2019 ANNUAL REPORT

Submit the completed document and any additional information identified to the Division by March 31, 2020.

GENERAL INFORMATION

Company Name	Bronco Utah Operations, LLC	Mine Name	Emery Deep Mine
Permit Number	C/015/0015	Permit Expiration Date	2022-01-07
Operator Name	Bronco Utah Operations LLC	Phone Number	43528620
Mailing Address	Highway 10 South Box 527	Email	jpappas@broncoutah.com
City	Emery		
State	Utah	Zip Code	84522

		DOGM File Location or Annual Report Location
Excess Spoil Piles	☐ Required ☒ Not Required	
Refuse Piles	☒ Required ☐ Not Required	See Appendix A-2, Quarterly Coal Refuse Inspections
Impoundments	☒ Required ☐ Not Required	See Appendix A-1, Annual Impoundment Inspections
Other:		

OPERATOR COMMENTS

Underground mining operations commenced on October 11, 2017 via the newly constructed Emery 2 portals. Appendix A-1 (Annual Impoundments Inspections), Appendix A-2 (Quarterly Coal Refuse Inspections), Appendix B-2 (Annual Subsidence Survey), Appendix B-5 (Emery Reclamation Study - Annual Qualitative/Quantitatve Report), Appendix B-6 (Annual Water Monitoring Summary including Emery Town Well), Appendix D-1 (Annual Map)

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

COMMITMENTS AND CONDITIONS

The Permittee is responsible for ensuring annual technical commitments in the Mining and Reclamation Plan and conditions accepted with the permit are completed throughout the year. The Division has identified these commitments below and has provided space for you to report what you have done during the past year for each commitment. If additional written response is required, it should be filed as an attachment to this report.

Title: WATER MONITORING

Objective: Provide an annual water monitoring summary to be submitted by March 31st.
Frequency: Annually
Status: Ongoing
Reports: Annual Report
Citation: Chapter VI, page VI-28

OPERATOR COMMENTS

See Appendix B-6 (Annual Water Monitoring Summary including Emery Town Well)

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

Title: INVESTIGATIVE STUDY INTO RECLAMATION PRACTICE

Objective: To develop an enhanced reclamation plan, based on an evaluation of soil chemistry and vegetation establishment on previous reclaimed sites. (results located in Chapter 11, Appendix 1). This is a four-phase project. Phase I involves reporting on the investigation of past reclamation sites and practices at the mine.
Phase II requires to lower the profile of pond 6 stockpiles, reseed and keep wildlife off piles; reclaim ponds 4 & 5, and pond 1 subsoil pile; adjust final reclamation plans to incorporate beneficial treatments observed such as discing in 1 T/ac straw mulch; modify the seed mix to include only salt tolerant species and allow for a higher percentage of shrubs and forbs; adjust the reference areas to eliminate duplication.
Phase III requires that the applied techniques be evaluated qualitatively annually and quantitatively between the 4th and 6th year. These evaluations will be correlated to precipitation data.
Phase IV requires the permittee to revise the MRP to include the best technology for final revegetation.
Frequency: Ongoing
Status: Phase I has been met. Phase II has been met (2014).
Reports: Qualitative report annually, and quantitative report between 4th and 6th year.
Citation: Chapter III, page 4a, and Chapter III, Appendix 1

OPERATOR COMMENTS

Field meetings and historical review were held in April 2014. Three sites were chosen for regrading and revegetation based on soil quality (see CH III pg 4a-4c).

Phase III Annual revegetative monitoring results will be reported through the annual report via Appendix B-5 - Emery Reclamation Study - Annual Qualitative/Quantitative Report.

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

Title: SUBSIDENCE MONITORING- MONTHLY INSPECTIONS

Objective: Inspect the area outlined on Plate V-5 as full extraction areas when pillar splitting begins.
Frequency: Monthly until there is no significant movement (+/- 0.5 feet)
Status: Ongoing
Reports: Track in annual report to ensure compliance. Resubmittal of monthly reports is not necessary if the operator has already submitted them. Division engineer will review reports annually to ensure compliance.
Citation: Chapter V, Section V-B.2 (Subsidence Survey and Monitoring Plan) Page 38

OPERATOR COMMENTS

All subsidence in 2019 took place on Bronco surface. Monthly observations and reporting will commence when subsidence takes place on private, federal, or state surface. Subsidence on Bronco surface was surveyed and is included in Appendix B-2 (Annual Subsidence Survey)

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

Title: SUBSIDENCE MONITORING- POINTS OVER PARTIAL PILLAR SECTIONS

Objective: If monitoring points over partial pillar sections demonstrate significant movement (+/- 0.5 feet),the Division shall be notified of the differences and the point resurveyed at 6 month intervals until no significant movement (+/- 0.5 feet). Points that no longer demonstrate movement will be surveyed annually unless massive caving occurs.
Frequency: As needed
Status: Ongoing
Reports: Track in annual report to ensure compliance. Resubmittal of reports is not necessary if the operator has already submitted them. Division engineer will review reports annually to ensure compliance.
Citation: Chapter V, Section V-B.2 (Subsidence Survey and Monitoring Plan) Page 37

OPERATOR COMMENTS

Refer to Appendix B-2 (Annual Subsidence Survey)

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

Title: SUBSIDENCE MONITORING- REPORT

Objective: Subsidence monitoring report containing: 1.) Mine maps showing where pillars have been pulled. 2.) Maps showing surface property ownership. 3.) Location of subsidence monitoring stations. 4.) Photographs of the subsidence monitoring points above the full extraction areas outlined on Plate V-5 to record pre and post subsidence. 5.) The differential level and horizontal survey summary. 6.) A narrative explaining any "significant movement" and mitigative measures.
Frequency: As needed, report submitted to the Division annually
Status: Ongoing
Reports: Track in Annual Report to ensure compliance.
Citation: MRP, Chapter V, Section V-B.2 (Subsidence Survey and Monitoring Plan) Page 38

OPERATOR COMMENTS

All subsidence in 2019 took place on Bronco surface. Monthly observations and reporting will commence when subsidence takes place on private, federal, or state surface. Subsidence on Bronco surface was surveyed and is included in Appendix B-2 (Annual Subsidence Survey)

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

Title: SUBSIDENCE MONITORING- PREMINING ELEVATIONS AND GRADIENTS

Objective: Establish pre-mining elevations and gradients of any irrigation ditches and pond embankments within the angle of draw. The pre-subsidence survey will be compiled or updated 6 months prior to full extraction.
Frequency: As needed.
Status: Ongoing
Reports: Track in annual report to ensure compliance. Division engineer will review reports annually to ensure compliance.
Citation: MRP, Chapter V, Section V-B.2 (Subsidence Survey and Monitoring Plan) Page 38

OPERATOR COMMENTS

Additional surveys will be conducted per the approved permit.

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

Title: SUBSIDENCE MONITORING- PROTOCOL IN SEALED OLD WORK AREAS

Objective: If surveyed subsidence monitoring point over sealed old works demonstrates significant movement (+/- 0.5 feet), the Division shall be notified of the survey differences and the point resurveyed at 6-month intervals until no significant movement is indicated. Points where there is no longer significant movement will be surveyed annually.
Frequency: As needed
Status: Ongoing
Reports: Track in annual report to ensure compliance. Resubmittal of monthly reports is not necessary if the operator has already submitted them. Division engineer will review reports annually to ensure compliance.
Citation: Chapter V, Section V-B.2 (Subsidence Survey and Monitoring Plan) Page 37

OPERATOR COMMENTS

All subsidence in 2019 took place on Bronco surface. Monthly observations and reporting will commence when subsidence takes place on private, federal, or state surface. Subsidence on Bronco surface was surveyed and is included in Appendix B-2 (Annual Subsidence Survey)

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

Title: EMERY TOWN WELL MONITORING

Objective: Evaluate data collected from the Emery town wells, using hydrographs and other appropriate means, and submit a report of findings to DOGM with the Annual Report.
Frequency: Annually
Status: Ongoing
Reports: Annual Report
Citation: Chapter VI, page VI-56

OPERATOR COMMENTS

A discussion regarding the Emery Town Well has been included in Appendix B-6 (Water Monitoring Summary including Emery Town Well).

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

FUTURE COMMITMENTS AND CONDITIONS

The following commitments are not required for the current annual report year, but will be required by the permittee in the future as indicated by the "status" field. These commitments are included for information only, and do not currently require action. If you feel that the commitment is no longer relevant or needs to be revised, please contact the Division.

Title: SOIL SAMPLING AT 4TH EAST PORTAL

Objective: Verify soil characteristics prior to final reclamation grading through sampling and analysis for pH, SAR, and EC with particular attention to those areas that were treated with dust suppressant.
Frequency: At final reclamation.
Status: At final reclamation.
Reports: report findings to Division.
Citation: Chapter III part C.1, page 11 and Appendix X, part C-3, page 24

Title: SOIL SAMPLING OF POND NO. 4 AND POND NO. 9

Objective: To determine if evaporative salts have accumulated to a toxic level.
Frequency: at final reclamation
Status: at final reclamation.
Reports: report to the Division.
Citation: Chapter III, part C-1, page 12

Title: SOIL TESTING OF RECLAIMED SITE BEFORE SEEDING

Objective: To verify the suitability of the growth media.
Frequency: At reclamation.
Status: At reclamation, before seeding.
Reports: report to Division.
Citation: Chapter VIII, part C-4, page 21, paragraph 1

Title: PERMANENT WASTE DISPOSAL SITE SUBSTITUTE TOPSOIL AND SUBSOIL COVER

Objective: To determine how to segregate best available material within the disturbed area for use as substitute topsoil from less desirable material to be used as cover over the coal mine waste permanent disposal site.
Frequency: Prior to construction of permanent disposal site, resample of the gravel pit site for topsoil substitute quality and quantity, and cover material quality. The site will be sampled on one sample per acre grid, with analysis on one foot
Status: Future Commitment
Reports: Report to Division.
Citation: Chap VII, Appendix VII-2, page 2

Title: IDENTIFY CHEMICAL CHARACTERISTICS OF COAL MINE WASTE PRIOR TO FINAL BURIAL OR TREATMENT

Objective: In accordance with R645-301-731.300, determine chemical characteristics of coal mine waste in existing temporary coal mine waste stockpile. Commitment to core temporary pile in at least 5 locations and analyze waste in 5 ft. intervals for pH, EC, SAR, Acid Base Accounting, Se, B, and texture.
Frequency: One year prior to moving the waste
Status: Future Commitment
Reports: Report to Division.
Citation: Chapter III, page 13

REPORTING OF OTHER TECHNICAL DATA

Please list other technical data or information that was not included in the form above, but is required under the approved plan, which must be periodically submitted to the Division.

