

Geologist's Review

-Common Corrections

Cheryl Bowen

Industry Training

November 12, 2020



Geologist's Review

Section I
I-1 thru I-13

Section J
J-1 thru J-11
(SWROA J-6)

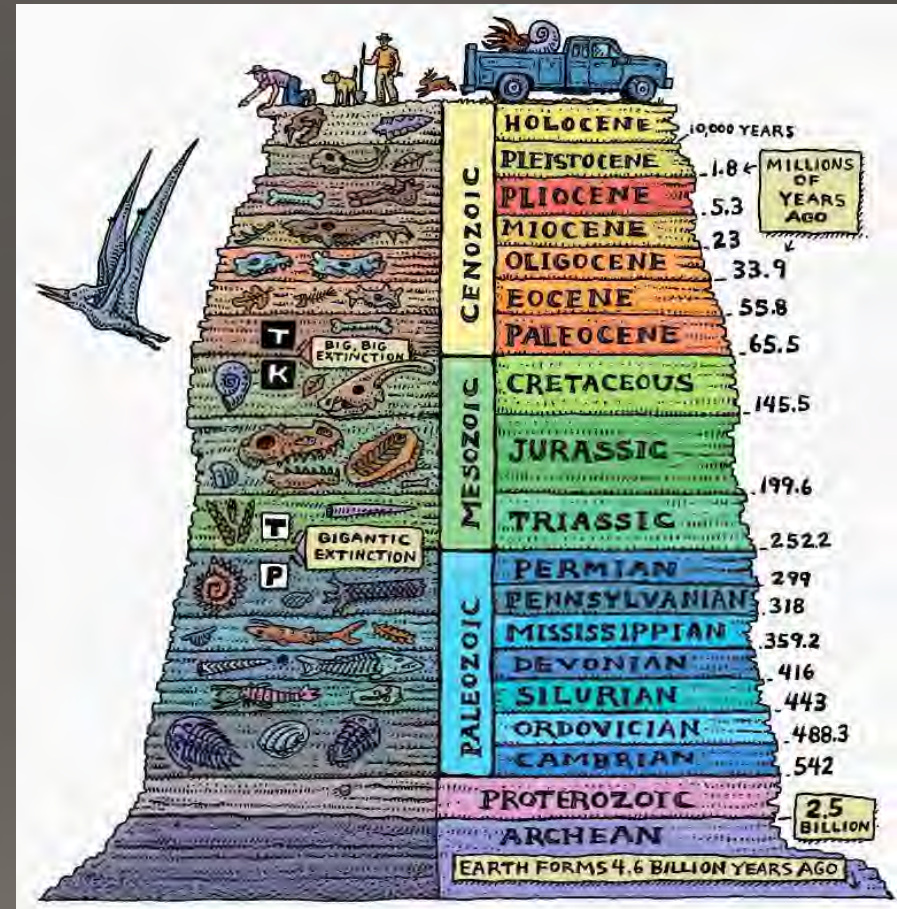
Section L

Sections O-7 and O-8

Section S
S-1 thru S-6

Section U
U-1, U-2

SECTION I – GEOLOGICAL INFORMATION



Common Corrections

Section I

I-1

Coal Seam(s), Rider(s), and Refuse Information

Coal, Rider Seam(s) And/Or Coal
Refuse (USGS Name)

Thickness (Inches)

Organic

Pyritic

Sulfate

Total

Match Legal Ad

Common Corrections

Section I

I-2

Is a gravity discharge anticipated?

*Up-dip mining = Potential Gravity Discharge
provide attachment*



Common Corrections

Section I

I-3 – Coal FlyAsh Usage Information

I-4 – Coal Processing Refuse Disposal Proposed

I-5 – Are Durable Rock Fills Proposed

I-12 – Coal Seam Stratum Clay and Soft Rock
Information



Common Corrections

Section I

I-6 Geologic Waivers

Results of test borings as requested in I-11

ABA, Se

Common Corrections

Section I

I-6 Geologic Waivers

Engineering Properties of Soft Rock for Underground Mines as Requested in I-12

Include a discussion of the geology at the mine site. If you are requesting a waiver for engineering properties of soft rock, discuss what type of rock is at the mine site and provide the typical strengths of these rocks.

Common Corrections

Section I

I-7 Geologic Cross Sections
Need multiple coreholes

Coreholes need to be within permit boundary

*At least one corehole with ABA/Se analysis and topsoil
substitute material*

Common Corrections

Section I

I-8 Geologic Map

*Surface baseline sites, BWQ sites, GW baseline sites;
identify during mining sites*

Show all coreholes on cross sections

Common Corrections

Section I

I-9 Detailed Geologic Description
A-H

D – Discuss Selenium

*H – discuss potential gravity discharge if I-2 is marked
YES*



Common Corrections

Section I

I-10 Geologic Bore Log

Include a log for every corehole shown

I-7

I-8



Common Corrections

Section I

I-11 Statement of Results Information

ABA, Se

Have this information when submitting application

Common Corrections

Section I

I-13 Topsoil Substitute Information

Topsoil substitute waiver is required unless it can be demonstrated there is sufficient native topsoil material to reclaim the area with 4' of actual topsoil.

