Phase II Environmental Site Assessment (ESA)

Former Republic Mill #1 – Great Falls, South Carolina

December 5, 2019

Cardno®

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Commonly Used Acronyms

ABCA Analysis of Brownfields Cleanup Alternatives
AST Aboveground Storage Tank

ASTM	American Society for Testing and Materials
BS	Blank Spike
BSA	Brownfields Site Assessment
BSD	Blank Spike Duplicate
CD	Compact Disc
COC	Contaminants of Concern
DAO	(EPA) Designated Approving Officer
DQO	Data Quality Objective
e.g.	exempli gratia - for example
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
G	gram
GIS	Geographic Information Systems
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
ID	Identification
IDW	Investigation Derived Waste
i.e.	id est - that is
kg	kilogram
L	Liter
LCS	Laboratory Control Sample
MCL	Maximum Contaminant Level
MDLs	Method Detection Limits
mL	Milliliter
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
NELAC	National Environmental Laboratory Accreditation Conference
OSHA	Occupational Safety and Health Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
P.E.	Professional Engineer
P.G.	Professional Geologist
QA	Quality Assurance
QAM	Quality Assurance Manual
QAPP	Quality Assurance Project Plan
QC/QA	Quality Control/Quality Assurance
%R	Percent Recovery
RCRA	Resource and Conservation Recovery Act
RL	Report Limit

RPD	Relative Percent Difference
RSL	Regional Screening Levels
SESD	Science and Ecosystem Support System
SCDHEC	South Carolina Department of Health and Environmental Control
SS	Surface Soil Sample
SB	Subsurface Soil Sample
SSL	Soil Screening Levels
SOP	Standard Operating Procedure
SOW	Scope of Work
TMS	Tax Map Survey Number
USC	Unified Soil Classification
µg	Microgram
ug	microgram

Distribution List

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Report Limitations

All work performed by Cardno was completed in accordance with the approved Site-specific Quality Assurance Project Plan (SSQAPP) and generally accepted professional practices related to the nature of the work accomplished, in the same or similar localities, and at the time the services were performed. This report is for the specific application to the referenced project and for the exclusive use of the Catawba Regional Council of Governments. Cardno accepts no liability related to site environmental impact, regardless of the date of impact findings or occurrence.

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1 Introduction

This Phase II Environmental Site Assessment (ESA) report details the assessment activities conducted in accordance with the Generic Quality Assurance Project Plan (QAPP) – Revision 1, approved March 5, 2019, and the Site-Specific QAPP Addendum 1A (Addendum), approved June 28, 2019, prepared for the former Republic Mill #1 site located on South Dearborn Street in Great Falls, South Carolina (hereinafter referred to as the Site or Subject Property). The assessment presented herein was conducted under a Brownfields Assessment Grant between the U.S. Environmental Protection Agency (EPA) and the Catawba Regional Council of Governments (CRCOG/Grantee), EPA Cooperative Agreement No. BF-00D73118-0. The CRCOG anticipates that the Town of Great Falls may acquire the property under the oversight of the SCDHEC Voluntary Cleanup Program (VCP); therefore, this ESA is designed to meet the initial assessment requirements of a Voluntary Cleanup Contract (VCC).

1.1 Purpose

The Grantee will use the information gathered from this assessment to better understand the site conditions as it moves toward redevelopment. The purpose of this assessment is to determine whether the Site has been impacted by the Recognized Environmental Conditions (RECs) identified in a Phase I ESA conducted by CTC Public Benefit Corporation in October 2011 and, if so, to what extent, and to investigate potential landfilling that may have occurred on-site as indicated in a 2007 Phase I ESA of the Subject Property conducted by URS Corporation (URS). Additionally, this Phase II ESA was conducted in a manner to meet the general requirements of the VCP.

1.2 Site Location and Description

The Subject Property was the site of the former Republic Mill #1 facility located at the intersection of South Dearborn Street and Republic Street in the Town of Great Falls, SC. A Site Location Map, consisting of the relevant portion of the United States Geological Survey (USGS) topographic map, Great Falls, SC Quadrangle, is included as **Figure 1**. A plan view of the Subject Property is portrayed on **Figure 2**, which includes the approximate Subject Property boundaries, as provided by the Chester County Geographic Information System (GIS) Department, and an aerial photograph depicting the Site as it appeared on March 23, 2019.

The former Republic Mill #1 property is currently divided into three parcels. Two are contiguous, located on the east side of Dearborn Street, and are the subject of this Phase II ESA. The contiguous parcels are identified by Tax Map System Numbers 202-13-02-003-000 and 202-13-02-020-000.

The largest parcel, TMS# 202-13-02-003-000, is currently owned by the Chester County Forfeited Land Commission. The parcel encompasses approximately 11 acres and contains all of the former Republic Mill #1's manufacturing and auxiliary operations. The western half of the parcel is generally level and is slightly elevated above South Dearborn Street, which is adjacent to the parcel to the west. This half of the parcel is almost completely covered with building foundations, wall remnants, asphalt paving, and large

piles of building debris. With the exception of a two-story freight elevator shaft and a former water filtration unit, the portions of buildings that remain are demolished/degraded and overgrown to the extent that their former uses cannot be distinguished.

The eastern half of parcel #202-13-02-003-000 is densely overgrown and is largely impassible. The eastern portion slopes to the east toward the Seaboard Coastline Railroad property that was formerly occupied by a rail spur. The rail spur paralleled the Great Falls Reservoir/Catawba River located to the east of the Site. Parts of the slope are moderate and could be traversable by foot if the vegetation were cleared; however, there is a deep, overgrown depression with steep sides located near the southeastern corner of the parcel. The depression covers less than an acre and has the appearance of a borrow pit possibly dating from the construction of the mill or rail spur.

The other contiguous parcel on the eastern side of Dearborn Street, TMS# 202-13-02-020-000, is owned by the Town of Great Falls. The parcel encompasses approximately 1.7 acres. Available historical information suggests that the parcel was used as a driveway, employee parking area, and jail for the mill. The parcel is currently vacant except for the approximately 360 square foot, two-cell, jail building. The rear of the jail (east side) borders on another overgrown, steep-sided depression known locally as the "Green Hole". The area beyond the Green Hole slopes moderately down to the former rail spur property but is thickly overgrown and largely impassible.

The third parcel is located on the west side of Dearborn Street; however, it is not included in this Phase II ESA because it is currently privately owned and not subject to Great Falls' redevelopment plans. Available historical information suggests that the third parcel, TMS# 202-13-01-001-000, was used as a paved employee parking area and is unlikely to have any impact on the parcels of concern to this Phase II ESA.

1.3 Physical Setting

1.3.1 Regional Geology

The Town of Great Falls occupies the crest of a generally northeast-southwest trending ridgeline parallel to the Catawba River. According to the USGS and the South Carolina Geologic Survey (SCGS), the area is located in the Piedmont Physiographic Province of South Carolina and within the Charlotte Belt geologic terrane, in close proximity to the Carolina terrane (slate belt). The Charlotte Belt is a northeast trending belt of medium- to high-rank metamorphic rocks along with a complicated sequence of igneous rock intrusions.

The shallow subsurface in most areas of the Piedmont contains residual soil overburden, including structure-free residuum, saprolite, and partially weathered rock (PWR) that derive from in-place weathering of the crystalline bedrock. Occasional areas containing recent deposits of alluvium in the uppermost subsurface are found near streams and rivers. Saprolite and PWR typically contain some relict structures from the original rock material. Depth to rock ranges from ground surface at occasional outcrops to depths of greater than 100 feet in areas of easily weathered rock.

1.3.2 Hydrogeology

The shallow aquifer occurrence varies in depth from ground surface at springs, creeks, and rivers to as deep as 50 feet or more beneath upland surfaces in some parts of the Piedmont. Water in the alluvium or unconsolidated residual material, including saprolite and PWR, usually behaves as an unconfined, or water table, aquifer and will yield water with head elevation equivalent to the first elevation where water is encountered. Permeability varies with lithology and is typically relatively low in residual soils, with higher permeability in saprolite or PWR due to relict rock texture and the variable susceptibility to weathering exhibited by different minerals in the rock. Groundwater flow in residual soils or alluvium is usually in rough concurrence with local topographic conditions and is toward local drainage features.

The bedrock fractures or other planar features generally constitute the bedrock aquifer, with the surrounding rock material being effectively impermeable. Along with fractures, contacts between rock bodies probably constitute zones of significant groundwater occurrence in the bedrock. The surrounding material and overlying residuum tend to make the bedrock aquifer a semi-confined aquifer. That is, the overlying water and soil weight normally results in pressure that causes water in a borehole which intersects a fracture or other feature to rise above the elevation of the fracture or feature. Such features may not occur on predictable trends, at the same elevations, or even be present or directly connected in separate boreholes. In areas adjacent to creeks the bedrock groundwater generally discharges to the residuum or alluvium and then into the surface water. In upland areas away from surface water drainages, the bedrock aquifer is generally recharged by downward infiltration of residuum or alluvial aquifer water at locations where fractures intersect the bedrock surface.

Groundwater in the Piedmont Physiographic Province is typically found in unconfined or semi-confined conditions with a flow that generally mimics the surface topography. The USGS Topographic Map, Great Falls, SC Quadrangle (**Figure 1**), indicates that groundwater is expected to follow the Site topography by flowing east southeast towards the Catawba River/Great Falls Reservoir located approximately 100 feet to the east of the Subject Property parcels.

1.4 Background

Historical information pertaining to the Subject Property indicates that the Site was developed as a cotton textile mill in 1909 by the Republic Textile Mill Company. The Subject Property was purchased by the J.P. Stevens Company in 1946 and continued to operate as a textile mill until 1979. C&S Demolition, LLC (C&S) purchased the Site in 2005 with the intent of demolishing the mill structures and reclaiming salvageable materials. The majority of the structures on the Subject Property were demolished between 2005 and 2006; however, extensive piles of debris were left strewn across the western half of the Site in and around the footprints of the former mill buildings. The Subject Property was then abandoned and is now owned by the Chester County Forfeited Land Commission and the Town of Great Falls.

Review of Sanborn Insurance Company maps for the Town of Great Falls, dated 1926 and 1938, show that the Republic Mill #1 site (i.e. the Subject Property) was the first of

three company mills built in the Town before 1923. The maps also show a coal trestle, coal-fired boilers, a smokestack, and a transformer house at the rear (east) of the mill building.

The map information indicates that the Republic Mill #1 facility (Mill #1) and the Republic Mill #2 facility (Mill #2), which is located approximately 0.25 miles to the north of the Subject Property, were constructed within a few years of each other and were most likely interdependent operations. The map information suggests that Mill #1 was primarily involved in the initial phases of cotton textile production. Mill #1 included cotton warehouses, opening rooms, lint and waste houses, and a “picker” room, but no finished cloth warehouses. However, Mill #2 had finished cloth warehouses, which suggests that weaving operations occurred at Mill #2 and that Mill #1 may have only spun thread for use at Mill #2. As further indication that the two mills were built to be dependent on each other, the machine shops and the vehicle repair facilities for the mill operations were located at Mill #2. Other operations common with large mill operations during this time period, such as an ice plant, gasoline storage tanks, an oil house, and bulk cotton warehouses, were located along Dearborn Street between the two mills.

In addition to operating the textile mills, the Republic Textile Mills Company performed most of the municipal functions in the town, including supplying water to the other mills and the Town from a water filtration plant located on the Subject Property. The water plant drew water from the Great Falls Reservoir via an intake pipe located at the Subject Property’s southeast corner. The water was pumped thru a large sand filter and treatment plant on the back (east side) of the Republic Mill #1 building. The treated water was stored in an approximate 500,000-gallon open reservoir on the back of the building and distributed to similar reservoirs at the other two mills and to various water towers located around the Town.

Recent aerial photographs show the sand filter unit, water plant building, and the open reservoir are largely intact; however, the surrounding debris and extensive overgrowth greatly inhibit access to the structures. The coal trestle, smokestack, boiler house, and transformer house were demolished and no identifiable landmarks currently remain.

In addition to the potential areas of concern identified from the historic maps, a Phase I ESA completed in 2007 reported secondhand verbal reports that a landfill was possibly located in the overgrown southeast quadrant of the Subject Property. The verbal information suggested that the landfill was used for waste from Mill #1 and the other two Republic Textile Mills. Since the Republic Textile Mills Company performed other municipal functions in the Town, it is possible that domestic garbage and other municipal waste was disposed of at the location. The area is heavily overgrown severely limiting access and visual observations.

Figure 2 shows the approximate locations of the existing landmarks on the Subject Property and the areas of concern identified from historical sources.

1.5 Previous Investigations

A Phase I ESA of the Subject Property was completed by CTC Public Benefit Corporation in October 2011. The ESA was conducted on the 11-acre parcel, TMS # 202-13-02-003-000, and the parcel on the opposite side of Dearborn Street (TMS # 202-13-01-001-000),

which were both owned by C&S at the time. The contiguous parcel, TMS # 202-13-02-020-000, was not included in the ESA since ownership had already transferred from C&S to the Town of Great Falls. The 2011 ESA referenced a previous ESA conducted by URS in April 2007. The 2011 ESA identified the following as RECs on the Site:

- Based on the historical utilization of the Subject Property as a textile facility from approximately 1910 until 1979, there is a potential for environmental impacts to have occurred due to the use of unknown raw materials, the use of hazardous chemicals or petroleum products during the day-to-day operations at the site, and/or the presence or generation of hazardous wastes at the facility.
- The Subject Property is included in the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) database due to the observation of semi-volatile organic compounds (SVOCs) in sediment samples obtained from a reservoir in close proximity to the Subject Property.
- The Subject Property is included in the Resource Conservation and Recovery Act - No Longer Regulated (RCRA NLR) database because the Site was formerly occupied by a waste generator. As a result, there is a potential for wastes once generated on the Subject Property to have impacted site groundwater or soils.
- The Subject Property is included in the Federal Brownfields database. The information contained within the database report indicates that Brownfield funding was utilized to conduct a Phase I ESA of the Subject Property on April 27, 2007 at the direction of the SCDHEC. The investigation revealed the presence of contamination at the Site; however, the type of contamination found was reported as “unknown” in the database.
- According to Sanborn Fire Insurance Maps dated 1926 and 1938, a Transformer House was formerly located on the Subject Property. This structure was razed during demolition/salvage operations conducted on-site; therefore, no evidence of the condition, number, or type of transformers that may have been present in the Transformer House could be observed during the site reconnaissance. Given the time period that the transformer house was in existence (at least 1926 through 1938), it is possible that the transformers utilized polychlorinated biphenyls (PCBs).
- According to Sanborn Fire Insurance Maps dated 1926 and 1938, the mill facility utilized coal as a fuel source and a coal trestle was present on-site. Mill facilities that utilized coal typically stored coal on-site and often disposed of waste products on-site. Therefore, the potential for contamination associated with coal and coal waste products to impact soils and groundwater on the Subject Property exists.
- During the site reconnaissance, several 55-gallon drums of unknown origin and content were observed on the northeastern portion of the Subject Property. The drums were unmarked or illegible and in poor condition. The drums could have contained raw materials and/or hazardous substances that had been used, stored, and/or generated on-site, or may have been illegally disposed of on the Subject Property.

- A review of the previous Phase I ESA conducted by URS in April 2007 revealed that former mill employees had indicated to URS that the southeast portion of the Subject Property had historically been utilized for the dumping of mill generated waste and that the other former Republic Mills in the area (Mills #2 and #3) may have also dumped waste material on this portion of the Subject Property. Although debris was observed on the southeastern portion of the Subject Property during the site reconnaissance, the area was heavily overgrown, severely limiting access and inhibiting visual observations. The potential for the southeast portion of the Site to have been utilized for the dumping of mill generated wastes is considered a REC.

On February 28, 2019, Mr. Craig Dukes, Cardno Senior Scientist, and Mr. Peter Whitehouse, Cardno Geologist, visited the Subject Property to determine the change in conditions since the 2011 ESA. Most of the Site was found overtaken by thick vegetation. Structures visible in the 2011 ESA photographs were largely inaccessible and unrecognizable. Extensive debris piles remain on the western half of the Subject Property.

2 Sampling Methodology and Results

The basis for the Phase II ESA work scope was defined in the Addendum. Any deviations from the work scope are detailed for each source area/media in bold, italic typeface in the appropriate sections of the report. The work was performed to evaluate potential impacts to the Subject Property resulting from historical practices/operations. All soil boring advancement, well installation, and sample collection activities were conducted using best practices and the professional judgment of Cardno personnel. Any field variances, including appropriate response actions, are noted in each subsequent section as appropriate.

Assessment activities at the Subject Property included the collection of soil and groundwater samples for laboratory analysis to identify potential target analyte list (TAL) metals, cyanide, target compound list (TCL) PCBs, TCL pesticides, TCL SVOCs, and TCL VOCs in these media at select locations across the Site.

The following sections outline the methodology used for collecting the environmental samples and the results of the investigation at the Site. A Sample Location Map, depicting the locations of the soil borings, test borings, and groundwater monitoring wells is included as **Figure 3**.

2.1 Soil Samples

Cardno personnel collected continuous soil cores from 17 soil borings advanced on the Subject Property at the locations depicted on **Figure 3**. The continuous soil cores were collected at each location via a direct-push technology (DPT) rig advancing a core barrel fitted with a disposable cellulose acetate butyrate (CAB) liner. Soil boring logs documenting the subsurface lithology encountered during borehole advancement were generated in the field and are included in **Appendix A**.

Both surface soil and subsurface soil samples were collected from each of the soil borings advanced during the Phase II ESA activities with the exception of soil borings SB-5, SB-6, and SB-7 and the test borings TB-1, TB-2, TB-5, and TB-6. Soil borings SB-5 through SB-7 were advanced via solid-stem auger or air rotary drilling (continuous soil cores were collected from SB-6 via the DPT rig prior to auger/air rotary drilling) solely for the installation of groundwater monitoring wells (MW-5 through MW-7); therefore, no soil samples were collected at these locations. Similarly, the test borings TB-1, TB-2, TB-5, and TB-6 were advanced solely to observe the subsurface material encountered at these locations for evidence of historical dumping; therefore, soil samples were also not collected from these borings. Surface soil samples were collected from the 0-1 foot below ground surface (bgs) interval while subsurface soil samples were collected from the 2-3 foot bgs interval.

Six of the soil borings were collocated with new groundwater monitoring wells and were advanced to the water table. The soil borings associated with the groundwater monitoring wells were installed at the following locations:

- One soil boring (SB-1) was advanced as an upgradient control location on the upper edge of the smaller parcel to establish concentrations of constituents either naturally occurring or commonly occurring from human influences in the area unrelated to the Subject Property. The surface soil sample (GF-SS-01) was analyzed for TAL metals excluding cyanide and TCL SVOCs. The subsurface soil sample (GF-SB-01) was analyzed for TAL metals excluding cyanide, TCL SVOCs, and TCL VOCs.
- One soil boring (SB-2) was advanced as an upgradient control location on the central western boundary of the larger parcel to establish concentrations of constituents either naturally occurring or commonly occurring from human influences in the area unrelated to the Subject Property. The surface soil sample (GF-SS-02) was analyzed for the TAL metals excluding cyanide and TCL SVOCs. The subsurface soil sample (GF-SB-02) was analyzed for TAL metals excluding cyanide, TCL SVOCs, and TCL VOCs.
- Two soil borings (SB-3 and SB-4) were advanced in the area generally downgradient (east) of the former mill building, boilers, smokestack, transformer house, and coal trestle. The surface soil samples (GF-SS-03 and GF-SS-04) were analyzed for TAL metals excluding cyanide and TCL SVOCs. The subsurface soil samples (GF-SB-03 and GF-SB-04) were analyzed for TAL metals excluding cyanide, TCL SVOCs, and TCL VOCs.
- One soil boring (SB-5) was advanced near the northeastern corner of the Subject Property, downgradient of the “Green Hole” feature and directly upgradient of the Great Falls reservoir. This boring was installed solely to facilitate the installation of a groundwater monitoring well and no soil samples were collected.
- One soil boring (SB-6) was advanced along the eastern property boundary, downgradient of the former mill facility and directly upgradient of the Great Falls reservoir. This boring was installed solely to facilitate the installation of a groundwater monitoring well and no soil samples were collected.

- One soil boring (SB-7) was advanced near the southeastern corner of the Subject Property, downgradient of the former mill facility and the deep, overgrown depression and directly upgradient of the Great Falls reservoir. This boring was installed solely to facilitate the installation of a groundwater monitoring well and no soil samples were collected.

The remaining soil borings were utilized to evaluate soil quality near areas and items of concern identified on the Subject Property during the previous Phase I ESA and February 2019 site reconnaissance, or to provide evidence of landfilling activities in the deep, overgrown depression area. The soil borings were installed at the following locations:

- Two soil sample locations, (SB-8 and SB-9) were advanced among the debris piles located on the upper (western), mostly-level section of the Subject Property corresponding to the former mill building footprint. The surface soil samples (GF-SS-08 and GF-SS-09) were analyzed for TAL metals excluding cyanide and TCL SVOCs. The subsurface soil samples (GF-SB-08 and GF-SB-09) were analyzed for TAL metals excluding cyanide, TCL SVOCs, and TCL VOCs.
- Three soil sample locations, (SB-10, SB-11, and SB-12) were advanced in the general vicinity of the former coal trestle. The surface soil samples (GF-SS-10, GF-SS-11, and GF-SS-12) were analyzed for TAL metals excluding cyanide and TCL SVOCs. The subsurface soil samples (GF-SB-10, GF-SB-11, and GF-SB-12) were analyzed for TAL metals excluding cyanide, TCL SVOCs, and TCL VOCs.
- Two soil sample locations, (SB-13 and SB-14) were advanced in the general vicinity of the former transformer house. The surface soil samples (GF-SS-13 and GF-SS-14) were analyzed for TAL metals excluding cyanide, TCL SVOCs, and TCL PCBs. The subsurface soil samples (GF-SB-13 and GF-SB-14) were analyzed for TAL metals excluding cyanide, TCL SVOCs, TCL VOCs, and TCL PCBs.
- Two soil borings (SB-15 and SB-16) were advanced in the area generally downgradient (east) of the former mill building, boilers, smokestack, transformer house, and coal trestle. The surface soil samples (GF-SS-15 and GF-SS-16) were analyzed for TAL metals excluding cyanide and TCL SVOCs. The subsurface soil samples (GF-SB-15 and GF-SB-16) were analyzed for TAL metals excluding cyanide, TCL SVOCs, and TCL VOCs.
- Two soil borings (SB-17 and SB-18) were advanced in the deep, overgrown depression where landfilling activities potentially took place. Consistent with the sampling methodology at the other soil borings, the surface soil samples (GF-SS-17 and GF-SS-18) were collected from the 0-1 foot bgs interval. The surface soil samples (GF-SS-17 and GF-SS-18) were analyzed for TAL metals including cyanide, TCL PCBs, TCL pesticides and TCL SVOCs. Since waste was not observed in any of the soil borings advanced within the deep, overgrown depression, the subsurface soil samples (GF-SB-17 and GF-SB-18) were also collected from a depth consistent with the other soil borings, the 2-3 foot bgs interval. The samples collected from soil borings SB-17 and SB-18 were analyzed

for the full set of TAL/TCL parameters including TAL metals, TCL PCBs, TCL pesticides, TCL SVOCs, and TCL VOCs (subsurface samples only).

In order to minimize losses due to volatilization, samples for VOC analysis were collected directly from the core barrel liner using a laboratory supplied, disposable sampling device and were not homogenized prior to placement within the laboratory-prepared sample containers. After the samples for VOC analysis were collected and placed within the appropriate sample containers, the remainder of the soil from the sample interval was homogenized and the sample containers for the remaining analytes (i.e. metals, SVOCs, PCBs, etc.) were filled.

Careful handling of samples and equipment was observed throughout the sampling procedures to avoid cross contamination. Samples were kept at approximately four degrees centigrade (4°C) throughout the operation and during shipment to Access Analytical, Inc. (Access) for analysis. Chain of custody forms were maintained during the shipping and handling process to document sample integrity. Copies of these forms are included with the laboratory analytical reports in **Appendix B**.

2.2 Soil Laboratory Analysis

Each of the soil samples was analyzed for TAL metals, TCL PCBs, TCL pesticides, TCL SVOCs, and TCL VOCs, or, depending on the location of the soil boring and depth of the sample, a subset of these parameters as identified in **Section 2.1**. Access analyzed the samples for TAL metals via EPA Methods 6020B and 7473, TCL PCBs via EPA Method 8082A, TCL pesticides via EPA Method 8081B, TCL SVOCs via EPA Methods 8270E and 8270E SIM, and TCL VOCs via EPA Method 8260D. Access is a SCDHEC certified laboratory (#98016).

During the soil sampling activities, two quality assurance/quality control (QA/QC) samples were collected, per the schedule outlined in the Addendum. The QA/QC samples consisted of duplicate soil samples collected from the SB-9 soil boring (surface and subsurface samples) and were submitted for analysis of TAL metals and TCL SVOCs (both samples) and TCL VOCs (subsurface sample only).

2.3 Soil Laboratory Results

The soil analytical data generated are provided in the laboratory analytical reports included in **Appendix B** and are presented in tabular form in **Table 1A**. The laboratory analytical results were compared to the residential and industrial screening levels for direct soil exposure, as listed in the EPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (April 2019).

The parameters detected at concentrations above applicable screening levels are identified in the following sections and are presented on a soil contaminants of concern (COC) map, included as **Figure 4**.

2.3.1 <u>TAL Metals</u>

Multiple metals, including aluminum, arsenic, iron, lead, manganese, and thallium, were observed at concentrations exceeding regulatory limits in one or more of the soil samples collected during the Phase II assessment activities.

Aluminum and iron were detected above their respective residential RSLs in the subsurface soil sample collected from soil boring SB-18 (GF-SB-18), which was advanced in the deep, overgrown depression where potential landfilling operations may have occurred. Aluminum and iron did not exceed their respective residential RSLs in the corresponding surficial soil sample collected from this boring. Additionally, no trash or debris were observed in SB-18 or any of the borings advanced within the deep, overgrown depression.

Arsenic was detected in each of the soil samples at concentrations exceeding either its residential RSL or both its residential and industrial RSLs. Due to the ubiquitous presence of arsenic in the Site soil samples and the relatively consistent concentrations at which it was observed, the elevated arsenic detections appear to be reflective of naturally occurring conditions. Some metals, including arsenic, may occur naturally in South Carolina soils at concentrations that exceed their respective RSLs, thus, it may be prudent to compare metals data to established background values. According to Trace Elements in South Carolina Background Soils South Carolina Geology, v. 41, pp. 11-45 (Conova, 1999), arsenic is typically present in Piedmont soils at an average concentration of 11 milligrams per kilogram (mg/kg). Given this consideration, the majority of the arsenic concentrations observed in Site soils are below, or only slightly exceed, the established background average and are not expected to impact Site redevelopment goals. Arsenic concentrations at least two times the published background value were observed in a limited number of the soil samples including: GF-SS-10 (26.4 mg/kg), GF-SS-14 (33.4 mg/kg), GF-SB-14 (56.9 mg/kg), and GF-SS-16 (31.2 mg/kg). Each of these borings were advanced in the area proximate to/downgradient of the former boilers, smokestack, transformer house, and coal trestle, indicating that soils in this area may have been impacted by former Site activities.

Lead was detected at a concentration slightly exceeding its residential RSL in the surface soil sample collected from soil boring SB-16. Lead was well below its residential RSL in the subsurface sample collected from SB-16. As noted previously, SB-16 was advanced in the area downgradient of the former boilers, smokestack, transformer house, and coal trestle.

Manganese was observed at a concentration exceeding its residential RSL in the duplicate subsurface soil sample collected from boring SB-9 (GF-SB-09 DUP). Manganese did not exceed its RSL in the base subsurface soil sample collected from boring SB-9 (GF-SB-09) and was below regulatory limits in the surficial sample/duplicate sample collected from SB-9. A query was submitted to the laboratory regarding the disparity in sample/duplicate sample results. The laboratory indicated that they rechecked the QA/QC data and sample dilutions for the sample/sample duplicate and no errors were identified. The laboratory attached a side-by-side photograph of the two sample containers and, after review, it appears that the duplicate sample contained a portion of saprolite/weathered rock with visible relict fabric/structure and a darker mineral assemblage that was absent from the base sample aliquot. Therefore, it appears that a physical difference in the composition in the portions of the base sample and duplicate sample that were analyzed is responsible for the discrepancy in the analytical results. Manganese was detected at multiple locations across the Site at concentrations above the published average for Piedmont soils (235 mg/kg); thus, it appears that manganese

is common in Site soils and the rocks from which they are derived. It is likely that the manganese exceedance observed in the duplicate sample is related to naturally occurring conditions at the Site.

Thallium was observed at concentrations slightly exceeding its residential RSL in the surface soil samples collected from borings SB-14, SB-17, and SB-18 and the subsurface soil sample collected from boring SB-18. Thallium was detected intermittently in Site soils at relatively consistent concentrations, slightly above or below its residential RSL (0.78 mg/kg). Thallium may occur in association with potassium-based minerals in clays, soils, and granites, which are likely present in the area of the Subject Property. Therefore, it appears that the thallium detections may be indicative of naturally occurring conditions at the Site.

No other TAL Metals were detected at concentrations above regulatory criteria in any of the other sample locations.

2.3.2 TCL VOCs

Acetone and methyl acetate were detected in several surficial and sub-surficial soil samples at concentrations well below regulatory criteria. These compounds are both known laboratory contaminants. Based on the limited number of detections and very low concentrations at which they were observed, it is likely that the presence of these compounds is due to laboratory contamination.

No other VOCs were detected in site soils.

2.3.3 TCL SVOCs

Multiple SVOCs were detected in site soils, both surficial and subsurface, across all areas of concern. The majority of these compounds were detected at concentrations well below regulatory criteria. However, six compounds, including benz(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; dibenz(a,h)anthracene; and indeno(1,2,3-cd)pyrene, were observed in one or more soil samples at concentrations exceeding residential and/or industrial RSLs. Each of these analytes are in the polycyclic aromatic hydrocarbon (PAH) group of compounds and were detected via EPA Method 8270E SIM.

PAHs are among the most widespread organic pollutants. Natural crude oil and coal deposits contain significant amounts of PAHs, arising from chemical conversion of natural product molecules, such as steroids, to aromatic hydrocarbons. They are also found in processed fossil fuels, tar and various edible oils. In addition to their presence in fossil fuels, they are also formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, garbage, and other organic material. PAHs are typically reported at similar sites with concentrations slightly above their respective regulatory limits. PAHs are generally the byproduct of combustion and in Cardno's opinion may not be caused by any one particular on-site source.

The soil borings where elevated concentrations of PAHs were detected include SB-3, SB-4, SB-10, SB-11, SB-12, SB-13, SB-14, SB-15, SB-16, and SB-17. Each of these borings were advanced in the area proximate to/downgradient of the former boilers, smokestack, transformer house, and coal trestle, with the exception of SB-17. The surficial soil sample

collected from SB-17 only contained one compound, benzo(a)pyrene, at a concentration slightly exceeding its residential RSL.

No other SVOCs were detected above applicable screening levels in any of the other samples collected.

2.3.4 TCL PCBs and TCL Pesticides

PCBs and Pesticides were not detected in any soil sample location.

2.3.5 Cyanide

Cyanide was not detected in any soil sample location.

2.4 Groundwater Monitoring Well Installation

A total of six groundwater monitoring wells were installed within collocated soil borings advanced during the Phase II ESA activities. The locations of the groundwater monitoring wells are depicted on **Figure 3**. The monitoring wells were positioned to assess groundwater conditions in areas of concern identified on the Subject Property and were installed in the following locations:

- Monitoring well MW-1 was collocated with soil boring SB-1 and was installed as an upgradient control location on the upper edge of the smaller parcel to establish concentrations of constituents in groundwater either naturally occurring or commonly occurring from human influences in the area unrelated to the Subject Property. The groundwater sample (MW-01) was analyzed for TAL metals excluding cyanide, TCL SVOCs with SIM, and TCL VOCs.
- Monitoring well MW-2 was collocated with soil boring SB-2 and was installed as an upgradient control location on the central western boundary of the larger parcel to establish concentrations of constituents in groundwater either naturally occurring or commonly occurring from human influences in the area unrelated to the Subject Property. The groundwater sample (MW-02) was analyzed for the TAL metals excluding cyanide, TCL SVOCs with SIM, and TCL VOCs.
- Monitoring well MW-3 was collocated with soil boring SB-3 and was installed in the area generally downgradient (east) of the former mill building, boilers, smokestack, transformer house, and coal trestle. Due to the location of the well downgradient of numerous areas of concern, the groundwater sample (MW-03) was analyzed for the full suite of TAL/TCL parameters including TAL metals with cyanide, TCL PCBs, TCL pesticides, TCL SVOCs with SIM, and TCL VOCs.
- ***Monitoring well MW-4 was originally proposed to be collocated with SB-4 and installed in the area generally downgradient (east) of the former mill building, boilers, smokestack, transformer house, and coal trestle, approximately 150 feet to the southwest of the SB-3/MW-3 location. However, partially weathered rock/bedrock was encountered prior to reaching groundwater at the boring location, resulting in auger refusal. Several attempts to reach groundwater using solid-stem augers were made in the area, but were each unsuccessful. Due to the difficult terrain,***

remaining facility infrastructure (light poles, walls, pipes, etc.), and heavy vegetation in the area, the well drillers were not able to access the proposed well site with an air compressor; therefore, the well could not be installed using the air-rotary drilling method. The SCDHEC project manager was notified that MW-4 would not be able to be installed during the Phase II ESA activities. Based on the presence of another well (MW-3) in the same general area and the positioning of two additional wells (MW-6 and MW-7) at locations relatively downgradient of the proposed MW-4 location, the inability to install the well is not viewed as a critical deviation from the original scope of work.

- Monitoring well MW-5 was collocated with soil boring SB-5 and was installed near the northeastern corner of the Subject Property, downgradient of the "Green Hole" feature and directly upgradient of the Great Falls reservoir. The groundwater sample (MW-05) was analyzed for the TAL metals excluding cyanide, TCL SVOCs with SIM, and TCL VOCs. A duplicate groundwater sample (MW-5 DUP) was collected at this location and was analyzed for the same parameter suite as the base sample.
- Monitoring well MW-6 was collocated with soil boring SB-6 and was installed along the eastern property boundary, downgradient of the former mill facility (including the boilers, smokestack, transformer house, and coal trestle) and directly upgradient of the Great Falls reservoir. The groundwater sample (MW-06) was analyzed for the TAL metals excluding cyanide, TCL SVOCs with SIM, and TCL VOCs.
- Monitoring well MW-7 was collocated with soil boring SB-7 and was installed near the southeastern corner of the Subject Property, downgradient of the former mill facility (including the boilers, smokestack, transformer house, and coal trestle) and the deep, overgrown depression and directly upgradient of the Great Falls reservoir. The groundwater sample (MW-07) was analyzed for the TAL metals excluding cyanide, TCL SVOCs with SIM, and TCL VOCs.

The monitoring wells were installed under the direct supervision of a South Carolina certified well driller (Elite Techniques, Inc.), and all installation activities conformed to R.61-71 of the South Carolina Well Standards (May 27, 2016). The monitoring wells were installed using a DPT rig equipped with auger drilling and air-rotary capabilities. Solid-stem augers were used for the well installation where possible; however, due to site conditions, specifically encountering partially weathered rock or bedrock prior to reaching the depth to groundwater, air-rotary drilling techniques were required to install the majority of the wells. Where possible based on site conditions, a continuous soil core was collected at the monitoring well locations from the ground surface until the water table was encountered. The soil cores were collected via the DPT rig utilizing a core barrel fitted with disposable CAB liners prior to advancing the solid-stem augers and/or air rotary rods. Soil core collection allowed Cardno personnel to log the subsurface lithology encountered, collect soil samples for laboratory analysis, and identify the depth to the water table. The lithology encountered at each well location was recorded on a soil boring log, copies of which are included in **Appendix A**.

The groundwater monitoring wells were constructed using 2-inch diameter, Schedule 40, polyvinyl chloride (PVC) casing fitted with a 2-inch diameter, Schedule 40 PVC, factory milled, 0.01-inch slot size, screened section. The screened sections of wells are ten feet in length and were placed at depths attempting to bracket the water table with the majority of the screen submerged. After placing the well screen and riser in the borehole, an artificial filter pack was placed from the terminus of the borehole to approximately two feet above the screened section. The filter pack was followed by a bentonite plug, a minimum of two feet in thickness. After the plug was hydrated, the borehole was sealed to a depth of approximately six inches bgs using a Portland cement/bentonite grout to allow for the placement of a lockable steel protective casing around the riser and the completion of a six-inch thick, two-foot by two-foot, concrete well pad. The steel protective casings extend approximately three feet above the well pad/ground surface and were fitted with a steel well tag providing the well ID, total depth, screened interval, and date installed. As-built construction logs of the groundwater monitoring wells were generated upon installation and are included on the soil boring logs located in **Appendix A**. Additionally, the well driller completed a Water Well Record (SCDHEC Form 1903) for each well installed, copies of which are also included in **Appendix A**.

Post installation, the monitoring wells were developed by over pumping and surging until clear, relatively sediment-free water was produced. The groundwater monitoring well locations and elevations were then surveyed by a South Carolina registered land surveyor. The monitoring well top of casing (TOC) elevations were measured relative to Mean Sea Level (MSL).

2.5 Groundwater Elevations

Prior to sample collection, Cardno field personnel gauged the depth to groundwater at each groundwater monitoring well using an electronic water level meter capable of measuring the depth to the air/liquid interface to within +/- 0.01 foot and recorded the water level on the corresponding groundwater sampling field data sheet, copies of which are included in **Appendix C**. Water levels in the newly installed monitoring wells were allowed to equilibrate for at least 24 hours prior to gauging. Groundwater elevations were calculated at each of the groundwater monitoring wells by subtracting the depth to groundwater from the TOC elevation. The TOC elevations, depth to groundwater measurements, and calculated groundwater elevations are summarized in **Table 2**. The groundwater elevation data were used to generate a potentiometric surface map that is included as **Figure 5**. As shown on **Figure 5**, the direction of groundwater flow at the Subject Property is to the east southeast.

2.6 Groundwater Sample Collection

The majority of the groundwater samples were collected using a variable speed submersible pump equipped with new, dedicated polyethylene tubing. ***Due to a lab error, one of the parameter suites collected from MW-7 (SVOCs) was not analyzed within the appropriate hold time and the well had to be resampled for this analyte group. During the resampling effort, a variable speed peristaltic pump fitted with new, dedicated silicon and polyethylene tubing was used to purge the well and collect the sample.***

The wells were purged until at least three well volumes were removed and field indicator parameters had stabilized, or until the well failed to recharge (well went dry). During purging, the groundwater field indicator parameters temperature, pH, conductivity, turbidity, and dissolved oxygen (DO) were measured and recorded on groundwater sampling field data sheets, copies of which are included in **Appendix C**. Once the field parameters had stabilized, groundwater samples were collected and placed in preserved, laboratory prepared sample containers provided by Access.

Careful handling of the sampling equipment and containers was observed throughout the sampling procedure to avoid cross contamination. During sample collection, steps were taken to limit the agitation of the groundwater samples and to prevent aeration and turbidity. Samples were kept at approximately four degrees centigrade (4° C) throughout the operation and during transport to Access for analysis. Chain-of-custody forms were maintained during the handling process to document sample integrity. Copies of these forms are included with the laboratory analytical reports in **Appendix B**.

2.7 Groundwater Laboratory Analysis

Each of the groundwater samples collected during the Phase II ESA activities were analyzed by Access for TAL metals via EPA Methods 6020B and 7473, TCL SVOCs via EPA Methods 8270E and 8270E SIM, and TCL VOCs via EPA Method 8260B. Additionally, due to the positioning of monitoring well MW-3 in the area generally downgradient (east) of the former mill building, boilers, smokestack, transformer house, and coal trestle, the groundwater sample collected from this well was also analyzed for TCL PCBs via EPA Method 8082A, TCL pesticides via EPA Method 8081, and cyanide via EPA Method 9014.

2.8 Groundwater Laboratory Results

The groundwater analytical data generated during the Phase II ESA are provided in the laboratory analytical reports included in **Appendix B** and are presented in tabular form in **Table 1B**. The laboratory analytical results were compared to South Carolina Class GB maximum contaminant levels (MCLs) set forth in the State Primary Drinking Water Regulations (June 27, 2014) and the screening levels for Tapwater and MCLs as listed in the EPA RSL Summary Table (April 2019).

The following parameters were detected above applicable screening levels and are presented on a groundwater COC map, included as **Figure 6**:

2.8.1 <u>TAL Metals</u>

Metals were detected in Site groundwater at all sampling locations at concentrations well below regulatory criteria, with the exception of the following:

- Lead was detected at concentrations exceeding its MCL in the groundwater samples collected from MW-1, MW-2, and MW-7. MW-1 and MW-2 are considered background locations due to their upgradient positioning relative to the former mill facility. Each of these wells also contained one or more other metals at concentrations exceeding Tapwater screening values.

- Aluminum, cobalt, iron, and manganese exceeded their respective EPA Tapwater screening levels in one or more of the samples collected from MW-1, MW-2, MW-6, and MW-7.

Due to the fine-grained nature of the Site soils in which the monitoring wells were installed (soils contained a high percentage of silts and clays), groundwater turbidity values across the Subject Property remained relatively high despite prolonged attempts at developing the wells. Laboratory analysis of turbid groundwater samples often results in elevated heavy metal concentrations as a result of naturally-occurring metals dissociating from soils entrained in the sample due to the interaction with acidic preservative. These suspended soil particles, such as silt and clay, are not indicative of dissolved concentrations of potential contaminants in the groundwater. Therefore, it is likely that metals identified in Site groundwater were a result of the sample turbidities, rather than a result of historical practices conducted on-site.

Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

2.8.2 TCL SVOCs

No TCL SVOCs were detected via EPA Method 8270E at any sample location.

Reporting limits exceeded the EPA Tapwater screening level for multiple analytes at all sampling locations. Additionally, reporting limits for atrazine; bis(2-ethylhexyl)phthalate; hexachlorobenzene; and pentachlorophenol exceeded their respective South Carolina Class GB MCLs and EPA MCLs at all sampling locations. Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

2.8.3 Low-Level PAHs

Low-level concentrations of anthracene and pyrene were detected in the samples collected from wells MW-1 (pyrene), MW-2 (anthracene), and MW-5 (pyrene). Each of these parameters were observed at concentrations well below the EPA Tapwater screening values (South Carolina Class GB MCLs and EPA MCLs have not been established for these analytes).

Reporting limits for benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, and naphthalene exceeded their respective EPA Tapwater screening levels. The reporting limits for benzo(a)pyrene were below its South Carolina Class GB MCL and EPA MCL. South Carolina Class GB MCLs and EPA MCLs have not been established for the three remaining parameters. Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

2.8.4 TCL VOCs

Ethylbenzene was detected at a concentration above its Tapwater screening level in the sample collected from monitoring well MW-6. The detected concentration of 2 micrograms per Liter (µg/L) only slightly exceeded its Tapwater screening level (1.5 µg/L) and was well below its South Carolina Class GB MCL and EPA MCL. Low concentrations

of toluene and xylenes were also detected in this sample, but at values well below the regulatory limits.

No other VOCs were detected above applicable screening levels in any of the other samples collected.

The reporting limits for multiple parameters exceeded their respective EPA Tapwater screening levels at all sample locations. Additionally, the reporting limits for 1,2-dibromo-3-chloropropane and 1,2-dibromoethane exceeded their EPA MCLs at all sample locations.

Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

2.8.5 TCL PCBs and Pesticides

No PCBs were detected in the groundwater sample collected from well MW-3.

Heptachlor epoxide was detected at a concentration above its EPA Tapwater screening level in the MW-3 groundwater sample, but below its South Carolina Class GB MCL and EPA MCL.

Reporting limits for multiple PCB and pesticide analytes exceeded their respective EPA Tapwater screening levels at MW-3. Additionally, the reporting limit for toxaphene exceeded its South Carolina Class GB MCL and EPA MCL.

Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

2.8.6 Cyanide

Cyanide was not detected in the sample collected from monitoring well MW-3.

2.9 Test Borings

A total of six soil test borings were collected within the deep, overgrown depression. The test borings were collected to determine the presence and/or absence of landfill materials in this area of the Site. No landfill materials were observed at any of the test boring locations. Additionally, probe refusal was encountered at depths of seven feet bgs or less at each test boring location, indicating the presence of shallow partially weathered rock and/or bedrock in the area. Partially weathered rock/bedrock at a shallow depth would likely preclude the burial of waste material in the area. A record of the test borings is included with the soil boring logs in **Appendix A**.

2.10 Investigative Derived Waste (IDW)

Excess soil cuttings from all soil borings and groundwater monitoring well construction, and excess groundwater from well development were containerized into 55-gallon drums labelled as “non-hazardous waste.” Upon review of the analytical data, the IDW disposal contractor, A & D Environmental Services (A&D), requested that a composite soil sample be collected from the drums and analyzed for lead using the Toxicity Characteristic Leaching Procedure (TCLP) extraction method for chemical analysis. The TCLP method is used to determine if a waste is hazardous (classified as a “D” listed waste by the EPA)

and if it can be accepted by a municipal waste landfill. On October 29, 2019, Cardno collected a composite soil sample from the IDW drums staged on the Subject Property and submitted it to Access for analysis. The results of analysis indicated that lead was below reporting limits using the TCLP method, confirming that the contents of the drums were non-hazardous. A copy of the Analytical Report for the composite IDW soil sample is included in **Appendix B**.

Once the laboratory results were received and reviewed, A&D set up a pick up date for the IDW drums of November 22, 2019. On November 22, A&D contacted Cardno and indicated that they had mobilized to the Site, but no drums were present in the on-site staging area. After discussing the situation with A&D, and a town official that was on-site at the time, it was determined that the drums had been stolen. As noted previously, the drums were labeled as containing non-hazardous investigation derived waste; however, the labels were not sufficient to deter the theft of the drums. The town official stated that she would report the incident to the Great Falls Police. The contents of the drums, which were determined to be non-hazardous by laboratory analysis, were not observed in the area; therefore, it is likely that the drums were dumped at an unknown location after having been removed from the Site.

3 Receptor Evaluation / Pathways for Contaminant Transport

A potential receptor survey of the Site and vicinity was performed to determine potential receptors of impacted groundwater in the area. A reconnaissance within a one-half mile radius of the Subject Property was completed during the Phase II ESA activities to document the location of any exposure points such as underground utilities, water supply wells, streams, or other receptors that could potentially be impacted by contaminant migration from the Site.

Identified potential receptors include the Catawba River/Great Falls Reservoir located approximately 100 feet to the east of the Subject Property. Additionally, existing and potential underground utility trenches on the Subject Property can act as preferential pathways for soil vapors.

Properties within the Town of Great Falls are connected to the municipal water and sewer supply; therefore, no private water supply wells were visually observed from public roads within a 0.5 mile radius of the Site, and no wells used for irrigation or non-drinking water use were observed within a 0.25 mile radius of the Site. Cardno personnel also completed a desktop survey of readily available records to identify any water supply wells within a 0.5 mile radius of the Site. The records reviewed included the USGS National Water Information System Mapper (https://maps.waterdata.usgs.gov/mapper/index.html). No USGS monitoring wells were identified within a 0.5 mile radius of the Site.

4 Potential Pathways for Contaminant Transport

Precipitation can transport contaminants in surface soils to nearby drainage features via storm water run-off and can also migrate through the shallow soils (vadose zone) and mobilize contaminants vertically to the groundwater table. Additionally, on-site and proximal underground utilities can act as potential conduits for contaminant transport.

5 Potential Pathways for Future Contaminant Exposure

5.1 Soils

This Phase II ESA identified concentrations of benz(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; dibenz(a,h)anthracene; and indeno(1,2,3-cd)pyrene, in one or more soil samples at concentrations exceeding residential and/or industrial RSLs. Each of these analytes are in the PAH group of compounds and were detected via EPA Method 8270E SIM.

Additionally, aluminum, arsenic, iron, lead, manganese, and thallium were detected above their respective residential or industrial RSLs in surficial and/or sub-surficial soils across the Site. In the Piedmont of South Carolina, soils are generally expected to contain naturally-occurring arsenic.

The site is currently vacant with large sections covered by vegetation, former building foundations, and asphalt/concrete; therefore, there is a potential for low concentrations of contaminants to be transported from Site soils to groundwater through infiltration. Surficial contaminants on foundations, asphalt, concrete or surficial soil may be picked up by runoff and carried downgradient to potential receptors (i.e. Catawba River/Great Falls Reservoir).

Given the Site's vacant status, there is currently limited direct exposure potential to elevated concentrations of aluminum, arsenic, iron, lead, manganese, thallium, and PAHs in Site soils. However, direct exposure to contaminants in surficial and subsurface soils can occur during future Site redevelopment and construction activities.

5.2 Groundwater

This Phase II ESA identified concentrations of ethylbenzene and heptachlor epoxide at concentrations slightly above their respective EPA Tapwater screening levels at MW-6 and MW-3, respectively. Additionally, aluminum, cobalt, iron, and manganese were detected at concentrations above their respective EPA Tapwater screening values in samples collected from monitoring wells MW-1, MW-2, MW-6, and/or MW-7. Lead was also detected at concentrations above its MCL in the samples collected from MW-1, MW-2, and MW-7.

Since groundwater at the Subject Property is not currently in use, there is very limited exposure potential to the identified TAL metal, TCL pesticide, and TCL VOC groundwater contaminants at the Site. Additionally, no potable or irrigation wells are known to exist in

close proximity to the subject property. In the future, the Site will likely be serviced by the municipal water supply and receive a groundwater use restriction on the property deed. Therefore, it does not appear that groundwater at the Subject Property poses a significant threat to human health.

6 Data Quality

The Generic QAPP and Addendum for this assessment set forth the procedures and methods for data collection and defined the specific procedures and adjustments necessary to maintain data quality to support project decisions. The Phase II ESA required both field and laboratory checks to monitor conformance to project quality limits. Sample duplicates, trip blanks, and field blanks were analyzed in order to help evaluate data quality. Soil and groundwater duplicate data are presented in **Tables 1A** and **1B** alongside their corresponding samples.

6.1 Quality Control Samples: Field and Trip Blanks

Two field blanks, two soil duplicate samples, one groundwater duplicate sample, and two trip blanks were collected concurrently with the sample collection event of August 5 through August 15, 2019. All QA/AC samples were analyzed for TAL metals, TCL SVOCs, and TCL VOCs.

All analytes were reported below regulatory criteria, except for the following:

- As discussed in Section 2.3.1, arsenic was detected at concentrations above its residential RSL value in the duplicate soil samples GF-SS-09 DUP and GF-SB-09 DUP.
- Also discussed in Section 2.3.1, manganese was detected at a concentration exceeding its residential RSL in the duplicate soil sample GF-SB-09 DUP.

Complete analytical results are presented in tabular format in **Tables 1A** and **1B**.

6.2 Property Specific Corrective Actions

A field methods audit was not conducted during the field work for this Site; however, the field practices were conducted in a method consistent with the methodology of the QAPP documents, relevant standard operating procedures, and professional judgment.

6.3 Quality Control Parameters

To assess whether quality assurance (QA) objectives for this project have been achieved, the following quality control (QC) parameters were considered: precision, accuracy, representativeness, comparability, completeness, and sensitivity.

6.3.1 Precision

As described in the Addendum, precision is evaluated by examining field and matrix spike duplicate (MSD) analytical results. Possible sources of error include inconsistent sampling or analytical procedures and laboratory or field contamination. Precision and accuracy are sample dependent and will vary as the sample matrix and concentration of

the analyte varies. By the definition of usable data, matrix interference, which causes unacceptable MS/MSD results, will lead to qualified data, unless the appropriate corrective actions are applied. The Addendum provides a table with ranges of precision and accuracy generally considered acceptable for the COC. For this assessment, precision was determined to be acceptable across all duplicate soil samples, with the following exceptions:

Degree of Variability	GF-SS-09 & GF-SS-09 DUP	GF-SB-09 & GF-SB-09 DUP
Slightly high variability	• Anthracene • Aluminum • Arsenic • Lead • Potassium • Vanadium	• Pyrene • Aluminum • Arsenic • Copper • Nickel • Zinc
High variability	• PAHs (multiple) • Barium • Calcium • Chromium • Magnesium • Zinc	• Barium • Chromium • Cobalt • Iron • Lead • Magnesium • Manganese • Potassium • Vanadium

Variation present in soil sample precision is most likely due to expected compositional variation within soil samples.

Precision was determined to be acceptable for all analytes in groundwater sample MW-05 and its corresponding duplicate, MW-05 DUP, with the exceptions of pyrene, which exhibited slightly high variability, and aluminum, which exhibited high variability.

The results of the sample and sample duplicate comparisons are presented in **Tables 3A** and **3B**.

6.3.2 Accuracy

Accuracy is evaluated using a percent recovery measured in spiked and un-spiked samples. Accuracy is a function of the laboratory method. Parameters regarding accuracy are included in the lab reports provided by the laboratory included in **Appendix B**. The laboratory reported no deviations in the accuracy parameters that would affect the sample results.

6.3.3 Representativeness

Cardno has evaluated the representativeness of the Phase II ESA activities to document the degree to which the sample data accurately and precisely represent environmental conditions. Review of field methods and procedures indicated that sample collection, handling, and transportation, as well as the placement of sample locations with respect to potential sources of impact, were conducted in general accordance with the Addendum.

6.3.4 Comparability

To produce comparable data, the units specified for analytical results obtained during the field activities are consistent throughout this project and standardized analytical methods have been used for each parameter.

6.3.5 Completeness

Laboratory analysis was completed on each of the samples collected in the field and submitted for analysis. Laboratory completeness was determined to be 100%.

Per the Addendum, monitoring well MW-4 was originally proposed to be collocated with SB-4 and installed in the area generally downgradient (east) of the former mill building, boilers, smokestack, transformer house, and coal trestle, approximately 150 feet to the southwest of the SB-3/MW-3 location. However, partially weathered rock/bedrock was encountered prior to reaching groundwater at the boring location, resulting in auger refusal. Several attempts to reach groundwater using solid-stem augers were made in the area, but were each unsuccessful. Due to the difficult terrain, remaining facility infrastructure (light poles, walls, pipes, etc.), and heavy vegetation in the area, the well drillers were not able to access the proposed well site with an air compressor; therefore, the well could not be installed using the air-rotary drilling method. The SCDHEC project manager was notified that MW-4 would not be able to be installed during the Phase II ESA activities. Based on the presence of another well (MW-3) in the same general area and the positioning of two additional wells (MW-6 and MW-7) at locations relatively downgradient of the proposed MW-4 location, the inability to install the well is not viewed as a critical deviation from the original scope of work.

6.3.6 Sensitivity

Laboratory reporting limits (RLs) and method detection limits (MDLs) were sufficient to report concentrations below regulatory standards for the majority of the analytes. However, during analysis, multiple soil samples were diluted, which resulted in elevated reporting limits for certain parameters. As a consequence, the laboratory reporting limits were not sufficient to report concentrations below the EPA RSLs for residential soils for all analytes. These analytes include: the VOCs 1,2-dibromo-3-chloropropane; 1,2-dibromoethane; and vinyl chloride; and the SVOCs benzo(a)pyrene; dibenz(a,h)anthracene; 2,6-dinitrotoluene; bis(2-chloroethyl)ether; hexachlorobenzene; n-nitrosodi-n-propylamine; and pentachlorophenol. PAHs were analyzed via EPA Method 8270 SIM due to the lower reporting limits and MDLs employed by this Method; however, the lower quantitation limits still exceeded the EPA RSLs for residential soils for the PAHs listed above.

Several of these analytes were detected in the soil samples collected at the Site including benzo(a)pyrene and dibenz(a,h)anthracene. Therefore, it cannot be said with certainty that these parameters do not exist at concentrations above regulatory limits in the diluted soil samples where a non-detection was reported by the laboratory.

The remaining compounds were not detected in any of the soil or groundwater samples collected from the Subject Property. Therefore, although it cannot be definitively stated

that these analytes are not present at concentrations exceeding regulatory limits in the applicable soil samples, it is unlikely that these compounds have impacted Site soils. In Cardno's opinion, the elevated laboratory quantitation limits did not significantly affect the project objectives.

Laboratory quantitation limits for groundwater were sufficient to report concentrations below the regulatory standards for most analytes. However, for certain analytes the South Carolina Class GB MCLs, the MCLs as listed in the EPA National Primary Drinking Water Regulations, and/or EPA RSL Tapwater values were below reporting limits. These parameters include: the VOCs 1,1,2,2-tetrachloroethane; 1,1,2-trichloroethane; 1,2-dibromo-3-chloropropane; 1,2-dibromomethane; 1,2-dichloroethane; 1,2-dichloropropane; 1,4-dichlorobenzene; benzene; bromodichloromethane; carbon tetrachloride; chloroform; dibromochloromethane; trans-1,3-dichloropropene; trichloroethene; and vinyl chloride; the SVOCs benz(a)anthracene; benzo(a)pyrene; dibenz(a,h)anthracene; 1,1'-biphenyl; 2,4,6-trichlorophenol; 2,4-dinitrotoluene; 2,6-dinitrotoluene; 3,3'-dichlorobenzidine; 4,6-dinitro-2-methylphenol; 4-chloroaniline; 4-nitroaniline; atrazine; benzaldehyde; bis(2-chloroethyl)ether; bis(2-ethylhexyl)phthalate; dibenzofuran; hexachlorobenzene; hexachlorobutadiene; Hexachlorocyclopentadiene; hexachloroethane; naphthalene; nitrobenzene; n-nitrosodi-n-propylamine; and pentachlorophenol; the pesticides 4,4'-DDD; 4,4'-DDE; Aldrin; alpha-BHC; beta-BHC; dieldrin; gamma-BHC; heptachlor; heptachlor epoxide; and toxaphene; each of the Aroclors (PCBs); and the metals arsenic and thallium. PAHs were analyzed via EPA Method 8270 SIM due to the lower reporting limits employed by this Method; however, the lower quantitation limits still exceeded the Tapwater values and in some cases the MCLs, for the PAHs listed above.

Heptachlor epoxide was detected in the sample collected from MW-3 at a concentration exceeding it Tapwater value. Heptachlor epoxide was the only one of the above listed parameters detected in the Site groundwater samples (MW-3 is the only well that was analyzed for TCL pesticides). The remaining compounds were not detected in any of the groundwater samples collected from the Subject Property. Although it cannot be definitively stated that these analytes are not present at concentrations exceeding the MCLs or EPA RSL Tapwater values in the groundwater at the Site, it is unlikely that groundwater has been impacted by these compounds. In Cardno's opinion, the laboratory quantitation limits in excess of the regulatory standards did not significantly affect the project objectives.

6.4 Laboratory Data Evaluation

The laboratory completed validation and verification of laboratory processes and data, and delivered a laboratory report to the Cardno Project Manager. The laboratory report and the QC information provide documentation of compliance with the Addendum.

7 Discussion, Conclusions, and Recommendations

7.1 Summary and Discussion

The Phase II ESA was performed to determine whether the Site has been impacted by the RECs identified in a Phase I ESA conducted by CTC Public Benefit Corporation in October 2011 and, if so, to what extent, and to investigate potential landfilling that may have occurred on-site as indicated in a 2007 Phase I ESA of the Subject Property conducted by URS. Additionally, this Phase II ESA was conducted in a manner to meet the general requirements of the VCP.

TAL Metals - Soil

Multiple metals, including aluminum, arsenic, iron, lead, manganese, and thallium, were observed at concentrations exceeding regulatory limits in one or more of the soil samples collected during the Phase II assessment activities.

Aluminum and iron were detected above their respective residential RSLs in the subsurface soil sample collected from soil boring SB-18 (GF-SB-18), which was advanced in the deep, overgrown depression where potential landfilling operations may have occurred. Aluminum and iron did not exceed their respective residential RSLs in the corresponding surficial soil sample collected from this boring. Additionally, no trash or debris were observed in SB-18 or any of the borings advanced within the deep, overgrown depression.

Arsenic was detected in each of the soil samples at concentrations exceeding either its residential RSL or both its residential and industrial RSLs. Due to the ubiquitous presence of arsenic in the Site soil samples and the relatively consistent concentrations at which it was observed, the elevated arsenic detections appear to be reflective of naturally occurring conditions. Some metals, including arsenic, may occur naturally in South Carolina soils at concentrations that exceed their respective RSLs, thus, it may be prudent to compare metals data to established background values. According to *Trace Elements in South Carolina Background Soils* South Carolina Geology, v. 41, pp. 11-45 (Conova, 1999), arsenic is typically present in Piedmont soils at an average concentration of 11 milligrams per kilogram (mg/kg). Given this consideration, the majority of the arsenic concentrations observed in Site soils are below, or only slightly exceed, the established background average and are not expected to impact Site redevelopment goals. Arsenic concentrations at least two times the published background value were observed in a limited number of the soil samples including: GF-SS-10 (26.4 mg/kg), GF-SS-14 (33.4 mg/kg), GF-SB-14 (56.9 mg/kg), and GF-SS-16 (31.2 mg/kg). Each of these borings were advanced in the area proximate to/downgradient of the former boilers, smokestack, transformer house, and coal trestle, indicating that soils in this area may have been impacted by former Site activities.

Lead was detected at a concentration slightly exceeding its residential RSL in the surface soil sample collected from soil boring SB-16. Lead was well below its residential RSL in the subsurface sample collected from SB-16. As noted previously, SB-16 was advanced in the area downgradient of the former boilers, smokestack, transformer house, and coal trestle.

Manganese was observed at a concentration exceeding its residential RSL in the duplicate subsurface soil sample collected from boring SB-9 (GF-SB-09 DUP). Manganese did not exceed its RSL in the base subsurface soil sample collected from boring SB-9 (GF-SB-09) and was below regulatory limits in the surficial sample/duplicate sample collected from SB-9. A query was submitted to the laboratory regarding the disparity in sample/duplicate sample results. The laboratory indicated that they rechecked the QA/QC data and sample dilutions for the sample/sample duplicate and no errors were identified. The laboratory attached a side-by-side photograph of the two sample containers and, after review, it appears that the duplicate sample contained a portion of saprolite/weathered rock with visible relict fabric/structure and a darker mineral assemblage that was absent from the base sample aliquot. Therefore, it appears that a physical difference in the composition in the portions of the base sample and duplicate sample that were analyzed is responsible for the discrepancy in the analytical results. Manganese was detected at multiple locations across the Site at concentrations above the published average for Piedmont soils (235 mg/kg); thus, it appears that manganese is common in Site soils and the rocks from which they are derived. It is likely that the manganese exceedance observed in the duplicate sample is related to naturally occurring conditions at the Site.

Thallium was observed at concentrations slightly exceeding its residential RSL in the surface soil samples collected from borings SB-14, SB-17, and SB-18 and the subsurface soil sample collected from boring SB-18. Thallium was detected intermittently in Site soils at relatively consistent concentrations, slightly above or below its residential RSL (0.78 mg/kg). Thallium may occur in association with potassium-based minerals in clays, soils, and granites, which are likely present in the area of the Subject Property. Therefore, it appears that the thallium detections may be indicative of naturally occurring conditions at the Site.

No other TAL Metals were detected at concentrations above regulatory criteria in any of the other sample locations.

TCL SVOCs - Soil

Multiple SVOCs were detected in site soils, both surficial and subsurface, across all areas of concern. The majority of these compounds were detected at concentrations well below regulatory criteria. However, six compounds, including benz(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; dibenz(a,h)anthracene; and indeno(1,2,3-cd)pyrene, were observed in one or more soil samples at concentrations exceeding residential and/or industrial RSLs. Each of these analytes are in the PAH group of compounds and were detected via EPA Method 8270E SIM.

PAHs are among the most widespread organic pollutants. Natural crude oil and coal deposits contain significant amounts of PAHs, arising from chemical conversion of natural product molecules, such as steroids, to aromatic hydrocarbons. They are also found in processed fossil fuels, tar and various edible oils. In addition to their presence in fossil fuels, they are also formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, garbage, and other organic material. PAHs are typically reported at similar sites with concentrations slightly above their respective regulatory

limits. PAHs are generally the byproduct of combustion and in Cardno's opinion may not be caused by any one particular on-site source

The soil borings where elevated concentrations of PAHs were detected include SB-3, SB-4, SB-10, SB-11, SB-12, SB-13, SB-14, SB-15, SB-16, and SB-17. Each of these borings were advanced in the area proximate to/downgradient of the former boilers, smokestack, transformer house, and coal trestle, with the exception of SB-17, indicating that soils in this area may have been impacted by former Site activities. The surficial soil sample collected from SB-17 only contained one compound, benzo(a)pyrene, at a concentration slightly exceeding its residential RSL.

No other SVOCs were detected above applicable screening levels in any of the other samples collected.

TCL VOCs - Soil

Acetone and methyl acetate were detected in several surficial and sub-surficial soil samples at concentrations well below regulatory criteria. These compounds are both known laboratory contaminants. Based on the limited number of detections and very low concentrations at which they were observed, it is likely that the presence of these compounds is due to laboratory contamination.

No other VOCs were detected in site soils.

TCL PCBs and Pesticides - Soil

PCBs and Pesticides were not detected in any soil sample location.

Cyanide - Soil

Cyanide was not detected in any soil sample location.

TAL Metals - Groundwater

Metals were detected in Site groundwater at all sampling locations at concentrations well below regulatory criteria, with the exception of the following:

- Lead was detected at concentrations exceeding its MCL in the groundwater samples collected from MW-1, MW-2, and MW-7. MW-1 and MW-2 are considered background locations due to their upgradient positioning relative to the former mill facility. Each of these wells also contained one or more other metals at concentrations exceeding Tapwater screening values.
- Aluminum, cobalt, iron, and manganese exceeded their respective EPA Tapwater screening levels in one or more of the samples collected from MW-1, MW-2, MW-6, and MW-7.

Due to the fine-grained nature of the Site soils in which the monitoring wells were installed (soils contained a high percentage of silts and clays), groundwater turbidity values across the Subject Property remained relatively high despite prolonged attempts at developing the wells. Laboratory analysis of turbid groundwater samples often results in elevated heavy metal concentrations as a result of naturally-occurring metals dissociating from soils entrained in the sample due to the interaction with acidic preservative. These suspended soil particles, such as silt and clay, are not indicative of dissolved

concentrations of potential contaminants in the groundwater. Therefore, it is likely that metals identified in Site groundwater were a result of the sample turbidities, rather than a result of historical practices conducted on-site.

Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

TCL SVOCs - Groundwater

No TCL SVOCs were detected in Site groundwater via EPA Method 8270E at any sample location.

Reporting limits exceeded the EPA Tapwater screening level for multiple analytes at all sampling locations. Additionally, reporting limits for atrazine; bis(2-ethylhexyl)phthalate; hexachlorobenzene; and pentachlorophenol exceeded their respective South Carolina Class GB MCLs and EPA MCLs at all sampling locations. Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

Low-Level PAHs - Groundwater

Low-level concentrations of anthracene and pyrene were detected in the groundwater samples collected from wells MW-1 (pyrene), MW-2 (anthracene), and MW-5 (pyrene). Each of these parameters were observed at concentrations well below the EPA Tapwater screening values (South Carolina Class GB MCLs and EPA MCLs have not been established for these analytes).

Reporting limits for benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, and naphthalene exceeded their respective EPA Tapwater screening levels. The reporting limits for benzo(a)pyrene were below its South Carolina Class GB MCL and EPA MCL. South Carolina Class GB MCLs and EPA MCLs have not been established for the three remaining parameters. Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

TCL VOCs - Groundwater

Ethylbenzene was detected at a concentration above its Tapwater screening level in the groundwater sample collected from monitoring well MW-6. The detected concentration of 2 µg/L only slightly exceeded its Tapwater screening level (1.5 µg/L) and was well below its South Carolina Class GB MCL and EPA MCL. Low concentrations of toluene and xylenes were also detected in this sample, but at values well below the regulatory limits.

No other VOCs were detected above applicable screening levels in any of the other samples collected.

The reporting limits for multiple parameters exceeded their respective EPA Tapwater screening levels at all sample locations. Additionally, the reporting limits for 1,2-dibromo-3-chloropropane and 1,2-dibromoethane exceeded their EPA MCLs at all sample locations.

Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

TCL PCBs and Pesticides - Groundwater

No PCBs were detected in the groundwater sample collected from well MW-3.

Heptachlor epoxide was detected at a concentration above its EPA Tapwater screening level in the MW-3 groundwater sample, but below its South Carolina Class GB MCL and EPA MCL.

Reporting limits for multiple PCB and pesticide analytes exceeded their respective EPA Tapwater screening levels at MW-3. Additionally, the reporting limit for toxaphene exceeded its South Carolina Class GB MCL and EPA MCL.

Given the expectation that the Site will be connected to the municipal water service in the future, these exceedances are unlikely to significantly impact future Site redevelopment.

Cyanide - Groundwater

Cyanide was not detected in the sample collected from monitoring well MW-3.

Test Soil Borings

A total of six soil test borings were collected within the deep, overgrown depression. The test borings were collected to determine the presence and/or absence of landfill materials in this area of the Site. No landfill materials were observed at any of the test boring locations. Additionally, probe refusal was encountered at depths of seven feet bgs or less at each test boring location, indicating the presence of shallow partially weathered rock and/or bedrock in the area. Partially weathered rock/bedrock at a shallow depth would likely preclude the burial of waste material in the area. A record of the test borings is included with the soil boring logs in **Appendix A**.

7.2 Conclusions

Slight contamination from PAHs, arsenic, and lead was detected in Site soils, principally in the area proximate to/downgradient of the former boilers, smokestack, transformer house, and coal trestle. Due to the limited extent of the contamination and generally low levels at which the contaminants were observed, the presence of these analytes at concentrations exceeding regulatory criteria is not expected to significantly impede the future development of the Site.

Several analytes were identified in Site groundwater at concentrations above EPA Tapwater screening values; however, the presence of these contaminants is not expected to impact future development goals, as the Site will be serviced via the municipal water supply.

No landfill materials were observed at any of the test boring locations. Additionally, probe refusal was encountered at depths of seven feet bgs or less at each test boring location, indicating the presence of shallow partially weathered rock and/or bedrock in the area. Partially weathered rock/bedrock at a shallow depth would likely preclude the burial of waste material in the area.

7.3 Recommendations

The decision rule outlined in the Data Quality Objectives for this brownfields project, as presented in the Addendum, indicates that further assessment should be conducted or an Analysis of Brownfields Cleanup Alternatives (ABCA) or Corrective Measures Plan (CMP) should be prepared to evaluate remedial actions and/or institutional controls in the event that analytes were observed in Site media at concentrations exceeding regulatory limits. Cardno believes that a potential exposure risk from constituents associated with the past uses of the Subject Property or items/materials stored on the Site exists and that the preparation of an ABCA or CMP is warranted. It is preferable that the ABCA or CMP be prepared in accordance with the redevelopment plans for the property.

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Former Republic Mill #1

TABLES

Cardno

Table 1A
Summary of Soil Analytical Results - Metals
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 8/30/2019

Metals																					
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-01		GF-SB-01		GF-SS-02		GF-SB-02		GF-SS-03		GF-SB-03		GF-SS-04		GF-SB-04	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
Target Analyte List Metals																					
7429-90-5	Aluminum	SW6020B	mg/Kg-dry	77000	1100000	**21700**	143	**22900**	166	**34300**	148	**16700**	7.76	**42900**	200	**45000**	156	**4740**	7.94	**3550**	7.74
7440-36-0	Antimony	SW6020B	mg/Kg-dry	31	470	BRL	0.71	BRL	0.83	BRL	0.74	BRL	0.78	BRL	1	BRL	0.78	BRL	0.79	BRL	0.77
7440-38-2	Arsenic	SW6020B	mg/Kg-dry	0.68	3	**4.42**	0.43	**2.87**	0.5	**3.32**	0.44	**1.51**	0.47	**4.59**	0.6	**4.27**	0.47	**10.2**	0.48	**9.01**	0.46
7440-39-3	Barium	SW6020B	mg/Kg-dry	15000	220000	**40.4**	1.78	**25.3**	2.07	**33.1**	1.85	**16.7**	1.94	**34.5**	2.5	**27.3**	1.95	**77.3**	1.98	**87**	1.94
7440-41-7	Beryllium	SW6020B	mg/Kg-dry	160	2300	**0.72**	0.36	**0.68**	0.41	**0.86**	0.37	**0.51**	0.39	**0.94**	0.5	**0.81**	0.39	**1.52**	0.4	**1.33**	0.39
7440-43-9	Cadmium	SW6020B	mg/Kg-dry	71	980	BRL	0.36	BRL	0.41	BRL	0.37	BRL	0.39	BRL	0.5	BRL	0.39	**1.04**	0.4	**0.82**	0.39
7440-70-2	Calcium	SW6020B	mg/Kg-dry			**726**	17.8	**187**	20.7	**665**	18.5	**108**	19.4	**1110**	25	**418**	19.5	**1930**	19.8	**2160**	19.4
7440-47-3	Chromium	SW6020B	mg/Kg-dry			**21.6**	0.71	**16.3**	0.83	**12.7**	0.74	**6.3**	0.78	**16.4**	1	**10.6**	0.78	**7.59**	0.79	**5.71**	0.77
7440-48-4	Cobalt	SW6020B	mg/Kg-dry	23	350	**1.71**	0.54	**1.39**	0.62	**2.09**	0.55	**0.66**	0.58	**2.3**	0.75	**2**	0.58	**4.44**	0.6	**3.98**	0.58
7440-50-8	Copper	SW6020B	mg/Kg-dry	3100	47000	**5.56**	0.71	**4.26**	0.83	**9.55**	0.74	**7.59**	0.78	**6.14**	1	**5.4**	0.78	**64.6**	0.79	**76.7**	0.77
7439-89-6	Iron	SW6020B	mg/Kg-dry	55000	820000	**27400**	357	**25900**	414	**22900**	369	**14000**	19.4	**41400**	500	**41600**	389	**10100**	19.8	**9550**	19.4
7439-92-1	Lead	SW6020B	mg/Kg-dry	400	800	**16.3**	0.36	**8.83**	0.41	**16.1**	0.37	**13.7**	0.39	**10.3**	0.5	**10.9**	0.39	**12.3**	0.4	**19.1**	0.39
7439-95-4	Magnesium	SW6020B	mg/Kg-dry			**339**	17.8	**947**	20.7	**575**	18.5	**297**	19.4	**1110**	25	**1730**	19.5	**242**	19.8	**537**	19.4
7439-96-5	Manganese	SW6020B	mg/Kg-dry	1800	26000	**140**	0.71	**124**	0.83	**51.5**	0.74	**31.5**	0.78	**117**	1	**193**	0.78	**78.7**	0.79	**113**	0.77
7440-02-0	Nickel	SW6020B	mg/Kg-dry	1500	22000	**6.46**	0.71	**2.87**	0.83	**5.8**	0.74	**2.25**	0.78	**5.3**	1	**3.91**	0.78	**11.7**	0.79	**9.9**	0.77
7440-09-7	Potassium	SW6020B	mg/Kg-dry			**415**	17.8	**1420**	20.7	**696**	18.5	**457**	19.4	**1390**	25	**2380**	19.5	**232**	19.8	**468**	19.4
7782-49-2	Selenium	SW6020B	mg/Kg-dry	390	5800	BRL	1.78	BRL	2.07	BRL	1.85	BRL	1.94	BRL	2.5	BRL	1.95	**2.29**	1.98	BRL	1.94
7440-22-4	Silver	SW6020B	mg/Kg-dry	390	5800	BRL	0.18	BRL	0.21	BRL	0.18	BRL	0.19	BRL	0.25	BRL	0.2	BRL	0.2	BRL	0.19
7440-23-5	Sodium	SW6020B	mg/Kg-dry			BRL	35.7	**44.6**	41.4	**67.3**	36.9	**57.3**	38.8	BRL	50	**40.6**	38.9	**81.2**	39.7	**110**	38.7
7440-28-0	Thallium	SW6020B	mg/Kg-dry	0.78	12	BRL	0.5	BRL	0.58	BRL	0.52	BRL	0.54	BRL	0.7	**0.57**	0.55	BRL	0.56	BRL	0.54
7440-62-2	Vanadium	SW6020B	mg/Kg-dry	390	5800	**42.9**	0.71	**33**	0.83	**23.3**	0.74	**13.2**	0.78	**43.4**	1	**34.2**	0.78	**12.2**	0.79	**11.5**	0.77
7440-66-6	Zinc	SW6020B	mg/Kg-dry	23000	350000	**15.3**	1.78	**18.2**	2.07	**18.8**	1.85	**12**	1.94	**25.3**	2.5	**36**	2.26	**53.7**	2.3	**87.8**	2.25
Mercury																					
7439-97-6	Mercury	SW7473	mg/Kg-dry	11	46	BRL	0.118	BRL	0.149	BRL	0.118	BRL	0.144	**0.127**	0.122	BRL	0.131	BRL	0.144	BRL	0.107

Metals																					
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-08		GF-SB-08		GF-SS-09		GF-SS-09 DUP		GF-SB-09		GF-SB-09 DUP		GF-SS-10		GF-SB-10	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
Target Analyte List Metals																					
7429-90-5	Aluminum	SW6020B	mg/Kg-dry	77000	1100000	**16700**	8.23	**16800**	7.4	**20700**	133	**30200**	184	**31000**	179	**21500**	128	**5240**	10.5	**15000**	9.21
7440-36-0	Antimony	SW6020B	mg/Kg-dry	31	470	BRL	0.82	BRL	0.74	BRL	0.67	BRL	0.92	BRL	0.9	BRL	0.64	BRL	1.05	BRL	0.92
7440-38-2	Arsenic	SW6020B	mg/Kg-dry	0.68	3	**2.28**	0.49	**1.65**	0.44	**1.86**	0.4	**0.98**	0.55	**1.85**	0.54	**0.92**	0.38	**26.4**	0.63	**1.29**	0.55
7440-39-3	Barium	SW6020B	mg/Kg-dry	15000	220000	**11.3**	2.06	**13.6**	1.85	**91.2**	1.67	**23.1**	2.3	**44.4**	2.24	**71.9**	1.6	**99.8**	2.62	**27.4**	2.3
7440-41-7	Beryllium	SW6020B	mg/Kg-dry	160	2300	**0.48**	0.41	**0.47**	0.37	**1.02**	0.33	**0.82**	0.46	**0.65**	0.45	**0.58**	0.32	**3.47**	0.52	**0.71**	0.46
7440-43-9	Cadmium	SW6020B	mg/Kg-dry	71	980	BRL	0.41	BRL	0.37	BRL	0.33	BRL	0.46	BRL	0.45	BRL	0.32	**3.57**	0.52	BRL	0.46
7440-70-2	Calcium	SW6020B	mg/Kg-dry			**94.5**	20.6	BRL	20.7	**16300**	333	**78.2**	23	**23.5**	22.4	**39.2**	16	**1730**	26.2	**892**	23
7440-47-3	Chromium	SW6020B	mg/Kg-dry			**13.9**	0.82	**9.87**	0.74	**5.39**	0.67	**2.88**	0.92	**6.12**	0.9	**1.81**	0.64	**11.3**	1.05	**3.26**	0.92
7440-48-4	Cobalt	SW6020B	mg/Kg-dry	23	350	BRL	0.62	BRL	0.56	**1.42**	0.5	**1.3**	0.69	**2.64**	0.67	**6.53**	0.48	**4.24**	0.79	**1.01**	0.69
7440-50-8	Copper	SW6020B	mg/Kg-dry	3100	47000	**7.29**	0.82	**5.82**	0.74	**4.89**	0.67	**3.6**	0.92	**5.86**	0.9	**3.82**	0.64	**58.1**	1.05	**2.27**	0.92
7439-89-6	Iron	SW6020B	mg/Kg-dry	55000	820000	**16500**	20.6	**11600**	18.5	**13200**	333	**11300**	23	**15700**	22.4	**8070**	16	**13400**	26.2	**14800**	23
7439-92-1	Lead	SW6020B	mg/Kg-dry	400	800	**20**	0.41	**14.1**	0.37	**11**	0.33	**7.65**	0.46	**13.4**	0.45	**25.1**	0.32	**35.9**	0.52	**5.87**	0.46
7439-95-4	Magnesium	SW6020B	mg/Kg-dry			**288**	20.6	**154**	18.5	**897**	16.7	**469**	23	**862**	22.4	**477**	16	**731**	26.2	**1210**	23
7439-96-5	Manganese	SW6020B	mg/Kg-dry	1800	26000	**45.9**	0.82	**38.6**	0.74	**75.7**	0.67	**75.9**	0.92	**268**	0.9	**2850**	12.8	**95.6**	1.05	**112**	0.92
7440-02-0	Nickel	SW6020B	mg/Kg-dry	1500	22000	**1.79**	0.82	**1.82**	0.74	**2.59**	0.67	**1.88**	0.92	**3.07**	0.9	**1.15**	0.64	**9.63**	1.05	BRL	0.92
7440-09-7	Potassium	SW6020B	mg/Kg-dry			**549**	20.6	**329**	18.5	**443**	16.7	**644**	23	**1230**	22.4	**641**	16	**597**	26.2	**2070**	23
7782-49-2	Selenium	SW6020B	mg/Kg-dry	390	5800	BRL	2.06	BRL	1.85	BRL	1.67	BRL	2.3	BRL	2.24	BRL	1.6	BRL	2.62	BRL	2.3
7440-22-4	Silver	SW6020B	mg/Kg-dry	390	5800	BRL	0.21	BRL	0.18	BRL	0.17	BRL	0.23	BRL	0.22	BRL	0.16	BRL	0.26	BRL	0.23
7440-23-5	Sodium	SW6020B	mg/Kg-dry			**42.7**	41.2	BRL	37	**43.9**	33.3	**48.9**	45.9	**58.9**	44.8	**39.7**	32	**86.4**	52.5	**49**	46
7440-28-0	Thallium	SW6020B	mg/Kg-dry	0.78	12	BRL	0.58	BRL	0.52	BRL	0.47	BRL	0.64	BRL	0.63	**0.58**	0.45	BRL	0.74	BRL	0.64
7440-62-2	Vanadium	SW6020B	mg/Kg-dry	390	5800	**25.5**	0.82	**17**	0.74	**12.3**	0.67	**8.13**	0.92	**16.2**	0.9	**5.94**	0.64	**21.4**	1.05	**19.6**	0.92
7440-66-6	Zinc	SW6020B	mg/Kg-dry	23000	350000	**13.3**	2.06	**11**	1.85	**74.7**	1.67	**19**	2.3	**19.3**	2.24	**14.7**	1.6	**117**	2.62	**21.3**	2.3
Mercury																					
7439-97-6	Mercury	SW7473	mg/Kg-dry	11	46	BRL	0.122	BRL	0.13	BRL	0.115	BRL	0.12	BRL	0.122	BRL	0.112	**0.142**	0.113	BRL	0.117

Notes:
RSL: Regional Screening Levels April 2019 (mg/kg)
RL: Reporting Limit (mg/kg)
mg/Kg: Milligrams per kilogram
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

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Table 1A
Summary of Soil Analytical Results - Metals
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 8/30/2019

Metals																					
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-11		GF-SB-11		GF-SS-12		GF-SB-12		GF-SS-13		GF-SB-13		GF-SS-14		GF-SB-14	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
Target Analyte List Metals																					
7429-90-5	Aluminum	SW6020B	mg/Kg-dry	77000	1100000	**11200**	8.58	**11200**	7.19	**14600**	6.89	**36600**	182	**12000**	6.31	**17000**	10.1	**18800**	10.5	**14700**	10.8
7440-36-0	Antimony	SW6020B	mg/Kg-dry	31	470	BRL	0.86	BRL	0.72	BRL	0.69	BRL	0.91	BRL	0.63	BRL	1.01	BRL	1.05	BRL	1.08
7440-38-2	Arsenic	SW6020B	mg/Kg-dry	0.68	3	**3.04**	0.52	**3.46**	0.43	**2.68**	0.41	**7.43**	0.55	**3.51**	0.38	**2.95**	0.6	**33.4**	0.63	**56.9**	0.65
7440-39-3	Barium	SW6020B	mg/Kg-dry	15000	220000	**24.2**	2.14	**11.2**	1.8	**44.9**	1.72	**175**	2.27	**55.3**	1.58	**39.9**	2.51	**58.7**	2.63	**80.3**	2.71
7440-41-7	Beryllium	SW6020B	mg/Kg-dry	160	2300	**0.59**	0.43	**0.6**	0.36	**1.1**	0.34	**2.87**	0.46	**0.74**	0.32	**0.64**	0.5	**0.89**	0.53	**1.32**	0.54
7440-43-9	Cadmium	SW6020B	mg/Kg-dry	71	980	BRL	0.43	BRL	0.36	BRL	0.34	BRL	0.46	BRL	0.32	BRL	0.5	BRL	0.53	**0.64**	0.54
7440-70-2	Calcium	SW6020B	mg/Kg-dry			**731**	21.4	**228**	18	**8520**	17.2	**43600**	455	**1010**	15.8	**631**	25.1	**1360**	26.3	**5200**	27.1
7440-47-3	Chromium	SW6020B	mg/Kg-dry			**14.4**	0.86	**20.8**	0.72	**7.28**	0.69	**15**	0.91	**7.17**	0.63	**9.24**	1.01	**13.8**	1.05	**15**	1.08
7440-48-4	Cobalt	SW6020B	mg/Kg-dry	23	350	**1.4**	0.64	**0.77**	0.54	**5.82**	0.52	**6.71**	0.68	**9.23**	0.47	**12.3**	0.75	**9.58**	0.79	**8.04**	0.81
7440-50-8	Copper	SW6020B	mg/Kg-dry	3100	47000	**5.47**	0.86	**3.24**	0.72	**4.55**	0.69	**8.79**	0.91	**6.91**	0.63	**3.93**	1.01	**7.29**	1.05	**11.7**	1.08
7439-89-6	Iron	SW6020B	mg/Kg-dry	55000	820000	**17200**	21.4	**28800**	359	**10500**	17.2	**14600**	22.7	**11300**	15.8	**14800**	25.1	**15400**	26.3	**18200**	27.1
7439-92-1	Lead	SW6020B	mg/Kg-dry	400	800	**10.2**	0.43	**9.02**	0.36	**22.7**	0.34	**30.6**	0.46	**25.8**	0.32	**21.1**	0.5	**25.3**	0.53	**58.6**	0.54
7439-95-4	Magnesium	SW6020B	mg/Kg-dry			**425**	21.4	**368**	18	**805**	17.2	**2270**	22.7	**570**	15.8	**563**	25.1	**474**	26.3	**1410**	27.1
7439-96-5	Manganese	SW6020B	mg/Kg-dry	1800	26000	**67.4**	0.86	**49.7**	0.72	**774**	0.69	**651**	0.91	**648**	0.63	**908**	1.01	**1790**	21.1	**870**	1.08
7440-02-0	Nickel	SW6020B	mg/Kg-dry	1500	22000	**2.88**	0.86	**1.73**	0.72	**5.16**	0.69	**7.84**	0.91	**4.71**	0.63	**6.19**	1.01	**6.92**	1.05	**7.87**	1.08
7440-09-7	Potassium	SW6020B	mg/Kg-dry			**740**	21.4	**719**	18	**909**	17.2	**2470**	22.7	**604**	15.8	**572**	25.1	**719**	26.3	**1130**	27.1
7782-49-2	Selenium	SW6020B	mg/Kg-dry	390	5800	BRL	2.14	BRL	1.8	BRL	1.72	**3.09**	2.27	BRL	1.58	BRL	2.51	BRL	2.63	BRL	2.71
7440-22-4	Silver	SW6020B	mg/Kg-dry	390	5800	BRL	0.21	BRL	0.18	BRL	0.17	BRL	0.23	BRL	0.16	BRL	0.25	BRL	0.26	BRL	0.27
7440-23-5	Sodium	SW6020B	mg/Kg-dry			BRL	42.9	BRL	35.9	**90.9**	34.5	**227**	45.5	**31.6**	31.5	BRL	50.3	**80.3**	52.6	**87.7**	54.2
7440-28-0	Thallium	SW6020B	mg/Kg-dry	0.78	12	BRL	0.6	BRL	0.5	**0.5**	0.48	BRL	0.64	**0.52**	0.44	BRL	0.7	**0.81**	0.74	BRL	0.76
7440-62-2	Vanadium	SW6020B	mg/Kg-dry	390	5800	**26.2**	0.86	**35**	0.72	**18.5**	0.69	**30.2**	0.91	**17.3**	0.63	**22.6**	1.01	**26.7**	1.05	**30.5**	1.08
7440-66-6	Zinc	SW6020B	mg/Kg-dry	23000	350000	**12.6**	2.14	**8.36**	1.8	**22.4**	1.72	**53.9**	2.27	**26.1**	1.58	**12.7**	2.51	**38.9**	2.63	**215**	2.71
Mercury																					
7439-97-6	Mercury	SW7473	mg/Kg-dry	11	46	BRL	0.118	BRL	0.129	BRL	0.127	BRL	0.117	BRL	0.113	BRL	0.112	BRL	0.112	**0.117**	0.114

Metals																					
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-15		GF-SB-15		GF-SS-16		GF-SB-16		GF-SS-17		GF-SB-17		GF-SS-18		GF-SB-18	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
Target Analyte List Metals																					
7429-90-5	Aluminum	SW6020B	mg/Kg-dry	77000	1100000	**6440**	8.65	**44900**	228	**3130**	7.95	**13300**	9.3	**31100**	13.4	**39600**	147	**41400**	187	**91900**	194
7440-36-0	Antimony	SW6020B	mg/Kg-dry	31	470	BRL	0.86	BRL	1.14	**5.19**	0.8	BRL	0.93	BRL	1.34	BRL	0.74	BRL	0.93	BRL	0.97
7440-38-2	Arsenic	SW6020B	mg/Kg-dry	0.68	3	**9.61**	0.52	**5.51**	0.63	**31.2**	0.48	**8.41**	0.56	**2.97**	0.67	**7.72**	0.44	**2.57**	0.56	**16.8**	0.58
7440-39-3	Barium	SW6020B	mg/Kg-dry	15000	220000	**320**	2.16	**82.2**	2.84	**174**	1.99	**58.7**	2.33	**134**	3.34	**100**	1.84	**135**	2.34	**204**	2.42
7440-41-7	Beryllium	SW6020B	mg/Kg-dry	160	2300	**0.81**	0.43	**1.14**	0.57	**1.07**	0.4	**0.78**	0.46	**2.34**	0.67	**1.58**	0.37	**2.4**	0.47	**3.61**	0.48
7440-43-9	Cadmium	SW6020B	mg/Kg-dry	71	980	**0.44**	0.43	BRL	0.57	**0.86**	0.4	BRL	0.46	BRL	0.67	**0.94**	0.37	**0.71**	0.47	**1.41**	0.48
7440-70-2	Calcium	SW6020B	mg/Kg-dry			**48500**	433	**1340**	28.4	**2670**	19.9	**1450**	23.3	**713**	33.4	**2250**	18.4	**1430**	23.4	**3670**	24.2
7440-47-3	Chromium	SW6020B	mg/Kg-dry			**13.4**	0.86	**17**	1.14	**292**	0.8	**11.3**	0.93	**12.7**	1.34	**50.2**	0.74	**86.1**	0.93	**49.7**	0.97
7440-48-4	Cobalt	SW6020B	mg/Kg-dry	23	350	**5.11**	0.65	**8.09**	0.85	**3.03**	0.6	**13.8**	0.7	**4.57**	1	**7.68**	0.55	**14.8**	0.7	**14.4**	0.73
7440-50-8	Copper	SW6020B	mg/Kg-dry	3100	47000	**34.6**	0.86	**8.33**	1.14	**37.1**	0.8	**13.5**	0.93	**61.7**	1.34	**65.4**	0.74	**41.3**	0.93	**124**	0.97
7439-89-6	Iron	SW6020B	mg/Kg-dry	55000	820000	**19300**	21.6	**22800**	28.4	**9010**	19.9	**14200**	23.3	**31400**	33.4	**37800**	367	**38700**	467	**70000**	485
7439-92-1	Lead	SW6020B	mg/Kg-dry	400	800	**173**	0.43	**17.8**	0.57	**464**	0.4	**30**	0.46	**17.5**	0.67	**23.6**	0.37	**20.3**	0.47	**45.7**	0.48
7439-95-4	Magnesium	SW6020B	mg/Kg-dry			**1920**	21.6	**627**	28.4	**767**	19.9	**468**	23.3	**5090**	33.4	**1290**	18.4	**11200**	23.4	**5110**	24.2
7439-96-5	Manganese	SW6020B	mg/Kg-dry	1800	26000	**301**	0.86	**500**	1.14	**227**	0.8	**1490**	0.93	**530**	1.34	**237**	0.74	**414**	0.93	**561**	0.97
7440-02-0	Nickel	SW6020B	mg/Kg-dry	1500	22000	**4.51**	0.86	**8.84**	1.14	**5.4**	0.8	**5.62**	0.93	**7.68**	1.34	**11.3**	0.74	**49.3**	0.93	**29.1**	0.97
7440-09-7	Potassium	SW6020B	mg/Kg-dry			**622**	21.6	**815**	28.4	**611**	19.9	**549**	23.3	**6950**	33.4	**946**	18.4	**10400**	23.4	**5300**	24.2
7782-49-2	Selenium	SW6020B	mg/Kg-dry	390	5800	BRL	2.16	BRL	2.84	BRL	1.99	BRL	2.33	**5.01**	3.34	**2.21**	1.84	**2.72**	2.34	**4.42**	2.42
7440-22-4	Silver	SW6020B	mg/Kg-dry	390	5800	BRL	0.22	BRL	0.28	BRL	0.2	BRL	0.23	BRL	0.33	BRL	0.18	BRL	0.23	BRL	0.24
7440-23-5	Sodium	SW6020B	mg/Kg-dry			**81.3**	43.3	BRL	56.9	**56.6**	39.7	**64.8**	46.5	**145**	66.9	**73.9**	36.7	**202**	46.7	**237**	48.5
7440-28-0	Thallium	SW6020B	mg/Kg-dry	0.78	12	BRL	0.61	BRL	0.74	BRL	0.56	BRL	0.65	**1.11**	0.74	BRL	0.51	**1.03**	0.65	**1.11**	0.68
7440-62-2	Vanadium	SW6020B	mg/Kg-dry	390	5800	**20.8**	0.86	**40.2**	1.14	**9.42**	0.8	**25.1**	0.93	**27**	1.34	**84.2**	0.74	**52.3**	0.93	**49.2**	0.97
7440-66-6	Zinc	SW6020B	mg/Kg-dry	23000	350000	**339**	2.34	**79**	2.84	**184**	1.99	**81.5**	2.7	**99.1**	3.34	**220**	2.2	**108**	2.34	**189**	2.42
Mercury																					
7439-97-6	Mercury	SW7473	mg/Kg-dry	11	46	BRL	0.113	BRL	0.117	**0.123**	0.105	BRL	0.115	BRL	0.187	BRL	0.113	BRL	0.149	BRL	0.111

