**Open File Report OFBM-07-05.0** 

PRELIMINARY BEDROCK GEOLOGIC MAP OF THE MIDDLE PORTION OF THE SUSQUEHANNA RIVER VALLEY, CUMBERLAND, DAUPHIN, AND PERRY COUNTIES, PENNSYLVANIA

-----

-----

By Margaret S. Jackson, Peter M. Hanley, and Peter B. Sak Dickinson College

-----

PENNSYLVANIA GEOLOGICAL SURVEY FOURTH SERIES HARRISBURG

2007

# **Open-File Report Disclaimer**

## **No Warranty:**

These data files and accompanying documentation are provided "as is," and the user assumes the entire risk as to their quality and performance.

The Commonwealth of Pennsylvania makes no guarantee or warranty concerning the accuracy of information contained in the geographic data or accompanying documentation. The Commonwealth of Pennsylvania further makes no warranties, either expressed or implied, as to any other matter whatsoever, including, without limitation, the completeness or condition of the product, or its fitness for any particular purpose. The burden for determining fitness for use lies entirely with the user.

Although these data have been processed successfully on a computer system at the Bureau of Topographic and Geologic Survey, the Commonwealth of Pennsylvania makes no warranty, expressed or implied, regarding the use of the data files or accompanying documentation on any other computer system, nor does the act of distribution constitute any such warranty.

## Limitation Of Liability:

The user shall save the Commonwealth of Pennsylvania harmless from any suits, claims, or actions arising out of the use of or any defect in the data files or accompanying documentation.

The Commonwealth of Pennsylvania assumes no legal liability for the accuracy, completeness, or usefulness of the data files and accompanying documentation. In no event shall the Commonwealth of Pennsylvania have any liability whatsoever for payment of any consequential, incidental, indirect, special, or tort damages of any kind, including, but not limited to, any loss of profits arising out of use of or reliance on the geographic data.

## **Use And Access Constraints:**

Not for commercial resale.

These data sets are not designed for use as a primary regulatory tool in permitting and siting decisions. This is public information and, as such, it may be used as a reference source and may be interpreted by organizations, agencies, units of government, or others based on needs; however, each user is responsible for the appropriate application of the data. Federal, state, or local regulatory bodies are not to reassign to the Bureau of Topographic and Geologic Survey any authority for the decisions they make using these data sets.

The data sets are not meant for site-specific analysis or for use at finer (i.e., larger, more detailed) scales. Users are not to misrepresent the data sets by presenting them at scales for which they are not intended, nor to imply that presentation at such scales is approved by the Bureau of Topographic and Geologic Survey.

# Material from this report may be published if credit is given to the Bureau of Topographic and Geologic Survey

This report has been prepared in accordance with the open-file reporting standards of the Bureau and Topographic and Geologic Survey. It has not undergone external peer review.

ACKNOWLEDGEMENTS: This report was funded in part by the USGS National Cooperative Geologic Mapping Program.

The complete open-file report can be obtained from the web site of the Bureau of Topographic and Geologic Survey at: <u>http://www.dcnr.state.pa.us/topogeo</u>

**Suggested Citation:** Jackson, M.S., Hanley, P. M., and Sak, P. B., 2007, Preliminary bedrock geologic map of the middle portion of the Susquehanna River valley, Cumberland, Dauphin, and Perry Counties, Pennsylvania: Pennsylvania Geological Survey, 4th ser., Open-File Report OFBM 07–05.0, 16 p., Portable Document Format (PDF).

## PRELIMINARY BEDROCK GEOLOGIC MAP OF THE MIDDLE PORTION OF THE SUSQUEHANNA RIVER VALLEY, CUMBERLAND, DAUPHIN, AND PERRY COUNTIES, PENNSYLVANIA

Margaret S. Jackson, Peter M. Hanley, and Peter B. Sak Dickinson College, Department of Geology, Carlisle, PA 17013-2896

## **DESCRIPTION OF GEOLOGIC UNITS**

#### **Tuscarora Formation**

Fine to coarse-grained gray-green sandstone, siltstone and shale. Cross-bedded and conglomeratic in parts. The Tuscarora (St) is approximately 935 feet thick.

**Environmental Characteristics:** 

Median yield of 23 gal/min; water quality is good; soft water.

Good source of road material, aggregate, silica or building stone (Geyer and Wilshusen, 1982).

#### **Clinton Group**

The term Clinton Group (Sc) is being applied to all lithologies between the Tuscarora Formation and the Bloomsburg Formation including Keefer and Rose Hill Formations. Brownish-gray to olive-gray shaly claystone, and a thinly-bedded, fine-grained sandstone. Dark red, fine-grained "iron" sandstone is also present (Dyson, 1967). The Clinton Group is approximately 1640 feet thick.

**Environmental Characteristics:** 

Median yield is 12 gal/min; ridge forming sandstone has very poor topographic position for groundwater development in most areas (Geyer and Wilshusen, 1982).

Good source for road material and fill (Geyer and Wilshusen, 1982).

#### **Bloomsburg Formation**

The Bloomsburg Formation (Sb) consists of grayish-red claystone, argillaceous siltstone and very fine to fine-grained sandstone. The sandstone is planar-bedded. The Bloomsburg is approximately 1440 feet thick.

**Environmental Characteristics:** 

Median yield is 45 gal/min; hydrogen sulfide has been noted in some wells. Poor cutslope stability due to rapid disintegration when exposed to moisture (Geyer and Wilshusen 1982).

Good source material for road material and fill (Geyer and Wilshusen 1982).

#### **Hamilton Group**

The Hamilton Group (Dh) has been applied to all strata between the top of the Clinton Group and the base of the Trimmers Rock Formation. The interval includes several units often grouped into the Marcellus and the Mahantango Formations. Due to the relatively thin occurrence in the study area and poor exposure, the Hamilton Group is not be subdivided for the purposes of this study. The Hamilton Group, (Dh) in this study area consists of a well-sorted, gray to olive-gray quartz sandstone and conglomeratic quartz sandstone. Cross-bedding was observed in many of the beds. The Hamilton Group is approximately 1610 feet thick.

**Environmental Characteristics:** 

Well yields range from 1 to 300 gal/min; median is 30 gal/min. Water may have high iron and sulfur content; hydrogen sulfide gas is common (Geyer and Wilshusen 1982). Good to fair cut-slope stability.

Good source of road material and building stone (Geyer and Wilshusen 1982).

#### Susquehanna Group

The Susquehanna Group (Miller and Conlin, 1961) is a thick deposit of sandstone, siltstone and shale deposited above the Hamilton group including in stratigraphic succession the Catskill, Trimmers Rock, and Harrell Formation. The term Susquehanna Group is often used for designating beds or outcrops that have not been correlated at the formation level (Faill, 1974). The Susquehanna Group is approximately 8,000 feet thick.

#### **Trimmers Rock Formation**

The Trimmers Rock Formation (Dtr) in predominantly olive to gray fossiliferous colored siltstone and silty shale with alternating thin beds of fine sandstone. The silty and clay rich layers weather quickly and many of the outcrops in the field area were widely spaced sandstone layers with soil or mud in between. The Trimmers Rock Formation is approximately 1070 feet thick.

**Environmental Characteristics:** 

Median well yield is 30 gal/min; water may be high in total dissolved solids; very soft water.

Good cut-slope and foundation stability (Geyer and Wilshusen, 1982).

#### **Catskill Formation**

The Catskill Formation (Dck) is present from the Catskill Mountains in New York across Pennsylvania to the Susquehanna and Juniata Rivers (Faill, 1974). The Catskill Formation is the thickest in the study area by far; it is approximately 7,000 feet thick in the Susquehanna River Valley.

**Environmental Characteristics:** 

Sandstones are the best water-bearing units; maximum potential yield is 35 gal/min; water quality is good (Geyer and Wilshusen, 1982).

Good source of fill or aggregate (Geyer and Wilshusen, 1982).

#### **Irish Valley Member**

Interbedded marine and non-marine assemblages of shales, siltstones and sandstones. The marine rocks are gray or greenish-gray siltstones and fine sandstones. The non-marine rocks are red to reddish brown in color. The transition from marine to non-marine sediment is much more closely spaced than in the Sherman Creek member. Bedding is thin to medium and mostly planar. The individual beds display a fining up sequence. Often the red coloration is present in the finer sediments towards the top of a fining up sequence, although the color often has an irregular distribution (Faill, 1974). The Irish Valley Member is approximately 2,360 feet thick.

#### **Sherman Creek Member**

Olive-gray to light-gray and reddish gray to grayish red fine grained micaceous sandstones. The unit is made up of interbedded sequences of marine and non-marine sandstone much like the Irish Valley Member that it overlies, however unlike the Irish Valley, the Sherman Creek Member lacks any fining-up sequencing. Most of the unit is non-marine and therefore red in color. It is thickly bedded and often cross-bedded. The Sherman Creek Member is approximately 3,800 feet thick.

#### **Clarks Ferry Member**

Grayish-purple to brownish-gray and light-gray medium to coarse-grained, micaceous, crossbedded sandstone, conglomeratic sandstone and conglomerate. The Clark's Ferry Member is approximately 700 feet thick.

#### **Duncannon Member**

Grayish-red sandstone and red claystone to red clay rich soil. The unit displays fining up sequences with sandstone at the base and poorly exposed red claystones and paleosols at the top. The Duncannon Member is approximately 1,250 feet thick.

#### **Pocono Formation**

White and gray sandstones overlying the Catskill Formation. The upper contact with the Mauch Chunk Formation in transitional over several feet. The Pocono Formation (Mp) is recognized from northern Pennsylvania into eastern Ohio (Faill, 1974). In central Pennsylvania, previous workers (Trexler et al. 1962; Dyson 1967) divided the Pocono into three members, however due to lack of exposure it will not be divided for the purposes of this study. The Pocono Formation (Mp) is a coarse clastic unit consisting of sandstones and conglomeratic sandstones. The sandstones are gray or brownish-gray in color, thickly bedded and crossbedded. The sandstones are quartz-rich, very fine- to very coarse- grained, subangular, poorly-sorted and micaceous. The Pocono Formation is approximately 1920 feet thick.

Environmental Characteristics:

Median well yield is 40 gal/min; soft water; good slope stability (Geyer and Wilshusen, 1982).

Good source of building stone and road material (Geyer and Wilshusen, 1982).

### **Mauch Chunk Formation**

Elsewhere the Mauch Chunk is divided into three informal members based on the presence of non-red sandstones and conglomerate beds in the upper and lower members (Faill, 1974). However, the occurrence of these lithologies is limited in this study area and thus the unit is not divided. The Mauch Chunk Formation is recognized from northeastern Pennsylvania to Maryland and West Virginia, and Eastern Ohio (Faill, 1974).

The Mauch Chunk (Mmc) Formation consists of inter-bedded sequence of grayish-red siltstones and shale with some non-red sandstone and conglomeratic sandstones. The conglomeratic sandstone consists of mostly angular quartz grains cemented in a fine red clay matrix. The Mauch Chunk Formation is approximately 5,000 feet thick.

**Environmental Characteristics:** 

Median well yield is 55 gal/min; extensively developed for water supply; water quality is good (Geyer and Wilshusen, 1982).

Good source of road materials and fill (Geyer and Wilshusen, 1982).

## **Pottsville Formation**

Light- to dark-gray and olive gray fine coarse grained sandstone, conglomeratic sandstone and cobbly conglomerate (Hoskins, 1976). The Pottsville Formation is reported as 275 feet thick (Wood et al., 1969).

**Environmental Characteristics:** 

Median well yield is 50 gal/min; good slope stability and foundation stability (Geyer and Wilshusen, 1982).

