

# Effects of Underground Mining in Pennsylvania 6<sup>th</sup> Report 2018-2022

PA Department of Environmental Protection

Bureau of Mining Programs

Bureau of District Mining Operations

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## Glossary of Acronyms

BAMR – Bureau of Abandoned Mine Reclamation

BMSLCA – Bituminous Mine Subsidence and Land Conservation Act

BUMIS – Bituminous Underground Mine Information System

CAC – Citizens Advisory Council

CalDMO – California District Mining Office

CCC – Citizens Coal Council

CHIA – Cumulative Hydrologic Impact Assessment

GIS – Geographic information Systems

MSI – Mine Subsidence Insurance

OSMRE – Office of Surface Mine Reclamation and Enforcement

RPZ – Rebuttable Presumption Zone

## Executive Summary

Under the Act 54 amendments to the Bituminous Mine Subsidence and Land Conservation Act (BMSLCA) of 1966, the Department is required to compile data and report findings every 5 years regarding the effects of underground mining on land, structures, and water resources. This 6th report covers the calendar years 2018 to 2022 and was completed by staff from the California District Mining Office (CalDMO) and Bureau of Mining Program (BMP) staff. Assistance with data review was provided from the Physical & Biological Sciences Branch, Technical Support Division of the Office of Surface Mining Reclamation and Enforcement (OSMRE) in 2021.

Mine operators supply information regarding complaints received, actions taken in response to mining-related incidents, regular data updates required by permit, and other self-monitoring reports. The Department's CalDMO collected field information about subsidence effects, maintained the database of subsidence claims (Bituminous Underground Mine Information System (BUMIS)), reviewed operator submitted data, produced maps of active mined areas, gathered enforcement-related actions, and supplied the digitized summaries and analysis of streams and wetland effects.

The BUMIS database tracks claims of incidents related to subsidence effects. The data is managed by the compliance staff of the CalDMO. BMP periodically downloads and reviews the information quality in BUMIS. Beginning in 2021, the Department published these tables of claims and stream impacts publicly on their website for public review and comment. This new process better reflected the Act's requirements to "compile the data on an ongoing basis" rather than to wait until the end of the 5-yr reporting period.

This 6th report contains six main data sections:

### **1. Active Mining**

The report shows 31 active underground facilities operating in Pennsylvania from 2018-2022. 12 facilities are in approved cessation or bond release/forfeiture process and 69 undergoing reclamation or water treatment.

### **2. BUMIS Impact Data Reports**

Incidents logged in BUMIS for the reporting period include the following:

- 106 claims of land damage – 82 required mine company action.
- 455 claims of structure damage – 357 required mine company action
- 273 claims of water loss – 186 required mine company action
- 173 claims of water contamination – 86 required mine company action
- 3 claims of utility effects – 2 were related to mining
- 2 claims of methane intrusion – 2 were related to mining

### **3. Streams**

79 miles of streams were undermined – 15.6 miles were impacted by subsidence-related effects of flow loss, pooling, and heaving/fractures. These effects have been or are in the process of being repaired by the mine company.

### **4. Wetlands**

Wetland effects cannot be integrated into BUMIS. Reporting, depiction, and analysis remain a challenge for operators and DMO staff. Reporting shows there has been a cumulative increase in wetland acres created post-mining versus pre-mining acres of wetlands for all sites where data has been compiled.

### **5. Enforcement Actions**

33 enforcement actions were taken against 12 mining operations during this assessment period.

### **6. Pre-2018 claims**

39 claims filed prior to 2018 were still pending due to settlement discussions or other legal issues.

**Findings** of the report were as follows:

- Improvements noted in internal GIS capability and data gathering
- Compared to the 5th report -
- The total number of active mines decreased from 49 to 31
- Land damage claims decreased from 124 to 106
- Structure damage claims increased from 391 to 455
- Water loss and contamination claims increased from 365 to 446
- Stream miles affected decreased from 38.50 to 15.62

**Recommendations** for the Mining Program from the report are as follows:

- BUMIS database updates should proceed
- Improve GIS Capability at the District Mining Office level
- Improve Public Information Displays
- Improve Communication with Affected Parties
- Encourage and facilitate electronic submittal of data by operators
- Improve reporting, submittal, and evaluation of wetland data from operators
- Reassess the CHIA Process (Cumulative Hydrological Impact Assessment)

## Introduction

Bituminous underground mining activities in Pennsylvania are regulated by the Pennsylvania Department of Environmental Protection (the Department) under the Bituminous Mine Subsidence and Land Conservation Act (BMSLCA) of 1966 which calls for protection of structures, including buildings, homes, and cemeteries. The specific regulations pertaining to this program are codified in 25 Pa. Code Chapters 86 and 89. Protection of streams and their uses is regulated under 25 Pa Code Chapter 89 as well as the Clean Streams Law, with additional related content as part of 25 Pa. Code Chapters 93, 94, 96 and 105. An underground mine operator must demonstrate that activities are designed in such a way as to prevent damage to aquifers and perennial streams (§§ 89.35 and 89.36).

BMSLCA was amended in 1994 to include provisions for protection and restoration of water supplies affected by mining and additional remedies for structural damage. It also required regular assessment of the underground mining regulatory program. This 1994 amendment was known as “Act 54”.

Under the Act 54 amendments to BMSLCA, the Department is required to compile data and report findings regarding the effects of underground mining on land, structures, and water resources. This review is done with assistance from professionals with appropriate expertise as stipulated by Act 54. A Report is prepared and presented to the Governor, General Assembly, and the Citizens Advisory Council (CAC) every five years.

BMSLCA Section 18.1 provides the requirements for this report:

*Section 18.1. Compilation and analysis of data. --*

*(a) The department shall compile, on an ongoing basis, the information contained in deep mine permit applications, in monitoring reports and other data submitted by operators, from enforcement actions and from any other appropriate source for the purposes set forth below.*

*(b) Such data shall be analyzed by the department, utilizing the services of professionals or institutions recognized in the field, for the purpose of determining, to the extent possible, the effects of deep mining on subsidence of surface structures and features and on water resources, including sources of public and private water supplies.*

*(c) The analysis of such data and any relevant findings shall be presented in report form to the Governor, the General Assembly and to the Citizens Advisory Council of the department at five-year intervals commencing in 1993.*

*(d) Nothing contained herein shall be construed as authorizing the department to require a mine operator to submit additional information or data, except that it shall require reporting of all water loss incidents or claims of water loss.*

The Act 54 Report is deemed to be an important audit of Pennsylvania's underground mining program providing the public, organizations, and the mining industry with an opportunity to review and comment on the program which allows the Department and overseeing parties to consider program improvements.

### *Past reports*

Five previous Act 54 reports have been completed. The evolution of available tools for data gathering and reporting over the 29 years is reflected in the six reports. The first report, done internally, utilized mailed surveys and direct contact with homeowners who may have been affected by the effects of underground mining. The response rate to surveys was low. Subsequent reports used data from the Bituminous Underground Mine Information System (BUMIS) – a database that tracked incidents related to water loss, contamination, and subsidence. With the advent of Geographic Information Systems (GIS) software, more detailed maps were included in later reports.

## LIST OF REPORTS COMPLETED UNDER ACT 54 REQUIREMENTS

1. 1999 - The Effects of Subsidence Resulting from Underground Bituminous Coal Mining on Surface Structures and Features and Water Resources (1993 - 1998). Data for this report was gathered via surveys mailed directly to the owners of 1,884 properties that could have been affected by underground mining. The PA Department of Environmental Protection also produced a supplement to this report in 2001. The supplement was prepared to fulfill the Department's commitment to address unresolved issues from the 1999 report and to provide additional information on damage claims that originated during the 1993-1998 study period.
2. 2005 - The Effects of Subsidence Resulting from Underground Bituminous Coal Mining on Surface Structures and Features and on Water Resources: Second Act 54 Five-Year Report Act 54 (1998 - 2003). This report was done by the California University of Pennsylvania Dept. of Earth Sciences for the PA Department of Environmental Protection.
3. 2009 - The Effects of Subsidence Resulting from Underground Bituminous Coal Mining on Surface Structures and Features and on Water Resources, 2003 to 2008. This report was done by the University of Pittsburgh for the PA Department of Environmental Protection.
4. 2014 - The Effects of Subsidence Resulting from Underground Bituminous Coal Mining in Pennsylvania, 2008 – 2013. This report was done by the University of Pittsburgh for the PA Department of Environmental Protection. The Department produced a response in 2015 titled Assessment of the Effects of Subsidence (ACT 54) Report 2008-2013. This was an internal review of the report by Tonsor, et al., University of Pittsburgh, August 30, 2014, and related public comments.
5. 2019 - The Effects of Subsidence Resulting from Underground Bituminous Coal Mining in Pennsylvania, 2013 – 2018. This report was done by the University of Pittsburgh and the Carnegie Museum of Natural History for the PA Department of Environmental Protection.

The last five reports were contracted to a Pennsylvania university. Due to funding constraints and to streamline the reporting process, the Department chose to restructure this 6<sup>th</sup> report to more closely follow the requirements of the Act (BMSLCA Section 18.1). The procedural differences for this report compared to previous reports are as follows:

- Beginning in 2018, the Department utilized the availability of tools and applications to allow for faster data compiling and public release in order to publish claims and incidents from BUMIS to their public website. The claims tracked in BUMIS were available for viewing within weeks or months of the claim reporting date and online maps of mine progression were available via the Pennsylvania Spatial Data Access (PASDA), an online geospatial data clearinghouse. In previous reports, the contractor was supplied with special access to the Pennsylvania data that was internally stored, or they were provided with physical portable drives containing the data.
- The Bureau of Mining Programs coordinated directly with the California District Mining Office (CalDMO) in quality control and management of the data that went into BUMIS. The CalDMO's mapping section prepared the maps included in this report. CalDMO also supplied additional information on enforcement actions, stream repair and recovery reporting, stream augmentation information, hydrologic assessments, and wetland effects.
- Previous reports were structured as comprehensive projects that often went beyond what the Department viewed as the reasonable defined scope of the reports and beyond the intention of the Act. In conjunction, the costs of producing such reports expanded far beyond the capability of the program to continue in that manner. After five reports, the Department's Bureau of Mining Programs decided to focus the sixth report on the data and conclusions related to the effects of deep mining and subsidence on surface structures and features, as well as water resources.



- The five previous reports required limited direct involvement by Department personnel except in collating and distributing the data. The Department sought a partnership with their federal oversight agency, United States Department of Interior's Office of Surface Mine Reclamation & Enforcement (OSMRE), to provide an unbiased and trustworthy accounting of the data and a fresh viewpoint on the report. This partnership decision meant that the Department took on the role of data compilation, organization, and report production that was previously done by an outside party. OSMRE provided technical assistance and comments throughout this process.

#### *Interaction with OSMRE*

The Bureau of Mining Programs requested assistance for this report from the Physical & Biological Sciences Branch, Technical Support Division of the OSMRE in 2021. Regular meetings began with the OSMRE staff to discuss data collection, analysis, and various aspects of the scope of this report. OSMRE provides federal oversight of the Pennsylvania mining program. The effects of underground mining and subsidence on surface structures and features, as well as to water resources including sources of public and private water supplies, were deemed to be within the interest of OSMRE. In addition to providing guidance regarding data collection and assessment, OSMRE provided peer review of this report. The advantage of working with OSMRE was immediately evident. Department and OSMRE staff could communicate technical aspects easily and share data and expertise. There was no contract or additional cost involved in this exchange.

#### *Data sources*

The sources of the data in this report come from both the mine operators and from Department staff. The operators supplied information regarding complaints received, actions taken in response to mining-related incidents, regular data updates required by permit, and other self-monitoring reports. The Department's CalDMO collected field information about subsidence effects, maintained the database of subsidence claims (see Bituminous Underground Mine Information System (BUMIS) section), reviewed operator submitted data, gathered enforcement-related actions, and supplied the digitized summaries and analysis of streams and wetland effects.

BUMIS is the Department's database of incidents related to methane, water loss, and water supply contamination, as well as subsidence claims related to structures, land damages, streams, and utilities. The data is managed by the compliance staff of the CalDMO. Data sets related to wetlands, are submitted by operators in 5-year renewal cycles and managed outside of the BUMIS system.

Current BUMIS claims for this report (2018 - 2022) are categorized as follows: land damage, methane intrusion, structure damage, utility damage, water supply contamination, and water supply loss.

The BUMIS system is not intended to track stream recovery reports, wetland impacts and updated mine working locations, so the CalDMO utilizes GIS applications for these items.

#### *Public availability and input*

Beginning in 2021, the Department revised their public webpage on Act 54 and began publishing the BUMIS impact and streams data tables. For this 5-year review period, the Department compiled the data on an ongoing basis (as required by the Act), rather than wait until the end of the 5-year period. The data was updated at 3-6-month intervals. Subsequently, the public was able to view claims throughout this review period.

The Citizens Advisory Council (CAC) advises the Department on environmental laws, Department initiatives, and work results. Because there is no Department advisory group related to underground coal mining, the CAC is the appropriate advisory group to review the Act 54 Report. For the past reports, Mining Program staff have presented the summary to the CAC, responded to Council questions, and supplied additional supporting information.

The Citizens Coal Council (CCC), headquartered out of Washington, PA, is a private group that had regularly interacted with Mining Program staff regarding subsidence issues related to longwall mining. The group also interacted with the CAC through a common member on both Councils.

In February 2021, the CCC addressed a letter to the Department Secretary Patrick McDonnell regarding "Structure and Water Resource Impacts Due to Longwall Mining Operations". In this letter, the CCC listed

19 items/questions for Departmental response and requested quarterly meetings. The Department responded to each item in a reply dated April 1, 2021. Beginning in May of 2021, the CCC met with Mining Program staff seven times in conference calls to discuss in detail the concerns expressed by the CCC.

The Department reviewed and considered all comments and suggestions made by the CCC. The comments on previous reports prompted the Mining Program to take a more active approach to this Act 54 report. This new approach led to the initiative to make the latest data available on the website for download and to include additional wetlands data analysis. The discussions with the CCC allowed the Department to better understand the concerns of coal field residents who are affected by subsidence incidents. While the Department cannot implement all the requests from the CCC due to constraints in staff, funding, scope, and legal authority, it aims to enforce the existing regulations and policies that have withstood legal challenges and been memorialized in case law.

As part of this recent Act 54 report, as with previous reports, the Department will incorporate the recommendations as thoroughly as possible. With the advent of GIS technology and the addition of technically trained staff in the CalDMO, the Department can readily supply information directly to the public regarding the effects of underground mining.

#### *Structure of this report*

The report contains six main data sections:

- Active Mining
- BUMIS Impact Data Reports
- Streams
- Wetlands
- Enforcement Actions
- Pre-2018 claims

Following these sections are the Findings, Recommendations, and Appendices.

Where suitable, the data tables have been included as part of the report text for easy reference. It was necessary, however, to include maps and larger spreadsheets as Appendices. These appendices are best viewed digitally.

This report will be published on the Department's website with easy access to download the data files.

## Active Mining

For the purpose of this report, active mining is defined as any underground mine that operated between January 01, 2018, and December 31, 2022, as determined by mine maps filed at CalDMO and annual coal production records compiled by the Bureau of Mining Program. Inclusion in this report does not mean that a mine operated continuously throughout the study period – a given mine may have begun or ceased operations at any point during the study period.

Bituminous underground mining in Pennsylvania can be grouped into two general categories: longwall mining or room and pillar mining. Longwall mining is completed in “panels” where the coal is extracted via mechanized mining equipment. The overlying strata then collapses into the void, creating the subsidence effects noted in the report. Room and pillar mining leaves supporting pillars in place, which results in fewer subsidence-related incidents. A subset of room and pillar mining is called “full retreat” where portions of the support pillars are extracted in the last stage of mining. This activity can also result in subsidence-related issues. More detailed discussion about these mining methods can be found in previous Act 54 Reports.

### *Mining Facilities Information*

The following tables contain information on the Department’s current mine operations, which include all active and inactive mine facilities and reclamation/treatment sites. Data is current as of January 2023.

To assist in tracking data from one reporting period to another the following three mines had an ownership and name change.

- Maple Creek Mine, formerly owned by Maple Creek Mining Co., is now owned by Washington County Land Res Inc.
- Mine Eighty-Four (84) was renamed to Washington County Mine. Formerly owned by Eighty-Four Mining Co, it is now owned by Washington County Land Res Inc.
- Blacksville #2 Mine was renamed to Monongalia County Mine. Formerly owned by CONSOL PA Coal Co LLC, it is now owned by Monongalia County Coal Co.

### Summary of Mine Status

**Table 1: Summary of Mine Facilities** shows the overall status of the mining operations being tracked by the Department:

**Table 1. Summary of Mine Facilities**

<b>Facilities</b>	<b>Table</b>	<b>Description</b>	<b>Total</b>
Active Mine Facilities	2a.	Active	28
Active Mine Facilities in WV	2a.	Active in WV	3
Inactive Mine Facilities	2b.	Approved Cessation, Bond Released, Bond Forfeiture	12
Under Reclamation/ Treatment Sites	2c.	Facilities are Undergoing Reclamation and/or Treatment	69

A more detailed explanation of the descriptions in Table 1 is as follows:

- Active: The company is actively mining coal, or the company began the staging process to mine.
- Approved Cessation: The operation is temporarily suspended by request from the operator.

- Bond Released: The company has completed their reclamation requirements and the site bonds have been returned.
- Bond Forfeiture: The operator has forfeited the mine site, and the state has seized the bond to be used for reclamation work.
- Active in WV: Operations are currently active solely within the West Virginia portion of the mine.
- Under Reclamation/Treatment: The company is currently in a stage of reclaiming the mine site or only operating water treatment systems.

**Tables 2a: Active Mine Facilities, 2b: Inactive Mine Facilities, and 2c: Mine Facilities Undergoing Reclamation or Treatment** provides a detailed account of the facilities in **Table 1. Summary of Mines Facilities**.

Table 1a. Active Mine Facilities

Company Name	Mine Name	Permit	Type	Status	Coal Seam	County
Dana Mining Co of PA LLC	4 West Mine	30031301	Room and Pillar	Active	Sewickley	Greene
Wilson Creek Energy LLC	Acosta Deep Mine	56111302	Room and Pillar	Active	Middle Kittanning	Somerset
CONSOL PA Coal Co LLC	Bailey Deep Mine	30841316	Longwall	Active	Pittsburgh	Greene
Rosebud Mining Co	Barrett Deep Mine	32051301	Room and Pillar	Active	Lower Kittanning	Indiana
Rosebud Mining Co	Brush Valley Mine	32041301	Room and Pillar	Active	Lower Kittanning/ Upper Kittanning	Indiana
Rosebud Mining Co	Coral Graceton Mine	32081301	Room and Pillar	Active	Lower Kittanning	Indiana
Dana Mining Co of PA LLC	Crawdad Portal B Mine	30001301	Room and Pillar, Full Extraction	Active	Sewickley	Greene
Rosebud Mining Co	Cresson Mine	11051301	Room and Pillar	Active	Upper Kittanning	Cambria
Rosebud Mining Co	Crooked Creek Mine	32131303	Room and Pillar	Active	Upper Kittanning / Upper Freeport	Indiana
Iron Cumberland LLC	Cumberland Mine	30831303	Longwall	Active	Pittsburgh	Greene
Rosebud Mining Co	Darmac No. 2 Mine	03871303	Room and Pillar	Active	Upper Kittanning	Armstrong
Rosebud Mining Co	Dutch Run Mine	32971302	Room and Pillar	Active	Upper Kittanning	Indiana
CONSOL PA Coal Co LLC	Enlow Fork Mine	30841317	Longwall	Active	Pittsburgh	Greene
Rosebud Mining Co	Harmony Mine	17071301	Room and Pillar	Active	Upper Kittanning	Clearfield
CONSOL PA Coal Co LLC	Harvey Mine	30121301	Longwall	Active	Pittsburgh	Greene
Rosebud Mining Co	Heilwood Mine	32061303	Room and Pillar	Active	Lower Kittanning	Indiana
Roxcoal Inc.	Horning Deep Mine	56071301	Room and Pillar	Active	Lower Kittanning	Somerset
Rosebud Mining Co	Knob Creek Mine	32061302	Room and Pillar	Active	Upper Kittanning / Upper Freeport	Indiana
Rosebud Mining Co	Kocjancic Mine	33071301	Room and Pillar	Active	Lower Kittanning	Jefferson
Rosebud Mining Co	Lowry Deep Mine	32031301	Room and Pillar	Active	Lower Kittanning	Indiana
Rosebud Mining Co	Madison Mine	11031301	Room and Pillar	Active	Upper Kittanning	Cambria
LCT Energy LP	Maple Springs Mine	56111303	Room and Pillar	Active	Lower Kittanning	Somerset
Marshall County Coal Res Inc	Marshall County Mine	30161301	Longwall	Active (WV Portal)	Pittsburgh	Greene
Rosebud Mining Co.	Mine 78	56841328	Room and Pillar	Active	Upper Kittanning / Upper Freeport	Somerset
The Monongalia County Coal Company	Monongalia County Mine	30841312	Longwall	Active (WV Portal)	Pittsburgh	Greene
AK Coal Resources Inc	North Fork Mine	56121301	Room and Pillar	Active	Middle Kittanning	Somerset
Rosebud Mining Co	Parkwood Mine	03981301	Room and Pillar	Active	Upper Kittanning	Armstrong
Rosebud Mining Co	Penfield Mine	17041301	Room and Pillar	Active	Lower Kittanning	Clearfield

<b>Company Name</b>	<b>Mine Name</b>	<b>Permit</b>	<b>Type</b>	<b>Status</b>	<b>Coal Seam</b>	<b>County</b>
Quecreek Mining Inc	Quecreek No. 1 Mine	56981301	Room and Pillar	Active	Upper Kittanning	Somerset
LCT Energy, LP	Rustic Ridge #1 Mine	65131301	Room and Pillar	Active	Lower Kittanning	Westmoreland
Tunnel Ridge, LLC	Tunnel Ridge Mine	63091301	Longwall (Portal in WV)	Active (WV Portal)	Pittsburgh	Washington

Table 2b. Inactive Mine Facilities

<b>Company</b>	<b>Site Name</b>	<b>Permit No.</b>	<b>Status</b>	<b>County</b>
PBS Coals, Inc	A Seam Deep Mine	56101301	Inactive	Somerset
Roxcoal Inc.	Agustus Deep Mine Portal	56951301	Inactive	Somerset
Washington County Land Resources Inc	Blacksville #2/ Washington County Mine	63831302	Inactive	Washington
LCT Energy LP	Cass No. 1 Mine	56111301	Inactive	Somerset
Iron Emerald LLC	Emerald Deep Mine No. 1	30841307	Inactive	Greene
Washington County Land Resources Inc	High Quality Mine	63921301	Inactive	Washington
Rosebud Mining Co	Logansport Mine	03991301	Inactive	Armstrong
Elk Lick Energy Inc	Roytown Mine	56021301	Inactive	Somerset
Washington County Land Resources Inc	Washington County Mine	63831302	Inactive	Washington
Rosebud Mining Co	Cherry Tree Mine	17031301	Inactive	Clearfield
CWMM LLC	CW Morgan Mine	30101301	Inactive	Greene
Rosebud Mining Co	Fulton Run Mine	32201301	Inactive	Indiana

Table 2c. Mine Facilities Undergoing Reclamation or Treatment

Company	Site Name	Permit No.	Status	County
Doverspike Bros Coal Co	Dora 6 Deep Mine	33841303	Under Reclamation/Treatment	Jefferson
Lion Mining Co	Grove 1 Deep Mine	56841306	Under Reclamation/Treatment	Somerset
Rayne Energy Inc	Rayne 1 Mine	32841322	Under Reclamation/Treatment	Indiana
Miller Springs Remediation Mgmt Inc	Bird 2 3 Deep Mine	56841321	Under Reclamation/Treatment	Somerset
Pristine Resources Land LLC	Cambria 33 Deep Mine	11841301	Under Reclamation/Treatment	Cambria
Eastern Associated Coal LLC	Colver Treatment Facility	11131301	Under Reclamation/Treatment	Cambria
Keystone Land Resources Inc	David Dianne Mine	03841302	Under Reclamation/Treatment	Armstrong
CONSOL PA Coal Co LLC	Dilworth-Cornerstone Ministry Ctr	30841313	Under Reclamation/Treatment	Greene
Homer City Generation LP	Dixon Run Central Treatment Facility	32131301	Under Reclamation/Treatment	Indiana
Pristine Resources Land LLC	Fawn 91 Mine	10841302	Under Reclamation/Treatment	Butler
Rosebud Mining Co	Greenwich N1 & S2 Deep Mine	32841302	Under Reclamation/Treatment	Indiana
Helvetia Coal Co LLC	Helvetia Coal Lucerne 6 Mine	32841303	Under Reclamation/Treatment	Indiana
Bellaire Corp	Hutchinson Hollow Treatment Plant	32141302	Under Reclamation/Treatment	Indiana
Rosebud Mining Co	Lucerne 9 Deep Mine	32841317	Under Reclamation/Treatment	Indiana
Manor Mining & Contr Corp	Manor 44 Deep Mine	17841301	Under Reclamation/Treatment	Clearfield
CONSOL PA Coal Co LLC	Margaret 7 Mine	03801302	Under Reclamation/Treatment	Armstrong
Mon View Mining Corp	Mathies Deep Mine	63841306	Under Reclamation/Treatment	Washington
Pristine Resources Land LLC	Mine 31 AMD Plant	11141301	Under Reclamation/Treatment	Cambria
Pristine Resources Land LLC	Mine 77 AMD Plant	11141302	Under Reclamation/Treatment	Cambria
CONSOL PA Coal Co LLC	Montour #4/Hahn AMD Plant	63131302	Under Reclamation/Treatment	Washington
Tesone Land Co	Penn Allegh 2	02841304	Under Reclamation/Treatment	Allegheny
PA Mines LLC	Rushton Deep Mine	14831301	Under Reclamation/Treatment	Centre
BCNR Mining Corp	Russellton Deep Mine	02841301	Under Reclamation/Treatment	Allegheny

<b>Company</b>	<b>Site Name</b>	<b>Permit No.</b>	<b>Status</b>	<b>County</b>
Rosebud Mining Co	Solar 7 Deep Mine	56841310	Under Reclamation/Treatment	Somerset
Indiana Investments Inc	Urling Mines 1, 2, & 3 Mines	32841312	Under Reclamation/Treatment	Indiana
Laurel Run Mining Co LLC	Vesta Deep Mine	63841304	Under Reclamation/Treatment	Washington
CONSOL PA Coal Co LLC	Westland 2 Deep Mine	63141301	Under Reclamation/Treatment	Washington
Rosebud Mining Co	Horning Run Passive Treatment	17131301	Under Reclamation/Treatment	Clearfield
Carpentertown Coal & Coke Co	Mahoning 2 Deep Mine	03831304	Under Reclamation/Treatment	Armstrong
Rosebud Mining Co	No. 1 Deep Mine	03841308	Under Reclamation/Treatment	Armstrong
CONSOL PA Coal Co LLC	O'Donnell 3 Mine	32841321	Under Reclamation/Treatment	Indiana
CONSOL PA Coal Co LLC	O'Donnell 4/Manor 8 Treatment System	32141301	Under Reclamation/Treatment	Indiana
Stanford Mining Co	Penn Hill 2 Deep Mine	32841309	Under Reclamation/Treatment	Indiana
Rosebud Mining Co	Rosebud No. 3 Mine	03851302	Under Reclamation/Treatment	Armstrong
AK Coal Resources Inc	Solar 10 Deep Mine	56841318	Under Reclamation/Treatment	Somerset
Amd Reclamation Inc/Dana Mining Co of PA LLC	Steele Shaft Water Treatment Facility	30141302	Under Reclamation/Treatment	Greene
CONSOL PA Coal Co LLC	Harmar Mine	02141301	Under Reclamation/Treatment	Allegheny
Roxcoal Inc	Barbara No. 1 & No. 2 Mines	56851303	Under Reclamation/Treatment	Somerset
Dana Mining Co of PA LLC	Dooley Run Mine	30841320	Under Reclamation/Treatment	Greene
Rosebud Mining Co	Gillhouser Run Mine	32011302	Under Reclamation/Treatment	Indiana
CONSOL PA Coal Co LLC	Keystone #1 CRDA (Jane Mine)	03831305	Under Reclamation/Treatment	Armstrong
Roxcoal Inc	Kimberly Run Mine	56061301	Under Reclamation/Treatment	Somerset
Rosebud Mining Co	Long Run Mine	03071301	Under Reclamation/Treatment	Armstrong
Rosebud Mining Co	No. 1 Mine (Nolo Mine)	32991301	Under Reclamation/Treatment	Indiana
Dana Mining Co of PA LLC	Prime No. 1 Deep Mine	30081302	Under Reclamation/Treatment	Greene
Roxcoal Inc	Sarah Mine	56961301	Under Reclamation/Treatment	Somerset
Dana Mining Co of PA LLC	Titus Deep Mine	30841314	Under Reclamation/Treatment	Greene



<b>Company</b>	<b>Site Name</b>	<b>Permit No.</b>	<b>Status</b>	<b>County</b>
Rosebud Mining Co	Beaver Valley Mine	04971301	Under Reclamation/Treatment	Beaver
Keystone Land Resources Inc	Blacksville 1 Deep Mine	30841319	Under Reclamation/Treatment	Greene
Keystone Land Resources Inc	Blacksville 1 Mine Refuse Area	30841319	Under Reclamation/Treatment	Greene
LCT Energy LP	Brubaker Mine	56081301	Under Reclamation/Treatment	Somerset
Rosebud Mining Co	Darmac 3 Mine	03901304	Under Reclamation/Treatment	Armstrong
Rosebud Mining Co	Dora No. 8 Mine	33971301	Under Reclamation/Treatment	Jefferson
Gateway Coal Co	Gateway Deep Mine	30841321	Under Reclamation/Treatment	Greene
Roxcoal Inc	Geronimo Mine	56971301	Under Reclamation/Treatment	Somerset
Bedrock Mines LP	Keystone East Mine	03031301	Under Reclamation/Treatment	Armstrong
Roxcoal Inc	Miller Deep Mine	56961302	Under Reclamation/Treatment	Somerset
AK Coal Resources Inc	North Fork Mine	56121301	Under Reclamation/Treatment	Somerset
Ohio County Coal Res Inc	Ohio County Mine	63981301	Under Reclamation/Treatment	Washington
Rosebud Mining Co	Ondo Mine	32961302	Under Reclamation/Treatment	Indiana
Rosebud Mining Co	Rossmoyne No. 1 Mine	32021301	Under Reclamation/Treatment	Indiana
Rosebud Mining Co	Starford Mine	32061301	Under Reclamation/Treatment	Indiana
Rosebud Mining Co	Stitt Mine	03991302	Under Reclamation/Treatment	Armstrong
Rosebud Mining Co	Stonycreek Mine	56091301	Under Reclamation/Treatment	Somerset
Rosebud Mining Co	TJS No. 6 Deep Mine	03061301	Under Reclamation/Treatment	Armstrong
Rosebud Mining Co	Toms Run Mine	32951301	Under Reclamation/Treatment	Indiana
Rosebud Mining Co	Tracy Lynne Mine	03961301	Under Reclamation/Treatment	Armstrong
Duquesne Light Co	Warwick Deep Mine 3	30841310	Under Reclamation/Treatment	Greene

**Table 3: Mine Sites – Acres and Numbers of Claims** lists mine sites with acres affected during this assessment period as well as the overall number of claims per mine. **Appendix A – Maps** depict this information in map form.

The first column of Table 3 (“Key”) corresponds to figure numbers in Appendix A, which contains the maps for these operations showing mined areas within the reporting period. Appendix A also shows the location of complaints, streams, stream effects, and nearby wetland areas for each mine that was active during the 6<sup>th</sup> assessment period, as applicable.

**Table 2. Mine Sites - Acres and Number of Claims**

Key	Company Name	Mine Name	Acres this Assessment	Acres Total	No. of Claims <sup>1</sup>
1	CONSOL PA Coal Co	Bailey Deep Mine	2995	31690	74
2	Iron Cumberland LLC	Cumberland Mine	3050	22968	66
3	CONSOL PA Coal Co	Enlow Fork Mine	4600	35834	245
4	CONSOL PA Coal Co	Harvey Mine	2937	5413	105
5	Marshal County Coal Co	Marshall County Mine	36	36	0
6	Monongalia County Coal Co	Monongalia County Mine	1340	18766	23
7	Tunnel Ridge, LLC	Tunnel Ridge Mine	1535	1757	46
8	Dana Mining Co of PA LLC	4 West Mine	31	3311	0
9	Wilson Creek Energy LLC	Acosta Deep Mine	775	778	15
10	Rosebud Mining Co.	Barrett Deep Mine	457	884	5
11	Rosebud Mining Co.	Brush Valley Mine	879	1298	14
12	LCT Energy, LP	Cass No. 1 Mine	92	285	6
13	Rosebud Mining Co.	Coral-Graceton Mine	84	153	9
14	Dana Mining Co of PA LLC	Crawdad Portal B Mine	26	859	1
15	Rosebud Mining Co.	Cresson Mine	326	326	11
16	Rosebud Mining Co.	Crooked Creek Mine	845	1039	29
17	Rosebud Mining Co.	Darmac No. 2 Mine	276	1550	7
18	Rosebud Mining Co.	Dutch Run Mine	371	1967	10
19	Rosebud Mining Co.	Harmony Mine	288	1019	4
20	Rosebud Mining Co.	Heilwood Mine	259	988	5
21	RoxCoal Inc.	Horning Deep Mine	218	259	0
22	Rosebud Mining Co.	Knob Creek Mine	199	775	1
23	Rosebud Mining Co.	Kocjancic Mine	385	532	0
24	Rosebud Mining Co.	Lowry Deep Mine	97	535	13
25	Rosebud Mining Co.	Madison Mine	853	2600	26
26	LCT Energy, LP	Maple Springs Mine	375	382	8
27	Rosebud Mining Co.	Mine 78	802	3063	26
28	AK Coal Resources Inc	North Fork Mine	324	864	5
29	Western Allegheny Energy LLC	Parkwood Mine	336	1242	6
30	Rosebud Mining Co.	Penfield Mine	202	1381	2
31	AK Coal Resources Inc	Polaris Mine	2	2	0
32	RoxCoal Inc	Quecreek No.1 Mine	22	1983	10
33	LCT Energy LP	33 Rustic Ridge 1 Mine	443	443	29

<sup>1</sup> Complaints related to mining activities for this assessment, as located on the associated maps.

### Complaints Related to Active Operations

Coal operators are responsible for the restoration and/or replacement of a range of features located above and adjacent to active underground coal mines. Once a property or structure impact is discovered, the impact is reported to the mine owner or operator. If the mine owner or operator does not believe the impact was caused by mining, they forward the impact information to the CalDMO. The CalDMO will conduct a field investigation, examine, and review approved permits, and supply a final report to the property owner and mine owner or operator the results of the review.

### Complaints Related to Nonactive Operations

When CalDMO receives a complaint where it is unclear if active mining is occurring in the vicinity, the address information is referred to the Technical Service Unit for research. If it is found to be in an active mining area, the operator is notified of the complaint. If the property is underlain by abandoned mining, CalDMO forwards the complaint to the Bureau of Abandoned Mine Land Reclamation (BAMR) to investigate. If BAMR cannot address the issue, the information is referred to the Mine Subsidence Insurance (MSI) office to research if a policy exists for the property. In most cases, the homeowner will also inform CalDMO if there is an active policy. MSI will take over the case if the damage is caused by an abandoned mine feature. If a homeowner has an active MSI policy but is in the area of an active operation, the claim is associated primarily to the active operator. MSI would be secondary coverage in such a case.

## Bituminous Underground Mine Information System Data Reporting

Bituminous Underground Mine Information System (BUMIS) is the Department's database for storing information regarding impact claims for water loss, water supply contamination, structures, land damage, stream impacts, methane releases, and utilities related to active bituminous underground mining. Mine operators who receive claims from external parties (citizens, municipalities, utilities) are required to submit information to the CalDMO staff who enter the details into BUMIS. The claim is then assigned to the appropriate staff who conduct an investigation. BUMIS is updated as progress occurs during the investigation. The assigned staff will manage the claim until it is resolved.

### Impact Data Label Descriptions

The following information is a description of the labels found on Tables 4 through 17.

The Department will place the tables in this section (spreadsheet format) on the Bureau of Mining's website in conjunction with this Final Report.

### *Dates*

Several "Date" fields are included in the tables. While it seems logical that the *Date Occurred* may be the primary date to reference regarding time to resolution, the date the incident occurred may be an estimation if the incident was not noticed on the day it happened by the company or the claimant. It may be difficult to pinpoint the beginning date for a progressive problem. In some cases, the claimant may delay reporting because they aren't sure if the observation is natural or mining related. This may result in the *Date Occurred* to be a considerable span in time from the *Date Company Received* or *Date DEP Received*. The mining company is expected to report a water supply claim within 24 hours to the Department. For other claims, the operator is allotted 10 days to complete the CalDMO - Mine Operator Reporting Form on a claim and submit it to the CalDMO. The Department can only address claims of which it is aware. Therefore, the *Date DEP Received* is the most reliable date and the one used to start the clock towards *Date Final*.

*Days to resolution* is calculated by subtracting the *Date Final* from *Date DEP Received*. If the *Date Final* is *Unresolved*, the claim has not been resolved as of 12/31/22.

### *Final Resolutions*

Typical final resolution comments are as follows:

- Agreement (unspecified) or (pre-mining) – The company has made an unspecified agreement with the owner to settle the claim. In most cases the Department does not receive any information on the private agreements and is not obligated to publicly disclose the details of an agreement if homeowners freely supply the information.
- Company purchased property – The mining company has settled with the landowner by purchasing the property. The Department has no authority to require or restrict this type of settlement between the parties.
- Damage claim forms not returned – If the mining company does not accept responsibility for the damages up front, the Department asks the owner for additional information to pursue the investigation. If this status is indicated, the owner did not provide the necessary facts and, therefore, the Department could not continue the investigation. The case is closed after 60 days without a response. However, if the homeowner eventually sends the form, the case is reopened.

### *Indication of company responsible*

The BUMIS database does not indicate explicitly if the company was liable for the claim because the definitive answer is not always known. There is a distinction to be made regarding whether the mining company resolved the claim versus if mining/subsidence was the direct cause of the claim. The Department acknowledges there are several claims that are resolved due to direct discussion and negotiation between the mining company and the claimant. The Department does not pursue further investigation of physical causes of the claim if a settlement is reached. For this report, the Department has not focused on "company liability". However, we have counted those claims where mining was clearly

found to not be at fault. Those claims have indications in the comments that the issue was determined to not be due to mining. *The Department suggests that caution be taken by the reader of this report in assuming that all the remaining claims were definitively mining/subsidence related.*

The following sections include an explanation of the type of claims, a summary of the data, and a detailed table of claims (Date Received 2018-2022) for each category.

### *Land Damage*

Land damage from underground coal mining manifests in the following ways:

- Tension cracks – near vertical cracks or ruptures of the ground surface that can extend tens to hundreds of feet in length and several feet in depth and width. These cracks may stay open or close shortly after opening. As mining progresses through the area, compressional forces may also affect the crack.
- Mass wasting – the downward movement of earth material due to gravity (commonly referred to as landslides or rock falls). The formation of the subsidence basin can cause existing slopes to become unstable and fall. Land movement may also be referred to as a “slip” or “slide”.
- Flooding – a new buildup of the stream waters as a result of the formation of a subsidence basin. A newly formed subsidence basin acts as a dam which allows the stream flow to pool. Flooding can result from the rising elevation of the stream and/or the addition of precipitation.
- Other – all remaining land damage impacts including localized subsidence (“sinkholes”).

