.89	169	28.88	0.16	156
06/10/2021 22:00	38.76	6.06	197	0.20	1.47	197	51.15	1.24	195
06/10/2021 23:00	81.76	5.10	195	2.20	1.30	173	39.07	0.53	164
06/11/2021 00:00	77.42	3.35	185	0.20	0.96	165	15.20	0.17	158
06/11/2021 01:00	82.80	2.65	183	0.70	1.13	163	20.84	0.08	164
06/11/2021 02:00	118.85	3.79	186	0.20	1.05	181	14.06	0.18	182
06/11/2021 03:00	105.45	3.89	193	0.44	1.13	185	26.05	0.27	182
06/11/2021 04:00	61.22	4.66	199	3.37	1.21	191	64.08	1.13	190
06/11/2021 05:00	104.30	3.37	189	5.83	1.11	181	76.77	0.92	214
06/11/2021 06:00	83.19	3.46	188	0.68	1.25	177	56.48	0.17	166
06/11/2021 07:00	55.29	4.07	194	0.72	1.40	205	20.09	0.71	210
06/11/2021 08:00	9.43	6.32	217	21.28	3.23	230	8.55	2.00	212
06/11/2021 09:00	5.79	7.20	225	8.45	4.87	243	2.20	2.44	210
06/11/2021 10:00	6.51	7.39	224	13.50	4.75	240	2.70	2.15	207
06/11/2021 11:00	5.16	7.05	233	13.69	4.46	237	2.77	2.05	208

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1			Station 2			Station 3		
Location Description	No1 Holding Pond Outfall Structure			East of Wastewater Solids Pond			Catawba River, NE of Plant by Hwy 5		
Coordinates	34°49'58.5"N, 80°53'15.3"W			34°50'55.4"N, 80°52'05.3"W			34°51'21.60"N, 80°52'17.92"W		
Timestamp	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)
06/11/2021 12:00	9.71	6.88	247	8.85	5.34	250	2.34	2.21	214
06/11/2021 13:00	7.03	7.36	226	15.81	4.65	242	2.49	2.52	216
06/11/2021 14:00	28.36	8.25	258	21.18	5.07	264	1.91	1.88	224
06/11/2021 15:00	61.09	3.85	209	7.44	2.77	235	11.49	1.35	214
06/11/2021 16:00	39.35	3.36	250	11.68	3.04	263	1.93	0.93	213
06/11/2021 17:00	72.25	6.86	190	66.50	2.98	216	131.64	1.67	215
06/11/2021 18:00	70.39	2.95	208	1.77	0.84	142	22.91	0.60	218
06/11/2021 19:00	355.40	2.25	173	0.84	1.08	115	1.73	0.42	164
06/11/2021 20:00	208.05	2.22	190	2.28	0.32	122	1.70	0.06	208
06/11/2021 21:00	189.75	2.26	206	18.76	0.93	167	5.37	0.27	205
06/11/2021 22:00	142.00	3.96	275	4.27	1.31	245	1.71	0.31	227
06/11/2021 23:00	155.95	2.33	205	19.23	0.78	143	1.20	0.23	216
06/12/2021 00:00	176.20	2.08	169	7.12	0.53	144	1.16	0.09	232
06/12/2021 01:00	215.10	1.70	172	14.66	0.67	138	14.51	0.04	215
06/12/2021 02:00	220.65	1.26	183	0.32	0.25	140	18.12	0.00	223
06/12/2021 03:00	159.90	2.09	195	0.20	0.43	143	22.67	0.02	209
06/12/2021 04:00	122.30	1.57	192	28.81	0.17	107	33.50	0.00	249
06/12/2021 05:00	57.60	3.01	225	52.46	0.72	199	6.62	0.00	238
06/12/2021 06:00	34.86	2.91	217	40.40	1.42	219	1.92	0.17	214
06/12/2021 07:00	104.18	3.56	303	2.36	1.73	244	1.36	0.38	166
06/12/2021 08:00	137.30	1.75	195	0.21	1.22	221	1.25	0.33	152
06/12/2021 09:00	70.48	2.79	90	0.24	0.21	140	1.72	0.43	147
06/12/2021 10:00	33.16	2.09	156	0.29	0.51	201	1.89	0.72	176
06/12/2021 11:00	180.95	6.33	116	0.30	1.02	211	1.88	0.84	179
06/12/2021 12:00	278.20	8.54	85	0.31	2.20	211	1.93	1.43	158
06/12/2021 13:00	241.80	7.79	63	0.20	0.73	157	1.54	1.22	169
06/12/2021 14:00	382.55	8.39	85	0.22	2.30	214	1.59	0.66	251
06/12/2021 15:00	351.30	5.24	254	7.76	2.89	246	1.12	0.62	231
06/12/2021 16:00	77.89	2.62	203	47.58	0.65	144	1.72	0.34	192
06/12/2021 17:00	136.05	8.31	242	54.78	2.60	216	6.61	0.82	235
06/12/2021 18:00	338.80	5.57	61	0.20	0.74	153	1.32	0.33	190
06/12/2021 19:00	136.90	1.66	140	0.20	0.22	173	1.31	0.04	240
06/12/2021 20:00	137.60	2.92	256	0.20	0.53	259	1.41	0.17	234
06/12/2021 21:00	104.40	1.32	166	0.20	0.19	156	1.04	0.08	231
06/12/2021 22:00	149.25	2.24	137	0.20	0.28	169	1.07	0.01	200
06/12/2021 23:00	425.00	5.80	54	0.20	0.05	163	27.27	0.23	180
06/13/2021 00:00	401.50	6.18	33	0.20	0.06	109	25.36	0.27	108
06/13/2021 01:00		6.04	37	0.20	0.05	102	6.27	0.14	124
06/13/2021 02:00	264.05	7.49	39	0.64	0.20	103		0.61	107
06/13/2021 03:00	217.60	7.97	40	0.20	0.24	121	38.20	0.47	101
06/13/2021 04:00	168.03	5.10	43	0.20	0.04	105	21.90	0.26	97
06/13/2021 05:00	435.60	6.26	34	0.20	0.08	131	19.10	0.39	94
06/13/2021 06:00	152.40	5.43	47	0.20	0.09	98	14.35	0.15	101
06/13/2021 07:00	193.00	5.24	39	0.20	0.55	148	13.68	0.43	130
06/13/2021 08:00	493.55	8.53	30	0.20	0.64	109	10.30	0.86	129
06/13/2021 09:00	400.60	8.84	35	0.23	1.68	158	7.75	1.38	115
06/13/2021 10:00	303.65	7.68	40	0.20	1.63	168	6.26	1.21	150
06/13/2021 11:00	311.50	8.10	38	0.24	1.35	147	5.34	1.52	138
06/13/2021 12:00	428.05	9.31	54	0.23	1.61	164	5.04	1.92	128
06/13/2021 13:00	327.10	8.07	63	0.20	1.56	196	4.86	1.52	182
06/13/2021 14:00	270.20	6.97	97	0.20	0.81	179	4.39	1.23	157
06/13/2021 15:00	317.35	6.91	87	0.20	2.22	248	4.26	1.37	190
06/13/2021 16:00	295.55	7.27	83	0.20	1.53	211	4.21	1.21	158
06/13/2021 17:00	216.15	5.06	66	0.20	0.91	179	3.50	0.93	124
06/13/2021 18:00	166.25	4.02	108	0.20	0.22	145	2.74	0.82	125
06/13/2021 19:00	172.70	2.12	121	0.20	0.02	84	2.34	0.05	218
06/13/2021 20:00	465.30	2.03	172	0.20	0.31	131	2.23	0.01	203
06/13/2021 21:00	382.30	2.10	180	0.20	0.21	127	2.03	0.02	188
06/13/2021 22:00	316.90	1.68	186	0.38	0.39	134	2.36	0.08	194
06/13/2021 23:00	286.50	1.84	203	0.50	0.46	146	2.01	0.01	219
06/14/2021 00:00	331.10	1.66	194	0.70	0.18	114	2.13	0.02	210
06/14/2021 01:00	307.40	2.77	76	0.47	0.40	98	4.13	0.11	175
06/14/2021 02:00	214.80	3.41	199	45.62	0.44	133	10.38	0.39	198
06/14/2021 03:00	154.05	2.21	152	137.05	0.40	86	34.14	0.12	183
06/14/2021 04:00	209.80	2.46	137	30.06	0.40	220	20.19	0.39	222
06/14/2021 05:00	202.30	2.88	185	122.50	0.38	138	12.38	0.08	151
06/14/2021 06:00	184.65	2.10	167	107.90	0.27	160	36.77	0.03	126
06/14/2021 07:00	142.50	2.72	189	20.09	0.34	201	27.52	0.37	236
06/14/2021 08:00	91.20	2.86	191	13.44	1.37	231	24.22	0.82	224
06/14/2021 09:00	20.61	5.40	207	16.70	2.38	217	59.86	1.35	211
06/14/2021 10:00	2.34	6.08	222	15.20	2.88	229	25.63	2.21	213
06/14/2021 11:00	7.01	5.75	229	10.11	3.32	238		1.84	204
06/14/2021 12:00	12.68	5.18	232	9.41	3.64	248	4.21	1.82	203
06/14/2021 13:00	9.76	4.12	238	9.45	1.27	230	2.95	1.00	206
06/14/2021 14:00	14.95	3.46	188	7.33	0.88	210	4.72	1.18	215
06/14/2021 15:00	11.68	4.32	214	5.38	0.35	200	6.58	0.85	183
06/14/2021 16:00	13.59	3.06	184	1.04	0.22	140	3.75	0.46	160
06/14/2021 17:00	674.19	8.00	211	11.21	3.41	181	2.39	1.43	205
06/14/2021 18:00	44.51	11.13	195	74.86	1.92	180	97.85	1.24	204
06/14/2021 19:00	39.75	3.16	179	43.74	1.06	159	45.66	0.39	186
06/14/2021 20:00	44.41	3.61	204	5.40	1.11	202	15.88	0.54	201
06/14/2021 21:00	81.39	3.79	184	1.05	1.10	164	33.63	0.29	176
06/14/2021 22:00	117.75	2.75	179	0.20	0.71	150	6.09	0.18	173
06/14/2021 23:00	115.00	3.09	183	0.20	0.73	166	13.56	0.15	223
06/15/2021 00:00	140.00	1.93	184	9.14	0.55	146	33.98	0.08	184
06/15/2021 01:00	97.70	1.85	162	24.67	0.60	145	26.68	0.06	198
06/15/2021 02:00	84.65	1.60	157	16.42	0.79	126	41.57	0.02	205

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	**Station 1**			**Station 2**			**Station 3**		
Location Description	No1 Holding Pond Outfall Structure			East of Wastewater Solids Pond			Catawba River, NE of Plant by Hwy 5		
Coordinates	34°49'58.5"N, 80°53'15.3"W			34°50'55.4"N, 80°52'05.3"W			34°51'21.60"N, 80°52'17.92"W		
Timestamp	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)
06/15/2021 03:00	317.55	1.66	185	0.37	0.98	169	12.29	0.01	233
06/15/2021 04:00	154.25	1.30	183	0.20	0.21	136	1.88	0.00	253
06/15/2021 05:00	219.05	1.11	171	0.30	0.27	72	1.96	0.00	247
06/15/2021 06:00	96.15	1.38	189	1.29	0.12	123	4.37	0.00	242
06/15/2021 07:00	88.90	1.17	189	40.90	0.18	136	14.68	0.01	198
06/15/2021 08:00	67.84	2.16	177	138.40	0.07	143	30.82	0.23	171
06/15/2021 09:00	111.95	3.03	138	64.88	0.72	126	8.99	0.80	133
06/15/2021 10:00	388.00	8.65	44	0.45	1.98	239	2.23	0.96	181
06/15/2021 11:00	464.20	9.53	104	0.41	1.99	205	1.78	1.13	174
06/15/2021 12:00	400.90	8.82	90	0.20	0.62	170	1.76	1.16	188
06/15/2021 13:00	455.15	8.91	78	0.22	1.27	225	1.84	1.27	171
06/15/2021 14:00	459.00	8.79	76	0.20	0.81	190	1.74	1.53	174
06/15/2021 15:00	533.75	8.67	84	0.20	1.31	172	1.43	1.32	148
06/15/2021 16:00	506.40	7.72	38	0.20	0.28	117	1.21	0.74	165
06/15/2021 17:00	528.90	8.05	99	0.20	0.12	105	0.99	0.53	166
06/15/2021 18:00	675.75	8.31	33	0.20	0.03	98	0.88	1.26	104
06/15/2021 19:00	232.72	3.65	85	0.20	0.03	124	0.93	0.11	196
06/15/2021 20:00	103.64	1.79	167	0.20	0.28	83	1.04	0.00	235
06/15/2021 21:00	301.35	2.19	180	0.20	0.23	129	1.00	0.02	209
06/15/2021 22:00	220.50	1.89	171	0.20	0.19	148	0.92	0.02	199
06/15/2021 23:00	242.60	1.94	146	0.20	0.11	137	0.88	0.02	197
06/16/2021 00:00	233.90	1.72	180	0.20	0.13	89	0.97	0.00	211
06/16/2021 01:00	401.80	1.64	147	0.20	0.25	152	2.82	0.09	180
06/16/2021 02:00	292.25	2.35	135	0.20	0.39	106	1.48	0.16	188
06/16/2021 03:00	323.85	4.83	53	0.20	0.27	99	1.18	0.09	210
06/16/2021 04:00	396.55	4.31	44	0.20	0.11	116	1.04	0.40	162
06/16/2021 05:00	425.90	3.53	66	0.20	0.22	120	0.94	0.02	217
06/16/2021 06:00	373.65	5.34	35	0.20	0.15	110	0.91	0.02	217
06/16/2021 07:00	384.30	5.96	32	0.20	0.20	173	0.98	0.36	160
06/16/2021 08:00	265.35	4.28	71	0.20	0.39	155	0.96	0.42	167
06/16/2021 09:00	257.60	6.72	43	0.20	0.72	133	0.84	1.50	120
06/16/2021 10:00	168.80	5.99	63	0.32	0.51	125	0.86	1.19	133
06/16/2021 11:00	164.35	6.22	52	0.38	0.67	167	0.92	2.02	131
06/16/2021 12:00	127.90	4.37	141	0.20	0.59	174	0.82	1.43	155
06/16/2021 13:00	88.45	4.39	135	0.22	1.85	242	0.71	1.40	192
06/16/2021 14:00	30.56	3.88	223	1.07	0.37	183	0.75	1.00	179
06/16/2021 15:00	23.62	3.09	240	1.41	0.09	112	1.87	0.62	161
06/16/2021 16:00	16.85	4.67	253	3.11	1.74	233	2.10	0.93	172
06/16/2021 17:00	46.94	5.23	282	3.13	2.53	272	0.66	0.80	197
06/16/2021 18:00	94.79	6.42	302	2.35	3.56	283	0.61	0.32	168
06/16/2021 19:00	59.60	2.36	239	0.72	0.66	232	0.73	0.01	189
06/16/2021 20:00	289.15	2.11	174	0.20	0.14	135	0.84	0.00	210
06/16/2021 21:00	344.70	2.22	184	1.21	0.01	191	0.86	0.00	195
06/16/2021 22:00	340.30	1.74	180	13.16	0.07	109	0.93	0.00	193
06/16/2021 23:00	300.50	1.58	178	15.33	0.24	112	1.28	0.00	201
06/17/2021 00:00	300.85	2.29	151	7.72	0.48	122	3.15	0.10	113
06/17/2021 01:00	225.40	2.06	90	5.34	0.38	100	5.54	0.03	198
06/17/2021 02:00	239.80	2.12	118	1.36	0.13	126	1.88	0.06	224
06/17/2021 03:00	192.26	3.79	52	0.61	0.13	112	1.07	0.00	232
06/17/2021 04:00	279.20	4.58	51	0.20	0.13	83	0.87	0.00	202
06/17/2021 05:00	233.15	3.07	77	0.20	0.31	100	0.81	0.03	213
06/17/2021 06:00	299.45	5.20	38	0.20	0.10	140	0.80	0.00	210
06/17/2021 07:00	344.10	6.35	36	0.20	0.02	169	0.74	0.02	211
06/17/2021 08:00	303.20	6.68	67	0.20	0.62	130	0.76	0.39	193
06/17/2021 09:00	406.70	9.54	72	0.20	2.55	197	0.74	2.00	151
06/17/2021 10:00	415.35	9.13	78	0.31	1.97	160	0.70	2.26	132
06/17/2021 11:00	230.30	5.86	124	0.20	1.00	173	0.60	1.16	142
06/17/2021 12:00	161.60	5.97	188	0.21	3.03	246	0.63	1.20	222
06/17/2021 13:00	113.85	5.03	83	0.20	2.22	216	0.60	1.59	186
06/17/2021 14:00	107.50	5.37	155	0.20	1.77	222	0.59	1.62	175
06/17/2021 15:00	93.79	5.84	174	0.20	2.11	234	0.63	1.14	202
06/17/2021 16:00	119.00	5.59	186	0.21	1.60	226	0.65	1.24	187
06/17/2021 17:00	131.85	5.60	144	0.20	1.13	222	0.48	0.69	139
06/17/2021 18:00	170.20	5.65	48	0.21	0.49	175	0.36	0.51	128
06/17/2021 19:00	128.85	2.60	140	0.20	0.01	98	0.53	0.00	198
06/17/2021 20:00	298.90	2.17	178	0.20	0.11	182	0.72	0.00	215
06/17/2021 21:00	309.05	1.86	175	0.80	0.03	192	0.99	0.00	216
06/17/2021 22:00	308.05	1.63	167	6.48	0.11	172	2.41	0.00	215
06/17/2021 23:00	240.35	1.69	172	5.49	0.21	71	3.74	0.00	215
06/18/2021 00:00	129.90	1.88	180	0.66	0.24	90	14.50	0.05	217
06/18/2021 01:00	107.70	1.90	175	5.40	0.35	124	16.30	0.20	199
06/18/2021 02:00	167.85	1.55	154	4.45	0.35	101	6.50	0.10	169
06/18/2021 03:00	178.60	1.70	165	4.00	0.35	103	6.20	0.25	165
06/18/2021 04:00	204.20	1.60	166	1.60	0.20	90	3.80	0.05	185
06/18/2021 05:00	235.45	1.85	173	2.80	0.25	121	4.15	0.00	156
06/18/2021 06:00	185.55	1.80	175	1.75	0.45	146	3.80	0.05	206
06/18/2021 07:00	212.10	2.55	88	4.90	0.65	129	8.85	0.80	111
06/18/2021 08:00	211.45	2.10	78	5.30	0.70	120	7.55	0.25	159
06/18/2021 09:00	93.75	3.20	178	14.60	1.05	192	9.80	0.80	205
06/18/2021 10:00	25.65	5.50	175	0.35	2.15	202	1.30	1.45	214
06/18/2021 11:00	16.65	5.50	169	0.70	1.45	192	1.00	1.75	214
06/18/2021 12:00	16.40	5.75	193	0.75	1.35	206	2.25	1.50	210
06/18/2021 13:00	7.80	6.85	194	1.80	2.45	231	4.35	1.90	208
06/18/2021 14:00	8.05	5.15	207	0.75	1.40	204	6.60	1.75	206
06/18/2021 15:00	16.50	5.25	185	1.80	1.70	207	4.15	1.85	215
06/18/2021 16:00	9.05	4.75	158	0.20	0.70	179	1.15	1.25	183
06/18/2021 17:00	21.15	3.80	172	0.20	0.70	184	0.85	0.90	205

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1			Station 2			Station 3		
Location Description	No1 Holding Pond Outfall Structure			East of Wastewater Solids Pond			Catawba River, NE of Plant by Hwy 5		
Coordinates	34°49'58.5"N, 80°53'15.3"W			34°50'55.4"N, 80°52'05.3"W			34°51'21.60"N, 80°52'17.92"W		
Timestamp	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)	Avg Conc (ppb)	Avg Wind Spd (mph)	Avg Wind Dir (deg)
06/18/2021 18:00	46.00	5.50	167	0.20	0.95	191	0.65	0.85	190
06/18/2021 19:00	87.15	4.10	184	0.20	0.85	196	1.10	0.45	174
06/18/2021 20:00	208.85	2.75	189	0.50	0.45	217	4.50	0.00	220
06/18/2021 21:00	178.60	1.75	184	7.10	0.00	171	49.90	0.00	198
06/18/2021 22:00	72.80	2.75	203	16.60	0.15	232	36.75	0.00	161
06/18/2021 23:00	17.15	2.35	205	16.80	0.10	208	76.15	0.00	169
06/19/2021 00:00	64.30	3.00	202	10.40	0.80	243	59.45	0.00	181
06/19/2021 01:00	123.90	3.95	194	3.60	0.55	211	26.40	0.20	165
06/19/2021 02:00	196.30	2.80	195	0.30	0.55	194	17.40	0.05	151
06/19/2021 03:00	73.65	3.05	197	0.20	0.40	203	12.70	0.05	148
06/19/2021 04:00	89.20	2.45	201	18.30	0.40	152	29.05	0.05	162
06/19/2021 05:00	65.95	2.65	188	17.25	0.60	145	27.00	0.05	188
06/19/2021 06:00	34.70	2.45	200	2.90	0.80	165	14.65	0.05	192
06/19/2021 07:00	23.90	3.40	200	2.80	0.95	193	27.60	0.35	182
06/19/2021 08:00	9.70	2.95	204	12.30	1.55	210	25.50	0.85	203
06/19/2021 09:00	1.20	5.55	206	6.80	2.65	219	17.60	1.45	212
06/19/2021 10:00	1.40	4.85	229	11.40	2.90	241	2.55	1.70	205
06/19/2021 11:00	1.85	6.35	236	6.85	4.00	242	1.40	2.90	205
06/19/2021 12:00	2.70	7.50	236	12.75	5.25	259	1.45	2.35	217
06/19/2021 13:00	1.45	8.10	230	13.10	5.75	248	1.90	2.80	209
06/19/2021 14:00	1.75	9.25	225	13.25	6.20	242	4.00	3.10	207
06/19/2021 15:00	3.25	6.80	204	15.00	3.50	224	31.05	2.35	217
06/19/2021 16:00	4.80	6.00	206	17.80	2.50	225	46.75	1.85	206
06/19/2021 17:00	4.35	9.35	207	4.45	4.60	221	35.70	3.55	217
06/19/2021 18:00	6.85	6.40	215	20.40	4.30	233	16.05	2.15	206
06/19/2021 19:00	12.85	6.55	207	17.75	3.40	229	27.25	2.20	208
06/19/2021 20:00	9.40	9.55	206	10.10	4.45	224	29.45	3.10	216
06/19/2021 21:00	5.10	5.45	230	25.60	3.25	248	12.10	1.00	195
06/19/2021 22:00	31.40	2.75	225	11.45	1.50	247	1.20	0.70	200
06/19/2021 23:00	19.90	2.75	194	26.20	1.65	220	1.65	1.40	206
06/20/2021 00:00	52.65	2.65	181	2.80	1.05	197	14.05	0.40	206
06/20/2021 01:00		2.00	175	0.20	0.50	146	6.20	0.00	199
06/20/2021 02:00	38.05	2.05	182	2.80	0.25	126		0.05	163
06/20/2021 03:00	35.50	3.35	163	0.20	0.90	195	1.95	0.25	214
06/20/2021 04:00	22.10	3.60	158	0.20	1.10	184	6.80	0.40	219
06/20/2021 05:00	589.20	5.90	48	0.20	1.35	138	1.10	0.45	177
06/20/2021 06:00	710.50	4.80	135	0.20	1.85	143	1.00	0.60	184
06/20/2021 07:00	17.20	5.00	132	2.20	0.90	147	2.00	0.45	162
06/20/2021 08:00	11.35	6.20	182	0.35	2.40	199	1.85	1.40	228
06/20/2021 09:00	13.80	4.65	182	0.40	1.75	201	13.55	1.20	211
06/20/2021 10:00	14.90	5.40	182	0.20	2.15	214	9.40	0.90	231
06/20/2021 11:00	18.15	6.40	177	0.20	2.65	210	1.95	1.60	224
06/20/2021 12:00	92.70	6.00	228	29.30	3.50	232	15.25	1.85	222
06/20/2021 13:00	9.10	3.90	224	8.25	2.30	228	2.10	1.10	212
06/20/2021 14:00	38.00	4.65	196	15.35	1.90	185	22.50	1.15	187
06/20/2021 15:00	46.55	9.10	168	0.20	1.50	186	13.85	0.55	200
06/20/2021 16:00	10.00	2.35	106	0.20	0.30	93	1.30	0.45	138
06/20/2021 17:00	22.85	4.05	71	0.20	0.30	114	1.25	0.55	164
06/20/2021 18:00	21.60	3.55	126	0.20	0.65	167	1.55	0.35	187
06/20/2021 19:00	3.85	2.45	152	0.20	0.50	120	1.35	0.10	189
06/20/2021 20:00	10.95	2.30	110	0.20	0.00	90	1.05	0.15	126
06/20/2021 21:00	31.55	1.30	129	0.20	0.00	129	1.55	0.15	147
06/20/2021 22:00	59.70	1.80	194	0.20	0.40	212	1.55	0.30	198
06/20/2021 23:00	27.70	2.45	213	16.65	0.20	200	2.95	0.35	205
06/21/2021 00:00	24.65	2.05	177	37.55	0.10	112	4.45	0.00	175

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
04/09/2021 01:00				1.27	244
04/09/2021 02:00				1.59	220
04/09/2021 03:00				0.95	188
04/09/2021 04:00				1.33	224
04/09/2021 05:00				1.24	208
04/09/2021 06:00				0.98	259
04/09/2021 07:00				1.15	187
04/09/2021 08:00	0.38			2.75	207
04/09/2021 09:00	0.78			3.08	213
04/09/2021 10:00				3.37	240
04/09/2021 11:00				3.88	201
04/09/2021 12:00	1.00			4.49	182
04/09/2021 13:00	0.57			5.55	186
04/09/2021 14:00	0.20			6.01	187
04/09/2021 15:00	0.20			7.51	197
04/09/2021 16:00	0.20			7.58	198
04/09/2021 17:00	0.20			7.21	198
04/09/2021 18:00	0.20			5.56	191
04/09/2021 19:00	0.20			3.25	188
04/09/2021 20:00	4.14			7.67	170
04/09/2021 21:00	1.13			3.96	238
04/09/2021 22:00	0.20			2.85	201
04/09/2021 23:00	0.20			2.56	198
04/10/2021 00:00	1.26			1.73	182
04/10/2021 01:00	0.20			1.23	251
04/10/2021 02:00	0.38			0.96	160
04/10/2021 03:00	27.98	153.23		1.72	176
04/10/2021 04:00	43.57	312.74		1.12	213
04/10/2021 05:00	31.98	123.56		1.28	269
04/10/2021 06:00		57.25		1.04	122
04/10/2021 07:00		52.55		2.49	70
04/10/2021 08:00		250.77		2.28	99
04/10/2021 09:00		270.17		5.33	112
04/10/2021 10:00		154.73		6.93	109
04/10/2021 11:00		46.87		9.84	128
04/10/2021 12:00	19.98	46.09		8.50	148
04/10/2021 13:00	18.12	28.68		7.63	163
04/10/2021 14:00	9.79	33.50		7.67	172
04/10/2021 15:00	33.47	19.28		8.18	161
04/10/2021 16:00	40.71	165.20		5.07	175
04/10/2021 17:00	38.93	57.03		6.66	153
04/10/2021 18:00	52.35	24.38		8.65	156
04/10/2021 19:00	25.05	42.85		10.74	167
04/10/2021 20:00	0.69	138.03		5.97	188
04/10/2021 21:00	0.53	268.07		4.52	182
04/10/2021 22:00	0.34	132.13		4.26	208
04/10/2021 23:00	0.83	28.74		1.70	210
04/11/2021 00:00	0.32	24.06		2.53	227
04/11/2021 01:00	0.31	1.30		3.72	237
04/11/2021 02:00	0.26	3.19		3.51	246
04/11/2021 03:00	0.24	5.51		3.66	245
04/11/2021 04:00	2.18	5.00		3.13	244
04/11/2021 05:00	0.20	1.84		4.46	244
04/11/2021 06:00	0.23	1.85		4.13	241
04/11/2021 07:00	0.25	2.24		4.66	246
04/11/2021 08:00	0.30	8.53		4.84	215
04/11/2021 09:00	0.88	18.59		6.49	221
04/11/2021 10:00	0.23	9.19		8.04	231
04/11/2021 11:00	0.20	1.12		9.39	252
04/11/2021 12:00	0.20	1.08		11.01	247
04/11/2021 13:00	0.20	0.70		9.96	243
04/11/2021 14:00	0.20	0.86		9.73	235
04/11/2021 15:00	0.20	0.20		10.17	235
04/11/2021 16:00	0.72	1.02		8.65	246
04/11/2021 17:00	0.20	0.51		8.45	247
04/11/2021 18:00	0.20	0.63		6.30	243
04/11/2021 19:00	0.20	1.38		3.35	241
04/11/2021 20:00	0.20	0.76		2.89	264
04/11/2021 21:00	0.20	165.38		2.26	274
04/11/2021 22:00	0.20	60.40		2.89	275
04/11/2021 23:00	0.20	4.07		3.93	272
04/12/2021 00:00	0.20	0.20		4.39	269
04/12/2021 01:00	0.20	0.20		3.88	271
04/12/2021 02:00	0.65	0.20		3.05	263
04/12/2021 03:00	0.66	13.35		1.98	246
04/12/2021 04:00	0.20	522.75		1.37	194
04/12/2021 05:00	0.21	575.89		1.73	210
04/12/2021 06:00	0.23	290.46		1.80	256
04/12/2021 07:00	0.40	439.95		0.77	203
04/12/2021 08:00	0.96	178.08		2.77	206
04/12/2021 09:00	0.26	0.37		6.53	251
04/12/2021 10:00	0.20	0.20		7.15	267

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
04/12/2021 11:00	0.66	0.20		7.18	277
04/12/2021 12:00	0.20	0.20		7.58	281
04/12/2021 13:00	0.20	0.20		6.58	270
04/12/2021 14:00	0.65	0.20		8.15	267
04/12/2021 15:00	0.69	0.20		7.22	270
04/12/2021 16:00	0.20	9.01		6.03	274
04/12/2021 17:00	0.20	311.78		4.21	275
04/12/2021 18:00	0.72			4.59	275
04/12/2021 19:00	0.20			3.96	302
04/12/2021 20:00	0.20			2.81	297
04/12/2021 21:00	0.20	473.16		1.28	255
04/12/2021 22:00	0.20	33.59		1.76	228
04/12/2021 23:00	0.52	244.00		1.32	233
04/13/2021 00:00	0.57	70.04		1.68	125
04/13/2021 01:00	0.20	318.26		0.90	119
04/13/2021 02:00	0.20	99.10		1.11	91
04/13/2021 03:00	0.20	127.17		0.94	169
04/13/2021 04:00	0.20	235.41		0.61	173
04/13/2021 05:00	0.20	75.89		0.97	202
04/13/2021 06:00	0.20	99.14		0.92	232
04/13/2021 07:00	0.20	95.46		0.78	131
04/13/2021 08:00	0.66	202.50		1.35	87
04/13/2021 09:00	0.71	114.34		4.02	82
04/13/2021 10:00	0.23	93.40		4.41	133
04/13/2021 11:00	0.59	52.21		4.05	161
04/13/2021 12:00	0.20	31.15		4.26	122
04/13/2021 13:00	0.20	30.38		3.74	205
04/13/2021 14:00	0.20	7.61		5.09	192
04/13/2021 15:00	0.20	15.54		5.18	217
04/13/2021 16:00	0.20	15.42		2.67	237
04/13/2021 17:00	0.20	66.38		1.80	182
04/13/2021 18:00	0.64	22.57		2.29	168
04/13/2021 19:00	0.67	116.05		1.25	258
04/13/2021 20:00	0.20	368.46		1.55	261
04/13/2021 21:00	0.20	709.81		1.15	212
04/13/2021 22:00	10.00	556.98		1.63	235
04/13/2021 23:00	53.15	216.40		1.35	235
04/14/2021 00:00	96.89	109.34		1.07	165
04/14/2021 01:00	76.39	293.88		1.90	240
04/14/2021 02:00	142.41	693.14		1.22	243
04/14/2021 03:00	118.82	831.77		0.85	201
04/14/2021 04:00	93.39	343.51		0.97	184
04/14/2021 05:00	94.89	204.72		0.84	131
04/14/2021 06:00	121.32	365.05		1.38	290
04/14/2021 07:00	119.46	751.59		1.52	220
04/14/2021 08:00	4.41	274.14		4.12	173
04/14/2021 09:00	1.91	52.71		4.46	157
04/14/2021 10:00	0.91	28.44		5.07	174
04/14/2021 11:00	0.38	13.18		4.16	205
04/14/2021 12:00	1.47	17.95		4.49	168
04/14/2021 13:00	0.85	28.64		5.94	191
04/14/2021 14:00	0.20	26.38		5.68	203
04/14/2021 15:00	0.20	40.90		6.39	219
04/14/2021 16:00	0.20	5.59		5.65	226
04/14/2021 17:00	0.20	118.22		3.67	211
04/14/2021 18:00	0.20	18.05		3.03	224
04/14/2021 19:00	0.74	4.33		2.16	220
04/14/2021 20:00	0.20	3.62		3.31	239
04/14/2021 21:00	0.20	2.27		3.44	250
04/14/2021 22:00	0.20	2.46		7.39	254
04/14/2021 23:00	0.20	1.14		7.98	259
04/15/2021 00:00	0.71	1.99		6.40	251
04/15/2021 01:00	0.20	0.20		4.41	262
04/15/2021 02:00	0.72	0.20		4.41	259
04/15/2021 03:00	0.20	0.20		4.06	264
04/15/2021 04:00	1.97	0.79		2.95	261
04/15/2021 05:00	0.20	0.20		3.82	267
04/15/2021 06:00	0.20	0.20		2.76	272
04/15/2021 07:00	0.20	0.20		3.23	262
04/15/2021 08:00	0.20	0.20		3.54	267
04/15/2021 09:00	0.76	0.52		3.45	280
04/15/2021 10:00	0.20	9.64		4.19	247
04/15/2021 11:00	0.20	4.84		5.67	282
04/15/2021 12:00	0.68	0.21		5.64	288
04/15/2021 13:00	0.20	0.20		4.99	282
04/15/2021 14:00	0.20	0.20		5.85	280
04/15/2021 15:00	0.20	5.93		6.34	284
04/15/2021 16:00	0.60	3.13		6.48	282
04/15/2021 17:00	0.20	12.88		6.42	292
04/15/2021 18:00	0.20	17.91		4.02	294
04/15/2021 19:00	0.67	169.21		1.69	295
04/15/2021 20:00	0.20	106.52		1.55	249

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
04/15/2021 21:00	0.20	131.61		2.52	265
04/15/2021 22:00	0.20	72.29		3.09	271
04/15/2021 23:00	0.61	86.41		2.64	235
04/16/2021 00:00	0.20	89.92		2.35	266
04/16/2021 01:00	0.20	51.73		2.28	221
04/16/2021 02:00	0.20	54.16		1.36	232
04/16/2021 03:00	0.20	109.13		1.69	203
04/16/2021 04:00	0.20	23.37		1.16	197
04/16/2021 05:00	0.20	29.33		1.39	248
04/16/2021 06:00	0.20	102.17		1.19	234
04/16/2021 07:00	0.20	62.92		1.20	261
04/16/2021 08:00	0.69	16.83		2.01	94
04/16/2021 09:00	0.28	25.34		3.47	163
04/16/2021 10:00	0.21	23.66		3.54	202
04/16/2021 11:00	0.82	30.65		4.17	118
04/16/2021 12:00	0.66	16.49		3.99	203
04/16/2021 13:00	0.20	10.16		3.93	202
04/16/2021 14:00	0.61	6.03		5.32	252
04/16/2021 15:00	0.20	2.21		4.94	251
04/16/2021 16:00	0.20	0.20		4.93	246
04/16/2021 17:00	0.20	0.20		4.11	246
04/16/2021 18:00	0.58	0.57		2.68	248
04/16/2021 19:00	0.20	303.08		2.25	286
04/16/2021 20:00	0.20	350.49		1.41	274
04/16/2021 21:00	0.20	110.84		1.63	285
04/16/2021 22:00	0.20	232.10		1.49	281
04/16/2021 23:00	0.20	410.92		1.64	281
04/17/2021 00:00	0.20	542.21		0.76	187
04/17/2021 01:00	0.58	430.62		0.55	245
04/17/2021 02:00	0.29	453.55		1.14	244
04/17/2021 03:00	0.71	430.64		1.00	158
04/17/2021 04:00	23.39	104.29		1.59	161
04/17/2021 05:00	26.59	68.66		1.60	178
04/17/2021 06:00	8.63	106.85		1.48	110
04/17/2021 07:00	1.72	118.35		1.80	83
04/17/2021 08:00	0.61	134.80		2.51	91
04/17/2021 09:00	18.92	156.29		3.90	105
04/17/2021 10:00	5.76	149.94		6.05	105
04/17/2021 11:00	6.68	60.73		5.91	108
04/17/2021 12:00	3.33	14.82		3.89	150
04/17/2021 13:00	1.75	7.82		3.65	223
04/17/2021 14:00	0.20	3.45		3.96	204
04/17/2021 15:00	0.20	0.69		3.78	240
04/17/2021 16:00	0.20	7.40		2.54	215
04/17/2021 17:00	0.65	25.99		3.16	234
04/17/2021 18:00	0.20	7.06		2.54	288
04/17/2021 19:00	0.20	105.61		1.39	287
04/17/2021 20:00	0.20	127.04		0.97	193
04/17/2021 21:00	1.14	33.08		1.40	198
04/17/2021 22:00	2.78	73.53		1.24	152
04/17/2021 23:00	0.69	79.89		0.99	175
04/18/2021 00:00	0.24	56.33		1.16	191
04/18/2021 01:00	0.20	71.86		1.07	149
04/18/2021 02:00	0.20	71.25		0.78	133
04/18/2021 03:00	0.59	55.61		1.24	189
04/18/2021 04:00	2.89	71.56		1.08	204
04/18/2021 05:00	0.20	66.63		0.61	215
04/18/2021 06:00	0.20	28.16		1.43	246
04/18/2021 07:00	0.22	87.99		2.17	178
04/18/2021 08:00	0.27	50.08		3.14	88
04/18/2021 09:00	0.29	71.80		4.43	84
04/18/2021 10:00	0.27	161.72		5.40	93
04/18/2021 11:00	0.47	70.34		3.90	134
04/18/2021 12:00	2.30	12.61		3.76	141
04/18/2021 13:00	1.60	5.13		3.22	193
04/18/2021 14:00	1.59	9.49		3.60	203
04/18/2021 15:00	1.50	22.90		3.59	153
04/18/2021 16:00	1.63	30.49		3.52	194
04/18/2021 17:00	0.20	15.86		2.39	185
04/18/2021 18:00	0.69	115.27		1.80	214
04/18/2021 19:00	0.22	284.21		1.50	230
04/18/2021 20:00	1.01	602.92		1.41	283
04/18/2021 21:00	20.50	258.65		0.70	171
04/18/2021 22:00	26.25	84.85		0.96	276
04/18/2021 23:00	21.10	115.20		1.22	274
04/19/2021 00:00	24.28	195.22		1.20	268
04/19/2021 01:00	34.76	205.62		1.22	264
04/19/2021 02:00	34.98	269.06		1.42	256
04/19/2021 03:00	34.97	233.47		1.83	289
04/19/2021 04:00	22.92	238.00		0.95	240
04/19/2021 05:00	18.05	160.16		2.44	107
04/19/2021 06:00	3.02	50.37		2.39	231

