Proposal to Assess the Viability and Functionality of Landfill Gas Wellfield Flow and Gas Composition Automated Remote Monitoring System

Chiquita Canyon Landfill
Castaic, California
SCAQMD Facility No. 119219

Waste Connections
29201 Henry Mayo Drive
Castaic, CA 91384

Submitted to:

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
909-396-2000

SCS ENGINEERS

01204123.21-13 | August 29, 2025
[Revised September 19, 2025]

15521 Midlothian Turnpike, Suite 305
Midlothian, VA 23113
804-378-7440

Table of Contents

INTRODUCTION

Chiquita Canyon, LLC (Chiquita) operates a municipal solid waste (MSW) landfill/solid waste disposal facility located in Castaic, California, under South Coast Air Quality Management District (South Coast AQMD) Facility No. 119219. The Reaction Committee prepared this Proposal to Assess the Viability and Functionality of Landfill Gas Wellfield Flow and Gas Composition Automated Remote Monitoring System in accordance with Condition No. 75(f) of the Modified Stipulated Order of Abatement (Modified SOFA) (Case No. 6177-4) pertaining to the Chiquita Canyon Landfill (CCL, Facility, or Landfill). This Proposal presents the proposed Test Protocol to conduct a feasibility assessment of the viability and functionality, as well as feasibility, of certain instrumentation, equipment, telemetry, and control components that may be suitable for a remote monitoring system (RMS) for the automated remote measurement of landfill gas (LFG) flowrate and composition (methane, carbon dioxide, and oxygen) within five select LFG extraction wells from among the subset of wells identified in Condition No. 75 (b) through (c). This Proposal has been modified to address comments from South Coast AQMD received on September 9, 2025.

Condition No. 75(f) of the Modified SOFA requires:

> *By August 29, 2025, the Reaction Committee shall submit a proposal to assess the viability and functionality of adding gas flow rate and composition as monitoring parameters to at least five (5) units on the wells listed in this condition. The Proposal shall be submitted to Baitong Chen [bchen@aqmd.gov]; Nathaniel Dickel [ndickel@aqmd.gov]; Christina Ojeda [cojeda@aqmd.gov]. Respondent shall conduct the feasibility assessment. The Reaction Committee shall submit a final report to the South Coast AQMD (to Baitong Chen [bchen@aqmd.gov]; Nathaniel Dickel [ndickel@aqmd.gov]; Christina Ojeda [cojeda@aqmd.gov]) detailing the results of the feasibility study, and recommendations on further deployment of the remote monitoring system not later than 210 days from submittal of the feasibility proposal with a minimum of 3 months of data collection.*

Previous documentation prepared in accordance with Condition No. 66 of the Modified SOFA that address automated RMS equipment for LFG wells and wellheads, and which serve as references to this Test Protocol and provide background information on the anticipated viability, functionality, and feasibility, of certain components, include the following:

- **LFG Wellfield Automated Remote Monitoring Plan, prepared by SCS Engineers, dated 4/19/24.** This Plan was prepared in accordance with a prior version of SOFA Condition 66 and identified the applicable operational parameters of LFG extraction wells and wellheads, outlined the purpose and objectives for the remote monitoring of these operational parameters, discussed specific monitoring instrumentation and equipment, and presented the Reaction Committee's recommendations for implementation of a remote monitoring system at the Landfill.

- **Response to South Coast Air Quality Management Stipulated Order for Abatement in Case No. 6177-4 Condition 66(a)(ii), prepared by SCS Engineers, dated 9/17/24.** This response outlined the anticipated issues and concerns associated with the design, specification, installation, and implementation of remote monitoring of the LFG wellfield and identified the six primary system components being considered. The response included evidence of communication with system, device, and component vendors/manufacturers and/or contractors, and also commented on supply chain and lead times.

- **Response to South Coast Air Quality Management Stipulated Order for Abatement in Case No. 6177-4 Condition 66(a)(iii), prepared by SCS Engineers, dated 10/11/24.** This response provided documentation of continued communications with vendors, manufacturers, and distributors of the RMS systems, devices, and components that had identified issues/concerns as described in the September 17, 2024 response discussed above.