### Addressing land damage claims

A landowner must first notify the mine operator that land damage has occurred. The operator reports the incident to the Department within ten days. If the mine operator accepts responsibility, the operator repairs the damage or comes to a private agreement with the landowner. If the operator refutes the damage or the parties are unable to reach a resolution, the landowner may file a claim with the Department. The Department will investigate to determine if mine subsidence caused the damage.

To the extent technologically and economically feasible, operators must correct material damage to surface lands resulting from subsidence caused by the operator’s underground mining operations. Material damage means there has been a functional impairment of surface lands, a physical change that has a significant adverse impact on the affected land’s capability to support current or reasonably foreseeable uses or causes significant loss in production or income (See “Material damage” in 25 Pa Code § 89.5. Definitions). If the Department determines the operator is responsible for material damage, the Department will order the operator to repair the damage. If the Department investigation finds the damage was not caused by mine subsidence, the owner has the right to file an appeal with the Pennsylvania Environmental Hearing Board.

The Department expediently addresses land damage incidents. These cases are frequently resolved immediately, but a small group may remain “unresolved” for several months or years. Incidents may remain unresolved for long periods for several reasons, including:

- The operator and landowner may decide to monitor the situation for additional effects as mining progresses.
- Another longwall panel may be passing close by within a year, so the parties may choose to delay repairs.
- Landowners may also wish to delay repairs due to seasonal constraints (wet season, hay growing season, or hunting).
- Some land damage claims are related to other claims such as structure damage or water loss that complicates immediate solutions and delays closure of the claims.
- The Department’s continuing investigation is ongoing, or negotiations are continuing between the landowner and the operator.

Land damage claims from 2018-2022

Land damage claims include all claims categorized as “Land Damage” in the BUMIS system. The following is a summary of the total land damage claims submitted from 1/1/2018 to 12/31/2022.

**Summary of Claims for Land Damage**

Company Action Required*			82
	Longwall	72	
	Room and Pillar	9	
	Room and Pillar Full Extract	1	
Company No Further Action**			24
<b>TOTAL</b>			<b>106</b>

Unresolved as of 01/01/2023

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(\*) the company initiated an action to resolve the claim or the Department’s investigation determined the company was liable.

(\*\*) the Department deemed the company not liable, or the home/landowner did not continue pursuit of the claim.

**Table 4: Land Damage Claims** found below includes all claims categorized as Land Damage in the BUMIS system from 1/1/2018 to 12/31/2022, sorted by the date the Department received the report.

Each line represents an individual claim. Some claims, however, may be related and occur in groups. Not all fields may be filled in because of missing information or to avoid duplication of a related claim.

Table 3. Land Damage Claims

Problem ID	Problem	Date Occurred	Date Company Rec'd	Date DEP Rec'd	Mine Name	Date Final	Days to Resolution	Resolution
5743	Low spots in the field	1/2/2018	1/2/2018	1/5/2018	Enlow Fork Mine	1/5/2018	0	Agreement (unspecified)
5748	Cracks in the yard	1/12/2018	1/12/2018	1/16/2018	Bailey Deep Mine	10/29/2018	286	Resolved
5761	Cracks in the yard	2/14/2018	2/14/2018	2/15/2018	Bailey Deep Mine	9/9/2020	937	Agreement (unspecified)
5766	Sinkholes in yard directly behind house	2/19/2018	2/19/2018	2/20/2018	Harvey Mine	4/13/2021	1148	Agreement (unspecified)
5774	Fields have rolls in them and are not flat as previously	2/16/2018	2/16/2018	2/28/2018	Enlow Fork Mine	5/24/2018	85	Not due to underground mining
5775	Bottom of land flooded and holding water	2/26/2018	2/26/2018	3/6/2018	Bailey Deep Mine	10/18/2019	591	Repaired
5780	Hump in back yard & water in basement	3/1/2018	3/1/2018	3/6/2018	Harvey Mine	10/23/2019	596	Agreement (unspecified)
5809	Multiple locations and hole/depression in back yard and trees dying in back yard	1/1/2016	3/14/2018	3/22/2018	Emerald Deep Mine	7/9/2018	109	Not due to underground mining
5812	Slip on well pad area	3/27/2018	3/29/2018	3/29/2018	Monongalia County Mine	4/23/2018	25	Agreement (unspecified)
5823	Holes in the yard and cracks in the driveway.	4/16/2018	4/16/2018	4/17/2018	Mine 78	7/31/2018	105	Damage claim form not returned to CalDMO
5824	Cracks in the driveway	4/16/2018	4/16/2018	4/17/2018	Mine 78	7/31/2018	105	Damage claim form not returned to CalDMO
5827	Crack and depressions in the back yard	4/18/2018	4/18/2018	4/20/2018	Maple Creek Mine	8/6/2019	473	Repaired
5829	Cracks in driveway	4/16/2018	4/16/2018	4/24/2018	Maple Creek Mine	3/11/2021	1052	Agreement (unspecified)
5837	Cracks	4/27/2018	4/27/2018	5/4/2018	Maple Creek Mine	7/31/2018	88	Damage claim form not returned to CalDMO
5847	Humps, cracks, and dropping in land	5/7/2018	5/7/2018	5/17/2018	Cumberland Mine	10/24/2018	160	Repaired
5850	Driveway dropped	5/14/2018	5/14/2018	5/18/2018	Madison Mine	10/11/2018	146	Damage claim form not returned to CalDMO
5861	Cracks and flooding	6/4/2018	6/4/2018	6/11/2018	Enlow Fork Mine	7/31/2018	50	Repaired
5863	Cracks	6/4/2018	6/4/2018	6/13/2018	Cumberland Mine	6/13/2018	0	Company purchased property
5887	Fractures running along the yard and driveway	7/25/2018	8/2/2018	8/2/2018	Enlow Fork Mine	1/3/2019	154	Agreement (unspecified)

<b>Problem ID</b>	<b>Problem</b>	<b>Date Occurred</b>	<b>Date Company Rec'd</b>	<b>Date DEP Rec'd</b>	<b>Mine Name</b>	<b>Date Final</b>	<b>Days to Resolution</b>	<b>Resolution</b>
5897	Slips on property	8/17/2018	Not recorded	8/20/2018	Cumberland Mine	1/23/2020	521	Repaired
5915	Sink hole	8/5/2018	8/5/2018	8/23/2018	Maple Creek Mine	11/2/2018	71	Not due to underground mining
5918	Holes and depressions in yard behind house	8/31/2018	8/31/2018	9/7/2018	Cumberland Mine	3/6/2019	180	Damage claim form not returned to CalDMO
5919	Land slips on property	9/8/2018	9/11/2018	9/14/2018	Cumberland Mine	9/14/2018	0	Agreement (unspecified)
5921	Problems with septic system	9/8/2018	9/8/2018	9/13/2018	Enlow Fork Mine	9/13/2018	0	Agreement (unspecified)
5922	Septic tank collapsed	9/10/2018	9/10/2018	9/13/2018	Enlow Fork Mine	9/13/2018	0	Agreement (unspecified)
5930	Slip on pasture field	9/30/2018	Not recorded	10/5/2018	Maple Creek Mine	10/7/2020	733	Repaired
5933	Water source upselling in front yard	10/2/2018	10/2/2018	10/11/2018	Monongalia County Mine	10/18/2018	7	Agreement (unspecified)
5936	Slip on land	10/18/2018	10/18/2018	10/19/2018	Washington County Mine	10/16/2019	362	Repaired
5937	Ripples and hooves and dips on land	3/21/2018	3/21/2018	10/22/2018	Harvey Mine	10/18/2019	361	Agreement (unspecified)
5943	Land slip and water issue	10/16/2018	11/5/2018	11/14/2018	Emerald Deep Mine	Unresolved	Unresolved	Unresolved
5953	Pond seems to be moving and tilting	11/10/2018	Not recorded	12/10/2018	Tunnel Ridge Mine	7/27/2022	1325	No actual problem
5959	Water sitting in back yard	1/3/2019	1/3/2019	1/3/2019	Enlow Fork Mine	2/1/2021	760	Agreement (unspecified)
5965	Slip and water issue	1/10/2019	1/10/2019	1/10/2019	Cumberland Mine	1/10/2019	0	Agreement (unspecified)
5967	Notices sink holes in summer weather	1/16/2019	1/16/2019	1/16/2019	Tracy Lynne Mine	3/18/2019	61	Not due to underground mining
5983	Sinkhole beside garage	1/25/2019	1/25/2019	1/25/2019	Mine 78	3/21/2019	55	Not due to underground mining
5984	Hayfield shifting, springs are popping up making parts of field rough and uneven	8/17/2018	8/17/2018	1/28/2019	Dilworth Deep Mine	5/21/2019	113	Not due to underground mining
5986	Concrete slab in driveway have separated moving downslope	12/18/2018	Not recorded	1/30/2019	Maple Creek Mine	3/28/2022	1153	Agreement (unspecified)
5995	Driveway has cracks	3/29/2018	3/29/2018	2/12/2019	Bailey Deep Mine	11/4/2019	265	Repaired
6001	Heaving and pooling water on land	2/4/2019	2/4/2019	2/18/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6005	Heaving on the land in different areas	2/4/2019	2/4/2019	2/18/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved



<b>Problem ID</b>	<b>Problem</b>	<b>Date Occurred</b>	<b>Date Company Rec'd</b>	<b>Date DEP Rec'd</b>	<b>Mine Name</b>	<b>Date Final</b>	<b>Days to Resolution</b>	<b>Resolution</b>
6031	Back yard is sinking	3/21/2019	Not recorded	4/9/2019	Dilworth Deep Mine	8/6/2019	119	Repaired
6045	Yard is shifting	5/15/2019	Not recorded	6/10/2019	Maple Creek Mine	7/24/2019	44	Not due to underground mining
6052	Wet area in lower field	6/24/2019	6/24/2019	6/25/2019	Cumberland Mine	2/16/2022	967	Agreement (unspecified)
6057	Stones around landscaping pond shifted	7/1/2019	Not recorded	7/1/2019	Tunnel Ridge Mine	6/16/2020	351	Agreement (unspecified)
6075	Land cracks in driveway.	7/25/2019	Not recorded	7/26/2019	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6117	Fractures in the ground	8/23/2019	Not recorded	8/29/2019	Monongalia County Mine	11/5/2019	68	Not due to underground mining
6137	Surface crack and depressions.	9/23/2019	9/23/2019	10/2/2019	Cumberland Mine	10/21/2019	19	Repaired
6161	Yard undulation	10/21/2019	Not recorded	11/1/2019	Maple Creek Mine	12/11/2019	40	Referred to mine subsidence insurance
6194	Land surface cracks	12/6/2019	12/6/2019	12/13/2019	Crawdad Portal B	5/6/2020	145	Repaired
6208	Water out of bank	1/3/2020	1/3/2020	1/3/2020	Cumberland Mine	2/16/2022	775	Agreement (unspecified)
6213	French drain not working	1/7/2020	1/7/2020	1/8/2020	Enlow Fork Mine	4/27/2021	475	Repaired
6225	Slip in lower pasture field	1/24/2020	1/24/2020	1/24/2020	Cumberland Mine			
6243	Land slip	2/3/2020	2/3/2020	2/5/2020	Bailey Deep Mine	2/24/2020	19	Agreement (unspecified)
6249	Land slip on farm road	2/10/2020	2/10/2020	2/11/2020	Harvey Mine	5/14/2020	93	Repaired
6258	N/a	1/23/2020	1/23/2020	1/23/2020	Cumberland Mine	1/23/2020	0	Agreement (pre mining)
6259	N/a	1/23/2020	1/23/2020	1/23/2020	Cumberland Mine	1/23/2020	0	Agreement (pre mining)
6260	N/a	1/23/2020	1/23/2020	1/23/2020	Cumberland Mine	1/23/2020	0	Agreement (pre mining)
6266	Hillside slip	2/20/2020	3/2/2020	3/2/2020	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6278	Sinkhole on property	3/18/2020	3/18/2020	3/18/2020	Acosta Deep Mine	9/22/2020	188	Damage claim form not returned to CalDMO
6310	Drainage issues	4/24/2020	Not recorded	5/6/2020	Harvey Mine	8/12/2020	98	Repaired
6311	Drainage issues	4/24/2020	Not recorded	5/7/2020	Harvey Mine	Unresolved	Unresolved	Unresolved
6312	Land slip	4/30/2020	Not recorded	5/12/2020	Emerald Deep Mine	7/28/2020	77	Repaired
6329	Cracking sidewalks, ground is cracked	6/10/2020	Not recorded	6/10/2020	Mine 78	7/22/2020	42	Withdrawn

<b>Problem ID</b>	<b>Problem</b>	<b>Date Occurred</b>	<b>Date Company Rec'd</b>	<b>Date DEP Rec'd</b>	<b>Mine Name</b>	<b>Date Final</b>	<b>Days to Resolution</b>	<b>Resolution</b>
6350	Valley bottom is holding water.	6/29/2020	6/29/2020	7/9/2020	Bailey Deep Mine	12/1/2021	510	Closed/info appended to another case
6363	Cracks in yard and driveway.	7/30/2020	7/30/2020	7/31/2020	Enlow Fork Mine	1/27/2021	180	Company purchased property
6367	Land is slipping.	7/27/2020	8/4/2020	8/4/2020	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6375	Land damage.	8/11/2020	8/11/2020	8/12/2020	Harvey Mine	8/12/2020	0	Company purchased property
6379	Land fracture on southern side of property.	7/1/2020	8/5/2020	8/14/2020	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6383	Land fracture on southern side of property.	7/1/2020	8/5/2020	8/14/2020	Maple Creek Mine	3/28/2022	591	Agreement (unspecified)
6397	Cracks in the yard	9/3/2020	9/3/2020	9/4/2020	Bailey Deep Mine	9/4/2020	0	Agreement (pre mining)
6422	Cracks in golf course.	10/8/2020	10/8/2020	10/8/2020	Enlow Fork Mine	10/8/2020	0	Agreement (unspecified)
6424	Large sink holes divots in yard and field area	10/5/2020	Not recorded	10/5/2020	Heshbon Mine	10/28/2020	23	Not due to underground mining
6470	Slip on access road on property.	1/5/2021	1/5/2021	1/5/2021	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6492	Field is damp or holding water	10/1/2020	10/1/2020	2/15/2021	Emerald Deep Mine	10/17/2022	609	Damage claim form not returned to CalDMO
6503	Water on property.	3/8/2021	3/8/2021	3/15/2021	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6511	Drainage issue.	4/19/2021	4/19/2021	4/19/2021	Harvey Mine	8/10/2021	113	Repaired
6514	Land damage	4/20/2021	4/20/2021	4/20/2021	Harvey Mine	4/20/2021	0	Agreement (unspecified)
6521	Land damage	5/4/2021	Not recorded	5/4/2021	Harvey Mine	5/4/2021	0	Agreement (unspecified)
6525	Land slip.	1/1/2021	5/13/2021	5/13/2021	Bailey Deep Mine	11/15/2022	551	Repaired
6527	Leaning fence posts	5/13/2021	5/13/2021	5/18/2021	Emerald Deep Mine	11/9/2021	175	Damage claim form not returned to CalDMO
6528	Land	5/18/2021	5/18/2021	5/18/2021	Harvey Mine	5/18/2021	0	Company purchased property
6533	Land damage	5/25/2021	5/25/2021	5/25/2021	Harvey Mine	5/25/2021	0	Company purchased property
6534	Land damage	5/25/2021	5/25/2021	5/25/2021	Harvey Mine	5/25/2021	0	Company purchased property
6535	Land damage	5/25/2021	5/25/2021	5/25/2021	Harvey Mine	5/25/2021	0	Company purchased property
6536	Land damage	5/25/2021	5/25/2021	5/25/2021	Harvey Mine	5/25/2021	0	Company purchased property

Problem ID	Problem	Date Occurred	Date Company Rec'd	Date DEP Rec'd	Mine Name	Date Final	Days to Resolution	Resolution
6537	Land damage	5/25/2021	5/25/2021	5/25/2021	Harvey Mine	5/25/2021	0	Company purchased property
6538	Land damage	5/25/2021	5/25/2021	5/25/2021	Harvey Mine	5/25/2021	0	Company purchased property
6539	Land damage	5/25/2021	5/25/2021	5/25/2021	Harvey Mine	5/25/2021	0	Company purchased property
6540	Land damage	5/25/2021	5/25/2021	5/25/2021	Harvey Mine	5/25/2021	0	Company purchased property
6542	Pond not holding water	5/26/2021	Not recorded	5/27/2021	Enlow Fork Mine	5/27/2021	0	Agreement (unspecified)
6543	Land damage related to sewage pipes	5/12/2021	5/12/2021	5/20/2021	Washington County Mine	8/10/2021	82	Not due to underground mining
6552	Field holding water.	6/4/2021	6/4/2021	6/10/2021	Tunnel Ridge Mine	7/27/2022	412	Agreement (unspecified)
6564	Field holding water.	6/20/2021	6/20/2021	6/25/2021	Cumberland Mine	Unresolved	Unresolved	Unresolved
6568	Sink holes in yard.	3/6/2021	7/6/2021	7/7/2021	Heilwood Mine	8/16/2021	40	Not due to underground mining
6574	Cracks in yard and driveway	5/28/2021	7/20/2021	7/20/2021	Tunnel Ridge Mine			
6614	Ground movement caused cattle to develop black foot.	10/1/2021	10/8/2021	10/18/2021	Cumberland Mine	10/21/2021	3	Damage not covered by BMSLCA
6679	Long land crack in vacant lot.	9/1/2020	4/19/2022	4/22/2022	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6690	Cracks	5/5/2022	5/5/2022	5/5/2022	Bailey Deep Mine	Unresolved	Unresolved	Unresolved
6698	Land shifted around pond.	5/11/2022	5/11/2022	5/20/2022	Bailey Deep Mine	Unresolved	Unresolved	Unresolved
6704	Land damage-foundation.	5/20/2022	5/20/2022	5/27/2022	Maple Creek Mine	11/16/2022	173	Not due to underground mining
6730	Cracks near borehole & road	7/22/2022	7/22/2022	8/2/2022	Cumberland Mine	8/5/2022	3	Repaired
6731	Dip & indent in yard	7/22/2022	7/22/2022	8/2/2022	Cumberland Mine	11/1/2022	91	Not due to underground mining
6734	Land damage	8/3/2022	Not recorded	8/3/2022	Harvey Mine	8/3/2022	0	Company purchased property
6745	Water causing swampy area	8/25/2022	8/25/2022	8/29/2022	Enlow Fork Mine	8/29/2022	0	Agreement (unspecified)
6746	Slip in land.	7/22/2022	7/22/2022	8/31/2022	Cumberland Mine	Unresolved	Unresolved	Unresolved
6770	Depression in land	9/1/2022	11/8/2022	11/9/2022	Ondo Mine	Unresolved	Unresolved	Unresolved

*Dilworth and Heshbon Mines listed above are nonactive, reclaimed operations.*

## Structures

Structures on the ground surface can be damaged due to surface effects of underground subsidence. 25 PA Code § 89.142a defines structures as including, but not limited to, commercial, industrial, or recreational buildings; noncommercial buildings used by the public such as schools, churches and hospitals; dwellings and permanently affixed appurtenant structures or improvements, such as: garages, storage sheds and barns, greenhouses and related buildings, customer-owned utilities and cables, fences and other enclosures, retaining walls, paved or improved patios, walks and driveways, septic sewage treatment facilities, inground swimming pools, lot drainage and lawn and garden irrigation systems, barns and silos, and permanently affixed structures of 500 or more square feet in area that is used for raising livestock, poultry or agricultural products, for storage of animal waste, or for the processing or retail marketing of agricultural products produced on the farm on which the structures are located. The operator is required to conduct a pre-mining survey and document the conditions of all structures that may be affected during the mining operations.

Material damage to a structure happens when there is a functional impairment of the structure or when there is an alteration in the condition, appearance, or value from its pre-subsidence condition. (See “Material Damage” in 25 Pa Code §89.5. Definitions.) The damage could be minor, such as sticking doors or windows; or major, such as cracking in the foundation or walls. Operators are responsible to fully restore, replace, or compensate owners for the material damage to a structure resulting from the subsidence event.

### Addressing structure damage claims

A homeowner must first notify the mine operator that structure damage has occurred, after which the operator is required to report the incident to the Department within ten days. If the mine operator accepts responsibility, the operator repairs the damages or comes to a private agreement with the homeowner. If the operator refutes the damage or parties are unable to reach a resolution, the homeowner may file a claim with the Department. The Department will investigate to determine if mine subsidence caused the damage. If the Department investigation finds the damage was not caused by mine subsidence, the owner has the right to file an appeal with the PA Environmental Hearing Board.

The Department expediently addresses structure damage incidents. These cases are frequently resolved immediately, but a small group may remain “unresolved” for several months or years. These “unresolved” incidents happen for various reasons.

- The operator and homeowner may decide to monitor the situation for additional effects as mining progresses.
- Operators may want to wait several months or more to see if additional effects occur.
- Another longwall panel may be passing close by within a year so the parties may choose to delay repairs.
- Some structural damage claims are related to other claims such as land damage or water loss that complicates immediate solutions and delays closure of the cases.
- Incidents may also remain unresolved due to an ongoing Department investigation, liability disputes, negotiation of repair costs or settlement/agreement issues between the homeowner and the operator.

If the structure owner does not agree with the operator’s estimate of repair, they may file a claim with the Department whereby the Department will determine a monetary amount of damage and order the operator to compensate the structure owner. The parties may involve attorneys to settle claims of compensation. The case is closed when an agreement is received by the Department.

### Structure damage claims 2018-2022

**Table 5: Structure Damage Claims** includes all the claims categorized as “Structure Damage” in the BUMIS system from 1/1/2018 to 12/31/2022 sorted by the date Department received the report.

The following is a summary of those claim numbers. "Company action required" means that the company initiated an action to resolve the claim or the Department investigation determined the company was liable. "Company no further action" means that Department deemed the company not liable or the home/landowner did not continue pursuit of the claim.

**Summary of Claims for Structure Damage**

Company Action Required			357
	Longwall	275	
	Room and Pillar	82	
	Room and Pillar Full Extract	0	
Company No Further Action			97
Unresolved liability*			1
<b>TOTAL</b>			<b>455</b>

Unresolved as of 01/01/2023

95

(\*)Claim rec'd 12/30/22.

Table 5. Structure Damage Claims

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5739	Crack in the dining room wall	12/26/2017	12/26/2017	1/4/2018	Enlow Fork Mine	2/26/2018	53	Not Due to Underground Mining
5740	Cracks in the block wall of garage	12/26/2017	12/26/2017	1/4/2018	Enlow Fork Mine	2/26/2018	53	Not Due to Underground Mining
5741	Cracks in the porch deck and foundation	1/3/2018	1/3/2018	1/4/2018	Mine 78	2/14/2018	41	Not Due to Underground Mining
5744	Crack in the exterior brick above the left garage door	12/21/2017	12/21/2017	1/5/2018	Maple Creek Mine	4/27/2018	112	Damage Claim Form Not Returned to CDMO
5747	Cracks in the block walls of the garage	1/12/2018	1/12/2018	1/12/2018	Enlow Fork Mine	10/29/2020	1021	Agreement (Unspecified)
5751	Cracks in basement wall	1/25/2018	Not recorded	1/25/2018	Enlow Fork Mine	9/9/2019	592	Agreement (Unspecified)
5753	Sunroom window has cracked	2/12/2018	2/12/2018	2/13/2018	Bailey Deep Mine	11/8/2018	268	Agreement (Unspecified)
5755	Cracks in block foundation	2/12/2018	2/12/2018	2/12/2018	Enlow Fork Mine	2/12/2018	0	Company Purchased Property
5756	Cracks in foundation	2/12/2018	2/12/2018	2/12/2018	Enlow Fork Mine	10/4/2019	599	Agreement (Unspecified)
5757	Cracks in foundation	2/12/2018	2/12/2018	2/12/2018	Enlow Fork Mine	12/19/2019	675	Agreement (Unspecified)
5760	Cracks in walls and kitchen counter separated from wall.	2/14/2018	2/14/2018	2/15/2018	Bailey Deep Mine	9/9/2020	937	Agreement (Unspecified)
5763	Cracking in house and floor is a little out of level	2/14/2018	2/14/2018	2/15/2018	Bailey Deep Mine	2/24/2020	739	Agreement (Unspecified)
5764	Cracks in plaster & basement door sticking at times.	2/9/2018	Not recorded	2/15/2018	Harvey Mine	8/22/2022	1649	Agreement (Unspecified)
5765	Basement doors sticking	2/19/2018	2/19/2018	2/20/2018	Harvey Mine	4/13/2021	1148	Agreement (Unspecified)
5768	Cracks & separation in concrete; surface roll in yard	2/19/2018	2/19/2018	2/20/2018	Cumberland Mine	8/29/2022	1651	Agreement (Unspecified)
5769	Cracks & separation in concrete, porches sagging and out of level	2/19/2018	2/19/2018	2/20/2018	Cumberland Mine	8/29/2022	1651	Agreement (Unspecified)

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5770	Cracks & separation in concrete; porches sagging/out of level	2/19/2018	2/19/2018	2/20/2018	Cumberland Mine	8/29/2022	1651	Agreement (Unspecified)
5771	Cracks & separation; out of level	2/19/2018	2/19/2018	2/20/2018	Cumberland Mine	8/29/2022	1651	Agreement (Unspecified)
5772	Cracks and separation; out of level	2/19/2018	2/19/2018	2/20/2018	Cumberland Mine	8/29/2022	1651	Agreement (Unspecified)
5776	Owner has cracks in foundation	3/6/2018	3/6/2018	3/6/2018	Enlow Fork Mine	3/6/2018	0	Agreement (Unspecified)
5777	Cracks in brick and addition has pulled away from house	3/6/2018	3/6/2018	3/6/2018	Enlow Fork Mine	3/6/2018	0	Company Purchased Property
5778	Cracks in ceiling & foundation and cracks on both side of basement door	2/9/2018	2/9/2018	3/6/2018	Harvey Mine	11/4/2021	1339	Agreement (Unspecified)
5779	Water in basement and hump in backyard	3/1/2018	3/1/2018	3/6/2018	Harvey Mine	10/23/2019	596	Agreement (Unspecified)
5781	Cracks in foundation	3/12/2018	3/12/2018	3/12/2018	Enlow Fork Mine	3/21/2018	9	Agreement (Unspecified)
5782	Step cracks in foundation	3/12/2018	3/12/2018	3/12/2018	Enlow Fork Mine	2/1/2021	1057	Agreement (Unspecified)
5785	Cracking on interior and exterior of block foundation; cracks in concrete floor, steps, and driveway	3/13/2018	3/13/2018	3/14/2018	Maple Creek Mine	4/9/2019	391	Agreement (Unspecified)
5786	Cracks on interior and exterior of block foundation; cracks in concrete floor and driveway	3/13/2018	3/13/2018	3/14/2018	Maple Creek Mine	3/31/2021	1113	Agreement (Unspecified)
5787	Cracks in exterior and interior of block foundation; cracks in concrete floor and driveway	3/13/2018	3/13/2018	3/14/2018	Maple Creek Mine	7/19/2018	127	Agreement (Unspecified)

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5788	Cracking in exterior and interior block foundation. cracks in concrete floor and driveway	3/12/2018	3/12/2018	3/14/2018	Maple Creek Mine	3/11/2021	1093	Agreement (Unspecified)
5789	Cracking in exterior and interior block foundation; cracks in concrete floor and driveway	3/12/2018	3/12/2018	3/14/2018	Maple Creek Mine	4/17/2019	399	Company Purchased Property
5790	Cracks in exterior and interior of block foundation. cracks in concrete floor and driveway	3/12/2018	3/12/2018	3/14/2018	Maple Creek Mine	4/8/2019	390	Agreement (Unspecified)
5791	Cracking in exterior and interior of block foundation. Cracks in concrete floor and driveway.	3/12/2018	3/12/2018	3/14/2018	Maple Creek Mine	Unresolved	Unresolved	Unresolved
5792	Cracking in exterior and interior of block foundation. Cracks in concrete floor and driveway.	3/12/2018	3/12/2018	3/14/2018	Maple Creek Mine	12/7/2020	999	Agreement (Unspecified)
5793	Cracking in exterior and interior block foundation. cracks in concrete floor and driveway	3/12/2018	3/12/2018	3/14/2018	Maple Creek Mine	10/17/2018	217	Agreement (Unspecified)
5794	Cracking in exterior and interior of block foundation. Cracks in concrete floor and driveway	3/12/2018	3/12/2018	3/14/2018	Maple Creek Mine	3/11/2021	1093	Agreement (Unspecified)
5795	Cracking in exterior and interior of block foundation. cracks in concrete floor and driveway	3/14/2018	3/14/2018	3/15/2018	Maple Creek Mine	8/16/2018	154	Agreement (Unspecified)



Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5796	Cracking in exterior and interior of block foundation; cracks in concrete floor and driveway	3/14/2018	3/14/2018	3/15/2018	Maple Creek Mine	8/16/2018	154	Agreement (Unspecified)
5797	Cracking in exterior brick and cracks in foundation and detached garage	3/14/2018	3/14/2018	3/15/2018	Maple Creek Mine	9/9/2020	909	Agreement (Unspecified)
5798	Cracking in exterior and interior of block foundation; cracks in concrete floor and driveway	2/26/2018	2/26/2018	3/15/2018	Maple Creek Mine	8/29/2019	532	Company Purchased Property
5801	Owner heard loud noise and felt house shake	3/16/2018	3/16/2018	3/16/2018	Maple Creek Mine	12/7/2018	266	Damage Claim Form Not Returned to CDMO
5802	Owner noticed cracking in exterior and interior block foundation, cracks in concrete floor and driveway	3/16/2018	3/16/2018	3/16/2018	Maple Creek Mine	9/26/2018	194	Agreement (Unspecified)
5803	Cracking in exterior & interior block foundation; cracks in concrete floor and driveway	3/16/2018	3/16/2018	3/16/2018	Maple Creek Mine	10/23/2018	221	Agreement (Unspecified)
5804	Cracks in plaster in some rooms; certain doors & fence gates difficult to open; crack in garage floor	3/19/2018	3/19/2018	3/20/2018	Maple Creek Mine	2/20/2019	337	Agreement (Unspecified)
5805	Damages to back porch addition; minor plaster cracks inside residence; minor step cracks foundation corner	3/12/2018	3/20/2018	3/22/2018	Maple Creek Mine	7/11/2018	111	Agreement (Unspecified)

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5807	Cracks throughout the plaster & ceiling of house, in corners of windows, doors and seams of ceiling. Water damage near chimney of upstairs office space & front door entrance near light fixture. Cracking in mortar joints of brick on the exterior in multiple locations.	1/1/2016	3/14/2018	3/22/2018	Emerald Deep Mine	7/9/2018	109	Not Due to Underground Mining
5808	Cracks throughout; cracks in mortar joints of brick on exterior	1/1/2016	3/14/2018	3/22/2018	Emerald Deep Mine	7/9/2018	109	Not Due to Underground Mining
5813	Damage to interior. Step cracks in brick mortar joints and separation of control joints in concrete walkway and driveway	3/28/2018	3/28/2018	4/3/2018	Maple Creek Mine	4/3/2018	0	Agreement (Unspecified)
5814	Damages to interior finishes in residence	3/12/2018	3/28/2018	4/3/2018	Maple Creek Mine	7/11/2018	99	Agreement (Unspecified)
5815	Damage to foundation	4/3/2018	4/3/2018	4/3/2018	Maple Creek Mine	4/5/2018	2	Resolved
5816	House out of level	3/29/2018	3/29/2018	4/4/2018	Bailey Deep Mine	4/5/2018	1	Resolved
5819	Cracks in the drywall	4/10/2018	4/11/2018	4/11/2018	Bailey Deep Mine	Unresolved	Unresolved	Unresolved
5820	Cracks in basement floor and interior drywall, step cracks in foundation	3/9/2018	4/10/2018	4/13/2018	Maple Creek Mine	Unresolved	Unresolved	Unresolved
5822	Cracks in the walls, house is shaking	4/16/2018	4/16/2018	4/17/2018	Mine 78	7/31/2018	105	Damage Claim Form Not Returned to CDMO
5826	Wall is cracked and leaning.	4/10/2018	4/11/2018	4/18/2018	Bailey Deep Mine	Unresolved	Unresolved	Unresolved
5828	Cracking	4/16/2018	4/16/2018	4/20/2018	Maple Creek Mine	3/11/2021	1056	Agreement (Unspecified)

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5830	Foundation cracks	4/19/2018	4/19/2018	4/26/2018	Enlow Fork Mine	4/26/2018	0	Agreement (Unspecified)
5831	Cracks in the foundation	4/30/2018	4/30/2018	4/30/2018	Bailey Deep Mine	4/2/2021	1068	Agreement (Unspecified)
5832	Cracks in the foundation	4/30/2018	4/30/2018	4/30/2018	Bailey Deep Mine	4/2/2021	1068	Agreement (Unspecified)
5834	Collapsed wall	4/26/2018	4/26/2018	4/30/2018	Bailey Deep Mine	7/24/2018	85	Agreement (Unspecified)
5835	Separation	11/4/2015	11/4/2015	5/4/2018	Maple Creek Mine	2/22/2019	294	Agreement (Unspecified)
5836	Concrete damage and separation	11/4/2015	11/4/2015	5/4/2018	Maple Creek Mine	2/22/2019	294	Agreement (Unspecified)
5839	House is out of level	5/8/2018	5/8/2018	5/8/2018	Enlow Fork Mine	5/8/2018	0	Agreement (Unspecified)
5840	Structural damage	5/4/2018	5/4/2018	5/8/2018	Bailey Deep Mine	3/7/2022	1399	Agreement (Unspecified)
5841	No info	5/11/2018	5/15/2018	5/15/2018	Bailey Deep Mine	5/15/2018	0	Agreement (Unspecified)
5844	Step cracks in brick and foundation, separation cracks in driveway.	5/13/2018	5/13/2018	5/17/2018	Maple Creek Mine	10/11/2018	147	Damage Claim Form Not Returned to CDMO
5845	Step cracking in foundation, small cracks in basement floor, door not shutting, doors sticking	5/7/2018	5/7/2018	5/17/2018	Cumberland Mine	10/24/2018	160	Repaired
5848	Shed dropped	5/7/2018	5/7/2018	5/17/2018	Cumberland Mine	10/24/2018	160	Repaired
5849	2" gap in garage floor	5/14/2018	5/14/2018	5/18/2018	Madison Mine	10/11/2018	146	Damage Claim Form Not Returned to CDMO
5853	Cracks	5/22/2018	5/22/2018	5/23/2018	Lowry Deep Mine	10/11/2018	141	Damage Claim Form Not Returned to CDMO
5854	Sagging kitchen floor	5/22/2018	5/22/2018	5/23/2018	Lowry Deep Mine	10/11/2018	141	Damage Claim Form Not Returned to CDMO
5855	Cracks	5/22/2018	5/22/2018	5/23/2018	Lowry Deep Mine	10/11/2018	141	Damage Claim Form Not Returned to CDMO
5856	Cracks in foundation, separation in flooring in basement apartment	5/17/2018	5/17/2018	5/25/2018	Maple Creek Mine	10/22/2019	515	Agreement (Unspecified)
5857	Crack in mortar and damages to drywall	5/17/2018	5/17/2018	5/25/2018	Maple Creek Mine	9/30/2021	1224	Repaired

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5858	Door will not latch	6/1/2018	6/1/2018	6/8/2018	Cumberland Mine	11/7/2018	152	Agreement (Unspecified)
5859	Out of level	6/5/2018	6/5/2018	6/11/2018	Enlow Fork Mine	6/11/2018	0	Agreement (Unspecified)
5860	Cracks	6/4/2018	6/4/2018	6/11/2018	Enlow Fork Mine	6/1/2020	721	Agreement (Unspecified)
5862	Cracks in the foundation	6/4/2018	6/4/2018	6/13/2018	Cumberland Mine	6/13/2018	0	Company Purchased Property
5865	N/A	6/15/2018	6/15/2018	6/15/2018	Cumberland Mine	6/15/2018	0	Agreement (Unspecified)
5868	Not recorded	6/11/2018	6/11/2018	6/20/2018	Maple Creek Mine	8/8/2018	49	Not Due to Underground Mining
5869	Cracks	6/20/2018	6/20/2018	6/21/2018	Enlow Fork Mine	6/21/2018	0	Company Purchased Property
5871	Cracks, kitchen floor squeaks	6/18/2018	6/18/2018	6/28/2018	Maple Creek Mine	8/10/2018	43	Not Due to Underground Mining
5874	Damages to structure	7/9/2018	7/9/2018	7/9/2018	Harvey Mine	7/11/2018	2	Agreement (Pre-Mining)
5875	Damages to structure	7/9/2018	7/9/2018	7/9/2018	Harvey Mine	7/11/2018	2	Agreement (Pre-Mining)
5876	Damages to structure	7/9/2018	7/9/2018	7/9/2018	Harvey Mine	7/11/2018	2	Agreement (Pre-Mining)
5877	Damages to structure	7/9/2018	7/9/2018	7/9/2018	Harvey Mine	7/11/2018	2	Agreement (Pre-Mining)
5878	Cracks	7/13/2018	7/13/2018	7/16/2018	Lowry Deep Mine	10/31/2018	107	Damage Claim Form Not Returned to CDMO
5881	Structure damage to barn	6/1/2015	7/12/2018	7/17/2018	Maple Springs Mine	10/2/2018	77	Not Due to Underground Mining
5884	Flooding	7/27/2018	7/27/2018	7/31/2018	Enlow Fork Mine	6/1/2020	671	Agreement (Unspecified)
5885	Cracks in foundation windows and doors have shifted	7/25/2018	7/25/2018	8/1/2018	Enlow Fork Mine	1/3/2019	155	Agreement (Unspecified)
5886	Cracks in foundation of barn	7/30/2018	Not recorded	8/1/2018	Enlow Fork Mine	8/1/2018	0	Agreement (Unspecified)
5888	Issues with septic system	7/25/2018	7/25/2018	8/2/2018	Enlow Fork Mine	10/31/2018	90	Damage Claim Form Not Returned to CDMO
5895	Walking bridge closed due to structural issues	8/17/2018	8/17/2018	8/20/2018	Bailey Deep Mine	5/24/2019	277	Damage Claim Form Not Returned to CDMO
5898	Black sewage from septic can be seen	8/11/2018	Not recorded	8/20/2018	Cumberland Mine	10/24/2018	65	Repaired
5901	No info	8/19/2018	8/19/2018	8/23/2018	Maple Creek Mine	11/14/2018	83	Not Due to Underground Mining
5905	Cracks in attached garage	8/30/2018	8/30/2018	8/30/2018	Enlow Fork Mine	8/30/2018	0	Agreement (Unspecified)