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
04/19/2021 07:00	0.99	44.54		3.03	139
04/19/2021 08:00	0.31	74.04		5.16	111
04/19/2021 09:00	0.30	67.34		5.81	121
04/19/2021 10:00	0.28	52.68		6.78	99
04/19/2021 11:00	0.20	45.60		5.83	113
04/19/2021 12:00	0.20	26.98		5.36	170
04/19/2021 13:00	0.20	39.74		5.87	165
04/19/2021 14:00	0.20	24.29		6.13	228
04/19/2021 15:00	0.20	21.44		4.97	207
04/19/2021 16:00	0.20	19.37		3.84	210
04/19/2021 17:00	0.20	23.70		3.05	188
04/19/2021 18:00	0.20	81.27		1.28	122
04/19/2021 19:00	0.72	445.83		1.17	275
04/19/2021 20:00	6.93	851.30		0.89	228
04/19/2021 21:00	71.64	638.44		1.74	245
04/19/2021 22:00	74.97	394.42		1.66	247
04/19/2021 23:00	69.04	223.34		1.28	248
04/20/2021 00:00	64.11	201.87		1.25	264
04/20/2021 01:00	45.46	79.45		1.02	194
04/20/2021 02:00	57.76	62.06		1.31	266
04/20/2021 03:00	52.08	236.26		1.26	186
04/20/2021 04:00	71.59	121.38		0.94	175
04/20/2021 05:00	85.67	47.54		0.77	185
04/20/2021 06:00	62.31	151.42		0.88	218
04/20/2021 07:00	103.42	174.63		0.68	149
04/20/2021 08:00	195.62	410.63		0.96	211
04/20/2021 09:00	55.69	111.79		2.87	165
04/20/2021 10:00	7.00	29.59		6.48	165
04/20/2021 11:00	1.12	42.68		7.66	178
04/20/2021 12:00	0.68	40.66		7.94	175
04/20/2021 13:00	1.10	39.34		8.46	177
04/20/2021 14:00	1.15	39.32		7.59	176
04/20/2021 15:00	2.33	39.26		7.99	174
04/20/2021 16:00	6.48	37.57		8.76	166
04/20/2021 17:00	5.85	57.20		8.62	167
04/20/2021 18:00	5.33	53.07		6.51	170
04/20/2021 19:00	1.22	73.08		5.38	171
04/20/2021 20:00	1.30	64.36		5.52	172
04/20/2021 21:00	0.20	129.87		4.05	176
04/20/2021 22:00	0.20	137.37		1.43	176
04/20/2021 23:00	0.20	149.09		2.37	172
04/21/2021 00:00	0.20	135.95		2.47	170
04/21/2021 01:00	0.20	101.98		0.85	144
04/21/2021 02:00	0.25	74.13		0.69	137
04/21/2021 03:00	0.47	211.24		1.75	148
04/21/2021 04:00	0.59	176.38		0.75	158
04/21/2021 05:00	0.20	331.11		1.04	205
04/21/2021 06:00	0.25	34.33		1.39	291
04/21/2021 07:00	0.30	69.80		1.44	193
04/21/2021 08:00	0.36	5.01		3.87	223
04/21/2021 09:00	0.36	2.75		7.33	247
04/21/2021 10:00	0.20	1.30		9.46	262
04/21/2021 11:00	0.20	0.77		10.01	267
04/21/2021 12:00	0.20	1.00		12.22	263
04/21/2021 13:00	0.20	1.46		10.75	265
04/21/2021 14:00	0.20	2.44		11.19	267
04/21/2021 15:00	0.20	17.44		8.62	260
04/21/2021 16:00	0.20	18.13		7.97	251
04/21/2021 17:00	0.20	18.93		8.56	263
04/21/2021 18:00	0.20	19.78		7.97	280
04/21/2021 19:00	0.20	16.86		7.22	287
04/21/2021 20:00	0.20	31.02		6.56	272
04/21/2021 21:00	0.20	33.92		6.51	262
04/21/2021 22:00	0.20	23.44		5.05	265
04/21/2021 23:00	0.20	25.05		3.49	301
04/22/2021 00:00	0.20	15.95		2.81	309
04/22/2021 01:00	0.20	72.35		1.87	283
04/22/2021 02:00	0.20	46.23		1.32	265
04/22/2021 03:00	0.20	63.19		1.42	247
04/22/2021 04:00	0.20	78.77		1.32	183
04/22/2021 05:00	0.20	62.25		1.14	275
04/22/2021 06:00	0.20	54.25		1.05	162
04/22/2021 07:00	0.20	9.24		0.83	180
04/22/2021 08:00	0.22	12.59		4.03	270
04/22/2021 09:00	0.22	11.01		5.05	266
04/22/2021 10:00	0.20	10.90		6.80	267
04/22/2021 11:00	0.20	8.91		6.10	221
04/22/2021 12:00	0.20	20.50		5.33	247
04/22/2021 13:00	0.20	7.15		5.94	257
04/22/2021 14:00	0.20	4.58		6.05	259
04/22/2021 15:00	0.20	3.57		7.26	265
04/22/2021 16:00	0.20	5.04		6.20	260

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
04/22/2021 17:00	0.20	3.62		4.70	254
04/22/2021 18:00	0.20	0.24		4.20	260
04/22/2021 19:00	0.20	117.76		1.86	260
04/22/2021 20:00	0.20	533.15		1.60	245
04/22/2021 21:00	0.20	960.68		1.58	205
04/22/2021 22:00	0.24	140.38		2.06	233
04/22/2021 23:00	0.20	218.59		1.17	202
04/23/2021 00:00	0.20	91.37		0.88	90
04/23/2021 01:00	0.20	23.63		1.03	189
04/23/2021 02:00	0.20	44.70		1.05	173
04/23/2021 03:00	0.20	47.55		0.76	80
04/23/2021 04:00	0.20	41.84		0.81	173
04/23/2021 05:00	0.21	42.21		0.65	158
04/23/2021 06:00	0.24	54.26		0.78	132
04/23/2021 07:00	0.27	63.63		0.91	189
04/23/2021 08:00	0.26	254.59		1.88	85
04/23/2021 09:00	53.25	419.20		5.33	113
04/23/2021 10:00	18.52	463.95		6.15	114
04/23/2021 11:00	11.36	294.73		5.53	110
04/23/2021 12:00	6.19	32.07		5.15	171
04/23/2021 13:00	0.20	14.18		3.99	204
04/23/2021 14:00	0.20	13.13		3.77	237
04/23/2021 15:00	0.20	1.51		2.62	240
04/23/2021 16:00	0.20	2.33		4.85	246
04/23/2021 17:00	0.20	1.09		3.52	259
04/23/2021 18:00	0.20	3.61		2.93	289
04/23/2021 19:00	0.22	41.18		1.57	311
04/23/2021 20:00	0.20	174.01		1.14	175
04/23/2021 21:00	0.20	133.13		0.87	208
04/23/2021 22:00	0.33	116.52		0.85	202
04/23/2021 23:00	1.58	108.27		1.03	220
04/24/2021 00:00	76.28	309.00		1.53	225
04/24/2021 01:00	77.48	417.90		1.52	250
04/24/2021 02:00	46.06	634.47		0.92	210
04/24/2021 03:00	55.54	779.33		0.93	251
04/24/2021 04:00	69.52	822.54		0.66	141
04/24/2021 05:00	177.87	486.16		1.39	238
04/24/2021 06:00	199.42	288.93		0.82	197
04/24/2021 07:00	171.14	72.60		1.07	215
04/24/2021 08:00	180.25	188.31		1.28	194
04/24/2021 09:00	120.46	328.23		2.11	83
04/24/2021 10:00	63.95	481.42		2.29	107
04/24/2021 11:00	102.13	666.78		6.18	110
04/24/2021 12:00	131.56	909.10		6.65	107
04/24/2021 13:00	77.35	623.84		6.91	116
04/24/2021 14:00	33.97	144.43		6.92	135
04/24/2021 15:00	30.61	70.63		8.39	157
04/24/2021 16:00	10.55	64.06		6.77	181
04/24/2021 17:00	2.39	44.68		6.07	177
04/24/2021 18:00	0.47	98.99		5.12	181
04/24/2021 19:00	0.37	105.87		5.44	178
04/24/2021 20:00	0.28	77.95		3.82	195
04/24/2021 21:00	0.29	195.44		1.25	210
04/24/2021 22:00	0.30	217.03		1.10	250
04/24/2021 23:00	0.23	50.67		4.09	240
04/25/2021 00:00	0.24	153.81		2.09	198
04/25/2021 01:00	0.56	73.91		3.54	176
04/25/2021 02:00	0.36	79.44		2.04	234
04/25/2021 03:00	0.29	21.79		1.92	262
04/25/2021 04:00	0.25	50.41		2.52	220
04/25/2021 05:00	0.84	72.91		3.06	234
04/25/2021 06:00	0.27	47.47		2.34	273
04/25/2021 07:00	0.29	87.92		2.50	249
04/25/2021 08:00	0.28	58.28		4.31	186
04/25/2021 09:00	0.31	81.00		4.92	153
04/25/2021 10:00	0.20	77.82		6.54	257
04/25/2021 11:00	0.20	47.99		6.69	238
04/25/2021 12:00	0.20	25.64		7.04	255
04/25/2021 13:00	0.20	53.85		5.09	196
04/25/2021 14:00	0.20	32.17		5.50	232
04/25/2021 15:00	0.20	13.30		6.22	239
04/25/2021 16:00	0.20	18.82		5.38	254
04/25/2021 17:00	0.20	15.94		6.00	239
04/25/2021 18:00	0.20	46.25		3.97	168
04/25/2021 19:00	0.20	54.62		2.04	196
04/25/2021 20:00	0.20	135.24		0.84	197
04/25/2021 21:00	0.20	61.83		0.63	195
04/25/2021 22:00	0.20	116.56		1.24	227
04/25/2021 23:00	0.20	48.27		0.91	257
04/26/2021 00:00	0.20	42.18		0.99	159
04/26/2021 01:00	0.20	33.56		0.85	207
04/26/2021 02:00	0.20	70.76		0.81	204

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
04/26/2021 03:00	0.20	207.39		1.23	245
04/26/2021 04:00	0.20	50.45		1.38	291
04/26/2021 05:00	0.45	107.78		0.74	125
04/26/2021 06:00	0.24	91.47		0.78	166
04/26/2021 07:00	0.25	242.72		1.00	215
04/26/2021 08:00	0.28	103.87		2.11	130
04/26/2021 09:00	0.30	103.00		3.22	101
04/26/2021 10:00	0.96	227.76		3.99	97
04/26/2021 11:00	15.04	90.52		4.28	149
04/26/2021 12:00	8.50	72.80		3.32	139
04/26/2021 13:00	7.83	33.02		3.95	208
04/26/2021 14:00	13.72	23.36		3.22	161
04/26/2021 15:00	11.97	21.87		3.93	150
04/26/2021 16:00	3.11	11.13		3.08	155
04/26/2021 17:00	0.86	23.07		3.12	206
04/26/2021 18:00	0.56	41.51		2.14	203
04/26/2021 19:00	0.20	633.97		1.97	266
04/26/2021 20:00	0.20	641.77		2.40	291
04/26/2021 21:00	0.20	557.71		1.19	244
04/26/2021 22:00	0.35	751.51		0.92	239
04/26/2021 23:00	0.48	836.87		1.34	244
04/27/2021 00:00	3.55	584.11		1.34	256
04/27/2021 01:00	0.64	556.85		1.28	270
04/27/2021 02:00	0.20	345.83		1.15	282
04/27/2021 03:00	0.20	954.00		1.76	274
04/27/2021 04:00	0.20	371.58		1.48	255
04/27/2021 05:00	0.20	483.93		1.65	281
04/27/2021 06:00	0.20	332.99		1.51	286
04/27/2021 07:00	0.20	63.64		0.86	159
04/27/2021 08:00	0.25	31.59		3.77	230
04/27/2021 09:00	0.29	6.98		5.61	239
04/27/2021 10:00	0.23	5.87		6.71	233
04/27/2021 11:00	0.20	5.35		6.44	220
04/27/2021 12:00	0.20	6.07		6.45	203
04/27/2021 13:00	0.20	13.03		6.21	197
04/27/2021 14:00	0.20	26.74		6.83	191
04/27/2021 15:00	0.20	27.59	6.47	6.51	201
04/27/2021 16:00	0.20	31.86		6.49	186
04/27/2021 17:00	0.20	42.06	4.42	6.49	194
04/27/2021 18:00	0.20	73.31	0.20	4.73	199
04/27/2021 19:00	0.20	307.88	3.10	1.42	221
04/27/2021 20:00	0.20	256.70	1.18	1.06	210
04/27/2021 21:00	0.20	28.90	0.27	0.92	237
04/27/2021 22:00	0.20	47.08	0.47	1.00	141
04/27/2021 23:00	0.20	100.46	0.73	3.30	176
04/28/2021 00:00	0.20	43.61		3.68	180
04/28/2021 01:00	0.20	43.63		2.54	184
04/28/2021 02:00	0.20	60.72	1.20	2.73	180
04/28/2021 03:00	0.20	69.61	0.27	2.66	185
04/28/2021 04:00	0.20	80.55	0.20	1.82	187
04/28/2021 05:00	0.20	72.48	36.05	1.35	206
04/28/2021 06:00	0.20	55.60	18.68	0.93	209
04/28/2021 07:00	0.20	45.00	11.51	1.38	203
04/28/2021 08:00	0.20	7.37	9.27	3.91	223
04/28/2021 09:00	0.20	3.16	8.12	6.34	254
04/28/2021 10:00	0.20	1.78	7.38	5.16	236
04/28/2021 11:00	0.20	6.59	6.74	5.77	231
04/28/2021 12:00	0.20	5.45	6.26	5.44	222
04/28/2021 13:00	0.20	2.63	7.54	6.50	231
04/28/2021 14:00	0.20	11.83	6.38	6.17	228
04/28/2021 15:00	0.20	7.62	5.56	6.70	228
04/28/2021 16:00	0.20	5.79	0.23	6.09	222
04/28/2021 17:00	0.21	17.47		6.02	231
04/28/2021 18:00	0.20	6.11	5.59	4.42	231
04/28/2021 19:00	0.20	91.48	5.62	2.82	201
04/28/2021 20:00	0.20	27.63	5.43	1.68	227
04/28/2021 21:00	0.20	41.19		1.42	175
04/28/2021 22:00	0.20	14.21		1.21	217
04/28/2021 23:00	0.20	48.27		1.46	216
04/29/2021 00:00	0.20	107.79	236.70	1.71	187
04/29/2021 01:00	0.20	95.11		1.89	172
04/29/2021 02:00	1.65	89.37	29.89	1.82	174
04/29/2021 03:00	0.30	60.67	10.95	2.19	175
04/29/2021 04:00	0.21	50.65	8.07	1.76	183
04/29/2021 05:00	0.28	105.90	10.71	1.73	171
04/29/2021 06:00	0.33	107.11	7.39	0.72	145
04/29/2021 07:00	0.38	54.92	2.07	3.13	187
04/29/2021 08:00	0.34	4.81	2.17	4.84	219
04/29/2021 09:00	0.27	2.25	24.63	6.15	231
04/29/2021 10:00	0.20	3.31	29.80	7.50	237
04/29/2021 11:00	0.20	1.56	22.60	7.99	237
04/29/2021 12:00	0.20	1.94	14.13	8.41	242

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
04/29/2021 13:00	0.20	2.00	14.48	9.37	243
04/29/2021 14:00	0.20	3.06	12.65	9.61	236
04/29/2021 15:00	0.20	4.50	23.75	9.45	225
04/29/2021 16:00	0.20	3.21	25.49	8.34	237
04/29/2021 17:00	0.20	2.85	29.46	7.26	236
04/29/2021 18:00	0.20	3.50	64.84	5.75	229
04/29/2021 19:00	0.20	3.78	72.39	4.74	225
04/29/2021 20:00	0.20	2.44	46.47	6.07	237
04/29/2021 21:00	0.20	2.51	38.40	6.29	233
04/29/2021 22:00	0.20	2.04	17.38	6.64	239
04/29/2021 23:00	0.20	2.33	16.83	7.29	244
04/30/2021 00:00	0.20	2.76	5.09	7.36	246
04/30/2021 01:00	0.20	3.82	1.50	7.50	253
04/30/2021 02:00	0.20	2.87	1.40	6.49	253
04/30/2021 03:00	0.20	1.41	1.22	6.11	263
04/30/2021 04:00	0.23	0.73	1.13	3.86	270
04/30/2021 05:00	0.22	0.50	0.95	2.58	277
04/30/2021 06:00	0.20	4.90	1.12	3.67	298
04/30/2021 07:00	0.20	5.76	1.03	5.47	293
04/30/2021 08:00	0.20	5.89	0.97	5.88	281
04/30/2021 09:00	0.20	9.78	0.90	5.08	238
04/30/2021 10:00	0.20	9.01	0.87	5.42	238
04/30/2021 11:00	0.20	1.60	0.86	7.88	292
04/30/2021 12:00	0.20	0.65	0.83	7.40	284
04/30/2021 13:00	0.20	0.81	0.81	7.29	277
04/30/2021 14:00	0.20	0.60	0.76	7.28	269
04/30/2021 15:00	0.20	1.26	0.78	6.46	282
04/30/2021 16:00	0.39	0.56	0.76	6.16	263
04/30/2021 17:00	0.20	0.46	0.67	5.91	275
04/30/2021 18:00	0.20	1.90		4.18	275
04/30/2021 19:00	0.20	1.29	1.21	3.52	267
04/30/2021 20:00	0.20	3.62	0.99	2.98	255
04/30/2021 21:00	0.20	1.49	0.92	3.41	287
04/30/2021 22:00	0.20	52.60	4.06	3.17	243
04/30/2021 23:00	0.20	80.73	2.72	2.93	300
05/01/2021 00:00	0.20	120.96	1.16	1.74	210
05/01/2021 01:00	0.20	95.90	1.06	1.40	208
05/01/2021 02:00	3.30	157.29	0.89	1.67	264
05/01/2021 03:00	5.35	100.80	2.73	2.39	208
05/01/2021 04:00	2.00	60.81	2.19	1.96	222
05/01/2021 05:00	0.39	73.30	1.24	1.75	205
05/01/2021 06:00	0.20	60.43	0.86	1.79	188
05/01/2021 07:00	0.34	73.08	0.82	1.24	145
05/01/2021 08:00	0.20	24.29	0.74	3.68	110
05/01/2021 09:00	0.20	27.75	0.77	5.01	120
05/01/2021 10:00	0.20	16.52	0.67	4.73	102
05/01/2021 11:00	0.20	11.72	0.60	4.30	166
05/01/2021 12:00	0.20	4.75	0.60	4.38	127
05/01/2021 13:00	0.26	9.82	0.61	4.08	190
05/01/2021 14:00	2.58	6.92	3.27	3.88	131
05/01/2021 15:00	0.59	3.36	2.98	3.65	171
05/01/2021 16:00	0.20	4.96	5.42	3.53	232
05/01/2021 17:00	0.20	7.64	5.83	3.50	222
05/01/2021 18:00	0.20	31.29	1.07	2.26	218
05/01/2021 19:00	0.20	171.74	1.28	1.54	277
05/01/2021 20:00	0.20	397.44	3.04	1.69	300
05/01/2021 21:00	0.28	334.88	3.29	1.72	210
05/01/2021 22:00	13.32	338.80	5.58	1.07	263
05/01/2021 23:00	11.73	318.59		1.29	231
05/02/2021 00:00	5.05	448.04	8.96	0.86	255
05/02/2021 01:00	0.62	222.58	4.92	1.09	269
05/02/2021 02:00	0.21	97.27	30.62	1.14	256
05/02/2021 03:00	0.20	83.14	37.94	1.05	279
05/02/2021 04:00	0.20	183.99	28.53	1.22	285
05/02/2021 05:00	0.20	89.41	21.05	0.69	203
05/02/2021 06:00	0.21	229.66	28.13	0.60	223
05/02/2021 07:00	0.85	142.10	54.95	0.90	168
05/02/2021 08:00	0.30	48.56	67.45	3.39	239
05/02/2021 09:00	0.31	10.38	43.58	5.63	224
05/02/2021 10:00	0.20	10.64	31.04	6.31	239
05/02/2021 11:00	0.20	16.41	11.61	5.95	215
05/02/2021 12:00	0.20	13.96	0.20	5.80	212
05/02/2021 13:00	0.20	26.04	27.55	5.81	201
05/02/2021 14:00	0.20	8.18	19.05	5.79	191
05/02/2021 15:00	0.20	31.69	27.92	6.03	205
05/02/2021 16:00	0.20	17.67	39.55	5.39	202
05/02/2021 17:00	0.20	7.60	45.37	4.28	211
05/02/2021 18:00	0.20	53.35	42.38	1.82	231
05/02/2021 19:00	0.20	175.90	36.86	0.86	248
05/02/2021 20:00	0.20	476.06	7.28	1.51	233
05/02/2021 21:00	0.41	19.48	6.56	4.32	182
05/02/2021 22:00	0.52	20.35	1.10	5.09	172

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
05/02/2021 23:00	0.20	70.75	1.04	5.20	171
05/03/2021 00:00	0.23	35.51	1.01	5.81	169
05/03/2021 01:00	1.24	24.36	1.14	5.69	169
05/03/2021 02:00	0.53	45.35	1.08	5.02	172
05/03/2021 03:00	0.24	76.15	1.06	5.45	177
05/03/2021 04:00	0.30	53.72	1.08	5.78	174
05/03/2021 05:00	0.27	55.96	1.11	5.57	178
05/03/2021 06:00	0.31	50.18	1.13	5.75	175
05/03/2021 07:00	0.31	50.34	1.18	5.32	178
05/03/2021 08:00	0.30	46.97	38.98	6.34	195
05/03/2021 09:00	0.33	76.61	54.93	5.00	196
05/03/2021 10:00	0.20	56.37	2.35	5.57	177
05/03/2021 11:00	0.20	44.70	2.02	7.85	185
05/03/2021 12:00	0.20	86.15	3.78	7.02	186
05/03/2021 13:00	0.31	66.45	44.33	5.24	217
05/03/2021 14:00	0.22	18.49	61.42	5.23	224
05/03/2021 15:00	0.23	81.23	59.48	5.02	198
05/03/2021 16:00	0.21	94.73	88.16	6.37	218
05/03/2021 17:00	0.20	13.96	37.25	3.37	247
05/03/2021 18:00	0.20	3.41	12.00	2.97	243
05/03/2021 19:00	0.20	10.86	87.38	4.32	237
05/03/2021 20:00	0.20	9.43	75.91	3.75	230
05/03/2021 21:00	0.20	11.42	95.08	3.17	229
05/03/2021 22:00	0.20	12.93	76.76	2.12	222
05/03/2021 23:00	0.20	53.62	40.26	2.83	201
05/04/2021 00:00	0.20	33.25	41.67	1.96	209
05/04/2021 01:00	1.08	110.77	3.00	1.48	184
05/04/2021 02:00	0.36	99.71	7.28	1.72	180
05/04/2021 03:00	0.25	43.09	24.60	1.63	198
05/04/2021 04:00	0.27	39.85	28.39	1.77	203
05/04/2021 05:00	0.20	73.36	12.66	1.30	193
05/04/2021 06:00	0.23	43.05	10.70	2.33	209
05/04/2021 07:00	0.24	2.10	10.70	3.97	253
05/04/2021 08:00	0.21	1.52	10.70	5.24	263
05/04/2021 09:00	0.22	3.09	10.70	4.95	248
05/04/2021 10:00	0.20	3.75	11.63	6.56	239
05/04/2021 11:00	0.20	2.04	3.31	7.74	231
05/04/2021 12:00	0.20	11.44	16.41	7.14	233
05/04/2021 13:00	0.20	5.23	17.81	6.97	233
05/04/2021 14:00	0.20	11.98	24.99	5.12	238
05/04/2021 15:00	0.20	13.62	7.13	7.34	268
05/04/2021 16:00	0.20	10.43	1.16	3.82	234
05/04/2021 17:00	0.20	54.56	38.24	2.21	202
05/04/2021 18:00	17.30	34.06	5.70	5.62	168
05/04/2021 19:00	0.24	30.47	28.37	3.19	213
05/04/2021 20:00	0.21	3.78	12.88	2.32	232
05/04/2021 21:00	0.20	45.72	45.97	3.43	181
05/04/2021 22:00	0.23	60.37	6.55	3.84	200
05/04/2021 23:00	0.20	2.51	9.45	4.63	237
05/05/2021 00:00	0.20	11.55	38.61	4.12	216
05/05/2021 01:00	1.11	22.75	52.47	5.15	211
05/05/2021 02:00	10.48	40.98	6.20	8.49	169
05/05/2021 03:00	0.30	24.90	5.25	5.00	255
05/05/2021 04:00	0.26	1.34	1.30	4.20	264
05/05/2021 05:00	0.22	13.59	7.86	3.53	244
05/05/2021 06:00	0.21	27.44	57.76	3.11	210
05/05/2021 07:00	0.22	3.47	3.97	6.44	257
05/05/2021 08:00	0.26	1.94	1.30	7.41	255
05/05/2021 09:00	0.21	1.27	1.13	7.59	259
05/05/2021 10:00	0.20	1.32	1.04	6.09	261
05/05/2021 11:00	0.20	1.15	1.72	6.13	243
05/05/2021 12:00	0.20	1.91	2.73	5.82	235
05/05/2021 13:00	0.20	2.06	5.57	5.89	245
05/05/2021 14:00	0.20	1.91	2.77	6.56	238
05/05/2021 15:00	0.20	1.73	4.37	7.53	239
05/05/2021 16:00	0.20	2.82	3.86	8.37	242
05/05/2021 17:00	0.20	6.48	3.33	6.78	235
05/05/2021 18:00	0.20	3.62	2.71	5.86	244
05/05/2021 19:00	0.20	1.84	1.11	4.92	253
05/05/2021 20:00	0.20	0.75	1.01	2.78	266
05/05/2021 21:00	0.20	40.55	1.00	3.67	288
05/05/2021 22:00	0.20	55.66	0.89	3.58	247
05/05/2021 23:00	0.20	10.59	0.84	3.13	250
05/06/2021 00:00	0.20	15.91	0.83	2.89	251
05/06/2021 01:00	0.20	28.38	0.83	1.31	165
05/06/2021 02:00	0.89	52.70	1.05	1.61	136
05/06/2021 03:00	0.28	38.64	0.87	1.20	189
05/06/2021 04:00	0.20	31.86	0.79	2.14	182
05/06/2021 05:00	0.20	23.28	0.82	2.03	260
05/06/2021 06:00	0.20	12.21	0.79	1.94	299
05/06/2021 07:00	0.20	40.64	0.78	1.72	171
05/06/2021 08:00	0.27	23.76	0.82	3.50	95

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
05/06/2021 09:00	0.24	27.00	0.78	4.99	96
05/06/2021 10:00	0.23	16.13	0.77	4.52	125
05/06/2021 11:00	0.20	7.96	0.78	3.54	158
05/06/2021 12:00	0.20	3.39	0.82	3.19	214
05/06/2021 13:00	0.20	0.84	0.82	3.10	231
05/06/2021 14:00	0.20	0.87	0.78	4.17	254
05/06/2021 15:00	0.20	0.72	0.79	4.83	259
05/06/2021 16:00	0.20	0.65	0.81	4.30	278
05/06/2021 17:00	0.20	0.70	0.84	3.70	274
05/06/2021 18:00	0.20	0.86	0.83	2.55	277
05/06/2021 19:00	0.20	37.93	0.96	1.43	281
05/06/2021 20:00	0.20	30.87	0.96	1.15	162
05/06/2021 21:00	2.16	67.74	0.96	1.14	222
05/06/2021 22:00	4.16	108.25	1.14	1.02	220
05/06/2021 23:00	12.18	73.93	1.52	0.88	210
05/07/2021 00:00	22.13	59.41	1.44	1.11	253
05/07/2021 01:00	20.73	48.97	1.27	2.52	214
05/07/2021 02:00	3.33	177.35	1.24	1.58	128
05/07/2021 03:00	0.61	95.75	1.03	1.37	173
05/07/2021 04:00	0.34	42.89	1.02	1.75	215
05/07/2021 05:00	0.31	19.68	0.87	1.91	275
05/07/2021 06:00	0.31	12.50	0.92	1.62	263
05/07/2021 07:00	0.39	4.23	1.01	3.13	296
05/07/2021 08:00	0.40	4.41	1.01	5.18	285
05/07/2021 09:00	0.36	4.33	0.93	5.52	272
05/07/2021 10:00	0.28	4.32	0.92	6.28	261
05/07/2021 11:00	0.20	4.74	0.94	7.02	283
05/07/2021 12:00	0.20	2.82	0.90	6.37	284
05/07/2021 13:00	0.20	1.15	0.80	8.43	260
05/07/2021 14:00	0.20	2.42	0.90	9.03	293
05/07/2021 15:00	0.20	1.18	0.81	9.88	298
05/07/2021 16:00	0.20	1.45	0.81	8.61	292
05/07/2021 17:00	0.20	2.36	0.85	7.04	289
05/07/2021 18:00	0.20	1.33	0.86	6.59	296
05/07/2021 19:00	0.20	1.39	0.73	4.62	305
05/07/2021 20:00	0.20	4.20	0.75	2.89	301
05/07/2021 21:00	0.20	2.14	0.76	1.74	269
05/07/2021 22:00	0.20	43.02	0.79	1.59	305
05/07/2021 23:00	0.20	62.77	0.81	1.05	268
05/08/2021 00:00	0.20	104.88	1.24	0.93	198
05/08/2021 01:00	0.20	79.51	2.97	1.35	192
05/08/2021 02:00	0.72	116.03	18.57	1.15	230
05/08/2021 03:00	0.37	211.94	64.10	1.01	223
05/08/2021 04:00	0.20	223.58	77.24	2.82	273
05/08/2021 05:00	0.20	209.10	63.32	3.09	270
05/08/2021 06:00	0.22	142.07	66.12	2.74	270
05/08/2021 07:00	0.20	43.44	38.93	4.22	260
05/08/2021 08:00	0.29	1.74	1.55	5.96	257
05/08/2021 09:00	0.26	0.95	0.86	5.02	253
05/08/2021 10:00	0.26	1.05	0.84	5.83	263
05/08/2021 11:00	0.20	0.94	0.83	6.23	262
05/08/2021 12:00	0.20	0.77	0.79	7.81	275
05/08/2021 13:00	0.20	0.92	0.79	7.57	284
05/08/2021 14:00	0.20	1.18	0.74	6.63	270
05/08/2021 15:00	0.20	0.61	0.76	8.10	267
05/08/2021 16:00	0.20	0.80	0.74	7.67	261
05/08/2021 17:00	0.20	0.77	0.57	6.45	260
05/08/2021 18:00	0.20	0.69	0.67	3.86	264
05/08/2021 19:00	0.20	9.76	1.42	1.76	256
05/08/2021 20:00	0.20	195.13	4.71	1.64	260
05/08/2021 21:00	0.20	195.09	15.23	1.51	250
05/08/2021 22:00	0.20	163.54	21.62	1.18	197
05/08/2021 23:00	0.20	108.75	15.95	1.41	221
05/09/2021 00:00	3.41	247.09	43.20	1.47	235
05/09/2021 01:00	2.39	179.47	93.74	1.35	228
05/09/2021 02:00	8.54	154.67	12.67	1.77	240
05/09/2021 03:00	10.18	90.49	21.82	1.32	143
05/09/2021 04:00	18.28	46.57	14.82	1.53	225
05/09/2021 05:00	7.53	45.13	8.26	0.83	152
05/09/2021 06:00	4.20	41.98	3.80	1.12	274
05/09/2021 07:00	5.62	32.74	4.22	1.52	181
05/09/2021 08:00	8.94	20.42	1.07	2.58	110
05/09/2021 09:00	10.02	32.91	1.13	3.27	158
05/09/2021 10:00	0.33	13.53	10.87	5.36	207
05/09/2021 11:00	0.20	30.89	20.36	5.77	211
05/09/2021 12:00	0.20	14.44	21.72	7.87	211
05/09/2021 13:00	0.20	33.67	22.86	8.93	203
05/09/2021 14:00	0.20	42.18	21.05	8.96	195
05/09/2021 15:00	0.20	29.03	35.39	8.32	222
05/09/2021 16:00	0.20	20.61	41.64	6.43	209
05/09/2021 17:00	0.20	64.49	34.22	6.28	197
05/09/2021 18:00	0.20	142.83	9.73	4.06	189

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
05/09/2021 19:00	0.20	179.88	2.55	2.38	189
05/09/2021 20:00	0.20	264.83	5.35	1.58	187
05/09/2021 21:00	0.20	155.17	13.08	3.38	173
05/09/2021 22:00	0.23	76.14	1.65	5.14	169
05/09/2021 23:00	0.33	74.57	1.29	5.44	172
05/10/2021 00:00	0.71	38.82	1.18	5.64	169
05/10/2021 01:00	0.41	116.31	1.29	3.35	208
05/10/2021 02:00	1.11	40.37	2.24	2.17	192
05/10/2021 03:00	0.34	57.94	6.91	1.72	260
05/10/2021 04:00	2.39	38.90	42.83	2.91	211
05/10/2021 05:00	0.65	28.62	16.72	2.27	221
05/10/2021 06:00	0.36	62.57	34.82	1.85	233
05/10/2021 07:00	0.20	1.98	45.01	3.50	245
05/10/2021 08:00	0.26	1.67	7.40	4.28	249
05/10/2021 09:00	0.20	3.11	19.67	6.45	248
05/10/2021 10:00	0.20	2.59	4.45	5.39	248
05/10/2021 11:00	0.20	3.99	27.82	5.50	230
05/10/2021 12:00	0.20	13.32	28.23	6.65	234
05/10/2021 13:00	0.20	3.56	21.88	7.10	234
05/10/2021 14:00	0.20	1.63	2.18	7.61	247
05/10/2021 15:00	0.20	1.32	2.62	6.81	249
05/10/2021 16:00	0.20	1.21	7.18	6.39	252
05/10/2021 17:00	0.20	1.74	3.34	5.70	253
05/10/2021 18:00	0.20	1.30	0.97	5.00	256
05/10/2021 19:00	0.20	6.40	12.26	2.01	235
05/10/2021 20:00	0.20	15.86	90.88	1.47	261
05/10/2021 21:00	0.20	11.66	115.07	1.15	265
05/10/2021 22:00	0.20	58.71	135.41	0.89	226
05/10/2021 23:00	0.23	84.07	45.71	1.55	150
05/11/2021 00:00	0.92	35.62	9.17	1.99	147
05/11/2021 01:00	0.55	19.92	2.06	3.03	89
05/11/2021 02:00	0.96	75.52	1.25	3.71	89
05/11/2021 03:00	0.25	51.96	1.07	3.14	114
05/11/2021 04:00	0.23	27.18	0.93	2.78	120
05/11/2021 05:00	0.20	31.69	0.92	2.78	120
05/11/2021 06:00	0.20	20.73	0.84	2.60	101
05/11/2021 07:00	0.20	22.97	0.87	3.51	83
05/11/2021 08:00	0.27	35.43	0.80	3.97	91
05/11/2021 09:00	0.23	44.26	0.82	4.30	89
05/11/2021 10:00	0.41	75.00	0.79	4.09	107
05/11/2021 11:00	2.36	40.50	0.77	5.73	131
05/11/2021 12:00	1.36	32.85	0.75	3.48	124
05/11/2021 13:00	0.20	34.64	0.75	4.38	133
05/11/2021 14:00	0.51	28.94	0.70	3.56	134
05/11/2021 15:00	0.20	31.81	0.70	3.08	111
05/11/2021 16:00	0.20	17.30	0.68	2.51	98
05/11/2021 17:00	0.20	9.11	2.98	2.22	120
05/11/2021 18:00	0.20	67.48	0.78	2.81	78
05/11/2021 19:00	0.20	90.36	0.77	1.23	121
05/11/2021 20:00	0.31	91.41	0.81	1.59	97
05/11/2021 21:00	0.20	41.31	0.81	1.01	94
05/11/2021 22:00	0.20	25.57	0.72	1.06	140
05/11/2021 23:00	0.20	20.97	0.72	0.79	91
05/12/2021 00:00	0.20	60.93	0.89	1.29	100
05/12/2021 01:00	0.20	107.06	0.87	1.45	95
05/12/2021 02:00	0.99	97.73	1.07	1.62	134
05/12/2021 03:00	0.48	90.58	1.02	2.42	123
05/12/2021 04:00	0.38	68.58	1.03	1.95	114
05/12/2021 05:00	0.34	110.80	0.98	3.12	92
05/12/2021 06:00	0.20	98.44	0.82	4.25	92
05/12/2021 07:00	0.20	89.55	0.70	4.00	98
05/12/2021 08:00	0.20	48.76	0.66	5.56	91
05/12/2021 09:00	0.20	54.32	0.66	5.53	93
05/12/2021 10:00	0.20	76.33	0.68	5.44	105
05/12/2021 11:00	0.20	95.94	0.55	6.40	87
05/12/2021 12:00	0.20	60.35	0.53	5.49	92
05/12/2021 13:00	0.20	111.91	0.53	5.05	85
05/12/2021 14:00	0.20	68.91	0.53	3.21	115
05/12/2021 15:00	0.21	76.04	0.54	3.42	142
05/12/2021 16:00	0.20	67.71	0.55	3.09	104
05/12/2021 17:00	0.20	65.40	2.91	1.87	101
05/12/2021 18:00	0.20	48.16	1.91	1.43	130
05/12/2021 19:00	0.20	50.72	2.44	1.11	135
05/12/2021 20:00	0.20	32.21	0.50	1.43	237
05/12/2021 21:00	0.20	35.01	0.35	1.64	247
05/12/2021 22:00	0.20	2.31	0.43	0.96	252
05/12/2021 23:00	0.20	5.30	0.52	1.86	316
05/13/2021 00:00	0.20	17.28	0.46	1.67	318
05/13/2021 01:00	0.20	14.29	0.46	0.77	142
05/13/2021 02:00	0.45	7.10	0.94	0.94	195
05/13/2021 03:00	0.26	28.24	0.52	0.77	175
05/13/2021 04:00	0.20	66.80	0.57	1.84	279