- **Landfill Gas Well Selection for Installation of Remote Monitoring System Equipment, prepared by the Reaction Committee, dated 10/15/24.** This correspondence presented the Reaction Committee's determination on the locations for installation of the initial RMS equipment, which involved twenty (20) LFG wells to be equipped with temperature measurement instrumentation and associated telemetry equipment, in accordance with Condition 66(a)(v). This determination included a review of background information and a discussion of the criteria and field conditions that were considered by the Reaction Committee in selecting these locations.

- **Response to South Coast Air Quality Management Stipulated Order for Abatement in Case No. 6177-4 Condition 66(a)(iv), prepared by SCS Engineers, dated 10/30/24.** This correspondence noted no additional findings or solutions concerning the issues documented in the Condition 66(a)(ii) and (iii) submittals or prior submittals with respect to the original design of the remote monitoring system.

- **Proposal to Assess the Viability and Functionality of Landfill Gas Wellfield Flow and Gas Composition Automated Remote Monitoring System, prepared by the Reaction Committee, dated 1/31/25.** This Proposal presented the proposed Work Plan to conduct a field test, in accordance with Condition No. 66(vi), to assess the viability and functionality, as well as feasibility, of certain instrumentation, equipment, telemetry, and control components that may be suitable for an RMS for the automated remote measurement of temperature and pressure within LFG extraction wells with pumps located within the Reaction Area. The Proposal has not been approved by South Coast AQMD. Thus, the feasibility assessment outlined in that Proposal has not been conducted.

The primary wellhead RMS components to be installed in accordance with Condition No. 75(e), which have been specified and selected as described in the reference documentation noted above, include pressure transducers, temperature probes, and industrial cellular IIoT devices to gather data from the sensors. This Test Protocol presents the proposed activities, including field installation as well as data review and validation, planned to facilitate the assessment of the viability, functionality, and feasibility of the two additional RMS components (that are intended to be integrated with other ancillary instrumentation, equipment, and controls) to enable measurement of LFG flowrate and composition, which have not been previously specified and selected in the reference documentation noted above. This Test Protocol also presents a proposed schedule to accomplish the pilot feasibility study.

The objectives of this pilot feasibility study are noted below:

- Assess the technical feasibility of installation of RMS components that enable measurement of LFG flowrate and composition into wellheads;

- Evaluate the viability, functionality, performance, and reliability of RMS instrumentation and equipment affiliated with LFG flowrate and composition under varying operational conditions;

- Identify potential criteria for selection of future well locations to be equipped with RMS components, if applicable;

- Assess and validate measurements and monitoring data received from RMS instrumentation; and,

- Assess operational protocols for RMS components to be implemented beyond this pilot feasibility study.

INSTALLED REMOTE MONITORING SYSTEM EQUIPMENT

Chiquita and SCS Engineers (SCS) have previously installed the following RMS equipment to enable automated remote measurement of certain LFG system operational parameters, as well as in-situ subsurface waste temperatures within separate temperature monitoring probes at the Landfill:

- RMS equipment was installed and is in operation to measure temperature in twenty (20) wellheads operated in the Initial Reaction Area, in accordance with SOFA Condition No. 66(a)(v), consistent with the Reaction Committee's October 15, 2024 submittal. Stainless steel-encased temperature transmitters were installed at the twenty (20) LFG wellheads in December 2024 to measure and record the temperature of landfill gas flowing through these wellheads. A battery-powered cellular IIoT device is installed and in operation at each wellhead.

- Pressure transmitters were installed at five (5) locations within header pipes in October 2024 to measure vacuum within the LFG collection piping network. A cellular IIoT device and solar power system are installed and in operation at each sensor insertion point.

- High-temperature thermocouples equipped with magnesium oxide-filled stainless-steel tubing to house the signal wire are positioned at various depth intervals within thirty-two (32) temperature monitoring probes (TMPs) that were installed and commissioned between March 2024 and March 2025. Some of the TMPs are co-located within a common borehole with vertical LFG extraction well riser pipes. A cellular IIoT device, remote input card, and solar power system are installed and in operation at each probe.

- Submersible liquid level transmitters are affixed to the Lorentz electric submersible pumps installed in select LFG wells to enable measurement of liquid levels.

Furthermore, in accordance with Condition No. 75(a) through (e), prior to October 31, 2025, Chiquita and SCS will be installing additional RMS instrumentation and equipment to enable automated remote measurement of temperature and pressure at select LFG wells and specific LFG collection header pipe locations.