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5908	Crack in the foundation	8/31/2018	8/31/2018	8/31/2018	Enlow Fork Mine	3/19/2020	566	Agreement (Unspecified)
5909	Step cracks in foundation	8/31/2018	8/31/2018	8/31/2018	Enlow Fork Mine	8/31/2018	0	Agreement (Unspecified)
5911	Crack in foundation	8/29/2018	8/29/2018	8/31/2018	Enlow Fork Mine	8/29/2018	0	Agreement (Unspecified)
5913	Cracks in foundation and porch	8/29/2018	8/29/2018	8/30/2018	Tracy Lynne Mine	12/11/2018	103	Not Due to Underground Mining
5917	Cracks in wall and brick veneer and concrete walkways; rear porch unlevel	8/29/2018	8/29/2018	9/5/2018	Maple Creek Mine	9/18/2018	13	Damage Not Covered By BMSLCA
5920	Cracks in foundation and garage floor	9/7/2018	9/7/2018	9/13/2018	Enlow Fork Mine	9/13/2018	0	Agreement (Unspecified)
5924	Depressions along edge of basement concrete floor	9/17/2018	9/17/2018	9/27/2018	Cumberland Mine	12/20/2021	1180	Agreement (Unspecified)
5929	Cracks in concrete floor, window pulled away from frame; upstairs doors do not shut properly	9/26/2018	9/26/2018	10/5/2018	Maple Creek Mine	12/7/2020	794	Agreement (Unspecified)
5931	Water in basement	9/28/2018	9/28/2018	10/5/2018	Maple Creek Mine	2/26/2020	509	Damage Claim Form Not Returned to CDMO
5932	Cracks on ceiling in living room and garage	10/10/2018	10/10/2018	10/10/2018	Toms Run Mine	11/19/2018	40	Not Due to Underground Mining
5934	Barn shifting and sinking	10/16/2018	10/16/2018	10/17/2018	Maple Creek Mine	11/9/2018	23	MSI
5938	Water coming in basement	10/29/2018	10/29/2018	11/2/2018	Bailey Deep Mine	5/24/2019	203	Damage Claim Form Not Returned to CDMO
5939	Barn showing signs of shifting/sinking.	10/16/2018	10/16/2018	11/7/2018	Maple Creek Mine	11/9/2018	2	MSI
5940	Cracks in foundation	11/12/2018	11/12/2018	11/12/2018	Enlow Fork Mine	11/12/2018	0	Agreement (Unspecified)
5942	Structure damage to home	11/6/2018	11/6/2018	11/13/2018	Toms Run Mine	1/22/2019	70	Not Due to Underground Mining
5944	House has some cracks	11/16/2018	11/16/2018	11/16/2018	Enlow Fork Mine	11/16/2018	0	Company Purchased Property
5946	Cracks in the foundation	11/16/2018	11/16/2018	11/16/2018	Enlow Fork Mine	11/16/2018	0	Agreement (Unspecified)
5948	House has cracks	11/16/2018	11/16/2018	11/19/2018	Enlow Fork Mine	11/19/2018	0	Company Purchased Property

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5950	Cracks in the basement	11/19/2018	11/19/2018	11/20/2018	Bailey Deep Mine	11/25/2019	370	Agreement (Unspecified)
5952	Crack in brick on rear side of house and has widened	7/15/2018	11/21/2018	12/10/2018	Maple Creek Mine	4/19/2021	861	Agreement (Unspecified)
5955	Cracks in the foundation	12/17/2018	12/17/2018	12/18/2018	Enlow Fork Mine	12/18/2018	0	Agreement (Unspecified)
5956	Damage to House	12/18/2018	12/18/2018	12/19/2018	Bailey Deep Mine	12/19/2018	0	Agreement (Pre-Mining)
5957	Damage to barn	12/18/2018	12/18/2018	12/19/2018	Bailey Deep Mine	12/19/2018	0	Agreement (Pre-Mining)
5958	House and Garage have cracks	12/19/2018	12/19/2018	12/19/2018	Enlow Fork Mine	12/19/2018	0	Company Purchased Property
5963	Cracks in basement concrete	1/8/2019	1/8/2019	1/10/2019	Clementine Mine # 1	4/19/2022	1195	Resolved
5964	Cracks above windows and doors	1/8/2019	1/8/2019	1/10/2019	Enlow Fork Mine	1/10/2019	0	Company Purchased Property
5968	Cracking in basement and upstairs of house and more than normal water issues in basement	1/16/2019	1/16/2019	1/16/2019	Tracy Lynne Mine	3/18/2019	61	Not Due to Underground Mining
5969	Cracks in the house	1/15/2019	1/15/2019	1/16/2019	Enlow Fork Mine	1/16/2019	0	Agreement (Unspecified)
5974	Not recorded	1/11/2019	1/11/2019	1/18/2019	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
5975	Company experiencing movement affecting areas of their business operations	1/14/2019	1/14/2019	1/18/2019	Tunnel Ridge Mine	6/2/2020	501	Damage Claim Form Not Returned to CDMO
5976	Cracks in the foundation	1/18/2019	Not recorded	1/21/2019	Enlow Fork Mine	1/21/2019	0	Agreement (Unspecified)
5978	Cracks in floor slabs; doors are sticking and some drywall cracks in office area	8/29/2018	8/29/2018	1/22/2019	Maple Creek Mine	Not recorded	Not recorded	Not Due to Underground Mining
5981	Cracks in foundation	1/23/2019	Not recorded	1/23/2019	Enlow Fork Mine	1/23/2019	0	Company Purchased Property
5982	Cracks in foundation	1/23/2019	Not recorded	1/23/2019	Enlow Fork Mine	1/23/2019	0	Company Purchased Property

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5985	Concrete slab driveway separated; cracks in garage floor	12/18/2018	Not recorded	1/30/2019	Maple Creek Mine	3/28/2022	1153	Agreement (Unspecified)
5987	Cracks in foundation	1/31/2019	1/31/2019	2/1/2019	Enlow Fork Mine	2/1/2019	0	Company Purchased Property
5988	Cracks inside doorway, cracks in basement, door to deck can't be used, bricks knocked out of place in basement.	2/4/2019	2/4/2019	2/4/2019	Lowry Deep Mine	7/16/2019	162	Damage Claim Form Not Returned to CDMO
5992	Drywall cracks	1/29/2019		2/11/2019	Harvey Mine	2/11/2019	0	Agreement (Unspecified)
5993	Doors sticking in trailer	3/29/2018	3/29/2018	2/12/2019	Bailey Deep Mine	4/7/2021	785	Agreement (Unspecified)
5994	Doors sticking in Trailer 2	3/29/2018	3/29/2018	2/12/2019	Bailey Deep Mine	4/7/2021	785	Agreement (Unspecified)
6000	Cracking in exterior and interior foundation; cracks in concrete floor.	1/20/2019	Not recorded	1/22/2019	Maple Creek Mine	8/6/2019	196	Withdrawn
6002	Trailer 1 out of level	2/4/2019	2/4/2019	2/18/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6003	Trailer 2 out of level	2/4/2019	Not recorded	2/18/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6004	Trailer out of level	2/4/2019	2/4/2019	2/18/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6006	Pole barn out of level and gutters not working properly	2/4/2019	2/4/2019	2/18/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6007	Spring house is out of square	2/4/2019	2/4/2019	2/18/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6009	In-ground pool liner shifted	3/4/2019	Not recorded	3/4/2019	Toms Run Mine	7/16/2019	134	Damage Claim Form Not Returned to CDMO
6011	Cracks in walls, ceilings, door frames and cracking in basement	3/11/2019	Not recorded	3/12/2019	Lowry Deep Mine	5/13/2019	62	Not Due to Underground Mining
6013	Cracking in foundation; small cracks in wall and ceiling plaster in rooms	3/19/2019	Not recorded	3/19/2019	Dilworth Deep Mine*	Unresolved	Unresolved	Unresolved

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
6014	Cracks in sandstone foundation and in the walls	3/19/2019	Not recorded	3/19/2019	Dilworth Deep Mine*	Unresolved	Unresolved	Unresolved
6021	Cracking in basement walls and in the garage walls	4/5/2019	Not recorded	4/8/2019	Enlow Fork Mine	2/1/2021	665	Agreement (Unspecified)
6022	Cracks in garage walls	4/5/2019	Not recorded	4/8/2019	Enlow Fork Mine	2/1/2021	665	Agreement (Unspecified)
6023	Not recorded	4/5/2019	Not recorded	4/9/2019	Enlow Fork Mine	4/27/2021	749	Agreement (Unspecified)
6024	Trailer out of level	4/5/2019	Not recorded	4/8/2019	Enlow Fork Mine	4/8/2019	0	Company Purchased Property
6025	Damage to dwelling	2/14/2019	Not recorded	4/9/2019	Tunnel Ridge Mine	7/27/2022	1205	Agreement (Unspecified)
6026	Cracks in basement wall	4/5/2019	4/5/2019	4/8/2019	Enlow Fork Mine	4/8/2019	0	Agreement (Unspecified)
6027	Cracks in basement walls-mitigation used	4/5/2019	Not recorded	4/8/2019	Enlow Fork Mine	4/8/2019	0	Agreement (Unspecified)
6028	Cracking in the basement walls	4/5/2019	Not recorded	4/8/2019	Enlow Fork Mine	4/8/2019	0	Agreement (Unspecified)
6029	Cracking in basement	4/5/2019	Not recorded	4/8/2019	Enlow Fork Mine	4/11/2019	3	Agreement (Unspecified)
6030	Cracking in basement walls	4/5/2019	Not recorded	4/8/2019	Enlow Fork Mine	4/11/2019	3	Agreement (Unspecified)
6032	Garage cement pad and retaining wall and steps	4/16/2019	Not recorded	4/16/2019	Mine 78	5/20/2019	34	Not Due to Underground Mining
6033	Cracks in retaining wall and steps around the driveway	4/16/2019	Not recorded	4/16/2019	Mine 78	5/20/2019	34	Not Due to Underground Mining
6036	Moisture on block wall and some minor cracks in the mortar on block	4/30/2019	Not recorded	5/7/2019	Harvey Mine	3/25/2021	688	Agreement (Unspecified)
6040	House dropped last few months and hairline crack located in brick back of house from garage to 2nd floor	5/23/2019	5/23/2019	5/23/2019	Toms Run Mine	10/10/2019	140	Damage Claim Form Not Returned to CDMO
6043	Cracks in 1st floor Kitchen, Living Room, and Bedroom. garage walls cracks, basement wall cracked	5/31/2019	Not recorded	6/10/2019	Maple Creek Mine	7/29/2019	49	Not Due to Underground Mining



Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
6044	Heavy runoff through the block garage wall	5/31/2019	Not recorded	6/10/2019	Maple Creek Mine	6/11/2019	1	Referred to Other DMO
6046	Driveway shifting and cracking	5/15/2019	Not recorded	6/10/2019	Maple Creek Mine	7/24/2019	44	Not Due to Underground Mining
6047	Front foundation wall cracking; long horizontal cracks, step cracks at corner. Front wall is bowed inward. Cracks inside walls; hairline cracks 1st floor	5/30/2019	Not recorded	6/17/2019	Maple Creek Mine	6/17/2019	0	MSI
6048	Subsidence on property prior to mining. Basement door of mother's house is sticking and will need adjusted	6/10/2019	Not recorded	6/18/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6051	Cracks in corners of addition to house	6/24/2019	Not recorded	6/24/2019	Enlow Fork Mine	4/14/2022	1025	Agreement (Unspecified)
6053	Trailer shifted on block piers	6/24/2019	6/24/2019	6/25/2019	Cumberland Mine	2/16/2022	967	Agreement (Unspecified)
6055	Front door not opening correctly. Foundation was cracked near door. Movement in front corner of house. Cracking around living room ceiling.	6/27/2019	Not recorded	6/28/2019	Mine 78	8/27/2019	60	Not Due to Underground Mining
6059	Cracking in exterior & interior of block foundation. Doors do not close properly; sub drains damaged	6/17/2019	Not recorded	7/2/2019	Maple Creek Mine	3/11/2021	618	Agreement (Unspecified)
6061	East and west walls multiple cracks mortar; stair crack through the block	6/10/2019	Not recorded	7/11/2019	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6066	Cracks in the foundation of the house	7/12/2019	Not recorded	7/18/2019	Enlow Fork Mine	11/26/2019	131	Agreement (Unspecified)
6067	Cracks in the foundation of the house	7/12/2019	Not recorded	7/18/2019	Enlow Fork Mine	Unresolved	Unresolved	Unresolved

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
6068	Cracks in foundation	7/12/2019	Not recorded	7/18/2019	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6069	Land cracks	7/12/2019	Not recorded	7/18/2019	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6078	Damage to building.	7/30/2019	Not recorded	7/31/2019	Tunnel Ridge Mine	4/19/2021	628	Agreement (Unspecified)
6080	Damage to the house.	7/29/2019	Not recorded	7/31/2019	Quecreek No 1	9/20/2019	51	Not Due to Underground Mining
6082	Cracks in foundation of house	6/24/2019	Not recorded	8/1/2019	Enlow Fork Mine	8/1/2019	0	Agreement (Unspecified)
6084	Cracks in foundation of house.	7/22/2019	Not recorded	8/5/2019	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6085	Cracks in foundation of house.	7/29/2019	Not recorded	8/1/2019	Enlow Fork Mine	1/5/2023	1253	Agreement (Unspecified)
6086	Cracks in the foundation.	8/5/2019	8/5/2019	8/5/2019	Enlow Fork Mine	2/10/2020	189	Agreement (Unspecified)
6087	Cracks in the foundation.	8/5/2019	Not recorded	8/5/2019	Enlow Fork Mine	9/17/2019	43	Agreement (Unspecified)
6090	Cracks in the structure	8/5/2019	8/5/2019	8/6/2019	Harvey Mine	8/6/2019	0	Company Purchased Property
6095	House out of level. Cracks in floors and walls.	11/1/2018	8/6/2019	8/7/2019	Maple Creek Mine	3/11/2021	582	Agreement (Unspecified)
6096	Cracks in foundation of house	8/7/2019	Not recorded	8/7/2019	Enlow Fork Mine	8/7/2019	0	Company Purchased Property
6098	Cracks in foundation of house.	8/9/2019	Not recorded	8/12/2019	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6107	Cracks in the foundation of house.	8/20/2019	Not recorded	8/23/2019	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6113	Cracks in foundation and walls in living room	8/28/2019	Not recorded	8/29/2019	Enlow Fork Mine	10/8/2019	40	Company Purchased Property
6114	Cracks in foundation and walls in living room	8/28/2019	Not recorded	8/29/2019	Enlow Fork Mine	10/8/2019	40	Company Purchased Property
6115	Cracks in foundation of house	8/28/2019	Not recorded	8/29/2019	Enlow Fork Mine	7/29/2021	700	Agreement (Unspecified)
6116	Pool is out of level	8/28/2019	Not recorded	8/29/2019	Enlow Fork Mine	7/29/2021	700	Agreement (Unspecified)
6118	Fractures in the ground	8/23/2019	Not recorded	8/29/2019	Monongalia County Mine	11/5/2019	68	Not Due to Underground Mining
6124	Cracks in foundation and walls in living room	9/9/2019	9/9/2019	9/9/2019	Enlow Fork Mine	9/9/2019	0	Agreement (Unspecified)

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6127	House and garage damage.	7/1/2019	Not recorded	9/16/2019	High Quality Mine	12/30/2019	105	Not Due to Underground Mining
6138	Foundation cracking and bowing; floors bowing, cracks in ceiling	8/23/2019	8/20/2019	10/2/2019	Monongalia County Mine	11/5/2019	34	Not Due to Underground Mining
6141	Crack in foundation.	9/30/2019	Not recorded	10/4/2019	Enlow Fork Mine	10/4/2019	0	Agreement (Unspecified)
6142	Cracks in the foundation.	9/30/2019	Not recorded	10/4/2019	Enlow Fork Mine	10/4/2019	0	Agreement (Unspecified)
6143	Cracks in the foundation.	9/30/2019	Not recorded	10/4/2019	Enlow Fork Mine	10/4/2019	0	Agreement (Unspecified)
6144	Cracks in the foundation.	9/27/2019	Not recorded	10/4/2019	Enlow Fork Mine	10/4/2019	0	Agreement (Unspecified)
6146	Cracks in the foundation.	9/29/2019	Not recorded	10/4/2019	Enlow Fork Mine	10/4/2019	0	Agreement (Unspecified)
6148	Problems with septic system.	10/9/2019	Not recorded	10/10/2019	Enlow Fork Mine	1/23/2020	105	Not Due to Underground Mining
6149	Garage damage.	10/10/2019	Not recorded	10/15/2019	Mine 78	11/8/2019	24	Not Due to Underground Mining
6150	Steps on the retaining wall.	10/10/2019	Not recorded	10/15/2019	Mine 78	11/8/2019	24	Not Due to Underground Mining
6155	Cracks in the foundation.	10/15/2019	Not recorded	10/17/2019	Enlow Fork Mine	10/17/2019	0	Agreement (Unspecified)
6157	Cracks in the block wall of garage.	10/16/2019	Not recorded	10/17/2019	Enlow Fork Mine	10/17/2019	0	Agreement (Unspecified)
6159	Basement floor has a heave in it	10/29/2019	Not recorded	10/29/2019	Harvey Mine	10/29/2019	0	Agreement (Unspecified)
6162	Doors/windows stick & cracks in brick	10/21/2019	Not recorded	11/1/2019	Maple Creek Mine	12/11/2019	40	MSI
6163	Doors/windows stick & cracks in brick	10/21/2019	Not recorded	11/1/2019	Maple Creek Mine	12/11/2019	40	MSI
6169	Cracks in block wall of building	11/1/2019	Not recorded	11/6/2019	Enlow Fork Mine	11/6/2019	0	Agreement (Unspecified)
6170	Cracks in block wall of house	11/4/2019	Not recorded	11/6/2019	Enlow Fork Mine	11/6/2019	0	Agreement (Unspecified)
6176	Cracks in block wall of building	11/1/2019	Not recorded	11/12/2019	Enlow Fork Mine	11/12/2019	0	Agreement (Unspecified)
6177	Cracks in foundation	11/12/2019	Not recorded	11/2/2019	Enlow Fork Mine	11/12/2019	10	Agreement (Unspecified)

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6178	Cracks in foundation	11/12/2019	Not recorded	11/12/2019	Enlow Fork Mine	11/12/2019	0	Agreement (Unspecified)
6179	Cracking in exterior and interior of block foundation. Cracks in concrete floor and driveway.	3/12/2018	3/12/2018	3/14/2018	Maple Creek Mine	12/7/2020	999	Agreement (Unspecified)
6180	Damage to structure	11/19/2019	Not recorded	11/19/2019	Harvey Mine	11/19/2019	0	Agreement (Unspecified)
6181	Cracks in foundation and doors.	9/17/2019	Not recorded	11/20/2019	Madison Mine	1/14/2020	55	Not Due to Underground Mining
6182	Crack and doors-Garage	9/17/2019	Not recorded	11/20/2019	Madison Mine	1/14/2020	55	Not Due to Underground Mining
6183	Cracks in the foundation	11/15/2019	Not recorded	11/19/2019	Enlow Fork Mine	9/22/2021	673	Agreement (Unspecified)
6188	Cracks in concrete and stone veneer	12/5/2019	Not recorded	12/10/2019	Enlow Fork Mine	3/15/2021	461	Agreement (Unspecified)
6189	Trailer out of level and doors sticking	12/5/2019	Not recorded	12/10/2019	Enlow Fork Mine	12/10/2019	0	Agreement (Unspecified)
6191	Crack in floor and foundation	12/10/2019	12/10/2019	12/11/2019	Enlow Fork Mine	12/10/2019	0	Company Purchased Property
6192	Crack in floor and foundation	12/10/2019	Not recorded	12/11/2019	Enlow Fork Mine	12/10/2019	0	Company Purchased Property
6193	Door sticks and cracks in bathroom	12/12/2019	12/12/2019	12/12/2019	Harvey Mine	1/29/2021	414	Agreement (Unspecified)
6196	Foundation crack and driveway shifted	12/16/2019	12/16/2019	12/18/2019	Enlow Fork Mine	5/7/2020	141	Agreement (Unspecified)
6197	Crack in floor and foundation/porch and deck pulled away	12/18/2019	Not recorded	12/18/2019	Enlow Fork Mine	12/18/2019	0	Company Purchased Property
6198	Cracks in floor and foundation	12/18/2019	Not recorded	12/18/2019	Enlow Fork Mine	12/18/2019	0	Company Purchased Property
6199	Crack in floor and foundation	12/18/2019	Not recorded	12/18/2019	Enlow Fork Mine	12/18/2019	0	Company Purchased Property
6200	Cracks in floor and foundation	12/20/2019	Not recorded	12/23/2019	Enlow Fork Mine	12/23/2019	0	Company Purchased Property
6201	Cracks in floor and foundation	12/20/2019	Not recorded	12/23/2019	Enlow Fork Mine	12/23/2019	0	Company Purchased Property
6202	Cracks in foundation	12/19/2019	12/19/2019	12/26/2019	Harvey Mine	Unresolved	Unresolved	Unresolved
6205	Out of level and cracks	1/3/2020	1/3/2020	1/3/2020	Cumberland Mine	2/16/2022	775	Agreement (Unspecified)

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6206	Garage out of level and cracks	1/3/2020	1/3/2020	1/3/2020	Cumberland Mine	2/16/2022	775	Agreement (Unspecified)
6209	Multiple outbuildings-minor issues	1/3/2020	Not recorded	1/3/2020	Cumberland Mine	2/16/2022	775	Agreement (Unspecified)
6211	Doors sticking; Foundation cracks	1/3/2020	1/3/2020	1/6/2020	Harvey Mine	3/25/2021	444	Agreement (Unspecified)
6212	Crack in floor and foundation	1/7/2020	Not recorded	1/7/2020	Enlow Fork Mine	2/19/2020	43	Agreement (Unspecified)
6215	Cracks in the building	1/14/2020	1/14/2020	1/15/2020	Harvey Mine	1/15/2020	0	Company Purchased Property
6217	Cracks in foundation and doors sticking	1/11/2020	1/13/2020	1/20/2020	Harvey Mine	11/18/2021	668	Agreement (Unspecified)
6218	Cracks in foundation	1/14/2020	1/14/2020	1/20/2020	Harvey Mine	7/19/2021	546	Agreement (Unspecified)
6221	Small crack in foundation	1/23/2020	1/23/2020	1/23/2020	Enlow Fork Mine	1/23/2020	0	Agreement (Unspecified)
6222	Cracks in floor and foundation	1/18/2020	1/18/2020	1/23/2020	Enlow Fork Mine	1/23/2020	0	Agreement (Unspecified)
6223	Cracks and separations	1/21/2020	Not recorded	1/23/2020	Harvey Mine	6/21/2022	880	Agreement (Unspecified)
6224	Out of level, cracks	1/24/2020	1/24/2020	1/24/2020	Cumberland Mine	Unresolved	Unresolved	Unresolved
6226	Shed out of level	1/24/2020	1/24/2020	1/24/2020	Cumberland Mine	Unresolved	Unresolved	Unresolved
6227	Shed out of level	1/24/2020	1/24/2020	1/24/2020	Cumberland Mine	Unresolved	Unresolved	Unresolved
6228	Cracks in floor and foundation	1/24/2020	1/24/2020	1/24/2020	Enlow Fork Mine	1/24/2020	0	Agreement (Unspecified)
6229	Cracks in floor and foundation	1/24/2020	1/24/2020	1/24/2020	Enlow Fork Mine	1/24/2020	0	Company Purchased Property
6230	Cracks in floor and foundation	1/24/2020	1/24/2020	1/24/2020	Enlow Fork Mine	3/15/2021	416	Agreement (Unspecified)
6232	Cracks in concrete floor and foundation	1/24/2020	1/24/2020	1/24/2020	Enlow Fork Mine	12/6/2021	682	Agreement (Unspecified)
6234	Not recorded	1/20/2020	Not recorded	1/23/2020	Enlow Fork Mine	1/23/2020	0	Company Purchased Property
6235	Cracks in floor and foundation	1/22/2020	Not recorded	1/27/2020	Enlow Fork Mine	1/27/2020	0	Agreement (Unspecified)
6238	Cracks in foundation	9/17/2019	Not recorded	2/4/2020	Bailey Deep Mine	4/2/2021	423	Agreement (Unspecified)
6239	Cracks in floor and foundation	2/3/2020	Not recorded	2/4/2020	Enlow Fork Mine	3/10/2020	35	Agreement (Unspecified)

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6240	Not recorded	2/3/2020	Not recorded	2/4/2020	Enlow Fork Mine	2/4/2020	0	Company Purchased Property
6241	Cracks in floor and foundation	2/3/2020	Not recorded	2/4/2020	Enlow Fork Mine	2/4/2020	0	Company Purchased Property
6242	Cracks in floor and foundation	2/3/2020	Not recorded	2/4/2020	Enlow Fork Mine	2/4/2020	0	Company Purchased Property
6247	Minor cracks in foundation	2/4/2020	2/4/2020	2/7/2020	Harvey Mine	7/17/2020	161	Damage Claim Form Not Returned to CDMO
6250	Out of level, cracks in wall and floor	1/24/2020	1/24/2020	2/11/2020	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6252	Cracks in foundation	2/1/2020	Not recorded	2/13/2020	Enlow Fork Mine	2/13/2020	0	Agreement (Unspecified)
6253	Cracks in foundation	2/1/2020	Not recorded	2/13/2020	Enlow Fork Mine	2/13/2020	0	Agreement (Unspecified)
6261	Cracks in floor and foundation	2/24/2020	Not recorded	2/25/2020	Enlow Fork Mine	2/25/2020	0	Company Purchased Property
6263	Cracks in walls, ceiling, foundation	1/20/2020	2/20/2020	2/26/2020	Mine 78	6/24/2020	119	Not Due to Underground Mining
6264	Small cracks in flooring of barn	6/10/2019	2/28/2020	2/28/2020	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6265	Cracks in flooring of barn	6/10/2019	2/28/2020	2/28/2020	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6267	Cracks in floor and foundation	2/25/2020	2/25/2020	3/2/2020	Enlow Fork Mine	3/2/2020	0	Agreement (Unspecified)
6268	Cracks in floor and foundation	3/4/2020	3/4/2020	3/4/2020	Enlow Fork Mine	3/4/2020	0	Agreement (Unspecified)
6269	Cracks in foundation and basement	1/4/2020	3/4/2020	3/5/2020	Tracy Lynne Mine	3/13/2020	8	Not Due to Underground Mining
6270	Cracks in foundation and doors moving	2/28/2020	Not recorded	3/5/2020	Tunnel Ridge Mine	2/18/2021	350	Agreement (Unspecified)
6274	Cracks in floor and foundation	3/3/2020	Not recorded	3/10/2020	Enlow Fork Mine	3/10/2020	0	Agreement (Unspecified)
6275	Cracks in floor and foundation	3/4/2020	Not recorded	3/10/2020	Enlow Fork Mine	3/10/2020	0	Company Purchased Property
6276	Cracks in floor and foundation	3/4/2020	Not recorded	3/10/2020	Enlow Fork Mine	3/10/2020	0	Company Purchased Property
6277	Shifting inside home	3/11/2020	3/11/2020	3/11/2020	Mine 78	7/17/2020	128	Damage Claim Form Not Returned to CDMO
6279	Crack in concrete floor and foundation cracks and in driveway	3/16/2020	Not recorded	3/17/2020	Enlow Fork Mine	3/17/2020	0	Agreement (Unspecified)

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6280	House is out of level and the water is cloudy.	3/16/2020	Not recorded	3/17/2020	Enlow Fork Mine	6/2/2022	807	Agreement (Unspecified)
6282	Cracks in block wall	3/16/2020	Not recorded	3/17/2020	Enlow Fork Mine	5/23/2022	797	Agreement (Unspecified)
6283	Crack in concrete floor and foundation cracks in plaster in walls	3/16/2020	Not recorded	3/17/2020	Enlow Fork Mine	11/19/2020	247	Agreement (Unspecified)
6284	Cracks in concrete floor	3/10/2020	Not recorded	3/17/2020	Enlow Fork Mine	3/17/2020	0	Company Purchased Property
6285	Cracks in concrete floor and foundation	3/10/2020	Not recorded	3/17/2020	Enlow Fork Mine	3/17/2020	0	Company Purchased Property
6286	Crack in brick veneer	3/16/2020	Not recorded	3/17/2020	Enlow Fork Mine	3/17/2020	0	Company Purchased Property
6287	Cracks in concrete floor and foundation. Cracks in driveway.	3/19/2020	Not recorded	3/23/2020	Enlow Fork Mine	4/6/2020	14	Agreement (Unspecified)
6288	Crack in the concrete floor and foundation.	3/23/2020	Not recorded	3/23/2020	Enlow Fork Mine	10/12/2020	203	Agreement (Unspecified)
6289	Crack in concrete floor and foundation	3/23/2020	Not recorded	3/23/2020	Enlow Fork Mine	12/6/2021	623	Agreement (Unspecified)
6290	Sinkhole alongside of house foundation walls	3/27/2020	Not recorded	3/27/2020	Mine 78	9/22/2020	179	Damage Claim Form Not Returned to CDMO
6291	Crack in concrete floor and foundation	3/31/2020	Not recorded	3/27/2020	Enlow Fork Mine	5/13/2021	412	Agreement (Unspecified)
6292	Cracks in concrete floor and foundation cracks	3/24/2020	Not recorded	3/24/2020	Enlow Fork Mine	3/24/2020	0	Agreement (Unspecified)
6293	Crack in concrete floor and foundation	4/1/2020	Not recorded	4/2/2020	Enlow Fork Mine	4/2/2020	0	Agreement (Unspecified)
6294	Crack in brick veneer and foundation block	3/30/2020	Not recorded	4/6/2020	Enlow Fork Mine	4/6/2020	0	Company Purchased Property
6295	Cracks in concrete	4/6/2020	Not recorded	4/6/2020	Enlow Fork Mine	4/6/2020	0	Agreement (Unspecified)
6297	Cracks in driveway and interior wall	4/6/2020	Not recorded	4/6/2020	Enlow Fork Mine	4/6/2020	0	Agreement (Unspecified)
6299	Cracks in brick veneer and block walls	4/9/2020	Not recorded	4/9/2020	Enlow Fork Mine	4/9/2020	0	Agreement (Unspecified)
6301	Door would not close and is getting water in the basement	4/13/2020	4/14/2020	4/14/2020	Enlow Fork Mine	7/13/2020	90	Not Due to Underground Mining
6306	Several cracks in owner's building	4/24/2020	Not recorded	5/1/2020	Harvey Mine	6/1/2021	396	Not Due to Underground Mining

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6307	Minor cracks	4/24/2020	Not recorded	5/1/2020	Harvey Mine	6/1/2021	396	Not Due to Underground Mining
6308	Minor cracks	4/24/2020	Not recorded	5/1/2020	Harvey Mine	6/1/2021	396	Not Due to Underground Mining
6309	Cracks in crawlspace-hunting camp	5/4/2020	Not recorded	5/4/2020	Bailey Deep Mine	Unresolved	Unresolved	Unresolved
6314	Cracks in driveway and interior wall	5/18/2020	Not recorded	5/18/2020	Enlow Fork Mine	5/18/2020	0	Agreement (Unspecified)
6317	Not recorded	5/13/2020	5/14/2020	5/18/2020	Lowry Deep Mine	5/18/2020	0	Referred to BAMR
6319	Owner called to say been blasting	5/19/2020	4/7/2020	5/20/2020	Lowry Deep Mine	5/20/2020	0	Referred to BAMR
6321	Cracks in the foundation and cracks in the drywall in room above.	5/17/2020	5/20/2020	5/28/2020	Harvey Mine	9/29/2020	124	Not Due to Underground Mining
6323	Septic failed due to damage from mining	7/27/2018	Not recorded	6/1/2020	Enlow Fork Mine	6/1/2020	0	Agreement (Unspecified)
6330	Cracks in foundation	6/1/2020	Not recorded	6/11/2020	Cumberland Mine	2/10/2022	609	Agreement (Unspecified)
6331	Cracks in foundation	6/1/2020	Not recorded	6/11/2020	Cumberland Mine	2/10/2022	609	Agreement (Unspecified)
6353	Cracking in the foundation.	7/10/2020	7/10/2020	7/13/2020	Harvey Mine	Unresolved	Unresolved	Unresolved
6355	House sinking in the middle.	7/1/2020	7/15/2020	7/15/2020	Brush Valley Mine	11/16/2020	124	Damage Claim Form Not Returned to CDMO
6356	Porch/Carport is buckling and sinking down into the ground.	7/1/2020	7/15/2020	7/15/2020	Brush Valley Mine	9/10/2020	57	Not Due to Underground Mining
6360	Changes and issues in the house	7/13/2020	Not recorded	7/22/2020	Harvey Mine	7/22/2020	0	Agreement (Unspecified)
6364	Crack in the garage wall.	7/30/2020	7/30/2020	7/31/2020	Enlow Fork Mine	1/27/2021	180	Company Purchased Property
6365	Cracks in driveway, steps, foundation.	8/2/2020	8/2/2020	8/3/2020	Enlow Fork Mine	8/3/2020	0	Agreement (Unspecified)
6366	<i>No information was logged into BUMIS</i>	8/2/2020	8/2/2020	8/3/2020	Enlow Fork Mine	8/3/2020	0	Agreement (Unspecified)
6368	Cracks in drywall, paint peeling, dips, and humps on floor.	7/27/2020	8/4/2020	8/4/2020	Monongalia County Mine	Unresolved	Unresolved	Unresolved



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6369	Drop in the garage.	7/27/2020	8/4/2020	8/4/2020	Monongalia County Mine	Unresolved	Unresolved	Unresolved
6370	Garage is sinking.	8/4/2018	8/4/2020	8/5/2020	Mine 78	12/14/2020	131	Damage Claim Form Not Returned to CDMO
6371	Wall is leaning and not level; concrete area is sinking.	8/4/2018	8/4/2020	8/5/2020	Mine 78	12/14/2020	131	Damage Claim Form Not Returned to CDMO
6372	Driveway sinking and cracking.	8/4/2018	8/4/2020	8/5/2020	Mine 78	12/14/2020	131	Damage Claim Form Not Returned to CDMO
6374	Interior & exterior cracks in house.	8/11/2020	8/11/2020	8/11/2020	Enlow Fork Mine	1/27/2021	169	Company Purchased Property
6376	Foundation crack in the structures.	8/11/2020	8/11/2020	8/12/2020	Harvey Mine	8/12/2020	0	Company Purchased Property
6377	Foundation crack in the structures.	8/11/2020	8/11/2020	8/12/2020	Harvey Mine	8/12/2020	0	Company Purchased Property
6380	Cracks and separation of dwelling.	7/1/2020	8/5/2020	8/14/2020	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6381	Cracks in dwelling.	7/1/2020	8/5/2020	8/14/2020	Maple Creek Mine	12/7/2021	480	Agreement (Unspecified)
6382	Cracks in dwelling.	7/1/2020	8/5/2020	8/14/2020	Maple Creek Mine	11/3/2021	446	Agreement (Unspecified)
6384	Cracks and unlevel pool.	7/1/2020	8/5/2020	8/14/2020	Maple Creek Mine	3/28/2022	591	Agreement (Unspecified)
6385	Not recorded	7/1/2020	8/5/2020	8/14/2020	Maple Creek Mine	3/18/2022	581	Agreement (Unspecified)
6386	Cracks in interior and exterior of home.	7/1/2020	8/10/2020	8/14/2020	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6387	Major cracks in brick on 3 sides of house.	7/1/2020	8/13/2020	8/14/2020	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6388	Cracks in driveway, basement; separation; windows stuck.	7/1/2020	8/13/2020	8/14/2020	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6389	Cracks, interior/exterior doors stick; glass cracked.	7/1/2020	8/13/2020	8/14/2020	Maple Creek Mine	11/3/2021	446	Agreement (Unspecified)
6395	Windows and doors sticking; cracks in walls.	8/31/2020	Not recorded	9/4/2020	Emerald Deep Mine	1/19/2021	137	Not Due to Underground Mining
6396	Cracks in concrete driveway.	9/2/2020	Not recorded	9/4/2020	Emerald Deep Mine	1/19/2021	137	Not Due to Underground Mining

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6398	Cracks in house	9/3/2020	9/3/2020	9/4/2020	Bailey Deep Mine	9/4/2020	0	Agreement (Pre-Mining)
6399	Cracks in dwelling. Doors sticking.	8/1/2020	9/8/2020	9/11/2020	Maple Creek Mine	3/1/2021	171	Damage Claim Form Not Returned to CDMO
6400	Cracks, heave in basement, doors stick.	8/1/2020	9/3/2020	9/11/2020	Maple Creek Mine	11/3/2021	418	Agreement (Unspecified)
6407	Cracks and concrete flaking in dwelling.	9/1/2020	9/14/2020	9/23/2020	Rustic Ridge	Unresolved	Unresolved	Unresolved
6408	Cracks and concrete flaking in garage.	9/1/2020	9/14/2020	9/23/2020	Rustic Ridge	Unresolved	Unresolved	Unresolved
6415	Cracks in pond breastworks, roadway, and ground.	9/24/2020	Not recorded	10/1/2020	Tunnel Ridge Mine	10/1/2020	0	Company Purchased Property
6417	Cracks in brick, foundation, garage.	10/7/2020	10/7/2020	10/7/2020	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6418	Cracks in basement and driveway.	10/5/2020	10/5/2020	10/7/2020	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6419	Cracks in walkway and separation of cement.	10/8/2020	10/8/2020	10/8/2020	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6420	Cracks in block wall of building.	10/8/2020	10/8/2020	10/8/2020	Enlow Fork Mine	10/8/2020	0	Agreement (Unspecified)
6429	Structure damage.	10/12/2020	10/12/2020	10/12/2020	Bailey Deep Mine	1/11/2021	91	Not Due to Underground Mining
6439	Damage to house and garage	10/23/2020	Not recorded	10/23/2020	Madison Mine	10/23/2020	0	Referred to BAMR
6442	Cracks in foundation.	10/8/2020	Not recorded	10/23/2020	Enlow Fork Mine	10/23/2020	0	Company Purchased Property
6443	Cracks in foundation.	10/8/2020	Not recorded	10/23/2020	Enlow Fork Mine	10/23/2020	0	Company Purchased Property
6444	Cracks in dwelling.	6/1/2020	10/19/2020	10/24/2020	Rustic Ridge	8/3/2022	648	Agreement (Unspecified)
6445	Cracks in garage.	6/1/2020	10/19/2020	10/24/2020	Rustic Ridge	8/3/2022	648	Agreement (Unspecified)
6446	Numerous damages to dwelling	10/1/2020	10/16/2020	10/24/2020	Rustic Ridge	1/15/2021	83	Agreement (Unspecified)
6447	Cracks in foundation	10/26/2020	Not recorded	10/26/2020	Harvey Mine	Unresolved	Unresolved	Unresolved
6449	Doors open and close on their own. Cracks in basement.	7/1/2020	10/21/2020	10/28/2020	Rustic Ridge	Unresolved	Unresolved	Unresolved