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
05/13/2021 05:00	0.20	66.29	0.60	1.68	272
05/13/2021 06:00	0.24	66.10	0.62	1.64	171
05/13/2021 07:00	0.33	62.55	0.86	1.98	157
05/13/2021 08:00	0.41	68.95	0.86	3.10	148
05/13/2021 09:00	0.30	40.75	0.69	4.29	103
05/13/2021 10:00	0.21	67.35	0.55	5.57	94
05/13/2021 11:00	0.20	66.43	0.60	6.02	100
05/13/2021 12:00	0.20	52.18	0.51	5.70	94
05/13/2021 13:00	0.20	46.28	0.55	5.76	97
05/13/2021 14:00	0.20	62.12	0.50	5.64	100
05/13/2021 15:00	0.20	50.97	0.55	5.19	128
05/13/2021 16:00	0.20	54.18	0.53	3.89	116
05/13/2021 17:00	0.20	29.11	0.47	3.75	106
05/13/2021 18:00	0.20	40.90	0.48	2.44	90
05/13/2021 19:00	0.20	33.58	0.60	0.92	145
05/13/2021 20:00	0.20	94.27	0.64	1.30	292
05/13/2021 21:00	0.20	13.56	0.61	1.21	297
05/13/2021 22:00	0.20	27.53	0.50	0.87	239
05/13/2021 23:00	0.20	7.91	0.48	0.71	191
05/14/2021 00:00	0.20	14.41	0.49	0.94	177
05/14/2021 01:00	0.20	13.32	0.55	1.35	177
05/14/2021 02:00	0.44	5.75	0.85	0.84	98
05/14/2021 03:00	0.20	4.59	0.67	0.78	110
05/14/2021 04:00	0.23	9.07	0.68	1.91	210
05/14/2021 05:00	0.22	10.11	0.64	0.88	207
05/14/2021 06:00	0.26	10.12	0.58	0.70	180
05/14/2021 07:00	0.37	13.87	0.73	1.13	170
05/14/2021 08:00	0.43	8.12	0.72	1.84	146
05/14/2021 09:00	12.06	29.20	0.66	2.29	124
05/14/2021 10:00	12.97	41.55	0.68	2.97	140
05/14/2021 11:00	0.57	16.21	0.57	4.39	149
05/14/2021 12:00	0.20	28.18	0.52	3.60	167
05/14/2021 13:00	0.20	12.75	0.49	3.77	115
05/14/2021 14:00	0.20	58.56	0.54	3.32	148
05/14/2021 15:00	4.04	48.59	0.44	3.48	105
05/14/2021 16:00	0.20	10.36	0.52	3.10	158
05/14/2021 17:00	0.20	20.56	0.48	2.79	219
05/14/2021 18:00	0.20	39.72	0.56	1.65	184
05/14/2021 19:00	0.20	28.36	0.68	1.05	224
05/14/2021 20:00	0.20	50.75	0.66	1.21	206
05/14/2021 21:00	0.20	72.32	0.63	1.02	264
05/14/2021 22:00	0.20	30.57	0.61	1.22	208
05/14/2021 23:00	0.20	35.89	0.56	1.24	283
05/15/2021 00:00	0.20	21.10	0.59	0.85	188
05/15/2021 01:00	0.20	35.30	0.48	1.20	175
05/15/2021 02:00	0.46	13.06	0.70	0.88	77
05/15/2021 03:00	0.21	8.60	0.58	1.12	209
05/15/2021 04:00	0.20	15.49	0.60	0.70	170
05/15/2021 05:00	0.20	10.39	0.64	0.75	75
05/15/2021 06:00	0.21	19.50	0.67	0.62	51
05/15/2021 07:00	0.33	9.97	0.76	1.46	169
05/15/2021 08:00	0.34	4.29	0.72	2.22	98
05/15/2021 09:00	0.30	26.61	0.64	2.11	119
05/15/2021 10:00	5.06	37.73	0.55	2.56	168
05/15/2021 11:00	0.37	12.25	0.50	2.71	193
05/15/2021 12:00	0.20	5.28	0.51	3.31	131
05/15/2021 13:00	0.20	1.12	0.45	3.36	174
05/15/2021 14:00	0.20	1.57	0.46	4.37	242
05/15/2021 15:00	0.20	2.75	1.26	3.16	225
05/15/2021 16:00	0.20	2.62	0.90	2.84	198
05/15/2021 17:00	0.20	11.48	1.10	2.16	227
05/15/2021 18:00	0.20	15.67	3.92	1.89	241
05/15/2021 19:00	0.20	186.10	7.86	1.29	241
05/15/2021 20:00	1.81	313.69	4.07	1.51	267
05/15/2021 21:00	1.14	315.89	4.59	1.48	271
05/15/2021 22:00	4.23	141.29	3.76	1.07	172
05/15/2021 23:00	10.39	54.36	7.20	0.96	189
05/16/2021 00:00	23.92	183.42	9.50	1.46	269
05/16/2021 01:00	36.97	41.56	5.83	1.02	236
05/16/2021 02:00	50.58	46.64	2.52	1.10	208
05/16/2021 03:00	55.30	89.57	4.25	0.86	210
05/16/2021 04:00	58.45	71.82	1.62	1.37	254
05/16/2021 05:00	66.65	148.49	2.87	0.92	256
05/16/2021 06:00	40.85	139.18	7.45	1.10	232
05/16/2021 07:00	9.27	82.73	35.27	1.06	258
05/16/2021 08:00	3.48	91.38	21.43	0.95	187
05/16/2021 09:00	0.46	37.15	46.73	2.90	249
05/16/2021 10:00	0.24	6.37	28.99	3.48	221
05/16/2021 11:00	0.20	3.99	10.51	5.25	209
05/16/2021 12:00	0.20	5.30	10.49	5.48	217
05/16/2021 13:00	0.20	5.31	12.71	5.62	235
05/16/2021 14:00	0.20	1.47	3.82	5.68	219

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
05/16/2021 15:00	0.20	1.02	1.44	5.34	244
05/16/2021 16:00	0.20	2.74	15.52	4.22	231
05/16/2021 17:00	0.20	6.30	14.82	3.50	225
05/16/2021 18:00	0.20	21.13	38.92	2.48	230
05/16/2021 19:00	0.20	53.14	18.12	1.40	265
05/16/2021 20:00	0.20	143.57	29.51	2.19	292
05/16/2021 21:00	0.20	188.71	48.55	1.12	272
05/16/2021 22:00	0.31	100.76	57.46	1.43	228
05/16/2021 23:00	0.39	14.01	27.38	1.89	208
05/17/2021 00:00	0.25	7.09	3.30	1.09	235
05/17/2021 01:00	0.20	1.52	1.78	1.28	264
05/17/2021 02:00	0.87	8.77	1.25	1.31	230
05/17/2021 03:00	0.25	4.29	0.96	1.22	219
05/17/2021 04:00	0.20	2.88	0.82	1.36	231
05/17/2021 05:00	0.20	2.68	0.84	1.24	221
05/17/2021 06:00	0.20	4.12	0.88	1.56	199
05/17/2021 07:00	0.26	18.31	0.80	1.84	157
05/17/2021 08:00	0.35	17.56	0.86	2.51	108
05/17/2021 09:00	0.31	36.32	0.78	2.18	105
05/17/2021 10:00	0.37	37.19	0.78	2.39	180
05/17/2021 11:00	0.20	6.93	0.79	3.40	125
05/17/2021 12:00	0.20	6.05	0.81	3.09	143
05/17/2021 13:00	0.20	9.40	0.82	3.53	95
05/17/2021 14:00	0.23	49.42	0.61	3.07	113
05/17/2021 15:00	0.20	29.50	0.65	2.01	167
05/17/2021 16:00	0.20	14.32	0.87	1.46	168
05/17/2021 17:00	7.54	307.01	0.76	2.61	88
05/17/2021 18:00	11.06	460.11	0.69	2.94	106
05/17/2021 19:00	0.20	315.69	0.90	1.29	83
05/17/2021 20:00	0.20	31.88	0.83	0.86	107
05/17/2021 21:00	0.20	14.89	0.70	0.81	197
05/17/2021 22:00	0.20	17.25	0.74	1.04	111
05/17/2021 23:00	0.20	25.79	0.70	1.27	118
05/18/2021 00:00	0.20	9.91	0.67	1.07	129
05/18/2021 01:00	0.20	25.06	0.73	1.08	222
05/18/2021 02:00	0.82	1.84	1.05	1.39	186
05/18/2021 03:00	0.22	1.77	0.78	1.41	222
05/18/2021 04:00	0.20	2.07	0.78	0.95	179
05/18/2021 05:00	0.20	1.83	0.75	1.23	148
05/18/2021 06:00	0.20	1.73	0.70	1.18	256
05/18/2021 07:00	0.32	7.65	0.71	1.64	90
05/18/2021 08:00	30.41	76.90	0.72	1.54	148
05/18/2021 09:00	27.93	68.56	0.68	2.69	101
05/18/2021 10:00	19.80	79.76	0.64	2.75	180
05/18/2021 11:00	2.02	8.57	0.56	3.08	144
05/18/2021 12:00	7.44	34.12	0.51	3.75	98
05/18/2021 13:00	0.20	56.16	0.48	3.25	101
05/18/2021 14:00	0.20	34.74	0.52	2.99	83
05/18/2021 15:00	0.20	51.82	0.44	3.03	104
05/18/2021 16:00	0.80	40.60	0.44	2.78	96
05/18/2021 17:00	0.20	46.48	0.51	1.81	82
05/18/2021 18:00	0.20	29.98	0.65	1.06	73
05/18/2021 19:00	0.20	18.03	0.82	1.36	75
05/18/2021 20:00	0.20	42.16	0.68	1.38	96
05/18/2021 21:00	0.20	15.08	0.64	0.96	190
05/18/2021 22:00	0.20	2.93	0.62	1.43	278
05/18/2021 23:00	0.20	2.40	0.64	1.32	297
05/19/2021 00:00	0.20	4.30	0.62	0.50	168
05/19/2021 01:00	0.20	13.48	0.70	0.61	132
05/19/2021 02:00	0.80	12.05	1.03	0.99	258
05/19/2021 03:00	0.24	2.55	0.73	0.92	245
05/19/2021 04:00	0.20	1.24	0.68	1.42	284
05/19/2021 05:00	0.20	2.31	0.74	1.24	258
05/19/2021 06:00	0.20	1.69	0.66	1.00	244
05/19/2021 07:00	0.32	5.80	0.68	0.99	128
05/19/2021 08:00	3.36	56.50	0.64	2.64	89
05/19/2021 09:00	4.98	16.00	0.65	4.32	107
05/19/2021 10:00	1.40	12.14	0.62	5.89	117
05/19/2021 11:00	0.50	19.77	0.47	6.40	115
05/19/2021 12:00	0.63	53.98	0.40	6.38	110
05/19/2021 13:00	2.19	25.75	0.41	6.16	110
05/19/2021 14:00	1.53	27.82	0.35	5.81	114
05/19/2021 15:00	1.89	7.39	0.35	5.47	134
05/19/2021 16:00	0.20	16.73	0.39	3.23	93
05/19/2021 17:00	0.28	19.44	0.34	3.67	110
05/19/2021 18:00	0.20	36.01	0.36	3.01	95
05/19/2021 19:00	0.20	32.77	0.47	1.07	115
05/19/2021 20:00	0.20	22.16	0.67	1.03	299
05/19/2021 21:00	0.20	9.43	0.68	1.22	285
05/19/2021 22:00	5.35	26.11	0.70	0.97	173
05/19/2021 23:00	4.07	6.86	0.70	1.16	233
05/20/2021 00:00	1.78	11.65	0.64	1.05	239

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program

1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
05/20/2021 01:00	1.77	16.38	0.62	1.41	270
05/20/2021 02:00	11.20	99.17	1.00	1.22	229
05/20/2021 03:00	9.29	42.31	0.85	1.10	248
05/20/2021 04:00	9.90	6.00	0.89	1.05	202
05/20/2021 05:00	6.56	9.46	0.90	0.91	188
05/20/2021 06:00	4.53	2.86	0.75	0.65	181
05/20/2021 07:00	2.02	73.77	0.96	1.06	118
05/20/2021 08:00	1.60	43.38	0.73	1.48	119
05/20/2021 09:00	3.50	17.30	1.08	2.21	116
05/20/2021 10:00	0.73	10.66	0.57	3.13	134
05/20/2021 11:00	0.32	14.70	0.37	4.21	120
05/20/2021 12:00	0.95	13.56	0.34	5.86	125
05/20/2021 13:00	0.65	14.26	0.32	5.74	105
05/20/2021 14:00	0.65	5.14	0.33	5.25	145
05/20/2021 15:00	1.21	15.55	0.30	7.25	126
05/20/2021 16:00	1.19	27.44	0.31	4.19	109
05/20/2021 17:00	1.51	18.89	0.30	4.69	126
05/20/2021 18:00	1.96	66.50	0.36	4.16	107
05/20/2021 19:00	3.83	123.76	0.51	2.94	126
05/20/2021 20:00	4.54	173.58	0.62	1.39	240
05/20/2021 21:00	4.34	58.74	0.69	1.16	255
05/20/2021 22:00	4.05	35.13	0.66	0.97	251
05/20/2021 23:00	6.19	29.80	0.71	0.90	222
05/21/2021 00:00	7.15	14.27	0.83	0.55	145
05/21/2021 01:00	7.56	6.37	0.88	0.53	177
05/21/2021 02:00	3.07	9.68	1.28	0.47	191
05/21/2021 03:00	1.56	6.50	0.89	0.62	171
05/21/2021 04:00	0.69	12.82	0.76	0.54	163
05/21/2021 05:00	0.44	25.98	0.69	1.10	144
05/21/2021 06:00	0.34	3.42	0.73	0.98	275
05/21/2021 07:00	0.40	15.89	0.35	1.36	153
05/21/2021 08:00	0.40	16.66	0.65	2.41	90
05/21/2021 09:00	0.26	24.38	0.67	5.15	101
05/21/2021 10:00	0.20	23.25	0.61	5.39	95
05/21/2021 11:00	1.53	22.23	0.50	7.35	111
05/21/2021 12:00	1.39	32.79	0.44	6.75	108
05/21/2021 13:00	0.20	31.67	0.39	5.71	93
05/21/2021 14:00	0.20	32.23	0.37	5.81	100
05/21/2021 15:00	0.20	30.77	0.35	5.29	98
05/21/2021 16:00	0.20	18.85	0.31	4.87	92
05/21/2021 17:00	0.20	18.77	0.31	4.32	85
05/21/2021 18:00	0.20	28.99	0.37	2.62	101
05/21/2021 19:00	0.20	27.90	0.45	1.26	175
05/21/2021 20:00	0.20	19.92	0.51	0.90	197
05/21/2021 21:00	0.20	1.98	0.57	1.36	274
05/21/2021 22:00	0.20	17.01	0.56	1.78	275
05/21/2021 23:00	0.59	26.05	0.80	1.00	260
05/22/2021 00:00	1.89	16.27	0.91	0.86	231
05/22/2021 01:00	2.29	14.82	0.71	0.71	168
05/22/2021 02:00	1.84	7.20	1.07	1.11	182
05/22/2021 03:00	1.02	12.38	0.81	0.76	264
05/22/2021 04:00	0.42	7.24	0.60	0.86	194
05/22/2021 05:00	0.27	4.99	0.59	0.88	164
05/22/2021 06:00	0.22	14.46	0.60	0.65	252
05/22/2021 07:00	14.46	165.54	0.71	0.69	139
05/22/2021 08:00	43.88	96.81	9.75	0.93	140
05/22/2021 09:00	3.38	25.84	7.70	1.89	201
05/22/2021 10:00	0.31	6.41	0.84	3.21	215
05/22/2021 11:00	0.20	7.62	0.61	3.57	227
05/22/2021 12:00	0.20	16.72	0.44	3.37	172
05/22/2021 13:00	0.20	7.29	0.42	3.27	218
05/22/2021 14:00	0.20	5.74	0.42	2.42	171
05/22/2021 15:00	0.20	0.99	0.44	2.27	152
05/22/2021 16:00	0.20	2.46	0.43	2.17	203
05/22/2021 17:00	0.20	0.76	0.50	1.10	211
05/22/2021 18:00	0.32	31.06	0.59	1.47	224
05/22/2021 19:00	0.34	86.34	1.38	1.80	287
05/22/2021 20:00	0.20	57.39	6.81	1.09	252
05/22/2021 21:00	0.20	73.42	6.56	1.13	224
05/22/2021 22:00	0.20	146.52	4.97	0.57	221
05/22/2021 23:00	0.20	225.38	5.90	0.70	255
05/23/2021 00:00	0.20	114.81	4.84	0.50	239
05/23/2021 01:00	0.20	168.09	6.97	0.49	144
05/23/2021 02:00	1.20	172.15	5.67	0.45	147
05/23/2021 03:00	3.60	133.90	2.62	0.59	182
05/23/2021 04:00	1.41	213.49	2.19	0.98	121
05/23/2021 05:00	0.73	166.61	1.87	1.08	195
05/23/2021 06:00	0.66	75.32	7.34	0.76	201
05/23/2021 07:00	1.62	28.48	11.71	0.91	121
05/23/2021 08:00	0.62	40.23	2.01	2.47	135
05/23/2021 09:00	0.31	11.75	1.06	3.19	91
05/23/2021 10:00	0.21	9.25	0.80	3.73	158

New Indy Containerboard, Catawba, SC - Hydrogen Sulfide Ambient Monitoring Program
1-hour Average Summary - Ambient Hydrogen Sulfide (H_2S) Concentrations and Meteorological Conditions

Station ID	Station 1	Station 2	Station 3	Met (1)	
Location Description	Ballfield, northwest of plant	Near Scalehouse, east of plant	Catawba River, northeast of plant	Ballfield, northwest of plant	
Coordinates	34°85'2.78"N, 80°89'66.67"W	34°84'72.22"N, 80°88'25.0"W	34°51'21.60"N, 80°52'17.92"W	34°85'2.78"N, 80°89'66.67"W	
Timestamp	Average Concentration (ppb)	Average Concentration (ppb)	Average Concentration (ppb)	Average Wind Speed (mph)	Average Wind Direction (°)
05/23/2021 11:00	0.20	5.91	0.67	5.01	164
05/23/2021 12:00	0.20	5.58	0.59	4.99	147
05/23/2021 13:00	0.20	3.12	0.74	4.41	196
05/23/2021 14:00	0.20	2.87	0.65	4.69	258
05/23/2021 15:00	0.20	2.94	0.59	4.75	258
05/23/2021 16:00	0.20	1.09	0.62	4.27	253
05/23/2021 17:00	0.20	1.47	0.57	3.79	275
05/23/2021 18:00	0.20	0.46	0.65	2.39	270
05/23/2021 19:00	0.20	15.88	0.80	1.73	295
05/23/2021 20:00	0.20	146.28	2.48	2.26	290
05/23/2021 21:00	0.21	151.02	7.74	0.61	261
05/23/2021 22:00	0.31	157.14	3.46	0.64	192
05/23/2021 23:00	0.20	399.38	4.72	1.88	298
05/24/2021 00:00	0.21	376.81	9.85	0.89	147
05/24/2021 01:00	0.20	112.60	13.47	0.67	118
05/24/2021 02:00	1.25	114.48	10.08	0.79	217
05/24/2021 03:00	0.70	122.54	7.68	0.55	166
05/24/2021 04:00	0.84	124.90	4.51	0.50	120
05/24/2021 05:00	0.61	113.95	2.65	0.48	105
05/24/2021 06:00	0.34	149.14	1.49	0.49	168
05/24/2021 07:00	0.35	176.65	1.18	1.68	215
05/24/2021 08:00	0.37	78.61	0.91	2.89	157
05/24/2021 09:00	0.22	39.53	0.97	3.84	129
05/24/2021 10:00	0.23	50.07	0.73	3.20	127
05/24/2021 11:00	4.92	39.31	0.80	3.14	156
05/24/2021 12:00	1.46	9.85	2.15	3.18	233
05/24/2021 13:00	0.20	6.87	0.67	3.84	209
05/24/2021 14:00	0.20	22.80	0.62	3.84	240
05/24/2021 15:00	0.20	37.94	0.63	3.93	211
05/24/2021 16:00	0.20	8.64	0.65	3.24	204
05/24/2021 17:00	0.20	14.97	0.58	2.51	234
05/24/2021 18:00	0.20	4.56	0.69	2.10	283
05/24/2021 19:00	0.23	48.04	0.80	1.05	281
05/24/2021 20:00	0.23	117.12	0.92	0.80	203
05/24/2021 21:00	0.23	274.54	1.00	0.77	209
05/24/2021 22:00	3.41	41.03	0.98	1.34	183
05/24/2021 23:00	5.02	125.55	0.98	2.10	192
05/25/2021 00:00	38.96	141.76	0.96	1.27	93

APPENDIX E – PILOT STUDY REQUESTS AND APPROVALS

From: Amick, Byron <AMICKBM@dhec.sc.gov>
Sent: Tuesday, June 8, 2021 10:14 AM
To: Dan Mallett <Dan.Mallett@new-indycb.com>; Shealy, Renee <shealyrg@dhec.sc.gov>; Clark, Ann <CLARKAR@dhec.sc.gov>; Rippy, Crystal <RIPPYCD@dhec.sc.gov>
Subject: Turbulator aerator pilot test

External E-Mail - Caution - This email originated outside of New-Indy. .

New-Indy has requested to install two (2) Turbulator Aerators/Mixers in the north end of the ASB on a trial basis to determine the effectiveness of the Turbulator style units. This trial is planned to run for 6 months, expiring December 8, 2021.

While this email can be used to install and start operations of the two Turbulator aerators/mixers on a trial basis, New-Indy is required to submit a pilot study application using the form PER & Other Requests - Industrial in the ePermitting system so that this approval can be properly approved and tracked. In this submittal you will provide a schematic diagram showing the location and anchoring points for each aerator used during this study, plus any other information required to properly describe the requested pilot systems.

Byron M. Amick
Environmental Engineering Associate
Water Facilities Permitting Division
S.C. Dept. of Health & Environmental Control
Office: (803) 898-4236
Connect: www.scdhec.gov Facebook Twitter

dhec
Healthy People. Healthy Communities.

June 24, 2021

Daniel Mallett
New-Indy Catawba LLC
5300 Cureton Ferry Rd
Catawba, SC 29704

RE: LOA-005764
New-Indy Catawba LLC
Turbulator Mixers Pilot Study
York County

Dear Mr. Mallett:

The facility has requested to perform a pilot study the addition of two new Turbulator agitator-mixer units to evaluate their use in encouraging a more favorable flow path and assist in breaking up the floating fiber/foam scum layer in the ASB. The Department hereby grants temporary approval to proceed with the pilot study per your request dated June 15, 2021 in accordance with the following conditions:

1. The pilot study results should be submitted to the Department within 30 days of completion of the study. The results should describe whether the project met its intended goals or not.

2. If, based on the results of the pilot study, a decision is made to permanently install the system, a wastewater construction permit application submittal will be needed. The pilot study will not be allowed to operate beyond the expiration of this approval until the construction permit is issued, unless an extension is granted. The pilot study results should be submitted with the permit application.

3. If the pilot study results do not indicate the continued use of the system, the permittee shall remove the equipment used in the pilot test promptly and before the expiration date of this approval.

4. This approval expires on December 31, 2021.

If you have any questions, please contact me at 803-898-4236 or amickbm@dhec.sc.gov.

Sincerely,

Byron M Amick
Environmental Engineer Associate
Industrial Wastewater Permitting Section
Water Facilities Permitting Division

cc via e-mail: Jim Kirlin, TRC Environmental Corp
Sonya Johnson, Midlands EA Columbia
BOW/WPC Enforcement

Wastewater - Industrial - Preliminary Engineering Review (PER) and Other Request Form - New

version 2.6

(Submission #: HP9-G5MM-ARD5G, version 1)

Details

Submission ID	HP9-G5MM-ARD5G
Submission Reason	New

Form Input

Request Information

Do you anticipate this project being funded by State Revolving Fund (SRF)?
No

Request Type:
Pilot Study Request

Permittee Information

Permittee

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd
Catawba, SC 29704
United States

Owner Information

Owner

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd

Catawba, SC 29704

Is the owner also the operator?
Yes

Contact Information

Facility Contact

Prefix
Mr.

First Name	Last Name
Daniel	*Mallett*

Title
Environmental Manager

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd

Catawba, SC 29704

United States

Engineer Information

Engineer Contact

Prefix
Mr.

First Name	**Last Name**
James	*Kirlin*

Title
Environmental Engineer Consultant

Organization Name
TRC

Phone Type	**Number**	**Extension**
Business	8644213890	

Email
JKirlin@TRCcompanies.com

Fax
NONE PROVIDED

Address

50 INTERNATIONAL DR

STE 150

GREENVILLE, SC 29615

United States

S.C. Registration Number:
19829

LLR Licensing Lookup
[Engineers and Land Surveyors - Licensee Lookup]

Project Information

Project Name:
Turbulator mixers pilot study

Facility Name
New-Indy Catawba LLC

NPDES/ND Permit Number and Name
NEW-INDY CATAWBA LLC - SC0001015

Project Address:

5300 Cureton Ferry Rd

Catawba, SC 29704

Project County
York

Project Location:
34.84860731437392,-80.88129056045878

Project Description of Wastewater Systems:
Pilot study of two 15-HP Turbulator-brand floating mixers in the first cell of the Aerated Stabilization Basin (ASB).

Project Details

Is this project part of a phased project?
No

What is this project submission based on?
Neither

Wastewater Systems

AVERAGE FLOW

Long term average discharge flow (GPD)
NA

RECEIVING FACILITY

Construction, LOA, or Other Permit, if applicable.
20098-IW was the last ww construction permit issued

Facility Address
5300 Cureton Ferry Rd, Catawba, SC 20704

NPDES/ND Number and Name
NEW-INDY CATAWBA LLC - SC0001015

DISPOSAL SITES

Effluent Disposal Site (Description)
Outfall 001 into Catawba River

Sludge Disposal Site (Description)
NA

Submittal Requirements

Additional Documents:

> L3706010000-008 Turbulators Trial.pdf - 06/15/2021 02:46 PM
> **Comment**
> Tubulator mixers pilot study request

Use the space below to bring to the Department�s attention any additional information that you believe should be considered in the permit decision.
NONE PROVIDED

TRC
50 International Dr.
Suite 150
Greenville, SC 29615
T 864.281.0030
TRCcompanies.com

June 15, 2021

Mr. Byron Amick
Industrial Wastewater Permitting Section
South Carolina Department of Health and Environmental Control
Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201

Subject: Request for Approval – Pilot Study Two New Turbulator Mixers
New-Indy Catawba LLC, York County

Dear Mr. Amick:

On behalf of New-Indy Catawba LLC (New-Indy), TRC is requesting approval for New-Indy to perform a pilot study trial of the addition of two new Turbulator mixers to the Aerated Stabilization Basin (ASB) of the wastewater treatment system at New-Indy's facility in Catawba, South Carolina. This letter describes the proposed additions.

Background

New-Indy operates an unbleached paperboard mill at 5300 Cureton Ferry Road in Catawba, South Carolina (see Figure 1). Process wastewater generated as part of operations is treated in the mill's wastewater treatment system. In general, the main flow through the treatment system is process wastewater goes through the primary clarifier, then through the ASB, then the No. 1 Holding Pond, and then through the post-aeration basin before discharge to the Catawba River. Other components associated with wastewater treatment include two other effluent holding basins, a primary solids EQ (Equalization) Basin, other sludge ponds, etc. (see Figure 2). Due to upset conditions from the conversion of the mill to unbleached operations, a floating layer of foam and fiber has formed on the ASB causing several aerators to become inoperable and the flow path of wastewater through the basin to be affected. New-Indy would like to perform a pilot study to add two new Turbulator mixers to evaluate their use in encouraging a more favorable flow path and assist in breaking up the floating fiber/foam scum layer in the ASB.

Proposed Turbulator Pilot Study

Location:

The two Turbulators will be installed in Cell 1 of the ASB near the inlet (see Figure 2). This location should allow the Turbulators to provide high-intensity initial mixing of influent, help break up the surface foam/fiber layer, and enable better contact of wastewater with the existing aerators in this zone. The first Turbulator will be installed where the current aerator 52 is installed (see Figure 2) and utilize the existing electrical cable and triple-mooring pole arrangement. The second Turbulator will be installed approximately 170 feet southeast of the first Turbulator where a previous directional mixer was installed (circa late 1990s) but is no longer used. This second Turbulator will use the existing electrical cable and existing anchoring block. It will also be anchored to shore via two cables to provide the three tie-off points.

Turbulator Equipment:

Each Turbulator has a 15 HP direct drive motor with an eight-foot propellor shaft. The shaft will have two sets of mixing blades. The Turbulator assembly will be mounted on existing, spare aerator floats that New-Indy has on hand. Manufacturer's information on the Turbulators is attached.

The proposed pilot study is being requested for six months. The study should not be necessary for that time, but this duration is being requested to allow time for evaluation and permitting if New-Indy decides to request to leave the Turbulator mixers in place permanently.

New-Indy understands that a wastewater treatment system construction permit (and subsequent operating approval) will be required if these mixers are to be used in this capacity indefinitely after the pilot study. If you have any questions, please contact me at 864.421.3890 or jkirlin@trccompanies.com, or Mr. Dan Mallett at New-Indy at 803.981-8010 or dan.mallett@new-indycb.com.

Sincerely,

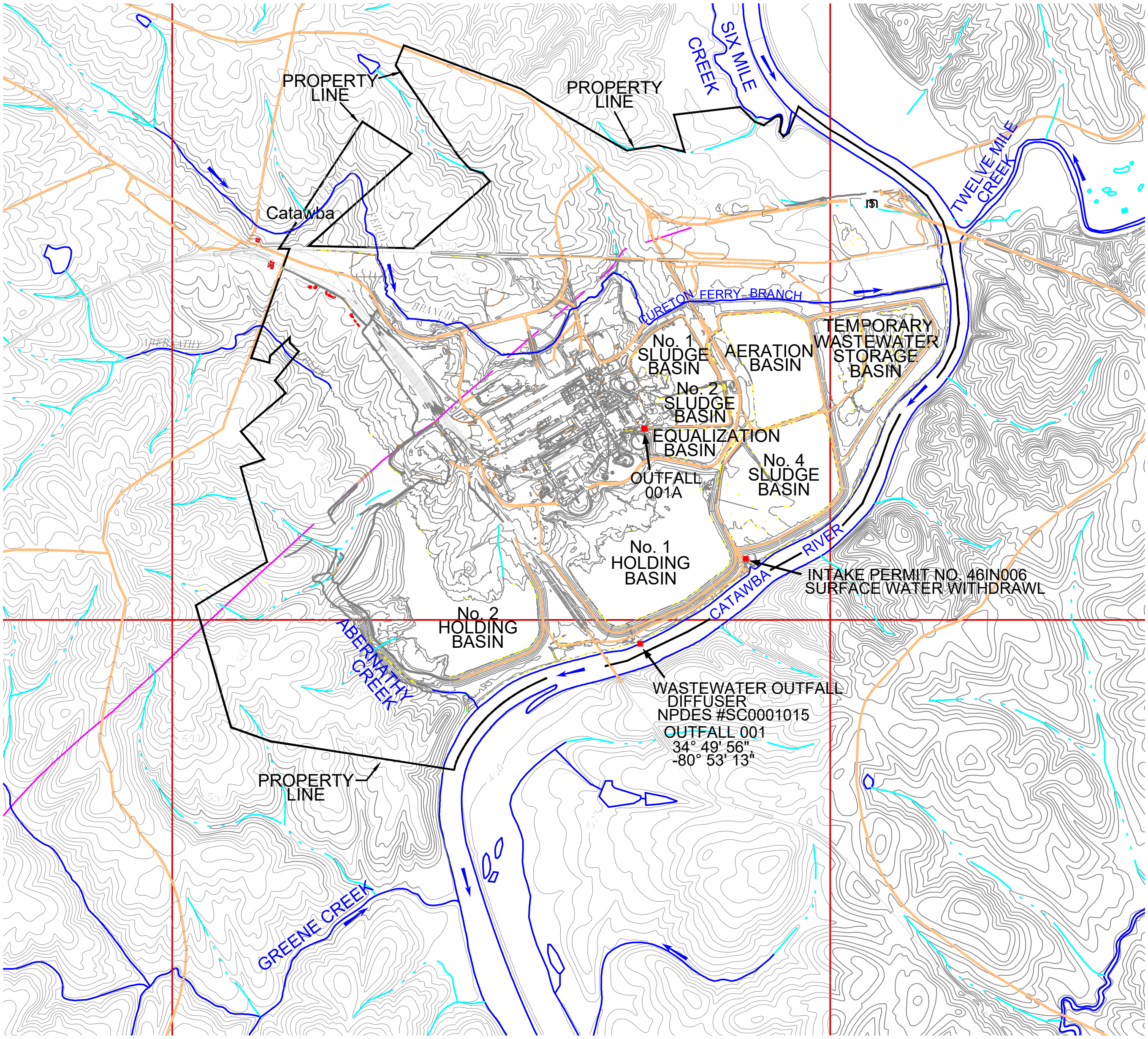
TRC Environmental Corporation

James M. Kirlin, P.E.
Senior Engineer / Project Manager

Attachments

cc: Dan Mallett, New-Indy Environmental Manager

Figures



0 3250 6500

1" = 6500 FEET

NOTE:
SITE LOCATON MAP REVISED FROM DRAWING BY EARTHTECH (10/06)

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:

NEW-INDY CATAWBA LLC
CATAWBA, SOUTH CAROLINA

TITLE:

SITE LOCATION MAP

DRAWN BY:	A.PEEBLES / D.STEHLE
CHECKED BY:	J.KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.01 APS.dwg

FIGURE 1

8.5x11 --- USER: DStehle --- ATTACHED XREFS: --- ATTACHED IMAGES:
DRAWING NAME: \\greenville-fp1\CADD\pjt\CAD\New-Indy\Aerator Pilot Study\370601.0001.01.01 APS.dwg --- PLOT DATE: June 02, 2021 - 4:18AM --- LAYOUT: FIG01 Site Location

Version: 2017-10-21

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:
NEW-INDY CATAWBA LLC
NPDES #SC0001015
CATAWBA, SOUTH CAROLINA

TITLE:
TURBULATOR INSTALLATION
PILOT STUDY

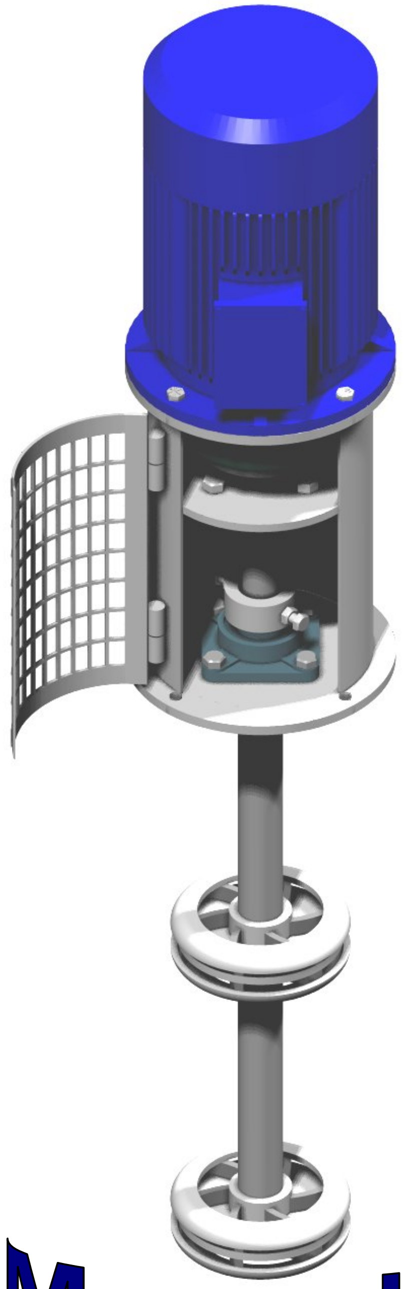
DRAWN BY:	J. BELL / D.STEHLE
CHECKED BY:	J. KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.02 TL.dwg

FIGURE 2

11x17 --- USER: DStehle --- ATTACHED XREFS: --- ATTACHED IMAGES: Catawba SC;
DRAWING NAME: \\greenville-fp1\CADD\gis\CAD\New-Indy\Aerator Pilot Study\370601.0001.01.02 TL.dwg --- PLOT DATE: June 15, 2021 - 2:19AM --- LAYOUT: FIG02 Turbulator Installation
Version: 2017-10-21

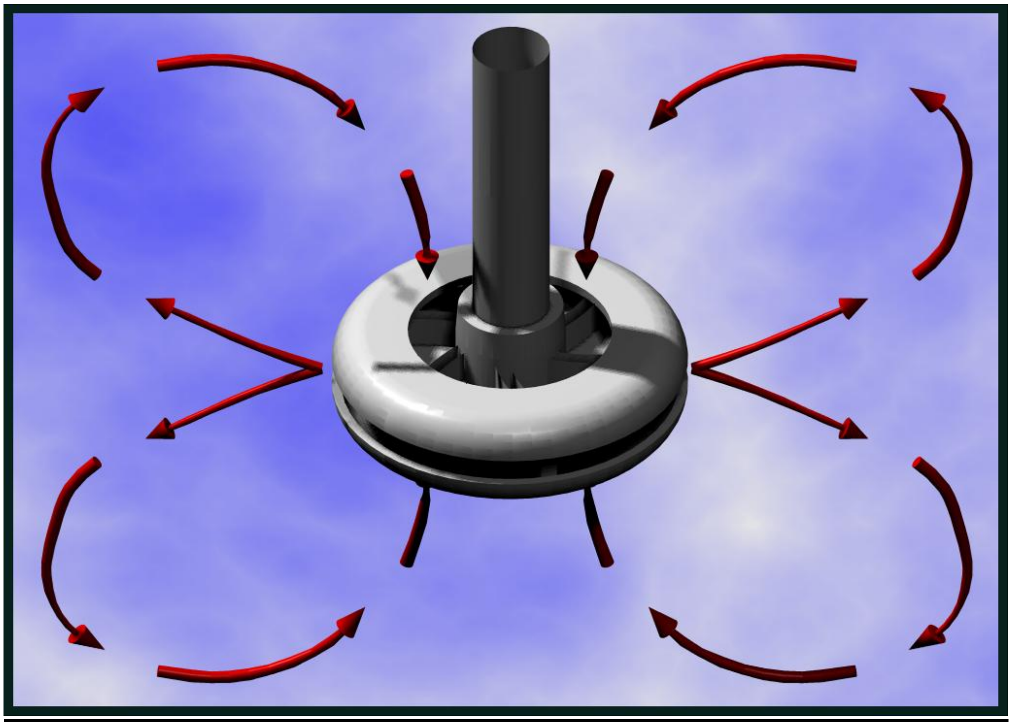
Attachment 1
Turbulator Information

STD Turbulator



Manual & Certificates

INTRODUCTION



The Turbulator Mixer is an agitator-mixer unit for mixing of liquids and slurries. A strong vortex is created at both the upper and lower ends of the rotor. The bottom stream is pulled through the rotor and deflected upwards, forming a wave at the upper end of the mixing vessel, forcing powders and solids into the top vortex. The top stream is deflected downwards and it sweeps the bottom end of the mixing vessel, preventing any solids from settling on the vessel floor. High shear takes place due to the top and bottom streams cutting through one another as they exit the rotor.