Please list attachments:

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

MAPS

Copies of mine maps, current and up-to-date, are to be provided to the Division as an attachment to this report in accordance with the requirements of R645-301-525.240. The map copies shall be made in accordance with 30 CFR 75.1200 as required by MSHA. Mine maps are not considered confidential.

Map Name	Map Number	Included		Confidential	
		Yes	No	Yes	No
Annual Subsidence Map		☐	☒	☐	☒
Mine Map		☒	☐	☐	☒
		☐	☐	☐	☐
		☐	☐	☐	☐
		☐	☐	☐	☐

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not Meet Requirements

Appendix A-1

Annual Impoundment Inspections

Richard B. White, PE, PLLC
13441 South Lone Peak Lane • Draper, Utah 84020 • 801-673-6647

August 8, 2019

John C. Pappas
Environmental Manager
Bronco Utah Operations, LLC.
550 West Consol Mine Road
Box 527
Emery, Utah 84522

Subject: Emery Mine annual pond inspection results

Dear Kit:

On August 7, 2019 I conducted the annual inspection of the sedimentation ponds at the Emery Mine. The results of my inspections are attached. All ponds appear to be adequately controlling the discharge of sediment to the environment. I noted that sediment in Pond 3 has accumulated to an elevation approximately equal to 60% of the design sediment storage volume. I recommend that sediment be removed from this pond when it has adequately dried.

Please contact me if you have any questions.

Sincerely,

Richard B. White, P.E.
Consulting Civil and Environmental Engineer

Enclosure (inspection sheets)

*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date	8 Aug 2019
Permit Number	ACT 015/015
Mine Name	Emery Mine
Company Name	Bronco Utah Operations

IMPOUNDMENT IDENTIFICATION

Impoundment Name	Pond 1
Impoundment Number	UPDES Outfall 001
UPDES Permit Number	UT0022616
MSHA ID Number	NA

IMPOUNDMENT INSPECTION

Inspection Date	7 Aug 2019
Inspected by	R.B. White
Reason for Inspection	Annual

(Annual, quarterly or other periodic inspections, critical installation , or completion of construction.)

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

None

Questions a and b are required for an impoundment, which functions as a Sedimentation pond.

a. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and estimated average elevation of existing sediment.

Design sediment storage volume = 10.3 AF
60% sediment volume = 6.2 AF
60% sediment elevation = 5935.7 ft

Average elevation of sediment in pond bottom = 5932.6 ft (based on Aug 2015 survey - pond not used since that time)

b. Principle and emergency spillway elevations.

Spillway elevation = 5939.5 ft
With stop logs in place, the spillway elevation can be raised a minimum of an additional 12 inches.

2. Field Information

Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/ instrumentation information, inlet/ outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/ repairs, monitoring information, vegetation on outslopes of embankments, etc.

This pond serves as a location for the discharge of mine water, but has not been used for that purpose since taken out of service in 2011. The pond was empty at the time of the August 2019 inspection. The embankments remain in good condition and the pond remains capable of serving its intended purpose if re-activated.

3. Field Evaluation.

Describe any changes in the geometry of the impounding structure, average and maximum depths and elevation of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period

The pond is capable of properly serving its intended function. Plenty of sediment capacity remains in the pond. The pond is adequate for continued use.

4. **Comments/Other Information**

Discharges to the pond ceased in 2011. The pond was resurveyed on August 4, 2015 by Cody Ware.

QUALIFICATION STATEMENT:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous condition of the structure affecting stability.

Signature: Richard Bolg Date: 8 Aug 2019

CERTIFIED REPORT

IMPOUNDMENT EVALUATION

If you answer NO to these questions, please explain under comments

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	☒	☐
2. Is impoundment free of instability, structural weakness, or any other hazardous conditions?	☒	☐
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	☒	☐

CERTIFICATION STATEMENT:

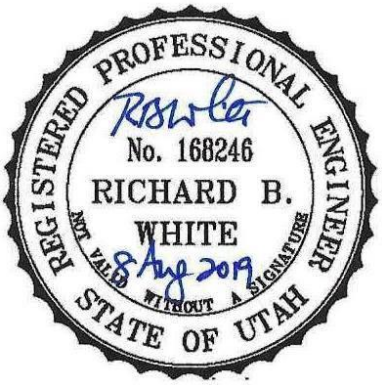
I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Richard B. White, P.E. - Consulting Civil and Environmental Engineer

Full Name and Title

Signature: Richard B White Date 8 Aug 2019

P.E. Number & State 168246, UT



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date	8 Aug 2019
Permit Number	ACT 015/015
Mine Name	Emery Mine
Company Name	Bronco Utah Operations

IMPOUNDMENT IDENTIFICATION

Impoundment Name	Pond 2
Impoundment Number	UPDES Outfall 002
UPDES Permit Number	UT0022616
MSHA ID Number	NA

IMPOUNDMENT INSPECTION

Inspection Date	7 Aug 2019
Inspected by	R.B. White
Reason for Inspection	Annual

(Annual, quarterly or other periodic inspections, critical installation , or completion of construction.)

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

None

Questions a and b are required for an impoundment, which functions as a Sedimentation pond.

a. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and estimated average elevation of existing sediment.

Design sediment storage volume = 0.83 AF
Design sediment storage elevation = 5905.3 ft
60% sediment volume = 0.50 AF
60% sediment elevation = 5903.0 ft

Average elevation of sediment in pond bottom = 5902.6 ft (based on mark on tee stake in pond bottom)

b. Principle and emergency spillway elevations.

Spillway elevation = 5908.5 ft

2. Field Information

Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/ instrumentation information, inlet/ outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/ repairs, monitoring information, vegetation on outslopes of embankments, etc.

Water flows into this pond via a 12-inch diameter PVC pipe, which discharges onto riprap down the inside embankment. No water was in the pond at the time of the inspection. Large boulders have been placed downstream from the pond outlet. No signs of erosion or outflow were observed during the inspection. The dewatering culvert has been fitted with a skimmer. The pond appears to be in good, functional shape.

3. Field Evaluation.

Describe any changes in the geometry of the impounding structure, average and maximum depths and elevation of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period

No problems were observed. The pond is adequate for continued use.

4. **Comments/Other Information**

The pond appears to be functioning as designed and is adequate for continued use. The pond was resurveyed on August 4, 2015 by Cody Ware.

QUALIFICATION STATEMENT:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous condition of the structure affecting stability.

Signature: Richard Bowlby Date: 8 Aug 2019

CERTIFIED REPORT

IMPOUNDMENT EVALUATION

If you answer NO to these questions, please explain under comments

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	☒	☐
2. Is impoundment free of instability, structural weakness, or any other hazardous conditions?	☒	☐
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	☒	☐

CERTIFICATION STATEMENT:

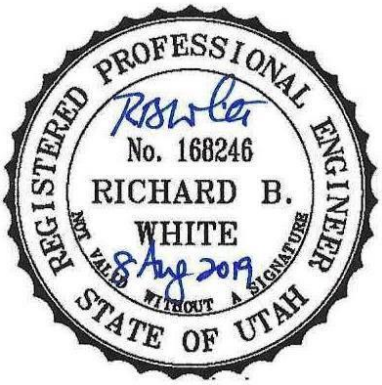
I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Richard B. White, P.E. - Consulting Civil and Environmental Engineer

Full Name and Title

Signature: Richard B White Date 8 Aug 2019

P.E. Number & State 168246, UT



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date	8 Aug 2019
Permit Number	ACT 015/015
Mine Name	Emery Mine
Company Name	Bronco Utah Operations

IMPOUNDMENT IDENTIFICATION

Impoundment Name	Pond 3
Impoundment Number	UPDES Outfall 005
UPDES Permit Number	UT0022616
MSHA ID Number	NA

IMPOUNDMENT INSPECTION

Inspection Date	7 Aug 2019
Inspected by	R.B. White
Reason for Inspection	Annual

(Annual, quarterly or other periodic inspections, critical installation , or completion of construction.)

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

None

Questions a and b are required for an impoundment, which functions as a Sedimentation pond.

a. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and estimated average elevation of existing sediment.

Design sediment storage volume = 0.44 AF
Design sediment storage elevation = 5903.52 ft
60% sediment volume = 0.26 AF
60% sediment elevation = 5902.15 ft

Average elevation of sediment in pond bottom = 5902.1 ft (based on mark on tee stake in pond bottom)

b. Principle and emergency spillway elevations.

Principal spillway invert elevation = 5909.55 ft
Emergency spillway invert elevation = 5910.75 ft

2. Field Information

Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/ instrumentation information, inlet/ outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/ repairs, monitoring information, vegetation on outslopes of embankments, etc.

The pond has been re-designed to handle runoff from the Emery 2 portal facilities. Approximately 4-5 inches of water was present in the northeast corner of the pond at the time of the inspection. Sediment had accumulated in the south end of the pond. The elevation of sediment accumulation at the tee stake marker was at about 60% of the design sediment volume. The embankment and outlets were in good shape and the primary spillway outlet was open to flow. No evidence of discharge from the pond was observed.