PROPOSED PILOT FEASIBILITY STUDY ASSESSING RMS FLOW AND GAS COMPOSITION INSTRUMENTATION, EQUIPMENT, AND CONTROLS

The Reaction Committee proposes to assess RMS flowrate and gas composition instrumentation through this pilot feasibility study, which involves procurement and installation of the referenced RMS instrumentation, equipment, and controls, and other components. The LFG flowrate and composition instrumentation will be procured and installed within at least five (5) of the wells identified in SOFA Condition No. 75(c). The data will be reviewed and analyzed as outlined in this Test Protocol and the viability, functionality, and performance of the components in use will be assessed. Future implementation of these components will be assessed and a report will be prepared and submitted to South Coast AQMD. The pilot feasibility study will assess the viability, functionality, and feasibility of the following LFG flowrate and composition components, which were not addressed in the reference documentation noted above. These components are summarized as:

- Component 1: delta-pressure or delta-temperature measurement device that yields a velocity value that is used, along with the cross-sectional area of the pipe, to calculate the flowrate. Examples of the delta-pressure devices include an orifice plate, a pitot tube, and a venturi pipe section. Examples of delta-temperature devices include a thermal anemometer. A thermal mass flowmeter that utilizes heat transfer to directly measure gas mass flowrate is excluded from consideration as a wellhead flowmeter because the high relative humidity of the gas and the presence of free-flowing condensate in the smaller-diameter wellhead piping will likely impede accurate measurements of heat transfer quantities.

  The identified and procured Component 1 instrumentation is a delta-pressure based unit since it is anticipated that the pressures experienced within the wellhead will be more uniform than the temperatures, which have demonstrated significant variability over short durations and could potentially contribute to substantial fluctuations in the measured flow rate that do not reflect actual conditions. Delta-pressure based flow measurement is the most utilized technique for wellhead flow measurement across the landfill industry. Delta-temperature based flow measurement is also highly affected by the presence of moisture and liquids within the gas stream. This Test Protocol introduces the possibility of delta-temperature based units as a potential scenario to be implemented only if the differential pressure transmitters fail to perform.

- Component 2: gas composition measurement devices comprised of either a tunable diode laser (TDL) or nondispersive infrared (NDIR) (for methane and carbon dioxide), and either a TDL or electrochemical sensor (for oxygen).

  The identified and procured Component 2 instrumentation is a TDL for methane and carbon dioxide and a separate TDL for oxygen, since these are anticipated to better withstand the elevated temperatures and corrosive constituents experienced. This Test Protocol introduces the possibility of NDIR units to be implemented only if the TDL analyzers fail to perform. Note that the NDIR sensors may require using a sampling train extending from the wellhead, which would be susceptible to fouling. Based on SCS's experience, the TDL sensors are serviceable whereas the electrochemical and NDIR sensors may require more frequent replacement and maintenance.

- Component 3: one (1) industrial cellular IIoT device to gather data from the sensors and transmit it to SCS' cloud-based Supervisory Control and Data Acquisition system for remote monitoring, alarming, and reporting.

- Component 4: remote input cards to gather data from the sensors and transmit it to the IIoT device.

- Component 5: one (1) solar power system to source DC power for the sensors and IIoT device.

The expected advantages/disadvantages and anticipated limitations of Component 1 and Component 2 are discussed in the "LFG Wellfield Automated Remote Monitoring Plan", which was submitted to the South Coast AQMD on April 19, 2024. The primary potential disadvantages and limitations for Component 1 are excessive heat, fouling and debris build-up, and corrosion that may affect the mechanical flowrate measurement device. These same conditions could potentially affect the delta-pressure and/or delta-temperature instrumentation in a manner that impacts the accuracy of the measurements. These same conditions could also potentially cause deterioration or malfunction of the Component 2 gas composition analyzer/sensor(s). The manufacturers were selected based on SCS' experience and inquiries with vendors with relevant background regarding performance in high heat, saturated gas, and corrosive applications. The selection of Component 2 gas analyzers are rated C1D1, Group D for the hazardous environment. The manufacturers and general specifications are noted below:

- Multi-gas analyzers - Vaisala
  - CH_4: 0-100% by volume
  - CO_2: 0-100% by volume
  - Moisture: 1-100% RH
  - In-situ measurement
  - 4-20 mA and Modbus RTU output
  - External pressure transmitter input
  - Rated C1D1, Group D for hazardous environment
  - Process temperature rating = -40 to 140 degrees Fahrenheit