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6450	Cracks and separation in garage floor and walls.	7/1/2020	10/21/2020	10/28/2020	Rustic Ridge	Unresolved	Unresolved	Unresolved
6453	Cracks in foundation of home.	11/10/2020	11/10/2020	11/11/2020	Harvey Mine	11/11/2020	0	Agreement (Pre-Mining)
6456	Cracks on exterior and windows sticking.	10/14/2020	11/9/2020	11/18/2020	Rustic Ridge	6/9/2021	203	Not Due to Underground Mining
6463	Cracks in walls of house.	12/3/2020	12/3/2020	12/8/2020	Enlow Fork Mine	4/13/2021	126	Not Due to Underground Mining
6467	Foundation cracking	12/11/2020	12/21/2020	12/22/2020	Harvey Mine	Unresolved	Unresolved	Unresolved
6476	Cracking in foundation walls and interior walls.	1/8/2019	1/8/2021	1/11/2021	Rustic Ridge	5/24/2021	133	Damage Claim Form Not Returned to CDMO
6480	Cracks in foundation	1/25/2021	Not recorded	1/27/2021	Enlow Fork Mine	1/27/2021	0	Company Purchased Property
6481	Out of level, cracks, leak in roof	2/8/2021	2/8/2021	2/8/2021	Cumberland Mine	Unresolved	Unresolved	Unresolved
6482	Out of level, cracks, leak in roof	2/8/2021	2/8/2021	2/8/2021	Cumberland Mine	Unresolved	Unresolved	Unresolved
6483	Out of level, cracks, leak in roof	2/8/2021	2/8/2021	2/8/2021	Cumberland Mine	Unresolved	Unresolved	Unresolved
6484	Out of level, cracks, leak in roof	2/8/2021	2/8/2021	2/8/2021	Cumberland Mine	Unresolved	Unresolved	Unresolved
6485	Out of level, cracks, leak in roof	2/8/2021	2/8/2021	2/8/2021	Cumberland Mine	Unresolved	Unresolved	Unresolved
6486	Out of level, cracks, leak in roof	2/8/2021	2/8/2021	2/8/2021	Cumberland Mine	Unresolved	Unresolved	Unresolved
6490	Cracks in ceiling	2/1/2021	2/11/2021	2/12/2021	Madison Mine	7/21/2021	159	Damage Claim Form Not Returned to CDMO
6491	Countertops pulling away and chimney falling apart	2/13/2021	2/15/2021	2/15/2021	Mine 78	4/13/2021	57	Not Due to Underground Mining
6494	Crack in wall.	2/19/2021	2/19/2021	2/24/2021	Enlow Fork Mine	7/21/2021	147	Damage Claim Form Not Returned to CDMO
6495	Vertical crack in the foundation.	2/22/2021	2/24/2021	2/24/2021	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6496	Cracks in floor.	2/22/2021	2/24/2021	2/24/2021	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6497	Not recorded	2/25/2021	2/25/2021	2/25/2021	Bailey Deep Mine	2/25/2021	0	Company Purchased Property
6501	Minor cracks.	3/8/2021	3/8/2021	3/15/2021	Cumberland Mine	2/16/2022	338	Agreement (Unspecified)

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6502	Minor cracks.	3/8/2021	3/8/2021	3/15/2021	Cumberland Mine	2/16/2022	338	Agreement (Unspecified)
6506	Cracks in basement and garage. Windows will not open.	6/1/2020	1/5/2021	3/23/2021	Maple Creek Mine	4/22/2022	395	Agreement (Unspecified)
6507	Cracks in basement, floors, garage, outside brick. Doors sticking.	3/18/2021	3/18/2021	3/23/2021	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6509	Step cracks in block foundation	10/30/2020	Not recorded	11/5/2020	Tunnel Ridge Mine	4/13/2021	159	Agreement (Unspecified)
6510	Cracks in block foundation	10/30/2020	Not recorded	11/5/2020	Tunnel Ridge Mine	4/13/2021	159	Agreement (Unspecified)
6512	Structure damage.	4/19/2021	4/19/2021	4/19/2021	Harvey Mine	11/1/2021	196	Agreement (Unspecified)
6513	Cracks in the foundation of rental house.	4/19/2021	4/19/2021	4/19/2021	Harvey Mine	Unresolved	Unresolved	Unresolved
6515	Structure damage.	4/20/2021	4/20/2021	4/20/2021	Harvey Mine	4/20/2021	0	Agreement (Unspecified)
6522	Structure damage	5/4/2021	Not recorded	5/4/2021	Harvey Mine	5/4/2021	0	Agreement (Unspecified)
6523	Cracks in foundation.	4/30/2021	Not recorded	5/4/2021	Enlow Fork Mine	5/4/2021	0	Agreement (Unspecified)
6529	Structure damage	5/18/2021	5/18/2021	5/18/2021	Harvey Mine	5/18/2021	0	Company Purchased Property
6530	Cracks	6/19/2020	5/18/2021	5/19/2021	Darmac No 2 Mine	7/26/2021	68	Not Due to Underground Mining
6531	Cracks	6/18/2020	5/18/2021	5/19/2021	Darmac No 2 Mine	7/26/2021	68	Not Due to Underground Mining
6541	Cracks in foundation, driveway	5/26/2021	Not recorded	5/27/2021	Enlow Fork Mine	5/27/2021	0	Agreement (Unspecified)
6544	Stair cracks, doors sticking	5/12/2021	5/12/2021	5/20/2021	Washington County Mine	8/10/2021	82	Not Due to Underground Mining
6551	House out of level.	6/8/2021	6/8/2021	6/8/2021	Enlow Fork Mine	8/11/2021	64	Agreement (Unspecified)
6553	Cracks and shifting.	10/1/2020	6/9/2021	6/14/2021	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6557	Garage door doesn't latch, and concrete separated.	6/15/2021	6/15/2021	6/15/2021	Bailey Deep Mine	11/21/2022	524	Agreement (Unspecified)
6571	Wall and ceiling cracks	5/9/2021	7/9/2021	7/9/2021	Brush Valley Mine	9/8/2021	61	Not Due to Underground Mining
6575	Cracks in house.	5/28/2021	Not recorded	7/20/2021	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved

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6576	Cracks in barn.	5/28/2021	7/20/2021	7/20/2021	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6577	Cracks in barn.	5/28/2021	7/20/2021	7/20/2021	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6578	Cracks in barn.	5/28/2021	7/20/2021	7/20/2021	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6583	Damage to Barn #1	8/9/2021	Not recorded	8/18/2021	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6584	Damage to Barn #2	8/9/2021	8/9/2021	8/18/2021	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6587	Horse stall has sunk	8/10/2021	8/30/2021	8/31/2021	Brush Valley Mine	1/10/2022	132	Damage Claim Form Not Returned to CDMO
6591	Foundation was sinking	5/26/2021	8/26/2021	8/31/2021	Toms Run Mine	10/5/2021	35	Not Due to Underground Mining
6609	Cracking in garage & porch	10/1/2021	10/13/2021	10/18/2021	Coral Graceton Mine	6/24/2022	249	Company Purchased Property
6610	Cracking in garage and porch.	10/1/2021	10/13/2021	10/18/2021	Coral Graceton Mine	Unresolved	Unresolved	Unresolved
6611	Possible cracking.	10/1/2021	10/14/2021	10/18/2021	Coral Graceton Mine	Unresolved	Unresolved	Unresolved
6612	Cracking in garage and basement.	10/1/2021	10/13/2021	10/18/2021	Coral Graceton Mine	Unresolved	Unresolved	Unresolved
6616	Cracks in basement & garage; pool unlevel	6/1/2018	10/13/2021	10/21/2021	Maple Creek Mine	Unresolved	Unresolved	Damage Claim Form Not Returned to CDMO
6618	Cracks in shower; Deck separation	8/27/2021	10/27/2021	11/1/2021	Crooked Creek Mine	2/7/2022	98	Not Due to Underground Mining
6621	Cracks in garage blocks.	9/9/2021	11/9/2021	11/9/2021	Crooked Creek Mine	5/25/2022	197	Not Due to Underground Mining
6625	Driveway & sidewalk movement.	9/17/2021	11/17/2021	11/18/2021	Mine 78	3/11/2022	113	Damage Claim Form Not Returned to CDMO
6639	Building listing; concrete cracked.	1/6/2022	1/6/2022	1/10/2022	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6640	Cracks in wall, foundation, brick.	1/6/2022	1/6/2022	1/10/2022	Maple Creek Mine	7/28/2022	199	Not Due to Underground Mining
6641	Chimney pulling away from house	1/19/2022	1/19/2022	1/19/2022	Enlow Fork Mine	1/19/2022	0	Agreement (Unspecified)
6643	Cracks and un-leveling	1/14/2022	1/20/2022	1/24/2022	Enlow Fork Mine	7/20/2022	177	Not Due to Underground Mining
6646	Doorways throughout house.	2/4/2020	2/4/2022	2/7/2022	Mine 78	3/31/2022	52	Not Due to Underground Mining

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6648	Foundation, driveway, sidewalks	2/15/2021	2/15/2022	2/15/2022	Coral Graceton Mine	Unresolved	Unresolved	Unresolved
6649	Foundation cracks	2/15/2022	2/15/2022	2/16/2022	Harvey Mine	Unresolved	Unresolved	Unresolved
6652	Cracks in basement	7/1/2020	1/8/2021	2/16/2022	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6654	Pre-mining agreement	2/17/2022	2/17/2022	2/17/2022	Harvey Mine	2/17/2022	0	Agreement (Pre-Mining)
6655	Pre-mining agreement	2/17/2022	2/17/2022	2/17/2022	Harvey Mine	2/17/2022	0	Agreement (Pre-Mining)
6660	Cracks in concrete pad.	3/1/2022	3/1/2022	3/4/2022	Tunnel Ridge Mine	7/27/2022	145	Agreement (Unspecified)
6661	Cracks in garage.	3/1/2022	3/1/2022	3/4/2022	Tunnel Ridge Mine	7/27/2022	145	Agreement (Unspecified)
6663	Multiple cracks in dwelling	1/11/2022	3/11/2022	3/11/2022	Coral Graceton Mine	6/13/2022	94	Damage Claim Form Not Returned to CDMO
6664	Cracks in driveway, sidewalk, windows 1st floor would not open; front door sticks; step cracks in garage wall and stress cracks throughout the house and in outside brick	3/16/2022	Not recorded	3/18/2022	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6668	Damage to Building 3	2/22/2021	Not recorded	4/1/2022	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6669	Water in basement and yard	4/1/2020	4/1/2022	4/1/2022	Coral Graceton Mine	10/27/2022	209	Not Due to Underground Mining
6672	Fence sagging in areas.	4/4/2022	4/4/2022	4/4/2022	Harvey Mine	Unresolved	Unresolved	Unresolved
6680	Cracks in house, garage, wall, driveway	9/1/2020	4/19/2022	4/22/2022	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6682	Concrete and tile breaking, carpet wrinkled	4/28/2020	4/28/2022	4/28/2022	Lowry Deep Mine	8/18/2022	112	Damage Claim Form Not Returned to CDMO
6683	Interior damage	1/14/2022	1/14/2022	5/3/2022	Harvey Mine	7/25/2022	83	Not Due to Underground Mining
6684	Cracks, movement	1/14/2022	1/14/2022	5/3/2022	Harvey Mine	7/25/2022	83	Not Due to Underground Mining
6685	Cracks in basement and chimney	1/14/2022	1/14/2022	5/3/2022	Harvey Mine	Unresolved	Unresolved	Unresolved
6686	Foundation cracked and unlevel	1/14/2022	1/14/2022	5/3/2022	Harvey Mine	Unresolved	Unresolved	Unresolved

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6687	Concrete porch cracked	1/14/2022	1/14/2022	5/3/2022	Harvey Mine	7/25/2022	83	Not Due to Underground Mining
6688	Crack on front porch	5/2/2022	5/2/2022	5/2/2022	Enlow Fork Mine	5/2/2022	0	Agreement (Unspecified)
6691	Cracks in foundation	5/5/2022	5/5/2022	5/5/2022	Bailey Deep Mine	Unresolved	Unresolved	Unresolved
6699	Cracks and out of level.	5/23/2022	Not recorded	5/23/2022	Enlow Fork Mine	5/23/2022	0	Agreement (Unspecified)
6701	Cracks in walls.	8/31/2021	5/25/2022	5/26/2022	Brush Valley Mine	9/12/2022	109	Damage Claim Form Not Returned to CDMO
6703	Multiple cracks.	5/19/2022	5/19/2022	5/27/2022	Maple Creek Mine	8/4/2022	69	Not Due to Underground Mining
6705	Cracks in foundation.	5/20/2022	5/20/2022	5/27/2022	Maple Creek Mine	11/16/2022	173	Not Due to Underground Mining
6706	Wall between garage & House; basement	3/9/2022	5/9/2021	6/1/2022	Coral Graceton Mine	9/12/2022	103	Damage Claim Form Not Returned to CDMO
6707	Wall in pool house settled.	3/9/2022	5/9/2021	6/1/2022	Coral Graceton Mine	9/12/2022	103	Damage Claim Form Not Returned to CDMO
6708	Structure damage.	5/31/2022	Not recorded	5/31/2022	Bailey Deep Mine	6/6/2022	6	Company Purchased Property
6709	Garage damage.	5/31/2022	Not recorded	5/31/2022	Bailey Deep Mine	6/6/2022	6	Company Purchased Property
6710	Barn damage	5/31/2022	Not recorded	5/31/2022	Bailey Deep Mine	6/6/2022	6	Company Purchased Property
6712	Cracks in foundation, walls, ceiling	6/8/2022	6/8/2022	6/9/2022	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6724	Cracks in foundation & basement	7/18/2022	Not recorded	7/18/2022	Harvey Mine	Unresolved	Unresolved	Unresolved
6733	New cracks in foundation	7/11/2022	7/11/2022	8/3/2022	Harvey Mine	Unresolved	Unresolved	Unresolved
6737	Water infiltrating basement cracks	7/25/2022	8/8/2022	8/8/2022	Madison Mine	10/19/2022	72	Not Due to Underground Mining
6738	Cracked foundation & ceiling fell	7/19/2022	Not recorded	7/20/2022	Agustus Mine	Unresolved	Unresolved	Unresolved
6739	Floor sinking & doors do not seal	7/19/2022	Not recorded	7/20/2022	Agustus Mine	Unresolved	Unresolved	Unresolved
6741	Multiple cracks	8/11/2022	8/11/2022	8/15/2022	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6742	Cracks and sticking	8/15/2022	8/15/2022	8/15/2022	Maple Creek Mine	Unresolved	Unresolved	Unresolved
6748	Interior cracks, sticking doors	8/22/2022	8/22/2022	8/31/2022	Emerald Deep Mine	8/31/2022	0	Referred to MSI

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
6753	Cracks in Garage floor	9/21/2022	9/21/2022	9/30/2022	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6754	Cracks in house foundation	9/30/2022	9/30/2022	9/30/2022	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6755	Cracks in foundation of workshop	9/30/2022	9/30/2022	9/30/2022	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6756	Cracks in house foundation.	9/27/2022	9/28/2022	9/30/2022	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6757	Foundation cracks in garage	9/27/2022	9/28/2022	9/30/2022	Tunnel Ridge Mine	Unresolved	Unresolved	Unresolved
6758	Cracks in foundation	9/28/2022	9/28/2022	9/30/2022	Tunnel Ridge Mine	9/30/2022	0	Company Purchased Property
6761	Foundation cracks	10/20/2022	10/21/2022	10/21/2022	Parkwood Mine	Unresolved	Unresolved	Unresolved
6763	Sinking deck, crack in foundation	10/24/2022	10/24/2022	10/24/2022	Enlow Fork Mine	Unresolved	Unresolved	Unresolved
6766	Cracking along the chimney	10/14/2022	10/14/2022	10/27/2022	Cumberland Mine	Unresolved	Unresolved	Unresolved
6767	Cracks in block and offset ceiling	10/14/2022	10/14/2022	10/27/2022	Cumberland Mine	Unresolved	Unresolved	Unresolved
6769	Cracks in basement and wall	11/4/2022	11/6/2022	11/7/2022	Mine 78	Unresolved	Unresolved	Unresolved
6775	Doors sticking	12/19/2022	12/29/2022	12/30/2022	Rustic Ridge	Unresolved	Unresolved	Unresolved

*\*Indicates nonactive, reclaimed operation.*



## *Water Supplies*

A water supply is a well, spring, or pond, that serves a residential, agricultural, commercial, or public water use.

### Water Loss

Water loss is an impact to the quantity of water of either a private or public water supply. Underground mining and subsequent subsidence can affect the yield of a water supply by damaging the water supply or negatively impacting the pathways of recharge to the supply either in the immediate vicinity or within the aquifer system. A water loss complaint can range from a decrease in water supply yield to a total loss of water.

The cause of a mining related water loss typically is a result of mine dewatering activities reducing the available water supply feeding a well or spring, or from subsidence sealing off the fractures that were supplying groundwater to the well or spring. The mine operator is required to survey and document the conditions of water supplies that may be affected prior to mining to determine pre-mining conditions including flow/yield. The mine operator is also required to restore or replace water supplies contaminated, diminished, or interrupted by underground mining. The regulations pertaining to water supply replacement are at 25 Pa. Code § 89.145a. *Water supply replacement: performance standards.*

### Contamination

Water contamination is an impact to the chemical properties of either a private or public water supply. Any change in water quality, color, taste, or smell is treated as water contamination, which can range from a general increase in the dissolved constituents to an increase in the amount of sediment/particulate matter in the water supply. Contamination can also result from the migration of acid mine drainage from the mine workings and mine pool to the surrounding aquifer. The mine operator is required to restore or replace water supplies contaminated, diminished, or interrupted by underground mining. The most common water quality parameters impacted by underground coal mining activities are total dissolved solids, specific conductance, pH, iron, manganese, hardness, total coliform, acidity, alkalinity, and sulfates. The operator samples for these parameters and is required to survey and document the conditions of water supplies that may be affected prior to mining to determine pre-mining conditions.

### Addressing water supply claims

If the water user or owner believes their water has been affected by mining, they must contact the mine operator. The operator must then report this to the Department within 24 hours. The Department expediently addresses water supply incidents. These cases are frequently resolved immediately, but a small group may remain “unresolved” for several months or years. Water supply issues may remain unresolved for various reasons:

- Both the operator and the water supply owner may wish to hold off installing a replacement supply if mining will continue in the area.
- If there are additional damage claims related to the water supply, the resolution of this claim may be held open until an overall agreement or settlement is reached with the land/homeowner.
- The operator and water user may wish to continue monitoring the supply through a wet or dry season to determine if there are additional affects or if the supply returns to pre-mining conditions.
- It may be difficult to immediately fix a supply – a new supply may need to be located which may mean drilling a new well or installing a connection to a public supply.
- The operator is required to pay for the difference in cost between maintaining the new water supply and operating the former water supply. This requires collection of records on the old and new supply to formulate the difference and agree to a settlement of compensation. The Department has no control over the speed at which a private agreement is negotiated and finalized between the water supply owner and mine operator.

- Attorneys may be involved in the compensation process. This often results in extended time to close the incident.

Rebuttable Presumption Zone

25 PA Code § 89.153 makes a distinction regarding the location of the water supply relative to active mining where default liability is presumed to lie with the mine operation for any diminishing, contamination, or interruption of a water supply. The area is defined by projecting a 35° angle from the vertical edge of the extracted coal of an underground mine and is referred to the Rebuttable Presumption Zone (RPZ). The mine operator may rebut this presumption in accordance with the procedures in The Bituminous Mine Subsidence and Land Conservation Act (52 P.S. § 1406.5c).

If the water supply is in this zone, the operator must supply the affected owner with a temporary water source until the issue is resolved. The operator is required to investigate the claim and provide the Department with a decision on whether the mine is responsible for the impacts to the water supply. If the operator believes they are not at fault, they must submit a report identifying the reason the mine is not at fault. After reviewing the operator’s report, the Department will make a final decision on the liability of the mining company for the supply and inform the involved parties. A further course of action may be an appeal to the Pennsylvania Environmental Hearing Board.

In the cases where the water supply is located outside of the RPZ, the Department will initiate an investigation to determine if mining activity is the source of the well complaint. This investigation includes assessment of groundwater elevation data from piezometers that were installed and monitored as part of the permit, operating and post-mining requirements, review of construction details of the well or spring, review of evidence of subsidence events in the area, and a general review of climatic conditions (example: drought conditions). The Department will make a decision on the liability of the mining company for the water supply and inform the involved parties. A further course of action may be an appeal to the Pennsylvania Environmental Hearing Board by either the water supply owner or mining company.

Water supply claims 2018-2022

**Table 6: Water Loss Claims** includes all the claims categorized as Water Loss in the BUMIS system from 1/1/2018 to 12/31/2022 sorted by the date Department received the report.

The following is a summary of those claim numbers. “Company action required” means that the company initiated an action to resolve the claim or the Department investigation determined the company was liable. “Company no further action” means that Department deemed the company not liable or the home/landowner did not continue pursuit of the claim.

**Summary of Claims for Water Loss**

Company Action Required (160 in RPZ)			186
	Longwall	128	
	Room and Pillar	58	
	Room and Pillar Full Extract	0	
Company No Further Action (12 in RPZ)			87
<b>TOTAL</b>			<b>273</b>

Unresolved as of 01/01/2023

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**Table 7: Water Contamination Claims** includes all the claims categorized as Water Contamination in the BUMIS system from 1/1/2018 to 12/31/2022 sorted by the date Department received the report.

**Summary of Claims for Water Contamination**

Company Action Required (54 in RPZ)			86
	Longwall	29	
	Room and Pillar	57	
	Room and Pillar Full Extract	0	
Company No Further Action (25 in RPZ)			87
<b>TOTAL</b>			<b>173</b>

Unresolved as of 01/01/2023

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Cumulative hydrologic effects

A Cumulative Hydrologic Impact Assessment (CHIA) documents whether the mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The CHIA assesses the probable hydrologic consequences of the proposed operation and anticipated coal mining upon surface and groundwater systems in the cumulative impact area. The probable hydrologic consequences are prepared by the applicant (as required by 30 CFR § 780.21(f)) and approved by Department. Disturbances to the hydrologic balance within the permit and adjacent area should be minimized, material damage outside the permit area should be prevented, applicable water quality laws should be met, and the rights of present water users must be protected.

The CHIA is the culmination of the technical review process and provides documentation and justification for Department's decision that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area (25 Pa. Code 86.37(a)(4)). The CalDMO writes an initial CHIA for each permit at time of issuance. The CHIA is updated with each major revision to add acreage and at permit renewal. Depending on the existing information and conditions specific to the mining area, CHIAs will vary in scope and detail. The CHIA documents are located with the permit file. Review of the CHIAs associated with each individual underground mining operation was not part of this assessment. The CHIA process is currently under review by the Department Bureaus of District Mining Operations and Mining Programs to improve upon and standardize CHIAs.

Table 6. Water Loss Claims

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
5738	Well has slowed down	1/2/2018	1/2/2018	1/3/2018	Enlow Fork Mine	3/19/2020	Y	806	Agreement (Unspecified)
5745	Dry well	1/8/2018	12/26/2017	1/8/2018	Washington County Mine	Unresolved	Y	Unresolved	Unresolved
5749	Well went dry	1/12/2018	1/12/2018	1/16/2018	Crooked Creek Mine	3/20/2018	N	63	Owner Failed to Respond to DEP
5750	Well slowed down and cloudy	1/21/2018	1/21/2018	1/22/2018	Enlow Fork Mine	10/29/2020	Y	1011	Agreement (Unspecified)
5754	Diminution of well water	2/12/2018	2/12/2018	2/12/2018	Enlow Fork Mine	2/12/2018	Y	0	Company Purchased Property
5758	Well water has diminished and is muddy	2/12/2018	2/12/2018	2/12/2018	Enlow Fork Mine	12/19/2019	Y	675	Agreement (Unspecified)
5762	Spring has gone dry	2/14/2018	2/14/2018	2/15/2018	Bailey Deep Mine	9/9/2020	Y	937	Agreement (Unspecified)
5806	Pond doesn't seem to be retaining water	3/22/2018	3/22/2018	3/22/2018	Enlow Fork Mine	3/22/2018	Y	0	No Current Use
5810	Replacement well water. Well 1 caved in after 13 years of supplying water	2/28/2018	3/21/2018	3/23/2018	Washington County Mine	3/23/2018	Y	0	No Liability
5817	Well quantity going in and out issues over last few months	2/1/2018	4/6/2018	4/6/2018	Clementine Mine # 1	8/22/2018	Y	138	Permanent Supply (Public) & Agreement
5818	Water loss	4/5/2018	4/5/2018	4/6/2018	Penfield Mine	4/23/2018	N	17	Not Due to Underground Mining
5825	No water in the holding tanks	4/17/2018	4/17/2018	4/18/2018	Maple Springs Mine	8/17/2018	N	121	Not Due to Underground Mining
5843	Well isn't producing as much	5/16/2018	5/16/2018	5/16/2018	Cass No 1 Mine	5/21/2019	N	370	Not Due to Underground Mining
5846	Spring dried up	5/7/2018	5/7/2018	5/17/2018	Cumberland Mine	2/15/2021	Y	1005	Agreement (Unspecified)
5851	Out of water	5/23/2018	5/23/2018	5/23/2018	Acosta Deep Mine	4/4/2019	N	316	Not Due to Underground Mining
5864	No water	6/14/2018	6/14/2018	6/15/2018	Tracy Lynne Mine	8/3/2018	Y	49	No Liability

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
5866	Little to no water	6/18/2018	6/18/2018	6/18/2018	Brush Valley Mine	6/28/2018	N	10	Not Due to Underground Mining
5867	Spring is gone	6/20/2018	6/20/2018	6/20/2018	Bailey Deep Mine	2/24/2020	Y	614	Agreement (Unspecified)
5870	Diminution	6/22/2018	6/22/2018	6/22/2018	Acosta Deep Mine	9/26/2018	N	96	Not Due to Underground Mining
5880	Loss of water to well	7/3/2018	7/17/2018	7/17/2018	Clementine Mine # 1	9/17/2018	Y	62	Withdrawn
5883	Flow decreased, holding tank is below the pump elevation	7/26/2018	7/26/2018	7/27/2018	Crooked Creek Mine	Unresolved	Y	Unresolved	Unresolved
5891	Pond for the horses is low	7/30/2018	7/30/2018	8/1/2018	Enlow Fork Mine	10/29/2020	Y	820	Agreement (Unspecified)
5889	Lost all water to well	8/5/2018	8/6/2018	8/6/2018	Clementine Mine # 1	8/23/2018	N	17	Not Due to Underground Mining
5890	Loss of water to well	5/23/2018	5/23/2018	8/7/2018	Acosta Deep Mine	8/8/2018	N	1	No Actual Problem
5892	Loss of water to well	8/11/2018	8/13/2018	8/13/2018	Clementine Mine # 1	9/14/2018	Y	32	Agreement (Unspecified)
5894	Increased sediment and diminution of water	7/27/2018	7/27/2018	8/20/2018	Maple Springs Mine	8/28/2019	N	373	Not Due to Underground Mining
5896	No water	8/20/2018	8/20/2018	8/20/2018	Clementine Mine # 1	Unresolved	Y	Unresolved	Unresolved
5903	Well has sedimentation and loss of quantity	7/27/2018	7/27/2018	8/20/2018	Maple Springs Mine	2/8/2019	N	172	Not Due to Underground Mining
5906	Well slowed	8/23/2018	8/23/2018	8/24/2018	Enlow Fork Mine	8/24/2018	Y	0	Agreement (Unspecified)
5907	Water diminution	8/23/2018	8/23/2018	8/24/2018	Cumberland Mine	1/29/2019	Y	158	Agreement (Unspecified)
5912	Diminution of well water	8/24/2018	8/24/2018	8/27/2018	Darmac No 2 Mine	7/21/2020	N	694	Permanent Supply (Well/Spring)
5910	Well slowed	8/31/2018	8/31/2018	8/31/2018	Enlow Fork Mine	8/31/2018	Y	0	Agreement (Unspecified)
5916	Water diminution to well	9/1/2018	9/4/2018	9/4/2018	Maple Springs Mine	9/27/2018	N	23	Withdrawn

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
5926	Spring flow has diminished	9/30/2018	9/30/2018	10/1/2018	Enlow Fork Mine	10/1/2018	Y	0	Agreement (Unspecified)
5927	Well water has diminished	8/8/2018	8/8/2018	10/3/2018	Cresson Mine	Unresolved	Y	Unresolved	Unresolved
5928	Loss of water to well	10/2/2018	10/2/2018	10/4/2018	Enlow Fork Mine	10/4/2018	Y	0	Agreement (Unspecified)
5935	Spring has dried up	10/17/2018	10/17/2018	10/18/2018	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
5941	Well water has diminished	11/12/2018	11/12/2018	11/12/2018	Enlow Fork Mine	11/12/2018	Y	0	Agreement (Unspecified)
5945	Well water has diminished some	11/16/2018	11/16/2018	11/16/2018	Enlow Fork Mine	11/16/2018	Y	0	Company Purchased Property
5947	Well water has diminished	11/16/2018	11/16/2018	11/16/2018	Enlow Fork Mine	11/16/2018	Y	0	Agreement (Unspecified)
5949	Well water has diminished	11/16/2018	11/16/2018	11/19/2018	Enlow Fork Mine	11/19/2018	Y	0	Company Purchased Property
5954	Owner water cloudy and some diminution	12/14/2018	12/18/2018	12/18/2018	Cresson Mine	12/26/2018	N	8	Not Due to Underground Mining
5962	Well water has gone dry	12/1/2018	1/7/2019	1/9/2019	Washington County Mine	4/4/2019	Y	85	Not Due to Underground Mining
5966	Loss of water to well	1/14/2019	1/14/2019	1/16/2019	Tunnel Ridge Mine	7/27/2022	Y	1288	Agreement (Unspecified)
5970	Well not making enough water to meet needs	1/15/2019	Not recorded	1/16/2019	Enlow Fork Mine	1/16/2019	Y	0	Agreement (Unspecified)
5972	Spring slowed down	12/6/2018	12/6/2018	1/16/2019	Tunnel Ridge Mine	1/16/2019	Y	0	Agreement (Pre-Mining)
5980	Well water has slowed down	1/22/2019	1/22/2019	1/23/2019	Enlow Fork Mine	1/23/2019	Y	0	Agreement (Unspecified)
5989	Well water has diminished	1/29/2019	2/1/2019	2/1/2019	Brubaker Mine	4/1/2019	N	59	Not Due to Underground Mining
5990	Well has collapsed	2/5/2019	2/5/2019	2/5/2019	Quecreek No 1	9/9/2019	Y	216	Not Due to Underground Mining
5998	Total loss of water to well	10/3/2018	10/3/2018	2/13/2019	Cresson Mine	Unresolved	N	Unresolved	Unresolved
5999	Loss of water to well	2/16/2019	2/16/2019	2/18/2019	Brush Valley Mine	2/22/2019	N	4	Resolved

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6008	Loss of water to well	3/4/2019	Not recorded	3/4/2019	Toms Run Mine	Unresolved	Y	Unresolved	Unresolved
6010	Loss of water to well and orange water	6/1/2018	3/7/2019	3/8/2019	Parkwood Mine	Unresolved	Y	Unresolved	Unresolved
6015	Well water has diminished	3/15/2019	3/15/2019	3/19/2019	Maple Springs Mine	4/4/2019	N	16	Not Due to Underground Mining
6016	Loss of water to well due to operator mined through the well	3/20/2019	Not recorded	3/21/2019	Acosta Deep Mine	12/23/2021	Y	1008	Perm Water Supply (Public) & O&M Bond
6019	Loss of water to S1 (Agricultural)	3/27/2019	Not recorded	3/27/2019	Harvey Mine	11/1/2021	Y	950	Agreement (Unspecified)
6034	Spring water has slowed down	4/23/2019	Not recorded	4/23/2019	Enlow Fork Mine	7/16/2019	N	84	Not Due to Underground Mining
6035	Owner stated water is different	4/22/2019	Not recorded	4/23/2019	Harvey Mine	7/2/2019	Y	70	No Liability
6037	Well was damaged when the pump was pulled by CONSOL contractor; lost water to well	5/8/2019	5/8/2019	5/13/2019	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6049	Spring has dried up	6/18/2019	6/18/2019	6/20/2019	Enlow Fork Mine	4/14/2022	Y	1029	Agreement (Unspecified)
6056	During rain events the well goes artesian.	6/25/2019	6/25/2019	7/1/2019	Kimberly Run Mine	9/9/2019	N	70	Not Due to Underground Mining
6058	Spring stopped flowing	6/29/2019	Not recorded	7/1/2019	Tunnel Ridge Mine	6/16/2020	Y	351	Agreement (Unspecified)
6063	Loss of water pressure	7/15/2019	Not recorded	7/16/2019	Mine 78	9/3/2019	N	49	Not Due to Underground Mining
6064	Loss of water to well	7/15/2019	Not recorded	7/17/2019	Enlow Fork Mine	7/17/2019	Y	0	Agreement (Unspecified)
6071	Loss of water to well	7/23/2019	Not recorded	7/23/2019	Kimberly Run Mine	7/23/2019	Y	0	Water Supply Recovered
6072	No water in well since 2018	7/1/2018	Not recorded	7/23/2019	Crooked Creek Mine	11/1/2019	Y	101	Permanent Supply (Well/Spring)

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6077	Mine intercepted water well during mining. (W-955). Owner contacted. Reservoir low.	7/30/2019	Not recorded	7/31/2019	Madison Mine	11/25/2019	Y	117	Permanent Supply (Well/Spring) & Agreement
6088	Well water has diminished.	8/5/2019	Not recorded	8/5/2019	Enlow Fork Mine	9/17/2019	Y	43	Agreement (Unspecified)
6089	Loss of water in the well.	7/5/2019	8/5/2019	8/5/2019	Crooked Creek Mine	8/23/2019	N	18	Not Due to Underground Mining
6092	Landowner states loss of well water.	8/5/2019	Not recorded	8/6/2019	Darmac No 2 Mine	11/11/2022	Y	1193	Withdrawn
6100	Spring went dry.	8/11/2019	Not recorded	8/12/2019	Enlow Fork Mine	10/29/2020	Y	444	Agreement (Unspecified)
6101	Water loss at his house.	8/13/2019	8/13/2019	8/13/2019	Harvey Mine	10/29/2019	Y	77	Agreement (Unspecified)
6102	Total water loss of spring.	8/9/2019	Not recorded	8/13/2019	Harvey Mine	8/12/2020	Y	365	Agreement (Unspecified)
6104	Owner's shallow well is mushy and boggy and flooding neighbors' basement	8/19/2019	Not recorded	8/19/2019	Kimberly Run Mine	9/26/2019	N	38	Not Due to Underground Mining
6105	Well has stopped producing water	8/20/2019	8/20/2019	8/22/2019	Enlow Fork Mine	9/17/2019	Y	26	Agreement (Unspecified)
6106	Spring has gone dry.	8/22/2019	Not recorded	8/22/2019	Bailey Deep Mine	9/4/2020	Y	379	Agreement (Pre-Mining)
6108	Well is not making enough water	8/20/2019	Not recorded	8/23/2019	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6109	Well not producing water.	8/24/2019	Not recorded	8/26/2019	Cresson Mine	9/26/2019	N	31	Not Due to Underground Mining
6119	Loss of water to spring	8/23/2019	Not recorded	8/29/2019	Monongalia County Mine	11/1/2019	N	64	Not Due to Underground Mining
6120	Diminution of springs.	8/30/2019	Not recorded	9/3/2019	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved
6121	Diminution of springs.	8/30/2019	Not recorded	9/3/2019	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved
6123	Owner's well went dry	9/4/2019	Not recorded	9/4/2019	Parkwood Mine	10/22/2019	N	48	Not Due to Underground Mining
6125	Loss of water to well	9/9/2019	9/9/2019	9/10/2019	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved



Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6131	Well water keeps running out and recharge is very low	9/24/2019	Not recorded	9/24/2019	Quecreek No 1	10/21/2019	Y	27	No Liability
6132	Water loss to well	9/23/2019	9/23/2019	9/24/2019	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved
6133	Water loss to well	9/23/2019	9/23/2019	9/24/2019	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved
6139	Total loss of spring.	9/28/2019	9/30/2019	10/4/2019	Monongalia County Mine	Unresolved	Y	Unresolved	Unresolved
6140	Hand pump well is low.	9/23/2019	Not recorded	10/4/2019	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved
6145	Decreased flow of spring.	9/9/2019	10/4/2019	10/4/2019	Cass No 1 Mine	12/10/2019	N	67	Not Due to Underground Mining
6147	Well water diminution.	10/9/2019	Not recorded	10/10/2019	Enlow Fork Mine	1/29/2020	N	111	Not Due to Underground Mining
6151	Loss of water in well	10/14/2019	Not recorded	10/15/2019	Brush Valley Mine	1/29/2020	Y	106	Not Due to Underground Mining
6152	Completely out of water from spring.	10/14/2019	Not recorded	10/15/2019	Brush Valley Mine	1/29/2020	Y	106	Not Due to Underground Mining
6156	Well water has slowed down.	10/15/2019	Not recorded	10/17/2019	Enlow Fork Mine	10/17/2019	Y	0	Agreement (Unspecified)
6158	Spring going dry.	10/21/2019	10/21/2019	10/21/2019	Acosta Deep Mine	12/9/2019	N	49	Not Due to Underground Mining
6160	Diminution of water from spring.	10/28/2019	Not recorded	10/29/2019	Cumberland Mine	6/22/2021	N	602	Agreement (Unspecified)
6164	Total loss of Spring #1 water.	10/30/2019	Not recorded	11/4/2019	Harvey Mine	1/29/2021	Y	452	Agreement (Unspecified)
6168	Total loss of spring water to S2 (domestic)	10/31/2019	Not recorded	11/4/2019	Harvey Mine	11/1/2021	Y	728	Agreement (Unspecified)
6171	Total loss of spring water to S3 (agricultural)	10/31/2019	Not recorded	11/4/2019	Harvey Mine	11/1/2021	Y	728	Agreement (Unspecified)
6172	Total loss of spring water to S4 (agricultural)	10/31/2019	Not recorded	11/4/2019	Harvey Mine	11/1/2021	Y	728	Agreement (Unspecified)
6173	Total loss of spring water to S5 (agricultural)	10/31/2019	Not recorded	11/4/2019	Harvey Mine	11/1/2021	Y	728	Agreement (Unspecified)
6185	Well has slowed down	11/20/2019	Not recorded	11/22/2019	Enlow Fork Mine	11/22/2019	Y	0	Agreement (Unspecified)