Good source of road material (Geyer and Wilshusen, 1982).

#### REFERENCES

- Dyson, J. L., 1963, Geology and mineral resources of the northern half of the New Bloomfield quadrangle, Pennsylvania, Pennsylvania Geological Survey, 4th Ser., Atlas 137ab, 63 p., 1 pl., geol. map.
- Dyson, J. L., 1967, Geology and mineral resources of the southern half of the New Bloomfield quadrangle, Pennsylvania, Pennsylvania Geological Survey, 4th Series, Atlas 137cd, 2nd printing, 1974., 86 p., 1 pl., geol. map.
- Geyer, A. R., and Wilshusen, J. P., 1982, Engineering characteristics of the rocks of Pennsylvania, Pennsylvania Geological Survey, Engineering Geology Report 1, 2<sup>nd</sup> edition, 300 p.
- Hoskins, D., 1976, Groundwater resources in and near the anthracite basins of Schuylkill and adjacent counties, Pennsylvania, Pennsylvania Geological Survey, 4th ser., Water Resource Report 64, p. 59.
- Miller, J.T., and Conlin, R.R., 1961, Upper Devonian Rock Stratigraphic Nomenclature in Pennsylvania, American Journal of Science, v.259, p. 784-790.
- Trexler, J.P., Wood, G.H. Jr., and Arndt, H.H., 1962, Uppermost Devonian and Lower Mississippian rocks of the western part of the Anthracite Region of Eastern Pennsylvania, U.S. Geological Survey Professional Paper 450-C, p. 395-400.
- Wood, G.H., Jr., Trexler, J.P., and Kehn, T.M., 1969, Geology of the west-central part of the Southern Anthracite field and adjoining areas, Pennsylvania, U.S. Geological Survey Professional Paper 602.

Field Station	Latitude	Longitude	Type of Plane	Strike	Dip
SV-06-001	40.305080	-77.001180	Overturned Bedding	80	54
SV-06-002	40.314330	-77.004080	Overturned Bedding	83	86
SV-06-003	40.315916	-77.005222	Bedding	92	88
SV-06-004	40.319861	-77.003500	Overturned Bedding	106	87
SV-06-004	40.319861	-77.003500	Bedding	107	89
SV-06-005	40.326277	-76.993472	Bedding	90	76
SV-06-005	40.326277	-76.993472	Overturned Bedding	85	85
SV-06-005	40.326277	-76.993472	Bedding	70	80
SV-06-005	40.326277	-76.993472	Overturned Bedding	85	88
SV-06-006	40.327027	-76.980388	Overturned Bedding	70	80
SV-06-006	40.327027	-76.980388	Overturned Bedding	75	62
SV-06-007	40.326416	-76.971805	Overturned Bedding	80	77
SV-06-007	40.326416	-76.971805	Vertical Bedding	86	90
SV-06-008	40.332555	-76.942861	Overturned Bedding	60	84
SV-06-009	40.321333	-76.963083	Overturned Bedding	45	70
SV-06-013	40.332527	-76.971555	Overturned Bedding	74	80
SV-06-013	40.332527	-76.971555	Bedding	85	79
SV-06-013	40.332527	-76.971555	Bedding	78	89
SV-06-014	40.335777	-76.960777	Bedding	68	70
SV-06-015	40.336277	-76.962555	Overturned Bedding	80	79
SV-06-016			Overturned Bedding	74	88
SV-06-016			Overturned Bedding	63	67
SV-06-017	40.346250	-76.964166	Bedding	78	61
SV-06-018	40.352400	-77.007590	Overturned Bedding	73	84
SV-06-018	40.352400	-77.007590	Overturned Bedding	66	85
SV-06-020	40.354550	-77.008553	Overturned Bedding	68	88
SV-06-020	40.354550	-77.008553	Vertical Bedding	73	90
SV-06-021	40.350530	-77.010660	Overturned Bedding	84	79
SV-06-022	40.357200	-77.018260	Overturned Bedding	86	85
SV-06-022	40.357200	-77.018260	Overturned Bedding	84	87
SV-06-023	40.359060	-77.031250	Bedding	97	24
SV-06-024	40.368710	-77.026490	Bedding	66	61
SV-06-024	40.368710	-77.026490	Bedding	67	63
SV-06-024	40.368710	-77.026490	Bedding	80	60
SV-06-025	40.393100	-77.033660	Bedding	61	42
SV-06-025	40.393100	-77.033660	Bedding	62	39
SV-06-026	40.399080	-77.038060	Bedding	76	22
SV-06-026	40.399080	-77.038060	Bedding	73	23
SV-06-028	40.400630	-77.040160	Bedding	332	13
SV-06-029	40.382520	-77.037960	Bedding	73	50
SV-06-030	40.380990	-77.040650	Bedding	64	44
SV-06-030	40.380990	-77.040650	Bedding	60	46
SV-06-031	40.378290	-77.047940	Bedding	88	59
SV-06-032	40.378110	-77.041890	Bedding	75	42
SV-06-032	40.378110	-77.041890	Bedding	76	44
SV-06-033	40.376290	-77.040770	Bedding	85	44
SV-06-034	40.375340	-77.042070	Bedding	70	43
SV-06-034	40.375340	-77.042070	Bedding	69	40
SV-06-034	40.375340	-77.042070	Bedding	65	48
SV-06-035	40.375080	-77.040970	Bedding	61	51
SV-06-037	40.400360	-77.042530	Bedding	78	13
SV-06-038	40.381390	-77.079440	Bedding	75	40