When viewing a video recording of the flow pattern in a glass tank, the following can be clearly observed:

a. A figure eight flow pattern throughout the vessel as per the above illustration.

b. Homogenous mixing, even in flat-bottomed vessels.

c. Breaking waves at the top that will outwit even the keenest of surf riders.

d. The absence of a bearing at the bottom-end of the shaft. There is no need for a bearing at the bottom-end of the shaft due to the following:

   (i) Equal outlet pressures on the rotor.

   (ii) Two heavy-duty bearings are installed at the top end of the shaft.

   (iii) Balanced rotors.

   (iv) A very straight shaft.

SYSTEM ADVANTAGES

- Increased production through quick dispersion.
- Homogenous mixing.
- Particle size reduction.
- Complete dispersion of solids from top to bottom.
- Clean sweeping of vessel floor.
- Limited splashing.
- User friendly system.

MAINTENANCE ADVANTAGES

- No gearbox drives.
- No bottom bearing.
- No oil leakage into mixing vessel.
- Virtually maintenance-free.
- Rotor change within minutes.

COMPONENTS / PARTS

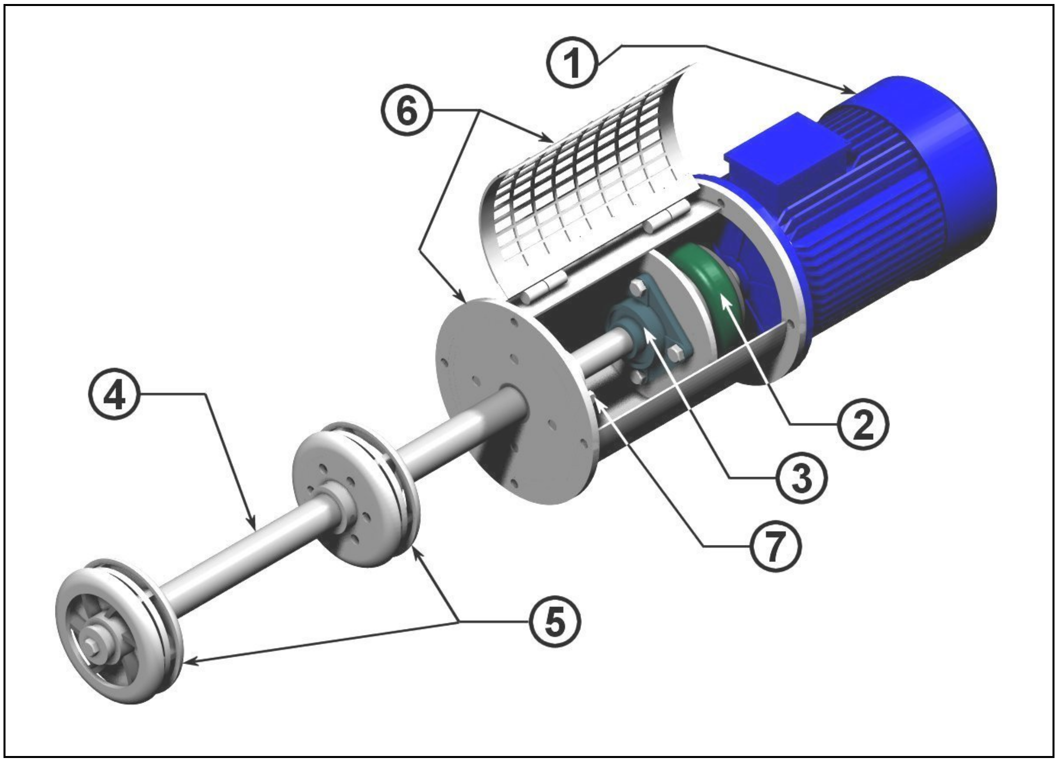


Figure 1

The STD Turbulator Mixer comprises of the following components (Figure 1):

(1) Electrical motor (Standard, Spark, or Flame-proof).

(2) Coupling (Tyre, Spider-Flex, or Pin & Disc type).

(3) Two bearings (Standard, Heavy-duty, or BTC type).

(4) Drive shaft (Solid or Hollow-bar).

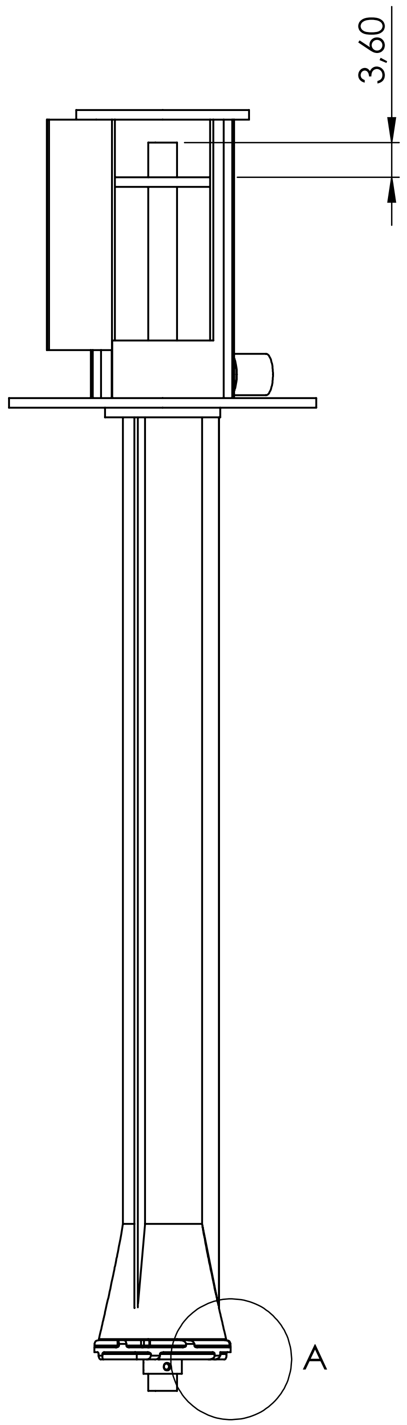
(5) Turbulator rotor(s) or impellers.

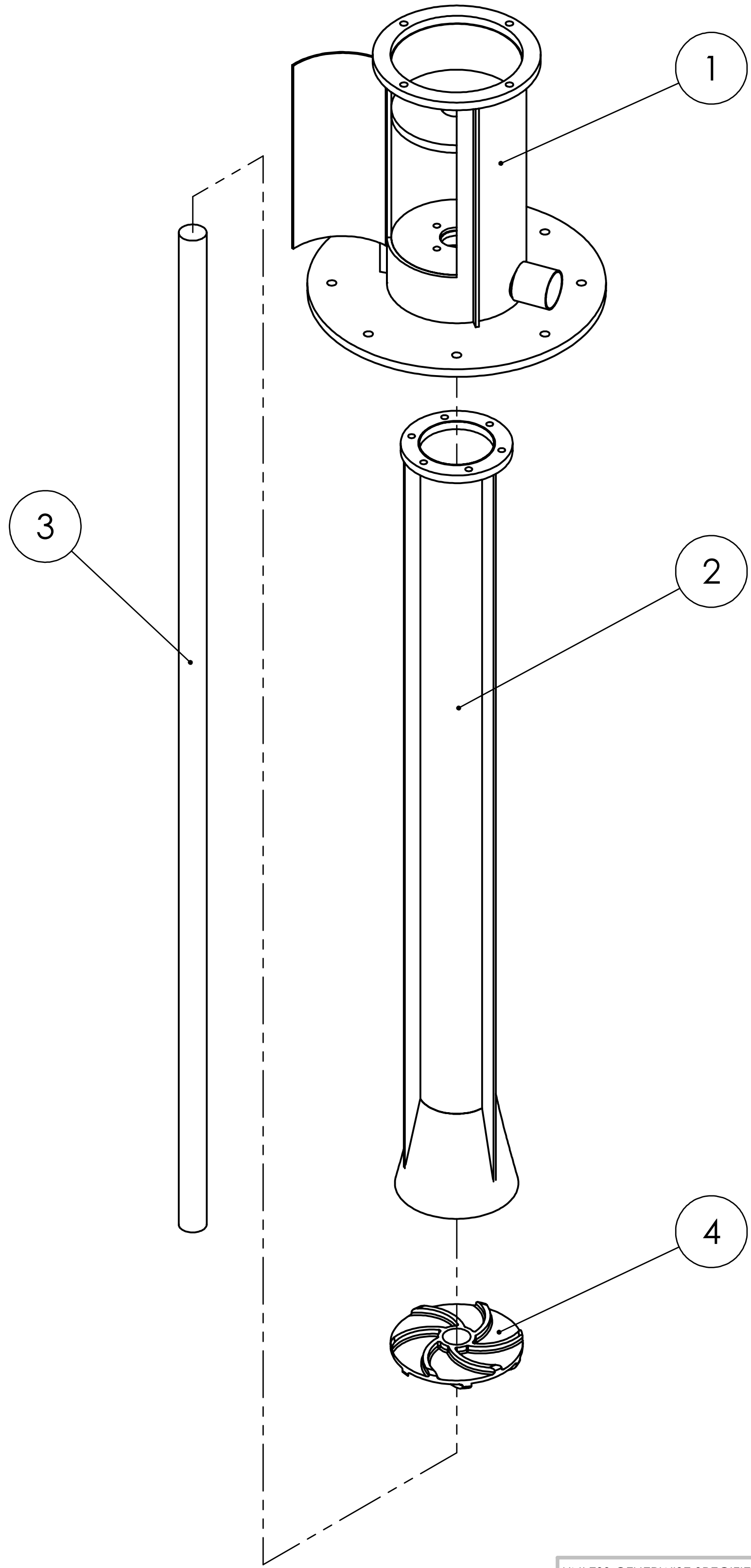
(6) Bearing-assembly housing with inspection door.

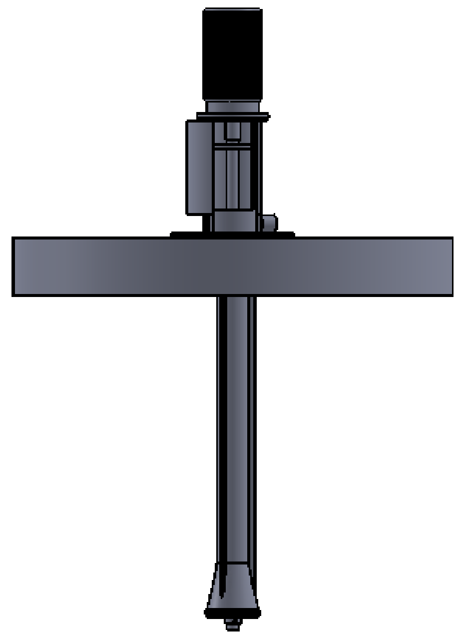
(7) Securing Collar (if applicable).

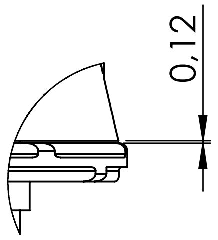
(8) Shrink-fit, Split couplings (if applicable – not shown).

(9) Induction tube (if applicable – not shown).









Adjustable dimention
Move rotor up or down
Dimention range: 0.11" - 0.19"
Dimention depends on amount of aeration required

DETAIL A
SCALE 1 : 10

Item No	Part Number	QTY
1	TT170-AR	4
2	DT84-AR	4
3	SHFT13-AR	4
4	OV15-1-AR	4

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
SURFACE FINISH:
TOLERANCES:
LINEAR:
ANGULAR:

FINISH:

DEBURR AND BREAK SHARP EDGES

DO NOT SCALE DRAWING

REVISION

	NAME	SIGNATURE	DATE
DRAWN	JP Jansen van Vuuren		17/08/2018
CHK'D			
APPV'D			
MFG			
Q.A			

TITLE:

Aerator

MATERIAL:

DWG NO.

Aerator_rev2

A3

WEIGHT:

SCALE:1:20

SHEET 1 OF 1

From: Amick, Byron <AMICKBM@dhec.sc.gov>
Sent: Monday, June 7, 2021 3:42 PM
To: Dan Mallett <Dan.Mallett@new-indycb.com>; Shealy, Renee <shealyrg@dhec.sc.gov>; Clark, Ann <CLARKAR@dhec.sc.gov>; Rippy, Crystal <RIPPYCD@dhec.sc.gov>
Subject: RE: NEW-INDY WASTEWATER TREATMENT OPERATION

Due to the urgent need to introduce oxygen to the ASB in order to revitalize the biological treatment unit and control odors at the site, the Department will approve the installation of two different forms of oxygen injection into the ASB Inlet ditch. One a hydrogen peroxide injection system on the north side of Color Plant and the other a liquid oxygen injection system on the south side of the Color Plant. These systems are expected to be utilized until August 1, 2021. While this email can be used to install and start operations of the two oxygen injection systems, New-Indy is required to submit a pilot study application using the form PER & Other Requests - Industrial in the ePermitting system so that this approval can be properly approved and tracked. In this submittal you will provide a schematic diagram of each system, and identify the concentration of hydrogen peroxide being used in this study, plus all other information required to properly describe the requested pilot systems.

Byron M. Amick
Environmental Engineering Associate
Water Facilities Permitting Division
S.C. Dept. of Health & Environmental Control
Office: (803) 898-4236
Connect: www.scdhec.gov Facebook Twitter

dhec
Healthy People. Healthy Communities.

Healthy People. Healthy Communities.

June 17, 2021

Daniel Mallett
New-Indy Catawba LLC
5300 Cureton Ferry Rd
Catawba, SC 29704

RE: LOA-005750
New-Indy Catawba LLC
Hydrogen Peroxide & Supplemental Oxygen Addition Pilot Study
York County

Dear Mr. Mallett:

The facility has requested to study the addition of hydrogen peroxide and supplemental oxygen to improve biological treatment in the ASB and hydrogen peroxide to the No.1 Holding Pond to improve Dissolved Oxygen in the effluent prior to the Post-Aeration Basin. The oxygen additions systems are described as follows

Hydrogen Peroxide Addition
Hydrogen peroxide is to be added to the ASB inlet ditch at the footbridge on the north side of color removal plant and to the No.1 Holding pond near the outlet to the Post-Aeration Basin. For this study the facility will utilize a 9,500-gallon stainless steel ISO tank to store a 48% hydrogen peroxide solution from the chemical supplier. The hydrogen peroxide will be fed at each location by up to two adjustable speed chemical metering pumps mounted on a single skid. The metering system is to deliver a dosage between 1.4 and 5 gallons per minute (gpm) of hydrogen peroxide to each location.

Oxygen Addition
The oxygen is to be added to the ASB inlet ditch at the pipe crossing on the southwest side of the color removal plant. For this study the system will include a compressed liquid oxygen tank, a vaporizer to convert liquid oxygen into gaseous oxygen, a pressurized mixed tank where gaseous oxygen is used to supersaturate a slipstream of wastewater from the ASB inlet ditch with dissolved oxygen and process controls and instrumentation. The initial dosage will be approximately 4,000 pounds of oxygen per day but may increase during the pilot study.

The Department hereby grants temporary approval to proceed with the pilot study per your request dated June 10, 2021 in accordance with the following conditions:

1. The pilot study results should be submitted to the Department within 30 days of completion of the study. The results should describe whether the project met its intended goals or not.

2. If, based on the results of the pilot study, a decision is made to permanently install the system, a wastewater construction permit application submittal will be needed. The pilot study will not be allowed to operate beyond the expiration of this approval until the construction permit is issued, unless an extension is granted. The pilot study results should also be submitted with the permit application.

3. If the pilot study results do not indicate the continued use of the system, the permittee shall remove the equipment used in the pilot test promptly and before the expiration date of this approval.

4. This approval expires on October 31, 2021.

If you have any questions, please contact me at 803-898-4236 or amickbm@dhec.sc.gov.

Sincerely,

Byron M Amick

Byron M Amick
Environmental Engineer Associate
Industrial Wastewater Permitting Section
Water Facilities Permitting Division

cc via e-mail: Jim Kirlin, TRC Environmental Corp
Sonya Johnson, Midlands EA Columbia
BOW/WPC Enforcement

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:	NEW-INDY CATAWBA LLC NPDES #SC0001015 CATAWBA, SOUTH CAROLINA
TITLE:	HYDROGEN PEROXIDE AND SUPPLEMENTAL OXYGEN ADDITION PILOT STUDY

DRAWN BY:	J. BELL
CHECKED BY:	J. KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.02B HP.dwg

FIGURE 2

DRAWING NAME: \\greenville-fp1\CADD\gis\CAD\New-Indy\Aerator Pilot Study\ 370601.0001.01.02B HP.dwg --- PLOT DATE: June 16, 2021 - 5:09AM --- LAYOUT: Supplemental Oxygen Pilot Study

Version: 2017-10-21

Wastewater - Industrial - Preliminary Engineering Review (PER) and Other Request Form - New

version 2.6

(Submission #: HP9-CA21-5TZQG, version 1)

Details

Submission ID	HP9-CA21-5TZQG
Submission Reason	New

Form Input

Request Information

Do you anticipate this project being funded by State Revolving Fund (SRF)?
No

Request Type:
Pilot Study Request

Permittee Information

Permittee

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd

Catawba, SC 29704

United States

Owner Information

Owner

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd

Catawba, SC 29704

Is the owner also the operator?
Yes

Contact Information

Facility Contact

Prefix
Mr.

First Name	Last Name
Daniel	*Mallett*

Title
Environmental Manager

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd

Catawba, SC 29704

United States

Engineer Information

Engineer Contact

Prefix
Mr.

First Name	**Last Name**
James	*Kirlin*

Title
Environmental Engineer Consultant

Organization Name
TRC

Phone Type	**Number**	**Extension**
Business	8644213890	

Email
JKirlin@TRCcompanies.com

Fax
NONE PROVIDED

Address

50 INTERNATIONAL DR

STE 150

GREENVILLE, SC 29615

United States

S.C. Registration Number:
19829

LLR Licensing Lookup
[Engineers and Land Surveyors - Licensee Lookup]

Project Information

Project Name:
Hydrogen Peroxide & Supplemental Oxygen Addition Pilot Study

Facility Name
New-Indy Catawba LLC

NPDES/ND Permit Number and Name
NEW-INDY CATAWBA LLC - SC0001015

Project Address:

5300 CURETON FERRY RD

CATAWBA, SC 29704

Project County
York

Project Location:
34.84557841517148,-80.88146222183573

Project Description of Wastewater Systems:
A pilot study to evaluate the addition of hydrogen peroxide and supplemental oxygen to the ASB inlet ditch.

Project Details

Is this project part of a phased project?
No

What is this project submission based on?
Neither

Wastewater Systems

AVERAGE FLOW

Long term average discharge flow (GPD)
NA

RECEIVING FACILITY

Construction, LOA, or Other Permit, if applicable.
20098-IW is the last construction permit issued

Facility Address
5300 Cureton Ferry Rd, Catawba, SC 20704

NPDES/ND Number and Name
NEW-INDY CATAWBA LLC - SC0001015

DISPOSAL SITES

Effluent Disposal Site (Description)
Discharged to the Catawba River through Outfall 001

Sludge Disposal Site (Description)
NA

Submittal Requirements

Additional Documents:

> L3706010000-006 Peroxide and Oxygen Addn.pdf - 06/10/2021 04:49 PM
> **Comment**
> Pilot study letter request, SDS, equipment information

Use the space below to bring to the Department�s attention any additional information that you believe should be considered in the permit decision.
NONE PROVIDED

TRC

50 International Dr.
Suite 150
Greenville, SC 29615

T 864.281.0030
TRCcompanies.com

June 10, 2021

Mr. Byron Amick
Industrial Wastewater Permitting Section
South Carolina Department of Health and Environmental Control
Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201

Subject: Request for Approval – Hydrogen Peroxide and Supplemental Oxygen Addition
New-Indy Catawba LLC, York County

Dear Mr. Amick:

On behalf of New-Indy Catawba LLC (New-Indy), TRC is requesting approval for New-Indy to add hydrogen peroxide and supplemental oxygen as part of a pilot study to the wastewater treatment system at New-Indy's facility in Catawba, South Carolina. This letter describes the proposed additions.

Background

New-Indy operates an unbleached paperboard mill at 5300 Cureton Ferry Road in Catawba, South Carolina (see Figure 1). Process wastewater generated as part of operations is treated in the mill's wastewater treatment system. In general, the main flow through the treatment system is that process wastewater undergoes solids settling through the primary clarifier, then the clarified wastewater goes through the Aerated Stabilization Basin (ASB) for biological treatment, then through the No. 1 Holding Pond, and then through the post-aeration basin before discharge to the Catawba River. Other components associated with wastewater treatment include two other effluent holding basins, a primary solids EQ (Equalization) Basin, and other sludge ponds, etc. (see Figure 2). Due to upset conditions from the conversion of the mill to unbleached operations, a floating layer of foam and fiber has formed on the ASB causing several aerators to become inoperable. Dredging firms have been retained to address the floating layer of foam and fiber. As a means of supplementing aeration in the meantime, New-Indy would like to pilot test the addition of hydrogen peroxide and supplemental oxygen to the inlet to the ASB as a pilot study. The addition of hydrogen peroxide and supplemental oxygen will provide a source of supplemental dissolved oxygen to improve biological treatment in the ASB. New-Indy would also like to add hydrogen peroxide in the No. 1 Holding Pond near the outlet to the Post-Aeration Basin (see Figure 2).

Proposed Hydrogen Peroxide and Supplemental Oxygen Addition Pilot Study

Hydrogen Peroxide Addition

1. Locations: Hydrogen peroxide will be added to the ASB inlet ditch on the footbridge near the color removal plant (see Figure 2) and to the No. 1 Holding Pond near the outlet to the Post-Aeration Basin. The locations provide good access for delivery trucks, equipment, electrical power, and adequate mixing time in the ditch before the ASB or in the No. 1 Holding Pond before discharge.

2. Dosage: The initial dosage will be approximately 1.4 gallons per minute (gpm) of a 48% hydrogen peroxide dosage at each location but may be increased to up to 5 gpm during the pilot study. The Safety Data Sheet (SDS) for the material is attached.
3. Chemical Feed Equipment: The hydrogen peroxide will be fed at each location by up to two adjustable speed chemical metering Grundfos DME diaphragm pumps that are mounted on a single skid together. These pumps can each feed up to a maximum of 1.65 gpm (375 liters/hour). The pumps will convey the hydrogen peroxide solution through tubing from a 9,500-gallon stainless steel ISO tank. The tank, tubing, and pump skid system is provided by the hydrogen peroxide supplier, Evonik. The tank will be filled as needed by delivery truck. At the initial intended feeding rate of 1.4 gpm, a full tank will last at least approximately 4.5 days at continuous feed. Information on the metering pumps is attached.

Oxygen Addition

1. Location: Supplemental oxygen will be added to the ASB inlet ditch at the pipe crossing over the ditch near and southwest from the color removal plant (see Figure 2). This location provides another good location for ease of access for delivery trucks, room for oxygen storage and delivery equipment, electrical power, and adequate mixing time in the ditch before wastewater enters the ASB.
2. Dosage: The initial dosage will be approximately 4,000 pounds of oxygen per day but may be increased during the pilot study. The Safety Data Sheet (SDS) for the material is attached.
3. Chemical Feed Equipment: The proposed equipment includes a compressed liquid oxygen tank, a vaporizer to convert the liquid oxygen into gaseous oxygen, a pressurized mixed tank where gaseous oxygen is used to supersaturate a slipstream of wastewater from the ASB inlet ditch with dissolved oxygen, and process controls and instrumentation. The super-oxygenated wastewater slipstream is then reinjected back into the ditch. A process logic controller (PLC) with operator interface panel controls the feed rate of oxygen based on the feed rate of wastewater and oxygen loading settings. All except the liquid oxygen supply tank and vaporizer is housed in a standard shipping container. All equipment is provided by BlueinGreen. A local liquid oxygen supplier will refill the liquid oxygen supply tank as needed. Information on the oxygen system is attached.

The proposed pilot study is being requested for three months. The study should not be necessary for that time, but this duration is being requested to allow time for evaluation and permitting if New-Indy decides to request to leave the systems in place permanently.

New-Indy understands that a wastewater treatment system construction permit (and subsequent operating approval) will be required if either of these chemical feed systems are to be used in this capacity indefinitely after the pilot study. If you have any questions, please contact me at 864.421.3890 or jkirlin@trccompanies.com, or Mr. Dan Mallett at New-Indy at 803.981-8010 or dan.mallett@new-indycb.com.

Sincerely,

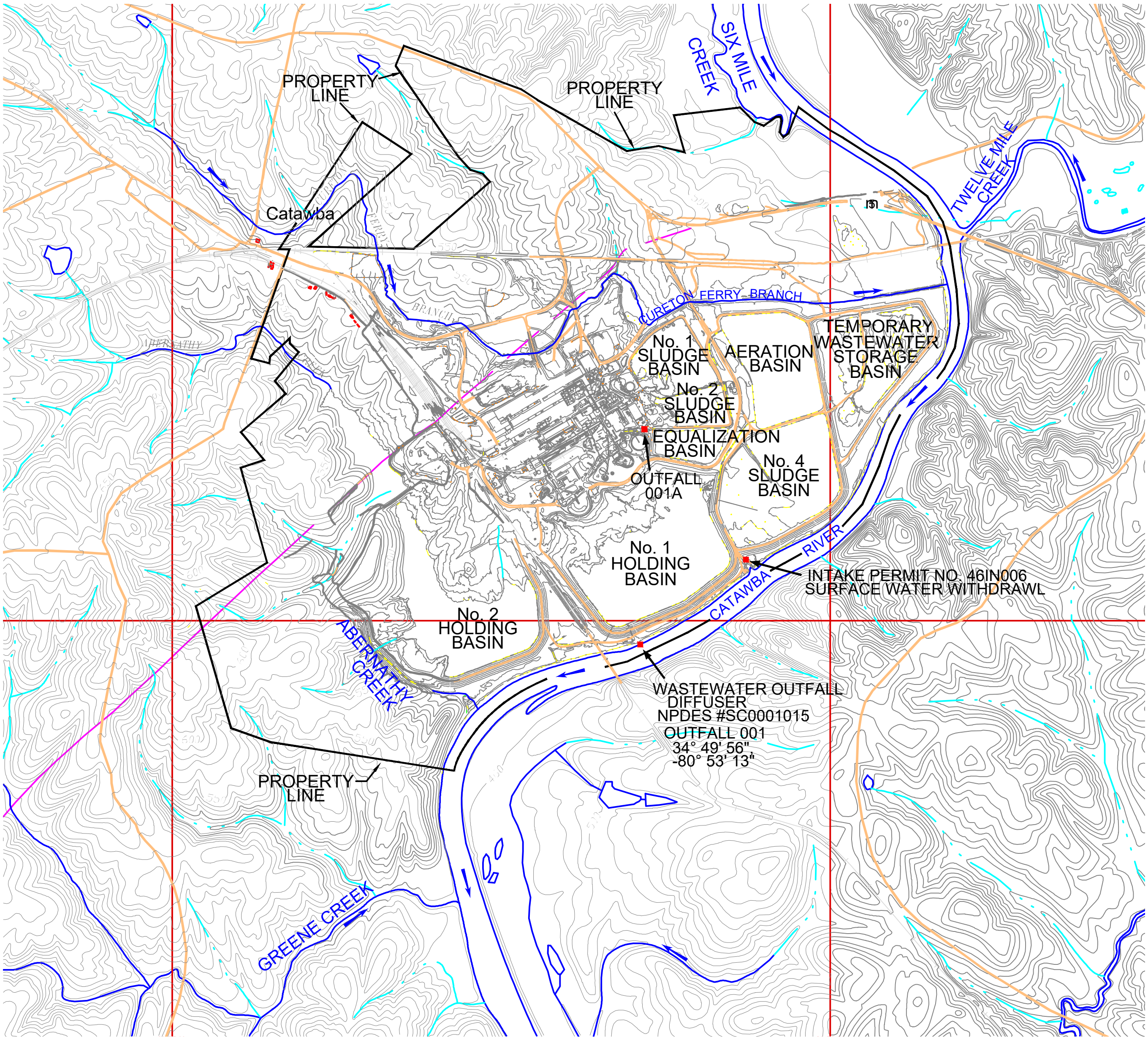
TRC Environmental Corporation

James M. Kirlin, P.E.
Senior Engineer / Project Manager

Attachments

cc: Dan Mallett, New-Indy Environmental Manager

Figures



NOTE:
SITE LOCATON MAP REVISED FROM DRAWING BY EARTHTECH (10/06)

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:	**NEW-INDY CATAWBA LLC CATAWBA, SOUTH CAROLINA**
TITLE:	**SITE LOCATION MAP**

DRAWN BY:	A.PEEBLES / D.STEHLE
CHECKED BY:	J.KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.01 APS.dwg
FIGURE 1	

DRAWING NAME: \\greenville-fp1\CADD\pjt\CAD\New-Indy\Aerator Pilot Study\370601.0001.01.01 APS.dwg --- PLOT DATE: June 02, 2021 - 4:18AM --- LAYOUT: FIG01 Site Location
8.5x11 --- USER: DStehle --- ATTACHED XREFS: --- ATTACHED IMAGES:

Version: 2017-10-21

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:
NEW-INDY CATAWBA LLC
NPDES #SC0001015
CATAWBA, SOUTH CAROLINA

TITLE:
HYDROGEN PEROXIDE AND SUPPLEMENTAL OXYGEN ADDITION PILOT STUDY

DRAWN BY:	J. BELL
CHECKED BY:	J. KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.02B HP.dwg

FIGURE 2

11x17 --- USER: jBell --- ATTACHED XREFS: --- ATTACHED IMAGES: Catawba_SC
DRAWING NAME: J:\CAD\New-Indy\Aerator Pilot Study\370601.0001.01.02B HP.dwg --- PLOT DATE: June 09, 2021 - 2:09PM --- LAYOUT: Supplemental Oxygen Pilot Study
Version: 2017-10-21

Attachment 1
Hydrogen Peroxide Feed Information

1 PRODUCT AND COMPANY IDENTIFICATION

Industrial Chemicals
Arkema Inc.
2000 Market Street
Philadelphia, PA 19103

EMERGENCY PHONE NUMBERS:
Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(866) 767-5089 (24Hrs)

Information Telephone Numbers	Phone Number	Available Hrs
Product Information	215-419-7704	8:30 a.m. - 5:00 p.m. (Eastern)

Product Name	Hydrogen Peroxide, 50% (All Grades)
Product Synonym(s)	
Chemical Family	Peroxide
Chemical Formula	H_2O_2
Chemical Name	Hydrogen Peroxide Solution, 50%
EPA Reg Num	
Product Use	

IN CANADA, IN CASE OF EMERGENCY CALL:
CANUTEC 613-996-6666

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical %	OSHA
Hydrogen peroxide	7722-84-1	50%	Y
Water	7732-18-5	50%	N

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

This material is classified as hazardous under Federal OSHA regulation.

The components of this product are all on the TSCA Inventory list.

3 HAZARDS IDENTIFICATION

Emergency Overview
Water white liquid with slightly sharp odor.
DANGER!
CAUSES EYE BURNS. MAY CAUSE BLINDNESS.
CAUSES SKIN BURNS.
CAUSES RESPIRATORY TRACT BURNS.
HARMFUL IF SWALLOWED.
STRONG OXIDIZER.
CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE OR EXPLOSIVE DECOMPOSITION.

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, it is considered to be moderately toxic if swallowed, practically non-toxic if absorbed through skin, slightly toxic if inhaled, and corrosive to eyes and skin. Inhalation of high concentrations of vapor or mist may cause severe irritation of the eyes, nose and upper respiratory tract with cough, chest discomfort and, in severe cases, pulmonary edema (accumulation of fluid in the lungs). Skin contact with concentrated liquid for a short period of time may cause a temporary whitening or bleaching of the skin. Prolonged or repeated contact with skin may cause severe irritation or burns characterized by a tingling sensation, redness, swelling and possible destruction of the dermis with ulceration. If swallowed, this material may cause irritation, burns or perforation of the gastrointestinal tract including the stomach and intestines. Symptoms of injury may include nausea, vomiting, diarrhea, abdominal pain, bleeding or tissue ulceration.

4 FIRST AID MEASURES

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention.

IF ON SKIN, immediately flush with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Destroy contaminated shoes.

IF SWALLOWED, do NOT induce vomiting. Give water to drink. Get medical attention immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	NA	
Flash Point	None	Flash Point Method
Flammable Limits- Upper	NA	
Lower	NA	

Extinguishing Media

Use water spray, water fog.

Fire Fighting Instructions

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Explosion Hazards

Solutions above 65% are especially hazardous as they do not contain enough water to remove the heat of decomposition by evaporation. Avoid breathing fumes from fire exposed material.

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Stop the leak, if possible. Ventilate the space involved. Flush with plenty of water. Combustible materials exposed to hydrogen peroxide should be rinsed immediately with large amounts of water to ensure that all the hydrogen peroxide is removed. Residual hydrogen peroxide which is allowed to dry on organic materials such as paper, fabrics, cotton, leather, wood, or other combustibles can cause the material to ignite and result in a fire. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7 HANDLING AND STORAGE

Handling

Do not get in eyes, on skin or on clothing. Do not breathe mist. Do not taste or swallow. Wash thoroughly after handling. Use only with adequate ventilation. Avoid contamination. Keep container closed.

Storage

Store separate from acids, alkalies, reducing agents, combustibles.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Eye / Face Protection

Where there is potential for eye contact, wear a face shield, chemical goggles, and have eye flushing equipment immediately available.

Skin Protection

Neoprene, Polyvinyl chloride, Butyl rubber Gloves should be worn when handling this material. Wear chemical goggles, a face shield, and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing promptly and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash skin thoroughly after handling.

Respiratory Protection

Avoid breathing vapor or mist. When airborne exposure limits are exceeded (see below), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Other Protective Equipment

Rubber boots with neoprene or pvc soles. Do NOT wear leather boots. Note: As the water content of hydrogen peroxide evaporates, cotton, rayon, and wool fibers are particularly subject to spontaneous combustion. Where there is significant risk of sudden splash or spray, it is advised that an apron or rubber suit be worn. Any contaminated clothing, including gloves, shoes, aprons, coveralls, etc., should be removed immediately and thoroughly flushed with water to eliminate any traces of hydrogen peroxide before cleaning and reuse.

Airborne Exposure Guidelines for Ingredients

Exposure Limit		Value
Hydrogen peroxide		
ACGIH TWA	-	1 ppm 1.4 mg/m3
OSHA TWA PEL	-	1 ppm 1.4 mg/m3

-Only those components with exposure limits are printed in this section.
-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.
-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.
-WEEL-AIHA Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic skin reactions.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor	Water white liquid with slightly sharp odor.
pH	NE
Specific Gravity	1.196 @ 20 C
Vapor Pressure	18.3 @ 20 C
Vapor Density	1.0
Melting Point	NE
Freezing Point	-52 C (-62 F)
Boiling Point	114 C (237 F)
Solubility In Water	Complete
Percent Volatile	100%
Molecular Weight	34.01

10 STABILITY AND REACTIVITY

Stability

This material is chemically stable under normal and anticipated storage and handling conditions.

Incompatibility

Material decomposes with the potential to produce a rupture of unvented closed containers. Contact with metals, metal ions, organics, wood, dust, shavings, dry vegetables may cause decomposition.

Hazardous Decomposition Products

This material decomposes if contaminated, causing fire and possible explosions. Oxygen can be liberated at temperatures above ambient.

11 TOXICOLOGICAL INFORMATION

Toxicological Information

Data on this material and/or its components are summarized below. Hydrogen Peroxide
Single exposure (acute) studies indicate that this material is moderately toxic if swallowed (rat LD50 805 mg/kg; 70% solution), practically non-toxic if absorbed through skin (rabbit LD50 >6,500 mg/kg; 70% solution), slightly toxic if inhaled (no mortality in rats at 170 mg/m3 for 4 hours), and corrosive to rabbit eyes and skin. No skin allergy was observed in guinea pigs following repeated exposure. Solutions are commonly used for disinfecting wounds, bleaching hair or as a mouth wash and generally do not show adverse skin reactions. Accidental ingestion by children has resulted in death from lung edema, stomach erosions and gas distention and burns to the throat and esophagus. Eye and throat irritation and bleaching of hair have been reported by workers exposed to this material in the atmosphere.

Several studies have been conducted by administering material in the drinking water of mice and rats. The primary findings were irritation of the gastric mucous. Repeated inhalation exposure of rats and mice caused nasal irritation without notable adverse effects on the lining of the upper respiratory system. Repeated inhalation exposure of dogs resulted in upper respiratory tract irritation and emphysematous changes in the lungs. Generally, long-term oral dosing caused no adverse effects other than erosion of the stomach lining from direct application of the test material. Several studies have shown an increase in gastrointestinal tract tumors in mice and rats following long-term exposure in the drinking water. Concentrations less than 1% do not promote gastrointestinal tumors. The U.S. Federal Drug Administration has concluded that there is insufficient evidence of carcinogenicity and the International Agency for Research on Cancer (IARC) has concluded that this chemical is not classifiable as to its carcinogenicity to humans (Group 3). Genetic changes were observed in tests using bacteria and animal cells, but not in animals.