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6186	Total loss of residential well water	11/25/2019	Not recorded	11/26/2019	Madison Mine	Unresolved	Y	Unresolved	Unresolved
6586	Spring water loss	11/19/2019	11/19/2019	12/3/2019	Harvey Mine	12/10/2019	N	7	Repaired
6190	Water pressure is low.	12/5/2019	Not recorded	12/10/2019	Enlow Fork Mine	12/10/2019	Y	0	Agreement (Unspecified)
6203	Running out of water	12/24/2019	12/24/2019	12/27/2019	Quecreek No 1	Unresolved	Y	Unresolved	Unresolved
6210	Diminution of well water	1/2/2018	1/2/2020	1/3/2020	Toms Run Mine	2/20/2020	N	48	Not Due to Underground Mining
6216	Underdeveloped spring went dry	1/13/2020	1/13/2020	1/15/2020	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6219	Well went dry	1/19/2020	1/20/2020	1/20/2020	Cass No 1 Mine	3/11/2020	N	51	Not Due to Underground Mining
6220	Well went dry on 1/21/20	1/22/2020	1/22/2020	1/22/2020	Rustic Ridge	1/22/2020	N	0	Repaired
6231	Well has slowed down	1/24/2020	1/24/2020	1/24/2020	Enlow Fork Mine	3/15/2021	Y	416	Agreement (Unspecified)
6236	Well not supplying enough water	1/27/2020	Not recorded	1/27/2020	Rustic Ridge	4/23/2020	N	87	Not Due to Underground Mining
6244	Loss of spring #2	2/4/2020	2/4/2020	2/5/2020	Harvey Mine	1/29/2021	Y	359	Agreement (Unspecified)
6245	Loss of spring #4	2/4/2020	2/4/2020	2/5/2020	Harvey Mine	1/29/2021	Y	359	Agreement (Unspecified)
6246	Loss of spring #5	2/4/2020	2/4/2020	2/5/2020	Harvey Mine	1/29/2021	Y	359	Agreement (Unspecified)
6248	Collapsed well	2/5/2020	2/5/2020	2/7/2020	Tunnel Ridge Mine	7/27/2022	Y	901	Agreement (Unspecified)
6254	Well water loss	2/9/2020	2/9/2020	2/13/2020	Brush Valley Mine	2/18/2020	N	5	Not Due to Underground Mining
6257	Well is dry	2/20/2020	Not recorded	2/21/2020	Kimberly Run Mine	3/12/2020	N	20	Not Due to Underground Mining
6271	Total loss of Spring #6 water	1/29/2020	2/4/2020	2/26/2020	Harvey Mine	1/29/2021	Y	338	Agreement (Unspecified)
6272	Total loss of Spring #7 water	1/29/2020	2/4/2020	2/26/2020	Harvey Mine	1/29/2021	Y	338	Agreement (Unspecified)

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6273	Well is dry	3/9/2020	3/9/2020	3/10/2020	Enlow Fork Mine	3/10/2020	Y	0	Agreement (Unspecified)
6296	Diminution of spring	4/6/2020	Not recorded	4/6/2020	Enlow Fork Mine	4/6/2020	Y	0	Agreement (Unspecified)
6298	Spring water has diminished	4/6/2020	Not recorded	4/6/2020	Enlow Fork Mine	5/23/2022	Y	777	Agreement (Unspecified)
6300	Well not producing water	4/14/2020	Not recorded	4/14/2020	Dutch Run Mine	4/21/2020	Y	7	Not Due to Underground Mining
6303	Well water level is low	4/16/2020	Not recorded	4/17/2020	Tunnel Ridge Mine	4/17/2020	Y	0	Agreement (Pre-Mining)
6304	Problems with well	4/17/2020	Not recorded	4/17/2020	Kimberly Run Mine	7/31/2020	N	105	No Liability
6305	Loss of water to well	4/6/2020	Not recorded	4/28/2020	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6313	Loss of water to spring that feeds the pond	5/18/2020	Not recorded	5/18/2020	Enlow Fork Mine	5/18/2020	Y	0	Agreement (Unspecified)
6318	Well water runs out after a few showers or laundry	5/20/2020	Not recorded	5/20/2020	Heilwood Mine	2/23/2022	Y	644	Repaired
6320	Well has gone dry within 15 minutes	5/21/2020	5/21/2020	5/21/2020	Harmony Mine	Unresolved	Y	Unresolved	Unresolved
6324	Water diminution in well	6/1/2020	Not recorded	6/1/2020	Cresson Mine	6/15/2020	N	14	Not Due to Underground Mining
6325	Well water diminution	6/1/2020	Not recorded	6/1/2020	Clementine Mine # 1	1/20/2021	Y	233	Agreement (Unspecified)
6326	Loss of water to spring	5/18/2020	Not recorded	6/1/2020	Bailey Deep Mine	9/4/2020	Y	95	Agreement (Unspecified)
6327	Pressure issues, odors, and loss of water	6/3/2020	Not recorded	6/4/2020	Madison Mine	1/20/2021	Y	230	Resolved
6336	Water well went dry, became muddy and smells.	6/20/2020	Not recorded	6/20/2020	North Fork Mine	9/29/2020	N	101	Not Due to Underground Mining
6337	Well ran out of water	6/22/2020	Not recorded	6/23/2020	Logansport Mine	Unresolved	Y	Unresolved	Unresolved
6338	Cistern went dry at the shop.	6/20/2020	Not recorded	6/23/2020	Crooked Creek Mine	5/28/2021	N	339	Not Due to Underground Mining

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6339	Out of water.	6/23/2020	Not recorded	6/23/2020	Acosta Deep Mine	8/12/2020	N	50	Not Due to Underground Mining
6340	Not recorded	6/26/2020	6/26/2020	6/26/2020	Enlow Fork Mine	6/26/2020	Y	0	Agreement (Unspecified)
6342	Well water diminution	6/30/2020		6/30/2020	Darmac No 2 Mine	Unresolved	Y	Unresolved	Unresolved
6344	Water loss.	7/1/2020	7/1/2020	7/1/2020	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6345	Water loss in well.	7/1/2020	7/1/2020	7/1/2020	North Fork Mine	11/16/2020	N	138	Not Due to Underground Mining
6346	Well is out of water.	7/6/2020	7/6/2020	7/7/2020	Rustic Ridge	8/21/2020	N	45	Not Due to Underground Mining
6347	Spring on property is dry.	7/6/2020	7/6/2020	7/7/2020	Rustic Ridge	8/21/2020	N	45	Not Due to Underground Mining
6348	Water loss.	7/8/2020		7/8/2020	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6349	No water at his camp.	7/7/2020	7/7/2020	7/8/2020	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6352	Well pump is not working.	7/10/2020	7/10/2020	7/10/2020	Dutch Run Mine	8/4/2020	Y	25	Resolved
6358	Spring has slowed down.	7/20/2020	Not recorded	7/21/2020	Enlow Fork Mine	7/29/2021	Y	373	Agreement (Unspecified)
6361	Spring water had diminution	7/22/2020	Not recorded	7/23/2020	Harvey Mine	4/19/2021	Y	270	Water Supply Recovered
6362	Spring 2 has gone dry-not in use and no livestock	7/23/2020	Not recorded	7/24/2020	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6378	Out of water.	8/10/2020	8/13/2020	8/14/2020	Madison Mine	12/17/2020	Y	125	Agreement (Unspecified)
6390	CONSOL saw a buffalo on the property.	8/24/2020	Not recorded	8/24/2020	Enlow Fork Mine	8/24/2020	Y	0	Agreement (Unspecified)
6391	Out of water in well.	8/14/2020	Not recorded	8/24/2020	Crooked Creek Mine	11/2/2020	Y	70	Not Due to Underground Mining
6393	Water pressure problems.	8/31/2020	Not recorded	8/31/2020	Tunnel Ridge Mine	10/13/2020	N	43	Not Due to Underground Mining
6394	Dry well.	9/3/2020	9/3/2020	9/3/2020	Kimberly Run Mine	1/19/2021	N	138	Not Due to Underground Mining

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6401	Water loss issues.	6/1/2020	9/14/2020	9/14/2020	Clementine Mine # 1	1/19/2021	N	127	Not Due to Underground Mining
6404	Water loss	9/18/2020	9/18/2020	9/18/2020	Harvey Mine	9/18/2020	Y	0	Agreement (Unspecified)
6405	Flow from well diminished.	9/18/2020	9/19/2020	9/21/2020	Rustic Ridge	1/19/2021	N	120	Not Due to Underground Mining
6411	Loss of water to well	9/22/2020	9/22/2020	9/23/2020	Dutch Run Mine	11/18/2020	N	56	Not Due to Underground Mining
6413	Well ran dry.	9/26/2020	9/29/2020	9/29/2020	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6414	Well not producing same amount of water.	9/29/2020	9/29/2020	9/30/2020	Cresson Mine	2/18/2021	N	141	Not Due to Underground Mining
6416	The well has slowed down.	10/1/2020	10/1/2020	10/2/2020	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6423	Well water loss.	10/8/2020	10/8/2020	10/8/2020	Madison Mine	Unresolved	Y	Unresolved	Unresolved
6425	Well not producing.	10/7/2020	10/7/2020	10/8/2020	Clementine Mine # 1	2/18/2021	N	133	Not Due to Underground Mining
6426	Well has slowed down or dried up.	10/8/2020	10/8/2020	10/9/2020	Enlow Fork Mine	10/9/2020	Y	0	Agreement (Unspecified)
6431	Well has gone dry 3X this year.	10/11/2020	10/14/2020	10/14/2020	Logansport Mine	2/18/2021	N	127	Not Due to Underground Mining
6435	Well water unable to keep up with demand.	9/21/2020	10/21/2020	10/22/2020	Rustic Ridge	3/10/2021	N	139	Not Due to Underground Mining
6436	Well is dry.	10/21/2020	10/21/2020	10/22/2020	Quecreek No 1	10/29/2020	Y	7	Resolved
6437	The spring has lost flow.	10/21/2020	10/21/2020	10/22/2020	Enlow Fork Mine	3/15/2021	N	144	Agreement (Unspecified)
6438	Out of water.	10/22/2020	10/22/2020	10/23/2020	Acosta Deep Mine	3/18/2021	N	146	Not Due to Underground Mining
6440	No water.	10/22/2020	10/23/2020	10/23/2020	Cresson Mine	12/30/2020	N	68	Not Due to Underground Mining

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6455	Well not producing water.	10/1/2020	11/10/2020	11/10/2020	Barrett Deep Mine	3/11/2021	Y	121	Not Due to Underground Mining
6454	Decrease in water quantity.	11/13/2020	11/13/2020	11/13/2020	Tracy Lynne Mine	12/17/2020	Y	34	Withdrawn
6457	Well often runs dry.	11/18/2018	11/18/2020	11/18/2020	Mine 78	3/24/2021	Y	126	Not Due to Underground Mining
6458	Losing water quantity.	6/1/2020	11/23/2020	11/23/2020	Madison Mine	3/19/2021	N	116	Not Due to Underground Mining
6459	Well water muddy and plugging filter system.	11/30/2020	12/1/2020	12/1/2020	Mine 78	4/7/2021	N	127	Not Due to Underground Mining
6460	Total loss of water at hunting camp.	12/1/2020	12/1/2020	12/2/2020	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6461	Out of water.	12/3/2020	12/3/2020	12/4/2020	Kimberly Run Mine	1/13/2021	Y	40	Property Abandoned
6462	Well ran out of water.	11/23/2020	12/7/2020	12/8/2020	Crooked Creek Mine	Unresolved	Y	Unresolved	Unresolved
6465	Well has caved in.	12/1/2020	12/11/2020	12/11/2020	Dutch Run Mine	Unresolved	Y	Unresolved	Unresolved
6466	Rental property lost water supply.	12/14/2020	12/14/2020	12/14/2020	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
670	Water loss	Not recorded	Not recorded	12/14/2020	Monongalia County Mine	Not recorded	N	Not recorded	No Liability
6468	Spring went dry.	12/23/2020	12/23/2020	12/23/2020	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6474	Well has been going dry for a few months.	12/20/2020	1/7/2021	1/7/2021	Crooked Creek Mine	Unresolved	N	Unresolved	Unresolved
6477	Lost water.	1/7/2021	Not recorded	1/11/2021	Harvey Mine	1/11/2021	Y	0	Agreement (Unspecified)
6479	Well has slowed down	1/25/2021	Not recorded	1/25/2021	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6489	Decreasing water flow to house and garage	6/1/2020	2/10/2021	2/10/2021	Barrett Deep Mine	2/18/2021	Y	8	Resolved
6493	Water line break	10/1/2020	10/1/2020	2/15/2021	Emerald Deep Mine	Unresolved	Y	Unresolved	Unresolved
6498	Not recorded	2/25/2021	2/25/2021	2/25/2021	Bailey Deep Mine	2/25/2021	Y	0	Company Purchased Property
6499	No water in well.	2/22/2021	3/1/2021	3/2/2021	Crooked Creek Mine	Unresolved	N	Unresolved	Unresolved

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6500	Well not making as much water.	2/28/2021	3/2/2021	3/2/2021	Heilwood Mine	6/14/2021	N	104	Not Due to Underground Mining
6504	Total loss of well water.	1/7/2021	1/7/2021	3/16/2021	Crooked Creek Mine	Unresolved	U	Unresolved	Unresolved
5405	Ran out of well water	4/2/2021	4/2/2021	4/2/2021	Cass No 1 Mine	Unresolved	N	Unresolved	Unresolved
6517	Well went out.	12/18/2020	4/21/2021	4/22/2021	Agustus Mine	4/22/2021	N	0	Resolved
6526	Well gone dry.	5/13/2021	5/14/2021	5/14/2021	Rustic Ridge	10/12/2021	N	151	Permanent Supply (Well/Spring)
6532	Not producing as much water.	5/18/2021	5/19/2021	5/19/2021	Crooked Creek Mine	5/19/2021	N	0	Repaired
6545	Spring dried up	5/12/2021	5/12/2021	5/20/2021	Washington County Mine	8/31/2021	N	103	Not Due to Underground Mining
6549	Well has slowed down	6/6/2021	6/6/2021	6/7/2021	Enlow Fork Mine	8/11/2021	N	65	Agreement (Unspecified)
6554	Diminution of well water	6/11/2021	Not recorded	6/14/2021	Crooked Creek Mine	Unresolved	Y	Unresolved	Unresolved
6555	Loss of water to well.	6/14/2021	Not recorded	6/15/2021	Acosta Deep Mine	8/18/2021	N	64	Not Due to Underground Mining
6560	Lost water at home.	6/20/2021	6/20/2021	6/21/2021	Bailey Deep Mine	11/21/2022	Y	518	Agreement (Unspecified)
6561	Barn well went dry.	4/21/2021	6/21/2021	6/21/2021	Brush Valley Mine	9/3/2021	N	74	Not Due to Underground Mining
6565	Pond water drained out.	3/1/2021	6/22/2021	6/22/2021	Crooked Creek Mine	9/16/2021	N	86	Not Due to Underground Mining
6562	Well diminished in quantity.	6/1/2021	6/25/2021	6/25/2021	Rustic Ridge	Unresolved	N	Unresolved	Unresolved
6566	Spring had diminished.	6/30/2021	6/30/2021	6/30/2021	Bailey Deep Mine	6/30/2021	Y	0	Agreement (Unspecified)
6567	Slow decrease in well water produced.	12/1/2020	7/5/2021	7/6/2021	Crooked Creek Mine	Unresolved	Y	Unresolved	Unresolved
6569	Water well going dry.	7/1/2021	7/8/2021	7/9/2021	Dutch Run Mine	Unresolved	Y	Unresolved	Unresolved
6579	Spring #2 water loss.	5/28/2021	7/20/2021	7/20/2021	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved
6580	Spring #3 water loss.	5/28/2021	7/20/2021	7/20/2021	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved

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6581	No water.	2/21/2021	2/21/2021	7/23/2021	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved
6582	Spring was diminished.	7/30/2021	7/30/2021	8/18/2021	Harvey Mine	10/12/2022	N	420	Agreement (Unspecified)
6585	Well was dry.	8/9/2021	8/9/2021	8/18/2021	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved
6598	Well water diminution.	8/24/2021	8/31/2021	9/1/2021	Rustic Ridge	10/18/2021	N	47	Not Due to Underground Mining
6599	Total loss of well water	8/18/2021	9/1/2021	9/2/2021	Madison Mine	10/12/2021	Y	40	Permanent Supply (Public) & Agreement
6600	Spring was diminished.	9/13/2021	9/14/2021	9/14/2021	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved
6603	Diminution of water to spring feeding the pond.	9/29/2021	Not recorded	9/30/2021	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved
6604	Diminution of water to spring feeding the pond.	9/29/2021	Not recorded	9/30/2021	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved
6606	Rental property well water has diminished	10/11/2021	Not recorded	10/11/2021	Crooked Creek Mine	Unresolved	N	Unresolved	Unresolved
6608	Well producing less water.	7/1/2021	Not recorded	10/18/2021	Madison Mine	Unresolved	N	Unresolved	Unresolved
6617	Quantity issues with well water.	7/1/2021	10/12/2021	10/21/2021	David Dianne Mine	Unresolved	Y	Unresolved	Unresolved
6619	Water loss/diminution	11/10/2019	11/1/2021	11/2/2021	Enlow Fork Mine	3/7/2022	N	125	Not Due to Underground Mining
6626	Spring dry and cloudy	12/1/2021	12/1/2021	12/1/2021	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6627	Spring dry and cloudy	12/1/2021	12/1/2021	12/1/2021	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6628	Spring dry and cloudy	12/1/2021	12/1/2021	12/1/2021	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6629	Spring dry and cloudy	12/1/2021	12/1/2021	12/1/2021	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6631	Loss of water to a spring.	12/2/2021	12/2/2021	12/3/2021	Enlow Fork Mine	2/25/2022	Y	84	No Liability
6632	Well has collapsed.	12/6/2021	12/6/2021	12/6/2021	Quecreek No 1	2/8/2022	N	64	Not Due to Underground Mining
6634	Well has slowed down.	12/8/2019	12/8/2021	12/8/2021	Enlow Fork Mine	3/8/2022	N	90	Not Due to Underground Mining
6635	Well not producing sufficient water.	12/5/2021	12/10/2021	12/10/2021	Maple Springs Mine	1/28/2022	N	49	Repaired



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6636	Well producing insufficient water.	12/5/2021	12/10/2021	12/10/2021	Maple Springs Mine	1/28/2022	N	49	Repaired
6637	Well slowed down.	12/13/2019	12/13/2021	12/14/2021	Enlow Fork Mine	3/23/2022	N	99	Not Due to Underground Mining
6659	Intermittently running out of water.	2/23/2021	2/23/2022	2/24/2022	Crooked Creek Mine	Unresolved	Y	Unresolved	Unresolved
6662	No water	3/10/2022	3/11/2022	3/11/2022	Crooked Creek Mine	4/6/2022	N	26	Not Due to Underground Mining
6665	Undeveloped spring going dry	3/18/2022	3/18/2022	3/18/2022	Tunnel Ridge Mine	Unresolved	Y	Unresolved	Unresolved
6667	Well not producing much water.	1/1/2022	3/24/2022	3/25/2022	Crooked Creek Mine	3/25/2022	N	0	Resolved
6670	Spring #4 diminished.	4/4/2022	4/4/2022	4/4/2022	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6671	Spring #5 diminished.	4/4/2022	4/4/2022	4/4/2022	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6673	Flow has slowed down	4/7/2022	4/7/2022	4/8/2022	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6674	Flow has slowed down	4/7/2022	4/7/2022	4/8/2022	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6677	Total loss of water.	4/18/2022	4/18/2022	4/21/2022	Harvey Mine	6/28/2022	Y	68	Resolved
6678	Cattle trough has no water in it.	4/21/2022	4/21/2022	4/22/2022	Tunnel Ridge Mine	7/27/2022	Y	96	Agreement (Unspecified)
6689	Well production slowed	5/2/2022	5/2/2022	5/2/2022	Enlow Fork Mine	5/2/2022	Y	0	Agreement (Unspecified)
6692	Lost spring	5/4/2022	5/4/2022	5/5/2022	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6693	Lost spring	5/4/2022	5/4/2022	5/5/2022	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6694	Lost spring	5/4/2022	5/4/2022	5/5/2022	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6695	No flow	5/10/2022	5/10/2022	5/10/2022	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6696	No flow.	5/10/2022	5/10/2022	5/10/2022	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6700	Well slowed down.	5/23/2022	Not recorded	5/24/2022	Enlow Fork Mine	5/24/2022	Y	0	Agreement (Unspecified)
6702	Well water is cloudy.	5/26/2022	Not recorded	5/26/2022	Enlow Fork Mine	5/26/2022	Y	0	Agreement (Unspecified)
6711	Pond.	5/31/2022	Not recorded	5/31/2022	Bailey Deep Mine	6/6/2022	Y	6	Company Purchased Property
6713	Well dries up 2X a year	6/16/2022	6/16/2022	6/17/2022	Enlow Fork Mine	6/30/2022	Y	13	Repaired

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6716	Well water slowed down	6/23/2022	6/23/2022	6/24/2022	Enlow Fork Mine	6/28/2022	Y	4	Agreement (Unspecified)
6718	Spring has slowed down.	6/27/2022	Not recorded	6/28/2022	Enlow Fork Mine	6/28/2022	Y	0	Agreement (Unspecified)
6719	Well slowed down.	6/29/2022	6/29/2022	6/29/2022	Enlow Fork Mine	6/30/2022	Y	1	Company Purchased Property
6720	Decreased water pressure.	7/9/2022	7/11/2022	7/12/2022	Darmac No 2 Mine	8/29/2022	Y	48	No Liability
6722	Loss of water in well.	7/12/2022	Not recorded	7/13/2022	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved
6725	Loss of spring water.	7/16/2022	Not recorded	7/18/2022	Rustic Ridge	7/18/2022	N	0	Repaired
6726	Loss of well water.	7/16/2022	7/18/2022	7/18/2022	Rustic Ridge	7/18/2022	N	0	Repaired
6740	Well dry and sulfur odor.	7/19/2022	Not recorded	7/20/2022	Agustus Mine	9/13/2022	N	55	Not Due to Underground Mining
6729	Well has gone dry.	7/31/2022	7/31/2022	8/1/2022	Rustic Ridge	9/12/2022	N	42	Not Due to Underground Mining
6735	Total loss of water	7/22/2022	7/22/2022	8/3/2022	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6736	Decrease in water	7/20/2022	8/3/2022	8/3/2022	Crooked Creek Mine	9/30/2022	N	58	Not Due to Underground Mining
6743	Little water in well.	8/14/2022	Not recorded	8/17/2022	Nolo Mine	Unresolved	Y	Unresolved	Unresolved
6744	No water	7/10/2019	9/24/2022	8/24/2022	Madison Mine	Unresolved	Y	Unresolved	Unresolved
6747	Pond is leaking.	7/22/2022	7/22/2022	8/31/2022	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved
6750	Dirty water.	7/6/2022	9/6/2022	9/7/2022	Dutch Run Mine	10/24/2022	Y	47	Not Due to Underground Mining
6752	Decrease in water volume.	9/1/2022	9/15/2022	9/15/2022	Darmac No 2 Mine	11/16/2022	Y	62	No Liability
6759	Lack of water	8/3/2022	10/3/2022	10/3/2022	Madison Mine	Unresolved	N	Unresolved	Unresolved
6760	No water from well	10/7/2022	10/7/2022	10/7/2022	Brubaker Mine	10/24/2022	N	17	Withdrawn
6764	Spring water loss	10/1/2022	10/25/2022	10/25/2022	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved
6765	Loss of spring water	10/1/2022	10/25/2022	10/25/2022	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved
6771	Reduction in well water	10/27/2022	11/9/2022	11/10/2022	Harmony Mine	Unresolved	Y	Unresolved	Unresolved

<b>Problem ID</b>	<b>Problem</b>	<b>Date Occurred</b>	<b>Date Company Received</b>	<b>Date DEP Received</b>	<b>Mine Name</b>	<b>Date Final</b>	<b>RPZ</b> (y=yes) (n=no)	<b>Days to Resolution</b>	<b>Resolution</b>
6773	Spring S-4 has gone dry.	10/31/2022	10/31/2022	11/18/2022	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6774	Diminished well water supply	12/28/2022	12/29/2022	12/29/2022	Rustic Ridge	Unresolved	N	Unresolved	Unresolved

Table 7. Water Contamination Claims

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
5737	Well water is muddy and smells like sewer	1/2/2018	1/2/2018	1/2/2018	Quecreek No 1	7/16/2018	Y	195	Not Due to Underground Mining
5746	Water quality issue	1/8/2018	12/26/2017	1/8/2018	Washington County Mine	1/31/2019	Y	388	Agreement (Unspecified)
5752	Well water is red	1/26/2018	1/26/2018	1/30/2018	Acosta Deep Mine	5/21/2018	N	111	Not Due to Underground Mining
5759	Well water is brown.	2/13/2018	2/13/2018	2/13/2018	Barrett Deep Mine	2/27/2018	N	14	Not Due to Underground Mining
5767	Well water making gurgling sound and water gray in color	2/20/2018	2/20/2018	2/20/2018	Bailey Deep Mine	4/2/2021	Y	1137	Agreement (Unspecified)
5783	Water is cloudy	10/23/2017	10/23/2017	3/13/2018	Enlow Fork Mine	3/13/2018	Y	0	Agreement (Unspecified)
5784	Water is red	3/13/2018	3/13/2018	3/14/2018	Kimberly Run Mine	8/17/2018	N	156	Not Due to Underground Mining
5799	Well water quality has diminished	9/30/2017	3/16/2018	3/16/2018	Clementine Mine # 1	8/7/2018	N	144	Not Due to Underground Mining
5800	Renter Josie Vorhees called and said the well water was causing a rash on her children	3/14/2018	3/14/2018	3/15/2018	Bailey Deep Mine	4/4/2018	N	20	Not Due to Underground Mining
5811	Sediment in water for last five months and sediment is either clay or coal in his toilet and tub	10/1/2017	3/26/2018	3/26/2018	Kocjancic Mine	11/26/2019	N	610	Not Due to Underground Mining
5833	Cloudy water	4/30/2018	4/30/2018	4/30/2018	Bailey Deep Mine	4/2/2021	Y	1068	Agreement (Unspecified)
5838	Cloudy and murky water	5/6/2018	5/6/2018	5/7/2018	Enlow Fork Mine	5/8/2018	Y	1	Agreement (Unspecified)
5842	Cloudy water	5/15/2018	5/15/2018	5/16/2018	Enlow Fork Mine	5/23/2018	Y	7	Agreement (Unspecified)
5852	Smell	5/23/2018	5/23/2018	5/23/2018	Barrett Deep Mine	4/4/2019	Y	316	Not Due to Underground Mining
5872	Sediment in the water supply	7/2/2018	7/2/2018	7/3/2018	Nolo Mine	11/26/2019	Y	511	Not Due to Underground Mining

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
5873	Water was yellow then orange	7/4/2018	7/5/2018	7/5/2018	Harmony Mine	11/15/2018	N	133	Not Due to Underground Mining
5879	Cracks	7/13/2018	7/13/2018	7/16/2018	Lowry Deep Mine	7/30/2018	N	14	Not Due to Underground Mining
5882	Iron in well water	4/1/2018	7/17/2018	7/18/2018	Brush Valley Mine	8/22/2018	Y	35	Not Due to Underground Mining
5899	Well water has slight odor	8/17/2018	8/17/2018	8/20/2018	Cumberland Mine	2/18/2019	Y	182	Agreement (Unspecified)
5900	Sulfur smell	8/23/2018	8/23/2018	8/23/2018	Acosta Deep Mine	8/31/2018	N	8	Not Due to Underground Mining
5902	Well water cloudy	8/29/2018	8/29/2018	8/29/2018	Enlow Fork Mine	8/29/2018	Y	0	Agreement (Unspecified)
5904	<i>No information was entered into BUMIS</i>	8/28/2018	8/28/2018	8/27/2018	A-Seam Deep Mine	12/10/2018	N	105	Not Due to Underground Mining
5923	Well water iron levels have increased	9/18/2018	9/18/2018	9/19/2018	Toms Run Mine	10/18/2018	Y	29	Not Due to Underground Mining
5925	Iron levels increased and observed staining	9/21/2018	9/21/2018	9/21/2018	Toms Run Mine	10/22/2018	Y	31	Not Due to Underground Mining
5960	Owner complaining of smell and taste in cold water from well	12/10/2018	12/10/2018	1/3/2019	Enlow Fork Mine	2/1/2021	Y	760	Agreement (Unspecified)
5971	Filter keeps clogging up and down	12/27/2018	12/27/2018	1/17/2019	Acosta Deep Mine	1/17/2019	N	0	Permanent Supply (Public) & Agreement
5979	Strong rotten egg smell in water	1/22/2019	Not recorded	1/22/2019	Madison Mine	6/7/2019	N	136	Not Due to Underground Mining
5991	Orange discharge in pond	2/5/2019	2/5/2019	2/6/2019	Enlow Fork Mine	2/11/2019	N	5	Not Due to Underground Mining
5996	Well1 Water cloudy	3/22/2018	3/22/2018	2/12/2019	Bailey Deep Mine	4/7/2021	Y	785	Agreement (Unspecified)

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
5997	Well 2 Water cloudy	3/22/2018	3/22/2018	2/12/2019	Bailey Deep Mine	4/7/2021	Y	785	Agreement (Unspecified)
6012	Sulfur smell-rotten egg in well water	3/11/2019	Not recorded	3/11/2019	Crooked Creek Mine	4/4/2019	N	24	Not Due to Underground Mining
6017	Well water is cloudy.	3/21/2019	Not recorded	3/22/2019	Enlow Fork Mine	8/16/2022	Y	1243	Agreement (Unspecified)
6018	Well water is getting worse per fax	3/25/2019	3/25/2019	3/25/2019	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6020	Septic odor in water	4/3/2019	Not recorded	4/4/2018	Harvey Mine	5/29/2019	Y	420	Not Due to Underground Mining
6038	Sulfur odor in water	5/9/2019	Not recorded	5/13/2019	Harvey Mine	8/13/2019	Y	92	Agreement (Unspecified)
6039	Cloudy rusty water, coal fines and smell on 5/21/19	5/21/2019	5/21/2019	5/21/2019	Kimberly Run Mine	Unresolved	Y	Unresolved	Unresolved
6041	Well water at rental house is black	5/25/2019	5/25/2019	5/29/2019	Harvey Mine	10/29/2019	Y	153	Agreement (Unspecified)
6042	Well close to artesian and had high sulfates	6/6/2019	6/6/2019	6/6/2019	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6050	Well water is cloudy	6/24/2019	6/24/2019	6/24/2019	Enlow Fork Mine	4/14/2022	Y	1025	Agreement (Unspecified)
6054	Well water contamination	6/24/2019	Not recorded	6/25/2019	Cumberland Mine	2/16/2022	Y	967	Agreement (Unspecified)
6060	Water quality not good	7/8/2019	Not recorded	7/9/2019	Kimberly Run Mine	9/4/2019	N	57	Not Due to Underground Mining
6062	Owner states has bad water	7/10/2019	Not recorded	7/10/2019	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6070	Well experienced increase in turbidity	7/18/2019	Not recorded	7/18/2019	North Fork Mine	8/14/2019	N	27	Not Due to Underground Mining
6073	Smell and taste in water.	7/23/2019	Not recorded	7/24/2019	Enlow Fork Mine	2/10/2020	Y	201	Agreement (Unspecified)
6074	Landowner states water is undrinkable.	2/5/2019	Not recorded	7/25/2019	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6076	Well water was cloudy.	7/29/2019	Not recorded	7/30/2019	Dutch Run Mine	9/24/2019	N	56	Not Due to Underground Mining

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6079	Water smells bad and the iron is high.	7/30/2019	Not recorded	8/1/2019	Kimberly Run Mine	9/18/2019	N	48	Not Due to Underground Mining
6081	Water quality changing.	8/1/2019	Not recorded	8/1/2019	Kimberly Run Mine	9/5/2019	N	35	Not Due to Underground Mining
6083	Water has a heavy black sediment.	8/1/2019	Not recorded	8/1/2019	Dutch Run Mine	9/24/2019	N	54	Not Due to Underground Mining
6091	Water is cloudy	8/5/2019	8/5/2019	8/6/2019	Harvey Mine	8/6/2019	Y	0	Company Purchased Property
6093	Water quality issues.	8/6/2019	Not recorded	8/6/2019	Kimberly Run Mine	9/16/2019	N	41	Not Due to Underground Mining
6094	Owner reports his well is cloudy.	8/6/2019	Not recorded	8/7/2019	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6099	Odor in well water.	8/12/2019	Not recorded	8/12/2019	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6103	Increased iron in well water.	8/14/2019	Not recorded	8/15/2019	Madison Mine	9/24/2019	N	40	Not Due to Underground Mining
6110	Water has quality issues.	8/23/2019	Not recorded	8/23/2019	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6112	Well water is cloudy	8/28/2019	Not recorded	8/29/2019	Enlow Fork Mine	8/29/2019	Y	0	Agreement (Unspecified)
6126	Well has increased turbidity and iron content.	9/10/2019	Not recorded	9/10/2019	Madison Mine	11/18/2019	Y	69	Not Due to Underground Mining
6128	Well smells of rotten egg/sulfur	9/10/2019	9/17/2019	9/18/2019	Cass No 1 Mine	Unresolved	Y	Unresolved	Unresolved
6129	Owner water quality getting worse	9/20/2019	Not recorded	9/21/2019	Kimberly Run Mine	11/4/2019	N	44	Not Due to Underground Mining
6130	Water turbidity	9/19/2019	9/20/2019	9/21/2019	North Fork Mine	9/25/2019	N	4	Repaired
6135	Water tastes bad and turning black	9/27/2019	Not recorded	9/27/2019	Kimberly Run Mine	11/14/2019	N	48	Not Due to Underground Mining
6136	Bad water and iron staining.	9/17/2019	9/17/2019	10/2/2019	Kimberly Run Mine	10/29/2019	N	27	Not Due to Underground Mining

<b>Problem ID</b>	<b>Problem</b>	<b>Date Occurred</b>	<b>Date Company Received</b>	<b>Date DEP Received</b>	<b>Mine Name</b>	<b>Date Final</b>	<b>RPZ (y=yes) (n=no)</b>	<b>Days to Resolution</b>	<b>Resolution</b>
6153	Smell and taste to water.	10/14/2019	Not recorded	10/15/2019	Brush Valley Mine	12/10/2019	N	56	Not Due to Underground Mining
6154	Water contamination-water turned gray.	10/14/2019	Not recorded	10/15/2019	Cresson Mine	10/24/2019	N	9	Resolved
6165	Water problems.	11/4/2019	Not recorded	11/4/2019	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6166	Smell to water of last couple of months.	9/5/2019	Not recorded	11/5/2019	Brush Valley Mine	12/6/2019	Y	31	Not Due to Underground Mining
6167	Problems with water quality.	11/5/2019	Not recorded	11/5/2019	Kimberly Run Mine	1/21/2020	N	77	Not Due to Underground Mining
6174	Sediment and iron, no water pressure.	11/5/2019	11/5/2019	11/5/2019	Clementine Mine # 1	2/10/2020	N	97	Not Due to Underground Mining
6175	Water quality dirty and orange	11/8/2019	Not recorded	11/12/2019	Parkwood Mine	12/6/2019	Y	24	Not Due to Underground Mining
6184	Well water a little cloudy	11/15/2019	Not recorded	11/19/2019	Enlow Fork Mine	5/1/2020	Y	164	Resolved
6187	The spring water is cloudy.	11/25/2019	Not recorded	11/26/2019	Enlow Fork Mine	11/26/2019	Y	0	Agreement (Unspecified)
6195	Odor in his water	11/26/2019	11/26/2019	12/17/2019	Bailey Deep Mine	12/19/2019	Y	2	Not Due to Underground Mining
6204	Black powder in the water	12/30/2019	12/30/2019	1/2/2020	Enlow Fork Mine	1/2/2020	Y	0	Resolved
6214	Spring water is gray and cloudy	1/13/2020	1/13/2020	1/14/2020	Enlow Fork Mine	6/8/2020	Y	146	Water Supply Recovered
6233	Well is cloudy	1/24/2020	Not recorded	1/24/2020	Enlow Fork Mine	12/6/2021	Y	682	Agreement (Unspecified)
6237	Water was cloudy	1/31/2020	1/31/2020	2/3/2020	Enlow Fork Mine	5/7/2020	Y	94	Agreement (Unspecified)
6251	Water issues	2/13/2020	2/13/2020	2/13/2020	Kimberly Run Mine	4/21/2020	N	68	Not Due to Underground Mining
6255	Water is red and smells	2/14/2020	2/14/2020	2/18/2020	Kimberly Run Mine	10/4/2022	N	959	Repaired
6256	Sulfur smell in water	2/18/2020	2/18/2020	2/18/2020	Bailey Deep Mine	8/5/2021	Y	534	Agreement (Unspecified)



Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6262	Water is worse	2/25/2020	2/25/2020	2/25/2020	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6281	Spring water is cloudy	3/16/2020	Not recorded	3/17/2020	Enlow Fork Mine	6/2/2022	Y	807	Agreement (Unspecified)
6302	Well water is cloudy	4/15/2020	Not recorded	4/15/2020	Enlow Fork Mine	12/6/2021	Y	600	Agreement (Unspecified)
6315	Water contamination due to well plugging by Oil and Gas	5/12/2020	Not recorded	5/18/2020	Bailey Deep Mine	5/18/2020	N	0	Referred to Oil and Gas
6316	Water contaminated due well plugging by Oil and Gas	5/12/2020	Not recorded	5/18/2020	Bailey Deep Mine	5/18/2020	N	0	Referred to Oil and Gas
6322	Well water cloudy, discolored with sediment greasy film.	5/28/2020	Not recorded	5/28/2020	Rustic Ridge	12/30/2020	N	216	Not Due to Underground Mining
6328	Well water is brown and cloudy	5/25/2020	6/4/2020	6/4/2020	Acosta Deep Mine	8/30/2020	Y	87	Not Due to Underground Mining
6332	Water smelled like diesel fuel.	5/1/2020	Not recorded	6/15/2020	Cass No 1 Mine	7/29/2020	N	44	Referred to Oil and Gas
6333	Increase sediment laden wells	4/1/2020	6/15/2020	6/15/2020	Rustic Ridge	8/11/2020	N	57	No Liability
6334	Increased sediment in well	4/1/2020	6/15/2020	6/15/2020	Rustic Ridge	8/11/2020	N	57	No Liability
6335	Well water is orange	6/17/2020	Not recorded	6/17/2020	Quecreek No 1	2/26/2021	N	254	Permanent Supply (Well/Spring)
6341	Water quality has diminished.	6/23/2020	6/23/2020	6/23/2020	Acosta Deep Mine	Unresolved	Y	Unresolved	Unresolved
6343	Water was cloudy.	6/30/2020	6/30/2020	7/1/2020	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6351	Water well contamination.	6/30/2020	Not recorded	7/9/2020	Monongalia County Mine	10/29/2020	Y	112	Not Due to Underground Mining
6354	Water quality changing.	7/13/2020	7/13/2020	7/13/2020	Kimberly Run Mine	9/29/2020	N	78	Not Due to Underground Mining
6357	Orange water in bath and toilet.	7/15/2020	7/15/2020	7/16/2020	Kimberly Run Mine	9/7/2020	N	53	Not Due to Underground Mining
6359	Not recorded	7/21/2020	7/21/2020	7/22/2020	Kimberly Run Mine	11/18/2020	N	119	Not Due to Underground Mining
6373	Well water diminution and contamination.	8/10/2020	8/10/2020	8/11/2020	Rustic Ridge	10/30/2020	N	80	Not Due to Underground Mining