3. Field Evaluation.

Describe any changes in the geometry of the impounding structure, average and maximum depths and elevation of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period

No problems were observed. The pond is adequate for continued use. Consideration should be given to cleaning the sediment from the pond when it has dried somewhat.

4. **Comments/Other Information**

The pond appears to be functioning as designed and is adequate for continued use. The pond was resurveyed on December 6, 2016 by Cody Ware.

QUALIFICATION STATEMENT:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous condition of the structure affecting stability.

Signature: Richard Bolt Date: 8 Aug 2019

CERTIFIED REPORT

IMPOUNDMENT EVALUATION

If you answer NO to these questions, please explain under comments

		YES	NO
1.	Is impoundment designed and constructed in accordance with the approved plan?	☒	☐
2.	Is impoundment free of instability, structural weakness, or any other hazardous conditions?	☒	☐
3.	Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	☒	☐

CERTIFICATION STATEMENT:

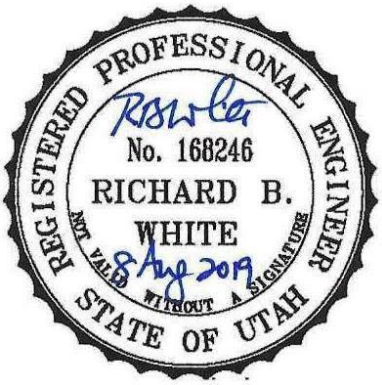
I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Richard B. White, P.E. - Consulting Civil and Environmental Engineer

Full Name and Title

Signature: Richard B White Date 8 Aug 2019

P.E. Number & State 168246, UT



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date	8 Aug 2019
Permit Number	ACT 015/015
Mine Name	Emery Mine
Company Name	Bronco Utah Operations

IMPOUNDMENT IDENTIFICATION

Impoundment Name	Pond 2
Impoundment Number	UPDES Outfall 007
UPDES Permit Number	UT0022616
MSHA ID Number	NA

IMPOUNDMENT INSPECTION

Inspection Date	7 Aug 2019
Inspected by	R.B. White
Reason for Inspection	Annual

(Annual, quarterly or other periodic inspections, critical installation , or completion of construction.)

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

None

Questions a and b are required for an impoundment, which functions as a Sedimentation pond.

a. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and estimated average elevation of existing sediment.

Design sediment storage volume = 1.13 AF
Design sediment storage elevation = 5944.6 ft
60% sediment volume = 0.68 AF
60% sediment elevation = 5943.8 ft

Average elevation of sediment in pond bottom = 5942.7 ft (based on mark on tee stake in pond bottom)

b. Principle and emergency spillway elevations.

Spillway elevation = 5949.2 ft

2. Field Information

Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/ instrumentation information, inlet/ outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/ repairs, monitoring information, vegetation on outslopes of embankments, etc.

This pond was constructed to provide sediment control at the proposed coal preparation plant, whch was never constructed. Therefore, the area draining into this pond is undisturbed, except for the adjacent paved road. The HDPE inlet culverts have been cut where they protrude from the interior pond slope to avoid future degradation of the material. A corrugated HDPE liner has been placed on this slope at the middle inlet to direct the flow of water into the pond. Riprap has been placed at the outlet from this liner to minimize erosion of the pond bottom at the inlet. Some of this riprap has been moved by the force of the water. All sediment eroded at the discharge point will accumulate within the pond.

No water was in the pond at the time of the inspection. Large boulders have been placed downstream from the pond outlet. No signs of erosion or outflow were observed during the inspection. The dewatering culvert has been fitted with a skimmer. The pond appears to be in good, functional shape.

3. Field Evaluation.

Describe any changes in the geometry of the impounding structure, average and maximum depths and elevation of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period

No problems were observed. The pond is adequate for continued use.

4. **Comments/Other Information**

The pond appears to be functioning as designed and is adequate for continued use. The pond was resurveyed on August 4, 2015 by Cody Ware.

QUALIFICATION STATEMENT:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous condition of the structure affecting stability.

Signature: Richard Bowlby Date: 8 Aug 2019

CERTIFIED REPORT

IMPOUNDMENT EVALUATION

If you answer NO to these questions, please explain under comments

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	☒	☐
2. Is impoundment free of instability, structural weakness, or any other hazardous conditions?	☒	☐
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	☒	☐

CERTIFICATION STATEMENT:

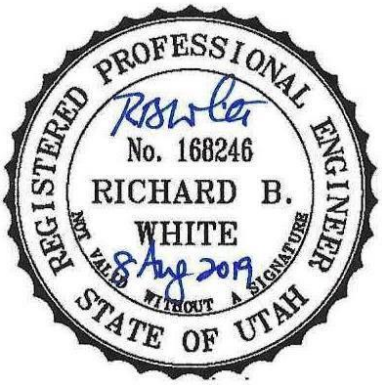
I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Richard B. White, P.E. - Consulting Civil and Environmental Engineer

Full Name and Title

Signature: Richard B White Date 8 Aug 2019

P.E. Number & State 168246, UT



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date	8 Aug 2019
Permit Number	ACT 015/015
Mine Name	Emery Mine
Company Name	Bronco Utah Operations

IMPOUNDMENT IDENTIFICATION

Impoundment Name	Pond 6
Impoundment Number	UPDES Outfall 003
UPDES Permit Number	UT0022616
MSHA ID Number	NA

IMPOUNDMENT INSPECTION

Inspection Date	7 Aug 2019
Inspected by	R.B. White
Reason for Inspection	Annual

(Annual, quarterly or other periodic inspections, critical installation , or completion of construction.)

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

None

Questions a and b are required for an impoundment, which functions as a Sedimentation pond.

a. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and estimated average elevation of existing sediment.

Design sediment storage volume = 7.5 AF
60% sediment volume = 4.5 AF
60% sediment elevation = 6012.5 ft

Average elevation of sediment in pond bottom = 6009.66 ft (based on August 2015 survey)

b. Principle and emergency spillway elevations.

Spillway elevation = 6015.0 ft

2. Field Information

Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/ instrumentation information, inlet/ outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/ repairs, monitoring information, vegetation on outslopes of embankments, etc.

This pond was constructed to settle sediment in water discharged from the underground mine. Water was being pumped from the mine to the pond and water was discharging from the pond at a rate of 1.44 cfs (as measured in the downstream 6-inch Parshall flume) at the time of the inspection.

3. Field Evaluation.

Describe any changes in the geometry of the impounding structure, average and maximum depths and elevation of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period

No problems were observed. The pond is adequate for continued use.

4. **Comments/Other Information**

The pond appears to be functioning as designed and is adequate for continued use. The pond was resurveyed on August 4, 2015 by Cody Ware.

QUALIFICATION STATEMENT:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous condition of the structure affecting stability.

Signature: Richard Bailey Date: 8 Aug 2019

CERTIFIED REPORT

IMPOUNDMENT EVALUATION

If you answer NO to these questions, please explain under comments

		YES	NO
1.	Is impoundment designed and constructed in accordance with the approved plan?	☒	☐
2.	Is impoundment free of instability, structural weakness, or any other hazardous conditions?	☒	☐
3.	Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	☒	☐

CERTIFICATION STATEMENT:

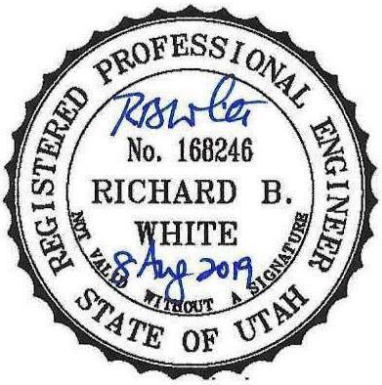
I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Richard B. White, P.E. - Consulting Civil and Environmental Engineer

Full Name and Title

Signature: Richard B White Date 8 Aug 2019

P.E. Number & State 168246, UT



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date	8 Aug 2019
Permit Number	ACT 015/015
Mine Name	Emery Mine
Company Name	Bronco Utah Operations

IMPOUNDMENT IDENTIFICATION

Impoundment Name	Pond 8
Impoundment Number	UPDES Outfall 006
UPDES Permit Number	UT0022616
MSHA ID Number	NA

IMPOUNDMENT INSPECTION

Inspection Date	7 Aug 2019
Inspected by	R.B. White
Reason for Inspection	Annual

(Annual, quarterly or other periodic inspections, critical installation , or completion of construction.)

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

The embankment appears stable with no significant new erosion of the outslope adjacent to the creek. No signs of instability were observed elsewhere within the pond

Questions a and b are required for an impoundment, which functions as a Sedimentation pond.

a. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and estimated average elevation of existing sediment.

Design sediment storage volume = 2.00 AF
Design sediment storage elevation = 5910.0 ft
60% sediment volume = 1.35 AF
60% sediment elevation = 5909.0 ft

Average elevation of sediment in pond bottom = 5908.5 ft (based on mark on tee stake in pond bottom)

b. Principle and emergency spillway elevations.

This impoundment is designed as a total containment pond without a spillway. The pond can contain the total design sediment volume plus the runoff from the 100-yr, 6-hr storm and still have a freeboard of 3.4 feet.

2. Field Information

Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/ instrumentation information, inlet/ outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/ repairs, monitoring information, vegetation on outslopes of embankments, etc.

The pond inlets appear to be adequate. The pond contained no water at the time of the inspection. Only a minor amount of sediment has accumulated near the pond inlets.

3. Field Evaluation.

Describe any changes in the geometry of the impounding structure, average and maximum depths and elevation of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period

No problems were observed. The pond is adequate for continued use.

4. **Comments/Other Information**

The pond appears to be functioning as designed and is adequate for continued use. The pond was resurveyed on August 4, 2015 by Cody Ware.

QUALIFICATION STATEMENT:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous condition of the structure affecting stability.