Notes:
RSL: Regional Screening Levels April 2019 (mg/kg)
RL: Reporting Limit (mg/kg)
mg/Kg: Milligrams per kilogram
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

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Table 1A
Summary of Soil Analytical Results - Semivolatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 8/26/2019

Target Compound List Semivolatile Organic Compounds																					
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-01		GF-SB-01		GF-SS-02		GF-SB-02		GF-SS-03		GF-SB-03		GF-SS-04		GF-SB-04	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
90-12-0	1-Methylnaphthalene	SW8270E SIM	mg/kg	18	73	BRL	0.02	BRL	0.025	BRL	0.02	BRL	0.025	BRL	0.021	**0.57**	0.22	**0.16**	0.025	**0.38**	0.18
91-57-6	2-Methylnaphthalene	SW8270E SIM	mg/kg	240	3000	BRL	0.02	BRL	0.025	BRL	0.02	BRL	0.025	BRL	0.021	**0.63**	0.22	**0.19**	0.025	**0.39**	0.18
83-32-9	Acenaphthene	SW8270E SIM	mg/kg	3600	45000	BRL	0.02	BRL	0.025	BRL	0.02	BRL	0.025	**0.057**	0.021	**1.8**	0.22	**0.051**	0.025	**0.031**	0.018
208-96-8	Acenaphthylene	SW8270E SIM	mg/kg			BRL	0.039	BRL	0.049	BRL	0.039	BRL	0.048	**0.059**	0.04	**0.53**	0.22	**0.073**	0.048	BRL	0.035
120-12-7	Anthracene	SW8270E SIM	mg/kg	18000	230000	**0.0061**	0.002	BRL	0.0025	BRL	0.002	BRL	0.0025	**0.19**	0.0021	**4.6**	0.22	**0.15**	0.0025	**0.098**	0.0018
56-55-3	Benz(a)anthracene	SW8270E SIM	mg/kg	1.1	21	**0.022**	0.002	BRL	0.0025	BRL	0.002	BRL	0.0025	**0.5**	0.21	**6.9**	0.22	**0.46**	0.25	**0.42**	0.18
50-32-8	Benzo(a)pyrene	SW8270E SIM	mg/kg	0.11	2.1	**0.024**	0.002	BRL	0.0025	BRL	0.002	BRL	0.0025	**0.45**	0.21	**6**	0.22	**0.44**	0.25	**0.35**	0.0018
205-99-2	Benzo(b)fluoranthene	SW8270E SIM	mg/kg	1.1	21	**0.038**	0.0039	BRL	0.0049	BRL	0.0039	BRL	0.0048	**0.58**	0.4	**7.2**	0.43	**0.61**	0.48	**0.48**	0.35
191-24-2	Benzo(g,h,i)perylene	SW8270E SIM	mg/kg			**0.018**	0.0039	BRL	0.0049	BRL	0.0039	BRL	0.0048	**0.24**	0.004	**3.7**	0.43	**0.27**	0.0048	**0.19**	0.0035
207-08-9	Benzo(k)fluoranthene	SW8270E SIM	mg/kg	11	210	**0.014**	0.002	BRL	0.0025	BRL	0.002	BRL	0.0025	**0.18**	0.0021	**3.1**	0.22	**0.21**	0.0025	**0.16**	0.0018
218-01-9	Chrysene	SW8270E SIM	mg/kg	110	2100	**0.029**	0.002	BRL	0.0025	BRL	0.002	BRL	0.0025	**0.54**	0.21	**7.5**	0.22	**0.58**	0.25	**0.51**	0.18
53-70-3	Dibenz(a,h)anthracene	SW8270E SIM	mg/kg	0.11	2.1	**0.044**	0.0039	BRL	0.0049	BRL	0.0039	BRL	0.0048	**0.071**	0.004	**0.56**	0.43	**0.087**	0.0048	**0.066**	0.0035
206-44-0	Fluoranthene	SW8270E SIM	mg/kg	2400	30000	BRL	0.0039	BRL	0.0049	BRL	0.0039	BRL	0.0048	**1**	0.4	**18**	0.43	**0.91**	0.48	**0.73**	0.35
86-73-7	Fluorene	SW8270E SIM	mg/kg	2400	30000	**0.014**	0.0039	BRL	0.0049	BRL	0.0039	BRL	0.0048	**0.094**	0.004	**2.8**	0.43	**0.075**	0.0048	**0.037**	0.0035
193-39-5	Indeno(1,2,3-cd)pyrene	SW8270E SIM	mg/kg	1.1	21	BRL	0.002	BRL	0.0025	BRL	0.002	BRL	0.0025	**0.23**	0.0021	**3.1**	0.22	**0.25**	0.0025	**0.17**	0.0018
91-20-3	Naphthalene	SW8270E SIM	mg/kg	3.8	17	**0.023**	0.02	BRL	0.025	BRL	0.02	BRL	0.025	**0.033**	0.021	**1.4**	0.22	**0.16**	0.025	**0.27**	0.018
85-01-8	Phenanthrene	SW8270E SIM	mg/kg			**0.043**	0.002	BRL	0.0025	BRL	0.002	BRL	0.0025	**0.92**	0.21	**22**	0.22	**0.73**	0.25	**0.69**	0.18
129-00-0	Pyrene	SW8270E SIM	mg/kg	1800	23000	BRL	0.002	BRL	0.0025	**0.0025**	0.002	**0.0032**	0.0025	**1.1**	0.21	**17**	0.22	**1**	0.25	**0.8**	0.18
92-52-4	1,1´-Biphenyl	SW8270E	mg/kg	47	200	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
95-95-4	2,4,5-Trichlorophenol	SW8270E	mg/kg	6300	82000	BRL	2	BRL	2.5	BRL	2	BRL	2.5	BRL	2.1	BRL	2.2	BRL	2.5	BRL	1.8
88-06-2	2,4,6-Trichlorophenol	SW8270E	mg/kg	49	210	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
120-83-2	2,4-Dichlorophenol	SW8270E	mg/kg	190	2500	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
105-67-9	2,4-Dimethylphenol	SW8270E	mg/kg	1300	16000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
51-28-5	2,4-Dinitrophenol	SW8270E	mg/kg	130	1600	BRL	2	BRL	2.5	BRL	2	BRL	2.5	BRL	2.1	BRL	2.2	BRL	2.5	BRL	1.8
121-14-2	2,4-Dinitrotoluene	SW8270E	mg/kg	1.7	7.4	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
606-20-2	2,6-Dinitrotoluene	SW8270E	mg/kg	0.36	1.5	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
91-58-7	2-Chloronaphthalene	SW8270E	mg/kg	4800	60000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
95-57-8	2-Chlorophenol	SW8270E	mg/kg	390	5800	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
95-48-7	2-Methylphenol	SW8270E	mg/kg	3200	41000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
88-74-4	2-Nitroaniline	SW8270E	mg/kg	630	8000	BRL	2	BRL	2.5	BRL	2	BRL	2.5	BRL	2.1	BRL	2.2	BRL	2.5	BRL	1.8
88-75-5	2-Nitrophenol	SW8270E	mg/kg			BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
91-94-1	3,3´-Dichlorobenzidine	SW8270E	mg/kg	1.2	5.1	BRL	0.79	BRL	1	BRL	0.79	BRL	0.97	BRL	0.82	BRL	0.88	BRL	0.97	BRL	0.72
99-09-2	3-Nitroaniline	SW8270E	mg/kg			BRL	2	BRL	2.5	BRL	2	BRL	2.5	BRL	2.1	BRL	2.2	BRL	2.5	BRL	1.8
534-52-1	4,6-Dinitro-2-methylphenol	SW8270E	mg/kg	5.1	66	BRL	2	BRL	2.5	BRL	2	BRL	2.5	BRL	2.1	BRL	2.2	BRL	2.5	BRL	1.8
101-55-3	4-Bromophenyl phenyl ether	SW8270E	mg/kg			BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
59-50-7	4-Chloro-3-methylphenol	SW8270E	mg/kg			BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
106-47-8	4-Chloroaniline	SW8270E	mg/kg	2.7	11	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
7005-72-3	4-Chlorophenyl phenyl ether	SW8270E	mg/kg			BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
106-44-5	4-Methylphenol	SW8270E	mg/kg	6300	82000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
100-01-6	4-Nitroaniline	SW8270E	mg/kg	27	110	BRL	2	BRL	2.5	BRL	2	BRL	2.5	BRL	2.1	BRL	2.2	BRL	2.5	BRL	1.8
100-02-7	4-Nitrophenol	SW8270E	mg/kg			BRL	2	BRL	2.5	BRL	2	BRL	2.5	BRL	2.1	BRL	2.2	BRL	2.5	BRL	1.8
98-86-2	Acetophenone	SW8270E	mg/kg	7800	120000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
1912-24-9	Atrazine	SW8270E	mg/kg	2.4	10	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
100-52-7	Benzaldehyde	SW8270E	mg/kg	170	820	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
111-91-1	Bis(2-chloroethoxy)methane	SW8270E	mg/kg	190	2500	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
111-44-4	Bis(2-chloroethyl)ether	SW8270E	mg/kg	0.23	1	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
108-60-1	Bis(2-chloroisopropyl)ether	SW8270E	mg/kg	3100	47000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
117-81-7	Bis(2-ethylhexyl)phthalate	SW8270E	mg/kg	39	160	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
85-68-7	Butyl benzyl phthalate	SW8270E	mg/kg	290	1200	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
105-60-2	Caprolactam	SW8270E	mg/kg			BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
86-74-8	Carbazole	SW8270E	mg/kg			BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	**2.2**	0.48	BRL	0.35
132-64-9	Dibenzofuran	SW8270E	mg/kg	73	1000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	**2.4**	0.48	BRL	0.35
84-66-2	Diethyl phthalate	SW8270E	mg/kg	51000	660000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
131-11-3	Dimethyl phthalate	SW8270E	mg/kg			BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
84-74-2	Di-n-butyl phthalate	SW8270E	mg/kg	6300	82000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
117-84-0	Di-n-octyl phthalate	SW8270E	mg/kg	630	8200	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
118-74-1	Hexachlorobenzene	SW8270E	mg/kg	0.21	0.96	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
87-68-3	Hexachlorobutadiene	SW8270E	mg/kg	1.2	5.3	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
77-47-4	Hexachlorocyclopentadiene	SW8270E	mg/kg	1.8	7.5	BRL	0.78	BRL	0.98	BRL	0.78	BRL	0.95	BRL	0.8	BRL	0.86	BRL	0.95	BRL	0.71
67-72-1	Hexachloroethane	SW8270E	mg/kg	1.8	8	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
78-59-1	Isophorone	SW8270E	mg/kg	570	2400	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
98-95-3	Nitrobenzene	SW8270E	mg/kg	5.1	22	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
621-64-7	N-Nitrosodi-n-propylamine	SW8270E	mg/kg	0.078	0.33	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
86-30-6	N-Nitrosodiphenylamine	SW8270E	mg/kg	110	470	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35
87-86-5	Pentachlorophenol	SW8270E	mg/kg	1	4	BRL	2	BRL	2.5	BRL	2	BRL	2.5	BRL	2.1	BRL	2.2	BRL	2.5	BRL	1.8
108-95-2	Phenol	SW8270E	mg/kg	19000	250000	BRL	0.39	BRL	0.49	BRL	0.39	BRL	0.48	BRL	0.4	BRL	0.43	BRL	0.48	BRL	0.35

Notes:
RSL: Regional Screening Levels April 2019 (mg/kg)
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

Cardno

Table 1A
Summary of Soil Analytical Results - Semivolatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 8/26/2019

Target Compound List Semivolatile Organic Compounds																					
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-08		GF-SB-08		GF-SS-09		GF-SS-09 DUP		GF-SB-09		GF-SB-09 DUP		GF-SS-10		GF-SB-10	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
90-12-0	1-Methylnaphthalene	SW8270E SIM	mg/kg	18	73	BRL	0.021	BRL	0.022	BRL	0.019	BRL	0.02	BRL	0.021	BRL	0.019	**0.26**	0.019	BRL	0.02
91-57-6	2-Methylnaphthalene	SW8270E SIM	mg/kg	240	3000	BRL	0.021	BRL	0.022	BRL	0.019	BRL	0.02	BRL	0.021	BRL	0.019	**0.33**	0.019	BRL	0.02
83-32-9	Acenaphthene	SW8270E SIM	mg/kg	3600	45000	BRL	0.021	BRL	0.022	BRL	0.019	BRL	0.02	BRL	0.021	BRL	0.019	**0.15**	0.019	BRL	0.02
208-96-8	Acenaphthylene	SW8270E SIM	mg/kg			BRL	0.04	BRL	0.043	BRL	0.038	BRL	0.04	BRL	0.04	BRL	0.037	**0.07**	0.037	BRL	0.039
120-12-7	Anthracene	SW8270E SIM	mg/kg	18000	230000	BRL	0.0021	BRL	0.0022	**0.013**	0.0019	**0.0064**	0.002	BRL	0.0021	BRL	0.0019	**0.37**	0.0019	BRL	0.002
56-55-3	Benz(a)anthracene	SW8270E SIM	mg/kg	1.1	21	**0.0025**	0.0021	BRL	0.0022	**0.054**	0.0019	**0.026**	0.002	BRL	0.0021	BRL	0.0019	**1.1**	0.19	BRL	0.002
50-32-8	Benzo(a)pyrene	SW8270E SIM	mg/kg	0.11	2.1	BRL	0.0021	BRL	0.0022	**0.053**	0.0019	**0.025**	0.002	BRL	0.0021	BRL	0.0019	**1.1**	0.19	BRL	0.002
205-99-2	Benzo(b)fluoranthene	SW8270E SIM	mg/kg	1.1	21	BRL	0.004	BRL	0.0043	**0.069**	0.0038	**0.037**	0.004	BRL	0.004	BRL	0.0037	**1.5**	0.37	BRL	0.0039
191-24-2	Benzo(g,h,i)perylene	SW8270E SIM	mg/kg			BRL	0.004	BRL	0.0043	**0.048**	0.0038	**0.024**	0.004	BRL	0.004	BRL	0.0037	**0.97**	0.37	BRL	0.0039
207-08-9	Benzo(k)fluoranthene	SW8270E SIM	mg/kg	11	210	BRL	0.0021	BRL	0.0022	**0.037**	0.0019	**0.017**	0.002	BRL	0.0021	BRL	0.0019	**0.55**	0.19	BRL	0.002
218-01-9	Chrysene	SW8270E SIM	mg/kg	110	2100	**0.0029**	0.0021	BRL	0.0022	**0.069**	0.0019	**0.034**	0.002	BRL	0.0021	BRL	0.0019	**1.4**	0.19	**0.0021**	0.002
53-70-3	Dibenz(a,h)anthracene	SW8270E SIM	mg/kg	0.11	2.1	BRL	0.004	BRL	0.0043	**0.0048**	0.0038	BRL	0.004	BRL	0.004	BRL	0.0037	**0.19**	0.0037	BRL	0.0039
206-44-0	Fluoranthene	SW8270E SIM	mg/kg	2400	30000	**0.0051**	0.004	BRL	0.0043	**0.11**	0.0038	**0.053**	0.004	BRL	0.004	BRL	0.0037	**2.7**	0.37	**0.0039**	0.0039
86-73-7	Fluorene	SW8270E SIM	mg/kg	2400	30000	BRL	0.004	BRL	0.0043	**0.0047**	0.0038	BRL	0.004	BRL	0.004	BRL	0.0037	**0.13**	0.0037	BRL	0.0039
193-39-5	Indeno(1,2,3-cd)pyrene	SW8270E SIM	mg/kg	1.1	21	BRL	0.0021	BRL	0.0022	**0.033**	0.0019	**0.017**	0.002	BRL	0.0021	BRL	0.0019	**0.68**	0.19	BRL	0.002
91-20-3	Naphthalene	SW8270E SIM	mg/kg	3.8	17	BRL	0.021	BRL	0.022	BRL	0.019	BRL	0.02	BRL	0.021	BRL	0.019	**0.4**	0.19	BRL	0.02
85-01-8	Phenanthrene	SW8270E SIM	mg/kg			**0.003**	0.0021	BRL	0.0022	**0.074**	0.0019	**0.032**	0.002	BRL	0.0021	BRL	0.0019	**2.4**	0.19	**0.004**	0.002
129-00-0	Pyrene	SW8270E SIM	mg/kg	1800	23000	**0.0045**	0.0021	BRL	0.0022	**0.12**	0.0019	**0.062**	0.002	**0.0051**	0.0021	BRL	0.0019	**3**	0.19	**0.0055**	0.002
92-52-4	1,1´-Biphenyl	SW8270E	mg/kg	47	200	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
95-95-4	2,4,5-Trichlorophenol	SW8270E	mg/kg	6300	82000	BRL	2.1	BRL	2.2	BRL	1.9	BRL	2	BRL	2.1	BRL	1.9	BRL	1.9	BRL	2
88-06-2	2,4,6-Trichlorophenol	SW8270E	mg/kg	49	210	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
120-83-2	2,4-Dichlorophenol	SW8270E	mg/kg	190	2500	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
105-67-9	2,4-Dimethylphenol	SW8270E	mg/kg	1300	16000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
51-28-5	2,4-Dinitrophenol	SW8270E	mg/kg	130	1600	BRL	2.1	BRL	2.2	BRL	1.9	BRL	2	BRL	2.1	BRL	1.9	BRL	1.9	BRL	2
121-14-2	2,4-Dinitrotoluene	SW8270E	mg/kg	1.7	7.4	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
606-20-2	2,6-Dinitrotoluene	SW8270E	mg/kg	0.36	1.5	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
91-58-7	2-Chloronaphthalene	SW8270E	mg/kg	4800	60000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
95-57-8	2-Chlorophenol	SW8270E	mg/kg	390	5800	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
95-48-7	2-Methylphenol	SW8270E	mg/kg	3200	41000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
88-74-4	2-Nitroaniline	SW8270E	mg/kg	630	8000	BRL	2.1	BRL	2.2	BRL	1.9	BRL	2	BRL	2.1	BRL	1.9	BRL	1.9	BRL	2
88-75-5	2-Nitrophenol	SW8270E	mg/kg			BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
91-94-1	3,3´-Dichlorobenzidine	SW8270E	mg/kg	1.2	5.1	BRL	0.82	BRL	0.87	BRL	0.77	BRL	0.8	BRL	0.82	BRL	0.75	BRL	0.76	BRL	0.79
99-09-2	3-Nitroaniline	SW8270E	mg/kg			BRL	2.1	BRL	2.2	BRL	1.9	BRL	2	BRL	2.1	BRL	1.9	BRL	1.9	BRL	2
534-52-1	4,6-Dinitro-2-methylphenol	SW8270E	mg/kg	5.1	66	BRL	2.1	BRL	2.2	BRL	1.9	BRL	2	BRL	2.1	BRL	1.9	BRL	1.9	BRL	2
101-55-3	4-Bromophenyl phenyl ether	SW8270E	mg/kg			BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
59-50-7	4-Chloro-3-methylphenol	SW8270E	mg/kg			BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
106-47-8	4-Chloroaniline	SW8270E	mg/kg	2.7	11	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
7005-72-3	4-Chlorophenyl phenyl ether	SW8270E	mg/kg			BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
106-44-5	4-Methylphenol	SW8270E	mg/kg	6300	82000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
100-01-6	4-Nitroaniline	SW8270E	mg/kg	27	110	BRL	2.1	BRL	2.2	BRL	1.9	BRL	2	BRL	2.1	BRL	1.9	BRL	1.9	BRL	2
100-02-7	4-Nitrophenol	SW8270E	mg/kg			BRL	2.1	BRL	2.2	BRL	1.9	BRL	2	BRL	2.1	BRL	1.9	BRL	1.9	BRL	2
98-86-2	Acetophenone	SW8270E	mg/kg	7800	120000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
1912-24-9	Atrazine	SW8270E	mg/kg	2.4	10	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
100-52-7	Benzaldehyde	SW8270E	mg/kg	170	820	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
111-91-1	Bis(2-chloroethoxy)methane	SW8270E	mg/kg	190	2500	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
111-44-4	Bis(2-chloroethyl)ether	SW8270E	mg/kg	0.23	1	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
108-60-1	Bis(2-chloroisopropyl)ether	SW8270E	mg/kg	3100	47000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
117-81-7	Bis(2-ethylhexyl)phthalate	SW8270E	mg/kg	39	160	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
85-68-7	Butyl benzyl phthalate	SW8270E	mg/kg	290	1200	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
105-60-2	Caprolactam	SW8270E	mg/kg			BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
86-74-8	Carbazole	SW8270E	mg/kg			BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	**2.2**	0.37	BRL	0.39
132-64-9	Dibenzofuran	SW8270E	mg/kg	73	1000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	**0.87**	0.37	BRL	0.39
84-66-2	Diethyl phthalate	SW8270E	mg/kg	51000	660000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
131-11-3	Dimethyl phthalate	SW8270E	mg/kg			BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
84-74-2	Di-n-butyl phthalate	SW8270E	mg/kg	6300	82000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
117-84-0	Di-n-octyl phthalate	SW8270E	mg/kg	630	8200	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
118-74-1	Hexachlorobenzene	SW8270E	mg/kg	0.21	0.96	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
87-68-3	Hexachlorobutadiene	SW8270E	mg/kg	1.2	5.3	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
77-47-4	Hexachlorocyclopentadiene	SW8270E	mg/kg	1.8	7.5	BRL	0.8	BRL	0.86	BRL	0.76	BRL	0.79	BRL	0.81	BRL	0.74	BRL	0.74	BRL	0.78
67-72-1	Hexachloroethane	SW8270E	mg/kg	1.8	8	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
78-59-1	Isophorone	SW8270E	mg/kg	570	2400	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
98-95-3	Nitrobenzene	SW8270E	mg/kg	5.1	22	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
621-64-7	N-Nitrosodi-n-propylamine	SW8270E	mg/kg	0.078	0.33	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
86-30-6	N-Nitrosodiphenylamine	SW8270E	mg/kg	110	470	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39
87-86-5	Pentachlorophenol	SW8270E	mg/kg	1	4	BRL	2.1	BRL	2.2	BRL	1.9	BRL	2	BRL	2.1	BRL	1.9	BRL	1.9	BRL	2
108-95-2	Phenol	SW8270E	mg/kg	19000	250000	BRL	0.4	BRL	0.43	BRL	0.38	BRL	0.4	BRL	0.4	BRL	0.37	BRL	0.37	BRL	0.39

Notes:
RSL: Regional Screening Levels April 2019 (mg/kg)
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

Cardno

Table 1A
Summary of Soil Analytical Results - Semivolatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 8/26/2019

Target Compound List Semivolatile Organic Compounds																					
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-11		GF-SB-11		GF-SS-12		GF-SB-12		GF-SS-13		GF-SB-13		GF-SS-14		GF-SB-14	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
90-12-0	1-Methylnaphthalene	SW8270E SIM	mg/kg	18	73	**0.088**	0.02	BRL	0.022	**0.28**	0.022	**0.42**	0.2	**0.52**	0.19	BRL	0.019	**0.23**	0.019	**0.089**	0.019
91-57-6	2-Methylnaphthalene	SW8270E SIM	mg/kg	240	3000	**0.094**	0.02	BRL	0.022	**0.27**	0.022	**0.4**	0.2	**0.56**	0.19	BRL	0.019	**0.26**	0.019	**0.096**	0.019
83-32-9	Acenaphthene	SW8270E SIM	mg/kg	3600	45000	**0.29**	0.02	BRL	0.022	**0.79**	0.22	**1.3**	0.2	**1.8**	0.19	**0.046**	0.019	**0.32**	0.019	**0.094**	0.019
208-96-8	Acenaphthylene	SW8270E SIM	mg/kg			**0.039**	0.039	BRL	0.042	**0.37**	0.042	**0.64**	0.2	**0.58**	0.19	**0.037**	0.037	**0.19**	0.037	**0.093**	0.038
120-12-7	Anthracene	SW8270E SIM	mg/kg	18000	230000	**0.77**	0.2	BRL	0.0022	**2.2**	0.22	**3.8**	0.2	**3.9**	0.19	**0.093**	0.0019	**0.97**	0.19	**0.44**	0.19
56-55-3	Benz(a)anthracene	SW8270E SIM	mg/kg	1.1	21	**2.1**	0.2	BRL	0.0022	**6**	0.22	**11**	0.2	**12**	0.19	**0.29**	0.0019	**2.8**	0.19	**1.2**	0.19
50-32-8	Benzo(a)pyrene	SW8270E SIM	mg/kg	0.11	2.1	**2**	0.2	BRL	0.0022	**5.2**	0.22	**9.6**	0.2	**11**	0.19	**0.25**	0.0019	**2.4**	0.19	**0.99**	0.19
205-99-2	Benzo(b)fluoranthene	SW8270E SIM	mg/kg	1.1	21	**2.6**	0.39	BRL	0.0042	**6.6**	0.42	**12**	0.39	**14**	0.37	**0.33**	0.0037	**3.4**	0.37	**1.5**	0.38
191-24-2	Benzo(g,h,i)perylene	SW8270E SIM	mg/kg			**1.6**	0.39	BRL	0.0042	**3.6**	0.42	**6.8**	0.39	**7.5**	0.37	**0.14**	0.0037	**1.8**	0.37	**0.78**	0.38
207-08-9	Benzo(k)fluoranthene	SW8270E SIM	mg/kg	11	210	**1.1**	0.2	BRL	0.0022	**3.1**	0.22	**4.2**	0.2	**5.1**	0.19	**0.13**	0.0019	**1.2**	0.19	**0.57**	0.19
218-01-9	Chrysene	SW8270E SIM	mg/kg	110	2100	**2.5**	0.2	**0.0023**	0.0022	**7.2**	0.22	**12**	0.2	**12**	0.19	**0.26**	0.0019	**3.1**	0.19	**1.4**	0.19
53-70-3	Dibenz(a,h)anthracene	SW8270E SIM	mg/kg	0.11	2.1	**0.31**	0.0039	BRL	0.0042	**0.5**	0.42	**1.8**	0.39	**2**	0.37	**0.049**	0.0037	**0.46**	0.37	**0.19**	0.0038
206-44-0	Fluoranthene	SW8270E SIM	mg/kg	2400	30000	**5**	0.39	**0.0042**	0.0042	**15**	0.42	**24**	0.39	**26**	0.37	**0.54**	0.37	**6.3**	0.37	**2.7**	0.38
86-73-7	Fluorene	SW8270E SIM	mg/kg	2400	30000	**0.3**	0.0039	BRL	0.0042	**0.82**	0.42	**1.4**	0.39	**1.7**	0.37	**0.042**	0.0037	**0.32**	0.0037	**0.088**	0.0038
193-39-5	Indeno(1,2,3-cd)pyrene	SW8270E SIM	mg/kg	1.1	21	**1.2**	0.2	BRL	0.0022	**2.7**	0.22	**5.4**	0.2	**6.2**	0.19	**0.13**	0.0019	**1.5**	0.19	**0.64**	0.19
91-20-3	Naphthalene	SW8270E SIM	mg/kg	3.8	17	**0.11**	0.02	BRL	0.022	**0.74**	0.22	**1.3**	0.2	**1.3**	0.19	**0.027**	0.019	**0.53**	0.19	**0.16**	0.019
85-01-8	Phenanthrene	SW8270E SIM	mg/kg			**4**	0.2	**0.0034**	0.0022	**14**	0.22	**22**	0.2	**21**	0.19	**0.33**	0.0019	**5.3**	0.19	**2.3**	0.19
129-00-0	Pyrene	SW8270E SIM	mg/kg	1800	23000	**5.5**	0.2	**0.0051**	0.0022	**16**	0.22	**26**	0.2	**24**	0.19	**0.49**	0.19	**6.2**	0.19	**2.7**	0.19
92-52-4	1,1´-Biphenyl	SW8270E	mg/kg	47	200	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	**0.69**	0.37	BRL	0.37	BRL	0.37	BRL	0.38
95-95-4	2,4,5-Trichlorophenol	SW8270E	mg/kg	6300	82000	BRL	2	BRL	2.2	BRL	2.2	BRL	2	BRL	1.9	BRL	1.9	BRL	1.9	BRL	1.9
88-06-2	2,4,6-Trichlorophenol	SW8270E	mg/kg	49	210	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
120-83-2	2,4-Dichlorophenol	SW8270E	mg/kg	190	2500	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
105-67-9	2,4-Dimethylphenol	SW8270E	mg/kg	1300	16000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
51-28-5	2,4-Dinitrophenol	SW8270E	mg/kg	130	1600	BRL	2	BRL	2.2	BRL	2.2	BRL	2	BRL	1.9	BRL	1.9	BRL	1.9	BRL	1.9
121-14-2	2,4-Dinitrotoluene	SW8270E	mg/kg	1.7	7.4	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
606-20-2	2,6-Dinitrotoluene	SW8270E	mg/kg	0.36	1.5	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
91-58-7	2-Chloronaphthalene	SW8270E	mg/kg	4800	60000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
95-57-8	2-Chlorophenol	SW8270E	mg/kg	390	5800	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
95-48-7	2-Methylphenol	SW8270E	mg/kg	3200	41000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
88-74-4	2-Nitroaniline	SW8270E	mg/kg	630	8000	BRL	2	BRL	2.2	BRL	2.2	BRL	2	BRL	1.9	BRL	1.9	BRL	1.9	BRL	1.9
88-75-5	2-Nitrophenol	SW8270E	mg/kg			BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
91-94-1	3,3´-Dichlorobenzidine	SW8270E	mg/kg	1.2	5.1	BRL	0.79	BRL	0.86	BRL	0.85	BRL	0.78	BRL	0.76	BRL	0.75	BRL	0.75	BRL	0.76
99-09-2	3-Nitroaniline	SW8270E	mg/kg			BRL	2	BRL	2.2	BRL	2.2	BRL	2	BRL	1.9	BRL	1.9	BRL	1.9	BRL	1.9
534-52-1	4,6-Dinitro-2-methylphenol	SW8270E	mg/kg	5.1	66	BRL	2	BRL	2.2	BRL	2.2	BRL	2	BRL	1.9	BRL	1.9	BRL	1.9	BRL	1.9
101-55-3	4-Bromophenyl phenyl ether	SW8270E	mg/kg			BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
59-50-7	4-Chloro-3-methylphenol	SW8270E	mg/kg			BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
106-47-8	4-Chloroaniline	SW8270E	mg/kg	2.7	11	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
7005-72-3	4-Chlorophenyl phenyl ether	SW8270E	mg/kg			BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
106-44-5	4-Methylphenol	SW8270E	mg/kg	6300	82000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	**0.47**	0.37	BRL	0.37	BRL	0.37	BRL	0.38
100-01-6	4-Nitroaniline	SW8270E	mg/kg	27	110	BRL	2	BRL	2.2	BRL	2.2	BRL	2	BRL	1.9	BRL	1.9	BRL	1.9	BRL	1.9
100-02-7	4-Nitrophenol	SW8270E	mg/kg			BRL	2	BRL	2.2	BRL	2.2	BRL	2	BRL	1.9	BRL	1.9	BRL	1.9	BRL	1.9
98-86-2	Acetophenone	SW8270E	mg/kg	7800	120000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
1912-24-9	Atrazine	SW8270E	mg/kg	2.4	10	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
100-52-7	Benzaldehyde	SW8270E	mg/kg	170	820	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
111-91-1	Bis(2-chloroethoxy)methane	SW8270E	mg/kg	190	2500	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
111-44-4	Bis(2-chloroethyl)ether	SW8270E	mg/kg	0.23	1	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
108-60-1	Bis(2-chloroisopropyl)ether	SW8270E	mg/kg	3100	47000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
117-81-7	Bis(2-ethylhexyl)phthalate	SW8270E	mg/kg	39	160	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
85-68-7	Butyl benzyl phthalate	SW8270E	mg/kg	290	1200	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
105-60-2	Caprolactam	SW8270E	mg/kg			BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
86-74-8	Carbazole	SW8270E	mg/kg			BRL	0.39	BRL	0.42	**3.1**	0.42	**2.2**	0.39	**13**	3.7	BRL	0.37	**0.44**	0.37	BRL	0.38
132-64-9	Dibenzofuran	SW8270E	mg/kg	73	1000	BRL	0.39	BRL	0.42	**1.7**	0.42	**1.2**	0.39	**3.8**	0.37	BRL	0.37	BRL	0.37	BRL	0.38
84-66-2	Diethyl phthalate	SW8270E	mg/kg	51000	660000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
131-11-3	Dimethyl phthalate	SW8270E	mg/kg			BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
84-74-2	Di-n-butyl phthalate	SW8270E	mg/kg	6300	82000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
117-84-0	Di-n-octyl phthalate	SW8270E	mg/kg	630	8200	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
118-74-1	Hexachlorobenzene	SW8270E	mg/kg	0.21	0.96	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
87-68-3	Hexachlorobutadiene	SW8270E	mg/kg	1.2	5.3	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
77-47-4	Hexachlorocyclopentadiene	SW8270E	mg/kg	1.8	7.5	BRL	0.78	BRL	0.85	BRL	0.84	BRL	0.77	BRL	0.75	BRL	0.74	BRL	0.74	BRL	0.75
67-72-1	Hexachloroethane	SW8270E	mg/kg	1.8	8	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
78-59-1	Isophorone	SW8270E	mg/kg	570	2400	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
98-95-3	Nitrobenzene	SW8270E	mg/kg	5.1	22	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
621-64-7	N-Nitrosodi-n-propylamine	SW8270E	mg/kg	0.078	0.33	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
86-30-6	N-Nitrosodiphenylamine	SW8270E	mg/kg	110	470	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38
87-86-5	Pentachlorophenol	SW8270E	mg/kg	1	4	BRL	2	BRL	2.2	BRL	2.2	BRL	2	BRL	1.9	BRL	1.9	BRL	1.9	BRL	1.9
108-95-2	Phenol	SW8270E	mg/kg	19000	250000	BRL	0.39	BRL	0.42	BRL	0.42	BRL	0.39	BRL	0.37	BRL	0.37	BRL	0.37	BRL	0.38

Notes:
RSL: Regional Screening Levels April 2019 (mg/kg)
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

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Table 1A
Summary of Soil Analytical Results - Semivolatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 8/26/2019

Target Compound List Semivolatile Organic Compounds																					
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-15		GF-SB-15		GF-SS-16		GF-SB-16		GF-SS-17		GF-SB-17		GF-SS-18		GF-SB-18	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
90-12-0	1-Methylnaphthalene	SW8270E SIM	mg/kg	18	73	**1.1**	0.19	BRL	0.02	**1.2**	0.18	**0.041**	0.02	BRL	0.032	BRL	0.019	BRL	0.025	BRL	0.019
91-57-6	2-Methylnaphthalene	SW8270E SIM	mg/kg	240	3000	**1.2**	0.19	BRL	0.02	**0.98**	0.18	**0.04**	0.02	BRL	0.032	BRL	0.019	BRL	0.025	BRL	0.019
83-32-9	Acenaphthene	SW8270E SIM	mg/kg	3600	45000	**0.96**	0.19	BRL	0.02	**2.3**	0.18	**0.055**	0.02	BRL	0.032	BRL	0.019	BRL	0.025	BRL	0.019
208-96-8	Acenaphthylene	SW8270E SIM	mg/kg			**1.7**	0.19	**0.041**	0.039	**1.3**	0.18	**0.042**	0.038	BRL	0.062	BRL	0.037	BRL	0.049	BRL	0.037
120-12-7	Anthracene	SW8270E SIM	mg/kg	18000	230000	**4.5**	0.19	**0.039**	0.002	**8.7**	0.18	**0.19**	0.002	**0.03**	0.0032	**0.0027**	0.0019	**0.015**	0.0025	**0.0032**	0.0019
56-55-3	Benz(a)anthracene	SW8270E SIM	mg/kg	1.1	21	**21**	0.19	**0.12**	0.002	**64**	1.8	**1.1**	0.2	**0.13**	0.0032	**0.0051**	0.0019	**0.087**	0.0025	**0.0062**	0.0019
50-32-8	Benzo(a)pyrene	SW8270E SIM	mg/kg	0.11	2.1	**19**	0.19	**0.12**	0.002	**57**	1.8	**1**	0.2	**0.14**	0.0032	**0.0064**	0.0019	**0.091**	0.0025	**0.0078**	0.0019
205-99-2	Benzo(b)fluoranthene	SW8270E SIM	mg/kg	1.1	21	**30**	0.37	**0.18**	0.0039	**71**	3.5	**1.4**	0.38	**0.19**	0.0062	**0.0074**	0.0037	**0.12**	0.0049	**0.011**	0.0037
191-24-2	Benzo(g,h,i)perylene	SW8270E SIM	mg/kg			**13**	0.37	**0.072**	0.0039	**44**	3.5	**0.9**	0.38	**0.085**	0.0062	**0.0059**	0.0037	**0.059**	0.0049	**0.0097**	0.0037
207-08-9	Benzo(k)fluoranthene	SW8270E SIM	mg/kg	11	210	**10**	0.19	**0.061**	0.002	**35**	1.8	**0.32**	0.002	**0.068**	0.0032	**0.0032**	0.0019	**0.044**	0.0025	**0.003**	0.0019
218-01-9	Chrysene	SW8270E SIM	mg/kg	110	2100	**23**	0.19	**0.13**	0.002	**81**	1.8	**1.4**	0.2	**0.14**	0.0032	**0.0065**	0.0019	**0.099**	0.0025	**0.014**	0.0019
53-70-3	Dibenz(a,h)anthracene	SW8270E SIM	mg/kg	0.11	2.1	**2.8**	0.37	**0.021**	0.0039	**8.1**	0.35	**0.1**	0.0038	**0.026**	0.0062	BRL	0.0037	**0.017**	0.0049	BRL	0.0037
206-44-0	Fluoranthene	SW8270E SIM	mg/kg	2400	30000	**42**	3.7	**0.23**	0.0039	**120**	3.5	**2.2**	0.38	**0.24**	0.0062	**0.0072**	0.0037	**0.15**	0.0049	**0.011**	0.0037
86-73-7	Fluorene	SW8270E SIM	mg/kg	2400	30000	**0.71**	0.37	**0.01**	0.0039	**1.8**	0.35	**0.047**	0.0038	**0.01**	0.0062	BRL	0.0037	**0.0059**	0.0049	BRL	0.0037
193-39-5	Indeno(1,2,3-cd)pyrene	SW8270E SIM	mg/kg	1.1	21	**12**	0.19	**0.065**	0.002	**30**	0.18	**0.057**	0.002	**0.014**	0.0032	**0.0051**	0.0019	**0.05**	0.0025	**0.0063**	0.0019
91-20-3	Naphthalene	SW8270E SIM	mg/kg	3.8	17	**2.4**	1.9	BRL	0.02	**1.1**	0.18	**0.028**	0.02	BRL	0.032	BRL	0.019	BRL	0.025	BRL	0.019
85-01-8	Phenanthrene	SW8270E SIM	mg/kg			**24**	0.19	**0.15**	0.002	**54**	1.8	**1.5**	0.2	**0.1**	0.0032	**0.0064**	0.0019	**0.063**	0.0025	**0.01**	0.0019
129-00-0	Pyrene	SW8270E SIM	mg/kg	1800	23000	**41**	1.9	**0.22**	0.002	**150**	1.8	**2.9**	0.2	**0.22**	0.0032	**0.0073**	0.0019	**0.16**	0.0025	**0.015**	0.0019
92-52-4	1,1´-Biphenyl	SW8270E	mg/kg	47	200	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
95-95-4	2,4,5-Trichlorophenol	SW8270E	mg/kg	6300	82000	BRL	1.9	BRL	2	BRL	1.8	BRL	2	BRL	3.2	BRL	1.9	BRL	2.5	BRL	1.9
88-06-2	2,4,6-Trichlorophenol	SW8270E	mg/kg	49	210	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
120-83-2	2,4-Dichlorophenol	SW8270E	mg/kg	190	2500	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
105-67-9	2,4-Dimethylphenol	SW8270E	mg/kg	1300	16000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
51-28-5	2,4-Dinitrophenol	SW8270E	mg/kg	130	1600	BRL	1.9	BRL	2	BRL	1.8	BRL	2	BRL	3.2	BRL	1.9	BRL	2.5	BRL	1.9
121-14-2	2,4-Dinitrotoluene	SW8270E	mg/kg	1.7	7.4	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
606-20-2	2,6-Dinitrotoluene	SW8270E	mg/kg	0.36	1.5	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
91-58-7	2-Chloronaphthalene	SW8270E	mg/kg	4800	60000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
95-57-8	2-Chlorophenol	SW8270E	mg/kg	390	5800	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
95-48-7	2-Methylphenol	SW8270E	mg/kg	3200	41000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
88-74-4	2-Nitroaniline	SW8270E	mg/kg	630	8000	BRL	1.9	BRL	2	BRL	1.8	BRL	2	BRL	3.2	BRL	1.9	BRL	2.5	BRL	1.9
88-75-5	2-Nitrophenol	SW8270E	mg/kg			BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
91-94-1	3,3´-Dichlorobenzidine	SW8270E	mg/kg	1.2	5.1	BRL	0.76	BRL	0.78	BRL	0.7	BRL	0.77	BRL	1.3	BRL	0.76	BRL	1	BRL	0.75
99-09-2	3-Nitroaniline	SW8270E	mg/kg			BRL	1.9	BRL	2	BRL	1.8	BRL	2	BRL	3.2	BRL	1.9	BRL	2.5	BRL	1.9
534-52-1	4,6-Dinitro-2-methylphenol	SW8270E	mg/kg	5.1	66	BRL	1.9	BRL	2	BRL	1.8	BRL	2	BRL	3.2	BRL	1.9	BRL	2.5	BRL	1.9
101-55-3	4-Bromophenyl phenyl ether	SW8270E	mg/kg			BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
59-50-7	4-Chloro-3-methylphenol	SW8270E	mg/kg			BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
106-47-8	4-Chloroaniline	SW8270E	mg/kg	2.7	11	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
7005-72-3	4-Chlorophenyl phenyl ether	SW8270E	mg/kg			BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
106-44-5	4-Methylphenol	SW8270E	mg/kg	6300	82000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
100-01-6	4-Nitroaniline	SW8270E	mg/kg	27	110	BRL	1.9	BRL	2	BRL	1.8	BRL	2	BRL	3.2	BRL	1.9	BRL	2.5	BRL	1.9
100-02-7	4-Nitrophenol	SW8270E	mg/kg			BRL	1.9	BRL	2	BRL	1.8	BRL	2	BRL	3.2	BRL	1.9	BRL	2.5	BRL	1.9
98-86-2	Acetophenone	SW8270E	mg/kg	7800	120000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
1912-24-9	Atrazine	SW8270E	mg/kg	2.4	10	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
100-52-7	Benzaldehyde	SW8270E	mg/kg	170	820	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
111-91-1	Bis(2-chloroethoxy)methane	SW8270E	mg/kg	190	2500	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
111-44-4	Bis(2-chloroethyl)ether	SW8270E	mg/kg	0.23	1	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
108-60-1	Bis(2-chloroisopropyl)ether	SW8270E	mg/kg	3100	47000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
117-81-7	Bis(2-ethylhexyl)phthalate	SW8270E	mg/kg	39	160	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
85-68-7	Butyl benzyl phthalate	SW8270E	mg/kg	290	1200	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
105-60-2	Caprolactam	SW8270E	mg/kg			BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
86-74-8	Carbazole	SW8270E	mg/kg			**3.8**	0.37	BRL	0.39	**1.9**	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
132-64-9	Dibenzofuran	SW8270E	mg/kg	73	1000	**1.7**	0.37	BRL	0.39	**8.1**	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
84-66-2	Diethyl phthalate	SW8270E	mg/kg	51000	660000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
131-11-3	Dimethyl phthalate	SW8270E	mg/kg			BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
84-74-2	Di-n-butyl phthalate	SW8270E	mg/kg	6300	82000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
117-84-0	Di-n-octyl phthalate	SW8270E	mg/kg	630	8200	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
118-74-1	Hexachlorobenzene	SW8270E	mg/kg	0.21	0.96	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
87-68-3	Hexachlorobutadiene	SW8270E	mg/kg	1.2	5.3	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
77-47-4	Hexachlorocyclopentadiene	SW8270E	mg/kg	1.8	7.5	BRL	0.75	BRL	0.77	BRL	0.69	BRL	0.76	BRL	1.2	BRL	0.75	BRL	0.98	BRL	0.74
67-72-1	Hexachloroethane	SW8270E	mg/kg	1.8	8	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
78-59-1	Isophorone	SW8270E	mg/kg	570	2400	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
98-95-3	Nitrobenzene	SW8270E	mg/kg	5.1	22	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
621-64-7	N-Nitrosodi-n-propylamine	SW8270E	mg/kg	0.078	0.33	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
86-30-6	N-Nitrosodiphenylamine	SW8270E	mg/kg	110	470	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37
87-86-5	Pentachlorophenol	SW8270E	mg/kg	1	4	BRL	1.9	BRL	2	BRL	1.8	BRL	2	BRL	3.2	BRL	1.9	BRL	2.5	BRL	1.9
108-95-2	Phenol	SW8270E	mg/kg	19000	250000	BRL	0.37	BRL	0.39	BRL	0.35	BRL	0.38	BRL	0.62	BRL	0.37	BRL	0.49	BRL	0.37

Notes:
RSL: Regional Screening Levels April 2019 (mg/kg)
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

Table 1A
Summary of Soil Analytical Results - Volatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 8/23/2019

Target Compound List Volatile Organic Compunds																							
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SB-01		GF-SB-02		GF-SB-03		GF-SB-04		GF-SB-08		GF-SB-09		GF-SB-09 DUP		GF-SB-10		GF-SB-11	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
71-55-6	1,1,1-Trichloroethane	8260B	mg/kg	8100	36000	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
79-34-5	1,1,2,2-Tetrachloroethane	8260B	mg/kg	0.6	2.7	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
79-00-5	1,1,2-Trichloroethane	8260B	mg/kg	1.1	5	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
76-13-1	1,1,2-Trichlorotrifluoroethane	8260B	mg/kg	6700	28000	BRL	0.01	BRL	0.011	BRL	0.011	BRL	0.015	BRL	0.0099	BRL	0.01	BRL	0.0097	BRL	0.0081	BRL	0.0087
75-34-3	1,1-Dichloroethane	8260B	mg/kg	3.6	16	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-35-4	1,1-Dichloroethene	8260B	mg/kg	230	1000	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
120-82-1	1,2,4-Trichlorobenzene	8260B	mg/kg	24	110	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
96-12-8	1,2-Dibromo-3-chloropropane	8260B	mg/kg	0.0053	0.064	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
106-93-4	1,2-Dibromoethane (EDB)	8260B	mg/kg	0.036	0.16	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
95-50-1	1,2-Dichlorobenzene	8260B	mg/kg	1800	9300	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
107-06-2	1,2-Dichloroethane	8260B	mg/kg	0.46	2	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
78-87-5	1,2-Dichloropropane	8260B	mg/kg	2.5	11	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
541-73-1	1,3-Dichlorobenzene	8260B	mg/kg			BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
106-46-7	1,4-Dichlorobenzene	8260B	mg/kg	2.6	11	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
78-93-3	2-Butanone (MEK)	8260B	mg/kg	27000	190000	BRL	0.052	BRL	0.054	BRL	0.056	BRL	0.076	BRL	0.049	BRL	0.051	BRL	0.048	BRL	0.041	BRL	0.044
591-78-6	2-Hexanone	8260B	mg/kg	200	1300	BRL	0.01	BRL	0.011	BRL	0.011	BRL	0.015	BRL	0.0099	BRL	0.01	BRL	0.0097	BRL	0.0081	BRL	0.0087
108-10-1	4-Methyl-2-pentanone (MIBK)	8260B	mg/kg	33000	140000	BRL	0.01	BRL	0.011	BRL	0.011	BRL	0.015	BRL	0.0099	BRL	0.01	BRL	0.0097	BRL	0.0081	BRL	0.0087
67-64-1	Acetone	8260B	mg/kg	61000	670000	BRL	0.1	BRL	0.11	BRL	0.11	BRL	0.15	BRL	0.099	BRL	0.1	BRL	0.097	BRL	0.081	BRL	0.087
71-43-2	Benzene	8260B	mg/kg	1.2	5.1	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-27-4	Bromodichloromethane	8260B	mg/kg	0.29	1.3	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-25-2	Bromoform	8260B	mg/kg	19	86	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
74-83-9	Bromomethane	8260B	mg/kg	0.68	30	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-15-0	Carbon disulfide	8260B	mg/kg	770	3500	BRL	0.01	BRL	0.011	BRL	0.011	BRL	0.015	BRL	0.0099	BRL	0.01	BRL	0.0097	BRL	0.0081	BRL	0.0087
56-23-5	Carbon tetrachloride	8260B	mg/kg	0.65	2.9	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
108-90-7	Chlorobenzene	8260B	mg/kg	280	1300	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-00-3	Chloroethane	8260B	mg/kg	14000	57000	BRL	0.01	BRL	0.011	BRL	0.011	BRL	0.015	BRL	0.0099	BRL	0.01	BRL	0.0097	BRL	0.0081	BRL	0.0087
67-66-3	Chloroform	8260B	mg/kg	0.32	1.4	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
74-87-3	Chloromethane	8260B	mg/kg	110	460	BRL	0.01	BRL	0.011	BRL	0.011	BRL	0.015	BRL	0.0099	BRL	0.01	BRL	0.0097	BRL	0.0081	BRL	0.0087
156-59-2	cis-1,2-Dichloroethene	8260B	mg/kg	160	2300	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
10061-01-5	cis-1,3-Dichloropropene	8260B	mg/kg			BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
110-82-7	Cyclohexane	8260B	mg/kg	6500	27000	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
124-48-1	Dibromochloromethane	8260B	mg/kg	8.3	39	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-71-8	Dichlorodifluoromethane	8260B	mg/kg	87	370	BRL	0.01	BRL	0.011	BRL	0.011	BRL	0.015	BRL	0.0099	BRL	0.01	BRL	0.0097	BRL	0.0081	BRL	0.0087
100-41-4	Ethylbenzene	8260B	mg/kg	5.8	25	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
98-82-8	Isopropylbenzene (Cumene)	8260B	mg/kg	1900	9900	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
108-38-3 / 106-42-3	m&p-Xylene	8260B	mg/kg	550 / 560	2400 / 2400	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
79-20-9	Methyl acetate	8260B	mg/kg	78000	1200000	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
108-87-2	Methylcyclohexane	8260B	mg/kg			BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-09-2	Methylene Chloride	8260B	mg/kg	57	1000	BRL	0.021	BRL	0.022	BRL	0.022	BRL	0.031	BRL	0.02	BRL	0.02	BRL	0.019	BRL	0.0041	BRL	0.0044
1634-04-4	Methyl-tert-butyl ether	8260B	mg/kg	47	210	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.016	BRL	0.017
95-47-6	o-Xylene	8260B	mg/kg	350	2800	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
100-42-5	Styrene	8260B	mg/kg	6000	35000	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
127-18-4	Tetrachloroethene	8260B	mg/kg	24	100	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
108-88-3	Toluene	8260B	mg/kg	4900	47000	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
156-60-5	trans-1,2-Dichloroethene	8260B	mg/kg	1600	23000	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
10061-02-6	trans-1,3-Dichloropropene	8260B	mg/kg			BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
79-01-6	Trichloroethene	8260B	mg/kg	0.94	6	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-69-4	Trichlorofluoromethane	8260B	mg/kg	23000	350000	BRL	0.0052	BRL	0.0054	BRL	0.0056	BRL	0.0076	BRL	0.0049	BRL	0.0051	BRL	0.0048	BRL	0.0041	BRL	0.0044
75-01-4	Vinyl chloride	8260B	mg/kg	0.059	1.7	BRL	0.01	BRL	0.011	BRL	0.011	BRL	0.015	BRL	0.0099	BRL	0.01	BRL	0.0097	BRL	0.0081	BRL	0.0087

Notes:
RSL: Regional Screening Levels April 2019 (mg/kg)
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

Table 1A
Summary of Soil Analytical Results - Volatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 8/23/2019

Target Compound List Volatile Organic Compunds																							
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SB-12		GF-SB-13		GF-SB-14		GF-SS-15		GF-SB-15		GF-SS-16		GF-SB-16		GF-SB-17		GF-SB-18	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
71-55-6	1,1,1-Trichloroethane	8260B	mg/kg	8100	36000	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
79-34-5	1,1,2,2-Tetrachloroethane	8260B	mg/kg	0.6	2.7	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
79-00-5	1,1,2-Trichloroethane	8260B	mg/kg	1.1	5	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
76-13-1	1,1,2-Trichlorotrifluoroethane	8260B	mg/kg	6700	28000	BRL	0.0076	BRL	0.0073	BRL	0.0071	BRL	0.46	BRL	0.0086	BRL	0.0097	BRL	0.0085	BRL	0.0089	BRL	0.0095
75-34-3	1,1-Dichloroethane	8260B	mg/kg	3.6	16	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-35-4	1,1-Dichloroethene	8260B	mg/kg	230	1000	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
120-82-1	1,2,4-Trichlorobenzene	8260B	mg/kg	24	110	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
96-12-8	1,2-Dibromo-3-chloropropane	8260B	mg/kg	0.0053	0.064	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
106-93-4	1,2-Dibromoethane (EDB)	8260B	mg/kg	0.036	0.16	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
95-50-1	1,2-Dichlorobenzene	8260B	mg/kg	1800	9300	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
107-06-2	1,2-Dichloroethane	8260B	mg/kg	0.46	2	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
78-87-5	1,2-Dichloropropane	8260B	mg/kg	2.5	11	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
541-73-1	1,3-Dichlorobenzene	8260B	mg/kg			BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
106-46-7	1,4-Dichlorobenzene	8260B	mg/kg	2.6	11	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
78-93-3	2-Butanone (MEK)	8260B	mg/kg	27000	190000	BRL	0.038	BRL	0.036	BRL	0.035	BRL	2.3	BRL	0.043	BRL	0.048	BRL	0.043	BRL	0.045	BRL	0.048
591-78-6	2-Hexanone	8260B	mg/kg	200	1300	BRL	0.0076	BRL	0.0073	BRL	0.0071	BRL	0.46	BRL	0.0086	BRL	0.0097	BRL	0.0085	BRL	0.0089	BRL	0.0095
108-10-1	4-Methyl-2-pentanone (MIBK)	8260B	mg/kg	33000	140000	BRL	0.0076	BRL	0.0073	BRL	0.0071	BRL	0.46	BRL	0.0086	BRL	0.0097	BRL	0.0085	BRL	0.0089	BRL	0.0095
67-64-1	Acetone	8260B	mg/kg	61000	670000	**0.14**	0.076	**0.079**	0.073	**0.21**	0.071	BRL	4.6	**0.19**	0.086	**0.16**	0.097	**0.19**	0.085	BRL	0.089	BRL	0.095
71-43-2	Benzene	8260B	mg/kg	1.2	5.1	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-27-4	Bromodichloromethane	8260B	mg/kg	0.29	1.3	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-25-2	Bromoform	8260B	mg/kg	19	86	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
74-83-9	Bromomethane	8260B	mg/kg	0.68	30	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-15-0	Carbon disulfide	8260B	mg/kg	770	3500	BRL	0.0076	BRL	0.0073	BRL	0.0071	BRL	0.46	BRL	0.0086	BRL	0.0097	BRL	0.0085	BRL	0.0089	BRL	0.0095
56-23-5	Carbon tetrachloride	8260B	mg/kg	0.65	2.9	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
108-90-7	Chlorobenzene	8260B	mg/kg	280	1300	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-00-3	Chloroethane	8260B	mg/kg	14000	57000	BRL	0.0076	BRL	0.0073	BRL	0.0071	BRL	0.46	BRL	0.0086	BRL	0.0097	BRL	0.0085	BRL	0.0089	BRL	0.0095
67-66-3	Chloroform	8260B	mg/kg	0.32	1.4	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
74-87-3	Chloromethane	8260B	mg/kg	110	460	BRL	0.0076	BRL	0.0073	BRL	0.0071	BRL	0.46	BRL	0.0086	BRL	0.0097	BRL	0.0085	BRL	0.0089	BRL	0.0095
156-59-2	cis-1,2-Dichloroethene	8260B	mg/kg	160	2300	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
10061-01-5	cis-1,3-Dichloropropene	8260B	mg/kg			BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
110-82-7	Cyclohexane	8260B	mg/kg	6500	27000	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
124-48-1	Dibromochloromethane	8260B	mg/kg	8.3	39	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-71-8	Dichlorodifluoromethane	8260B	mg/kg	87	370	BRL	0.0076	BRL	0.0073	BRL	0.0071	BRL	0.46	BRL	0.0086	BRL	0.0097	BRL	0.0085	BRL	0.0089	BRL	0.0095
100-41-4	Ethylbenzene	8260B	mg/kg	5.8	25	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
98-82-8	Isopropylbenzene (Cumene)	8260B	mg/kg	1900	9900	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
108-38-3 / 106-42-3	m&p-Xylene	8260B	mg/kg	550 / 560	2400 / 2400	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
79-20-9	Methyl acetate	8260B	mg/kg	78000	1200000	BRL	0.0038	BRL	0.0036	BRL	0.0035	**0.23**	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
108-87-2	Methylcyclohexane	8260B	mg/kg			BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-09-2	Methylene Chloride	8260B	mg/kg	57	1000	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
1634-04-4	Methyl-tert-butyl ether	8260B	mg/kg	47	210	BRL	0.015	BRL	0.015	BRL	0.014	BRL	0.91	BRL	0.017	BRL	0.019	BRL	0.017	BRL	0.018	BRL	0.019
95-47-6	o-Xylene	8260B	mg/kg	350	2800	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
100-42-5	Styrene	8260B	mg/kg	6000	35000	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
127-18-4	Tetrachloroethene	8260B	mg/kg	24	100	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
108-88-3	Toluene	8260B	mg/kg	4900	47000	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
156-60-5	trans-1,2-Dichloroethene	8260B	mg/kg	1600	23000	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
10061-02-6	trans-1,3-Dichloropropene	8260B	mg/kg			BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
79-01-6	Trichloroethene	8260B	mg/kg	0.94	6	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-69-4	Trichlorofluoromethane	8260B	mg/kg	23000	350000	BRL	0.0038	BRL	0.0036	BRL	0.0035	BRL	0.23	BRL	0.0043	BRL	0.0048	BRL	0.0043	BRL	0.0045	BRL	0.0048
75-01-4	Vinyl chloride	8260B	mg/kg	0.059	1.7	BRL	0.0076	BRL	0.0073	BRL	0.0071	BRL	0.46	BRL	0.0086	BRL	0.0097	BRL	0.0085	BRL	0.0089	BRL	0.0095

Notes:
RSL: Regional Screening Levels April 2019 (mg/kg)
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

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By: BJW
Date: 9/3/2019

Table 1A
Summary of Soil Analytical Results - Polychlorinated Biphenyls
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

Polychlorinated Biphenyls													
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-13		GF-SB-13		GF-SS-14		GF-SB-14	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
12674-11-2	PCB 1016	8082A	mg/kg	4.1	27	BRL	0.038	BRL	0.037	BRL	0.037	BRL	0.038
11104-28-2	PCB 1221	8082A	mg/kg	0.2	0.83	BRL	0.038	BRL	0.037	BRL	0.037	BRL	0.038
11141-16-5	PCB 1232	8082A	mg/kg	0.17	0.72	BRL	0.038	BRL	0.037	BRL	0.037	BRL	0.038
53469-21-9	PCB 1242	8082A	mg/kg	0.23	0.95	BRL	0.038	BRL	0.037	BRL	0.037	BRL	0.038
12672-29-6	PCB 1248	8082A	mg/kg	0.23	0.95	BRL	0.038	BRL	0.037	BRL	0.037	BRL	0.038
11097-69-1	PCB 1254	8082A	mg/kg	0.24	0.97	BRL	0.038	BRL	0.037	BRL	0.037	BRL	0.038
11096-82-5	PCB 1260	8082A	mg/kg	0.24	0.99	BRL	0.038	BRL	0.037	BRL	0.037	BRL	0.038

Polychlorinated Biphenyls													
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-17		GF-SB-17		GF-SS-18		GF-SB-18	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
12674-11-2	PCB 1016	8082A	mg/kg	4.1	27	BRL	0.062	BRL	0.038	BRL	0.05	BRL	0.037
11104-28-2	PCB 1221	8082A	mg/kg	0.2	0.83	BRL	0.062	BRL	0.038	BRL	0.05	BRL	0.037
11141-16-5	PCB 1232	8082A	mg/kg	0.17	0.72	BRL	0.062	BRL	0.038	BRL	0.05	BRL	0.037
53469-21-9	PCB 1242	8082A	mg/kg	0.23	0.95	BRL	0.062	BRL	0.038	BRL	0.05	BRL	0.037
12672-29-6	PCB 1248	8082A	mg/kg	0.23	0.95	BRL	0.062	BRL	0.038	BRL	0.05	BRL	0.037
11097-69-1	PCB 1254	8082A	mg/kg	0.24	0.97	BRL	0.062	BRL	0.038	BRL	0.05	BRL	0.037
11096-82-5	PCB 1260	8082A	mg/kg	0.24	0.99	BRL	0.062	BRL	0.038	BRL	0.05	BRL	0.037

Notes:

RSL:	Regional Screening Levels April 2019 (mg/kg)
RL:	Reporting Limit (mg/kg)
mg/Kg:	Milligrams per kilogram
BRL:	Below Reporting Limit
J:	Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

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By: BJW
Date: 9/3/2019

Table 1A
Summary of Soil Analytical Results - Pesticides and Cyanide
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

Pesticides and Cyanide													
CAS #	Parameter	Method	Units	USEPA RSLs		GF-SS-17		GF-SB-17		GF-SS-18		GF-SB-18	
				Residential Soil	Industrial Soil	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
Target Compound List Pesticides													
72-54-8	4,4'-DDD	8081	mg/kg	1.9	9.6	BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
72-55-9	4,4'-DDE	8081	mg/kg	2	9.3	BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
50-29-3	4,4'-DDT	8081	mg/kg	1.9	8.5	BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
309-00-2	Aldrin	8081	mg/kg	0.039	0.18	BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
319-84-6	alpha-BHC	8081	mg/kg	0.086	0.36	BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
5103-71-9	alpha-Chlordane	8081	mg/kg			BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
319-85-7	beta-BHC	8081	mg/kg	0.3	1.3	BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
319-86-8	delta-BHC	8081	mg/kg			BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
60-57-1	Dieldrin	8081	mg/kg	0.034	0.14	BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
959-98-8	Endosulfan I	8081	mg/kg			BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
33213-65-9	Endosulfan II	8081	mg/kg			BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
1031-07-8	Endosulfan Sulfate	8081	mg/kg	380	4900	BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
72-20-8	Endrin	8081	mg/kg	19	250	BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
7421-93-4	Endrin aldehyde	8081	mg/kg			BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
53494-70-5	Endrin ketone	8081	mg/kg			BRL	0.0098	BRL	0.0038	BRL	0.0049	BRL	0.0037
58-89-9	gamma-BHC (Lindane)	8081	mg/kg	0.57	2.50	BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
5103-74-2	gamma-Chlordane	8081	mg/kg			BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
76-44-8	Heptachlor	8081	mg/kg	0.13	0.63	BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
1024-57-3	Heptachlor epoxide	8081	mg/kg	0.07	0.33	BRL	0.0049	BRL	0.0019	BRL	0.0025	BRL	0.0019
72-43-5	Methoxychlor	8081	mg/kg	320	4100	BRL	0.049	BRL	0.019	BRL	0.025	BRL	0.019
8001-35-2	Toxaphene	8081	mg/kg	0.49	2.1	BRL	0.49	BRL	0.19	BRL	0.25	BRL	0.19
Cyanide													
57-12-5	Cyanide	9014	mg/kg	23	150	BRL	1.85	BRL	1.13	BRL	1.42	BRL	1.07

Notes:

RSL:	Regional Screening Levels April 2019 (mg/kg)
RL:	Reporting Limit (mg/kg)
mg/Kg:	Milligrams per kilogram
BRL:	Below Reporting Limit
J:	Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit

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Table 1B
Summary of Groundwater Analytical Results - Metals
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 9/27/2019

CAS #	Parameter	Method	Units	South Carolina	USEPA RSLs		MW-01		MW-02		MW-03		MW-05		MW-05 DUP		MW-06		MW-07		EB-01		FB-01	
				Class GB MCLs	Tapwater	MCL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
Metals																								
Target Analyte List Metals																								
7429-90-5	Aluminum	SW6020B	µg/L		20000		**9000**	50	**11000**	50	**4220**	50	**2010**	50	**2250**	50	**10000**	50	**26800**	50	BRL	50	BRL	50
7440-36-0	Antimony	SW6020B	µg/L	6	7.8	6	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5
7440-38-2	Arsenic	SW6020B	µg/L	10	0.052	10	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5
7440-39-3	Barium	SW6020B	µg/L	2000	3800	2000	**221**	10	**128**	10	**52.5**	10	**46.5**	10	**45**	10	**93.3**	10	**147**	10	BRL	10	BRL	10
7440-41-7	Beryllium	SW6020B	µg/L	4	25	4	**2.23**	1	BRL	1	BRL	1	BRL	1	BRL	1	**1.64**	1	**3.38**	1	BRL	1	BRL	1
7440-43-9	Cadmium	SW6020B	µg/L	5	9.2	5	BRL	0.7	**0.717**	0.7	BRL	0.7	BRL	0.7	BRL	0.7	BRL	0.7	BRL	0.7	BRL	0.7	BRL	0.7
7440-70-2	Calcium	SW6020B	µg/L				**3610**	100	**10500**	100	**3280**	100	**4500**	100	**4430**	100	**6220**	100	**13500**	100	BRL	100	BRL	100
7440-47-3	Chromium	SW6020B	µg/L	100		100	**97.8**	5	**39.5**	5	BRL	5	BRL	5	BRL	5	**5.88**	5	**76.2**	5	BRL	5	BRL	5
7440-48-4	Cobalt	SW6020B	µg/L		6		**35.9**	5	**5.41**	5	BRL	5	BRL	5	BRL	5	BRL	5	**9.24**	5	BRL	5	BRL	5
7440-50-8	Copper	SW6020B	µg/L		800	1300	**14.2**	2	**40.6**	2	BRL	2	BRL	2	BRL	2	**6.73**	2	**40.5**	2	BRL	2	BRL	2
7439-89-6	Iron	SW6020B	µg/L		14000		**8650**	100	**10600**	100	**3640**	100	**1900**	100	**1940**	100	**6660**	100	**27700**	100	BRL	100	BRL	100
7439-92-1	Lead	SW6020B	µg/L		15	15	**17.4**	1	**56.3**	1	**1.71**	1	**1.3**	1	**1.48**	1	**9.82**	1	**19.2**	1	BRL	1	BRL	1
7439-95-4	Magnesium	SW6020B	µg/L				**3250**	100	**2910**	100	**1710**	100	**2700**	100	**2680**	100	**4230**	100	**7790**	100	BRL	100	BRL	100
7439-96-5	Manganese	SW6020B	µg/L		430		**841**	5	**2060**	5	**337**	5	**203**	5	**202**	5	**1800**	5	**2050**	5	BRL	5	BRL	5
7440-02-0	Nickel	SW6020B	µg/L		390		**67.9**	5	**21.1**	5	BRL	5	BRL	5	BRL	5	BRL	5	**34.7**	5	BRL	5	BRL	5
7440-09-7	Potassium	SW6020B	µg/L				**4860**	100	**9710**	100	**3110**	100	**2220**	100	**2180**	100	**4590**	100	**10900**	100	BRL	100	BRL	100
7782-49-2	Selenium	SW6020B	µg/L	50	100	50	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5
7440-22-4	Silver	SW6020B	µg/L		94		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
7440-23-5	Sodium	SW6020B	µg/L				**17300**	500	**26600**	500	**29900**	500	**23500**	500	**23700**	500	**31100**	500	**19900**	500	BRL	500	BRL	500
7440-28-0	Thallium	SW6020B	µg/L	2	0.2	2	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
7440-62-2	Vanadium	SW6020B	µg/L		86		**17.4**	5	**6.34**	5	BRL	5	BRL	5	BRL	5	**8.51**	5	**27.2**	5	BRL	5	BRL	5
7440-66-6	Zinc	SW6020B	µg/L		6000		**69.2**	10	**68.3**	10	**20.8**	10	BRL	10	BRL	10	**43.3**	10	**195**	10	BRL	10	BRL	10
Mercury																								
7439-97-6	Mercury	SW7473	µg/L	2	0.63	2	BRL	0.0002	BRL	0.0002	BRL	0.0002	BRL	0.0002	BRL	0.0002	BRL	0.0002	BRL	0.0002	BRL	0.0002	BRL	0.0002

Notes:
MCL: Maximum Contaminant Levels - State Primary Drinking Water Regulation: R.61-58 (June 2008)
USEPA RSL: United States Environmental Protection Agency Regional Screening Levels April 2019
µg/L: Micrograms per liter
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit
Bold and shaded values exceed the designated regulatory criteria.

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Table 1B
Summary of Groundwater Analytical Results - Semivolatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 9/26/2019

Target Compound List Semivolatile Organic Compounds																								
CAS #	Parameter	Method	Units	South Carolina	USEPA RSLs		MW-01		MW-02		MW-03		MW-05		MW-05 DUP		MW-06		MW-07		EB-01		FB-01	
				Class GB MCLs	Tapwater	MCL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
90-12-0	1-Methylnaphthalene	SW8270E SIM	µg/L		1.1		BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5
91-57-6	2-Methylnaphthalene	SW8270E SIM	µg/L		36		BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5
83-32-9	Acenaphthene	SW8270E SIM	µg/L		530		BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5
208-96-8	Acenaphthylene	SW8270E SIM	µg/L				BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
120-12-7	Anthracene	SW8270E SIM	µg/L		1800		BRL	0.05	**0.15**	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05
56-55-3	Benz(a)anthracene	SW8270E SIM	µg/L		0.03		BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05
50-32-8	Benzo(a)pyrene	SW8270E SIM	µg/L	0.2	0.025	0.2	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05
205-99-2	Benzo(b)fluoranthene	SW8270E SIM	µg/L		0.25		BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1
191-24-2	Benzo(g,h,i)perylene	SW8270E SIM	µg/L				BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1
207-08-9	Benzo(k)fluoranthene	SW8270E SIM	µg/L		2.5		BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05
218-01-9	Chrysene	SW8270E SIM	µg/L		25		BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05
53-70-3	Dibenz(a,h)anthracene	SW8270E SIM	µg/L		0.025		BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1
206-44-0	Fluoranthene	SW8270E SIM	µg/L		800		BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1
86-73-7	Fluorene	SW8270E SIM	µg/L		290		BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1	BRL	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	SW8270E SIM	µg/L		0.25		BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05
91-20-3	Naphthalene	SW8270E SIM	µg/L		0.17		BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5	BRL	0.5
85-01-8	Phenanthrene	SW8270E SIM	µg/L				BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05
129-00-0	Pyrene	SW8270E SIM	µg/L		120		**0.12**	0.05	BRL	0.05	BRL	0.05	**0.12**	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05	BRL	0.05
92-52-4	1,1´-Biphenyl	SW8270E	µg/L		0.83		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
95-95-4	2,4,5-Trichlorophenol	SW8270E	µg/L		1200		BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25
88-06-2	2,4,6-Trichlorophenol	SW8270E	µg/L		4.1		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
120-83-2	2,4-Dichlorophenol	SW8270E	µg/L		46		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
105-67-9	2,4-Dimethylphenol	SW8270E	µg/L		360		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
51-28-5	2,4-Dinitrophenol	SW8270E	µg/L		39		BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25
121-14-2	2,4-Dinitrotoluene	SW8270E	µg/L		0.24		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
606-20-2	2,6-Dinitrotoluene	SW8270E	µg/L		0.049		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
91-58-7	2-Chloronaphthalene	SW8270E	µg/L		750		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
95-57-8	2-Chlorophenol	SW8270E	µg/L		91		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
95-48-7	2-Methylphenol	SW8270E	µg/L		930		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
88-74-4	2-Nitroaniline	SW8270E	µg/L		190		BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25
88-75-5	2-Nitrophenol	SW8270E	µg/L				BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
91-94-1	3,3´-Dichlorobenzidine	SW8270E	µg/L		0.13		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
99-09-2	3-Nitroaniline	SW8270E	µg/L				BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25
534-52-1	4,6-Dinitro-2-methylphenol	SW8270E	µg/L		1.5		BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25
101-55-3	4-Bromophenyl phenyl ether	SW8270E	µg/L				BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
59-50-7	4-Chloro-3-methylphenol	SW8270E	µg/L		1400		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
106-47-8	4-Chloroaniline	SW8270E	µg/L		0.37		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
7005-72-3	4-Chlorophenyl phenyl ether	SW8270E	µg/L				BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
106-44-5	4-Methylphenol	SW8270E	µg/L		1900		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
100-01-6	4-Nitroaniline	SW8270E	µg/L		3.8		BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25
100-02-7	4-Nitrophenol	SW8270E	µg/L				BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25
98-86-2	Acetophenone	SW8270E	µg/L		1900		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
1912-24-9	Atrazine	SW8270E	µg/L	3	0.3	3	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
100-52-7	Benzaldehyde	SW8270E	µg/L		1.9		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
111-91-1	Bis(2-chloroethoxy)methane	SW8270E	µg/L		59		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
111-44-4	Bis(2-chloroethyl)ether	SW8270E	µg/L		0.014		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
108-60-1	Bis(2-chloroisopropyl)ether	SW8270E	µg/L		710		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
117-81-7	Bis(2-ethylhexyl)phthalate	SW8270E	µg/L	6	5.6	6	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
85-68-7	Butyl benzyl phthalate	SW8270E	µg/L		16		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
105-60-2	Caprolactam	SW8270E	µg/L		9900		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
86-74-8	Carbazole	SW8270E	µg/L				BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
132-64-9	Dibenzofuran	SW8270E	µg/L		7.9		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
84-66-2	Diethyl phthalate	SW8270E	µg/L		15000		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
131-11-3	Dimethyl phthalate	SW8270E	µg/L				BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
84-74-2	Di-n-butyl phthalate	SW8270E	µg/L		900		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
117-84-0	Di-n-octyl phthalate	SW8270E	µg/L		200		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
118-74-1	Hexachlorobenzene	SW8270E	µg/L	1	0.0098	1	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
87-68-3	Hexachlorobutadiene	SW8270E	µg/L		0.14		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
77-47-4	Hexachlorocyclopentadiene	SW8270E	µg/L	50	0.41	50	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
67-72-1	Hexachloroethane	SW8270E	µg/L		0.33		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
78-59-1	Isophorone	SW8270E	µg/L		78		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
98-95-3	Nitrobenzene	SW8270E	µg/L		0.14		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
621-64-7	N-Nitrosodi-n-propylamine	SW8270E	µg/L		0.011		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
86-30-6	N-Nitrosodiphenylamine	SW8270E	µg/L		12		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
87-86-5	Pentachlorophenol	SW8270E	µg/L	1	0.041	1	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25	BRL	25
108-95-2	Phenol	SW8270E	µg/L		5800		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10

Notes:
MCL: Maximum Contaminant Levels - State Primary Drinking Water Regulation: R.61-58 (June 2008)
USEPA RSL: United States Environmental Protection Agency Regional Screening Levels April 2019
µg/L: Micrograms per liter
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit
Bold and shaded values exceed the designated regulatory criteria.

Table 1B
Summary of Groundwater Analytical Results - Volatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 9/26/2019

Target Compound List Volatile Organic Compounds																											
CAS #	Parameter	Method	Units	South Carolina	USEPA RSLs		MW-01		MW-02		MW-03		MW-05		MW-05 DUP		MW-06		MW-07		EB-01		FB-01		Trip Blank	
				Class GB MCLs	Tapwater	MCL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL	Value & Qualifier	RL
71-55-6	1,1,1-Trichloroethane	8260B	µg/L	200	8000	200	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
79-34-5	1,1,2,2-Tetrachloroethane	8260B	µg/L		0.076		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
79-00-5	1,1,2-Trichloroethane	8260B	µg/L	5	0.28	5	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-34-3	1,1-Dichloroethane	8260B	µg/L		2.8		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-35-4	1,1-Dichloroethene	8260B	µg/L	7	280	7	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2
120-82-1	1,2,4-Trichlorobenzene	8260B	µg/L	70	1.2	70	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
96-12-8	1,2-Dibromo-3-chloropropane	8260B	µg/L		0.00033	0.2	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
106-93-4	1,2-Dibromoethane (EDB)	8260B	µg/L		0.0075	0.05	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
95-50-1	1,2-Dichlorobenzene	8260B	µg/L	600	300	600	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
107-06-2	1,2-Dichloroethane	8260B	µg/L	5	0.17	5	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
78-87-5	1,2-Dichloropropane	8260B	µg/L	5	0.85	5	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
541-73-1	1,3-Dichlorobenzene	8260B	µg/L				BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
106-46-7	1,4-Dichlorobenzene	8260B	µg/L	75	0.48	75	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
78-93-3	2-Butanone (MEK)	8260B	µg/L		5600		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
591-78-6	2-Hexanone	8260B	µg/L		38		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
108-10-1	4-Methyl-2-pentanone (MIBK)	8260B	µg/L		6300		BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10	BRL	10
67-64-1	Acetone	8260B	µg/L		14000		BRL	20	BRL	20	BRL	20	BRL	20	BRL	20	BRL	20	BRL	20	BRL	20	BRL	20	BRL	20
71-43-2	Benzene	8260B	µg/L	5	0.46	5	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-27-4	Bromodichloromethane	8260B	µg/L		0.13	80	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-25-2	Bromoform	8260B	µg/L		3.3	80	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
74-83-9	Bromomethane	8260B	µg/L		7.5		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-15-0	Carbon disulfide	8260B	µg/L		810		BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5
56-23-5	Carbon tetrachloride	8260B	µg/L	5	0.46	5	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2
108-90-7	Chlorobenzene	8260B	µg/L	100	78	100	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-00-3	Chloroethane	8260B	µg/L		21000		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
67-66-3	Chloroform	8260B	µg/L		0.22	80	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
74-87-3	Chloromethane	8260B	µg/L		190		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
156-59-2	cis-1,2-Dichloroethene	8260B	µg/L	70	36	70	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
10061-01-5	cis-1,3-Dichloropropene	8260B	µg/L				BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
110-82-7	Cyclohexane	8260B	µg/L		13000		BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2
124-48-1	Dibromochloromethane	8260B	µg/L		0.87	80	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-71-8	Dichlorodifluoromethane	8260B	µg/L		200		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
100-41-4	Ethylbenzene	8260B	µg/L	700	1.5	700	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	**2**	1	BRL	1	BRL	1	BRL	1	BRL	1
76-13-1	Freon-113	8260B	µg/L		10000		BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5
98-82-8	Isopropylbenzene (Cumene)	8260B	µg/L		450		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
108-38-3 / 106-42-3	m&p-Xylene	8260B	µg/L		190		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	**8.2**	1	BRL	1	BRL	1	BRL	1	BRL	1
79-20-9	Methyl acetate	8260B	µg/L		20000		BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2
1634-04-4	Methyl tert-butyl ether	8260B	µg/L		14		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
108-87-2	Methylcyclohexane	8260B	µg/L				BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2
75-09-2	Methylene Chloride	8260B	µg/L	5	11	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5	BRL	5
95-47-6	o-Xylene	8260B	µg/L		190		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	**3.2**	1	BRL	1	BRL	1	BRL	1	BRL	1
100-42-5	Styrene	8260B	µg/L	100	1200	100	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
127-18-4	Tetrachloroethene	8260B	µg/L	5	11	5	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
108-88-3	Toluene	8260B	µg/L	1000	1100	1000	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	**6**	1	BRL	1	BRL	1	BRL	1	BRL	1
156-60-5	trans-1,2-Dichloroethene	8260B	µg/L	100	360	100	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2
10061-02-6	trans-1,3-Dichloropropene	8260B	µg/L		0.47		BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2	BRL	2
79-01-6	Trichloroethene	8260B	µg/L	5	0.49	5	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-69-4	Trichlorofluoromethane	8260B	µg/L		5200		BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1
75-01-4	Vinyl chloride	8260B	µg/L	2	0.019	2	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1	BRL	1

Notes:
MCL: Maximum Contaminant Levels - State Primary Drinking Water Regulation: R.61-58 (June 2008)
USEPA RSL: United States Environmental Protection Agency Regional Screening Levels April 2019
µg/L: Micrograms per liter
RL: Reporting Limit
BRL: Below Reporting Limit
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit
Bold and shaded values exceed the designated regulatory criteria.

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By: BJW
Date: 9/27/2019

Table 1B
Summary of Groundwater Analytical Results - Pesticides, Polychlorinated Biphenyls, and Cyanide
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

Pesticides and Cyanide								
CAS #	Parameter	Method	Units	South Carolina	USEPA RSLs		MW-03	
				Class GB MCLs	Tapwater	MCL	Value & Qualifier	RL
Target Compound List Pesticides								
72-54-8	4,4'-DDD	8081	µg/L		0.032		BRL	0.1
72-55-9	4,4'-DDE	8081	µg/L		0.046		BRL	0.1
50-29-3	4,4'-DDT	8081	µg/L		0.23		BRL	0.1
309-00-2	Aldrin	8081	µg/L		0.00092		BRL	0.05
319-84-6	alpha-BHC	8081	µg/L		0.0072		BRL	0.05
5103-71-9	alpha-Chlordane	8081	µg/L				BRL	0.05
319-85-7	beta-BHC	8081	µg/L		0.025		BRL	0.05
319-86-8	delta-BHC	8081	µg/L				BRL	0.05
60-57-1	Dieldrin	8081	µg/L		0.0018		BRL	0.1
959-98-8	Endosulfan I	8081	µg/L				BRL	0.05
33213-65-9	Endosulfan II	8081	µg/L				BRL	0.1
1031-07-8	Endosulfan Sulfate	8081	µg/L		110		BRL	0.1
72-20-8	Endrin	8081	µg/L	2	2.3	2	BRL	0.1
7421-93-4	Endrin aldehyde	8081	µg/L				BRL	0.1
53494-70-5	Endrin ketone	8081	µg/L				BRL	0.1
58-89-9	gamma-BHC (Lindane)	8081	µg/L	0.2	0.042	0.2	BRL	0.05
5103-74-2	gamma-Chlordane	8081	µg/L				BRL	0.05
76-44-8	Heptachlor	8081	µg/L	0.4	0.0014	0.4	BRL	0.05
1024-57-3	Heptachlor epoxide	8081	µg/L	0.2	0.0014	0.2	**0.065**	0.05
72-43-5	Methoxychlor	8081	µg/L	40	37	40	BRL	0.5
8001-35-2	Toxaphene	8081	µg/L	3	0.071	3	BRL	5
Polychlorinated Biphenyls								
12674-11-2	PCB 1016	8082A	µg/L	0.5*	0.22		BRL	0.5
11104-28-2	PCB 1221	8082A	µg/L		0.0047		BRL	0.5
11141-16-5	PCB 1232	8082A	µg/L		0.0047		BRL	0.5
53469-21-9	PCB 1242	8082A	µg/L		0.0078		BRL	0.5
12672-29-6	PCB 1248	8082A	µg/L		0.0078		BRL	0.5
11097-69-1	PCB 1254	8082A	µg/L		0.0078		BRL	0.5
11096-82-5	PCB 1260	8082A	µg/L		0.0078		BRL	0.5
Cyanide								
57-12-5	Cyanide	9014	µg/L	200	1.5	200	BRL	0.01

Notes:
MCL: Maximum Contaminant Levels - State Primary Drinking Water Regulation: R.61-58 (June 2008)
USEPA RSL: United States Environmental Protection Agency Regional Screening Levels April 2019
µg/L: Micrograms per liter
RL: Reporting Limit
BRL: Below Reporting Limit
*: Standards for individual PCBs are not available
J: Estimated Concentration Above the Adjusted Method Detection Limit and Below the Adjusted Reporting Limit
Bold and shaded values exceed the designated regulatory criteria.

By: BJW
Date: 10/10/2019

Table 2
Summary of Groundwater Elevations
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

Monitoring Well ID	TOC Elevation (relative to MSL)	Total Well Depth (feet from TOC)	Screened Interval (feet from TOC)	Measurement Date	Depth to Groundwater (feet from TOC)	Groundwater Elevation (relative to MSL)
MW-1	460.92	30.85	20.85 - 30.85	August 15, 2019	25.75	435.17
MW-2	465.70	38.74	28.74 - 38.74	August 15, 2019	31.71	433.99
MW-3	454.39	41.04	31.04 - 41.04	August 15, 2019	32.2	422.19
MW-5	390.71	35.33	25.33 - 35.33	August 15, 2019	22.35	368.36
MW-6	383.33	38.03	28.03 - 38.03	August 15, 2019	30.82	352.51
MW-7	379.73	37.63	27.63 - 37.63	August 15, 2019	24.76	354.97

Notes:
TOC: Top of Casing
MSL: Mean Sea Level

Table 3B
GW Duplicate Data - Metals
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 10/7/2019

Metals	Units	South Carolina	USEPA RSLs		MW-05		MW-05 DUP		Results > or < 5x Report Limit	Difference Between Sample Dupilcate or % RPD	Result
		Class GB MCLs	Tapwater	MCL	Result	RL	Result	RL			
TAL Metals											
Aluminum	µg/L		20000		**2010**	50	**2250**	50	<	**240.00**	**High**
Antimony	µg/L	6	7.8	6	BRL	5	BRL	5	N/A	N/A	N/A
Arsenic	µg/L	10	0.052	10	BRL	5	BRL	5	N/A	N/A	N/A
Barium	µg/L	2000	3800	2000	**46.5**	10	**45**	10	<	**1.50**	**Acceptable**
Beryllium	µg/L	4	25	4	BRL	1	BRL	1	N/A	N/A	N/A
Cadmium	µg/L	5	9.2	5	BRL	0.7	BRL	0.7	N/A	N/A	N/A
Calcium	µg/L				**4500**	100	**4430**	100	<	**70.00**	**Acceptable**
Chromium	µg/L	100		100	BRL	5	BRL	5	N/A	N/A	N/A
Cobalt	µg/L		6		BRL	5	BRL	5	N/A	N/A	N/A
Copper	µg/L		800	1300	BRL	2	BRL	2	N/A	N/A	N/A
Iron	µg/L		14000		**1900**	100	**1940**	100	<	**40.00**	**Acceptable**
Lead	µg/L		15	15	**1.3**	1	**1.48**	1	<	**0.18**	**Acceptable**
Magnesium	µg/L				**2700**	100	**2680**	100	<	**20.00**	**Acceptable**
Manganese	µg/L		430		**203**	5	**202**	5	<	**1.00**	**Acceptable**
Nickel	µg/L		390		BRL	5	BRL	5	N/A	N/A	N/A
Potassium	µg/L				**2220**	100	**2180**	100	<	**40.00**	**Acceptable**
Selenium	µg/L	50	100	50	BRL	5	BRL	5	N/A	N/A	N/A
Silver	µg/L		94		BRL	1	BRL	1	N/A	N/A	N/A
Sodium	µg/L				**23500**	500	**23700**	500	<	**200.00**	**Acceptable**
Thallium	µg/L	2	0.2	2	BRL	1	BRL	1	N/A	N/A	N/A
Vanadium	µg/L		86		BRL	5	BRL	5	N/A	N/A	N/A
Zinc	µg/L		6000		BRL	10	BRL	10	N/A	N/A	N/A
Mercury											
Mercury	µg/L	2	0.63	2	BRL	0.0002	BRL	0.0002	N/A	N/A	N/A

Notes:
For sample/duplicate results < 5 times the reporting limit, the absolute difference between the results (sample-duplicate) is used for comparison to the Report Limit.
A difference < 2x the Report Limit is considered "acceptable", a difference ≤ 2x "acceptable" limit is slightly high, a differnce >2x "acceptable" limit is high.
For sample/duplicate results > 5 times the reporting limit, the percentage of the Relative Percent Difference (RPD) is calculated.
A percent RPD <35% = good/acceptable, a percent RPD >35% but<50% = slightly high variability, and a percent RPD >50% = high variability.