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6392	Water quality complaint.	8/28/2020	Not recorded	8/28/2020	Lowry Deep Mine	11/18/2020	N	82	Not Due to Underground Mining
6402	Clarity of water.	9/14/2020	9/14/2020	9/15/2020	Cumberland Mine	12/30/2020	N	106	Not Due to Underground Mining
6403	Water is bad and getting worse.	9/16/2020	9/16/2020	9/16/2020	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6406	Odd smell to water	9/21/2020	9/21/2020	9/22/2020	Bailey Deep Mine	1/7/2021	Y	107	Resolved
6409	Water quality.	9/24/2020	9/24/2020	9/24/2020	Kimberly Run Mine	12/30/2020	N	97	Not Due to Underground Mining
6410	Water is orange and smells like iron/metal.	9/1/2020	9/24/2020	9/24/2020	Madison Mine	10/15/2020	Y	21	Not Due to Underground Mining
6412	Discoloration of water.	9/28/2020	9/28/2020	9/29/2020	Bailey Deep Mine	9/29/2020	Y	0	Agreement (Pre-Mining)
6421	Well water is cloudy.	10/8/2020	10/8/2020	10/8/2020	Enlow Fork Mine	10/8/2020	Y	0	Agreement (Unspecified)
6427	Water quality issues.	10/9/2020	10/9/2020	10/9/2020	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6430	Water tastes funny.	10/12/2020	10/12/2020	10/12/2020	Bailey Deep Mine	1/8/2021	Y	88	Not Due to Underground Mining
6433	Degradation of water-iron, sulfate, etc.	10/19/2020	10/19/2020	10/19/2020	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6434	Water trouble.	10/16/2020	10/16/2020	10/20/2020	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6441	Methane gas smell in well, sink and faucet.	9/1/2020	Not recorded	10/23/2020	Washington County Mine	10/27/2020	Y	4	Vented - Resolved
6451	Gas smell in water well.	10/1/2020	Not recorded	11/3/2020	Washington County Mine	11/2/2020	Y	0	Vented - Resolved
6452	Water was brown.	11/2/2020	11/2/2020	11/3/2020	Cumberland Mine	Unresolved	N	Unresolved	Unresolved
6464	Water turned black.	12/8/2020	12/8/2020	12/9/2020	Cresson Mine	4/6/2021	N	118	Not Due to Underground Mining
6469	Water quality staining and odor.	12/15/2020	12/15/2020	12/23/2020	North Fork Mine	3/31/2021	N	98	Not Due to Underground Mining

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6471	Water was cloudy.	1/4/2021	1/5/2021	1/6/2021	Harvey Mine	1/6/2021	N	0	Company Purchased Property
6472	Sudden water quality issue.	12/30/2020	Not recorded	1/6/2021	Kimberly Run Mine	5/3/2021	N	117	Not Due to Underground Mining
6473	Staining of dishes from water.	1/1/2018	1/5/2021	1/6/2021	Clementine Mine # 1	4/21/2021	Y	105	Not Due to Underground Mining
6475	Tons of iron color in water.	1/6/2021	Not recorded	1/7/2021	Kimberly Run Mine	5/11/2021	N	124	Not Due to Underground Mining
6478	Watercolor turned orange.	1/21/2021	1/21/2021	1/21/2021	Clementine Mine # 1	2/1/2021	Y	11	Resolved
6487	Well water is cloudy	2/8/2021	2/8/2021	2/9/2021	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6488	Water cloudy, milky to dark	2/9/2021	2/10/2021	2/10/2021	Crooked Creek Mine	Unresolved	N	Unresolved	Unresolved
6505	Water staining and smells.	1/21/2021	3/21/2021	3/23/2021	Crooked Creek Mine	Unresolved	N	Unresolved	Unresolved
6516	Tons of problems.	4/22/2021	4/22/2021	4/22/2021	Tracy Lynne Mine	6/29/2021	N	68	Not Due to Underground Mining
6518	Water concerns-filtering more often.	7/1/2020	3/26/2021	4/26/2021	Madison Mine	Unresolved	Y	Unresolved	Unresolved
6519	Water in well is cloudy/muddy	4/10/2019	Not recorded	4/11/2019	Enlow Fork Mine	4/27/2021	Y	747	Agreement (Unspecified)
6520	Well going dry and quality deteriorating with high pH and getting salty.	3/3/2021	5/3/2021	5/4/2021	Knob Creek Mine	6/14/2021	N	41	Not Due to Underground Mining
6546	Water quality bad-turned orange.	5/30/2021	6/1/2021	6/1/2021	Solar No 7 Deep Mine*	9/16/2021	N	107	Resolved
6547	Fish kill in pond.	5/1/2021	6/1/2021	6/4/2021	Washington County Mine	8/23/2021	Y	80	Not Due to Underground Mining
6548	Muddy water.	6/4/2021	6/7/2021	6/7/2021	Mine 78	6/8/2021	Y	1	Repaired
6550	Orange staining and smelly water.	12/1/2020	6/7/2021	6/7/2021	Madison Mine	8/4/2021	N	58	Not Due to Underground Mining
6556	Well water has turned orange	6/15/2021	Not recorded	6/15/2021	Acosta Deep Mine	8/4/2021	N	50	Not Due to Underground Mining

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6558	Well 1 slightly cloudy.	6/15/2021	6/15/2021	6/15/2021	Bailey Deep Mine	11/21/2022	Y	524	Agreement (Unspecified)
6559	Cloudy, orange water.	4/16/2021	6/16/2021	6/16/2021	Clementine Mine # 1	Unresolved	Y	Unresolved	Unresolved
6563	Water was black and smelly; water ran dry.	6/1/2021	6/25/2021	6/25/2021	Crooked Creek Mine	Unresolved	N	Unresolved	Unresolved
6570	Cloudy, dirty well water.	7/1/2021	7/9/2021	7/9/2021	Penfield Mine	9/10/2021	N	63	Not Due to Underground Mining
6572	Metallic tasting, undrinkable water.	7/9/2021	Not recorded	7/12/2021	Dutch Run Mine	7/28/2021	Y	16	Not Due to Underground Mining
6601	Water smells and has iron staining.	8/1/2018	Not recorded	9/17/2021	Rustic Ridge	11/29/2021	N	73	Not Due to Underground Mining
6602	Water contamination	9/1/2021	9/24/2021	9/24/2021	Clementine Mine # 1	10/5/2021	Y	11	Not Due to Underground Mining
6605	Loss of water-due to pump clogged with iron	6/1/2021	Not recorded	10/5/2021	Madison Mine	10/25/2021	N	20	Not Due to Underground Mining
6607	Iron staining in spring.	10/10/2021	10/15/2021	10/15/2021	Maple Springs Mine	10/13/2022	Y	363	Not Due to Underground Mining
6613	Watercolor and staining issues.	10/1/2021	10/18/2021	10/18/2021	Madison Mine	12/3/2021	N	46	Not Due to Underground Mining
6615	Dirt/Sediment in well water	8/18/2021	10/18/2021	10/21/2021	Rustic Ridge	2/18/2022	N	120	Not Due to Underground Mining
6620	Pressure fluctuations and stained wall.	8/1/2021	11/5/2021	11/8/2021	Madison Mine	1/25/2022	N	78	Not Due to Underground Mining
6622	Infiltration of mine water into well.	11/8/2021	11/8/2021	11/9/2021	Enlow Fork Mine	1/18/2022	N	70	Not Due to Underground Mining
6623	Bad water.	11/9/2021	11/9/2021	11/10/2021	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6630	Well water contaminated with coal fines.	9/30/2021	11/30/2021	12/2/2021	Harmony Mine	2/8/2022	N	68	Not Due to Underground Mining

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	RPZ (y=yes) (n=no)	Days to Resolution	Resolution
6633	Odor in water.	12/7/2021	12/7/2021	12/7/2021	Tunnel Ridge Mine	Unresolved	N	Unresolved	Unresolved
6638	Sulfur smell in well water.	12/23/2021	12/23/2021	12/23/2021	Maple Creek Mine	Not recorded	N	Not recorded	Not Due to Underground Mining
6644	Water has bad taste and is black	1/24/2022	1/24/2022	1/24/2022	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6645	Water is black.	1/22/2022	1/22/2022	1/24/2022	Parkwood Mine	3/28/2022	N	63	Not Due to Underground Mining
6647	Water was dirty	2/12/2022	2/12/2022	2/14/2022	Harvey Mine	Not recorded	Y	Not recorded	Resolved
6650	Water smells bad.	2/15/2022	2/15/2022	2/18/2022	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6651	Water filters are plugging up.	2/1/2022	2/15/2022	2/16/2022	Quecreek No 1	4/18/2022	Y	61	Resolved
6653	Water smells bad.	2/15/2022	2/15/2022	2/18/2022	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6656	Bad water	2/18/2022	2/18/2022	2/18/2022	Kimberly Run Mine	Unresolved	N	Unresolved	Unresolved
6657	Yellow stains and oily sheen	12/22/2021	2/22/2022	2/22/2022	Lowry Deep Mine	5/2/2022	N	69	Not Due to Underground Mining
6658	Cloudy well water	2/22/2022	2/22/2022	2/23/2022	Enlow Fork Mine	3/28/2022	Y	33	Water Supply Recovered
6666	Well not producing and water dirty.	1/25/2022	3/24/2022	3/25/2022	Cresson Mine	6/9/2022	N	76	Not Due to Underground Mining
6675	Well #2 at barn is running cloudy	4/5/2022	4/5/2022	4/5/2022	Harvey Mine	Unresolved	Y	Unresolved	Unresolved
6676	Sediment in the water.	4/14/2022	4/18/2022	4/18/2022	Bailey Deep Mine	Unresolved	Y	Unresolved	Unresolved
6681	Water smells and sediment	3/14/2022	3/24/2022	4/27/2022	Cresson Mine	9/29/2022	N	155	Not Due to Underground Mining
6697	Water red and smells of sulfur	5/9/2022	5/9/2022	5/10/2022	Quecreek No 1	Unresolved	Y	Unresolved	Unresolved
6714	Water cloudy and smells.	4/21/2022	6/21/2022	6/23/2022	Crooked Creek Mine	10/12/2022	Y	111	No Liability
6715	Changing sediment filter often.	4/21/2022	Not recorded	6/23/2022	Crooked Creek Mine	10/12/2022	Y	111	No Liability
6717	Water gritty and sediment in it.	6/27/2022	6/27/2022	6/27/2022	Bailey Deep Mine	8/4/2022	Y	38	Not Due to Underground Mining
6721	Water well contamination	7/12/2022	Not recorded	7/12/2022	Cumberland Mine	Unresolved	Y	Unresolved	Unresolved

<b>Problem ID</b>	<b>Problem</b>	<b>Date Occurred</b>	<b>Date Company Received</b>	<b>Date DEP Received</b>	<b>Mine Name</b>	<b>Date Final</b>	<b>RPZ</b> (y=yes) (n=no)	<b>Days to Resolution</b>	<b>Resolution</b>
6723	Water not fine.	7/14/2022	7/14/2022	7/14/2022	Kimberly Run Mine	9/8/2022	N	56	Not Due to Underground Mining
6727	Iron staining in tub and sink.	5/20/2022	7/20/2022	7/20/2022	Lowry Deep Mine	10/27/2022	N	99	Not Due to Underground Mining
6728	Sediment in well water.	7/11/2022	7/25/2022	7/27/2022	Nolo Mine	7/27/2022	Y	0	Not Due to Underground Mining
6751	Water quality hard.	9/1/2022	9/12/2022	9/12/2022	Crooked Creek Mine	12/22/2022	N	101	Not Due to Underground Mining
6762	Cloudy water	10/20/2022	10/21/2022	10/21/2022	Parkwood Mine	10/24/2022	Y	3	Not Due to Underground Mining
6768	Sediment & cloudiness in well	10/31/2022	10/31/2022	10/31/2022	Enlow Fork Mine	Unresolved	Y	Unresolved	Unresolved
6772	Smell and rust color of well water	9/1/2022	11/10/2022	11/10/2022	Crooked Creek Mine	Unresolved	N	Unresolved	Unresolved

*\*Indicates nonactive, reclaimed operation.*

### *Other claims*

Other types of claims are grouped here. Of note, incidents involving roads are covered under “land damage” because the area usually encompasses more than just the road. Also, incidents involving ponds are addressed under water supplies.

### Methane

Methane is a naturally occurring hydrocarbon gas. It is lighter than air, colorless, odorless, and flammable. It is found in shallow, organic-rich deposits and deep coal beds as well as other rock units. Underground methane can be influenced by the coal mining process. Prior to mining, the longwall operators may vent water wells or install gas detectors in the houses that are within or proximal to the longwall panels if there is a problem or the homeowner requests it.

If a homeowner believes that undermining is causing a methane problem on their property, they report this to the mine operator. The operator has the option to report the claim to the Department or not. Methane issues are often incidental to other damage claims and are resolved under those claims. If the operator accepts responsibility for a methane problem, they will fix the problem by venting the gas to the atmosphere and providing the homeowner with gas detectors for their structures. If the operator denies responsibility, the Department will investigate to determine cause. If the Department finds the operator responsible, the operator may be ordered to mitigate the gas problem. If the Department investigation finds the methane release was not caused by mining, the property owner has the right to file an appeal with the PA Environmental Hearing Board.

In rare cases, methane can find its way into a structure via cracks in the foundation and/or basement floor. Sometimes this can be mitigated with a system that creates either positive or negative pressure in the basement which keeps the methane in check. This type of system is not always successful at mitigating the stray gas. In those situations, the coal company may purchase an affected dwelling.

Methane cases are rarely logged by the Department. Stray gas problems are typically tied to an incident of structure damage. A long period from notification to solution may be a result of additional monitoring (perhaps several seasons of data collection) that is needed to assess the problem or to continue monitoring during the mining of additional panels. It can also take additional time to determine if mitigation plans are working, and this may be delayed by related repairs to the structure.

### Utilities

Utility impacts are subsidence damage to pipes, conduits, or wires which convey electricity, gas, water, sewage, internet, etc. These incidents are rare because the operators and public utilities will have agreements and plans in place prior to undermining. The Department expediently addresses utility incidents.

### Methane and Utility claims 2018-2022

**Table 8: Utility Claims** includes all the claims categorized as Utilities in the BUMIS system from 1/1/2018 to 12/31/2022 sorted by the date Department received the report. Total number of claims: 3, with only 2 related to underground mining (longwall).

**Table 9: Methane Claims** includes all the claims categorized as Methane in the BUMIS system from 1/1/2018 to 12/31/2022 sorted by the date Department received the report. Total number of claims: 2, both related to longwall underground mining.

Table 8. Utility Claims

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5893	Shear in sewer line in area at junction of 4th St and Maple Avenue	7/30/2018	7/30/2018	8/16/2018	Maple Creek Mine	9/26/2018	41	Repaired
5973	Broken public water line	1/15/2019	1/15/2019	1/18/2019	Tunnel Ridge Mine	1/18/2019	0	Repaired
6642	Gas well no longer producing.	12/11/2021	12/11/2021	12/17/2021	Cumberland Mine	1/25/2022	39	Not Due to Underground Mining

Table 9. Methane Claims

Problem ID	Problem	Date Occurred	Date Company Received	Date DEP Received	Mine Name	Date Final	Days to Resolution	Resolution
5951	Methane in well water.	11/20/2018	11/20/2018	11/20/2018	Bailey Deep Mine	11/25/2019	370	Agreement (Unspecified)
5961	Methane gas in well water	12/1/2018	Not recorded	1/7/2019	Washington County Mine	10/16/2019	282	Repaired



## Streams

Stream impacts associated with underground mining can include diminished flow and/or a complete loss of flow, pooling at the edge of the subsidence basin, as well as streambed fracturing/heaving. All three effects can result in a varying degree of habitat loss for aquatic and terrestrial fauna along with impacts to riparian wetlands. Any affected stream may contain one impact or a combination of flow loss, pooling, and heaving/fracture impacts.

The Department uses Technical Guidance Document 563-2000-655 *Surface Water Protection – Underground Bituminous Coal Mining Operations* to provide direction to staff who review underground mining applications, respond to reports of alleged impacts, or conduct regular evaluations of the surface waters and land located above underground mines. It also provides guidance to the regulated community regarding how to comply with existing legal requirements. In issuing mining authorizations, the Department ensures that underground mining activities are designed to protect and maintain the existing and designated uses of perennial and intermittent streams and to protect the functions and values of wetlands, as required by the Clean Streams Law, the Bituminous Mine Subsidence and Land Conservation Act, and 25 Pa. Code Chapters 86, 89, 93, 96 and 105. This guidance document will be updated based on the findings and recommendations of this report and published for public comment during that process.

### *Summary of stream impacts*

The following summarizes the data contained in the sections related to flow loss, pooling, and heaving/fractures:

#### **Total length of stream impacts by mine (GIS calculated):**

Enlow Fork/Longwall	21,267.40 ft / 4.03 miles
Cumberland/Longwall	12,579.27 ft/ 2.38 miles
Bailey/Longwall	23,498.56 ft/ 4.45 miles
Harvey/Longwall	17,760.59 ft/ 3.36 miles
Tunnel Ridge/Longwall	5,346.01 ft/ 1.01 miles
Monongalia/Longwall	170.63 ft/ 0.03 miles
Crooked Creek/Room & Pillar	1,839.64 ft/ 0.35 miles

#### **Miles of streams undermined total: 78.93**

Longwall:	59.45
Room-and-pillar:	19.48

#### **Miles of streams impacted subsidence-related effects total: 15.62**

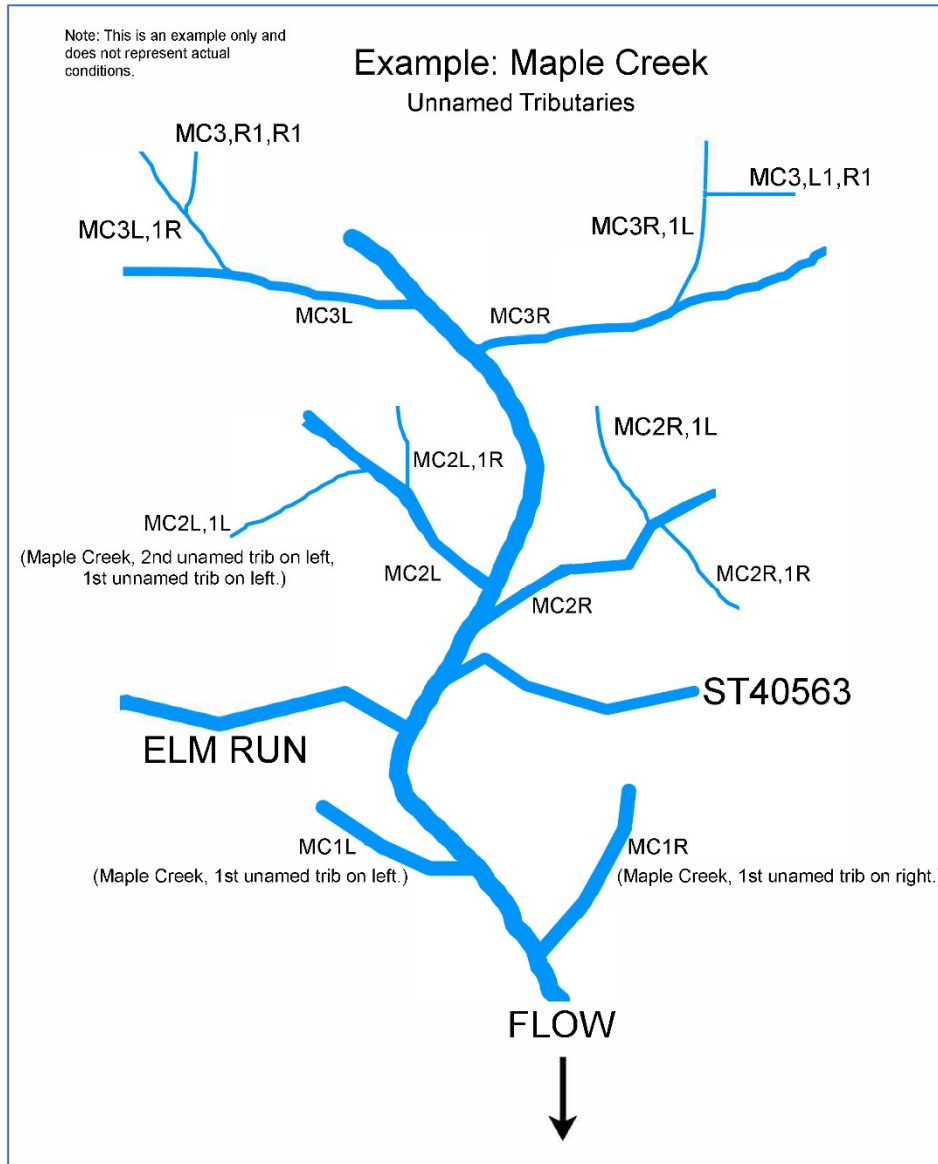
Longwall:	15.27
Room and pillar:	0.35

#### **Percentage of streams miles impacted by mining type:**

Longwall:	19.45%
Room and pillar:	0.44%

### Stream Identification Nomenclature

Where the streams/tributaries have no local name, a number designation is given (ST-ID number). The letters “L” and “R” are designations for left and right in navigating the tributaries to the affected area when moving upstream. For example, “LngR-2L, 1L” means Long Run 2nd tributary on the left, then 1st tributary on the left. See Figure 1 as an example of locating the stream segment affected.



**Figure 1.** Example of stream location designations.

### Online Stream Impact Data

The Department uploads spreadsheets containing the mine name, stream identification, impact length, latitude and longitude locations, and other pertinent data on to the Bureau of Mining Programs website for the public review and research. For this report, the stream location data (latitude/longitude) was converted to GIS layers and matched to the stream segments to calculate a more precise total length of stream impacts.

### Stream Impact Descriptions

The following sections and tables discuss each impact type and show existing claims data for streams experiencing flow loss, pooling, and/or fracture/heaving impacts. Tables 10, 11, and 12 show the stream data that is collected and stored in BUMIS with additional information supplemented by the CalDMO shadow<sup>2</sup> inspectors.

#### *Flow loss*

Diminished flow and complete flow loss related to underground mining is usually caused by the development of new fractures or the expansion of pre-existing fractures, under and within the stream bed. These fractures result from land subsidence/land movement in areas that have been directly undermined or areas that are located within the underground mine's angle of draw. Once a partial or total flow loss has been identified, the mine operator is required to augment (supplement) the stream until the flow returns on its own or the fractures in the stream bed can be sealed through grouting or by other means. Grouting consists of pumping grout (either a cement like material or polyurethane) under the stream bed to create an impervious layer which seals off fractures.

**Table 10: Flow Loss** shows all the flow losses that are actively being investigated by the Department from 2018 onward by year, based on the year in which the stream loss was first identified. Flow losses associated with each mine are broken out and separated based on the impacted stream segment. Within each entry, the panel and panel ID associated with each stream loss is recorded, as well as when the stream loss was first reported and the length of the observed impact.

Longwall mining accounted for all stream segments experiencing flow loss with one exception, Rosebud Mining/Crooked Creek Mine, a room and pillar operation) experienced a flow loss. The panel is listed as "n/a".

The following abbreviations are used for the streams listed in the tables.

<b>Stream Name Abbreviations</b>
Browns Creek = BrnsCr
Buffalo Creek = BufC
Calico Run = CAL
Long Run = LngR
North Fork = NoF
Roberts Run = RR
Ten Mile = TenC

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<sup>2</sup> Surface subsidence agents or Shadows, monitor and document changes in surface features (streams, ponds, water supplies, etc.), structures and utilities prior to, and during the longwall mining operations.

Table 40. Flow Loss

Mine Name	Date Occurred	Stream	Panel	GIS Calculated (feet)	GIS Adjusted Lat Start	GIS Adjusted Long Start	GIS Adjusted Lat End	GIS Adjusted Long End
Cumberland	1/16/18	ST41638	LW67	0.01	39.7764	-80.2381	39.7764	-80.2381
Bailey Deep	2/20/18	NoF-17L	5 L	1164.63	39.8759	-80.4142	39.8728	-80.4142
Bailey Deep	4/10/18	NoF-14L	5L	795.04	39.8775	-80.4207	39.8757	-80.4218
Bailey Deep	4/13/18	ST32605	5L	566.05	39.8785	-80.4235	39.8770	-80.4241
Cumberland	5/2/18	ST41639-L6	LW68	1330.47	39.7767	-80.2271	39.7798	-80.2250
Cumberland	5/21/18	ST41639-L5	LW68	669.66	39.7784	-80.2298	39.7801	-80.2289
Bailey Deep	6/4/18	NoF-4.9R	5L	1451.33	39.8764	-80.4317	39.8786	-80.4293
Enlow Fork	6/5/18	ST32980	F28	150.38	40.1188	-80.3757	40.1185	-80.3752
Enlow Fork	7/3/18	ST32990	F27	277.92	40.1050	-80.3542	40.1048	-80.3551
Enlow Fork	7/3/18	ST32979	F28	119.53	40.1137	-80.3739	40.1138	-80.3743
Enlow Fork	7/5/18	BufC-8L,2L,1L,3L	F27	1047.51	40.1043	-80.3501	40.1023	-80.3479
Enlow Fork	7/9/18	TenC-17L,2R	E29	736.06	40.1040	-80.3383	40.1051	-80.3402
Enlow Fork	7/9/18	ST32994	F27	364.89	40.1025	-80.3479	40.1016	-80.3481
Enlow Fork	7/10/18	ST32979	F28	398.42	40.1135	-80.3733	40.1132	-80.3719
Enlow Fork	7/12/18	ST40959	E29	96.53	40.1039	-80.3380	40.1037	-80.3382
Cumberland	7/13/18	ST41639	LW68	290.28	39.7801	-80.2336	39.7797	-80.2328
Enlow Fork	8/1/18	TenC-16L	E29	320.35	40.0990	-80.3257	40.0990	-80.3267
Harvey Mine	8/7/18	ST40574	4A	2356.64	39.9668	-80.3405	39.9689	-80.3333
Enlow Fork	8/15/18	ST32981	F28	682.39	40.1098	-80.3622	40.1101	-80.3598
Enlow Fork	8/15/18	BufC-4.2L	F28	540.25	40.1150	-80.3625	40.1148	-80.3607
Cumberland	8/24/18	ST41640	LW68	699.40	39.7810	-80.2360	39.7804	-80.2384
Enlow Fork	8/28/18	TenC-17L,2R	E29	564.42	40.1054	-80.3361	40.1065	-80.3367
Cumberland	9/4/18	ST41639	LW64	678.46	39.7830	-80.2363	39.7812	-80.2357
Enlow Fork	9/7/18	BufC-5L,1L	F28	98.74	40.1106	-80.3552	40.1108	-80.3554
Bailey Deep	9/12/18	NoF-4R,1L	5L	876.35	39.8788	-80.4380	39.8802	-80.4403
Enlow Fork	10/12/18	BufC-5L,3R	F28	422.45	40.1097	-80.3517	40.1086	-80.3517
Bailey Deep	12/10/18	LngR-4L,1L	6L	671.04	39.8658	-80.4015	39.8639	-80.4016

Mine Name	Date Occurred	Stream	Panel	GIS Calculated (feet)	GIS Adjusted Lat Start	GIS Adjusted Long Start	GIS Adjusted Lat End	GIS Adjusted Long End
Bailey Deep	12/12/18	LngR-1L	6L	1504.61	39.8679	-80.4049	39.8665	-80.4094
Cumberland	1/10/19	ST41639-L3	LW69	1530.67	39.7865	-80.2318	39.7831	-80.2346
Cumberland	2/4/19	RR_T1i	LW69	1015.55	39.7878	-80.2366	39.7862	-80.2392
Bailey Deep	3/20/19	NoF-5.3R	6L	335.24	39.8725	-80.4238	39.8733	-80.4233
Enlow Fork	3/22/19	TenC-24R	E30	95.02	40.1100	-80.3295	40.1099	-80.3297
Enlow Fork	3/26/19	BufC-3.6R	F29	549.85	40.1176	-80.3667	40.1177	-80.3649
Cumberland	4/9/19	CAL_T6	LW70	780.38	39.7888	-80.2206	39.7871	-80.2219
Cumberland	5/2/19	ST41642-R5	LW70	805.35	39.7863	-80.2258	39.7868	-80.2232
Cumberland	5/15/19	ST41642-R9	LW70	1160.63	39.7890	-80.2285	39.7893	-80.2246
Bailey Deep	5/22/19	ST32604	6L	1860.44	39.8715	-80.4323	39.8757	-80.4289
Enlow Fork	5/23/19	BufC-5L,1L	F29	286.79	40.1154	-80.3523	40.1157	-80.3514
Harvey Mine	5/24/19	ST40577	5A	1231.04	39.9755	-80.3423	39.9766	-80.3383
Harvey Mine	6/10/19	BrnsCr-8L,10R	5A	2149.30	39.9723	-80.3409	39.9695	-80.3353
Tunnel Ridge	6/11/19	ST32475	16	441.37	40.0883	-80.4973	40.0872	-80.4966
Bailey Deep	6/12/19	NoF-4.9R	6L	1600.94	39.8753	-80.4362	39.8764	-80.4311
Enlow Fork	7/10/19	ST32977	F29	176.44	40.1190	-80.3614	40.1191	-80.3608
Tunnel Ridge	8/8/19	ST32472	16	202.14	40.0909	-80.5134	40.0907	-80.5128
Bailey Deep	8/12/19	LngR-4L	7L	662.36	39.8610	-80.4033	39.8605	-80.4054
Harvey Mine	9/24/19	ST40574	5A	2144.78	39.9685	-80.3293	39.9682	-80.3221
Bailey Deep	10/21/19	ST32608	7L	916.42	39.8613	-80.4152	39.8626	-80.4125
Bailey Deep	10/23/19	LngR-3R	7L	847.75	39.8584	-80.4095	39.8597	-80.4070
Enlow Fork	10/30/19	ST32981	F29	601.78	40.1114	-80.3467	40.1112	-80.3487
Bailey Deep	11/18/19	ST32609	7L	523.28	39.8618	-80.4182	39.8611	-80.4166
Tunnel Ridge	2/24/20	ST32474	17	602.49	40.0868	-80.5025	40.0852	-80.5021
Cumberland	6/8/20	ST41644	LW72	1445.18	39.7992	-80.2227	39.7963	-80.2256
Enlow Fork	6/16/20	ST40957	E31	2049.23	40.1087	-80.3110	40.1076	-80.3177
Bailey Deep	6/17/20	ST32604	7L	1735.08	39.8663	-80.4368	39.8701	-80.4336
Harvey Mine	7/9/20	ST40575	6A	1121.76	39.9805	-80.3370	39.9778	-80.3353

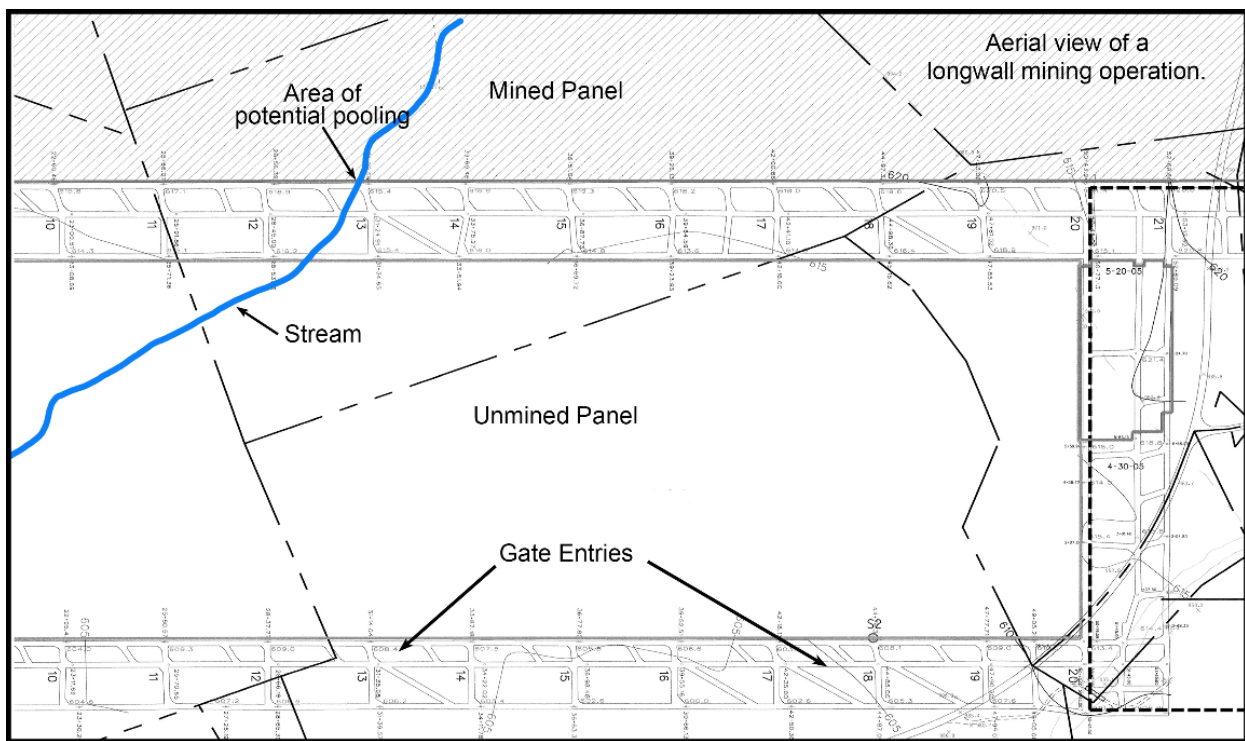
Mine Name	Date Occurred	Stream	Panel	GIS Calculated (feet)	GIS Adjusted Lat Start	GIS Adjusted Long Start	GIS Adjusted Lat End	GIS Adjusted Long End
Harvey Mine	7/21/20	ST40577	6A	723.00	39.9766	-80.3385	39.9769	-80.3360
Enlow Fork	7/27/20	ST37161	E31	1508.86	40.1041	-80.2998	40.1061	-80.3043
Enlow Fork	7/27/20	ST37161	E31	846.10	40.1060	-80.3049	40.1060	-80.3076
Tunnel Ridge	8/6/20	ST32471	16	279.85	40.0874	-80.5081	40.0867	-80.5080
Enlow Fork	8/18/20	ST40958	E31	2333.41	40.1071	-80.3221	40.1131	-80.3214
Enlow Fork	10/8/20	Chartiers Creek ST36777	E32	572.41	40.1102	-80.2952	40.1116	-80.2941
Enlow Fork	10/22/20	ST40921 Unnamed Tributary to Short Creek	G1	1402.44	40.0297	-80.3267	40.0269	-80.3234
Tunnel Ridge	11/23/20	ST32474	17	668.20	40.0893	-80.5025	40.0878	-80.5024
Harvey Mine	12/14/20	ST40573	5A	1448.42	39.9673	-80.3108	39.9634	-80.3115
Cumberland	12/15/20	ST40612	73	869.51	39.8390	-80.2632	39.8373	-80.2612
Harvey Mine	3/9/21	ST40576	6A	1023.04	39.9800	-80.3317	39.9773	-80.3321
Harvey Mine	4/8/21	ST40573	6A	1104.49	39.9724	-80.3111	39.9695	-80.3110
Bailey Deep	4/21/21	ST32608	8L	842.15	39.8562	-80.4183	39.8579	-80.4168
Enlow Fork	5/24/21	ST40923-R5	G2	332.07	40.0209	-80.3116	40.0218	-80.3116
Enlow Fork	6/3/21	Hamestring Run 40923	G2	52.15	40.0197	-80.3170	40.0198	-80.3168
Enlow Fork	6/3/21	Hamestring Run 40923	G2	19.85	40.0198	-80.3167	40.0198	-80.3166
Monongalia County	6/4/21	ST41851	7W	170.63	39.7447	-80.3443	39.7442	-80.3441
Harvey Mine	6/7/21	ST40512-R8	5B	861.05	39.9544	-80.2568	39.9544	-80.2539
Enlow Fork	6/10/21	Hamestring Run 40923	G2	342.74	40.0199	-80.3135	40.0206	-80.3126
Enlow Fork	6/10/21	Hamestring Run 40923	G2	417.18	40.0205	-80.3105	40.0206	-80.3091
Crooked Creek	6/14/21	ST46811 Two Mile Run	Room & Pillar	1839.64	40.6965	-79.1849	40.6918	-79.1840
Tunnel Ridge	6/24/21	ST32470-R2	19	544.85	40.0801	-80.5119	40.0788	-80.5123
Tunnel Ridge	7/21/21	ST32465-R4	19	517.37	40.0797	-80.5169	40.0791	-80.5185
Enlow Fork	8/2/21	ST40512 Bates Fork	G2	1306.11	40.0182	-80.3019	40.0163	-80.3049
Enlow Fork	8/25/21	ST40922 Unnamed Tributary to Short Cheek	G2	378.90	40.0252	-80.3268	40.0259	-80.3277
Enlow Fork	9/10/21	ST40536	G2	1782.18	40.0160	-80.2957	40.0129	-80.2911
Cumberland	11/4/21	ST40609	74	1303.72	39.8430	-80.2551	39.8402	-80.2526

Mine Name	Date Occurred	Stream	Panel	GIS Calculated (feet)	GIS Adjusted Lat Start	GIS Adjusted Long Start	GIS Adjusted Lat End	GIS Adjusted Long End
Bailey Deep	12/1/21	ST32612	9L	1285.41	39.8527	-80.4110	39.8499	-80.4084
Harvey Mine	12/2/21	ST40545-L21	5B	590.76	39.9597	-80.2775	39.9591	-80.2793
Tunnel Ridge	1/19/22	ST32480	20	634.63	40.0723	-80.4994	40.0707	-80.4991
Bailey Deep	2/2/22	ST32608	9L	1733.77	39.8518	-80.4213	39.8557	-80.4186
Bailey Deep	2/2/22	ST32608H	9L	1232.08	39.8519	-80.4167	39.8545	-80.4186
Bailey Deep	3/31/22	ST32608G	9L	1743.88	39.8544	-80.4256	39.8562	-80.4206
Harvey Mine	6/1/22	ST40512-R9	4B	622.40	39.9508	-80.2540	39.9505	-80.2519
Enlow Fork	9/19/22	ST40903	H1	194.72	40.0092	-80.2617	40.0090	-80.2622
Tunnel Ridge	9/20/22	ST32480	21	185.76	40.0679	-80.4999	40.0684	-80.4997
Harvey Mine	9/21/22	ST 40542	4B	1557.39	39.9554	-80.2656	39.9522	-80.2685
Bailey Deep	9/26/22	ST 32570	9L	1150.70	39.8562	-80.4311	39.8543	-80.4341
Tunnel Ridge	9/29/22	ST 32443L4	21	790.11	40.0672	-80.5037	40.0693	-80.5037
Enlow Fork	10/3/22	ST40904	H1	89.23	40.0121	-80.2699	40.0121	-80.2702
Enlow Fork	10/3/22	ST40904B	H1	110.09	40.0100	-80.2666	40.0098	-80.2669
Harvey Mine	11/22/22	ST 40545	4B	826.53	39.9596	-80.2794	39.9574	-80.2798
Tunnel Ridge	11/23/22	ST 32465R1	21	479.26	40.0718	-80.5167	40.0727	-80.5155

## Pooling

Pooling is a type of stream impact that can result from subsidence. Pooling develops when the stream section over a panel subsides, but the section of the stream located above the gate entries does not subside as significantly. This gate area acts like a dam on the surface, raising the water level on the upstream side of the gate. See *Figure 2 Depiction of panels and gate entries* for an illustration of gate configuration.

The result is a reduction of the stream's flow velocity to near zero at this location. This slowdown of flow results in sediment particles settling out and depositing on the stream bed, potentially affecting the habitat used by macroinvertebrates. Additionally, pooling results in a loss of oxygen, a general warming of the water in the pool location and can prevent fish and other organisms from freely navigating the stream. Most pooling occurs in streams that have a gradient of less than 2%. To alleviate pooling, mine operators use a technique known as a "gate-cut". A gate-cut consists of excavating through the gate section of the un-subsided stream bed until it is at the same elevation as the rest of the stream bed. To determine if a gate-cut was successful the area is monitored for macroinvertebrates for five years.