SV-06-039         40.414560         -77.042100         Bedding         309         8           SV-06-040         40.427500         -77.022560         Bedding         11         21           SV-06-041         40.427500         -77.02420         Bedding         36         10           SV-06-042         40.431120         -77.024420         Bedding         67         40           SV-06-043         40.431120         -77.024420         Bedding         68         60           SV-06-043         40.431120         -77.022730         Bedding         51         15           SV-06-045         40.428100         -77.022700         Bedding         286         28           SV-06-047         40.312560         -77.029730         Overturned Bedding         78         81           SV-06-048         40.325130         -77.029730         Overturned Bedding         79         61           SV-06-055         40.475810         -76.971080         Bedding         75         56           SV-06-056         40.476810         -76.971080         Bedding         60         53           SV-06-058         40.476810         -77.01800         Bedding         60         53           SV-06-060<	Field Station	Latitude	Longitude	Type of Plane	Strike	Dip
SV-06-040         40.417930         -77.024500         Bedding         11         21           SV-06-041         40.427900         -77.025240         Bedding         36         10           SV-06-043         40.431120         -77.02420         Bedding         78         41           SV-06-043         40.431120         -77.024420         Bedding         68         60           SV-06-043         40.431120         -77.02420         Bedding         68         60           SV-06-044         40.42100         -77.020720         Bedding         28         24           SV-06-047         40.312660         -77.070270         Dedding         286         24           SV-06-047         40.32530         -77.02270         Overturned Bedding         78         81           SV-06-047         40.32530         -77.02710         Overturned Bedding         75         56           SV-06-050         40.42580         -76.957250         Bedding         63         46           SV-06-054         40.476810         -76.971080         Bedding         66         57           SV-06-058         40.476810         -77.01800         Bedding         64         63           SV-06-060	SV-06-039	40.414560	-77.049110	Bedding	309	8
SV-06-041         40.427500         -77.028560         Bedding         11         21           SV-06-042         40.429970         -77.022440         Bedding         78         41           SV-06-043         40.431120         -77.024420         Bedding         67         40           SV-06-043         40.431120         -77.024420         Bedding         68         60           SV-06-044         40.451080         -77.022700         Bedding         244         15           SV-06-044         40.427490         -77.022700         Dedding         286         24           SV-06-047         40.325140         -77.02730         Overturned Bedding         285         85           SV-06-049         40.325380         -77.022730         Overturned Bedding         70         22           SV-06-055         40.42580         -76.971080         Bedding         60         53           SV-06-058         40.476810         -76.971080         Bedding         226         29           SV-06-059         40.469620         -77.010810         Bedding         60         53           SV-06-060         Eedding         70         79         33         34         36         35	SV-06-040	40.417930	-77.042100	Bedding	80	3
SV-06-042         40.429970         -77.024420         Bedding         36         10           SV-06-043         40.431120         -77.024420         Bedding         67         40           SV-06-043         40.431120         -77.024420         Bedding         68         60           SV-06-044         40.451080         -77.022730         Bedding         15         55           SV-06-045         40.427490         -77.022700         Bedding         286         24           SV-06-046         40.325140         -77.02720         Overturned Bedding         288         55           SV-06-048         40.325140         -77.032610         Overturned Bedding         79         61           SV-06-054         40.426280         -77.032610         Overturned Bedding         70         22           SV-06-057         40.476810         -76.971080         Bedding         75         56           SV-06-058         40.476810         -77.01810         Bedding         66         57           SV-06-059         40.469620         -77.010810         Bedding         62         33           SV-06-060         Eedding         70         79         70         70         70         70	SV-06-041	40.427500	-77.029560	Bedding	11	21
SV-06-043         40.431120         -77.024420         Bedding         78         41           SV-06-043         40.431120         -77.024420         Bedding         66         40           SV-06-043         40.431120         -77.024420         Bedding         68         60           SV-06-044         40.428100         -77.022730         Bedding         244         15           SV-06-044         40.427490         -77.02670         Overturned Bedding         248         24           SV-06-047         40.312660         -77.02670         Overturned Bedding         286         24           SV-06-049         40.325380         -77.028730         Overturned Bedding         285         25           SV-06-050         40.320230         -77.028730         Overturned Bedding         78         56           SV-06-058         40.476810         -76.971080         Bedding         63         56           SV-06-058         40.476810         -77.018300         Bedding         222         29           SV-06-060         Bedding         66         67         78         56           SV-06-061         40.455190         -77.018800         Bedding         66         67 <td< td=""><td>SV-06-042</td><td>40.429970</td><td>-77.026240</td><td>Bedding</td><td>36</td><td>10</td></td<>	SV-06-042	40.429970	-77.026240	Bedding	36	10
SV-06-043         40.431120         -77.024420         Bedding         67         40           SV-06-043         40.431120         -77.024420         Bedding         51         55           SV-06-044         40.427490         -77.022702         Bedding         286         24           SV-06-046         40.427490         -77.02600         Overturned Bedding         286         24           SV-06-048         40.325140         -77.02600         Overturned Bedding         285         85           SV-06-049         40.325380         -77.029730         Overturned Bedding         78         81           SV-06-055         40.462580         -76.957250         Bedding         75         56           SV-06-058         40.476810         -76.971080         Bedding         60         53           SV-06-059         40.46920         -77.01801         Bedding         66         67           SV-06-050         40.455190         -77.01800         Bedding         60         53           SV-06-060         Bedding         62         33         50         66         67           SV-06-061         40.455190         -77.018900         Bedding         62         33	SV-06-043	40.431120	-77.024420	Bedding	78	41
SV-06-043         40.431120         -77.022420         Bedding         68         60           SV-06-044         40.451080         -77.022730         Bedding         15         15           SV-06-045         40.428100         -77.020200         Bedding         286         24           SV-06-046         40.427490         -77.020200         Overturned Bedding         286         24           SV-06-047         40.312660         -77.032610         Overturned Bedding         78         88           SV-06-049         40.320330         -77.032610         Overturned Bedding         79         61           SV-06-050         40.320230         -77.029730         Overturned Bedding         75         56           SV-06-057         40.476810         -76.9571080         Bedding         63         46           SV-06-057         40.476810         -77.911080         Bedding         68         56           SV-06-059         40.469620         -77.01890         Bedding         68         56           SV-06-060         Bedding         64         67         57         50         66         67           SV-06-061         40.455190         -77.018900         Bedding         60 <td< td=""><td>SV-06-043</td><td>40.431120</td><td>-77.024420</td><td>Bedding</td><td>67</td><td>40</td></td<>	SV-06-043	40.431120	-77.024420	Bedding	67	40
SV-06-044         40.451080         -77.022730         Bedding         51         15           SV-06-045         40.421400         -77.020720         Bedding         244         15           SV-06-046         40.427490         -77.020500         Bedding         286         24           SV-06-047         40.325140         -77.076270         Overturned Bedding         285         85           SV-06-049         40.325380         -77.032730         Overturned Bedding         76         81           SV-06-055         40.462580         -76.957250         Bedding         75         56           SV-06-057         40.475810         -76.971080         Bedding         61         53           SV-06-058         40.476810         -76.971080         Bedding         66         57           SV-06-059         40.469620         -77.01810         Bedding         226         29           SV-06-060         Bedding         66         67         57         50         53           SV-06-061         40.455190         -77.018900         Bedding         70         79           SV-06-062         Bedding         10         73         70         70         70         70 <td>SV-06-043</td> <td>40.431120</td> <td>-77.024420</td> <td>Bedding</td> <td>68</td> <td>60</td>	SV-06-043	40.431120	-77.024420	Bedding	68	60
SV-06-045         40.428100         -77.020720         Bedding         44         15           SV-06-046         40.427490         -77.020500         Bedding         286         24           SV-06-047         40.312660         -77.076270         Overturned Bedding         286         85           SV-06-048         40.325380         -77.032610         Overturned Bedding         78         81           SV-06-050         40.42580         -76.957250         Bedding         75         56           SV-06-057         40.476810         -76.9571080         Bedding         63         46           SV-06-058         40.476810         -77.018010         Bedding         68         56           SV-06-059         40.469620         -77.01810         Bedding         68         56           SV-06-060         Bedding         62         33         57         56         67         57         56         66         67           SV-06-061         40.455190         -77.018900         Bedding         62         33           SV-06-062         Bedding         60         87         55         57         56         77.018900         Bedding         61         77         79	SV-06-044	40.451080	-77.022730	Bedding	51	15
SV-06-046         40.427490         -77.020500         Bedding         286         24           SV-06-047         40.312660         -77.076270         Overturned Bedding         84         86           SV-06-048         40.325140         -77.06270         Overturned Bedding         78         81           SV-06-049         40.325380         -77.022730         Overturned Bedding         76         85           SV-06-050         40.475400         -76.957250         Bedding         73         22           SV-06-057         40.475810         -76.971080         Bedding         63         46           SV-06-058         40.476810         -76.971080         Bedding         66         53           SV-06-050         40.476810         -77.01810         Bedding         66         67           SV-06-060         Bedding         66         67         33         35         36         36         37         37         36         36         33         37         37         37         36         33         37         37         36         33         37         37         37         36         33         37         37         37         36         33         37	SV-06-045	40.428100	-77.020720	Bedding	44	15
SV-06-047         40.312660         -77.076270         Overturned Bedding         84         86           SV-06-048         40.325140         -77.066900         Overturned Bedding         285         85           SV-06-049         40.325380         -77.032610         Overturned Bedding         76         17           SV-06-055         40.42580         -76.957250         Bedding         70         22           SV-06-057         40.475840         -76.971080         Bedding         60         53           SV-06-058         40.476810         -76.971080         Bedding         66         56           SV-06-059         40.469620         -77.01810         Bedding         68         56           SV-06-060         Bedding         62         33         SV-06-060         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         61         67           SV-06-062         Bedding         155         11         SV-06-062         Bedding         16         87           SV-06-062         Bedding         155         11         SV-06-062         Bedding         245         35           SV-06-062         Bedding <td< td=""><td>SV-06-046</td><td>40.427490</td><td>-77.020500</td><td>Bedding</td><td>286</td><td>24</td></td<>	SV-06-046	40.427490	-77.020500	Bedding	286	24
SV-06-048         40.325140         -77.066900         Overturned Bedding         285         85           SV-06-049         40.325380         -77.032610         Overturned Bedding         79         61           SV-06-050         40.320230         -77.029730         Overturned Bedding         70         22           SV-06-055         40.4462580         -76.975250         Bedding         63         46           SV-06-058         40.476810         -76.971080         Bedding         66         63           SV-06-059         40.469620         -77.010810         Bedding         68         56           SV-06-060         Bedding         68         56           SV-06-060         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         60         87         37         57         66         60         87           SV-06-062         Bedding         60         87         37         57         56           SV-06-062         Bedding         10         155         11         15         11         15         15         15         15	SV-06-047	40.312660	-77.076270	Overturned Bedding	84	86
SV-06-049         40.325380         -77.032610         Overturned Bedding         79         61           SV-06-050         40.320230         -77.029730         Overturned Bedding         85         81           SV-06-055         40.462580         -76.957250         Bedding         75         56           SV-06-057         40.475440         -76.968580         Bedding         63         46           SV-06-058         40.476810         -76.971080         Bedding         68         56           SV-06-060         Bedding         68         56         57         57         56         57         57         56 <td< td=""><td>SV-06-048</td><td>40.325140</td><td>-77.066900</td><td>Overturned Bedding</td><td>285</td><td>85</td></td<>	SV-06-048	40.325140	-77.066900	Overturned Bedding	285	85
SV-06-050         40.320230         -77.029730         Overturned Bedding         85         81           SV-06-055         40.462580         -76.957250         Bedding         70         22           SV-06-057         40.475440         -76.968580         Bedding         63         46           SV-06-058         40.476810         -76.971080         Bedding         60         53           SV-06-059         40.469620         -77.010810         Bedding         66         67           SV-06-060         Bedding         66         67         53         54         54         54         54         54         54         54         54         54         54         54         54         54         55         54         56         54         56         54         54         54         57         55         54         56         57         56         54         56         57         56         54         56         57         56         54         56         57         56         57         56         57         56         56         57         56         56         57         56         56         56         56         56         56	SV-06-049	40.325380	-77.032610	Overturned Bedding	79	61
SV-06-055         40.462580         -76.957250         Bedding         70         22           SV-06-057         40.475440         -76.968580         Bedding         75         56           SV-06-058         40.476810         -76.971080         Bedding         60         53           SV-06-059         40.469620         -77.010810         Bedding         222         29           SV-06-060         Bedding         68         56           SV-06-060         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         63           SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         60         37         37         37         36         36         36         37         37         37         37         36         36         37         37         37         36         36         37         37         37         36         36         37         37         37         36         36         37         37         37         37         36         38         37         37         37         37	SV-06-050	40.320230	-77.029730	Overturned Bedding	85	81
SV-06-057         40.475440         -76.968580         Bedding         75         56           SV-06-058         40.476810         -76.971080         Bedding         60         53           SV-06-058         40.476810         -76.971080         Bedding         62         29           SV-06-059         40.469620         -77.010810         Bedding         68         56           SV-06-060         Bedding         66         67         57         50         57         56         57         57         56         57         57         56         57         57         56         57         57         56         57         57         56         57         56         57         56         57	SV-06-055	40.462580	-76.957250	Bedding	70	22
SV-06-058         40.476810         -76.971080         Bedding         63         46           SV-06-058         40.476810         -76.971080         Bedding         60         53           SV-06-059         40.469620         -77.010810         Bedding         68         56           SV-06-060         Bedding         66         67         SV-06-060         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         60         36         36         36           SV-06-062         Bedding         70         79         37         37         36         36         36         36         36           SV-06-062         Bedding         155         11         37         36         36         37         36         36         36         36         37         36         36         36         36         36         36         37         36         36         36         36         37         36         36         37         36         36         37         36         37         37         36         37         36         3	SV-06-057	40.475440	-76.968580	Bedding	75	56
SV-06-058         40.476810         -76.971080         Bedding         60         53           SV-06-059         40.469620         -77.010810         Bedding         226         29           SV-06-060         Bedding         68         56           SV-06-060         Bedding         240         37           SV-06-061         40.455190         -77.018900         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         60         37         90         SV-06-062         Bedding         60         87           SV-06-062         Bedding         60         87         90         82         90         91         91         91         91         91         91         91         91         91         91         91         92         91	SV-06-058	40.476810	-76.971080	Bedding	63	46
SV-06-059         40.469620         -77.010810         Bedding         226         29           SV-06-060         Bedding         68         56           SV-06-060         Bedding         66         67           SV-06-061         40.455190         -77.018900         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         86           SV-06-062         Bedding         70         79         SV-06-062         Bedding         60         87           SV-06-062         Bedding         0         23         SV-06-062         Bedding         0         23           SV-06-062         Bedding         14         18         SV-06-063         245         35           SV-06-063         T77.016440         Bedding         20         18           SV-06-064         40.435320         -77.016440         Bedding         45         38           SV-06-065         40.4438080         -76.990630         Bedding         45         38           SV-06-068         40.440600         -76.990500         Bedding         30         28           SV-06-070         40.449240         -76.992630 <td< td=""><td>SV-06-058</td><td>40.476810</td><td>-76.971080</td><td>Bedding</td><td>60</td><td>53</td></td<>	SV-06-058	40.476810	-76.971080	Bedding	60	53
SV-06-060         Bedding         68         56           SV-06-060         Bedding         66         67           SV-06-061         40.455190         -77.018900         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         155         11         SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23         SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23         SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23         SV-06-062         Bedding         0         23           SV-06-063         Bedding         0         23         SV-06-063         0         245         35           SV-06-064         40.453200         -77.015320         Bedding         45         38           SV-06-065         40.438080         -76.996630         Bedding         15         18           SV-06-068         40.440600         -76.990500         Bedding         15         18	SV-06-059	40.469620	-77.010810	Bedding	226	29
SV-06-060         Bedding         66         67           SV-06-061         40.455190         -77.018900         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         70         79         77         79         77         79         77         79         77         79         77         70         79         77         70         79         77         70         70         79         77         70         70         79         70         74         8         77         70         8         77         70         8         77         70         8         77         70         8         77	SV-06-060			Bedding	68	56
SV-06-060         Bedding         240         37           SV-06-061         40.455190         -77.018900         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         155         11         155         11           SV-06-062         Bedding         0         23         35         155         11           SV-06-062         Bedding         0         23         35         155         11           SV-06-062         Bedding         0         23         35         14         18           SV-06-063         Bedding         245         35         35         35         35         36         36         37           SV-06-064         40.453320         -77.016440         Bedding         245         35           SV-06-065         40.439660         -77.006920         Bedding         45         38           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-070         40.438080         -76.992630         Bedding         15         18           SV-06-071	SV-06-060			Bedding	66	67