- Differential pressure flow measurements - Dwyer
  - Differential pressure transmitter
  - Block and bleed transmitter manifold
  - Differential pressure flow element
  - Process temperature rating = -40 to 257 degrees Fahrenheit

- Oxygen sensors – Endress + Hauser
  - O_2: 0-25% by volume
  - In-situ measurement
  - 4-20 mA and Modbus RTU output
  - Rated C1D1, Group D for hazardous environment
  - Process temperature rating = -4 to 176 degrees Fahrenheit

ASSESS TECHNICAL FEASIBILITY OF INSTALLATION AND FUNCTIONALITY OF RMS FLOW AND GAS COMPOSITION INSTRUMENTS AND EQUIPMENT

Flowrate Measurement

The Component 1 devices may be orifice plates or pitot tubes or venturi pipe sections and will be equipped with a pressure transmitter to measure the pressure difference (or "delta) across the device. Alternatively, the devices may be thermal anemometer equipped with a temperature probe to measure the temperature difference (or "delta") across an electrically heated sensor (such as a hot wire). One delta-pressure or delta-temperature transmitter will be installed at each selected wellhead along with the flow measurement device (orifice plate, pitot tube, venturi pipe section, or anemometer tip). The transmitter will be threaded into the wellhead and the cable from it will connect into the RMS panel. Recognizing the selected wellheads are constructed of steel piping, a new well cap may be considered to be equipped with the necessary fittings, or this may necessitate drilling, tapping, and threading into steel pipe, which will adhere to industry-standard safety procedures for this activity. Such procedures may involve, but are not necessarily limited to, installing a temporary pipe plug, and/or providing forced ventilation to disperse potentially explosive gases. The wellhead valve will be closed when sensors and equipment are installed between the wellhead valve and the gas collection and control system (GCCS) lateral, and the lateral will be temporarily isolated until the completion of this work, thus minimizing fugitive gas emissions.

Gas Composition Measurement

The Component 2 devices may be TDL, NDIR, or electrochemical sensors. There will be one sensor to measure methane and carbon dioxide concentrations and a separate one for oxygen content. The gas will be conveyed to the sensor and the cable from the sensor will connect into the RMS panel. Recognizing the selected wellheads are constructed of steel piping, the mounting of these devices may necessitate drilling, tapping, and threading into steel pipe.

Industrial IIoT Device and Remote Input Cards

Remote input cards will be utilized to collect the data from the transmitters and send it to the cellular IIoT device. The cellular IIoT device will transmit data back to SCS' SCSRMC.com cloud-based Supervisory Control and Data Acquisition platform. The data will be stored and uploaded once every hour. If the data cannot be transferred at that time, it will be stored locally on the cellular IIoT device. Once the connection between the IIoT device and the server is restored, the stored data will be automatically uploaded. SCS is already utilizing these devices at CCL and multiple other landfill sites.

Solar Power System

SCS has designed the solar power systems for this project to provide power to the sensors and the cellular IIoT devices at each location. The system is designed to operate for approximately seven days without solar energy. Each system contains a 100 Ah field-replaceable battery. The solar power systems for this project to provide power to the sensors and the cellular IIoT devices at the five well locations have demonstrated the capability to offer reliable and consistent electrical power at CCL (and other landfills). It is not anticipated that issues will occur that impact the performance of the solar power generation and delivery system (PV cells). These systems will be monitored and will automatically notify CCL if there are issues with the power. Solar-powered systems designed by SCS are also already being utilized at CCL and multiple other landfill sites. These solar power systems will be maintained as the solar power systems at the Landfill are maintained.

ASSESS PERFORMANCE, VIABILITY, AND RELIABILITY OF INSTRUMENTS UNDER VARYING REACTION AREA CONDITIONS

The above-described reference documents raise issues and concerns associated with the viability, functionality, and feasibility of installation and operation of the RMS instrumentation, equipment, and controls at the Landfill. The insertion of the Component 1 flowrate devices into the wellheads, as well as the conveyance of gas stream by the Component 2 gas composition sensors, present short- and long-term risks, including but not limited to potential malfunctioning and/or failure attributable to the various conditions within the wells and wellheads and disturbances associated with well maintenance.

The potential Reaction Area conditions to be observed and assessed include, but are not limited to:

- Elevated Temperatures: Component 1 and 2 devices will potentially be exposed to gaseous-phase and liquid-phase fluids with higher temperatures than typical landfills. This pilot feasibility study will observe and assess the performance, reliability, viability, longevity, and resilience of these sensors and the associated signal wires to withstand the atypical heat that is present within and around wells located adjacent to the Reaction Area.