Signature: Richard Bowlby Date: 8 Aug 2019

CERTIFIED REPORT

IMPOUNDMENT EVALUATION

If you answer NO to these questions, please explain under comments

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	☒	☐
2. Is impoundment free of instability, structural weakness, or any other hazardous conditions?	☒	☐
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	☒	☐

CERTIFICATION STATEMENT:

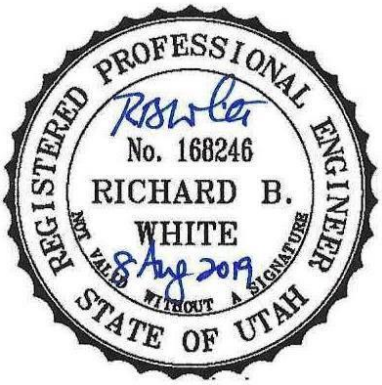
I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Richard B. White, P.E. - Consulting Civil and Environmental Engineer

Full Name and Title

Signature: Richard B White Date 8 Aug 2019

P.E. Number & State 168246, UT



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date	8 Aug 2019
Permit Number	ACT 015/015
Mine Name	Emery Mine
Company Name	Bronco Utah Operations

IMPOUNDMENT IDENTIFICATION

Impoundment Name	Pond 9
Impoundment Number	UPDES Outfall 009
UPDES Permit Number	UT0022616
MSHA ID Number	NA

IMPOUNDMENT INSPECTION

Inspection Date	7 Aug 2019
Inspected by	R.B. White
Reason for Inspection	Annual

(Annual, quarterly or other periodic inspections, critical installation , or completion of construction.)

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

None

Questions a and b are required for an impoundment, which functions as a Sedimentation pond.

a. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and estimated average elevation of existing sediment.

Design sediment storage volume = 0.32 AF
Design sediment storage elevation = 6052.5 ft
60% sediment volume = 0.18 AF
60% sediment elevation = 6051.7 ft

Average elevation of sediment in pond bottom = 6051.2 ft (based on mark on tee stake in pond bottom)

b. Principle and emergency spillway elevations.

Spillway elevation = 6054.6 ft

2. Field Information

Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/ instrumentation information, inlet/ outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/ repairs, monitoring information, vegetation on outslopes of embankments, etc.

No signs of erosion were noted at the pond outlet or the spillway. No signs of instability were observed. The pond was empty of water at the time of the inspection. The pond appears to be in good, functional shape.

3. Field Evaluation.

Describe any changes in the geometry of the impounding structure, average and maximum depths and elevation of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period

No problems were observed. The pond is adequate for continued use.

4. **Comments/Other Information**

The pond appears to be functioning as designed and is adequate for continued use. The pond was resurveyed on August 4, 2015 by Cody Ware.

QUALIFICATION STATEMENT:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous condition of the structure affecting stability.

Signature: Richard Bowlby Date: 8 Aug 2019

CERTIFIED REPORT

IMPOUNDMENT EVALUATION

If you answer NO to these questions, please explain under comments

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	☒	☐
2. Is impoundment free of instability, structural weakness, or any other hazardous conditions?	☒	☐
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	☒	☐

CERTIFICATION STATEMENT:

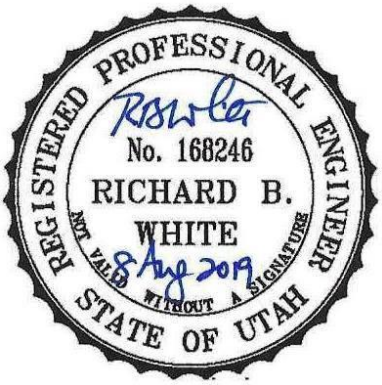
I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved designs and meets or exceeds the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: Richard B. White, P.E. - Consulting Civil and Environmental Engineer

Full Name and Title

Signature: Richard B White Date 8 Aug 2019

P.E. Number & State 168246, UT



Appendix A-2

Quarterly Coal Refuse Inspections

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
Telephone (801) 538-5340 facsimile (801) 359 3940 TTY (801) 538-7458
www.ogm.utah.gov

UTAH DNR OIL, GAS & MINING

Quarterly Inspection Form - Refuse Disposal Areas
(please provide to DOGM promptly after inspection is complete)

Permit Number :	ACT 015-015	Inspection Date :	March 11, 2019
Mine Name :	Emery No. 2	Quarter / Year :	1st Quarter 2019
Mine Operator (Permittee) :	Bronco Utah Operations, LLC	Inspector Name :	J. T. Paluso
MSHA ID # :	42-00079-01	Inspector Signature :	Joseph T. Paluso (Digitally signed by Joseph T. Paluso DN: cn=Joseph T. Paluso, o=EIS, ou, email=tompaluso@preciscom.net, c=US Date: 2015.04.02 09:17:29 -06'00')

Facility Name / Location / Address : Pile ID 1211-UT-09-00079-01, P.O. Box 527, Conso Mine road, Emery, Utah, 84526

1. Describe any changes in the geometry of the structure (as well as instrumentation, if any, used to monitor changes):
Material coming from portal box cut is being stored and crushed for under ground use. Some coal is being stored at this site. Refuse consists of +4 rock.

2. Lift Height / Thickness Avg 2' Maximum 2' # ____ Elevation of Active Benches : 5989.6, ____, ____

3. Vertical Angle of Outslope(s) / Location(s) where measured NA / ____ / ____ / ____

4. Total storage capacity: 137,960 cu yd Remaining storage capacity 40,000 cu yd Volume placed during year : 97,960 cu yd

5. Describe foundation preparation (including removal of vegetation, stumps, topsoil, and all other organic material) :
Foundation is firm and undisturbed soil. Vegetation has been removed.

6. Describe placement and compaction of fill materials (including an explanation of how compaction is confirmed) :
Fill material is placed over compacted refuse with push tractor with 4 to 6 passes.

7. Is there any evidence of fires or burning on the structure ? (If YES, specify extent, location, and abatement/extinguishment of such fires) :
No evidence of fires or burning

8. Describe placement of under drains, protective filter systems, and final surface drainage systems (report any seepage, including location, color, flow) :
None known.

9. Describe any appearances of instability, structural weakness, or other hazardous conditions :
None noticed. Site drainage impoundment ditches are intact.

10. Please provide any other information pertaining to the stability of the structure (attach any photos taken during the inspection)

Are there cracks or scarps in crest ?	YES ☐	NO ☑
Is there any detectable sloughing or bulging ?	YES ☐	NO ☑
Do slope erosion problems exist ?	YES ☐	NO ☑
Cracks or scarps in slope ?	YES ☐	NO ☑
Surface movements? (valley bottom, hillsides)	YES ☐	NO ☑
Erosion of Toe ?	YES ☐	NO ☑
Water impounded by structure ?	YES ☐	NO ☑
Are diversion ditches stable?	YES ☑	NO ☐
Is drainage positive ?	YES ☑	NO ☐

Could failure of structure create an impoundment (provide description) ? Failure of side slopes would not impound water.

(place P.E. certification below)

Are design standards established within the mining and reclamation plan for the disposal facility being met ?
Yes

Proctor Determination : NA

PROFESSIONAL ENGINEER No. 22-150267-2203 J. THOMAS PALUSO STATE OF UTAH 3/13/19

I hereby certify that: I am experienced in the construction of earth and rock fills; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of earth and rock fills in accordance with structure; that the fill structure has been maintained in accordance with the approved design and meets or exceeds the minimum design requirements under all applicable federal, state, and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability. structural weakness or other hazardous conditions of the structure affecting stability.

REFUSE PILE SIGN

REFUSE PILE SOUTH SIDE

REFUSE PILE WEST SIDE

REFUSE PILE WEST SIDE

REFUSE PILE SUBSOIL PILE (WEST SIDE)

REFUSE PILE TOP WITH EQUIPMENT

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
Telephone (801) 538-5340 facsimile (801) 359 3940 TTY (801) 538-7458
www.ogm.utah.gov

UTAH DNR OIL, GAS & MINING

Quarterly Inspection Form - Refuse Disposal Areas
(please provide to DOGM promptly after inspection is complete)

Permit Number :	ACT 015-015	Inspection Date :	May 16, 2019
Mine Name :	Emery No. 2	Quarter / Year :	2nd Quarter 2019
Mine Operator (Permittee) :	Bronco Utah Operations, LLC	Inspector Name :	J. T. Paluso
MSHA ID # :	42-00079-01	Inspector Signature :	Joseph T. Paluso (Digitally signed by Joseph T. Paluso DN: cn=Joseph T. Paluso, o=EIS, ou, email=tompaluso@precisom.net, c=US Date: 2015.04.02 09:17:29 -06'00')

Facility Name / Location / Address : Pile ID 1211-UT-09-00079-01, P.O. Box 527, Conso Mine road, Emery, Utah, 84526

1. Describe any changes in the geometry of the structure (as well as instrumentation, if any, used to monitor changes):
Some coal is being stored at this site.
Refuse consists of +4 rock.

2. Lift Height / Thickness Avg 2' Maximum 2' # ____ Elevation of Active Benches : 5989.6 , ____ , ____

3. Vertical Angle of Outslope(s) / Location(s) where measured NA / ____ / ____ / ____

4. Total storage capacity: 137,960 cu yd Remaining storage capacity 40,000 cu yd Volume placed during year : 97,960 cu yd

5. Describe foundation preparation (including removal of vegetation, stumps, topsoil, and all other organic material) :
Foundation is firm and undisturbed soil. Vegetation has been removed.

6. Describe placement and compaction of fill materials (including an explanation of how compaction is confirmed) :
Fill material is placed over compacted refuse with push tractor with 4 to 6 passes.

7. Is there any evidence of fires or burning on the structure ? (If YES, specify extent, location, and abatement/extinguishment of such fires) :
No evidence of fires or burning

8. Describe placement of under drains, protective filter systems, and final surface drainage systems (report any seepage, including location, color, flow) :
None known.