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Table 3B
Groundwater Duplicate Data - Semivolatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 10/7/2019

TCL SVOCs	Units	South Carolina	USEPA RSLs		MW-05		MW-05 DUP		Results > or < 5x Report Limit	Difference Between Sample Dupilcate or % RPD	Result
		Class GB MCLs	Tapwater	MCL	Result	RL	Result	RL			
1-Methylnaphthalene	µg/L		1.1		BRL	0.5	BRL	0.5	N/A	N/A	N/A
2-Methylnaphthalene	µg/L		36		BRL	0.5	BRL	0.5	N/A	N/A	N/A
Acenaphthene	µg/L		530		BRL	0.5	BRL	0.5	N/A	N/A	N/A
Acenaphthylene	µg/L				BRL	1	BRL	1	N/A	N/A	N/A
Anthracene	µg/L		1800		BRL	0.05	BRL	0.05	N/A	N/A	N/A
Benz(a)anthracene	µg/L		0.03		BRL	0.05	BRL	0.05	N/A	N/A	N/A
Benzo(a)pyrene	µg/L	0.2	0.025	0.2	BRL	0.05	BRL	0.05	N/A	N/A	N/A
Benzo(b)fluoranthene	µg/L		0.25		BRL	0.1	BRL	0.1	N/A	N/A	N/A
Benzo(g,h,i)perylene	µg/L				BRL	0.1	BRL	0.1	N/A	N/A	N/A
Benzo(k)fluoranthene	µg/L		2.5		BRL	0.05	BRL	0.05	N/A	N/A	N/A
Chrysene	µg/L		25		BRL	0.05	BRL	0.05	N/A	N/A	N/A
Dibenz(a,h)anthracene	µg/L		0.025		BRL	0.1	BRL	0.1	N/A	N/A	N/A
Fluoranthene	µg/L		800		BRL	0.1	BRL	0.1	N/A	N/A	N/A
Fluorene	µg/L		290		BRL	0.1	BRL	0.1	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	µg/L		0.25		BRL	0.05	BRL	0.05	N/A	N/A	N/A
Naphthalene	µg/L		0.17		BRL	0.5	BRL	0.5	N/A	N/A	N/A
Phenanthrene	µg/L				BRL	0.05	BRL	0.05	N/A	N/A	N/A
Pyrene	µg/L		120		**0.12**	0.05	BRL	0.05	<	**0.12**	**Slightly High**
1,1´-Biphenyl	µg/L		0.83		BRL	10	BRL	10	N/A	N/A	N/A
2,4,5-Trichlorophenol	µg/L		1200		BRL	25	BRL	25	N/A	N/A	N/A
2,4,6-Trichlorophenol	µg/L		4.1		BRL	10	BRL	10	N/A	N/A	N/A
2,4-Dichlorophenol	µg/L		46		BRL	10	BRL	10	N/A	N/A	N/A
2,4-Dimethylphenol	µg/L		360		BRL	10	BRL	10	N/A	N/A	N/A
2,4-Dinitrophenol	µg/L		39		BRL	25	BRL	25	N/A	N/A	N/A
2,4-Dinitrotoluene	µg/L		0.24		BRL	10	BRL	10	N/A	N/A	N/A
2,6-Dinitrotoluene	µg/L		0.049		BRL	10	BRL	10	N/A	N/A	N/A
2-Chloronaphthalene	µg/L		750		BRL	10	BRL	10	N/A	N/A	N/A
2-Chlorophenol	µg/L		91		BRL	10	BRL	10	N/A	N/A	N/A
2-Methylphenol	µg/L		930		BRL	10	BRL	10	N/A	N/A	N/A
2-Nitroaniline	µg/L		190		BRL	25	BRL	25	N/A	N/A	N/A
2-Nitrophenol	µg/L				BRL	10	BRL	10	N/A	N/A	N/A
3,3´-Dichlorobenzidine	µg/L		0.13		BRL	10	BRL	10	N/A	N/A	N/A
3-Nitroaniline	µg/L				BRL	25	BRL	25	N/A	N/A	N/A
4,6-Dinitro-2-methylphenol	µg/L		1.5		BRL	25	BRL	25	N/A	N/A	N/A
4-Bromophenyl phenyl ether	µg/L				BRL	10	BRL	10	N/A	N/A	N/A
4-Chloro-3-methylphenol	µg/L		1400		BRL	10	BRL	10	N/A	N/A	N/A
4-Chloroaniline	µg/L		0.37		BRL	10	BRL	10	N/A	N/A	N/A
4-Chlorophenyl phenyl ether	µg/L				BRL	10	BRL	10	N/A	N/A	N/A
4-Methylphenol	µg/L		1900		BRL	10	BRL	10	N/A	N/A	N/A
4-Nitroaniline	µg/L		3.8		BRL	25	BRL	25	N/A	N/A	N/A
4-Nitrophenol	µg/L				BRL	25	BRL	25	N/A	N/A	N/A
Acetophenone	µg/L		1900		BRL	10	BRL	10	N/A	N/A	N/A
Atrazine	µg/L	3	0.3	3	BRL	10	BRL	10	N/A	N/A	N/A
Benzaldehyde	µg/L		1.9		BRL	10	BRL	10	N/A	N/A	N/A
Bis(2-chloroethoxy)methane	µg/L		59		BRL	10	BRL	10	N/A	N/A	N/A
Bis(2-chloroethyl)ether	µg/L		0.014		BRL	10	BRL	10	N/A	N/A	N/A
Bis(2-chloroisopropyl)ether	µg/L		710		BRL	10	BRL	10	N/A	N/A	N/A
Bis(2-ethylhexyl)phthalate	µg/L	6	5.6	6	BRL	10	BRL	10	N/A	N/A	N/A
Butyl benzyl phthalate	µg/L		16		BRL	10	BRL	10	N/A	N/A	N/A
Caprolactam	µg/L		9900		BRL	10	BRL	10	N/A	N/A	N/A
Carbazole	µg/L				BRL	10	BRL	10	N/A	N/A	N/A
Dibenzofuran	µg/L		7.9		BRL	10	BRL	10	N/A	N/A	N/A
Diethyl phthalate	µg/L		15000		BRL	10	BRL	10	N/A	N/A	N/A
Dimethyl phthalate	µg/L				BRL	10	BRL	10	N/A	N/A	N/A
Di-n-butyl phthalate	µg/L		900		BRL	10	BRL	10	N/A	N/A	N/A
Di-n-octyl phthalate	µg/L		200		BRL	10	BRL	10	N/A	N/A	N/A
Hexachlorobenzene	µg/L	1	0.0098	1	BRL	10	BRL	10	N/A	N/A	N/A
Hexachlorobutadiene	µg/L		0.14		BRL	10	BRL	10	N/A	N/A	N/A
Hexachlorocyclopentadiene	µg/L	50	0.41	50	BRL	10	BRL	10	N/A	N/A	N/A
Hexachloroethane	µg/L		0.33		BRL	10	BRL	10	N/A	N/A	N/A
Isophorone	µg/L		78		BRL	10	BRL	10	N/A	N/A	N/A
Nitrobenzene	µg/L		0.14		BRL	10	BRL	10	N/A	N/A	N/A
N-Nitrosodi-n-propylamine	µg/L		0.011		BRL	10	BRL	10	N/A	N/A	N/A
N-Nitrosodiphenylamine	µg/L		12		BRL	10	BRL	10	N/A	N/A	N/A
Pentachlorophenol	µg/L	1	0.041	1	BRL	25	BRL	25	N/A	N/A	N/A
Phenol	µg/L		5800		BRL	10	BRL	10	N/A	N/A	N/A

Notes:
For sample/duplicate results < 5 times the reporting limit, the absolute difference between the results (sample-duplicate) is used for comparison to the Report Limit.
A difference < 2x the Report Limit is considered "acceptable", a difference ≤ 2x "acceptable" limit is slightly high, a differnce >2x "acceptable" limit is high.
For sample/duplicate results > 5 times the reporting limit, the percentage of the Relative Percent Difference (RPD) is calculated.
A percent RPD <35% = good/acceptable, a percent RPD >35% but<50% = slightly high variability, and a percent RPD >50% = high variability.

Table 3B
Groundwater Duplicate Data - Volatile Organic Compounds
Phase II ESA
Republic Mill #1
Great Falls, South Carolina

By: BJW
Date: 10/7/2019

TCL VOCs	Units	South Carolina	USEPA RSLs		MW-05		MW-05 DUP		Results > or < 5x Report Limit	Difference Between Sample Dupilcate or % RPD	Result
		Class GB MCLs	Tapwater	MCL	Result	RL	Result	RL			
1,1,1-Trichloroethane	µg/L	200	8000	200	BRL	1	BRL	1	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	µg/L		0.076		BRL	1	BRL	1	N/A	N/A	N/A
1,1,2-Trichloroethane	µg/L	5	0.28	5	BRL	1	BRL	1	N/A	N/A	N/A
1,1-Dichloroethane	µg/L		2.8		BRL	1	BRL	1	N/A	N/A	N/A
1,1-Dichloroethene	µg/L	7	280	7	BRL	2	BRL	2	N/A	N/A	N/A
1,2,4-Trichlorobenzene	µg/L	70	1.2	70	BRL	1	BRL	1	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	µg/L		0.00033	0.2	BRL	1	BRL	1	N/A	N/A	N/A
1,2-Dibromoethane (EDB)	µg/L		0.0075	0.05	BRL	1	BRL	1	N/A	N/A	N/A
1,2-Dichlorobenzene	µg/L	600	300	600	BRL	1	BRL	1	N/A	N/A	N/A
1,2-Dichloroethane	µg/L	5	0.17	5	BRL	1	BRL	1	N/A	N/A	N/A
1,2-Dichloropropane	µg/L	5	0.85	5	BRL	1	BRL	1	N/A	N/A	N/A
1,3-Dichlorobenzene	µg/L				BRL	1	BRL	1	N/A	N/A	N/A
1,4-Dichlorobenzene	µg/L	75	0.48	75	BRL	1	BRL	1	N/A	N/A	N/A
2-Butanone (MEK)	µg/L		5600		BRL	10	BRL	10	N/A	N/A	N/A
2-Hexanone	µg/L		38		BRL	10	BRL	10	N/A	N/A	N/A
4-Methyl-2-pentanone (MIBK)	µg/L		6300		BRL	10	BRL	10	N/A	N/A	N/A
Acetone	µg/L		14000		BRL	20	BRL	20	N/A	N/A	N/A
Benzene	µg/L	5	0.46	5	BRL	1	BRL	1	N/A	N/A	N/A
Bromodichloromethane	µg/L		0.13	80	BRL	1	BRL	1	N/A	N/A	N/A
Bromoform	µg/L		3.3	80	BRL	1	BRL	1	N/A	N/A	N/A
Bromomethane	µg/L		7.5		BRL	1	BRL	1	N/A	N/A	N/A
Carbon disulfide	µg/L		810		BRL	5	BRL	5	N/A	N/A	N/A
Carbon tetrachloride	µg/L	5	0.46	5	BRL	2	BRL	2	N/A	N/A	N/A
Chlorobenzene	µg/L	100	78	100	BRL	1	BRL	1	N/A	N/A	N/A
Chloroethane	µg/L		21000		BRL	1	BRL	1	N/A	N/A	N/A
Chloroform	µg/L		0.22	80	BRL	1	BRL	1	N/A	N/A	N/A
Chloromethane	µg/L		190		BRL	1	BRL	1	N/A	N/A	N/A
cis-1,2-Dichloroethene	µg/L	70	36	70	BRL	1	BRL	1	N/A	N/A	N/A
cis-1,3-Dichloropropene	µg/L				BRL	1	BRL	1	N/A	N/A	N/A
Cyclohexane	µg/L		13000		BRL	2	BRL	2	N/A	N/A	N/A
Dibromochloromethane	µg/L		0.87	80	BRL	1	BRL	1	N/A	N/A	N/A
Dichlorodifluoromethane	µg/L		200		BRL	1	BRL	1	N/A	N/A	N/A
Ethylbenzene	µg/L	700	1.5	700	BRL	1	BRL	1	N/A	N/A	N/A
Freon-113	µg/L		10000		BRL	5	BRL	5	N/A	N/A	N/A
Isopropylbenzene (Cumene)	µg/L		450		BRL	1	BRL	1	N/A	N/A	N/A
m&p-Xylene	µg/L		190		BRL	1	BRL	1	N/A	N/A	N/A
Methyl acetate	µg/L		20000		BRL	2	BRL	2	N/A	N/A	N/A
Methyl tert-butyl ether	µg/L		14		BRL	1	BRL	1	N/A	N/A	N/A
Methylcyclohexane	µg/L				BRL	2	BRL	2	N/A	N/A	N/A
Methylene Chloride	µg/L	5	11	5	BRL	5	BRL	5	N/A	N/A	N/A
o-Xylene	µg/L		190		BRL	1	BRL	1	N/A	N/A	N/A
Styrene	µg/L	100	1200	100	BRL	1	BRL	1	N/A	N/A	N/A
Tetrachloroethene	µg/L	5	11	5	BRL	1	BRL	1	N/A	N/A	N/A
Toluene	µg/L	1000	1100	1000	BRL	1	BRL	1	N/A	N/A	N/A
trans-1,2-Dichloroethene	µg/L	100	360	100	BRL	2	BRL	2	N/A	N/A	N/A
trans-1,3-Dichloropropene	µg/L		0.47		BRL	2	BRL	2	N/A	N/A	N/A
Trichloroethene	µg/L	5	0.49	5	BRL	1	BRL	1	N/A	N/A	N/A
Trichlorofluoromethane	µg/L		5200		BRL	1	BRL	1	N/A	N/A	N/A
Vinyl chloride	µg/L	2	0.019	2	BRL	1	BRL	1	N/A	N/A	N/A

Notes:
For sample/duplicate results < 5 times the reporting limit, the absolute difference between the results (sample-duplicate) is used for comparison to the Report Limit.
A difference < 2x the Report Limit is considered "acceptable", a difference ≤ 2x "acceptable" limit is slightly high, a differnce >2x "acceptable" limit is high.
For sample/duplicate results > 5 times the reporting limit, the percentage of the Relative Percent Difference (RPD) is calculated.
A percent RPD <35% = good/acceptable, a percent RPD >35% but<50% = slightly high variability, and a percent RPD >50% = high variability.

Former Republic Mill #1

FIGURES

USGS 7.5' Great Falls, SC Quadrangle - 2017
Contour Interval = 10'

PB00268000
10/08/2019

Figure 1: Topographic Site Location Map

Former Republic Mill #1

Great Falls, South Carolina

Cardno
Columbia, SC

0 2,000' 4,000'
Approximate Scale (ft)

LEGEND	
	Subject Property Boundaries
	TMS# 202-13-01-001-000

NOTES

Aerial Photograph obtained from Google Earth Pro.

Aerial photograph dated March 23, 2019.

Property boundaries obtained from the Chester County Assessor's Office.

The parcel to the west of S Dearborn Street (TMS# 202-13-01-001-000) was part of the former Republic Mill #1 facility, but is not currently owned by the Town of Great Falls and was not included in the Phase II Environmental Site Assessment.

Cardno

DESIGNED:	BJW
DRAWN:	BJW
CHECKED:	GRJ
DATE:	10/10/2019
SCALE:	AS SHOWN
FILE NO.:	PB00268000_Site.dwg
PROJECT NO.:	PB00268000
OFFICE LOC.:	Columbia, S.C. USA

Former Republic Mill #1

Great Falls, South Carolina

Aerial Site Layout

Figure

2

Cardno

DESIGNED:	BJW
DRAWN:	BJW
CHECKED:	GRJ
DATE:	10/10/2019
SCALE:	AS SHOWN
FILE NO.:	PB00268000_Site.dwg
PROJECT NO.:	PB00268000
OFFICE LOC.:	Columbia, S.C. USA

Former Republic Mill #1

Great Falls, South Carolina

Sample Location Map

Figure

3

LEGEND

	Subject Property Boundaries
	Collocated Soil Boring / Monitoring Well
	Soil Boring/Soil Sample Location
	Parameter exceeds its Residential RSL
	Parameter exceeds its Industrial RSL

NOTES

All results are in milligrams per kilogram (mg/Kg).

Only detections exceeding one or more regulatory limits are shown.

RSL = United States Environmental Protection Agency Regional Screening Level.

SS denotes a surface soil sample (0-1 foot below ground surface).

SB denotes a subsurface soil sample (2-3 feet below ground surface).

Cardno

DESIGNED:	BJW
DRAWN:	BJW
CHECKED:	GRJ
DATE:	10/10/2019
SCALE:	AS SHOWN
FILE NO.:	PB00268000_Site.dwg
PROJECT NO.:	PB00268000
OFFICE LOC.:	Columbia, S.C. USA

Former Republic Mill #1

Great Falls, South Carolina

Soil Contaminants of Concern (COC) Map

Figure

4

LEGEND

	Subject Property Boundaries
	Collocated Soil Boring / Monitoring Well
	Potentiometric Surface Contour
	Groundwater Flow Direction

NOTES

Aerial Photograph obtained from Google Earth Pro.

Aerial photograph dated March 23, 2019.

Property boundaries obtained from the Chester County Assessor's Office.

Depth to groundwater was gauged on August 15, 2019.

Groundwater elevations are relative to Mean Sea Level.

Cardno

DESIGNED:	BJW
DRAWN:	BJW
CHECKED:	GRJ
DATE:	10/10/2019
SCALE:	AS SHOWN
FILE NO.:	PB00268000_Site.dwg
PROJECT NO.:	PB00268000
OFFICE LOC.:	Columbia, S.C. USA

Former Republic Mill #1

Great Falls, South Carolina

Potentiometric Map

Figure

5

LEGEND

	Subject Property Boundaries
	Collocated Soil Boring / Monitoring Well
	Parameter exceeds its EPA Tapwater Value
	Parameter exceeds its MCL

NOTES

All results are in micrograms per liter (µg/L).

MCL = United States Environmental Protection Agency Maximum Contaminant Level.

Only detections exceeding one or more regulatory limits are shown.

All detected constituents were below regulatory limits in the sample and duplicate sample collected from monitoring well MW-5.

Cardno

DESIGNED:	BJW
DRAWN:	BJW
CHECKED:	GRJ
DATE:	10/10/2019
SCALE:	AS SHOWN
FILE NO.:	PB00268000_Site.dwg
PROJECT NO.:	PB00268000
OFFICE LOC.:	Columbia, S.C. USA

Former Republic Mill #1

Great Falls, South Carolina

Groundwater Contaminants of Concern (COC) Map

Figure

6

Former Republic Mill #1

APPENDIX A

SOIL BORING LOGS

Monitoring Well Approval

Date of Issuance: 09 July 2019 **Approval #: MW-12041**

Approval is hereby granted to: Cardno, 1812 Lincoln Street, Ste 301, Columbia, SC 29201

Facility: **Republic Mill 1**
Chester County

This approval is for the installation of seven (7) permanent groundwater monitoring wells. The monitoring wells are to be installed in the locations as illustrated on Figure 7 and per the proposed construction details provided in the Brownfields Phase II Environmental Site Assessment, Site Specific Quality Assurance Project Plan, Addendum 1A, Revision 1, dated May 24, 2019 and received by the Department on July 9, 2019. Notification of the proposed drilling date shall be provided to the Department at least 24 hours prior to the actual drilling date. The monitoring wells are to be installed following all of the applicable requirements of R.61-71.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.
2. All wells shall be properly developed per R.61-71.H.2.d. A Water Well Record Form or other form provided or approved by the Department shall be completed and submitted within 30 days after well completion or abandonment unless another schedule has been approved by the Department. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f
3. All analytical data and water levels obtained from each monitoring well shall be submitted to the author of this approval within 30 days of receipt of laboratory results unless another schedule has been approved by the Department as required by R.61-71.H.1.d.
4. All monitoring wells shall be labeled as required by R.61-71.H.2.c.
5. If any of the information provided to the Department changes, including the proposed drilling date, Angela Gorman (803-898-0929) shall be notified at least twenty-four (24) hours prior to well construction as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Well Standards, 6 S.C. Code Ann. Regs.61-71 (2012 & Supp. 2018).

Angela Gorman

Angela Gorman, Project Manager
Brownfields/Voluntary Cleanup Program
Site Assessment, Remediation, and Revitalization Division
Bureau of Land and Waste Management

BLWM File # 56938

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-1/MW-1

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	40
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.566589
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889194
Date Completed:	8/8/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)
	0-1	None				**0 - 0.5: Brown/tan, silty fine SAND, medium loose, well sorted.**
		None				**0.5 - 5.0: Red/orange/tan mottled, sandy CLAY, stiff, slightly plastic, dry.**
2	2-3					
4						
		None				**5.0 - 28.0: Same as above (saprolite), moist near 25 ft-bgs.**
6						
8						
10						
12						
14						
16						
18						
20						
22						
24						
26						
28		None				**28.0 - 30.0: Same as above, but wet.**
30						

Monitoring Well Construction

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-1/MW-1

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	40
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.566589
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889194
Date Completed:	8/8/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
32		None				**30.0 - 35.0: Same as above.**		32
34								34
36		None				**35.0 - 40.0: Partially-weathered rock/gravel encountered.**		36
38								38
40						**Boring terminated by geologist at 40 ft-bgs.**	Boring collapsed from 30-40 ft bgs	40
42								42
44								44
46								46
48								48
50								50
52								52
54								54
56								56
58								58
60								60

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-2/MW-2

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	35.5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565867
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.890261
Date Completed:	8/9/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)
	0-1	None				**0 - 2.0: Tan/orange w/red mottles, clayey fine SAND, medium dense, moderately well sorted.**
2	2-3	None				**2.0 - 4.0: Tan/orange, CLAY, medium stiff, low plasticity.**
4		None				**4.0 - 5.0: Tan, CLAY, medium stiff, low plasticity.**
		None				**5.0 - 30.0: Reddish brown, CLAY, medium stiff, low - moderate plasticity.**
6						
8						
10						
12						
14						
16						
18						
20						
22						
24						
26						
28						
30						

Monitoring Well Construction

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-2/MW-2

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	35.5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565867
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.890261
Date Completed:	8/9/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
32		None				**30.0 - 35.5: Same as above.**	Sand: 23-35.5	32
34							Screen: 25.5-35.5	34
36						**Auguer refusal encountered at 35.5 ft-bgs.**		36
38								38
40								40
42								42
44								44
46								46
48								48
50								50
52								52
54								54
56								56
58								58
60								60

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-3/MW-3

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	36
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564997
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889646
Date Completed:	8/9/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
2	0-1 2-3	None				**0 - 6.0: Red/tan/orange mottled, sandy CLAY, stiff, moderate plasticity.**	Grout: 0-22	2
4								4
6						**6.0 - 10.0: Red/orange/tan mottled, clayey fine SAND, dense, well sorted.**		6
8								8
10						**10.0 - 12.0: Same as above, but silty fine SAND.**		10
12						**12.0 - 15.0: Orange/tan, silty fine SAND, loose, moderately well sorted.**		12
14								14
16						**15.0 - 20.0: Orange/tan, silty fine to medium SAND, loose, moderately well sorted, relic banding near 20 ft-bgs.**		16
18								18
20						**20.0 - 25.0: Same as above, but fine, medium, and coarse sand grains present.**		20
22							Plug: 22-24	22
24							Sand: 24-36	24
26						**25.0 - 30.0: Same as above, but partially weathered rock present beginning at 28.5 ft-bgs.**	Screen: 26-36	26
28								28
30								30

COMMENTS:
Ground surface to 34 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-3/MW-3

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	36
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564997
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889646
Date Completed:	8/9/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
32		None				**30.0 - 34: No recovery.**	Sand: 24-36 Screen: 26-36	32
34						**34.0 - 36.0: Orange/tan, silty fine, medium, coarse SAND, loose, poorly sorted, partially weathered rock present.**		34
36						**Boring terminated by geologist at 36 ft-bgs.**		36
38								38
40								40
42								42
44								44
46								46
48								48
50								50
52								52
54								54
56								56
58								58
60								60

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-4

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	21
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.56488
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.88978
Date Completed:	8/9/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				**0 - 0.5: Brown, silty fine to medium SAND, loose, moderately well sorted.**	Refusal encountered prior to reaching groundwater, No monitoring well installed.	
						0.5 - 2.5: Same as above, but debris (brick, concrete, burnt material) present.		
2	2-3	None				**2.5 - 5.0: Red/orange/tan mottled, sandy CLAY, stiff, moderate plasticity.**		2
4								4
		None				**5.0 - 21.0: Same as above, but more rock with depth.**		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
						Auguer refusal encountered at 21 ft-bgs.		
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-6/MW-6

Site Name:	Republic Mill #1	Drilling/Boring Method:	Solid-stem Augers/Air	Total Boring Depth (ft):	32
Project Number:	PB00268000	Sampling Method:	Cuttings	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565845
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.888173
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
		None				**0 - 1.0: Brown, silty fine SAND, medium dense, well sorted.**	Grout: 0-18	
2		None				**1.0 - 7.0: Reddish brown, sandy CLAY, medium stiff, plastic. Few rock fragments present.**		2
4								4
6								6
		None				**7.0 - 10.0: Brown/tan, silty fine SAND, medium loose, moderately well sorted. Mica and relic banding present.**		
8								8
10		None				**10.0 - 15.0: Same as above.**		10
12								12
14								14
		None				**15.0 - 19.0: Same as above, rock encountered at 19 ft-bgs. Auger refusal, switch to air rotary drilling.**		
16								16
18							Plug: 18-20	18
		None				**19.0 - 25.0: Same as above, water encountered at 25 ft-bgs.**		
20							Sand: 20-32	20
22							Screen: 22-32	22
24								24
		None				**25.0 - 30.0: Same as above.**		
26								26
28								28
30								30

COMMENTS:
Ground surface to 32 feet bgs were logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-6/MW-6

Site Name:	Republic Mill #1	Drilling/Boring Method:	Solid-stem Augers/Air	Total Boring Depth (ft):	32
Project Number:	PB00268000	Sampling Method:	Soil cuttings	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565845
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.888173
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
		None				**30.0 - 32: Same as above.**	Sand: 20-32 Screen: 22-32	
32						**Boring terminated by geologist at 32 ft-bgs.**		32
34								34
36								36
38								38
40								40
42								42
44								44
46								46
48								48
50								50
52								52
54								54
56								56
58								58
60								60

COMMENTS:
Ground surface to 32 feet bgs were logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: SB-6/MW-6

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	35
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564519
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.888914
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
		None				**0 - 1.0: Brown, silty fine SAND, medium dense, well sorted.**	Grout: 0-21	
		None				**1.0 - 2.5: Reddish brown, sandy CLAY, medium stiff, plastic. Few rock fragments present.**		
2								2
						2.5 - 5.0: No recovery		
4								4
		None				**5.0 - 7.0: Reddish brown with tan mottles, sandy CLAY, stiff, plastic.**		
6								6
		None				**7.0 - 10.0: Brown/gray, silty fine SAND, medium loose, moderately well sorted. Mica and relic banding present.**		
8								8
10		None				**10.0 - 15.0: Same as above.**		10
12								12
14								14
		None				**15.0 - 20.0: White/tan with dark brown mottling, silty fine SAND, medium loose, well sorted, relic patterns present.**		
16								16
18								18
20		None				**20.0 - 25.0: Same as above, but trace medium and coarse sand grains present.**		20
							Plug: 21-23	
22								22
							Sand: 23-35	
24								24
		None				**25.0 - 30.0: Same as above, but moist to wet at 30 ft-bgs.**	Screen: 25-35	
26								26
28								28
30								30

COMMENTS:
Ground surface to 34 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-6/MW-6

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT/Solid-stem Augers	Total Boring Depth (ft):	35
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564519
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.888914
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
32		None				**30.0 - 35: Same as above, but relicc patterns are more pronounced and some medium and coarse sand grains present.**	Sand: 23-35 Screen: 25-35	32
34								34
						Boring terminated by geologist at 35 ft-bgs.		
36								36
38								38
40								40
42								42
44								44
46								46
48								48
50								50
52								52
54								54
56								56
58								58
60								60

COMMENTS:
Ground surface to 34 feet bgs were logged via MacroCore.
The remainder of the boring was logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-7/MW-7

Site Name:	Republic Mill #1	Drilling/Boring Method:	Solid-stem Augers/Air	Total Boring Depth (ft):	35
Project Number:	PB00268000	Sampling Method:	Soil cuttings	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.563786
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889553
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
		None				**0 - 1.0: Brown, silty fine SAND, medium dense, well sorted.**	Grout: 0-21	
2		None				**1.0 - 16.0: Reddish brown, sandy CLAY, medium stiff, plastic. Few rock fragments present.**		2
4								4
6								6
8								8
10								10
12								12
14								14
16		None				**16.0 - 35.0: Same as above, but rock consistently encountered. Auger refusal at 16 ft-bgs. Switch to air rotary drilling.**		16
18								18
20								20
22							Plug: 21-23	22
24							Sand: 23-35	24
26							Screen: 25-35	26
28						**Groundwater encountered around 27 ft-bgs.**		28
30								30

COMMENTS:
Ground surface to 35 feet bgs were logged soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-7/MW-7

Site Name:	Republic Mill #1	Drilling/Boring Method:	Solid-stem Augers/Air	Total Boring Depth (ft):	35
Project Number:	PB00268000	Sampling Method:	Soil cuttings	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.563786
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889553
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
32		None				**30.0 - 35: Same as above, but relicc patterns are more pronounced and some medium and coarse sand grains present.**	Sand: 23-35 Screen: 25-35	32
34								34
						Boring terminated by geologist at 35 ft-bgs.		
36								36
38								38
40								40
42								42
44								44
46								46
48								48
50								50
52								52
54								54
56								56
58								58
60								60

COMMENTS:
Ground surface to 35 feet bgs were logged via soil cuttings.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-8

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.566202
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889839
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				0 - 0.5: Tan/orange, CLAY, dry.		
		None				0.5 - 2.5: Red/tan, CLAY, medium plasticity.		
2	2-3	None				2.5 - 5.0: Tan/pink, silty CLAY, loose.		2
4								4
						Boring terminated by geologist at 5.0 ft-bgs.		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-9

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565247
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.890437
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				0 - 0.5: Red/tan mottled, sandy CLAY, stiff, not plastic, dry.		
		None				0.5 - 2.0: Tan/red, clayey/silty fine SAND, medium dense, well sorted, dry.		
2	2-3	None				2.0 - 3.0: Tan with red/orange mottles, fine SAND, trace silt and clay, medium loose, well sorted, few concretions present.		2
		None				3.0 - 4.5: Brown, fine to medium SAND, little silt and clay, medium loose, moderately well sorted.		
4		None				4.5 - 5.0: Red/tan mottled, sandy CLAY, stiff, not plastic, dry.		4
						Boring terminated by geologist at 5.0 ft-bgs.		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-10

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565283
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889959
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				0 - 2.0: Brown, silty fine/medium/coarse SAND, medium loose, moderately poorly sorted. Black (burnt) material at approximately 1.5 ft-bgs.		
2	2-3	None				2.0 - 5.0: Red/orange/tan mottled, sandy CLAY, very stiff, not plastic, dry.		2
4								4
						Boring terminated by geologist at 5.0 ft-bgs.		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-11

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565198
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889973
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
2	0-1	None				0 - 1.0: Dark brown, sandy CLAY to clayey SAND, stiff/dense, moderately well sorted.		2
		None				1.0 - 5.0: Red with tan mottles, sandy CLAY, very stiff, plastic, dry.		
	2-3							
4								4
						Boring terminated by geologist at 5.0 ft-bgs.		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-12

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565074
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.890165
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				0 - 1.5: Dark brown with some red mottles, sandy CLAY, stiff, moderately plastic, rock/concrete present.		
2	2-3	None				1.5 - 5.0: Reddish brown, sandy CLAY, stiff, moderately plastic. Brown to tan mottles from 2.5 to 5.0 ft-bgs.		2
4								4
						Boring terminated by geologist at 5.0 ft-bgs.		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-13

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565128
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889777
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				**0 - 1.5: Brown, silty fine SAND, medium loose, moderately well sorted.**		
2	2-3	None				**1.5 - 3.0: Reddish brown, sandy CLAY, stiff, not plastic.**		2
4		None				**3.0 - 5.0: Orange/brown, sandy CLAY, stiff, moderately plastic.**		4
6						**Boring terminated by geologist at 5.0 ft-bgs.**		6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-14

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.565014
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889849
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				0 - 1.0: Brown, clayey fine to medium SAND, medium loose, moderately well sorted. Brick/concrete from 0.25 to 1.0 ft-bgs.		
		None				1.0 - 2.0: Brown, clayey fine to medium SAND, dense, moderately well sorted.		
2	2-3	None				2.0 - 5.0: Reddish brown, sandy CLAY, stiff, moderately plastic.		2
4								4
						Boring terminated by geologist at 5.0 ft-bgs.		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-15

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564977
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.890083
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				0 - 2.0: Brown, silty fine SAND, medium loose, moderately well sorted. Brick/concrete present.		
2	2-3	None				2.0 - 5.0: Reddish brown, sandy CLAY, stiff, moderately plastic.		2
4								4
						Boring terminated by geologist at 5.0 ft-bgs.		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: SB-16

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564805
Date Started:	8/5/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889906
Date Completed:	8/5/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				**0 - 1.0: Brick.**		
		None				**1.0 - 2.0: Brown, fine/medium/coarse SAND.**		
2	2-3	None				**2.0 - 3.0: Reddish brown, sandy CLAY, stiff, moderately plastic. Rock and black (burnt) material present.**		2
		None				**3.0 - 5.0: Orange/tan, clayey fine SAND, dense, well sorted.**		
4								4
						Boring terminated by geologist at 5.0 ft-bgs.		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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LOG OF BORING: TB-1

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	6.5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564329
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889422
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
		None				0 - 1.0: Brown, silty fine SAND, medium dense, well sorted, moist, organic matter present.		
		None				1.0 - 2.5: Reddish brown, sandy CLAY, medium stiff, plastic, moist.		
2								2
		None				2.5 - 2.75: Rock (granite).		
						2.75 - 5.0: No recovery.		
4								4
		None				5.0 - 5.5: Brown, sandy CLAY, soft, very plastic, wet.		
		None				5.5 - 6.5: Partially weathered rock.		
6								6
						Probe refusal at 6.5 ft-bgs.		
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 6.5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

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Ph: 803-929-6060

LOG OF BORING: TB-2

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5.5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564252
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889518
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
		None				**0 - 1.5: Brown, silty fine SAND, medium loose, well sorted, organic matter present.**		
2		None				**1.5 - 2.5: Tan/brown, sandy CLAY, medium stiff, plastic, wet. Rock/partially weathered rock present at 2.0 ft-bgs.**		2
						2.5 - 5.0: No recovery.		
4								4
		None				**5.0 - 5.5: Partially weathered rock, wet.**		
6						**Probe refusal at 5.5 ft-bgs.**		6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5.5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: TB-3/SB-17

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	4.5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564315
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889449
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				0 - 1.0: Brown, silty fine SAND, medium loose, well sorted.		
2	2-3	None				1.0 - 4.5: Gray/tan, silty fine/medium/coarse SAND, medium dense, poorly sorted (partially weathered rock).		2
4						Probe refusal at 4.5 ft-bgs.		4
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 4.5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: TB-4/SB-18

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	6
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564240
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889360
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
	0-1	None				0 - 1.0: Reddish brown, silty fine SAND, medium dense, well sorted.		
2	2-3	None				1.0 - 3.0: Gray/brown, silty fine/medium/coarse SAND, medium loose, poorly sorted (partially weathered rock).		2
4						3.0 - 5.0: No recovery.		4
6		None				5.0 - 6.0: Gray/brown, silty fine/medium/coarse SAND, medium loose, poorly sorted (partially weathered rock).		6
						Probe refusal at 6.0 ft-bgs.		
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 6 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: TB-5

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	7
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564263
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889277
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
		None				0 - 0.5: Brown, silty fine SAND, medium dense, well sorted.		
		None				0.5 - 1.5: Brown, sandy CLAY, stiff, plastic.		
2		None				1.5 - 2.25: Brown/tan mottled, silty fine SAND, medium dense, well sorted.		2
		None				2.25 - 2.5: Gray/tan, silty fine/medium/coarse SAND with partially weathered rock.		
						2.5 - 5.0: No recovery.		
4								4
		None				5.0 - 6.0: Gray/tan, silty fine/medium/coarse SAND with partially weathered rock.		
6								6
						Probe refusal at 7.0 ft-bgs.		
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 7 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

Cardno
1812 Lincoln St.
Suite 301
Columbia, SC 29201
Ph: 803-929-6060

LOG OF BORING: TB-6

Site Name:	Republic Mill #1	Drilling/Boring Method:	DPT	Total Boring Depth (ft):	5.5
Project Number:	PB00268000	Sampling Method:	MacroCore	Top of Casing Elev. (ft):	N/A
Location:	Great Falls, SC	Subcontractor/Drillers:	Elite Techniques, Inc.	Latitude (SC St. Plane):	34.564172
Date Started:	8/6/2019	Driller :	D. Latimer (SC #2287A)	Longitude (SC St. Plane):	-80.889348
Date Completed:	8/6/2019	Monitoring Equipment:	N/A	Geologist/Engineer:	BW/PW

ft -bgs	Samples	Odors	OVA (ppm)	Blows/6-in.	Recovery (ft.)	SOIL DESCRIPTION (color, texture, moisture, etc.)	Monitoring Well Construction	ft-bgs
2		None				**0 - 1.0: Brown, silty fine SAND, medium dense, well sorted.** **1.0 - 5.0: No recovery.**		2
4								4
		None				**5.0 - 5.5: Gray/brown, silty fine/medium/coarse SAND, loose, poorly sorted, partially weathered rock. Probe refusal at 7.0 ft-bgs.**		
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30

COMMENTS:
Ground surface to 5.5 feet bgs were logged via MacroCore.

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface

N/A - indicates not applicable to this boring
ppm - indicates parts per million
DPT - Direct-Push Technology

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Great Falls Former Republic Mill #1 (last) (first)
Address: end of Dearborn Street
City: Great Falls State: SC Zip: 29055-0000
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: Chester
Name: Great Falls Former Republic Mill #1
Street Address: end of Dearborn Street
City: Great Falls Zip: 29022-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Cardno Final Report		
*Indicate Water Bearing Zones		
(Use a 2nd sheet if needed)		

5. REMARKS:
MW - 1

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other Auger

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 8/8/19
28 ft. Date Completed: 8/8/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 18 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2"
Slot/Gauge: 0.010 Length: 10'
Set Between: 28 ft. and 18 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 28 ft. to 16 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other Bentonite 16-14
Depth: From 16 ft. to 0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Latimer **CERT. NO.:** 2287
Address: (Print) Level: A B C D (circle one)
Elite Techniques, Inc., 1817 Bishopville Hwy. Camden, SC 29020
Telephone No.: Fax No.: Phone 803-425-7324

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: David Latimer (Well Driller) Date: 8/15/19

If D Level Driller, provide supervising driller's name:
Dearal Rodgers #1461-A

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Great Falls Former Republic Mill #1 (last) (first)
Address: end of Dearborn Street
City: Great Falls State: SC Zip: 29055-0000
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Chester
Name: Great Falls Former Republic Mill #1
Street Address: end of Dearborn Street
City: Great Falls Zip: 29022-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Cardno Final Report		
*Indicate Water Bearing Zones		
(Use a 2nd sheet if needed)		

5. REMARKS:
MW - 2

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☒ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 8/8/19
35 ft. Date Completed: 8/9/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 25 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2"
Slot/Gauge: 0.010 Length: 10'
Set Between: 35 ft. and 25 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 35 ft. to 23 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other Bentonite 23-21
Depth: From 23 ft. to 0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe_____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Latimer **CERT. NO.:** 2287
Address: (Print) Level: A B C D (circle one)
Elite Techniques, Inc., 1817 Bishopville Hwy. Camden, SC 29020
Telephone No.: Fax No.: Phone 803-425-7324

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: David Latimer Date: 8/15/19
Well Driller

If D Level Driller, provide supervising driller's name:
Dearal Rodgers #1461-A

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Great Falls Former Republic Mill #1 (last) (first)
Address: end of Dearborn Street
City: Great Falls State: SC Zip: 29055-0000
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Chester
Name: Great Falls Former Republic Mill #1
Street Address: end of Dearborn Street
City: Great Falls Zip: 29022-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Cardno Final Report		

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

5. REMARKS:
MW - 3

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other Auger

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 8/9/19
36 ft. Date Completed: 8/9/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 26 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2"
Slot/Gauge: 0.010 Length: 10'
Set Between: 36 ft. and 26 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 36 ft. to 24 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other Bentonite 24-22
Depth: From 24 ft. to 0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Latimer **CERT. NO.:** 2287
Address: (Print) Level: A ✓ B C D (circle one)
Elite Techniques, Inc., 1817 Bishopville Hwy. Camden, SC 29020
Telephone No.: Fax No.: Phone 803-425-7324

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: David Latimer Date: 8/15/19
Well Driller

If D Level Driller, provide supervising driller's name:
Dearal Rodgers #1461-A

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Great Falls Former Republic Mill #1 (last) (first)
Address: end of Dearborn Street
City: Great Falls State: SC Zip: 29055-0000
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Chester
Name: Great Falls Former Republic Mill #1
Street Address: end of Dearborn Street
City: Great Falls Zip: 29022-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Cardno Final Report		
*Indicate Water Bearing Zones		
(Use a 2nd sheet if needed)		

5. REMARKS:
MW - 5

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☒ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 8/7/19
32 ft. Date Completed: 8/7/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 22 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2"
Slot/Gauge: 0.010 Length: 10'
Set Between: 32 ft. and 22 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 32 ft. to 20 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other Bentonite 20-18
Depth: From 20 ft. to 0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Latimer **CERT. NO.:** 2287
Address: (Print) Level: A B C D (circle one)
Elite Techniques, Inc., 1817 Bishopville Hwy. Camden, SC 29020
Telephone No.: Fax No.: Phone 803-425-7324

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Signed: David Latimer Date: 8/15/19
Well Driller
If D Level Driller, provide supervising driller's name:
Dearal Rodgers #1461-A

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Great Falls Former Republic Mill #1 (last) (first)
Address: end of Dearborn Street
City: Great Falls State: SC Zip: 29055-0000
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Chester
Name: Great Falls Former Republic Mill #1
Street Address: end of Dearborn Street
City: Great Falls Zip: 29022-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Cardno Final Report		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW - 6

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☒ Other Auger

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 8/6/19
35 ft. Date Completed: 8/7/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 25 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2"
Slot/Gauge: 0.010 Length: 10'
Set Between: 35 ft. and 25 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 35 ft. to 23 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other Bentonite 23-21
Depth: From 23 ft. to 0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Latimer **CERT. NO.:** 2287
Address: (Print) Level: A B C D (circle one)
Elite Techniques, Inc., 1817 Bishopville Hwy. Camden, SC 29020
Telephone No.: Fax No.: Phone 803-425-7324

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Signed: David Latimer Date: 8/15/19
Well Driller
If D Level Driller, provide supervising driller's name:
Dearal Rodgers #1461-A

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Great Falls Former Republic Mill #1 (last) (first)
Address: end of Dearborn Street
City: Great Falls State: SC Zip: 29055-0000
Telephone: Work: Home:

2. LOCATION OF WELL: **COUNTY:** Chester
Name: Great Falls Former Republic Mill #1
Street Address: end of Dearborn Street
City: Great Falls Zip: 29022-0000
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
See Cardno Final Report		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
MW - 7

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☑ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 8/7/19
35 ft. Date Completed: 8/7/19

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 25 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2"
Slot/Gauge: 0.010 Length: 10'
Set Between: 35 ft. and 25 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 35 ft. to 23 ft.
Effective size #2 Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other Bentonite 23-21
Depth: From 23 ft. to 0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: David Latimer **CERT. NO.:** 2287
Address: (Print) Level: A B C D (circle one)
Elite Techniques, Inc., 1817 Bishopville Hwy. Camden, SC 29020
Telephone No.: Fax No.: Phone 803-425-7324

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: David Latimer Date: 8/15/19
Well Driller

If D Level Driller, provide supervising driller's name:
Dearal Rodgers #1461-A

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Former Republic Mill #1

APPENDIX B

ACCESS ANALYTICAL REPORT

ANALYTICAL REPORT

CLIENT

Cardno, Inc.
1812 Lincoln St., Suite 301
Columbia SC 29201

ATTENTION
Bobby Wolf

PROJECT ID
Great Falls Republic Mill #1

LABORATORY REPORT NUMBER
1908589

DATE
August 20, 2019

Primarv Data Review Bv

Chris Pafford
Project Manager, AES

Secondarv Data Review Bv

Ashley Amick

Project Manager, Access Analytical
aamick@axs-inc.com

PLEASE NOTE:

- **Unless otherwise noted, all analysis on this report performed at Analytical Environmental Services Inc. (AES Inc), 3080 Presidential Drive, Atlanta, GA 30340.**
- **AES is SCDHEC certified laboratory # 98016, NCDENR certified lab # 562, GA certified lab # FL-E87582, NELAP certified laboratory # E87582**
- **AIHA-LAP,LLC Laboratory ID:100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination.**
- Local support services for this project are provided by Access Analytical, Inc. Access Analytical is a representative of AES serving client in the SC/NC/GA areas. All questions regarding this report should be directed to your local Access Analytical representative at 803.781.4243 or toll fee at 883.315.4243

Access Lab Report #: _____

Sub Lab (if applicable): AES / Sub Report #: _____

Access Analytical, Inc. -- Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

1908589

Client:	Cardno
Attn:	Bobby Wolf
Address:	1812 Lincoln St., Suite 300
City:	Columbia
State:	SC
Zip Code:	29201
Phone:	803-576-4772
Fax:	
Email:	bobby.wolf@cardno.com
Project Name:	Great Falls-Republic Mill #1
Sampled By (Signature):	[signature]

Preservatives (see codes):

Bottle Types (see codes):

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl⁻, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	REQUESTED LAB ANALYSIS:	TAL Metals	TCL SVOCs	TCL VOCs	TCL PCBs	Full TAL/TCL	" without VOCs				Notes / Comments
	GF-SS-01	8/5/19	1110	G	S			# Containers per Test >>	✓	✓								
	GF-SB-01	"	1115	G	S			# Containers per Test >>	✓	✓	✓							
	GF-SS-02	"	1155	G	S			# Containers per Test >>	✓	✓								
	GF-SB-02	"	1200	G	S			# Containers per Test >>	✓	✓	✓							
	GF-SS-08	"	1230	G	S			# Containers per Test >>	✓	✓								
	GF-SB-08	"	1235	G	S			# Containers per Test >>	✓	✓	✓							
	GF-SS-09	"	1240	G	S			# Containers per Test >>	✓	✓								
	GF-SS-09-DUP	"	"	G	S			# Containers per Test >>	✓	✓								
	GF-SB-09	"	1250	G	S			# Containers per Test >>	✓	✓	✓							
	GF-SB-09-DUP	"	"	G	S			# Containers per Test >>	✓	✓	✓							

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature] Cardno	amart	8-6-19	1622	X Y ___N ___N/A
Rush *		NC		amart	[signature]	8-6-19	1700	X Y ___N ___N/A
*Date Required		Other (Specify):						___Y ___N ___N/A
Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.				Received in lab by: [signature]		8-7-19	9:31	___Y ___N ___N/A

Sample Temp. Receipt in Lab: 2.8 (°C) 3.6°C Ref: RT1 Ref: RT2

Chain of Custody Page 1 of 4

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc. – Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

1908589

Client:	Cardno
Attn:	Bobby Wolf
Address:	1812 Lincoln St., Suite 301
City:	Columbia
State:	SC
Zip Code:	29201
Phone:	803-576-4772
Fax:	
Email:	bobby.wolf@cardno.com
Project Name:	Great Falls Republic Mill #1
Sampled By (Signature):	[signature]

Preservatives (see codes):

Bottle Types (see codes):

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl⁻, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	REQUESTED LAB ANALYSIS: TAL Metals	TCL SVOCs	TCL VOCs	TCL PCBs	Full TAL TCL	" without VOCs			Notes / Comments
	GF-SS-10	8/5/19	1330	G	S			✓	✓							
	GF-SB-10	"	1335	G	S			✓	✓	✓						
	GF-SS-11	"	1338	G	S			✓	✓							
	GF-SB-11	"	1340	G	S			✓	✓	✓						
	GF-SS-12	"	1345	G	S			✓	✓							
	GF-SB-12	"	1350	G	S			✓	✓	✓						
	GF-SS-13	"	1410	G	S			✓	✓		✓					
	GF-SB-13	"	1415	G	S			✓	✓	✓	✓					
	GF-SS-14	"	1445	G	S			✓	✓		✓					
	GF-SB-14	"	1450	G	S			✓	✓	✓	✓					

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature] Cardno	Amart	8-6-19	1622	___Y___N___N/A
Rush *		NC		Amart	fedex	8-6-19	1820	___Y___N___N/A
*Date Required		Other (Specify):						___Y___N___N/A
Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.				Received in lab by: Amanda Peters		8-7-19	9:51	___Y___N___N/A

Sample Temp. Receipt in Lab: 2.8 (°C) 3.6°C Ref: RT1 Ref: RT2

Chain of Custody Page 2 of 4

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc. – Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

1908589

Client:	Cardno
Attn:	Bobby Wolf
Address:	1812 Lincoln St., Suite 301
City:	Columbia
State:	SC
Zip Code:	29201
Phone:	803-576-9772
Fax:	
Email:	bobby.wolf@cardno.com
Project Name:	Great Falls Republic Mill #1
Sampled By (Signature):	[signature]

Preservatives (see codes):

Bottle Types (see codes):

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl⁻, **12** = Ascorbic Acid / HCL, **13** = EDA

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Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	REQUESTED LAB ANALYSIS:	TAL Metals	TCL SVOCs	TCL VOCs	TCL PCBs	Full TAL/TCL	" without VOCs			Notes / Comments
	GF-SS-15	8/5/19	1500	G	S			# Containers per Test >>	✓	✓	✓						
	GF-SB-15	"	1510	G	S			# Containers per Test >>	✓	✓	✓						
	GF-SS-03	"	1515	G	S			# Containers per Test >>	✓	✓							
	GF-SB-03	"	1520	G	S			# Containers per Test >>	✓	✓	✓						
	GF-SS-16	"	1535	G	S			# Containers per Test >>	✓	✓	✓						
	GF-SB-16	"	1540	G	S			# Containers per Test >>	✓	✓	✓						
	GF-SS-04	"	1545	G	S			# Containers per Test >>	✓	✓							
	GF-SB-04	"	1600	G	S			# Containers per Test >>	✓	✓	✓						
	~~GF~~ FB-01	"	1605	G	SW			# Containers per Test >>	✓	✓	✓						
	GF-SS-17	8/6/19	0955	G	S			# Containers per Test >>						✓			

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____(factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature]	amartz	8-6-19	1622	X ___Y ___N ___N/A
Rush *		NC		amartz	fedex	8-6-19	1700	X ___Y ___N ___N/A
*Date Required		Other (Specify):						___Y ___N ___N/A
Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.				Received in lab by: [signature]		8-7-19	9:51	___Y ___N ___N/A

Sample Temp. Receipt in Lab: 2.8 (°C) 3.6°C Ref: RT1 Ref: RT2

Chain of Custody Page 3 of 4

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc. -- Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

1908589

Client:	Cardno	Preservatives (see codes):	
Attn:	Bobby Wolf	Bottle Types (see codes):	
Address:	1812 Lincoln St, Suite 301		
City:	Columbia	State: SC	Zip Code: 29201
Phone:	803-576-4772	Fax:	
Email:	bobby.wolf@cardno.com		
Project Name:	Great Falls Republic Mill #1		
Sampled By (Signature):	[signature]		

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl⁻, **12** = Ascorbic Acid / HCL, **13** = EDA

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Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	REQUESTED LAB ANALYSIS:	TAL Metals	TCL SVOCs	TCL VOCs	TCL PCBs	Full TAL TCL	" without VOCs			Notes / Comments
	GF-SB-17	8/6/19	1000	G	S			# Containers per Test >>					✓				
	GF-SS-18	"	1015	G	S			# Containers per Test >>						✓			
	GF-SB-18	"	1020	G	S			# Containers per Test >>					✓				
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____(factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature]	[signature]	8/6/19	1622	X Y ___N ___N/A
Rush *		NC		[signature]	[signature]	8/6/19	[illegible]	X Y ___N ___N/A
*Date Required		Other (Specify):						___Y ___N ___N/A
Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.				Received in lab by: [signature]		8-7-19	9:51	___Y ___N ___N/A

Chain of Custody Page 4 of 4

Sample Temp. Receipt in Lab: 2.8 (°C) 3.6°C Ref: RT1 Ref: RT2

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client: Cardno, Inc.
Project: Great Falls Republic Mill #1
Lab ID: 1908589

Case Narrative

Sample Receiving Nonconformance:

A Trip Blank was provided but not listed on the Chain of Custody. Trip blank analyzed at no cost to the client.

Semi-Volatiles Organic Compounds Analysis by Method 8270:

Matrix spike and/or matrix spike duplicate analyses were not performed with Batch 283373 due to insufficient sample volume.

Benzo(b)fluoranthene & Pyrene values for the QC sample 1908589-023AMSD IS "E" qualified indicating estimated values over linear calibration range due to the level of target analyte present in the unspiked sample.

Volatile Organic Compounds Analysis by Method 8260D:

Percent recovery for the internal standard compound 1,4-Dichorobenzene-d4 for 1908589-010A, -028A, -031A, 1908898-001ADUP were outside control limits biased high due to suspected matrix interference. All other internal standard recoveries were within control limits.

Volatile Organic Compounds Analysis by Method 8260D:

Due to sample matrix, sample 1908589-021A required dilution during preparation and/or analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:10:00 AM
Lab ID:	1908589-001	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.118		mg/Kg-dry	283367	1	08/12/2019 16:01	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2,4,6-Trichlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2,4-Dichlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2,4-Dimethylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2,4-Dinitrotoluene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2,6-Dinitrotoluene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2-Chloronaphthalene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2-Chlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2-Methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
2-Nitrophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
3,3´-Dichlorobenzidine	BRL	790		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
4-Bromophenyl phenyl ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
4-Chloro-3-methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
4-Chloroaniline	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
4-Chlorophenyl phenyl ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
4-Methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Acetophenone	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Atrazine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Benzaldehyde	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Bis(2-chloroethoxy)methane	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Bis(2-chloroethyl)ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Bis(2-chloroisopropyl)ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Bis(2-ethylhexyl)phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Butyl benzyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Caprolactam	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Carbazole	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Di-n-butyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Di-n-octyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Dibenzofuran	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Diethyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Dimethyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:10:00 AM
Lab ID:	1908589-001	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Hexachlorobutadiene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Hexachlorocyclopentadiene	BRL	780		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Hexachloroethane	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Isophorone	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
N-Nitrosodi-n-propylamine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
N-Nitrosodiphenylamine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Nitrobenzene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Phenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 16:42	YH
Surr: 2,4,6-Tribromophenol	140	45.6-120	S	%REC	283296	1	08/12/2019 16:42	YH
Surr: 2-Fluorobiphenyl	106	51.4-120		%REC	283296	1	08/12/2019 16:42	YH
Surr: 2-Fluorophenol	103	40.9-120		%REC	283296	1	08/12/2019 16:42	YH
Surr: 4-Terphenyl-d14	115	52.2-129		%REC	283296	1	08/12/2019 16:42	YH
Surr: Nitrobenzene-d5	109	40-120		%REC	283296	1	08/12/2019 16:42	YH
Surr: Phenol-d5	106	45-120		%REC	283296	1	08/12/2019 16:42	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
2-Methylnaphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Acenaphthene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Acenaphthylene	BRL	39		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Anthracene	6.1	2.0		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Benz(a)anthracene	22	2.0		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Benzo(a)pyrene	24	2.0		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Benzo(b)fluoranthene	38	3.9		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Benzo(g,h,i)perylene	18	3.9		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Benzo(k)fluoranthene	14	2.0		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Chrysene	29	2.0		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Dibenz(a,h)anthracene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Fluoranthene	44	3.9		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Fluorene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Indeno(1,2,3-cd)pyrene	14	2.0		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Naphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Phenanthrene	23	2.0		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Pyrene	43	2.0		ug/Kg-dry	283295	1	08/12/2019 16:02	YH
Surr: 4-Terphenyl-d14	73.6	51.2-127		%REC	283295	1	08/12/2019 16:02	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	21700	143		mg/Kg-dry	283234	100	08/13/2019 18:35	JW
Antimony	BRL	0.71		mg/Kg-dry	283234	10	08/12/2019 19:36	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:10:00 AM
Lab ID:	1908589-001	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	4.42	0.43		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Barium	40.4	1.78		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Beryllium	0.72	0.36		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Cadmium	BRL	0.36		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Calcium	726	17.8		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Chromium	21.6	0.71		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Cobalt	1.71	0.54		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Copper	5.56	0.71		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Iron	27400	357		mg/Kg-dry	283234	100	08/13/2019 18:35	JW
Lead	16.3	0.36		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Magnesium	339	17.8		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Manganese	140	0.71		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Nickel	6.46	0.71		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Potassium	415	17.8		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Selenium	BRL	1.78		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Silver	BRL	0.18		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Sodium	BRL	35.7		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Thallium	BRL	0.50		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Vanadium	42.9	0.71		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
Zinc	15.3	1.78		mg/Kg-dry	283234	10	08/12/2019 19:36	JW
PERCENT MOISTURE D2216								
Percent Moisture	15.5	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

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B	Analyte detected in the associated method blank	<	Less than Result value
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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:15:00 AM
Lab ID:	1908589-002	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.149		mg/Kg-dry	283367	1	08/12/2019 16:09	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2,4,5-Trichlorophenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2,4,6-Trichlorophenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2,4-Dichlorophenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2,4-Dimethylphenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2,4-Dinitrophenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2,4-Dinitrotoluene	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2,6-Dinitrotoluene	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2-Chloronaphthalene	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2-Chlorophenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2-Methylphenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2-Nitroaniline	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
2-Nitrophenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
3,3´-Dichlorobenzidine	BRL	1000		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
3-Nitroaniline	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
4,6-Dinitro-2-methylphenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
4-Bromophenyl phenyl ether	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
4-Chloro-3-methylphenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
4-Chloroaniline	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
4-Chlorophenyl phenyl ether	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
4-Methylphenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
4-Nitroaniline	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
4-Nitrophenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Acetophenone	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Atrazine	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Benzaldehyde	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Bis(2-chloroethoxy)methane	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Bis(2-chloroethyl)ether	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Bis(2-chloroisopropyl)ether	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Bis(2-ethylhexyl)phthalate	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Butyl benzyl phthalate	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Caprolactam	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Carbazole	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Di-n-butyl phthalate	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Di-n-octyl phthalate	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Dibenzofuran	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Diethyl phthalate	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Dimethyl phthalate	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
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Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:15:00 AM
Lab ID:	1908589-002	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Hexachlorobutadiene	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Hexachlorocyclopentadiene	BRL	980		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Hexachloroethane	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Isophorone	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
N-Nitrosodi-n-propylamine	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
N-Nitrosodiphenylamine	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Nitrobenzene	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Pentachlorophenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Phenol	BRL	490		ug/Kg-dry	283296	1	08/12/2019 17:10	YH
Surr: 2,4,6-Tribromophenol	97.1	45.6-120		%REC	283296	1	08/12/2019 17:10	YH
Surr: 2-Fluorobiphenyl	73.2	51.4-120		%REC	283296	1	08/12/2019 17:10	YH
Surr: 2-Fluorophenol	71.4	40.9-120		%REC	283296	1	08/12/2019 17:10	YH
Surr: 4-Terphenyl-d14	81	52.2-129		%REC	283296	1	08/12/2019 17:10	YH
Surr: Nitrobenzene-d5	74.4	40-120		%REC	283296	1	08/12/2019 17:10	YH
Surr: Phenol-d5	73.4	45-120		%REC	283296	1	08/12/2019 17:10	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,1,2,2-Tetrachloroethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,1,2-Trichloroethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,1-Dichloroethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,1-Dichloroethene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,2,4-Trichlorobenzene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,2-Dibromo-3-chloropropane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,2-Dibromoethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,2-Dichlorobenzene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,2-Dichloroethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,2-Dichloropropane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,3-Dichlorobenzene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
1,4-Dichlorobenzene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
2-Butanone	BRL	52		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
2-Hexanone	BRL	10		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
4-Methyl-2-pentanone	BRL	10		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Acetone	BRL	100		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Benzene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Bromodichloromethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Bromoform	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Bromomethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Carbon disulfide	BRL	10		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Carbon tetrachloride	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR

Qualifiers:

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B	Analyte detected in the associated method blank	<	Less than Result value
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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:15:00 AM
Lab ID:	1908589-002	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Chloroethane	BRL	10		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Chloroform	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Chloromethane	BRL	10		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
cis-1,2-Dichloroethene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
cis-1,3-Dichloropropene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Cyclohexane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Dibromochloromethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Dichlorodifluoromethane	BRL	10		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Ethylbenzene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Freon-113	BRL	10		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Isopropylbenzene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
m,p-Xylene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Methyl acetate	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Methyl tert-butyl ether	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Methylcyclohexane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Methylene chloride	BRL	21		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
o-Xylene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Styrene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Tetrachloroethene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Toluene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
trans-1,2-Dichloroethene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
trans-1,3-Dichloropropene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Trichloroethene	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Trichlorofluoromethane	BRL	5.2		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Vinyl chloride	BRL	10		ug/Kg-dry	283608	1	08/14/2019 22:35	AR
Surr: 4-Bromofluorobenzene	84.4	65.1-125		%REC	283608	1	08/14/2019 22:35	AR
Surr: Dibromofluoromethane	111	77.7-123		%REC	283608	1	08/14/2019 22:35	AR
Surr: Toluene-d8	94.4	83.2-120		%REC	283608	1	08/14/2019 22:35	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	25		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
2-Methylnaphthalene	BRL	25		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Acenaphthene	BRL	25		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Acenaphthylene	BRL	49		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Anthracene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Benz(a)anthracene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Benzo(a)pyrene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Benzo(b)fluoranthene	BRL	4.9		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Benzo(g,h,i)perylene	BRL	4.9		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Benzo(k)fluoranthene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 16:27	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:15:00 AM
Lab ID:	1908589-002	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Dibenz(a,h)anthracene	BRL	4.9		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Fluoranthene	BRL	4.9		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Fluorene	BRL	4.9		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Indeno(1,2,3-cd)pyrene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Naphthalene	BRL	25		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Phenanthrene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Pyrene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 16:27	YH
Surr: 4-Terphenyl-d14	80.4	51.2-127		%REC	283295	1	08/12/2019 16:27	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	22900	166		mg/Kg-dry	283234	100	08/13/2019 18:38	JW
Antimony	BRL	0.83		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Arsenic	2.87	0.50		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Barium	25.3	2.07		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Beryllium	0.68	0.41		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Cadmium	BRL	0.41		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Calcium	187	20.7		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Chromium	16.3	0.83		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Cobalt	1.39	0.62		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Copper	4.26	0.83		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Iron	25900	414		mg/Kg-dry	283234	100	08/13/2019 18:38	JW
Lead	8.83	0.41		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Magnesium	947	20.7		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Manganese	124	0.83		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Nickel	2.87	0.83		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Potassium	1420	20.7		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Selenium	BRL	2.07		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Silver	BRL	0.21		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Sodium	44.6	41.4		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Thallium	BRL	0.58		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Vanadium	33.0	0.83		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
Zinc	18.2	2.07		mg/Kg-dry	283234	10	08/12/2019 19:40	JW
PERCENT MOISTURE D2216								
Percent Moisture	32.8	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-02
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:55:00 AM
Lab ID:	1908589-003	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	0.343	0.118		mg/Kg-dry	283441	1	08/13/2019 12:50	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2,4,6-Trichlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2,4-Dichlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2,4-Dimethylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2,4-Dinitrotoluene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2,6-Dinitrotoluene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2-Chloronaphthalene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2-Chlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2-Methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
2-Nitrophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
3,3´-Dichlorobenzidine	BRL	790		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
4-Bromophenyl phenyl ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
4-Chloro-3-methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
4-Chloroaniline	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
4-Chlorophenyl phenyl ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
4-Methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Acetophenone	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Atrazine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Benzaldehyde	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Bis(2-chloroethoxy)methane	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Bis(2-chloroethyl)ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Bis(2-chloroisopropyl)ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Bis(2-ethylhexyl)phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Butyl benzyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Caprolactam	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Carbazole	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Di-n-butyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Di-n-octyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Dibenzofuran	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Diethyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Dimethyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-02
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:55:00 AM
Lab ID:	1908589-003	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Hexachlorobutadiene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Hexachlorocyclopentadiene	BRL	780		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Hexachloroethane	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Isophorone	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
N-Nitrosodi-n-propylamine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
N-Nitrosodiphenylamine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Nitrobenzene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Phenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 17:36	YH
Surr: 2,4,6-Tribromophenol	85.1	45.6-120		%REC	283296	1	08/12/2019 17:36	YH
Surr: 2-Fluorobiphenyl	66.4	51.4-120		%REC	283296	1	08/12/2019 17:36	YH
Surr: 2-Fluorophenol	69.1	40.9-120		%REC	283296	1	08/12/2019 17:36	YH
Surr: 4-Terphenyl-d14	70.7	52.2-129		%REC	283296	1	08/12/2019 17:36	YH
Surr: Nitrobenzene-d5	70.7	40-120		%REC	283296	1	08/12/2019 17:36	YH
Surr: Phenol-d5	66.7	45-120		%REC	283296	1	08/12/2019 17:36	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
2-Methylnaphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Acenaphthene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Acenaphthylene	BRL	39		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Anthracene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Benz(a)anthracene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Benzo(a)pyrene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Benzo(b)fluoranthene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Benzo(g,h,i)perylene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Benzo(k)fluoranthene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Chrysene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Dibenz(a,h)anthracene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Fluoranthene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Fluorene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Indeno(1,2,3-cd)pyrene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Naphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Phenanthrene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Pyrene	2.5	2.0		ug/Kg-dry	283295	1	08/12/2019 16:55	YH
Surr: 4-Terphenyl-d14	79	51.2-127		%REC	283295	1	08/12/2019 16:55	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	34300	148		mg/Kg-dry	283234	100	08/13/2019 18:42	JW
Antimony	BRL	0.74		mg/Kg-dry	283234	10	08/12/2019 19:43	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-02
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 11:55:00 AM
Lab ID:	1908589-003	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	3.32	0.44		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Barium	33.1	1.85		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Beryllium	0.86	0.37		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Cadmium	BRL	0.37		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Calcium	665	18.5		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Chromium	12.7	0.74		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Cobalt	2.09	0.55		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Copper	9.55	0.74		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Iron	22900	369		mg/Kg-dry	283234	100	08/13/2019 18:42	JW
Lead	16.1	0.37		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Magnesium	575	18.5		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Manganese	51.5	0.74		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Nickel	5.80	0.74		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Potassium	696	18.5		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Selenium	BRL	1.85		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Silver	BRL	0.18		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Sodium	67.3	36.9		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Thallium	BRL	0.52		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Vanadium	23.3	0.74		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
Zinc	18.8	1.85		mg/Kg-dry	283234	10	08/12/2019 19:43	JW
PERCENT MOISTURE D2216								
Percent Moisture	15.2	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-02
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:00:00 PM
Lab ID:	1908589-004	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473					**(SW7473)**			
Mercury	BRL	0.144		mg/Kg-dry	283441	1	08/13/2019 12:58	EH
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3550C)**			
1,1´-Biphenyl	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2,4,5-Trichlorophenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2,4,6-Trichlorophenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2,4-Dichlorophenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2,4-Dimethylphenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2,4-Dinitrophenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2,4-Dinitrotoluene	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2,6-Dinitrotoluene	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2-Chloronaphthalene	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2-Chlorophenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2-Methylphenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2-Nitroaniline	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
2-Nitrophenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
3,3´-Dichlorobenzidine	BRL	970		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
3-Nitroaniline	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
4,6-Dinitro-2-methylphenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
4-Bromophenyl phenyl ether	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
4-Chloro-3-methylphenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
4-Chloroaniline	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
4-Chlorophenyl phenyl ether	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
4-Methylphenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
4-Nitroaniline	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
4-Nitrophenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Acetophenone	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Atrazine	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Benzaldehyde	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Bis(2-chloroethoxy)methane	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Bis(2-chloroethyl)ether	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Bis(2-chloroisopropyl)ether	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Bis(2-ethylhexyl)phthalate	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Butyl benzyl phthalate	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Caprolactam	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Carbazole	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Di-n-butyl phthalate	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Di-n-octyl phthalate	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Dibenzofuran	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Diethyl phthalate	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Dimethyl phthalate	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-02
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:00:00 PM
Lab ID:	1908589-004	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Hexachlorobutadiene	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Hexachlorocyclopentadiene	BRL	950		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Hexachloroethane	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Isophorone	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
N-Nitrosodi-n-propylamine	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
N-Nitrosodiphenylamine	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Nitrobenzene	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Pentachlorophenol	BRL	2500		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Phenol	BRL	480		ug/Kg-dry	283296	1	08/12/2019 18:02	YH
Surr: 2,4,6-Tribromophenol	88.4	45.6-120		%REC	283296	1	08/12/2019 18:02	YH
Surr: 2-Fluorobiphenyl	64.7	51.4-120		%REC	283296	1	08/12/2019 18:02	YH
Surr: 2-Fluorophenol	66.9	40.9-120		%REC	283296	1	08/12/2019 18:02	YH
Surr: 4-Terphenyl-d14	75.4	52.2-129		%REC	283296	1	08/12/2019 18:02	YH
Surr: Nitrobenzene-d5	66.2	40-120		%REC	283296	1	08/12/2019 18:02	YH
Surr: Phenol-d5	66	45-120		%REC	283296	1	08/12/2019 18:02	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,1,2,2-Tetrachloroethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,1,2-Trichloroethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,1-Dichloroethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,1-Dichloroethene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,2,4-Trichlorobenzene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,2-Dibromo-3-chloropropane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,2-Dibromoethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,2-Dichlorobenzene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,2-Dichloroethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,2-Dichloropropane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,3-Dichlorobenzene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
1,4-Dichlorobenzene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
2-Butanone	BRL	54		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
2-Hexanone	BRL	11		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
4-Methyl-2-pentanone	BRL	11		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Acetone	BRL	110		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Benzene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Bromodichloromethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Bromoform	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Bromomethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Carbon disulfide	BRL	11		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Carbon tetrachloride	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-02
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:00:00 PM
Lab ID:	1908589-004	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Chloroethane	BRL	11		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Chloroform	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Chloromethane	BRL	11		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
cis-1,2-Dichloroethene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
cis-1,3-Dichloropropene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Cyclohexane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Dibromochloromethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Dichlorodifluoromethane	BRL	11		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Ethylbenzene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Freon-113	BRL	11		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Isopropylbenzene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
m,p-Xylene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Methyl acetate	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Methyl tert-butyl ether	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Methylcyclohexane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Methylene chloride	BRL	22		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
o-Xylene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Styrene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Tetrachloroethene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Toluene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
trans-1,2-Dichloroethene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
trans-1,3-Dichloropropene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Trichloroethene	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Trichlorofluoromethane	BRL	5.4		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Vinyl chloride	BRL	11		ug/Kg-dry	283608	1	08/14/2019 22:59	AR
Surr: 4-Bromofluorobenzene	79.7	65.1-125		%REC	283608	1	08/14/2019 22:59	AR
Surr: Dibromofluoromethane	110	77.7-123		%REC	283608	1	08/14/2019 22:59	AR
Surr: Toluene-d8	93.7	83.2-120		%REC	283608	1	08/14/2019 22:59	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	25		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
2-Methylnaphthalene	BRL	25		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Acenaphthene	BRL	25		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Acenaphthylene	BRL	48		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Anthracene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Benz(a)anthracene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Benzo(a)pyrene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Benzo(b)fluoranthene	BRL	4.8		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Benzo(g,h,i)perylene	BRL	4.8		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Benzo(k)fluoranthene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 17:20	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-02
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:00:00 PM
Lab ID:	1908589-004	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Dibenz(a,h)anthracene	BRL	4.8		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Fluoranthene	BRL	4.8		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Fluorene	BRL	4.8		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Indeno(1,2,3-cd)pyrene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Naphthalene	BRL	25		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Phenanthrene	BRL	2.5		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Pyrene	3.2	2.5		ug/Kg-dry	283295	1	08/12/2019 17:20	YH
Surr: 4-Terphenyl-d14	91.4	51.2-127		%REC	283295	1	08/12/2019 17:20	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	16700	7.76		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Antimony	BRL	0.78		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Arsenic	1.51	0.47		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Barium	16.7	1.94		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Beryllium	0.51	0.39		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Cadmium	BRL	0.39		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Calcium	108	19.4		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Chromium	6.30	0.78		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Cobalt	0.66	0.58		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Copper	7.59	0.78		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Iron	14000	19.4		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Lead	13.7	0.39		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Magnesium	297	19.4		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Manganese	31.5	0.78		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Nickel	2.25	0.78		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Potassium	457	19.4		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Selenium	BRL	1.94		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Silver	BRL	0.19		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Sodium	57.3	38.8		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Thallium	BRL	0.54		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Vanadium	13.2	0.78		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
Zinc	12.0	1.94		mg/Kg-dry	283234	10	08/12/2019 19:47	JW
PERCENT MOISTURE D2216								
Percent Moisture	30.7	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-08
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:30:00 PM
Lab ID:	1908589-005	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.122		mg/Kg-dry	283441	1	08/13/2019 13:06	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2,4,5-Trichlorophenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2,4,6-Trichlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2,4-Dichlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2,4-Dimethylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2,4-Dinitrophenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2,4-Dinitrotoluene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2,6-Dinitrotoluene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2-Chloronaphthalene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2-Chlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2-Methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2-Nitroaniline	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
2-Nitrophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
3,3´-Dichlorobenzidine	BRL	820		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
3-Nitroaniline	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
4,6-Dinitro-2-methylphenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
4-Bromophenyl phenyl ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
4-Chloro-3-methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
4-Chloroaniline	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
4-Chlorophenyl phenyl ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
4-Methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
4-Nitroaniline	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
4-Nitrophenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Acetophenone	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Atrazine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Benzaldehyde	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Bis(2-chloroethoxy)methane	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Bis(2-chloroethyl)ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Bis(2-chloroisopropyl)ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Bis(2-ethylhexyl)phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Butyl benzyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Caprolactam	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Carbazole	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Di-n-butyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Di-n-octyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Dibenzofuran	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Diethyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Dimethyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-08
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:30:00 PM
Lab ID:	1908589-005	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Hexachlorobutadiene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Hexachlorocyclopentadiene	BRL	800		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Hexachloroethane	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Isophorone	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
N-Nitrosodi-n-propylamine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
N-Nitrosodiphenylamine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Nitrobenzene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Pentachlorophenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Phenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 18:29	YH
Surr: 2,4,6-Tribromophenol	84.1	45.6-120		%REC	283296	1	08/12/2019 18:29	YH
Surr: 2-Fluorobiphenyl	60.9	51.4-120		%REC	283296	1	08/12/2019 18:29	YH
Surr: 2-Fluorophenol	58.4	40.9-120		%REC	283296	1	08/12/2019 18:29	YH
Surr: 4-Terphenyl-d14	70.4	52.2-129		%REC	283296	1	08/12/2019 18:29	YH
Surr: Nitrobenzene-d5	61.2	40-120		%REC	283296	1	08/12/2019 18:29	YH
Surr: Phenol-d5	59.3	45-120		%REC	283296	1	08/12/2019 18:29	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	21		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
2-Methylnaphthalene	BRL	21		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Acenaphthene	BRL	21		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Acenaphthylene	BRL	40		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Anthracene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Benz(a)anthracene	2.5	2.1		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Benzo(a)pyrene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Benzo(b)fluoranthene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Benzo(g,h,i)perylene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Benzo(k)fluoranthene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Chrysene	2.9	2.1		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Dibenz(a,h)anthracene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Fluoranthene	5.1	4.0		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Fluorene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Indeno(1,2,3-cd)pyrene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Naphthalene	BRL	21		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Phenanthrene	3.0	2.1		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Pyrene	4.5	2.1		ug/Kg-dry	283295	1	08/12/2019 17:46	YH
Surr: 4-Terphenyl-d14	82	51.2-127		%REC	283295	1	08/12/2019 17:46	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	16700	8.23		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Antimony	BRL	0.82		mg/Kg-dry	283234	10	08/12/2019 19:50	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-08
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:30:00 PM
Lab ID:	1908589-005	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	2.28	0.49		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Barium	11.3	2.06		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Beryllium	0.48	0.41		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Cadmium	BRL	0.41		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Calcium	94.5	20.6		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Chromium	13.9	0.82		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Cobalt	BRL	0.62		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Copper	7.29	0.82		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Iron	16500	20.6		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Lead	20.0	0.41		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Magnesium	288	20.6		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Manganese	45.9	0.82		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Nickel	1.79	0.82		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Potassium	549	20.6		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Selenium	BRL	2.06		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Silver	BRL	0.21		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Sodium	42.7	41.2		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Thallium	BRL	0.58		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Vanadium	25.5	0.82		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
Zinc	13.3	2.06		mg/Kg-dry	283234	10	08/12/2019 19:50	JW
PERCENT MOISTURE D2216								
Percent Moisture	17.8	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-08
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:35:00 PM
Lab ID:	1908589-006	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.130		mg/Kg-dry	283441	1	08/13/2019 13:14	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2,4,5-Trichlorophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2,4,6-Trichlorophenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2,4-Dichlorophenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2,4-Dimethylphenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2,4-Dinitrophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2,4-Dinitrotoluene	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2,6-Dinitrotoluene	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2-Chloronaphthalene	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2-Chlorophenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2-Methylphenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
2-Nitrophenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
3,3´-Dichlorobenzidine	BRL	870		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
3-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
4,6-Dinitro-2-methylphenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
4-Bromophenyl phenyl ether	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
4-Chloro-3-methylphenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
4-Chloroaniline	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
4-Chlorophenyl phenyl ether	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
4-Methylphenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
4-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
4-Nitrophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Acetophenone	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Atrazine	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Benzaldehyde	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Bis(2-chloroethoxy)methane	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Bis(2-chloroethyl)ether	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Bis(2-chloroisopropyl)ether	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Bis(2-ethylhexyl)phthalate	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Butyl benzyl phthalate	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Caprolactam	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Carbazole	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Di-n-butyl phthalate	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Di-n-octyl phthalate	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Dibenzofuran	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Diethyl phthalate	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Dimethyl phthalate	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
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Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-08
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:35:00 PM
Lab ID:	1908589-006	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Hexachlorobutadiene	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Hexachlorocyclopentadiene	BRL	860		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Hexachloroethane	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Isophorone	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
N-Nitrosodi-n-propylamine	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
N-Nitrosodiphenylamine	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Nitrobenzene	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Pentachlorophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Phenol	BRL	430		ug/Kg-dry	283296	1	08/12/2019 18:56	YH
Surr: 2,4,6-Tribromophenol	82.8	45.6-120		%REC	283296	1	08/12/2019 18:56	YH
Surr: 2-Fluorobiphenyl	61.8	51.4-120		%REC	283296	1	08/12/2019 18:56	YH
Surr: 2-Fluorophenol	60.1	40.9-120		%REC	283296	1	08/12/2019 18:56	YH
Surr: 4-Terphenyl-d14	69.9	52.2-129		%REC	283296	1	08/12/2019 18:56	YH
Surr: Nitrobenzene-d5	62.7	40-120		%REC	283296	1	08/12/2019 18:56	YH
Surr: Phenol-d5	61.9	45-120		%REC	283296	1	08/12/2019 18:56	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,1,2,2-Tetrachloroethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,1,2-Trichloroethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,1-Dichloroethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,1-Dichloroethene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,2,4-Trichlorobenzene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,2-Dibromo-3-chloropropane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,2-Dibromoethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,2-Dichlorobenzene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,2-Dichloroethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,2-Dichloropropane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,3-Dichlorobenzene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
1,4-Dichlorobenzene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
2-Butanone	BRL	49		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
2-Hexanone	BRL	9.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
4-Methyl-2-pentanone	BRL	9.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Acetone	BRL	99		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Benzene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Bromodichloromethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Bromoform	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Bromomethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Carbon disulfide	BRL	9.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Carbon tetrachloride	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-08
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:35:00 PM
Lab ID:	1908589-006	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Chloroethane	BRL	9.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Chloroform	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Chloromethane	BRL	9.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
cis-1,2-Dichloroethene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
cis-1,3-Dichloropropene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Cyclohexane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Dibromochloromethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Dichlorodifluoromethane	BRL	9.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Ethylbenzene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Freon-113	BRL	9.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Isopropylbenzene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
m,p-Xylene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Methyl acetate	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Methyl tert-butyl ether	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Methylcyclohexane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Methylene chloride	BRL	20		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
o-Xylene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Styrene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Tetrachloroethene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Toluene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
trans-1,2-Dichloroethene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
trans-1,3-Dichloropropene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Trichloroethene	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Trichlorofluoromethane	BRL	4.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Vinyl chloride	BRL	9.9		ug/Kg-dry	283608	1	08/14/2019 23:24	AR
Surr: 4-Bromofluorobenzene	78.5	65.1-125		%REC	283608	1	08/14/2019 23:24	AR
Surr: Dibromofluoromethane	111	77.7-123		%REC	283608	1	08/14/2019 23:24	AR
Surr: Toluene-d8	94.3	83.2-120		%REC	283608	1	08/14/2019 23:24	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	22		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
2-Methylnaphthalene	BRL	22		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Acenaphthene	BRL	22		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Acenaphthylene	BRL	43		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Anthracene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Benz(a)anthracene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Benzo(a)pyrene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Benzo(b)fluoranthene	BRL	4.3		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Benzo(g,h,i)perylene	BRL	4.3		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Benzo(k)fluoranthene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 18:11	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-08
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:35:00 PM
Lab ID:	1908589-006	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Dibenz(a,h)anthracene	BRL	4.3		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Fluoranthene	BRL	4.3		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Fluorene	BRL	4.3		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Indeno(1,2,3-cd)pyrene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Naphthalene	BRL	22		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Phenanthrene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Pyrene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 18:11	YH
Surr: 4-Terphenyl-d14	78.2	51.2-127		%REC	283295	1	08/12/2019 18:11	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	16800	7.40		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Antimony	BRL	0.74		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Arsenic	1.65	0.44		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Barium	13.6	1.85		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Beryllium	0.47	0.37		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Cadmium	BRL	0.37		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Calcium	BRL	20.7		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Chromium	9.87	0.74		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Cobalt	BRL	0.56		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Copper	5.82	0.74		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Iron	11600	18.5		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Lead	14.1	0.37		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Magnesium	154	18.5		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Manganese	38.6	0.74		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Nickel	1.82	0.74		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Potassium	329	18.5		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Selenium	BRL	1.85		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Silver	BRL	0.18		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Sodium	BRL	37.0		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Thallium	BRL	0.52		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Vanadium	17.0	0.74		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
Zinc	11.0	1.85		mg/Kg-dry	283234	10	08/12/2019 19:54	JW
PERCENT MOISTURE D2216								
Percent Moisture	22.9	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-09
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:40:00 PM
Lab ID:	1908589-007	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.115		mg/Kg-dry	283441	1	08/13/2019 13:22	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2,4,6-Trichlorophenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2,4-Dichlorophenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2,4-Dimethylphenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2,4-Dinitrotoluene	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2,6-Dinitrotoluene	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2-Chloronaphthalene	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2-Chlorophenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2-Methylphenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
2-Nitrophenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
3,3´-Dichlorobenzidine	BRL	770		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
4-Bromophenyl phenyl ether	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
4-Chloro-3-methylphenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
4-Chloroaniline	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
4-Chlorophenyl phenyl ether	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
4-Methylphenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Acetophenone	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Atrazine	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Benzaldehyde	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Bis(2-chloroethoxy)methane	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Bis(2-chloroethyl)ether	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Bis(2-chloroisopropyl)ether	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Bis(2-ethylhexyl)phthalate	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Butyl benzyl phthalate	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Caprolactam	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Carbazole	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Di-n-butyl phthalate	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Di-n-octyl phthalate	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Dibenzofuran	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Diethyl phthalate	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Dimethyl phthalate	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-09
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:40:00 PM
Lab ID:	1908589-007	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Hexachlorobutadiene	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Hexachlorocyclopentadiene	BRL	760		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Hexachloroethane	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Isophorone	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
N-Nitrosodi-n-propylamine	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
N-Nitrosodiphenylamine	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Nitrobenzene	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Phenol	BRL	380		ug/Kg-dry	283296	1	08/12/2019 19:23	YH
Surr: 2,4,6-Tribromophenol	93.2	45.6-120		%REC	283296	1	08/12/2019 19:23	YH
Surr: 2-Fluorobiphenyl	76.8	51.4-120		%REC	283296	1	08/12/2019 19:23	YH
Surr: 2-Fluorophenol	79.7	40.9-120		%REC	283296	1	08/12/2019 19:23	YH
Surr: 4-Terphenyl-d14	80.4	52.2-129		%REC	283296	1	08/12/2019 19:23	YH
Surr: Nitrobenzene-d5	78	40-120		%REC	283296	1	08/12/2019 19:23	YH
Surr: Phenol-d5	78.8	45-120		%REC	283296	1	08/12/2019 19:23	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	19		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
2-Methylnaphthalene	BRL	19		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Acenaphthene	BRL	19		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Acenaphthylene	BRL	38		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Anthracene	13	1.9		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Benz(a)anthracene	54	1.9		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Benzo(a)pyrene	53	1.9		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Benzo(b)fluoranthene	69	3.8		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Benzo(g,h,i)perylene	48	3.8		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Benzo(k)fluoranthene	37	1.9		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Chrysene	69	1.9		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Dibenz(a,h)anthracene	4.8	3.8		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Fluoranthene	110	3.8		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Fluorene	4.7	3.8		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Indeno(1,2,3-cd)pyrene	33	1.9		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Naphthalene	BRL	19		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Phenanthrene	74	1.9		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Pyrene	120	1.9		ug/Kg-dry	283295	1	08/12/2019 11:16	YH
Surr: 4-Terphenyl-d14	76.1	51.2-127		%REC	283295	1	08/12/2019 11:16	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	20700	133		mg/Kg-dry	283234	100	08/13/2019 18:13	JW
Antimony	BRL	0.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-09
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:40:00 PM
Lab ID:	1908589-007	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	1.86	0.40		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Barium	91.2	1.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Beryllium	1.02	0.33		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Cadmium	BRL	0.33		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Calcium	16300	333		mg/Kg-dry	283234	100	08/13/2019 18:13	JW
Chromium	5.39	0.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Cobalt	1.42	0.50		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Copper	4.89	0.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Iron	13200	333		mg/Kg-dry	283234	100	08/13/2019 18:13	JW
Lead	11.0	0.33		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Magnesium	897	16.7		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Manganese	75.7	0.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Nickel	2.59	0.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Potassium	443	16.7		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Selenium	BRL	1.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Silver	BRL	0.17		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Sodium	43.9	33.3		mg/Kg-dry	283234	5	08/13/2019 19:32	JW
Thallium	BRL	0.47		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Vanadium	12.3	0.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
Zinc	74.7	1.67		mg/Kg-dry	283234	10	08/12/2019 18:55	JW
PERCENT MOISTURE D2216								
Percent Moisture	12.7	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-09 DUP
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:40:00 PM
Lab ID:	1908589-008	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.120		mg/Kg-dry	283441	1	08/13/2019 12:17	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2,4,6-Trichlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2,4-Dichlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2,4-Dimethylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2,4-Dinitrotoluene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2,6-Dinitrotoluene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2-Chloronaphthalene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2-Chlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2-Methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
2-Nitrophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
3,3´-Dichlorobenzidine	BRL	800		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
4-Bromophenyl phenyl ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
4-Chloro-3-methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
4-Chloroaniline	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
4-Chlorophenyl phenyl ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
4-Methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Acetophenone	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Atrazine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Benzaldehyde	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Bis(2-chloroethoxy)methane	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Bis(2-chloroethyl)ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Bis(2-chloroisopropyl)ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Bis(2-ethylhexyl)phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Butyl benzyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Caprolactam	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Carbazole	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Di-n-butyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Di-n-octyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Dibenzofuran	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Diethyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Dimethyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-09 DUP
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:40:00 PM
Lab ID:	1908589-008	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Hexachlorobutadiene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Hexachlorocyclopentadiene	BRL	790		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Hexachloroethane	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Isophorone	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
N-Nitrosodi-n-propylamine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
N-Nitrosodiphenylamine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Nitrobenzene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Phenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:53	YH
Surr: 2,4,6-Tribromophenol	85.1	45.6-120		%REC	283296	1	08/12/2019 19:53	YH
Surr: 2-Fluorobiphenyl	64.2	51.4-120		%REC	283296	1	08/12/2019 19:53	YH
Surr: 2-Fluorophenol	61.6	40.9-120		%REC	283296	1	08/12/2019 19:53	YH
Surr: 4-Terphenyl-d14	73.9	52.2-129		%REC	283296	1	08/12/2019 19:53	YH
Surr: Nitrobenzene-d5	64.6	40-120		%REC	283296	1	08/12/2019 19:53	YH
Surr: Phenol-d5	62.1	45-120		%REC	283296	1	08/12/2019 19:53	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
2-Methylnaphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Acenaphthene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Acenaphthylene	BRL	40		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Anthracene	6.4	2.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Benz(a)anthracene	26	2.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Benzo(a)pyrene	25	2.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Benzo(b)fluoranthene	37	4.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Benzo(g,h,i)perylene	24	4.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Benzo(k)fluoranthene	17	2.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Chrysene	34	2.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Dibenz(a,h)anthracene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Fluoranthene	53	4.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Fluorene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Indeno(1,2,3-cd)pyrene	17	2.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Naphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Phenanthrene	32	2.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Pyrene	62	2.0		ug/Kg-dry	283295	1	08/12/2019 18:37	YH
Surr: 4-Terphenyl-d14	73.3	51.2-127		%REC	283295	1	08/12/2019 18:37	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	30200	184		mg/Kg-dry	283234	100	08/13/2019 18:45	JW
Antimony	BRL	0.92		mg/Kg-dry	283234	10	08/12/2019 19:58	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-09 DUP
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:40:00 PM
Lab ID:	1908589-008	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	0.98	0.55		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Barium	23.1	2.30		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Beryllium	0.82	0.46		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Cadmium	BRL	0.46		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Calcium	78.2	23.0		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Chromium	2.88	0.92		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Cobalt	1.30	0.69		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Copper	3.60	0.92		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Iron	11300	23.0		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Lead	7.65	0.46		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Magnesium	469	23.0		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Manganese	75.9	0.92		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Nickel	1.88	0.92		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Potassium	644	23.0		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Selenium	BRL	2.30		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Silver	BRL	0.23		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Sodium	48.9	45.9		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Thallium	BRL	0.64		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Vanadium	8.13	0.92		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
Zinc	19.0	2.30		mg/Kg-dry	283234	10	08/12/2019 19:58	JW
PERCENT MOISTURE D2216								
Percent Moisture	16.6	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-09
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:50:00 PM
Lab ID:	1908589-009	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.122		mg/Kg-dry	283441	1	08/13/2019 13:45	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2,4,5-Trichlorophenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2,4,6-Trichlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2,4-Dichlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2,4-Dimethylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2,4-Dinitrophenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2,4-Dinitrotoluene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2,6-Dinitrotoluene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2-Chloronaphthalene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2-Chlorophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2-Methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2-Nitroaniline	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
2-Nitrophenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
3,3´-Dichlorobenzidine	BRL	820		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
3-Nitroaniline	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
4,6-Dinitro-2-methylphenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
4-Bromophenyl phenyl ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
4-Chloro-3-methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
4-Chloroaniline	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
4-Chlorophenyl phenyl ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
4-Methylphenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
4-Nitroaniline	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
4-Nitrophenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Acetophenone	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Atrazine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Benzaldehyde	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Bis(2-chloroethoxy)methane	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Bis(2-chloroethyl)ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Bis(2-chloroisopropyl)ether	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Bis(2-ethylhexyl)phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Butyl benzyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Caprolactam	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Carbazole	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Di-n-butyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Di-n-octyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Dibenzofuran	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Diethyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Dimethyl phthalate	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-09
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:50:00 PM
Lab ID:	1908589-009	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Hexachlorobutadiene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Hexachlorocyclopentadiene	BRL	810		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Hexachloroethane	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Isophorone	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
N-Nitrosodi-n-propylamine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
N-Nitrosodiphenylamine	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Nitrobenzene	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Pentachlorophenol	BRL	2100		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Phenol	BRL	400		ug/Kg-dry	283296	1	08/12/2019 19:39	YH
Surr: 2,4,6-Tribromophenol	98.9	45.6-120		%REC	283296	1	08/12/2019 19:39	YH
Surr: 2-Fluorobiphenyl	99	51.4-120		%REC	283296	1	08/12/2019 19:39	YH
Surr: 2-Fluorophenol	92.8	40.9-120		%REC	283296	1	08/12/2019 19:39	YH
Surr: 4-Terphenyl-d14	96.5	52.2-129		%REC	283296	1	08/12/2019 19:39	YH
Surr: Nitrobenzene-d5	81.4	40-120		%REC	283296	1	08/12/2019 19:39	YH
Surr: Phenol-d5	93.2	45-120		%REC	283296	1	08/12/2019 19:39	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,1,2,2-Tetrachloroethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,1,2-Trichloroethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,1-Dichloroethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,1-Dichloroethene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,2,4-Trichlorobenzene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,2-Dibromo-3-chloropropane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,2-Dibromoethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,2-Dichlorobenzene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,2-Dichloroethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,2-Dichloropropane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,3-Dichlorobenzene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
1,4-Dichlorobenzene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
2-Butanone	BRL	51		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
2-Hexanone	BRL	10		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
4-Methyl-2-pentanone	BRL	10		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Acetone	BRL	100		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Benzene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Bromodichloromethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Bromoform	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Bromomethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Carbon disulfide	BRL	10		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Carbon tetrachloride	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-09
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:50:00 PM
Lab ID:	1908589-009	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Chloroethane	BRL	10		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Chloroform	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Chloromethane	BRL	10		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
cis-1,2-Dichloroethene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
cis-1,3-Dichloropropene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Cyclohexane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Dibromochloromethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Dichlorodifluoromethane	BRL	10		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Ethylbenzene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Freon-113	BRL	10		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Isopropylbenzene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
m,p-Xylene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Methyl acetate	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Methyl tert-butyl ether	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Methylcyclohexane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Methylene chloride	BRL	20		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
o-Xylene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Styrene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Tetrachloroethene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Toluene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
trans-1,2-Dichloroethene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
trans-1,3-Dichloropropene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Trichloroethene	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Trichlorofluoromethane	BRL	5.1		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Vinyl chloride	BRL	10		ug/Kg-dry	283608	1	08/14/2019 23:48	AR
Surr: 4-Bromofluorobenzene	79.3	65.1-125		%REC	283608	1	08/14/2019 23:48	AR
Surr: Dibromofluoromethane	114	77.7-123		%REC	283608	1	08/14/2019 23:48	AR
Surr: Toluene-d8	95.8	83.2-120		%REC	283608	1	08/14/2019 23:48	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	21		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
2-Methylnaphthalene	BRL	21		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Acenaphthene	BRL	21		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Acenaphthylene	BRL	40		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Anthracene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Benz(a)anthracene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Benzo(a)pyrene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Benzo(b)fluoranthene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Benzo(g,h,i)perylene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Benzo(k)fluoranthene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 19:03	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-09
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:50:00 PM
Lab ID:	1908589-009	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Dibenz(a,h)anthracene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Fluoranthene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Fluorene	BRL	4.0		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Indeno(1,2,3-cd)pyrene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Naphthalene	BRL	21		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Phenanthrene	BRL	2.1		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Pyrene	5.1	2.1		ug/Kg-dry	283295	1	08/12/2019 19:03	YH
Surr: 4-Terphenyl-d14	93.4	51.2-127		%REC	283295	1	08/12/2019 19:03	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	31000	179		mg/Kg-dry	283234	100	08/13/2019 19:00	JW
Antimony	BRL	0.90		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Arsenic	1.85	0.54		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Barium	44.4	2.24		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Beryllium	0.65	0.45		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Cadmium	BRL	0.45		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Calcium	23.5	22.4		mg/Kg-dry	283234	5	08/13/2019 19:29	JW
Chromium	6.12	0.90		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Cobalt	2.64	0.67		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Copper	5.86	0.90		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Iron	15700	22.4		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Lead	13.4	0.45		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Magnesium	862	22.4		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Manganese	268	0.90		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Nickel	3.07	0.90		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Potassium	1230	22.4		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Selenium	BRL	2.24		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Silver	BRL	0.22		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Sodium	58.9	44.8		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Thallium	BRL	0.63		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Vanadium	16.2	0.90		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
Zinc	19.3	2.24		mg/Kg-dry	283234	10	08/12/2019 20:01	JW
PERCENT MOISTURE D2216								
Percent Moisture	18.2	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-09 DUP
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:50:00 PM
Lab ID:	1908589-010	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.112		mg/Kg-dry	283441	1	08/13/2019 13:54	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2,4,6-Trichlorophenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2,4-Dichlorophenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2,4-Dimethylphenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2,4-Dinitrotoluene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2,6-Dinitrotoluene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2-Chloronaphthalene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2-Chlorophenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2-Methylphenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
2-Nitrophenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
3,3´-Dichlorobenzidine	BRL	750		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
4-Bromophenyl phenyl ether	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
4-Chloro-3-methylphenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
4-Chloroaniline	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
4-Chlorophenyl phenyl ether	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
4-Methylphenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Acetophenone	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Atrazine	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Benzaldehyde	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Bis(2-chloroethoxy)methane	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Bis(2-chloroethyl)ether	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Bis(2-chloroisopropyl)ether	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Bis(2-ethylhexyl)phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Butyl benzyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Caprolactam	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Carbazole	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Di-n-butyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Di-n-octyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Dibenzofuran	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Diethyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Dimethyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-09 DUP
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:50:00 PM
Lab ID:	1908589-010	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Hexachlorobutadiene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Hexachlorocyclopentadiene	BRL	740		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Hexachloroethane	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Isophorone	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
N-Nitrosodi-n-propylamine	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
N-Nitrosodiphenylamine	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Nitrobenzene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Phenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:05	YH
Surr: 2,4,6-Tribromophenol	76.8	45.6-120		%REC	283296	1	08/12/2019 20:05	YH
Surr: 2-Fluorobiphenyl	82.2	51.4-120		%REC	283296	1	08/12/2019 20:05	YH
Surr: 2-Fluorophenol	72.5	40.9-120		%REC	283296	1	08/12/2019 20:05	YH
Surr: 4-Terphenyl-d14	83.5	52.2-129		%REC	283296	1	08/12/2019 20:05	YH
Surr: Nitrobenzene-d5	62.6	40-120		%REC	283296	1	08/12/2019 20:05	YH
Surr: Phenol-d5	75.4	45-120		%REC	283296	1	08/12/2019 20:05	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,1,2,2-Tetrachloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,1,2-Trichloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,1-Dichloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,1-Dichloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,2,4-Trichlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,2-Dibromo-3-chloropropane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,2-Dibromoethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,2-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,2-Dichloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,2-Dichloropropane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,3-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
1,4-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
2-Butanone	BRL	48		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
2-Hexanone	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
4-Methyl-2-pentanone	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Acetone	BRL	97		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Benzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Bromodichloromethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Bromoform	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Bromomethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Carbon disulfide	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Carbon tetrachloride	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-09 DUP
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:50:00 PM
Lab ID:	1908589-010	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Chloroethane	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Chloroform	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Chloromethane	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
cis-1,2-Dichloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
cis-1,3-Dichloropropene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Cyclohexane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Dibromochloromethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Dichlorodifluoromethane	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Ethylbenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Freon-113	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Isopropylbenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
m,p-Xylene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Methyl acetate	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Methyl tert-butyl ether	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Methylcyclohexane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Methylene chloride	BRL	19		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
o-Xylene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Styrene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Tetrachloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Toluene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
trans-1,2-Dichloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
trans-1,3-Dichloropropene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Trichloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Trichlorofluoromethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Vinyl chloride	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 00:13	AR
Surr: 4-Bromofluorobenzene	75.1	65.1-125		%REC	283608	1	08/15/2019 00:13	AR
Surr: Dibromofluoromethane	111	77.7-123		%REC	283608	1	08/15/2019 00:13	AR
Surr: Toluene-d8	92.9	83.2-120		%REC	283608	1	08/15/2019 00:13	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	19		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
2-Methylnaphthalene	BRL	19		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Acenaphthene	BRL	19		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Acenaphthylene	BRL	37		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Anthracene	BRL	1.9		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Benz(a)anthracene	BRL	1.9		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Benzo(a)pyrene	BRL	1.9		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Benzo(b)fluoranthene	BRL	3.7		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Benzo(g,h,i)perylene	BRL	3.7		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Benzo(k)fluoranthene	BRL	1.9		ug/Kg-dry	283295	1	08/12/2019 19:31	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-09 DUP
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 12:50:00 PM
Lab ID:	1908589-010	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	BRL	1.9		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Dibenz(a,h)anthracene	BRL	3.7		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Fluoranthene	BRL	3.7		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Fluorene	BRL	3.7		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Indeno(1,2,3-cd)pyrene	BRL	1.9		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Naphthalene	BRL	19		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Phenanthrene	BRL	1.9		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Pyrene	BRL	1.9		ug/Kg-dry	283295	1	08/12/2019 19:31	YH
Surr: 4-Terphenyl-d14	83	51.2-127		%REC	283295	1	08/12/2019 19:31	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	21500	128		mg/Kg-dry	283234	100	08/13/2019 19:03	JW
Antimony	BRL	0.64		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Arsenic	0.92	0.38		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Barium	71.9	1.60		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Beryllium	0.58	0.32		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Cadmium	BRL	0.32		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Calcium	39.2	16.0		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Chromium	1.81	0.64		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Cobalt	6.53	0.48		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Copper	3.82	0.64		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Iron	8070	16.0		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Lead	25.1	0.32		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Magnesium	477	16.0		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Manganese	2850	12.8		mg/Kg-dry	283234	100	08/13/2019 19:03	JW
Nickel	1.15	0.64		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Potassium	641	16.0		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Selenium	BRL	1.60		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Silver	BRL	0.16		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Sodium	39.7	32.0		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Thallium	0.58	0.45		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Vanadium	5.94	0.64		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
Zinc	14.7	1.60		mg/Kg-dry	283234	10	08/12/2019 20:05	JW
PERCENT MOISTURE D2216								
Percent Moisture	10.4	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-10
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:30:00 PM
Lab ID:	1908589-011	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	0.142	0.113		mg/Kg-dry	283441	1	08/13/2019 14:03	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2,4,6-Trichlorophenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2,4-Dichlorophenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2,4-Dimethylphenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2,4-Dinitrotoluene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2,6-Dinitrotoluene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2-Chloronaphthalene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2-Chlorophenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2-Methylphenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
2-Nitrophenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
3,3´-Dichlorobenzidine	BRL	760		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
4-Bromophenyl phenyl ether	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
4-Chloro-3-methylphenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
4-Chloroaniline	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
4-Chlorophenyl phenyl ether	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
4-Methylphenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Acetophenone	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Atrazine	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Benzaldehyde	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Bis(2-chloroethoxy)methane	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Bis(2-chloroethyl)ether	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Bis(2-chloroisopropyl)ether	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Bis(2-ethylhexyl)phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Butyl benzyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Caprolactam	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Carbazole	2200	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Di-n-butyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Di-n-octyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Dibenzofuran	870	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Diethyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Dimethyl phthalate	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-10
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:30:00 PM
Lab ID:	1908589-011	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Hexachlorobutadiene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Hexachlorocyclopentadiene	BRL	740		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Hexachloroethane	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Isophorone	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
N-Nitrosodi-n-propylamine	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
N-Nitrosodiphenylamine	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Nitrobenzene	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Phenol	BRL	370		ug/Kg-dry	283296	1	08/12/2019 20:31	YH
Surr: 2,4,6-Tribromophenol	76.1	45.6-120		%REC	283296	1	08/12/2019 20:31	YH
Surr: 2-Fluorobiphenyl	82.8	51.4-120		%REC	283296	1	08/12/2019 20:31	YH
Surr: 2-Fluorophenol	76.1	40.9-120		%REC	283296	1	08/12/2019 20:31	YH
Surr: 4-Terphenyl-d14	79.2	52.2-129		%REC	283296	1	08/12/2019 20:31	YH
Surr: Nitrobenzene-d5	67.6	40-120		%REC	283296	1	08/12/2019 20:31	YH
Surr: Phenol-d5	76.7	45-120		%REC	283296	1	08/12/2019 20:31	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	260	19		ug/Kg-dry	283295	1	08/13/2019 01:31	YH
2-Methylnaphthalene	330	19		ug/Kg-dry	283295	1	08/13/2019 01:31	YH
Acenaphthene	150	19		ug/Kg-dry	283295	1	08/13/2019 01:31	YH
Acenaphthylene	70	37		ug/Kg-dry	283295	1	08/13/2019 01:31	YH
Anthracene	370	1.9		ug/Kg-dry	283295	1	08/13/2019 01:31	YH
Benz(a)anthracene	1100	190		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Benzo(a)pyrene	1100	190		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Benzo(b)fluoranthene	1500	370		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Benzo(g,h,i)perylene	970	370		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Benzo(k)fluoranthene	550	190		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Chrysene	1400	190		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Dibenz(a,h)anthracene	190	3.7		ug/Kg-dry	283295	1	08/13/2019 01:31	YH
Fluoranthene	2700	370		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Fluorene	130	3.7		ug/Kg-dry	283295	1	08/13/2019 01:31	YH
Indeno(1,2,3-cd)pyrene	680	190		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Naphthalene	400	190		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Phenanthrene	2400	190		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Pyrene	3000	190		ug/Kg-dry	283295	100	08/13/2019 14:51	YH
Surr: 4-Terphenyl-d14	86.8	51.2-127		%REC	283295	1	08/13/2019 01:31	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	5240	10.5		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Antimony	BRL	1.05		mg/Kg-dry	283234	10	08/12/2019 20:08	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-10
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:30:00 PM
Lab ID:	1908589-011	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	26.4	0.63		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Barium	99.8	2.62		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Beryllium	3.47	0.52		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Cadmium	3.57	0.52		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Calcium	1730	26.2		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Chromium	11.3	1.05		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Cobalt	4.24	0.79		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Copper	58.1	1.05		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Iron	13400	26.2		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Lead	35.9	0.52		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Magnesium	731	26.2		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Manganese	95.6	1.05		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Nickel	9.63	1.05		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Potassium	597	26.2		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Selenium	BRL	2.62		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Silver	BRL	0.26		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Sodium	86.4	52.5		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Thallium	BRL	0.74		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Vanadium	21.4	1.05		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
Zinc	117	2.62		mg/Kg-dry	283234	10	08/12/2019 20:08	JW
PERCENT MOISTURE D2216								
Percent Moisture	11.4	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-10
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:35:00 PM
Lab ID:	1908589-012	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.117		mg/Kg-dry	283441	1	08/13/2019 14:11	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2,4,6-Trichlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2,4-Dichlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2,4-Dimethylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2,4-Dinitrotoluene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2,6-Dinitrotoluene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2-Chloronaphthalene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2-Chlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2-Methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
2-Nitrophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
3,3´-Dichlorobenzidine	BRL	790		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
4-Bromophenyl phenyl ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
4-Chloro-3-methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
4-Chloroaniline	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
4-Chlorophenyl phenyl ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
4-Methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Acetophenone	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Atrazine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Benzaldehyde	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Bis(2-chloroethoxy)methane	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Bis(2-chloroethyl)ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Bis(2-chloroisopropyl)ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Bis(2-ethylhexyl)phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Butyl benzyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Caprolactam	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Carbazole	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Di-n-butyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Di-n-octyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Dibenzofuran	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Diethyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Dimethyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-10
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:35:00 PM
Lab ID:	1908589-012	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Hexachlorobutadiene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Hexachlorocyclopentadiene	BRL	780		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Hexachloroethane	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Isophorone	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
N-Nitrosodi-n-propylamine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
N-Nitrosodiphenylamine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Nitrobenzene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Phenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 20:58	YH
Surr: 2,4,6-Tribromophenol	105	45.6-120		%REC	283296	1	08/12/2019 20:58	YH
Surr: 2-Fluorobiphenyl	106	51.4-120		%REC	283296	1	08/12/2019 20:58	YH
Surr: 2-Fluorophenol	88.7	40.9-120		%REC	283296	1	08/12/2019 20:58	YH
Surr: 4-Terphenyl-d14	107	52.2-129		%REC	283296	1	08/12/2019 20:58	YH
Surr: Nitrobenzene-d5	80.9	40-120		%REC	283296	1	08/12/2019 20:58	YH
Surr: Phenol-d5	89.8	45-120		%REC	283296	1	08/12/2019 20:58	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,1,2,2-Tetrachloroethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,1,2-Trichloroethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,1-Dichloroethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,1-Dichloroethene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,2,4-Trichlorobenzene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,2-Dibromo-3-chloropropane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,2-Dibromoethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,2-Dichlorobenzene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,2-Dichloroethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,2-Dichloropropane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,3-Dichlorobenzene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
1,4-Dichlorobenzene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
2-Butanone	BRL	41		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
2-Hexanone	BRL	8.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
4-Methyl-2-pentanone	BRL	8.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Acetone	BRL	81		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Benzene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Bromodichloromethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Bromoform	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Bromomethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Carbon disulfide	BRL	8.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Carbon tetrachloride	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-10
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:35:00 PM
Lab ID:	1908589-012	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Chloroethane	BRL	8.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Chloroform	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Chloromethane	BRL	8.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
cis-1,2-Dichloroethene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
cis-1,3-Dichloropropene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Cyclohexane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Dibromochloromethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Dichlorodifluoromethane	BRL	8.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Ethylbenzene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Freon-113	BRL	8.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Isopropylbenzene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
m,p-Xylene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Methyl acetate	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Methyl tert-butyl ether	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Methylcyclohexane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Methylene chloride	BRL	16		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
o-Xylene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Styrene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Tetrachloroethene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Toluene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
trans-1,2-Dichloroethene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
trans-1,3-Dichloropropene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Trichloroethene	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Trichlorofluoromethane	BRL	4.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Vinyl chloride	BRL	8.1		ug/Kg-dry	283608	1	08/15/2019 00:38	AR
Surr: 4-Bromofluorobenzene	77.6	65.1-125		%REC	283608	1	08/15/2019 00:38	AR
Surr: Dibromofluoromethane	114	77.7-123		%REC	283608	1	08/15/2019 00:38	AR
Surr: Toluene-d8	94.6	83.2-120		%REC	283608	1	08/15/2019 00:38	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
2-Methylnaphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Acenaphthene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Acenaphthylene	BRL	39		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Anthracene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Benz(a)anthracene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Benzo(a)pyrene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Benzo(b)fluoranthene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Benzo(g,h,i)perylene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Benzo(k)fluoranthene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 20:56	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-10
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:35:00 PM
Lab ID:	1908589-012	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	2.1	2.0		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Dibenz(a,h)anthracene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Fluoranthene	3.9	3.9		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Fluorene	BRL	3.9		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Indeno(1,2,3-cd)pyrene	BRL	2.0		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Naphthalene	BRL	20		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Phenanthrene	4.0	2.0		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Pyrene	5.5	2.0		ug/Kg-dry	283295	1	08/12/2019 20:56	YH
Surr: 4-Terphenyl-d14	74.5	51.2-127		%REC	283295	1	08/12/2019 20:56	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	15000	9.21		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Antimony	BRL	0.92		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Arsenic	1.29	0.55		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Barium	27.4	2.30		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Beryllium	0.71	0.46		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Cadmium	BRL	0.46		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Calcium	892	23.0		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Chromium	3.26	0.92		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Cobalt	1.01	0.69		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Copper	2.27	0.92		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Iron	14800	23.0		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Lead	5.87	0.46		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Magnesium	1210	23.0		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Manganese	112	0.92		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Nickel	BRL	0.92		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Potassium	2070	23.0		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Selenium	BRL	2.30		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Silver	BRL	0.23		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Sodium	49.0	46.0		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Thallium	BRL	0.64		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Vanadium	19.6	0.92		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
Zinc	21.3	2.30		mg/Kg-dry	283234	10	08/12/2019 20:23	JW
PERCENT MOISTURE D2216								
Percent Moisture	14.9	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-11
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:38:00 PM
Lab ID:	1908589-013	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473					**(SW7473)**			
Mercury	BRL	0.118		mg/Kg-dry	283441	1	08/13/2019 14:19	EH
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3550C)**			
1,1´-Biphenyl	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2,4,6-Trichlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2,4-Dichlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2,4-Dimethylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2,4-Dinitrotoluene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2,6-Dinitrotoluene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2-Chloronaphthalene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2-Chlorophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2-Methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
2-Nitrophenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
3,3´-Dichlorobenzidine	BRL	790		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
4-Bromophenyl phenyl ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
4-Chloro-3-methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
4-Chloroaniline	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
4-Chlorophenyl phenyl ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
4-Methylphenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Acetophenone	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Atrazine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Benzaldehyde	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Bis(2-chloroethoxy)methane	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Bis(2-chloroethyl)ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Bis(2-chloroisopropyl)ether	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Bis(2-ethylhexyl)phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Butyl benzyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Caprolactam	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Carbazole	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Di-n-butyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Di-n-octyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Dibenzofuran	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Diethyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Dimethyl phthalate	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-11
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:38:00 PM
Lab ID:	1908589-013	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Hexachlorobutadiene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Hexachlorocyclopentadiene	BRL	780		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Hexachloroethane	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Isophorone	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
N-Nitrosodi-n-propylamine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
N-Nitrosodiphenylamine	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Nitrobenzene	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Phenol	BRL	390		ug/Kg-dry	283296	1	08/12/2019 21:25	YH
Surr: 2,4,6-Tribromophenol	97.7	45.6-120		%REC	283296	1	08/12/2019 21:25	YH
Surr: 2-Fluorobiphenyl	98.5	51.4-120		%REC	283296	1	08/12/2019 21:25	YH
Surr: 2-Fluorophenol	72	40.9-120		%REC	283296	1	08/12/2019 21:25	YH
Surr: 4-Terphenyl-d14	97.4	52.2-129		%REC	283296	1	08/12/2019 21:25	YH
Surr: Nitrobenzene-d5	74.8	40-120		%REC	283296	1	08/12/2019 21:25	YH
Surr: Phenol-d5	83	45-120		%REC	283296	1	08/12/2019 21:25	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	88	20		ug/Kg-dry	283295	1	08/13/2019 01:58	YH
2-Methylnaphthalene	94	20		ug/Kg-dry	283295	1	08/13/2019 01:58	YH
Acenaphthene	290	20		ug/Kg-dry	283295	1	08/13/2019 01:58	YH
Acenaphthylene	39	39		ug/Kg-dry	283295	1	08/13/2019 01:58	YH
Anthracene	770	200		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Benz(a)anthracene	2100	200		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Benzo(a)pyrene	2000	200		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Benzo(b)fluoranthene	2600	390		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Benzo(g,h,i)perylene	1600	390		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Benzo(k)fluoranthene	1100	200		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Chrysene	2500	200		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Dibenz(a,h)anthracene	310	3.9		ug/Kg-dry	283295	1	08/13/2019 01:58	YH
Fluoranthene	5000	390		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Fluorene	300	3.9		ug/Kg-dry	283295	1	08/13/2019 01:58	YH
Indeno(1,2,3-cd)pyrene	1200	200		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Naphthalene	110	20		ug/Kg-dry	283295	1	08/13/2019 01:58	YH
Phenanthrene	4000	200		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Pyrene	5500	200		ug/Kg-dry	283295	100	08/13/2019 15:18	YH
Surr: 4-Terphenyl-d14	76.7	51.2-127		%REC	283295	1	08/13/2019 01:58	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	11200	8.58		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Antimony	BRL	0.86		mg/Kg-dry	283234	10	08/12/2019 20:26	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-11
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:38:00 PM
Lab ID:	1908589-013	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	3.04	0.52		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Barium	24.2	2.14		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Beryllium	0.59	0.43		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Cadmium	BRL	0.43		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Calcium	731	21.4		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Chromium	14.4	0.86		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Cobalt	1.40	0.64		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Copper	5.47	0.86		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Iron	17200	21.4		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Lead	10.2	0.43		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Magnesium	425	21.4		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Manganese	67.4	0.86		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Nickel	2.88	0.86		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Potassium	740	21.4		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Selenium	BRL	2.14		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Silver	BRL	0.21		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Sodium	BRL	42.9		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Thallium	BRL	0.60		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Vanadium	26.2	0.86		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
Zinc	12.6	2.14		mg/Kg-dry	283234	10	08/12/2019 20:26	JW
PERCENT MOISTURE D2216								
Percent Moisture	15.1	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-11
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:40:00 PM
Lab ID:	1908589-014	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.129		mg/Kg-dry	283441	1	08/13/2019 14:27	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2,4,5-Trichlorophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2,4,6-Trichlorophenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2,4-Dichlorophenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2,4-Dimethylphenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2,4-Dinitrophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2,4-Dinitrotoluene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2,6-Dinitrotoluene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2-Chloronaphthalene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2-Chlorophenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2-Methylphenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
2-Nitrophenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
3,3´-Dichlorobenzidine	BRL	860		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
3-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
4,6-Dinitro-2-methylphenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
4-Bromophenyl phenyl ether	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
4-Chloro-3-methylphenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
4-Chloroaniline	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
4-Chlorophenyl phenyl ether	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
4-Methylphenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
4-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
4-Nitrophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Acetophenone	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Atrazine	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Benzaldehyde	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Bis(2-chloroethoxy)methane	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Bis(2-chloroethyl)ether	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Bis(2-chloroisopropyl)ether	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Bis(2-ethylhexyl)phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Butyl benzyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Caprolactam	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Carbazole	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Di-n-butyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Di-n-octyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Dibenzofuran	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Diethyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Dimethyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-11
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:40:00 PM
Lab ID:	1908589-014	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Hexachlorobutadiene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Hexachlorocyclopentadiene	BRL	850		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Hexachloroethane	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Isophorone	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
N-Nitrosodi-n-propylamine	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
N-Nitrosodiphenylamine	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Nitrobenzene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Pentachlorophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Phenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 21:52	YH
Surr: 2,4,6-Tribromophenol	78.7	45.6-120		%REC	283296	1	08/12/2019 21:52	YH
Surr: 2-Fluorobiphenyl	78.4	51.4-120		%REC	283296	1	08/12/2019 21:52	YH
Surr: 2-Fluorophenol	71.7	40.9-120		%REC	283296	1	08/12/2019 21:52	YH
Surr: 4-Terphenyl-d14	80.7	52.2-129		%REC	283296	1	08/12/2019 21:52	YH
Surr: Nitrobenzene-d5	63.1	40-120		%REC	283296	1	08/12/2019 21:52	YH
Surr: Phenol-d5	72.1	45-120		%REC	283296	1	08/12/2019 21:52	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,1,2,2-Tetrachloroethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,1,2-Trichloroethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,1-Dichloroethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,1-Dichloroethene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,2,4-Trichlorobenzene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,2-Dibromo-3-chloropropane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,2-Dibromoethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,2-Dichlorobenzene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,2-Dichloroethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,2-Dichloropropane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,3-Dichlorobenzene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
1,4-Dichlorobenzene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
2-Butanone	BRL	44		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
2-Hexanone	BRL	8.7		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
4-Methyl-2-pentanone	BRL	8.7		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Acetone	BRL	87		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Benzene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Bromodichloromethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Bromoform	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Bromomethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Carbon disulfide	BRL	8.7		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Carbon tetrachloride	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-11
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:40:00 PM
Lab ID:	1908589-014	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Chloroethane	BRL	8.7		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Chloroform	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Chloromethane	BRL	8.7		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
cis-1,2-Dichloroethene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
cis-1,3-Dichloropropene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Cyclohexane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Dibromochloromethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Dichlorodifluoromethane	BRL	8.7		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Ethylbenzene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Freon-113	BRL	8.7		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Isopropylbenzene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
m,p-Xylene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Methyl acetate	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Methyl tert-butyl ether	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Methylcyclohexane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Methylene chloride	BRL	17		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
o-Xylene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Styrene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Tetrachloroethene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Toluene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
trans-1,2-Dichloroethene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
trans-1,3-Dichloropropene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Trichloroethene	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Trichlorofluoromethane	BRL	4.4		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Vinyl chloride	BRL	8.7		ug/Kg-dry	283608	1	08/15/2019 01:03	AR
Surr: 4-Bromofluorobenzene	79.1	65.1-125		%REC	283608	1	08/15/2019 01:03	AR
Surr: Dibromofluoromethane	117	77.7-123		%REC	283608	1	08/15/2019 01:03	AR
Surr: Toluene-d8	96.1	83.2-120		%REC	283608	1	08/15/2019 01:03	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	22		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
2-Methylnaphthalene	BRL	22		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Acenaphthene	BRL	22		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Acenaphthylene	BRL	42		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Anthracene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Benz(a)anthracene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Benzo(a)pyrene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Benzo(b)fluoranthene	BRL	4.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Benzo(g,h,i)perylene	BRL	4.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Benzo(k)fluoranthene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-11
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:40:00 PM
Lab ID:	1908589-014	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	2.3	2.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Dibenz(a,h)anthracene	BRL	4.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Fluoranthene	4.2	4.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Fluorene	BRL	4.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Indeno(1,2,3-cd)pyrene	BRL	2.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Naphthalene	BRL	22		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Phenanthrene	3.4	2.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Pyrene	5.1	2.2		ug/Kg-dry	283295	1	08/12/2019 21:24	YH
Surr: 4-Terphenyl-d14	84.6	51.2-127		%REC	283295	1	08/12/2019 21:24	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	11200	7.19		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Antimony	BRL	0.72		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Arsenic	3.46	0.43		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Barium	11.2	1.80		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Beryllium	0.60	0.36		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Cadmium	BRL	0.36		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Calcium	228	18.0		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Chromium	20.8	0.72		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Cobalt	0.77	0.54		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Copper	3.24	0.72		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Iron	28800	359		mg/Kg-dry	283234	100	08/13/2019 19:07	JW
Lead	9.02	0.36		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Magnesium	368	18.0		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Manganese	49.7	0.72		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Nickel	1.73	0.72		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Potassium	719	18.0		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Selenium	BRL	1.80		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Silver	BRL	0.18		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Sodium	BRL	35.9		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Thallium	BRL	0.50		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Vanadium	35.0	0.72		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
Zinc	8.36	1.80		mg/Kg-dry	283234	10	08/12/2019 20:30	JW
PERCENT MOISTURE D2216								
Percent Moisture	22.2	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-12
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:45:00 PM
Lab ID:	1908589-015	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.127		mg/Kg-dry	283441	1	08/13/2019 14:36	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2,4,5-Trichlorophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2,4,6-Trichlorophenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2,4-Dichlorophenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2,4-Dimethylphenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2,4-Dinitrophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2,4-Dinitrotoluene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2,6-Dinitrotoluene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2-Chloronaphthalene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2-Chlorophenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2-Methylphenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
2-Nitrophenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
3,3´-Dichlorobenzidine	BRL	850		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
3-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
4,6-Dinitro-2-methylphenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
4-Bromophenyl phenyl ether	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
4-Chloro-3-methylphenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
4-Chloroaniline	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
4-Chlorophenyl phenyl ether	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
4-Methylphenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
4-Nitroaniline	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
4-Nitrophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Acetophenone	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Atrazine	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Benzaldehyde	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Bis(2-chloroethoxy)methane	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Bis(2-chloroethyl)ether	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Bis(2-chloroisopropyl)ether	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Bis(2-ethylhexyl)phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Butyl benzyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Caprolactam	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Carbazole	3100	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Di-n-butyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Di-n-octyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Dibenzofuran	1700	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Diethyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Dimethyl phthalate	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-12
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:45:00 PM
Lab ID:	1908589-015	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Hexachlorobutadiene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Hexachlorocyclopentadiene	BRL	840		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Hexachloroethane	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Isophorone	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
N-Nitrosodi-n-propylamine	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
N-Nitrosodiphenylamine	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Nitrobenzene	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Pentachlorophenol	BRL	2200		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Phenol	BRL	420		ug/Kg-dry	283296	1	08/12/2019 22:19	YH
Surr: 2,4,6-Tribromophenol	103	45.6-120		%REC	283296	1	08/12/2019 22:19	YH
Surr: 2-Fluorobiphenyl	111	51.4-120		%REC	283296	1	08/12/2019 22:19	YH
Surr: 2-Fluorophenol	87.1	40.9-120		%REC	283296	1	08/12/2019 22:19	YH
Surr: 4-Terphenyl-d14	103	52.2-129		%REC	283296	1	08/12/2019 22:19	YH
Surr: Nitrobenzene-d5	90.4	40-120		%REC	283296	1	08/12/2019 22:19	YH
Surr: Phenol-d5	100	45-120		%REC	283296	1	08/12/2019 22:19	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	280	22		ug/Kg-dry	283295	1	08/12/2019 22:47	YH
2-Methylnaphthalene	270	22		ug/Kg-dry	283295	1	08/12/2019 22:47	YH
Acenaphthene	790	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Acenaphthylene	370	42		ug/Kg-dry	283295	1	08/12/2019 22:47	YH
Anthracene	2200	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Benz(a)anthracene	6000	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Benzo(a)pyrene	5200	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Benzo(b)fluoranthene	6600	420		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Benzo(g,h,i)perylene	3600	420		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Benzo(k)fluoranthene	3100	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Chrysene	7200	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Dibenz(a,h)anthracene	500	420		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Fluoranthene	15000	420		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Fluorene	820	420		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Indeno(1,2,3-cd)pyrene	2700	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Naphthalene	740	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Phenanthrene	14000	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Pyrene	16000	220		ug/Kg-dry	283295	100	08/13/2019 18:44	YH
Surr: 4-Terphenyl-d14	123	51.2-127		%REC	283295	1	08/12/2019 22:47	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	14600	6.89		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Antimony	BRL	0.69		mg/Kg-dry	283234	10	08/12/2019 20:33	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-12
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:45:00 PM
Lab ID:	1908589-015	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	2.68	0.41		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Barium	44.9	1.72		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Beryllium	1.10	0.34		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Cadmium	BRL	0.34		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Calcium	8520	17.2		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Chromium	7.28	0.69		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Cobalt	5.82	0.52		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Copper	4.55	0.69		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Iron	10500	17.2		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Lead	22.7	0.34		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Magnesium	805	17.2		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Manganese	774	0.69		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Nickel	5.16	0.69		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Potassium	909	17.2		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Selenium	BRL	1.72		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Silver	BRL	0.17		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Sodium	90.9	34.5		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Thallium	0.50	0.48		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Vanadium	18.5	0.69		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
Zinc	22.4	1.72		mg/Kg-dry	283234	10	08/12/2019 20:33	JW
PERCENT MOISTURE D2216								
Percent Moisture	21.2	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-12
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:50:00 PM
Lab ID:	1908589-016	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473					**(SW7473)**			
Mercury	BRL	0.117		mg/Kg-dry	283441	1	08/13/2019 14:44	EH
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3550C)**			
1,1´-Biphenyl	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2,4,6-Trichlorophenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2,4-Dichlorophenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2,4-Dimethylphenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2,4-Dinitrotoluene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2,6-Dinitrotoluene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2-Chloronaphthalene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2-Chlorophenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2-Methylphenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
2-Nitrophenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
3,3´-Dichlorobenzidine	BRL	780		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
4-Bromophenyl phenyl ether	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
4-Chloro-3-methylphenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
4-Chloroaniline	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
4-Chlorophenyl phenyl ether	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
4-Methylphenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Acetophenone	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Atrazine	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Benzaldehyde	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Bis(2-chloroethoxy)methane	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Bis(2-chloroethyl)ether	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Bis(2-chloroisopropyl)ether	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Bis(2-ethylhexyl)phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Butyl benzyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Caprolactam	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Carbazole	2200	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Di-n-butyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Di-n-octyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Dibenzofuran	1200	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Diethyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Dimethyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-12
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:50:00 PM
Lab ID:	1908589-016	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Hexachlorobutadiene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Hexachlorocyclopentadiene	BRL	770		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Hexachloroethane	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Isophorone	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
N-Nitrosodi-n-propylamine	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
N-Nitrosodiphenylamine	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Nitrobenzene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Phenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 12:15	YH
Surr: 2,4,6-Tribromophenol	79.3	45.6-120		%REC	283298	1	08/13/2019 12:15	YH
Surr: 2-Fluorobiphenyl	84.3	51.4-120		%REC	283298	1	08/13/2019 12:15	YH
Surr: 2-Fluorophenol	77.1	40.9-120		%REC	283298	1	08/13/2019 12:15	YH
Surr: 4-Terphenyl-d14	86.5	52.2-129		%REC	283298	1	08/13/2019 12:15	YH
Surr: Nitrobenzene-d5	69.5	40-120		%REC	283298	1	08/13/2019 12:15	YH
Surr: Phenol-d5	79.6	45-120		%REC	283298	1	08/13/2019 12:15	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,1,2,2-Tetrachloroethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,1,2-Trichloroethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,1-Dichloroethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,1-Dichloroethene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,2,4-Trichlorobenzene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,2-Dibromo-3-chloropropane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,2-Dibromoethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,2-Dichlorobenzene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,2-Dichloroethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,2-Dichloropropane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,3-Dichlorobenzene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
1,4-Dichlorobenzene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
2-Butanone	BRL	38		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
2-Hexanone	BRL	7.6		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
4-Methyl-2-pentanone	BRL	7.6		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Acetone	140	76		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Benzene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Bromodichloromethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Bromoform	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Bromomethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Carbon disulfide	BRL	7.6		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Carbon tetrachloride	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-12
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:50:00 PM
Lab ID:	1908589-016	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Chloroethane	BRL	7.6		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Chloroform	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Chloromethane	BRL	7.6		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
cis-1,2-Dichloroethene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
cis-1,3-Dichloropropene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Cyclohexane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Dibromochloromethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Dichlorodifluoromethane	BRL	7.6		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Ethylbenzene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Freon-113	BRL	7.6		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Isopropylbenzene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
m,p-Xylene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Methyl acetate	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Methyl tert-butyl ether	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Methylcyclohexane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Methylene chloride	BRL	15		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
o-Xylene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Styrene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Tetrachloroethene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Toluene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
trans-1,2-Dichloroethene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
trans-1,3-Dichloropropene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Trichloroethene	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Trichlorofluoromethane	BRL	3.8		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Vinyl chloride	BRL	7.6		ug/Kg-dry	283608	1	08/15/2019 13:40	AR
Surr: 4-Bromofluorobenzene	84.1	65.1-125		%REC	283608	1	08/15/2019 13:40	AR
Surr: Dibromofluoromethane	101	77.7-123		%REC	283608	1	08/15/2019 13:40	AR
Surr: Toluene-d8	89.9	83.2-120		%REC	283608	1	08/15/2019 13:40	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	420	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
2-Methylnaphthalene	400	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Acenaphthene	1300	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Acenaphthylene	640	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Anthracene	3800	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Benz(a)anthracene	11000	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Benzo(a)pyrene	9600	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Benzo(b)fluoranthene	12000	390		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Benzo(g,h,i)perylene	6800	390		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Benzo(k)fluoranthene	4200	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-12
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 1:50:00 PM
Lab ID:	1908589-016	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	12000	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Dibenz(a,h)anthracene	1800	390		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Fluoranthene	24000	390		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Fluorene	1400	390		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Indeno(1,2,3-cd)pyrene	5400	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Naphthalene	1300	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Phenanthrene	22000	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Pyrene	26000	200		ug/Kg-dry	283295	100	08/13/2019 12:38	YH
Surr: 4-Terphenyl-d14	103	51.2-127		%REC	283295	1	08/12/2019 23:14	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	36600	182		mg/Kg-dry	283234	100	08/13/2019 19:11	JW
Antimony	BRL	0.91		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Arsenic	7.43	0.55		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Barium	175	2.27		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Beryllium	2.87	0.46		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Cadmium	BRL	0.46		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Calcium	43600	455		mg/Kg-dry	283234	100	08/13/2019 19:11	JW
Chromium	15.0	0.91		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Cobalt	6.71	0.68		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Copper	8.79	0.91		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Iron	14600	22.7		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Lead	30.6	0.46		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Magnesium	2270	22.7		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Manganese	651	0.91		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Nickel	7.84	0.91		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Potassium	2470	22.7		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Selenium	3.09	2.27		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Silver	BRL	0.23		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Sodium	227	45.5		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Thallium	BRL	0.64		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Vanadium	30.2	0.91		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
Zinc	53.9	2.27		mg/Kg-dry	283234	10	08/12/2019 20:37	JW
PERCENT MOISTURE D2216								
Percent Moisture	14.6	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-13
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:10:00 PM
Lab ID:	1908589-017	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473					**(SW7473)**			
Mercury	BRL	0.113		mg/Kg-dry	283441	1	08/13/2019 14:52	EH
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3550C)**			
1,1´-Biphenyl	690	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4,6-Trichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4-Dichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4-Dimethylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,6-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Chloronaphthalene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Chlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Nitrophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
3,3´-Dichlorobenzidine	BRL	760		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Bromophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Chloro-3-methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Chloroaniline	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Chlorophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Methylphenol	470	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Acetophenone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Atrazine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Benzaldehyde	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Bis(2-chloroethoxy)methane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Bis(2-chloroethyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Bis(2-chloroisopropyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Bis(2-ethylhexyl)phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Butyl benzyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Caprolactam	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Carbazole	13000	3700		ug/Kg-dry	283298	10	08/14/2019 10:28	YH
Di-n-butyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Di-n-octyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Dibenzofuran	3800	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Diethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Dimethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-13
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:10:00 PM
Lab ID:	1908589-017	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Hexachlorobutadiene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Hexachlorocyclopentadiene	BRL	750		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Hexachloroethane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Isophorone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
N-Nitrosodi-n-propylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
N-Nitrosodiphenylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Nitrobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Phenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Surr: 2,4,6-Tribromophenol	62.9	45.6-120		%REC	283298	1	08/13/2019 12:41	YH
Surr: 2-Fluorobiphenyl	68.5	51.4-120		%REC	283298	1	08/13/2019 12:41	YH
Surr: 2-Fluorophenol	61.5	40.9-120		%REC	283298	1	08/13/2019 12:41	YH
Surr: 4-Terphenyl-d14	68.2	52.2-129		%REC	283298	1	08/13/2019 12:41	YH
Surr: Nitrobenzene-d5	60.6	40-120		%REC	283298	1	08/13/2019 12:41	YH
Surr: Phenol-d5	64.1	45-120		%REC	283298	1	08/13/2019 12:41	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	520	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
2-Methylnaphthalene	560	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Acenaphthene	1800	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Acenaphthylene	580	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Anthracene	3900	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Benz(a)anthracene	12000	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Benzo(a)pyrene	11000	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Benzo(b)fluoranthene	14000	370		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Benzo(g,h,i)perylene	7500	370		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Benzo(k)fluoranthene	5100	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Chrysene	12000	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Dibenz(a,h)anthracene	2000	370		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Fluoranthene	26000	370		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Fluorene	1700	370		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Indeno(1,2,3-cd)pyrene	6200	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Naphthalene	1300	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Phenanthrene	21000	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Pyrene	24000	190		ug/Kg-dry	283295	100	08/13/2019 13:05	YH
Surr: 4-Terphenyl-d14	110	51.2-127		%REC	283295	1	08/12/2019 23:40	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1016	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:17	SH
Aroclor 1221	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:17	SH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-13
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:10:00 PM
Lab ID:	1908589-017	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1232	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:17	SH
Aroclor 1242	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:17	SH
Aroclor 1248	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:17	SH
Aroclor 1254	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:17	SH
Aroclor 1260	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:17	SH
Surr: Decachlorobiphenyl	91.3	45.7-140		%REC	283426	1	08/13/2019 22:17	SH
Surr: Tetrachloro-m-xylene	77.6	45.3-126		%REC	283426	1	08/13/2019 22:17	SH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	12000	6.31		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Antimony	BRL	0.63		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Arsenic	3.51	0.38		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Barium	55.3	1.58		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Beryllium	0.74	0.32		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Cadmium	BRL	0.32		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Calcium	1010	15.8		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Chromium	7.17	0.63		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Cobalt	9.23	0.47		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Copper	6.91	0.63		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Iron	11300	15.8		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Lead	25.8	0.32		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Magnesium	570	15.8		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Manganese	648	0.63		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Nickel	4.71	0.63		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Potassium	604	15.8		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Selenium	BRL	1.58		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Silver	BRL	0.16		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Sodium	31.6	31.5		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Thallium	0.52	0.44		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Vanadium	17.3	0.63		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
Zinc	26.1	1.58		mg/Kg-dry	283234	10	08/12/2019 20:41	JW
PERCENT MOISTURE D2216								
Percent Moisture	11.5	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

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BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-13
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:15:00 PM
Lab ID:	1908589-018	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.112		mg/Kg-dry	283441	1	08/13/2019 15:00	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2,4,6-Trichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2,4-Dichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2,4-Dimethylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2,4-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2,6-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2-Chloronaphthalene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2-Chlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
2-Nitrophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
3,3´-Dichlorobenzidine	BRL	750		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
4-Bromophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
4-Chloro-3-methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
4-Chloroaniline	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
4-Chlorophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
4-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Acetophenone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Atrazine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Benzaldehyde	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Bis(2-chloroethoxy)methane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Bis(2-chloroethyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Bis(2-chloroisopropyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Bis(2-ethylhexyl)phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Butyl benzyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Caprolactam	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Carbazole	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Di-n-butyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Di-n-octyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Dibenzofuran	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Diethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Dimethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH

Qualifiers:

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H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-13
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:15:00 PM
Lab ID:	1908589-018	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Hexachlorobutadiene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Hexachlorocyclopentadiene	BRL	740		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Hexachloroethane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Isophorone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
N-Nitrosodi-n-propylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
N-Nitrosodiphenylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Nitrobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Phenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:08	YH
Surr: 2,4,6-Tribromophenol	82.5	45.6-120		%REC	283298	1	08/13/2019 13:08	YH
Surr: 2-Fluorobiphenyl	86.9	51.4-120		%REC	283298	1	08/13/2019 13:08	YH
Surr: 2-Fluorophenol	75.8	40.9-120		%REC	283298	1	08/13/2019 13:08	YH
Surr: 4-Terphenyl-d14	88	52.2-129		%REC	283298	1	08/13/2019 13:08	YH
Surr: Nitrobenzene-d5	72.7	40-120		%REC	283298	1	08/13/2019 13:08	YH
Surr: Phenol-d5	78.4	45-120		%REC	283298	1	08/13/2019 13:08	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,1,2,2-Tetrachloroethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,1,2-Trichloroethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,1-Dichloroethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,1-Dichloroethene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,2,4-Trichlorobenzene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,2-Dibromo-3-chloropropane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,2-Dibromoethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,2-Dichlorobenzene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,2-Dichloroethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,2-Dichloropropane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,3-Dichlorobenzene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
1,4-Dichlorobenzene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
2-Butanone	BRL	36		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
2-Hexanone	BRL	7.3		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
4-Methyl-2-pentanone	BRL	7.3		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Acetone	79	73		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Benzene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Bromodichloromethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Bromoform	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Bromomethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Carbon disulfide	BRL	7.3		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Carbon tetrachloride	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-13
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:15:00 PM
Lab ID:	1908589-018	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Chloroethane	BRL	7.3		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Chloroform	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Chloromethane	BRL	7.3		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
cis-1,2-Dichloroethene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
cis-1,3-Dichloropropene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Cyclohexane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Dibromochloromethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Dichlorodifluoromethane	BRL	7.3		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Ethylbenzene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Freon-113	BRL	7.3		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Isopropylbenzene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
m,p-Xylene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Methyl acetate	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Methyl tert-butyl ether	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Methylcyclohexane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Methylene chloride	BRL	15		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
o-Xylene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Styrene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Tetrachloroethene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Toluene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
trans-1,2-Dichloroethene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
trans-1,3-Dichloropropene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Trichloroethene	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Trichlorofluoromethane	BRL	3.6		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Vinyl chloride	BRL	7.3		ug/Kg-dry	283608	1	08/15/2019 01:52	AR
Surr: 4-Bromofluorobenzene	80.6	65.1-125		%REC	283608	1	08/15/2019 01:52	AR
Surr: Dibromofluoromethane	108	77.7-123		%REC	283608	1	08/15/2019 01:52	AR
Surr: Toluene-d8	89.8	83.2-120		%REC	283608	1	08/15/2019 01:52	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	19		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
2-Methylnaphthalene	BRL	19		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Acenaphthene	46	19		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Acenaphthylene	37	37		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Anthracene	93	1.9		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Benz(a)anthracene	290	1.9		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Benzo(a)pyrene	250	1.9		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Benzo(b)fluoranthene	330	3.7		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Benzo(g,h,i)perylene	140	3.7		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Benzo(k)fluoranthene	130	1.9		ug/Kg-dry	283295	1	08/13/2019 00:09	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-13
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:15:00 PM
Lab ID:	1908589-018	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	260	1.9		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Dibenz(a,h)anthracene	49	3.7		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Fluoranthene	540	370		ug/Kg-dry	283295	100	08/13/2019 13:31	YH
Fluorene	42	3.7		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Indeno(1,2,3-cd)pyrene	130	1.9		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Naphthalene	27	19		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Phenanthrene	330	1.9		ug/Kg-dry	283295	1	08/13/2019 00:09	YH
Pyrene	490	190		ug/Kg-dry	283295	100	08/13/2019 13:31	YH
Surr: 4-Terphenyl-d14	76.8	51.2-127		%REC	283295	1	08/13/2019 00:09	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1016	BRL	37		ug/Kg-dry	283426	1	08/13/2019 21:44	SH
Aroclor 1221	BRL	37		ug/Kg-dry	283426	1	08/13/2019 21:44	SH
Aroclor 1232	BRL	37		ug/Kg-dry	283426	1	08/13/2019 21:44	SH
Aroclor 1242	BRL	37		ug/Kg-dry	283426	1	08/13/2019 21:44	SH
Aroclor 1248	BRL	37		ug/Kg-dry	283426	1	08/13/2019 21:44	SH
Aroclor 1254	BRL	37		ug/Kg-dry	283426	1	08/13/2019 21:44	SH
Aroclor 1260	BRL	37		ug/Kg-dry	283426	1	08/13/2019 21:44	SH
Surr: Decachlorobiphenyl	48.1	45.7-140		%REC	283426	1	08/13/2019 21:44	SH
Surr: Tetrachloro-m-xylene	38.3	45.3-126	S	%REC	283426	1	08/13/2019 21:44	SH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	17000	10.1		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Antimony	BRL	1.01		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Arsenic	2.95	0.60		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Barium	39.9	2.51		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Beryllium	0.64	0.50		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Cadmium	BRL	0.50		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Calcium	631	25.1		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Chromium	9.24	1.01		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Cobalt	12.3	0.75		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Copper	3.93	1.01		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Iron	14800	25.1		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Lead	21.1	0.50		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Magnesium	563	25.1		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Manganese	908	1.01		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Nickel	6.19	1.01		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Potassium	572	25.1		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Selenium	BRL	2.51		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Silver	BRL	0.25		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Sodium	BRL	50.3		mg/Kg-dry	283234	10	08/12/2019 20:44	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-13
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:15:00 PM
Lab ID:	1908589-018	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Thallium	BRL	0.70		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Vanadium	22.6	1.01		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
Zinc	12.7	2.51		mg/Kg-dry	283234	10	08/12/2019 20:44	JW
PERCENT MOISTURE D2216								
Percent Moisture	10.9	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-14
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:45:00 PM
Lab ID:	1908589-019	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.112		mg/Kg-dry	283441	1	08/13/2019 15:26	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2,4,6-Trichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2,4-Dichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2,4-Dimethylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2,4-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2,6-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2-Chloronaphthalene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2-Chlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
2-Nitrophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
3,3´-Dichlorobenzidine	BRL	750		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
4-Bromophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
4-Chloro-3-methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
4-Chloroaniline	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
4-Chlorophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
4-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Acetophenone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Atrazine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Benzaldehyde	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Bis(2-chloroethoxy)methane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Bis(2-chloroethyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Bis(2-chloroisopropyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Bis(2-ethylhexyl)phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Butyl benzyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Caprolactam	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Carbazole	440	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Di-n-butyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Di-n-octyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Dibenzofuran	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Diethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Dimethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-14
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:45:00 PM
Lab ID:	1908589-019	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Hexachlorobutadiene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Hexachlorocyclopentadiene	BRL	740		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Hexachloroethane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Isophorone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
N-Nitrosodi-n-propylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
N-Nitrosodiphenylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Nitrobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Phenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 13:34	YH
Surr: 2,4,6-Tribromophenol	96.4	45.6-120		%REC	283298	1	08/13/2019 13:34	YH
Surr: 2-Fluorobiphenyl	99.6	51.4-120		%REC	283298	1	08/13/2019 13:34	YH
Surr: 2-Fluorophenol	85.9	40.9-120		%REC	283298	1	08/13/2019 13:34	YH
Surr: 4-Terphenyl-d14	97.5	52.2-129		%REC	283298	1	08/13/2019 13:34	YH
Surr: Nitrobenzene-d5	84.3	40-120		%REC	283298	1	08/13/2019 13:34	YH
Surr: Phenol-d5	88.8	45-120		%REC	283298	1	08/13/2019 13:34	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	230	19		ug/Kg-dry	283295	1	08/13/2019 00:36	YH
2-Methylnaphthalene	260	19		ug/Kg-dry	283295	1	08/13/2019 00:36	YH
Acenaphthene	320	19		ug/Kg-dry	283295	1	08/13/2019 00:36	YH
Acenaphthylene	190	37		ug/Kg-dry	283295	1	08/13/2019 00:36	YH
Anthracene	970	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Benz(a)anthracene	2800	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Benzo(a)pyrene	2400	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Benzo(b)fluoranthene	3400	370		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Benzo(g,h,i)perylene	1800	370		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Benzo(k)fluoranthene	1200	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Chrysene	3100	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Dibenz(a,h)anthracene	460	370		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Fluoranthene	6300	370		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Fluorene	320	3.7		ug/Kg-dry	283295	1	08/13/2019 00:36	YH
Indeno(1,2,3-cd)pyrene	1500	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Naphthalene	530	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Phenanthrene	5300	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Pyrene	6200	190		ug/Kg-dry	283295	100	08/13/2019 13:58	YH
Surr: 4-Terphenyl-d14	98.3	51.2-127		%REC	283295	1	08/13/2019 00:36	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1016	BRL	37		ug/Kg-dry	283426	1	08/13/2019 22:29	SH
Aroclor 1221	BRL	37		ug/Kg-dry	283426	1	08/13/2019 22:29	SH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-14
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:45:00 PM
Lab ID:	1908589-019	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1232	BRL	37		ug/Kg-dry	283426	1	08/13/2019 22:29	SH
Aroclor 1242	BRL	37		ug/Kg-dry	283426	1	08/13/2019 22:29	SH
Aroclor 1248	BRL	37		ug/Kg-dry	283426	1	08/13/2019 22:29	SH
Aroclor 1254	BRL	37		ug/Kg-dry	283426	1	08/13/2019 22:29	SH
Aroclor 1260	BRL	37		ug/Kg-dry	283426	1	08/13/2019 22:29	SH
Surr: Decachlorobiphenyl	80.6	45.7-140		%REC	283426	1	08/13/2019 22:29	SH
Surr: Tetrachloro-m-xylene	63.9	45.3-126		%REC	283426	1	08/13/2019 22:29	SH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	18800	10.5		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Antimony	BRL	1.05		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Arsenic	33.4	0.63		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Barium	58.7	2.63		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Beryllium	0.89	0.53		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Cadmium	BRL	0.53		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Calcium	1360	26.3		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Chromium	13.8	1.05		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Cobalt	9.58	0.79		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Copper	7.29	1.05		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Iron	15400	26.3		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Lead	25.3	0.53		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Magnesium	474	26.3		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Manganese	1790	21.1		mg/Kg-dry	283234	100	08/13/2019 19:14	JW
Nickel	6.92	1.05		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Potassium	719	26.3		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Selenium	BRL	2.63		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Silver	BRL	0.26		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Sodium	80.3	52.6		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Thallium	0.81	0.74		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Vanadium	26.7	1.05		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
Zinc	38.9	2.63		mg/Kg-dry	283234	10	08/12/2019 20:48	JW
PERCENT MOISTURE D2216								
Percent Moisture	10.9	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-14
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:50:00 PM
Lab ID:	1908589-020	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	0.117	0.114		mg/Kg-dry	283441	1	08/13/2019 15:34	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2,4,6-Trichlorophenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2,4-Dichlorophenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2,4-Dimethylphenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2,4-Dinitrotoluene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2,6-Dinitrotoluene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2-Chloronaphthalene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2-Chlorophenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2-Methylphenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
2-Nitrophenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
3,3´-Dichlorobenzidine	BRL	760		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
4-Bromophenyl phenyl ether	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
4-Chloro-3-methylphenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
4-Chloroaniline	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
4-Chlorophenyl phenyl ether	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
4-Methylphenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Acetophenone	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Atrazine	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Benzaldehyde	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Bis(2-chloroethoxy)methane	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Bis(2-chloroethyl)ether	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Bis(2-chloroisopropyl)ether	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Bis(2-ethylhexyl)phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Butyl benzyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Caprolactam	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Carbazole	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Di-n-butyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Di-n-octyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Dibenzofuran	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Diethyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Dimethyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-14
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:50:00 PM
Lab ID:	1908589-020	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Hexachlorobutadiene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Hexachlorocyclopentadiene	BRL	750		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Hexachloroethane	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Isophorone	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
N-Nitrosodi-n-propylamine	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
N-Nitrosodiphenylamine	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Nitrobenzene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Phenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 14:00	YH
Surr: 2,4,6-Tribromophenol	90.6	45.6-120		%REC	283298	1	08/13/2019 14:00	YH
Surr: 2-Fluorobiphenyl	95.9	51.4-120		%REC	283298	1	08/13/2019 14:00	YH
Surr: 2-Fluorophenol	81.8	40.9-120		%REC	283298	1	08/13/2019 14:00	YH
Surr: 4-Terphenyl-d14	91.6	52.2-129		%REC	283298	1	08/13/2019 14:00	YH
Surr: Nitrobenzene-d5	77.4	40-120		%REC	283298	1	08/13/2019 14:00	YH
Surr: Phenol-d5	85	45-120		%REC	283298	1	08/13/2019 14:00	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,1,2,2-Tetrachloroethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,1,2-Trichloroethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,1-Dichloroethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,1-Dichloroethene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,2,4-Trichlorobenzene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,2-Dibromo-3-chloropropane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,2-Dibromoethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,2-Dichlorobenzene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,2-Dichloroethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,2-Dichloropropane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,3-Dichlorobenzene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
1,4-Dichlorobenzene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
2-Butanone	BRL	35		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
2-Hexanone	BRL	7.1		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
4-Methyl-2-pentanone	BRL	7.1		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Acetone	210	71		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Benzene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Bromodichloromethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Bromoform	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Bromomethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Carbon disulfide	BRL	7.1		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Carbon tetrachloride	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-14
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:50:00 PM
Lab ID:	1908589-020	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Chloroethane	BRL	7.1		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Chloroform	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Chloromethane	BRL	7.1		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
cis-1,2-Dichloroethene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
cis-1,3-Dichloropropene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Cyclohexane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Dibromochloromethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Dichlorodifluoromethane	BRL	7.1		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Ethylbenzene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Freon-113	BRL	7.1		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Isopropylbenzene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
m,p-Xylene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Methyl acetate	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Methyl tert-butyl ether	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Methylcyclohexane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Methylene chloride	BRL	14		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
o-Xylene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Styrene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Tetrachloroethene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Toluene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
trans-1,2-Dichloroethene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
trans-1,3-Dichloropropene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Trichloroethene	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Trichlorofluoromethane	BRL	3.5		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Vinyl chloride	BRL	7.1		ug/Kg-dry	283608	1	08/15/2019 02:18	AR
Surr: 4-Bromofluorobenzene	82	65.1-125		%REC	283608	1	08/15/2019 02:18	AR
Surr: Dibromofluoromethane	105	77.7-123		%REC	283608	1	08/15/2019 02:18	AR
Surr: Toluene-d8	88.7	83.2-120		%REC	283608	1	08/15/2019 02:18	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	89	19		ug/Kg-dry	283295	1	08/13/2019 01:03	YH
2-Methylnaphthalene	96	19		ug/Kg-dry	283295	1	08/13/2019 01:03	YH
Acenaphthene	94	19		ug/Kg-dry	283295	1	08/13/2019 01:03	YH
Acenaphthylene	93	38		ug/Kg-dry	283295	1	08/13/2019 01:03	YH
Anthracene	440	190		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Benz(a)anthracene	1200	190		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Benzo(a)pyrene	990	190		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Benzo(b)fluoranthene	1500	380		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Benzo(g,h,i)perylene	780	380		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Benzo(k)fluoranthene	570	190		ug/Kg-dry	283295	100	08/13/2019 14:25	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-14
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:50:00 PM
Lab ID:	1908589-020	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	1400	190		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Dibenz(a,h)anthracene	190	3.8		ug/Kg-dry	283295	1	08/13/2019 01:03	YH
Fluoranthene	2700	380		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Fluorene	88	3.8		ug/Kg-dry	283295	1	08/13/2019 01:03	YH
Indeno(1,2,3-cd)pyrene	640	190		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Naphthalene	160	19		ug/Kg-dry	283295	1	08/13/2019 01:03	YH
Phenanthrene	2300	190		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Pyrene	2700	190		ug/Kg-dry	283295	100	08/13/2019 14:25	YH
Surr: 4-Terphenyl-d14	87.6	51.2-127		%REC	283295	1	08/13/2019 01:03	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1016	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:40	SH
Aroclor 1221	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:40	SH
Aroclor 1232	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:40	SH
Aroclor 1242	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:40	SH
Aroclor 1248	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:40	SH
Aroclor 1254	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:40	SH
Aroclor 1260	BRL	38		ug/Kg-dry	283426	1	08/13/2019 22:40	SH
Surr: Decachlorobiphenyl	75.1	45.7-140		%REC	283426	1	08/13/2019 22:40	SH
Surr: Tetrachloro-m-xylene	60.7	45.3-126		%REC	283426	1	08/13/2019 22:40	SH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	14700	10.8		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Antimony	BRL	1.08		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Arsenic	56.9	0.65		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Barium	80.3	2.71		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Beryllium	1.32	0.54		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Cadmium	0.64	0.54		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Calcium	5200	27.1		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Chromium	15.0	1.08		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Cobalt	8.04	0.81		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Copper	11.7	1.08		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Iron	18200	27.1		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Lead	58.6	0.54		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Magnesium	1410	27.1		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Manganese	870	1.08		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Nickel	7.87	1.08		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Potassium	1130	27.1		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Selenium	BRL	2.71		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Silver	BRL	0.27		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Sodium	87.7	54.2		mg/Kg-dry	283234	10	08/12/2019 20:51	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-14
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 2:50:00 PM
Lab ID:	1908589-020	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Thallium	BRL	0.76		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Vanadium	30.5	1.08		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
Zinc	215	2.71		mg/Kg-dry	283234	10	08/12/2019 20:51	JW
PERCENT MOISTURE D2216								
Percent Moisture	12.0	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-15
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:00:00 PM
Lab ID:	1908589-021	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.113		mg/Kg-dry	283441	1	08/13/2019 15:43	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2,4,6-Trichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2,4-Dichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2,4-Dimethylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2,4-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2,6-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2-Chloronaphthalene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2-Chlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
2-Nitrophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
3,3´-Dichlorobenzidine	BRL	760		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
4-Bromophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
4-Chloro-3-methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
4-Chloroaniline	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
4-Chlorophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
4-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Acetophenone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Atrazine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Benzaldehyde	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Bis(2-chloroethoxy)methane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Bis(2-chloroethyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Bis(2-chloroisopropyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Bis(2-ethylhexyl)phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Butyl benzyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Caprolactam	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Carbazole	3800	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Di-n-butyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Di-n-octyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Dibenzofuran	1700	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Diethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Dimethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-15
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:00:00 PM
Lab ID:	1908589-021	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Hexachlorobutadiene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Hexachlorocyclopentadiene	BRL	750		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Hexachloroethane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Isophorone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
N-Nitrosodi-n-propylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
N-Nitrosodiphenylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Nitrobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Phenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:26	YH
Surr: 2,4,6-Tribromophenol	71.7	45.6-120		%REC	283298	1	08/13/2019 14:26	YH
Surr: 2-Fluorobiphenyl	77.4	51.4-120		%REC	283298	1	08/13/2019 14:26	YH
Surr: 2-Fluorophenol	69.1	40.9-120		%REC	283298	1	08/13/2019 14:26	YH
Surr: 4-Terphenyl-d14	72.3	52.2-129		%REC	283298	1	08/13/2019 14:26	YH
Surr: Nitrobenzene-d5	66	40-120		%REC	283298	1	08/13/2019 14:26	YH
Surr: Phenol-d5	71.3	45-120		%REC	283298	1	08/13/2019 14:26	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,1,2,2-Tetrachloroethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,1,2-Trichloroethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,1-Dichloroethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,1-Dichloroethene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,2,4-Trichlorobenzene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,2-Dibromo-3-chloropropane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,2-Dibromoethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,2-Dichlorobenzene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,2-Dichloroethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,2-Dichloropropane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,3-Dichlorobenzene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
1,4-Dichlorobenzene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
2-Butanone	BRL	2300		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
2-Hexanone	BRL	460		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
4-Methyl-2-pentanone	BRL	460		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Acetone	BRL	4600		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Benzene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Bromodichloromethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Bromoform	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Bromomethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Carbon disulfide	BRL	460		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Carbon tetrachloride	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-15
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:00:00 PM
Lab ID:	1908589-021	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Chloroethane	BRL	460		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Chloroform	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Chloromethane	BRL	460		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
cis-1,2-Dichloroethene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
cis-1,3-Dichloropropene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Cyclohexane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Dibromochloromethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Dichlorodifluoromethane	BRL	460		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Ethylbenzene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Freon-113	BRL	460		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Isopropylbenzene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
m,p-Xylene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Methyl acetate	230	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Methyl tert-butyl ether	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Methylcyclohexane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Methylene chloride	BRL	910		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
o-Xylene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Styrene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Tetrachloroethene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Toluene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
trans-1,2-Dichloroethene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
trans-1,3-Dichloropropene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Trichloroethene	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Trichlorofluoromethane	BRL	230		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Vinyl chloride	BRL	460		ug/Kg-dry	283627	50	08/15/2019 17:27	JE
Surr: 4-Bromofluorobenzene	99.2	65.1-125		%REC	283627	50	08/15/2019 17:27	JE
Surr: Dibromofluoromethane	89.3	77.7-123		%REC	283627	50	08/15/2019 17:27	JE
Surr: Toluene-d8	102	83.2-120		%REC	283627	50	08/15/2019 17:27	JE
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	1100	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
2-Methylnaphthalene	1200	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Acenaphthene	960	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Acenaphthylene	1700	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Anthracene	4500	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Benz(a)anthracene	21000	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Benzo(a)pyrene	19000	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Benzo(b)fluoranthene	30000	370		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Benzo(g,h,i)perylene	13000	370		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Benzo(k)fluoranthene	10000	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-15
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:00:00 PM
Lab ID:	1908589-021	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	23000	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Dibenz(a,h)anthracene	2800	370		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Fluoranthene	42000	3700		ug/Kg-dry	283297	1000	08/14/2019 10:20	YH
Fluorene	710	370		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Indeno(1,2,3-cd)pyrene	12000	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Naphthalene	2400	1900		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Phenanthrene	24000	190		ug/Kg-dry	283297	100	08/13/2019 16:11	YH
Pyrene	41000	1900		ug/Kg-dry	283297	1000	08/14/2019 10:20	YH
Surr: 4-Terphenyl-d14	54.6	51.2-127		%REC	283297	1	08/13/2019 02:25	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	6440	8.65		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Antimony	BRL	0.86		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Arsenic	9.61	0.52		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Barium	320	2.16		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Beryllium	0.81	0.43		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Cadmium	0.44	0.43		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Calcium	48500	433		mg/Kg-dry	283235	100	08/13/2019 19:54	JW
Chromium	13.4	0.86		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Cobalt	5.11	0.65		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Copper	34.6	0.86		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Iron	19300	21.6		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Lead	173	0.43		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Magnesium	1920	21.6		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Manganese	301	0.86		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Nickel	4.51	0.86		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Potassium	622	21.6		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Selenium	BRL	2.16		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Silver	BRL	0.22		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Sodium	81.3	43.3		mg/Kg-dry	283235	5	08/13/2019 21:02	JW
Thallium	BRL	0.61		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Vanadium	20.8	0.86		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
Zinc	339	2.34		mg/Kg-dry	283235	10	08/12/2019 21:20	JW
PERCENT MOISTURE D2216								
Percent Moisture	11.5	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-15
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:10:00 PM
Lab ID:	1908589-022	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.117		mg/Kg-dry	283441	1	08/13/2019 15:52	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2,4,6-Trichlorophenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2,4-Dichlorophenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2,4-Dimethylphenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2,4-Dinitrotoluene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2,6-Dinitrotoluene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2-Chloronaphthalene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2-Chlorophenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2-Methylphenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
2-Nitrophenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
3,3´-Dichlorobenzidine	BRL	780		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
4-Bromophenyl phenyl ether	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
4-Chloro-3-methylphenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
4-Chloroaniline	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
4-Chlorophenyl phenyl ether	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
4-Methylphenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Acetophenone	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Atrazine	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Benzaldehyde	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Bis(2-chloroethoxy)methane	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Bis(2-chloroethyl)ether	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Bis(2-chloroisopropyl)ether	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Bis(2-ethylhexyl)phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Butyl benzyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Caprolactam	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Carbazole	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Di-n-butyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Di-n-octyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Dibenzofuran	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Diethyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Dimethyl phthalate	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-15
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:10:00 PM
Lab ID:	1908589-022	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Hexachlorobutadiene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Hexachlorocyclopentadiene	BRL	770		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Hexachloroethane	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Isophorone	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
N-Nitrosodi-n-propylamine	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
N-Nitrosodiphenylamine	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Nitrobenzene	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Phenol	BRL	390		ug/Kg-dry	283298	1	08/13/2019 14:52	YH
Surr: 2,4,6-Tribromophenol	78.5	45.6-120		%REC	283298	1	08/13/2019 14:52	YH
Surr: 2-Fluorobiphenyl	82.2	51.4-120		%REC	283298	1	08/13/2019 14:52	YH
Surr: 2-Fluorophenol	73.2	40.9-120		%REC	283298	1	08/13/2019 14:52	YH
Surr: 4-Terphenyl-d14	77.6	52.2-129		%REC	283298	1	08/13/2019 14:52	YH
Surr: Nitrobenzene-d5	69	40-120		%REC	283298	1	08/13/2019 14:52	YH
Surr: Phenol-d5	72.7	45-120		%REC	283298	1	08/13/2019 14:52	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,1,2,2-Tetrachloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,1,2-Trichloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,1-Dichloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,1-Dichloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,2,4-Trichlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,2-Dibromo-3-chloropropane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,2-Dibromoethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,2-Dichlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,2-Dichloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,2-Dichloropropane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,3-Dichlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
1,4-Dichlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
2-Butanone	BRL	43		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
2-Hexanone	BRL	8.6		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
4-Methyl-2-pentanone	BRL	8.6		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Acetone	190	86		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Benzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Bromodichloromethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Bromoform	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Bromomethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Carbon disulfide	BRL	8.6		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Carbon tetrachloride	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-15
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:10:00 PM
Lab ID:	1908589-022	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Chloroethane	BRL	8.6		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Chloroform	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Chloromethane	BRL	8.6		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
cis-1,2-Dichloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
cis-1,3-Dichloropropene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Cyclohexane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Dibromochloromethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Dichlorodifluoromethane	BRL	8.6		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Ethylbenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Freon-113	BRL	8.6		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Isopropylbenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
m,p-Xylene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Methyl acetate	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Methyl tert-butyl ether	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Methylcyclohexane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Methylene chloride	BRL	17		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
o-Xylene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Styrene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Tetrachloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Toluene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
trans-1,2-Dichloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
trans-1,3-Dichloropropene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Trichloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Trichlorofluoromethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Vinyl chloride	BRL	8.6		ug/Kg-dry	283608	1	08/15/2019 14:54	AR
Surr: 4-Bromofluorobenzene	83.4	65.1-125		%REC	283608	1	08/15/2019 14:54	AR
Surr: Dibromofluoromethane	103	77.7-123		%REC	283608	1	08/15/2019 14:54	AR
Surr: Toluene-d8	90.5	83.2-120		%REC	283608	1	08/15/2019 14:54	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	20		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
2-Methylnaphthalene	BRL	20		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Acenaphthene	BRL	20		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Acenaphthylene	41	39		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Anthracene	39	2.0		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Benz(a)anthracene	120	2.0		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Benzo(a)pyrene	120	2.0		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Benzo(b)fluoranthene	180	3.9		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Benzo(g,h,i)perylene	72	3.9		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Benzo(k)fluoranthene	61	2.0		ug/Kg-dry	283297	1	08/13/2019 02:53	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-15
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:10:00 PM
Lab ID:	1908589-022	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	130	2.0		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Dibenz(a,h)anthracene	21	3.9		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Fluoranthene	230	3.9		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Fluorene	10	3.9		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Indeno(1,2,3-cd)pyrene	65	2.0		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Naphthalene	BRL	20		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Phenanthrene	150	2.0		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Pyrene	220	2.0		ug/Kg-dry	283297	1	08/13/2019 02:53	YH
Surr: 4-Terphenyl-d14	94.8	51.2-127		%REC	283297	1	08/13/2019 02:53	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	44900	228		mg/Kg-dry	283235	100	08/13/2019 20:15	JW
Antimony	BRL	1.14		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Arsenic	5.51	0.63		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Barium	82.2	2.84		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Beryllium	1.14	0.57		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Cadmium	BRL	0.57		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Calcium	1340	28.4		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Chromium	17.0	1.14		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Cobalt	8.09	0.85		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Copper	8.33	1.14		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Iron	22800	28.4		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Lead	17.8	0.57		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Magnesium	627	28.4		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Manganese	500	1.14		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Nickel	8.84	1.14		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Potassium	815	28.4		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Selenium	BRL	2.84		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Silver	BRL	0.28		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Sodium	BRL	56.9		mg/Kg-dry	283235	5	08/13/2019 21:06	JW
Thallium	BRL	0.74		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Vanadium	40.2	1.14		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
Zinc	79.0	2.84		mg/Kg-dry	283235	10	08/12/2019 21:49	JW
PERCENT MOISTURE D2216								
Percent Moisture	14.4	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-03
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:15:00 PM
Lab ID:	1908589-023	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	0.127	0.122		mg/Kg-dry	283505	1	08/14/2019 13:08	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4,5-Trichlorophenol	BRL	2100		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4,6-Trichlorophenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4-Dichlorophenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4-Dimethylphenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4-Dinitrophenol	BRL	2100		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,4-Dinitrotoluene	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2,6-Dinitrotoluene	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Chloronaphthalene	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Chlorophenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Methylphenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Nitroaniline	BRL	2100		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
2-Nitrophenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
3,3´-Dichlorobenzidine	BRL	820		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
3-Nitroaniline	BRL	2100		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4,6-Dinitro-2-methylphenol	BRL	2100		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Bromophenyl phenyl ether	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Chloro-3-methylphenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Chloroaniline	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Chlorophenyl phenyl ether	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Methylphenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Nitroaniline	BRL	2100		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
4-Nitrophenol	BRL	2100		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Acetophenone	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Atrazine	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Benzaldehyde	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Bis(2-chloroethoxy)methane	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Bis(2-chloroethyl)ether	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Bis(2-chloroisopropyl)ether	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Bis(2-ethylhexyl)phthalate	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Butyl benzyl phthalate	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Caprolactam	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Carbazole	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Di-n-butyl phthalate	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Di-n-octyl phthalate	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Dibenzofuran	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Diethyl phthalate	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Dimethyl phthalate	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-03
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:15:00 PM
Lab ID:	1908589-023	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Hexachlorobutadiene	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Hexachlorocyclopentadiene	BRL	800		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Hexachloroethane	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Isophorone	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
N-Nitrosodi-n-propylamine	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
N-Nitrosodiphenylamine	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Nitrobenzene	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Pentachlorophenol	BRL	2100		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Phenol	BRL	400		ug/Kg-dry	283298	1	08/13/2019 12:41	YH
Surr: 2,4,6-Tribromophenol	79.4	45.6-120		%REC	283298	1	08/13/2019 12:41	YH
Surr: 2-Fluorobiphenyl	65.4	51.4-120		%REC	283298	1	08/13/2019 12:41	YH
Surr: 2-Fluorophenol	61.4	40.9-120		%REC	283298	1	08/13/2019 12:41	YH
Surr: 4-Terphenyl-d14	66.8	52.2-129		%REC	283298	1	08/13/2019 12:41	YH
Surr: Nitrobenzene-d5	65.1	40-120		%REC	283298	1	08/13/2019 12:41	YH
Surr: Phenol-d5	61	45-120		%REC	283298	1	08/13/2019 12:41	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	21		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
2-Methylnaphthalene	BRL	21		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Acenaphthene	57	21		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Acenaphthylene	59	40		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Anthracene	190	2.1		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Benz(a)anthracene	500	210		ug/Kg-dry	283297	100	08/13/2019 16:37	YH
Benzo(a)pyrene	450	210		ug/Kg-dry	283297	100	08/13/2019 16:37	YH
Benzo(b)fluoranthene	580	400		ug/Kg-dry	283297	100	08/13/2019 16:37	YH
Benzo(g,h,i)perylene	240	4.0		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Benzo(k)fluoranthene	180	2.1		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Chrysene	540	210		ug/Kg-dry	283297	100	08/13/2019 16:37	YH
Dibenz(a,h)anthracene	71	4.0		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Fluoranthene	1000	400		ug/Kg-dry	283297	100	08/13/2019 16:37	YH
Fluorene	94	4.0		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Indeno(1,2,3-cd)pyrene	230	2.1		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Naphthalene	33	21		ug/Kg-dry	283297	1	08/13/2019 03:21	YH
Phenanthrene	920	210		ug/Kg-dry	283297	100	08/13/2019 16:37	YH
Pyrene	1100	210		ug/Kg-dry	283297	100	08/13/2019 16:37	YH
Surr: 4-Terphenyl-d14	93.7	51.2-127		%REC	283297	1	08/13/2019 03:21	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	42900	200		mg/Kg-dry	283235	100	08/13/2019 20:19	JW
Antimony	BRL	1.00		mg/Kg-dry	283235	10	08/12/2019 21:53	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-03
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:15:00 PM
Lab ID:	1908589-023	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	4.59	0.60		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Barium	34.5	2.50		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Beryllium	0.94	0.50		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Cadmium	BRL	0.50		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Calcium	1110	25.0		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Chromium	16.4	1.00		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Cobalt	2.30	0.75		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Copper	6.14	1.00		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Iron	41400	500		mg/Kg-dry	283235	100	08/13/2019 20:19	JW
Lead	10.3	0.50		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Magnesium	1110	25.0		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Manganese	117	1.00		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Nickel	5.30	1.00		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Potassium	1390	25.0		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Selenium	BRL	2.50		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Silver	BRL	0.25		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Sodium	BRL	50.0		mg/Kg-dry	283235	5	08/13/2019 21:09	JW
Thallium	BRL	0.70		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Vanadium	43.4	1.00		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
Zinc	25.3	2.50		mg/Kg-dry	283235	10	08/12/2019 21:53	JW
PERCENT MOISTURE D2216								
Percent Moisture	18.0	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-03
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:20:00 PM
Lab ID:	1908589-024	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.131		mg/Kg-dry	283505	1	08/14/2019 13:16	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2,4,5-Trichlorophenol	BRL	2200		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2,4,6-Trichlorophenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2,4-Dichlorophenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2,4-Dimethylphenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2,4-Dinitrophenol	BRL	2200		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2,4-Dinitrotoluene	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2,6-Dinitrotoluene	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2-Chloronaphthalene	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2-Chlorophenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2-Methylphenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2-Nitroaniline	BRL	2200		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
2-Nitrophenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
3,3´-Dichlorobenzidine	BRL	880		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
3-Nitroaniline	BRL	2200		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
4,6-Dinitro-2-methylphenol	BRL	2200		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
4-Bromophenyl phenyl ether	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
4-Chloro-3-methylphenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
4-Chloroaniline	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
4-Chlorophenyl phenyl ether	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
4-Methylphenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
4-Nitroaniline	BRL	2200		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
4-Nitrophenol	BRL	2200		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Acetophenone	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Atrazine	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Benzaldehyde	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Bis(2-chloroethoxy)methane	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Bis(2-chloroethyl)ether	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Bis(2-chloroisopropyl)ether	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Bis(2-ethylhexyl)phthalate	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Butyl benzyl phthalate	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Caprolactam	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Carbazole	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Di-n-butyl phthalate	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Di-n-octyl phthalate	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Dibenzofuran	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Diethyl phthalate	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Dimethyl phthalate	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-03
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:20:00 PM
Lab ID:	1908589-024	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Hexachlorobutadiene	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Hexachlorocyclopentadiene	BRL	860		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Hexachloroethane	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Isophorone	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
N-Nitrosodi-n-propylamine	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
N-Nitrosodiphenylamine	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Nitrobenzene	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Pentachlorophenol	BRL	2200		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Phenol	BRL	430		ug/Kg-dry	283298	1	08/13/2019 15:19	YH
Surr: 2,4,6-Tribromophenol	86.8	45.6-120		%REC	283298	1	08/13/2019 15:19	YH
Surr: 2-Fluorobiphenyl	89.3	51.4-120		%REC	283298	1	08/13/2019 15:19	YH
Surr: 2-Fluorophenol	76.8	40.9-120		%REC	283298	1	08/13/2019 15:19	YH
Surr: 4-Terphenyl-d14	88.3	52.2-129		%REC	283298	1	08/13/2019 15:19	YH
Surr: Nitrobenzene-d5	71.3	40-120		%REC	283298	1	08/13/2019 15:19	YH
Surr: Phenol-d5	80.8	45-120		%REC	283298	1	08/13/2019 15:19	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,1,2,2-Tetrachloroethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,1,2-Trichloroethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,1-Dichloroethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,1-Dichloroethene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,2,4-Trichlorobenzene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,2-Dibromo-3-chloropropane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,2-Dibromoethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,2-Dichlorobenzene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,2-Dichloroethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,2-Dichloropropane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,3-Dichlorobenzene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
1,4-Dichlorobenzene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
2-Butanone	BRL	56		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
2-Hexanone	BRL	11		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
4-Methyl-2-pentanone	BRL	11		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Acetone	BRL	110		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Benzene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Bromodichloromethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Bromoform	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Bromomethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Carbon disulfide	BRL	11		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Carbon tetrachloride	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-03
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:20:00 PM
Lab ID:	1908589-024	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Chloroethane	BRL	11		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Chloroform	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Chloromethane	BRL	11		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
cis-1,2-Dichloroethene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
cis-1,3-Dichloropropene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Cyclohexane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Dibromochloromethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Dichlorodifluoromethane	BRL	11		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Ethylbenzene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Freon-113	BRL	11		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Isopropylbenzene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
m,p-Xylene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Methyl acetate	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Methyl tert-butyl ether	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Methylcyclohexane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Methylene chloride	BRL	22		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
o-Xylene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Styrene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Tetrachloroethene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Toluene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
trans-1,2-Dichloroethene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
trans-1,3-Dichloropropene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Trichloroethene	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Trichlorofluoromethane	BRL	5.6		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Vinyl chloride	BRL	11		ug/Kg-dry	283608	1	08/15/2019 03:33	AR
Surr: 4-Bromofluorobenzene	79.1	65.1-125		%REC	283608	1	08/15/2019 03:33	AR
Surr: Dibromofluoromethane	114	77.7-123		%REC	283608	1	08/15/2019 03:33	AR
Surr: Toluene-d8	93.9	83.2-120		%REC	283608	1	08/15/2019 03:33	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	570	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
2-Methylnaphthalene	630	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Acenaphthene	1800	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Acenaphthylene	530	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Anthracene	4600	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Benz(a)anthracene	6900	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Benzo(a)pyrene	6000	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Benzo(b)fluoranthene	7200	430		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Benzo(g,h,i)perylene	3700	430		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Benzo(k)fluoranthene	3100	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-03
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:20:00 PM
Lab ID:	1908589-024	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	7500	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Dibenz(a,h)anthracene	560	430		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Fluoranthene	18000	430		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Fluorene	2800	430		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Indeno(1,2,3-cd)pyrene	3100	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Naphthalene	1400	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Phenanthrene	22000	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Pyrene	17000	220		ug/Kg-dry	283297	100	08/13/2019 17:02	YH
Surr: 4-Terphenyl-d14	126	51.2-127		%REC	283297	1	08/13/2019 03:48	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	45000	156		mg/Kg-dry	283235	100	08/13/2019 20:33	JW
Antimony	BRL	0.78		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Arsenic	4.27	0.47		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Barium	27.3	1.95		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Beryllium	0.81	0.39		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Cadmium	BRL	0.39		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Calcium	418	19.5		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Chromium	10.6	0.78		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Cobalt	2.00	0.58		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Copper	5.40	0.78		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Iron	41600	389		mg/Kg-dry	283235	100	08/13/2019 20:33	JW
Lead	10.9	0.39		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Magnesium	1730	19.5		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Manganese	193	0.78		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Nickel	3.91	0.78		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Potassium	2380	19.5		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Selenium	BRL	1.95		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Silver	BRL	0.20		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Sodium	40.6	38.9		mg/Kg-dry	283235	5	08/13/2019 21:13	JW
Thallium	0.57	0.55		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Vanadium	34.2	0.78		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
Zinc	36.0	2.26		mg/Kg-dry	283235	10	08/12/2019 21:56	JW
PERCENT MOISTURE D2216								
Percent Moisture	23.5	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-16
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:35:00 PM
Lab ID:	1908589-025	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	0.123	0.105		mg/Kg-dry	283505	1	08/14/2019 13:24	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2,4,5-Trichlorophenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2,4,6-Trichlorophenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2,4-Dichlorophenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2,4-Dimethylphenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2,4-Dinitrophenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2,4-Dinitrotoluene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2,6-Dinitrotoluene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2-Chloronaphthalene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2-Chlorophenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2-Methylphenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2-Nitroaniline	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
2-Nitrophenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
3,3´-Dichlorobenzidine	BRL	700		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
3-Nitroaniline	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
4,6-Dinitro-2-methylphenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
4-Bromophenyl phenyl ether	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
4-Chloro-3-methylphenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
4-Chloroaniline	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
4-Chlorophenyl phenyl ether	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
4-Methylphenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
4-Nitroaniline	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
4-Nitrophenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Acetophenone	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Atrazine	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Benzaldehyde	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Bis(2-chloroethoxy)methane	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Bis(2-chloroethyl)ether	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Bis(2-chloroisopropyl)ether	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Bis(2-ethylhexyl)phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Butyl benzyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Caprolactam	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Carbazole	1900	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Di-n-butyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Di-n-octyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Dibenzofuran	810	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Diethyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Dimethyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-16
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:35:00 PM
Lab ID:	1908589-025	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Hexachlorobutadiene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Hexachlorocyclopentadiene	BRL	690		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Hexachloroethane	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Isophorone	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
N-Nitrosodi-n-propylamine	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
N-Nitrosodiphenylamine	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Nitrobenzene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Pentachlorophenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Phenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 15:44	YH
Surr: 2,4,6-Tribromophenol	63.6	45.6-120		%REC	283298	1	08/13/2019 15:44	YH
Surr: 2-Fluorobiphenyl	72.5	51.4-120		%REC	283298	1	08/13/2019 15:44	YH
Surr: 2-Fluorophenol	64.1	40.9-120		%REC	283298	1	08/13/2019 15:44	YH
Surr: 4-Terphenyl-d14	67.3	52.2-129		%REC	283298	1	08/13/2019 15:44	YH
Surr: Nitrobenzene-d5	59.8	40-120		%REC	283298	1	08/13/2019 15:44	YH
Surr: Phenol-d5	66.1	45-120		%REC	283298	1	08/13/2019 15:44	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,1,2,2-Tetrachloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,1,2-Trichloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,1-Dichloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,1-Dichloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,2,4-Trichlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,2-Dibromo-3-chloropropane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,2-Dibromoethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,2-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,2-Dichloroethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,2-Dichloropropane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,3-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
1,4-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
2-Butanone	BRL	48		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
2-Hexanone	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
4-Methyl-2-pentanone	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Acetone	160	97		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Benzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Bromodichloromethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Bromoform	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Bromomethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Carbon disulfide	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Carbon tetrachloride	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-16
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:35:00 PM
Lab ID:	1908589-025	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Chloroethane	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Chloroform	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Chloromethane	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
cis-1,2-Dichloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
cis-1,3-Dichloropropene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Cyclohexane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Dibromochloromethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Dichlorodifluoromethane	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Ethylbenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Freon-113	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Isopropylbenzene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
m,p-Xylene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Methyl acetate	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Methyl tert-butyl ether	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Methylcyclohexane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Methylene chloride	BRL	19		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
o-Xylene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Styrene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Tetrachloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Toluene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
trans-1,2-Dichloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
trans-1,3-Dichloropropene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Trichloroethene	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Trichlorofluoromethane	BRL	4.8		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Vinyl chloride	BRL	9.7		ug/Kg-dry	283608	1	08/15/2019 03:58	AR
Surr: 4-Bromofluorobenzene	77.2	65.1-125		%REC	283608	1	08/15/2019 03:58	AR
Surr: Dibromofluoromethane	103	77.7-123		%REC	283608	1	08/15/2019 03:58	AR
Surr: Toluene-d8	89.8	83.2-120		%REC	283608	1	08/15/2019 03:58	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	1200	180		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
2-Methylnaphthalene	980	180		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
Acenaphthene	2300	180		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
Acenaphthylene	1300	180		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
Anthracene	8700	180		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
Benz(a)anthracene	64000	1800		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH
Benzo(a)pyrene	57000	1800		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH
Benzo(b)fluoranthene	71000	3500		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH
Benzo(g,h,i)perylene	44000	3500		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH
Benzo(k)fluoranthene	35000	1800		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-16
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:35:00 PM
Lab ID:	1908589-025	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	81000	1800		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH
Dibenz(a,h)anthracene	8100	350		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
Fluoranthene	120000	3500		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH
Fluorene	1800	350		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
Indeno(1,2,3-cd)pyrene	30000	180		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
Naphthalene	1100	180		ug/Kg-dry	283297	100	08/13/2019 15:44	YH
Phenanthrene	54000	1800		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH
Pyrene	150000	1800		ug/Kg-dry	283297	1000	08/14/2019 10:46	YH
Surr: 4-Terphenyl-d14	101	51.2-127		%REC	283297	1	08/13/2019 04:15	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	3130	7.95		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Antimony	5.19	0.80		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Arsenic	31.2	0.48		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Barium	174	1.99		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Beryllium	1.07	0.40		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Cadmium	0.86	0.40		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Calcium	2670	19.9		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Chromium	292	0.80		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Cobalt	3.03	0.60		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Copper	37.1	0.80		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Iron	9010	19.9		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Lead	464	0.40		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Magnesium	767	19.9		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Manganese	227	0.80		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Nickel	5.40	0.80		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Potassium	611	19.9		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Selenium	BRL	1.99		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Silver	BRL	0.20		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Sodium	56.6	39.7		mg/Kg-dry	283235	5	08/13/2019 21:17	JW
Thallium	BRL	0.56		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Vanadium	9.42	0.80		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
Zinc	184	1.99		mg/Kg-dry	283235	10	08/12/2019 22:03	JW
PERCENT MOISTURE D2216								
Percent Moisture	4.91	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-16
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:40:00 PM
Lab ID:	1908589-026	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473					**(SW7473)**			
Mercury	BRL	0.115		mg/Kg-dry	283505	1	08/14/2019 13:32	EH
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3550C)**			
1,1´-Biphenyl	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2,4,5-Trichlorophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2,4,6-Trichlorophenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2,4-Dichlorophenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2,4-Dimethylphenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2,4-Dinitrophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2,4-Dinitrotoluene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2,6-Dinitrotoluene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2-Chloronaphthalene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2-Chlorophenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2-Methylphenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
2-Nitrophenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
3,3´-Dichlorobenzidine	BRL	770		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
3-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
4,6-Dinitro-2-methylphenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
4-Bromophenyl phenyl ether	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
4-Chloro-3-methylphenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
4-Chloroaniline	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
4-Chlorophenyl phenyl ether	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
4-Methylphenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
4-Nitroaniline	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
4-Nitrophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Acetophenone	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Atrazine	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Benzaldehyde	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Bis(2-chloroethoxy)methane	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Bis(2-chloroethyl)ether	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Bis(2-chloroisopropyl)ether	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Bis(2-ethylhexyl)phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Butyl benzyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Caprolactam	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Carbazole	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Di-n-butyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Di-n-octyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Dibenzofuran	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Diethyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Dimethyl phthalate	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-16
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:40:00 PM
Lab ID:	1908589-026	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Hexachlorobutadiene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Hexachlorocyclopentadiene	BRL	760		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Hexachloroethane	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Isophorone	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
N-Nitrosodi-n-propylamine	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
N-Nitrosodiphenylamine	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Nitrobenzene	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Pentachlorophenol	BRL	2000		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Phenol	BRL	380		ug/Kg-dry	283298	1	08/13/2019 16:11	YH
Surr: 2,4,6-Tribromophenol	84.1	45.6-120		%REC	283298	1	08/13/2019 16:11	YH
Surr: 2-Fluorobiphenyl	84.7	51.4-120		%REC	283298	1	08/13/2019 16:11	YH
Surr: 2-Fluorophenol	77.5	40.9-120		%REC	283298	1	08/13/2019 16:11	YH
Surr: 4-Terphenyl-d14	82	52.2-129		%REC	283298	1	08/13/2019 16:11	YH
Surr: Nitrobenzene-d5	71.3	40-120		%REC	283298	1	08/13/2019 16:11	YH
Surr: Phenol-d5	77.6	45-120		%REC	283298	1	08/13/2019 16:11	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,1,2,2-Tetrachloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,1,2-Trichloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,1-Dichloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,1-Dichloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,2,4-Trichlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,2-Dibromo-3-chloropropane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,2-Dibromoethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,2-Dichlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,2-Dichloroethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,2-Dichloropropane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,3-Dichlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
1,4-Dichlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
2-Butanone	BRL	43		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
2-Hexanone	BRL	8.5		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
4-Methyl-2-pentanone	BRL	8.5		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Acetone	190	85		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Benzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Bromodichloromethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Bromoform	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Bromomethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Carbon disulfide	BRL	8.5		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Carbon tetrachloride	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-16
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:40:00 PM
Lab ID:	1908589-026	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Chloroethane	BRL	8.5		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Chloroform	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Chloromethane	BRL	8.5		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
cis-1,2-Dichloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
cis-1,3-Dichloropropene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Cyclohexane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Dibromochloromethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Dichlorodifluoromethane	BRL	8.5		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Ethylbenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Freon-113	BRL	8.5		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Isopropylbenzene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
m,p-Xylene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Methyl acetate	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Methyl tert-butyl ether	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Methylcyclohexane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Methylene chloride	BRL	17		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
o-Xylene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Styrene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Tetrachloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Toluene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
trans-1,2-Dichloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
trans-1,3-Dichloropropene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Trichloroethene	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Trichlorofluoromethane	BRL	4.3		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Vinyl chloride	BRL	8.5		ug/Kg-dry	283608	1	08/15/2019 04:22	AR
Surr: 4-Bromofluorobenzene	78.7	65.1-125		%REC	283608	1	08/15/2019 04:22	AR
Surr: Dibromofluoromethane	112	77.7-123		%REC	283608	1	08/15/2019 04:22	AR
Surr: Toluene-d8	90.2	83.2-120		%REC	283608	1	08/15/2019 04:22	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	41	20		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
2-Methylnaphthalene	40	20		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
Acenaphthene	55	20		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
Acenaphthylene	42	38		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
Anthracene	190	2.0		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
Benz(a)anthracene	1100	200		ug/Kg-dry	283297	100	08/13/2019 17:27	YH
Benzo(a)pyrene	1000	200		ug/Kg-dry	283297	100	08/13/2019 17:27	YH
Benzo(b)fluoranthene	1400	380		ug/Kg-dry	283297	100	08/13/2019 17:27	YH
Benzo(g,h,i)perylene	900	380		ug/Kg-dry	283297	100	08/13/2019 17:27	YH
Benzo(k)fluoranthene	320	2.0		ug/Kg-dry	283297	1	08/13/2019 04:42	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-16
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:40:00 PM
Lab ID:	1908589-026	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	1400	200		ug/Kg-dry	283297	100	08/13/2019 17:27	YH
Dibenz(a,h)anthracene	100	3.8		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
Fluoranthene	2200	380		ug/Kg-dry	283297	100	08/13/2019 17:27	YH
Fluorene	47	3.8		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
Indeno(1,2,3-cd)pyrene	57	2.0		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
Naphthalene	28	20		ug/Kg-dry	283297	1	08/13/2019 04:42	YH
Phenanthrene	1500	200		ug/Kg-dry	283297	100	08/13/2019 17:27	YH
Pyrene	2900	200		ug/Kg-dry	283297	100	08/13/2019 17:27	YH
Surr: 4-Terphenyl-d14	93.4	51.2-127		%REC	283297	1	08/13/2019 04:42	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	13300	9.30		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Antimony	BRL	0.93		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Arsenic	8.41	0.56		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Barium	58.7	2.33		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Beryllium	0.78	0.46		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Cadmium	BRL	0.46		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Calcium	1450	23.3		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Chromium	11.3	0.93		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Cobalt	13.8	0.70		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Copper	13.5	0.93		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Iron	14200	23.3		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Lead	30.0	0.46		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Magnesium	468	23.3		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Manganese	1490	0.93		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Nickel	5.62	0.93		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Potassium	549	23.3		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Selenium	BRL	2.33		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Silver	BRL	0.23		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Sodium	64.8	46.5		mg/Kg-dry	283235	5	08/13/2019 21:20	JW
Thallium	BRL	0.65		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Vanadium	25.1	0.93		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
Zinc	81.5	2.70		mg/Kg-dry	283235	10	08/12/2019 22:00	JW
PERCENT MOISTURE D2216								
Percent Moisture	12.9	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-04
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:45:00 PM
Lab ID:	1908589-027	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473					**(SW7473)**			
Mercury	BRL	0.144		mg/Kg-dry	283505	1	08/14/2019 13:41	EH
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3550C)**			
1,1´-Biphenyl	500	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2,4,5-Trichlorophenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2,4,6-Trichlorophenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2,4-Dichlorophenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2,4-Dimethylphenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2,4-Dinitrophenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2,4-Dinitrotoluene	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2,6-Dinitrotoluene	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2-Chloronaphthalene	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2-Chlorophenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2-Methylphenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2-Nitroaniline	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
2-Nitrophenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
3,3´-Dichlorobenzidine	BRL	970		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
3-Nitroaniline	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
4,6-Dinitro-2-methylphenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
4-Bromophenyl phenyl ether	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
4-Chloro-3-methylphenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
4-Chloroaniline	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
4-Chlorophenyl phenyl ether	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
4-Methylphenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
4-Nitroaniline	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
4-Nitrophenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Acetophenone	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Atrazine	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Benzaldehyde	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Bis(2-chloroethoxy)methane	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Bis(2-chloroethyl)ether	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Bis(2-chloroisopropyl)ether	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Bis(2-ethylhexyl)phthalate	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Butyl benzyl phthalate	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Caprolactam	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Carbazole	2200	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Di-n-butyl phthalate	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Di-n-octyl phthalate	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Dibenzofuran	2400	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Diethyl phthalate	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Dimethyl phthalate	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-04
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:45:00 PM
Lab ID:	1908589-027	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Hexachlorobutadiene	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Hexachlorocyclopentadiene	BRL	950		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Hexachloroethane	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Isophorone	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
N-Nitrosodi-n-propylamine	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
N-Nitrosodiphenylamine	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Nitrobenzene	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Pentachlorophenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Phenol	BRL	480		ug/Kg-dry	283298	1	08/13/2019 16:37	YH
Surr: 2,4,6-Tribromophenol	78.7	45.6-120		%REC	283298	1	08/13/2019 16:37	YH
Surr: 2-Fluorobiphenyl	82.5	51.4-120		%REC	283298	1	08/13/2019 16:37	YH
Surr: 2-Fluorophenol	76.6	40.9-120		%REC	283298	1	08/13/2019 16:37	YH
Surr: 4-Terphenyl-d14	78.9	52.2-129		%REC	283298	1	08/13/2019 16:37	YH
Surr: Nitrobenzene-d5	70	40-120		%REC	283298	1	08/13/2019 16:37	YH
Surr: Phenol-d5	79	45-120		%REC	283298	1	08/13/2019 16:37	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	160	25		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
2-Methylnaphthalene	190	25		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Acenaphthene	51	25		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Acenaphthylene	73	48		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Anthracene	150	2.5		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Benz(a)anthracene	460	250		ug/Kg-dry	283297	100	08/13/2019 17:52	YH
Benzo(a)pyrene	440	250		ug/Kg-dry	283297	100	08/13/2019 17:52	YH
Benzo(b)fluoranthene	610	480		ug/Kg-dry	283297	100	08/13/2019 17:52	YH
Benzo(g,h,i)perylene	270	4.8		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Benzo(k)fluoranthene	210	2.5		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Chrysene	580	250		ug/Kg-dry	283297	100	08/13/2019 17:52	YH
Dibenz(a,h)anthracene	87	4.8		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Fluoranthene	910	480		ug/Kg-dry	283297	100	08/13/2019 17:52	YH
Fluorene	75	4.8		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Indeno(1,2,3-cd)pyrene	250	2.5		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Naphthalene	160	25		ug/Kg-dry	283297	1	08/13/2019 05:08	YH
Phenanthrene	730	250		ug/Kg-dry	283297	100	08/13/2019 17:52	YH
Pyrene	1000	250		ug/Kg-dry	283297	100	08/13/2019 17:52	YH
Surr: 4-Terphenyl-d14	90.5	51.2-127		%REC	283297	1	08/13/2019 05:08	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	4740	7.94		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Antimony	BRL	0.79		mg/Kg-dry	283235	10	08/12/2019 22:07	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-04
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 3:45:00 PM
Lab ID:	1908589-027	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B				**(SW3050B)**				
Arsenic	10.2	0.48		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Barium	77.3	1.98		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Beryllium	1.52	0.40		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Cadmium	1.04	0.40		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Calcium	1930	19.8		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Chromium	7.59	0.79		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Cobalt	4.44	0.60		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Copper	64.6	0.79		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Iron	10100	19.8		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Lead	12.3	0.40		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Magnesium	242	19.8		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Manganese	78.7	0.79		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Nickel	11.7	0.79		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Potassium	232	19.8		mg/Kg-dry	283235	5	08/13/2019 21:24	JW
Selenium	2.29	1.98		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Silver	BRL	0.20		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Sodium	81.2	39.7		mg/Kg-dry	283235	5	08/13/2019 21:24	JW
Thallium	BRL	0.56		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Vanadium	12.2	0.79		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
Zinc	53.7	2.30		mg/Kg-dry	283235	10	08/12/2019 22:07	JW
PERCENT MOISTURE D2216								
Percent Moisture	30.7	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-04
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 4:00:00 PM
Lab ID:	1908589-028	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.107		mg/Kg-dry	283505	1	08/14/2019 13:49	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2,4,5-Trichlorophenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2,4,6-Trichlorophenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2,4-Dichlorophenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2,4-Dimethylphenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2,4-Dinitrophenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2,4-Dinitrotoluene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2,6-Dinitrotoluene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2-Chloronaphthalene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2-Chlorophenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2-Methylphenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2-Nitroaniline	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
2-Nitrophenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
3,3´-Dichlorobenzidine	BRL	720		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
3-Nitroaniline	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
4,6-Dinitro-2-methylphenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
4-Bromophenyl phenyl ether	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
4-Chloro-3-methylphenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
4-Chloroaniline	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
4-Chlorophenyl phenyl ether	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
4-Methylphenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
4-Nitroaniline	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
4-Nitrophenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Acetophenone	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Atrazine	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Benzaldehyde	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Bis(2-chloroethoxy)methane	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Bis(2-chloroethyl)ether	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Bis(2-chloroisopropyl)ether	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Bis(2-ethylhexyl)phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Butyl benzyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Caprolactam	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Carbazole	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Di-n-butyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Di-n-octyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Dibenzofuran	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Diethyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Dimethyl phthalate	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-04
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 4:00:00 PM
Lab ID:	1908589-028	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Hexachlorobutadiene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Hexachlorocyclopentadiene	BRL	710		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Hexachloroethane	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Isophorone	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
N-Nitrosodi-n-propylamine	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
N-Nitrosodiphenylamine	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Nitrobenzene	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Pentachlorophenol	BRL	1800		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Phenol	BRL	350		ug/Kg-dry	283298	1	08/13/2019 17:02	YH
Surr: 2,4,6-Tribromophenol	66.3	45.6-120		%REC	283298	1	08/13/2019 17:02	YH
Surr: 2-Fluorobiphenyl	73.9	51.4-120		%REC	283298	1	08/13/2019 17:02	YH
Surr: 2-Fluorophenol	61	40.9-120		%REC	283298	1	08/13/2019 17:02	YH
Surr: 4-Terphenyl-d14	67	52.2-129		%REC	283298	1	08/13/2019 17:02	YH
Surr: Nitrobenzene-d5	60.9	40-120		%REC	283298	1	08/13/2019 17:02	YH
Surr: Phenol-d5	62.6	45-120		%REC	283298	1	08/13/2019 17:02	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,1,2,2-Tetrachloroethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,1,2-Trichloroethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,1-Dichloroethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,1-Dichloroethene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,2,4-Trichlorobenzene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,2-Dibromo-3-chloropropane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,2-Dibromoethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,2-Dichlorobenzene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,2-Dichloroethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,2-Dichloropropane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,3-Dichlorobenzene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
1,4-Dichlorobenzene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
2-Butanone	BRL	76		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
2-Hexanone	BRL	15		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
4-Methyl-2-pentanone	BRL	15		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Acetone	BRL	150		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Benzene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Bromodichloromethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Bromoform	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Bromomethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Carbon disulfide	BRL	15		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Carbon tetrachloride	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-04
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 4:00:00 PM
Lab ID:	1908589-028	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Chloroethane	BRL	15		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Chloroform	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Chloromethane	BRL	15		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
cis-1,2-Dichloroethene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
cis-1,3-Dichloropropene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Cyclohexane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Dibromochloromethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Dichlorodifluoromethane	BRL	15		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Ethylbenzene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Freon-113	BRL	15		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Isopropylbenzene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
m,p-Xylene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Methyl acetate	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Methyl tert-butyl ether	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Methylcyclohexane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Methylene chloride	BRL	31		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
o-Xylene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Styrene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Tetrachloroethene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Toluene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
trans-1,2-Dichloroethene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
trans-1,3-Dichloropropene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Trichloroethene	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Trichlorofluoromethane	BRL	7.6		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Vinyl chloride	BRL	15		ug/Kg-dry	283668	1	08/15/2019 14:30	AR
Surr: 4-Bromofluorobenzene	62.6	65.1-125	S	%REC	283668	1	08/15/2019 14:30	AR
Surr: Dibromofluoromethane	113	77.7-123		%REC	283668	1	08/15/2019 14:30	AR
Surr: Toluene-d8	88.1	83.2-120		%REC	283668	1	08/15/2019 14:30	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	380	180		ug/Kg-dry	283297	100	08/13/2019 18:18	YH
2-Methylnaphthalene	390	180		ug/Kg-dry	283297	100	08/13/2019 18:18	YH
Acenaphthene	31	18		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Acenaphthylene	BRL	35		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Anthracene	98	1.8		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Benz(a)anthracene	420	180		ug/Kg-dry	283297	100	08/13/2019 18:18	YH
Benzo(a)pyrene	350	1.8		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Benzo(b)fluoranthene	480	350		ug/Kg-dry	283297	100	08/13/2019 18:18	YH
Benzo(g,h,i)perylene	190	3.5		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Benzo(k)fluoranthene	160	1.8		ug/Kg-dry	283297	1	08/13/2019 05:36	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-04
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 4:00:00 PM
Lab ID:	1908589-028	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	510	180		ug/Kg-dry	283297	100	08/13/2019 18:18	YH
Dibenz(a,h)anthracene	66	3.5		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Fluoranthene	730	350		ug/Kg-dry	283297	100	08/13/2019 18:18	YH
Fluorene	37	3.5		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Indeno(1,2,3-cd)pyrene	170	1.8		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Naphthalene	270	18		ug/Kg-dry	283297	1	08/13/2019 05:36	YH
Phenanthrene	690	180		ug/Kg-dry	283297	100	08/13/2019 18:18	YH
Pyrene	800	180		ug/Kg-dry	283297	100	08/13/2019 18:18	YH
Surr: 4-Terphenyl-d14	86.6	51.2-127		%REC	283297	1	08/13/2019 05:36	YH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	3550	7.74		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Antimony	BRL	0.77		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Arsenic	9.01	0.46		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Barium	87.0	1.94		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Beryllium	1.33	0.39		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Cadmium	0.82	0.39		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Calcium	2160	19.4		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Chromium	5.71	0.77		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Cobalt	3.98	0.58		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Copper	76.7	0.77		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Iron	9550	19.4		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Lead	19.1	0.39		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Magnesium	537	19.4		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Manganese	113	0.77		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Nickel	9.90	0.77		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Potassium	468	19.4		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Selenium	BRL	1.94		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Silver	BRL	0.19		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Sodium	110	38.7		mg/Kg-dry	283235	5	08/13/2019 21:27	JW
Thallium	BRL	0.54		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Vanadium	11.5	0.77		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
Zinc	87.8	2.25		mg/Kg-dry	283235	10	08/12/2019 22:10	JW
PERCENT MOISTURE D2216								
Percent Moisture	6.82	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 4:05:00 PM
Lab ID:	1908589-029	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
1,1,1-Trichloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283245	1	08/08/2019 12:59	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
2-Butanone	BRL	10		ug/L	283245	1	08/08/2019 12:59	NP
2-Hexanone	BRL	10		ug/L	283245	1	08/08/2019 12:59	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283245	1	08/08/2019 12:59	NP
Acetone	BRL	20		ug/L	283245	1	08/08/2019 12:59	NP
Benzene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Bromodichloromethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Bromoform	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Bromomethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Carbon disulfide	BRL	5.0		ug/L	283245	1	08/08/2019 12:59	NP
Carbon tetrachloride	BRL	2.0		ug/L	283245	1	08/08/2019 12:59	NP
Chlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Chloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Chloroform	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Chloromethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Cyclohexane	BRL	2.0		ug/L	283245	1	08/08/2019 12:59	NP
Dibromochloromethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Ethylbenzene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Freon-113	BRL	5.0		ug/L	283245	1	08/08/2019 12:59	NP
Isopropylbenzene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
m,p-Xylene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Methyl acetate	BRL	2.0		ug/L	283245	1	08/08/2019 12:59	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Methylcyclohexane	BRL	2.0		ug/L	283245	1	08/08/2019 12:59	NP
Methylene chloride	BRL	5.0		ug/L	283245	1	08/08/2019 12:59	NP
o-Xylene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 4:05:00 PM
Lab ID:	1908589-029	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
Styrene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Tetrachloroethene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Toluene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283245	1	08/08/2019 12:59	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283245	1	08/08/2019 12:59	NP
Trichloroethene	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Vinyl chloride	BRL	1.0		ug/L	283245	1	08/08/2019 12:59	NP
Surr: 4-Bromofluorobenzene	94	70-130		%REC	283245	1	08/08/2019 12:59	NP
Surr: Dibromofluoromethane	97.7	70-130		%REC	283245	1	08/08/2019 12:59	NP
Surr: Toluene-d8	101	70-130		%REC	283245	1	08/08/2019 12:59	NP
Total Metals by ICP/MS SW6020B				**(SW3005A)**				
Aluminum	BRL	50.0		ug/L	283225	1	08/09/2019 17:34	JW
Antimony	BRL	5.00		ug/L	283225	1	08/09/2019 17:34	JW
Arsenic	BRL	5.00		ug/L	283225	1	08/09/2019 17:34	JW
Barium	BRL	10.0		ug/L	283225	1	08/09/2019 17:34	JW
Beryllium	BRL	1.00		ug/L	283225	1	08/09/2019 17:34	JW
Cadmium	BRL	0.700		ug/L	283225	1	08/09/2019 17:34	JW
Calcium	BRL	100		ug/L	283225	1	08/09/2019 17:34	JW
Chromium	BRL	5.00		ug/L	283225	1	08/09/2019 17:34	JW
Cobalt	BRL	5.00		ug/L	283225	1	08/09/2019 17:34	JW
Copper	BRL	2.00		ug/L	283225	1	08/09/2019 17:34	JW
Iron	BRL	100		ug/L	283225	1	08/09/2019 17:34	JW
Lead	BRL	1.00		ug/L	283225	1	08/09/2019 17:34	JW
Magnesium	BRL	100		ug/L	283225	1	08/09/2019 17:34	JW
Manganese	BRL	5.00		ug/L	283225	1	08/09/2019 17:34	JW
Nickel	BRL	5.00		ug/L	283225	1	08/09/2019 17:34	JW
Potassium	BRL	100		ug/L	283225	1	08/09/2019 17:34	JW
Selenium	BRL	5.00		ug/L	283225	1	08/09/2019 17:34	JW
Silver	BRL	1.00		ug/L	283225	1	08/09/2019 17:34	JW
Sodium	BRL	500		ug/L	283225	1	08/09/2019 17:34	JW
Thallium	BRL	1.00		ug/L	283225	1	08/09/2019 17:34	JW
Vanadium	BRL	5.00		ug/L	283225	1	08/09/2019 17:34	JW
Zinc	BRL	10.0		ug/L	283225	1	08/09/2019 17:34	JW
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
1,1´-Biphenyl	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283373	1	08/14/2019 16:04	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2,4-Dichlorophenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 4:05:00 PM
Lab ID:	1908589-029	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3520)**			
2,4-Dimethylphenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2,4-Dinitrophenol	BRL	25		ug/L	283373	1	08/14/2019 16:04	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2-Chloronaphthalene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2-Chlorophenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2-Methylnaphthalene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2-Methylphenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
2-Nitroaniline	BRL	25		ug/L	283373	1	08/14/2019 16:04	YH
2-Nitrophenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
3-Nitroaniline	BRL	25		ug/L	283373	1	08/14/2019 16:04	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283373	1	08/14/2019 16:04	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
4-Chloroaniline	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
4-Methylphenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
4-Nitroaniline	BRL	25		ug/L	283373	1	08/14/2019 16:04	YH
4-Nitrophenol	BRL	25		ug/L	283373	1	08/14/2019 16:04	YH
Acenaphthene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Acenaphthylene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Acetophenone	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Anthracene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Atrazine	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Benz(a)anthracene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Benzaldehyde	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Benzo(a)pyrene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Benzo(b)fluoranthene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Benzo(g,h,i)perylene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Benzo(k)fluoranthene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Butyl benzyl phthalate	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Caprolactam	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Carbazole	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Chrysene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Di-n-butyl phthalate	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Di-n-octyl phthalate	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019 4:05:00 PM
Lab ID:	1908589-029	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Dibenz(a,h)anthracene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Dibenzofuran	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Diethyl phthalate	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Dimethyl phthalate	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Fluoranthene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Fluorene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Hexachlorobenzene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Hexachlorobutadiene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Hexachlorocyclopentadiene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Hexachloroethane	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Indeno(1,2,3-cd)pyrene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Isophorone	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Naphthalene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Nitrobenzene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Pentachlorophenol	BRL	25		ug/L	283373	1	08/14/2019 16:04	YH
Phenanthrene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Phenol	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Pyrene	BRL	10		ug/L	283373	1	08/14/2019 16:04	YH
Surr: 2,4,6-Tribromophenol	88.9	47-127		%REC	283373	1	08/14/2019 16:04	YH
Surr: 2-Fluorobiphenyl	74.4	47.4-119		%REC	283373	1	08/14/2019 16:04	YH
Surr: 2-Fluorophenol	41.6	26.2-120		%REC	283373	1	08/14/2019 16:04	YH
Surr: 4-Terphenyl-d14	76.2	45-133		%REC	283373	1	08/14/2019 16:04	YH
Surr: Nitrobenzene-d5	76.2	41.9-121		%REC	283373	1	08/14/2019 16:04	YH
Surr: Phenol-d5	59.2	17.8-120		%REC	283373	1	08/14/2019 16:04	YH
Mercury, Total SW7470A				**(SW7470A)**				
Mercury	BRL	0.00020		mg/L	283305	1	08/09/2019 22:22	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 9:55:00 AM
Lab ID:	1908589-030	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.187		mg/Kg-dry	283505	1	08/14/2019 12:14	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2,4,5-Trichlorophenol	BRL	3200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2,4,6-Trichlorophenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2,4-Dichlorophenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2,4-Dimethylphenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2,4-Dinitrophenol	BRL	3200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2,4-Dinitrotoluene	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2,6-Dinitrotoluene	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2-Chloronaphthalene	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2-Chlorophenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2-Methylphenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2-Nitroaniline	BRL	3200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
2-Nitrophenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
3,3´-Dichlorobenzidine	BRL	1300		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
3-Nitroaniline	BRL	3200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
4,6-Dinitro-2-methylphenol	BRL	3200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
4-Bromophenyl phenyl ether	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
4-Chloro-3-methylphenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
4-Chloroaniline	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
4-Chlorophenyl phenyl ether	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
4-Methylphenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
4-Nitroaniline	BRL	3200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
4-Nitrophenol	BRL	3200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Acetophenone	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Atrazine	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Benzaldehyde	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Bis(2-chloroethoxy)methane	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Bis(2-chloroethyl)ether	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Bis(2-chloroisopropyl)ether	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Bis(2-ethylhexyl)phthalate	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Butyl benzyl phthalate	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Caprolactam	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Carbazole	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Di-n-butyl phthalate	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Di-n-octyl phthalate	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Dibenzofuran	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Diethyl phthalate	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Dimethyl phthalate	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 9:55:00 AM
Lab ID:	1908589-030	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Hexachlorobutadiene	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Hexachlorocyclopentadiene	BRL	1200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Hexachloroethane	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Isophorone	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
N-Nitrosodi-n-propylamine	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
N-Nitrosodiphenylamine	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Nitrobenzene	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Pentachlorophenol	BRL	3200		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Phenol	BRL	620		ug/Kg-dry	283298	1	08/13/2019 14:08	YH
Surr: 2,4,6-Tribromophenol	78	45.6-120		%REC	283298	1	08/13/2019 14:08	YH
Surr: 2-Fluorobiphenyl	61.2	51.4-120		%REC	283298	1	08/13/2019 14:08	YH
Surr: 2-Fluorophenol	55.8	40.9-120		%REC	283298	1	08/13/2019 14:08	YH
Surr: 4-Terphenyl-d14	64.4	52.2-129		%REC	283298	1	08/13/2019 14:08	YH
Surr: Nitrobenzene-d5	59.4	40-120		%REC	283298	1	08/13/2019 14:08	YH
Surr: Phenol-d5	56.8	45-120		%REC	283298	1	08/13/2019 14:08	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	32		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
2-Methylnaphthalene	BRL	32		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Acenaphthene	BRL	32		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Acenaphthylene	BRL	62		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Anthracene	30	3.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Benz(a)anthracene	130	3.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Benzo(a)pyrene	140	3.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Benzo(b)fluoranthene	190	6.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Benzo(g,h,i)perylene	85	6.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Benzo(k)fluoranthene	68	3.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Chrysene	140	3.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Dibenz(a,h)anthracene	26	6.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Fluoranthene	240	6.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Fluorene	10	6.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Indeno(1,2,3-cd)pyrene	14	3.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Naphthalene	BRL	32		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Phenanthrene	100	3.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Pyrene	220	3.2		ug/Kg-dry	283297	1	08/13/2019 06:02	YH
Surr: 4-Terphenyl-d14	82.7	51.2-127		%REC	283297	1	08/13/2019 06:02	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1016	BRL	62		ug/Kg-dry	283426	1	08/13/2019 22:51	SH
Aroclor 1221	BRL	62		ug/Kg-dry	283426	1	08/13/2019 22:51	SH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 9:55:00 AM
Lab ID:	1908589-030	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1232	BRL	62		ug/Kg-dry	283426	1	08/13/2019 22:51	SH
Aroclor 1242	BRL	62		ug/Kg-dry	283426	1	08/13/2019 22:51	SH
Aroclor 1248	BRL	62		ug/Kg-dry	283426	1	08/13/2019 22:51	SH
Aroclor 1254	BRL	62		ug/Kg-dry	283426	1	08/13/2019 22:51	SH
Aroclor 1260	BRL	62		ug/Kg-dry	283426	1	08/13/2019 22:51	SH
Surr: Decachlorobiphenyl	93.6	45.7-140		%REC	283426	1	08/13/2019 22:51	SH
Surr: Tetrachloro-m-xylene	81.9	45.3-126		%REC	283426	1	08/13/2019 22:51	SH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	31100	13.4		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Antimony	BRL	1.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Arsenic	2.97	0.67		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Barium	134	3.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Beryllium	2.34	0.67		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Cadmium	BRL	0.67		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Calcium	713	33.4		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Chromium	12.7	1.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Cobalt	4.57	1.00		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Copper	61.7	1.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Iron	31400	33.4		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Lead	17.5	0.67		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Magnesium	5090	33.4		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Manganese	530	1.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Nickel	7.68	1.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Potassium	6950	33.4		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Selenium	5.01	3.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Silver	BRL	0.33		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Sodium	145	66.9		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Thallium	1.11	0.74		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Vanadium	27.0	1.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Zinc	99.1	3.34		mg/Kg-dry	283235	10	08/12/2019 22:14	JW
Cyanide, Total SW9014				**(SW9010C)**				
Cyanide, Total	BRL	1.85		mg/Kg-dry	283484	1	08/13/2019 12:45	AT
CHLORINATED PESTICIDES, TCL SW8081B				**(SW3550C)**				
4,4´-DDD	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
4,4´-DDE	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
4,4´-DDT	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Aldrin	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
alpha-BHC	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 9:55:00 AM
Lab ID:	1908589-030	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
CHLORINATED PESTICIDES, TCL SW8081B					**(SW3550C)**			
alpha-Chlordane	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
beta-BHC	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
delta-BHC	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Dieldrin	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Endosulfan I	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Endosulfan II	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Endosulfan sulfate	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Endrin	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Endrin aldehyde	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Endrin ketone	BRL	9.8		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
gamma-BHC	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
gamma-Chlordane	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Heptachlor	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Heptachlor epoxide	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Methoxychlor	BRL	49		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Toxaphene	BRL	490		ug/Kg-dry	283427	1	08/15/2019 19:42	HB
Surr: Decachlorobiphenyl	77.4	44.5-124		%REC	283427	1	08/15/2019 19:42	HB
Surr: Tetrachloro-m-xylene	63.3	45.1-120		%REC	283427	1	08/15/2019 19:42	HB
PERCENT MOISTURE D2216								
Percent Moisture	46.6	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:00:00 AM
Lab ID:	1908589-031	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473				**(SW7473)**				
Mercury	BRL	0.113		mg/Kg-dry	283505	1	08/14/2019 12:43	EH
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
1,1´-Biphenyl	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2,4,6-Trichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2,4-Dichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2,4-Dimethylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2,4-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2,6-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2-Chloronaphthalene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2-Chlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
2-Nitrophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
3,3´-Dichlorobenzidine	BRL	760		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
4-Bromophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
4-Chloro-3-methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
4-Chloroaniline	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
4-Chlorophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
4-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Acetophenone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Atrazine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Benzaldehyde	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Bis(2-chloroethoxy)methane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Bis(2-chloroethyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Bis(2-chloroisopropyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Bis(2-ethylhexyl)phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Butyl benzyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Caprolactam	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Carbazole	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Di-n-butyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Di-n-octyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Dibenzofuran	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Diethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Dimethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
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N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:00:00 AM
Lab ID:	1908589-031	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Hexachlorobutadiene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Hexachlorocyclopentadiene	BRL	750		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Hexachloroethane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Isophorone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
N-Nitrosodi-n-propylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
N-Nitrosodiphenylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Nitrobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Phenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 14:35	YH
Surr: 2,4,6-Tribromophenol	92.6	45.6-120		%REC	283298	1	08/13/2019 14:35	YH
Surr: 2-Fluorobiphenyl	75.5	51.4-120		%REC	283298	1	08/13/2019 14:35	YH
Surr: 2-Fluorophenol	70.2	40.9-120		%REC	283298	1	08/13/2019 14:35	YH
Surr: 4-Terphenyl-d14	82.7	52.2-129		%REC	283298	1	08/13/2019 14:35	YH
Surr: Nitrobenzene-d5	77.3	40-120		%REC	283298	1	08/13/2019 14:35	YH
Surr: Phenol-d5	69.7	45-120		%REC	283298	1	08/13/2019 14:35	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,1,2,2-Tetrachloroethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,1,2-Trichloroethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,1-Dichloroethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,1-Dichloroethene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,2,4-Trichlorobenzene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,2-Dibromo-3-chloropropane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,2-Dibromoethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,2-Dichlorobenzene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,2-Dichloroethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,2-Dichloropropane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,3-Dichlorobenzene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
1,4-Dichlorobenzene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
2-Butanone	BRL	45		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
2-Hexanone	BRL	8.9		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
4-Methyl-2-pentanone	BRL	8.9		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Acetone	BRL	89		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Benzene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Bromodichloromethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Bromoform	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Bromomethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Carbon disulfide	BRL	8.9		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Carbon tetrachloride	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:00:00 AM
Lab ID:	1908589-031	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Chloroethane	BRL	8.9		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Chloroform	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Chloromethane	BRL	8.9		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
cis-1,2-Dichloroethene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
cis-1,3-Dichloropropene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Cyclohexane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Dibromochloromethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Dichlorodifluoromethane	BRL	8.9		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Ethylbenzene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Freon-113	BRL	8.9		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Isopropylbenzene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
m,p-Xylene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Methyl acetate	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Methyl tert-butyl ether	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Methylcyclohexane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Methylene chloride	BRL	18		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
o-Xylene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Styrene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Tetrachloroethene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Toluene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
trans-1,2-Dichloroethene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
trans-1,3-Dichloropropene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Trichloroethene	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Trichlorofluoromethane	BRL	4.5		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Vinyl chloride	BRL	8.9		ug/Kg-dry	283668	1	08/15/2019 15:19	AR
Surr: 4-Bromofluorobenzene	71.3	65.1-125		%REC	283668	1	08/15/2019 15:19	AR
Surr: Dibromofluoromethane	115	77.7-123		%REC	283668	1	08/15/2019 15:19	AR
Surr: Toluene-d8	104	83.2-120		%REC	283668	1	08/15/2019 15:19	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	19		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
2-Methylnaphthalene	BRL	19		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Acenaphthene	BRL	19		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Acenaphthylene	BRL	37		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Anthracene	2.7	1.9		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Benz(a)anthracene	5.1	1.9		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Benzo(a)pyrene	6.4	1.9		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Benzo(b)fluoranthene	7.4	3.7		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Benzo(g,h,i)perylene	5.9	3.7		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Benzo(k)fluoranthene	3.2	1.9		ug/Kg-dry	283297	1	08/13/2019 06:27	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:00:00 AM
Lab ID:	1908589-031	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	6.5	1.9		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Dibenz(a,h)anthracene	BRL	3.7		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Fluoranthene	7.2	3.7		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Fluorene	BRL	3.7		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Indeno(1,2,3-cd)pyrene	5.1	1.9		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Naphthalene	BRL	19		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Phenanthrene	6.4	1.9		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Pyrene	7.3	1.9		ug/Kg-dry	283297	1	08/13/2019 06:27	YH
Surr: 4-Terphenyl-d14	85.7	51.2-127		%REC	283297	1	08/13/2019 06:27	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1016	BRL	38		ug/Kg-dry	283426	1	08/13/2019 23:02	SH
Aroclor 1221	BRL	38		ug/Kg-dry	283426	1	08/13/2019 23:02	SH
Aroclor 1232	BRL	38		ug/Kg-dry	283426	1	08/13/2019 23:02	SH
Aroclor 1242	BRL	38		ug/Kg-dry	283426	1	08/13/2019 23:02	SH
Aroclor 1248	BRL	38		ug/Kg-dry	283426	1	08/13/2019 23:02	SH
Aroclor 1254	BRL	38		ug/Kg-dry	283426	1	08/13/2019 23:02	SH
Aroclor 1260	BRL	38		ug/Kg-dry	283426	1	08/13/2019 23:02	SH
Surr: Decachlorobiphenyl	50	45.7-140		%REC	283426	1	08/13/2019 23:02	SH
Surr: Tetrachloro-m-xylene	41.6	45.3-126	S	%REC	283426	1	08/13/2019 23:02	SH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	39600	147		mg/Kg-dry	283235	100	08/14/2019 20:12	JW
Antimony	BRL	0.74		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Arsenic	7.72	0.44		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Barium	100	1.84		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Beryllium	1.58	0.37		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Cadmium	0.94	0.37		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Calcium	2250	18.4		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Chromium	50.2	0.74		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Cobalt	7.68	0.55		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Copper	65.4	0.74		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Iron	37800	367		mg/Kg-dry	283235	100	08/14/2019 20:12	JW
Lead	23.6	0.37		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Magnesium	1290	18.4		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Manganese	237	0.74		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Nickel	11.3	0.74		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Potassium	946	18.4		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Selenium	2.21	1.84		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Silver	BRL	0.18		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Sodium	73.9	36.7		mg/Kg-dry	283235	10	08/12/2019 22:18	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-17
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:00:00 AM
Lab ID:	1908589-031	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B					**(SW3050B)**			
Thallium	BRL	0.51		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Vanadium	84.2	0.74		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Zinc	220	2.20		mg/Kg-dry	283235	10	08/12/2019 22:18	JW
Cyanide, Total SW9014					**(SW9010C)**			
Cyanide, Total	BRL	1.13		mg/Kg-dry	283484	1	08/13/2019 12:45	AT
CHLORINATED PESTICIDES, TCL SW8081B					**(SW3550C)**			
4,4´-DDD	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
4,4´-DDE	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
4,4´-DDT	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Aldrin	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
alpha-BHC	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
alpha-Chlordane	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
beta-BHC	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
delta-BHC	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Dieldrin	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Endosulfan I	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Endosulfan II	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Endosulfan sulfate	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Endrin	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Endrin aldehyde	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Endrin ketone	BRL	3.8		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
gamma-BHC	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
gamma-Chlordane	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Heptachlor	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Heptachlor epoxide	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Methoxychlor	BRL	19		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Toxaphene	BRL	190		ug/Kg-dry	283427	1	08/15/2019 19:53	HB
Surr: Decachlorobiphenyl	72.1	44.5-124		%REC	283427	1	08/15/2019 19:53	HB
Surr: Tetrachloro-m-xylene	64.1	45.1-120		%REC	283427	1	08/15/2019 19:53	HB
PERCENT MOISTURE D2216								
Percent Moisture	11.8	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:15:00 AM
Lab ID:	1908589-032	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473					**(SW7473)**			
Mercury	BRL	0.149		mg/Kg-dry	283505	1	08/14/2019 12:51	EH
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3550C)**			
1,1´-Biphenyl	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2,4,5-Trichlorophenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2,4,6-Trichlorophenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2,4-Dichlorophenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2,4-Dimethylphenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2,4-Dinitrophenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2,4-Dinitrotoluene	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2,6-Dinitrotoluene	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2-Chloronaphthalene	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2-Chlorophenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2-Methylphenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2-Nitroaniline	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
2-Nitrophenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
3,3´-Dichlorobenzidine	BRL	1000		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
3-Nitroaniline	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
4,6-Dinitro-2-methylphenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
4-Bromophenyl phenyl ether	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
4-Chloro-3-methylphenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
4-Chloroaniline	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
4-Chlorophenyl phenyl ether	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
4-Methylphenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
4-Nitroaniline	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
4-Nitrophenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Acetophenone	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Atrazine	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Benzaldehyde	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Bis(2-chloroethoxy)methane	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Bis(2-chloroethyl)ether	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Bis(2-chloroisopropyl)ether	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Bis(2-ethylhexyl)phthalate	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Butyl benzyl phthalate	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Caprolactam	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Carbazole	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Di-n-butyl phthalate	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Di-n-octyl phthalate	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Dibenzofuran	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Diethyl phthalate	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Dimethyl phthalate	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:15:00 AM
Lab ID:	1908589-032	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Hexachlorobutadiene	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Hexachlorocyclopentadiene	BRL	980		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Hexachloroethane	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Isophorone	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
N-Nitrosodi-n-propylamine	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
N-Nitrosodiphenylamine	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Nitrobenzene	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Pentachlorophenol	BRL	2500		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Phenol	BRL	490		ug/Kg-dry	283298	1	08/13/2019 15:01	YH
Surr: 2,4,6-Tribromophenol	78.8	45.6-120		%REC	283298	1	08/13/2019 15:01	YH
Surr: 2-Fluorobiphenyl	63.8	51.4-120		%REC	283298	1	08/13/2019 15:01	YH
Surr: 2-Fluorophenol	61.1	40.9-120		%REC	283298	1	08/13/2019 15:01	YH
Surr: 4-Terphenyl-d14	64.1	52.2-129		%REC	283298	1	08/13/2019 15:01	YH
Surr: Nitrobenzene-d5	64.5	40-120		%REC	283298	1	08/13/2019 15:01	YH
Surr: Phenol-d5	61.6	45-120		%REC	283298	1	08/13/2019 15:01	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	25		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
2-Methylnaphthalene	BRL	25		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Acenaphthene	BRL	25		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Acenaphthylene	BRL	49		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Anthracene	15	2.5		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Benz(a)anthracene	87	2.5		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Benzo(a)pyrene	91	2.5		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Benzo(b)fluoranthene	120	4.9		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Benzo(g,h,i)perylene	59	4.9		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Benzo(k)fluoranthene	44	2.5		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Chrysene	99	2.5		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Dibenz(a,h)anthracene	17	4.9		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Fluoranthene	150	4.9		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Fluorene	5.9	4.9		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Indeno(1,2,3-cd)pyrene	50	2.5		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Naphthalene	BRL	25		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Phenanthrene	63	2.5		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Pyrene	160	2.5		ug/Kg-dry	283297	1	08/13/2019 06:52	YH
Surr: 4-Terphenyl-d14	111	51.2-127		%REC	283297	1	08/13/2019 06:52	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1016	BRL	50		ug/Kg-dry	283426	1	08/13/2019 23:14	SH
Aroclor 1221	BRL	50		ug/Kg-dry	283426	1	08/13/2019 23:14	SH