38CSR2 7.6.c.1 Except for valley fills, soil or soil substitutes shall be redistributed in a uniform thickness of at least four feet across the mine area.

Common Corrections

Section I

I-13 Topsoil Substitute Information

Always keep the native topsoil for redistribution

As part of this waiver, volumetric calculations by mine phase need to be provided in the Mine Plan (Section N-1)

SECTION J – HYDROLOGIC INFORMATION



Common Corrections

Section J

J-1 – Proposal Map Surface and Ground Water

J-5 – Seasonal Discharge Rate/Usage and Water Depth Information

J-7 – PHC indications of Contaminated, Diminished, or Interrupted Ground Water

J-8 – PHC indications of Contaminated, Diminished, or Interrupted Surface Water

Common Corrections

Section J

J-2 Groundwater Inventory

1/2 mile radius from surface and underground area

J-2 List, Inventory sheets

Structures shown on GeoHydro Map

Common Corrections

Section J

J-3 Baseline Surface Water

Not the same parameters as BWQ monitoring

Six (6) consecutive months or eight (8) quarterly samples no more than 2 years old from date submitted

Heavy Metals required

THIS WILL HOLD UP ADVERTISEMENT

Common Corrections

Section J

J-4 Baseline Ground Water

Six (6) consecutive months or eight (8) quarterly samples no more than 2 years old from date submitted

Amendment applications require Ground Water Baseline

THIS WILL HOLD UP ADVERTISEMENT

Common Corrections

Section J

J-6 Probable Hydrologic Consequences

Identifies potential problems

Needs to be specific to type of mining

Include synopsis of the surface and ground
water baseline data

Common Corrections

Section J

J-9 During Mining Ground Water Monitoring
Waiver

No groundwater users within $\frac{1}{2}$ mile of
underground area

Common Corrections

Section J

J-10 Surface and Ground Water Baseline
Monitoring Site Laboratory Data

Copies of original lab sheets for all data
provided in J-3 and J-4

Includes the Heavy Metals

Common Corrections

Section J

J-11 Hydrologic Reclamation Plan

Addresses items identified in PHC and provides remedial/preventative measures

Needs to be consistent with J-6

Common Corrections

Section L

Geologic Waivers

I-6 Results of Test Borings

J-9 Groundwater
Monitoring During Mining

I-6 Engineering Properties
of Soft Rock

S-3 Subsidence Control
Plan

I-13 Topsoil Substitutes

S-6 Co-mingling of Waters

Common Corrections

Section O-7

Seal and Management of Mine Openings Information

Include diagrams

Be consistent with Section S-4

Common Corrections

Section O-8

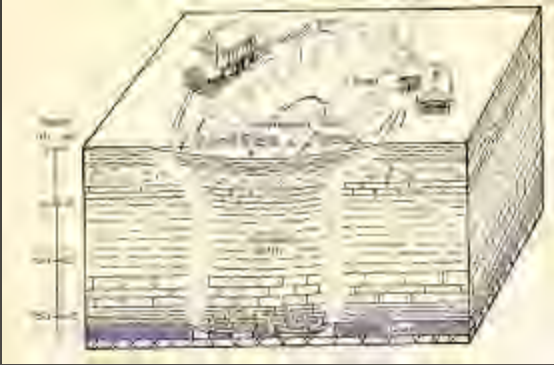
MATERIAL HANDLING PLAN

Information from I-11

Diagram of Encapsulation Cell

Encapsulation Cells will be shown certified by an engineer
and shown on progress maps

SECTION S – UNDERGROUND/SUBSIDENCE INFORMATION



Common Corrections

Section S

Section S-1 - Proposed Underground/Augering
Operations?

Section S-5 – Acknowledgement of Restoration of
Subsided Damaged Material

Common Corrections

Section S

Section S-2 - Subsidence Survey Critical Angle Identified Object(s)

Perennial and/or Intermittent
streams?

Renewal Resource Lands

Structures?

PSD or Municipal Water Works?

38CSR2 2.105. ...means aquifers and areas for the recharge of aquifers and other underground waters, areas for agricultural or silvicultural production of food and fiber, and grazing lands.

Common Corrections

Section S

Section S-3 Subsidence Control Plan Submittal Requirement Waiver

If “Yes” provide supporting documentation

If “No” provide required information

Marking Sections in S-2 “Yes” requires a SCP be submitted

Common Corrections

Section S

Section S-4 Underground Mine Abandonment Plan

Outcrop barrier widths, including highwall/augering

Discuss maximum potential hydrologic head

Discuss number and type of seals to be installed
(Section O-7)

Common Corrections

Section S

Section S-6 Co-mingle Water from Underground Works Variance Request

Discharge from mine cannot be separated from surface
water

If poor water quality is anticipated this waiver cannot be
granted

Common Corrections

Section U

U-1

*During Mining Surface
Water Monitoring*

Show on maps

Use Baseline Sites

Consistent Nomenclature

U-2

*During Mining Ground
Water Monitoring*

Show on maps

Use Baseline Sites

Consistent Nomenclature



west virginia department of environmental protection

The End