9. Describe any appearances of instability, structural weakness, or other hazardous conditions :
None noticed. Site drainage impoundment ditches are intact.

10. Please provide any other information pertaining to the stability of the structure (attach any photos taken during the inspection)

	YES	NO	
Are there cracks or scarps in crest ?		✓	
Is there any detectable sloughing or bulging ?		✓	
Do slope erosion problems exist ?		✓	
Cracks or scarps in slope ?		✓	
Surface movements? (valley bottom, hillsides)		✓	
Erosion of Toe ?		✓	
Water impounded by structure ?		✓	
Are diversion ditches stable?	✓		
Is drainage positive ?	✓		

Could failure of structure create an impoundment (provide description) ? Failure of side slopes would not impound water.

Are design standards established within the mining and reclamation plan for the disposal facility being met ?
Yes

Proctor Determination : NA

I hereby certify that: I am experienced in the construction of earth and rock fills; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of earth and rock fills in accordance with structure; that the fill structure has been maintained in accordance with the approved design and meets or exceeds the minimum design requirements under all applicable federal, state, and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability. structural weakness or other hazardous conditions of the structure affecting stability.

(place P.E. certification below)

PROFESSIONAL ENGINEER
No. 22-150267-2203
J. THOMAS PALUSO
STATE OF UTAH
6/20/19

REFUSE PILE SIGN

REFUSE PILE EAST SIDE

REFUSE PILE WEST SIDE

REFUSE PILE TOP (TEMPORARY COAL STORAGE)

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Oil, Gas & Mining

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
Telephone (801) 538-5340 facsimile (801) 359 3940 TTY (801) 538-7458
www.ogm.utah.gov

UTAH DNR OIL, GAS & MINING

Quarterly Inspection Form - Refuse Disposal Areas

(please provide to DOGM promptly after inspection is complete)

Permit Number :	ACT 015-015	Inspection Date :	September 18, 2019
Mine Name :	Emery No. 2	Quarter / Year :	3rd Quarter 2019
Mine Operator (Permittee) :	Bronco Utah Operations, LLC	Inspector Name :	J. T. Paluso
MSHA ID # :	42-00079-01	Inspector Signature :	Joseph T. Paluso (Digitally signed by Joseph T. Paluso DN: cn=Joseph T. Paluso, o=EIS, ou, email=tompaluso@preciscom.net, c=US Date: 2015.04.02 09:17:29 -06'00')

Facility Name / Location / Address : Pile ID 1211-UT-09-00079-01, P.O. Box 527, Conso Mine road, Emery, Utah, 84526

1. Describe any changes in the geometry of the structure (as well as instrumentation, if any, used to monitor changes):
Some coal is being stored at this site.
Refuse consists of +4 rock.

2. Lift Height / Thickness Avg 2' Maximum 2' # ____ Elevation of Active Benches : 5989.6, ____, ____

3. Vertical Angle of Outslope(s) / Location(s) where measured NA / ____ / ____ / ____

4. Total storage capacity: ____ Remaining storage capacity ____ Volume placed during year : ____

5. Describe foundation preparation (including removal of vegetation, stumps, topsoil, and all other organic material) :
Foundation is firm and undisturbed soil. Vegetation has been removed.

6. Describe placement and compaction of fill materials (including an explanation of how compaction is confirmed) :
Fill material is placed over compacted refuse with push tractor with 4 to 6 passes.

7. Is there any evidence of fires or burning on the structure ? (If YES, specify extent, location, and abatement/extinguishment of such fires) :
No evidence of fires or burning

8. Describe placement of under drains, protective filter systems, and final surface drainage systems (report any seepage, including location, color, flow) :
None known.

9. Describe any appearances of instability, structural weakness, or other hazardous conditions :
None noticed. Site drainage impoundment ditches are intact.

10. Please provide any other information pertaining to the stability of the structure (attach any photos taken during the inspection)

	YES	NO	
Are there cracks or scarps in crest ?		✓	
Is there any detectable sloughing or bulging ?		✓	
Do slope erosion problems exist ?		✓	
Cracks or scarps in slope ?		✓	
Surface movements? (valley bottom, hillsides)		✓	
Erosion of Toe ?		✓	
Water impounded by structure ?		✓	
Are diversion ditches stable?	✓		
Is drainage positive ?	✓		

Could failure of structure create an impoundment (provide description) ? Failure of side slopes would not impound water.

Are design standards established within the mining and reclamation plan for the disposal facility being met ?
Yes

Proctor Determination : NA

I hereby certify that: I am experienced in the construction of earth and rock fills; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of earth and rock fills in accordance with structure; that the fill structure has been maintained in accordance with the approved design and meets or exceeds the minimum design requirements under all applicable federal, state, and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability. structural weakness or other hazardous conditions of the structure affecting stability.

(place P.E. certification below)

PROFESSIONAL ENGINEER
No. 22-150267-2203
J. THOMAS PALUSO
STATE OF UTAH
J. T. Paluso
10/23/19

PHOTOGRAPHS

REFUSE PILE SIGN

SOUTH SIDE OF REFUSE PILE

EAST SIDE AND TOP OF REFUSE PILE

WEST SIDE OF REFUSE PILE

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
Telephone (801) 538-5340 facsimile (801) 359 3940 TTY (801) 538-7458
www.ogm.utah.gov

UTAH DNR OIL, GAS & MINING

Quarterly Inspection Form - Refuse Disposal Areas
(please provide to DOGM promptly after inspection is complete)

Permit Number :	ACT 015-015	Inspection Date :	November 25, 2019
Mine Name :	Emery No. 2	Quarter / Year :	4th Quarter 2019
Mine Operator (Permittee) :	Bronco Utah Operations, LLC	Inspector Name :	J. T. Paluso
MSHA ID # :	42-00079-01	Inspector Signature :	Joseph T. Paluso (Digitally signed by Joseph T. Paluso DN: cn=Joseph T. Paluso, o=EIS, ou, email=tompaluso@precisicom.net, c=US Date: 2015.04.02 09:17:29 -06'00')

Facility Name / Location / Address : Pile ID 1211-UT-09-00079-01, P.O. Box 527, Conso Mine road, Emery, Utah, 84526

1. Describe any changes in the geometry of the structure (as well as instrumentation, if any, used to monitor changes):
Material coming from portal box cut is being stored and crushed for under ground use. Some coal is being stored at this site
Refuse consists of +4 rock.

2. Lift Height / Thickness Avg 2' Maximum 2' # ____ Elevation of Active Benches : 5989.6, ____, ____

3. Vertical Angle of Outslope(s) / Location(s) where measured NA / ____ / ____ / ____

4. Total storage capacity: ____ Remaining storage capacity ____ Volume placed during year : ____

5. Describe foundation preparation (including removal of vegetation, stumps, topsoil, and all other organic material) :
Foundation is firm and undisturbed soil. Vegetation has been removed.

6. Describe placement and compaction of fill materials (including an explanation of how compaction is confirmed) :
Fill material is placed over compacted refuse with push tractor with 4 to 6 passes.

7. Is there any evidence of fires or burning on the structure ? (If YES, specify extent, location, and abatement/extinguishment of such fires) :
No evidence of fires or burning

8. Describe placement of under drains, protective filter systems, and final surface drainage systems (report any seepage, including location, color, flow) :
None known.

9. Describe any appearances of instability, structural weakness, or other hazardous conditions :
None noticed. Site drainage impoundment ditches are intact.

10. Please provide any other information pertaining to the stability of the structure (attach any photos taken during the inspection)

	YES	NO	
Are there cracks or scarps in crest ?		✓	
Is there any detectable sloughing or bulging ?		✓	
Do slope erosion problems exist ?		✓	
Cracks or scarps in slope ?		✓	
Surface movements? (valley bottom, hillsides)		✓	
Erosion of Toe ?		✓	
Water impounded by structure ?		✓	
Are diversion ditches stable?	✓		
Is drainage positive ?	✓		

Could failure of structure create an impoundment (provide description) ? Failure of side slopes would not impound water.

Are design standards established within the mining and reclamation plan for the disposal facility being met ?
Yes

Proctor Determination : NA

I hereby certify that: I am experienced in the construction of earth and rock fills; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of earth and rock fills in accordance with structure; that the fill structure has been maintained in accordance with the approved design and meets or exceeds the minimum design requirements under all applicable federal, state, and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability. structural weakness or other hazardous conditions of the structure affecting stability.