SV-06-061         40.455190         -77.018900         Bedding         62         33           SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         70         79           SV-06-062         Bedding         60         87           SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23           SV-06-062         Bedding         245         35           SV-06-063         Bedding         245         35           SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.452490         -77.015320         Bedding         45         38           SV-06-066         40.439660         -76.996630         Bedding         45         38           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-070         40.449240         -76.981490         Bedding         58         36           SV-06-071         Bedding         58         36	SV-06-060			Bedding	240	37
SV-06-061         40.455190         -77.018900         Bedding         60         36           SV-06-062         Bedding         70         79           SV-06-062         Bedding         155         11           SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23           SV-06-063         Bedding         245         35           SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.453490         -77.015320         Bedding         45         38           SV-06-066         40.438080         -76.996630         Bedding         45         38           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-069         40.454460         -76.992630         Bedding         16         5           SV-06-071         Bedding         58         36         50         40           SV-06-071         -76.983350         Bedding         50         40           SV-06-074         40.478050         -76.983300	SV-06-061	40 455190	-77 018900	Bedding	62	33
SV-06-062         Instance         Bedding         70         79           SV-06-062         Bedding         155         11           SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23           SV-06-062         Bedding         0         23           SV-06-063         Bedding         245         35           SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.452490         -77.015320         Bedding         68         71           SV-06-066         40.438060         -76.996630         Bedding         45         38           SV-06-067         40.438080         -76.990500         Bedding         15         18           SV-06-068         40.440600         -76.992630         Bedding         16         5           SV-06-070         40.449240         -76.983350         Bedding         58         36           SV-06-071         Bedding         50         40         50         40           SV-06-074         40.478050         -76.983300         Bedding         73         34           SV-06-075	SV-06-061	40 455190	-77 018900	Bedding	60	36
SV-06-062         Bedding         15         11           SV-06-062         Bedding         60         87           SV-06-062         Bedding         0         23           SV-06-062         Bedding         14         18           SV-06-063         Bedding         245         35           SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.45320         -77.015320         Bedding         45         38           SV-06-066         40.439660         -77.006920         Bedding         45         38           SV-06-067         40.438080         -76.990500         Bedding         330         28           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-070         40.440600         -76.992630         Bedding         16         5           SV-06-071         Bedding         58         36         5         36           SV-06-071         Bedding         50         40         5         36           SV-06-071         F0.983350         Bedding         50         40           SV-06-074         40.47805	SV-06-062	101100100	111010000	Bedding	70	79
SV-06-062         Bedding         60         87           SV-06-062         Bedding         0         23           SV-06-062         Bedding         14         18           SV-06-063         Bedding         245         35           SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.452490         -77.015320         Bedding         68         71           SV-06-066         40.439660         -77.006920         Bedding         45         38           SV-06-067         40.438080         -76.996630         Bedding         45         38           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-068         40.440600         -76.992630         Bedding         16         5           SV-06-070         40.449240         -76.981490         Bedding         58         36           SV-06-071         Bedding         50         40         55         36           SV-06-071         Bedding         50         40         55         51           SV-06-074         40.478050         -76.983350         Bedding         50	SV-06-062			Bedding	155	11
SV-06-062         Bedding         0         23           SV-06-062         Bedding         14         18           SV-06-063         Bedding         245         35           SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.452490         -77.015320         Bedding         68         71           SV-06-066         40.439660         -77.006920         Bedding         45         38           SV-06-067         40.438080         -76.996630         Bedding         4         5           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-069         40.454460         -76.992630         Bedding         16         5           SV-06-071         Bedding         16         5         5         36           SV-06-071         Bedding         50         40         5         36           SV-06-071         Bedding         50         40         5         5         40         5         5           SV-06-073 <t< td=""><td>SV-06-062</td><td></td><td></td><td>Bedding</td><td>60</td><td>87</td></t<>	SV-06-062			Bedding	60	87
SV-06-062         Bedding         14         18           SV-06-063         Bedding         245         35           SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.452490         -77.015320         Bedding         68         71           SV-06-066         40.439660         -77.006920         Bedding         45         38           SV-06-066         40.439660         -76.996630         Bedding         30         28           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-069         40.454460         -76.992630         Bedding         16         5           SV-06-071         Bedding         16         5         36         36           SV-06-071         Bedding         50         40         449240         -76.983350         Bedding         50         40           SV-06-071         Bedding         50         40         50         40         50         40           SV-06-072         40.478050         -76.983350	SV-06-062			Bedding	0	23
SV-06-063         Bedding         245         35           SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.452490         -77.015320         Bedding         68         71           SV-06-066         40.439660         -77.006920         Bedding         45         38           SV-06-066         40.438080         -76.996630         Bedding         4         5           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-069         40.454460         -76.992630         Bedding         75         32           SV-06-070         40.449240         -76.981490         Bedding         58         36           SV-06-071         Bedding         50         40         59         50         40           SV-06-072         40.478800         -76.983350         Bedding         50         40           SV-06-074         40.478050         -76.983900         Bedding         73         34           SV-06-075         40.481870         -76.973480	SV-06-062			Bedding	14	18
SV-06-064         40.453320         -77.016440         Bedding         20         18           SV-06-065         40.452490         -77.015320         Bedding         68         71           SV-06-066         40.439660         -77.006920         Bedding         45         38           SV-06-066         40.438080         -76.996630         Bedding         4         5           SV-06-068         40.440600         -76.990500         Bedding         330         28           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-069         40.454460         -76.992630         Bedding         16         5           SV-06-070         40.449240         -76.981490         Bedding         58         36           SV-06-071         Bedding         58         36         50         40           SV-06-072         40.478800         -76.983350         Bedding         50         40           SV-06-073         40.477290         -76.983300         Bedding         73         34           SV-06-074         40.478050         -76.969570         Bedding         50         43           SV-06-076         40.48320	SV-06-063			Bedding	245	35
SV-06-065         40.452490         -77.015320         Bedding         68         71           SV-06-066         40.439660         -77.006920         Bedding         45         38           SV-06-067         40.438080         -76.996630         Bedding         4         5           SV-06-068         40.440600         -76.990500         Bedding         330         28           SV-06-068         40.440600         -76.990500         Bedding         15         18           SV-06-069         40.454460         -76.992630         Bedding         75         32           SV-06-070         40.449240         -76.981490         Bedding         16         5           SV-06-071         Bedding         58         36           SV-06-072         40.478800         -76.983350         Bedding         50         40           SV-06-071         Bedding         50         40         50         40           SV-06-072         40.478800         -76.983300         Bedding         50         40           SV-06-074         40.478050         -76.973480         Bedding         51         51           SV-06-075         40.483320         -76.969570         Bedding	SV-06-064	40 453320	-77 016440	Bedding	20	18
SV-06-066       40.439660       -77.006920       Bedding       45       38         SV-06-067       40.438080       -76.996630       Bedding       4       5         SV-06-068       40.440600       -76.990500       Bedding       330       28         SV-06-068       40.440600       -76.990500       Bedding       15       18         SV-06-069       40.454460       -76.992630       Bedding       75       32         SV-06-070       40.449240       -76.981490       Bedding       58       36         SV-06-071       Bedding       58       36         SV-06-072       40.478800       -76.983350       Bedding       50       40         SV-06-071       Bedding       50       40       50       40         SV-06-071       Bedding       50       40       50       40         SV-06-072       40.478050       -76.983300       Bedding       73       34         SV-06-075       40.478050       -76.969570       Bedding       50       43         SV-06-076       40.482890       -76.969570       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding	SV-06-065	40 452490	-77 015320	Bedding	68	71
SV-06-067       40.438080       -76.996630       Bedding       4       5         SV-06-068       40.440600       -76.990500       Bedding       330       28         SV-06-068       40.440600       -76.990500       Bedding       15       18         SV-06-069       40.454460       -76.992630       Bedding       75       32         SV-06-070       40.449240       -76.981490       Bedding       16       5         SV-06-071       Bedding       58       36         SV-06-072       40.478800       -76.983350       Bedding       50       40         SV-06-071       Bedding       50       40       40       50       40         SV-06-071       Bedding       50       40       50       40       50       40         SV-06-073       40.477290       -76.983350       Bedding       50       40         SV-06-074       40.478050       -76.983900       Bedding       50       40         SV-06-075       40.481870       -76.969570       Bedding       50       43         SV-06-076       40.482890       -76.953050       Bedding       50       43         SV-06-078       40.487550	SV-06-066	40 439660	-77.006920	Bedding	45	38
SV-06-068       40.440600       -76.990500       Bedding       330       28         SV-06-068       40.440600       -76.990500       Bedding       15       18         SV-06-069       40.454460       -76.992630       Bedding       75       32         SV-06-070       40.449240       -76.981490       Bedding       16       5         SV-06-071       Bedding       58       36         SV-06-071       Bedding       50       40         SV-06-071       Bedding       50       40         SV-06-072       40.478800       -76.983350       Bedding       50       40         SV-06-073       40.477290       -76.984330       Bedding       66       15         SV-06-074       40.478050       -76.973480       Bedding       250       51         SV-06-075       40.481870       -76.969570       Bedding       84       46         SV-06-076       40.483320       -76.969570       Bedding       50       43         SV-06-077       40.487550       -76.953050       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-079 </td <td>SV-06-067</td> <td>40.438080</td> <td>-76 996630</td> <td>Bedding</td> <td>40</td> <td>5</td>	SV-06-067	40.438080	-76 996630	Bedding	40	5
SV-06-068       40.440600       -76.990500       Bedding       15       18         SV-06-069       40.454460       -76.992630       Bedding       75       32         SV-06-070       40.449240       -76.981490       Bedding       16       5         SV-06-071       Bedding       58       36         SV-06-071       Bedding       58       36         SV-06-071       Bedding       58       36         SV-06-071       Bedding       50       40         SV-06-072       40.478800       -76.983350       Bedding       50       40         SV-06-073       40.477290       -76.984330       Bedding       66       15         SV-06-074       40.478050       -76.973480       Bedding       73       34         SV-06-075       40.481870       -76.969570       Bedding       250       51         SV-06-076       40.482890       -76.969570       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-079       Bedding       50       44         SV-06-081       40.435400       -77.024570       Bedding       50       <	SV-06-068	40 440600	-76 990500	Bedding	330	28
SV 06 060       40.454460       -76.992630       Bedding       75       32         SV-06-070       40.449240       -76.981490       Bedding       16       5         SV-06-071       Bedding       58       36         SV-06-071       Bedding       58       36         SV-06-071       Bedding       50       40         SV-06-071       Bedding       50       40         SV-06-072       40.478800       -76.983350       Bedding       50       40         SV-06-073       40.477290       -76.984330       Bedding       66       15         SV-06-074       40.478050       -76.983900       Bedding       73       34         SV-06-075       40.481870       -76.973480       Bedding       250       51         SV-06-076       40.48320       -76.969570       Bedding       84       46         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       44         SV-06-079       Bedding       50       44         SV-06-081       40.435400       -77.024570       Bedding       76 <t< td=""><td>SV-06-068</td><td>40 440600</td><td>-76 990500</td><td>Bedding</td><td>15</td><td>18</td></t<>	SV-06-068	40 440600	-76 990500	Bedding	15	18
SV-06-070       40.449240       -76.981490       Bedding       16       5         SV-06-071       Bedding       58       36         SV-06-071       Bedding       50       40         SV-06-071       Bedding       50       40         SV-06-072       40.478800       -76.983350       Bedding       50       40         SV-06-073       40.477290       -76.984330       Bedding       66       15         SV-06-074       40.478050       -76.983900       Bedding       73       34         SV-06-075       40.481870       -76.973480       Bedding       250       51         SV-06-076       40.48320       -76.969570       Bedding       84       46         SV-06-077       40.482890       -76.969570       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-079       Bedding       50       44       50       44         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       76       39         SV-06-083       40.	SV-06-069	40 454460	-76 992630	Bedding	75	32
SV-06-071       Bedding       58         SV-06-071       Bedding       58         SV-06-071       Bedding       80         SV-06-072       40.478800       -76.983350       Bedding       50         SV-06-073       40.477290       -76.984330       Bedding       66       15         SV-06-074       40.478050       -76.983900       Bedding       73       34         SV-06-075       40.481870       -76.973480       Bedding       250       51         SV-06-076       40.48320       -76.969570       Bedding       84       46         SV-06-077       40.482890       -76.969120       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-079       Bedding       50       44       50       50       44         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       263       39         SV-06-083       40.372450       -76.856990       Overturned Bedding       73       44	SV-06-070	40.409240	-76 981490	Bedding	16	5
SV-06-071         Bedding         Bodding         SV-06-07         Advector         Advector         Advector         Advector         Advector         Advector         Bodding         SV-06-07         Advector         Advector </td <td>SV-06-071</td> <td>10.110210</td> <td>70.001400</td> <td>Bedding</td> <td>58</td> <td>36</td>	SV-06-071	10.110210	70.001400	Bedding	58	36
SV-06-072         40.478800         -76.983350         Bedding         50         40           SV-06-073         40.477290         -76.984330         Bedding         66         15           SV-06-073         40.477290         -76.984330         Bedding         66         15           SV-06-074         40.478050         -76.983900         Bedding         73         34           SV-06-075         40.481870         -76.973480         Bedding         250         51           SV-06-076         40.483320         -76.969570         Bedding         84         46           SV-06-077         40.482890         -76.969120         Bedding         50         43           SV-06-078         40.487550         -76.953050         Bedding         75         65           SV-06-079         Bedding         80         20         20         20         20           SV-06-080         Bedding         50         44         20	SV-06-071			Bedding	80	60
SV-06-073       40.477290       -76.984330       Bedding       66       15         SV-06-074       40.478050       -76.983900       Bedding       73       34         SV-06-075       40.481870       -76.973480       Bedding       250       51         SV-06-076       40.483320       -76.969570       Bedding       84       46         SV-06-077       40.482890       -76.969570       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-079       Bedding       80       20       20       20       20         SV-06-080       Bedding       50       44       20       20       20       20         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       263       39         SV-06-083       40.372450       -76.856990       Overturned Bedding       73       84     <	SV-06-072	40 478800	-76 983350	Bedding	50	40
SV-06-074       40.478050       -76.983900       Bedding       73       34         SV-06-075       40.481870       -76.973480       Bedding       250       51         SV-06-076       40.483320       -76.969570       Bedding       84       46         SV-06-077       40.482890       -76.969120       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-079       Bedding       80       20         SV-06-080       Bedding       50       44         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       263       39         SV-06-083       40.372450       -76.856990       Overturned Bedding       73       84	SV-06-073	40.477290	-76 984330	Bedding	66	15
SV-06-075       40.481870       -76.973480       Bedding       250       51         SV-06-076       40.483320       -76.969570       Bedding       84       46         SV-06-077       40.482890       -76.969120       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       50       43         SV-06-079       Bedding       75       65         SV-06-080       Bedding       50       44         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       263       39         SV-06-083       40.372450       -76.856990       Overturned Bedding       73       84	SV-06-074	40 478050	-76 983900	Bedding	73	34
SV-06-076       40.483320       -76.969570       Bedding       84       46         SV-06-077       40.482890       -76.969120       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       75       65         SV-06-079       Bedding       80       20         SV-06-080       Bedding       50       44         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       263       39         SV-06-083       40.372450       -76.856990       Overturned Bedding       73       84	SV-06-075	40.470000	-76 973480	Bedding	250	51
SV-06-077       40.482890       -76.969120       Bedding       50       43         SV-06-078       40.487550       -76.953050       Bedding       75       65         SV-06-079       Bedding       80       20         SV-06-080       Bedding       50       44         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       263       39         SV-06-083       40.372450       -76.856990       Overturned Bedding       73       84	SV-06-076	40 483320	-76 969570	Bedding	84	46
SV-06-078       40.487550       -76.953050       Bedding       75       65         SV-06-079       Bedding       80       20         SV-06-080       Bedding       50       44         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       263       39         SV-06-083       40.372450       -76.856990       Overturned Bedding       73       84	SV-06-077	40 482890	-76 969120	Bedding	50	43
SV-06-079       Bedding       80       20         SV-06-080       Bedding       50       44         SV-06-081       40.435400       -77.024570       Bedding       76       11         SV-06-082       40.438130       -77.025720       Bedding       263       39         SV-06-083       40.372450       -76       856990       Overturned Bedding       73       84	SV-06-078	40,487550	-76,953050	Bedding	75	65
SV-06-080         Bedding         50         44           SV-06-081         40.435400         -77.024570         Bedding         76         11           SV-06-082         40.438130         -77.025720         Bedding         263         39           SV-06-083         40.372450         -76.856990         Overturned Bedding         73         84	SV-06-079		. 0.000000	Bedding	80	20
SV-06-081         40.435400         -77.024570         Bedding         76         11           SV-06-082         40.438130         -77.025720         Bedding         263         39           SV-06-083         40.372450         -76.856990         Overturned Bedding         73         84	SV-06-080			Bedding	50	44
SV-06-082         40.438130         -77.025720         Bedding         263         39           SV-06-083         40.372450         -76.856990         Overturned Bedding         73         84	SV-06-081	40 435400	-77 024570	Bedding	76	11
SV-06-083 40 372450 -76 856990 Overturned Redding 73 84	SV-06-082	40,438130	-77.025720	Bedding	263	39
- XXXXXXXXX	SV-06-083	40.372450	-76.856990	Overturned Bedding	73	84