Qualifiers:

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H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:15:00 AM
Lab ID:	1908589-032	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1232	BRL	50		ug/Kg-dry	283426	1	08/13/2019 23:14	SH
Aroclor 1242	BRL	50		ug/Kg-dry	283426	1	08/13/2019 23:14	SH
Aroclor 1248	BRL	50		ug/Kg-dry	283426	1	08/13/2019 23:14	SH
Aroclor 1254	BRL	50		ug/Kg-dry	283426	1	08/13/2019 23:14	SH
Aroclor 1260	BRL	50		ug/Kg-dry	283426	1	08/13/2019 23:14	SH
Surr: Decachlorobiphenyl	96.7	45.7-140		%REC	283426	1	08/13/2019 23:14	SH
Surr: Tetrachloro-m-xylene	86.6	45.3-126		%REC	283426	1	08/13/2019 23:14	SH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	41400	187		mg/Kg-dry	283235	100	08/13/2019 20:44	JW
Antimony	BRL	0.93		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Arsenic	2.57	0.56		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Barium	135	2.34		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Beryllium	2.40	0.47		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Cadmium	0.71	0.47		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Calcium	1430	23.4		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Chromium	86.1	0.93		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Cobalt	14.8	0.70		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Copper	41.3	0.93		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Iron	38700	467		mg/Kg-dry	283235	100	08/13/2019 20:44	JW
Lead	20.3	0.47		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Magnesium	11200	23.4		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Manganese	414	0.93		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Nickel	49.3	0.93		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Potassium	10400	23.4		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Selenium	2.72	2.34		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Silver	BRL	0.23		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Sodium	202	46.7		mg/Kg-dry	283235	5	08/13/2019 21:49	JW
Thallium	1.03	0.65		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Vanadium	52.3	0.93		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Zinc	108	2.34		mg/Kg-dry	283235	10	08/12/2019 22:21	JW
Cyanide, Total SW9014				**(SW9010C)**				
Cyanide, Total	BRL	1.42		mg/Kg-dry	283484	1	08/13/2019 12:45	AT
CHLORINATED PESTICIDES, TCL SW8081B				**(SW3550C)**				
4,4´-DDD	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
4,4´-DDE	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
4,4´-DDT	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Aldrin	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
alpha-BHC	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SS-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:15:00 AM
Lab ID:	1908589-032	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
CHLORINATED PESTICIDES, TCL SW8081B				**(SW3550C)**				
alpha-Chlordane	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
beta-BHC	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
delta-BHC	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Dieldrin	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Endosulfan I	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Endosulfan II	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Endosulfan sulfate	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Endrin	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Endrin aldehyde	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Endrin ketone	BRL	4.9		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
gamma-BHC	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
gamma-Chlordane	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Heptachlor	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Heptachlor epoxide	BRL	2.5		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Methoxychlor	BRL	25		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Toxaphene	BRL	250		ug/Kg-dry	283427	1	08/15/2019 20:04	HB
Surr: Decachlorobiphenyl	82.6	44.5-124		%REC	283427	1	08/15/2019 20:04	HB
Surr: Tetrachloro-m-xylene	72.2	45.1-120		%REC	283427	1	08/15/2019 20:04	HB
PERCENT MOISTURE D2216								
Percent Moisture	32.7	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:20:00 AM
Lab ID:	1908589-033	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Mercury by SW7473					**(SW7473)**			
Mercury	BRL	0.111		mg/Kg-dry	283505	1	08/14/2019 13:00	EH
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3550C)**			
1,1´-Biphenyl	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2,4,5-Trichlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2,4,6-Trichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2,4-Dichlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2,4-Dimethylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2,4-Dinitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2,4-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2,6-Dinitrotoluene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2-Chloronaphthalene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2-Chlorophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
2-Nitrophenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
3,3´-Dichlorobenzidine	BRL	750		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
3-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
4,6-Dinitro-2-methylphenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
4-Bromophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
4-Chloro-3-methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
4-Chloroaniline	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
4-Chlorophenyl phenyl ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
4-Methylphenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
4-Nitroaniline	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
4-Nitrophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Acetophenone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Atrazine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Benzaldehyde	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Bis(2-chloroethoxy)methane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Bis(2-chloroethyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Bis(2-chloroisopropyl)ether	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Bis(2-ethylhexyl)phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Butyl benzyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Caprolactam	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Carbazole	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Di-n-butyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Di-n-octyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Dibenzofuran	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Diethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Dimethyl phthalate	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH

Qualifiers:

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Analytical Environmental Services, Inc **Date:** 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:20:00 AM
Lab ID:	1908589-033	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3550C)**				
Hexachlorobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Hexachlorobutadiene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Hexachlorocyclopentadiene	BRL	740		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Hexachloroethane	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Isophorone	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
N-Nitrosodi-n-propylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
N-Nitrosodiphenylamine	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Nitrobenzene	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Pentachlorophenol	BRL	1900		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Phenol	BRL	370		ug/Kg-dry	283298	1	08/13/2019 15:29	YH
Surr: 2,4,6-Tribromophenol	141	45.6-120	S	%REC	283298	1	08/13/2019 15:29	YH
Surr: 2-Fluorobiphenyl	114	51.4-120		%REC	283298	1	08/13/2019 15:29	YH
Surr: 2-Fluorophenol	111	40.9-120		%REC	283298	1	08/13/2019 15:29	YH
Surr: 4-Terphenyl-d14	117	52.2-129		%REC	283298	1	08/13/2019 15:29	YH
Surr: Nitrobenzene-d5	114	40-120		%REC	283298	1	08/13/2019 15:29	YH
Surr: Phenol-d5	109	45-120		%REC	283298	1	08/13/2019 15:29	YH
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
1,1,1-Trichloroethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,1,2,2-Tetrachloroethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,1,2-Trichloroethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,1-Dichloroethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,1-Dichloroethene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,2,4-Trichlorobenzene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,2-Dibromo-3-chloropropane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,2-Dibromoethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,2-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,2-Dichloroethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,2-Dichloropropane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,3-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
1,4-Dichlorobenzene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
2-Butanone	BRL	48		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
2-Hexanone	BRL	9.5		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
4-Methyl-2-pentanone	BRL	9.5		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Acetone	BRL	95		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Benzene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Bromodichloromethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Bromoform	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Bromomethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Carbon disulfide	BRL	9.5		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Carbon tetrachloride	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:20:00 AM
Lab ID:	1908589-033	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D				**(SW5035)**				
Chlorobenzene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Chloroethane	BRL	9.5		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Chloroform	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Chloromethane	BRL	9.5		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
cis-1,2-Dichloroethene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
cis-1,3-Dichloropropene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Cyclohexane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Dibromochloromethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Dichlorodifluoromethane	BRL	9.5		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Ethylbenzene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Freon-113	BRL	9.5		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Isopropylbenzene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
m,p-Xylene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Methyl acetate	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Methyl tert-butyl ether	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Methylcyclohexane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Methylene chloride	BRL	19		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
o-Xylene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Styrene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Tetrachloroethene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Toluene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
trans-1,2-Dichloroethene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
trans-1,3-Dichloropropene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Trichloroethene	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Trichlorofluoromethane	BRL	4.8		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Vinyl chloride	BRL	9.5		ug/Kg-dry	283668	1	08/15/2019 15:44	AR
Surr: 4-Bromofluorobenzene	75.2	65.1-125		%REC	283668	1	08/15/2019 15:44	AR
Surr: Dibromofluoromethane	113	77.7-123		%REC	283668	1	08/15/2019 15:44	AR
Surr: Toluene-d8	101	83.2-120		%REC	283668	1	08/15/2019 15:44	AR
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
1-Methylnaphthalene	BRL	19		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
2-Methylnaphthalene	BRL	19		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Acenaphthene	BRL	19		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Acenaphthylene	BRL	37		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Anthracene	3.2	1.9		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Benz(a)anthracene	6.2	1.9		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Benzo(a)pyrene	7.8	1.9		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Benzo(b)fluoranthene	11	3.7		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Benzo(g,h,i)perylene	9.7	3.7		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Benzo(k)fluoranthene	3.0	1.9		ug/Kg-dry	283297	1	08/13/2019 07:18	YH

Qualifiers:

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N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:20:00 AM
Lab ID:	1908589-033	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3550C)**				
Chrysene	14	1.9		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Dibenz(a,h)anthracene	BRL	3.7		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Fluoranthene	11	3.7		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Fluorene	BRL	3.7		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Indeno(1,2,3-cd)pyrene	6.3	1.9		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Naphthalene	BRL	19		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Phenanthrene	10	1.9		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Pyrene	15	1.9		ug/Kg-dry	283297	1	08/13/2019 07:18	YH
Surr: 4-Terphenyl-d14	81.3	51.2-127		%REC	283297	1	08/13/2019 07:18	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3550C)**				
Aroclor 1016	BRL	37		ug/Kg-dry	283426	1	08/13/2019 23:25	SH
Aroclor 1221	BRL	37		ug/Kg-dry	283426	1	08/13/2019 23:25	SH
Aroclor 1232	BRL	37		ug/Kg-dry	283426	1	08/13/2019 23:25	SH
Aroclor 1242	BRL	37		ug/Kg-dry	283426	1	08/13/2019 23:25	SH
Aroclor 1248	BRL	37		ug/Kg-dry	283426	1	08/13/2019 23:25	SH
Aroclor 1254	BRL	37		ug/Kg-dry	283426	1	08/13/2019 23:25	SH
Aroclor 1260	BRL	37		ug/Kg-dry	283426	1	08/13/2019 23:25	SH
Surr: Decachlorobiphenyl	50.5	45.7-140		%REC	283426	1	08/13/2019 23:25	SH
Surr: Tetrachloro-m-xylene	40.6	45.3-126	S	%REC	283426	1	08/13/2019 23:25	SH
Metals by ICP/MS SW6020B				**(SW3050B)**				
Aluminum	91900	194		mg/Kg-dry	283235	100	08/14/2019 20:15	JW
Antimony	BRL	0.97		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Arsenic	16.8	0.58		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Barium	204	2.42		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Beryllium	3.61	0.48		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Cadmium	1.41	0.48		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Calcium	3670	24.2		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Chromium	49.7	0.97		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Cobalt	14.4	0.73		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Copper	124	0.97		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Iron	70000	485		mg/Kg-dry	283235	100	08/14/2019 20:15	JW
Lead	45.7	0.48		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Magnesium	5110	24.2		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Manganese	561	0.97		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Nickel	29.1	0.97		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Potassium	5300	24.2		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Selenium	4.42	2.42		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Silver	BRL	0.24		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Sodium	237	48.5		mg/Kg-dry	283235	10	08/12/2019 22:36	JW

Qualifiers:

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BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	GF-SB-18
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/6/2019 10:20:00 AM
Lab ID:	1908589-033	**Matrix:**	Soil

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Metals by ICP/MS SW6020B					**(SW3050B)**			
Thallium	1.11	0.68		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Vanadium	49.2	0.97		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Zinc	189	2.42		mg/Kg-dry	283235	10	08/12/2019 22:36	JW
Cyanide, Total SW9014					**(SW9010C)**			
Cyanide, Total	BRL	1.07		mg/Kg-dry	283484	1	08/13/2019 12:45	AT
CHLORINATED PESTICIDES, TCL SW8081B					**(SW3550C)**			
4,4´-DDD	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
4,4´-DDE	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
4,4´-DDT	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Aldrin	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
alpha-BHC	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
alpha-Chlordane	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
beta-BHC	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
delta-BHC	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Dieldrin	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Endosulfan I	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Endosulfan II	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Endosulfan sulfate	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Endrin	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Endrin aldehyde	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Endrin ketone	BRL	3.7		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
gamma-BHC	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
gamma-Chlordane	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Heptachlor	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Heptachlor epoxide	BRL	1.9		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Methoxychlor	BRL	19		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Toxaphene	BRL	190		ug/Kg-dry	283427	1	08/15/2019 20:15	HB
Surr: Decachlorobiphenyl	81.4	44.5-124		%REC	283427	1	08/15/2019 20:15	HB
Surr: Tetrachloro-m-xylene	70.8	45.1-120		%REC	283427	1	08/15/2019 20:15	HB
PERCENT MOISTURE D2216								
Percent Moisture	10.3	0		wt%	R404366	1	08/08/2019 00:00	JW

Qualifiers:

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N	Analyte not NELAC certified	NC	Not confirmed
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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	TRIP BLANK
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019
Lab ID:	1908589-034	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
1,1,1-Trichloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283245	1	08/08/2019 13:24	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
2-Butanone	BRL	10		ug/L	283245	1	08/08/2019 13:24	NP
2-Hexanone	BRL	10		ug/L	283245	1	08/08/2019 13:24	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283245	1	08/08/2019 13:24	NP
Acetone	BRL	20		ug/L	283245	1	08/08/2019 13:24	NP
Benzene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Bromodichloromethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Bromoform	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Bromomethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Carbon disulfide	BRL	5.0		ug/L	283245	1	08/08/2019 13:24	NP
Carbon tetrachloride	BRL	2.0		ug/L	283245	1	08/08/2019 13:24	NP
Chlorobenzene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Chloroethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Chloroform	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Chloromethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Cyclohexane	BRL	2.0		ug/L	283245	1	08/08/2019 13:24	NP
Dibromochloromethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Ethylbenzene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Freon-113	BRL	5.0		ug/L	283245	1	08/08/2019 13:24	NP
Isopropylbenzene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
m,p-Xylene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Methyl acetate	BRL	2.0		ug/L	283245	1	08/08/2019 13:24	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Methylcyclohexane	BRL	2.0		ug/L	283245	1	08/08/2019 13:24	NP
Methylene chloride	BRL	5.0		ug/L	283245	1	08/08/2019 13:24	NP
o-Xylene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP

Qualifiers:

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Analytical Environmental Services, Inc

Date: 20-Aug-19

Client:	Cardno, Inc.	**Client Sample ID:**	TRIP BLANK
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/5/2019
Lab ID:	1908589-034	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
Styrene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Tetrachloroethene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Toluene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283245	1	08/08/2019 13:24	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283245	1	08/08/2019 13:24	NP
Trichloroethene	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Vinyl chloride	BRL	1.0		ug/L	283245	1	08/08/2019 13:24	NP
Surr: 4-Bromofluorobenzene	95.9	70-130		%REC	283245	1	08/08/2019 13:24	NP
Surr: Dibromofluoromethane	99	70-130		%REC	283245	1	08/08/2019 13:24	NP
Surr: Toluene-d8	99.8	70-130		%REC	283245	1	08/08/2019 13:24	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
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AES Analytical Environmental Services, Inc.

SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: **Access Analytical, Inc.** AES Work Order Number: **1908589**

2. Carrier: FedEx ■ UPS ☐ USPS ☐ Client ☐ Courier ☐ Other _____

		Yes	No	N/A	Details	Comments
3.	Shipping container/cooler received in good condition?	●	○	○	damaged ☐ leaking ☐ other ☐	
4.	Custody seals present on shipping container?	○	●	○		
5.	Custody seals intact on shipping container?	○	○	●		
6.	Temperature blanks present?	○	●	○		
7.	Cooler temperature(s) within limits of 0-6°C? [See item 13 and 14 for temperature recordings.]	●	○	○	Cooling initiated for recently collected samples / ice present ☐	
8.	Chain of Custody (COC) present?	●	○	○		
9.	Chain of Custody signed, dated, and timed when relinquished and received?	●	○	○		
10.	Sampler name and/or signature on COC?	●	○	○		
11.	Were all samples received within holding time?	●	○	○		
12.	TAT marked on the COC?	●	○	○	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. ☐	

13. Cooler 1 Temperature 3.6 °C Cooler 2 Temperature 2.8 °C Cooler 3 Temperature _____ °C Cooler 4 Temperature _____ °C

14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials). MJ 8/7/19

		Yes	No	N/A	Details	Comments
16.	Were sample containers intact upon receipt?	●	○	○		
17.	Custody seals present on sample containers?	○	●	○		
18.	Custody seals intact on sample containers?	○	○	●		
19.	Do sample container labels match the COC?	●	○	○	incomplete info ☐ illegible ☐ no label ☐ other ☐	
20.	Are analyses requested indicated on the COC?	●	○	○		
21.	Were all of the samples listed on the COC received?	●	○	○	samples received but not listed on COC ☐ samples listed on COC not received ☐	
22.	Was the sample collection date/time noted?	●	○	○		
23.	Did we receive sufficient sample volume for indicated analyses?	●	○	○		
24.	Were samples received in appropriate containers?	●	○	○		
25.	Were VOA samples received without headspace (< 1/4" bubble)?	●	○	○		
26.	Were trip blanks submitted?	●	○	○	listed on COC ☐ not listed on COC ■	

27. Comments: _____

I certify that I have completed sections 16-27 (dated initials). BC 8/7/19

This section only applies to samples where pH can be checked at Sample Receipt.

		Yes	No	N/A	Details	Comments
28.	Have containers needing chemical preservation been checked? *	●	○	○		
29.	Containers meet preservation guidelines?	●	○	○		
30.	Was pH adjusted at Sample Receipt?	○	○	●		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH.

I certify that I have completed sections 28-30 (dated initials). BC 8/7/19

Checklist 6.9.17 Rev 2

Locked

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Lab Order: 1908589

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908589-001A	GF-SS-01	8/5/2019 11:10:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-001A	GF-SS-01	8/5/2019 11:10:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-001A	GF-SS-01	8/5/2019 11:10:00AM	Soil	Mercury by SW7473		8/12/2019 12:18:00PM	08/12/2019
1908589-001A	GF-SS-01	8/5/2019 11:10:00AM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-001A	GF-SS-01	8/5/2019 11:10:00AM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-001A	GF-SS-01	8/5/2019 11:10:00AM	Soil	PERCENT MOISTURE			08/08/2019
1908589-002A	GF-SB-01	8/5/2019 11:15:00AM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/14/2019
1908589-002B	GF-SB-01	8/5/2019 11:15:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-002B	GF-SB-01	8/5/2019 11:15:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-002B	GF-SB-01	8/5/2019 11:15:00AM	Soil	Mercury by SW7473		8/12/2019 12:18:00PM	08/12/2019
1908589-002B	GF-SB-01	8/5/2019 11:15:00AM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-002B	GF-SB-01	8/5/2019 11:15:00AM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-002B	GF-SB-01	8/5/2019 11:15:00AM	Soil	PERCENT MOISTURE			08/08/2019
1908589-003A	GF-SS-02	8/5/2019 11:55:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-003A	GF-SS-02	8/5/2019 11:55:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-003A	GF-SS-02	8/5/2019 11:55:00AM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-003A	GF-SS-02	8/5/2019 11:55:00AM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-003A	GF-SS-02	8/5/2019 11:55:00AM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-003A	GF-SS-02	8/5/2019 11:55:00AM	Soil	PERCENT MOISTURE			08/08/2019
1908589-004A	GF-SB-02	8/5/2019 12:00:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/14/2019
1908589-004B	GF-SB-02	8/5/2019 12:00:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-004B	GF-SB-02	8/5/2019 12:00:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-004B	GF-SB-02	8/5/2019 12:00:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-004B	GF-SB-02	8/5/2019 12:00:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-004B	GF-SB-02	8/5/2019 12:00:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-005A	GF-SS-08	8/5/2019 12:30:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-005A	GF-SS-08	8/5/2019 12:30:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-005A	GF-SS-08	8/5/2019 12:30:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-005A	GF-SS-08	8/5/2019 12:30:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Lab Order: 1908589

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908589-005A	GF-SS-08	8/5/2019 12:30:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-006A	GF-SB-08	8/5/2019 12:35:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/14/2019
1908589-006B	GF-SB-08	8/5/2019 12:35:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-006B	GF-SB-08	8/5/2019 12:35:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-006B	GF-SB-08	8/5/2019 12:35:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-006B	GF-SB-08	8/5/2019 12:35:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-006B	GF-SB-08	8/5/2019 12:35:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-007A	GF-SS-09	8/5/2019 12:40:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-007A	GF-SS-09	8/5/2019 12:40:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-007A	GF-SS-09	8/5/2019 12:40:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-007A	GF-SS-09	8/5/2019 12:40:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-007A	GF-SS-09	8/5/2019 12:40:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-007A	GF-SS-09	8/5/2019 12:40:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-008A	GF-SS-09 DUP	8/5/2019 12:40:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-008A	GF-SS-09 DUP	8/5/2019 12:40:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-008A	GF-SS-09 DUP	8/5/2019 12:40:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-008A	GF-SS-09 DUP	8/5/2019 12:40:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-008A	GF-SS-09 DUP	8/5/2019 12:40:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-008A	GF-SS-09 DUP	8/5/2019 12:40:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-009A	GF-SB-09	8/5/2019 12:50:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/14/2019
1908589-009B	GF-SB-09	8/5/2019 12:50:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-009B	GF-SB-09	8/5/2019 12:50:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-009B	GF-SB-09	8/5/2019 12:50:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-009B	GF-SB-09	8/5/2019 12:50:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-009B	GF-SB-09	8/5/2019 12:50:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-009B	GF-SB-09	8/5/2019 12:50:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-010A	GF-SB-09 DUP	8/5/2019 12:50:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-010B	GF-SB-09 DUP	8/5/2019 12:50:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-010B	GF-SB-09 DUP	8/5/2019 12:50:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Lab Order: 1908589

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908589-010B	GF-SB-09 DUP	8/5/2019 12:50:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-010B	GF-SB-09 DUP	8/5/2019 12:50:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-010B	GF-SB-09 DUP	8/5/2019 12:50:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-010B	GF-SB-09 DUP	8/5/2019 12:50:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-011A	GF-SS-10	8/5/2019 1:30:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-011A	GF-SS-10	8/5/2019 1:30:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-011A	GF-SS-10	8/5/2019 1:30:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-011A	GF-SS-10	8/5/2019 1:30:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/13/2019
1908589-011A	GF-SS-10	8/5/2019 1:30:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-012A	GF-SB-10	8/5/2019 1:35:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-012B	GF-SB-10	8/5/2019 1:35:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-012B	GF-SB-10	8/5/2019 1:35:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-012B	GF-SB-10	8/5/2019 1:35:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-012B	GF-SB-10	8/5/2019 1:35:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-012B	GF-SB-10	8/5/2019 1:35:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-013A	GF-SS-11	8/5/2019 1:38:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-013A	GF-SS-11	8/5/2019 1:38:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-013A	GF-SS-11	8/5/2019 1:38:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-013A	GF-SS-11	8/5/2019 1:38:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/13/2019
1908589-013A	GF-SS-11	8/5/2019 1:38:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-014A	GF-SB-11	8/5/2019 1:40:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-014B	GF-SB-11	8/5/2019 1:40:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-014B	GF-SB-11	8/5/2019 1:40:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-014B	GF-SB-11	8/5/2019 1:40:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-014B	GF-SB-11	8/5/2019 1:40:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-014B	GF-SB-11	8/5/2019 1:40:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-014B	GF-SB-11	8/5/2019 1:40:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-015A	GF-SS-12	8/5/2019 1:45:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-015A	GF-SS-12	8/5/2019 1:45:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Lab Order: 1908589

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908589-015A	GF-SS-12	8/5/2019 1:45:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/11/2019 12:00:00PM	08/12/2019
1908589-015A	GF-SS-12	8/5/2019 1:45:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-015A	GF-SS-12	8/5/2019 1:45:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/13/2019
1908589-015A	GF-SS-12	8/5/2019 1:45:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-016A	GF-SB-12	8/5/2019 1:50:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-016B	GF-SB-12	8/5/2019 1:50:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-016B	GF-SB-12	8/5/2019 1:50:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-016B	GF-SB-12	8/5/2019 1:50:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-016B	GF-SB-12	8/5/2019 1:50:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-016B	GF-SB-12	8/5/2019 1:50:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-016B	GF-SB-12	8/5/2019 1:50:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/13/2019
1908589-016B	GF-SB-12	8/5/2019 1:50:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-017A	GF-SS-13	8/5/2019 2:10:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-017A	GF-SS-13	8/5/2019 2:10:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-017A	GF-SS-13	8/5/2019 2:10:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-017B	GF-SS-13	8/5/2019 2:10:00PM	Soil	POLYCHLORINATED BIPHENYLS		8/13/2019 9:00:00AM	08/13/2019
1908589-017B	GF-SS-13	8/5/2019 2:10:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-017B	GF-SS-13	8/5/2019 2:10:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/14/2019
1908589-017B	GF-SS-13	8/5/2019 2:10:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/12/2019
1908589-017B	GF-SS-13	8/5/2019 2:10:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/13/2019
1908589-018A	GF-SB-13	8/5/2019 2:15:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-018B	GF-SB-13	8/5/2019 2:15:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-018B	GF-SB-13	8/5/2019 2:15:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-018B	GF-SB-13	8/5/2019 2:15:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-018C	GF-SB-13	8/5/2019 2:15:00PM	Soil	POLYCHLORINATED BIPHENYLS		8/13/2019 9:00:00AM	08/13/2019
1908589-018C	GF-SB-13	8/5/2019 2:15:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-018C	GF-SB-13	8/5/2019 2:15:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/13/2019
1908589-019A	GF-SS-14	8/5/2019 2:45:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-019A	GF-SS-14	8/5/2019 2:45:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Lab Order: 1908589

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908589-019A	GF-SS-14	8/5/2019 2:45:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-019A	GF-SS-14	8/5/2019 2:45:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-019B	GF-SS-14	8/5/2019 2:45:00PM	Soil	POLYCHLORINATED BIPHENYLS		8/13/2019 9:00:00AM	08/13/2019
1908589-019B	GF-SS-14	8/5/2019 2:45:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-019B	GF-SS-14	8/5/2019 2:45:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/13/2019
1908589-020A	GF-SB-14	8/5/2019 2:50:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-020B	GF-SB-14	8/5/2019 2:50:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-020B	GF-SB-14	8/5/2019 2:50:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-020B	GF-SB-14	8/5/2019 2:50:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-020C	GF-SB-14	8/5/2019 2:50:00PM	Soil	POLYCHLORINATED BIPHENYLS		8/13/2019 9:00:00AM	08/13/2019
1908589-020C	GF-SB-14	8/5/2019 2:50:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-020C	GF-SB-14	8/5/2019 2:50:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/11/2019 12:00:00PM	08/13/2019
1908589-021A	GF-SS-15	8/5/2019 3:00:00PM	Soil	TCL VOLATILE ORGANICS		8/15/2019 1:22:00PM	08/15/2019
1908589-021B	GF-SS-15	8/5/2019 3:00:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-021B	GF-SS-15	8/5/2019 3:00:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-021B	GF-SS-15	8/5/2019 3:00:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-021B	GF-SS-15	8/5/2019 3:00:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-021B	GF-SS-15	8/5/2019 3:00:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-021B	GF-SS-15	8/5/2019 3:00:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/14/2019
1908589-021B	GF-SS-15	8/5/2019 3:00:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-022A	GF-SB-15	8/5/2019 3:10:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-022B	GF-SB-15	8/5/2019 3:10:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-022B	GF-SB-15	8/5/2019 3:10:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-022B	GF-SB-15	8/5/2019 3:10:00PM	Soil	Mercury by SW7473		8/13/2019 11:57:00AM	08/13/2019
1908589-022B	GF-SB-15	8/5/2019 3:10:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-022B	GF-SB-15	8/5/2019 3:10:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-022B	GF-SB-15	8/5/2019 3:10:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-023A	GF-SS-03	8/5/2019 3:15:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-023A	GF-SS-03	8/5/2019 3:15:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
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Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908589-023A	GF-SS-03	8/5/2019 3:15:00PM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-023A	GF-SS-03	8/5/2019 3:15:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-023A	GF-SS-03	8/5/2019 3:15:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-023A	GF-SS-03	8/5/2019 3:15:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-024A	GF-SB-03	8/5/2019 3:20:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-024B	GF-SB-03	8/5/2019 3:20:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-024B	GF-SB-03	8/5/2019 3:20:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-024B	GF-SB-03	8/5/2019 3:20:00PM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-024B	GF-SB-03	8/5/2019 3:20:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-024B	GF-SB-03	8/5/2019 3:20:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-024B	GF-SB-03	8/5/2019 3:20:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-025A	GF-SS-16	8/5/2019 3:35:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-025B	GF-SS-16	8/5/2019 3:35:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-025B	GF-SS-16	8/5/2019 3:35:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-025B	GF-SS-16	8/5/2019 3:35:00PM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-025B	GF-SS-16	8/5/2019 3:35:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-025B	GF-SS-16	8/5/2019 3:35:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-025B	GF-SS-16	8/5/2019 3:35:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/14/2019
1908589-025B	GF-SS-16	8/5/2019 3:35:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-026A	GF-SB-16	8/5/2019 3:40:00PM	Soil	TCL VOLATILE ORGANICS		8/14/2019 6:51:00PM	08/15/2019
1908589-026B	GF-SB-16	8/5/2019 3:40:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-026B	GF-SB-16	8/5/2019 3:40:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-026B	GF-SB-16	8/5/2019 3:40:00PM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-026B	GF-SB-16	8/5/2019 3:40:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-026B	GF-SB-16	8/5/2019 3:40:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-026B	GF-SB-16	8/5/2019 3:40:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-027A	GF-SS-04	8/5/2019 3:45:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-027A	GF-SS-04	8/5/2019 3:45:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-027A	GF-SS-04	8/5/2019 3:45:00PM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019

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Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908589-027A	GF-SS-04	8/5/2019 3:45:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-027A	GF-SS-04	8/5/2019 3:45:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-027A	GF-SS-04	8/5/2019 3:45:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-028A	GF-SB-04	8/5/2019 4:00:00PM	Soil	TCL VOLATILE ORGANICS		8/15/2019 11:23:00AM	08/15/2019
1908589-028B	GF-SB-04	8/5/2019 4:00:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-028B	GF-SB-04	8/5/2019 4:00:00PM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-028B	GF-SB-04	8/5/2019 4:00:00PM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-028B	GF-SB-04	8/5/2019 4:00:00PM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-028B	GF-SB-04	8/5/2019 4:00:00PM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-028B	GF-SB-04	8/5/2019 4:00:00PM	Soil	PERCENT MOISTURE			08/08/2019
1908589-029A	FB-01	8/5/2019 4:05:00PM	Groundwater	Volatile Organic Compounds by GC/MS		8/8/2019 10:01:00AM	08/08/2019
1908589-029B	FB-01	8/5/2019 4:05:00PM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/12/2019 8:00:00AM	08/14/2019
1908589-029C	FB-01	8/5/2019 4:05:00PM	Groundwater	Total Metals by ICP/MS		8/8/2019 10:49:00AM	08/09/2019
1908589-029C	FB-01	8/5/2019 4:05:00PM	Groundwater	TOTAL MERCURY		8/9/2019 5:14:00PM	08/09/2019
1908589-030A	GF-SS-17	8/6/2019 9:55:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-030A	GF-SS-17	8/6/2019 9:55:00AM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-030B	GF-SS-17	8/6/2019 9:55:00AM	Soil	TCL-CHLORINATED PESTICIDES		8/15/2019 9:00:00AM	08/15/2019
1908589-030B	GF-SS-17	8/6/2019 9:55:00AM	Soil	POLYCHLORINATED BIPHENYLS		8/13/2019 9:00:00AM	08/13/2019
1908589-030B	GF-SS-17	8/6/2019 9:55:00AM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-030B	GF-SS-17	8/6/2019 9:55:00AM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-030B	GF-SS-17	8/6/2019 9:55:00AM	Soil	Cyanide		8/13/2019 9:00:00AM	08/13/2019
1908589-030B	GF-SS-17	8/6/2019 9:55:00AM	Soil	PERCENT MOISTURE			08/08/2019
1908589-031A	GF-SB-17	8/6/2019 10:00:00AM	Soil	TCL VOLATILE ORGANICS		8/15/2019 11:23:00AM	08/15/2019
1908589-031B	GF-SB-17	8/6/2019 10:00:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-031B	GF-SB-17	8/6/2019 10:00:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/14/2019
1908589-031B	GF-SB-17	8/6/2019 10:00:00AM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-031C	GF-SB-17	8/6/2019 10:00:00AM	Soil	TCL-CHLORINATED PESTICIDES		8/15/2019 9:00:00AM	08/15/2019
1908589-031C	GF-SB-17	8/6/2019 10:00:00AM	Soil	POLYCHLORINATED BIPHENYLS		8/13/2019 9:00:00AM	08/13/2019
1908589-031C	GF-SB-17	8/6/2019 10:00:00AM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
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Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908589-031C	GF-SB-17	8/6/2019 10:00:00AM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-031C	GF-SB-17	8/6/2019 10:00:00AM	Soil	Cyanide		8/13/2019 9:00:00AM	08/13/2019
1908589-031C	GF-SB-17	8/6/2019 10:00:00AM	Soil	PERCENT MOISTURE			08/08/2019
1908589-032A	GF-SS-18	8/6/2019 10:15:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-032A	GF-SS-18	8/6/2019 10:15:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/13/2019
1908589-032A	GF-SS-18	8/6/2019 10:15:00AM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-032B	GF-SS-18	8/6/2019 10:15:00AM	Soil	TCL-CHLORINATED PESTICIDES		8/15/2019 9:00:00AM	08/15/2019
1908589-032B	GF-SS-18	8/6/2019 10:15:00AM	Soil	POLYCHLORINATED BIPHENYLS		8/13/2019 9:00:00AM	08/13/2019
1908589-032B	GF-SS-18	8/6/2019 10:15:00AM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-032B	GF-SS-18	8/6/2019 10:15:00AM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-032B	GF-SS-18	8/6/2019 10:15:00AM	Soil	Cyanide		8/13/2019 9:00:00AM	08/13/2019
1908589-032B	GF-SS-18	8/6/2019 10:15:00AM	Soil	PERCENT MOISTURE			08/08/2019
1908589-033A	GF-SB-18	8/6/2019 10:20:00AM	Soil	TCL VOLATILE ORGANICS		8/15/2019 11:23:00AM	08/15/2019
1908589-033B	GF-SB-18	8/6/2019 10:20:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/12/2019
1908589-033B	GF-SB-18	8/6/2019 10:20:00AM	Soil	6020 SOIL LOW LEVEL		8/8/2019 1:18:00PM	08/14/2019
1908589-033B	GF-SB-18	8/6/2019 10:20:00AM	Soil	Mercury by SW7473		8/14/2019 10:55:00AM	08/14/2019
1908589-033C	GF-SB-18	8/6/2019 10:20:00AM	Soil	TCL-CHLORINATED PESTICIDES		8/15/2019 9:00:00AM	08/15/2019
1908589-033C	GF-SB-18	8/6/2019 10:20:00AM	Soil	POLYCHLORINATED BIPHENYLS		8/13/2019 9:00:00AM	08/13/2019
1908589-033C	GF-SB-18	8/6/2019 10:20:00AM	Soil	TCL-SEMIVOLATILE ORGANICS		8/12/2019 1:00:00PM	08/13/2019
1908589-033C	GF-SB-18	8/6/2019 10:20:00AM	Soil	Polynuclear Aromatic Hydrocarbons		8/12/2019 10:00:00AM	08/13/2019
1908589-033C	GF-SB-18	8/6/2019 10:20:00AM	Soil	Cyanide		8/13/2019 9:00:00AM	08/13/2019
1908589-033C	GF-SB-18	8/6/2019 10:20:00AM	Soil	PERCENT MOISTURE			08/08/2019
1908589-034A	TRIP BLANK	8/5/2019 12:00:00AM	Groundwater	Volatile Organic Compounds by GC/MS		8/8/2019 10:01:00AM	08/08/2019

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283225**

Sample ID: **MB-283225** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404606**
SampleType: **MBLK** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283225** Analysis Date: **08/09/2019** Seq No: **9088936**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	BRL	50.0									
Antimony	BRL	5.00									
Arsenic	BRL	5.00									
Barium	BRL	10.0									
Beryllium	BRL	1.00									
Cadmium	BRL	0.700									
Calcium	BRL	100									
Chromium	BRL	5.00									
Cobalt	BRL	5.00									
Copper	BRL	2.00									
Iron	BRL	100									
Lead	BRL	1.00									
Magnesium	BRL	100									
Manganese	BRL	5.00									
Nickel	BRL	5.00									
Potassium	BRL	100									
Selenium	BRL	5.00									
Silver	BRL	1.00									
Sodium	BRL	500									
Thallium	BRL	1.00									
Vanadium	BRL	5.00									
Zinc	BRL	10.0									

Sample ID: **LCS-283225** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404606**
SampleType: **LCS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283225** Analysis Date: **08/09/2019** Seq No: **9088937**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283225**

Sample ID: **LCS-283225** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404606**
SampleType: **LCS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283225** Analysis Date: **08/09/2019** Seq No: **9088937**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	981.7	50.0	1000		98.2	80	120				
Antimony	99.31	5.00	100.0		99.3	80	120				
Arsenic	92.86	5.00	100.0		92.9	80	120				
Barium	95.39	10.0	100.0		95.4	80	120				
Beryllium	101.8	1.00	100.0		102	80	120				
Cadmium	99.33	0.700	100.0		99.3	80	120				
Calcium	931.6	100	1000		93.2	80	120				
Chromium	89.12	5.00	100.0		89.1	80	120				
Cobalt	92.39	5.00	100.0		92.4	80	120				
Copper	94.04	2.00	100.0		94.0	80	120				
Iron	880.8	100	1000		88.1	80	120				
Lead	106.3	1.00	100.0		106	80	120				
Magnesium	996.4	100	1000		99.6	80	120				
Manganese	89.11	5.00	100.0		89.1	80	120				
Nickel	91.27	5.00	100.0		91.3	80	120				
Potassium	1037	100	1000		104	80	120				
Selenium	98.79	5.00	100.0		98.8	80	120				
Silver	10.59	1.00	10.00		106	80	120				
Sodium	1109	500	1000		111	80	120				
Thallium	107.8	1.00	100.0		108	80	120				
Vanadium	88.82	5.00	100.0		88.8	80	120				
Zinc	101.2	10.0	100.0	4.242	97.0	80	120				

Sample ID: **1908589-029CMS** Client ID: **FB-01** Units: **ug/L** Prep Date: **08/08/2019** Run No: **404606**
SampleType: **MS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283225** Analysis Date: **08/09/2019** Seq No: **9088939**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	904.8	50.0	1000		90.5	75	125				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283225

Sample ID: **1908589-029CMS** Client ID: **FB-01** Units: **ug/L** Prep Date: **08/08/2019** Run No: **404606**
SampleType: **MS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283225** Analysis Date: **08/09/2019** Seq No: **9088939**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	93.48	5.00	100.0		93.5	75	125				
Arsenic	89.85	5.00	100.0		89.9	75	125				
Barium	89.46	10.0	100.0		89.5	75	125				
Beryllium	96.66	1.00	100.0		96.7	75	125				
Cadmium	94.90	0.700	100.0		94.9	75	125				
Calcium	830.5	100	1000		83.1	75	125				
Chromium	83.93	5.00	100.0		83.9	75	125				
Cobalt	86.44	5.00	100.0		86.4	75	125				
Copper	87.53	2.00	100.0		87.5	75	125				
Iron	798.3	100	1000		79.8	75	125				
Lead	100.5	1.00	100.0		100	75	125				
Magnesium	920.4	100	1000		92.0	75	125				
Manganese	82.59	5.00	100.0		82.6	75	125				
Nickel	86.63	5.00	100.0		86.6	75	125				
Potassium	966.0	100	1000		96.6	75	125				
Selenium	92.57	5.00	100.0		92.6	75	125				
Silver	10.08	1.00	10.00		101	75	125				
Sodium	1164	500	1000	254.8	90.9	75	125				
Thallium	101.0	1.00	100.0		101	75	125				
Vanadium	82.19	5.00	100.0		82.2	75	125				
Zinc	94.17	10.0	100.0	3.297	90.9	75	125				

Sample ID: **1908589-029CMSD** Client ID: **FB-01** Units: **ug/L** Prep Date: **08/08/2019** Run No: **404606**
SampleType: **MSD** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283225** Analysis Date: **08/09/2019** Seq No: **9088940**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	930.6	50.0	1000		93.1	75	125	904.8	2.81	20	
Antimony	95.63	5.00	100.0		95.6	75	125	93.48	2.28	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283225**

Sample ID: **1908589-029CMSD** Client ID: **FB-01** Units: **ug/L** Prep Date: **08/08/2019** Run No: **404606**
SampleType: **MSD** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283225** Analysis Date: **08/09/2019** Seq No: **9088940**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	90.42	5.00	100.0		90.4	75	125	89.85	0.625	20	
Barium	91.79	10.0	100.0		91.8	75	125	89.46	2.57	20	
Beryllium	98.84	1.00	100.0		98.8	75	125	96.66	2.23	20	
Cadmium	97.04	0.700	100.0		97.0	75	125	94.90	2.23	20	
Calcium	968.3	100	1000		96.8	75	125	830.5	15.3	20	
Chromium	84.10	5.00	100.0		84.1	75	125	83.93	0.209	20	
Cobalt	87.89	5.00	100.0		87.9	75	125	86.44	1.66	20	
Copper	88.59	2.00	100.0		88.6	75	125	87.53	1.19	20	
Iron	817.6	100	1000		81.8	75	125	798.3	2.39	20	
Lead	102.8	1.00	100.0		103	75	125	100.5	2.26	20	
Magnesium	939.1	100	1000		93.9	75	125	920.4	2.02	20	
Manganese	84.20	5.00	100.0		84.2	75	125	82.59	1.93	20	
Nickel	87.93	5.00	100.0		87.9	75	125	86.63	1.49	20	
Potassium	986.7	100	1000		98.7	75	125	966.0	2.12	20	
Selenium	94.92	5.00	100.0		94.9	75	125	92.57	2.51	20	
Silver	10.37	1.00	10.00		104	75	125	10.08	2.85	20	
Sodium	1219	500	1000	254.8	96.4	75	125	1164	4.64	20	
Thallium	103.4	1.00	100.0		103	75	125	101.0	2.41	20	
Vanadium	83.64	5.00	100.0		83.6	75	125	82.19	1.74	20	
Zinc	98.49	10.0	100.0	3.297	95.2	75	125	94.17	4.48	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283234**

Sample ID: **MB-283234** Client ID: Units: **ug/Kg** Prep Date: **08/08/2019** Run No: **404690**
SampleType: **MBLK** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283234** Analysis Date: **08/12/2019** Seq No: **9091430**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	BRL	10000									
Antimony	BRL	1000									
Arsenic	BRL	600									
Barium	BRL	2500									
Beryllium	BRL	500									
Cadmium	BRL	500									
Calcium	BRL	25000									
Chromium	BRL	1000									
Cobalt	BRL	750									
Copper	BRL	1000									
Iron	BRL	25000									
Lead	BRL	500									
Magnesium	BRL	25000									
Manganese	BRL	1000									
Nickel	BRL	1000									
Potassium	BRL	25000									
Selenium	BRL	2500									
Silver	BRL	250									
Sodium	BRL	50000									
Thallium	BRL	700									
Vanadium	BRL	1000									
Zinc	BRL	2500									

Sample ID: **LCS-283234** Client ID: Units: **ug/Kg** Prep Date: **08/08/2019** Run No: **404690**
SampleType: **LCS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283234** Analysis Date: **08/12/2019** Seq No: **9091427**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	109300	10000	100000		109	80	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283234**

Sample ID: **LCS-283234** Client ID: Units: **ug/Kg** Prep Date: **08/08/2019** Run No: **404690**
SampleType: **LCS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283234** Analysis Date: **08/12/2019** Seq No: **9091427**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	10470	1000	10000		105	80	120				
Arsenic	10360	600	10000		104	80	120				
Barium	10550	2500	10000		106	80	120				
Beryllium	10950	500	10000		109	80	120				
Cadmium	10560	500	10000		106	80	120				
Calcium	102800	25000	100000		103	80	120				
Chromium	11000	1000	10000		110	80	120				
Cobalt	10970	750	10000		110	80	120				
Copper	10620	1000	10000		106	80	120				
Iron	114200	25000	100000		114	80	120				
Lead	10420	500	10000		104	80	120				
Magnesium	115100	25000	100000		115	80	120				
Manganese	10500	1000	10000		105	80	120				
Nickel	10590	1000	10000		106	80	120				
Potassium	127000	25000	100000	14210	113	80	120				
Selenium	10460	2500	10000		105	80	120				
Silver	1061	250	1000		106	80	120				
Sodium	135300	50000	100000	20860	114	80	120				
Thallium	10410	700	10000		104	80	120				
Vanadium	10680	1000	10000		107	80	120				
Zinc	10380	2500	10000		104	80	120				

Sample ID: **1908589-007AMS** Client ID: **GF-SS-09** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404690**
SampleType: **MS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283234** Analysis Date: **08/12/2019** Seq No: **9091429**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	2.884	0.67	6.669	0.2932	38.8	75	125				S
Arsenic	8.190	0.40	6.669	1.863	94.9	75	125				

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283234

Sample ID: **1908589-007AMS** Client ID: **GF-SS-09** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404690**
SampleType: **MS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283234** Analysis Date: **08/12/2019** Seq No: **9091429**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Barium	51.45	1.67	6.669	91.20	-596	75	125				S
Beryllium	7.979	0.33	6.669	1.019	104	75	125				
Cadmium	6.814	0.33	6.669	0.3241	97.3	75	125				
Chromium	11.42	0.67	6.669	5.389	90.4	75	125				
Cobalt	8.486	0.50	6.669	1.424	106	75	125				
Copper	11.16	0.67	6.669	4.894	94.0	75	125				
Lead	16.19	0.33	6.669	10.96	78.4	75	125				
Magnesium	354.6	16.7	66.69	896.7	-813	75	125				S
Manganese	57.17	0.67	6.669	75.73	-278	75	125				S
Nickel	9.140	0.67	6.669	2.595	98.2	75	125				
Potassium	482.0	16.7	66.69	443.5	57.8	75	125				S
Selenium	7.285	1.67	6.669	0.5293	101	75	125				
Silver	0.7061	0.17	0.6669	0.005616	105	75	125				
Sodium	114.3	33.3	66.69	45.72	103	75	125				
Thallium	7.392	0.47	6.669	0.2197	108	75	125				
Vanadium	16.06	0.67	6.669	12.34	55.9	75	125				S
Zinc	52.32	1.67	6.669	74.68	-335	75	125				S

Sample ID: **1908589-007AMS** Client ID: **GF-SS-09** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404690**
SampleType: **MS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283234** Analysis Date: **08/13/2019** Seq No: **9095121**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	22150	133	66.69	20660	2240	75	125				S
Calcium	393.8	333	66.69	16280	-23800	75	125				S
Iron	13690	333	66.69	13200	743	75	125				S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283234**

Sample ID: **1908589-007AMSD** Client ID: **GF-SS-09** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404690**
SampleType: **MSD** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283234** Analysis Date: **08/12/2019** Seq No: **9091431**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	2.153	0.67	6.663	0.2932	27.9	75	125	2.884	29.0	20	SR
Arsenic	8.187	0.40	6.663	1.863	94.9	75	125	8.190	0.038	20	
Barium	48.70	1.67	6.663	91.20	-638	75	125	51.45	5.49	20	S
Beryllium	8.166	0.33	6.663	1.019	107	75	125	7.979	2.32	20	
Cadmium	6.856	0.33	6.663	0.3241	98.0	75	125	6.814	0.612	20	
Chromium	12.63	0.67	6.663	5.389	109	75	125	11.42	10.0	20	
Cobalt	8.821	0.50	6.663	1.424	111	75	125	8.486	3.87	20	
Copper	11.50	0.67	6.663	4.894	99.1	75	125	11.16	2.92	20	
Lead	15.85	0.33	6.663	10.96	73.3	75	125	16.19	2.13	20	S
Magnesium	398.3	16.7	66.63	896.7	-748	75	125	354.6	11.6	20	S
Manganese	61.74	0.67	6.663	75.73	-210	75	125	57.17	7.69	20	S
Nickel	9.283	0.67	6.663	2.595	100	75	125	9.140	1.55	20	
Potassium	544.0	16.7	66.63	443.5	151	75	125	482.0	12.1	20	S
Selenium	6.976	1.67	6.663	0.5293	96.7	75	125	7.285	4.34	20	
Silver	0.7380	0.17	0.6663	0.005616	110	75	125	0.7061	4.42	20	
Sodium	120.7	33.3	66.63	45.72	112	75	125	114.3	5.38	20	
Thallium	7.584	0.47	6.663	0.2197	111	75	125	7.392	2.57	20	
Vanadium	18.10	0.67	6.663	12.34	86.5	75	125	16.06	11.9	20	
Zinc	41.80	1.67	6.663	74.68	-494	75	125	52.32	22.4	20	SR

Sample ID: **1908589-007AMSD** Client ID: **GF-SS-09** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404690**
SampleType: **MSD** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283234** Analysis Date: **08/13/2019** Seq No: **9095122**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	24880	133	66.63	20660	6330	75	125	22150	11.6	20	S
Calcium	BRL	333	66.63	16280	-24200	75	125	393.8	86.4	20	SR
Iron	15440	333	66.63	13200	3370	75	125	13690	12.0	20	S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283235

Sample ID: **MB-283235** Client ID: Units: **ug/Kg** Prep Date: **08/08/2019** Run No: **404697**
SampleType: **MBLK** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283235** Analysis Date: **08/13/2019** Seq No: **9095041**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	BRL	10000									
Antimony	BRL	1000									
Arsenic	BRL	600									
Barium	BRL	2500									
Beryllium	BRL	500									
Cadmium	BRL	500									
Calcium	BRL	25000									
Chromium	BRL	1000									
Cobalt	BRL	750									
Copper	BRL	500									
Iron	BRL	25000									
Lead	BRL	500									
Magnesium	BRL	25000									
Manganese	BRL	1000									
Nickel	BRL	1000									
Potassium	BRL	25000									
Selenium	BRL	2500									
Silver	BRL	250									
Sodium	BRL	50000									
Thallium	BRL	700									
Vanadium	BRL	1000									
Zinc	BRL	2500									

Sample ID: **LCS-283235** Client ID: Units: **ug/Kg** Prep Date: **08/08/2019** Run No: **404697**
SampleType: **LCS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283235** Analysis Date: **08/13/2019** Seq No: **9095043**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	97570	8000	100000		97.6	80	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283235**