  Note that the CH4/CO2 and O2 sensors will be located in a parallel sample train to minimize the impact of liquids and higher temperatures on these sensors. Gas temperatures in this parallel sample train are expected to be lower than the maximum equipment process ratings.

- Fouling and Debris Build-Up: Component 1 and 2 devices will be exposed to liquids and/or foam with excessive solids (suspended and dissolved) content. These sensors are likely to experience formation and accumulation of precipitate, calcification, sludge, gelatinous “goo”, grit, grime, and/or aggregation of other solid material that may impede accurate measurement of LFG flowrate and composition. This pilot feasibility study will observe and assess the performance, reliability, viability, longevity, and resilience of these sensors and the associated signal wires to withstand the potential fouling and build-up of solids that are present within wells located adjacent to the Reaction Area.

  One measure that is being employed to mitigate the potential for fouling and debris build-up is to install the gas composition analyzers and sensors in a parallel sampling train to avoid direct insertion into the actual wellhead piping, which may or may not prove beneficial from an exposure standpoint.

- Chemical Compatibility: Component 1 and 2 devices will be exposed to liquids, gases, and/or foam that have been known to cause premature failure of equipment and sensors due to chemical compatibility issues and may therefore be incompatible with these RMS component devices. The sensors may corrode, deteriorate, or otherwise be rendered non-functional due to the chemicals present in the liquids and/or foam. Even commonly used and trusted corrosion-resistant materials used for electronic instrumentation such as Type 316 stainless steel have been known to dissolve or experience pitting in similar elevated temperature landfill situations. This pilot feasibility study will observe and assess the performance, reliability, viability, longevity, and resilience of these sensors and the associated signal wires to withstand the potential chemical compatibility issues that are present within wells located within and adjacent to the Reaction Area.

Alarms will be configured to alert CCL personnel when a sensor appears to be malfunctioning. Manual measurements will also be taken periodically and compared to the automatic measurements, which will further alert CCL personnel to potential issues. If the analyzers, transmitters, and sensors fail or malfunction, then the devices will be removed and observed to identify causation. The instrumentation will be replaced if the cause can be addressed to improve performance. The selected equipment can be isolated from the process, disconnected, removed, and serviced. The components that are inserted into the gas stream, specifically the TDL analyzers/sensors for gas composition and the differential pressure flow element, will be inspected and cleaned (as needed) at the mid-point of the 16-week Assessment Period to mitigate the potential impacts of debris build-up. The results of the inspection and cleaning will be included in the evaluation.

LOCATION AND CRITERIA FOR SELECTION OF WELLS

The Committee will evaluate the nineteen (19) LFG wells at the Landfill that are designated in Condition No. 75(c) to receive the RMS equipment upon the time of the installation. The South Coast AQMD has been notified that Well CV-1906 has been abandoned and is no longer capable of being equipped with RMS instrumentation. Criteria to select wells for RMS flow and gas composition pilot feasibility study implementation will include spatial variability, presence of a pump, range of temperature, pressurized leachate release, and well piping material. Based on these criteria, the pilot feasibility study will install and operate the LFG flowrate and composition devices in at least five (5) of the eighteen (18) remaining candidate wells in Condition No. 75(c). A matrix is included as Appendix A that inventories the physical conditions of the eighteen (18) candidate wells, and presents the categorization of these wells into five (5) groups that considers spatial variability, and also identifies the presence/absence of a pump, range of expected temperature, potential of pressurized leachate release based on historical evidence, and well piping material. The criteria to be employed in the selection of at least one well from each group are as follows:

- Avoid wells known to exhibit pressurized leachate releases;
- Avoid steel wellheads, where possible;
- Include at least two wells equipped with operational pumps; and,
- Include at least two wells with elevated temperatures.

The final selection of a particular well within each group will be based on the field conditions prior to equipment installation.