Field Station	Latitude	Longitude	Type of Plane	Strike	Dip
SV-06-083	40.372450	-76.856990	Overturned Bedding	253	84
SV-06-084	40.372280	-76.854590	Overturned Bedding	238	83
SV-06-084	40.372280	-76.854590	Overturned Bedding	249	83
SV-06-084	40.372280	-76.854590	Overturned Bedding	248	85
SV-06-085	40.375560	-76.854590	Overturned Bedding	229	54
SV-06-085	40.375560	-76.854590	Overturned Bedding	247	60
SV-06-086	40.376270	-76.848030	Overturned Bedding	256	58
SV-06-087	40.374240	-76.847960	Vertical Bedding	256	90
SV-06-087	40.374240	-76.847960	Bedding	253	81
SV-06-088	40.367340	-76.922200	Overturned Bedding	245	73
SV-06-088	40.367340	-76.922200	Overturned Bedding	255	73
SV-06-089	40.392470	-77.013880	Bedding	262	39
SV-06-089	40.392470	-77.013880	Bedding	253	34
SV-06-089	40.392470	-77.013880	Bedding	245	36
SV-06-090	40.385640	-77.014770	Bedding	243	38
SV-06-090	40.385640	-77.014770	Bedding	238	50
SV-06-090	40.385640	-77.014770	Bedding	245	40
SV-06-091	40.387220	-77.011060	Bedding	249	45
SV-06-091	40.387220	-77.011060	Bedding	250	42
SV-06-091	40.387220	-77.011060	Bedding	248	38
SV-06-092	40.386890	-77.017640	Bedding	233	41
SV-06-092	40.386890	-77.017640	Bedding	230	35
SV-06-093	40.392720	-77.013040	Bedding	248	39
SV-06-093	40.392720	-77.013040	Bedding	245	40
SV-06-094	40.393340	-77.012280	Bedding	242	48
SV-06-094	40.393340	-77.012280	Bedding	245	45
SV-06-095	40.395720	-77.007490	Bedding	257	35
SV-06-095	40.395720	-77.007490	Bedding	255	35
SV-06-096	40.413730	-76.979050	Bedding	268	45
SV-06-096	40.413730	-76.979050	Bedding	260	40
SV-06-097	40.417630	-76.963870	Bedding	239	39
SV-06-097	40.417630	-76.963870	Bedding	250	40
SV-06-098	40.432950	-76.977130	Bedding	260	35
SV-06-099	40.417630	-76.963870	Bedding	231	13
SV-06-099	40.417630	-76.963870	Bedding	251	21
SV-06-100	40.422850	-76.975730	Bedding	278	11
SV-06-101	40.422550	-76.978730	Bedding	188	1
SV-06-101	40.422550	-76.978730	Bedding	351	6
SV-06-102	40.421060	-76.978760	Bedding	20	4
SV-06-103	40.432650	-76.955710	Bedding	72	55
SV-06-104	40.437010	-76.952440	Bedding	89	23
SV-06-104	40.437010	-76.952440	Bedding	77	60
SV-06-105	40.438830	-76.933810	Bedding	68	32
SV-06-105	40.438830	-76.933810	Bedding	60	48
SV-06-106	40.494680	-76.924080	Bedding	30	25
SV-06-107	40.495430	-76.929710	Bedding	33	25
SV-06-107	40.495430	-76.929710	Bedding	68	62
SV-06-108	40.495910	-76.929900	Bedding	40	9
SV-06-109	40.486260	-76.922690	Bedding	243	53
SV-06-109	40.486260	-76.922690	Bedding	250	50
SV-06-109	40.486260	-76.922690	Bedding	245	52
SV-06-109	40.486260	-76.922690	Bedding	245	51