Sample ID: **LCS-283235** Client ID: Units: **ug/Kg** Prep Date: **08/08/2019** Run No: **404697**
SampleType: **LCS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283235** Analysis Date: **08/13/2019** Seq No: **9095043**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	10030	800	10000		100	80	120				
Arsenic	9871	480	10000		98.7	80	120				
Barium	9860	2000	10000	38.61	98.2	80	120				
Beryllium	9227	400	10000		92.3	80	120				
Cadmium	9710	400	10000		97.1	80	120				
Calcium	94180	20000	100000		94.2	80	120				
Chromium	9832	800	10000		98.3	80	120				
Cobalt	10160	600	10000		102	80	120				
Copper	10380	400	10000		104	80	120				
Iron	102000	20000	100000		102	80	120				
Lead	10160	400	10000		102	80	120				
Magnesium	96170	20000	100000		96.2	80	120				
Manganese	9768	800	10000		97.7	80	120				
Nickel	10100	800	10000		101	80	120				
Potassium	98100	20000	100000		98.1	80	120				
Selenium	9495	2000	10000		94.9	80	120				
Silver	1024	200	1000		102	80	120				
Sodium	103500	40000	100000		103	80	120				
Thallium	9859	560	10000		98.6	80	120				
Vanadium	9847	800	10000		98.5	80	120				
Zinc	9487	2000	10000		94.9	80	120				

Sample ID: **1908589-021BMS** Client ID: **GF-SS-15** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404697**
SampleType: **MS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283235** Analysis Date: **08/12/2019** Seq No: **9091507**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	6313	8.64	86.35	6436	-143	75	125				S
Antimony	4.509	0.86	8.635	0.5405	46.0	75	125				S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283235**

Sample ID: **1908589-021BMS** Client ID: **GF-SS-15** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404697**
SampleType: **MS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283235** Analysis Date: **08/12/2019** Seq No: **9091507**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	15.48	0.52	8.635	9.614	67.9	75	125				S
Barium	312.6	2.16	8.635	319.9	-83.6	75	125				S
Beryllium	10.49	0.43	8.635	0.8124	112	75	125				
Cadmium	9.465	0.43	8.635	0.4442	104	75	125				
Chromium	22.01	0.86	8.635	13.37	100	75	125				
Cobalt	13.74	0.65	8.635	5.113	99.9	75	125				
Copper	23.40	0.86	8.635	34.63	-130	75	125				S
Iron	11540	21.6	86.35	19270	-8960	75	125				S
Lead	235.8	0.43	8.635	173.0	727	75	125				S
Magnesium	2560	21.6	86.35	1916	746	75	125				S
Manganese	236.4	0.86	8.635	301.3	-751	75	125				S
Nickel	13.14	0.86	8.635	4.507	100.0	75	125				
Potassium	695.5	21.6	86.35	622.4	84.7	75	125				
Selenium	8.958	2.16	8.635	1.376	87.8	75	125				
Silver	0.9485	0.22	0.8635	0.03286	106	75	125				
Sodium	195.4	43.2	86.35	97.49	113	75	125				
Thallium	9.215	0.60	8.635	0.2651	104	75	125				
Vanadium	32.62	0.86	8.635	20.82	137	75	125				S
Zinc	465.5	2.33	8.635	338.8	1470	75	125				S

Sample ID: **1908589-021BMS** Client ID: **GF-SS-15** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404697**
SampleType: **MS** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283235** Analysis Date: **08/13/2019** Seq No: **9095050**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Calcium	49850	432	86.35	48480	1580	75	125				S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283235

Sample ID: **1908589-021BMSD** Client ID: **GF-SS-15** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404697**
SampleType: **MSD** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283235** Analysis Date: **08/12/2019** Seq No: **9091508**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	6109	8.67	86.65	6436	-377	75	125	6313	3.28	20	S
Antimony	4.632	0.87	8.665	0.5405	47.2	75	125	4.509	2.69	20	S
Arsenic	15.71	0.52	8.665	9.614	70.3	75	125	15.48	1.44	20	S
Barium	463.7	2.17	8.665	319.9	1660	75	125	312.6	38.9	20	SR
Beryllium	10.18	0.43	8.665	0.8124	108	75	125	10.49	3.00	20	
Cadmium	9.347	0.43	8.665	0.4442	103	75	125	9.465	1.26	20	
Chromium	22.37	0.87	8.665	13.37	104	75	125	22.01	1.61	20	
Cobalt	13.32	0.65	8.665	5.113	94.7	75	125	13.74	3.09	20	
Copper	29.00	0.87	8.665	34.63	-65.1	75	125	23.40	21.4	20	SR
Iron	10650	21.7	86.65	19270	-9950	75	125	11540	7.99	20	S
Lead	241.4	0.43	8.665	173.0	789	75	125	235.8	2.35	20	S
Magnesium	2366	21.7	86.65	1916	519	75	125	2560	7.88	20	S
Manganese	210.1	0.87	8.665	301.3	-1050	75	125	236.4	11.8	20	S
Nickel	12.86	0.87	8.665	4.507	96.4	75	125	13.14	2.17	20	
Potassium	749.2	21.7	86.65	622.4	146	75	125	695.5	7.43	20	S
Selenium	8.805	2.17	8.665	1.376	85.7	75	125	8.958	1.72	20	
Silver	0.9570	0.22	0.8665	0.03286	107	75	125	0.9485	0.894	20	
Sodium	203.0	43.3	86.65	97.49	122	75	125	195.4	3.80	20	
Thallium	9.190	0.61	8.665	0.2651	103	75	125	9.215	0.269	20	
Vanadium	30.14	0.87	8.665	20.82	108	75	125	32.62	7.91	20	
Zinc	367.5	2.34	8.665	338.8	332	75	125	465.5	23.5	20	SR

Sample ID: **1908589-021BMSD** Client ID: **GF-SS-15** Units: **mg/Kg-dry** Prep Date: **08/08/2019** Run No: **404697**
SampleType: **MSD** TestCode: **Metals by ICP/MS SW6020B** BatchID: **283235** Analysis Date: **08/13/2019** Seq No: **9095054**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Calcium	41110	433	86.65	48480	-8510	75	125	49850	19.2	20	S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283245**

Sample ID: **MB-283245** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404394**
SampleType: **MBLK** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283245** Analysis Date: **08/08/2019** Seq No: **9084715**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	1.0									
1,1,2,2-Tetrachloroethane	BRL	1.0									
1,1,2-Trichloroethane	BRL	1.0									
1,1-Dichloroethane	BRL	1.0									
1,1-Dichloroethene	BRL	2.0									
1,2,4-Trichlorobenzene	BRL	1.0									
1,2-Dibromo-3-chloropropane	BRL	1.0									
1,2-Dibromoethane	BRL	1.0									
1,2-Dichlorobenzene	BRL	1.0									
1,2-Dichloroethane	BRL	1.0									
1,2-Dichloropropane	BRL	1.0									
1,3-Dichlorobenzene	BRL	1.0									
1,4-Dichlorobenzene	BRL	1.0									
2-Butanone	BRL	10									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	20									
Benzene	BRL	1.0									
Bromodichloromethane	BRL	1.0									
Bromoform	BRL	1.0									
Bromomethane	BRL	1.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	2.0									
Chlorobenzene	BRL	1.0									
Chloroethane	BRL	1.0									
Chloroform	BRL	1.0									
Chloromethane	BRL	1.0									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283245**

Sample ID: **MB-283245** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404394**
SampleType: **MBLK** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283245** Analysis Date: **08/08/2019** Seq No: **9084715**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	1.0									
cis-1,3-Dichloropropene	BRL	1.0									
Cyclohexane	BRL	2.0									
Dibromochloromethane	BRL	1.0									
Dichlorodifluoromethane	BRL	1.0									
Ethylbenzene	BRL	1.0									
Freon-113	BRL	5.0									
Isopropylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
Methyl acetate	BRL	2.0									
Methyl tert-butyl ether	BRL	1.0									
Methylcyclohexane	BRL	2.0									
Methylene chloride	BRL	5.0									
o-Xylene	BRL	1.0									
Styrene	BRL	1.0									
Tetrachloroethene	BRL	1.0									
Toluene	BRL	1.0									
trans-1,2-Dichloroethene	BRL	2.0									
trans-1,3-Dichloropropene	BRL	2.0									
Trichloroethene	BRL	1.0									
Trichlorofluoromethane	BRL	1.0									
Vinyl chloride	BRL	1.0									
Surr: 4-Bromofluorobenzene	47.68	0	50.00		95.4	70	130				
Surr: Dibromofluoromethane	49.40	0	50.00		98.8	70	130				
Surr: Toluene-d8	51.61	0	50.00		103	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283245**

Sample ID: **LCS-283245** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404394**
SampleType: **LCS** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283245** Analysis Date: **08/08/2019** Seq No: **9084709**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.02	1.0	50.00		94.0	70	130				
1,1,2,2-Tetrachloroethane	59.55	1.0	50.00		119	70	130				
1,1,2-Trichloroethane	56.71	1.0	50.00		113	70	130				
1,1-Dichloroethane	47.33	1.0	50.00		94.7	70	130				
1,1-Dichloroethene	47.26	2.0	50.00		94.5	60	140				
1,2,4-Trichlorobenzene	56.89	1.0	50.00		114	70	130				
1,2-Dibromo-3-chloropropane	50.50	1.0	50.00		101	70	130				
1,2-Dibromoethane	57.08	1.0	50.00		114	70	130				
1,2-Dichlorobenzene	53.81	1.0	50.00		108	70	130				
1,2-Dichloroethane	55.24	1.0	50.00		110	70	130				
1,2-Dichloropropane	57.16	1.0	50.00		114	70	130				
1,3-Dichlorobenzene	57.91	1.0	50.00		116	70	130				
1,4-Dichlorobenzene	57.33	1.0	50.00		115	70	130				
Benzene	53.78	1.0	50.00		108	70	130				
Bromodichloromethane	56.19	1.0	50.00		112	70	130				
Bromoform	47.46	1.0	50.00		94.9	70	130				
Carbon tetrachloride	45.82	2.0	50.00		91.6	70	130				
Chlorobenzene	55.93	1.0	50.00		112	70	130				
Chloroform	53.42	1.0	50.00		107	70	130				
cis-1,2-Dichloroethene	54.17	1.0	50.00		108	70	130				
cis-1,3-Dichloropropene	58.16	1.0	50.00		116	70	130				
Dibromochloromethane	51.59	1.0	50.00		103	70	130				
Ethylbenzene	55.97	1.0	50.00		112	70	130				
Isopropylbenzene	49.78	1.0	50.00		99.6	70	130				
m,p-Xylene	114.6	1.0	100.0		115	70	130				
Methylene chloride	50.31	5.0	50.00		101	70	130				
o-Xylene	57.16	1.0	50.00		114	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283245**

Sample ID: **LCS-283245** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404394**
SampleType: **LCS** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283245** Analysis Date: **08/08/2019** Seq No: **9084709**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Styrene	55.88	1.0	50.00		112	70	130				
Tetrachloroethene	52.53	1.0	50.00		105	70	130				
Toluene	56.97	1.0	50.00		114	70	130				
trans-1,2-Dichloroethene	46.23	2.0	50.00		92.5	70	130				
trans-1,3-Dichloropropene	59.45	2.0	50.00		119	70	130				
Trichloroethene	55.08	1.0	50.00		110	70	130				
Vinyl chloride	48.65	1.0	50.00		97.3	70	130				
Surr: 4-Bromofluorobenzene	49.61	0	50.00		99.2	70	130				
Surr: Dibromofluoromethane	51.02	0	50.00		102	70	130				
Surr: Toluene-d8	52.02	0	50.00		104	70	130				

Sample ID: **1908519-002AMS** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404394**
SampleType: **MS** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283245** Analysis Date: **08/08/2019** Seq No: **9084832**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	14.83	1.0	20.00		74.2	66.7	137				
1,1,2,2-Tetrachloroethane	19.68	1.0	20.00		98.4	65.9	125				
1,1,2-Trichloroethane	19.21	1.0	20.00		96.0	71.8	130				
1,1-Dichloroethane	14.93	1.0	20.00		74.6	63.7	134				
1,1-Dichloroethene	17.08	2.0	20.00		85.4	63.8	146				
1,2,4-Trichlorobenzene	15.15	1.0	20.00		75.8	57.1	144				
1,2-Dibromo-3-chloropropane	14.61	1.0	20.00		73.0	56.7	133				
1,2-Dibromoethane	19.10	1.0	20.00		95.5	69.5	133				
1,2-Dichlorobenzene	18.00	1.0	20.00		90.0	68.3	135				
1,2-Dichloroethane	18.44	1.0	20.00		92.2	67	136				
1,2-Dichloropropane	18.36	1.0	20.00		91.8	70.8	130				
1,3-Dichlorobenzene	17.95	1.0	20.00		89.8	65.8	136				
1,4-Dichlorobenzene	18.28	1.0	20.00		91.4	69.2	133				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283245**

Sample ID: **1908519-002AMS** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404394**
SampleType: **MS** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283245** Analysis Date: **08/08/2019** Seq No: **9084832**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	17.20	1.0	20.00		86.0	70.2	137				
Bromodichloromethane	16.03	1.0	20.00		80.2	62	137				
Bromoform	15.02	1.0	20.00		75.1	59.7	136				
Carbon tetrachloride	15.56	2.0	20.00		77.8	67.7	146				
Chlorobenzene	18.40	1.0	20.00		92.0	72.7	141				
Chloroform	16.35	1.0	20.00		81.8	65.6	134				
cis-1,2-Dichloroethene	17.02	1.0	20.00		85.1	65.9	136				
cis-1,3-Dichloropropene	14.96	1.0	20.00		74.8	61.7	127				
Dibromochloromethane	15.53	1.0	20.00		77.6	60.4	135				
Ethylbenzene	17.70	1.0	20.00		88.5	73	135				
Isopropylbenzene	16.66	1.0	20.00		83.3	65.9	137				
m,p-Xylene	36.30	1.0	40.00		90.8	70.3	138				
Methylene chloride	15.56	5.0	20.00		77.8	64.1	133				
o-Xylene	17.53	1.0	20.00		87.6	70.1	135				
Styrene	19.15	1.0	20.00		95.8	71.2	137				
Tetrachloroethene	19.91	1.0	20.00		99.6	67.6	146				
Toluene	18.16	1.0	20.00		90.8	67	141				
trans-1,2-Dichloroethene	15.45	2.0	20.00		77.2	64	139				
trans-1,3-Dichloropropene	15.81	2.0	20.00		79.0	60.3	117				
Trichloroethene	18.17	1.0	20.00		90.8	69.3	141				
Vinyl chloride	18.83	1.0	20.00		94.2	63.2	148				
Surr: 4-Bromofluorobenzene	48.68	0	50.00		97.4	70	130				
Surr: Dibromofluoromethane	50.11	0	50.00		100	70	130				
Surr: Toluene-d8	51.34	0	50.00		103	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283245**

Sample ID: **1908519-002AMSD** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404394**
SampleType: **MSD** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283245** Analysis Date: **08/08/2019** Seq No: **9084833**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	14.96	1.0	20.00		74.8	66.7	137	14.83	0.873	20	
1,1,2,2-Tetrachloroethane	21.07	1.0	20.00		105	65.9	125	19.68	6.82	20	
1,1,2-Trichloroethane	19.36	1.0	20.00		96.8	71.8	130	19.21	0.778	20	
1,1-Dichloroethane	14.95	1.0	20.00		74.8	63.7	134	14.93	0.134	20	
1,1-Dichloroethene	16.95	2.0	20.00		84.8	63.8	146	17.08	0.764	20.8	
1,2,4-Trichlorobenzene	14.03	1.0	20.00		70.2	57.1	144	15.15	7.68	28.1	
1,2-Dibromo-3-chloropropane	13.84	1.0	20.00		69.2	56.7	133	14.61	5.41	25.3	
1,2-Dibromoethane	19.73	1.0	20.00		98.6	69.5	133	19.10	3.24	20	
1,2-Dichlorobenzene	17.36	1.0	20.00		86.8	68.3	135	18.00	3.62	20	
1,2-Dichloroethane	18.13	1.0	20.00		90.6	67	136	18.44	1.70	20	
1,2-Dichloropropane	18.19	1.0	20.00		91.0	70.8	130	18.36	0.930	20	
1,3-Dichlorobenzene	18.03	1.0	20.00		90.2	65.8	136	17.95	0.445	20	
1,4-Dichlorobenzene	17.98	1.0	20.00		89.9	69.2	133	18.28	1.65	20	
Benzene	17.19	1.0	20.00		86.0	70.2	137	17.20	0.058	20	
Bromodichloromethane	16.33	1.0	20.00		81.6	62	137	16.03	1.85	20	
Bromoform	15.47	1.0	20.00		77.4	59.7	136	15.02	2.95	20	
Carbon tetrachloride	15.46	2.0	20.00		77.3	67.7	146	15.56	0.645	19.2	
Chlorobenzene	18.42	1.0	20.00		92.1	72.7	141	18.40	0.109	20	
Chloroform	16.54	1.0	20.00		82.7	65.6	134	16.35	1.16	20	
cis-1,2-Dichloroethene	16.73	1.0	20.00		83.6	65.9	136	17.02	1.72	18	
cis-1,3-Dichloropropene	15.52	1.0	20.00		77.6	61.7	127	14.96	3.67	20	
Dibromochloromethane	16.27	1.0	20.00		81.4	60.4	135	15.53	4.65	20	
Ethylbenzene	17.27	1.0	20.00		86.4	73	135	17.70	2.46	20	
Isopropylbenzene	16.80	1.0	20.00		84.0	65.9	137	16.66	0.837	20	
m,p-Xylene	36.15	1.0	40.00		90.4	70.3	138	36.30	0.414	20	
Methylene chloride	15.84	5.0	20.00		79.2	64.1	133	15.56	1.78	20	
o-Xylene	17.64	1.0	20.00		88.2	70.1	135	17.53	0.626	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283245**

Sample ID: **1908519-002AMSD** Client ID: Units: **ug/L** Prep Date: **08/08/2019** Run No: **404394**
SampleType: **MSD** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283245** Analysis Date: **08/08/2019** Seq No: **9084833**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Styrene	18.70	1.0	20.00		93.5	71.2	137	19.15	2.38	20	
Tetrachloroethene	19.87	1.0	20.00		99.4	67.6	146	19.91	0.201	20	
Toluene	17.65	1.0	20.00		88.2	67	141	18.16	2.85	20	
trans-1,2-Dichloroethene	14.69	2.0	20.00		73.4	64	139	15.45	5.04	20	
trans-1,3-Dichloropropene	16.02	2.0	20.00		80.1	60.3	117	15.81	1.32	20	
Trichloroethene	17.55	1.0	20.00		87.8	69.3	141	18.17	3.47	17.9	
Vinyl chloride	19.16	1.0	20.00		95.8	63.2	148	18.83	1.74	20	
Surr: 4-Bromofluorobenzene	49.43	0	50.00		98.9	70	130	48.68	0	0	
Surr: Dibromofluoromethane	51.64	0	50.00		103	70	130	50.11	0	0	
Surr: Toluene-d8	51.18	0	50.00		102	70	130	51.34	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283295**

Sample ID: **MB-283295** Client ID: Units: **ug/Kg** Prep Date: **08/11/2019** Run No: **404619**
SampleType: **MBLK** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283295** Analysis Date: **08/12/2019** Seq No: **9090526**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	BRL	17									
2-Methylnaphthalene	BRL	17									
Acenaphthene	BRL	17									
Acenaphthylene	BRL	33									
Anthracene	BRL	1.7									
Benz(a)anthracene	BRL	1.7									
Benzo(a)pyrene	BRL	1.7									
Benzo(b)fluoranthene	BRL	3.3									
Benzo(g,h,i)perylene	BRL	3.3									
Benzo(k)fluoranthene	BRL	1.7									
Chrysene	BRL	1.7									
Dibenz(a,h)anthracene	BRL	3.3									
Fluoranthene	BRL	3.3									
Fluorene	BRL	3.3									
Indeno(1,2,3-cd)pyrene	BRL	1.7									
Naphthalene	BRL	17									
Phenanthrene	BRL	1.7									
Pyrene	BRL	1.7									
Surr: 4-Terphenyl-d14	71.38	0	66.70		107	70	130				

Sample ID: **LCS-283295** Client ID: Units: **ug/Kg** Prep Date: **08/11/2019** Run No: **404619**
SampleType: **LCS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283295** Analysis Date: **08/12/2019** Seq No: **9090528**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	55.84	17	66.70		83.7	70	130				
2-Methylnaphthalene	54.56	17	66.70		81.8	70	130				
Acenaphthene	54.50	17	66.70		81.7	70	130				
Acenaphthylene	53.25	33	66.70		79.8	70	130				

Qualifiers:
- > Greater than Result value
- BRL Below reporting limit
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- E Estimated (value above quantitation range)
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- B Analyte detected in the associated method blank
- H Holding times for preparation or analysis exceeded
- R RPD outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283295**

Sample ID: **LCS-283295** Client ID: Units: **ug/Kg** Prep Date: **08/11/2019** Run No: **404619**
SampleType: **LCS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283295** Analysis Date: **08/12/2019** Seq No: **9090528**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	64.44	1.7	66.70		96.6	70	130				
Benz(a)anthracene	62.17	1.7	66.70		93.2	70	130				
Benzo(a)pyrene	66.91	1.7	66.70		100	70	130				
Benzo(b)fluoranthene	57.25	3.3	66.70		85.8	70	130				
Benzo(g,h,i)perylene	65.31	3.3	66.70		97.9	70	130				
Benzo(k)fluoranthene	75.37	1.7	66.70		113	70	130				
Chrysene	72.66	1.7	66.70		109	70	130				
Dibenz(a,h)anthracene	61.58	3.3	66.70		92.3	70	130				
Fluoranthene	64.86	3.3	66.70		97.2	70	130				
Fluorene	55.03	3.3	66.70		82.5	70	130				
Indeno(1,2,3-cd)pyrene	62.11	1.7	66.70		93.1	70	130				
Naphthalene	54.34	17	66.70		81.5	70	130				
Phenanthrene	64.71	1.7	66.70		97.0	70	130				
Pyrene	69.07	1.7	66.70		104	70	130				
Surr: 4-Terphenyl-d14	66.14	0	66.70		99.2	70	130				

Sample ID: **1908589-018CMS** Client ID: **GF-SB-13** Units: **ug/Kg-dry** Prep Date: **08/11/2019** Run No: **404800**
SampleType: **MS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283295** Analysis Date: **08/14/2019** Seq No: **9094696**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	48.32	19	74.85	10.72	50.2	55.2	120				S
2-Methylnaphthalene	47.46	19	74.85	13.24	45.7	53.8	120				S
Acenaphthene	48.15	19	74.85	45.66	3.32	52.1	120				S
Acenaphthylene	47.10	37	74.85	37.22	13.2	55.5	120				S
Anthracene	60.07	1.9	74.85	93.35	-44.5	60.1	120				S
Benz(a)anthracene	78.76	1.9	74.85	291.6	-284	55.6	124				S
Benzo(a)pyrene	71.46	1.9	74.85	248.8	-237	60	120				S
Benzo(b)fluoranthene	77.39	3.7	74.85	331.4	-339	49.9	122				S

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283295**

Sample ID: **1908589-018CMS** Client ID: **GF-SB-13** Units: **ug/Kg-dry** Prep Date: **08/11/2019** Run No: **404800**
SampleType: **MS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283295** Analysis Date: **08/14/2019** Seq No: **9094696**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzo(g,h,i)perylene	62.29	3.7	74.85	135.9	-98.4	47.6	120				S
Benzo(k)fluoranthene	64.36	1.9	74.85	125.5	-81.6	56.2	120				S
Chrysene	85.12	1.9	74.85	261.8	-236	56.7	120				S
Dibenz(a,h)anthracene	45.20	3.7	74.85	49.17	-5.31	49.7	120				S
Fluoranthene	100.8	3.7	74.85	499.4	-532	56.4	120				S
Fluorene	48.48	3.7	74.85	41.60	9.18	56.5	120				S
Indeno(1,2,3-cd)pyrene	58.72	1.9	74.85	129.7	-94.8	48.2	120				S
Naphthalene	48.68	19	74.85	27.43	28.4	49.8	120				S
Phenanthrene	80.16	1.9	74.85	329.2	-333	53	110				S
Pyrene	97.86	1.9	74.85	418.7	-429	53.3	119				S
Surr: 4-Terphenyl-d14	49.19	0	74.85		65.7	51.2	127				

Sample ID: **1908589-018CMSD** Client ID: **GF-SB-13** Units: **ug/Kg-dry** Prep Date: **08/11/2019** Run No: **404800**
SampleType: **MSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283295** Analysis Date: **08/14/2019** Seq No: **9094697**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	54.49	19	74.85	10.72	58.5	55.2	120	48.32	12.0	22.1	
2-Methylnaphthalene	53.70	19	74.85	13.24	54.0	53.8	120	47.46	12.3	23.9	
Acenaphthene	57.26	19	74.85	45.66	15.5	52.1	120	48.15	17.3	20.8	S
Acenaphthylene	52.95	37	74.85	37.22	21.0	55.5	120	47.10	11.7	20.5	S
Anthracene	73.51	1.9	74.85	93.35	-26.5	60.1	120	60.07	20.1	20.9	S
Benz(a)anthracene	98.68	1.9	74.85	291.6	-258	55.6	124	78.76	22.5	24.2	S
Benzo(a)pyrene	87.69	1.9	74.85	248.8	-215	60	120	71.46	20.4	21.7	S
Benzo(b)fluoranthene	94.07	3.7	74.85	331.4	-317	49.9	122	77.39	19.5	24.4	S
Benzo(g,h,i)perylene	75.32	3.7	74.85	135.9	-81.0	47.6	120	62.29	18.9	24.3	S
Benzo(k)fluoranthene	74.83	1.9	74.85	125.5	-67.6	56.2	120	64.36	15.0	23.9	S
Chrysene	103.8	1.9	74.85	261.8	-211	56.7	120	85.12	19.8	22	S
Dibenz(a,h)anthracene	51.45	3.7	74.85	49.17	3.04	49.7	120	45.20	12.9	26	S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283295**

Sample ID: **1908589-018CMSD** Client ID: **GF-SB-13** Units: **ug/Kg-dry** Prep Date: **08/11/2019** Run No: **404800**
SampleType: **MSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283295** Analysis Date: **08/14/2019** Seq No: **9094697**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Fluoranthene	139.0	3.7	74.85	499.4	-482	56.4	120	100.8	31.8	24.2	SR
Fluorene	56.02	3.7	74.85	41.60	19.3	56.5	120	48.48	14.4	20.8	S
Indeno(1,2,3-cd)pyrene	70.34	1.9	74.85	129.7	-79.3	48.2	120	58.72	18.0	24.1	S
Naphthalene	55.36	19	74.85	27.43	37.3	49.8	120	48.68	12.8	22	S
Phenanthrene	113.1	1.9	74.85	329.2	-289	53	110	80.16	34.1	19.8	SR
Pyrene	129.0	1.9	74.85	418.7	-387	53.3	119	97.86	27.5	23.3	SR
Surr: 4-Terphenyl-d14	55.46	0	74.85		74.1	51.2	127	49.19	0	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283296

Sample ID: **MB-283296** Client ID: Units: **ug/Kg** Prep Date: **08/11/2019** Run No: **404625**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283296** Analysis Date: **08/12/2019** Seq No: **9089227**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1´-Biphenyl	BRL	330									
2,4,5-Trichlorophenol	BRL	1700									
2,4,6-Trichlorophenol	BRL	330									
2,4-Dichlorophenol	BRL	330									
2,4-Dimethylphenol	BRL	330									
2,4-Dinitrophenol	BRL	1700									
2,4-Dinitrotoluene	BRL	330									
2,6-Dinitrotoluene	BRL	330									
2-Chloronaphthalene	BRL	330									
2-Chlorophenol	BRL	330									
2-Methylphenol	BRL	330									
2-Nitroaniline	BRL	1700									
2-Nitrophenol	BRL	330									
3,3´-Dichlorobenzidine	BRL	670									
3-Nitroaniline	BRL	1700									
4,6-Dinitro-2-methylphenol	BRL	1700									
4-Bromophenyl phenyl ether	BRL	330									
4-Chloro-3-methylphenol	BRL	330									
4-Chloroaniline	BRL	330									
4-Chlorophenyl phenyl ether	BRL	330									
4-Methylphenol	BRL	330									
4-Nitroaniline	BRL	1700									
4-Nitrophenol	BRL	1700									
Acetophenone	BRL	330									
Atrazine	BRL	330									
Benzaldehyde	BRL	330									
Bis(2-chloroethoxy)methane	BRL	330									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283296**

Sample ID: **MB-283296** Client ID: Units: **ug/Kg** Prep Date: **08/11/2019** Run No: **404625**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283296** Analysis Date: **08/12/2019** Seq No: **9089227**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Bis(2-chloroethyl)ether	BRL	330									
Bis(2-chloroisopropyl)ether	BRL	330									
Bis(2-ethylhexyl)phthalate	BRL	330									
Butyl benzyl phthalate	BRL	330									
Caprolactam	BRL	330									
Carbazole	BRL	330									
Di-n-butyl phthalate	BRL	330									
Di-n-octyl phthalate	BRL	330									
Dibenzofuran	BRL	330									
Diethyl phthalate	BRL	330									
Dimethyl phthalate	BRL	330									
Hexachlorobenzene	BRL	330									
Hexachlorobutadiene	BRL	330									
Hexachlorocyclopentadiene	BRL	660									
Hexachloroethane	BRL	330									
Isophorone	BRL	330									
N-Nitrosodi-n-propylamine	BRL	330									
N-Nitrosodiphenylamine	BRL	330									
Nitrobenzene	BRL	330									
Pentachlorophenol	BRL	1700									
Phenol	BRL	330									
Surr: 2,4,6-Tribromophenol	4218	0	3333		127	45.6	120				S
Surr: 2-Fluorobiphenyl	1661	0	1667		99.7	51.4	120				
Surr: 2-Fluorophenol	3489	0	3333		105	40.9	120				
Surr: 4-Terphenyl-d14	1778	0	1667		107	52.2	129				
Surr: Nitrobenzene-d5	1751	0	1667		105	40	120				
Surr: Phenol-d5	3427	0	3333		103	45	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283296**

Sample ID: **LCS-283296** Client ID: Units: **ug/Kg** Prep Date: **08/11/2019** Run No: **404625**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283296** Analysis Date: **08/12/2019** Seq No: **9089230**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	3297	1700	3333		98.9	70	130				
2,4,6-Trichlorophenol	3627	330	3333		109	70	130				
2,4-Dichlorophenol	3361	330	3333		101	70	130				
2,4-Dimethylphenol	3337	330	3333		100	70	130				
2,4-Dinitrotoluene	3602	330	3333		108	70	130				
2,6-Dinitrotoluene	3654	330	3333		110	70	130				
2-Chlorophenol	3145	330	3333		94.4	50	130				
2-Methylphenol	3305	330	3333		99.2	70	130				
3,3´-Dichlorobenzidine	3467	670	3333		104	31.6	120				
4-Bromophenyl phenyl ether	4082	330	3333		122	70	130				
4-Chloro-3-methylphenol	3619	330	3333		109	50	130				
4-Methylphenol	3811	330	3333		114	70	130				
Bis(2-chloroethoxy)methane	3351	330	3333		101	70	130				
Bis(2-chloroethyl)ether	3359	330	3333		101	70	130				
Bis(2-chloroisopropyl)ether	2822	330	3333		84.7	50	130				
Di-n-butyl phthalate	4079	330	3333		122	70	130				
Di-n-octyl phthalate	2141	330	1667		128	70	130				
Diethyl phthalate	3422	330	3333		103	70	130				
Dimethyl phthalate	3548	330	3333		106	70	130				
Hexachlorobenzene	3719	330	3333		112	70	130				
Hexachlorobutadiene	5006	330	5000		100	70	130				
N-Nitrosodiphenylamine	4495	330	5000		89.9	50	130				
Nitrobenzene	3567	330	3333		107	70	130				
Surr: 2,4,6-Tribromophenol	3760	0	3333		113	45.6	120				
Surr: 2-Fluorobiphenyl	1558	0	1667		93.5	51.4	120				
Surr: 2-Fluorophenol	2965	0	3333		89.0	40.9	120				
Surr: 4-Terphenyl-d14	1750	0	1667		105	52.2	129				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283296

Sample ID: **LCS-283296** Client ID: Units: **ug/Kg** Prep Date: **08/11/2019** Run No: **404625**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283296** Analysis Date: **08/12/2019** Seq No: **9089230**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: Nitrobenzene-d5	1639	0	1667		98.4	40	120				
Surr: Phenol-d5	3129	0	3333		93.9	45	120				

Sample ID: **1908467-004BMS** Client ID: Units: **ug/Kg-dry** Prep Date: **08/11/2019** Run No: **404625**
SampleType: **MS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283296** Analysis Date: **08/12/2019** Seq No: **9090411**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	2789	2100	4104		68.0	60.1	120				
2,4,6-Trichlorophenol	2929	410	4104		71.4	56.4	120				
2,4-Dichlorophenol	2820	410	4104		68.7	44.4	120				
2,4-Dimethylphenol	2938	410	4104		71.6	43.8	120				
2,4-Dinitrotoluene	2852	410	4104		69.5	40.4	120				
2,6-Dinitrotoluene	2980	410	4104		72.6	63.8	121				
2-Chlorophenol	2737	410	4104		66.7	43.4	120				
2-Methylphenol	2900	410	4104		70.7	50.1	120				
3,3´-Dichlorobenzidine	3010	820	4104		73.3	30.7	120				
4-Bromophenyl phenyl ether	3288	410	4104		80.1	61.7	123				
4-Chloro-3-methylphenol	3007	410	4104		73.3	47.5	120				
4-Methylphenol	3258	410	4104		79.4	56.6	120				
Bis(2-chloroethoxy)methane	2869	410	4104		69.9	46.3	120				
Bis(2-chloroethyl)ether	2934	410	4104		71.5	42.5	120				
Bis(2-chloroisopropyl)ether	2486	410	4104		60.6	38.4	120				
Bis(2-ethylhexyl)phthalate	3645	410	4104		88.8	57.1	133				
Di-n-butyl phthalate	3370	410	4104		82.1	57.4	129				
Di-n-octyl phthalate	1798	410	2052		87.6	55.2	130				
Diethyl phthalate	2802	410	4104		68.3	51	120				
Dimethyl phthalate	2917	410	4104		71.1	62.9	121				
Hexachlorobenzene	3028	410	4104		73.8	50	120				

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283296

Sample ID: **1908467-004BMS** Client ID: Units: **ug/Kg-dry** Prep Date: **08/11/2019** Run No: **404625**
SampleType: **MS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283296** Analysis Date: **08/12/2019** Seq No: **9090411**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachlorobutadiene	4307	410	6156		70.0	43	120				
N-Nitrosodiphenylamine	3765	410	6156		61.2	43.3	120				
Nitrobenzene	2984	410	4104		72.7	50.7	120				
Surr: 2,4,6-Tribromophenol	3168	0	4104		77.2	45.6	120				
Surr: 2-Fluorobiphenyl	1279	0	2052		62.3	51.4	120				
Surr: 2-Fluorophenol	2678	0	4104		65.2	40.9	120				
Surr: 4-Terphenyl-d14	1398	0	2052		68.1	52.2	129				
Surr: Nitrobenzene-d5	1343	0	2052		65.5	40	120				
Surr: Phenol-d5	2707	0	4104		66.0	45	120				

Sample ID: **1908467-004BMSD** Client ID: Units: **ug/Kg-dry** Prep Date: **08/11/2019** Run No: **404625**
SampleType: **MSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283296** Analysis Date: **08/12/2019** Seq No: **9090412**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	2866	2100	4104		69.8	60.1	120	2789	2.73	24.2	
2,4,6-Trichlorophenol	3064	410	4104		74.6	56.4	120	2929	4.49	26.1	
2,4-Dichlorophenol	2890	410	4104		70.4	44.4	120	2820	2.44	28.3	
2,4-Dimethylphenol	3021	410	4104		73.6	43.8	120	2938	2.77	34.4	
2,4-Dinitrotoluene	3031	410	4104		73.8	40.4	120	2852	6.07	31.5	
2,6-Dinitrotoluene	3159	410	4104		77.0	63.8	121	2980	5.83	24.1	
2-Chlorophenol	2778	410	4104		67.7	43.4	120	2737	1.49	29.9	
2-Methylphenol	2998	410	4104		73.1	50.1	120	2900	3.34	30.5	
3,3´-Dichlorobenzidine	3234	820	4104		78.8	30.7	120	3010	7.19	42.1	
4-Bromophenyl phenyl ether	3457	410	4104		84.2	61.7	123	3288	5.00	26.6	
4-Chloro-3-methylphenol	3170	410	4104		77.2	47.5	120	3007	5.29	27.7	
4-Methylphenol	3408	410	4104		83.0	56.6	120	3258	4.49	25.3	
Bis(2-chloroethoxy)methane	2918	410	4104		71.1	46.3	120	2869	1.69	43.4	
Bis(2-chloroethyl)ether	2930	410	4104		71.4	42.5	120	2934	0.126	26.2	

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283296**

Sample ID: **1908467-004BMSD** Client ID: Units: **ug/Kg-dry** Prep Date: **08/11/2019** Run No: **404625**
SampleType: **MSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283296** Analysis Date: **08/12/2019** Seq No: **9090412**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Bis(2-chloroisopropyl)ether	2038	410	4104		49.6	38.4	120	2486	19.8	28.8	
Bis(2-ethylhexyl)phthalate	3841	410	4104		93.6	57.1	133	3645	5.24	27.2	
Di-n-butyl phthalate	3578	410	4104		87.2	57.4	129	3370	6.00	28.3	
Di-n-octyl phthalate	1911	410	2052		93.1	55.2	130	1798	6.06	33.2	
Diethyl phthalate	2970	410	4104		72.4	51	120	2802	5.83	32.6	
Dimethyl phthalate	3075	410	4104		74.9	62.9	121	2917	5.26	24.1	
Hexachlorobenzene	3214	410	4104		78.3	50	120	3028	5.96	28.3	
Hexachlorobutadiene	4315	410	6156		70.1	43	120	4307	0.181	31.4	
N-Nitrosodiphenylamine	3951	410	6156		64.2	43.3	120	3765	4.82	29.9	
Nitrobenzene	3056	410	4104		74.4	50.7	120	2984	2.38	27.3	
Surr: 2,4,6-Tribromophenol	3370	0	4104		82.1	45.6	120	3168	0	0	
Surr: 2-Fluorobiphenyl	1306	0	2052		63.7	51.4	120	1279	0	0	
Surr: 2-Fluorophenol	2610	0	4104		63.6	40.9	120	2678	0	0	
Surr: 4-Terphenyl-d14	1504	0	2052		73.3	52.2	129	1398	0	0	
Surr: Nitrobenzene-d5	1365	0	2052		66.5	40	120	1343	0	0	
Surr: Phenol-d5	2766	0	4104		67.4	45	120	2707	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283297**

Sample ID: **MB-283297** Client ID: Units: **ug/Kg** Prep Date: **08/12/2019** Run No: **404619**
SampleType: **MBLK** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/12/2019** Seq No: **9091196**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	BRL	17									
2-Methylnaphthalene	BRL	17									
Acenaphthene	BRL	17									
Acenaphthylene	BRL	33									
Anthracene	BRL	1.7									
Benz(a)anthracene	BRL	1.7									
Benzo(a)pyrene	BRL	1.7									
Benzo(b)fluoranthene	BRL	3.3									
Benzo(g,h,i)perylene	BRL	3.3									
Benzo(k)fluoranthene	BRL	1.7									
Chrysene	BRL	1.7									
Dibenz(a,h)anthracene	BRL	3.3									
Fluoranthene	BRL	3.3									
Fluorene	BRL	3.3									
Indeno(1,2,3-cd)pyrene	BRL	1.7									
Naphthalene	BRL	17									
Phenanthrene	BRL	1.7									
Pyrene	BRL	1.7									
Surr: 4-Terphenyl-d14	62.72	0	66.70		94.0	70	130				

Sample ID: **LCS-283297** Client ID: Units: **ug/Kg** Prep Date: **08/12/2019** Run No: **404619**
SampleType: **LCS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/12/2019** Seq No: **9091198**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	62.93	17	66.70		94.3	70	130				
2-Methylnaphthalene	61.49	17	66.70		92.2	70	130				
Acenaphthene	60.83	17	66.70		91.2	70	130				
Acenaphthylene	59.39	33	66.70		89.0	70	130				

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283297

Sample ID: **LCS-283297** Client ID: Units: **ug/Kg** Prep Date: **08/12/2019** Run No: **404619**
SampleType: **LCS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/12/2019** Seq No: **9091198**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	67.67	1.7	66.70		101	70	130				
Benz(a)anthracene	62.96	1.7	66.70		94.4	70	130				
Benzo(a)pyrene	66.84	1.7	66.70		100	70	130				
Benzo(b)fluoranthene	56.44	3.3	66.70		84.6	70	130				
Benzo(g,h,i)perylene	64.77	3.3	66.70		97.1	70	130				
Benzo(k)fluoranthene	74.53	1.7	66.70		112	70	130				
Chrysene	75.53	1.7	66.70		113	70	130				
Dibenz(a,h)anthracene	61.04	3.3	66.70		91.5	70	130				
Fluoranthene	65.72	3.3	66.70		98.5	70	130				
Fluorene	60.41	3.3	66.70		90.6	70	130				
Indeno(1,2,3-cd)pyrene	61.68	1.7	66.70		92.5	70	130				
Naphthalene	61.70	17	66.70		92.5	70	130				
Phenanthrene	67.57	1.7	66.70		101	70	130				
Pyrene	71.68	1.7	66.70		107	70	130				
Surr: 4-Terphenyl-d14	64.96	0	66.70		97.4	70	130				

Sample ID: **1908589-021BMS** Client ID: **GF-SS-15** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404724**
SampleType: **MS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/13/2019** Seq No: **9092959**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	BRL	1900	75.39	1071	623	55.2	120				S
2-Methylnaphthalene	BRL	1900	75.39	1156	712	53.8	120				S
Acenaphthene	BRL	1900	75.39	956.7	491	52.1	120				S
Acenaphthylene	BRL	3700	75.39	1654	159	55.5	120				S
Anthracene	5690	190	75.39	4510	1570	60.1	120				S
Benz(a)anthracene	24850	190	75.39	20960	5170	55.6	124				S
Benzo(a)pyrene	21790	190	75.39	19090	3590	60	120				S
Benzo(b)fluoranthene	34440	370	75.39	29860	6070	49.9	122				S

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283297

Sample ID: **1908589-021BMS** Client ID: **GF-SS-15** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404724**
SampleType: **MS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/13/2019** Seq No: **9092959**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzo(g,h,i)perylene	14670	370	75.39	12740	2560	47.6	120				S
Benzo(k)fluoranthene	12880	190	75.39	10440	3240	56.2	120				S
Chrysene	27920	190	75.39	22680	6940	56.7	120				S
Dibenz(a,h)anthracene	2797	370	75.39	2766	41.1	49.7	120				S
Fluorene	856.8	370	75.39	709.8	195	56.5	120				S
Indeno(1,2,3-cd)pyrene	13150	190	75.39	11730	1880	48.2	120				S
Naphthalene	3558	1900	75.39	2426	1500	49.8	120				S
Phenanthrene	32660	190	75.39	23870	11700	53	110				S
Surr: 4-Terphenyl-d14	0	0	75.39		0	51.2	127				S

Sample ID: **1908589-021BMS** Client ID: **GF-SS-15** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404800**
SampleType: **MS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/14/2019** Seq No: **9094022**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Fluoranthene	53460	3700	75.39	42200	14900	56.4	120				S
Pyrene	50640	1900	75.39	40750	13100	53.3	119				S

Sample ID: **1908589-021BMSD** Client ID: **GF-SS-15** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404724**
SampleType: **MSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/13/2019** Seq No: **9092960**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	BRL	1900	75.39	1071	579	55.2	120	1541	0	22.1	S
2-Methylnaphthalene	BRL	1900	75.39	1156	716	53.8	120	1693	0	23.9	S
Acenaphthene	BRL	1900	75.39	956.7	453	52.1	120	1327	0	20.8	S
Acenaphthylene	BRL	3700	75.39	1654	53.1	55.5	120	1774	0	20.5	S
Anthracene	5083	190	75.39	4510	760	60.1	120	5690	11.3	20.9	S
Benz(a)anthracene	23420	190	75.39	20960	3270	55.6	124	24850	5.92	24.2	S
Benzo(a)pyrene	21450	190	75.39	19090	3130	60	120	21790	1.59	21.7	S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283297**

Sample ID: **1908589-021BMSD** Client ID: **GF-SS-15** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404724**
SampleType: **MSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/13/2019** Seq No: **9092960**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzo(b)fluoranthene	33570	370	75.39	29860	4920	49.9	122	34440	2.56	24.4	S
Benzo(g,h,i)perylene	14070	370	75.39	12740	1770	47.6	120	14670	4.15	24.3	S
Benzo(k)fluoranthene	13480	190	75.39	10440	4040	56.2	120	12880	4.57	23.9	S
Chrysene	26780	190	75.39	22680	5440	56.7	120	27920	4.15	22	S
Dibenz(a,h)anthracene	2617	370	75.39	2766	-197	49.7	120	2797	6.62	26	S
Fluorene	866.5	370	75.39	709.8	208	56.5	120	856.8	1.12	20.8	S
Indeno(1,2,3-cd)pyrene	12870	190	75.39	11730	1510	48.2	120	13150	2.15	24.1	S
Naphthalene	4033	1900	75.39	2426	2130	49.8	120	3558	12.5	22	S
Phenanthrene	32460	190	75.39	23870	11400	53	110	32660	0.637	19.8	S
Surr: 4-Terphenyl-d14	0	0	75.39		0	51.2	127	0	0	20	S

Sample ID: **1908589-021BMSD** Client ID: **GF-SS-15** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404800**
SampleType: **MSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283297** Analysis Date: **08/14/2019** Seq No: **9094024**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Fluoranthene	48390	3700	75.39	42200	8210	56.4	120	53460	9.95	24.2	S
Pyrene	45790	1900	75.39	40750	6690	53.3	119	50640	10.1	23.3	S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283298**

Sample ID: **MB-283298** Client ID: Units: **ug/Kg** Prep Date: **08/12/2019** Run No: **404720**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283298** Analysis Date: **08/13/2019** Seq No: **9092315**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1´-Biphenyl	BRL	330									
2,4,5-Trichlorophenol	BRL	1700									
2,4,6-Trichlorophenol	BRL	330									
2,4-Dichlorophenol	BRL	330									
2,4-Dimethylphenol	BRL	330									
2,4-Dinitrophenol	BRL	1700									
2,4-Dinitrotoluene	BRL	330									
2,6-Dinitrotoluene	BRL	330									
2-Chloronaphthalene	BRL	330									
2-Chlorophenol	BRL	330									
2-Methylphenol	BRL	330									
2-Nitroaniline	BRL	1700									
2-Nitrophenol	BRL	330									
3,3´-Dichlorobenzidine	BRL	670									
3-Nitroaniline	BRL	1700									
4,6-Dinitro-2-methylphenol	BRL	1700									
4-Bromophenyl phenyl ether	BRL	330									
4-Chloro-3-methylphenol	BRL	330									
4-Chloroaniline	BRL	330									
4-Chlorophenyl phenyl ether	BRL	330									
4-Methylphenol	BRL	330									
4-Nitroaniline	BRL	1700									
4-Nitrophenol	BRL	1700									
Acetophenone	BRL	330									
Atrazine	BRL	330									
Benzaldehyde	BRL	330									
Bis(2-chloroethoxy)methane	BRL	330									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283298**

Sample ID: **MB-283298** Client ID: Units: **ug/Kg** Prep Date: **08/12/2019** Run No: **404720**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283298** Analysis Date: **08/13/2019** Seq No: **9092315**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Bis(2-chloroethyl)ether	BRL	330									
Bis(2-chloroisopropyl)ether	BRL	330									
Bis(2-ethylhexyl)phthalate	BRL	330									
Butyl benzyl phthalate	BRL	330									
Caprolactam	BRL	330									
Carbazole	BRL	330									
Di-n-butyl phthalate	BRL	330									
Di-n-octyl phthalate	BRL	330									
Dibenzofuran	BRL	330									
Diethyl phthalate	BRL	330									
Dimethyl phthalate	BRL	330									
Hexachlorobenzene	BRL	330									
Hexachlorobutadiene	BRL	330									
Hexachlorocyclopentadiene	BRL	660									
Hexachloroethane	BRL	330									
Isophorone	BRL	330									
N-Nitrosodi-n-propylamine	BRL	330									
N-Nitrosodiphenylamine	BRL	330									
Nitrobenzene	BRL	330									
Pentachlorophenol	BRL	1700									
Phenol	BRL	330									
Surr: 2,4,6-Tribromophenol	2861	0	3333		85.8	45.6	120				
Surr: 2-Fluorobiphenyl	1111	0	1667		66.7	51.4	120				
Surr: 2-Fluorophenol	2220	0	3333		66.6	40.9	120				
Surr: 4-Terphenyl-d14	1222	0	1667		73.3	52.2	129				
Surr: Nitrobenzene-d5	1158	0	1667		69.5	40	120				
Surr: Phenol-d5	2198	0	3333		66.0	45	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283298**

Sample ID: **LCS-283298** Client ID: Units: **ug/Kg** Prep Date: **08/12/2019** Run No: **404720**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283298** Analysis Date: **08/13/2019** Seq No: **9092316**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	2890	1700	3333		86.7	70	130				
2,4,6-Trichlorophenol	3182	330	3333		95.5	70	130				
2,4-Dichlorophenol	3077	330	3333		92.3	70	130				
2,4-Dimethylphenol	2894	330	3333		86.8	70	130				
2,4-Dinitrotoluene	3074	330	3333		92.2	70	130				
2,6-Dinitrotoluene	3142	330	3333		94.2	70	130				
2-Chlorophenol	3016	330	3333		90.5	50	130				
2-Methylphenol	3026	330	3333		90.8	70	130				
3,3´-Dichlorobenzidine	2932	670	3333		88.0	31.6	120				
4-Bromophenyl phenyl ether	3423	330	3333		103	70	130				
4-Chloro-3-methylphenol	3192	330	3333		95.8	50	130				
4-Methylphenol	3480	330	3333		104	70	130				
Bis(2-chloroethoxy)methane	2986	330	3333		89.6	70	130				
Bis(2-chloroethyl)ether	3101	330	3333		93.0	70	130				
Bis(2-chloroisopropyl)ether	2511	330	3333		75.3	50	130				
Bis(2-ethylhexyl)phthalate	3841	330	3333		115	70	130				
Di-n-butyl phthalate	3438	330	3333		103	70	130				
Di-n-octyl phthalate	1915	330	1667		115	70	130				
Diethyl phthalate	2917	330	3333		87.5	70	130				
Dimethyl phthalate	3014	330	3333		90.4	70	130				
Hexachlorobenzene	3218	330	3333		96.5	70	130				
Hexachlorobutadiene	4782	330	5000		95.6	70	130				
N-Nitrosodiphenylamine	3856	330	5000		77.1	50	130				
Nitrobenzene	3175	330	3333		95.2	70	130				
Surr: 2,4,6-Tribromophenol	3048	0	3333		91.4	45.6	120				
Surr: 2-Fluorobiphenyl	1341	0	1667		80.5	51.4	120				
Surr: 2-Fluorophenol	2778	0	3333		83.3	40.9	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283298

Sample ID: **LCS-283298** Client ID: Units: **ug/Kg** Prep Date: **08/12/2019** Run No: **404720**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283298** Analysis Date: **08/13/2019** Seq No: **9092316**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	1523	0	1667		91.4	52.2	129				
Surr: Nitrobenzene-d5	1418	0	1667		85.1	40	120				
Surr: Phenol-d5	2850	0	3333		85.5	45	120				

Sample ID: **1908589-023AMS** Client ID: **GF-SS-03** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404720**
SampleType: **MS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283298** Analysis Date: **08/13/2019** Seq No: **9093147**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	3100	2100	4063		76.3	60.1	120				
2,4,6-Trichlorophenol	3247	400	4063		79.9	56.4	120				
2,4-Dichlorophenol	2964	400	4063		72.9	44.4	120				
2,4-Dimethylphenol	3110	400	4063		76.5	43.8	120				
2,4-Dinitrotoluene	3285	400	4063		80.8	40.4	120				
2,6-Dinitrotoluene	3305	400	4063		81.3	63.8	121				
2-Chlorophenol	2785	400	4063		68.5	43.4	120				
2-Methylphenol	3070	400	4063		75.6	50.1	120				
3,3´-Dichlorobenzidine	3152	820	4063		77.6	30.7	120				
4-Bromophenyl phenyl ether	3660	400	4063		90.1	61.7	123				
4-Chloro-3-methylphenol	3143	400	4063		77.3	47.5	120				
4-Methylphenol	3302	400	4063		81.3	56.6	120				
Bis(2-chloroethoxy)methane	3146	400	4063		77.4	46.3	120				
Bis(2-chloroethyl)ether	3078	400	4063		75.7	42.5	120				
Bis(2-chloroisopropyl)ether	2456	400	4063		60.4	38.4	120				
Bis(2-ethylhexyl)phthalate	3925	400	4063		96.6	57.1	133				
Di-n-butyl phthalate	3524	400	4063		86.7	57.4	129				
Di-n-octyl phthalate	2024	400	2032		99.6	55.2	130				
Diethyl phthalate	3201	400	4063		78.8	51	120				
Dimethyl phthalate	3213	400	4063		79.1	62.9	121				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283298

Sample ID: **1908589-023AMS** Client ID: **GF-SS-03** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404720**
SampleType: **MS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283298** Analysis Date: **08/13/2019** Seq No: **9093147**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachlorobenzene	3521	400	4063		86.7	50	120				
Hexachlorobutadiene	4909	400	6095		80.5	43	120				
N-Nitrosodiphenylamine	4194	400	6095		68.8	43.3	120				
Nitrobenzene	3213	400	4063		79.1	50.7	120				
Surr: 2,4,6-Tribromophenol	3315	0	4063		81.6	45.6	120				
Surr: 2-Fluorobiphenyl	1400	0	2032		68.9	51.4	120				
Surr: 2-Fluorophenol	2582	0	4063		63.5	40.9	120				
Surr: 4-Terphenyl-d14	1549	0	2032		76.2	52.2	129				
Surr: Nitrobenzene-d5	1409	0	2032		69.3	40	120				
Surr: Phenol-d5	2707	0	4063		66.6	45	120				

Sample ID: **1908589-023AMSD** Client ID: **GF-SS-03** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404720**
SampleType: **MSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283298** Analysis Date: **08/13/2019** Seq No: **9093148**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	3260	2100	4063		80.2	60.1	120	3100	5.04	24.2	
2,4,6-Trichlorophenol	3483	400	4063		85.7	56.4	120	3247	7.02	26.1	
2,4-Dichlorophenol	3284	400	4063		80.8	44.4	120	2964	10.2	28.3	
2,4-Dimethylphenol	3253	400	4063		80.0	43.8	120	3110	4.48	34.4	
2,4-Dinitrotoluene	3426	400	4063		84.3	40.4	120	3285	4.19	31.5	
2,6-Dinitrotoluene	3506	400	4063		86.3	63.8	121	3305	5.89	24.1	
2-Chlorophenol	3252	400	4063		80.0	43.4	120	2785	15.5	29.9	
2-Methylphenol	3487	400	4063		85.8	50.1	120	3070	12.7	30.5	
3,3´-Dichlorobenzidine	3169	820	4063		78.0	30.7	120	3152	0.527	42.1	
4-Bromophenyl phenyl ether	3859	400	4063		95.0	61.7	123	3660	5.29	26.6	
4-Chloro-3-methylphenol	3343	400	4063		82.3	47.5	120	3143	6.18	27.7	
4-Methylphenol	3746	400	4063		92.2	56.6	120	3302	12.6	25.3	
Bis(2-chloroethoxy)methane	3356	400	4063		82.6	46.3	120	3146	6.45	43.4	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283298**

Sample ID: **1908589-023AMSD** Client ID: **GF-SS-03** Units: **ug/Kg-dry** Prep Date: **08/12/2019** Run No: **404720**
SampleType: **MSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283298** Analysis Date: **08/13/2019** Seq No: **9093148**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Bis(2-chloroethyl)ether	3493	400	4063		86.0	42.5	120	3078	12.7	26.2	
Bis(2-chloroisopropyl)ether	2853	400	4063		70.2	38.4	120	2456	15.0	28.8	
Bis(2-ethylhexyl)phthalate	4178	400	4063		103	57.1	133	3925	6.25	27.2	
Di-n-butyl phthalate	3690	400	4063		90.8	57.4	129	3524	4.59	28.3	
Di-n-octyl phthalate	2096	400	2032		103	55.2	130	2024	3.49	33.2	
Diethyl phthalate	3307	400	4063		81.4	51	120	3201	3.26	32.6	
Dimethyl phthalate	3408	400	4063		83.9	62.9	121	3213	5.87	24.1	
Hexachlorobenzene	3614	400	4063		88.9	50	120	3521	2.60	28.3	
Hexachlorobutadiene	5352	400	6095		87.8	43	120	4909	8.63	31.4	
N-Nitrosodiphenylamine	4422	400	6095		72.5	43.3	120	4194	5.29	29.9	
Nitrobenzene	3484	400	4063		85.7	50.7	120	3213	8.10	27.3	
Surr: 2,4,6-Tribromophenol	3551	0	4063		87.4	45.6	120	3315	0	0	
Surr: 2-Fluorobiphenyl	1510	0	2032		74.3	51.4	120	1400	0	0	
Surr: 2-Fluorophenol	3039	0	4063		74.8	40.9	120	2582	0	0	
Surr: 4-Terphenyl-d14	1637	0	2032		80.6	52.2	129	1549	0	0	
Surr: Nitrobenzene-d5	1563	0	2032		76.9	40	120	1409	0	0	
Surr: Phenol-d5	3091	0	4063		76.1	45	120	2707	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283305**

Sample ID: **MB-283305** Client ID: Units: **mg/L** Prep Date: **08/09/2019** Run No: **404572**
SampleType: **MBLK** TestCode: **Mercury, Total SW7470A** BatchID: **283305** Analysis Date: **08/09/2019** Seq No: **9088355**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	BRL	0.00020									

Sample ID: **LCS-283305** Client ID: Units: **mg/L** Prep Date: **08/09/2019** Run No: **404572**
SampleType: **LCS** TestCode: **Mercury, Total SW7470A** BatchID: **283305** Analysis Date: **08/09/2019** Seq No: **9088356**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.004084	0.00020	0.0040		102	80	120				

Sample ID: **1908852-001BMS** Client ID: Units: **mg/L** Prep Date: **08/09/2019** Run No: **404572**
SampleType: **MS** TestCode: **Mercury, Total SW7470A** BatchID: **283305** Analysis Date: **08/09/2019** Seq No: **9088358**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.003646	0.00020	0.0040		91.2	75	125				

Sample ID: **1908852-001BMSD** Client ID: Units: **mg/L** Prep Date: **08/09/2019** Run No: **404572**
SampleType: **MSD** TestCode: **Mercury, Total SW7470A** BatchID: **283305** Analysis Date: **08/09/2019** Seq No: **9088359**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.003971	0.00020	0.0040		99.3	75	125	0.003646	8.53	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283367

Sample ID: **MB-283367** Client ID: Units: **mg/Kg** Prep Date: **08/12/2019** Run No: **404673**
SampleType: **MBLK** TestCode: **Total Mercury by SW7473** BatchID: **283367** Analysis Date: **08/12/2019** Seq No: **9090779**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	BRL	0.100									

Sample ID: **LCS-283367** Client ID: Units: **mg/Kg** Prep Date: **08/12/2019** Run No: **404673**
SampleType: **LCS** TestCode: **Total Mercury by SW7473** BatchID: **283367** Analysis Date: **08/12/2019** Seq No: **9090781**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	1.015	0.100	1.000		102	80	120				

Sample ID: **1907R43-004BMS** Client ID: Units: **mg/Kg-dry** Prep Date: **08/12/2019** Run No: **404673**
SampleType: **MS** TestCode: **Total Mercury by SW7473** BatchID: **283367** Analysis Date: **08/12/2019** Seq No: **9090784**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.6868	0.110	1.049	0.01760	63.8	80	120				S

Sample ID: **1907R43-004BMSD** Client ID: Units: **mg/Kg-dry** Prep Date: **08/12/2019** Run No: **404673**
SampleType: **MSD** TestCode: **Total Mercury by SW7473** BatchID: **283367** Analysis Date: **08/12/2019** Seq No: **9090786**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.6614	0.110	1.043	0.01760	61.7	80	120	0.6868	3.77	20	S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283373**

Sample ID: **MB-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095236**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1´-Biphenyl	BRL	10									
2,4,5-Trichlorophenol	BRL	25									
2,4,6-Trichlorophenol	BRL	10									
2,4-Dichlorophenol	BRL	10									
2,4-Dimethylphenol	BRL	10									
2,4-Dinitrophenol	BRL	25									
2,4-Dinitrotoluene	BRL	10									
2,6-Dinitrotoluene	BRL	10									
2-Chloronaphthalene	BRL	10									
2-Chlorophenol	BRL	10									
2-Methylnaphthalene	BRL	10									
2-Methylphenol	BRL	10									
2-Nitroaniline	BRL	25									
2-Nitrophenol	BRL	10									
3,3´-Dichlorobenzidine	BRL	10									
3-Nitroaniline	BRL	25									
4,6-Dinitro-2-methylphenol	BRL	25									
4-Bromophenyl phenyl ether	BRL	10									
4-Chloro-3-methylphenol	BRL	10									
4-Chloroaniline	BRL	10									
4-Chlorophenyl phenyl ether	BRL	10									
4-Methylphenol	BRL	10									
4-Nitroaniline	BRL	25									
4-Nitrophenol	BRL	25									
Acenaphthene	BRL	10									
Acenaphthylene	BRL	10									
Acetophenone	BRL	10									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283373

Sample ID: **MB-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095236**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	BRL	10									
Atrazine	BRL	10									
Benz(a)anthracene	BRL	10									
Benzaldehyde	BRL	10									
Benzo(a)pyrene	BRL	10									
Benzo(b)fluoranthene	BRL	10									
Benzo(g,h,i)perylene	BRL	10									
Benzo(k)fluoranthene	BRL	10									
Bis(2-chloroethoxy)methane	BRL	10									
Bis(2-chloroethyl)ether	BRL	10									
Bis(2-chloroisopropyl)ether	BRL	10									
Bis(2-ethylhexyl)phthalate	BRL	10									
Butyl benzyl phthalate	BRL	10									
Caprolactam	BRL	10									
Carbazole	BRL	10									
Chrysene	BRL	10									
Di-n-butyl phthalate	BRL	10									
Di-n-octyl phthalate	BRL	10									
Dibenz(a,h)anthracene	BRL	10									
Dibenzofuran	BRL	10									
Diethyl phthalate	BRL	10									
Dimethyl phthalate	BRL	10									
Fluoranthene	BRL	10									
Fluorene	BRL	10									
Hexachlorobenzene	BRL	10									
Hexachlorobutadiene	BRL	10									
Hexachlorocyclopentadiene	BRL	10									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283373

Sample ID: **MB-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095236**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachloroethane	BRL	10									
Indeno(1,2,3-cd)pyrene	BRL	10									
Isophorone	BRL	10									
N-Nitrosodi-n-propylamine	BRL	10									
N-Nitrosodiphenylamine	BRL	10									
Naphthalene	BRL	10									
Nitrobenzene	BRL	10									
Pentachlorophenol	BRL	25									
Phenanthrene	BRL	10									
Phenol	BRL	10									
Pyrene	BRL	10									
Surr: 2,4,6-Tribromophenol	109.5	0	100.0		110	47	127				
Surr: 2-Fluorobiphenyl	43.59	0	50.00		87.2	47.4	119				
Surr: 2-Fluorophenol	68.41	0	100.0		68.4	26.2	120				
Surr: 4-Terphenyl-d14	45.84	0	50.00		91.7	45	133				
Surr: Nitrobenzene-d5	45.14	0	50.00		90.3	41.9	121				
Surr: Phenol-d5	80.89	0	100.0		80.9	17.8	120				

Sample ID: **LCS-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095237**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	81.13	25	100.0		81.1	70	130				
2,4,6-Trichlorophenol	89.24	10	100.0		89.2	70	130				
2,4-Dichlorophenol	83.19	10	100.0		83.2	70	130				
2,4-Dimethylphenol	72.40	10	100.0		72.4	50	130				
2,4-Dinitrotoluene	90.76	10	100.0		90.8	70	130				
2,6-Dinitrotoluene	91.98	10	100.0		92.0	70	130				

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283373

Sample ID: **LCS-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095237**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2-Chlorophenol	73.40	10	100.0		73.4	50	130				
2-Methylphenol	81.46	10	100.0		81.5	70	130				
3,3´-Dichlorobenzidine	62.65	10	100.0		62.6	10	120				
4-Bromophenyl phenyl ether	103.1	10	100.0		103	70	130				
4-Chloro-3-methylphenol	86.94	10	100.0		86.9	70	130				
4-Methylphenol	91.45	10	100.0		91.4	70	130				
Acenaphthene	122.2	10	150.0		81.5	70	130				
Acenaphthylene	90.37	10	100.0		90.4	70	130				
Anthracene	93.98	10	100.0		94.0	70	130				
Benz(a)anthracene	99.04	10	100.0		99.0	70	130				
Benzo(a)pyrene	47.63	10	50.00		95.3	70	130				
Benzo(b)fluoranthene	95.06	10	100.0		95.1	70	130				
Bis(2-chloroethoxy)methane	87.46	10	100.0		87.5	70	130				
Bis(2-chloroethyl)ether	88.94	10	100.0		88.9	70	130				
Bis(2-chloroisopropyl)ether	69.58	10	100.0		69.6	50	130				
Bis(2-ethylhexyl)phthalate	103.8	10	100.0		104	70	130				
Chrysene	94.75	10	100.0		94.8	70	130				
Di-n-butyl phthalate	99.85	10	100.0		99.8	70	130				
Di-n-octyl phthalate	51.44	10	50.00		103	70	130				
Dibenz(a,h)anthracene	97.21	10	100.0		97.2	70	130				
Diethyl phthalate	86.11	10	100.0		86.1	70	130				
Dimethyl phthalate	88.82	10	100.0		88.8	70	130				
Fluoranthene	49.02	10	50.00		98.0	70	130				
Fluorene	81.91	10	100.0		81.9	70	130				
Hexachlorobenzene	95.82	10	100.0		95.8	70	130				
Hexachlorobutadiene	122.6	10	150.0		81.8	40	130				
N-Nitrosodiphenylamine	112.1	10	150.0		74.7	40	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283373**

Sample ID: **LCS-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095237**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Naphthalene	84.69	10	100.0		84.7	70	130				
Nitrobenzene	93.17	10	100.0		93.2	70	130				
Pyrene	96.72	10	100.0		96.7	70	130				
Surr: 2,4,6-Tribromophenol	96.62	0	100.0		96.6	47	127				
Surr: 2-Fluorobiphenyl	40.31	0	50.00		80.6	47.4	119				
Surr: 2-Fluorophenol	49.59	0	100.0		49.6	26.2	120				
Surr: 4-Terphenyl-d14	43.00	0	50.00		86.0	45	133				
Surr: Nitrobenzene-d5	42.10	0	50.00		84.2	41.9	121				
Surr: Phenol-d5	72.35	0	100.0		72.4	17.8	120				

Sample ID: **LCSD-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **LCSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095238**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	80.80	25	100.0		80.8	70	130	81.13	0.408	20	
2,4,6-Trichlorophenol	88.89	10	100.0		88.9	70	130	89.24	0.393	20	
2,4-Dichlorophenol	79.94	10	100.0		79.9	70	130	83.19	3.98	20	
2,4-Dimethylphenol	75.36	10	100.0		75.4	50	130	72.40	4.01	20	
2,4-Dinitrotoluene	90.88	10	100.0		90.9	70	130	90.76	0.132	20	
2,6-Dinitrotoluene	91.87	10	100.0		91.9	70	130	91.98	0.120	20	
2-Chlorophenol	68.91	10	100.0		68.9	50	130	73.40	6.31	20	
2-Methylphenol	82.41	10	100.0		82.4	70	130	81.46	1.16	20	
3,3´-Dichlorobenzidine	58.13	10	100.0		58.1	10	120	62.65	7.48	20	
4-Bromophenyl phenyl ether	100.9	10	100.0		101	70	130	103.1	2.23	20	
4-Chloro-3-methylphenol	86.02	10	100.0		86.0	70	130	86.94	1.06	20	
4-Methylphenol	90.02	10	100.0		90.0	70	130	91.45	1.58	20	
Acenaphthene	124.6	10	150.0		83.1	70	130	122.2	1.90	20	
Acenaphthylene	90.48	10	100.0		90.5	70	130	90.37	0.122	20	

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283373**

Sample ID: **LCSD-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **LCSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095238**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	92.32	10	100.0		92.3	70	130	93.98	1.78	20	
Benz(a)anthracene	100.1	10	100.0		100	70	130	99.04	1.09	20	
Benzo(a)pyrene	48.31	10	50.00		96.6	70	130	47.63	1.42	20	
Benzo(b)fluoranthene	93.32	10	100.0		93.3	70	130	95.06	1.85	20	
Bis(2-chloroethoxy)methane	86.71	10	100.0		86.7	70	130	87.46	0.861	20	
Bis(2-chloroethyl)ether	86.91	10	100.0		86.9	70	130	88.94	2.31	20	
Bis(2-chloroisopropyl)ether	67.89	10	100.0		67.9	50	130	69.58	2.46	20	
Bis(2-ethylhexyl)phthalate	102.7	10	100.0		103	70	130	103.8	1.04	20	
Chrysene	95.52	10	100.0		95.5	70	130	94.75	0.809	20	
Di-n-butyl phthalate	97.22	10	100.0		97.2	70	130	99.85	2.67	20	
Di-n-octyl phthalate	51.58	10	50.00		103	70	130	51.44	0.272	20	
Dibenz(a,h)anthracene	98.96	10	100.0		99.0	70	130	97.21	1.78	20	
Diethyl phthalate	86.68	10	100.0		86.7	70	130	86.11	0.660	20	
Dimethyl phthalate	88.91	10	100.0		88.9	70	130	88.82	0.101	20	
Fluoranthene	49.13	10	50.00		98.3	70	130	49.02	0.224	20	
Fluorene	82.99	10	100.0		83.0	70	130	81.91	1.31	20	
Hexachlorobenzene	95.60	10	100.0		95.6	70	130	95.82	0.230	20	
Hexachlorobutadiene	125.5	10	150.0		83.7	40	130	122.6	2.30	20	
N-Nitrosodiphenylamine	107.9	10	150.0		71.9	40	130	112.1	3.81	20	
Naphthalene	84.71	10	100.0		84.7	70	130	84.69	0.024	20	
Nitrobenzene	92.43	10	100.0		92.4	70	130	93.17	0.797	20	
Pyrene	96.42	10	100.0		96.4	70	130	96.72	0.311	20	
Surr: 2,4,6-Tribromophenol	94.73	0	100.0		94.7	47	127	96.62	0	0	
Surr: 2-Fluorobiphenyl	39.86	0	50.00		79.7	47.4	119	40.31	0	0	
Surr: 2-Fluorophenol	42.62	0	100.0		42.6	26.2	120	49.59	0	0	
Surr: 4-Terphenyl-d14	42.63	0	50.00		85.3	45	133	43.00	0	0	
Surr: Nitrobenzene-d5	41.62	0	50.00		83.2	41.9	121	42.10	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283373**

Sample ID: **LCSD-283373** Client ID: Units: **ug/L** Prep Date: **08/12/2019** Run No: **404839**
SampleType: **LCSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283373** Analysis Date: **08/14/2019** Seq No: **9095238**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: Phenol-d5	67.18	0	100.0		67.2	17.8	120	72.35	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283426

Sample ID: **MB-283426** Client ID: Units: **ug/Kg** Prep Date: **08/13/2019** Run No: **404781**
SampleType: **MBLK** TestCode: **POLYCHLORINATED BIPHENYLS SW8082A** BatchID: **283426** Analysis Date: **08/13/2019** Seq No: **9095145**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aroclor 1016	BRL	33									
Aroclor 1221	BRL	33									
Aroclor 1232	BRL	33									
Aroclor 1242	BRL	33									
Aroclor 1248	BRL	33									
Aroclor 1254	BRL	33									
Aroclor 1260	BRL	33				70	130				
Surr: Decachlorobiphenyl	17.25	0	16.67		103	70	130				
Surr: Tetrachloro-m-xylene	13.74	0	16.67		82.4	70	130				

Sample ID: **LCS-283426** Client ID: Units: **ug/Kg** Prep Date: **08/13/2019** Run No: **404781**
SampleType: **LCS** TestCode: **POLYCHLORINATED BIPHENYLS SW8082A** BatchID: **283426** Analysis Date: **08/13/2019** Seq No: **9095146**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aroclor 1016	138.6	33	166.7		83.2	70	130				
Aroclor 1260	138.6	33	166.7		83.2	70	130				
Surr: Decachlorobiphenyl	17.05	0	16.67		102	70	130				
Surr: Tetrachloro-m-xylene	13.24	0	16.67		79.4	70	130				

Sample ID: **1908589-018CMS** Client ID: **GF-SB-13** Units: **ug/Kg-dry** Prep Date: **08/13/2019** Run No: **404781**
SampleType: **MS** TestCode: **POLYCHLORINATED BIPHENYLS SW8082A** BatchID: **283426** Analysis Date: **08/13/2019** Seq No: **9095148**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aroclor 1016	126.4	37	187.0		67.6	50.7	129				
Aroclor 1260	130.7	37	187.0		69.9	52.2	129				
Surr: Decachlorobiphenyl	16.29	0	18.71		87.1	45.7	140				
Surr: Tetrachloro-m-xylene	12.26	0	18.71		65.5	45.3	126				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283426**

Sample ID: **1908589-018CMSD** Client ID: **GF-SB-13** Units: **ug/Kg-dry** Prep Date: **08/13/2019** Run No: **404781**
SampleType: **MSD** TestCode: **POLYCHLORINATED BIPHENYLS SW8082A** BatchID: **283426** Analysis Date: **08/13/2019** Seq No: **9095149**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aroclor 1016	139.7	37	187.0		74.7	50.7	129	126.4	9.93	17	
Aroclor 1260	141.0	37	187.0		75.4	52.2	129	130.7	7.58	18.7	
Surr: Decachlorobiphenyl	18.31	0	18.71		97.9	45.7	140	16.29	0	0	
Surr: Tetrachloro-m-xylene	13.73	0	18.71		73.4	45.3	126	12.26	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283427**

Sample ID: **MB-283427** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404989**
SampleType: **MBLK** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283427** Analysis Date: **08/15/2019** Seq No: **9099460**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDD	BRL	3.3									
4,4´-DDE	BRL	3.3									
4,4´-DDT	BRL	3.3									
Aldrin	BRL	1.7									
alpha-BHC	BRL	1.7									
alpha-Chlordane	BRL	1.7									
beta-BHC	BRL	1.7									
delta-BHC	BRL	1.7									
Dieldrin	BRL	3.3									
Endosulfan I	BRL	1.7									
Endosulfan II	BRL	3.3									
Endosulfan sulfate	BRL	3.3									
Endrin	BRL	3.3									
Endrin aldehyde	BRL	3.3									
Endrin ketone	BRL	3.3									
gamma-BHC	BRL	1.7									
gamma-Chlordane	BRL	1.7									
Heptachlor	BRL	1.7									
Heptachlor epoxide	BRL	1.7									
Methoxychlor	BRL	17									
Toxaphene	BRL	170									
Surr: Decachlorobiphenyl	16.52	0	16.67		99.1	70	130				
Surr: Tetrachloro-m-xylene	14.01	0	16.67		84.0	70	130				

Sample ID: **LCS-283427** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **405008**
SampleType: **LCS** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283427** Analysis Date: **08/16/2019** Seq No: **9099876**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283427**

Sample ID: **LCS-283427** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **405008**
SampleType: **LCS** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283427** Analysis Date: **08/16/2019** Seq No: **9099876**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDD	29.93	3.3	33.33		89.8	70	130				
4,4´-DDE	31.21	3.3	33.33		93.6	70	130				
4,4´-DDT	30.53	3.3	33.33		91.6	70	130				
Aldrin	28.47	1.7	33.33		85.4	70	130				
alpha-BHC	30.56	1.7	33.33		91.7	70	130				
alpha-Chlordane	30.13	1.7	33.33		90.4	70	130				
beta-BHC	30.87	1.7	33.33		92.6	70	130				
delta-BHC	31.83	1.7	33.33		95.5	70	130				
Dieldrin	29.06	3.3	33.33		87.2	70	130				
Endosulfan I	28.80	1.7	33.33		86.4	70	130				
Endosulfan II	30.22	3.3	33.33		90.7	70	130				
Endosulfan sulfate	27.55	3.3	33.33		82.7	70	130				
Endrin	30.70	3.3	33.33		92.1	70	130				
Endrin aldehyde	24.03	3.3	33.33		72.1	70	130				
Endrin ketone	30.30	3.3	33.33		90.9	70	130				
gamma-BHC	30.31	1.7	33.33		90.9	70	130				
gamma-Chlordane	29.98	1.7	33.33		90.0	70	130				
Heptachlor	28.66	1.7	33.33		86.0	70	130				
Heptachlor epoxide	28.79	1.7	33.33		86.4	70	130				
Methoxychlor	88.60	17	100.0		88.6	70	130				
Surr: Decachlorobiphenyl	16.54	0	16.67		99.2	70	130				
Surr: Tetrachloro-m-xylene	12.94	0	16.67		77.6	70	130				

Sample ID: **1908906-001BMS** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404989**
SampleType: **MS** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283427** Analysis Date: **08/15/2019** Seq No: **9099463**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDD	30.74	4.3	42.80		71.8	52.8	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283427**

Sample ID: **1908906-001BMS** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404989**
SampleType: **MS** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283427** Analysis Date: **08/15/2019** Seq No: **9099463**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDE	31.41	4.3	42.80		73.4	52.4	121				
4,4´-DDT	30.15	4.3	42.80		70.4	42.5	125				
Aldrin	29.24	2.1	42.80		68.3	45	120				
alpha-BHC	30.90	2.1	42.80		72.2	58.2	124				
alpha-Chlordane	30.49	2.1	42.80		71.2	52.6	122				
beta-BHC	31.80	2.1	42.80		74.3	50.1	120				
delta-BHC	32.51	2.1	42.80		76.0	50	120				
Dieldrin	29.57	4.3	42.80		69.1	50	122				
Endosulfan I	29.23	2.1	42.80		68.3	51.1	120				
Endosulfan II	30.81	4.3	42.80		72.0	46.1	124				
Endosulfan sulfate	28.26	4.3	42.80		66.0	50.7	125				
Endrin	31.27	4.3	42.80		73.1	57	129				
Endrin aldehyde	24.14	4.3	42.80		56.4	51.5	120				
Endrin ketone	31.02	4.3	42.80		72.5	50	122				
gamma-BHC	30.90	2.1	42.80		72.2	50	122				
gamma-Chlordane	30.38	2.1	42.80		71.0	50.5	126				
Heptachlor	28.67	2.1	42.80		67.0	50.6	120				
Heptachlor epoxide	29.06	2.1	42.80		67.9	51	120				
Methoxychlor	89.60	21	128.4		69.8	52.9	126				
Surr: Decachlorobiphenyl	16.50	0	21.41		77.1	44.5	124				
Surr: Tetrachloro-m-xylene	12.99	0	21.41		60.7	45.1	120				

Sample ID: **1908906-001BMSD** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404989**
SampleType: **MSD** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283427** Analysis Date: **08/15/2019** Seq No: **9099464**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDD	32.86	4.3	42.80		76.8	52.8	120	30.74	6.64	21.9	
4,4´-DDE	33.70	4.3	42.80		78.7	52.4	121	31.41	7.03	21.1	

Qualifiers:
- > Greater than Result value
- BRL Below reporting limit
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- E Estimated (value above quantitation range)
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- B Analyte detected in the associated method blank
- H Holding times for preparation or analysis exceeded
- R RPD outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283427**

Sample ID: **1908906-001BMSD** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404989**
SampleType: **MSD** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283427** Analysis Date: **08/15/2019** Seq No: **9099464**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDT	32.23	4.3	42.80		75.3	42.5	125	30.15	6.65	26.4	
Aldrin	31.47	2.1	42.80		73.5	45	120	29.24	7.33	26.2	
alpha-BHC	33.44	2.1	42.80		78.1	58.2	124	30.90	7.89	28	
alpha-Chlordane	32.72	2.1	42.80		76.4	52.6	122	30.49	7.05	24.5	
beta-BHC	34.12	2.1	42.80		79.7	50.1	120	31.80	7.06	23.7	
delta-BHC	35.02	2.1	42.80		81.8	50	120	32.51	7.42	23.6	
Dieldrin	31.77	4.3	42.80		74.2	50	122	29.57	7.17	39.2	
Endosulfan I	31.30	2.1	42.80		73.1	51.1	120	29.23	6.84	22.6	
Endosulfan II	32.83	4.3	42.80		76.7	46.1	124	30.81	6.36	32.6	
Endosulfan sulfate	29.97	4.3	42.80		70.0	50.7	125	28.26	5.89	18.8	
Endrin	33.60	4.3	42.80		78.5	57	129	31.27	7.17	24.8	
Endrin aldehyde	25.61	4.3	42.80		59.8	51.5	120	24.14	5.93	22.9	
Endrin ketone	32.98	4.3	42.80		77.0	50	122	31.02	6.11	22.4	
gamma-BHC	33.23	2.1	42.80		77.6	50	122	30.90	7.27	25.8	
gamma-Chlordane	32.63	2.1	42.80		76.2	50.5	126	30.38	7.12	26	
Heptachlor	31.00	2.1	42.80		72.4	50.6	120	28.67	7.82	28	
Heptachlor epoxide	31.04	2.1	42.80		72.5	51	120	29.06	6.59	22.5	
Methoxychlor	94.87	21	128.4		73.9	52.9	126	89.60	5.71	25.6	
Surr: Decachlorobiphenyl	17.76	0	21.41		83.0	44.5	124	16.50	0	0	
Surr: Tetrachloro-m-xylene	14.49	0	21.41		67.7	45.1	120	12.99	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283441

Sample ID: **MB-283441** Client ID: Units: **mg/Kg** Prep Date: **08/13/2019** Run No: **404731**
SampleType: **MBLK** TestCode: **Total Mercury by SW7473** BatchID: **283441** Analysis Date: **08/13/2019** Seq No: **9092543**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	BRL	0.100									

Sample ID: **LCS-283441** Client ID: Units: **mg/Kg** Prep Date: **08/13/2019** Run No: **404731**
SampleType: **LCS** TestCode: **Total Mercury by SW7473** BatchID: **283441** Analysis Date: **08/13/2019** Seq No: **9092544**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	1.007	0.100	1.000		101	80	120				

Sample ID: **1908589-008AMS** Client ID: **GF-SS-09 DUP** Units: **mg/Kg-dry** Prep Date: **08/13/2019** Run No: **404731**
SampleType: **MS** TestCode: **Total Mercury by SW7473** BatchID: **283441** Analysis Date: **08/13/2019** Seq No: **9092546**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.9653	0.120	1.183		81.6	80	120				

Sample ID: **1908589-008AMSD** Client ID: **GF-SS-09 DUP** Units: **mg/Kg-dry** Prep Date: **08/13/2019** Run No: **404731**
SampleType: **MSD** TestCode: **Total Mercury by SW7473** BatchID: **283441** Analysis Date: **08/13/2019** Seq No: **9092547**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.9611	0.120	1.174		81.9	80	120	0.9653	0.436	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283484

Sample ID: **MB-283484** Client ID: Units: **mg/Kg** Prep Date: **08/13/2019** Run No: **404732**
SampleType: **MBLK** TestCode: **Cyanide, Total SW9014** BatchID: **283484** Analysis Date: **08/13/2019** Seq No: **9092573**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cyanide, Total	BRL	1.00									

Sample ID: **LCS-283484** Client ID: Units: **mg/Kg** Prep Date: **08/13/2019** Run No: **404732**
SampleType: **LCS** TestCode: **Cyanide, Total SW9014** BatchID: **283484** Analysis Date: **08/13/2019** Seq No: **9092574**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cyanide, Total	12.60	1.00	12.50		101	85	115				

Sample ID: **1908589-030BMS** Client ID: **GF-SS-17** Units: **mg/Kg-dry** Prep Date: **08/13/2019** Run No: **404732**
SampleType: **MS** TestCode: **Cyanide, Total SW9014** BatchID: **283484** Analysis Date: **08/13/2019** Seq No: **9092578**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cyanide, Total	19.80	1.78	22.29		88.8	70	130				

Sample ID: **1908589-030BMSD** Client ID: **GF-SS-17** Units: **mg/Kg-dry** Prep Date: **08/13/2019** Run No: **404732**
SampleType: **MSD** TestCode: **Cyanide, Total SW9014** BatchID: **283484** Analysis Date: **08/13/2019** Seq No: **9092579**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cyanide, Total	19.35	1.78	22.29		86.8	70	130	19.80	2.28	30	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283505**

Sample ID: **MB-283505** Client ID: Units: **mg/Kg** Prep Date: **08/14/2019** Run No: **404852**
SampleType: **MBLK** TestCode: **Total Mercury by SW7473** BatchID: **283505** Analysis Date: **08/14/2019** Seq No: **9095366**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	BRL	0.100									

Sample ID: **LCS-283505** Client ID: Units: **mg/Kg** Prep Date: **08/14/2019** Run No: **404852**
SampleType: **LCS** TestCode: **Total Mercury by SW7473** BatchID: **283505** Analysis Date: **08/14/2019** Seq No: **9095367**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.8799	0.100	1.000		88.0	80	120				

Sample ID: **1908C13-001CMS** Client ID: Units: **mg/Kg-dry** Prep Date: **08/14/2019** Run No: **404852**
SampleType: **MS** TestCode: **Total Mercury by SW7473** BatchID: **283505** Analysis Date: **08/14/2019** Seq No: **9095371**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	1.064	0.106	1.059	0.02495	98.1	80	120				

Sample ID: **1908C13-001CMSD** Client ID: Units: **mg/Kg-dry** Prep Date: **08/14/2019** Run No: **404852**
SampleType: **MSD** TestCode: **Total Mercury by SW7473** BatchID: **283505** Analysis Date: **08/14/2019** Seq No: **9095374**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	1.092	0.106	1.061	0.02495	101	80	120	1.064	2.68	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283608**

Sample ID: **MB-283608** Client ID: Units: **ug/Kg** Prep Date: **08/14/2019** Run No: **404912**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283608** Analysis Date: **08/14/2019** Seq No: **9097052**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	100									
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	10									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283608**

Sample ID: **MB-283608** Client ID: Units: **ug/Kg** Prep Date: **08/14/2019** Run No: **404912**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283608** Analysis Date: **08/14/2019** Seq No: **9097052**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	BRL	20									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	10									
Surr: 4-Bromofluorobenzene	45.77	0	50.00		91.5	70	130				
Surr: Dibromofluoromethane	48.75	0	50.00		97.5	70	130				
Surr: Toluene-d8	45.84	0	50.00		91.7	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283608**

Sample ID: **LCS-283608** Client ID: Units: **ug/Kg** Prep Date: **08/14/2019** Run No: **404912**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283608** Analysis Date: **08/14/2019** Seq No: **9097051**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	58.37	5.0	50.00		117	70	130				
1,1,2,2-Tetrachloroethane	53.86	5.0	50.00		108	70	130				
1,1,2-Trichloroethane	53.64	5.0	50.00		107	70	130				
1,1-Dichloroethane	57.42	5.0	50.00		115	70	130				
1,1-Dichloroethene	69.65	5.0	50.00		139	60	140				
1,2,4-Trichlorobenzene	57.34	5.0	50.00		115	70	130				
1,2-Dibromo-3-chloropropane	50.27	5.0	50.00		101	70	130				
1,2-Dibromoethane	55.00	5.0	50.00		110	70	130				
1,2-Dichlorobenzene	56.15	5.0	50.00		112	70	130				
1,2-Dichloroethane	55.39	5.0	50.00		111	70	130				
1,2-Dichloropropane	55.27	5.0	50.00		111	70	130				
1,3-Dichlorobenzene	58.02	5.0	50.00		116	70	130				
1,4-Dichlorobenzene	56.92	5.0	50.00		114	70	130				
Benzene	57.90	5.0	50.00		116	70	130				
Bromodichloromethane	56.44	5.0	50.00		113	70	130				
Bromoform	52.06	5.0	50.00		104	70	130				
Carbon tetrachloride	57.89	5.0	50.00		116	70	130				
Chlorobenzene	56.49	5.0	50.00		113	70	130				
Chloroform	53.91	5.0	50.00		108	70	130				
cis-1,2-Dichloroethene	57.66	5.0	50.00		115	70	130				
cis-1,3-Dichloropropene	56.54	5.0	50.00		113	70	130				
Dibromochloromethane	55.95	5.0	50.00		112	70	130				
Ethylbenzene	55.83	5.0	50.00		112	70	130				
Isopropylbenzene	58.35	5.0	50.00		117	70	130				
m,p-Xylene	118.0	5.0	100.0		118	70	130				
Methylene chloride	55.17	20	50.00		110	70	130				
o-Xylene	55.44	5.0	50.00		111	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283608**

Sample ID: **LCS-283608** Client ID: Units: **ug/Kg** Prep Date: **08/14/2019** Run No: **404912**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283608** Analysis Date: **08/14/2019** Seq No: **9097051**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Styrene	56.01	5.0	50.00		112	70	130				
Tetrachloroethene	54.65	5.0	50.00		109	70	130				
Toluene	56.27	5.0	50.00		113	70	130				
trans-1,2-Dichloroethene	62.52	5.0	50.00		125	70	130				
trans-1,3-Dichloropropene	52.99	5.0	50.00		106	70	130				
Trichloroethene	57.03	5.0	50.00		114	70	130				
Vinyl chloride	48.85	10	50.00		97.7	70	130				
Surr: 4-Bromofluorobenzene	50.13	0	50.00		100	70	130				
Surr: Dibromofluoromethane	49.38	0	50.00		98.8	70	130				
Surr: Toluene-d8	49.75	0	50.00		99.5	70	130				

Sample ID: **1908589-006AMS** Client ID: **GF-SB-08** Units: **ug/Kg-dry** Prep Date: **08/14/2019** Run No: **404912**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283608** Analysis Date: **08/15/2019** Seq No: **9098288**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.92	4.8	47.54		94.5	61.1	136				
1,1,2,2-Tetrachloroethane	44.11	4.8	47.54		92.8	70.3	120				
1,1,2-Trichloroethane	45.61	4.8	47.54		95.9	74.4	125				
1,1-Dichloroethane	43.82	4.8	47.54		92.2	59.1	140				
1,1-Dichloroethene	46.98	4.8	47.54		98.8	61.8	140				
1,2,4-Trichlorobenzene	42.37	4.8	47.54		89.1	51.5	140				
1,2-Dibromo-3-chloropropane	42.48	4.8	47.54		89.4	56.1	140				
1,2-Dibromoethane	46.02	4.8	47.54		96.8	70.9	130				
1,2-Dichlorobenzene	45.31	4.8	47.54		95.3	70.4	129				
1,2-Dichloroethane	45.82	4.8	47.54		96.4	70.3	131				
1,2-Dichloropropane	46.30	4.8	47.54		97.4	66.2	132				
1,3-Dichlorobenzene	47.34	4.8	47.54		99.6	65	134				
1,4-Dichlorobenzene	45.34	4.8	47.54		95.4	67.9	128				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283608**