VALIDATION OF DATA RECEIVED FROM RMS

Data integrity checks will be performed at each of the wells equipped with instrumentation capable of remote measurement of LFG flowrate and gas composition on a weekly basis during the feasibility assessment period, which will be after installation and commissioning of the RMS and during the duration of this pilot feasibility study. The data integrity check for gas composition will consist of using a handheld gas analyzer, such as an Elkins Envision meter or a GEM-5000, to record the concentrations of methane, carbon dioxide, and oxygen at the wellhead monitoring ports. These values will be compared to the concentrations recorded by the TDL sensors. The data integrity check for flowrate will use the same field instrument, or a manometer or magnehelic gauge, to measure the differential pressure between ports positioned upstream and downstream of the flow measurement device. These values will be compared to the pressures recorded by the differential pressure transmitter that is used for calculating velocity and, ultimately, flowrate. These manual measurement results will be compared to the data reported by the RMS directly preceding the manual measurements. These data integrity checks are distinctly different than the data review and validation and report phase performed after the conclusion of the assessment period. It is important for the feasibility study to identify how much a particular sensor changes over the length of the study; thus, we plan on not recalibrating the sensors during the feasibility study.

The real time data from transmitters and sensors will be monitored for stability and repeatability, and any outliers or inconsistencies will be used to improve the system.

Sensors will be factory-calibrated as appropriate before installation.

ASSESS FUTURE RMS IMPLEMENTATION

The Reaction Committee will review the results of the pilot feasibility study, prepare a report detailing the results of the study, and make recommendations regarding further use of the RMS at CCL. This report with recommendations will be submitted not later than 210 days from the submittal of this feasibility proposal.

PILOT FEASIBILITY STUDY SCHEDULE

The estimated timeframes associated with each task presented below are referenced from the date of submittal of this Test Protocol, and assume the quantity for deployment of RMS components under this pilot feasibility study will be approximately five (5) wells:

- 7 weeks – Procurement of RMS instrumentation, equipment, and controls
- 2 weeks – Field Installation
- 16 weeks – Assessment Period
- 5 weeks – Data Review and Validation and Report

Please contact either of the undersigned if you have questions or require additional information.

Sincerely,

Robert E. Dick, PE, BCEE
Senior Vice President
SCS Engineers

Patrick S. Sullivan, BCES, CCP
Senior Vice President
SCS Engineers

cc: Baitong Chen, South Coast AQMD
Christina Ojeda, South Coast AQMD
Pablo Sanchez Soria, PhD, CIH, CTEH
Neal Bolton, PE, Blue Ridge Services, Inc.
Richard Pleus, PhD, Intertox
Srividhya Viswanathan, PE, SCS Engineers
Steve Cassulo, Chiquita Canyon, LLC

Dylan Smith, Chiquita Canyon, LLC
Nicole Ward, Chiquita Canyon, LLC
Kate Logan, Chiquita Canyon, LLC
Amanda Froman, Chiquita Canyon, LLC

APPENDIX A – Candidate Well Inventory & Grouping

Appendix A. Candidate Well Inventory & Grouping

Well Group	Well ID	As-Built Casing Size & Material Type	Pump	Status	Lorentz Temp (^oF)	Temp (^oF) (last 45 days)	
						Max	Avg
A	CV-24120	8" CARBON STEEL	Lorentz	Running	150	130	100
	CV-24126	8" CARBON STEEL	No Pump	NA		174	150
	CV-2455	8" CARBON STEEL	Lorentz	Running	157	127	126
B	CV-2454	8" CARBON STEEL	No Pump	NA		179	169
	CV-2305	8" CPVC	Lorentz	Running		138	134
	CV-2476	8" CARBON STEEL	No Pump	NA		135	131
	CV-24148	8" CARBON STEEL	Lorentz	Running	159	162	136
C	CV-24149	8" CPVC	No Pump	NA		162	118
	CV-2314	8" CPVC	Pneumatic	Running		145	144
	CV-2474	8" CARBON STEEL	Pneumatic	Installed-Not Running		117	108
	CV-24151	8" CARBON STEEL	No Pump	NA		120	110
	CV-2472	8" CARBON STEEL	Lorentz	Installed-Not Running	135	120	110
D	CV-2488	8" CARBON STEEL	Pneumatic	Running		128	115
	CV-2482	8" CARBON STEEL	Pneumatic	Running		126	122
	CV-2480	8" CPVC	No Pump	NA		127	122
E	CV-2466	8" CARBON STEEL	Pneumatic	Installed-Not Running		119	115
	CV-2344	8" STAINLESS STEEL	Lorentz	Installed-Not Running		161	152
	CV-2350	8" STAINLESS STEEL	Lorentz	Installed-Not Running		127	125