Field Station	Latitude	Longitude	Type of Plane	Strike	Dip
SV-06-109	40.486260	-76.922690	Bedding	251	55
SV-06-110	40.492030	-76.914010	Bedding	247	43
SV-06-110	40.492030	-76.914010	Bedding	245	34
SV-06-111			Bedding	240	60
SV-06-112	40.412028	-76.930403	Bedding	259	59
SV-06-113	40.425678	-76.953838	Bedding	248	13
SV-06-114	40.494080	-76.908411	Bedding	252	59
SV-06-115	40.494632	-76.906645	Bedding	250	50
SV-06-116	40.493895	-76.904347	Bedding	248	37
SV-06-117	40.492822	-76.903845	Bedding	249	44
SV-06-118	40.470306	-76.918283	Bedding	251	34
SV-06-119	40.482210	-77.045161	Bedding	240	75
SV-06-120	40.488530	-77.037719	Bedding	278	81
SV-06-122	40.450810	-76.909170	Bedding	99	10
SV-06-122	40.450810	-76.909170	Bedding	82	13
SV-06-123	40.458370	-76.881500	Bedding	87	30
SV-06-123	40.458370	-76.881500	Bedding	72	17
SV-06-123	40.458370	-76.881500	Bedding	82	26
SV-06-123	40.458370	-76.881500	Bedding	81	41
SV-06-124	40.463330	-76.871510	Bedding	25	17
SV-06-124	40.463330	-76.871510	Bedding	53	14
SV-06-125	40,464840	-76.880630	Bedding	60	35
SV-06-125	40,464840	-76.880630	Bedding	54	32
SV-06-126	40.469110	-76.898950	Bedding	59	11
SV-06-126	40.469110	-76,898950	Bedding	60	14
SV-06-127	40.468520	-76,914170	Bedding	53	23
SV-06-127	40.468520	-76.914170	Bedding	60	19
SV-06-127	40.468520	-76.914170	Bedding	54	14
SV-06-128	40.472700	-76.906650	Bedding	240	24
SV-06-128	40.472700	-76.906650	Bedding	255	26
SV-06-129	40.482190	-76.899890	Bedding	243	24
SV-06-129	40.482190	-76.899890	Bedding	262	34
SV-06-130	40.480460	-76.886820	Bedding	255	38
SV-06-130	40.480460	-76.886820	Bedding	254	37
SV-06-131	40.444280	-76.874520	Bedding	86	73
SV-06-131	40.444280	-76.874520	Bedding	93	84
SV-06-132	40.442980	-76.877830	Bedding	255	50
SV-06-132	40.442980	-76.877830	Bedding	258	44
SV-06-132	40.442980	-76.877830	Bedding	250	11
SV-06-132	40.442980	-76.877830	Bedding	260	40
SV-06-132	40.442980	-76.877830	Bedding	265	40
SV-06-132	40.442980	-76.877830	Bedding	245	68
SV-06-132	40.442980	-76.877830	Bedding	260	50
SV-06-133	40.416200	-76.889000	Bedding	70	63
SV-06-133	40.416200	-76.889000	Bedding	68	87
SV-06-134	40.416700	-76.887100	Bedding	75	64
SV-06-135	40.399400	-76.928700	Bedding	60	64
SV-06-136	40.387000	-76.957100	Bedding	250	43
SV-06-137	40.380900	-76.965200	Bedding	80	59
SV-06-138	40.372600	-76.958600	Bedding	64	65
SV-06-139	40.435000	-76.896400	Bedding	241	42
SV-06-140	40.432000	-76.901700	Bedding	72	51