12 ECOLOGICAL INFORMATION

Ecotoxicological Information

Data on this material and/or its components are summarized below.
Hydrogen Peroxide
This material is highly toxic to marine algae (LC50 0.85 mg/l), moderately toxic to Daphnia magna (EC50 7.7 mg/l) and Daphnia pulex (LC50 2.4 mg/l). It is slightly toxic to coho salmon (LC50 10 mg/l), channel catfish (LC50 37.4 mg/l), golden orfe (LC50 35 mg/l), fathead minnow (LC50 16.4 mg/l), snail (LC50 17.7 mg/l) and bacteria (EC50 30 mg/l).

Chemical Fate Information

No data are available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Consult with environmental engineer or professional to determine if neutralization is appropriate and for handling procedures for residual materials. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14 TRANSPORT INFORMATION

DOT Name	Hydrogen Peroxide, Aqueous Solution,
DOT Technical Name	
DOT Hazard Class	5.1
UN Number	UN 2014
DOT Packing Group	PG II
RQ	
DOT Special Information	Subsidiary (8) Non-Bulk packages must have Class 5.1 and Class 8 labels. Bulk packages require Class 5.1 Oxidizer placards.

15 REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

Immediate (Acute) Health	Y	Fire	Y
Delayed (Chronic) Health	N	Reactive	Y
		Sudden Release of Pressure	N

The components of this product are all on the TSCA Inventory list.

Ingredient Related Regulatory Information:

SARA Reportable Quantities	CERCLA RQ	SARA TPQ
Hydrogen peroxide	NE	1000 LBS
Water	NE	

SARA Title III, Section 302

This product does contain chemical(s), as indicated below, currently on the Extremly Hazardous Substance List, Section 302, SARA Title III. See Section 2 for further details regarding concentrations and registry numbers.

Hydrogen peroxide

Massachusetts Right to Know

This product does contain the following chemicals(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

Hydrogen peroxide

New Jersey Right to Know

This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.

Hydrogen peroxide

Pennsylvania Environmental Hazard

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Environmental Hazard List.

Hydrogen peroxide

Pennsylvania Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.

Hydrogen peroxide

16 OTHER INFORMATION

Revision Information

Revision Date	09 AUG 2006	Revision Number 21
Supercedes Revision Dated	12-OCT-2004	

Revision Summary

Added Peroxal BIO grade name

Key

NE= Not Established   NA= Not Applicable   (R) = Registered Trademark

Miscellaneous

This MSDS covers the following grades of H2O2:
Albone; Alb; Alb A; Alb CG; MS; Alb MT; Alb LCL; Alb LC; AL-1; AL-2; AL-3; AL-4; A; Per; Perone; FG; ASG; AG; CG; Pure; M; DS; EG; KASTONE 50; Valsterane; Peroxal;
CLG; SEG

Peroxal 50% BIO (EPA Registration # 335-235)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

PRECISE AND USER-FRIENDLY

DME Digital Dosing pumps up to 940 l/h

General

Dosing is precision work, Digital Dosing represents state-of-the-art technology. Grundfos DME Digital Dosing pumps combine perfect precision with user-friendlyness, covering large dosing quantities in the range from 375 l/h to 940 l/h with few variants.

Familiar Digital Dosing benefits

The DME pump range has all the benefits of the highly acclaimed smaller Digital Dosing range, making accurate dosing easier than ever.

Precise and easy setting

The operator can easily install and set the pump to dose exactly the quantity of dosing medium required in the application. In the display, the setting of the pump is read out directly in ml/h or l/h, pulse or batch, and the operation mode is easily identified by means of icons.

Turndown ratio 1:800

With a turndown ratio ten times better than that of traditional equipment, DME Digital Dosing pumps offer maximum flexibility and accuracy.
Turndown of the suction stroke to 75 %, 50 % or 25 % of the maximum speed ensures optimal priming and displacement of even the most difficult liquids.

Unique technology

A unique drive and microprocessor control ensure that the medium is dosed precisely and with low pulsation, even if the pump is operating with high-viscosity or degassing media. Instead of the conventional stroke-length adjustment, the capacity of the DME is regulated by automatic adjustment of the motor speed during the discharge stroke and by fixed suction stroke speed, ensuring optimal and uniform mixing.

Fieldbus communication

Available with Profibus interface to supply performance data and status information for quality control, preventive maintenance and future reference.

Overload protection

Built-in overload protection monitors the counterpressure of the pump and protects it against too high pressure loads.

Switch-mode power supply

The switch-mode power supply makes sure that Grundfos DME Digital Dosing pumps can be used worldwide within the 100-240 VAC – 50/60 Hz range.

Several material variants

The dosing heads of DME pumps are available in stainless steel, polyvinylidene fluoride and recyclable, degradable, cost-efficient polypropylene.

Applications

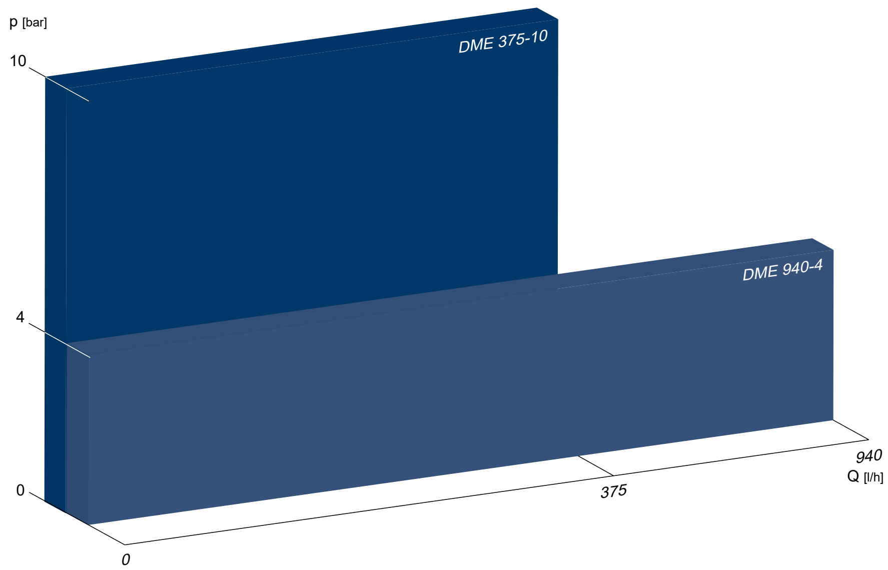
- Pulp and paper industry
- Textile industry
- Food and beverage industry
- Industrial process water and waste water treatment
- Drinking water treatment

Technical data

Pump type			DME 375	DME 940
Mechanical data	Max. capacity	[l/h]	376	940
	Max. capacity with anti-cavitation 75 %*	[l/h]	282	705
	Max. capacity with anti-cavitation 50%*	[l/h]	210	525
	Max. capacity with anti-cavitation 25 %*	[l/h]	101	252
	Max. pressure	[bar]	10	4
	Max. stroke frequency	[strokes/min]	160	
	Max. suction lift during operation	[m]	6	
	Liquid temperature	[°C]	0 to 50	
	Ambient temperature	[°C]	0 to 45	
	Accuracy of repeatability	[%]	± 1	
Electrical data	Supply voltage	[VAC]	1 x 100-240 V, 50/60 Hz	
	Max. current consumption at 100 V	[A]	2.4	
	Max. current consumption at 230 V		1.0	
	Max. power consumption P_1	[W]	240	
	Enclosure class		IP65	
	Insulation class		B	
Signal output	Max. load of alarm relay output (at ohmic load)	[A]	2	
	Max. voltage, alarm relay output	[V]	42	
Signal input	Voltage in level sensor input	[VDC]	5	
	Voltage in pulse input	[VDC]	5	
	Min. pulse-repetition period	[ms]	3.3	
	Impedance in analog 0/4-20 mA input	[Ω]	250	
	Max. loop resistance in pulse signal circuit	[Ω]	250	
Weight		[kg]	21	22.5
Sound pressure level	Max. sound pressure level	[dB(A)]	70	

* Irrespective of the counterpressure

Performance range



96529739 0418 ECM: 1230645

GRUNDFOS Holding A/S
Poul Due Jensens Vej 7
DK-8850 Bjerringbro
Tel: +45 87 50 14 00
www.grundfos.com

GRUNDFOS

Attachment 2
Supplement Oxygen Feed Information

OXYGEN, REFRIGERATED LIQUID

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	OXYGEN, REFRIGERATED LIQUID
Product Code(s)	G-102
UN-Number	UN1073
Recommended Use	Refrigerant.
Synonyms	Liquid Oxygen; LOX
Supplier Address*	Linde Gas North America LLC - Linde Merchant Production Inc. - Linde LLC 575 Mountain Ave. Murray Hill, NJ 07974 Phone: 908-464-8100 www.lindeus.com Linde Gas Puerto Rico, Inc. Las Palmas Village Road No. 869, Street No. 7 Catano, Puerto Rico 00962 Phone: 787-641-7445 www.pr.lindegas.com Linde Canada Limited 5860 Chedworth Way Mississauga, Ontario L5R 0A2 Phone: 905-501-1700 www.lindecanada.com * May include subsidiaries or affiliate companies / divisions. For additional product information contact your local customer service.
Chemical Emergency Phone Number	Chemtrec: 1-800-424-9300 for US / 703-527-3887 outside US

2. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview

Oxidizer
Contact with combustible material may cause fire
Contact with liquid may cause frostbite
Contents under pressure
Keep at temperatures below 52°C / 125°F

Appearance Pale blue   Physical State Cryogenic Liquid.   Odor Odorless

OSHA Regulatory Status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Potential Health Effects

Principle Routes of Exposure
Eye contact. Skin contact. Inhalation.

Acute Toxicity

Inhalation
Oxygen is not acutely toxic under normal pressure. Oxygen is more toxic when inhaled at elevated pressures. Depending upon pressure and duration of exposure, pure oxygen at elevated pressures may cause cramps, dizziness, difficulty breathing, convulsions, edema and death.

Eyes
This product is a gas at room temperature. Contact with liquid may cause frostbite.

Skin
This product is a gas at room temperature. Contact with liquid may cause frostbite.

Skin Absorption Hazard
No known hazard in contact with skin.

Ingestion
None known.

Chronic Effects
Prolonged inhalation of high oxygen concentrations (>75%) may affect coordination, attention, and cause tiredness of respiratory irritation

Aggravated Medical Conditions
Chronic obstructive pulmonary disease.

Environmental Hazard
See Section 12 for additional Ecological Information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Volume %	Chemical Formula
Oxygen	7782-44-7	>99	O_2

4. FIRST AID MEASURES

Eye Contact
None required for gas. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Skin Contact
None required for gas. For dermal contact or suspected frostbite, remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physican should see the patient promptly if contact with the product has resulted in blistering of the dermal surface or in deep tissue freezing.

Inhalation
Move victim to fresh air. Seek immediate medical attention / advice.

Ingestion
None under normal use. Get medical attention if symptoms occur.

Notes to Physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable Properties
Oxidizer. May vigorously accelerate combustion.

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data

Sensitivity to Mechanical Impact	None
Sensitivity to Static Discharge	None
Specific Hazards Arising from the Chemical	May ignite combustibles (wood paper, oil, clothing, etc.). High oxygen concentrations vigorously accelerate combustion. Cylinders may rupture under extreme heat. Continue to cool fire exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.
Protective Equipment and Precautions for Firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA / NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Ensure adequate ventilation. Monitor oxygen level.
Environmental Precautions	Prevent spreading of vapors through sewers, ventilation systems and confined areas.
Methods for Containment	Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Linde location.
Methods for Cleaning Up	Return cylinder to Linde or an authorized distributor.

7. HANDLING AND STORAGE

Handling

Liquid oxygen cannot be handled in carbon or low alloy steel, 18-8 and 18-10 stainless steel are acceptable as are copper and its alloys, brass bronze, silicon alloys, Monel®, Inconel®, and beryllium. Teflon®, Teflon® composites, or Kel-F® are preferred non-metallic gasket materials.

Oxygen should not be used as a substitute for compressed air in pneumatic equipment since they generally conatin flammable lubricants. Equipment able to use oxygen must be "cleaned for oxygen service". Check with the equipment supplier to verify oxygen compatibility for the service conditions.

Stationary customer site vessels should be operated in accordance with the manufacturer's and Linde's instruction. Do not attempt to repair, adjust or in any other way modify the operation of these vessels. If there is a malfunction or other type of operations problem with the vessel, contact the closest Linde location immediately for assistance. "NO SMOKING" signs should be posted in storage and use areas. Containers of liquid oxygen should be separated from flammable gas containers by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high having a fire resistance rating of 1 / 2 hour.

Use only in ventilated areas. Never attempt to lift a cylinder by its valve protection cap. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distance, use a cart designed to transport cylinders. Use equipment rated for cylinder pressure. Use backflow preventive device in piping. Never insert an object (e.g. wrench, screwdriver, pry bar,etc.) into valve cap openings. Doing so may damage valve, causing leak to occur.

Use an adjustable strap wrench to remove over-tight or rusted caps. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.

Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.

For additional recommendations, consult Compressed Gas Association's Pamphlets SB-7, G-4.3, G-4.1, G-4.4, P-2.5, G-4.9, P-14, and SB-2.

Storage: Protect from physical damage. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Full and empty cylinders should be segregrated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures: Showers. Eyewash stations. Ventilation systems.

Ventilation: Use local exhaust in combination with general ventilation as necessary to keep oxygen concentrations below 23.5%.

Personal Protective Equipment

Eye / Face Protection: Wear protective eyewear (safety glasses).

Skin and Body Protection: Work gloves and safety shoes are recommended when handling cylinders. Wear cold insulating gloves when handling liquid. Gloves must be clean and free from grease or oil.

Respiratory Protection

General Use: No special protective equipment required.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Pale blue.	Odor	Odorless.
Odor Threshold	No information available	Physical State	Cryogenic Liquid
Flash Point	No information available.	Autoignition Temperature	No information available.
Decomposition Temperature	No information available.	Boiling Point / Boiling Range	-182.9 °C / -297.3 °F
Freezing Point	-218.8 °C / -361.8 °F	Molecular Weight	32.00
Water Solubility	Slightly soluble	Evaporation Rate	No information available
Vapor Pressure	760 mmHg @ -183°C	Vapor Density	1.14 (air = 1)
VOC Content (%)	Not applicable.	Flammability Limits in Air	
		Upper	Not applicable
		Lower	Not applicable

10. STABILITY AND REACTIVITY

Stability	Stable.
Incompatible Products	Combustible materials. Organic material. Reducing agents.
Conditions to Avoid	Keep away from open flames, hot surfaces and sources of ignition.
Hazardous Decomposition Products	None known.
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

LD50 Oral: No information available.

LD50 Dermal: No information available.

LC50 Inhalation: No information available.

Inhalation

Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.

Poisoning began in dogs 36 hours after inhalation of pure oxygen at atmospheric pressure. Distress was seen within 48 hours and death within 60 hours.

Eye Contact

The incompletely developed retinal circulation is more susceptible to toxic levels of oxygen. In premature infants, arterial oxygen tension above 150 mm Hg may cause retrolental fibroplasia. Permanent blindness may occur several months later. One case of severe retinal damage in an adult was reported. An individual suffering from myasthenia gravis developed irreversible retinal atrophy after breathing 80% oxygen for 150 days.

Repeated Dose Toxicity: No information available.

Chronic Toxicity

Chronic Toxicity

Prolonged inhalation of high oxygen concentrations (>75%) may affect coordination, attention, and cause tiredness of respiratory irritation.

Carcinogenicity: Contains no ingredient listed as a carcinogen.

Irritation	No information available.
Sensitization	No information available.
Reproductive Toxicity	No information available.
Developmental Toxicity	No information available.
Synergistic Materials	None known.
Target Organ Effects	None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Will not bioconcentrate.

Ozone depletion potential; ODP; (R-11 = 1): Does not contain ozone depleting chemical (40 CFR Part 82).

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods	Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde for proper disposal.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Oxygen, refrigerated liquid
Hazard Class	2.2
Subsidiary Class	5.1
UN-Number	UN1073
Description	UN1073,Oxygen, refrigerated liquid,2.2,(5.1)
Emergency Response Guide Number	122

TDG

Proper Shipping Name	Oxygen, refrigerated liquid
Hazard Class	2.2
Subsidiary Class	(5.1)
UN-Number	UN1073
Description	UN1073,OXYGEN, REFRIGERATED LIQUID,2.2(5.1)

MEX

Proper Shipping Name	Oxygen, refrigerated liquid
Hazard Class	2.2

Subsidiary Class	5.1
UN-Number	UN1073
Description	UN1073 Oxygen, refrigerated liquid,2.2

IATA

UN-Number	UN1073
Proper Shipping Name	Oxygen, refrigerated liquid
Hazard Class	2.2
Subsidiary Class	5.1
ERG Code	2X
Description	UN1073,Oxygen, refrigerated liquid,2.2(5.1)
Maximum Quantity for Passenger	Forbidden
Maximum Quantity for Cargo Only	Forbidden
Limited Quantity	No information available.

IMDG / IMO

Proper Shipping Name	Oxygen, refrigerated liquid
Hazard Class	2.2
Subsidiary Class	5.1
UN-Number	UN1073
EmS No.	F-C, S-W
Description	UN1073, Oxygen, refrigerated liquid,2.2(5.1)

ADR

Proper Shipping Name	Oxygen, refrigerated liquid
Hazard Class	2.2
UN-Number	UN1073
Classification Code	3O
Description	UN1073 Oxygen, refrigerated liquid,2.2,
ADR / RID-Labels	5.1

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	Complies
EINECS / ELINCS	Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL / NDSL - Canadian Domestic Substances List / Non-Domestic Substances List
EINECS / ELINCS - European Inventory of Existing Commercial Chemical Substances / EU List of Notified Chemical Substances

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311 / 312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	Yes
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Risk and Process Safety Management Programs
This material, as supplied, does not contain any regulated substances with specified thresholds under 40 CFR Part 68.
This product does not contain any substances regulated as Highly Hazardous Chemicals pursuant to the 29 CFR Part 1910.110.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

CERCLA / SARA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

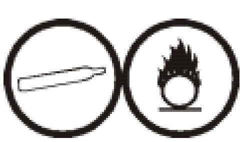
Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Oxygen	X	X	X	-	X

International Regulations

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
A Compressed gases
C Oxidizing materials

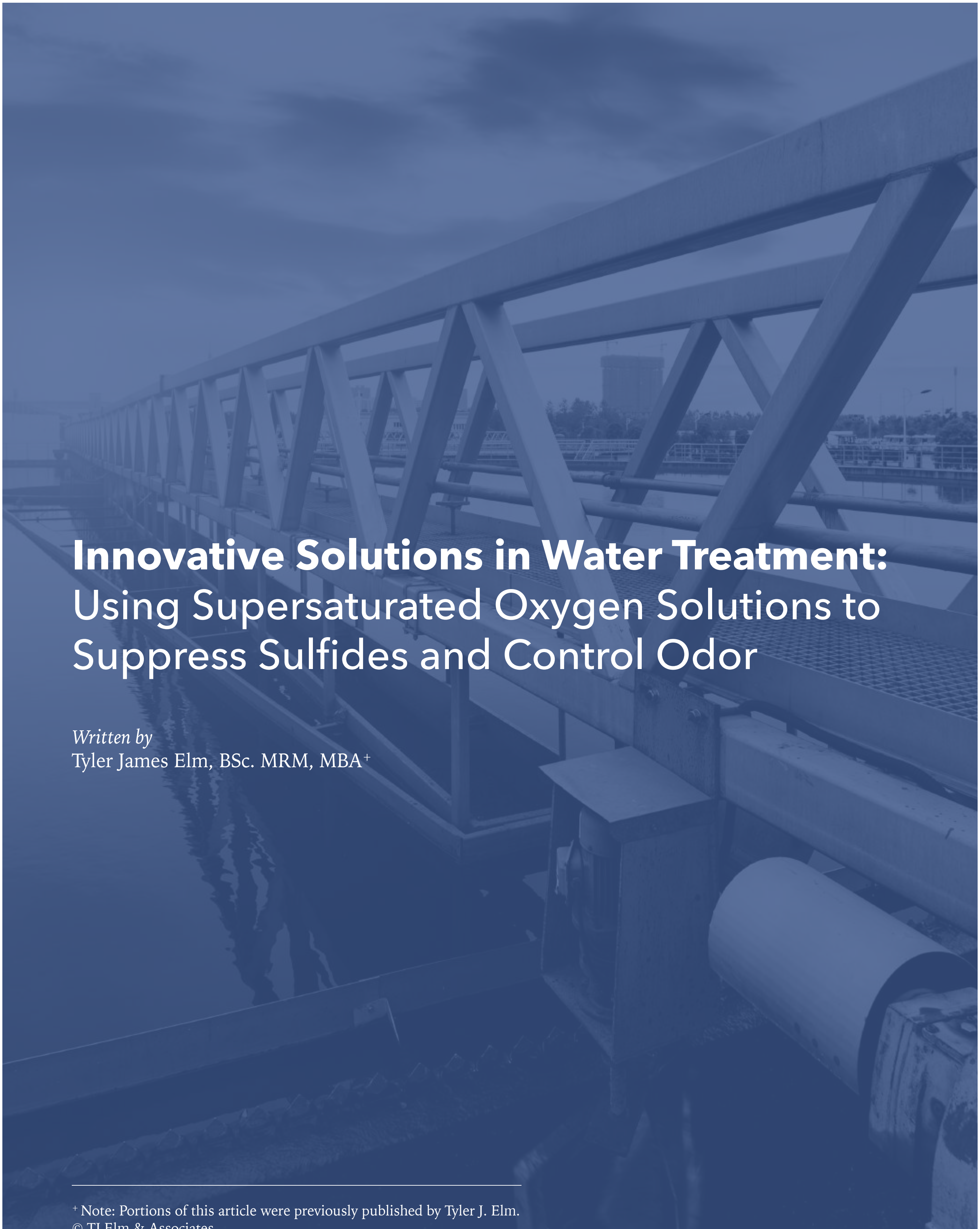


Prepared By	Product Stewardship 23 British American Blvd. Latham, NY 12110 1-800-572-6501
Issuing Date	05-Mar-2010
Revision Date	27-Sep-2013
Revision Number	2
Revision Note	Not applicable.

NFPA	Health Hazard 3	Flammability 0	Stability 0	Physical and Chemical Hazards OX
HMIS	Health Hazard 3	Flammability 0	Physical Hazard 2	Personal Protection -

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition.

End of Safety Data Sheet



Innovative Solutions in Water Treatment: Using Supersaturated Oxygen Solutions to Suppress Sulfides and Control Odor

Written by
Tyler James Elm, BSc. MRM, MBA+

+ Note: Portions of this article were previously published by Tyler J. Elm.

The Case Against Chemicals

INTRODUCTION

This is the third article in a series of articles and case studies examining the adoption of innovative solutions in water treatment and the market drivers of change influencing how companies in various industries manage their wastewater.

In the first article, I highlighted the emergence of sustainably-driven innovation among leading companies in the food and beverage industry as they create new leadership roles and place a renewed emphasis on the adoption of best practices, technologies and continuous improvement in wastewater treatment. I presented the strategic and operational drivers motivating organizations such as Coca-Cola and Tyson Foods to overcome the inherent obstacles to innovation within a regulated, compliance function. The case studies illustrated how the efforts of sustainability professionals to reduce greenhouse gas emissions, energy and water use are finding common purpose with facility managers who seek more effective wastewater treatment, increased capacity and solutions to other operational issues that threaten business continuity and the production capacity of the core business.

In the second article, I set aside the strategic imperative of business sustainability and dived deeper into some of the operational benefits of innovation and the adoption of best practices and treatment technologies in the poultry industry. Case studies at Simmons Foods and Mountaire Farms illustrated how wastewater treatment professionals are using Supersaturated Dissolved Oxygen (SDOX®) solutions to overcome the operational challenges of biological nutrient removal while reducing energy use, greenhouse gas emissions and brand risk.

In this third article, I examine technology-enabled advances in chemical replacement and the industry drivers promoting the transition from chemical applications of hydrogen peroxide (H_2O_2) to super-oxygenated solutions as the preferred method of oxidizing sulfates and controlling the odor of wastewater. Specifically, I review two case studies: a large Pulp & Paper company and a large pork producer. The case studies illustrate the value proposition of replacing chemical applications of hydrogen peroxide and a catalyst with supersaturated dissolved oxygen to control odor by oxidizing and suppressing the formation of sulfides in wastewater.

CHEMICAL REPLACEMENT | DRIVERS OF INNOVATION

While the emergence of business sustainability as a corporate imperative and associated efforts to improve energy, water and material efficiency is a relatively recent driver of change in wastewater treatment, a long-standing – almost inherent – desire to mitigate the use of chemical treatments has existed for decades. Often expensive, sometimes hazardous, the use of chemicals in water treatment is widely considered to be a "necessary evil" of many treatment processes.[1]

Chemical processes – such as the use of hydrogen peroxide (H_2O_2) to manage the odor from hydrogen sulfides or the use of strong acids to control pH – can be extremely expensive solutions and their use is often associated with real and perceived increases in risk to the health and safety of employees and the communities surrounding water treatment facilities. As such, water treatment professionals are generally open to opportunities that reduce or replace the use of chemicals. This desire to find substitute treatment solutions became even more prevalent during the recent, global economic boom-and-bust cycle.

The chemical industry is a mature, commodity-based industry, dominated by a few, large players and distribution channels. Seasoned water treatment professionals are aware of the commodity-based risks associated with chemical treatment options, having experienced significant price escalation during the economic boom of 2003 to 2008 and shortages during the economic bust in 2008 and "the Great Recession" immediately thereafter.

Because water treatment chemicals are commodities and the pricing of commodities is linked to the performance of the global economy, many of the same factors driving commodity markets drive the pricing for water treatment chemicals.[2] For example, shortages and price increases for water treatment chemicals during an economic boom can be driven by competing demands for the same input, such as phosphorus, and shortages and price increases during a recession may be due to a lack of production in some processes that generate the by-products used in water treatment, such as fluoride and caustic soda. This relationship was noted by the Water Research Foundation during its examination of the volatility in both pricing and availability of water treatment chemicals during the five-year economic boom and the subsequent recession. Researchers documented an average increase in the cost of phosphoric acid and caustic sodium hydroxide of 223% and 80%, respectively.[3]

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[1] Lux Research Inc., 2008.

[2] Water Research Foundation 2009; Supply of Critical Drinking Water and Wastewater Treatment Chemicals—A White Paper for Understanding Recent Chemical Price Increases and Shortages.

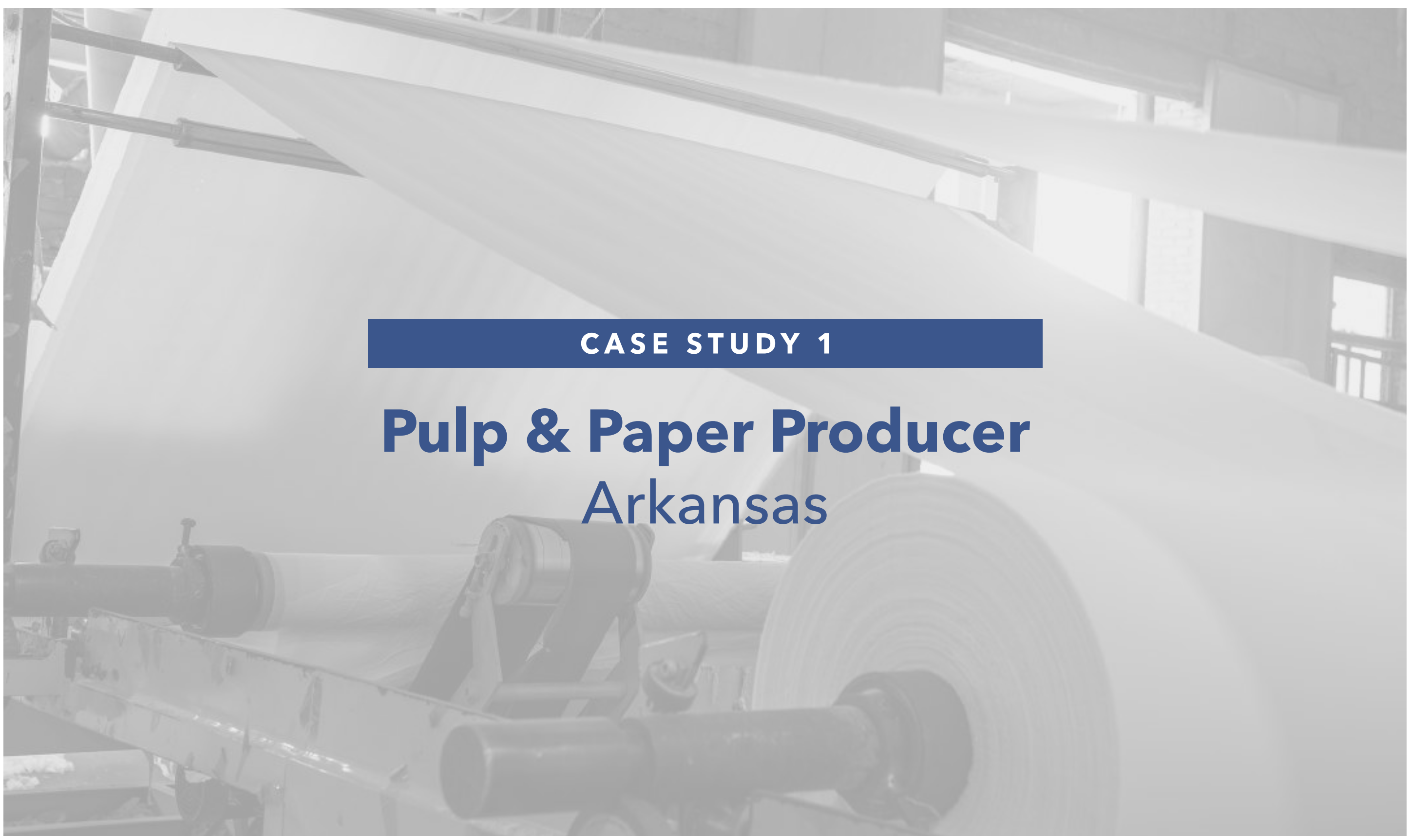
[3] *Ibid.*

Today, innovative solutions that address both the safety and economic drivers are beginning to **overcome the obstacles** to innovation within the regulated field of water treatment.

Today, innovative solutions that address both the safety and economic drivers are beginning to overcome the cultural and other obstacles to innovation within the regulated field of water treatment.[4] This is elevating the awareness and need for more effective treatment, increased capacity, lower operating costs, increased worker safety and solutions to other operational issues that threaten business continuity and the capacity of the core business.

The case studies presented herein highlight the value proposition of using SDOX® technology as a replacement for hydrogen peroxide (H_2O_2) chemical treatments, using oxygenation to oxidize hydrogen sulfides, suppress the formation of additional sulfides and manage biochemical oxygen demand (BOD)[5].

The case studies presented herein highlight the value proposition of using SDOX® technology and oxygen to control odor as a replacement for hydrogen peroxide chemical treatments.



CASE STUDY 1

Pulp & Paper Producer

Arkansas

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[4] Elm, T. 2018; Sustainably-Driven Innovation is Increasing Performance In Wastewater Treatment Among Leading Food-And-Beverage Companies.

[5] Biochemical oxygen demand (BOD) – also called biological oxygen demand – is the amount of dissolved oxygen needed by aerobic, biological organisms to break down organic material present in a given water sample at certain temperature over a specific time.

The Pulp and Paper (P&P) Company's operations have been part of the community since 1899. Originally a small, local lumber company, P&P purchased the facility in 1962 and began producing tissue products in 1963. Today, the mill employs approximately 1,250 people, making tissue, paper and paperboard products for residential and commercial use.

Situation

P&P has invested significantly in their operations, including more than $250 million in advanced papermaking technology during 2010 and more than $15 million in recent years on measures to enhance the mill's environmental performance. Despite these efforts, P&P's paper operations faced tremendous scrutiny and headline risk from an enduring odor issue and the perceived risk to human health from the air and water emissions from the facility's wastewater treatment operations.

The facility's wastewater plant treats an average effluent flow from the mill of approximately 40 to 50 million gallons per day (MGD), with peak flows reaching 55 MGD. The temperature of the effluent leaving the mill averages approximately 40 degrees Celsius and has a BOD loading of approximately 92,000 lbs. per day.

Controlling odor from the wastewater treatment facility is a significant part of the mill's efforts to improve its environmental performance. With this objective in mind, P&P's wastewater treatment professionals employed regular chemical treatments of hydrogen peroxide and an iron catalyst to oxidize the hydrogen sulfides in the mill's wastewater and control odor.

Complication

Used in combination with iron sulfate ($FeSO_4$) as a catalyst, hydrogen peroxide is commonly used to oxidize contaminants in wastewater. In this instance, P&P's wastewater treatment facility used diluted solutions (50%) of hydrogen peroxide as an oxidizing agent[6] – oxidizing sulfides and mitigating the associated odor at two application points: immediately downstream of the paper mill at the facility's flume, and again in the facility's clarifier. The wastewater then flows into the aerated stabilization basin (ASB), a massive treatment pond a few miles downstream of the clarifier. See Figure 1.

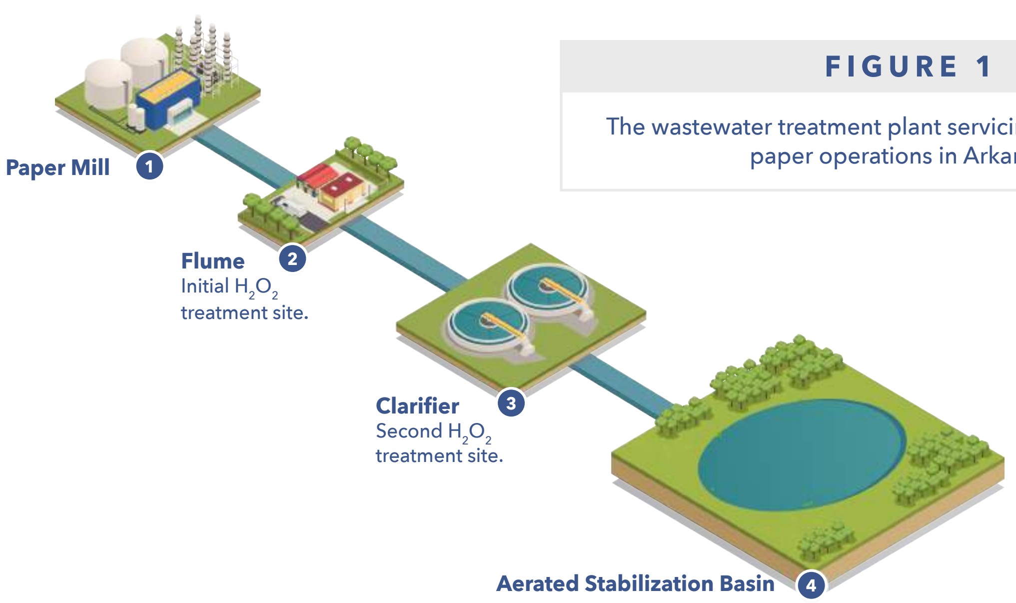

FIGURE 1

The wastewater treatment plant servicing P&P's pulp and paper operations in Arkansas.

[6] Oxidation refers to the loss of electrons, or an increase in the oxidation state of an atom by a molecule, an ion, or another atom.

However, P&P's hydrogen peroxide system was unable to effectively treat the wastewater due to the tremendous variability in sulfide content and pH of the mill's effluent.[7] Specifically, the constant, chemical feed system was unable to adequately manage odor from spikes in the wastewater's hydrogen sulfide content and the efficacy of the iron catalyst used in the treatment process varied tremendously with the fluctuating pH of the mill's effluent. Furthermore, hydrogen peroxide treatments are expensive. As a result of these issues, the odor associated with spikes in the hydrogen sulfide content of the wastewater endured, eroding the Company's social license to operate within the community. Addressing the odor of the facility's wastewater became a top priority of the Company's local and corporate leadership.

Resolution

Beginning in August 2017, P&P engaged BlueInGreen, LLC[8] to assist in the oxidation and suppression of sulfides, executing a services contract in September of that year.

The objective of the initial technology and services contract was to deploy the SDOX® solution at the facility's clarifier, treating the wastewater within the clarifier's central well while gathering data under typical operating conditions as input into a subsequently broader treatment strategy. The broader treatment strategy included potential applications down-stream to increase dissolved oxygen and address BOD in the previously unaerated zone of the ASB while continuing to suppress the formation of additional sulfides.

First SDOX® Installation

Operating conditions during the initial technology and services contract, including water temperatures of more than 46 degrees Celsius, required the dissolution of 1,000 to 1,500 lbs. of oxygen per day. This resulted in an improvement of both dissolved oxygen and the oxidation reduction potential (ORP)[9] of the wastewater within the clarifier, oxidizing hydrogen sulfides as well as reducing soluble BOD within and downstream of the clarifier.

1. **Result:** ORP of negative 119 compared to negative 190 using hydrogen peroxide, suppressing the formation of hydrogen sulfide and increasing the clarifier's ability to breakdown dissolved compounds.[10]

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[7] Known as the Fenton reaction, the efficacy of the iron sulfate ($FeSO_4$) catalyst used to accelerate the oxidation of sulfides is pH dependent. Because the Fenton reaction depends on the simultaneous presence in solution of dissolved Fe^{2+} and Fe^{3+} ions, its kinetics are influenced by the respective solubilities of both species, which are a direct function of the solution's pH. Because Fe^{3+} is about 100 times less soluble than Fe^{2+} in natural waters at near-neutral pH, the ferric ion concentration is the limiting factor for the reaction rate. The reaction can only proceed at rapid rate under sufficiently acidic conditions. At high pH (alkaline conditions), the reaction slows considerably because of the precipitation of $Fe(OH)^3$, which notably lowers the concentration of Fe^{3+} in solution.

[8] For more than 15 years, BlueInGreen (BIG) engineers and operators have worked to perfect the design and operation of industry-leading gas dissolution technology, creating a technology platform that delivers a host of benefits to water and wastewater treatment processes. The Company was founded in 2004 upon the potential market value of its innovative, water treatment technology platform. A product of research at Texas A&M and later incubated at University of Arkansas's Engineering Research Center, BlueInGreen's technology platform applies Henry's Law to its side-stream dissolution and injection process, creating extremely stable, supersaturated solutions.

[9] Oxidation reduction potential, ORP, (also known as redox potential) is a measure of the tendency of a chemical species to acquire electrons from, or lose electrons to, an electrode and thereby be reduced or oxidized.

[10] To prevent odor, the greater the ORP value the better. Negative 150 ORP is the point at which the formation hydrogen sulfides are suppressed. To prevent the formation of hydrogen sulfides in wastewater, the objective is to ensure that the ORP value of wastewater is greater than negative 150 (e.g.: -149, -148, etc.).