(place P.E. certification below)

PROFESSIONAL ENGINEER
No. 22-150267-2203
J. THOMAS PALUSO
12/3/19
STATE OF UTAH

REFUSE PILE ENTRANCE

EAST SIDE OF REFUSE PILE

WEST SIDE OF REFUSE PILE

TOP OF REFUSE PILE

Appendix B-2

Annual Subsidence Survey

Bronco Utah Operations, LLC
November 2019 - Annual Subsidence Survey
NAD 1983, Utah Central, US Survey feet
NAVD 1988
MEASURED POINTS

12/2/2019

POINT NAME	NORTHING	EASTING	PREVIOUS ELEVATION	Nov. 2007 ELEVATION	Dec. 2015 ELEVATION	Dec. 2016 ELEVATION	Dec. 2017 ELEVATION	Nov. 2018 ELEVATION	Nov. 2019 ELEVATION	ANNUAL DIFFERENCE
			ADJUSTED							
			OCT. 06 ELEV.							
36	6756805.63	1713716.02	6041.05	6040.79	6040.92	6040.93	6040.93	6040.94	6040.93	0.01
35	6761558.54	1711229.20	6106.36	6106.67	6106.75	6106.75	6106.79	6106.83	6106.80	0.03
83-1	6759093.54	1713116.69	6065.51	6065.46	6065.58	6065.60	6065.53	6065.53	6065.54	-0.01
86-4	6760837.61	1702889.91	6078.44	6079.20	6079.20	6079.16	6079.24	6079.29	6079.32	-0.03
90-04	6757182.04	1713517.48	6031.02	6030.74	6030.89	6030.86	6030.85	6030.83	6030.81	0.02
90-6	6758779.41	1714726.46	6050.72	6050.62	6050.87	6050.89	6050.82	6050.85	6050.85	0.00
SM-C	6758743.87	1714106.30	6051.44	6051.38	6051.62	6051.57	6051.56	6051.54	6051.56	-0.02
91-02	6757585.42	1713036.14	6051.46	6051.28	6051.42	6051.40	6051.36	6051.40	6051.40	0.00
91-03	6758030.88	1713361.38	6055.63	6055.45	6055.64	6055.63	6055.58	6055.61	6055.58	0.03
91-04	6758791.86	1713935.17	6051.81	6051.72	6051.80	6051.83	6051.79	6051.76	6051.71	0.05
E	6759462.66	1712234.87	6082.64	6082.75	6082.90	6082.89	6082.94	6082.99	6082.99	0.00
6-01	6761645.96	1710904.27	6110.04	6110.09	6110.13	6110.16	6110.19	6110.18	6110.17	0.02
09-04	6762109.15	1710461.68	6119.61		6119.43	6119.40	6119.35	6119.35	6119.33	0.03
09-05	6763111.43	1710025.90	6135.53		6134.31	6134.31	6134.18	6134.18	6134.04	0.13
ZZ	6761984.01	1720133.53					6098.53	6098.58	6098.52	0.06
							2/28/2018	10/9/2018	Nov. 2019	ANNUAL
							ELEVATION	ELEVATION	ELEVATION	DIFFERENCE
2E- X11	6750684.27	1708732.47					6101.22	6101.16	6101.10	0.06
2E- X5	6750725.42	1708143.53					6075.81	6070.82	6070.73	0.09
1E- X7	6751085.97	1708460.42					6071.75	6071.72	6071.74	-0.02
1L- X5	6751122.06	1707491.21					6045.30	6045.30	6045.30	0.00
1E- X3	6751091.08	1707923.73					6063.90	6063.88	6063.91	-0.03
2L- CENTER	6751270.47	1706632.46						6001.76	5999.07	2.69
2L-WEST A	6751432.82	1706398.37						5984.35	5984.37	-0.02
2L-WEST B	6751521.97	1706232.31						5975.83	5975.82	0.00
2L-EAST A	6751041.66	1706965.49						6023.92	6023.26	0.65
2L-EAST B	6750977.23	1707067.38						6025.86	6025.88	-0.02
								Feb. 2019	Nov. 2019	FEB-NOV
								ELEVATION	ELEVATION	DIFFERENCE
3843	6751468.05	1706728.98						5997.87	5995.23	2.63
3844	6751360.08	1706947.79						6013.26	6010.40	2.85
3845	6751328.67	1707110.82						6021.13	6020.69	0.44
3846	6751121.11	1706781.97						6008.83	6005.96	2.87

WARE SURVEYING & ENGINEERING
G.P.S. & CONVENTIONAL SURVEYING - AUTOCAD MAPPING - CIVIL ENGINEERING

Appendix B-5

Emery Reclamation Study – Annual Qualitative/Quantitative Report

REVEGETATION PLOT MONITORING
AT THE EMERY MINE SITE
2019

EMERY COUNTY, UTAH

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
Springville, Utah 84663

by

Patrick D. Collins, Ph.D.

for

BRONCO UTAH OPERATIONS, LLC
P.O. Box 527
Emery, Utah 84522

March 2020

Table of Contents

INTRODUCTION 1

METHODS 3

RESULTS & DISCUSSION 4

DATA SHEETS 6

Area of Berm Removal 6
Backfilled Ditch Area 8
Subsoil Area 10
Topsoil Area 12
Reverse Osmosis Pond Area 14

Introduction

Like the previous years' monitoring reports, a brief history and the reason for the vegetation sampling follows. Emery Mine is located in south-central Utah. It has a history of coal mining operations including reclamation work that attempted to restore some of those surface areas disturbed by the mining activities. Early observations suggested that revegetation was unsuccessful in some of these areas. Consequently in 2003, a decision was made by the mining company in collaboration with State of Utah, Division of Oil, Gas & Mining (DOGM) to conduct a reclamation monitoring study on those areas that have been reclaimed and re-seeded. The primary objectives of the study were to assess the current condition of those areas and determine whether or not success has been, or could ultimately be achieved once final revegetation of the mine site is conducted. This study, called *Reclamation Monitoring Study at the Emery Mine,* was conducted by Mt. Nebo Scientific, Inc. in 2003.

In 2011, the results of this above-mentioned study were revisited and additional meetings and collaborations were conducted with DOGM, the mining company and its consultants. Results of these efforts suggested that with the data and information from the 2003 study, additional revegetation test plots should be constructed in other disturbed areas in an attempt to come up with more precise revegetation techniques that could be used to drive the reclamation plan at the Emery Mine site. Consequently, several sites were chosen to be constructed for a revegetation research study beginning in 2015. The research sites included: 1) an area where a berm was removed, 2) a backfilled ditch where the berm material was placed, 3) a topsoil pile, 4) subsoil pile (both piles were regraded to lessen the slopes and fenced to preclude livestock impacts) and 5) an old reverse osmosis pond that was reclaimed and re-graded. All areas had hay incorporated into the soils and were seeded with a revised seed mixture. Table 1 shows the coordinates of the sample areas for the 2015 - 2020 studies.

Table 1: Sample Areas and Locations of the Emery Mine Test Plots.		
SAMPLE AREA	**COORDINATES (UTM NAD 27)**	**GPS NAME**
Area of Berm Removal	E. 0476517 N. 4301708	CONSP1
Backfilled Ditch	E. 0476517 N. 4301708	CONSP1
Subsoil	E. 0475735 N. 4302965	CONTP6
Topsoil	E. 0475735 N. 4302965	CONTP6
Reverse Osmosis Pond	E. 0477377 N. 4301439	CONP45

Table 2 lists the years that monitoring the plots is required including the data needed for those years.

Table 2: Sample Years for Emery Mine Test Plots.		
Sample Year	**Qualitative**	**Quantitative**
2015	✔	
2016	✔	
2017	✔	
2018		✔
2019	✔	
2020		✔

Previous reports were submitted for data recorded in 2015, 2016, 2017 and 2018. This report provides qualitative vegetation data that was recorded for the test plots in 2019.

Methods

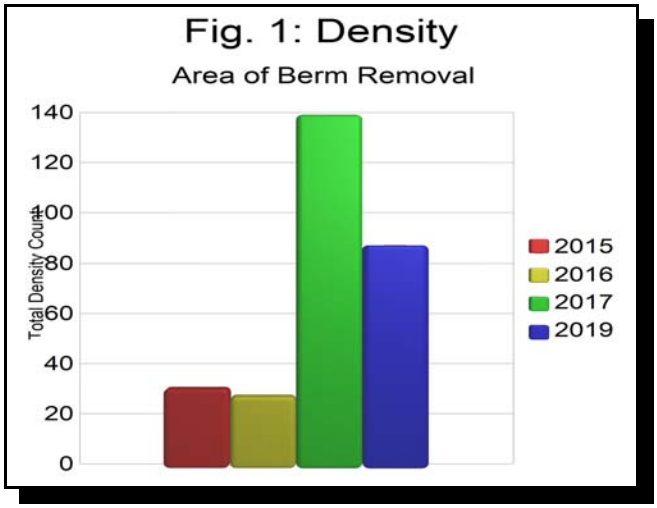
The 2019 commitment for vegetation sampling was to record qualitative data on the reclaimed test plots at the Emery Mine site. Like previous qualitative sampling years, this study was done late in the growing season (September 25, 2019). As was done for other years, even though the commitment was for a qualitative study rather than a quantitative one, density counts were made of the total area at each site. The counts were made for the desirable or seeded plant species only and excluded "weedy" exotics. The density counts can be used for year-to-year comparisons for each area as a whole, or using the approximate size of each plot could enable calculations for the number of individuals per acre.

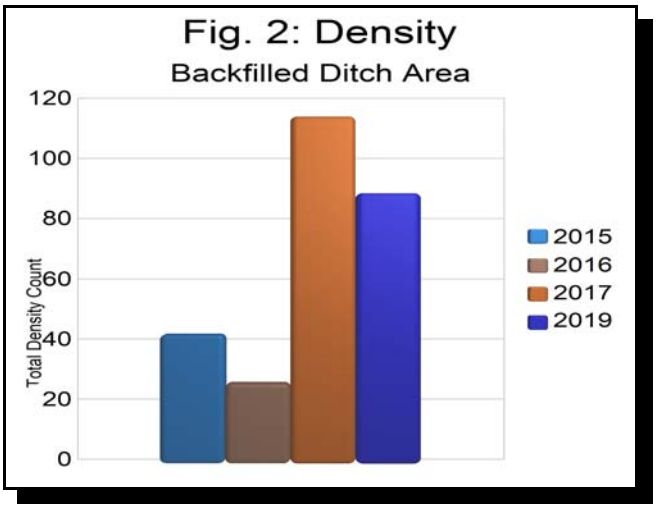
Total living cover was estimated (not measured) for each site; this included all plant species, weedy and desirable. Plant nomenclature followed *A Utah Flora* (Welsh et al. 2008)[1]. Also recorded in each area were field notes and other information including sample dates, investigator(s), GPS coordinates, slopes, exposures, animal impacts, plant species observed and color photographs.

[1] Welsh, S.L., N.D. Atwood, S. Goodrich and L.C. Higgins. 2008. A Utah flora. Print Services, Brigham Young University, Provo, UT. 1019 pp.