SV-06-141         40.418100         -76.95700         Bedding         71         50           SV-06-142         40.425200         -76.9540400         Bedding         256         54           SV-06-143         40.430900         -76.997800         Bedding         280         32           SV-06-145         40.445100         -76.897800         Bedding         281         34           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-146         40.371100         -76.928000         Bedding         253         74           SV-06-148         40.407700         -76.891200         Bedding         259         38           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-1512         40.5000         -76.871000         Bedding         268         31           SV-06-154         40.451700         -77.020200         Bedding         264         56           SV-06-154         40.451700         -77.020200         Bedding         264         41           SV-06-155	Field Station	Latitude	Longitude	Type of Plane	Strike	Dip
SV-06-142         40.425200         -76.954040         Bedding         245         42           SV-06-143         40.43000         -76.940400         Bedding         280         35           SV-06-144         40.445100         -76.897800         Bedding         281         34           SV-06-145         40.445100         -76.897800         Bedding         281         41           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-147         40.332000         -76.928000         Overtured Bedding         253         74           SV-06-148         40.407700         -76.821700         Bedding         268         74           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-150         40.486500         -76.874700         Bedding         263         31           SV-06-154         40.451700         -77.020200         Bedding         62         55           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-155         40.452400         -77.020600         Bedding         240         41           SV-06-155 <td>SV-06-141</td> <td>40.418100</td> <td>-76.957700</td> <td>Bedding</td> <td>71</td> <td>50</td>	SV-06-141	40.418100	-76.957700	Bedding	71	50
SV-06-143         40.430900         -76.940400         Bedding         350         5           SV-06-144         40.443000         -76.897800         Bedding         280         32           SV-06-145         40.445100         -76.897800         Bedding         82         41           SV-06-146         40.371100         -76.928000         Bedding         281         78           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-146         40.371100         -76.928000         Bedding         253         74           SV-06-148         40.407700         -76.821700         Bedding         259         38           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-152         40.50000         -76.874700         Bedding         263         34           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         60         44           SV-06-154         40.452400         -77.020600         Bedding         20         41           SV-06-159 <t< td=""><td>SV-06-142</td><td>40.425200</td><td>-76.958900</td><td>Bedding</td><td>245</td><td>42</td></t<>	SV-06-142	40.425200	-76.958900	Bedding	245	42
SV-06-144         40.443600         -76.897800         Bedding         280         32           SV-06-145         40.445100         -76.897800         Bedding         251         78           SV-06-146         40.371100         -76.928000         Bedding         221         78           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-147         40.382600         -76.891200         Bedding         259         38           SV-06-149         40.486500         -76.891200         Bedding         270         50           SV-06-149         40.486500         -76.874700         Bedding         283         41           SV-06-153         40.494200         -77.020200         Bedding         283         45           SV-06-154         40.451700         -77.020200         Bedding         248         56           SV-06-154         40.452400         -77.020200         Bedding         240         41           SV-06-155         40.452400         -77.02200         Bedding         240         41           SV-06-159	SV-06-143	40.430900	-76.940400	Bedding	350	5
SV-06-145         40.445100         -76.897800         Bedding         255         54           SV-06-146         40.371100         -76.928000         Bedding         241         85           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-148         40.407700         -76.821700         Bedding         259         38           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-150         40.486300         -76.87100         Bedding         263         34           SV-06-152         40.500600         -76.87000         Bedding         263         34           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         240         41           SV-06-155         40.452400         -77.020200         Bedding         240         41           SV-06-155         40.452400         -77.025420         Bedding         240         41           SV-06-159	SV-06-144	40.443600	-76.896400	Bedding	280	32
SV-06-145         40.445100         -76.8928000         Bedding         82         41           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-147         40.382600         -76.921800         Overturned Bedding         253         74           SV-06-149         40.486500         -76.891200         Bedding         259         38           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-152         40.500600         -76.87000         Bedding         283         34           SV-06-153         40.494200         -76.87000         Bedding         283         34           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         60         44           SV-06-155         40.452400         -77.020200         Bedding         60         40           SV-06-155         40.452400         -77.020400         Bedding         240         41           SV-06-159 <td>SV-06-145</td> <td>40.445100</td> <td>-76.897800</td> <td>Bedding</td> <td>255</td> <td>54</td>	SV-06-145	40.445100	-76.897800	Bedding	255	54
SV-06-146         40.371100         -76.928000         Bedding         251         78           SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-146         40.371100         -76.928000         Bedding         253         74           SV-06-147         40.382600         -76.901800         Overturned Bedding         253         74           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-152         40.500600         -76.871200         Bedding         283         45           SV-06-154         40.451700         -77.020200         Bedding         283         45           SV-06-154         40.451700         -77.020200         Bedding         240         41           SV-06-155         40.452400         -77.020600         Bedding         240         42           SV-06-155         40.452400         -77.022600         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-16	SV-06-145	40.445100	-76.897800	Bedding	82	41
SV-06-146         40.371100         -76.928000         Bedding         248         66           SV-06-147         40.382600         -76.901800         Overturmed Bedding         223         74           SV-06-148         40.407700         -76.821700         Bedding         259         38           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-150         40.483000         -76.87000         Bedding         263         31           SV-06-152         40.500600         -76.87000         Bedding         80         56           SV-06-153         40.494200         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-155         40.452400         -77.020200         Bedding         60         44           SV-06-155         40.452400         -77.020200         Bedding         240         41           SV-06-159         40.452400         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.028070         Bedding         240         41           SV-06-160	SV-06-146	40.371100	-76.928000	Bedding	251	78
SV-06-146         40.371100         -76.928000         Bedding         238         64           SV-06-147         40.382600         -76.901800         Overturned Bedding         263         74           SV-06-148         40.407700         -76.821700         Bedding         259         38           SV-06-149         40.486500         -76.891200         Bedding         259         38           SV-06-150         40.483000         -76.874700         Bedding         238         31           SV-06-152         40.500600         -76.874700         Bedding         38         34           SV-06-154         40.451700         -77.020200         Bedding         60         66           SV-06-154         40.451700         -77.020600         Bedding         60         44           SV-06-155         40.452400         -77.020600         Bedding         60         44           SV-06-159         40.452400         -77.02600         Bedding         240         41           SV-06-159         40.453360         -77.025420         Bedding         240         42           SV-06-160         40.436250         -77.028070         Bedding         240         41           SV-06-160 <td>SV-06-146</td> <td>40.371100</td> <td>-76.928000</td> <td>Bedding</td> <td>248</td> <td>66</td>	SV-06-146	40.371100	-76.928000	Bedding	248	66
SV-06-147         40.382600         -76.901800         Overturned Bedding         253         74           SV-06-148         40.407700         -76.821700         Bedding         268         74           SV-06-149         40.486500         -76.891200         Bedding         270         50           SV-06-150         40.486500         -76.891200         Bedding         283         31           SV-06-152         40.500600         -76.874700         Bedding         284         56           SV-06-154         40.451700         -77.020200         Bedding         80         56           SV-06-154         40.451700         -77.020200         Bedding         204         41           SV-06-155         40.452400         -77.020600         Bedding         204         41           SV-06-155         40.452400         -77.020600         Bedding         204         41           SV-06-159         40.459360         -77.025420         Bedding         234         41           SV-06-159         40.459360         -77.028070         Bedding         240         42           SV-06-160         40.436250         -77.028070         Bedding         243         45           SV-06-160	SV-06-146	40.371100	-76.928000	Bedding	238	64
SV-06-148         40.407700         -76.821700         Bedding         268         74           SV-06-149         40.486500         -76.891200         Bedding         270         50           SV-06-150         40.483000         -76.883000         Bedding         263         31           SV-06-152         40.500600         -76.874700         Bedding         283         56           SV-06-153         40.494200         -76.870000         Bedding         38         34           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         60         40           SV-06-155         40.452400         -77.020600         Bedding         60         30           SV-06-155         40.452400         -77.020600         Bedding         240         41           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         243         42           SV-06-160	SV-06-147	40.382600	-76.901800	Overturned Bedding	253	74
SV-06-149         40.486500         -76.891200         Bedding         259         38           SV-06-149         40.486500         -76.891200         Bedding         263         31           SV-06-150         40.483000         -76.874700         Bedding         248         56           SV-06-152         40.500600         -76.874700         Bedding         38         34           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         62         55           SV-06-154         40.451700         -77.020200         Bedding         60         40           SV-06-155         40.452400         -77.020600         Bedding         60         30           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-159         40.459360         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         <	SV-06-148	40.407700	-76.821700	Bedding	268	74
SV-06-149         40.486500         -76.891200         Bedding         270         50           SV-06-150         40.483000         -76.874700         Bedding         248         56           SV-06-152         40.500600         -76.874700         Bedding         38         34           SV-06-153         40.494200         -76.870000         Bedding         80         56           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         60         44           SV-06-155         40.452400         -77.020600         Bedding         60         40           SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         241         12           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         <	SV-06-149	40.486500	-76.891200	Bedding	259	38
SV-06-150         40.483000         -76.883000         Bedding         263         31           SV-06-152         40.500600         -76.874700         Bedding         248         56           SV-06-153         40.494200         -76.870000         Bedding         80         56           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         60         44           SV-06-155         40.452400         -77.020600         Bedding         60         30           SV-06-155         40.452400         -77.020600         Bedding         60         30           SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         <	SV-06-149	40.486500	-76.891200	Bedding	270	50
SV-06-152         40.500600         -76.874700         Bedding         248         56           SV-06-153         40.494200         -76.870000         Bedding         38         34           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         62         55           SV-06-155         40.452400         -77.020600         Bedding         60         44           SV-06-155         40.452400         -77.020600         Bedding         60         30           SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         41           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-161         <	SV-06-150	40.483000	-76.883000	Bedding	263	31
SV-06-153         40.494200         -76.870000         Bedding         38         34           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         62         55           SV-06-154         40.451700         -77.020600         Bedding         60         44           SV-06-155         40.452400         -77.020600         Bedding         60         30           SV-06-155         40.452400         -77.020600         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-169         40.459360         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         23           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         43           SV-06-161         <	SV-06-152	40.500600	-76.874700	Bedding	248	56
SV-06-154         40.451700         -77.020200         Bedding         80         56           SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         62         55           SV-06-155         40.452400         -77.020600         Bedding         60         40           SV-06-155         40.452400         -77.020600         Bedding         60         30           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-159         40.459360         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         243         23           SV-06-161         40.470400         -77.028070         Bedding         243         43           SV-06-161         <	SV-06-153	40.494200	-76.870000	Bedding	38	34
SV-06-154         40.451700         -77.020200         Bedding         60         46           SV-06-154         40.451700         -77.020200         Bedding         62         55           SV-06-155         40.452400         -77.020600         Bedding         60         40           SV-06-155         40.452400         -77.020600         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         241         12           SV-06-160         40.436250         -77.028070         Bedding         247         11           SV-06-160         40.436250         -77.028070         Bedding         243         43           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163	SV-06-154	40.451700	-77.020200	Bedding	80	56
SV-06-154         40.451700         -77.020200         Bedding         62         55           SV-06-155         40.452400         -77.020600         Bedding         60         44           SV-06-155         40.452400         -77.020600         Bedding         60         44           SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         240         42           SV-06-160         40.436250         -77.028070         Bedding         243         43           SV-06-161         40.470400         -77.030500         Bedding         244         42           SV-06-163	SV-06-154	40.451700	-77.020200	Bedding	60	46
SV-06-155         40.452400         -77.020600         Bedding         240         41           SV-06-155         40.452400         -77.020600         Bedding         60         40           SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         247         11           SV-06-160         40.436250         -77.028070         Bedding         244         42           SV-06-160         40.436250         -77.028070         Bedding         243         43           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163	SV-06-154	40.451700	-77.020200	Bedding	62	55
SV-06-155         40.452400         -77.020600         Bedding         60         44           SV-06-155         40.452400         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         234         41           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-159         40.459360         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-161         40.470400         -77.030500         Bedding         244         42           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163	SV-06-155	40.452400	-77.020600	Bedding	240	41
SV-06-155         40.452400         -77.020600         Bedding         60         30           SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         234         41           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         244         11           SV-06-160         40.436250         -77.028070         Bedding         243         23           SV-06-161         40.470400         -77.030500         Bedding         244         42           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163	SV-06-155	40.452400	-77.020600	Bedding	60	44
SV-06-159         40.459360         -77.025420         Bedding         240         42           SV-06-159         40.459360         -77.025420         Bedding         234         41           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         244         42           SV-06-161         40.470400         -77.028070         Bedding         243         43           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163	SV-06-155	40.452400	-77.020600	Bedding	60	30
SV-06-159         40.459360         -77.025420         Bedding         234         41           SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         244         11           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-161         40.436250         -77.028070         Bedding         243         43           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.47910         -77.043530         Bedding         327         70           SV-06-164	SV-06-159	40.459360	-77.025420	Bedding	240	42
SV-06-159         40.459360         -77.025420         Bedding         240         41           SV-06-160         40.436250         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         247         11           SV-06-160         40.436250         -77.028070         Bedding         244         42           SV-06-161         40.436250         -77.028070         Bedding         243         43           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-164         40.479110         -77.043530         Bedding         252         72           SV-06-165	SV-06-159	40.459360	-77.025420	Bedding	234	41
SV-06-160         40.436250         -77.028070         Bedding         210         10           SV-06-160         40.436250         -77.028070         Bedding         270         12           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         243         24           SV-06-160         40.436250         -77.028070         Bedding         244         42           SV-06-161         40.436250         -77.028070         Bedding         243         43           SV-06-161         40.470400         -77.030500         Bedding         244         42           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-163         40.477910         -77.043530         Bedding         76         90           SV-06-164	SV-06-159	40.459360	-77.025420	Bedding	240	41
SV-06-160         40.436250         -77.028070         Bedding         270         12           SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         260         28           SV-06-160         40.436250         -77.028070         Bedding         243         21           SV-06-161         40.436250         -77.028070         Bedding         238         21           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         70         86           SV-06-164         40.479110         -77.043530         Bedding         76         90           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-165	SV-06-160	40.436250	-77.028070	Bedding	210	10
SV-06-160         40.436250         -77.028070         Bedding         244         12           SV-06-160         40.436250         -77.028070         Bedding         260         28           SV-06-160         40.436250         -77.028070         Bedding         260         28           SV-06-160         40.436250         -77.028070         Bedding         243         21           SV-06-161         40.436250         -77.028070         Bedding         238         21           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         252         88           SV-06-165         40.486090         -77.030810         Bedding         250         72           SV-06-166	SV-06-160	40.436250	-77.028070	Bedding	270	12
SV-06-160         40.436250         -77.028070         Bedding         243         25           SV-06-160         40.436250         -77.028070         Bedding         260         28           SV-06-160         40.436250         -77.028070         Bedding         247         11           SV-06-160         40.436250         -77.028070         Bedding         238         21           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         250         88           SV-06-165         40.486090         -77.030810         Bedding         260         82           SV-06-167	SV-06-160	40.436250	-77.028070	Bedding	244	12
SV-06-160         40.436250         -77.028070         Bedding         260         28           SV-06-160         40.436250         -77.028070         Bedding         247         11           SV-06-160         40.436250         -77.028070         Bedding         238         21           SV-06-161         40.470400         -77.030500         Bedding         240         42           SV-06-161         40.470400         -77.030500         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-163         40.479110         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.030810         Bedding         250         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-167	SV-06-160	40.436250	-77.028070	Bedding	243	25
SV-06-160         40.436250         -77.028070         Bedding         247         11           SV-06-160         40.436250         -77.028070         Bedding         238         21           SV-06-161         40.470400         -77.030500         Bedding         240         42           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         260         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-166         Bedding         259         81         SV-06-167         40.446900         -77.029000         Bedding <td>SV-06-160</td> <td>40.436250</td> <td>-77.028070</td> <td>Bedding</td> <td>260</td> <td>28</td>	SV-06-160	40.436250	-77.028070	Bedding	260	28
SV-06-160         40.436250         -77.028070         Bedding         238         21           SV-06-161         40.470400         -77.030500         Bedding         240         42           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         327         70           SV-06-165         40.486090         -77.030810         Bedding         76         90           SV-06-165         40.486090         -77.029000         Bedding         252         72           SV-06-166         Bedding         259         81         55         55         55         55         55	SV-06-160	40.436250	-77.028070	Bedding	247	11
SV-06-161         40.470400         -77.030500         Bedding         240         42           SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.046120         Bedding         76         90           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-166         Bedding         259         81         S5         SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.448060         -77.030230	SV-06-160	40.436250	-77.028070	Bedding	238	21
SV-06-161         40.470400         -77.030500         Bedding         243         43           SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.046120         Bedding         71         86           SV-06-164         40.479110         -77.030810         Bedding         260         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-166         Bedding         259         81         33         36           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.448060         -77.030230         Bedding         252         11           SV-06-168         40.47228	SV-06-161	40,470400	-77.030500	Bedding	240	42
SV-06-163         40.477950         -77.043530         Bedding         237         70           SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.043530         Bedding         71         86           SV-06-164         40.479110         -77.046120         Bedding         76         90           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-165         40.486090         -77.029000         Bedding         248         55           SV-06-166         Bedding         233         36         32         32         32           SV-06-167         40.446900         -77.030230         Bedding         228         21           SV-06-168         40.472280         -77.040250         Bedding         252         11           SV-06-170	SV-06-161	40,470400	-77.030500	Bedding	243	43
SV-06-163         40.477950         -77.043530         Bedding         242         88           SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.046120         Bedding         76         90           SV-06-164         40.479110         -77.030810         Bedding         260         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-165         40.486090         -77.029000         Bedding         252         72           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.446900         -77.030230         Bedding         252         11           SV-06-168         40.472280         -77.040250         Bedding         252         11           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171	SV-06-163	40.477950	-77.043530	Bedding	237	70
SV-06-163         40.477950         -77.043530         Bedding         252         88           SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.046120         Bedding         71         86           SV-06-164         40.479110         -77.046120         Bedding         76         90           SV-06-165         40.486090         -77.030810         Bedding         260         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-165         40.486090         -77.029000         Bedding         259         81           SV-06-166         Bedding         233         36         35         36         36           SV-06-167         40.446900         -77.030230         Bedding         233         36           SV-06-168         40.442806         -77.040250         Bedding         252         11           SV-06-169         40.472280         -77.056970         Bedding         251         51           SV-06-170         40.442440         -77.108780         Bedding         251         61           SV-06-171	SV-06-163	40.477950	-77.043530	Bedding	242	88
SV-06-163         40.477950         -77.043530         Bedding         327         70           SV-06-164         40.479110         -77.046120         Bedding         71         86           SV-06-164         40.479110         -77.046120         Bedding         76         90           SV-06-165         40.486090         -77.030810         Bedding         260         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-166         Bedding         259         81           SV-06-166         Bedding         248         55           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.446900         -77.030230         Bedding         228         21           SV-06-168         40.472280         -77.040250         Bedding         252         11           SV-06-169         40.472280         -77.056970         Bedding         251         51           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         253         64<	SV-06-163	40.477950	-77.043530	Bedding	252	88
SV-06-164         40.479110         -77.046120         Bedding         71         86           SV-06-164         40.479110         -77.046120         Bedding         76         90           SV-06-165         40.486090         -77.030810         Bedding         260         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-166         Bedding         259         81           SV-06-167         40.446900         -77.029000         Bedding         248         55           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-168         40.448060         -77.030230         Bedding         228         21           SV-06-169         40.472280         -77.040250         Bedding         251         51           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-171         40.471210         -77.071000         Bedding         253         64	SV-06-163	40.477950	-77.043530	Bedding	327	70
SV-06-164         40.479110         -77.046120         Bedding         76         90           SV-06-165         40.486090         -77.030810         Bedding         260         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-165         40.486090         -77.029000         Bedding         259         81           SV-06-166         Bedding         248         55           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.446900         -77.030230         Bedding         228         21           SV-06-168         40.448060         -77.030230         Bedding         228         21           SV-06-169         40.472280         -77.056970         Bedding         251         51           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         263         66	SV-06-164	40.479110	-77.046120	Bedding	71	86
SV-06-165         40.486090         -77.030810         Bedding         260         82           SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-166         Bedding         259         81           SV-06-167         40.446900         -77.029000         Bedding         248         55           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.446900         -77.029000         Bedding         228         21           SV-06-168         40.448060         -77.030230         Bedding         228         21           SV-06-169         40.472280         -77.040250         Bedding         252         11           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         263         66	SV-06-164	40.479110	-77.046120	Bedding	76	90
SV-06-165         40.486090         -77.030810         Bedding         252         72           SV-06-166         Bedding         259         81           SV-06-167         40.446900         -77.029000         Bedding         248         55           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.446900         -77.030230         Bedding         228         21           SV-06-168         40.448060         -77.030230         Bedding         252         11           SV-06-169         40.472280         -77.040250         Bedding         252         11           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         251         61           SV-06-171         40.471210         -77.071000         Bedding         253         64	SV-06-165	40.486090	-77.030810	Bedding	260	82
SV-06-166         Bedding         259         81           SV-06-167         40.446900         -77.029000         Bedding         248         55           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-167         40.446900         -77.030230         Bedding         232         21           SV-06-168         40.448060         -77.030230         Bedding         228         21           SV-06-169         40.472280         -77.040250         Bedding         252         11           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         253         64	SV-06-165	40.486090	-77.030810	Bedding	252	72
SV-06-167         40.446900         -77.029000         Bedding         248         55           SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-168         40.446900         -77.030230         Bedding         228         21           SV-06-169         40.472280         -77.040250         Bedding         252         11           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         251         61           SV-06-171         40.471210         -77.071000         Bedding         253         64	SV-06-166			Bedding	259	81
SV-06-167         40.446900         -77.029000         Bedding         233         36           SV-06-168         40.448060         -77.030230         Bedding         228         21           SV-06-169         40.472280         -77.040250         Bedding         252         11           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         251         61           SV-06-171         40.442440         -77.071000         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         263         66	SV-06-167	40,446900	-77.029000	Bedding	248	55
SV-06-168         40.448060         -77.030230         Bedding         228         21           SV-06-169         40.472280         -77.040250         Bedding         252         11           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         251         61           SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         263         66	SV-06-167	40.446900	-77.029000	Beddina	233	36
SV-06-169         40.472280         -77.040250         Bedding         252         11           SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         251         61           SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         263         66	SV-06-168	40.448060	-77.030230	Bedding	228	21
SV-06-170         40.455960         -77.056970         Bedding         251         51           SV-06-171         40.442440         -77.108780         Bedding         251         61           SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         263         66	SV-06-169	40.472280	-77.040250	Beddina	252	11
SV-06-171         40.442440         -77.108780         Bedding         251         61           SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         263         66	SV-06-170	40.455960	-77.056970	Beddina	251	51
SV-06-171         40.442440         -77.108780         Bedding         253         64           SV-06-172         40.471210         -77.071000         Bedding         263         66	SV-06-171	40.442440	-77.108780	Beddina	251	61
SV-06-172 40.471210 -77.071000 Bedding 263 66	SV-06-171	40.442440	-77.108780	Beddina	253	64
	SV-06-172	40.471210	-77.071000	Bedding	263	66