2. **Result:** DO levels ranging from 2.5 to more than 4 mg/liter, compared to zero using hydrogen peroxide.[11]

3. **Result:** An average 15% reduction in soluble BOD within the clarifier during the initial month of treatment, compared to an average of 4% reduction using hydrogen peroxide. Soluble BOD removal continued to trend upwards with maximum values in excess of 30%.

In addition to managing odor by enhancing ORP, DO and the ability of the system's biology to remove soluble BOD, transitioning from hydrogen peroxide treatments to oxygenation using SDOX® technology resulted in an estimated 62% reduction in net chemical costs. Annual, net savings from this one SDOX® unit were greater than $1 million and are forecasted to be more than double this figure once the hydrogen peroxide treatments at the second treatment location are also replaced with an SDOX® solution.[12]

Second SDOX® Installation

Following of the unprecedented reduction of BOD within the clarifier, a second SDOX® unit was deployed to increase DO in the channel upstream of the ASB. As a preliminary test of the system's potential, an average of 6,000 pounds of oxygen per day was dissolved into the wastewater stream at the bridge channel between the clarifier and ASB. See Figure 1. This resulted in an exceptional improvement in DO in the channel as well as the unaerated and aerated zones of the ASB. Staff measured a significant improvement in DO at all 10 sampling locations throughout the ASB, recording the DO at the bottom, middle and top of the water column at each location. Specifically, the DO across the sampling points demonstrated an average improvement in DO of:

1. **Result:** 514% at the bottom of the water column;

2. **Result:** 910% at the middle of the water column; and,

3. **Result:** 749% at the top of the water column.

Following the initial test of the system's potential, the SDOX® unit was set to maintain a constant dosing of 2,000 lbs. per day.

Value Proposition of a System-Wide Solution

BlueInGreen's automated SDOX® solution and treatment strategy established a stable, oxygen-rich environment to enhance the facility's biology and function throughout the entire wastewater treatment system. Equipped with an advanced programmable logic controller (PLC), variable frequency drives and sensors create a feed-back loop to the PLC of each unit. This enables the SDOX® system to provide precise treatment with the lowest energy consumption, operating costs and greenhouse gas emissions. This is possible by each SDOX® unit being:

- Controlled via an advanced PLC, allowing both the pressure and headspace in the vessel to be adjusted for maximum control of oxygen delivery;

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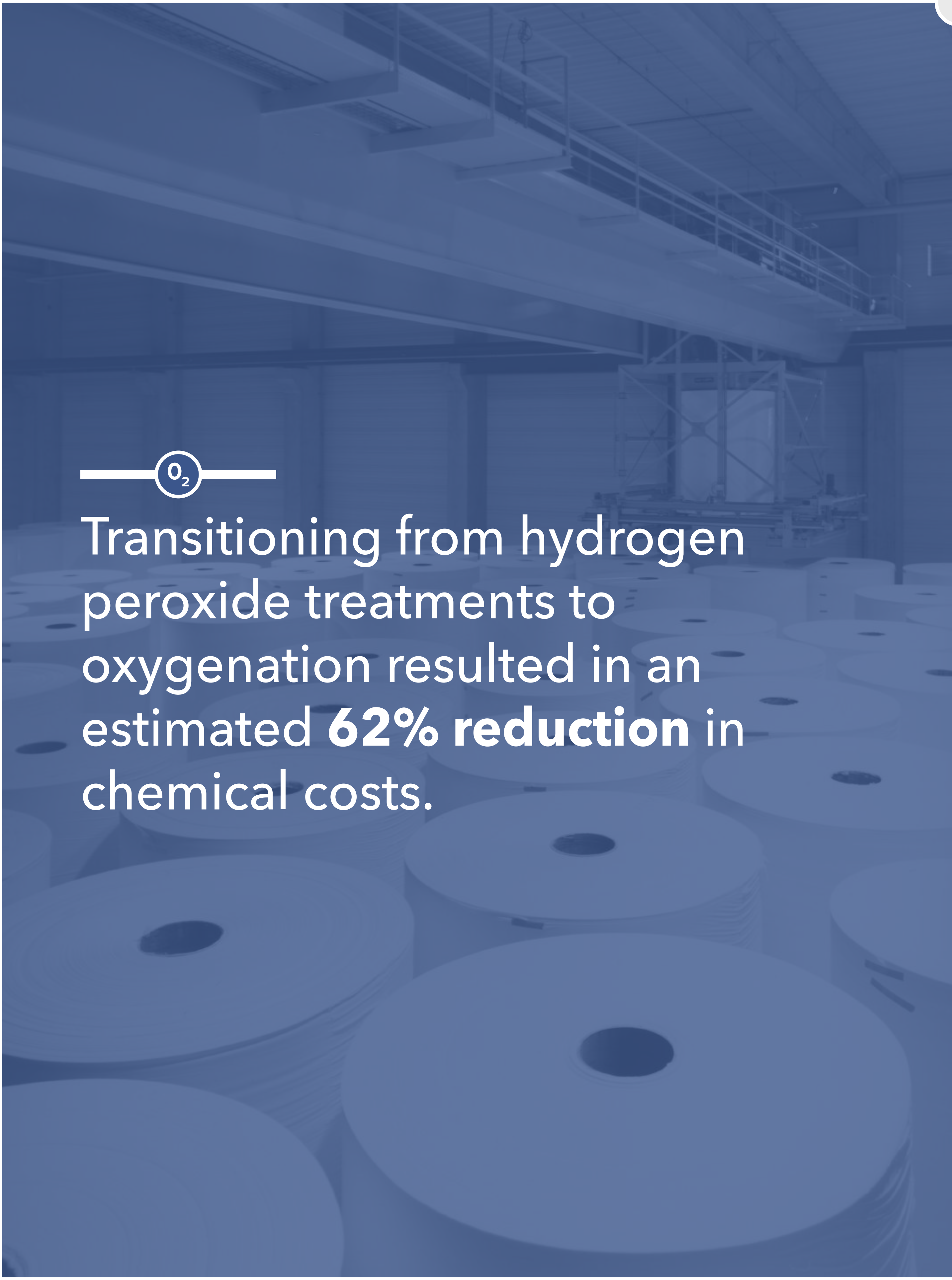
[11] Note: DO levels at or above 0.5 mg/liter prevent the formation of sulfides.

[12] Estimated using a cost of $3.00 per gallon of H2O2 and a cost of $0.08 per pound of O_2.



Transitioning from hydrogen peroxide treatments to oxygenation resulted in an estimated **62% reduction** in chemical costs.

- Connected to ORP and/or DO sensors, creating a feed-back loops that enables an immediate and efficient response to changes in water quality, effectively increasing gas delivery and providing additional treatment in response to increased loadings or sub-optimal ORP readings – all without the need for additional monitoring systems; and,

- Equipped with a variable frequency drive on each of the two pumps, enabling a 10:1 turn-down ratio in accordance with variable treatment demands, which also provides an equal reduction in power consumption and greenhouse gas emissions.

This active monitoring and ability to rapidly and automatically address suboptimal levels of ORP and/or DO throughout the treatment process ensures that the existing hydrogen sulfides are oxidized while suppressing the creation of additional sulfides and promoting a healthy and robust population of micro-organisms, which further enhances the efficacy of biological processes from end-to-end.

Potential improvements to the existing treatment strategy include the addition of a CDOX® CO_2 feed system at the flume to control the high degree of variability in the wastewater's pH, which would further enhance the stability of the environment for the system's biology and the efficacy of the biological processes throughout.

CASE STUDY 2

Pork Producer
Iowa

A large, vertically aligned pork producer (VPP) located in Iowa employs a “farm-to-plate” approach to production as a source of competitive advantage. This pursuit of excellence throughout the supply-chain begins with strong animal genetics and continues with superior pig nutrition, animal care, food safety protocols, advanced processing techniques, and product excellence. The Company prides itself on this supply-chain approach to continuous improvement, pursuing a better way to produce quality pork by purposefully connecting every activity in the farm-to-plate supply chain.

Situation

The Company’s animal processing plant employs about 2,000 people and processes an average of 20,000 pigs per day, operating two shifts since October 2018. The Plant’s wastewater treatment facility uses four, covered anaerobic lagoons to manage BOD, pretreating 2.6 MGD prior to sending the effluent to a pumping station, which directs the wastewater into the City’s collection system for final treatment at the municipal wastewater treatment plant. Biogas from the anaerobic lagoons is harvested as supplemental energy for the facility’s boiler.

To manage the odor, VPP treats the effluent from the anaerobic lagoons with a diluted (50%) hydrogen peroxide solution in combination with VTX as a reaction catalyst.

Complication

Unfortunately, the use of hydrogen peroxide and VTX was unable to adequately mitigate the odor from the facility’s wastewater. Residence complained about the odor emanating from City sewers as the effluent traveled from the VPP’S plant to the City’s wastewater treatment facility. Additionally, City managers became concerned about accelerated corrosion from the resulting formation of sulfuric acid (H_2SO_4) in the City’s sewers. See Figure 2.

Although not the primary motivator, hydrogen peroxide treatments and the VTX catalyst in particular, are expensive, with the plant consuming more than $3,300 worth of hydrogen peroxide and approximately $6,500 of VTX per day.

Resolution

In December of 2018, VPP engaged BlueInGreen in search of a more effective and cost-efficient solution to the facility’s odor problem. While the facility’s permit allowed for a hydrogen sulfide gas concentration of up to 100 parts per million (PPM), the Company targeted 50 PPM, with an ultimate goal of achieving zero detectable sulfide emissions.

During May 2019, VPP entered into an initial services agreement with BlueInGreen to deploy a small, SDOX® 400 unit to mitigate sulfide production by promoting an aerobic environment in the facility’s wastewater effluent. See Figure 3. The small, SDOX® unit proved to be extremely effective, increasing dissolved oxygen enough for facility managers to begin ratcheting down chemical applications within the first week, reducing hydrogen peroxide treatments by more than 50% and eventually eliminating the need for the VTX catalyst altogether. The SDOX® solution achieved the plant’s objective of maintaining hydrogen sulfide emissions below 50 PPM, occasionally achieving 0 PPM. In short, the SDOX® solution provides the wastewater facility with effective treatment while eliminating approximately $3 million in hydrogen peroxide and VTX chemical costs.

The SDOX® solution provides the facility with effective treatment while eliminating approximately **$3 million** in chemical costs.

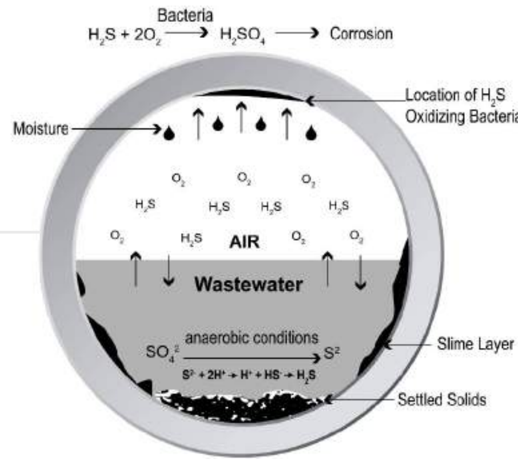


FIGURE 2

Hydrogen sulfide (H_2S) forms in anaerobic conditions. It is a poisonous, flammable gas with a distinct "rotten egg" odor. Anaerobic wastewater rich in H_2S results in the formation of sulfuric acid in city collection systems, creating serious corrosion issues.

As a result of the success of the initial services agreement with BlueInGreen, VPP is proceeding with the implementation of a full-size, SDOX® 800 unit. When implemented, the new treatment solution is expected to eliminate virtually all hydrogen peroxide chemical treatments and approximately $3.6 million in total annual chemical costs. Including the cost of oxygen, the expected investment in SDOX® technology and an associated services agreement will yield a one-year NPV in excess of $1 million, a five-year NPV of almost $8 million, and an internal rate of return of more than 300%.

FIGURE 3

Drawing from a vertical, liquid oxygen tank, a containerized SDOX® unit oxygenates the wastewater in-pipe as it flows from the facility's anaerobic lagoons before being pumped at a lift-station into the City's collection system and eventual wastewater treatment plant. By maintaining an aerobic environment, the SDOX® unit mitigates odor and corrosion within the City's collection systems while reducing the Company's annual chemical treatment costs by an estimated $3.6 million.

SDOX® SOLUTIONS

Other than being significantly more cost-effective, several core attributes of the SDOX® technology identify it as the best potential solution for each of these water treatment issues.

Retrofit Capability

Situated outside of the treatment basin or lagoon, with the ability to also treat wastewater in-pipe, each fully containerized SDOX® system is mobile and may be retrofitted and scaled as needed with additional containers, all without interrupting the operation of the wastewater treatment facility. This is achieved by pulling a stream of wastewater from the bulk flow, delivering it to an SDOX® system where it is supersaturated with oxygen in a pressurized vessel, and then returned via an injection assembly where the solution is rapidly mixed with the bulk, liquid flow. See Figure 4.

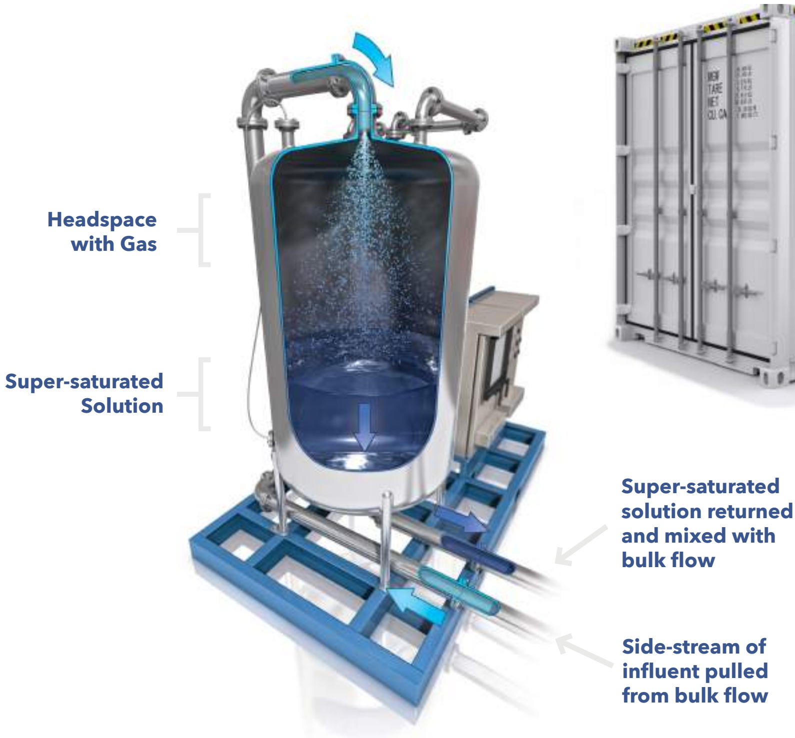


FIGURE 4

The extremely effective side-stream dissolution method enables the skid-mounted or containerized SDOX® system to be retrofitted without interrupting operations.

Operational Effectiveness

SDOX® technology uses a pressurized headspace, maintaining up to 120 PSI (more than eight atmospheres) to create a large, gas-liquid interface capable of absorbing more gas compared to a low or an unpressurized vessel – creating a supersaturated solution. This enables up to eight times more oxygen to be dissolved into the liquid by increasing the partial pressure within the tank, making it far more effective at managing dissolved oxygen DO levels, addressing BOD and the ability to prevent the formation of sulfides and associated odor.

Dissolves Pure Oxygen

Rather than dissolving air, which is only ≈21% oxygen, SDOX® technology injects pure (100%) oxygen into the liquid, ensuring that only oxygen, and not nitrogen or other gases present in air are dissolved into solution. Using pure oxygen results in five-times more oxygen dissolved into the liquid at a given pressure, making it far more effective at managing DO levels, addressing BOD, and the ability to maintain an aerobic environment, which prevents the formation of sulfides and associated odor.

Modular & Mobile with Minimal Site Preparation

Modular technology packaged in a robust, 20-ft ISO shipping container offers design flexibility and ease of future expansion, whether a process calls for one system or ten. The containerized solution eliminates the need for unnecessary infrastructure and construction, further reducing costs.

Advanced Technology Control and Automation

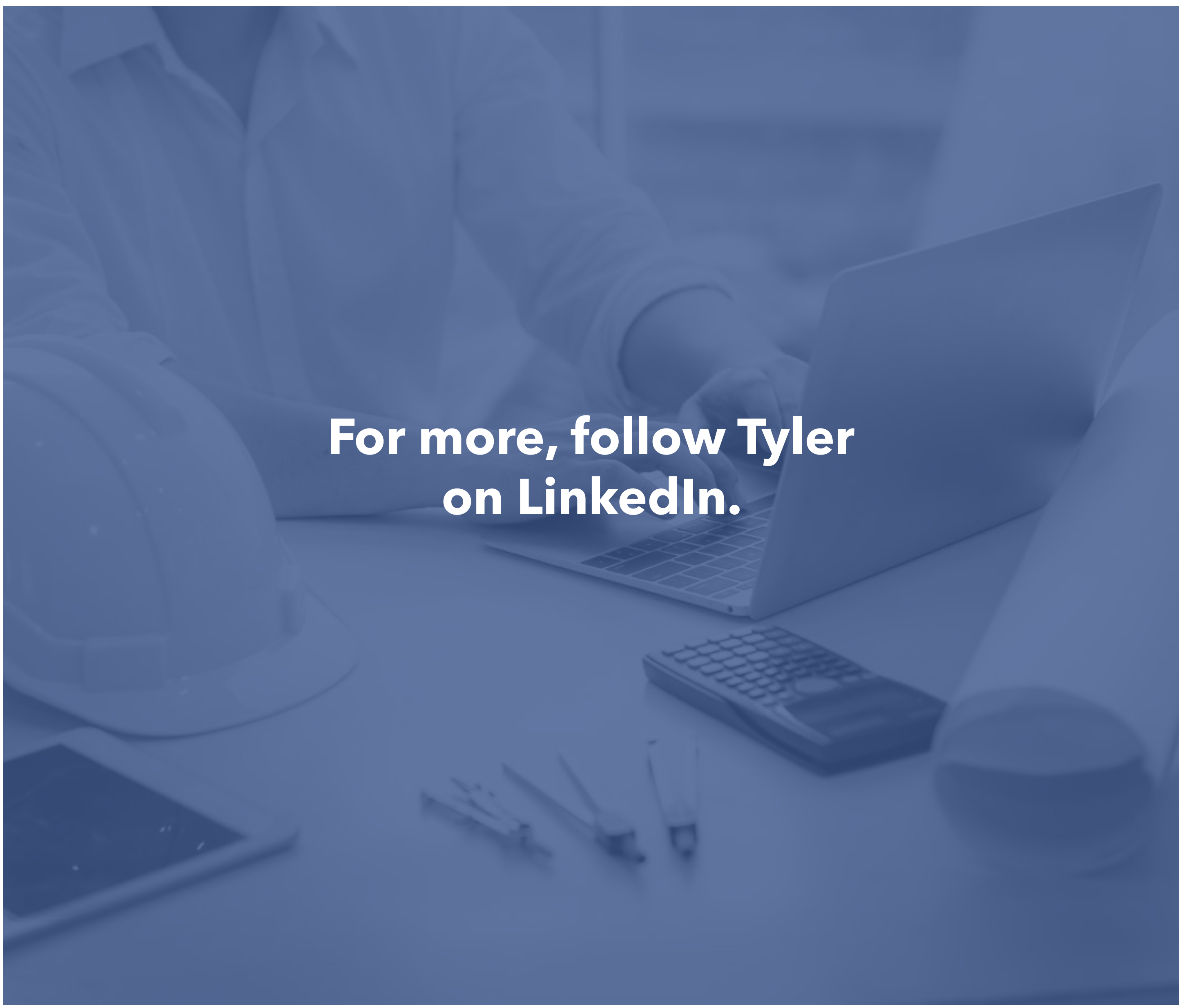
The SDOX® systems are controlled through an advanced, programmable logic controller (PLC), allowing both the pressure and headspace in the vessel to be adjusted for maximum control of oxygen delivery, all of which is automated using sensors to manage the dissolution and treatment processes. This ensures an optimum supply of oxygen for maintaining an aerobic environment, regardless of the variability in the organic load or hydrogen sulfide content.

ABOUT THE AUTHOR

Tyler Elm, BSc. MRM, MBA
Managing Partner, TJ Elm & Associates

Tyler is a strategic advisor to start-ups and seasoned management teams, working with them to develop, implement and scale sustainably-driven innovation strategies, new businesses and functions that engage the internal and external stakeholders of brands and value chains.

Tyler has led the development, implementation and scaling of innovation strategies for the American Automobile Association, the Sustainable Forestry Initiative, Canadian Tire Corporation Ltd., Walmart Stores Inc. and Office Depot Inc., creating entirely new subsidiaries or functions that provide new sources of sustainable value.



OXYGENATION

BUILT IN THE USA

Our Mission

We provide highly efficient solutions for oxygenation, pH adjustment, oxidation and odor control to lower treatment costs and improve water quality.

Our Method

Using Henry's Law, we dissolve oxygen, carbon dioxide or ozone into a small sidestream, providing the most efficient delivery methods on the market.

Our Solutions

Since 2004, we have expanded our offerings into two product lines: the Core Series, the ultimate in precision and control, and StreamLine, a more simplified solution. Each unit is custom-engineered to meet your needs.

Our Team

We employ the industry's top talent. Our team of experienced designers, engineers, technicians and salespeople have over 150 years of combined experience and work together to deliver an efficient, effective solution for your water treatment needs.

Our Awards

2010 WEF Innovative Technology Award
BlueInGreen's SDOX® solution won the Innovative Technology Award for its groundbreaking process and long-term potential impact at the 83rd annual WEFTEC in New Orleans.

2015 GCCA Grand Prize
Out of 10,000 eligible companies, BlueInGreen™ was chosen by the Global Cleantech Cluster Association for its strong business potential and positive environmental impact at a ceremony in Taiwan.

2017 China BlueTech Awards Finalist
BlueInGreen® was named a finalist for the China BlueTech Water Innovation Awards in Shanghai. The annual competition recognizes innovative water technology companies capable of influencing the water treatment market in China.

OXYGEN

NEXT GENERATION TREATMENT. TODAY.

SDOX®

Greater control and precision with a lower life-cycle cost.

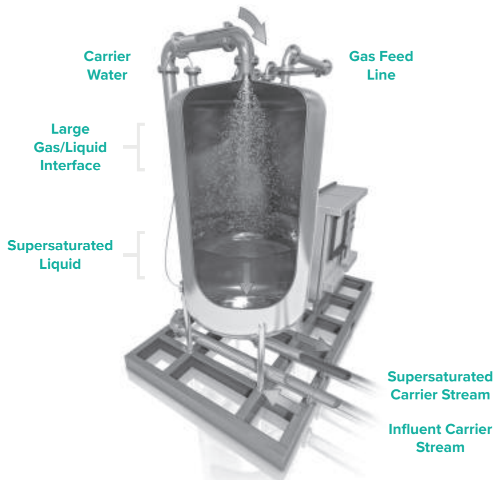
The SDOX® utilizes a pressurized process to rapidly and efficiently dissolve oxygen in a sidestream, offering multiple benefits in a host of municipal, industrial and ecological water treatment applications. Winner of the 2010 WEF® Innovative Technology Award, the SDOX® is the solution that started it all.

StreamLineO2

Industry-leading efficiency at a lower upfront cost.

The StreamLineO2 offers highly efficient, highly effective oxygenation at a lower capital cost than conventional equipment, while also offering the same stellar support and service as BlueInGreen's Core Series. Because sometimes less is more.

PROCESS



OPERATION

Applications

- Biological Treatment
- Aerobic Digestion
- Effluent Reaeration
- Environmental

Benefits Up To

- **98%** Transfer Efficiency Rate
- **50%** Reduction in Aeration Costs
- **5x** Greater Transfer Capability
- **30%** Less Power Usage

BlueInGreen
solutions for water quality

WHERE WE WORK

Environmental | Food + Beverage | Golf + Resorts | Industrial | Municipal | Pulp + Paper

Lowest Cost
The more efficient your water treatment system is, the more money you save. Luckily, BIG has an industry-leading 98% transfer rate, designed to treat your water and reduce your costs simultaneously.

Adaptable Oxygenation
Treat your water your way. We offer customized oxygenation solutions - from in-pipe reaeration to lakes and lagoons to activated sludge and aerobic digestion - capable of instantaneously increasing dissolved oxygen when and where you want it.

Proud Partnership
With BIG, you're in good company. We directly partner with multiple oxygen gas storage and feed providers to offer a fluid, streamlined purchasing process.

Start to Finish
We can assist in all stages of the project process: designing, testing, training, start-up and even providing O+M and aftermarket needs throughout the life of your product. Our team is here to help you every step of the way.

Quality Guaranteed
We stand behind our technology. Every unit is factory-tested by our expert team of technicians and engineers at our U.S. manufacturing facility to ensure your equipment works both before and after it's installed.

Dissolution Experts
With over 150 years of combined treatment experience, BIG employs a team of industry-leading designers, engineers and technicians. We are the gas dissolution experts, and we can prove it.

Shallow Water
No job is too big or too small for BIG. Our technology can achieve maximum transfer efficiencies in as little as one foot of water, giving you additional flexibility throughout your treatment process.

Complete Solution
With BIG, you get it all. Our fully integrated and skid-mounted units include pump/motor, VFD, control panel with PLC and HMI, multiple operation modes and all associated piping, valves and instrumentation.

35+
Installations in the U.S. and Canada.

150+
Years of combined treatment experience.

20m
Dollars saved annually.

900m
Gallons of water treated each day.

SAVE BIG WITH BLUEINGREEN

1 Reduce or Eliminate Basins
Don't build a basin if you don't have to. Conventional technologies often need large concrete basins, which require significant civil work. Our technology can eliminate the need for unnecessary construction, further reducing costs.

2 Bubble Control
In competing systems, bubbles reach the surface without ever being absorbed. Our dissolution method can control bubble size, quantity or eliminate bubbles altogether - keeping gas in the water and money in your pocket.

3 Power Savings
By using variable frequency drives, our units offer the lowest cost of ownership on the market. With our efficient treatment technology, you pump less water, use less power and save more money.

Healthy People. Healthy Communities.

June 9, 2021

Daniel Mallett
New-Indy Catawba LLC
5300 Cureton Ferry Rd
Catawba, SC 29704

RE: LOA-005740
New-Indy Catawba LLC
Aeration Pilot Study - No. 1 Holding Pond
York County

Dear Mr. Mallett:

The facility has requested to test the ability of two 75-HP surface aerators near the inlet of the No.1 Holding Pond to supplement the dissolved oxygen (DO) in this portion of the wastewater treatment. The Department hereby grants temporary approval to proceed with the pilot study per your request dated June 3, 2021 in accordance with the following conditions:

1. If, based on the results of the pilot study, a decision is made to permanently install the system, a wastewater construction permit application submittal will be needed. The pilot study will not be allowed to operate beyond the expiration of this approval until the construction permit is issued, unless an extension is granted. The pilot study results should be submitted with the permit application.

2. If the pilot study results do not indicate the continued use of the system, the permittee shall remove the equipment used in the pilot test promptly and before the expiration date of this approval.

3. This approval expires on December 31, 2021.

If you have any questions, please contact me at 803-898-4236 or amickbm@dhec.sc.gov.

Sincerely,

Byron M Amick
Environmental Engineer Associate
Industrial Wastewater Permitting Section
Water Facilities Permitting Division

cc via e-mail: Jim Kirlin, TRC Environmental Corp
Sonya Johnson, Midlands EA Columbia
BOW/WPC Enforcement

Wastewater - Industrial - Preliminary Engineering Review (PER) and Other Request Form - New

version 2.6

(Submission #: HP9-6SR2-9G31K, version 1)

Details

Submission ID	HP9-6SR2-9G31K
Submission Reason	New

Form Input

Request Information

Do you anticipate this project being funded by State Revolving Fund (SRF)?
No

Request Type:
Pilot Study Request

Permittee Information

Permittee

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
dan.mallett@new-indycb.com

Fax
NONE PROVIDED

Address
5300 CURETON FERRY RD
CATAWBA, SC 29704
United States

Owner Information

Owner

Organization Name
NEW-INDY CATAWBA LLC

Phone Type	Number	Extension
Business	8039818010	

Email
NONE PROVIDED

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd

Catawba, SC 29704

Is the owner also the operator?
Yes

Contact Information

Facility Contact

Prefix
NONE PROVIDED

First Name	Last Name
Daniel	*Mallett*

Title
Environmental Manager

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
dan.mallett@new-indycb.com

Fax
NONE PROVIDED

Address

5300 CURETON FERRY RD

CATAWBA, SC 29704

United States

Engineer Information

Engineer Contact

Prefix
Mr.

First Name	**Last Name**
James	*Kirlin*

Title
Environmental Engineer Consultant

Organization Name
TRC

Phone Type	**Number**	**Extension**
Business	8644213890	

Email
jkirlin@trccomnpanies.com

Fax
NONE PROVIDED

Address

50 International Dr

Suite 150

Greenville, South Carolina 29615

United States

S.C. Registration Number:
19829

LLR Licensing Lookup
[Engineers and Land Surveyors - Licensee Lookup]

Project Information

Project Name:
Aeration Pilot Study - No. 1 HP

Facility Name
NEW-INDY CATAWBA LLC

NPDES/ND Permit Number and Name
NEW-INDY CATAWBA LLC - SC0001015

Project Address:

5300 CURETON FERRY RD

CATAWBA, SC 297047700

Project County
York

Project Location:
34.83953789382914,-80.88405860016215

Project Description of Wastewater Systems:
Pilot test addition of two 75-HP mechanical floating aerators to the inlet area of No. 1 Holding Pond to improve aerobic conditions.

Project Details

Is this project part of a phased project?
No

What is this project submission based on?
Neither

Wastewater Systems

AVERAGE FLOW

Long term average discharge flow (GPD)
NA

RECEIVING FACILITY

Construction, LOA, or Other Permit, if applicable.
20098-IW was last ww construction permit issued to facility (4/25/17)

Facility Address
5300 Cureton Ferry Rd, Catawba, SC 29704

NPDES/ND Number and Name
NEW-INDY CATAWBA LLC - SC0001015

DISPOSAL SITES

Effluent Disposal Site (Description)
Discharged through NPDES Outfall 001

Sludge Disposal Site (Description)
NA

Submittal Requirements

Additional Documents:

> L3706010000-005 Aerator Pilot Study.pdf - 06/03/2021 04:38 PM
> **Comment**
> Pilot study request

Use the space below to bring to the Department�s attention any additional information that you believe should be considered in the permit decision.
NONE PROVIDED

TRC

50 International Dr.
Suite 150
Greenville, SC 29615

T 864.281.0030
TRCcompanies.com

June 3, 2021

Mr. Byron Amick
Industrial Wastewater Permitting Section
South Carolina Department of Health and Environmental Control
Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201

Subject: Request for Approval – Aeration Pilot Study
New-Indy Catawba LLC, York County

Dear Mr. Amick:

On behalf of New-Indy Catawba LLC (New-Indy), TRC is requesting approval for New-Indy to perform a pilot study to evaluate supplemental aeration of treated wastewater entering the No. 1 Holding Pond from the Aerated Stabilization Basin (ASB). This letter describes the proposed pilot study.

Background

New-Indy operates an unbleached paperboard mill at 5300 Cureton Ferry Road in Catawba, South Carolina (see Figure 1). Process and sanitary wastewater generated as part of operations are treated in the mill's wastewater treatment system. Wastewater from New-Indy's ASB enters the No. 1 Holding Pond where the treated water is retained until discharged (see Figure 2). The wastewater from the ASB can be low in dissolved oxygen at times, and with the remaining 5-day biochemical oxygen demand (BOD_5) in this wastewater, anaerobic conditions could develop which could contribute to the formation of undesired odors.

Proposed Pilot Study

New-Indy would like to add two 75-horsepower (HP) surface aerators to the inlet of the No. 1 Holding Pond where wastewater from the ASB enters the basin (see Figure 2). New-Indy would like to test the ability of the two aerators in the No. 1 Holding Pond to supplement the dissolved oxygen of this wastewater to reduce the chance of forming septic conditions. The proposed location should enable the aerators to aerate most of the flow going into the basin and allow sufficient residence time for any existing solids that may be disturbed by the aeration to settle before reaching the outlet from the basin which is approximately 2,000 feet away.

The two aerators that New-Indy intend to use are identical to the 52 75-HP Aqua-Aerobic Systems, Inc. Aqua-Jet surface mechanical mixers currently used in the ASB. These are two spare aerators that New-Indy currently has sitting on shore adjacent to the ASB.

The proposed pilot study is being requested for six months. The results of the pilot study should be available sooner than six months, but this time is being requested to allow time for evaluation and permitting if New-Indy decides to request to leave the aerators in permanently.

New-Indy understands that a wastewater treatment system construction permit (and subsequent operating approval) will be required if these aerators are to be used in this capacity indefinitely after the pilot study. If you have any questions, please contact me at 864.421.3890 or jkirlin@trccompanies.com, or Mr. Dan Mallett at New-Indy at 803.981-8010 or dan.mallett@new-indycb.com.

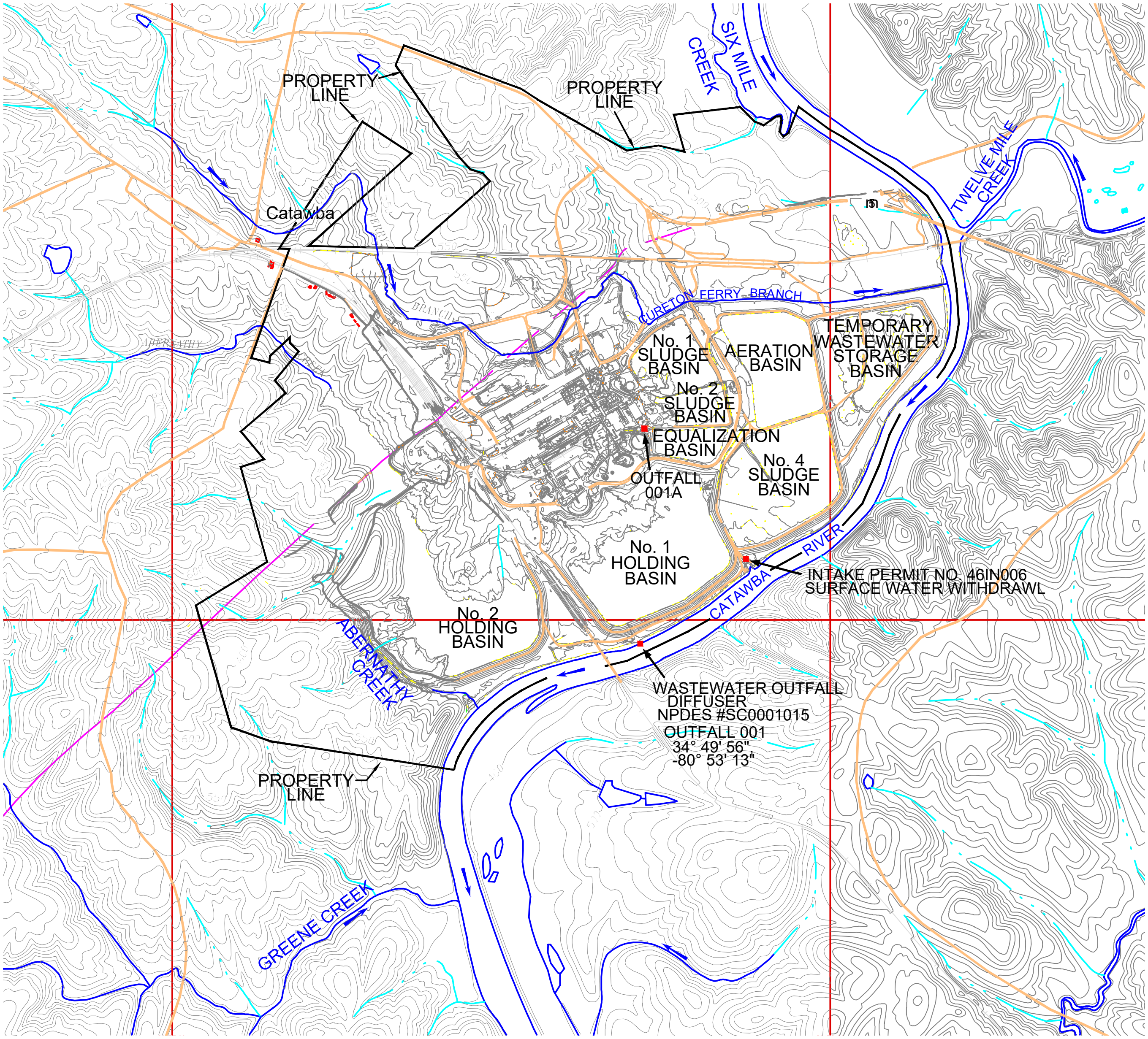
Sincerely,

TRC Environmental Corporation

James M. Kirlin, P.E.
Senior Engineer / Project Manager

Attachments

cc: Dan Mallett, New-Indy Environmental Manager



0 3250 6500
1" = 6500 FEET

NOTE:
SITE LOCATON MAP REVISED FROM DRAWING BY EARTHTECH (10/06)

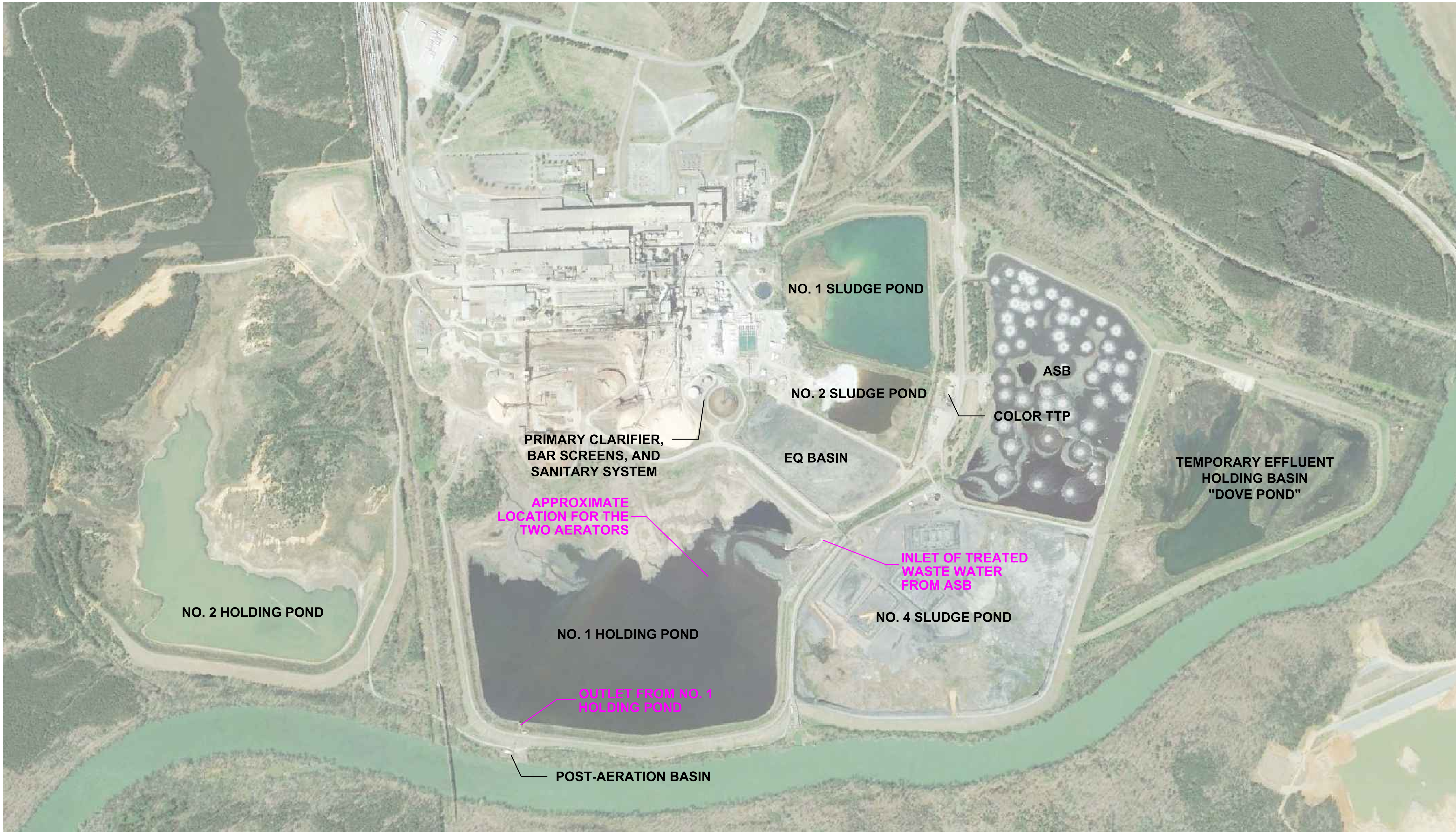
TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:	**NEW-INDY CATAWBA LLC CATAWBA, SOUTH CAROLINA**
TITLE:	**SITE LOCATION MAP**

DRAWN BY:	A.PEEBLES / D.STEHLE
CHECKED BY:	J.KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.01 APS.dwg
FIGURE 1	

DRAWING NAME: \\greenville-fp1\CADD\pjt\CAD\New-Indy\Aerator Pilot Study\370601.0001.01.01 APS.dwg --- PLOT DATE: June 02, 2021 - 4:18AM --- LAYOUT: FIG01 Site Location
8.5x11 --- USER: DStehle --- ATTACHED XREFS: --- ATTACHED IMAGES:

Version: 2017-10-21



PROJECT:	NEW-INDY CATAWBA LLC NPDES #SC0001015 CATAWBA, SOUTH CAROLINA
TITLE:	NO. 1 HOLDING POND AERATOR PILOT STUDY

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

DRAWN BY:	C. VINING
CHECKED BY:	J. KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.02A APS.dwg

FIGURE 2

DRAWING NAME: \\greenville-fp1\CAD\gis\CAD\New-Indy\Aerator Pilot Study\370601.0001.01.02A APS.dwg --- PLOT DATE: June 03, 2021 - 11:39AM --- LAYOUT: FIG02 No.1 Holding Pond

Version: 2017-10-21

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Aqua-Jet®

Surface Mechanical Aerator

Aqua-Jet®

Surface Mechanical Aerator

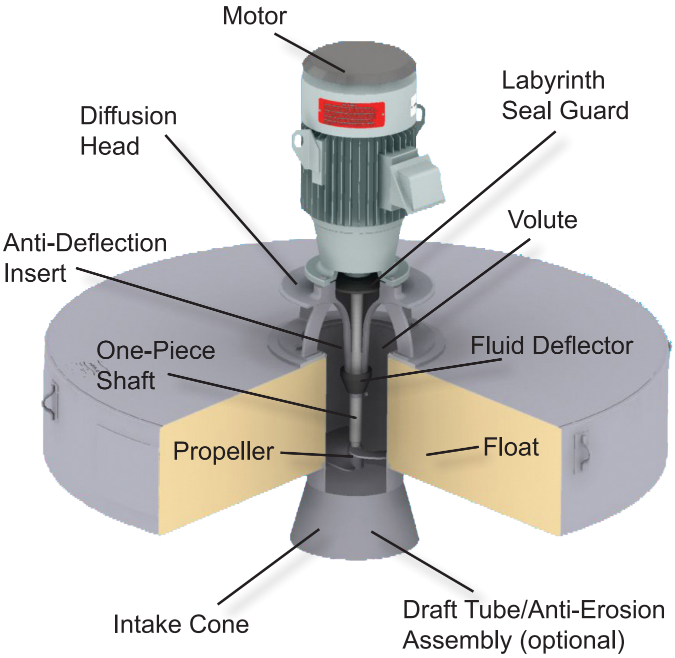
The Aqua-Jet® aerator is the most durable, highly efficient wastewater aerator on the market today. Since 1969, more than 80,000 Aqua-Jet aerators have been installed throughout the world, representing 1.5 million horsepower and over 9 billion hours of runtime.