Results & Discussion

Refer to the subsequent **data sheets** for results and notes about each test plot. In summary, even though their cover values remained quite low, the density of desirable plants increased by quite a wide margin in 2015, 2016 and 2017. In 2019, the density dropped somewhat in the Area of Berm Removal and Backfilled Ditch Area plots, but increased substantially in the remaining plots. Generally speaking, the total living cover varied but when the years were compared, most of this cover was comprised of "weedy" plant species – so that may not be an important comparison.





As a side-note, the sampling methods in the 2018 study were quantitative rather than qualitative (Table 2). And, as mentioned in the Methods section above, the "qualitative" methods were expanded to include total density counts of the desirable plant species in all sample years. However, 2018 was a "quantitative" year, so the methods were more comprehensive than other sample years. That said, although additional parameters were performed in 2018, total density counts were not done – hence, the missing year in Figures 1-5.

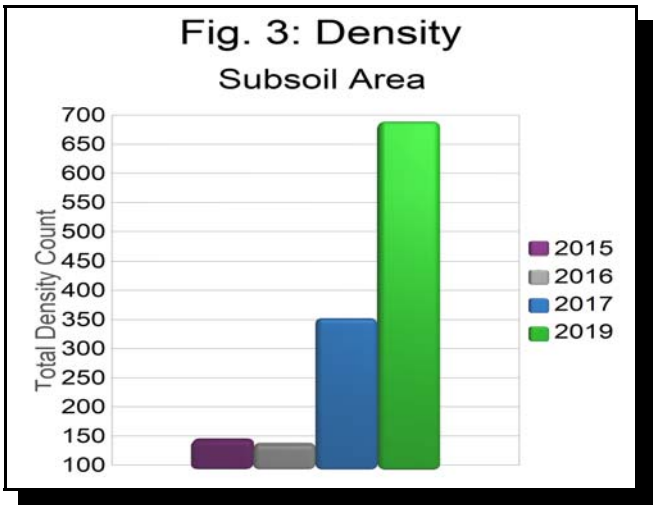


Fig. 3: Density
Subsoil Area
Total Density Count
700
650
600
550
500
450
400
350
300
250
200
150
100
2015
2016
2017
2019

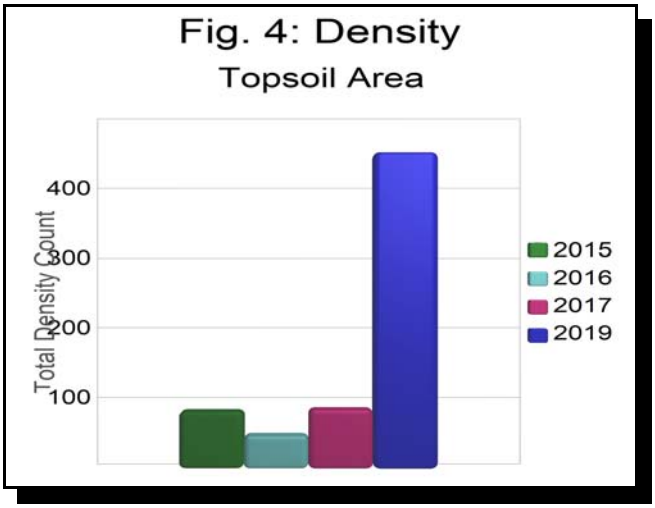


Fig. 4: Density
Topsoil Area
Total Density Count
400
300
200
100
2015
2016
2017
2019

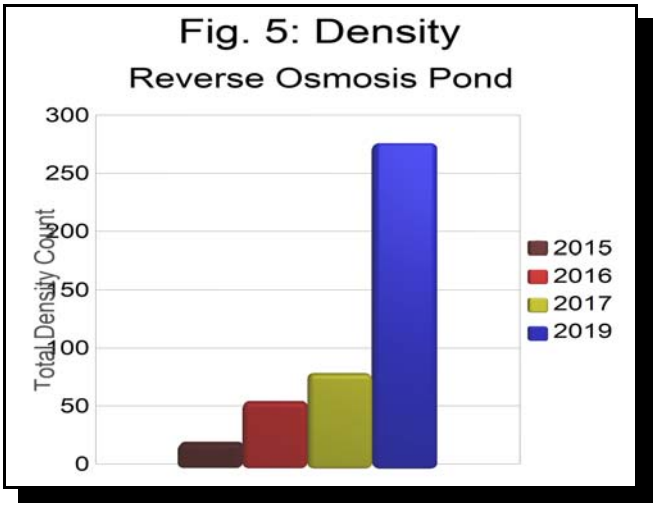


Fig. 5: Density
Reverse Osmosis Pond
Total Density Count
300
250
200
150
100
50
0
2015
2016
2017
2019

CLIENT: **Bronco Utah Operations**
QUALITATIVE DATA SHEET
YEAR: 2019

SITE NAME: Area of Berm Removal

AREA: **Emery Mine Site**

LOCATION: GPS Name: CONSP1
UTM
NAD 27
E. 0476517
N. 4301708

DATE: September 25, 2019

INVESTIGATOR(S): P. D. Collins

SLOPE: ~ 0

EXPOSURE: ~ 0

ANIMAL USE/DISTURBANCE: No signs of animal use or disturbance

COVER (estimated, not measured): Vegetation 20%; Litter 4%; Bareground 75%; Rock 1%.

PLANT SPECIES OBSERVED, TOTAL DENSITY COUNTS AND RELATIVE ABUNDANCE:

SHRUBS		**FORBS**		**GRASSES**
Artemisia tridentata	1	*Bassia hyssopifolia*	D	*Elymus smithii*
Atriplex gardneri var. cuneata	2	*Halogeton glomeratus*	D	*Hilaria jamesii*
Atriplex canescens	62			*Stipa hymenoides*
Chrysothamnus nauseosus	9			
Gutierrezia sarothrae	10			
Krascheninnikovia lanata	1			
Sarcobatus vermiculatus	2			
TOTALS	87	*0*	0	0 0

Weed Designations: C = Common; U = Uncommon; D = Dominant

NOTES:

1. This area was a berm that was backfilled to the adjacent ditch then seeded.
2. Total area (berm and fill) was estimated by DOGM inspection (2/25/15) to be 0.06 acres.
3. The total living cover was dominated by "weedy" species.
4. Total density of desirable plants were 31 (2015), 28 (2016), 138 (2017), and 87 (2019).
5. Grasses were observed in 2015, 2017 and 2018, but they were not seen in 2016 and 2019.

Berm Removal Area

CLIENT: **Bronco Utah Operations**
QUALITATIVE DATA SHEET
YEAR: 2019

SITE NAME: Backfilled Ditch Area

AREA: **Emery Mine Site**

LOCATION: GPS Name: CONSP1
UTM
NAD 27
E. 0476517
N. 4301708

DATE: September 25, 2019

INVESTIGATOR(S): P. D. Collins

SLOPE: ~ 0

EXPOSURE: ~ 0

ANIMAL USE/DISTURBANCE: No signs of animal use or disturbance

COVER (estimated not measured): Vegetation 50%; Litter 9%; Bareground 40; Rock 1%.

PLANT SPECIES OBSERVED, TOTAL DENSITY COUNTS AND RELATIVE ABUNDANCE:

SHRUBS		**FORBS**		**GRASSES**
Artemisia tridentata				
Atriplex gardneri var. cuneata		*Bassia hyssopifolia*	D	*Elymus smithii*
Atriplex canescens	56	*Halogeton glomeratus*	C	*Hilaria jamesii*
Gutierrezia sarothrae	30	*Helianthus annuus*	1	*Stipa hymenoides*
Krascheninnikovia lanata		*Medicago sativa*		
Sarcobatus vermiculatus	1			
Suaeda nigra				
TOTALS	87		1	0

Weed Designations: C = Common; U = Uncommon; D = Dominant

NOTES:

1. This area was backfilled from the adjacent berm, then seeded.
2. Total area (berm and fill) was estimated by DOGM inspection (2/25/15) to 0.06 acres
3. The total living cover was dominated by "weedy" species.
4. Total density of desirable plants were 42 (2015), 26 (2016), 113 (2017), and 88 (2019).
5. Two grass individuals were observed in 2015; 31 individuals were counted in 2017; they were not seen in 2016, 2018 or 2019.

Backfilled Ditch Area

CLIENT: **Bronco Utah Operations**
QUALITATIVE DATA SHEET
YEAR: 2019

SITE NAME: Subsoil Area

AREA: **Emery Mine Site**

LOCATION: GPS Name: CONTP6
UTM
NAD 27
E. 0475735
N. 4302965

DATE: September 25, 2019

INVESTIGATOR(S): P. D. Collins

SLOPE: ~ 0

EXPOSURE: ~ 0

ANIMAL USE/DISTURBANCE: No signs of animal use or disturbance

COVER (estimated not measured): Vegetation 80%; Litter 9%; Bareground 10%; Rock 1%.

PLANT SPECIES OBSERVED, TOTAL DENSITY COUNTS AND RELATIVE ABUNDANCE:

SHRUBS		**FORBS**		**GRASSES**	
Atriplex confertifolia		*Halogeton glomeratus*	D		
Atriplex canescens	152	*Helianthus annuus*	20	*Elymus junceum*	233
Atriplex gardneri	2	*Malcolmia africana*	U		
Chrysothamnus nauseosus	25				
Krascheninnikovia lanata	205				
Sarcobatus vermiculatus	47				
TOTALS	431		20		233

Weed Designations: C = Common; U = Uncommon; D = Dominant

NOTES:

1. The subsoil and topsoil areas were combined "resulting in 2 piles of good quality", then seeded. Total area (Subsoil/Topsoil) was estimated by DOGM inspection (2/25/15) to be 0.99 acres..
2. The subsoil area appeared to be about twice the size of the topsoil area.
3. The total living cover was dominated by "weedy" species.
4. Total density of desirable plants were 147 (2015), 140 (2016), 353 (2017), and 684 (2019).
5. Several individual grasses were observed in 2015, but they were not seen in 2016. In 2017 there were twice as many as 2015. They were fairly common in 2018 (grasses were measured for cover, not density).
6. In 2019, there were a lot more grasses and shrubs including an increase in the size of them. There were almost too many to measure accurately by counting them in the belt transects.
7. In 2019, the line between topsoil and subsoil was difficult to differentiate; the ant hill on the north side was put in the subsoil area.