COMMONWEALTH OF PENNSYLVANIA Edward G. Rendell, Governor

- Descriptions from field observations and the following sources: Dyson, J. L., 1963, Geology and Mineral Resources of the Northern Half of the New
- Bloomfield Quadrangle, Pennsylvania Geological Survey, 4th ser., Atlas 137ab, 63 p., 1 pl., geol map. Dyson, J. L., 1967, Geology and Mineral Resources of the Southern Half of the New
- Bloomfield Quadrangle, Pennsylvania Geological Survey, 4th ser., Atlas 137cd, 86 p., 1 pl., geol map. Hoskins, D. M., 1976, Geology and mineral resources of the Millersburg 15-minute
- quadrangle, Dauphin, Juniata, Northumberland, Perry, and Snyder Counties, Pennsylvania: Pennsylvania Geological Survey, 4th ser., Atlas 146, 38 p., 2 pls.
- Miles, C. E., and Whitfield, T. G., compilers, 2001, Bedrock geology of Pennsylvania: Pennsylvania Geological Survey, 4th ser., dataset, scale 1:250,000. Miller, J.T., and Conlin, R.R., 1961, Upper Devonian Rock Stratigraphic Nomenclature
- in Pennsylvania. American Journal of Science, v.259,p. 784-790. Trexler, J.P., Wood, G.H. Jr., Arndt, H.H., 1962, Uppermost Devonian and Lower Mississippian rocks of the western part of the Anthracite Region of Eastern
- Pennsylvania, U.S. Geological Survey Professional Paper 450-C, p. 395-400. Wood, G.H., Jr. and Trexler, J.P., and Kehn, T.M., 1969, Geology of the west-central
- part of the Southern Anthracite field and adjoining areas, Pennsylvania, U.S. Geological Survey Professional Paper 602.





This geologic map was funded in part by the USGS National Cooperative Geologic Mapping Program. The base map has been modified from the USGS digital raster graphic files of the Duncannon, Elizabethville, Enders, Halifax, Harrisburg East, Harrisburg West, Millersville, Reward, and Wertzville 7.5 Minute quadrangles.

The map projection is universal transverse Mercator, UTM Zone 18 north, NAD 1927. The structural measurements were collected by the authors in 2007. This open-file report has been prepared in accordance with the open-file reporting standards of the Bureau and Topographic and Geologic Survey. It has not undergone external peer review.

This map is a single page from the open-file report referenced in the upper right corner. The complete open-file report can be obtained from the web site of the Bureau of Topographic and Geologic Survey at: <http://www.dcnr.state.pa.us/topogeo>



by Margaret S. Jackson, Peter M. Hanley, and Peter B. Sak Dickinson College 2007

Open-File Report OFBM-07-05.0

E	XPLANAT	IC	ON		
IC DNS	FORMATION O LITHOLOGIC UNIT	R	ENVIRONMENTAL CHARACTERISTICS <sup>1</sup>		
ion. Contacts from	DIABASE		Small in areal extent. Characteristics not analyzed for this quadrangle.		
ay fine and coarse tic sandstone and 976). Thickness is 1969).	POTTSVILLE FORMATION		Median groundwater yield is 50 gal/min. Excavation is difficult. Fair cut-slope stability. Good foundation stability, except where on or above underclay. Good source of road material and fill, building		
es and shale with nd conglomeratic sandstone consists cemented in a fine proximately 5,000	MAUCH CHUNK FORMATION Mmc	2	Median groundwater yield is 55 gal/min. Extensively developed for water supply. Water quality is good. Excavation is moderately easy to moderately difficult. Good cut-slope stability unless resistant beds are undercut. Good foundation stability.		
bedded and cross- neratic sandstone. "ine to very coarse ed, and micaceous. eet.	POCONO FORMATION Mp		Good source of road material and fill. Median groundwater yield is 40 gal/min. Water is soft. High iron may be a problem. Excavation is difficult. Good cut-slope stability; subject to rockfalls if cut and joint surfaces are favorably oriented. Good foundation stability. Good source of building stone, embankment facing, road material, and riprap.		
medium-grained rading upward into iddle of the unit is parse conglomeratic ximately 435 feet	SPECHTY KOPF FORMATION MDsk	Ň	Generally unproductive on ridge crests but favorable for development below ridge crests. Median groundwater yield is 25 gal/min. Water quality is generally good; iron content may be high. Excavation is difficult. Good cut-slope stability, except rockfalls may occur in steep cuts, or where slope parallels bedding. Foundation stability is excellent. Good source of crushed stone and aggregate, riprap, and fill		
aystone to red clay ning up sequences poorly exposed red e top. Thickness	DUNCANNON MEMBER Dcd		Well yields are good. Sandstones are the best water- bearing units. Water quality is generally good; Irish Valley Member may have hydrogen sulfide. Excavation is difficult. Cut-slope stability is good in sandstone and conglomerate; siltstone and shale disintegrate regidly, undergutting of register		
ay and light-gray ceous, crossbedded sandstone and mately 700 feet.	CLARKS FERRY MEMBER Dccf	NC	disintegrate rapidly; undercutting of resistant coarser beds may result in rockfalls. Good foundation stability when excavated to sound bedrock.		
reddish-gray to us sandstone. The equences of marine ich like the Irish . Unlike the Irish fember lacks any the unit is non- olor. It is thickly ded. Thickness	SHERMAN CREEK MEMBER Dcsc	CATSKILL FORMATIC	Good source of road material and fill.		
rine assemblages of nes. The marine siltstones and fine rocks are red to is thin to medium ual beds display a pproximately 2,360	IRISH VALLEY MEMBER Dciv				
ossiliferous colored ernating thin beds ad clay rich layers atcrops in the field e layers with soil or opproximately 1070	TRIMMERS ROCH FORMATION Dtr	К	Median groundwater yield is 30 gal/min. Very soft water. May contain hydrogen sulfide and dissolved solids. Excavation is moderately difficult. Cut-slope stability is good in sandstone, fair in siltstone and shale. Good foundation stability. Good source of road material and fill.		
quartz sandstone one. Cross-bedding e beds. Thickness	HAMILTON GROU	JР	<ul> <li>Well yields range from 1 to 300 gal/min; median is 50 gal/min. Water may have high iron and sulfide content. Hydrogen sulfide gas is common.</li> <li>Excavation is moderately easy to difficult. Cut-slope stability is good in sandstone, fair in shale. Good foundation stability.</li> <li>Good source of road material, building stone, riprap,</li> </ul>		
ray argillaceous nd non-calcareous rk- and olive-gray claystone, and approximately 260	ONONDAGA ANI OLD PORT FORMATIONS, UNDIVIDED Doo	D	<ul> <li>Well yields range from 1 to 100 gal/min; median is 10 gal/min. Water from shale may contain iron and hydrogen sulfide.</li> <li>Excavation is difficult. Cut-slope and foundation stability are good.</li> <li>Good source of road material, sand, and fill.</li> </ul>		
ous, nodular, platy, olive-gray shaly	KEYSER AND TONOLOWAY FORMATIONS, UNDIVIDED DSkt		Median groundwater yield is 30 gal/min. Water may be hard, and may have high iron. Excavation is difficult; bedrock pinnacles are a special problem. Cut-slope stability is good; fair if highly fractured. Good foundation stability; should be thoroughly investigated for solution openings. Good source of road material, riprap, embankment		
ion. Contacts from	WILLS CREEK FORMATION Swc		Characteristics not analyzed for this quadrangle.		
eous siltstone and ne. The sandstone pproximately 1440	BLOOMSBURG AN MIFFLINTOWN FORMATIONS, UNDIVIDED Sbm	1D	Median well yield is 45 gal/min. Hydrogen sulfide has been noted in some wells. Excavation is moderately easy. Poor cut-slope stability due to rapid disintegration when exposed to moisture. Good foundation support in sound material. Good source of road material and fill.		
ed to all lithologies mation and the g Keefer and Rose to olive-gray shaly ded, fine-grained ed "iron" sandstone he Clinton Group is	CLINTON GROUI	P	Median groundwater yield is 12 gal/min. Ridge- forming sandstone has poor topographic position for groundwater development in most areas. Moderately difficult to excavate. Good cut-slope stability and foundation support. Good source of road material and fill.		
green sandstone, ross-bedded and less approximately	TUSCARORA FORMATION St		<ul> <li>Median groundwater yield is 12 gal/min. High topographic position is unfavorable for high yields. Water quality is good. Water is soft.</li> <li>Excavation is difficult; boulder fields are a special problem. Cut slope and foundation stability are good.</li> <li>Good source of road material, riprap, aggregate, embankment facing, building stone, and silica.</li> </ul>		

Geyer, A. R., and Wilshusen, J. P., 1982, Engineering characteristics of the rocks of Pennsylvania (2<sup>nd</sup> ed.): Pennsylvania Geological Survey, 4<sup>th</sup> ser., Environmental

# Preliminary Bedrock Geologic Map of the Middle Portion of the Susquehanna River Valley, Cumberland, Dauphin, and Perry Counties, Pennsylvania

## **PRINTING INSTRUCTIONS**

All pages of the document except the geologic plate are 8.5 x 11 inches. The geologic plate is 46 inches wide and 36 inches high. To print the entire document on letter paper, simply execute the print command in Adobe Acrobat Reader or Adobe Acrobat. The geologic plate should automatically be reduced to fit on the letter-sized paper.

If you wish to plot the map at its published size of 46 x 36 inches, open the Acrobat file and display the map. Next, execute the File/Print command. When the print dialog opens click the radio button for "Current Page." Next, make sure the plotting device is selected as the current printer and open the properties for that device. Navigate to the page setup and select a paper size that is at least 46 x 36 inches. Your plotting device may include the ability to specify the exact dimensions of the paper. If you select paper that is smaller than 46 x 36 inches, the Acrobat Print dialog provides a "fit to page" option that will automatically resize the map to fit on the paper selected. Just keep in mind that the verbal scale will only be correct when the map is printed at its published size of 46 x 36 inches.

Adobe Reader - [holtwake.pdf]	
Elle Edit View Document Loois GeorDF Windo	select 📰 💽 🔹 🏹 😽 🖨 25% .
Print	21 ×
Printer	
Name (\nrtgspms01\TGS_HP5500_HPGL_GIS -	Properties
Status: Ready	Comments and Forms:
Type: HP designjet 5500ps 60 by hp	Document and Stamps
Print Range	Preview
C Current view	
Current page	<u>к                                    </u>
C Pages from: 1 to: 15	
Subset: All pages in range 🔄 🗖 Reverse pages	
Page Handling	25.99
Page <u>S</u> caling: Reduce to Printer Margins	14 8000
✓ Auto-Botate and Center	
Choose Paper Source by PDF page size	
Print to file	Units: Inches Zoom: 100%
	1/1 (15)
Printing Tins Advanced	OK Cancel
	<u></u>