Sample ID: **1908589-006AMS** Client ID: **GF-SB-08** Units: **ug/Kg-dry** Prep Date: **08/14/2019** Run No: **404912**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283608** Analysis Date: **08/15/2019** Seq No: **9098288**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	48.39	4.8	47.54		102	69	131				
Bromodichloromethane	46.85	4.8	47.54		98.5	62.4	128				
Bromoform	46.05	4.8	47.54		96.9	51.6	138				
Carbon tetrachloride	50.26	4.8	47.54		106	63	140				
Chlorobenzene	48.33	4.8	47.54		102	69.5	133				
Chloroform	43.94	4.8	47.54		92.4	63.6	135				
cis-1,2-Dichloroethene	44.16	4.8	47.54		92.9	65.7	140				
cis-1,3-Dichloropropene	43.57	4.8	47.54		91.6	63.7	134				
Dibromochloromethane	46.19	4.8	47.54		97.2	59.6	132				
Ethylbenzene	48.43	4.8	47.54		102	71.1	126				
Isopropylbenzene	47.99	4.8	47.54		101	60.4	140				
m,p-Xylene	103.7	4.8	95.08		109	66.9	129				
Methylene chloride	41.14	19	47.54		86.5	61.7	136				
o-Xylene	47.52	4.8	47.54		100.0	69.3	127				
Styrene	48.23	4.8	47.54		101	69	135				
Tetrachloroethene	49.70	4.8	47.54		105	61.3	140				
Toluene	49.49	4.8	47.54		104	65.9	133				
trans-1,2-Dichloroethene	46.72	4.8	47.54		98.3	60.9	140				
trans-1,3-Dichloropropene	43.37	4.8	47.54		91.2	56.5	137				
Trichloroethene	49.97	4.8	47.54		105	65.9	135				
Vinyl chloride	41.45	9.5	47.54		87.2	60.2	140				
Surr: 4-Bromofluorobenzene	48.28	0	47.54		102	65.1	125				
Surr: Dibromofluoromethane	50.94	0	47.54		107	77.7	123				
Surr: Toluene-d8	49.18	0	47.54		103	83.2	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283608**

Sample ID: **1908669-001ADUP** Client ID: Units: **ug/Kg-dry** Prep Date: **08/14/2019** Run No: **404912**
SampleType: **DUP** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283608** Analysis Date: **08/14/2019** Seq No: **9097054**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0						0	0	20	
1,1,2,2-Tetrachloroethane	BRL	5.0						0	0	20	
1,1,2-Trichloroethane	BRL	5.0						0	0	20	
1,1-Dichloroethane	BRL	5.0						0	0	20	
1,1-Dichloroethene	BRL	5.0						0	0	20	
1,2,4-Trichlorobenzene	BRL	5.0						0	0	20	
1,2-Dibromo-3-chloropropane	BRL	5.0						0	0	20	
1,2-Dibromoethane	BRL	5.0						0	0	20	
1,2-Dichlorobenzene	BRL	5.0						0	0	20	
1,2-Dichloroethane	BRL	5.0						0	0	20	
1,2-Dichloropropane	BRL	5.0						0	0	20	
1,3-Dichlorobenzene	BRL	5.0						0	0	20	
1,4-Dichlorobenzene	BRL	5.0						0	0	20	
2-Butanone	BRL	50						0	0	20	
2-Hexanone	BRL	10.0						0	0	20	
4-Methyl-2-pentanone	BRL	10.0						0	0	20	
Acetone	BRL	100						44.01	0	20	
Benzene	BRL	5.0						0	0	20	
Bromodichloromethane	BRL	5.0						0	0	20	
Bromoform	BRL	5.0						0	0	20	
Bromomethane	BRL	5.0						0	0	20	
Carbon disulfide	BRL	10.0						0	0	20	
Carbon tetrachloride	BRL	5.0						0	0	20	
Chlorobenzene	BRL	5.0						0	0	20	
Chloroethane	BRL	10.0						0	0	20	
Chloroform	BRL	5.0						0	0	20	
Chloromethane	BRL	10.0						0	0	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283608**

Sample ID: **1908669-001ADUP** Client ID: Units: **ug/Kg-dry** Prep Date: **08/14/2019** Run No: **404912**
SampleType: **DUP** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283608** Analysis Date: **08/14/2019** Seq No: **9097054**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0						0	0	20	
cis-1,3-Dichloropropene	BRL	5.0						0	0	20	
Cyclohexane	BRL	5.0						0	0	20	
Dibromochloromethane	BRL	5.0						0	0	20	
Dichlorodifluoromethane	BRL	10.0						0	0	20	
Ethylbenzene	BRL	5.0						0	0	20	
Freon-113	BRL	10.0						0	0	20	
Isopropylbenzene	BRL	5.0						0	0	20	
m,p-Xylene	BRL	5.0						0	0	20	
Methyl acetate	BRL	5.0						0	0	20	
Methyl tert-butyl ether	BRL	5.0						0	0	20	
Methylcyclohexane	BRL	5.0						0	0	20	
Methylene chloride	BRL	20						6.361	0	20	
o-Xylene	BRL	5.0						0	0	20	
Styrene	BRL	5.0						0	0	20	
Tetrachloroethene	BRL	5.0						0	0	20	
Toluene	BRL	5.0						0	0	20	
trans-1,2-Dichloroethene	BRL	5.0						0	0	20	
trans-1,3-Dichloropropene	BRL	5.0						0	0	20	
Trichloroethene	BRL	5.0						0	0	20	
Trichlorofluoromethane	BRL	5.0						0	0	20	
Vinyl chloride	BRL	10.0						0	0	20	
Surr: 4-Bromofluorobenzene	39.74	0						45.23	0	0	
Surr: Dibromofluoromethane	51.30	0						49.83	0	0	
Surr: Toluene-d8	46.50	0						46.70	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283627**

Sample ID: **MB-283627** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404968**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283627** Analysis Date: **08/15/2019** Seq No: **9099889**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	250									
1,1,2,2-Tetrachloroethane	BRL	250									
1,1,2-Trichloroethane	BRL	250									
1,1-Dichloroethane	BRL	250									
1,1-Dichloroethene	BRL	250									
1,2,4-Trichlorobenzene	BRL	250									
1,2-Dibromo-3-chloropropane	BRL	250									
1,2-Dibromoethane	BRL	250									
1,2-Dichlorobenzene	BRL	250									
1,2-Dichloroethane	BRL	250									
1,2-Dichloropropane	BRL	250									
1,3-Dichlorobenzene	BRL	250									
1,4-Dichlorobenzene	BRL	250									
2-Butanone	BRL	2500									
2-Hexanone	BRL	500									
4-Methyl-2-pentanone	BRL	500									
Acetone	BRL	5000									
Benzene	BRL	250									
Bromodichloromethane	BRL	250									
Bromoform	BRL	250									
Bromomethane	BRL	250									
Carbon disulfide	BRL	500									
Carbon tetrachloride	BRL	250									
Chlorobenzene	BRL	250									
Chloroethane	BRL	500									
Chloroform	BRL	250									
Chloromethane	BRL	500									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283627**

Sample ID: **MB-283627** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404968**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283627** Analysis Date: **08/15/2019** Seq No: **9099889**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	250									
cis-1,3-Dichloropropene	BRL	250									
Cyclohexane	BRL	250									
Dibromochloromethane	BRL	250									
Dichlorodifluoromethane	BRL	500									
Ethylbenzene	BRL	250									
Freon-113	BRL	500									
Isopropylbenzene	BRL	250									
m,p-Xylene	BRL	250									
Methyl acetate	BRL	250									
Methyl tert-butyl ether	BRL	250									
Methylcyclohexane	BRL	250									
Methylene chloride	BRL	1000									
o-Xylene	BRL	250									
Styrene	BRL	250									
Tetrachloroethene	BRL	250									
Toluene	BRL	250									
trans-1,2-Dichloroethene	BRL	250									
trans-1,3-Dichloropropene	BRL	250									
Trichloroethene	BRL	250									
Trichlorofluoromethane	BRL	250									
Vinyl chloride	BRL	500									
Surr: 4-Bromofluorobenzene	2430	0	2500		97.2	70	130				
Surr: Dibromofluoromethane	2308	0	2500		92.3	70	130				
Surr: Toluene-d8	2596	0	2500		104	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283627**

Sample ID: **LCS-283627** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404968**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283627** Analysis Date: **08/15/2019** Seq No: **9099893**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	2508	250	2500		100	70	130				
1,1,2,2-Tetrachloroethane	2604	250	2500		104	70	130				
1,1,2-Trichloroethane	2636	250	2500		105	70	130				
1,1-Dichloroethane	2530	250	2500		101	70	130				
1,1-Dichloroethene	2588	250	2500		104	60	140				
1,2,4-Trichlorobenzene	2599	250	2500		104	70	130				
1,2-Dibromo-3-chloropropane	2630	250	2500		105	70	130				
1,2-Dibromoethane	2710	250	2500		108	70	130				
1,2-Dichlorobenzene	2588	250	2500		104	70	130				
1,2-Dichloroethane	2562	250	2500		102	70	130				
1,2-Dichloropropane	2543	250	2500		102	70	130				
1,3-Dichlorobenzene	2590	250	2500		104	70	130				
1,4-Dichlorobenzene	2569	250	2500		103	70	130				
Benzene	2491	250	2500		99.6	70	130				
Bromodichloromethane	2482	250	2500		99.3	70	130				
Bromoform	2470	250	2500		98.8	70	130				
Carbon tetrachloride	2497	250	2500		99.9	70	130				
Chlorobenzene	2594	250	2500		104	70	130				
Chloroform	2438	250	2500		97.5	70	130				
cis-1,2-Dichloroethene	2498	250	2500		99.9	70	130				
cis-1,3-Dichloropropene	2638	250	2500		106	70	130				
Dibromochloromethane	2588	250	2500		104	70	130				
Ethylbenzene	2641	250	2500		106	70	130				
Isopropylbenzene	2686	250	2500		107	70	130				
m,p-Xylene	5362	250	5000		107	70	130				
Methylene chloride	2484	1000	2500		99.4	70	130				
o-Xylene	2658	250	2500		106	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283627**

Sample ID: **LCS-283627** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404968**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283627** Analysis Date: **08/15/2019** Seq No: **9099893**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Styrene	2766	250	2500		111	70	130				
Tetrachloroethene	2699	250	2500		108	70	130				
Toluene	2548	250	2500		102	70	130				
trans-1,2-Dichloroethene	2592	250	2500		104	70	130				
trans-1,3-Dichloropropene	2493	250	2500		99.7	70	130				
Trichloroethene	2546	250	2500		102	70	130				
Vinyl chloride	2800	500	2500		112	70	130				
Surr: 4-Bromofluorobenzene	2501	0	2500		100	70	130				
Surr: Dibromofluoromethane	2437	0	2500		97.5	70	130				
Surr: Toluene-d8	2669	0	2500		107	70	130				

Sample ID: **1908487-016AMS** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404968**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283627** Analysis Date: **08/15/2019** Seq No: **9099891**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	2968	280	2764		107	61.1	136				
1,1,2,2-Tetrachloroethane	3190	280	2764		115	70.3	120				
1,1,2-Trichloroethane	3118	280	2764		113	74.4	125				
1,1-Dichloroethane	2998	280	2764		108	59.1	140				
1,1-Dichloroethene	3049	280	2764		110	61.8	140				
1,2,4-Trichlorobenzene	2736	280	2764		99.0	51.5	140				
1,2-Dibromo-3-chloropropane	2562	280	2764		92.7	56.1	140				
1,2-Dibromoethane	3279	280	2764		119	70.9	130				
1,2-Dichlorobenzene	3039	280	2764		110	70.4	129				
1,2-Dichloroethane	3037	280	2764		110	70.3	131				
1,2-Dichloropropane	3098	280	2764		112	66.2	132				
1,3-Dichlorobenzene	3215	280	2764		116	65	134				
1,4-Dichlorobenzene	3178	280	2764		115	67.9	128				

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 20-Aug-19

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283627

Sample ID: **1908487-016AMS** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404968**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283627** Analysis Date: **08/15/2019** Seq No: **9099891**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	3029	280	2764		110	69	131				
Bromodichloromethane	2900	280	2764		105	62.4	128				
Bromoform	2761	280	2764		99.9	51.6	138				
Carbon tetrachloride	2936	280	2764		106	63	140				
Chlorobenzene	3169	280	2764		115	69.5	133				
Chloroform	2898	280	2764		105	63.6	135				
cis-1,2-Dichloroethene	2996	280	2764		108	65.7	140				
cis-1,3-Dichloropropene	3185	280	2764		115	63.7	134				
Dibromochloromethane	3066	280	2764		111	59.6	132				
Ethylbenzene	3240	280	2764		117	71.1	126				
Isopropylbenzene	3502	280	2764		127	60.4	140				
m,p-Xylene	6561	280	5529		119	66.9	129				
Methylene chloride	2829	1100	2764		102	61.7	136				
o-Xylene	3147	280	2764		114	69.3	127				
Styrene	3352	280	2764		121	69	135				
Tetrachloroethene	3342	280	2764		121	61.3	140				
Toluene	3127	280	2764		113	65.9	133				
trans-1,2-Dichloroethene	3062	280	2764		111	60.9	140				
trans-1,3-Dichloropropene	3036	280	2764		110	56.5	137				
Trichloroethene	3071	280	2764		111	65.9	135				
Vinyl chloride	3160	550	2764		114	60.2	140				
Surr: 4-Bromofluorobenzene	2699	0	2764		97.6	65.1	125				
Surr: Dibromofluoromethane	2578	0	2764		93.3	77.7	123				
Surr: Toluene-d8	2924	0	2764		106	83.2	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283627**

Sample ID: **1908487-016ADUP** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404968**
SampleType: **DUP** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283627** Analysis Date: **08/15/2019** Seq No: **9099892**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	280						0	0	20	
1,1,2,2-Tetrachloroethane	BRL	280						0	0	20	
1,1,2-Trichloroethane	BRL	280						0	0	20	
1,1-Dichloroethane	BRL	280						0	0	20	
1,1-Dichloroethene	BRL	280						0	0	20	
1,2,4-Trichlorobenzene	BRL	280						0	0	20	
1,2-Dibromo-3-chloropropane	BRL	280						0	0	20	
1,2-Dibromoethane	BRL	280						0	0	20	
1,2-Dichlorobenzene	BRL	280						0	0	20	
1,2-Dichloroethane	BRL	280						0	0	20	
1,2-Dichloropropane	BRL	280						0	0	20	
1,3-Dichlorobenzene	BRL	280						0	0	20	
1,4-Dichlorobenzene	BRL	280						0	0	20	
2-Butanone	BRL	2800						0	0	20	
2-Hexanone	BRL	550						0	0	20	
4-Methyl-2-pentanone	BRL	550						0	0	20	
Acetone	BRL	5500						0	0	20	
Benzene	BRL	280						0	0	20	
Bromodichloromethane	BRL	280						0	0	20	
Bromoform	BRL	280						0	0	20	
Bromomethane	BRL	280						0	0	20	
Carbon disulfide	BRL	550						0	0	20	
Carbon tetrachloride	BRL	280						0	0	20	
Chlorobenzene	BRL	280						0	0	20	
Chloroethane	BRL	550						0	0	20	
Chloroform	BRL	280						0	0	20	
Chloromethane	BRL	550						0	0	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283627**

Sample ID: **1908487-016ADUP** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404968**
SampleType: **DUP** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283627** Analysis Date: **08/15/2019** Seq No: **9099892**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	280						0	0	20	
cis-1,3-Dichloropropene	BRL	280						0	0	20	
Cyclohexane	BRL	280						0	0	20	
Dibromochloromethane	BRL	280						0	0	20	
Dichlorodifluoromethane	BRL	550						0	0	20	
Ethylbenzene	BRL	280						0	0	20	
Freon-113	BRL	550						0	0	20	
Isopropylbenzene	BRL	280						0	0	20	
m,p-Xylene	BRL	280						0	0	20	
Methyl acetate	BRL	280						0	0	20	
Methyl tert-butyl ether	BRL	280						0	0	20	
Methylcyclohexane	BRL	280						0	0	20	
Methylene chloride	BRL	1100						0	0	20	
o-Xylene	BRL	280						0	0	20	
Styrene	BRL	280						0	0	20	
Tetrachloroethene	BRL	280						0	0	20	
Toluene	BRL	280						0	0	20	
trans-1,2-Dichloroethene	BRL	280						0	0	20	
trans-1,3-Dichloropropene	BRL	280						0	0	20	
Trichloroethene	BRL	280						0	0	20	
Trichlorofluoromethane	BRL	280						0	0	20	
Vinyl chloride	BRL	550						0	0	20	
Surr: 4-Bromofluorobenzene	2725	0						0	0	0	
Surr: Dibromofluoromethane	2521	0						0	0	0	
Surr: Toluene-d8	2857	0						0	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283668**

Sample ID: **MB-283668** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404999**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283668** Analysis Date: **08/15/2019** Seq No: **9099571**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	100									
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	10									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283668**

Sample ID: **MB-283668** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404999**
SampleType: **MBLK** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283668** Analysis Date: **08/15/2019** Seq No: **9099571**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	BRL	20									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	10									
Surr: 4-Bromofluorobenzene	40.66	0	50.00		81.3	70	130				
Surr: Dibromofluoromethane	53.49	0	50.00		107	70	130				
Surr: Toluene-d8	46.13	0	50.00		92.3	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283668**

Sample ID: **LCS-283668** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404999**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283668** Analysis Date: **08/15/2019** Seq No: **9099570**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.52	5.0	50.00		97.0	70	130				
1,1,2,2-Tetrachloroethane	46.62	5.0	50.00		93.2	70	130				
1,1,2-Trichloroethane	48.64	5.0	50.00		97.3	70	130				
1,1-Dichloroethane	48.99	5.0	50.00		98.0	70	130				
1,1-Dichloroethene	51.86	5.0	50.00		104	60	140				
1,2,4-Trichlorobenzene	41.20	5.0	50.00		82.4	70	130				
1,2-Dibromo-3-chloropropane	44.90	5.0	50.00		89.8	70	130				
1,2-Dibromoethane	48.08	5.0	50.00		96.2	70	130				
1,2-Dichlorobenzene	44.00	5.0	50.00		88.0	70	130				
1,2-Dichloroethane	50.49	5.0	50.00		101	70	130				
1,2-Dichloropropane	47.27	5.0	50.00		94.5	70	130				
1,3-Dichlorobenzene	45.80	5.0	50.00		91.6	70	130				
1,4-Dichlorobenzene	44.38	5.0	50.00		88.8	70	130				
Benzene	49.22	5.0	50.00		98.4	70	130				
Bromodichloromethane	49.96	5.0	50.00		99.9	70	130				
Bromoform	49.04	5.0	50.00		98.1	70	130				
Carbon tetrachloride	51.49	5.0	50.00		103	70	130				
Chlorobenzene	46.50	5.0	50.00		93.0	70	130				
Chloroform	48.77	5.0	50.00		97.5	70	130				
cis-1,2-Dichloroethene	50.42	5.0	50.00		101	70	130				
cis-1,3-Dichloropropene	46.60	5.0	50.00		93.2	70	130				
Dibromochloromethane	47.02	5.0	50.00		94.0	70	130				
Ethylbenzene	45.66	5.0	50.00		91.3	70	130				
Isopropylbenzene	46.43	5.0	50.00		92.9	70	130				
m,p-Xylene	97.49	5.0	100.0		97.5	70	130				
Methylene chloride	48.61	20	50.00		97.2	70	130				
o-Xylene	45.80	5.0	50.00		91.6	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283668**

Sample ID: **LCS-283668** Client ID: Units: **ug/Kg** Prep Date: **08/15/2019** Run No: **404999**
SampleType: **LCS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283668** Analysis Date: **08/15/2019** Seq No: **9099570**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Styrene	47.41	5.0	50.00		94.8	70	130				
Tetrachloroethene	45.03	5.0	50.00		90.1	70	130				
Toluene	48.35	5.0	50.00		96.7	70	130				
trans-1,2-Dichloroethene	51.54	5.0	50.00		103	70	130				
trans-1,3-Dichloropropene	48.06	5.0	50.00		96.1	70	130				
Trichloroethene	48.99	5.0	50.00		98.0	70	130				
Vinyl chloride	56.50	10	50.00		113	70	130				
Surr: 4-Bromofluorobenzene	51.49	0	50.00		103	70	130				
Surr: Dibromofluoromethane	54.87	0	50.00		110	70	130				
Surr: Toluene-d8	51.98	0	50.00		104	70	130				

Sample ID: **1908898-003AMS** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404999**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283668** Analysis Date: **08/15/2019** Seq No: **9099597**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	80.26	6.9	69.28		116	61.1	136				
1,1,2,2-Tetrachloroethane	81.48	6.9	69.28		118	70.3	120				
1,1,2-Trichloroethane	81.75	6.9	69.28		118	74.4	125				
1,1-Dichloroethane	77.96	6.9	69.28		113	59.1	140				
1,1-Dichloroethene	80.23	6.9	69.28		116	61.8	140				
1,2,4-Trichlorobenzene	59.07	6.9	69.28		85.3	51.5	140				
1,2-Dibromo-3-chloropropane	60.93	6.9	69.28		87.9	56.1	140				
1,2-Dibromoethane	84.15	6.9	69.28		121	70.9	130				
1,2-Dichlorobenzene	81.69	6.9	69.28		118	70.4	129				
1,2-Dichloroethane	83.69	6.9	69.28		121	70.3	131				
1,2-Dichloropropane	85.52	6.9	69.28		123	66.2	132				
1,3-Dichlorobenzene	86.67	6.9	69.28		125	65	134				
1,4-Dichlorobenzene	82.07	6.9	69.28		118	67.9	128				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283668**

Sample ID: **1908898-003AMS** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404999**
SampleType: **MS** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283668** Analysis Date: **08/15/2019** Seq No: **9099597**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	88.20	6.9	69.28		127	69	131				
Bromodichloromethane	87.88	6.9	69.28		127	62.4	128				
Bromoform	80.15	6.9	69.28		116	51.6	138				
Carbon tetrachloride	90.47	6.9	69.28		131	63	140				
Chlorobenzene	87.71	6.9	69.28		127	69.5	133				
Chloroform	80.87	6.9	69.28		117	63.6	135				
cis-1,2-Dichloroethene	81.08	6.9	69.28		117	65.7	140				
cis-1,3-Dichloropropene	79.44	6.9	69.28		115	63.7	134				
Dibromochloromethane	88.43	6.9	69.28		128	59.6	132				
Ethylbenzene	89.26	6.9	69.28		129	71.1	126				S
Isopropylbenzene	97.79	6.9	69.28		141	60.4	140				S
m,p-Xylene	187.5	6.9	138.6		135	66.9	129				S
Methylene chloride	80.11	28	69.28		116	61.7	136				
o-Xylene	87.52	6.9	69.28		126	69.3	127				
Styrene	85.27	6.9	69.28		123	69	135				
Tetrachloroethene	174.1	6.9	69.28	119.4	78.9	61.3	140				
Toluene	87.03	6.9	69.28		126	65.9	133				
trans-1,2-Dichloroethene	81.81	6.9	69.28		118	60.9	140				
trans-1,3-Dichloropropene	77.79	6.9	69.28		112	56.5	137				
Trichloroethene	87.91	6.9	69.28		127	65.9	135				
Vinyl chloride	69.85	14	69.28		101	60.2	140				
Surr: 4-Bromofluorobenzene	65.86	0	69.28		95.1	65.1	125				
Surr: Dibromofluoromethane	72.94	0	69.28		105	77.7	123				
Surr: Toluene-d8	71.63	0	69.28		103	83.2	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: **283668**

Sample ID: **1908898-001ADUP** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404999**
SampleType: **DUP** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283668** Analysis Date: **08/15/2019** Seq No: **9099594**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	7.4						0	0	20	
1,1,2,2-Tetrachloroethane	BRL	7.4						0	0	20	
1,1,2-Trichloroethane	BRL	7.4						0	0	20	
1,1-Dichloroethane	BRL	7.4						0	0	20	
1,1-Dichloroethene	BRL	7.4						0	0	20	
1,2,4-Trichlorobenzene	BRL	7.4						0	0	20	
1,2-Dibromo-3-chloropropane	BRL	7.4						0	0	20	
1,2-Dibromoethane	BRL	7.4						0	0	20	
1,2-Dichlorobenzene	BRL	7.4						0	0	20	
1,2-Dichloroethane	BRL	7.4						0	0	20	
1,2-Dichloropropane	BRL	7.4						0	0	20	
1,3-Dichlorobenzene	BRL	7.4						0	0	20	
1,4-Dichlorobenzene	BRL	7.4						0	0	20	
2-Butanone	BRL	74						10.63	0	20	
2-Hexanone	BRL	15						0	0	20	
4-Methyl-2-pentanone	BRL	15						0	0	20	
Acetone	301.5	150						283.0	6.33	20	
Benzene	BRL	7.4						0	0	20	
Bromodichloromethane	BRL	7.4						0	0	20	
Bromoform	BRL	7.4						0	0	20	
Bromomethane	BRL	7.4						0	0	20	
Carbon disulfide	BRL	15						0	0	20	
Carbon tetrachloride	BRL	7.4						0	0	20	
Chlorobenzene	BRL	7.4						0	0	20	
Chloroethane	BRL	15						0	0	20	
Chloroform	BRL	7.4						0	0	20	
Chloromethane	BRL	15						0	0	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908589

ANALYTICAL QC SUMMARY REPORT

BatchID: 283668

Sample ID: **1908898-001ADUP** Client ID: Units: **ug/Kg-dry** Prep Date: **08/15/2019** Run No: **404999**
SampleType: **DUP** TestCode: **TCL VOLATILE ORGANICS SW8260D** BatchID: **283668** Analysis Date: **08/15/2019** Seq No: **9099594**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	7.4						0	0	20	
cis-1,3-Dichloropropene	BRL	7.4						0	0	20	
Cyclohexane	BRL	7.4						0	0	20	
Dibromochloromethane	BRL	7.4						0	0	20	
Dichlorodifluoromethane	BRL	15						0	0	20	
Ethylbenzene	BRL	7.4						0	0	20	
Freon-113	BRL	15						0	0	20	
Isopropylbenzene	BRL	7.4						0	0	20	
m,p-Xylene	BRL	7.4						0	0	20	
Methyl acetate	BRL	7.4						4.506	0	20	
Methyl tert-butyl ether	BRL	7.4						0	0	20	
Methylcyclohexane	BRL	7.4						0	0	20	
Methylene chloride	BRL	30						0	0	20	
o-Xylene	BRL	7.4						0	0	20	
Styrene	BRL	7.4						0	0	20	
Tetrachloroethene	93.81	7.4						86.14	8.52	20	
Toluene	BRL	7.4						0	0	20	
trans-1,2-Dichloroethene	BRL	7.4						0	0	20	
trans-1,3-Dichloropropene	BRL	7.4						0	0	20	
Trichloroethene	BRL	7.4						0	0	20	
Trichlorofluoromethane	BRL	7.4						0	0	20	
Vinyl chloride	BRL	15						0	0	20	
Surr: 4-Bromofluorobenzene	51.07	0						51.54	0	0	
Surr: Dibromofluoromethane	78.17	0						79.24	0	0	
Surr: Toluene-d8	66.26	0						66.15	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

ANALYTICAL REPORT

CLIENT

Cardno, Inc.
1812 Lincoln St., Suite 301
Columbia SC 29201

ATTENTION
Bobby Wolf

PROJECT ID
Great Falls Republic Mill #1

LABORATORY REPORT NUMBER
1908I79

DATE
September 17, 2019

Primarv Data Review Bv

Chris Pafford
Project Manager, AES

Secondarv Data Review Bv

Ashley Amick

Project Manager, Access Analytical
aamick@axs-inc.com

PLEASE NOTE:

- **Unless otherwise noted, all analysis on this report performed at Analytical Environmental Services Inc. (AES Inc), 3080 Presidential Drive, Atlanta, GA 30340.**
- **AES is SCDHEC certified laboratory # 98016, NCDENR certified lab # 562, GA certified lab # FL-E87582, NELAP certified laboratory # E87582**
- **AIHA-LAP,LLC Laboratory ID:100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination.**
- Local support services for this project are provided by Access Analytical, Inc. Access Analytical is a representative of AES serving client in the SC/NC/GA areas. All questions regarding this report should be directed to your local Access Analytical representative at 803.781.4243 or toll fee at 883.315.4243

Access Lab Report #: _____

Sub Lab (if applicable): AES / Sub Report #: _____

Access Analytical, Inc. – Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

1908I79

Client:	Cardno	Preservatives (see codes):	
Attn:	Bobby Wolf	Bottle Types (see codes):	
Address:	1812 Lincoln St. Suite 301		
City:	Columbia	State: SC	Zip Code: 29201
Phone:	803-576-4772	Fax:	
Email:	bobby.wolf@cardno.com		
Project Name:	Great Falls Republic Mill #1		
Sampled By (Signature):	[signature]		

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl⁻, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	REQUESTED LAB ANALYSIS: TCL VOCs	TCL SVOCs + SIM	TAL Metals	Full TAL/TCL					Notes / Comments
	MW-01	8/15	1030	G	GW			✓	✓	✓						
	EB-01	"	1045	G	GW			✓	✓	✓						
	FB-01	"	1155	G	GW			✓	✓	✓						
	MW-02	"	1220	G	GW			✓	✓	✓						
	MW-03	"	1240	G	GW						✓					
	MW-05	"	1510	G	GW			✓	✓	✓						
	MW-05-MP	"	1510	G	GW			✓	✓	✓						
	MW-06	"	1620	G	GW			✓	✓	✓						
	MW-07	"	1700	G	GW			✓	✓	✓						
	Trip blank							✓								

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature] Cardno		8/15/19		___Y___N___N/A
Rush *		NC						___Y___N___N/A
*Date Required		Other (Specify):						___Y___N___N/A
Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.				Received in lab by: [signature]		8/16/19	1245	___Y___N___N/A

Received by Harris Bejdic Fedex 8/20/19 1016

Sample Temp. Receipt in Lab: 1.0 (°C) 1.6°C 4.3°C 3.4°C 4.9°C Ref: RT1 Ref: RT2

Chain of Custody Page 1 of 1

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc.

Access Analytical, Inc. -- Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

1908I79 ~~1909699~~

Client:	Cardno			Preservatives (see codes):	
Attn:	Bobby Wolf			Bottle Types (see codes):	
Address:	1812 Lincoln Street				
City:	Columbia	State: SC	Zip Code: 29201		
Phone:	803-576-4972	Fax:			
Email:	bobby.wolf@cardno.com				
Project Name:	Great Falls Republic Mill #1				
Sampled By (Signature):	Bobby Wolf				

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	REQUESTED LAB ANALYSIS: TCL SVOCs	TCL SVOCs SIM							Notes / Comments
	MW-7	9/6/19	1155	G	GW		2	✓	✓							

Containers per Test >>

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl⁻, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	Bobby Wolf	[signature]	9/6/19	1434	☒ Y ___ N ___ N/A 0.4°C
Rush *		NC						___ Y ___ N ___ N/A
*Date Required		Other (Specify):						___ Y ___ N ___ N/A
Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.				Received in lab by: Amen Peters		9-10-19	10:30	___ Y ___ N ___ N/A

Chain of Custody Page 1 of 1

Sample Temp. Receipt in Lab: 0.3 (°C) Ref: RT1 Ref: RT2

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client: Cardno, Inc.
Project: Great Falls Republic Mill #1
Lab ID: 1908I79

Case Narrative

Pesticide Analysis by Method 8081B:

Percent recovery for the surrogate spiking compound tetrachloro-m-xylene on QC sample MB-283836 was outside control limits biased low. All other surrogate recoveries were within control limits.

PAH Analysis by Method 8270E:

The precision results for Anthracene and Benzo(a)pyrene in LCSD- 283842 were outside control limits. The recoveries of the analytes in the QC samples LCS- 283842 and LCSD- 283842 were within control limits

Semi-Volatiles Organic Compounds Analysis by Method 8270E:

Percent recovery for the surrogate spiking compound 2,4,6-Tribromophenol on the LCS samples for Batch 283834 was outside control limits biased high.PAH Analysis by Method 8270E:

Percent recovery for the surrogate spiking compound 4-Terphenyl-d14 on the LCS samples for Batch 284789 was outside control limits biased high.

LCS- 284790 recovery 4-Bromophenyl phenyl ether, Benzo(a)pyrene, Benzo(b)fluoranthene, Hexachlorobenzene & Dibenz(a,h)anthracene was outside control limits biased high. Target analyte was not detected in the analytical samples and data is reportable with high bias.

LCSD- 284790 recovery Benzo(a)pyrene was outside control limits biased high. Target analyte was not detected in the analytical samples and data is reportable with high bias.

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:30:00 AM
Lab ID:	1908I79-001A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 04:38	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 04:38	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 04:38	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 04:38	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 04:38	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 04:38	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 04:38	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 04:38	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 04:38	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 04:38	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 04:38	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 04:38	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:30:00 AM
Lab ID:	1908I79-001A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 04:38	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 04:38	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 04:38	NP
Surr: 4-Bromofluorobenzene	92.5	70-130		%REC	283901	1	08/22/2019 04:38	NP
Surr: Dibromofluoromethane	99.7	70-130		%REC	283901	1	08/22/2019 04:38	NP
Surr: Toluene-d8	102	70-130		%REC	283901	1	08/22/2019 04:38	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:30:00 AM
Lab ID:	1908I79-001B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3520)**			
1,1´-Biphenyl	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283834	1	08/23/2019 19:22	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2,4-Dichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2,4-Dimethylphenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2,4-Dinitrophenol	BRL	25		ug/L	283834	1	08/23/2019 19:22	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2-Chloronaphthalene	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2-Chlorophenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
2-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 19:22	YH
2-Nitrophenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
3-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 19:22	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283834	1	08/23/2019 19:22	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
4-Chloroaniline	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
4-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
4-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 19:22	YH
4-Nitrophenol	BRL	25		ug/L	283834	1	08/23/2019 19:22	YH
Acetophenone	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Atrazine	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Benzaldehyde	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Butyl benzyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Caprolactam	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Carbazole	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Di-n-butyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Di-n-octyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Dibenzofuran	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Diethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Dimethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Hexachlorobenzene	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Hexachlorobutadiene	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:30:00 AM
Lab ID:	1908I79-001B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Hexachloroethane	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Isophorone	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Nitrobenzene	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Pentachlorophenol	BRL	25		ug/L	283834	1	08/23/2019 19:22	YH
Phenol	BRL	10		ug/L	283834	1	08/23/2019 19:22	YH
Surr: 2,4,6-Tribromophenol	119	47-127		%REC	283834	1	08/23/2019 19:22	YH
Surr: 2-Fluorobiphenyl	86.8	47.4-119		%REC	283834	1	08/23/2019 19:22	YH
Surr: 2-Fluorophenol	32.1	26.2-120		%REC	283834	1	08/23/2019 19:22	YH
Surr: 4-Terphenyl-d14	80.9	45-133		%REC	283834	1	08/23/2019 19:22	YH
Surr: Nitrobenzene-d5	80.1	41.9-121		%REC	283834	1	08/23/2019 19:22	YH
Surr: Phenol-d5	55.5	17.8-120		%REC	283834	1	08/23/2019 19:22	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 18:11	YH
1-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 18:11	YH
2-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 18:11	YH
Acenaphthylene	BRL	1.0		ug/L	283842	1	08/21/2019 18:11	YH
Acenaphthene	BRL	0.50		ug/L	283842	1	08/21/2019 18:11	YH
Fluorene	BRL	0.10		ug/L	283842	1	08/21/2019 18:11	YH
Phenanthrene	BRL	0.050		ug/L	283842	1	08/21/2019 18:11	YH
Anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 18:11	YH
Fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 18:11	YH
Pyrene	0.12	0.050		ug/L	283842	1	08/21/2019 18:11	YH
Benz(a)anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 18:11	YH
Chrysene	BRL	0.050		ug/L	283842	1	08/21/2019 18:11	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 18:11	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	283842	1	08/21/2019 18:11	YH
Benzo(a)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 18:11	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 18:11	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	283842	1	08/21/2019 18:11	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	283842	1	08/21/2019 18:11	YH
Surr: 4-Terphenyl-d14	114	69.4-138		%REC	283842	1	08/21/2019 18:11	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:30:00 AM
Lab ID:	1908I79-001C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	9000	50.0		ug/L	283708	2	08/21/2019 18:59	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 18:59	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 18:59	JW
Barium	221	10.0		ug/L	283708	2	08/21/2019 18:59	JW
Beryllium	2.23	1.00		ug/L	283708	2	08/21/2019 18:59	JW
Cadmium	BRL	0.700		ug/L	283708	2	08/21/2019 18:59	JW
Calcium	3610	100		ug/L	283708	2	08/21/2019 18:59	JW
Chromium	97.8	5.00		ug/L	283708	2	08/21/2019 18:59	JW
Cobalt	35.9	5.00		ug/L	283708	2	08/21/2019 18:59	JW
Copper	14.2	2.00		ug/L	283708	2	08/21/2019 18:59	JW
Iron	8650	100		ug/L	283708	2	08/21/2019 18:59	JW
Lead	17.4	1.00		ug/L	283708	2	08/21/2019 18:59	JW
Magnesium	3250	100		ug/L	283708	2	08/21/2019 18:59	JW
Manganese	841	5.00		ug/L	283708	2	08/21/2019 18:59	JW
Nickel	67.9	5.00		ug/L	283708	2	08/21/2019 18:59	JW
Potassium	4860	100		ug/L	283708	2	08/21/2019 18:59	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 18:59	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 18:59	JW
Sodium	17300	500		ug/L	283708	2	08/21/2019 18:59	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 18:59	JW
Vanadium	17.4	5.00		ug/L	283708	2	08/21/2019 18:59	JW
Zinc	69.2	10.0		ug/L	283708	2	08/21/2019 18:59	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 21:36	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	EB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:45:00 AM
Lab ID:	1908I79-002A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 06:18	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 06:18	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 06:18	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 06:18	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 06:18	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 06:18	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 06:18	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 06:18	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 06:18	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 06:18	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 06:18	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 06:18	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	EB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:45:00 AM
Lab ID:	1908I79-002A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 06:18	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 06:18	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 06:18	NP
Surr: 4-Bromofluorobenzene	92	70-130		%REC	283901	1	08/22/2019 06:18	NP
Surr: Dibromofluoromethane	100	70-130		%REC	283901	1	08/22/2019 06:18	NP
Surr: Toluene-d8	101	70-130		%REC	283901	1	08/22/2019 06:18	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	EB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:45:00 AM
Lab ID:	1908I79-002B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3520)**			
1,1´-Biphenyl	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283834	1	08/23/2019 19:48	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2,4-Dichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2,4-Dimethylphenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2,4-Dinitrophenol	BRL	25		ug/L	283834	1	08/23/2019 19:48	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2-Chloronaphthalene	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2-Chlorophenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
2-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 19:48	YH
2-Nitrophenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
3-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 19:48	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283834	1	08/23/2019 19:48	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
4-Chloroaniline	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
4-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
4-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 19:48	YH
4-Nitrophenol	BRL	25		ug/L	283834	1	08/23/2019 19:48	YH
Acetophenone	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Atrazine	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Benzaldehyde	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Butyl benzyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Caprolactam	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Carbazole	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Di-n-butyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Di-n-octyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Dibenzofuran	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Diethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Dimethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Hexachlorobenzene	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Hexachlorobutadiene	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	EB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:45:00 AM
Lab ID:	1908I79-002B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Hexachloroethane	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Isophorone	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Nitrobenzene	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Pentachlorophenol	BRL	25		ug/L	283834	1	08/23/2019 19:48	YH
Phenol	BRL	10		ug/L	283834	1	08/23/2019 19:48	YH
Surr: 2,4,6-Tribromophenol	115	47-127		%REC	283834	1	08/23/2019 19:48	YH
Surr: 2-Fluorobiphenyl	82.2	47.4-119		%REC	283834	1	08/23/2019 19:48	YH
Surr: 2-Fluorophenol	59.8	26.2-120		%REC	283834	1	08/23/2019 19:48	YH
Surr: 4-Terphenyl-d14	80	45-133		%REC	283834	1	08/23/2019 19:48	YH
Surr: Nitrobenzene-d5	76.3	41.9-121		%REC	283834	1	08/23/2019 19:48	YH
Surr: Phenol-d5	67	17.8-120		%REC	283834	1	08/23/2019 19:48	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 18:38	YH
1-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 18:38	YH
2-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 18:38	YH
Acenaphthylene	BRL	1.0		ug/L	283842	1	08/21/2019 18:38	YH
Acenaphthene	BRL	0.50		ug/L	283842	1	08/21/2019 18:38	YH
Fluorene	BRL	0.10		ug/L	283842	1	08/21/2019 18:38	YH
Phenanthrene	BRL	0.050		ug/L	283842	1	08/21/2019 18:38	YH
Anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 18:38	YH
Fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 18:38	YH
Pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 18:38	YH
Benz(a)anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 18:38	YH
Chrysene	BRL	0.050		ug/L	283842	1	08/21/2019 18:38	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 18:38	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	283842	1	08/21/2019 18:38	YH
Benzo(a)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 18:38	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 18:38	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	283842	1	08/21/2019 18:38	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	283842	1	08/21/2019 18:38	YH
Surr: 4-Terphenyl-d14	102	69.4-138		%REC	283842	1	08/21/2019 18:38	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	EB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 10:45:00 AM
Lab ID:	1908I79-002C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	BRL	50.0		ug/L	283708	2	08/21/2019 19:02	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 19:02	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 19:02	JW
Barium	BRL	10.0		ug/L	283708	2	08/21/2019 19:02	JW
Beryllium	BRL	1.00		ug/L	283708	2	08/21/2019 19:02	JW
Cadmium	BRL	0.700		ug/L	283708	2	08/21/2019 19:02	JW
Calcium	BRL	100		ug/L	283708	2	08/21/2019 19:02	JW
Chromium	BRL	5.00		ug/L	283708	2	08/21/2019 19:02	JW
Cobalt	BRL	5.00		ug/L	283708	2	08/21/2019 19:02	JW
Copper	BRL	2.00		ug/L	283708	2	08/21/2019 19:02	JW
Iron	BRL	100		ug/L	283708	1	08/26/2019 18:13	JW
Lead	BRL	1.00		ug/L	283708	2	08/21/2019 19:02	JW
Magnesium	BRL	100		ug/L	283708	2	08/21/2019 19:02	JW
Manganese	BRL	5.00		ug/L	283708	1	08/26/2019 17:25	JW
Nickel	BRL	5.00		ug/L	283708	2	08/21/2019 19:02	JW
Potassium	BRL	100		ug/L	283708	2	08/21/2019 19:02	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 19:02	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 19:02	JW
Sodium	BRL	500		ug/L	283708	2	08/21/2019 19:02	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 19:02	JW
Vanadium	BRL	5.00		ug/L	283708	2	08/21/2019 19:02	JW
Zinc	BRL	10.0		ug/L	283708	2	08/21/2019 19:02	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 21:52	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 11:55:00 AM
Lab ID:	1908I79-003A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 06:43	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 06:43	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 06:43	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 06:43	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 06:43	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 06:43	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 06:43	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 06:43	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 06:43	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 06:43	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 06:43	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 06:43	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 11:55:00 AM
Lab ID:	1908I79-003A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 06:43	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 06:43	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 06:43	NP
Surr: 4-Bromofluorobenzene	90.6	70-130		%REC	283901	1	08/22/2019 06:43	NP
Surr: Dibromofluoromethane	99.8	70-130		%REC	283901	1	08/22/2019 06:43	NP
Surr: Toluene-d8	102	70-130		%REC	283901	1	08/22/2019 06:43	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 11:55:00 AM
Lab ID:	1908I79-003B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
1,1´-Biphenyl	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283834	1	08/23/2019 20:15	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2,4-Dichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2,4-Dimethylphenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2,4-Dinitrophenol	BRL	25		ug/L	283834	1	08/23/2019 20:15	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2-Chloronaphthalene	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2-Chlorophenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
2-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 20:15	YH
2-Nitrophenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
3-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 20:15	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283834	1	08/23/2019 20:15	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
4-Chloroaniline	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
4-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
4-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 20:15	YH
4-Nitrophenol	BRL	25		ug/L	283834	1	08/23/2019 20:15	YH
Acetophenone	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Atrazine	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Benzaldehyde	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Butyl benzyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Caprolactam	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Carbazole	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Di-n-butyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Di-n-octyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Dibenzofuran	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Diethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Dimethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Hexachlorobenzene	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Hexachlorobutadiene	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 11:55:00 AM
Lab ID:	1908I79-003B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Hexachloroethane	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Isophorone	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Nitrobenzene	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Pentachlorophenol	BRL	25		ug/L	283834	1	08/23/2019 20:15	YH
Phenol	BRL	10		ug/L	283834	1	08/23/2019 20:15	YH
Surr: 2,4,6-Tribromophenol	122	47-127		%REC	283834	1	08/23/2019 20:15	YH
Surr: 2-Fluorobiphenyl	87.9	47.4-119		%REC	283834	1	08/23/2019 20:15	YH
Surr: 2-Fluorophenol	54.5	26.2-120		%REC	283834	1	08/23/2019 20:15	YH
Surr: 4-Terphenyl-d14	84.7	45-133		%REC	283834	1	08/23/2019 20:15	YH
Surr: Nitrobenzene-d5	81	41.9-121		%REC	283834	1	08/23/2019 20:15	YH
Surr: Phenol-d5	68.9	17.8-120		%REC	283834	1	08/23/2019 20:15	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:04	YH
1-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:04	YH
2-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:04	YH
Acenaphthylene	BRL	1.0		ug/L	283842	1	08/21/2019 19:04	YH
Acenaphthene	BRL	0.50		ug/L	283842	1	08/21/2019 19:04	YH
Fluorene	BRL	0.10		ug/L	283842	1	08/21/2019 19:04	YH
Phenanthrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:04	YH
Anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 19:04	YH
Fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 19:04	YH
Pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:04	YH
Benz(a)anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 19:04	YH
Chrysene	BRL	0.050		ug/L	283842	1	08/21/2019 19:04	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 19:04	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	283842	1	08/21/2019 19:04	YH
Benzo(a)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:04	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:04	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	283842	1	08/21/2019 19:04	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	283842	1	08/21/2019 19:04	YH
Surr: 4-Terphenyl-d14	105	69.4-138		%REC	283842	1	08/21/2019 19:04	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	FB-01
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 11:55:00 AM
Lab ID:	1908I79-003C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	BRL	50.0		ug/L	283708	2	08/21/2019 19:23	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 19:23	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 19:23	JW
Barium	BRL	10.0		ug/L	283708	2	08/21/2019 19:23	JW
Beryllium	BRL	1.00		ug/L	283708	2	08/21/2019 19:23	JW
Cadmium	BRL	0.700		ug/L	283708	2	08/21/2019 19:23	JW
Calcium	BRL	100		ug/L	283708	2	08/21/2019 19:23	JW
Chromium	BRL	5.00		ug/L	283708	2	08/21/2019 19:23	JW
Cobalt	BRL	5.00		ug/L	283708	2	08/21/2019 19:23	JW
Copper	BRL	2.00		ug/L	283708	2	08/21/2019 19:23	JW
Iron	BRL	100		ug/L	283708	2	08/21/2019 19:23	JW
Lead	BRL	1.00		ug/L	283708	2	08/21/2019 19:23	JW
Magnesium	BRL	100		ug/L	283708	2	08/21/2019 19:23	JW
Manganese	BRL	5.00		ug/L	283708	2	08/21/2019 19:23	JW
Nickel	BRL	5.00		ug/L	283708	2	08/21/2019 19:23	JW
Potassium	BRL	100		ug/L	283708	2	08/21/2019 19:23	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 19:23	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 19:23	JW
Sodium	BRL	500		ug/L	283708	2	08/21/2019 19:23	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 19:23	JW
Vanadium	BRL	5.00		ug/L	283708	2	08/21/2019 19:23	JW
Zinc	BRL	10.0		ug/L	283708	2	08/21/2019 19:23	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 21:56	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-02
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:20:00 PM
Lab ID:	1908I79-004A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 07:07	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 07:07	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 07:07	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 07:07	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 07:07	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 07:07	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 07:07	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 07:07	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 07:07	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 07:07	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 07:07	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 07:07	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-02
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:20:00 PM
Lab ID:	1908I79-004A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 07:07	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 07:07	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 07:07	NP
Surr: 4-Bromofluorobenzene	92.3	70-130		%REC	283901	1	08/22/2019 07:07	NP
Surr: Dibromofluoromethane	99.3	70-130		%REC	283901	1	08/22/2019 07:07	NP
Surr: Toluene-d8	104	70-130		%REC	283901	1	08/22/2019 07:07	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-02
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:20:00 PM
Lab ID:	1908I79-004B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3520)**			
1,1´-Biphenyl	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283834	1	08/23/2019 20:41	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2,4-Dichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2,4-Dimethylphenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2,4-Dinitrophenol	BRL	25		ug/L	283834	1	08/23/2019 20:41	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2-Chloronaphthalene	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2-Chlorophenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
2-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 20:41	YH
2-Nitrophenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
3-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 20:41	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283834	1	08/23/2019 20:41	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
4-Chloroaniline	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
4-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
4-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 20:41	YH
4-Nitrophenol	BRL	25		ug/L	283834	1	08/23/2019 20:41	YH
Acetophenone	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Atrazine	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Benzaldehyde	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Butyl benzyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Caprolactam	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Carbazole	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Di-n-butyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Di-n-octyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Dibenzofuran	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Diethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Dimethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Hexachlorobenzene	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Hexachlorobutadiene	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-02
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:20:00 PM
Lab ID:	1908I79-004B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Hexachloroethane	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Isophorone	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Nitrobenzene	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Pentachlorophenol	BRL	25		ug/L	283834	1	08/23/2019 20:41	YH
Phenol	BRL	10		ug/L	283834	1	08/23/2019 20:41	YH
Surr: 2,4,6-Tribromophenol	124	47-127		%REC	283834	1	08/23/2019 20:41	YH
Surr: 2-Fluorobiphenyl	87.2	47.4-119		%REC	283834	1	08/23/2019 20:41	YH
Surr: 2-Fluorophenol	55	26.2-120		%REC	283834	1	08/23/2019 20:41	YH
Surr: 4-Terphenyl-d14	73.7	45-133		%REC	283834	1	08/23/2019 20:41	YH
Surr: Nitrobenzene-d5	77.2	41.9-121		%REC	283834	1	08/23/2019 20:41	YH
Surr: Phenol-d5	68.1	17.8-120		%REC	283834	1	08/23/2019 20:41	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:30	YH
1-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:30	YH
2-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:30	YH
Acenaphthylene	BRL	1.0		ug/L	283842	1	08/21/2019 19:30	YH
Acenaphthene	BRL	0.50		ug/L	283842	1	08/21/2019 19:30	YH
Fluorene	BRL	0.10		ug/L	283842	1	08/21/2019 19:30	YH
Phenanthrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:30	YH
Anthracene	0.15	0.050		ug/L	283842	1	08/21/2019 19:30	YH
Fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 19:30	YH
Pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:30	YH
Benz(a)anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 19:30	YH
Chrysene	BRL	0.050		ug/L	283842	1	08/21/2019 19:30	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 19:30	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	283842	1	08/21/2019 19:30	YH
Benzo(a)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:30	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:30	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	283842	1	08/21/2019 19:30	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	283842	1	08/21/2019 19:30	YH
Surr: 4-Terphenyl-d14	96.9	69.4-138		%REC	283842	1	08/21/2019 19:30	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
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N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-02
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:20:00 PM
Lab ID:	1908I79-004C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	11000	50.0		ug/L	283708	2	08/21/2019 19:26	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 19:26	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 19:26	JW
Barium	128	10.0		ug/L	283708	2	08/21/2019 19:26	JW
Beryllium	BRL	1.00		ug/L	283708	2	08/21/2019 19:26	JW
Cadmium	0.717	0.700		ug/L	283708	2	08/21/2019 19:26	JW
Calcium	10500	100		ug/L	283708	2	08/21/2019 19:26	JW
Chromium	39.5	5.00		ug/L	283708	2	08/21/2019 19:26	JW
Cobalt	5.41	5.00		ug/L	283708	2	08/21/2019 19:26	JW
Copper	40.6	2.00		ug/L	283708	2	08/21/2019 19:26	JW
Iron	10600	100		ug/L	283708	2	08/21/2019 19:26	JW
Lead	56.3	1.00		ug/L	283708	2	08/21/2019 19:26	JW
Magnesium	2910	100		ug/L	283708	2	08/21/2019 19:26	JW
Manganese	2060	5.00		ug/L	283708	2	08/21/2019 19:26	JW
Nickel	21.1	5.00		ug/L	283708	2	08/21/2019 19:26	JW
Potassium	9710	100		ug/L	283708	2	08/21/2019 19:26	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 19:26	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 19:26	JW
Sodium	26600	500		ug/L	283708	2	08/21/2019 19:26	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 19:26	JW
Vanadium	6.34	5.00		ug/L	283708	2	08/21/2019 19:26	JW
Zinc	68.3	10.0		ug/L	283708	2	08/21/2019 19:26	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 22:00	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-03
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:40:00 PM
Lab ID:	1908I79-005A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 07:33	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 07:33	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 07:33	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 07:33	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 07:33	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 07:33	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 07:33	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 07:33	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 07:33	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 07:33	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 07:33	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 07:33	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-03
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:40:00 PM
Lab ID:	1908I79-005A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 07:33	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 07:33	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 07:33	NP
Surr: 4-Bromofluorobenzene	91.3	70-130		%REC	283901	1	08/22/2019 07:33	NP
Surr: Dibromofluoromethane	99.8	70-130		%REC	283901	1	08/22/2019 07:33	NP
Surr: Toluene-d8	100	70-130		%REC	283901	1	08/22/2019 07:33	NP

Qualifiers:

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BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-03
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:40:00 PM
Lab ID:	1908I79-005B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3520)**			
1,1´-Biphenyl	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283834	1	08/23/2019 21:08	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2,4-Dichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2,4-Dimethylphenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2,4-Dinitrophenol	BRL	25		ug/L	283834	1	08/23/2019 21:08	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2-Chloronaphthalene	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2-Chlorophenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
2-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 21:08	YH
2-Nitrophenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
3-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 21:08	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283834	1	08/23/2019 21:08	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
4-Chloroaniline	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
4-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
4-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 21:08	YH
4-Nitrophenol	BRL	25		ug/L	283834	1	08/23/2019 21:08	YH
Acetophenone	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Atrazine	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Benzaldehyde	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Butyl benzyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Caprolactam	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Carbazole	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Di-n-butyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Di-n-octyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Dibenzofuran	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Diethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Dimethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Hexachlorobenzene	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Hexachlorobutadiene	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
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Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-03
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:40:00 PM
Lab ID:	1908I79-005B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Hexachloroethane	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Isophorone	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Nitrobenzene	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Pentachlorophenol	BRL	25		ug/L	283834	1	08/23/2019 21:08	YH
Phenol	BRL	10		ug/L	283834	1	08/23/2019 21:08	YH
Surr: 2,4,6-Tribromophenol	124	47-127		%REC	283834	1	08/23/2019 21:08	YH
Surr: 2-Fluorobiphenyl	85.8	47.4-119		%REC	283834	1	08/23/2019 21:08	YH
Surr: 2-Fluorophenol	52.5	26.2-120		%REC	283834	1	08/23/2019 21:08	YH
Surr: 4-Terphenyl-d14	82.5	45-133		%REC	283834	1	08/23/2019 21:08	YH
Surr: Nitrobenzene-d5	74.7	41.9-121		%REC	283834	1	08/23/2019 21:08	YH
Surr: Phenol-d5	65.4	17.8-120		%REC	283834	1	08/23/2019 21:08	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:56	YH
1-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:56	YH
2-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 19:56	YH
Acenaphthylene	BRL	1.0		ug/L	283842	1	08/21/2019 19:56	YH
Acenaphthene	BRL	0.50		ug/L	283842	1	08/21/2019 19:56	YH
Fluorene	BRL	0.10		ug/L	283842	1	08/21/2019 19:56	YH
Phenanthrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:56	YH
Anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 19:56	YH
Fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 19:56	YH
Pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:56	YH
Benz(a)anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 19:56	YH
Chrysene	BRL	0.050		ug/L	283842	1	08/21/2019 19:56	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 19:56	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	283842	1	08/21/2019 19:56	YH
Benzo(a)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:56	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 19:56	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	283842	1	08/21/2019 19:56	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	283842	1	08/21/2019 19:56	YH
Surr: 4-Terphenyl-d14	126	69.4-138		%REC	283842	1	08/21/2019 19:56	YH
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3510C)**				
Aroclor 1016	BRL	0.50		ug/L	283837	1	08/21/2019 12:36	UH
Aroclor 1221	BRL	0.50		ug/L	283837	1	08/21/2019 12:36	UH
Aroclor 1232	BRL	0.50		ug/L	283837	1	08/21/2019 12:36	UH

Qualifiers:

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H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-03
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:40:00 PM
Lab ID:	1908I79-005B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
POLYCHLORINATED BIPHENYLS SW8082A				**(SW3510C)**				
Aroclor 1242	BRL	0.50		ug/L	283837	1	08/21/2019 12:36	UH
Aroclor 1248	BRL	0.50		ug/L	283837	1	08/21/2019 12:36	UH
Aroclor 1254	BRL	0.50		ug/L	283837	1	08/21/2019 12:36	UH
Aroclor 1260	BRL	0.50		ug/L	283837	1	08/21/2019 12:36	UH
Surr: Decachlorobiphenyl	61.1	20.9-120		%REC	283837	1	08/21/2019 12:36	UH
Surr: Tetrachloro-m-xylene	92.1	46.7-130		%REC	283837	1	08/21/2019 12:36	UH
CHLORINATED PESTICIDES, TCL SW8081B				**(SW3510C)**				
4,4´-DDD	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
4,4´-DDE	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
4,4´-DDT	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
Aldrin	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
alpha-BHC	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
alpha-Chlordane	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
beta-BHC	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
delta-BHC	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
Dieldrin	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
Endosulfan I	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
Endosulfan II	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
Endosulfan sulfate	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
Endrin	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
Endrin aldehyde	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
Endrin ketone	BRL	0.10		ug/L	283836	1	08/21/2019 12:36	UH
gamma-BHC	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
gamma-Chlordane	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
Heptachlor	BRL	0.050		ug/L	283836	1	08/21/2019 12:36	UH
Heptachlor epoxide	0.065	0.050		ug/L	283836	1	08/21/2019 12:36	UH
Methoxychlor	BRL	0.50		ug/L	283836	1	08/21/2019 12:36	UH
Toxaphene	BRL	5.0		ug/L	283836	1	08/21/2019 12:36	UH
Surr: Decachlorobiphenyl	54.8	20.6-134		%REC	283836	1	08/21/2019 12:36	UH
Surr: Tetrachloro-m-xylene	83	37-128		%REC	283836	1	08/21/2019 12:36	UH

Qualifiers:

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Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-03
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:40:00 PM
Lab ID:	1908I79-005C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	4220	50.0		ug/L	283708	2	08/21/2019 19:28	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 19:28	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 19:28	JW
Barium	52.5	10.0		ug/L	283708	2	08/21/2019 19:28	JW
Beryllium	BRL	1.00		ug/L	283708	2	08/21/2019 19:28	JW
Cadmium	BRL	0.700		ug/L	283708	2	08/21/2019 19:28	JW
Calcium	3280	100		ug/L	283708	2	08/21/2019 19:28	JW
Chromium	BRL	5.00		ug/L	283708	2	08/21/2019 19:28	JW
Cobalt	BRL	5.00		ug/L	283708	2	08/21/2019 19:28	JW
Copper	BRL	2.00		ug/L	283708	2	08/21/2019 19:28	JW
Iron	3640	100		ug/L	283708	2	08/21/2019 19:28	JW
Lead	1.71	1.00		ug/L	283708	2	08/21/2019 19:28	JW
Magnesium	1710	100		ug/L	283708	2	08/21/2019 19:28	JW
Manganese	337	5.00		ug/L	283708	2	08/21/2019 19:28	JW
Nickel	BRL	5.00		ug/L	283708	2	08/21/2019 19:28	JW
Potassium	3110	100		ug/L	283708	2	08/21/2019 19:28	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 19:28	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 19:28	JW
Sodium	29900	500		ug/L	283708	2	08/21/2019 19:28	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 19:28	JW
Vanadium	BRL	5.00		ug/L	283708	2	08/21/2019 19:28	JW
Zinc	20.8	10.0		ug/L	283708	2	08/21/2019 19:28	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 22:04	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-03
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 12:40:00 PM
Lab ID:	1908I79-005D	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Cyanide SW9014					**(SW9010C)**			
Cyanide, Total	BRL	0.010		mg/L	284084	1	08/26/2019 15:55	AT

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-006A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 07:57	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 07:57	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 07:57	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 07:57	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 07:57	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 07:57	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 07:57	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 07:57	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 07:57	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 07:57	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 07:57	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 07:57	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-006A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 07:57	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 07:57	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 07:57	NP
Surr: 4-Bromofluorobenzene	89.5	70-130		%REC	283901	1	08/22/2019 07:57	NP
Surr: Dibromofluoromethane	99.3	70-130		%REC	283901	1	08/22/2019 07:57	NP
Surr: Toluene-d8	102	70-130		%REC	283901	1	08/22/2019 07:57	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-006B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
1,1´-Biphenyl	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283834	1	08/23/2019 21:35	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2,4-Dichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2,4-Dimethylphenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2,4-Dinitrophenol	BRL	25		ug/L	283834	1	08/23/2019 21:35	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2-Chloronaphthalene	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2-Chlorophenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
2-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 21:35	YH
2-Nitrophenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
3-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 21:35	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283834	1	08/23/2019 21:35	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
4-Chloroaniline	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
4-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
4-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 21:35	YH
4-Nitrophenol	BRL	25		ug/L	283834	1	08/23/2019 21:35	YH
Acetophenone	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Atrazine	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Benzaldehyde	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Butyl benzyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Caprolactam	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Carbazole	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Di-n-butyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Di-n-octyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Dibenzofuran	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Diethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Dimethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Hexachlorobenzene	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Hexachlorobutadiene	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-006B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Hexachloroethane	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Isophorone	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Nitrobenzene	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Pentachlorophenol	BRL	25		ug/L	283834	1	08/23/2019 21:35	YH
Phenol	BRL	10		ug/L	283834	1	08/23/2019 21:35	YH
Surr: 2,4,6-Tribromophenol	129	47-127	S	%REC	283834	1	08/23/2019 21:35	YH
Surr: 2-Fluorobiphenyl	87.9	47.4-119		%REC	283834	1	08/23/2019 21:35	YH
Surr: 2-Fluorophenol	59.7	26.2-120		%REC	283834	1	08/23/2019 21:35	YH
Surr: 4-Terphenyl-d14	83.9	45-133		%REC	283834	1	08/23/2019 21:35	YH
Surr: Nitrobenzene-d5	80.3	41.9-121		%REC	283834	1	08/23/2019 21:35	YH
Surr: Phenol-d5	70.5	17.8-120		%REC	283834	1	08/23/2019 21:35	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 20:21	YH
1-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 20:21	YH
2-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 20:21	YH
Acenaphthylene	BRL	1.0		ug/L	283842	1	08/21/2019 20:21	YH
Acenaphthene	BRL	0.50		ug/L	283842	1	08/21/2019 20:21	YH
Fluorene	BRL	0.10		ug/L	283842	1	08/21/2019 20:21	YH
Phenanthrene	BRL	0.050		ug/L	283842	1	08/21/2019 20:21	YH
Anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 20:21	YH
Fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 20:21	YH
Pyrene	0.12	0.050		ug/L	283842	1	08/21/2019 20:21	YH
Benz(a)anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 20:21	YH
Chrysene	BRL	0.050		ug/L	283842	1	08/21/2019 20:21	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 20:21	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	283842	1	08/21/2019 20:21	YH
Benzo(a)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 20:21	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 20:21	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	283842	1	08/21/2019 20:21	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	283842	1	08/21/2019 20:21	YH
Surr: 4-Terphenyl-d14	116	69.4-138		%REC	283842	1	08/21/2019 20:21	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-006C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	2010	50.0		ug/L	283708	2	08/21/2019 19:31	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 19:31	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 19:31	JW
Barium	46.5	10.0		ug/L	283708	2	08/21/2019 19:31	JW
Beryllium	BRL	1.00		ug/L	283708	2	08/21/2019 19:31	JW
Cadmium	BRL	0.700		ug/L	283708	2	08/21/2019 19:31	JW
Calcium	4500	100		ug/L	283708	2	08/21/2019 19:31	JW
Chromium	BRL	5.00		ug/L	283708	2	08/21/2019 19:31	JW
Cobalt	BRL	5.00		ug/L	283708	2	08/21/2019 19:31	JW
Copper	BRL	2.00		ug/L	283708	2	08/21/2019 19:31	JW
Iron	1900	100		ug/L	283708	2	08/21/2019 19:31	JW
Lead	1.30	1.00		ug/L	283708	2	08/21/2019 19:31	JW
Magnesium	2700	100		ug/L	283708	2	08/21/2019 19:31	JW
Manganese	203	5.00		ug/L	283708	2	08/21/2019 19:31	JW
Nickel	BRL	5.00		ug/L	283708	2	08/21/2019 19:31	JW
Potassium	2220	100		ug/L	283708	2	08/21/2019 19:31	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 19:31	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 19:31	JW
Sodium	23500	500		ug/L	283708	2	08/21/2019 19:31	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 19:31	JW
Vanadium	BRL	5.00		ug/L	283708	2	08/21/2019 19:31	JW
Zinc	BRL	10.0		ug/L	283708	2	08/21/2019 19:31	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 22:08	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
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N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05-DUP
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-007A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 08:22	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 08:22	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 08:22	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 08:22	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 08:22	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 08:22	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 08:22	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 08:22	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 08:22	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 08:22	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 08:22	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 08:22	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05-DUP
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-007A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 08:22	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 08:22	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 08:22	NP
Surr: 4-Bromofluorobenzene	91.7	70-130		%REC	283901	1	08/22/2019 08:22	NP
Surr: Dibromofluoromethane	102	70-130		%REC	283901	1	08/22/2019 08:22	NP
Surr: Toluene-d8	103	70-130		%REC	283901	1	08/22/2019 08:22	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05-DUP
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-007B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3520)**			
1,1´-Biphenyl	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283834	1	08/23/2019 22:59	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2,4-Dichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2,4-Dimethylphenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2,4-Dinitrophenol	BRL	25		ug/L	283834	1	08/23/2019 22:59	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2-Chloronaphthalene	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2-Chlorophenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
2-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 22:59	YH
2-Nitrophenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
3-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 22:59	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283834	1	08/23/2019 22:59	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
4-Chloroaniline	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
4-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
4-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 22:59	YH
4-Nitrophenol	BRL	25		ug/L	283834	1	08/23/2019 22:59	YH
Acetophenone	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Atrazine	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Benzaldehyde	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Butyl benzyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Caprolactam	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Carbazole	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Di-n-butyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Di-n-octyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Dibenzofuran	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Diethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Dimethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Hexachlorobenzene	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Hexachlorobutadiene	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05-DUP
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-007B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Hexachloroethane	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Isophorone	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Nitrobenzene	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Pentachlorophenol	BRL	25		ug/L	283834	1	08/23/2019 22:59	YH
Phenol	BRL	10		ug/L	283834	1	08/23/2019 22:59	YH
Surr: 2,4,6-Tribromophenol	119	47-127		%REC	283834	1	08/23/2019 22:59	YH
Surr: 2-Fluorobiphenyl	85.4	47.4-119		%REC	283834	1	08/23/2019 22:59	YH
Surr: 2-Fluorophenol	50.4	26.2-120		%REC	283834	1	08/23/2019 22:59	YH
Surr: 4-Terphenyl-d14	80.5	45-133		%REC	283834	1	08/23/2019 22:59	YH
Surr: Nitrobenzene-d5	77.1	41.9-121		%REC	283834	1	08/23/2019 22:59	YH
Surr: Phenol-d5	67.1	17.8-120		%REC	283834	1	08/23/2019 22:59	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 20:47	YH
1-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 20:47	YH
2-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 20:47	YH
Acenaphthylene	BRL	1.0		ug/L	283842	1	08/21/2019 20:47	YH
Acenaphthene	BRL	0.50		ug/L	283842	1	08/21/2019 20:47	YH
Fluorene	BRL	0.10		ug/L	283842	1	08/21/2019 20:47	YH
Phenanthrene	BRL	0.050		ug/L	283842	1	08/21/2019 20:47	YH
Anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 20:47	YH
Fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 20:47	YH
Pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 20:47	YH
Benz(a)anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 20:47	YH
Chrysene	BRL	0.050		ug/L	283842	1	08/21/2019 20:47	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 20:47	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	283842	1	08/21/2019 20:47	YH
Benzo(a)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 20:47	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 20:47	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	283842	1	08/21/2019 20:47	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	283842	1	08/21/2019 20:47	YH
Surr: 4-Terphenyl-d14	99.7	69.4-138		%REC	283842	1	08/21/2019 20:47	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-05-DUP
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 3:10:00 PM
Lab ID:	1908I79-007C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	2250	50.0		ug/L	283708	2	08/21/2019 19:33	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 19:33	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 19:33	JW
Barium	45.0	10.0		ug/L	283708	2	08/21/2019 19:33	JW
Beryllium	BRL	1.00		ug/L	283708	2	08/21/2019 19:33	JW
Cadmium	BRL	0.700		ug/L	283708	2	08/21/2019 19:33	JW
Calcium	4430	100		ug/L	283708	2	08/21/2019 19:33	JW
Chromium	BRL	5.00		ug/L	283708	2	08/21/2019 19:33	JW
Cobalt	BRL	5.00		ug/L	283708	2	08/21/2019 19:33	JW
Copper	BRL	2.00		ug/L	283708	2	08/21/2019 19:33	JW
Iron	1940	100		ug/L	283708	2	08/21/2019 19:33	JW
Lead	1.48	1.00		ug/L	283708	2	08/21/2019 19:33	JW
Magnesium	2680	100		ug/L	283708	2	08/21/2019 19:33	JW
Manganese	202	5.00		ug/L	283708	2	08/21/2019 19:33	JW
Nickel	BRL	5.00		ug/L	283708	2	08/21/2019 19:33	JW
Potassium	2180	100		ug/L	283708	2	08/21/2019 19:33	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 19:33	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 19:33	JW
Sodium	23700	500		ug/L	283708	2	08/21/2019 19:33	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 19:33	JW
Vanadium	BRL	5.00		ug/L	283708	2	08/21/2019 19:33	JW
Zinc	BRL	10.0		ug/L	283708	2	08/21/2019 19:33	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 21:20	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-06
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 4:20:00 PM
Lab ID:	1908I79-008A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 08:48	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 08:48	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 08:48	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 08:48	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 08:48	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 08:48	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 08:48	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 08:48	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Ethylbenzene	2.0	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 08:48	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
m,p-Xylene	8.2	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 08:48	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 08:48	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 08:48	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-06
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 4:20:00 PM
Lab ID:	1908I79-008A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
o-Xylene	3.2	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Toluene	6.0	1.0		ug/L	283901	1	08/22/2019 08:48	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 08:48	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 08:48	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 08:48	NP
Surr: 4-Bromofluorobenzene	90.5	70-130		%REC	283901	1	08/22/2019 08:48	NP
Surr: Dibromofluoromethane	100	70-130		%REC	283901	1	08/22/2019 08:48	NP
Surr: Toluene-d8	102	70-130		%REC	283901	1	08/22/2019 08:48	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-06
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 4:20:00 PM
Lab ID:	1908I79-008B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
1,1´-Biphenyl	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	283834	1	08/23/2019 23:26	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2,4-Dichlorophenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2,4-Dimethylphenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2,4-Dinitrophenol	BRL	25		ug/L	283834	1	08/23/2019 23:26	YH
2,4-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2,6-Dinitrotoluene	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2-Chloronaphthalene	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2-Chlorophenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
2-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 23:26	YH
2-Nitrophenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
3-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 23:26	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	283834	1	08/23/2019 23:26	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
4-Chloroaniline	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
4-Methylphenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
4-Nitroaniline	BRL	25		ug/L	283834	1	08/23/2019 23:26	YH
4-Nitrophenol	BRL	25		ug/L	283834	1	08/23/2019 23:26	YH
Acetophenone	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Atrazine	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Benzaldehyde	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Butyl benzyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Caprolactam	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Carbazole	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Di-n-butyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Di-n-octyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Dibenzofuran	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Diethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Dimethyl phthalate	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Hexachlorobenzene	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Hexachlorobutadiene	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-06
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 4:20:00 PM
Lab ID:	1908I79-008B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Hexachloroethane	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Isophorone	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Nitrobenzene	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Pentachlorophenol	BRL	25		ug/L	283834	1	08/23/2019 23:26	YH
Phenol	BRL	10		ug/L	283834	1	08/23/2019 23:26	YH
Surr: 2,4,6-Tribromophenol	111	47-127		%REC	283834	1	08/23/2019 23:26	YH
Surr: 2-Fluorobiphenyl	88.4	47.4-119		%REC	283834	1	08/23/2019 23:26	YH
Surr: 2-Fluorophenol	44	26.2-120		%REC	283834	1	08/23/2019 23:26	YH
Surr: 4-Terphenyl-d14	81.1	45-133		%REC	283834	1	08/23/2019 23:26	YH
Surr: Nitrobenzene-d5	80.4	41.9-121		%REC	283834	1	08/23/2019 23:26	YH
Surr: Phenol-d5	63.2	17.8-120		%REC	283834	1	08/23/2019 23:26	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 21:13	YH
1-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 21:13	YH
2-Methylnaphthalene	BRL	0.50		ug/L	283842	1	08/21/2019 21:13	YH
Acenaphthylene	BRL	1.0		ug/L	283842	1	08/21/2019 21:13	YH
Acenaphthene	BRL	0.50		ug/L	283842	1	08/21/2019 21:13	YH
Fluorene	BRL	0.10		ug/L	283842	1	08/21/2019 21:13	YH
Phenanthrene	BRL	0.050		ug/L	283842	1	08/21/2019 21:13	YH
Anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 21:13	YH
Fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 21:13	YH
Pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 21:13	YH
Benz(a)anthracene	BRL	0.050		ug/L	283842	1	08/21/2019 21:13	YH
Chrysene	BRL	0.050		ug/L	283842	1	08/21/2019 21:13	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	283842	1	08/21/2019 21:13	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	283842	1	08/21/2019 21:13	YH
Benzo(a)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 21:13	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	283842	1	08/21/2019 21:13	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	283842	1	08/21/2019 21:13	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	283842	1	08/21/2019 21:13	YH
Surr: 4-Terphenyl-d14	102	69.4-138		%REC	283842	1	08/21/2019 21:13	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-06
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 4:20:00 PM
Lab ID:	1908I79-008C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	10000	50.0		ug/L	283708	2	08/21/2019 19:04	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 19:04	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 19:04	JW
Barium	93.3	10.0		ug/L	283708	2	08/21/2019 19:04	JW
Beryllium	1.64	1.00		ug/L	283708	2	08/21/2019 19:04	JW
Cadmium	BRL	0.700		ug/L	283708	2	08/21/2019 19:04	JW
Calcium	6220	100		ug/L	283708	2	08/21/2019 19:04	JW
Chromium	5.88	5.00		ug/L	283708	2	08/21/2019 19:04	JW
Cobalt	BRL	5.00		ug/L	283708	2	08/21/2019 19:04	JW
Copper	6.73	2.00		ug/L	283708	2	08/21/2019 19:04	JW
Iron	6660	100		ug/L	283708	2	08/21/2019 19:04	JW
Lead	9.82	1.00		ug/L	283708	2	08/21/2019 19:04	JW
Magnesium	4230	100		ug/L	283708	2	08/21/2019 19:04	JW
Manganese	1800	5.00		ug/L	283708	2	08/21/2019 19:04	JW
Nickel	BRL	5.00		ug/L	283708	2	08/21/2019 19:04	JW
Potassium	4590	100		ug/L	283708	2	08/21/2019 19:04	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 19:04	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 19:04	JW
Sodium	31100	500		ug/L	283708	2	08/21/2019 19:04	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 19:04	JW
Vanadium	8.51	5.00		ug/L	283708	2	08/21/2019 19:04	JW
Zinc	43.3	10.0		ug/L	283708	2	08/21/2019 19:04	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 22:11	EH

Qualifiers:

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BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
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N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-07
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 5:00:00 PM
Lab ID:	1908I79-009A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 09:13	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 09:13	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 09:13	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 09:13	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 09:13	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 09:13	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 09:13	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 09:13	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 09:13	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 09:13	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 09:13	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 09:13	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-07
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 5:00:00 PM
Lab ID:	1908I79-009A	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D (SW5030B)								
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 09:13	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 09:13	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 09:13	NP
Surr: 4-Bromofluorobenzene	92.2	70-130		%REC	283901	1	08/22/2019 09:13	NP
Surr: Dibromofluoromethane	100	70-130		%REC	283901	1	08/22/2019 09:13	NP
Surr: Toluene-d8	104	70-130		%REC	283901	1	08/22/2019 09:13	NP

Qualifiers:

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BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-07
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	9/6/2019 11:55:00 AM
Lab ID:	1908I79-009B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E					**(SW3520)**			
1,1´-Biphenyl	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2,4,5-Trichlorophenol	BRL	25		ug/L	284790	1	09/13/2019 14:56	YH
2,4,6-Trichlorophenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2,4-Dichlorophenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2,4-Dimethylphenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2,4-Dinitrophenol	BRL	25		ug/L	284790	1	09/13/2019 14:56	YH
2,4-Dinitrotoluene	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2,6-Dinitrotoluene	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2-Chloronaphthalene	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2-Chlorophenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2-Methylphenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
2-Nitroaniline	BRL	25		ug/L	284790	1	09/13/2019 14:56	YH
2-Nitrophenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
3,3´-Dichlorobenzidine	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
3-Nitroaniline	BRL	25		ug/L	284790	1	09/13/2019 14:56	YH
4,6-Dinitro-2-methylphenol	BRL	25		ug/L	284790	1	09/13/2019 14:56	YH
4-Bromophenyl phenyl ether	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
4-Chloro-3-methylphenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
4-Chloroaniline	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
4-Chlorophenyl phenyl ether	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
4-Methylphenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
4-Nitroaniline	BRL	25		ug/L	284790	1	09/13/2019 14:56	YH
4-Nitrophenol	BRL	25		ug/L	284790	1	09/13/2019 14:56	YH
Acetophenone	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Atrazine	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Benzaldehyde	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Bis(2-chloroethoxy)methane	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Bis(2-chloroethyl)ether	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Bis(2-chloroisopropyl)ether	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Bis(2-ethylhexyl)phthalate	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Butyl benzyl phthalate	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Caprolactam	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Carbazole	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Di-n-butyl phthalate	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Di-n-octyl phthalate	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Dibenzofuran	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Diethyl phthalate	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Dimethyl phthalate	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Hexachlorobenzene	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Hexachlorobutadiene	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-07
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	9/6/2019 11:55:00 AM
Lab ID:	1908I79-009B	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
TCL-SEMIVOLATILE ORGANICS SW8270E				**(SW3520)**				
Hexachlorocyclopentadiene	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Hexachloroethane	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Isophorone	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
N-Nitrosodi-n-propylamine	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
N-Nitrosodiphenylamine	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Nitrobenzene	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Pentachlorophenol	BRL	25		ug/L	284790	1	09/13/2019 14:56	YH
Phenol	BRL	10		ug/L	284790	1	09/13/2019 14:56	YH
Surr: 2,4,6-Tribromophenol	104	47-127		%REC	284790	1	09/13/2019 14:56	YH
Surr: 2-Fluorobiphenyl	79.1	47.4-119		%REC	284790	1	09/13/2019 14:56	YH
Surr: 2-Fluorophenol	51.9	26.2-120		%REC	284790	1	09/13/2019 14:56	YH
Surr: 4-Terphenyl-d14	80.9	45-133		%REC	284790	1	09/13/2019 14:56	YH
Surr: Nitrobenzene-d5	78.8	41.9-121		%REC	284790	1	09/13/2019 14:56	YH
Surr: Phenol-d5	69.1	17.8-120		%REC	284790	1	09/13/2019 14:56	YH
SIM Polynuclear Aromatic Hydrocarbons SW8270E				**(SW3510C)**				
Naphthalene	BRL	0.50		ug/L	284789	1	09/12/2019 13:58	YH
1-Methylnaphthalene	BRL	0.50		ug/L	284789	1	09/12/2019 13:58	YH
2-Methylnaphthalene	BRL	0.50		ug/L	284789	1	09/12/2019 13:58	YH
Acenaphthylene	BRL	1.0		ug/L	284789	1	09/12/2019 13:58	YH
Acenaphthene	BRL	0.50		ug/L	284789	1	09/12/2019 13:58	YH
Fluorene	BRL	0.10		ug/L	284789	1	09/12/2019 13:58	YH
Phenanthrene	BRL	0.050		ug/L	284789	1	09/12/2019 13:58	YH
Anthracene	BRL	0.050		ug/L	284789	1	09/12/2019 13:58	YH
Fluoranthene	BRL	0.10		ug/L	284789	1	09/12/2019 13:58	YH
Pyrene	BRL	0.050		ug/L	284789	1	09/12/2019 13:58	YH
Benz(a)anthracene	BRL	0.050		ug/L	284789	1	09/12/2019 13:58	YH
Chrysene	BRL	0.050		ug/L	284789	1	09/12/2019 13:58	YH
Benzo(b)fluoranthene	BRL	0.10		ug/L	284789	1	09/12/2019 13:58	YH
Benzo(k)fluoranthene	BRL	0.050		ug/L	284789	1	09/12/2019 13:58	YH
Benzo(a)pyrene	BRL	0.050		ug/L	284789	1	09/12/2019 13:58	YH
Indeno(1,2,3-cd)pyrene	BRL	0.050		ug/L	284789	1	09/12/2019 13:58	YH
Dibenz(a,h)anthracene	BRL	0.10		ug/L	284789	1	09/12/2019 13:58	YH
Benzo(g,h,i)perylene	BRL	0.10		ug/L	284789	1	09/12/2019 13:58	YH
Surr: 4-Terphenyl-d14	119	69.4-138		%REC	284789	1	09/12/2019 13:58	YH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	MW-07
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019 5:00:00 PM
Lab ID:	1908I79-009C	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Total Metals by ICP/MS SW6020B					**(SW3005A)**			
Aluminum	26800	50.0		ug/L	283708	2	08/21/2019 19:06	JW
Antimony	BRL	5.00		ug/L	283708	2	08/21/2019 19:06	JW
Arsenic	BRL	5.00		ug/L	283708	2	08/21/2019 19:06	JW
Barium	147	10.0		ug/L	283708	2	08/21/2019 19:06	JW
Beryllium	3.38	1.00		ug/L	283708	2	08/21/2019 19:06	JW
Cadmium	BRL	0.700		ug/L	283708	2	08/21/2019 19:06	JW
Calcium	13500	100		ug/L	283708	2	08/21/2019 19:06	JW
Chromium	76.2	5.00		ug/L	283708	2	08/21/2019 19:06	JW
Cobalt	9.24	5.00		ug/L	283708	2	08/21/2019 19:06	JW
Copper	40.5	2.00		ug/L	283708	2	08/21/2019 19:06	JW
Iron	27700	100		ug/L	283708	2	08/21/2019 19:06	JW
Lead	19.2	1.00		ug/L	283708	2	08/21/2019 19:06	JW
Magnesium	7790	100		ug/L	283708	2	08/21/2019 19:06	JW
Manganese	2050	5.00		ug/L	283708	2	08/21/2019 19:06	JW
Nickel	34.7	5.00		ug/L	283708	2	08/21/2019 19:06	JW
Potassium	10900	100		ug/L	283708	2	08/21/2019 19:06	JW
Selenium	BRL	5.00		ug/L	283708	2	08/21/2019 19:06	JW
Silver	BRL	1.00		ug/L	283708	2	08/21/2019 19:06	JW
Sodium	19900	500		ug/L	283708	2	08/21/2019 19:06	JW
Thallium	BRL	1.00		ug/L	283708	2	08/21/2019 19:06	JW
Vanadium	27.2	5.00		ug/L	283708	2	08/21/2019 19:06	JW
Zinc	195	10.0		ug/L	283708	2	08/21/2019 19:06	JW
Mercury, Total SW7470A					**(SW7470A)**			
Mercury	BRL	0.00020		mg/L	283905	1	08/22/2019 22:15	EH

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	TRIP BLANK
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019
Lab ID:	1908I79-010A	**Matrix:**	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,1,2,2-Tetrachloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,1,2-Trichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,1-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,1-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 02:09	NP
1,2,4-Trichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,2-Dibromo-3-chloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,2-Dibromoethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,2-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,2-Dichloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,2-Dichloropropane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,3-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
1,4-Dichlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
2-Butanone	BRL	10		ug/L	283901	1	08/22/2019 02:09	NP
2-Hexanone	BRL	10		ug/L	283901	1	08/22/2019 02:09	NP
4-Methyl-2-pentanone	BRL	10		ug/L	283901	1	08/22/2019 02:09	NP
Acetone	BRL	20		ug/L	283901	1	08/22/2019 02:09	NP
Benzene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Bromodichloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Bromoform	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Bromomethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Carbon disulfide	BRL	5.0		ug/L	283901	1	08/22/2019 02:09	NP
Carbon tetrachloride	BRL	2.0		ug/L	283901	1	08/22/2019 02:09	NP
Chlorobenzene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Chloroethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Chloroform	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Chloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
cis-1,2-Dichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
cis-1,3-Dichloropropene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Cyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 02:09	NP
Dibromochloromethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Dichlorodifluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Ethylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Freon-113	BRL	5.0		ug/L	283901	1	08/22/2019 02:09	NP
Isopropylbenzene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
m,p-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Methyl acetate	BRL	2.0		ug/L	283901	1	08/22/2019 02:09	NP
Methyl tert-butyl ether	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Methylcyclohexane	BRL	2.0		ug/L	283901	1	08/22/2019 02:09	NP
Methylene chloride	BRL	5.0		ug/L	283901	1	08/22/2019 02:09	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client:	Cardno, Inc.	**Client Sample ID:**	TRIP BLANK
Lab Order	1908I79	**Tag Number:**	
Project Name:	Great Falls Republic Mill #1	**Collection Date:**	8/15/2019
Lab ID:	1908I79-010A	**Matrix:**	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260D				**(SW5030B)**				
o-Xylene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Styrene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Tetrachloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Toluene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
trans-1,2-Dichloroethene	BRL	2.0		ug/L	283901	1	08/22/2019 02:09	NP
trans-1,3-Dichloropropene	BRL	2.0		ug/L	283901	1	08/22/2019 02:09	NP
Trichloroethene	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Trichlorofluoromethane	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Vinyl chloride	BRL	1.0		ug/L	283901	1	08/22/2019 02:09	NP
Surr: 4-Bromofluorobenzene	90.3	70-130		%REC	283901	1	08/22/2019 02:09	NP
Surr: Dibromofluoromethane	100	70-130		%REC	283901	1	08/22/2019 02:09	NP
Surr: Toluene-d8	101	70-130		%REC	283901	1	08/22/2019 02:09	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

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AES ANALYTICAL ENVIRONMENTAL SERVICES, INC.

SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: **Access Analytical, Inc.** AES Work Order Number: **1908I79**

2. Carrier: FedEx ■ UPS ☐ USPS ☐ Client ☐ Courier ☐ Other _____

		Yes	No	N/A	Details	Comments
3.	Shipping container/cooler received in good condition?	●	○	○	damaged ☐ leaking ☐ other ☐	
4.	Custody seals present on shipping container?	○	●	○		
5.	Custody seals intact on shipping container?	○	○	●		
6.	Temperature blanks present?	○	●	○		
7.	Cooler temperature(s) within limits of 0-6°C? [See item 13 and 14 for temperature recordings.]	●	○	○	Cooling initiated for recently collected samples / ice present ☐	
8.	Chain of Custody (COC) present?	●	○	○		
9.	Chain of Custody signed, dated, and timed when relinquished and received?	●	○	○		
10.	Sampler name and/or signature on COC?	●	○	○		
11.	Were all samples received within holding time?	●	○	○		
12.	TAT marked on the COC?	●	○	○	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. ☐	

13. Cooler 1 Temperature 1.6 °C Cooler 2 Temperature 4.3 °C Cooler 3 Temperature 3.4 °C Cooler 4 Temperature 4.9 °C

14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials). MJ 8/20/19

		Yes	No	N/A	Details	Comments
16.	Were sample containers intact upon receipt?	●	○	○		
17.	Custody seals present on sample containers?	○	●	○		
18.	Custody seals intact on sample containers?	○	○	●		
19.	Do sample container labels match the COC?	●	○	○	incomplete info ☐ illegible ☐ no label ☐ other ☐	
20.	Are analyses requested indicated on the COC?	●	○	○		
21.	Were all of the samples listed on the COC received?	●	○	○	samples received but not listed on COC ☐ samples listed on COC not received ☐	
22.	Was the sample collection date/time noted?	●	○	○		
23.	Did we receive sufficient sample volume for indicated analyses?	●	○	○		
24.	Were samples received in appropriate containers?	●	○	○		
25.	Were VOA samples received without headspace (< 1/4" bubble)?	●	○	○		
26.	Were trip blanks submitted?	●	○	○	listed on COC ■ not listed on COC ☐	

27. Comments: _____

This section only applies to samples where pH can be checked at Sample Receipt.

I certify that I have completed sections 16-27 (dated initials). BC 8/20/19

		Yes	No	N/A	Details	Comments
28.	Have containers needing chemical preservation been checked? *	●	○	○		
29.	Containers meet preservation guidelines?	●	○	○		
30.	Was pH adjusted at Sample Receipt?	○	○	●		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH.

I certify that I have completed sections 28-30 (dated initials). BC 8/20/19

Checklist 6.9.17 Rev 2

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AES ANALYTICAL ENVIRONMENTAL SERVICES, INC.

SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: **Access Analytical, Inc.** AES Work Order Number: 1909699 1908179 CPalin/19

2. Carrier: FedEx ■ UPS ☐ USPS ☐ Client ☐ Courier ☐ Other _____

		Yes	No	N/A	Details	Comments
3.	Shipping container/cooler received in good condition?	●	○	○	damaged ☐ leaking ☐ other ☐	
4.	Custody seals present on shipping container?	○	●	○		
5.	Custody seals intact on shipping container?	○	○	●		
6.	Temperature blanks present?	○	●	○		
7.	Cooler temperature(s) within limits of 0-6°C? [See item 13 and 14 for temperature recordings.]	●	○	○	Cooling initiated for recently collected samples / ice present ☐	
8.	Chain of Custody (COC) present?	●	○	○		
9.	Chain of Custody signed, dated, and timed when relinquished and received?	●	○	○		
10.	Sampler name and/or signature on COC?	●	○	○		
11.	Were all samples received within holding time?	●	○	○		
12.	TAT marked on the COC?	●	○	○	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. ☐	

13. Cooler 1 Temperature 0.3 °C Cooler 2 Temperature _____ °C Cooler 3 Temperature _____ °C Cooler 4 Temperature _____ °C

14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials). BC 9/10/19

		Yes	No	N/A	Details	Comments
16.	Were sample containers intact upon receipt?	●	○	○		
17.	Custody seals present on sample containers?	○	●	○		
18.	Custody seals intact on sample containers?	○	○	●		
19.	Do sample container labels match the COC?	●	○	○	incomplete info ☐ illegible ☐ no label ☐ other ☐	
20.	Are analyses requested indicated on the COC?	●	○	○		
21.	Were all of the samples listed on the COC received?	●	○	○	samples received but not listed on COC ☐ samples listed on COC not received ☐	
22.	Was the sample collection date/time noted?	●	○	○		
23.	Did we receive sufficient sample volume for indicated analyses?	●	○	○		
24.	Were samples received in appropriate containers?	●	○	○		
25.	Were VOA samples received without headspace (< 1/4" bubble)?	○	○	●		
26.	Were trip blanks submitted?	○	○	●	listed on COC ☐ not listed on COC ☐	

27. Comments: _____

I certify that I have completed sections 16-27 (dated initials). BC 9/10/19

This section only applies to samples where pH can be checked at Sample Receipt.

		Yes	No	N/A	Details	Comments
28.	Have containers needing chemical preservation been checked? *	○	○	●		
29.	Containers meet preservation guidelines?	○	○	●		
30.	Was pH adjusted at Sample Receipt?	○	○	●		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH.