The robust design and use of the highest quality materials have also made the Aqua-Jet the most trusted aerator in the industry, outlasting other aerators 2 to 1.

Features and Advantages

- Vibration limiting design; velocity of 0.3 inches/second or less
- Proven oxygen and mixing performance
- Easy and flexible installation
- Short lead times
- Easily incorporated into existing plants
- Units are retrievable for easy access
- Various mooring arrangements available
- Endura® Series low maintenance motors save energy, reduce O&M costs and increase performance

Aqua-Jet® Components



Motor - standard 3-year warranty, severe duty, totally enclosed fan-cooled (TEFC), Class F insulation, 1.15 service factor

Diffusion Head - monolithic casting, 304 stainless steel (ss), limits vibration

Motor Shaft - one-piece, 17-4 precipitation hardened (PH) ss, eliminates couplings

Float - Fiberglass or 304 ss exterior. Interior closed-cell polyurethane foam adds structural stability and prevents sinking. Heavy wall ss volute.

Propeller - two-blade design precision cast, 316 ss, non-clog operation

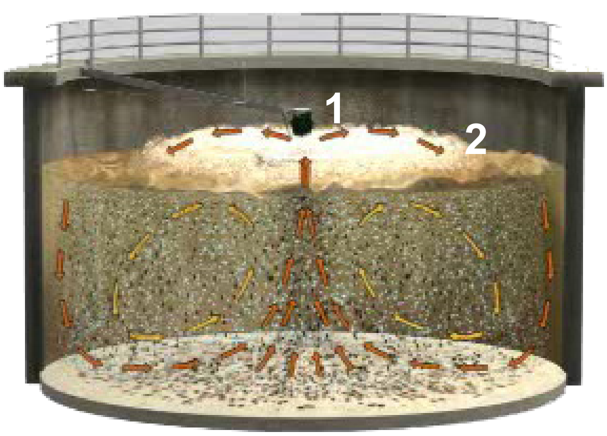
Intake Cone/Anti-Vortex Cross - 304 ss, provides minimum headloss

Aqua-Jet® Operation

The Aqua-Jet aerator is a mechanical direct-drive unit designed to provide optimum oxygen transfer in a variety of municipal and industrial wastewater applications. The performance of the Aqua-Jet aerator also provides the mixing necessary to uniformly disperse oxygen and organic matter within the microbial population.

How it Works

Basin water is pumped up into the intake cone and through the volute, and is dispersed through the diffusion head in a spray pattern. Oxygenation occurs at two critical points: **1)** when the water exits the diffusion head and **2)** when the spray enters the water surface.



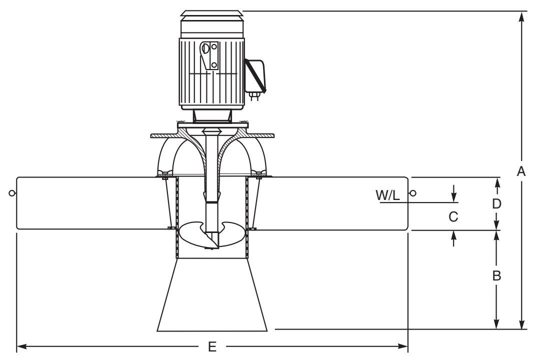
Typical Aqua-Jet® aerator operation.

Aqua-Jet® Unit Sizes and Dimensions

SS Series (Stainless Steel)

SS Model	HP	RPM	Approx Ship Wt (lbs)	DIMENSIONS (inches) A	B	C	D	E	Shaft Dia.	Mooring Cable Dia.
3900111	1	1800	325	34.69	8.5	4	7.5	46.75	.875	
3900211	2	1800	325	34.69	8.5	4	7.5	46.75	.875	
3900311	3	1800	525	44.13	8.5	5	11	59.5	1.250	
3900511	5	1800	525	44.13	8.5	5.25	11	59.5	1.250	
3900711	7.5	1800	625	46.63	8.5	6.75	11	59.5	1.250	3/16"
3901011	10	1800	945	51.69	10.38	6	12	70	1.750	
3901511	15	1800	970	55.63	10.38	6.25	12	70	1.750	
3902011	20	1200	1,300	79.94*	27.5*	6.5	13.5	82.88	2.125	
3902511	25	1200	1,350	80.81*	27.5*	6.75	13.5	82.88	2.125	
3903011	30	1200	1,845	86.94	30.63*	9.5	14.88	94.5	2.125	
3904011	40	1200	1,870	90.31	30.63*	10	14.88	94.5	2.500	
3905411	50	1200	1,900	90.31	30.63	10.5	14.88	94.5	2.500	
3905011	50	1200	2,850	101.06	40.69*	8.88	14.88	114.63	2.500	1/4"
3906011	60	1200	3,000	102.81	40.69*	10	14.88	114.63	2.703	
3907511	75	1200	3,000	102.81	40.69*	10	14.88	114.63	2.703	
3910021	100	900	4,500	113.5	42.5*	9.5	17	131	3.930	
3912511	125	900	5,240	125.5	46.5*	11.5	19	131	3.930	3/8"
3915011	150	900	5,390	128	46.5*	11.65	19	131	3.930	

* Includes allowance for anti-vortex cross. *Dual speed units are available upon request.*

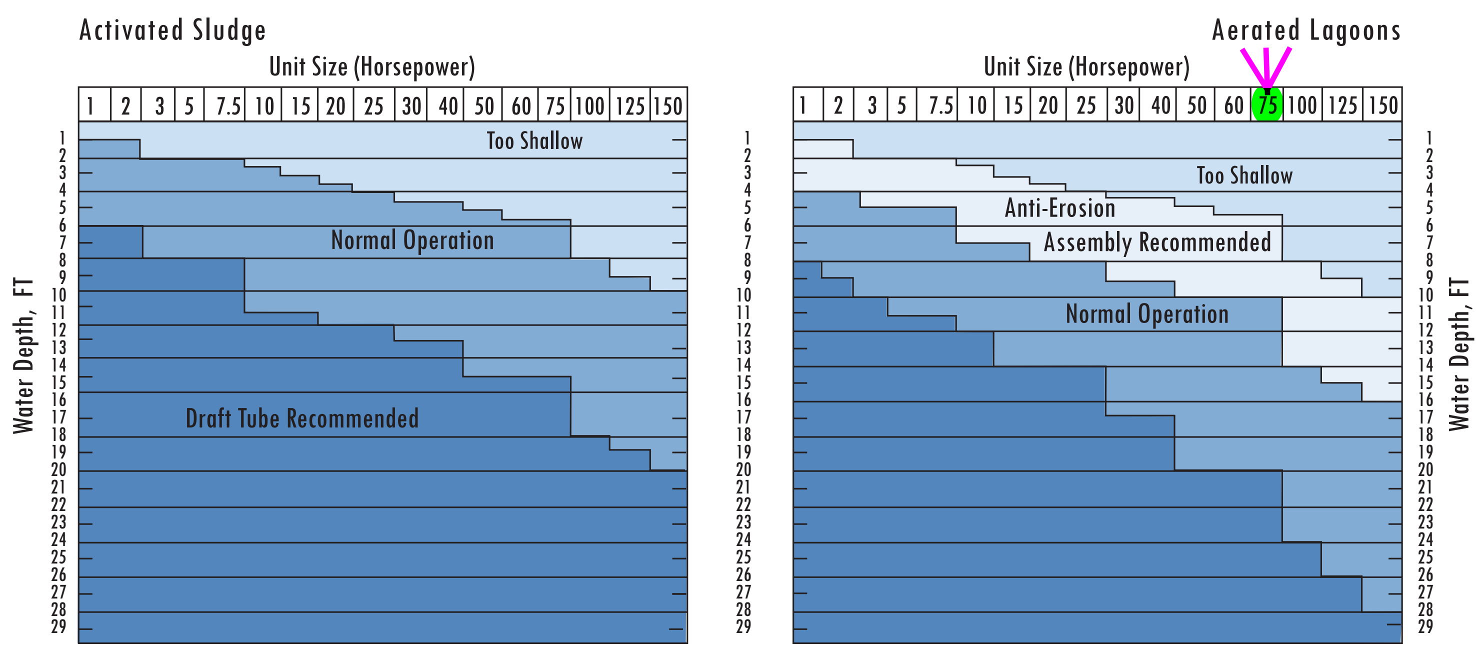


FSS Series (Fiberglass)

FSS Model	HP	RPM	Approx Ship Wt (lbs)	DIMENSIONS (inches) A	B	C	D	E	Shaft Dia.	Mooring Cable Dia.
4200111	1	1800	325	34.69	8.5	4	7	46.75	.875	
4200211	2	1800	325	34.69	8.5	4	7	46.75	.875	
4200311	3	1800	550	44.13	8.5	4	11	64	1.250	
4200511	5	1800	550	44.13	8.5	5	11	64	1.250	
4200711	7.5	1800	625	46.63	8.5	6	11	64	1.250	3/16"
4201011	10	1800	900	51.69	10.38	5.5	12	71	1.750	
4201511	15	1800	925	55.63	10.38	6	12	71	1.750	
4202011	20	1200	1,100	79.94*	27.5*	7	14	84	2.125	
4202511	25	1200	1,150	80.81*	27.5*	8	14	84	2.125	
4203011	30	1200	1,845	86.94	*30	8	15.5	94.5	2.125	
4204011	40	1200	1,845	90.31	*30	9	15.5	94.5	2.500	
4205011	50	1200	1,900	90.31	*30	9	15.5	94.5	2.500	
4205021	50	1200	2,350	101.06	40.69	5.5	15.25	114.75	2.500	1/4"
4206011	60	1200	2700	102.81	40.69	6.25	15.25	114.75	2.703	
4207517	75	1200	2700	102.81	40.69	6.25	15.25	114.75	2.703	

* Includes allowance for anti-vortex cross. *Dual speed units are available upon request.*

Typical Aqua-Jet® Aerator Operating Depths*



*These charts are intended for approximation purposes only. Requirements are dependent upon basin geometry. Consult Aqua-Aerobic Systems for larger horsepower units or specific applications.

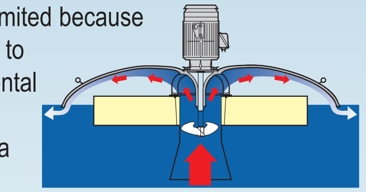
Aqua-Jet® Aerator Model SS-PW

- Ideal for Total Trihalomethane (TTHM) stripping in potable water applications with a minimum volume of 100,000 gallons
- ANSI/NSF 61 approved by Underwriters Laboratory (UL)
- Endura® Series high efficiency, low maintenance motors

Aqua-Jet® aerator model SS-PW in operation in a TTHM stripping application.

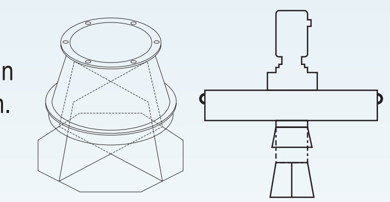
Aqua-Jet® Accessory Options

Aqua-Jet II® Contained Flow Aerator



The Aqua-Jet II Contained Flow Aerator is designed for applications which require continued operation of aeration equipment during cold weather months, but are limited because of an inadequate heat sink due to process selection or environmental conditions. This aerator has proven to operate efficiently in a variety of applications, even in sub-zero temperatures. The dome is essentially a spray control shield mounted to the diffusion head of the Aqua-Jet aerator.

Anti-Erosion Assemblies



Anti-Erosion Assemblies consist of a stainless steel plate attached to the bottom of the Aqua-Jet aerator intake cone via an anti-vortex cross. The assembly causes water to be drawn from the sides of the intake cone, rather than from directly below it; and prevents damage to the basin liner or erosion of the bottom. Anti-Erosion Assemblies are available for all horsepower Aqua-Jet aerators. Consult your Aqua-Aerobic representative, or the factory for dimensions.

Draft Tubes

The Draft Tube accessory provides an extension of the intake cone and permits a deeper intake of water. Available in lengths of 3 and 6 feet.

Low Trajectory Diffuser (L.T.D.) Assembly

The Low Trajectory Diffuser (L.T.D.) Assembly is a high density polyethylene ring that is attached to the top of the diffusion head, increasing the diameter of the diffuser. This arrangement lowers the spray of the Aqua-Jet aerator reducing windblown spray and misting. Low trajectory diffusers are used in colder climates, and where a smaller, lower spray pattern is desired.

Arctic Pak

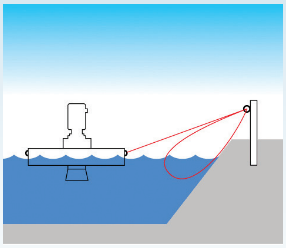
The Arctic Pak ring contains thermal resistance heaters which minimize the chance of icing on exposed surfaces of the Aqua-Jet aerator, such as the cast diffusion head. The Arctic Pak is complete with its own junction box (which mounts on the motor fan cover), automatic controls and control panel. Operation of the Arctic Pak is controlled by an ambient temperature thermostat.
The unit is available in either 230 or 460 volts, and can be used on either floating or fix-mounted Aqua-Jet aerators. Drawings and wiring diagrams are available on request. Contact your Aqua-Aerobic representative.

Aqua-Jet® Mooring Arrangements

There are four standard mooring arrangements for the Aqua-Jet aerator. The type selected is dependent on the specific application.

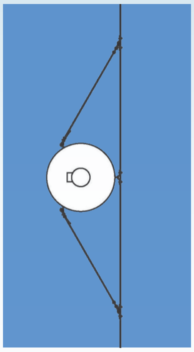
Post/Maintenance Mooring

A mooring post is installed on shore and the mooring line is attached to an eyebolt in the post. A maintenance loop enables the operator to pull the unit to shore or opposite side of the basin without disconnecting the line. Available for 3 or 4 point mooring.



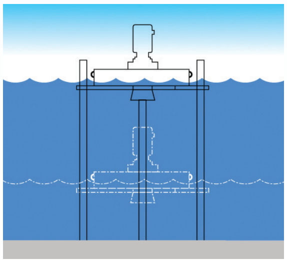
Span Mooring

Span Mooring is used in larger lagoon applications, allowing more than one (1) aerator to be attached to a single mooring cable across the lagoon. Each aerator is attached to the cable using a 3 point mooring concept and can be removed individually for service (*plan view shown to the right*).



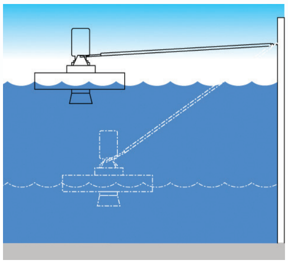
Restrained Mooring

Restrained Mooring is used in applications with varying water levels. The Aqua-Jet mooring frame fits around the mooring posts and allows the aerator to slide up and down the posts as the water level changes.



Pivotal Mooring

A Pivotal Mooring arm is used in applications with varying water levels with arm lengths up to 40 feet. The arm fits at the base of the motor allowing the aerator to adjust to varying water levels.



Aqua-Jet® Typical Applications

- Extended aeration
- Aerobic digestion
- Equalization
- Aerated lagoons
- Oxidation ditches
- Sludge holding
- Municipal-industrial combinations
- Batch reactor processes

Pulp and Paper Mills

- Simple and flexible installation
- Equipment is easily retrievable without dewatering basin
- Short lead times
- High efficiency motors reduce energy consumption
- Low installation cost
- Easily retrofitted into existing aeration systems

Digesters/Sludge Holding Basins

- Provides efficient oxygen transfer and complete mixing
- Pivotal Mooring or Restrained Mooring accomodates large changes in water level
- Units can be pulled to the side of the basin for service without dewatering
- Aerator can be cycled on/off to control dissolved oxygen (D.O.) and save energy

Providing TOTAL Water Management Solutions

Visit our website at www.aqua-aerobic.com to learn more about the Aqua-Jet® Surface Mechanical Aerator and our complete line of products and services:

Aeration & Mixing

Biological Processes

Filtration

Oxidation & Disinfection

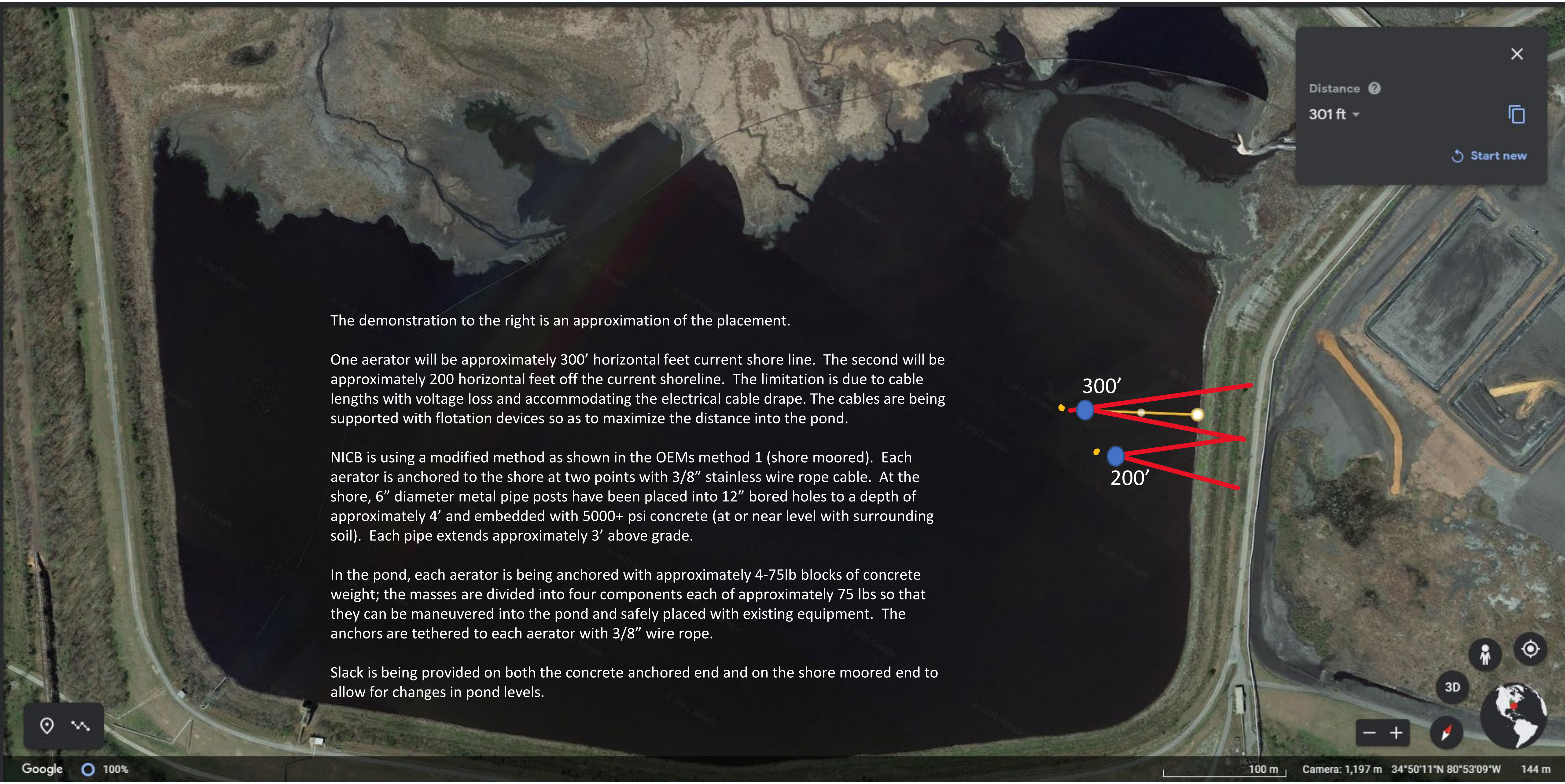
Membranes

Controls & Monitoring Systems

Aftermarket Products and Services

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

6306 N. Alpine Rd. Loves Park, IL 61111-7655
p 815.654.2501 f 815.654.2508
www.aqua-aerobic.com
solutions@aqua-aerobic.com



The demonstration to the right is an approximation of the placement.

One aerator will be approximately 300’ horizontal feet current shore line. The second will be approximately 200 horizontal feet off the current shoreline. The limitation is due to cable lengths with voltage loss and accommodating the electrical cable drape. The cables are being supported with flotation devices so as to maximize the distance into the pond.

NICB is using a modified method as shown in the OEMs method 1 (shore moored). Each aerator is anchored to the shore at two points with 3/8” stainless wire rope cable. At the shore, 6” diameter metal pipe posts have been placed into 12” bored holes to a depth of approximately 4’ and embedded with 5000+ psi concrete (at or near level with surrounding soil). Each pipe extends approximately 3’ above grade.

In the pond, each aerator is being anchored with approximately 4-75lb blocks of concrete weight; the masses are divided into four components each of approximately 75 lbs so that they can be maneuvered into the pond and safely placed with existing equipment. The anchors are tethered to each aerator with 3/8” wire rope.

Slack is being provided on both the concrete anchored end and on the shore moored end to allow for changes in pond levels.

June 17, 2021

Daniel Mallett
New-Indy Catawba LLC
5300 Cureton Ferry Rd
Catawba, SC 29704

RE: LOA-005747
New-Indy Catawba LLC
Ferric Chloride Addition Pilot Study
York County

Dear Mr. Mallett:

The facility has requested to study the addition of ferric chloride as an effective means to control hydrogen sulfide and reduce odors at the site. The ferric chloride is to be added to the ASB outlet ditch near the ASB effluent weir structure. For this study 275-gallon totes with a 40% ferric chloride solution will be provided from a chemical provider, and two adjustable speed chemical metering pumps will be used to drip approximately 140-gpd of solution to the outlet ditch. The chemical feed rates will be adjusted throughout the study to determine the most effective dosage. The Department hereby grants temporary approval to proceed with the pilot study per your request dated June 10, 2021 in accordance with the following conditions:

1. If, based on the results of the pilot study, a decision is made to permanently install the system, a wastewater construction permit application submittal will be needed. The pilot study will not be allowed to operate beyond the expiration of this approval until the construction permit is issued, unless an extension is granted. The pilot study results should be submitted with the permit application.

2. If the pilot study results do not indicate the continued use of the system, the permittee shall remove the equipment used in the pilot test promptly and before the expiration date of this approval.

3. This approval expires on October 31, 2021.

If you have any questions, please contact me at 803-898-4236 or amickbm@dhec.sc.gov.

Sincerely,

Byron M Amick
Environmental Engineer Associate
Industrial Wastewater Permitting Section
Water Facilities Permitting Division

cc via e-mail: Jim Kirlin, TRC Environmental Corp
Sonya Johnson, Midlands EA Columbia
BOW/WPC Enforcement

Wastewater - Industrial - Preliminary Engineering Review (PER) and Other Request Form - New

version 2.6

(Submission #: HP9-C9WJ-QS1NX, version 1)

Details

Submission ID	HP9-C9WJ-QS1NX
Submission Reason	New

Form Input

Request Information

Do you anticipate this project being funded by State Revolving Fund (SRF)?
No

Request Type:
Pilot Study Request

Permittee Information

Permittee

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd
Catawba, SC 29704
United States

Owner Information

Owner

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd

Catawba, SC 29704

Is the owner also the operator?
Yes

Contact Information

Facility Contact

Prefix
Mr.

First Name	Last Name
Daniel	*Mallett*

Title
Environmental Manager

Organization Name
New-Indy Catawba LLC

Phone Type	Number	Extension
Business	8039818010	

Email
Dan.Mallett@New-Indycb.com

Fax
NONE PROVIDED

Address

5300 Cureton Ferry Rd

Catawba, SC 29704

United States

Engineer Information

Engineer Contact

Prefix
Mr.

First Name	**Last Name**
James	*Kirlin*

Title
Environmental Engineer Consultant

Organization Name
TRC

Phone Type	**Number**	**Extension**
Business	8644213890	

Email
JKirlin@TRCcompanies.com

Fax
NONE PROVIDED

Address

50 INTERNATIONAL DR

STE 150

GREENVILLE, SC 29615

United States

S.C. Registration Number:
19829

LLR Licensing Lookup
Engineers and Land Surveyors - Licensee Lookup

Project Information

Project Name:
Ferric Chloride Addition Pilot Study

Facility Name
New-Indy Catawba LLC

NPDES/ND Permit Number and Name
NEW-INDY CATAWBA LLC - SC0001015

Project Address:

5300 CURETON FERRY RD

CATAWBA, SC 29704

Project County
York

Project Location:
34.8436941018625,-80.87993872711527

Project Description of Wastewater Systems:
Pilot study to evaluate the addition of ferric chloride for H2S control into the ASB outlet ditch prior to No. 1 Holding Pond

Project Details

Is this project part of a phased project?
No

What is this project submission based on?
Neither

Wastewater Systems

AVERAGE FLOW

Long term average discharge flow (GPD)
NA

RECEIVING FACILITY

Construction, LOA, or Other Permit, if applicable.
20098-IW was last construction permit issued

Facility Address
5300 Cureton Ferry Rd, Catawba, SC 29704

NPDES/ND Number and Name
NEW-INDY CATAWBA LLC - SC0001015

DISPOSAL SITES

Effluent Disposal Site (Description)
Discharge to the Catawba River through Outfall 001

Sludge Disposal Site (Description)
NA

Submittal Requirements

Additional Documents:

> L3706010000-007 Ferric chloride Addition.pdf - 06/10/2021 04:42 PM
> **Comment**
> Pilot study request package, figures, SDS, equipment information

Use the space below to bring to the Department�s attention any additional information that you believe should be considered in the permit decision.
NONE PROVIDED

TRC

50 International Dr.
Suite 150
Greenville, SC 29615

T 864.281.0030
TRCcompanies.com

June 10, 2021

Mr. Byron Amick
Industrial Wastewater Permitting Section
South Carolina Department of Health and Environmental Control
Bureau of Water
2600 Bull Street
Columbia, South Carolina 29201

Subject: Request for Approval – Ferric Chloride Addition
New-Indy Catawba LLC, York County

Dear Mr. Amick:

On behalf of New-Indy Catawba LLC (New-Indy), TRC is requesting approval for New-Indy to add ferric chloride as part of a pilot study to the wastewater treatment system at New-Indy's facility in Catawba, South Carolina. This letter describes the proposed additions.

Background

New-Indy operates an unbleached paperboard mill at 5300 Cureton Ferry Road in Catawba, South Carolina (see Figure 1). Process wastewater generated as part of operations is treated in the mill's wastewater treatment system. In general, the main flow through the treatment system is process wastewater goes through the primary clarifier, then through the Aerated Stabilization Basin (ASB), then the No. 1 Holding Pond, and then through the post-aeration basin before discharge to the Catawba River. Other components associated with wastewater treatment include two other effluent holding basins, a primary solids EQ (Equalization) Basin, other sludge ponds, etc. (see Figure 2). Due to upset conditions from the conversion of the mill to unbleached operations, a floating layer of foam and fiber has formed on the ASB causing several aerators to become inoperable. The reduced aeration capacity has led to formation of hydrogen sulfide in the effluent from the ASB and in the No. 1 Holding Pond. Hydrogen sulfide can cause odors. New-Indy would like to perform a pilot study to control hydrogen sulfide through the addition of a ferric chloride solution.

Proposed Ferric Chloride Addition Pilot Study

Location:

The ferric chloride solution will be added to the ASB outlet ditch at the bridge near the ASB effluent weir structure (see Figure 2). This location provides good access for the equipment, electrical power, and adequate mixing time in the ditch before wastewater enters the No. 1 Holding Pond.

Dosage:

The initial dosage will be approximately 140 gallons per day (gpd), or approximately 5.8 gallons per hour of a 40 percent ferric chloride solution, and the feed rate may be adjusted during the pilot study. The

Safety Data Sheet (SDS) for the material is attached. A jar test simulating this dosage into ASB effluent was performed to evaluate the impact on pH. The result of the jar testing was that even at much higher simulated doses, the impact on pH depression was negligible.

Chemical Feed Equipment:

The ferric chloride solution will be fed by two Pulsatron Series E LPH6 adjustable speed chemical metering pumps. The pumps will convey the ferric chloride solution from a 275-gallon chemical tote that will be provided by the ferric chloride chemical supplier. Each pump can convey up to 5 gpm. Polypropylene tubing will be used to convey the ferric chloride solution, and the solution will be dripped into the open channel ditch. At the proposed rate of 140 gpd, each tote will last approximately two days. Information on the metering pump is attached.

The proposed pilot study is being requested for three months. The study should not be necessary for that time, but this duration is being requested to allow time for evaluation and permitting if New-Indy decides to request to leave the system in place permanently.

New-Indy understands that a wastewater treatment system construction permit (and subsequent operating approval) will be required if this chemical feed system is to be used in this capacity indefinitely after the pilot study. If you have any questions, please contact me at 864.421.3890 or jkirlin@trccompanies.com, or Mr. Dan Mallett at New-Indy at 803.981-8010 or dan.mallett@new-indycb.com.

Sincerely,

TRC Environmental Corporation

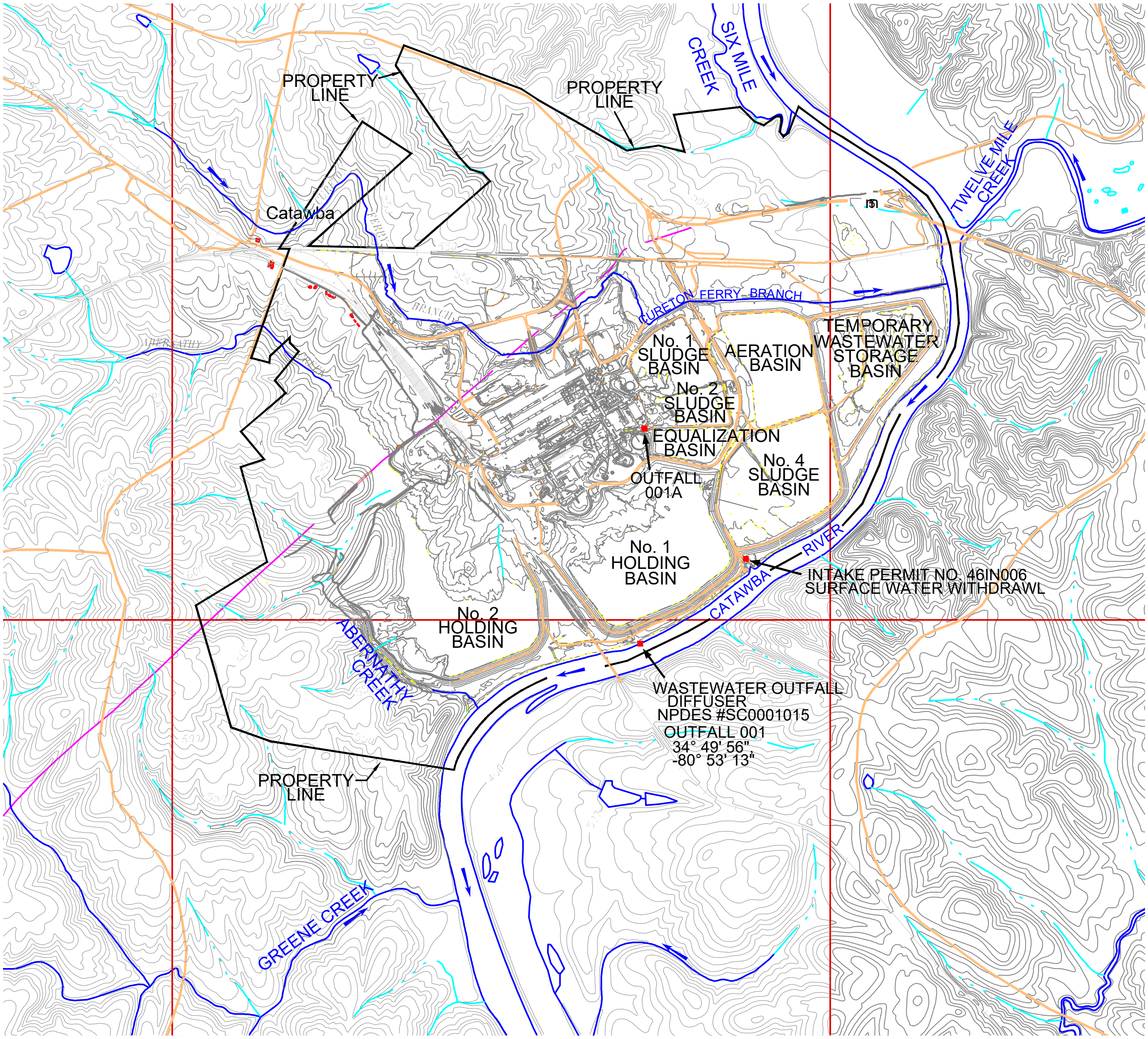
James M. Kirlin, P.E.
Senior Engineer / Project Manager

Attachments

cc: Dan Mallett, New-Indy Environmental Manager

TRC

Figures



0 3250 6500

1" = 6500 FEET

NOTE:
SITE LOCATON MAP REVISED FROM DRAWING BY EARTHTECH (10/06)

TRC 50 International Drive Patewood Plaza Three, Suite 150 Greenville, SC 29615 Phone: 864.281.0030	PROJECT: **NEW-INDY CATAWBA LLC** **CATAWBA, SOUTH CAROLINA**
	TITLE: **SITE LOCATION MAP**

DRAWN BY:	A.PEEBLES / D.STEHLE
CHECKED BY:	J.KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.01 APS.dwg
FIGURE 1	

8.5x11 --- USER: DStehle --- ATTACHED XREFS: --- ATTACHED IMAGES:
DRAWING NAME: \\greenville-fp1\CADD\pjt\CAD\New-Indy\Aerator Pilot Study\370601.0001.01.01 APS.dwg --- PLOT DATE: June 02, 2021 - 4:18AM --- LAYOUT: FIG01 Site Location

Version: 2017-10-21

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:
NEW-INDY CATAWBA LLC
NPDES #SC0001015
CATAWBA, SOUTH CAROLINA

TITLE:
FERRIC CHLORIDE ADDITION PILOT STUDY

DRAWN BY:	J. BELL
CHECKED BY:	J. KIRLIN
APPROVED BY:	
DATE:	JUNE 2021
PROJ. NO.:	370601.0001.01
FILE:	370601.0001.01.02B FCA.dwg

FIGURE 2

DRAWING NAME: J:\CAD\New-Indy\Aerator Pilot Study\370601.0001.01.02B FCA.dwg --- PLOT DATE: June 09, 2021 - 1:35PM --- LAYOUT: FIG02 No.1 Holding Pond

Attachment 1
Ferric Chloride Information

Safety Data Sheet

FERRIC CHLORIDE SOLUTION

Version 1.2 Revision Date: 10/22/2020

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : FERRIC CHLORIDE SOLUTION

Recommended use of the chemical and restrictions on use

Recommended use : Reserved for industrial and professional use.