*Figure 2. Depiction of panels and gate entries.*

**Table 11: Pooling** shows all the reported stream pooling locations that have been actively investigated by the Department from 2018 onward by mine name based on the year in which the pooling was first identified. Pooling associated with each mine is broken out and separated based on the stream segment. Within each entry, the panel and panel ID associated with each occurrence of pooling is recorded, as well as the length of the impacted stream segment. All the pooling incidents were associated with longwall mines.



Table 11. Pooling

Mine Name	Date Occurred	Stream	Panel	GIS Calculated (feet)	GIS Adjusted Lat Start	GIS Adjusted Long Start	GIS Adjusted Lat End	GIS Adjusted Long End
Tunnel Ridge	09/29/22	ST 32469	21	200.45	40.0692	-80.5077	40.0697	-80.5074
Harvey	01/14/19	Browns Creek	4A	422.62	39.9626	-80.3126	39.9619	-80.3114
Bailey Deep	01/17/18	North Fork of Dunkard Fork	5 L	443.78	39.8722	-80.4104	39.8712	-80.4110
Bailey Deep	07/09/18	North Fork of Dunkard Fork	5 L	685.74	39.8797	-80.4321	39.8815	-80.4323
Harvey Mine	11/19/19	Browns Creek	5A	617.08	39.9667	-80.3163	39.9653	-80.3160
Harvey Mine	05/24/21	Bates Fork-ST40512	5B	618.52	39.9532	-80.2524	39.9516	-80.2519
Harvey Mine	12/21/20	Browns Creek	6A	391.44	39.9724	-80.3178	39.9713	-80.3177
Bailey Deep	01/08/19	North Fork of Dunkard Fork	6L	497.81	39.8680	-80.4144	39.8675	-80.4160
Bailey Deep	03/11/19	North Fork of Dunkard Fork	6L	856.96	39.8692	-80.4173	39.8714	-80.4173
Enlow Fork	02/01/18	Ten Mile	E29	488.29	40.0999	-80.3258	40.1012	-80.3261
Enlow Fork	05/15/19	Ten Mile	E30	396.30	40.1072	-80.3308	40.1062	-80.3306
Enlow Fork	10/23/19	Chartiers Creek ST36777	E31	146.38	40.1043	-80.2944	40.1046	-80.2941
Enlow Fork	07/30/18	Buffalo Creek	F28	1266.45	40.1148	-80.3624	40.1116	-80.3626
Enlow Fork	04/02/19	Buffalo Creek	F29	1151.79	40.1185	-80.3627	40.1208	-80.3643
Enlow Fork	03/24/21	ST40912 Short Creek	G2	528.39	40.0254	-80.3233	40.0245	-80.3248
Cumberland	04/13/18	ST41625	LW68	1199.09	39.7751	-80.2206	39.7779	-80.2189
Cumberland	04/01/21	ST40592 Pursley Creek	LW73	408.26	39.8367	-80.2495	39.8368	-80.2481
Cumberland	02/23/22	ST40592 Pursley Creek	LW73	520.61	39.8385	-80.2401	39.8398	-80.2395
Cumberland	04/01/21	ST40592 Pursley Creek	LW74	408.26	39.8367	-80.2495	39.8368	-80.2481
Cumberland	10/01/18	Calico Run	69	699.23	39.7822	-80.2194	39.7836	-80.2206
Cumberland	05/13/19	Calico Run	70	841.93	39.7853	-80.2223	39.7873	-80.2234
Cumberland	12/05/19	Calico Run	71	511.63	39.7914	-80.2258	39.7926	-80.2260
Tunnel Ridge	02/27/20	ST32471	18	250.13	40.0856	-80.5084	40.0849	-80.5082
Tunnel Ridge	09/25/20	ST32472	16	543.13	40.0890	-80.5100	40.0899	-80.5115
Tunnel Ridge	09/25/20	ST32469	19	189.49	40.0805	-80.4978	40.0801	-80.4983

<b>Mine Name</b>	<b>Date Occurred</b>	<b>Stream</b>	<b>Panel</b>	<b>GIS Calculated (feet)</b>	<b>GIS Adjusted Lat Start</b>	<b>GIS Adjusted Long Start</b>	<b>GIS Adjusted Lat End</b>	<b>GIS Adjusted Long End</b>
Tunnel Ridge	10/28/20	ST32471	18	231.03	40.0811	-80.5068	40.0805	-80.5064
Tunnel Ridge	05/17/21	ST32469	19	716.22	40.0770	-80.5041	40.0752	-80.5053

### *Heaving and Fractures*

A heave is where the stream bed is raised or fractured perpendicular or parallel to its original position in response to extension and compression of rock layers resulting from the removal of subsurface material. Heaving can disrupt stream flow by halting or redirecting flow.

**Table 12: Heaving and Fractures** shows all the reported heaving/fracture locations that have been actively investigated by the Department from 2018 onward by year, based on the year in which the heave or fracture was first identified. Heaves/fractures associated with each mine are broken out and separated based on the stream segment. Within each entry, the panel and panel ID associated with each occurrence of heaving is recorded. Total length of impact is an estimate because the edges of a disrupted area are not always discernable. All the heaving and fractures incidents were associated with longwall mines.

Table 12. Heaving and Fractures

Mine Name	Date Occurred	Stream	Panel	Final Length (feet)	Latitude Start	Longitude Start	Latitude End	Longitude End
Cumberland	01/15/18	ST41638	LW67	0*	39.7763	-80.2382	39.7763	-80.2382
Cumberland	01/18/18	ST41638	LW67	0*	39.7763	-80.2382	39.7763	-80.2382
Bailey Deep	02/20/18	NoF-17L	5 L	1130	39.8759	-80.4142	39.8721	-80.4147
Monongalia County	03/26/18	ST41855	10W	0*	39.7577	-80.3741	39.7577	-80.3741
Cumberland	03/28/18	ST41625	LW68	1170	39.7775	-80.2193	39.7741	-80.2212
Bailey Deep	04/10/18	NoF-14L	5L	740	39.8768	-80.4213	39.8768	-80.4213
Bailey Deep	04/13/18	ST32605	5L	550	39.8785	-80.4234	39.8774	-80.4240
Cumberland	05/02/18	ST41639-L6	LW68	0*	39.7781	-80.2258	39.7785	-80.2257
Enlow Fork	05/11/18	ST32980	F28	200	40.1188	-80.3758	40.1188	-80.3758
Bailey Deep	05/31/18	NoF-4.9R	5L	1115	39.8764	-80.4317	39.8766	-80.4296
Cumberland	07/23/18	ST41639	LW68	0*	39.7803	-80.2335	39.7803	-80.2335
Bailey Deep	08/10/18	NoF-4R,1L	5L	725	39.8791	-80.4381	39.8791	-80.4381
Bailey Deep	09/20/18	LngR-4L,1L	6L	660	39.8650	-80.4013	39.8647	-80.4014
Bailey Deep	09/20/18	LngR-4L,1L	6L	660	39.8645	-80.4014	39.8645	-80.4014
Bailey Deep	11/13/18	LngR-1L	6L	1420	39.8679	-80.4060	39.8667	-80.4092
Cumberland	01/18/19	RR_T1i	69	0*	39.7864	-80.2387	39.7864	-80.2387
Tunnel Ridge	02/11/19	ST32473-L2	15	0*	40.0962	-80.5150	40.0962	-80.5150
Bailey Deep	03/20/19	NoF-5.3R	6L	330	39.8716	-80.4244	39.8716	-80.4244
Bailey Deep	03/20/19	NoF-5.3R	6L	330	39.8728	-80.4238	39.8728	-80.4238
Enlow Fork	04/02/19	Buffalo Creek	F29	1047	40.1180	-80.3626	40.1180	-80.3626
Cumberland	04/09/19	CAL_T6	70	0*	39.7886	-80.2208	39.7882	-80.2210
Enlow Fork	04/23/19	ST32977	F29	184	40.1190	-80.3607	40.1190	-80.3607
Enlow Fork	04/23/19	ST32977	F29	0*	40.1189	-80.3614	40.1190	-80.6779
Enlow Fork	05/15/19	Ten Mile	E30	355	40.1097	-80.3318	40.1097	-80.3318

Mine Name	Date Occurred	Stream	Panel	Final Length (feet)	Latitude Start	Longitude Start	Latitude End	Longitude End
Monongalia County	05/21/19	ST41853	9W	40	39.7529	-80.3517	39.7529	-80.3517
Tunnel Ridge	05/21/19	ST32476	15	0*	40.0881	-80.4932	40.0879	-80.4929
Bailey Deep	05/22/19	ST32604	6L	1650	39.8715	-80.4322	39.8757	-80.4290
Bailey Deep	06/03/19	NoF-4.9R	6L	0*	39.8763	-80.4333	39.8763	-80.4320
Enlow Fork	06/04/19	BufC-5L,1L	F29	840	40.1148	-80.3529	40.1148	-80.3529
Enlow Fork	06/04/19	BufC-5L,1L	F29	840	40.1150	-80.3527	40.1150	-80.3527
Tunnel Ridge	06/11/19	ST32475	17	0*	40.0882	-80.4974	40.0880	-80.4974
Tunnel Ridge	06/11/19	ST32475	17	0*	40.0873	-80.4969	40.0873	-80.4970
Tunnel Ridge	07/19/19	ST32471	16	0*	40.0904	-80.5069	40.0902	-80.5070
Bailey Deep	08/12/19	LngR-4L	7L	600	39.8611	-80.4033	39.8604	-80.4052
Harvey Mine	08/30/19	ST40574	5A	2025	39.9689	-80.3266	39.9689	-80.3266
Bailey Deep	09/04/19	LngR-3R	7L	850	39.8589	-80.4087	39.8596	-80.4072
Harvey Mine	09/09/19	ST40574	5A	2025	39.9686	-80.3238	39.9686	-80.3238
Bailey Deep	10/21/19	ST32608	7L	675	39.8615	-80.4150	39.8628	-80.4120
Bailey Deep	11/18/19	ST32609	7L	515	39.8612	-80.4168	39.8622	-80.4189
Bailey Deep	12/13/19	ST32609	7L	515	39.8629	-80.4213	39.8629	-80.4213
Harvey Mine	01/07/20	ST40573	5A	1440	39.9673	-80.3108	39.9673	-80.3108
Tunnel Ridge	01/29/20	ST32474	21	0*	40.0832	-80.5008	40.0832	-80.5008
Tunnel Ridge	01/30/20	ST32474	21	0*	40.0848	-80.5018	40.0856	-80.5024
Tunnel Ridge	02/24/20	ST32474	21	0*	40.0856	-80.5024	40.0860	-80.5024
Tunnel Ridge	03/04/20	ST32471	17	0*	40.0874	-80.5080	40.0871	-80.5080
Bailey Deep	05/28/20	ST32604	7L	1820	39.8676	-80.4365	39.8701	-80.4341
Harvey Mine	07/09/20	ST40577	6A	760	39.9769	-80.3362	39.9769	-80.3361
Harvey Mine	07/16/20	ST40577	6A	760	39.9769	-80.3351	39.9769	-80.3351
Harvey Mine	07/16/20	ST40575	6A	1110	39.9800	-80.3364	39.9783	-80.3356

Mine Name	Date Occurred	Stream	Panel	Final Length (feet)	Latitude Start	Longitude Start	Latitude End	Longitude End
Enlow Fork	08/19/20	ST40921 Unnamed Tributary to Short Creek	G1	1671	40.0279	-80.3242	40.0278	-80.3241
Enlow Fork	10/22/20	ST40921 Unnamed Tributary to Short Creek	G1	1671	40.0300	-80.3266	40.0299	-80.3265
Cumberland	01/08/21	ST40612	73	1500	39.8376	-80.2616	39.8384	-80.2626
Cumberland	01/08/21	ST40612	73	1500	39.8400	-80.2637	39.8399	-80.2637
Cumberland	01/08/21	ST40612	73	1500	39.8381	-80.2622	39.8381	-80.2622
Bailey Deep	01/19/21	ST32608	8L	770	39.8561	-80.4186	39.8573	-80.4177
Cumberland	01/20/21	ST40612	73	1500	39.8381	-80.2612	39.8371	-80.2612
Harvey Mine	02/04/21	ST40573	6A	1070	39.9718	-80.3110	39.9716	-80.3110
Monongalia County	06/04/21	ST41851	7W	0*	39.7447	-80.3442	39.7447	-80.3441
Harvey Mine	06/07/21	ST40512-R8	5B	1080	39.9543	-80.2570	39.9545	-80.2547
Tunnel Ridge	06/24/21	ST32470-R2	19	0*	40.0798	-80.5119	40.0797	-80.5120
Cumberland	11/04/21	ST40609	74	0*	39.8431	-80.2549	39.8431	-80.2549
Bailey Deep	11/16/21	ST32612	9L	1300	39.8508	-80.4093	39.8504	-80.4087
Cumberland	11/16/21	ST40609	74	0*	39.8413	-80.2537	39.8416	-80.2538
Harvey Mine	11/19/21	ST40545-L21	5B	550	39.9601	-80.2757	39.9601	-80.2757
Enlow Fork	12/06/21	ST40345	H1	0*	40.0004	-80.2272	40.0004	-80.2270
Bailey Deep	01/13/22	ST32608H	9L	1190	39.8520	-80.4167	39.8521	-80.4166
Tunnel Ridge	01/19/22	ST32480	20	0*	40.0722	-80.4994	40.0719	-80.4993
Bailey Deep	02/07/22	ST32608	9L	1710	39.8520	-80.4210	39.8539	-80.4189
Tunnel Ridge	02/09/22	ST32469	20	0*	40.0731	-80.5062	40.0731	-80.5062
Tunnel Ridge	02/14/22	ST32469	20	0*	40.0738	-80.5060	40.0738	-80.5060
Tunnel Ridge	02/14/22	ST32469	20	0*	40.0736	-80.5062	40.0736	-80.5062
Tunnel Ridge	02/14/22	ST32469	20	0*	40.0729	-80.5064	40.0729	-80.5064
Tunnel Ridge	02/14/22	ST32469	20	0*	40.0723	-80.5065	40.0723	-80.5065

Mine Name	Date Occurred	Stream	Panel	Final Length (feet)	Latitude Start	Longitude Start	Latitude End	Longitude End
Bailey Deep	03/24/22	ST32608G	9L	655	39.8546	-80.4250	39.8563	-80.4210
Harvey Mine	06/01/22	ST40512-R9	4B	640	39.9510	-80.2553	39.9507	-80.2539
Harvey Mine	09/21/22	ST 40542	4B	0*	39.9554	-80.2656	39.9554	-80.2656
Bailey Deep	09/26/22	ST 32570	9L	1110	39.8557	-80.4315	39.8557	-80.4315
Tunnel Ridge	09/29/22	ST 32469	21	0*	40.0692	-80.5073	40.0692	-80.5073
Tunnel Ridge	09/29/22	ST 32469	21	0*	40.0692	-80.5076	40.0692	-80.5076
Tunnel Ridge	09/29/22	ST 32469	21	0*	40.0694	-80.5075	40.0694	-80.5075
Tunnel Ridge	09/29/22	ST 32469	21	0*	40.0695	-80.5074	40.0695	-80.5074
Tunnel Ridge	09/29/22	ST 32469	21	0*	40.0697	-80.5073	40.0697	-80.5073
Tunnel Ridge	10/27/22	ST 32480	21	0*	40.0689	-80.4995	40.0689	-80.4995
Tunnel Ridge	10/27/22	ST 32465R1	21	0*	40.0725	-80.5157	40.0725	-80.5157
Tunnel Ridge	10/27/22	ST 32465R1	21	0*	40.0726	-80.5156	40.0726	-80.5156
Tunnel Ridge	10/27/22	ST 32465R1	21	0*	40.0726	-80.5156	40.0727	-80.5156
Tunnel Ridge	11/03/22	ST 32443L4	21	0*	40.0684	-80.5036	40.0684	-80.5036
Enlow Fork	12/14/22	ST40521	H2	0*	39.9933	-80.2390	39.9933	-80.2390
Enlow Fork	12/14/22	ST40521	H2	0*	39.9939	-80.2389	39.9939	-80.2389

0\*: The heave area was minimal, no measurement obtained.

### *Stream Recovery and Reporting*

The timing of stream repairs is variable and depend on various factors, some of which are outside the control of the mining company and the Department. Timing of stream mitigation and recovery is discussed in the Technical Guidance Document 563-2000-655 *Surface Water Protection – Underground Bituminous Coal Mining Operations*. Repairs cannot always fit into a set period and may be delayed due to the seasonal effects that curtail or prohibit stream work. If other mining is continuing in the area, final stream repair may be delayed until mining is completed. Landowner access agreements may also present a difficulty that causes a time delay. Finally, once the mitigation is complete, the stream is monitored to assess if the pre-mining flow and biological habitat has recovered. This is also a seasonally dependent assessment that may take several years. In that time, there may be additional unforeseen factors that affect the stream repair process such as flooding or drought.

Stream Recovery Evaluation Reports (SRE) are submitted by mine operators following a period of mitigation or monitoring of a mining-impacted stream to demonstrate to the Department that the stream has now returned to its normal range of conditions. The SRE include pre- and post-mining flow measurements as well as a comparison of the pre- vs post-mining biological habitat.

In 2018 and 2019, an operator would mail the SRE reports to Department as they were completed or in batches for the year. Beginning in 2020, SREs were submitted electronically.

In this assessment period 86 SREs were submitted. This is consistent with the last 5-year report period where 82 SREs were submitted.

<b>Year</b>	<b>Reports Submitted</b>	<b>Mine Name</b>
2018	7	1 Bailey, 2 Emerald, 4 Cumberland
2019	11	5 Cumberland, 6 Emerald
2020	33	2 Emerald, 3 Cumberland, 2 Harvey, 7 Bailey, 19 Enlow
2021	4	Tunnel Ridge
2022	31	1 Cumberland, 4 Harvey, 10 Bailey, 16 Enlow

### *Augmentation*

When a mining induced flow loss occurs, augmentation is a tool that operators can use to temporarily restore flow to the normal range of conditions in an affected stream. It is never intended to be a permanent solution. Augmentation restores flow by drawing water from nearby wells, water tanks, public water, or from nearby streams. The water is carried by a system of pipes from the sources to augmentation discharge points in the non-flowing parts of the stream.

The augmentation is controlled by the operator to maintain the stream flow at the normal range of conditions expected for the season. The normal range of conditions is based on two years of pre-mine streamflow data collection that the operators are required to collect for every stream.

The Department requires operators to commence augmentation to impacted/non-flowing streams within 24 hours, where the flow loss was predicted. If the flow loss was unpredicted, which is typically the case, the operator has 15 days from the date of impact to commence augmentation. Due to the difficulty in predicting flow loss in all situations, pre-emptive mitigation plans for augmenting streams are required in every mine permit application.

**Table 13: Stream Augmentation** is a list of streams augmented in this assessment period.



Table 13. Stream Augmentation

<b>Mine</b>	<b>Stream</b>	<b>Date Start</b>	<b>Date End</b>	<b>Source</b>
Bailey	ST32618	5/6/2015	6/1/2018	Wells
Bailey	Whitethorn Run	8/10/2015	6/4/2020	Wells
Bailey	Nof-19L, 1L, 7R	11/12/2015	6/1/2018	Wells
Bailey	ST32620	11/23/2015	6/1/2018	Wells
Bailey	Polen Run 7L	5/2/2016	6/1/2018	Wells
Bailey	KR-3R Kent Run	7/11/2016	6/1/2018	Wells
Bailey	Kent Run	7/15/2016	6/1/2018	Wells
Bailey	Polen Run 6L	8/30/2016	6/1/2018	Wells
Bailey	Nof-18L, 1R	10/15/2016	6/1/2018	Wells
Bailey	Polen Run	12/12/2016	6/4/2020	Wells
Bailey	Nof-14L	1/7/2017	6/13/2019	Wells
Bailey	Plnr-4L	3/7/2017	6/1/2018	Wells
Bailey	ST 32605	8/10/2017	6/13/2019	Wells
Bailey	Nof-17L	3/19/2018	6/13/2019	Wells
Bailey	Nof-4, 9R	6/14/2018	6/4/2020	Wells
Bailey	Nof-4R, 1L	10/12/2018	6/4/2020	Wells
Bailey	Lngr-1L	12/21/2018	ongoing	Wells
Bailey	Lngr-4L, 1L	1/23/2019	1/1/2022	Wells
Bailey	ST32608	1/25/2019	ongoing	Wells
Bailey	Nof-5.3R	6/11/2019	6/4/2020	Wells
Bailey	ST32604	6/12/2019	7/20/2022	Wells
Bailey	Lngr-3R	11/6/2019	1/1/2022	Wells
Bailey	ST32609	8/12/2020	1/1/2022	Wells
Bailey	ST32612	2/11/2022	ongoing	Wells
Bailey	ST32608g	5/3/2022	ongoing	Wells
Bailey	ST32570	10/7/2022	ongoing	Wells
Crooked Creek	Two Mile Run	7/15/2021	as needed	Existing stream water
Cumberland	ST41733-R2	10/13/2016	9/1/2018	Wells
Cumberland	ST41733	12/8/2016	8/15/2018	Wells

<b>Mine</b>	<b>Stream</b>	<b>Date Start</b>	<b>Date End</b>	<b>Source</b>
Cumberland	ST41733	10/14/2017	12/1/2019	Wells
Cumberland	ST41639-L6	5/15/2018	ongoing	Wells
Cumberland	ST41639-L5	6/15/2018	ongoing	Wells
Cumberland	ST41639	7/18/2018	8/26/2018	Wells
Cumberland	ST41640	8/27/2018	12/15/2019	Wells
Cumberland	ST41639-L3	4/1/2019	ongoing	Wells
Cumberland	ST41644	6/29/2020	ongoing	Wells
Cumberland	ST41644	7/27/2020	ongoing	Wells
Enlow Fork	Ten Mile	2/1/2012	6/1/2018	Wells
Enlow Fork	St32984	6/2/2015	6/1/2018	Wells
Enlow Fork	Tenc-16.1r	6/5/2015	6/1/2018	Wells
Enlow Fork	Sawhr-7r	12/31/2015	10/16/2018	Wells
Enlow Fork	Tenc-13l	4/22/2016	6/1/2018	Wells
Enlow Fork	ST40954	7/18/2016	6/1/2018	Wells
Enlow Fork	ST40955	8/2/2016	6/1/2018	Wells
Enlow Fork	Tenc-14l,1l	8/3/2016	6/1/2018	Wells
Enlow Fork	ST32983	8/30/2016	6/1/2018	Wells
Enlow Fork	Tenc-17r,1l	2/3/2017	6/1/2018	Wells
Enlow Fork	Tenc-15l	2/24/2017	6/1/2018	Wells
Enlow Fork	ST32990	5/1/2017	8/29/2018	Wells
Enlow Fork	ST32980	6/7/2018	ongoing	Wells
Enlow Fork	Bufo-8l,2l,1l,3l	7/5/2018	9/12/2018	Wells
Enlow Fork	ST40959	8/3/2018	9/11/2018	Wells
Enlow Fork	Tenc-17r,2r	8/13/2018	11/17/2018	Wells
Enlow Fork	ST32981	8/15/2018	ongoing	Wells
Enlow Fork	ST32994	8/24/2018	10/12/2018	Wells
Enlow Fork	Bufo-5l,1l	9/28/2018	ongoing	Wells
Enlow Fork	Bufo-5l,3r	10/21/2018	3/10/2021	Wells
Enlow Fork	Bufo-3.6r	4/26/2019	ongoing	Wells
Enlow Fork	Tenc-24r	5/6/2019	3/10/2021	Wells

<b>Mine</b>	<b>Stream</b>	<b>Date Start</b>	<b>Date End</b>	<b>Source</b>
Enlow Fork	ST32977	8/19/2019	3/10/2021	Wells
Enlow Fork	Bufo-4.2l	8/30/2019	3/10/2021	Wells
Enlow Fork	ST37161	7/29/2020	ongoing	Wells
Enlow Fork	Chartiers Creek	10/8/2020	10/20/2020	Wells
Enlow Fork	Hamstring Run	6/10/2021	ongoing	Water tanks
Harvey	ST40562	7/22/2015	1/22/2018	Wells
Harvey	ST 40565	7/29/2016	6/1/2018	Wells
Harvey	ST40567	2/22/2017	6/1/2018	Wells
Harvey	ST 40566	8/1/2018	6/4/2020	Wells
Harvey	ST40574	8/21/2018	7/20/2022	Wells
Harvey	ST4577	7/19/2019	3/10/2021	Wells
Harvey	Browns Creek 8L, 10R	7/22/2019	10/31/2019	Wells
Harvey	ST40575	11/10/2020	1/1/2022	Wells
Harvey	ST40573	1/4/2021	ongoing	Wells
Harvey	ST40576	4/26/2021	7/20/2022	Wells
Harvey	ST40512-R8	8/9/2021	7/20/2022	Wells
Harvey	ST40545-L21	7/6/2022	ongoing	Wells
Harvey	ST40512-R9	7/31/2022	ongoing	Wells
Harvey	ST40542	10/13/2022	ongoing	Wells
Monongalia County	ST41851	7/28/2021	ongoing	Wells
Tunnel Ridge	ST32474	3/25/2020	ongoing	Pond water used
Tunnel Ridge	ST32480 (panel 20)	3/16/2022	8/23/2022	Public water

## Wetlands

Underground mining can have both positive and adverse effects on wetlands. A wetland occurs in areas where underlying soils are saturated (hydric soils) and have vegetation that is adapted to survive in these environments. When subsidence occurs in flat areas, wetlands can form due to local water sources diverting into the depression. Over time, the soils become saturated, eventually becoming hydric, and the characteristic wetland vegetation (hydrophytic) develops.

The adverse effect of coal mining on wetlands is the loss of habitat/wetlands. As with streams, subsidence can significantly reduce or eliminate the water source of a wetland through land fractures. Without a water source, the hydric soils will lose moisture and the hydrophytic vegetation will be lost.

As part of the permitting process, mine operators are required to delineate wetlands in each permitted area prior to mining and again, post-mining. If a net loss in wetlands is identified during the post-mining delineation, the operators are required to develop a mitigation plan in which new wetlands of an equivalent size and quality will be created.

The review of the wetland data for this report consisted of evaluating the pre-mining and the post-mining wetlands acreage (e.g., acreage increased, decreased, or remained the same). **Appendix B Wetlands\_Tables.xls** (digital file) shows all the wetlands that are currently monitored by the Department from 2018 to the present. The wetlands associated with each mine are categorized by the company and mine name, the assigned wetland identification number, the year the wetland was undermined, the wetlands acreage, and other pertinent information. Cumulative changes in wetland acreage are added to the table upon submission of the associated five-year renewal application.

The CalDMO staff was tasked with reporting the acreage of wetlands undermined by longwall mines during this Assessment Period. GIS was used to compare wetland layers to the geographical extent of longwall mines.

The most complete source of wetland information is found in the renewal application files for each mine. Wetlands that are in areas of planned subsidence during the five-year permit term are surveyed and inventoried prior to mining. This pre-mining wetland data is submitted to CalDMO within Module 8.12 of the permit application. Pre-mining wetland surveys/inventories are also completed for expansion permits for existing mines. Permit renewal applications are submitted every five years. These renewals require a post-mining summary of mining-related effects on wetlands, including an updated post-mining wetland inventory, for wetlands undermined during the previous permit term.

The submission date of renewal applications depends on the original permit issuance date for each mine, so each mine has its own five-year permit term and renewal schedule. Because the permit terms span the assessment period of this report, updated post-mining information for many wetlands undermined during this Assessment Period is not available for inclusion in this report. As shown in **Table 14: Acreage of Wetlands Undermined by Longwalls**. There is no data for the Marshall County Mine since they have not completed the fifth year of their permit term during this Assessment Period, and therefore have not submitted a permit renewal to date.

### *Undermined Wetland Acreage*

To develop an inventory of undermined wetland acreage, the most recent wetland location maps overlying areas mined within each longwall mine from 2018-2022 were georeferenced (spatially located) using ArcGIS software. The polygons symbolizing wetlands on the maps were converted to polygons in GIS and named according to the unique wetland identification number assigned by the operator to each wetland<sup>3</sup>. The Wetland Inventory forms submitted by the operators were joined to the wetland GIS layers

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<sup>3</sup> Many wetland identification numbers were duplicated within Harvey Mine's inventories. In order to generate a unique ID for these wetlands, the panel ID of the longwall panel closest to or underlying these wetlands was added to the operator-provided wetland ID.

using the wetland identification number as a key. These Wetland Inventory forms include an acreage for each wetland, which was incorporated into the attributes of the wetland GIS layers<sup>4</sup>.

Wetland polygons overlying areas mined from 2018-2022 were selected within ArcGIS using the “intersect” method. Using this selection criteria, all wetlands within or touching the boundary of a polygon representing a mined area were selected and classified as undermined. The acreage sum of wetlands undermined by each longwall mine is reported in Table 14: Acreage of wetlands undermined by longwalls. During this Assessment Period, an estimated 125.46 acres of wetland habitat were undermined by longwall mines<sup>5</sup>.

**Table 14. Acreage of Wetlands Undermined by Longwalls**

<b>Mine</b>	<b>Acreage During this Assessment</b>
Bailey Mine	7.58
Cumberland Mine	13.64
Enlow Fork Mine	53.65
Harvey Mine	23.21
Marshall County Mine	0.14
Monongalia County Coal Mine	11.09
Tunnel Ridge Mine	16.15
<b>Total</b>	<b>125.46</b>

#### *Wetland Acreage and Type Following Mining*

Wetland data was only assessed for sections of the mine that were not included in the previous Assessment report (Bain et al. 2019) and post-mining data that was available from each mine’s most recent permit renewal application<sup>6</sup> (**Table 15: Pre- and Post-Mining Wetland Acres**). For maps and detailed tables listing individual pre- and post-mining info for each mine, wetland acreages and types, see Appendix B. Because of the number and format of files, Appendix B is in digital format only. A summary of the changes in wetland area related to longwall mining is presented in Table 15: Pre- and Post-Mining Wetland Areas, and an example of how pre- and post-mining wetlands appear in relation to undermined land is presented in Figure 3.

<sup>4</sup> Acreages for pre-mining wetlands over Bailey Mine, Panels 6L-9L were sourced from the individual Wetland Determination Data Form for each wetland.

<sup>5</sup> Due to slight map alignment errors inherent to the georeferencing process, and the spatial selection criteria used to identify the subset of wetlands undermined, the acreage totals of wetlands undermined by longwall mines should be interpreted as an approximation.

<sup>6</sup> Excepting Bailey Mine. The surveyed/inventoried post-mining wetlands in the most recent Bailey Mine renewal application were in the 5<sup>th</sup> Assessment. Updated post-mining wetland data was requested by the Department in August 2022, which the operator provided for Panels 1L-7L in the form of a GIS shapefile.

Table 15. Pre- and Post-Mining Wetland Acres

Mine	Panels Assessed	Wetland Acreage		
		Pre-Mining	Post-Mining	Change
Bailey	1L - 7L	8.77 *	16.70 **	7.93
Cumberland†	LW-66 - LW-72	13.61	24.77	11.16
Enlow Fork	E24-E28, F22-F27, E Tailgate, F Tailgate	72.97	85.79	12.82
Harvey Mine	A1 - A3	20.86	33.38	12.52
Marshall County	6S 1-2 East, 6N 1-8 East	21.72	No Data	No Data
Monongalia County	10W - 13W	8.28	13.00	4.72
Tunnel Ridge	15-17††	4.69	7.65	2.96

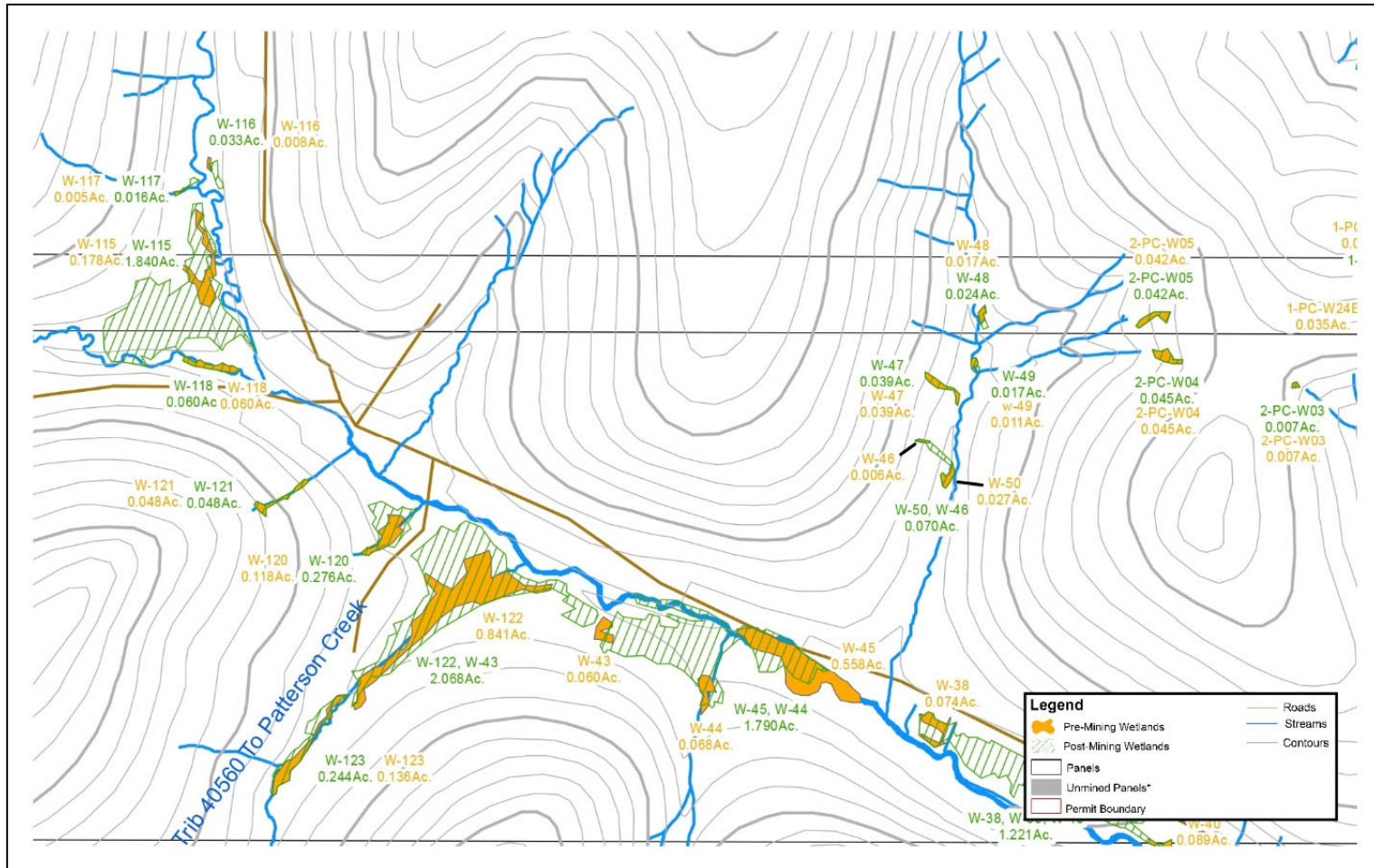
Note: Data is from the most recent permit renewal application or the original permit application for each mine.

\* Pre-mining acreage calculated by summing the total wetland acreage reported on the Wetland Inventory Form for Panels 1L-5L and the acreages reported on the individual Wetland Determination Data Forms for wetlands overlying/near panels 6L and 7L.

\*\* Post-mining acreage calculated by summing the acreages of all wetlands included in the GIS shapefile.

† Most recent renewal application under review.

†† Post-mining wetland data provided for Panels 15, 16, and the eastern-most end of Panel 17.



**Figure 3:** Excerpt of Post-mining Wetland Resource Map showing changes in wetlands pre- and post-mining over Harvey Mine Panels A1 and A2.

**Source:** Exhibit 8.12f, “2019 CONSOL Wetlands Pre and Post Mining, Upper East Longwall Panels A1-A3, Harvey Mine, CONSOL Pennsylvania Coal Company, LLC, Greene County, PA”, Prepared by Wallace Pancher Group for CONSOL Pennsylvania Coal Company, LLC.

## Enforcement actions

The Act specifically mentions enforcement actions as a part of the overall assessment. This is the first report in which this information is supplied. Enforcement actions are available via *eFacts on the web* platform. Enforcement actions taken by the Department are public information.

**Table 16: Enforcement Actions** shows all the enforcement actions related to the effects of subsidence. Other enforcement types, such as NPDES, safety violations, etc. are not included here as they were deemed outside the scope of this report. The table provides some insight as to the types of violations (failure to report damage, failure to abate damage, etc.) and status of resolution. Specific land/homeowner names and dollar amounts have been removed.

In total, 33 enforcement actions were taken across 12 mining operations during this assessment period. One operation incurred a total of 12 violations<sup>7</sup>, which was the most over the five-year period. Enforcement action typically results in the company making the necessary repairs or settling the claims.

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<sup>7</sup> The violations were a result of a large subsidence event that affected many houses during the time the responsible operation was in litigation. Orders were written to protect the homeowners in case of bankruptcy.



Table 16. Enforcement Actions

ID	Date Executed	Company and Facility	Violation	Enforcement Comment	Milestone Description	Legal Citation	Comments
360558	1/2/2018	CONSOL Pa Coal Co LLC Enlow Fork Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	Operator sent payment as required by order-owner voided check because of wording in an enclosed letter.	Payment made to claimant.	25 Pa. Code 89.142a(f)	Owner compensated
360985	1/25/2018	CONSOL Pa Coal Co LLC Enlow Fork Mine	Failure to provide an adequate permanent replacement water supply	Unresolved	Settled	25 Pa. Code 89.145a(b)	Order vacated as part of EHB settlement
361969	2/27/2018	Maple Creek Mining Inc* Maple Creek Mine	Failure to report structure damage. Failed to report structure damage on property within 10 days.	Notice of Violation (NOV)	Submit mine operator fax report	25 Pa. Code 89.142a(k)	Operator complied
363487	4/27/2018	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	Order to compensate for structure damage	Within 60 days payment.	25 Pa. Code 89.142a(f)	Owner compensated
364625	6/6/2018	Washington County Land Res Inc Washington County Mine	Failure to provide an adequate permanent replacement water supply	Agreement signed 8/17/18	Resolve water supply issue	25 Pa. Code 89.145a(b)	Private agreement reached
366872	8/21/2018	McVile Mining Co.** Clementine Deep Mine	Failure to perform a pre-mining water supply survey	Not recorded	Not recorded	25 Pa. Code 89.145a(a)(1)	Public water installed, O&M / agreement pending
367160	8/28/2018	Iron Cumberland LLC Cumberland Mine	Failure to conduct mining activities to protect fish and wildlife, UT-41640	UT-41640 to Roberts Run - Fish Kill	Not recorded	25 Pa. Code 89.82	Augmentation was installed. Stream currently monitored
368527	10/17/2018	Washington County Coal Co Washington County Mine	Failure to report land damage. Failed to report land damage within 10 days of the complaint	Not recorded	Submit a mine operator fax report	25 Pa. Code 89.142a(k)	Repaired
369113	11/2/2018	Iron Emerald LLC Emerald Deep Mine	Failure to report land damage.	Not recorded	Submit mine operator fax report for property - land damage	25 Pa. Code 89.142a(k)	Work has been done, Agreement pending.