I certify that I have completed sections 28-30 (dated initials). BC 9/10/19

Checklist 6.9.17 Rev 2

Locked

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Lab Order: 1908I79

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908I79-001A	MW-01	8/15/2019 10:30:00AM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-001B	MW-01	8/15/2019 10:30:00AM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/21/2019 9:00:00 AM	08/23/2019
1908I79-001B	MW-01	8/15/2019 10:30:00AM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-001C	MW-01	8/15/2019 10:30:00AM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-001C	MW-01	8/15/2019 10:30:00AM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-002A	EB-01	8/15/2019 10:45:00AM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-002B	EB-01	8/15/2019 10:45:00AM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/21/2019 9:00:00 AM	08/23/2019
1908I79-002B	EB-01	8/15/2019 10:45:00AM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-002C	EB-01	8/15/2019 10:45:00AM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-002C	EB-01	8/15/2019 10:45:00AM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/26/2019
1908I79-002C	EB-01	8/15/2019 10:45:00AM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-003A	FB-01	8/15/2019 11:55:00AM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-003B	FB-01	8/15/2019 11:55:00AM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/21/2019 9:00:00 AM	08/23/2019
1908I79-003B	FB-01	8/15/2019 11:55:00AM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-003C	FB-01	8/15/2019 11:55:00AM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-003C	FB-01	8/15/2019 11:55:00AM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-004A	MW-02	8/15/2019 12:20:00PM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-004B	MW-02	8/15/2019 12:20:00PM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/21/2019 9:00:00 AM	08/23/2019
1908I79-004B	MW-02	8/15/2019 12:20:00PM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-004C	MW-02	8/15/2019 12:20:00PM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-004C	MW-02	8/15/2019 12:20:00PM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-005A	MW-03	8/15/2019 12:40:00PM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-005B	MW-03	8/15/2019 12:40:00PM	Groundwater	TCL-CHLORINATED PESTICIDES		8/21/2019 10:00:00 AM	08/21/2019
1908I79-005B	MW-03	8/15/2019 12:40:00PM	Groundwater	POLYCHLORINATED BIPHENYLS		8/21/2019 10:00:00 AM	08/21/2019
1908I79-005B	MW-03	8/15/2019 12:40:00PM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/21/2019 9:00:00 AM	08/23/2019
1908I79-005B	MW-03	8/15/2019 12:40:00PM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-005C	MW-03	8/15/2019 12:40:00PM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-005C	MW-03	8/15/2019 12:40:00PM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-005D	MW-03	8/15/2019 12:40:00PM	Groundwater	Cyanide		8/26/2019 10:45:00 AM	08/26/2019

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Lab Order: 1908I79

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1908I79-006A	MW-05	8/15/2019 3:10:00PM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-006B	MW-05	8/15/2019 3:10:00PM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/21/2019 9:00:00 AM	08/23/2019
1908I79-006B	MW-05	8/15/2019 3:10:00PM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-006C	MW-05	8/15/2019 3:10:00PM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-006C	MW-05	8/15/2019 3:10:00PM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-007A	MW-05-DUP	8/15/2019 3:10:00PM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-007B	MW-05-DUP	8/15/2019 3:10:00PM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/21/2019 9:00:00 AM	08/23/2019
1908I79-007B	MW-05-DUP	8/15/2019 3:10:00PM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-007C	MW-05-DUP	8/15/2019 3:10:00PM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-007C	MW-05-DUP	8/15/2019 3:10:00PM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-008A	MW-06	8/15/2019 4:20:00PM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-008B	MW-06	8/15/2019 4:20:00PM	Groundwater	TCL-SEMIVOLATILE ORGANICS		8/21/2019 9:00:00 AM	08/23/2019
1908I79-008B	MW-06	8/15/2019 4:20:00PM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-008C	MW-06	8/15/2019 4:20:00PM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-008C	MW-06	8/15/2019 4:20:00PM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-009A	MW-07	8/15/2019 5:00:00PM	Groundwater	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019
1908I79-009B	MW-07	9/6/2019 11:55:00AM	Groundwater	TCL-SEMIVOLATILE ORGANICS		9/11/2019 10:00:00 AM	09/13/2019
1908I79-009B	MW-07	9/6/2019 11:55:00AM	Groundwater	Polynuclear Aromatic Hydrocarbons		8/21/2019 2:00:00 PM	08/21/2019
1908I79-009B	MW-07	9/6/2019 11:55:00AM	Groundwater	Polynuclear Aromatic Hydrocarbons		9/11/2019 11:00:00 AM	09/12/2019
1908I79-009C	MW-07	8/15/2019 5:00:00PM	Groundwater	Total Metals by ICP/MS		8/21/2019 7:10:00 AM	08/21/2019
1908I79-009C	MW-07	8/15/2019 5:00:00PM	Groundwater	TOTAL MERCURY		8/22/2019 5:16:00 PM	08/22/2019
1908I79-010A	TRIP BLANK	8/15/2019 12:00:00AM	Aqueous	Volatile Organic Compounds by GC/MS		8/21/2019 11:39:00 PM	08/22/2019

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283708

Sample ID: **MB-283708** Client ID: Units: **ug/L** Prep Date: **08/20/2019** Run No: **405419**
SampleType: **MBLK** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283708** Analysis Date: **08/21/2019** Seq No: **9110759**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	BRL	50.0									
Antimony	BRL	5.00									
Arsenic	BRL	5.00									
Barium	BRL	10.0									
Beryllium	BRL	1.00									
Cadmium	BRL	0.700									
Calcium	BRL	100									
Chromium	BRL	5.00									
Cobalt	BRL	5.00									
Copper	BRL	2.00									
Iron	BRL	100									
Lead	BRL	1.00									
Magnesium	BRL	100									
Manganese	BRL	5.00									
Nickel	BRL	5.00									
Potassium	BRL	100									
Selenium	BRL	5.00									
Silver	BRL	1.00									
Sodium	BRL	500									
Thallium	BRL	1.00									
Vanadium	BRL	5.00									
Zinc	BRL	10.0									

Sample ID: **LCS-283708** Client ID: Units: **ug/L** Prep Date: **08/20/2019** Run No: **405419**
SampleType: **LCS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283708** Analysis Date: **08/21/2019** Seq No: **9110760**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283708

Sample ID: **LCS-283708** Client ID: Units: **ug/L** Prep Date: **08/20/2019** Run No: **405419**
SampleType: **LCS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283708** Analysis Date: **08/21/2019** Seq No: **9110760**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	941.2	50.0	1000		94.1	80	120				
Antimony	101.1	5.00	100.0		101	80	120				
Arsenic	102.6	5.00	100.0		103	80	120				
Barium	98.60	10.0	100.0		98.6	80	120				
Beryllium	107.9	1.00	100.0		108	80	120				
Cadmium	98.09	0.700	100.0		98.1	80	120				
Calcium	1054	100	1000		105	80	120				
Chromium	96.23	5.00	100.0		96.2	80	120				
Cobalt	98.27	5.00	100.0		98.3	80	120				
Copper	99.06	2.00	100.0		99.1	80	120				
Iron	983.8	100	1000		98.4	80	120				
Lead	104.1	1.00	100.0		104	80	120				
Magnesium	941.5	100	1000		94.2	80	120				
Manganese	94.95	5.00	100.0		95.0	80	120				
Nickel	98.29	5.00	100.0		98.3	80	120				
Potassium	967.5	100	1000		96.7	80	120				
Selenium	96.79	5.00	100.0		96.8	80	120				
Silver	10.17	1.00	10.00		102	80	120				
Sodium	996.1	500	1000		99.6	80	120				
Thallium	104.1	1.00	100.0		104	80	120				
Vanadium	96.21	5.00	100.0		96.2	80	120				
Zinc	100.9	10.0	100.0	3.698	97.2	80	120				

Sample ID: **1908I09-001EMS** Client ID: Units: **ug/L** Prep Date: **08/20/2019** Run No: **405419**
SampleType: **MS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283708** Analysis Date: **08/21/2019** Seq No: **9110762**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	4678	100	1000	3705	97.3	75	125				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283708

Sample ID: **1908I09-001EMS** Client ID: Units: **ug/L** Prep Date: **08/20/2019** Run No: **405419**
SampleType: **MS** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283708** Analysis Date: **08/21/2019** Seq No: **9110762**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	100.7	10.0	100.0	3.933	96.8	75	125				
Arsenic	115.7	10.0	100.0	9.360	106	75	125				
Barium	120.4	20.0	100.0	25.13	95.3	75	125				
Beryllium	104.0	2.00	100.0		104	75	125				
Cadmium	99.70	1.40	100.0	0.3891	99.3	75	125				
Calcium	13270	200	1000	12050	122	75	125				
Chromium	103.6	10.0	100.0	4.351	99.2	75	125				
Cobalt	116.2	10.0	100.0	15.32	101	75	125				
Copper	144.5	4.00	100.0	40.22	104	75	125				
Iron	18180	200	1000	16990	119	75	125				
Lead	108.8	2.00	100.0	6.305	102	75	125				
Magnesium	8232	200	1000	7214	102	75	125				
Manganese	312.7	10.0	100.0	207.1	106	75	125				
Nickel	192.4	10.0	100.0	89.28	103	75	125				
Potassium	13410	200	1000	12250	115	75	125				
Selenium	97.97	10.0	100.0		98.0	75	125				
Silver	10.91	2.00	10.00	0.7777	101	75	125				
Sodium	18070	1000	1000	17090	97.5	75	125				
Thallium	102.4	2.00	100.0		102	75	125				
Vanadium	102.5	10.0	100.0	2.761	99.8	75	125				
Zinc	273.0	20.0	100.0	168.4	105	75	125				

Sample ID: **1908I09-001EMSD** Client ID: Units: **ug/L** Prep Date: **08/20/2019** Run No: **405419**
SampleType: **MSD** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283708** Analysis Date: **08/21/2019** Seq No: **9110763**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	4760	100	1000	3705	106	75	125	4678	1.75	20	
Antimony	101.9	10.0	100.0	3.933	97.9	75	125	100.7	1.12	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283708**

Sample ID: **1908I09-001EMSD** Client ID: Units: **ug/L** Prep Date: **08/20/2019** Run No: **405419**
SampleType: **MSD** TestCode: **Total Metals by ICP/MS SW6020B** BatchID: **283708** Analysis Date: **08/21/2019** Seq No: **9110763**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	113.5	10.0	100.0	9.360	104	75	125	115.7	1.94	20	
Barium	121.6	20.0	100.0	25.13	96.5	75	125	120.4	0.993	20	
Beryllium	104.1	2.00	100.0		104	75	125	104.0	0.116	20	
Cadmium	99.50	1.40	100.0	0.3891	99.1	75	125	99.70	0.195	20	
Calcium	13100	200	1000	12050	105	75	125	13270	1.29	20	
Chromium	104.8	10.0	100.0	4.351	100	75	125	103.6	1.12	20	
Cobalt	116.2	10.0	100.0	15.32	101	75	125	116.2	0.012	20	
Copper	145.0	4.00	100.0	40.22	105	75	125	144.5	0.319	20	
Iron	18080	200	1000	16990	109	75	125	18180	0.553	20	
Lead	108.6	2.00	100.0	6.305	102	75	125	108.8	0.173	20	
Magnesium	8211	200	1000	7214	99.7	75	125	8232	0.259	20	
Manganese	310.1	10.0	100.0	207.1	103	75	125	312.7	0.826	20	
Nickel	192.8	10.0	100.0	89.28	104	75	125	192.4	0.222	20	
Potassium	13420	200	1000	12250	117	75	125	13410	0.133	20	
Selenium	97.21	10.0	100.0		97.2	75	125	97.97	0.783	20	
Silver	10.91	2.00	10.00	0.7777	101	75	125	10.91	0.038	20	
Sodium	17990	1000	1000	17090	89.5	75	125	18070	0.443	20	
Thallium	103.2	2.00	100.0		103	75	125	102.4	0.812	20	
Vanadium	104.2	10.0	100.0	2.761	101	75	125	102.5	1.65	20	
Zinc	270.8	20.0	100.0	168.4	102	75	125	273.0	0.822	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283834**

Sample ID: **MB-283834** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405470**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283834** Analysis Date: **08/23/2019** Seq No: **9114585**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1´-Biphenyl	BRL	10									
2,4,5-Trichlorophenol	BRL	25									
2,4,6-Trichlorophenol	BRL	10									
2,4-Dichlorophenol	BRL	10									
2,4-Dimethylphenol	BRL	10									
2,4-Dinitrophenol	BRL	25									
2,4-Dinitrotoluene	BRL	10									
2,6-Dinitrotoluene	BRL	10									
2-Chloronaphthalene	BRL	10									
2-Chlorophenol	BRL	10									
2-Methylphenol	BRL	10									
2-Nitroaniline	BRL	25									
2-Nitrophenol	BRL	10									
3,3´-Dichlorobenzidine	BRL	10									
3-Nitroaniline	BRL	25									
4,6-Dinitro-2-methylphenol	BRL	25									
4-Bromophenyl phenyl ether	BRL	10									
4-Chloro-3-methylphenol	BRL	10									
4-Chloroaniline	BRL	10									
4-Chlorophenyl phenyl ether	BRL	10									
4-Methylphenol	BRL	10									
4-Nitroaniline	BRL	25									
4-Nitrophenol	BRL	25									
Acetophenone	BRL	10									
Atrazine	BRL	10									
Benzaldehyde	BRL	10									
Bis(2-chloroethoxy)methane	BRL	10									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283834**

Sample ID: **MB-283834** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405470**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283834** Analysis Date: **08/23/2019** Seq No: **9114585**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Bis(2-chloroethyl)ether	BRL	10									
Bis(2-chloroisopropyl)ether	BRL	10									
Bis(2-ethylhexyl)phthalate	BRL	10									
Butyl benzyl phthalate	BRL	10									
Caprolactam	BRL	10									
Carbazole	BRL	10									
Di-n-butyl phthalate	BRL	10									
Di-n-octyl phthalate	BRL	10									
Dibenzofuran	BRL	10									
Diethyl phthalate	BRL	10									
Dimethyl phthalate	BRL	10									
Hexachlorobenzene	BRL	10									
Hexachlorobutadiene	BRL	10									
Hexachlorocyclopentadiene	BRL	10									
Hexachloroethane	BRL	10									
Isophorone	BRL	10									
N-Nitrosodi-n-propylamine	BRL	10									
N-Nitrosodiphenylamine	BRL	10									
Nitrobenzene	BRL	10									
Pentachlorophenol	BRL	25									
Phenol	BRL	10									
Surr: 2,4,6-Tribromophenol	121.1	0	100.0		121	47	127				
Surr: 2-Fluorobiphenyl	43.42	0	50.00		86.8	47.4	119				
Surr: 2-Fluorophenol	45.19	0	100.0		45.2	26.2	120				
Surr: 4-Terphenyl-d14	42.40	0	50.00		84.8	45	133				
Surr: Nitrobenzene-d5	39.94	0	50.00		79.9	41.9	121				
Surr: Phenol-d5	64.44	0	100.0		64.4	17.8	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283834**

Sample ID: **LCS-283834** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405470**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283834** Analysis Date: **08/23/2019** Seq No: **9114587**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	106.3	25	100.0		106	70	130				
2,4,6-Trichlorophenol	118.1	10	100.0		118	70	130				
2,4-Dichlorophenol	96.49	10	100.0		96.5	70	130				
2,4-Dimethylphenol	79.14	10	100.0		79.1	50	130				
2,4-Dinitrotoluene	114.5	10	100.0		115	70	130				
2,6-Dinitrotoluene	117.0	10	100.0		117	70	130				
2-Chlorophenol	83.43	10	100.0		83.4	50	130				
2-Methylphenol	85.51	10	100.0		85.5	70	130				
3,3´-Dichlorobenzidine	71.18	10	100.0		71.2	10	120				
4-Bromophenyl phenyl ether	124.7	10	100.0		125	70	130				
4-Chloro-3-methylphenol	95.27	10	100.0		95.3	70	130				
4-Methylphenol	97.31	10	100.0		97.3	70	130				
Bis(2-chloroethoxy)methane	92.24	10	100.0		92.2	70	130				
Bis(2-chloroethyl)ether	91.90	10	100.0		91.9	70	130				
Bis(2-chloroisopropyl)ether	66.22	10	100.0		66.2	50	130				
Bis(2-ethylhexyl)phthalate	103.6	10	100.0		104	70	130				
Di-n-butyl phthalate	107.3	10	100.0		107	70	130				
Di-n-octyl phthalate	51.68	10	50.00		103	70	130				
Diethyl phthalate	107.1	10	100.0		107	70	130				
Dimethyl phthalate	111.7	10	100.0		112	70	130				
Hexachlorobenzene	118.1	10	100.0		118	70	130				
N-Nitrosodiphenylamine	126.8	10	150.0		84.5	40	130				
Nitrobenzene	103.4	10	100.0		103	70	130				
Surr: 2,4,6-Tribromophenol	134.9	0	100.0		135	47	127				S
Surr: 2-Fluorobiphenyl	49.54	0	50.00		99.1	47.4	119				
Surr: 2-Fluorophenol	57.13	0	100.0		57.1	26.2	120				
Surr: 4-Terphenyl-d14	47.38	0	50.00		94.8	45	133				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283834**

Sample ID: **LCS-283834** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405470**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283834** Analysis Date: **08/23/2019** Seq No: **9114587**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: Nitrobenzene-d5	45.11	0	50.00		90.2	41.9	121				
Surr: Phenol-d5	76.69	0	100.0		76.7	17.8	120				

Sample ID: **LCS-283834** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405684**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283834** Analysis Date: **08/26/2019** Seq No: **9116294**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachlorobutadiene	154.7	20	150.0		103	40	130				

Sample ID: **LCSD-283834** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405470**
SampleType: **LCSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283834** Analysis Date: **08/23/2019** Seq No: **9114588**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	107.7	25	100.0		108	70	130	106.3	1.32	20	
2,4,6-Trichlorophenol	119.0	10	100.0		119	70	130	118.1	0.759	20	
2,4-Dichlorophenol	97.26	10	100.0		97.3	70	130	96.49	0.795	20	
2,4-Dimethylphenol	85.75	10	100.0		85.8	50	130	79.14	8.02	20	
2,4-Dinitrotoluene	114.3	10	100.0		114	70	130	114.5	0.227	20	
2,6-Dinitrotoluene	119.6	10	100.0		120	70	130	117.0	2.18	20	
2-Chlorophenol	80.20	10	100.0		80.2	50	130	83.43	3.95	20	
2-Methylphenol	88.24	10	100.0		88.2	70	130	85.51	3.14	20	
3,3´-Dichlorobenzidine	74.25	10	100.0		74.2	10	120	71.18	4.22	20	
4-Bromophenyl phenyl ether	125.7	10	100.0		126	70	130	124.7	0.847	20	
4-Chloro-3-methylphenol	100.3	10	100.0		100	70	130	95.27	5.18	20	
4-Methylphenol	99.25	10	100.0		99.2	70	130	97.31	1.97	20	
Bis(2-chloroethoxy)methane	93.04	10	100.0		93.0	70	130	92.24	0.864	20	
Bis(2-chloroethyl)ether	93.73	10	100.0		93.7	70	130	91.90	1.97	20	
Bis(2-chloroisopropyl)ether	67.95	10	100.0		68.0	50	130	66.22	2.58	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283834

Sample ID: **LCSD-283834** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405470**
SampleType: **LCSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283834** Analysis Date: **08/23/2019** Seq No: **9114588**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Bis(2-ethylhexyl)phthalate	106.6	10	100.0		107	70	130	103.6	2.84	20	
Di-n-butyl phthalate	109.6	10	100.0		110	70	130	107.3	2.10	20	
Di-n-octyl phthalate	53.30	10	50.00		107	70	130	51.68	3.09	20	
Diethyl phthalate	107.6	10	100.0		108	70	130	107.1	0.522	20	
Dimethyl phthalate	113.8	10	100.0		114	70	130	111.7	1.88	20	
Hexachlorobenzene	117.6	10	100.0		118	70	130	118.1	0.433	20	
N-Nitrosodiphenylamine	126.2	10	150.0		84.1	40	130	126.8	0.466	20	
Nitrobenzene	106.0	10	100.0		106	70	130	103.4	2.42	20	
Surr: 2,4,6-Tribromophenol	136.6	0	100.0		137	47	127	134.9	0	0	S
Surr: 2-Fluorobiphenyl	51.32	0	50.00		103	47.4	119	49.54	0	0	
Surr: 2-Fluorophenol	50.49	0	100.0		50.5	26.2	120	57.13	0	0	
Surr: 4-Terphenyl-d14	48.45	0	50.00		96.9	45	133	47.38	0	0	
Surr: Nitrobenzene-d5	46.03	0	50.00		92.1	41.9	121	45.11	0	0	
Surr: Phenol-d5	75.23	0	100.0		75.2	17.8	120	76.69	0	0	

Sample ID: **LCSD-283834** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405684**
SampleType: **LCSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **283834** Analysis Date: **08/26/2019** Seq No: **9116295**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachlorobutadiene	160.0	20	150.0		107	40	130	154.7	3.37	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283836

Sample ID: **MB-283836** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405348**
SampleType: **MBLK** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283836** Analysis Date: **08/20/2019** Seq No: **9107836**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDD	BRL	0.10									
4,4´-DDE	BRL	0.10									
4,4´-DDT	BRL	0.10									
Aldrin	BRL	0.050									
alpha-BHC	BRL	0.050									
alpha-Chlordane	BRL	0.050									
beta-BHC	BRL	0.050									
delta-BHC	BRL	0.050									
Dieldrin	BRL	0.10									
Endosulfan I	BRL	0.050									
Endosulfan II	BRL	0.10									
Endosulfan sulfate	BRL	0.10									
Endrin	BRL	0.10									
Endrin aldehyde	BRL	0.10									
Endrin ketone	BRL	0.10									
gamma-BHC	BRL	0.050									
gamma-Chlordane	BRL	0.050									
Heptachlor	BRL	0.050									
Heptachlor epoxide	BRL	0.050									
Methoxychlor	BRL	0.50									
Toxaphene	BRL	5.0									
Surr: Decachlorobiphenyl	0.3667	0	0.5000		73.3	70	130				
Surr: Tetrachloro-m-xylene	0.3413	0	0.5000		68.3	70	130				S

Sample ID: **LCS-283836** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405377**
SampleType: **LCS** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283836** Analysis Date: **08/21/2019** Seq No: **9108571**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283836

Sample ID: **LCS-283836** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405377**
SampleType: **LCS** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283836** Analysis Date: **08/21/2019** Seq No: **9108571**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDD	0.9589	0.10	1.000		95.9	70	130				
4,4´-DDE	0.9619	0.10	1.000		96.2	70	130				
4,4´-DDT	0.8818	0.10	1.000		88.2	70	133				
Aldrin	0.9021	0.050	1.000		90.2	70	130				
alpha-BHC	1.082	0.050	1.000		108	70	130				
alpha-Chlordane	0.9849	0.050	1.000		98.5	70	130				
beta-BHC	1.086	0.050	1.000		109	70	130				
delta-BHC	1.123	0.050	1.000		112	70	130				
Dieldrin	0.9627	0.10	1.000		96.3	70	130				
Endosulfan I	0.9596	0.050	1.000		96.0	70	130				
Endosulfan II	1.002	0.10	1.000		100	70	130				
Endosulfan sulfate	0.8884	0.10	1.000		88.8	70	130				
Endrin	1.019	0.10	1.000		102	70	130				
Endrin aldehyde	0.7552	0.10	1.000		75.5	70	130				
Endrin ketone	0.9638	0.10	1.000		96.4	70	130				
gamma-BHC	1.069	0.050	1.000		107	70	130				
gamma-Chlordane	0.9594	0.050	1.000		95.9	70	130				
Heptachlor	0.7561	0.050	1.000		75.6	70	130				
Heptachlor epoxide	0.9732	0.050	1.000		97.3	70	130				
Methoxychlor	2.693	0.50	3.000		89.8	70	130				
Surr: Decachlorobiphenyl	0.3963	0	0.5000		79.3	70	130				
Surr: Tetrachloro-m-xylene	0.3884	0	0.5000		77.7	70	130				

Sample ID: **1908G94-002AMS** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405348**
SampleType: **MS** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283836** Analysis Date: **08/20/2019** Seq No: **9107841**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDD	0.1374	0.10	1.000		13.7	64.3	136				S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283836

Sample ID: **1908G94-002AMS** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405348**
SampleType: **MS** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283836** Analysis Date: **08/20/2019** Seq No: **9107841**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDE	0.1252	0.10	1.000		12.5	52.1	124				S
4,4´-DDT	0.1216	0.10	1.000		12.2	51.7	136				S
Aldrin	0.1350	0.050	1.000		13.5	44.6	122				S
alpha-BHC	0.4917	0.050	1.000		49.2	63.7	127				S
alpha-Chlordane	0.1767	0.050	1.000		17.7	56.8	125				S
beta-BHC	0.5510	0.050	1.000		55.1	70.4	131				S
delta-BHC	0.5497	0.050	1.000		55.0	62	135				S
Dieldrin	0.2044	0.10	1.000		20.4	64.1	127				S
Endosulfan I	0.2331	0.050	1.000		23.3	67	125				S
Endosulfan II	0.2426	0.10	1.000		24.3	69.7	128				S
Endosulfan sulfate	0.2745	0.10	1.000		27.5	65.7	125				S
Endrin	0.2426	0.10	1.000		24.3	76.4	142				S
Endrin aldehyde	0.2375	0.10	1.000		23.8	55.8	119				S
Endrin ketone	0.3534	0.10	1.000		35.3	53.5	130				S
gamma-BHC	0.4890	0.050	1.000		48.9	63.5	130				S
gamma-Chlordane	0.1563	0.050	1.000		15.6	59.9	126				S
Heptachlor	0.1957	0.050	1.000	0.03381	16.2	58.6	128				S
Heptachlor epoxide	0.2632	0.050	1.000	0.04931	21.4	65.4	125				S
Methoxychlor	0.5039	0.50	3.000		16.8	67.8	132				S
Surr: Decachlorobiphenyl	0.08342	0	0.5000		16.7	20.6	134				S
Surr: Tetrachloro-m-xylene	0.2257	0	0.5000		45.1	37	128				

Sample ID: **1908G94-002AMSD** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405348**
SampleType: **MSD** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283836** Analysis Date: **08/20/2019** Seq No: **9107842**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDD	0.1245	0.10	1.000		12.5	64.3	136	0.1374	9.80	26	S
4,4´-DDE	0.1193	0.10	1.000		11.9	52.1	124	0.1252	4.81	18.9	S

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283836

Sample ID: **1908G94-002AMSD** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405348**
SampleType: **MSD** TestCode: **CHLORINATED PESTICIDES, TCL SW8081B** BatchID: **283836** Analysis Date: **08/20/2019** Seq No: **9107842**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4,4´-DDT	0.1075	0.10	1.000		10.7	51.7	136	0.1216	12.3	20	S
Aldrin	0.1213	0.050	1.000		12.1	44.6	122	0.1350	10.7	23.6	S
alpha-BHC	0.4131	0.050	1.000		41.3	63.7	127	0.4917	17.4	25.1	S
alpha-Chlordane	0.1623	0.050	1.000		16.2	56.8	125	0.1767	8.52	22.5	S
beta-BHC	0.4805	0.050	1.000		48.0	70.4	131	0.5510	13.7	20	S
delta-BHC	0.4851	0.050	1.000		48.5	62	135	0.5497	12.5	21.1	S
Dieldrin	0.1746	0.10	1.000		17.5	64.1	127	0.2044	15.8	20	S
Endosulfan I	0.1992	0.050	1.000		19.9	67	125	0.2331	15.7	20	S
Endosulfan II	0.2088	0.10	1.000		20.9	69.7	128	0.2426	15.0	20	S
Endosulfan sulfate	0.2391	0.10	1.000		23.9	65.7	125	0.2745	13.8	29.9	S
Endrin	0.2059	0.10	1.000		20.6	76.4	142	0.2426	16.4	20	S
Endrin aldehyde	0.2038	0.10	1.000		20.4	55.8	119	0.2375	15.3	20	S
Endrin ketone	0.3037	0.10	1.000		30.4	53.5	130	0.3534	15.1	20	S
gamma-BHC	0.4194	0.050	1.000		41.9	63.5	130	0.4890	15.3	19	S
gamma-Chlordane	0.1625	0.050	1.000		16.3	59.9	126	0.1563	3.90	26.3	S
Heptachlor	0.1711	0.050	1.000	0.03381	13.7	58.6	128	0.1957	13.5	29.2	S
Heptachlor epoxide	0.2233	0.050	1.000	0.04931	17.4	65.4	125	0.2632	16.4	18.7	S
Methoxychlor	BRL	0.50	3.000		15.0	67.8	132	0.5039	0	20	S
Surr: Decachlorobiphenyl	0.06538	0	0.5000		13.1	20.6	134	0.08342	0	0	S
Surr: Tetrachloro-m-xylene	0.2067	0	0.5000		41.3	37	128	0.2257	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283837**

Sample ID: **MB-283837** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405410**
SampleType: **MBLK** TestCode: **POLYCHLORINATED BIPHENYLS SW8082A** BatchID: **283837** Analysis Date: **08/21/2019** Seq No: **9109226**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aroclor 1016	BRL	0.50									
Aroclor 1221	BRL	0.50									
Aroclor 1232	BRL	0.50									
Aroclor 1242	BRL	0.50									
Aroclor 1248	BRL	0.50									
Aroclor 1254	BRL	0.50									
Aroclor 1260	BRL	0.50									
Surr: Decachlorobiphenyl	0.4551	0	0.5000		91.0	70	130				
Surr: Tetrachloro-m-xylene	0.3933	0	0.5000		78.7	70	130				

Sample ID: **LCS-283837** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405410**
SampleType: **LCS** TestCode: **POLYCHLORINATED BIPHENYLS SW8082A** BatchID: **283837** Analysis Date: **08/21/2019** Seq No: **9109227**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aroclor 1016	4.148	0.50	5.000		83.0	70	130				
Aroclor 1260	3.695	0.50	5.000		73.9	70	130				
Surr: Decachlorobiphenyl	0.3945	0	0.5000		78.9	70	130				
Surr: Tetrachloro-m-xylene	0.3823	0	0.5000		76.5	70	130				

Sample ID: **LCSD-283837** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405410**
SampleType: **LCSD** TestCode: **POLYCHLORINATED BIPHENYLS SW8082A** BatchID: **283837** Analysis Date: **08/21/2019** Seq No: **9109228**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aroclor 1016	4.038	0.50	5.000		80.8	70	130	4.148	2.68	40.3	
Aroclor 1260	3.617	0.50	5.000		72.3	70	130	3.695	2.14	49.7	
Surr: Decachlorobiphenyl	0.3726	0	0.5000		74.5	70	130	0.3945	0	0	
Surr: Tetrachloro-m-xylene	0.3580	0	0.5000		71.6	70	130	0.3823	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283842**

Sample ID: **MB-283842** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405443**
SampleType: **MBLK** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283842** Analysis Date: **08/21/2019** Seq No: **9110298**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	BRL	0.50									
2-Methylnaphthalene	BRL	0.50									
Acenaphthene	BRL	0.50									
Acenaphthylene	BRL	1.0									
Anthracene	BRL	0.050									
Benz(a)anthracene	BRL	0.050									
Benzo(a)pyrene	BRL	0.050									
Benzo(b)fluoranthene	BRL	0.10									
Benzo(g,h,i)perylene	BRL	0.10									
Benzo(k)fluoranthene	BRL	0.050									
Chrysene	BRL	0.050									
Dibenz(a,h)anthracene	BRL	0.10									
Fluoranthene	BRL	0.10									
Fluorene	BRL	0.10									
Indeno(1,2,3-cd)pyrene	BRL	0.050									
Naphthalene	BRL	0.50									
Phenanthrene	BRL	0.050									
Pyrene	BRL	0.050									
Surr: 4-Terphenyl-d14	2.166	0	2.000		108	69.4	138				

Sample ID: **LCS-283842** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405443**
SampleType: **LCS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283842** Analysis Date: **08/21/2019** Seq No: **9110300**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	2.160	0.50	2.000		108	70	130				
2-Methylnaphthalene	2.099	0.50	2.000		105	70	130				
Acenaphthene	2.006	0.50	2.000		100	70	130				
Acenaphthylene	1.988	1.0	2.000		99.4	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283842**

Sample ID: **LCS-283842** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405443**
SampleType: **LCS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283842** Analysis Date: **08/21/2019** Seq No: **9110300**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	2.183	0.050	2.000		109	70	130				
Benz(a)anthracene	2.048	0.050	2.000		102	70	130				
Benzo(a)pyrene	2.157	0.050	2.000		108	70	130				
Benzo(b)fluoranthene	1.880	0.10	2.000		94.0	70	130				
Benzo(g,h,i)perylene	2.165	0.10	2.000		108	70	130				
Benzo(k)fluoranthene	2.465	0.050	2.000		123	70	130				
Chrysene	2.411	0.050	2.000		121	70	130				
Dibenz(a,h)anthracene	2.097	0.10	2.000		105	70	130				
Fluoranthene	2.167	0.10	2.000		108	70	130				
Fluorene	1.994	0.10	2.000		99.7	70	130				
Indeno(1,2,3-cd)pyrene	2.084	0.050	2.000		104	70	130				
Naphthalene	2.092	0.50	2.000		105	70	130				
Phenanthrene	2.200	0.050	2.000		110	70	130				
Pyrene	2.345	0.050	2.000		117	70	130				
Surr: 4-Terphenyl-d14	2.299	0	2.000		115	69.4	138				

Sample ID: **LCSD-283842** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405443**
SampleType: **LCSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283842** Analysis Date: **08/21/2019** Seq No: **9110321**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	2.071	0.50	2.000		104	70	130	2.160	4.17	20	
2-Methylnaphthalene	2.021	0.50	2.000		101	70	130	2.099	3.81	20	
Acenaphthene	1.770	0.50	2.000		88.5	70	130	2.006	12.5	20	
Acenaphthylene	1.882	1.0	2.000		94.1	70	130	1.988	5.51	20	
Anthracene	1.704	0.050	2.000		85.2	70	130	2.183	24.6	20	R
Benz(a)anthracene	1.877	0.050	2.000		93.9	70	130	2.048	8.68	20	
Benzo(a)pyrene	1.430	0.050	2.000		71.5	70	130	2.157	40.5	20	R
Benzo(b)fluoranthene	1.753	0.10	2.000		87.7	70	130	1.880	6.99	19.3	

Qualifiers:
> Greater than Result value
< Less than Result value
B Analyte detected in the associated method blank
BRL Below reporting limit
E Estimated (value above quantitation range)
H Holding times for preparation or analysis exceeded
J Estimated value detected below Reporting Limit
N Analyte not NELAC certified
R RPD outside limits due to matrix
Rpt Lim Reporting Limit
S Spike Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283842**

Sample ID: **LCSD-283842** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405443**
SampleType: **LCSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **283842** Analysis Date: **08/21/2019** Seq No: **9110321**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzo(g,h,i)perylene	1.871	0.10	2.000		93.6	70	130	2.165	14.6	23.7	
Benzo(k)fluoranthene	2.464	0.050	2.000		123	70	130	2.465	0.045	21.8	
Chrysene	2.414	0.050	2.000		121	70	130	2.411	0.129	20	
Dibenz(a,h)anthracene	2.013	0.10	2.000		101	70	130	2.097	4.09	23.2	
Fluoranthene	2.078	0.10	2.000		104	70	130	2.167	4.17	20	
Fluorene	1.928	0.10	2.000		96.4	70	130	1.994	3.36	20	
Indeno(1,2,3-cd)pyrene	1.973	0.050	2.000		98.6	70	130	2.084	5.50	22.9	
Naphthalene	2.073	0.50	2.000		104	70	130	2.092	0.904	20	
Phenanthrene	2.136	0.050	2.000		107	70	130	2.200	2.98	20	
Pyrene	2.183	0.050	2.000		109	70	130	2.345	7.14	20	
Surr: 4-Terphenyl-d14	2.322	0	2.000		116	69.4	138	2.299	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283901**

Sample ID: **MB-283901** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405424**
SampleType: **MBLK** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283901** Analysis Date: **08/22/2019** Seq No: **9109563**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	1.0									
1,1,2,2-Tetrachloroethane	BRL	1.0									
1,1,2-Trichloroethane	BRL	1.0									
1,1-Dichloroethane	BRL	1.0									
1,1-Dichloroethene	BRL	2.0									
1,2,4-Trichlorobenzene	BRL	1.0									
1,2-Dibromo-3-chloropropane	BRL	1.0									
1,2-Dibromoethane	BRL	1.0									
1,2-Dichlorobenzene	BRL	1.0									
1,2-Dichloroethane	BRL	1.0									
1,2-Dichloropropane	BRL	1.0									
1,3-Dichlorobenzene	BRL	1.0									
1,4-Dichlorobenzene	BRL	1.0									
2-Butanone	BRL	10									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	20									
Benzene	BRL	1.0									
Bromodichloromethane	BRL	1.0									
Bromoform	BRL	1.0									
Bromomethane	BRL	1.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	2.0									
Chlorobenzene	BRL	1.0									
Chloroethane	BRL	1.0									
Chloroform	BRL	1.0									
Chloromethane	BRL	1.0									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283901**

Sample ID: **MB-283901** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405424**
SampleType: **MBLK** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283901** Analysis Date: **08/22/2019** Seq No: **9109563**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	1.0									
cis-1,3-Dichloropropene	BRL	1.0									
Cyclohexane	BRL	2.0									
Dibromochloromethane	BRL	1.0									
Dichlorodifluoromethane	BRL	1.0									
Ethylbenzene	BRL	1.0									
Freon-113	BRL	5.0									
Isopropylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
Methyl acetate	BRL	2.0									
Methyl tert-butyl ether	BRL	1.0									
Methylcyclohexane	BRL	2.0									
Methylene chloride	BRL	5.0									
o-Xylene	BRL	1.0									
Styrene	BRL	1.0									
Tetrachloroethene	BRL	1.0									
Toluene	BRL	1.0									
trans-1,2-Dichloroethene	BRL	2.0									
trans-1,3-Dichloropropene	BRL	2.0									
Trichloroethene	BRL	1.0									
Trichlorofluoromethane	BRL	1.0									
Vinyl chloride	BRL	1.0									
Surr: 4-Bromofluorobenzene	45.26	0	50.00		90.5	70	130				
Surr: Dibromofluoromethane	48.98	0	50.00		98.0	70	130				
Surr: Toluene-d8	50.93	0	50.00		102	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283901**

Sample ID: **LCS-283901** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405424**
SampleType: **LCS** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283901** Analysis Date: **08/21/2019** Seq No: **9109550**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	42.77	1.0	50.00		85.5	70	130				
1,1,2,2-Tetrachloroethane	46.93	1.0	50.00		93.9	70	130				
1,1,2-Trichloroethane	43.63	1.0	50.00		87.3	70	130				
1,1-Dichloroethane	42.90	1.0	50.00		85.8	70	130				
1,1-Dichloroethene	44.72	2.0	50.00		89.4	60	140				
1,2,4-Trichlorobenzene	41.29	1.0	50.00		82.6	70	130				
1,2-Dibromo-3-chloropropane	46.80	1.0	50.00		93.6	70	130				
1,2-Dibromoethane	45.74	1.0	50.00		91.5	70	130				
1,2-Dichlorobenzene	43.19	1.0	50.00		86.4	70	130				
1,2-Dichloroethane	41.07	1.0	50.00		82.1	70	130				
1,2-Dichloropropane	41.75	1.0	50.00		83.5	70	130				
1,3-Dichlorobenzene	44.58	1.0	50.00		89.2	70	130				
1,4-Dichlorobenzene	43.94	1.0	50.00		87.9	70	130				
Benzene	41.78	1.0	50.00		83.6	70	130				
Bromodichloromethane	41.76	1.0	50.00		83.5	70	130				
Bromoform	40.19	1.0	50.00		80.4	70	130				
Carbon tetrachloride	43.50	2.0	50.00		87.0	70	130				
Chlorobenzene	42.83	1.0	50.00		85.7	70	130				
Chloroform	40.08	1.0	50.00		80.2	70	130				
cis-1,2-Dichloroethene	41.36	1.0	50.00		82.7	70	130				
cis-1,3-Dichloropropene	40.19	1.0	50.00		80.4	70	130				
Dibromochloromethane	50.23	1.0	50.00		100	70	130				
Ethylbenzene	44.03	1.0	50.00		88.1	70	130				
Isopropylbenzene	48.81	1.0	50.00		97.6	70	130				
m,p-Xylene	88.72	1.0	100.0		88.7	70	130				
Methylene chloride	42.01	5.0	50.00		84.0	70	130				
o-Xylene	43.57	1.0	50.00		87.1	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283901

Sample ID: **LCS-283901** Client ID: Units: **ug/L** Prep Date: **08/21/2019** Run No: **405424**
SampleType: **LCS** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283901** Analysis Date: **08/21/2019** Seq No: **9109550**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Styrene	45.34	1.0	50.00		90.7	70	130				
Tetrachloroethene	46.03	1.0	50.00		92.1	70	130				
Toluene	44.13	1.0	50.00		88.3	70	130				
trans-1,2-Dichloroethene	41.05	2.0	50.00		82.1	70	130				
trans-1,3-Dichloropropene	38.94	2.0	50.00		77.9	70	130				
Trichloroethene	44.78	1.0	50.00		89.6	70	130				
Vinyl chloride	43.63	1.0	50.00		87.3	70	130				
Surr: 4-Bromofluorobenzene	46.14	0	50.00		92.3	70	130				
Surr: Dibromofluoromethane	51.24	0	50.00		102	70	130				
Surr: Toluene-d8	51.03	0	50.00		102	70	130				

Sample ID: **1908I79-001AMS** Client ID: **MW-01** Units: **ug/L** Prep Date: **08/21/2019** Run No: **405424**
SampleType: **MS** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283901** Analysis Date: **08/22/2019** Seq No: **9109590**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	60.45	1.0	50.00		121	66.7	137				
1,1,2,2-Tetrachloroethane	60.13	1.0	50.00		120	65.9	125				
1,1,2-Trichloroethane	56.70	1.0	50.00		113	71.8	130				
1,1-Dichloroethane	51.09	1.0	50.00		102	63.7	134				
1,1-Dichloroethene	62.97	2.0	50.00		126	63.8	146				
1,2,4-Trichlorobenzene	51.05	1.0	50.00		102	57.1	144				
1,2-Dibromo-3-chloropropane	45.95	1.0	50.00		91.9	56.7	133				
1,2-Dibromoethane	60.32	1.0	50.00		121	69.5	133				
1,2-Dichlorobenzene	57.40	1.0	50.00		115	68.3	135				
1,2-Dichloroethane	52.54	1.0	50.00		105	67	136				
1,2-Dichloropropane	56.56	1.0	50.00		113	70.8	130				
1,3-Dichlorobenzene	60.52	1.0	50.00		121	65.8	136				
1,4-Dichlorobenzene	59.51	1.0	50.00		119	69.2	133				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283901**

Sample ID: **1908I79-001AMS** Client ID: **MW-01** Units: **ug/L** Prep Date: **08/21/2019** Run No: **405424**
SampleType: **MS** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283901** Analysis Date: **08/22/2019** Seq No: **9109590**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	56.76	1.0	50.00		114	70.2	137				
Bromodichloromethane	56.45	1.0	50.00		113	62	137				
Bromoform	50.97	1.0	50.00		102	59.7	136				
Carbon tetrachloride	62.32	2.0	50.00		125	67.7	146				
Chlorobenzene	60.07	1.0	50.00		120	72.7	141				
Chloroform	55.05	1.0	50.00		110	65.6	134				
cis-1,2-Dichloroethene	56.28	1.0	50.00		113	65.9	136				
cis-1,3-Dichloropropene	52.46	1.0	50.00		105	61.7	127				
Dibromochloromethane	68.14	1.0	50.00		136	60.4	135				S
Ethylbenzene	61.68	1.0	50.00		123	73	135				
Isopropylbenzene	66.18	1.0	50.00		132	65.9	137				
m,p-Xylene	122.6	1.0	100.0		123	70.3	138				
Methylene chloride	50.97	5.0	50.00		102	64.1	133				
o-Xylene	60.58	1.0	50.00		121	70.1	135				
Styrene	64.22	1.0	50.00		128	71.2	137				
Tetrachloroethene	62.56	1.0	50.00		125	67.6	146				
Toluene	60.67	1.0	50.00		121	67	141				
trans-1,2-Dichloroethene	56.90	2.0	50.00		114	64	139				
trans-1,3-Dichloropropene	50.76	2.0	50.00		102	60.3	117				
Trichloroethene	62.48	1.0	50.00		125	69.3	141				
Vinyl chloride	64.21	1.0	50.00		128	63.2	148				
Surr: 4-Bromofluorobenzene	47.09	0	50.00		94.2	70	130				
Surr: Dibromofluoromethane	51.44	0	50.00		103	70	130				
Surr: Toluene-d8	50.74	0	50.00		101	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283901**

Sample ID: **1908I79-001AMSD** Client ID: **MW-01** Units: **ug/L** Prep Date: **08/21/2019** Run No: **405424**
SampleType: **MSD** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283901** Analysis Date: **08/22/2019** Seq No: **9109591**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	62.07	1.0	50.00		124	66.7	137	60.45	2.64	20	
1,1,2,2-Tetrachloroethane	64.21	1.0	50.00		128	65.9	125	60.13	6.56	20	S
1,1,2-Trichloroethane	59.79	1.0	50.00		120	71.8	130	56.70	5.31	20	
1,1-Dichloroethane	53.47	1.0	50.00		107	63.7	134	51.09	4.55	20	
1,1-Dichloroethene	60.91	2.0	50.00		122	63.8	146	62.97	3.33	20.8	
1,2,4-Trichlorobenzene	62.62	1.0	50.00		125	57.1	144	51.05	20.4	28.1	
1,2-Dibromo-3-chloropropane	51.84	1.0	50.00		104	56.7	133	45.95	12.0	25.3	
1,2-Dibromoethane	62.10	1.0	50.00		124	69.5	133	60.32	2.91	20	
1,2-Dichlorobenzene	63.35	1.0	50.00		127	68.3	135	57.40	9.86	20	
1,2-Dichloroethane	54.17	1.0	50.00		108	67	136	52.54	3.06	20	
1,2-Dichloropropane	59.02	1.0	50.00		118	70.8	130	56.56	4.26	20	
1,3-Dichlorobenzene	65.24	1.0	50.00		130	65.8	136	60.52	7.51	20	
1,4-Dichlorobenzene	63.85	1.0	50.00		128	69.2	133	59.51	7.04	20	
Benzene	59.19	1.0	50.00		118	70.2	137	56.76	4.19	20	
Bromodichloromethane	59.57	1.0	50.00		119	62	137	56.45	5.38	20	
Bromoform	53.71	1.0	50.00		107	59.7	136	50.97	5.24	20	
Carbon tetrachloride	66.94	2.0	50.00		134	67.7	146	62.32	7.15	19.2	
Chlorobenzene	60.35	1.0	50.00		121	72.7	141	60.07	0.465	20	
Chloroform	57.60	1.0	50.00		115	65.6	134	55.05	4.53	20	
cis-1,2-Dichloroethene	59.27	1.0	50.00		119	65.9	136	56.28	5.18	18	
cis-1,3-Dichloropropene	55.92	1.0	50.00		112	61.7	127	52.46	6.38	20	
Dibromochloromethane	70.34	1.0	50.00		141	60.4	135	68.14	3.18	20	S
Ethylbenzene	63.28	1.0	50.00		127	73	135	61.68	2.56	20	
Isopropylbenzene	69.76	1.0	50.00		140	65.9	137	66.18	5.27	20	S
m,p-Xylene	125.6	1.0	100.0		126	70.3	138	122.6	2.40	20	
Methylene chloride	52.02	5.0	50.00		104	64.1	133	50.97	2.04	20	
o-Xylene	61.50	1.0	50.00		123	70.1	135	60.58	1.51	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **283901**

Sample ID: **1908I79-001AMSD** Client ID: **MW-01** Units: **ug/L** Prep Date: **08/21/2019** Run No: **405424**
SampleType: **MSD** TestCode: **Volatile Organic Compounds by GC/MS SW8260D** BatchID: **283901** Analysis Date: **08/22/2019** Seq No: **9109591**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Styrene	64.05	1.0	50.00		128	71.2	137	64.22	0.265	20	
Tetrachloroethene	63.74	1.0	50.00		127	67.6	146	62.56	1.87	20	
Toluene	63.04	1.0	50.00		126	67	141	60.67	3.83	20	
trans-1,2-Dichloroethene	59.09	2.0	50.00		118	64	139	56.90	3.78	20	
trans-1,3-Dichloropropene	54.28	2.0	50.00		109	60.3	117	50.76	6.70	20	
Trichloroethene	63.61	1.0	50.00		127	69.3	141	62.48	1.79	17.9	
Vinyl chloride	61.76	1.0	50.00		124	63.2	148	64.21	3.89	20	
Surr: 4-Bromofluorobenzene	46.28	0	50.00		92.6	70	130	47.09	0	0	
Surr: Dibromofluoromethane	51.04	0	50.00		102	70	130	51.44	0	0	
Surr: Toluene-d8	51.49	0	50.00		103	70	130	50.74	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 283905

Sample ID: **MB-283905** Client ID: Units: **mg/L** Prep Date: **08/22/2019** Run No: **405509**
SampleType: **MBLK** TestCode: **Mercury, Total SW7470A** BatchID: **283905** Analysis Date: **08/22/2019** Seq No: **9112054**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	BRL	0.00020									

Sample ID: **LCS-283905** Client ID: Units: **mg/L** Prep Date: **08/22/2019** Run No: **405509**
SampleType: **LCS** TestCode: **Mercury, Total SW7470A** BatchID: **283905** Analysis Date: **08/22/2019** Seq No: **9112055**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.003850	0.00020	0.0040		96.2	80	120				

Sample ID: **1908J73-001BMS** Client ID: Units: **mg/L** Prep Date: **08/22/2019** Run No: **405509**
SampleType: **MS** TestCode: **Mercury, Total SW7470A** BatchID: **283905** Analysis Date: **08/22/2019** Seq No: **9112058**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.004129	0.00020	0.0040	0.0001189	100	75	125				

Sample ID: **1908J73-001BMSD** Client ID: Units: **mg/L** Prep Date: **08/22/2019** Run No: **405509**
SampleType: **MSD** TestCode: **Mercury, Total SW7470A** BatchID: **283905** Analysis Date: **08/22/2019** Seq No: **9112059**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.004132	0.00020	0.0040	0.0001189	100	75	125	0.004129	0.073	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 284084

Sample ID: **MB-284084** Client ID: Units: **mg/L** Prep Date: **08/26/2019** Run No: **405693**
SampleType: **MBLK** TestCode: **Cyanide SW9014** BatchID: **284084** Analysis Date: **08/26/2019** Seq No: **9116427**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cyanide, Total	BRL	0.010									

Sample ID: **LCS-284084** Client ID: Units: **mg/L** Prep Date: **08/26/2019** Run No: **405693**
SampleType: **LCS** TestCode: **Cyanide SW9014** BatchID: **284084** Analysis Date: **08/26/2019** Seq No: **9116430**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cyanide, Total	0.2620	0.010	0.2500		105	85	115				

Sample ID: **1908I79-005DMS** Client ID: **MW-03** Units: **mg/L** Prep Date: **08/26/2019** Run No: **405693**
SampleType: **MS** TestCode: **Cyanide SW9014** BatchID: **284084** Analysis Date: **08/26/2019** Seq No: **9116538**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cyanide, Total	0.2620	0.010	0.2500		105	70	130				

Sample ID: **1908I79-005DMSD** Client ID: **MW-03** Units: **mg/L** Prep Date: **08/26/2019** Run No: **405693**
SampleType: **MSD** TestCode: **Cyanide SW9014** BatchID: **284084** Analysis Date: **08/26/2019** Seq No: **9116539**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cyanide, Total	0.2440	0.010	0.2500		97.6	70	130	0.2620	7.11	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **284789**

Sample ID: **MB-284789** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406895**
SampleType: **MBLK** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **284789** Analysis Date: **09/11/2019** Seq No: **9147948**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	BRL	0.50									
2-Methylnaphthalene	BRL	0.50									
Acenaphthene	BRL	0.50									
Acenaphthylene	BRL	1.0									
Anthracene	BRL	0.050									
Benz(a)anthracene	BRL	0.050									
Benzo(a)pyrene	BRL	0.050									
Benzo(b)fluoranthene	BRL	0.10									
Benzo(g,h,i)perylene	BRL	0.10									
Benzo(k)fluoranthene	BRL	0.050									
Chrysene	BRL	0.050									
Dibenz(a,h)anthracene	BRL	0.10									
Fluoranthene	BRL	0.10									
Fluorene	BRL	0.10									
Indeno(1,2,3-cd)pyrene	BRL	0.050									
Naphthalene	BRL	0.50									
Phenanthrene	BRL	0.050									
Pyrene	BRL	0.050									
Surr: 4-Terphenyl-d14	2.414	0	2.000		121	69.4	138				

Sample ID: **MB-284789** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406896**
SampleType: **MBLK** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **284789** Analysis Date: **09/12/2019** Seq No: **9147957**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	BRL	0.50									
2-Methylnaphthalene	BRL	0.50									
Acenaphthene	BRL	0.50									
Acenaphthylene	BRL	1.0									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 284789

Sample ID: **MB-284789** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406896**
SampleType: **MBLK** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **284789** Analysis Date: **09/12/2019** Seq No: **9147957**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	BRL	0.050									
Benz(a)anthracene	BRL	0.050									
Benzo(a)pyrene	BRL	0.050									
Benzo(b)fluoranthene	BRL	0.10									
Benzo(g,h,i)perylene	BRL	0.10									
Benzo(k)fluoranthene	BRL	0.050									
Chrysene	BRL	0.050									
Dibenz(a,h)anthracene	BRL	0.10									
Fluoranthene	BRL	0.10									
Fluorene	BRL	0.10									
Indeno(1,2,3-cd)pyrene	BRL	0.050									
Naphthalene	BRL	0.50									
Phenanthrene	BRL	0.050									
Pyrene	BRL	0.050									
Surr: 4-Terphenyl-d14	2.526	0	2.000		126	69.4	138				

Sample ID: **LCS-284789** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406896**
SampleType: **LCS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **284789** Analysis Date: **09/12/2019** Seq No: **9147958**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	1.748	0.50	2.000		87.4	70	130				
2-Methylnaphthalene	1.736	0.50	2.000		86.8	70	130				
Acenaphthene	1.554	0.50	2.000		77.7	70	130				
Acenaphthylene	1.683	1.0	2.000		84.1	70	130				
Anthracene	1.826	0.050	2.000		91.3	70	130				
Benz(a)anthracene	2.156	0.050	2.000		108	70	130				
Benzo(a)pyrene	1.534	0.050	2.000		76.7	70	130				
Benzo(b)fluoranthene	2.119	0.10	2.000		106	70	130				

Qualifiers:
> Greater than Result value
BRL Below reporting limit
J Estimated value detected below Reporting Limit
Rpt Lim Reporting Limit
< Less than Result value
E Estimated (value above quantitation range)
N Analyte not NELAC certified
S Spike Recovery outside limits due to matrix
B Analyte detected in the associated method blank
H Holding times for preparation or analysis exceeded
R RPD outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **284789**

Sample ID: **LCS-284789** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406896**
SampleType: **LCS** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **284789** Analysis Date: **09/12/2019** Seq No: **9147958**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzo(g,h,i)perylene	1.805	0.10	2.000		90.3	70	130				
Benzo(k)fluoranthene	1.899	0.050	2.000		94.9	70	130				
Chrysene	1.995	0.050	2.000		99.7	70	130				
Dibenz(a,h)anthracene	1.855	0.10	2.000		92.8	70	130				
Fluoranthene	2.078	0.10	2.000		104	70	130				
Fluorene	1.775	0.10	2.000		88.8	70	130				
Indeno(1,2,3-cd)pyrene	2.037	0.050	2.000		102	70	130				
Naphthalene	1.679	0.50	2.000		83.9	70	130				
Phenanthrene	1.901	0.050	2.000		95.1	70	130				
Pyrene	1.906	0.050	2.000		95.3	70	130				
Surr: 4-Terphenyl-d14	2.841	0	2.000		142	69.4	138				S

Sample ID: **LCSD-284789** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406896**
SampleType: **LCSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **284789** Analysis Date: **09/12/2019** Seq No: **9147959**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1-Methylnaphthalene	1.651	0.50	2.000		82.6	70	130	1.748	5.70	20	
2-Methylnaphthalene	1.641	0.50	2.000		82.0	70	130	1.736	5.65	20	
Acenaphthene	1.551	0.50	2.000		77.5	70	130	1.554	0.191	20	
Acenaphthylene	1.618	1.0	2.000		80.9	70	130	1.683	3.95	20	
Anthracene	1.837	0.050	2.000		91.8	70	130	1.826	0.571	20	
Benz(a)anthracene	2.081	0.050	2.000		104	70	130	2.156	3.56	20	
Benzo(a)pyrene	1.776	0.050	2.000		88.8	70	130	1.534	14.6	20	
Benzo(b)fluoranthene	1.954	0.10	2.000		97.7	70	130	2.119	8.11	19.3	
Benzo(g,h,i)perylene	1.560	0.10	2.000		78.0	70	130	1.805	14.6	23.7	
Benzo(k)fluoranthene	1.660	0.050	2.000		83.0	70	130	1.899	13.4	21.8	
Chrysene	1.846	0.050	2.000		92.3	70	130	1.995	7.75	20	
Dibenz(a,h)anthracene	1.754	0.10	2.000		87.7	70	130	1.855	5.64	23.2	

Qualifiers:
- > Greater than Result value
- BRL Below reporting limit
- J Estimated value detected below Reporting Limit
- Rpt Lim Reporting Limit
- < Less than Result value
- E Estimated (value above quantitation range)
- N Analyte not NELAC certified
- S Spike Recovery outside limits due to matrix
- B Analyte detected in the associated method blank
- H Holding times for preparation or analysis exceeded
- R RPD outside limits due to matrix

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 284789

Sample ID: **LCSD-284789** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406896**
SampleType: **LCSD** TestCode: **SIM Polynuclear Aromatic Hydrocarbons SW8270E** BatchID: **284789** Analysis Date: **09/12/2019** Seq No: **9147959**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Fluoranthene	1.908	0.10	2.000		95.4	70	130	2.078	8.50	20	
Fluorene	1.692	0.10	2.000		84.6	70	130	1.775	4.79	20	
Indeno(1,2,3-cd)pyrene	1.639	0.050	2.000		82.0	70	130	2.037	21.7	22.9	
Naphthalene	1.617	0.50	2.000		80.8	70	130	1.679	3.77	20	
Phenanthrene	1.794	0.050	2.000		89.7	70	130	1.901	5.80	20	
Pyrene	1.842	0.050	2.000		92.1	70	130	1.906	3.44	20	
Surr: 4-Terphenyl-d14	2.062	0	2.000		103	69.4	138	2.841	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **284790**

Sample ID: **MB-284790** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406997**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **284790** Analysis Date: **09/13/2019** Seq No: **9150165**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1´-Biphenyl	BRL	10									
2,4,5-Trichlorophenol	BRL	25									
2,4,6-Trichlorophenol	BRL	10									
2,4-Dichlorophenol	BRL	10									
2,4-Dimethylphenol	BRL	10									
2,4-Dinitrophenol	BRL	25									
2,4-Dinitrotoluene	BRL	10									
2,6-Dinitrotoluene	BRL	10									
2-Chloronaphthalene	BRL	10									
2-Chlorophenol	BRL	10									
2-Methylphenol	BRL	10									
2-Nitroaniline	BRL	25									
2-Nitrophenol	BRL	10									
3,3´-Dichlorobenzidine	BRL	10									
3-Nitroaniline	BRL	25									
4,6-Dinitro-2-methylphenol	BRL	25									
4-Bromophenyl phenyl ether	BRL	10									
4-Chloro-3-methylphenol	BRL	10									
4-Chloroaniline	BRL	10									
4-Chlorophenyl phenyl ether	BRL	10									
4-Methylphenol	BRL	10									
4-Nitroaniline	BRL	25									
4-Nitrophenol	BRL	25									
Acetophenone	BRL	10									
Atrazine	BRL	10									
Benzaldehyde	BRL	10									
Bis(2-chloroethoxy)methane	BRL	10									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **284790**

Sample ID: **MB-284790** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406997**
SampleType: **MBLK** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **284790** Analysis Date: **09/13/2019** Seq No: **9150165**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Bis(2-chloroethyl)ether	BRL	10									
Bis(2-chloroisopropyl)ether	BRL	10									
Bis(2-ethylhexyl)phthalate	BRL	10									
Butyl benzyl phthalate	BRL	10									
Caprolactam	BRL	10									
Carbazole	BRL	10									
Di-n-butyl phthalate	BRL	10									
Di-n-octyl phthalate	BRL	10									
Dibenzofuran	BRL	10									
Diethyl phthalate	BRL	10									
Dimethyl phthalate	BRL	10									
Hexachlorobenzene	BRL	10									
Hexachlorobutadiene	BRL	10									
Hexachlorocyclopentadiene	BRL	10									
Hexachloroethane	BRL	10									
Isophorone	BRL	10									
N-Nitrosodi-n-propylamine	BRL	10									
N-Nitrosodiphenylamine	BRL	10									
Nitrobenzene	BRL	10									
Pentachlorophenol	BRL	25									
Phenol	BRL	10									
Surr: 2,4,6-Tribromophenol	108.4	0	100.0		108	47	127				
Surr: 2-Fluorobiphenyl	38.43	0	50.00		76.9	47.4	119				
Surr: 2-Fluorophenol	57.91	0	100.0		57.9	26.2	120				
Surr: 4-Terphenyl-d14	42.67	0	50.00		85.3	45	133				
Surr: Nitrobenzene-d5	41.03	0	50.00		82.1	41.9	121				
Surr: Phenol-d5	75.35	0	100.0		75.4	17.8	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **284790**

Sample ID: **LCS-284790** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406997**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **284790** Analysis Date: **09/13/2019** Seq No: **9150166**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	100.6	25	100.0		101	70	130				
2,4,6-Trichlorophenol	109.6	10	100.0		110	70	130				
2,4-Dichlorophenol	93.84	10	100.0		93.8	70	130				
2,4-Dimethylphenol	78.95	10	100.0		79.0	50	130				
2,4-Dinitrotoluene	110.2	10	100.0		110	70	130				
2,6-Dinitrotoluene	116.4	10	100.0		116	70	130				
2-Chlorophenol	83.28	10	100.0		83.3	50	130				
2-Methylphenol	89.85	10	100.0		89.8	70	130				
3,3´-Dichlorobenzidine	105.5	10	100.0		106	10	120				
4-Bromophenyl phenyl ether	138.9	10	100.0		139	70	130				S
4-Chloro-3-methylphenol	102.5	10	100.0		102	70	130				
4-Methylphenol	103.6	10	100.0		104	70	130				
Bis(2-chloroethoxy)methane	101.5	10	100.0		102	70	130				
Bis(2-chloroethyl)ether	102.3	10	100.0		102	70	130				
Bis(2-chloroisopropyl)ether	72.07	10	100.0		72.1	50	130				
Bis(2-ethylhexyl)phthalate	119.2	10	100.0		119	70	130				
Di-n-butyl phthalate	123.0	10	100.0		123	70	130				
Di-n-octyl phthalate	58.72	10	50.00		117	70	130				
Diethyl phthalate	107.1	10	100.0		107	70	130				
Dimethyl phthalate	112.6	10	100.0		113	70	130				
Hexachlorobenzene	130.1	10	100.0		130	70	130				S
Hexachlorobutadiene	154.8	10	150.0		103	40	130				
N-Nitrosodiphenylamine	159.8	10	150.0		106	40	130				
Nitrobenzene	111.9	10	100.0		112	70	130				
Surr: 2,4,6-Tribromophenol	120.8	0	100.0		121	47	127				
Surr: 2-Fluorobiphenyl	49.00	0	50.00		98.0	47.4	119				
Surr: 2-Fluorophenol	53.90	0	100.0		53.9	26.2	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: **284790**

Sample ID: **LCS-284790** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406997**
SampleType: **LCS** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **284790** Analysis Date: **09/13/2019** Seq No: **9150166**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: 4-Terphenyl-d14	50.10	0	50.00		100	45	133				
Surr: Nitrobenzene-d5	46.21	0	50.00		92.4	41.9	121				
Surr: Phenol-d5	76.51	0	100.0		76.5	17.8	120				

Sample ID: **LCSD-284790** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406997**
SampleType: **LCSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **284790** Analysis Date: **09/13/2019** Seq No: **9150167**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	93.37	25	100.0		93.4	70	130	100.6	7.46	20	
2,4,6-Trichlorophenol	102.0	10	100.0		102	70	130	109.6	7.15	20	
2,4-Dichlorophenol	89.31	10	100.0		89.3	70	130	93.84	4.95	20	
2,4-Dimethylphenol	76.52	10	100.0		76.5	50	130	78.95	3.13	20	
2,4-Dinitrotoluene	97.53	10	100.0		97.5	70	130	110.2	12.2	20	
2,6-Dinitrotoluene	106.6	10	100.0		107	70	130	116.4	8.86	20	
2-Chlorophenol	78.48	10	100.0		78.5	50	130	83.28	5.93	20	
2-Methylphenol	88.19	10	100.0		88.2	70	130	89.85	1.86	20	
3,3´-Dichlorobenzidine	87.78	10	100.0		87.8	10	120	105.5	18.4	20	
4-Bromophenyl phenyl ether	126.0	10	100.0		126	70	130	138.9	9.72	20	
4-Chloro-3-methylphenol	95.41	10	100.0		95.4	70	130	102.5	7.14	20	
4-Methylphenol	98.62	10	100.0		98.6	70	130	103.6	4.93	20	
Bis(2-chloroethoxy)methane	93.44	10	100.0		93.4	70	130	101.5	8.28	20	
Bis(2-chloroethyl)ether	96.68	10	100.0		96.7	70	130	102.3	5.69	20	
Bis(2-chloroisopropyl)ether	67.29	10	100.0		67.3	50	130	72.07	6.86	20	
Bis(2-ethylhexyl)phthalate	106.0	10	100.0		106	70	130	119.2	11.8	20	
Di-n-butyl phthalate	113.1	10	100.0		113	70	130	123.0	8.37	20	
Di-n-octyl phthalate	54.35	10	50.00		109	70	130	58.72	7.73	20	
Diethyl phthalate	96.29	10	100.0		96.3	70	130	107.1	10.6	20	
Dimethyl phthalate	101.5	10	100.0		101	70	130	112.6	10.3	20	

Qualifiers:
- > Greater than Result value
- < Less than Result value
- B Analyte detected in the associated method blank
- BRL Below reporting limit
- E Estimated (value above quantitation range)
- H Holding times for preparation or analysis exceeded
- J Estimated value detected below Reporting Limit
- N Analyte not NELAC certified
- R RPD outside limits due to matrix
- Rpt Lim Reporting Limit
- S Spike Recovery outside limits due to matrix

Analytical Environmental Services, Inc

Date: 17-Sep-19

Client: Cardno, Inc.
Project Name: Great Falls Republic Mill #1
Workorder: 1908I79

ANALYTICAL QC SUMMARY REPORT

BatchID: 284790

Sample ID: **LCSD-284790** Client ID: Units: **ug/L** Prep Date: **09/11/2019** Run No: **406997**
SampleType: **LCSD** TestCode: **TCL-SEMIVOLATILE ORGANICS SW8270E** BatchID: **284790** Analysis Date: **09/13/2019** Seq No: **9150167**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachlorobenzene	116.0	10	100.0		116	70	130	130.1	11.5	20	
Hexachlorobutadiene	132.9	10	150.0		88.6	40	130	154.8	15.2	20	
N-Nitrosodiphenylamine	144.2	10	150.0		96.2	40	130	159.8	10.2	20	
Nitrobenzene	102.8	10	100.0		103	70	130	111.9	8.48	20	
Surr: 2,4,6-Tribromophenol	112.4	0	100.0		112	47	127	120.8	0	0	
Surr: 2-Fluorobiphenyl	45.13	0	50.00		90.3	47.4	119	49.00	0	0	
Surr: 2-Fluorophenol	53.09	0	100.0		53.1	26.2	120	53.90	0	0	
Surr: 4-Terphenyl-d14	45.18	0	50.00		90.4	45	133	50.10	0	0	
Surr: Nitrobenzene-d5	45.03	0	50.00		90.1	41.9	121	46.21	0	0	
Surr: Phenol-d5	74.24	0	100.0		74.2	17.8	120	76.51	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc. -- Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

Client:	Gardno
Attn:	Bobby Wolf
Address:	1812 Lincoln St., Suite 301
City:	Columbia
State:	SC
Zip Code:	29201
Phone:	803-576-4772
Fax:	
Email:	bobby.wolf@cardno.com
Project Name:	Great Falls-Republic Mill #1
Sampled By (Signature):	[signature]

Preservatives (see codes):

Bottle Types (see codes):

REQUESTED LAB ANALYSIS:

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	TAL Metals	TCL SVOCs	TCL VOCs	TCL PCBs	Full TAL TCL	" without VOCs				Notes / Comments
	GF-SS-01	8/5/19	1110	G	S			✓	✓								
	GF-SB-01	"	1115	G	S			✓	✓	✓							
	GF-SS-02	"	1155	G	S			✓	✓								
	GF-SB-02	"	1200	G	S			✓	✓	✓							
	GF-SS-08	"	1230	G	S			✓	✓								
	GF-SB-08	"	1235	G	S			✓	✓	✓							
	GF-SS-09	"	1240	G	S			✓	✓								
	GF-SS-09-DUP	"	"	G	S			✓	✓								
	GF-SB-09	"	1250	G	S			✓	✓	✓							
	GF-SB-09-DUP	"	"	G	S			✓	✓	✓							

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature] Cardno	[signature]	8-6-19	1622	X Y ___ N ___ N/A
Rush *		NC						___ Y ___ N ___ N/A
*Date Required		Other (Specify):						___ Y ___ N ___ N/A
								___ Y ___ N ___ N/A

Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.

Received in lab by: _____

Sample Temp. Receipt in Lab: _____ (°C) **Ref: RT1** **Ref: RT2**

Chain of Custody Page 1 **of** 4

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc.
Access Analytical, Inc. – Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

Client:	Cardno
Attn:	Bobby Wolf
Address:	1812 Lincoln St., Suite 301
City:	Columbia
State:	SC
Zip Code:	29201
Phone:	803-576-4772
Fax:	
Email:	bobby.wolf@cardno.com
Project Name:	Great Falls Republic Mill #1
Sampled By (Signature):	[illegible]

Preservatives (see codes):

Bottle Types (see codes):

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl⁻, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

REQUESTED LAB ANALYSIS:

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	# Containers per Test >>	TAL Metals	TCL SVOCs	TCL VOCs	TCL PCBs	Full TAL/TCL	" without VOCs				Notes / Comments
	GF-SS-10	8/5/19	1330	G	S				✓	✓								
	GF-SB-10	"	1335	G	S				✓	✓	✓							
	GF-SS-11	"	1338	G	S				✓	✓								
	GF-SB-11	"	1340	G	S				✓	✓	✓							
	GF-SS-12	"	1345	G	S				✓	✓								
	GF-SB-12	"	1350	G	S				✓	✓	✓							
	GF-SS-13	"	1410	G	S				✓	✓		✓						
	GF-SB-13	"	1415	G	S				✓	✓	✓	✓						
	GF-SS-14	"	1445	G	S				✓	✓		✓						
	GF-SB-14	"	1450	G	S				✓	✓	✓	✓						

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[illegible]	[illegible]	8-6-19	1622	X Y ___N ___N/A
Rush *		NC						___Y ___N ___N/A
*Date Required		Other (Specify):						___Y ___N ___N/A
								___Y ___N ___N/A

Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.

Received in lab by: _____

Sample Temp.
Receipt in Lab: _____ (°C) **Ref: RT1** **Ref: RT2**

Chain of Custody Page 2 **of** 4

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc. -- Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

Client:	Cardno
Attn:	Bobby Wolf
Address:	1812 Lincoln St., Suite 301
City:	Columbia
State:	SC
Zip Code:	29201
Phone:	803-576-9772
Fax:	
Email:	bobby.wolf@cardno.com
Project Name:	Great Falls Republic Mill #1
Sampled By (Signature):	[signature]

Preservatives (see codes):

Bottle Types (see codes):

REQUESTED LAB ANALYSIS:

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	# Containers per Test >>	TAL Metals	TCL SVOCs	TCL VOCs	TCL PCBs	Full TAL/TCL	" without VOCs			Notes / Comments
	GF-SS-15	8/5/19	1500	G	S				✓	✓	✓						
	GF-SB-15	"	1510	G	S				✓	✓	✓						
	GF-SS-03	"	1515	G	S				✓	✓							
	GF-SB-03	"	1520	G	S				✓	✓	✓						
	GF-SS-16	"	1535	G	S				✓	✓	✓						
	GF-SB-16	"	1540	G	S				✓	✓	✓						
	GF-SS-04	"	1545	G	S				✓	✓							
	GF-SB-04	"	1600	G	S				✓	✓	✓						
	~~GF~~ FB-01	"	1605	G	GW				✓	✓	✓						
	GF-SS-17	8/6/19	0955	G	S									✓			

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature]	[signature]	8-6-19	1622	X Y ___N ___N/A
Rush *		NC						___Y ___N ___N/A
*Date Required		Other (Specify):						___Y ___N ___N/A
								___Y ___N ___N/A

Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.

Received in lab by: _____

Sample Temp. Receipt in Lab: _____ (°C) **Ref: RT1** **Ref: RT2**

Chain of Custody Page 3 **of** 4

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc. -- Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

Client:	Cardno
Attn:	Bobby Wolf
Address:	1812 Lincoln St, Suite 301
City:	Columbia
State:	SC
Zip Code:	29201
Phone:	803-576-4772
Fax:	
Email:	bobby.wolf@cardno.com
Project Name:	Great Falls, Republic Mill #1
Sampled By (Signature):	[signature]

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl⁻, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	REQUESTED LAB ANALYSIS:	TAL Metals	TCL SVOCs	TCL VOCs	TCL PCBs	Full TAL FCL	" without VOCs			Notes / Comments
	GF-SB-17	8/6/19	1000	G	S			# Containers per Test >>					✓				
	GF-SS-18	"	1015	G	S			# Containers per Test >>						✓			
	GF-SB-18	"	1020	G	S			# Containers per Test >>					✓				
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									
								# Containers per Test >>									

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature] Cardno	[signature]	8-6-19	1622	X Y ___ N ___ N/A
Rush *		NC						___ Y ___ N ___ N/A
*Date Required		Other (Specify):						___ Y ___ N ___ N/A
								___ Y ___ N ___ N/A

Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.

Received in lab by: [signature] 8-6-19

Chain of Custody Page 4 **of** 4

Sample Temp. Receipt in Lab: _____ (°C) **Ref: RT1** **Ref: RT2**

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Access Lab Report #: _____

Sub Lab (if applicable): _____ / Sub Report #: _____

Access Analytical, Inc. – Irmo
15 Thames Valley Rd. ~ Irmo, SC 29063
Phone: 803-781-4243 / Fax: 803-781-4303 / www.axs-inc.com
SCDHEC Lab Certification # 32571

Chain of Custody Record

Client:	Cardno
Attn:	Bobby Wolf
Address:	1812 Lincoln St. Suite 301
City:	Columbia
State:	SC
Zip Code:	29201
Phone:	803-576-4772
Fax:	
Email:	bobby.wolf@cardno.com
Project Name:	Great Falls Bamberg Mill #1
Sampled By (Signature):	[signature]

Preservatives (see codes):

Bottle Types (see codes):

Preservation Codes / Bottle Types:

***Preservative Codes:**
0 = None, **1** = HCL, **2** = HNO3, **3** = H_2SO_4, **4** = NaOH, **5** = $Na_2S_2O_3$, **6** = Method 5035 set w/ $NaHSO_4$ & CH_3OH, **7** = NaOH/ZnOAC, **8** = H_3PO_4, **9** = cooled to ≤6°C, **10** = cooled to ≤10°C, **11** = Amm.Cl, **12** = Ascorbic Acid / HCL, **13** = EDA

***Matrix Codes:**
GW = ground water, **WW** = waste water, **DW** = drinking water, **SW** = surface/storm water, **S** = soil, **SL** = sludge, **A** = air, **IW** = industrial waste, **O** = other (specify in comments section)

***Program Area Codes:**
CWA = Clean Water Act (for wastewaters), **SDWA** = Safe Drinking Water Act (for drinking water), **SHW** = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

Lab ID:	Sample Name:	Date Collected:	Time Collected:	G=Grab C=Comp	Matrix (see codes)	Program Area (see codes)	Total # Containers	REQUESTED LAB ANALYSIS: TCL VOCs	TCL SVOCs + SIM	ALL Metals	Full TAL TCL					Notes / Comments
	MW-01	8/15	1030	G	GW		# Containers per Test >>	✓	✓	✓						
	EB-01	"	1045	G	GW		# Containers per Test >>	✓	✓	✓						
	FB-01	"	1155	G	GW		# Containers per Test >>	✓	✓	✓						
	MW-02	"	1220	G	GW		# Containers per Test >>	✓	✓	✓						
	MW-03	"	1240	G	GW		# Containers per Test >>				✓					
	MW-05	"	1510	G	GW		# Containers per Test >>	✓	✓	✓						
	MW-05-MP	"	1510	G	GW		# Containers per Test >>	✓	✓	✓						
	MW-06	"	1620	G	GW		# Containers per Test >>	✓	✓	✓						
	MW-07	"	1700	G	GW		# Containers per Test >>	✓	✓	✓						
	Trip blank						# Containers per Test >>	✓								

Auto Sampler Data (composite samples only):

Date/Time Set On: _____ by whom: _____

Date/Time Off: _____ by whom: _____

Meter Reading After: _____

Meter Reading Before: _____

Difference: _____

X _____ (factor): _____

Turnaround Time Requested:		Project Location:		Relinquished By:	Received By:	Date:	Time (24hr):	Samples Received on Ice:
Standard	✓	SC	✓	[signature] Cardno		8/16/19		___Y ___N ___N/A
Rush *		NC						___Y ___N ___N/A
*Date Required		Other (Specify):						___Y ___N ___N/A
Rush data emailed/faxed by end of business day on date required. Standard TAT is 7-10 business days.				Received in lab by: MU		8/16/19	1245	X Y ___N ___N/A

Sample Temp. Receipt in Lab: 1.0 (°C) Ref: RT1 Ref: RT2

Chain of Custody Page 1 **of** 1

White Copy: Lab original / Canary Copy: Client Copy

NOTE: Relinquishing samples via this Chain of Custody document constitutes client acceptance of Access Analytical terms and conditions.

Former Republic Mill #1

APPENDIX C

FIELD DATA SHEETS

1812 Lincoln St., Suite 301, Columbia, SC 29201
Ph: 803-929-6060

GROUNDWATER SAMPLING - FIELD DATA SHEET

SITE INFORMATION

Facility Name:	Great Falls Republic Mill #1
Project Number:	PB00268000
Location:	Great Falls, SC
Date Started:	8/15/2019
Date Completed:	8/15/2019
Sample ID #:	MW-01

WELL INFORMATION

Well ID:	MW-01
Casing Diameter:	2-inch
TOC Elev.:	460.92
Total Well Depth:	30.85
Depth to Water:	25.75
GW Elevation:	435.17

WEATHER CONDITIONS

Weather Conditions (**BOLD**): **Clear** Rain Windy Cloudy **Hot**

Air Temperature: 90°F

VOLUME CALCULATIONS

Total Well Depth (TWD):	30.85	Ft.
Depth to Water (DTW):	25.75	Ft.
Water Column (WC):	5.10	Ft.
(Well Volume = WC x CF)		
1 Well Volume:	0.83	Gal.
3 Well Volumes:	2.50	Gal.

Conversion Factors (WC to Gallons)

CF 2-inch =	0.163
CF 4-inch =	0.652
CF 6-inch =	1.468

FIELD MEASUREMENTS

Time:	10:07	10:15	10:19	10:23	10:27		
Purge Volume (gallons):	0.83	0.83	0.83	0.83	0.83		
Total Volume (gallons):	0.83	1.66	2.50	3.33	4.16		
pH (s.u.):	5.47	5.31	5.23	5.27	5.23		
Conductivity (umhos/cm):	114.2	110.2	107	106.3	108.2		
Temperature (^{o}C):	20.60	19.30	19.00	19.20	19.10		
Turbidity (NTU):	2620.0	939.1	1522.0	2022.0	1547.0		
Dissolved Oxygen (mg/L):	5.41	3.93	3.62	3.49	3.21		

SAMPLE INFORMATION

Sampled By: BW/PW

Time: 10:30

Additional Comments: Dry at 4.16 gallons. Sampled upon recovery

1812 Lincoln St., Suite 301, Columbia, SC 29201
Ph: 803-929-6060

GROUNDWATER SAMPLING - FIELD DATA SHEET

SITE INFORMATION

Facility Name:	Great Falls Republic Mill #1
Project Number:	PB00268000
Location:	Great Falls, SC
Date Started:	8/15/2019
Date Completed:	8/15/2019
Sample ID #:	MW-02

WELL INFORMATION

Well ID:	MW-02
Casing Diameter:	2-inch
TOC Elev.:	465.70
Total Well Depth:	38.74
Depth to Water:	31.71
GW Elevation:	433.99

WEATHER CONDITIONS

Weather Conditions (**BOLD**): **Clear** Rain Windy Cloudy **Hot**

Air Temperature: 90°F

VOLUME CALCULATIONS

Total Well Depth (TWD):	38.74	Ft.
Depth to Water (DTW):	31.71	Ft.
Water Column (WC):	7.03	Ft.

(Well Volume = WC x CF)

1 Well Volume:	1.15	Gal.
3 Well Volumes:	3.44	Gal.

Conversion Factors (WC to Gallons)

CF 2-inch =	0.163
CF 4-inch =	0.652
CF 6-inch =	1.468

FIELD MEASUREMENTS

Time:	11:46	12:03					
Purge Volume (gallons):	0.00	1.60					
Total Volume (gallons):	0.00	1.60					
pH (s.u.):	6.32	6.44					
Conductivity (umhos/cm):	144.3	160.6					
Temperature (^{o}C):	25.80	18.80					
Turbidity (NTU):	652.0	44.0					
Dissolved Oxygen (mg/L):	3.80	0.58					

SAMPLE INFORMATION

Sampled By: BW/PW

Time: 12:20

Additional Comments: Dry after 2 gallons removed. Sampled upon recovery.

1812 Lincoln St., Suite 301, Columbia, SC 29201
Ph: 803-929-6060

GROUNDWATER SAMPLING - FIELD DATA SHEET

SITE INFORMATION

Facility Name:	Great Falls Republic Mill #1
Project Number:	PB00268000
Location:	Great Falls, SC
Date Started:	8/15/2019
Date Completed:	8/15/2019
Sample ID #:	MW-03

WELL INFORMATION

Well ID:	MW-03
Casing Diameter:	2-inch
TOC Elev.:	454.39
Total Well Depth:	41.04
Depth to Water:	32.20
GW Elevation:	422.19

WEATHER CONDITIONS

Weather Conditions (**BOLD**): **Clear** Rain Windy Cloudy **Hot**

Air Temperature: 90°F

VOLUME CALCULATIONS

Total Well Depth (TWD):	41.04	Ft.
Depth to Water (DTW):	32.20	Ft.
Water Column (WC):	8.84	Ft.
(Well Volume = WC x CF)		
1 Well Volume:	1.44	Gal.
3 Well Volumes:	4.33	Gal.

Conversion Factors (WC to Gallons)

CF 2-inch =	0.163
CF 4-inch =	0.652
CF 6-inch =	1.468

FIELD MEASUREMENTS

Time:	11:18	11:22					
Purge Volume (gallons):	0.00	1.40					
Total Volume (gallons):	0.00	1.40					
pH (s.u.):	5.85	6.03					
Conductivity (umhos/cm):	162.6	163.9					
Temperature (^{o}C):	18.30	17.90					
Turbidity (NTU):	1286.0	12357.0					
Dissolved Oxygen (mg/L):	5.50	6.70					

SAMPLE INFORMATION

Sampled By: BW/PW

Time: 12:40

Additional Comments: Hand-bailed. Dry after 2 gallons removed. Left bailer in well to sample upon recovery

1812 Lincoln St., Suite 301, Columbia, SC 29201
Ph: 803-929-6060

GROUNDWATER SAMPLING - FIELD DATA SHEET

SITE INFORMATION

Facility Name:	Great Falls Republic Mill #1
Project Number:	PB00268000
Location:	Great Falls, SC
Date Started:	8/15/2019
Date Completed:	8/15/2019
Sample ID #:	MW-05 + MW-05-DUP

WELL INFORMATION

Well ID:	MW-05
Casing Diameter:	2-inch
TOC Elev.:	390.70
Total Well Depth:	35.33
Depth to Water:	22.35
GW Elevation:	368.35

WEATHER CONDITIONS

Weather Conditions (**BOLD**): **Clear** Rain Windy Cloudy **Hot**

Air Temperature: 90°F

VOLUME CALCULATIONS

Total Well Depth (TWD):	35.33	Ft.
Depth to Water (DTW):	22.35	Ft.
Water Column (WC):	12.98	Ft.
(Well Volume = WC x CF)		
1 Well Volume:	2.12	Gal.
3 Well Volumes:	6.35	Gal.

Conversion Factors (WC to Gallons)

CF 2-inch =	0.163
CF 4-inch =	0.652
CF 6-inch =	1.468

FIELD MEASUREMENTS

Time:	14:32	14:43	14:54	15:07			
Purge Volume (gallons):	0.00	2.10	2.10	2.10			
Total Volume (gallons):	0.00	2.10	4.20	6.30			
pH (s.u.):	5.28	5.34	5.35	5.34			
Conductivity (umhos/cm):	144.9	141.2	139.2	137.2			
Temperature (^{o}C):	17.50	17.90	17.70	17.80			
Turbidity (NTU):	736	192	80.19	39			
Dissolved Oxygen (mg/L):	8.45	7.68	7.55	7.6			

SAMPLE INFORMATION

Sampled By: BW/PW

Time: 15:10

Additional Comments:

1812 Lincoln St., Suite 301, Columbia, SC 29201
Ph: 803-929-6060

GROUNDWATER SAMPLING - FIELD DATA SHEET

SITE INFORMATION

Facility Name:	Great Falls Republic Mill #1
Project Number:	PB00268000
Location:	Great Falls, SC
Date Started:	8/15/2019
Date Completed:	8/15/2019
Sample ID #:	MW-06

WELL INFORMATION

Well ID:	MW-06
Casing Diameter:	2-inch
TOC Elev.:	383.33
Total Well Depth:	38.03
Depth to Water:	30.82
GW Elevation:	352.51

WEATHER CONDITIONS

*W*eather Conditions (**BOLD**): **Clear** Rain Windy Cloudy **Hot**

Air Temperature: 90°F

VOLUME CALCULATIONS

Total Well Depth (TWD):	38.03	Ft.
Depth to Water (DTW):	30.82	Ft.
Water Column (WC):	7.21	Ft.
(Well Volume = WC x CF)		
1 Well Volume:	1.18	Gal.
3 Well Volumes:	3.53	Gal.

Conversion Factors (WC to Gallons)

CF 2-inch =	0.163
CF 4-inch =	0.652
CF 6-inch =	1.468

FIELD MEASUREMENTS

Time:	15:52	16:04	16:09	16:17			
Purge Volume (gallons):	0.00	1.17	1.17	1.17			
Total Volume (gallons):	0.00	1.17	2.34	3.51			
pH (s.u.):	5.9	5.85	5.76	5.73			
Conductivity (umhos/cm):	155.2	159.8	176.7	177.6			
Temperature (^{o}C):	19.90	18.90	18.00	18.50			
Turbidity (NTU):	1402	384	1051	1869			
Dissolved Oxygen (mg/L):	3.53	3.18	2.8	3.51			

SAMPLE INFORMATION

Sampled By: BW/PW

Time: 16:20

Additional Comments:

1812 Lincoln St., Suite 301, Columbia, SC 29201
Ph: 803-929-6060

GROUNDWATER SAMPLING - FIELD DATA SHEET

SITE INFORMATION

Facility Name:	Great Falls Republic Mill #1
Project Number:	PB00268000
Location:	Great Falls, SC
Date Started:	8/15/2019
Date Completed:	8/15/2019
Sample ID #:	MW-07

WELL INFORMATION

Well ID:	MW-07
Casing Diameter:	2-inch
TOC Elev.:	379.73
Total Well Depth:	37.63
Depth to Water:	24.76
GW Elevation:	354.97

WEATHER CONDITIONS

*W*eather Conditions (**BOLD**): **Clear** Rain Windy Cloudy **Hot**

Air Temperature: 90°F

VOLUME CALCULATIONS

Total Well Depth (TWD):	37.63	Ft.
Depth to Water (DTW):	24.76	Ft.
Water Column (WC):	12.87	Ft.
(Well Volume = WC x CF)		
1 Well Volume:	2.10	Gal.
3 Well Volumes:	6.30	Gal.

Conversion Factors (WC to Gallons)

CF 2-inch =	0.163
CF 4-inch =	0.652
CF 6-inch =	1.468

FIELD MEASUREMENTS

Time:	16:40	16:44	16:50	16:56			
Purge Volume (gallons):	0.00	2.09	2.09	2.09			
Total Volume (gallons):	0.00	2.09	4.18	6.27			
pH (s.u.):	6.34	5.66	5.74	6.21			
Conductivity (umhos/cm):	184.5	151.8	154.6				
Temperature (^{o}C):	17.20	17.30	17.30	19.20			
Turbidity (NTU):	1038	765	597	1498			
Dissolved Oxygen (mg/L):	6.49	8.5	9.78	8.16			

SAMPLE INFORMATION

Sampled By: BW/PW

Time: 17:00

Additional Comments:

1812 Lincoln St., Suite 301, Columbia, SC 29201
Ph: 803-929-6060

GROUNDWATER SAMPLING - FIELD DATA SHEET

SITE INFORMATION

Facility Name:	Great Falls Republic Mill #1
Project Number:	PB00268000
Location:	Great Falls, SC
Date Started:	9/6/2019
Date Completed:	9/6/2019
Sample ID #:	MW-07

WELL INFORMATION

Well ID:	MW-07
Casing Diameter:	2-inch
TOC Elev.:	379.73
Total Well Depth:	37.63
Depth to Water:	25.00
GW Elevation:	354.73

WEATHER CONDITIONS

Weather Conditions (**BOLD**): **Clear** Rain Windy Cloudy **Hot**

Air Temperature: 90°F

VOLUME CALCULATIONS

Total Well Depth (TWD):	37.63	Ft.
Depth to Water (DTW):	25.00	Ft.
Water Column (WC):	12.63	Ft.
(Well Volume = WC x CF)		
1 Well Volume:	2.06	Gal.
3 Well Volumes:	6.18	Gal.

Conversion Factors (WC to Gallons)

CF 2-inch =	0.163
CF 4-inch =	0.652
CF 6-inch =	1.468

FIELD MEASUREMENTS

Time:	9:17	10:10	11:01	11:50			
Purge Volume (gallons):	0.00	2.00	2.10	2.10			
Total Volume (gallons):	0.00	2.00	4.10	6.20			
pH (s.u.):	6.87	5.44	5.48	5.49			
Conductivity (umhos/cm):	182.9	167	167.9	170.6			
Temperature (^{o}C):	18.40	19.20	19.60	19.40			
Turbidity (NTU):	116.45	93.84	10.35	9.26			
Dissolved Oxygen (mg/L):	7.77	8	7.67	7.97			

SAMPLE INFORMATION

Sampled By: BW/PW

Time: 11:55

Additional Comments: Re-sampled due to laboratory hold time error

Please Respect the Environment

About Cardno

Cardno is an ASX-200 professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage, and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

Cardno Zero Harm

Cardno ZERO HARM EVERY JOB. EVERY DAY.

At Cardno, our primary concern is to develop and maintain safe and healthy conditions for anyone involved at our project worksites. We require full compliance with our Health and Safety Policy Manual and established work procedures and expect the same protocol from our subcontractors. We are committed to achieving our Zero Harm goal by continually improving our safety systems, education, and vigilance at the workplace and in the field. Safety is a Cardno core value and through strong leadership and active employee participation, we seek to implement and reinforce these leading actions on every job, every day.