Manufacturer or supplier's details

Company : Univar Solutions USA, Inc.

Address
3075 Highland Pkwy Suite 200
Downers Grove, IL 60515
United States of America (USA)

Emergency telephone number:
Transport North America: CHEMTREC (1-800-424-9300)
CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
E-mail: SDSNA@univarsolutions.com
SDS Requests: 1-855-429-2661
Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals : Category 1

Acute toxicity (Oral) : Category 4

Skin corrosion : Category 1

Serious eye damage : Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statements : **Prevention:**
P234 Keep only in original container.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT

induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.
Storage:
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

CAS-No.	Chemical name	Weight percent
7705-08-0	Iron chloride (FeCl3)	50 - 70
7647-01-0	Hydrochloric acid	1 - 5

Actual concentration is withheld as a trade secret
Any Concentration shown as a range is due to batch variation.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.

		Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Keep respiratory tract clear. Do not induce vomiting without medical advice. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire-fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	sulfur oxides toxic fumes
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Neutralize with chalk, alkali solution or ammonia. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapours/dust. Avoid contact with skin and eyes.

		For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
Materials to avoid	:	Do not store near acids.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
7705-08-0	Iron chloride ($FeCl_3$)	TWA	1 mg/m3 (Iron)	ACGIH
		TWA	1 mg/m3 (Iron)	OSHA P0
		TWA	1 mg/m3 (Iron)	NIOSH REL
7647-01-0	Hydrochloric acid	C	2 ppm	ACGIH
		C	5 ppm 7 mg/m3	NIOSH REL
		C	5 ppm 7 mg/m3	OSHA Z-1
		C	5 ppm 7 mg/m3	OSHA P0

Personal protective equipment

Respiratory protection	:	General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
Hand protection		
Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles

		Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	dark brown
Odour	:	Sour
Odour Threshold	:	No data available
pH	:	< 2
Freezing Point ()	:	10 °F (10 °F)
Boiling Point ()	:	100 - 110 °C (212 - 230 °F)
Flash point	:	Not applicable
Evaporation rate	:	< 1
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	1.237 - 1.488
Density	:	10.300 - 12.395 lb/gal
Solubility(ies)		
Water solubility	:	completely soluble @ 20 °C (68 °F)
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Thermal decomposition	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under recommended storage conditions.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Acids Alkali metals

Amines
Ammonia
Bases
brass
bronze
Carbon steel
chlorinated hydrocarbons
Chlorine
Copper
Copper alloys
hydrogen chloride
Lead
Metals
metallic oxides
nitrates
sodium hypochlorite
steel
Strong oxidizing agents
Sulphides
Tin
water
Zinc
Aluminium
Peroxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity : Acute toxicity estimate: 880 mg/kg

Components:

7705-08-0:

Acute oral toxicity : LD50 (Mouse, female): 440 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

Skin corrosion/irritation

Components:

7705-08-0:
Species: Rabbit
Exposure time: 20 h
Result: Irritating to skin.

7647-01-0:
Species: Rabbit
Result: Causes burns.

Serious eye damage/eye irritation

Components:

7705-08-0:
Species: Rabbit
Result: Risk of serious damage to eyes.

Carcinogenicity

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

STOT - single exposure

Components:

7647-01-0:
Target Organs: Respiratory system, Lungs
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Further information

Product:
Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
No data available

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-909-4897

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):
UN2582, FERRIC CHLORIDE SOLUTION, 8, III

IATA (International Air Transport Association):
UN2582, FERRIC CHLORIDE SOLUTION, 8, III

IMDG (International Maritime Dangerous Goods):
UN2582, FERRIC CHLORIDE SOLUTION, 8, III

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Iron chloride (FeCl3)	7705-08-0	1000	2000
Hydrochloric acid	7647-01-0	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Hydrochloric acid	7647-01-0	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards	:	Corrosive to metals Acute toxicity (any route of exposure) Skin corrosion or irritation Serious eye damage or eye irritation
SARA 302	:	
		7647-01-0 Hydrochloric acid
SARA 313	:	The following components are subject to reporting levels established by SARA Title III, Section 313:
		7647-01-0 Hydrochloric acid

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):
7647-01-0 Hydrochloric acid
The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):
7647-01-0 Hydrochloric acid
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:
7705-08-0 Iron chloride (FeCl3)
7647-01-0 Hydrochloric acid
The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:
7705-08-0 Iron chloride (FeCl3)
7647-01-0 Hydrochloric acid
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

7705-08-0	Iron chloride (FeCl3)
7647-01-0	Hydrochloric acid

Pennsylvania Right To Know

7732-18-5	Water
7705-08-0	Iron chloride (FeCl3)
7647-01-0	Hydrochloric acid

California Prop 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

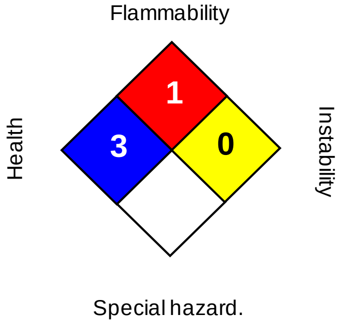
The components of this product are reported in the following inventories:

TSCA	:	On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL
AICS	:	Not in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
ENCS	:	Not in compliance with the inventory

KECI	:	Not in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	Not in compliance with the inventory

SECTION16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3
FLAMMABILITY	1
PHYSICAL HAZARD	4

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 =Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

Revision Date : 10/22/2020

Material number:
16163979, 16145299, 16147454, 16163672, 16143945, 16137157, 16147487, 16141551

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level

EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

PULSAFEEDER®

An IDEX Water & Wastewater Business

pulsafeeder.com

The Pulsatron Series E Plus offers manual control over stroke length and stroke rate as standard with the option to choose between 4-20mA and external pace inputs for automatic control.

Twenty distinct models are available, having pressure capabilities to 300 PSIG (21 BAR) @ 3 GPD (0.5 lph), and flow capacities to 600 GPD (94.6 lph) @ 30 PSIG (2 BAR), with a turndown ratio of 100:1. Metering performance is reproducible to within ± 2% of maximum capacity.

Please refer to the reverse side for Series E PLUS specifications.

Features

- Automatic Control, available with 4-20mADC direct or external pacing, with stop function.
- Manual Control by on-line adjustable stroke rate and stroke length.
- Auto-Off-Manual switch.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Panel Mounted Fuse.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Indicator Lights, panel mounted.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Safe & Easy Priming with durable leak-free bleed valve assembly (standard).

Controls

Manual Stroke Rate

- Turn-Down Ratio 10:1

Manual Stroke Length

- Turn-Down Ratio 10:1

4-20mADC Direct or External Pacing with Stop

- Automatic Control

Operating Benefits

- Reliable metering performance.
- Rated “hot” for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.

Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)

PULSAtron® Series E Plus Electronic Metering Pumps

PULSAtron® Series E Plus

Specifications and Model Selection

MODEL		LPK2	LPB2	LPA2	LPD3	LPB3	LPA3	LPK3	LPF4	LPD4	LPB4	LPH4	LPG4	LPE4	LPK5	LPH5	LPH6	LPK7	LPH7	LPJ7	LPH8
Capacity	GPH	0.13	0.21	0.25	0.5	0.50	0.50	0.60	0.85	0.90	1.00	1.70	1.75	1.85	2.50	3.15	5.00	8.00	10.00	10.00	25.00
nominal	GPD	3	5	6	12	12	12	14	20	22	24	41	42	44	60	76	120	192	240	240	600
(max.)	LPH	0.5	0.8	0.9	1.9	1.9	1.9	2.3	3.2	3.4	3.8	6.4	6.6	7	9.5	11.9	18.9	30.3	37.9	37.9	94.6
Pressure	PSIG	300	250	150	250	150	100	100	250	150	100	250	150	100	150	150	100	50	35	80	30
(max.)	BAR	21	17	10	17	10	7	7	17	10	7	17	10	7	10	10	7	3.3	2.4	5.5	2
Connections	Tubing	1/4" ID X 3/8" OD 3/8" ID X 1/2" OD													3/8" ID X 1/2" OD 1/2" ID X 3/4" OD (LPH8 ONLY)						
	Piping	1/4" FNPT													1/4" FNPT 1/2" FNPT						

Engineering Data

Pump Head Materials Available: GFPPL, PVC, PVDF, 316 SS

Diaphragm: PTFE-faced CSPE-backed

Check Valves Materials Available:

- **Seats/O-Rings:** PTFE, CSPE, Viton
- **Balls:** Ceramic, PTFE, 316 SS, Alloy C

Fittings Materials Available: GFPPL, PVC, PVDF

Bleed Valve: Same as fitting and check valve selected, except 316SS

Injection Valve & Foot Valve Assy: Same as fitting and check valve selected

Tubing: Clear PVC, White PE

Important: Material Code - GFPPL=Glass-filled Polypropylene, PVC=Polyvinyl Chloride, PE=Polyethylene, PVDF=Polyvinylidene Fluoride, CSPE=Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company. PVC wetted end recommended for sodium hypochlorite.

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS :

For viscosity up to 3000 CPS, select connection size 3, 4, B or C with 316SS ball material. Flow rate will determine connection/ball size. Greater than 3000 CPS require spring loaded ball checks. See Selection Guide for proper connection.

Stroke Frequency Max SPM: 125

Stroke Frequency Turn-Down Ratio: 10:1

Stroke Length Turn-Down Ratio: 10:1

Power Input: 115 VAC/50-60 HZ/1 ph; 230 VAC/50-60 HZ/1 ph

Average Current Draw:

@ 115 VAC; Amps: 1.0 Amps

@ 230 VAC; Amps: 0.5 Amps

Peak Input Power: 300 Watts

Average Input Power @ Max SPM: 130 Watts

Custom Engineered Designs – Pre-Engineered Systems

Pre-Engineered Systems

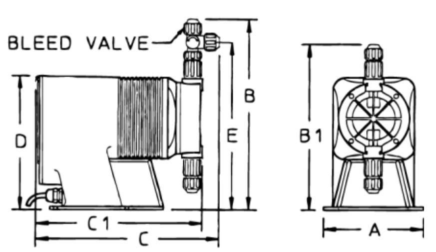
Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HDPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

Series E Plus Dimensions (inches)

Model No.	A	B	B1	C	C1	D	E	Shpg Wt	Model No.	A	B	B1	C	C1	D	E	Shpg Wt
LPA2	5.4	10.3	-	10.8	-	7.5	8.9	13	LPH4	6.2	10.9	-	11.2	-	8.2	9.5	21
LPA3	5.4	10.6	-	10.7	-	7.5	9.2	13	LPH5	6.2	11.3	-	11.2	-	8.2	9.9	21
LPB2	5.4	10.3	-	10.8	-	7.5	8.9	13	LPH6	6.2	11.3	-	11.9	-	8.2	9.9	21
LPB3	5.4	10.6	-	10.7	-	7.5	9.2	13	LPH7	6.1	11.7	-	11.9	-	8.2	10.3	21
LPB4	5.4	10.6	-	10.7	-	7.5	9.2	13	LPH8*	6.1	-	10.9	-	11.3	8.2	-	26
LPD3	5.4	10.6	-	11.2	-	7.5	9.2	15	LPK2	5.4	10.3	-	10.8	-	7.5	8.9	13
LPD4	5.4	10.6	-	11.2	-	7.5	9.2	15	LPK3	5.4	10.6	-	10.7	-	7.5	9.2	13
LPE4	5.4	10.6	-	11.2	-	7.5	9.2	15	LPK5	5.4	10.9	-	11.7	-	7.5	9.5	18
LPF4	5.4	10.6	-	11.7	-	7.5	9.2	18	LPK7	6.1	11.7	-	11.2	-	8.2	10.3	21
LPG4	5.4	10.6	-	11.7	-	7.5	9.2	18	LPJ7	6.1	10	-	10.7	-	-	-	21

NOTE: Inches X 2.54 = cm /* the LPH8 is designed without a bleed valve available



PULSAFEEDER®
27101 Airport Rd
Punta Gorda, FL 33982
Phone: ++1(941) 575-3800
Fax: ++1(941) 575-4085

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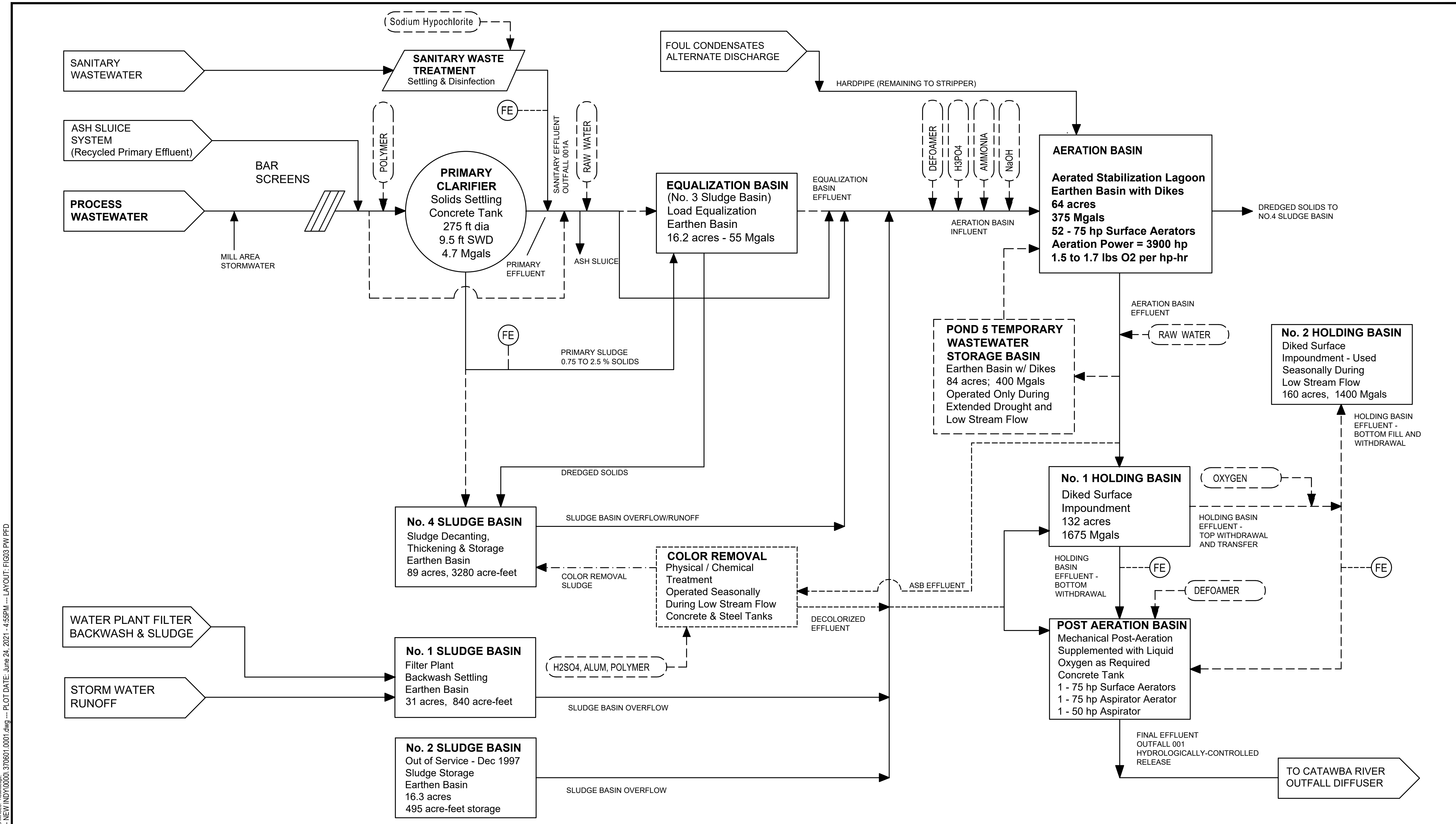
IDEX CORPORATION

APPENDIX F – WASTEWATER PROCESS FLOW DIAGRAM



TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT:
NEW-INDY CATAWBA LLC
CATAWBA, SOUTH CAROLINA

TITLE:
WASTEWATER PROCESS FLOW DIAGRAM
NPDES #SC0001015

DRAWN BY:	A.PEEBLES / D.STEHLE
CHECKED BY:	J KIRLIN
APPROVED BY:	-
DATE:	MAY 2021
PROJ. NO.:	436984.0000
FILE:	370601.0001.dwg

FIGURE 7-1

DRAWING NAME: J:\CAD\New-Indy\370601 - NEW INDY\0000\370601.0001.dwg --- PLOT DATE: June 24, 2021 - 4:55PM --- LAYOUT: FIG03 PW PFD

APPENDIX G – ENVIRONMENTAL BUSINESS SOLUTIONS WASTEWATER TREATMENT SYSTEM REPORTS

ENVIRONMENTAL BUSINESS SPECIALISTS, LLC

New Indy - Catawba Wastewater Service Report

Tuesday, May 11, 2021

Today's Visit

Tuesday, May 11, 2021

	Inlet	ASB Mid	ASB Effluent	Holding Pond Effluent
pH	9.51	8.11	7.66	8.01
Temp. (°C)	44.0	33.1	31.3	26.0
Dissolved Oxygen (mg/L)		0.64	0.59	0.27
ORP	-169.40	-23.60	-164.50	-241.80
Ammonia (as N, mg/L)	3.05	0.38	0.09	2.60
Soluble o-PO4 (as P, mg/L)	0.58	0.12	0.20	0.62
Sulfide (µg/L)				
DOUR (mg/L/h)		6.9	4.7	3.3
FED DOUR (mg/L/hr)		10.5		
TSS (mg/L)	630	118	93	48
VSS (mg/L)				
%VSS				
tCOD (mg/L)	1468			806
sCOD (mg/L)	873	539	510	646
Bacteria Abundance (0 - 3)		2.0	2.0	
Flagellates		0	13	
Free Swimming Ciliates		0	4	
Stalked Ciliates		0	0	
Rotifers		0	0	
Total Indicators Observed		0	17	
Maturity Index		#DIV/0!	1.2	

Previous Visit

	Inlet	ASB Mid	ASB Effluent	Holding Pond Effluent
pH				
Temp. (°C)				
Dissolved Oxygen (mg/L)				
ORP				
Ammonia (as N, mg/L)				
Soluble o-PO4 (as P, mg/L)				
Sulfide (µg/L)				
DOUR (mg/L/h)				
FED DOUR (mg/L)				
TSS (mg/L)				
VSS (mg/L)				
%VSS				
sCOD (mg/L)				
tCOD (mg/L)				
Bacteria Abundance (0 - 3)				
Flagellates				
Free Swimming Ciliates				
Stalked Ciliates				
Rotifers				
Total Indicators Observed				
Maturity Index				

Summary:

- The soluble COD data showed a 42% reduction from the ASB Inlet to the ASB Effluent. This reduction in soluble COD is indicative of a reduction in BOD across the ASB. The DOUR of 6.9 mg/L/hr indicates an active biomass at the ASB midpoint, and the reduction in DOUR from the midpoint to the ASB Effluent to the Holding Pond Effluent is another indicator of BOD reduction across the system. A "Fed" DOUR was run at the ASB Midpoint, where the sample was artificially spiked with additional BOD (ASB Influent was added), and the increase in DOUR indicates the biomass will increase it's metabolic rate when presented with additional "food" at this point in the system.

- The micro exam showed a moderate to high abundance of dispersed bacteria in the ASB Midpoint and ASB Effluent samples, as well as a moderate abundance of pin floc in both samples. No higher life forms (protozoa/metazoa) were observed at the ASB Midpoint, but the ASB Effluent showed several flagellates and a few free swimming ciliates. Ciliates are generally considered indicators of aerobic, non-toxic conditions in ASB treatment systems. A low to moderate abundance of fiber was observed at the ASB midpoint sample, and a moderate abundance of grit and debris were observed in both samples.

- The excess paper stock in the front end of the system is an indication of previous primary clarification malfunction, and is what we call "phantom" BOD in the ASB at this time. Phantom BOD is insoluble organic material in a treatment system that slowly breaks down into soluble BOD over time. It's called "phantom" BOD because it will not show up on the influent BOD data (fiber takes longer than 5 days to degrade), but will make a BOD contribution to the treatment system over time as the fiber is broken down.

- While dissolved oxygen residuals weren't completely bottomed out at the ASB Midpoint and ASB Effluent, we generally consider D.O. concentrations under 1 mg/L in ASBs to be oxygen deficient. Getting the out of commision aerators back online in the front end of the system will increase the BOD removal capacity of the ASB, and promote more aerobic conditions.

- The TSS of 630 mg/L at the ASB Influent is elevated, indicating poor primary clarification efficiency and elevated solids loading into the ASB at this time.

- Ammonia and ortho-phosphate concentrations were over 0.1 mg/L at the ASB midpoint, which indicates adequate nitrogen and phosphorus availability for the biomass. Bacteria require macronutrients (N & P) at a ratio of 100:2.5:0.5 (BOD:N:P) for optimal BOD removal. Target residuals are 0.1-0.3 mg/L for both N & P in an ASB. The increase in ammonia from the ASB Effluent to the Holding Pond Effluent is due to benthic feedback, where settled sludge breaks down and releases ammonia and phosphate into the water.

- pH values were within the target range of 6.5 - 8.5 across the system.

If you have any questions about the report please let me know.

Tripp McElwee
Regional Consultant
mcelwee@ebsbiowizard.com
(864) 933 1240 (Cell)

New Indy - Catawba Wastewater Service Report

Tuesday, May 25, 2021

EBS ENVIRONMENTAL BUSINESS SPECIALISTS, LLC

Today's Visit

Tuesday, May 25, 2021

	Inlet	ASB Mid	ASB Effluent	Holding Pond Effluent
pH	10.19	7.05	7.28	7.79
Temp. (°C)	44.6	32.2	29.1	26.8
Dissolved Oxygen (mg/L)		0.21	0.42	0.46
ORP	-131.30	-29.10	-46.50	-124.50
Ammonia (as N, mg/L)	3.02	0.03	0.03	3.14
Soluble o-PO4 (as P, mg/L)	0.38	0.08	0.07	0.45
Sulfide (µg/L)				
DOUR (mg/L/h)		4.3	2.6	2.9
FED DOUR (mg/L/hr)		12.2		
TSS (mg/L)	793	271	134	45
VSS (mg/L)	720	204	115	35
%VSS	91%	75%	85%	77%
tCOD (mg/L)				
sCOD (mg/L)	1303	407	231	323
Sulfide (mg/L)	0.35	0.14	0.13	1.94
Bacteria Abundance (0 - 3)		2.5	2.0	
Flagellates		3	3	
Free Swimming Ciliates		0	2	
Stalked Ciliates		2	0	
Rotifers		0	0	
Total Indicators Observed		5	5	
Maturity Index		1.8	1.4	

Previous Visit

Tuesday, May 11, 2021

	Inlet	ASB Mid	ASB Effluent	Holding Pond Effluent
pH	9.51	8.11	7.66	8.01
Temp. (°C)	44.0	33.1	31.3	26.0
Dissolved Oxygen (mg/L)		0.64	0.59	0.27
ORP	-169.40	-23.60	-164.50	-241.80
Ammonia (as N, mg/L)	3.05	0.38	0.09	2.60
Soluble o-PO4 (as P, mg/L)	0.58	0.12	0.20	0.62
Sulfide (µg/L)				
DOUR (mg/L/h)		6.9	4.7	3.3
FED DOUR (mg/L)		10.5		
TSS (mg/L)	630	118	93	48
VSS (mg/L)				
%VSS				
tCOD (mg/L)	1468			806
sCOD (mg/L)	873	539	510	646
Sulfide (mg/L)				
Bacteria Abundance (0 - 3)		2.0	2.0	
Flagellates		0	13	
Free Swimming Ciliates		0	4	
Stalked Ciliates		0	0	
Rotifers		0	0	
Total Indicators Observed		0	17	
Maturity Index		#DIV/0!	1.2	

Summary:

- Sulfide concentrations were measured in the ASB and Holding Pond today. Concentrations were low in the influent and ASB samples, but increased to 1.94 mg/L in the Holding Pond Effluent sample. This increase can be attributed to sulfate reducing bacteria in the Holding Pond converting sulfate to hydrogen sulfide. Sulfate reducing bacteria will metabolize BOD and produce sulfides when oxygen or nitrate are not available.

- The soluble COD data indicated elevated organic loading into the ASB today. The significant 82% drop in soluble COD is indicative of a reduction in BOD across the ASB. The increase in oxygen uptake in the Spiked DOUR (added 30 mL of influent to the sample) at the ASB Midpoint indicates the biomass is uninhibited and will increase it's metabolic rate when presented with additional BOD.

- The TSS in the influent continues to be elevated, indicating poor primary clarification efficiency and high solids loading into the ASB.

- The micro exam showed higher life forms (protozoa) in both the ASB midpoint and ASB Effluent. Two stalked ciliates were observed at the ASB Midpoint: these are sensitive microorganisms that generally exist in non-toxic, aerobic environments. Two free swimming ciliates were observed at the ASB Outfall as well. The ASB midpoint sample showed a high abundance of grit and debris, as well as pin floc and a few small compact pieces of floc. There was no floc larger than pin floc observed at the ASB Outfall, and the abundance of grit/debris decreased in this sample. Dispersed bacteria abundance was high in the midpoint (2.5 out of 3), and moderate to high in the ASB Effluent (2 out of 3).

- While dissolved oxygen concentrations were low at the ASB Midpoint, ASB Effluent, and Holding Pond (less than 0.5 mg/L), the Oxidation Reduction Potential (ORP) of these samples were increased from the previous visit, indicating more aerobic conditions than previously observed. We commonly utilize ORP to determine how anaerobic/aerobic an environment is whenever D.O. concentrations are low, as a lower value is a more "electron rich", reduced environment and indicates anaerobic conditions. For example, a sample with a D.O. of 0.2 mg/L and an ORP of -50 mV is significantly more aerobic than a sample with a D.O. of 0.2 mg/L and an ORP of -350 mV.

- Ammonia and ortho-phosphate concentrations were below the target range of 0.1 mg/L in the ASB today. While oxygen deficiency is the most important limiting growth pressure at this time, we should also be addressing nutrient deficiency at this time. Adding additional bioavailable nitrogen and phosphorus (ammonium and phosphate) to the ASB will improve the rate of BOD conversion and make the biomass more resilient to loading swings.

Please let me know if you have any questions or additional input at this time.

Tripp McElwee
Regional Consultant
mcelwee@ebsbiowizard.com
(864) 933 1240 (Cell)

EBS ENVIRONMENTAL BUSINESS SPECIALISTS, LLC

New Indy - Catawba Wastewater Service Report

Wednesday, June 9, 2021

Today's Visit

Wednesday, June 9, 2021

	EQ	Clarifier Out	ASB Mid	ASB Effluent	Holding Pond Effluent
pH	9.59	9.24	8.62	8.17	8.20
Temp. (°C)	47.6	47.5	33.6	33.6	29.5
Dissolved Oxygen (mg/L)			0.90	0.13	0.30
ORP	-236.90	-189.80	-6.40	-173.90	-207.30
Ammonia (as N, mg/L)	3.02	0.18	0.04	0.08	2.20
Soluble o-PO4 (as P, mg/L)	0.50	0.50	0.13	0.15	0.34
DOUR (mg/L/h)			3.5	4.7	1.3
FED DOUR (mg/L/hr)			9.9		
TSS (mg/L)	1860	84	187	103	36
VSS (mg/L)	1380	72	133	88	32
%VSS	74%	86%	71%	85%	89%
tCOD (mg/L)					
sCOD (mg/L)	1168	1059	385	376	342
Sulfide (mg/L)	0.14	0.3	0.11	0.1	2.5
Bacteria Abundance (0 - 3)			2.5	2.0	
Flagellates			10	6	
Free Swimming Ciliates			2	1	
Stalked Ciliates			2	3	
Rotifers			0	0	
Total Indicators Observed			14	10	
Maturity Index			1.4	1.7	

Previous Visit

Tuesday, May 25, 2021

	EQ	Clarifier Out	ASB Mid	ASB Effluent	Holding Pond Effluent
pH		10.19	7.05	7.28	7.79
Temp. (°C)		44.6	32.2	29.1	26.8
Dissolved Oxygen (mg/L)			0.21	0.42	0.46
ORP		-131.30	-29.10	-46.50	-124.50
Ammonia (as N, mg/L)		3.02	0.03	0.03	3.14
Soluble o-PO4 (as P, mg/L)		0.38	0.08	0.07	0.45
DOUR (mg/L/h)			4.3	2.6	2.9
FED DOUR (mg/L)			12.2		
TSS (mg/L)		793	271	134	45
VSS (mg/L)		720	204	115	35
%VSS		91%	75%	85%	77%
tCOD (mg/L)					
sCOD (mg/L)		1303	407	231	323
Sulfide (mg/L)		0.35	0.14	0.13	1.94
Bacteria Abundance (0 - 3)			2.5	2.0	
Flagellates			3	3	
Free Swimming Ciliates			0	2	
Stalked Ciliates			2	0	
Rotifers			0	0	
Total Indicators Observed			5	5	
Maturity Index			1.8	1.4	

Summary:

The sulfide concentration at #1 Holding Pond was 2.5 mg/L today. Concentrations continue to be low in the influent and ASB samples, indicating H2S formation is occurring primarily in the Holding Pond.

The micro exam showed stalked ciliates and free swimming ciliates at the ASB Mid, and ASB Out sample points. Stalked ciliates are generally considered indicators of good biomass health, as they are sensitive microorganisms that don't survive in toxic or anaerobic conditions. There was abundant grit and debris observed in the ASB Mid sample, with the abundance decreasing in the ASB Out. This corresponds with the lower percent VSS observed in the ASB Mid sample, as there is a higher fraction of inorganic grit/debris in this part of the ASB.

Samples of the clarifier overflow and EQ basin effluent were sampled today. The EQ effluent TSS is elevated and is contributing to high solids loading into the ASB. The clarifier overflow TSS was low, and would normally indicate good primary clarification if the EQ solids weren't mixed in.

There was a 64% reduction in soluble COD from the clarifier overflow to the ASB Midpoint, and the drop is primarily due to soluble BOD treatment. The DOUR and sCOD data indicates the majority of BOD is treated by the ASB Mid sample. The holding pond DOUR is within a range that suggests low soluble BOD in the effluent.

The D.O. and ORP at the ASB Midpoint sample indicate more aerobic conditions than the previous service visits. Mark and I performed a D.O. and ORP profile of the ASB today, and several measurements showed D.O. concentrations above 1 mg/L, with a few being over 2 mg/L in the ASB, mostly in deeper areas closer to aerators.

Ammonia concentrations were under the recommended ASB range of 0.1 - 0.3 mg/L. Adequate concentrations of bioavailable nitrogen and phosphorus (ammonium and ortho-phosphate) will speed up the rate of BOD conversion in the ASB and make the biomass more resilient to loading swings.

On the next report I will create a compiled data tab so we can keep track of trended data.

Please let me know if you have any questions or additional input at this time.

Tripp McElwee
Regional Consultant
mcelwee@ebsbiowizard.com
(864) 933 1240 (Cell)

APPENDIX H – CHART OF SOLIDS REMOVED FROM THE ASB

Chart of solids removed from the ASB

	Material Removed from ASB		Material Removed from EQ Basin		
Month	**Hydraulic Dredging, dry tons**	**Excavation, wet cubic yards**	**Hydraulic Dredging, dry tons**	**Excavation, wet cubic yards**	**Month**
January – December 2015	The sludge dewatering contractor performed routine, maintenance hydraulic dredging from the ASB as part of a monthly contract for dewatering primary clarifier solids. The volume of material removed per month was not tracked.		The EQ basin received primary clarifier overflow during this period and therefore did not require routine solids removal. Clarifier underflow was being pumped to a mechanical dewatering system.		**January – December 2015**
January 2016	Routine maintenance dredging by sludge dewatering contractor, no data.	Periodic rim cutting (excavation from shore within reach of the long-reach excavators) performed by contractor.	The EQ basin received primary clarifier overflow during this period and therefore did not require routine solids removal. Clarifier underflow was being pumped to a mechanical dewatering system.		**January 2016**
February 2016					**February 2016**
March 2016					**March 2016**
April 2016					**April 2016**
May 2016	No dredging this period.		2,700	No routine excavation of solids performed during this time.	**May 2016**
June 2016			4,700		**June 2016**
July 2016			6,300		**July 2016**
August 2016			4,600		**August 2016**
September 2016			4,100		**September 2016**
October 2016			4,700		**October 2016**
November 2016			6,800		**November 2016**
December 2016			3,600		**December 2016**
January 2017	No records of dredging this period.	Periodic rim cutting performed by contractor.	3,700	Periodic excavation by long reach from shore and temporary dikes performed by contractor during this period.	**January 2017**
February 2017			3,500		**February 2017**
March 2017	8,000		1,200		**March 2017**
April 2017	1,400		No dredging this period or not tracked.		**April 2017**
May 2017	No records of dredging this period.		4,400		**May 2017**
June 2017			1,200		**June 2017**
July 2017	7,500		No records of dredging this period.		**July 2017**
August 2017	10,300				**August 2017**
September 2017	5,400				**September 2017**

	Material Removed from ASB		Material Removed from EQ Basin		
Month	**Hydraulic Dredging, dry tons**	**Excavation, wet cubic yards**	**Hydraulic Dredging, dry tons**	**Excavation, wet cubic yards**	**Month**
October 2017	3,500				**October 2017**
November 2017	1,700			30,000	**November 2017**
December 2017	260			30,100	**December 2017**
January 2018	4,400	Periodic rim cutting performed by contractor.	No records of dredging this period.	31,500	**January 2018**
February 2018	4,700			2,000	**February 2018**
March 2018	4,100			No records of excavation activities this period.	**March 2018**
April 2018	1,700				**April 2018**
May 2018	5,800				**May 2018**
June 2018	4,200				**June 2018**
July 2018	3,700				**July 2018**
August 2018	1,400				**August 2018**
September 2018	No records of dredging this period.				**September 2018**
October 2018					**October 2018**
November 2018					**November 2018**
December 2018	2,600				**December 2018**
January 2019	No records of dredging this period.	Periodic rim cutting performed by contractor.	No records of dredging this period.	No records of excavation activities this period.	**January 2019**
February 2019	1,600				**February 2019**
March 2019	6,400				**March 2019**
April 2019	3,000				**April 2019**
May 2019	5,400				**May 2019**
June 2019	2,200				**June 2019**
July 2019	2,800				**July 2019**
August 2019	3,100				**August 2019**
September 2019	2,500				**September 2019**
October 2019	3,000				**October 2019**
November 2019	973				**November 2019**
December 2019	No dredging this period or not tracked.				**December 2019**

<table>
<tr><th></th><th colspan="2">Material Removed from ASB</th><th colspan="2">Material Removed from EQ Basin</th><th></th></tr>
<tr><th>Month</th><th>Hydraulic Dredging, dry tons</th><th>Excavation, wet cubic yards</th><th>Hydraulic Dredging, dry tons</th><th>Excavation, wet cubic yards</th><th>Month</th></tr>
<tr><td>January 2020</td><td>No dredging this period or not tracked.</td><td rowspan="12">Periodic rim cutting performed by contractor.</td><td rowspan="12">No records of dredging this period.</td><td rowspan="4">No records of excavation activities this period.</td><td>January 2020</td></tr>
<tr><td>February 2020</td><td>No dredging this period or not tracked.</td><td>February 2020</td></tr>
<tr><td>March 2020</td><td>2,200</td><td>March 2020</td></tr>
<tr><td>April 2020</td><td>3,900</td><td>April 2020</td></tr>
<tr><td>May 2020</td><td>2,000</td><td>6,500</td><td>May 2020</td></tr>
<tr><td>June 2020</td><td>2,900</td><td>13,300</td><td>June 2020</td></tr>
<tr><td>July 2020</td><td>1,000</td><td>1,200</td><td>July 2020</td></tr>
<tr><td>August 2020</td><td>No dredging this period or not tracked.</td><td rowspan="5">No records of excavation activities this period.</td><td>August 2020</td></tr>
<tr><td>September 2020</td><td>1,100</td><td>September 2020</td></tr>
<tr><td>October 2020</td><td>2,800</td><td>October 2020</td></tr>
<tr><td>November 2020</td><td>No dredging this period or not tracked.</td><td>November 2020</td></tr>
<tr><td>December 2020</td><td>No dredging this period or not tracked.</td><td>December 2020</td></tr>
<tr><td>January 2021</td><td>No dredging this period or not tracked.</td><td rowspan="3">Periodic rim cutting performed by contractor.</td><td rowspan="6">No records of dredging this period.</td><td rowspan="3">No records of excavation activities this period.</td><td>January 2021</td></tr>
<tr><td>February 2021</td><td>No dredging this period or not tracked.</td><td>February 2021</td></tr>
<tr><td>March 2021</td><td>No dredging this period or not tracked.</td><td>March 2021</td></tr>
<tr><td>April 2021</td><td>1,500</td><td rowspan="3">Removal of floating fiber layer by barges and shored-based excavators to get to aerators and rim cutting.</td><td>Rim cutting performed by contractor.</td><td>April 2021</td></tr>
<tr><td>May 2021</td><td>3,000</td><td rowspan="2">Rim cutting and excavation from temporary finger dikes performed by contractor.</td><td>May 2021</td></tr>
<tr><td>June 2021 (as of 6/11/21)</td><td>2,200</td><td>June 2021 (as of 6/11/21)</td></tr>
</table>