ID	Date Executed	Company and Facility	Violation	Enforcement Comment	Milestone Description	Legal Citation	Comments
373799	4/8/2019	Tunnel Ridge LLC Tunnel Ridge Mine	Failure to report structure damage	NOV	Submit mine operator fax report	25 Pa. Code 89.142a(k)	Private agreement reached
376505	6/20/2019	Tunnel Ridge LLC Tunnel Ridge Mine	Failed to notify the Department of stream flow loss within twenty-four (24) hours. Failed to report UT-32475 went dry during mining	UT-32475 to Wheeling Creek NOV	Report flow loss in UT-32475 within 24 hours of receipt of this NOV	25 Pa. Code 89.65(a)	Report submitted, work done on stream bed, monitoring
380702	11/7/2019	CONSOL Pa Coal Co LLC Enlow Fork Mine	Failure to report water supply complaint. Failed to report a claim of water supply issues within 24 hrs.	NOV	Submit a Mine Operator Fax Report	25 Pa. Code 89.142a(c)	Report submitted; private agreement reached
380703	11/7/2019	CONSOL Pa Coal Co LLC Enlow Fork Mine	Failure to report land damage. Failed to report damage to a structure or surface feature	NOV	Submit a mine operator fax report	25 Pa. Code 89.142a(k)	Report submitted; private agreement reached
381979	12/17/2019	CONSOL Pa Coal Co LLC Bailey Deep Mine	Failure to report water supply complaint. Failed to report a claim of water supply issues within 24 hrs.	NOV	Submit a Mine Operator Fax Report	25 Pa. Code 89.142a(c)	Report submitted, not due to mining
383851	2/13/2020	Washington County Land Res Inc Maple Creek Mine	Failure to repair damage to surface lands	Subsidence Act (SA)order- not a block for now- order amended to complete work by 8/31/2020	Complete repairs	25 Pa. Code 89.142a(e)	Repaired
384674	3/11/2020	Tunnel Ridge LLC Tunnel Ridge Mine	Failure to conduct mining activities to protect fish and wildlife. Failed to augment stream	NOV - Failed to augment UT-32474	Commence stream augmentation on UT32474 and maintain flow in UT32474 based upon the operator's 2 years of pre-mining data	25 Pa. Code 89.65(a)	Augmentation was installed. Stream currently monitored
386235	6/10/2020	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	Not recorded	Complete all repairs within 150 days	25 Pa. Code 89.142a(f)	Private agreement reached

ID	Date Executed	Company and Facility	Violation	Enforcement Comment	Milestone Description	Legal Citation	Comments
386924	7/13/2020	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	SA order- private agreement signed.	Within 150 days repair all damage to Hager structures	25 Pa. Code 89.142a(f)	Private agreement reached
387649	8/12/2020	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	BMLSCA Structure repair order not a block until 2/14/2021-private agreement reached 9/25/2020	Complete repair of structure	25 Pa. Code 89.142a(f)	Private agreement reached
388136	8/19/2020	CONSOL Pa Coal Co LLC Harvey Mine	Failure to provide an adequate permanent replacement water supply	Webster Properties WL NOV	Within 35 days, the operator must provide written documentation that an agreement has reached with the property owner or that the operator has purchased property.	25 Pa. Code 89.145a(b)	Owner died, attorney for family asked to hold off negotiations
388477	9/11/2020	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	SA Order--not a block until 3/10/2021- private agreement signed.	Complete repairs	25 Pa. Code 89.142a(f)	Private agreement reached
389517	10/14/2020	CONSOL Pa Coal Co LLC Enlow Fork Mine	Failure to conduct mining activities to protect fish and wildlife. Chartiers Creek Fish Kill E32 Panel	Chartiers Creek Fish Kill E32 Panel	Referred to PA Fish Comm..	25 Pa. Code 89.82	Referred to PA Fish Comm.
389415	10/16/2020	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	SA Order - not a block until 4/14/2021-Signed private agreement.	Complete repairs	25 Pa. Code 89.142a(f)	Private agreement reached
389421	10/16/2020	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	Not a block until April 14, 2021	Complete repairs	25 Pa. Code 89.142a(f)	Repaired

ID	Date Executed	Company and Facility	Violation	Enforcement Comment	Milestone Description	Legal Citation	Comments
389422	10/16/2020	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	SA order, not a block, contact California DMO compliance Order amended 4/14/2021	Complete repairs	25 Pa. Code 89.142a(f)	Repaired
389832	10/30/2020	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	Private agreement reached, waiting for signed documents from operator. Private agreement signed 12/7/2020.	Within 180 days complete repairs	25 Pa. Code 89.142a(f)	Private agreement reached
395385	12/18/2020	Tunnel Ridge LLC Tunnel Ridge Mine	Failure to conduct mining activities to protect fish and wildlife.  UT-32474 sediment in stream	Sediment downstream of mitigation activity	Within twenty-four (24) hours of this notice, the operator shall install the approved stream diversion (pipe) in order to prevent additional contributions of sediment to the waters of the Commonwealth	25 Pa. Code 89.82	Repaired
392276	2/16/2021	Iron Emerald LLC Emerald Deep Mine	Failure to report land damage	NOV	Submit mine operator fax report within ten (10) days	25 Pa. Code 89.142a(k)	Report submitted. Owner never returned claim form
393614	4/15/2021	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	First amendment to CO 206007SA	Complete repairs	25 Pa. Code 89.142a(f)	Repaired

ID	Date Executed	Company and Facility	Violation	Enforcement Comment	Milestone Description	Legal Citation	Comments
394847	6/2/2021	Roxcoal Inc Kimberly Run Mine	Failure to protect hydrologic balance.  A compliance order is being issued for the disruption of the prevailing hydrologic balance, unpermitted discharges, stream degradation, and for failure to minimize adverse disturbances to the environment. Several degraded water supply wells and unpermitted discharges have resulted from the operator's Kimberly Run Mine Operation.	Not recorded	The operator shall have 90 days to develop and implement a Department approved plan and schedule to abate discharges and adverse impacts to the hydrologic balance and streams resulting from mining operations.	25 Pa. Code 89.52(a); 89.65(a); 89.82(a); and Sections 307, 315, 316, and 401 of the Clean Streams Law	From Cambria DMO.
395386	6/8/2021	Monongalia County Coal Resources Inc Monongalia County Mine	Failed to notify the Department of stream flow loss within twenty-four (24) hours	ST-41851 - Negro Run - NOV	Report the loss of flow on Negro Run (ST-41851) within twenty-four (24) hours of receipt of the NOV.	25 Pa. Code 89.65(a)	Report submitted. Mitigation performed, monitoring
396097	7/26/2021	Washington County Land Res Inc Maple Creek Mine	Failure to rehabilitate, restore, replace, or compensate the owner for damage to structures	Not recorded	Within 60 days pay owner for structure repair	25 Pa. Code 89.142a(f)	Private agreement reached
398678	10/29/2021	CONSOL Pa Coal Co LLC Enlow Fork Mine	Failure to conduct mining activities to protect fish and wildlife	UT - 40536 Fish Kill	Referred to PA Fish Comm.	25 Pa. Code 89.82	Referred to PA Fish Comm.

## Pre-2018 claims

For this assessment, the Department inventoried the claims that were dated prior to the 2018 start date of this assessment but were still unresolved as of 2018. As explained in the preceding sections, complicating factors and circumstances frequently arise that restrict the Department from closing out a claim in the BUMIS system. Unresolved or open claims, or claims with a long resolution time, are an indication of legal actions, monetary negotiations, increased operations and maintenance costs for a replacement water supply, and bond requirements if necessary. The delay to settle a claim does not indicate that the Department or the operator is negligent in addressing the claims. The Department prioritizes current investigations over closing past claims if there is no additional information forthcoming.

**Table 17: Unresolved Pre 2018 Claims** provides the list of claims that were logged prior to 2018 but not yet resolved by December 31, 2022. These claims have not been included in the other tables of this report. If the case has since been resolved during the drafting of this report, that date has been included in the column labeled 'Final Date'.

Table 17. Unresolved Pre-2018 Claims

Problem ID	Description	Date received	Date Occurred	Mine Name	Final Date	Reason
2645	Water Loss	6/29/2006	6/28/2006	Bailey Deep Mine	Unresolved	Compliance Order was issued 10/5/2017, case appealed to EHB, progress is being made toward resolution and the EHB has granted a stay on the appeal until 10/22/2022.
2718	Water Loss	6/29/2006	6/28/2006	Bailey Deep Mine	Unresolved	Compliance Order was issued 10/5/2017, case appealed to EHB, progress is being made toward resolution and the EHB has granted a stay on the appeal until 10/22/2022.
2959	Water Loss	10/4/2007	10/4/2007	Enlow Fork Mine	3/23/2022	Property was put into an LLC now owned by the children of the previous owner, legal battle over settlement, replacement well in place since 2016.
4019	Water Contamination	3/24/2011	2/22/2011	Kimberly Run Mine	12/14/2022	New treatment system installed 2013. Property changed hands after being vacant for a time. O&M bond requested from Operator. Sent bond wrong bond forms to Harrisburg and was denied and told to resend documents
4264	Water Loss	4/12/2012	4/12/2012	Enlow Fork Mine	3/23/2022	Property was put into an LLC now owned by the children of the previous owner, legal battle over settlement, replacement well has been in place since 2016. Same property as above problem 2959
4809	Water Loss	03/05/2014	03/05/2014	Enlow Fork Mine	11/22/2022	A private agreement was reached.
4866	Water Contamination	5/21/2014	2/1/2013	Harvey Mine	Unresolved	Replacement well drilled in 2017, property owner died 8/2020, daughter now owns property and asked for issues to put on hold while dealing with estate, daughter hired attorney to handle and is not being responsive to CONSOL attorneys request to settle.
5018	Water Loss	12/2/2014	11/30/2014	Monongalia County Mine	Unresolved	Old well was working all along, negotiations with operator resulted in a new well drilled in 2021, awaiting sampling period to conclude to have O&M bond or settlement
5073	Water Loss	3/17/2015	6/1/2014	Cumberland Mine	Unresolved	Property was mined again in 2016, company rebutted, awaiting public water, was hooked to public water 2019, O&M settlement being negotiated as of May 2022. Owner was not responding to operator was the hold up.
5129	Water Loss	6/2/2015	6/1/2015	Bailey Deep Mine	1/6/2023	O&M bond has been approved and been requested early 2022. Waiting for company to submit bond and we will revise the permit after Harrisburg approves bond.

Problem ID	Description	Date received	Date Occurred	Mine Name	Final Date	Reason
5142	Water Loss	6/11/2015	6/11/2015	Penfield Mine	1/24/2023	New well in 2016, holding tank added in late 2017, landowner hired an attorney who is in negotiations with operator legal counsel. O&M bond requested 7/19/22.
5145	Water Loss	6/11/2015	6/11/2015	Penfield Mine	1/24/2023	New well in 2016, Homeowner hired attorney to negotiate settlement, no progress on settlement so O&M bond submitted.
5219	Water Loss	9/21/2015	9/19/2015	Harvey Mine	Unresolved	Replacement well drilled in 2017, property owner died 8/2020, daughter now owns property and asked for issues to put on hold while dealing with estate, daughter hired attorney to handle and is not being responsive to CONSOL attorneys request to settle.
5381	Water Loss	5/4/2016	5/4/2016	Harvey Mine	Unresolved	Samples in 2018 show meeting drinking standards, owner hired attorney and will not let operator connect well to house, then death in family delayed settlement. Operator still in negotiations with owner'2009s attorney.
5399	Water Contamination	6/9/2016	6/3/2016	Dutch Run Mine	Unresolved	One more clean sample needs to be taken then owner will sign private agreement.
5479	Water Loss	10/25/2016	10/24/2016	Enlow Fork Mine	1/6/2023	O&M bond is being processed for posting April 2022.
5489	Structure Damage	11/1/2016	10/27/2016	Tunnel Ridge Mine	Unresolved	Operator and landowner are in continuous negotiations.
5494	Structure Damage	11/1/2016	10/27/2016	Tunnel Ridge Mine	Unresolved	Same owner and issue as above problem 5489.
5499	Structure Damage	11/8/2016	11/1/2016	Tunnel Ridge Mine	Unresolved	Operator and landowner are in continuous negotiations.
5501	Structure Damage	11/8/2016	11/1/2016	Tunnel Ridge Mine	Unresolved	Same status and landowner as above issue 5499.
5507	Water Loss	11/22/2016	11/22/2016	Tunnel Ridge Mine	Unresolved	Same landowner and issue as problems 5489 and 5494 above. To complicate even further, operator bought half the interest in the landowner's property.
5508	Water Loss	11/23/2016	11/22/2016	Tunnel Ridge Mine	Unresolved	Same owner and issues as above problems 5499 and 5501.
5509	Water Loss	11/23/2016	11/22/2016	Tunnel Ridge Mine	Unresolved	Same owner and issues as above problem 5489, 5494, and 5507.
5547	Water Contamination	3/10/2017	3/8/2017	Bailey Deep Mine	8/17/2022	Operator has verbal agreement with landowner, we will close it out once we get signed recorded documents of settlement.



<b>Problem ID</b>	<b>Description</b>	<b>Date received</b>	<b>Date Occurred</b>	<b>Mine Name</b>	<b>Final Date</b>	<b>Reason</b>
5548	Water Contamination	3/10/2017	3/8/2017	Bailey Deep Mine	8/17/2022	Same owner and status as above problem 5547
5549	Water Contamination	3/10/2017	3/8/2017	Bailey Deep Mine	8/17/2022	Same owner and status as above problem 5547 and 5548
5574	Land Damage	4/4/2017	3/29/2017	Enlow Fork Mine	Unresolved	Post mine damage settlement has been sent to owner, awaiting response from owners
5575	Structure Damage	4/4/2017	3/29/2017	Enlow Fork Mine	Unresolved	Same owner and status as above problem 5574.
5577	Water Loss	4/13/2017	4/12/2017	Enlow Fork Mine	Unresolved	Same owner and status as above 2 problems 5574 and 5575.
5578	Structure Damage	4/17/2017	4/14/2017	Bailey Deep Mine	Unresolved	Operator and landowner are in continuous negotiations. Owner has legal counsel involved.
5582	Water Loss	4/20/2017	4/19/2017	Harvey Mine	Unresolved	Same owner as several issues above, reference problem 4866 for status
5587	Structure Damage	4/28/2017	4/18/2017	Enlow Fork Mine	Unresolved	Same owner and status as problems 5574, 5575, 5577
5588	Structure Damage	4/28/2017	4/18/2017	Enlow Fork Mine	Unresolved	Same owner and status as problems 5574, 5575, 5577 and 5587
5603	Structure Damage	5/31/2017	5/31/2017	Bailey Deep Mine	11/15/2022	Repair work has been completed, operator to compensate cost, owner not willing to settle until other demands are met.
5648	Water Loss	8/23/2017	8/21/2017	Enlow Fork Mine	Unresolved	Replacement supply to be monitored for the required time and then O&M bond
5676	Water Loss	9/22/2017	9/22/2017	Cumberland Mine	Unresolved	Hooked to public water in 2019, pressure issue arose so operator installed larger tap, will monitor bills then settle on O&M
5705	Structure Damage	10/18/2017	10/18/2017	Harvey Mine	Unresolved	Same owner as several issues above, reference problem 4866 for status
5733	Water Loss	12/22/2017	12/15/2017	Monongalia County Mine	Unresolved	PA Game commission working on settlement/swap with operator, pond issue
5734	Water Loss	12/22/2017	12/20/2017	Clementine Mine # 1	11/22/2022	Operator waiting on installation of public water, then monitor bills, then O&M or settlement.

## Findings

The following represents findings from the data gathered in this 6<sup>th</sup> report.

### Improvements in internal GIS capability and data gathering

Within this assessment period, the capability to use GIS technology to assess the data has expanded allowing the report to be completed internally in accordance with the Act, thus avoiding issues that plagued previous reports using outside contractors. In previous reports, contractors experienced problems retrieving and analyzing data from BUMIS and other sources and spent a considerable effort digitizing and correcting errors. With the CalDMO's staff knowledge and understanding of the data, errors can be corrected in a timelier manner, leading to greater efficiency and accuracy in the current report over previous reports.

### Comparison to Previous Assessments

- Number of Facilities

During the 6<sup>th</sup> reporting period, there were 31 active underground mines compared to 49 during the 5<sup>th</sup> reporting period. The total number of active mines decreased, particularly in the number of room and pillar and full retreat mines. In the 6<sup>th</sup> assessment, there were a total of 25 active room and pillar mines compared to the 37 active room and pillar mines reported in the 5<sup>th</sup> assessment. The number of full retreat mines also reduced from 5 in the 5<sup>th</sup> assessment to 1 in the 6<sup>th</sup>. Despite the reduction in total active mines, the number of longwall mines has remained the same at 7. The total land impacted from all mining types has reduced from 28,854 acres in the 5<sup>th</sup> reporting period to 25,460 total acres in this 6<sup>th</sup> reporting period.

Mining Type	5 <sup>th</sup> Report	6 <sup>th</sup> Report
Room and Pillar	37	23
Room and Pillar – Full Retreat	5	1
Longwall	7	7
<b>TOTAL</b>	<b>49</b>	<b>31</b>

- Land Damage Claims

From the 5<sup>th</sup> reporting period to the 6<sup>th</sup>, the total number of reported land damage claims decreased from 124 total claims in the 5<sup>th</sup> period to 106 claims in the 6<sup>th</sup>. The 6<sup>th</sup> report has a higher proportion of claims requiring company action compared to in the 5<sup>th</sup> period, with 67 company liable cases in the 5<sup>th</sup> period and 82 in the 6<sup>th</sup>.

Mining type	5 <sup>th</sup> Report	6 <sup>th</sup> Report
Room and Pillar	8	9
Room and Pillar – Full Retreat	3	1
Longwall	99	72
<b>TOTAL</b>	<b>124</b>	<b>106</b>

The table shows a summary of total land damage claims submitted during the 5<sup>th</sup> and 6<sup>th</sup> reporting periods by mining type. The 5<sup>th</sup> assessment is predominantly comprised of reported effects from longwall damage with 99 cases, followed by room and pillar damage with 8 cases and then room and pillar recovery

damage with 3 cases. In this 6<sup>th</sup> assessment, longwall damage remains the most frequently reported cause of damage with 72 reported cases, followed by room and pillar with 9 cases, and 1 case for full retreat mines. Damage from longwall mining makes up 79.8% percent of all land damage claims in the 5<sup>th</sup> reporting period and 67.9% in the 6<sup>th</sup> reporting period.

- Structure Damage Claims

Data collected during the current reporting period (6<sup>th</sup> Report, January 1, 2018 to December 31, 2022) was compared to data collected for the previous reporting period (5<sup>th</sup> Report, August 21, 2013 to August 20, 2018) in order to understand the effects of underground bituminous coal mining on structures over the 6<sup>th</sup> reporting period.

Mining Type	Number Undermined		Reported Effects		Company Liable Effects	
	5 <sup>th</sup> Structures	6 <sup>th</sup> Properties*	5 <sup>th</sup>	6 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>
Room and Pillar	1,585	495	45	152	3	82
Room and Pillar – Full Retreat	242	0	1	0	0	0
Longwall	1,785	701	345	303	229	275
<b>TOTAL</b>	<b>3,612</b>	<b>1,196</b>	<b>391</b>	<b>455</b>	<b>232</b>	<b>357</b>

\*Reflects the number of properties undermined and was obtained by researching structure records in BUMIS.

In the 6<sup>th</sup> assessment there were 31 active mines which undermined a total of 1,196 properties according to records obtained from BUMIS. This number is conservative due to BUMIS using property parcels undermined but not distinguishing whether there are multiple structures (e.g., barn, outbuilding, detached garage) affected on a given parcel. Therefore, this 6<sup>th</sup> assessment “undermined” column cannot be directly compared to the 5<sup>th</sup> assessment.

A total of 455 structure damage claims related to underground mining were reported for the 6<sup>th</sup> reporting period, with 303 attributed to longwall mining and 152 attributed to room and pillar mining. Full retreat mining had no reported effects during the 6<sup>th</sup> reporting period, compared to one during the 5<sup>th</sup> assessment.

This increase is likely due to mining operations undermining more populated areas, areas having a higher concentration of structures, or more awareness of damages that were ultimately discovered and reported during the 6th assessment period.

Prior assessments included a manual computation of the total number of structures undermined. This total and the total number of structures impacted allowed for a calculation of the percentage of overall structures damaged. The Department does not have the capabilities to complete this manual calculation. In the future, it may be possible that GIS technology will allow this calculation to be done efficiently and accurately.

Of the total reported structure damage claims during the 6<sup>th</sup> assessment, 357 were found to be “company liable” upon resolution, compared to the 5th assessment reported claims of 232 “company liable”. This shows an increase of 125 “company liable” reported claims for this 6th assessment period. It is difficult to identify the specific reason for this increase in “company liable” claims. Some potential reasons include shallower depths to mining, overburden material, more efficient investigations, better tracking of impacts, or improved pre-mining surveys.

During the 5<sup>th</sup> reporting period, 79 claims remained unresolved, versus 95 claims still unresolved in the 6<sup>th</sup> reporting period. However, since unresolved claims can span multiple reporting periods, there may be

overlap between these reported numbers. See **Table 17: Unresolved Pre 2018 Claims** for additional information.

- Water Loss/Contamination Claims

Data collected during the current reporting period (6<sup>th</sup> Report, January 1, 2018 to December 31, 2022) was compared to data collected for the previous reporting period (5<sup>th</sup> Report, August 21, 2013 to August 20, 2018) in order to understand the effects of underground bituminous coal mining on structures over the 6<sup>th</sup> reporting period.

Mining Type	Reported Effects		Company Liabe Effects	
	5 <sup>th</sup>	6 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>
Room and Pillar	122	245	27	115
Room and Pillar – Full Retreat	10	0	6	0
Longwall	233	201	158	157
<b>TOTAL</b>	<b>365</b>	<b>446</b>	<b>191</b>	<b>272</b>

In the 6<sup>th</sup> assessment there were 31 active mines. Similar to the assessment of structures, BUMIS water loss/contamination claims are tracked by property parcels. A precise method to determine the total number of undermined water supplies is unavailable due to the variability of the number of water supplies possible on each parcel (e.g., public water supply, one or multiple wells, springs, ponds, etc.). It is possible that a parcel reported more than one water supply affected. Using BUMIS reported water supply impact records, a total of 446 properties reported a water loss/contamination effects during the 6<sup>th</sup> reporting period, with 201 attributed to longwall mining and 245 attributed to room and pillar mining. Compared to the 5<sup>th</sup> assessment of 365 impacts, there was an increase of 81 water supplies affected by underground mining activities.

This increase could be due to mining operations undermining more populated areas, properties having a more than one water supplies, affected wells were older and less reliable in general, or more water supplies impacts were discovered and/or reported during the 6<sup>th</sup> assessment period. Prior assessments calculated the total number of water supplies undermined which allowed a percentage of water supplies impacted to be calculated using GIS technology which was then used to compare water loss impacts to previous reports. At this time the Department does not have the capabilities to complete this type of task.

No effects associated with full retreat mining were reported during this assessment period.

Of the total reported water loss reported effects in the 6<sup>th</sup> period, 272 were found to be “company liable” upon resolution, compared to the 5<sup>th</sup> assessment reported claims of 232 “company liable”. This shows an increase of 40 company liable reported claims for this 6<sup>th</sup> assessment period. It would be difficult to identify one specific reason for this increase in “company liable” claims but could be due to more efficient investigations, better impact tracking, improved pre-mining surveys, or more water supplies impacts reported with in the RPZ during the 6<sup>th</sup> assessment period.

During the 5<sup>th</sup> reporting period, 73 claims remained unresolved, versus 121 claims still unresolved in the 6<sup>th</sup> reporting period. However, since unresolved claims can span multiple reporting periods, there may be overlap between these reported numbers. See **Table 17: Unresolved Pre 2018 Claims** for further detail.

- **Methane and Utility Claims**

Data on other claims, consisting of combined methane and utility damage claims, collected during the current reporting period (6<sup>th</sup> Report, January 1, 2018 to December 31, 2022) was compared to data collected for the previous reporting period (5<sup>th</sup> Report, August 21, 2013 to August 20, 2018) in order to understand the effects of underground bituminous coal mining on structures over the 6<sup>th</sup> reporting period.

In the 6<sup>th</sup> assessment, there were two methane related claims. In both cases the company was found to be liable upon resolution and both were resolved within the assessment period. Both methane claims were associated with longwall mining. Within the 5<sup>th</sup> assessment period, two methane related claims were reported, both of which were associated with longwall mines.

Three claims of damage to public utilities were reported in the 6<sup>th</sup> assessment. In two of these cases the company was found to be liable upon resolution. In the third case it was determined that the damage was not due to underground mining. Of the two claims of utility damage in which mining was found to be the cause, one was associated with longwall mining and one was associated with room and pillar mining. Both claims were resolved within the assessment period. No data on claims of damage to utilities from the 5<sup>th</sup> report was available.

### **Cumulative Hydrologic Effects**

The current Cumulative Hydrologic Impact Assessment (CHIA) format (5600-FM-MR0017 Rev. 9/2009) does not provide an adequate assessment/reporting of potential hydrologic impacts. The Department is aware of this flaw and is working towards developing a revised CHIA template that will be more thorough and require additional consideration and reporting of potential hydrologic impacts. The new CHIA template is still under development with a schedule of finalizing and implementing by 2025.

The current format relies heavily on referring to the permit file information and does not provide an in-depth assessment of potential impacts with each major revision or renewal. Once finalized, the Department will implement the new format starting with room and pillar mines, at the time of a permit renewal. The lead reviewer (geoscientist and/or licensed professional geologist) will begin to modify the existing CHIA in accordance with the proposed revised CHIA template. The revised template will require a hydrologic assessment of the data provided in the renewal application as well as all previous major revisions and renewals from the issuance of the permit to the current renewal. As part of the assessment, the data provided in Modules 7 and 8 will be reviewed to assess potential impacts of mining to public and private water supplies, surface water bodies, and wetlands with the CHIA assessment area. Once the CHIAs for room and pillar mines have been revised, CHIAs for longwall mines will be revised. The revision of the CHIAs will take considerable time and resources, especially for longwall mines and/or mines that have been in operations for multiple renewal cycles.

Having access to hydrologic data in an editable electronic format (e.g., spreadsheets) is critical to evaluating the information supplied in the permit application. The Department has been working to coalesce data into this format during permit renewal and have been requesting updated data in an appropriate spreadsheet format from the operators. However, examining and comparing current data to historical data is most often far beyond the time capacity of technical staff.

### **Characterization of Stream Effects**

- Stream lengths undermined.

During this 6<sup>th</sup> assessment period, underground mining operations undermined 78.93 miles of streams. Longwall operations accounted for 59.45 miles undermined, which was an increase of 8.86 miles from the 5<sup>th</sup> assessment. Room and pillar mine operations accounted for 19.48 miles undermined during the 6<sup>th</sup> assessment which was a decrease of 21.45 miles from the 5<sup>th</sup> assessment.

<b>Stream Miles Undermined</b>				
Mining Type	5th	6th	Increase	Decrease
Longwall	50.59	59.45	8.86	
Room and Pillar	40.93	19.48		21.45
<b>TOTAL</b>	<b>91.52</b>	<b>78.93</b>		<b>12.59</b>

- Stream Impacts

During this 6<sup>th</sup> assessment period underground mining operations impacted 15.62 miles of streams. Longwall operations accounted for 15.27 miles impacted which was a decrease of 23.23 miles from the 5<sup>th</sup> assessment. Room and pillar mine operations accounted for 0.35 miles impacted during the 6<sup>th</sup> assessment which was an increase of 0.35 miles from the 5<sup>th</sup> assessment.

<b>Stream Miles Impacted</b>				
Mining Type	5th	6th	Increase	Decrease
Longwall	38.50	15.27		23.23
Room and Pillar	0.00	0.35	0.35	
<b>TOTAL</b>	<b>38.50</b>	<b>15.62</b>		<b>22.88</b>

- Stream Recovery Evaluations (SRE)

Beginning in 2019, the CalDMO assigned a Licensed Professional Geologist to focus on stream recovery evaluations reports (SREs) submitted by the operators. Since implementing this practice, the Department completes a more detailed review of the stream impact(s). Because of this increased scrutiny, the quality of the submittals of SREs by operators has improved.

In addition to a detailed evaluation of operator-provided data, the Department now performs independent time-trend and monitoring bias evaluations and examines the stream review reports supplied by the Department's "shadow inspectors", which include comments, photographs, and flow maps. The Department denied multiple stream release requests during the 6<sup>th</sup> assessment period due to the SREs not meeting the minimum requirements detailed in the guidance document, Surface Water Protection – Underground Bituminous Coal Mining Operations (563-2000-655). In some cases, the Department has required additional flow data or supplementary mitigation work. To date, operators have complied with the requests and have provided additional information to support their determination that flow recovery has occurred.

Operators have 5 years to fully restore a stream as detailed in the guidance document (563-2000-655), Procedures: Section IV.1(x)). The Department is currently reviewing the status of all open SRE cases to determine which streams have gone beyond the five-year period. This is expected to be completed in 2024.

- Wetlands

The Department acknowledges that wetlands data collection and analysis is lacking. Wetland data collection has improved but is still not optimal. While it is often the case that more wetlands are created post mining than existed pre-mining, OSMRE commented that wetland function and value are not

represented in the data collected. Therefore, it is unclear if the overall picture of wetland areas post-mining represents a loss, an improvement, or a more complex result.

During discussions, the Department inquired about the procedures and reporting from other states regarding wetland monitoring. No immediate answer was available and OSMRE expressed interest in investigating this question. Because wetland areas affected are very small, they are difficult to depict and track. Wetland review requires specialized expertise that compliance staff does not have, therefore, that task falls upon the staff biologist. This is a considerable workload, and it is prohibitive for the staff to field check every mapped wetland.

- **Enforcement Actions**

Previous reports did not include details on enforcement actions related to mining impacts because of the way the enforcement actions were tracked. Due to improved record keeping, it was possible to review and evaluate the enforcement actions incurred during the 6<sup>th</sup> reporting period. Records indicate the CalDMO is taking the appropriate action when claims are not expediently addressed by the mining company. Legal action, appeals, and settlement agreements delay the time to fully resolve some of these claims. It is not immediately clear that a program change, short of a statute revision, can alleviate these types of delays.

- **Unresolved Claims**

The Department diligently pursues a timely resolution of all claims. However, at certain points, the time to resolution is out of the Department's control. There are typically a number of residual claims (e.g., water supply, structure, land, and utilities) that cannot be resolved in a timely manner and will stretch on for months or years. As noted, enforcement actions, legal proceedings, appeals, and final settlements may extend the amount of time needed to resolve a claim. Claims are not resolved until they are permanently settled.

# Recommendations

## 1. BUMIS

- Previous Act 54 reports were completed by outside contractors who had expressed difficulty using the BUMIS database system to collect and analyze data. Real time in-house collection of impact data has reduced many of the issues experienced by the contractors. Therefore, the Department recommends the continuation of the 6<sup>th</sup> assessment process for future assessments.
- The current Oracle Forms software version used by BUMIS went live in October of 2011 and reached the end of its lifecycle in 2016, including support for security patches. In fall 2023, the application was reviewed by the Department's Information Technology team and was determined that migrating to Oracle Apex will be the most effective way of updating the BUMIS application software and will modernize the usability of the application.

## 2. Improve GIS Capability

- The CalDMO GIS staff should continue to be supported in efforts to stay informed about the latest GIS capabilities through OSMRE classes, training, and interaction with other agencies. Technological improvements relating to the Department's GIS capabilities have expanded significantly since the 5th report. The CalDMO continues to refine the data collection and processing workflow. It is anticipated this will continue to improve each year.
- During the tabulation of active mining operations for the reporting period, lists from the Department's internal facilities database (eFacts), CalDMO inspection and permitting sections, and the BMP's "Coal and Industrial Minerals Mining Activity Reports" were used. Slight discrepancies were found in the total number of operating mines because of definitions (of "active") and changing statuses. To alleviate inconsistencies, on the next assessment, the "Coal and Industrial Minerals Mining Activity Reports" should be utilized. This report includes yearly production totals reported by the company. Those mines that have no reported coal production will not be used even if they are still listed as "active".
- CalDMO recommends developing an internal GIS layer in addition to BUMIS to track water loss investigations and better organize water quality data associated with those investigations.

## 3. Improve Public Information Displays

- Beginning with this report, the Department has included data updates on claims and stream impacts related to bituminous underground mining and active operations on the Department's website. To the best of our capability, the Department will continue to update these data sets semi-annually for public access and respond to public comments and requests for additional information.

## 4. Improve Communication with Affected Parties

- CalDMO personnel are committed to customer service both to the land/homeowners and to the mining companies. No specific improvements were suggested for this process, but the Department will continue to focus on communication clarity and promptness in serving the population of areas affected by bituminous underground mining.

## 5. Electronic Submittal

- The Department continues to encourage all mine operators to submit all monitoring data and reports in a spreadsheet format that will allow for immediate review and avoid additional time spent reformatting the data for analysis. Prominent examples of data submittals that should be in digital format include the following:
  - Hydrologic Mining Reports (HMR)
  - Pre- and post-mining biological monitoring data
  - Pre-mining and post-mining comparison of mean Total Biological Scores (TBS)



- Pre- and post-mining stream flow data
- Post-restoration (liner) assessment
- No-flow percentages
- Flow monitoring data including locations, frequency, and methods
- Box & whisker plot inputs
- Wetland location and acreage data

In the next year, the Department will begin instituting permit conditions to require data submittals to be supplied electronically.

The Department is currently using and promoting a public upload portal for easy uploading of all permit information and reporting to avoid excessive paper use and mailing costs. Operators are also encouraged to submit certain self-monitoring via the ePermitting platform.

## **6. Wetland Data**

- The Department has determined that better quality wetland data is needed from mine operators at more frequent (yearly or bi-annually) intervals to be able to determine overall wetland impacts. The more frequent reporting will be included as a permit condition. Currently, it still is not feasible for Department staff to field verify every delineation and wetland categorization due to the number and location of wetlands. The majority are small, emergent wetlands scattered over hundreds of acres. The responsibility to delineate wetlands remains on the mine operators who hire consultants to produce the delineation and re-delineation information.
- Many of the wetland location maps lack surface features such as structures and roads that would traditionally be used to spatially reference the maps to aerial imagery in GIS software. The Department will begin requesting the wetland information be submitted on polygon shapefiles or layered PDF's with a coordinate grid and/or points on each map that will allow for fast and accurate georeferencing.
- The Department will request from the operators the corresponding wetland inventory reports in spreadsheet or comma-separated values (CSV) format to improve wetland evaluations.

## **7. Reassess CHIA Process**

- The Department will revisit the review process and procedures for preparing new and updated CHIA's. This will mean reinforcing the need for digital data accessibility and incorporating stream and discharge data into the CHIA process.

## Appendices

### *Appendix A – Map Figures*

The following map figures are a supplement to the text of the “Effects of Underground Mining in Pennsylvania 6th Report, 2018-2022”. They are intended to be viewed along with the report text and are not stand-alone map exhibits for detailed visual analysis.

A map series was created for each of the underground coal mines covered by the report that had coal extraction during the 6th assessment period, regardless of the mine’s permit status. If a particular map figure was not applicable to a particular mine, a map figure was not included.

Figures X.1 show the entire Mined Extents, both during and prior to the 6th assessment period. The figure also shows permit boundary at the end of the 6th assessment period. Figures X.1.A, X.1.B, etc. are figures zoomed in on parts of the mined extents during the 6th assessment. Mining Extents are defined as the surface area over which room-and-pillar and longwall mining took place. Support coal pillars surrounded by mine workings are also included in this area. Six-month projection mining maps are submitted by the mine operator to the Department, however, map submittal schedules for the various mines are distributed over the course of the year. The submittal dates of the six-month mining maps are not coordinated with the start and end dates of five-year assessment periods, therefore the most recent submitted six-month mining map submitted prior to the start date of the assessment period and the most recent submitted six-month mining map submitted prior to the end date of the assessment period were used to create the mined extent layer.

Figures X.2 show the approximate location of all complaints, identified by problem type, received by the Department during the 6th assessment period for that mine. Figures X.2.A, X.2.B, etc. are focused on parts of the mine, so the distribution of complaints could more easily be seen. The map extent is zoomed in as far as possible while still showing all complaint points, therefore may not align or be the same scale as other maps in the series. Not all complaints shown were determined to have been caused by mining. If some complaints occur at the same location, the complaint points overlap and may not be easily distinguished in the map figure.

Figures X.3 highlights the streams that were undermined during the 6th assessment period for that mine. Figures X.3.A, X.3.B, etc. are focused on parts of the mine, so the undermined streams could more easily be seen. The map extent is zoomed in as far as possible while still showing all streams in the dataset that were undermined, therefore may not align or be of the same scale as other maps in the series. The National Hydrography Dataset (NHD) Flowline dataset was the source of the stream layer. This dataset does not include all small-order streams, particularly, intermittent reaches, so the total length of undermined streams is an underestimation of the actual length undermined. Some of mine operators provided more detailed stream layers in their mapping, therefore the level of resolution among mines was inconsistent. Using these more detailed stream data for only some of the mines in the analysis of undermined lengths would result in higher stream mileage for those mines and may inaccurately suggest differences among mine operators. Therefore, the NHD Flowline dataset was used for consistency.

Figures X.4 show documented impacts to undermined streams, identified by impact type, during the 6th assessment period. Figures X.4.A, X.4.B, etc. are focused on parts of the mine so the distribution of stream impacts could more easily be seen. The map extent is zoomed in as far as possible while still showing all stream impacts, therefore may not align or be of the same scale as other maps in the series. The coordinates of the start and end points of each impact is recorded in BUMIS. The start and end points were spatially plotted in GIS. The points were “snapped” to the nearest stream segment within the NHD Flowline dataset. In cases where the impacts belonged to small order streams that were not included in the NHD Flowline dataset, the stream path lines were vectorized from georeferenced environmental resource mapping provided by mine operators and then the points were “snapped” to these lines in GIS. Only the start point is shown for heaves/fractures as these are usually accompanied by other types of stream impacts - overlaying these may visually hide other impacts on the map figures.

Figures X.5 show the approximate location of wetlands over underground mines, showing areas where wetlands existed prior to mining, and the changed delineated areas after mining. Figures X.5.A, X.5.B, etc. are focused on parts of the mine, so the wetland data could more easily be seen. The map extent is

zoomed in as far as possible while still showing all available relevant wetland data, therefore may not align or be of the same scale to other maps in the series. Pre-mining wetland location data is surveyed, inventoried, and submitted to Department by the mine operator during the original permit application, the five-year renewal application, or the permit expansion application in areas where the operator plans to mine during the next five-year permit term. Post-mining summary of mining-related effects on wetlands, including an updated wetland survey and inventory, are submitted at the five-year renewal application for wetlands undermined more than 12 months prior to the permit term expiration date. Permit renewal schedules do not align with the start and end dates of five-year assessment periods; thus, these map figures show wetland data that is currently available and may be in areas previous assessments did not cover.

*Appendix B Wetlands\_Tables.xls (digital file)*