Subsoil Area

CLIENT: **Bronco Utah Operations**
QUALITATIVE DATA SHEET
YEAR: 2019

SITE NAME: Topsoil Area

AREA: **Emery Mine Site**

LOCATION: GPS Name: CONTP6
UTM
NAD 27
E. 0475735
N. 4302965

DATE: September 25, 2019

INVESTIGATOR(S): P. D. Collins

SLOPE: ~ 0

EXPOSURE: ~ 0

ANIMAL USE/DISTURBANCE: No signs of animal use or disturbance

COVER (estimated not measured): Vegetation 80%; Litter 9%; Bareground 10%; Rock 1%.

PLANT SPECIES OBSERVED, TOTAL DENSITY COUNTS AND RELATIVE ABUNDANCE:
:

SHRUBS		**FORBS**		**GRASSES**	
Atriplex confertifolia		*Halogeton glomeratus*	D		
Atriplex canescens	63	*Helianthus annuus*	3	*Elymus junceum*	151
Atriplex gardneri	3	*Malcolmia africana*	U		
Krascheninnikovia lanata	121				
Sarcobatus vermiculatus	108				
Suaeda nigra					
TOTALS	295		3		151

Weed Designations: C = Common; U = Uncommon; D = Dominant

NOTES:

1. The subsoil and topsoil areas were combined "resulting in 2 piles of good quality", then seeded. Total area (Subsoil/Topsoil) was estimated by DOGM inspection (2/25/15) to be 0.99 acres.
2. The Subsoil area appeared to be about twice the size of the topsoil area.
3. The total living cover was dominated by "weedy" species.
4. More shrub species but lower density was observed in 2016 compared to 2015. In 2017 there was about the same number as 2016. In 2019 there were almost 6 times more shrub plants.
5. No grasses were observed in 2016 where there were 9 individuals in 2015. There were 38 plants observed in 2017 and 151 in 2019.
6. In 2019, the line between topsoil and subsoil was difficult to differentiate, so the ant hill on the north side was put in the subsoil area.

Topsoil Area

CLIENT: **Bronco Utah Operations**
QUALITATIVE DATA SHEET
YEAR: 2019

SITE NAME: Reverse Osmosis Pond Area

AREA: **Emery Mine Site**

LOCATION: GPS Name: CONP45
UTM
NAD 27
E. 0477377
N. 4301439

DATE: September 25, 2019

INVESTIGATOR(S): P. D. Collins

SLOPE: 1°

EXPOSURE: S

ANIMAL USE/DISTURBANCE: No signs of animal use or disturbance

COVER (estimated not measured): Vegetation 84%; Litter 4%; Bareground 10%; Rock 1%.

PLANT SPECIES OBSERVED, TOTAL DENSITY COUNTS AND RELATIVE ABUNDANCE:

SHRUBS		**FORBS**		**GRASSES**	
Atriplex canescens	52	*Halogeton glomeratus*	D	*Elymus junceus*	62
Atriplex confertifolia	3	*Helianthus annuus*	19	*Elymus smithii*	1
Atriplex gardneri	16			*Sporobolus airoides*	3
Chrysothamnus nauseosus	8			*Stipa hymenoides*	11
Gutierrezia sarothrae	15				
Krascheninnikovia lanata	4				
Sarcobatus vermiculatus	69				
Tamarix chinensis	8				
Tetradymia canescens	3				
TOTALS	178		19		77

Weed Designations: C = Common; U = Uncommon; D = Dominant

NOTES:

1. To count the planted species for this site I ran 5 ft wide belt transects.
2. This site was estimated by DOGM inspection (2/25/15) to be 0.74 acres.
3. The total living cover was dominated by "weedy" species (halogeton).
4. The density of shrubs nearly tripled in 2016 when compared to 2015 and was 50% higher in 2017 compared to 2016 and was about 2.5 times higher in 2019 compared to 2017.
5. Grasses were not observed in 2015 and 2016, but had a few (8) in 2017. In 2019 there were 77 plants observed in the belt transects.
6. The edge of the plot seemed to have more desirable species establishment.

Reverse Osmosis Pond Area

Appendix B-6

Annual Water Monitoring Summary

EMERY MINE HYDROLOGY MONITORING REPORT
2019

This report represents a summary of data collected from the Emery Mine hydrologic monitoring network in 2018 and 2019. The reader should refer to Plate VI-4 and Table VI-17 of the approved Mining and Reclamation Plan for locations and monitoring parameters, respectively, associated with the monitoring plan.

Groundwater Summary

Groundwater data were collected from monitoring wells associated with the Emery Mine in 2018 and 2019 in accordance with Table VI-17 of the then-approved Mining and Reclamation Plan. These data are summarized in the attached Figures VI-2 through VI-7, which correspond to and update equivalent figures in the approved Plan. The data used to create these figures were downloaded from the DOGM database on March 16, 2020. The following general observations are based on the data presented in these figures:

- As indicated in Figure VI-2, water levels remained essentially unchanged during 2019 (compared to previous years) in wells monitoring Quaternary alluvium. Figure VI-3 shows that concentrations of total dissolved solids ("TDS") vary substantially between wells from which samples were collected from Quaternary alluvium. At a value of approximately 3,500 mg/L, the TDS concentration of groundwater sampled at well RDA-6 is below the range of values measured at that well for the past 15 years. The most recent sample collected from well SM1-3 contained a TDS concentration (at about 56,000 mg/L) that was within the range of historic values. The reason for the substantial decrease in the TDS concentration of water at RDA-6 relative to SM1-3 is unknown.
- The depth to groundwater in wells monitoring the Blue Gate Shale has remained relatively constant for the past several years (see Figure VI-4). The last water level measurement reported for well AA indicates that this level has nearly recovered from rehabilitation efforts in the autumn of 2018. Well USGS4-1 is functioning properly but has been dry since 2007. Unfortunately, the depth-to-water data reported for this wells in the DOGM database since 2007 are actually the depth to the bottom of the dry well. The DOGM database should be changed to remove the water-level data for that period and simply indicate that the well was dry. This can only be done by DOGM personnel.
- Water levels in well Muddy #1, monitoring the upper Ferron Sandstone, have remained at levels similar to those measured in prior years (see Figure VI-5). Following a period of substantial decrease, the elevation of the groundwater surface in well H-U recovered substantially in 2016 and has remained relatively constant since that time. The reason for the wide sing in water levels at H-U during the period of mid-2014 to late 2016 remains unknown.
- As indicated in Figure VI-6, the elevation of the groundwater surface began increasing in well R2-M, monitoring the middle Ferron Sandstone, in 2013 and has increased at a much slower rate since 2017. Following temporary shutdown of the mine in 2010, discharge from the No. 3 mine dewatering pump was maintained at pre-shutdown levels until early 2013. Thereafter, the pump was operated at reduced discharge rates until

pumping ceased in January 2016. The rise in water levels since early 2013 is likely the result of decreased or ceased pumping from the nearby No. 3 mine dewatering pump.

- Water levels in the Kemmerer well and well R1-L, monitoring the lower Ferron Sandstone, remained relatively constant during 2019 (see Figure VI-7). As has been noted in prior annual reports, a new pressure gauge was installed on the Kemmerer well in late 2011 or early 2012, to replace the prior gauge that had been providing spurious data since 2009. Therefore, the depth-to-water data reported in the database for 2009 through 2011 are not considered valid. Furthermore, beginning in 2002, the pressure data (measured in psi) were reported sometimes as the depth to water, sometimes as the flow from the well, and sometimes as a comment only. Also, between 1995 and 2002, the depth-to-water data were all reported as "0", which was the common practice at the time for all pressure measurements. Thus, the water-level data contained in the DOGM database for the Kemmerer well need to be converted from a positive pressure value or other value to a negative depth value for the period of 1995 through 2014. Similarly, pressure measurements (in psi) collected from R1-L were entered into the DOGM database as the depth to water since at least 1994. Some of these pressure measurements were entered as negative values and some were entered as positive values. As a result, none of the values during the above periods are considered correct, as contained in the database. Any inaccurately-recorded data should be converted to a negative depth to water and the DOGM database should be properly updated. This must be done by DOGM once the correct data are provided to them.

Surface Water Summary

Water samples were collected from seven of the ten surface-water monitoring stations during 2019. No flow occurred at stations SWMS-8, SWMS-11, and SWMS-12 during 2019.

The concentrations of surface water parameters monitored in the area during 2019 were generally within the range of those parameter values monitored previously. Exceptions to this generality typically occurred during high-flow events which contributed elevated concentrations of total suspended solids or total dissolved solids from natural sources. Field observations indicated that runoff- and sediment-control structures were operating properly in all areas. Therefore, concentrations outside of normal ranges are not considered to have been influenced by mine operations.

Emery Town Wells

Figure VI-21 shows historic TDS and water-level data collected from Emery Town Well #1 and #2, respectively. Water levels measured in Emery Town Well #2 have been gradually rising since 2013. The cause of this rise is unknown. However, data submitted previously to the Utah Division of Oil, Gas and Mining have shown that pumping from the Emery Mine has not affected water levels in the Emery Town wells.

Total dissolved solids concentrations of water collected from Emery Town Well #1 continue the decline that began in 2014. This decline coincides with the increased water levels measured in Emery Town Well #2. It is unknown if these occurrences are related. However, as indicated

above and in the Mining and Reclamation Plan, the available information suggests that these changes are not affected by mining activity at the Emery Mine.

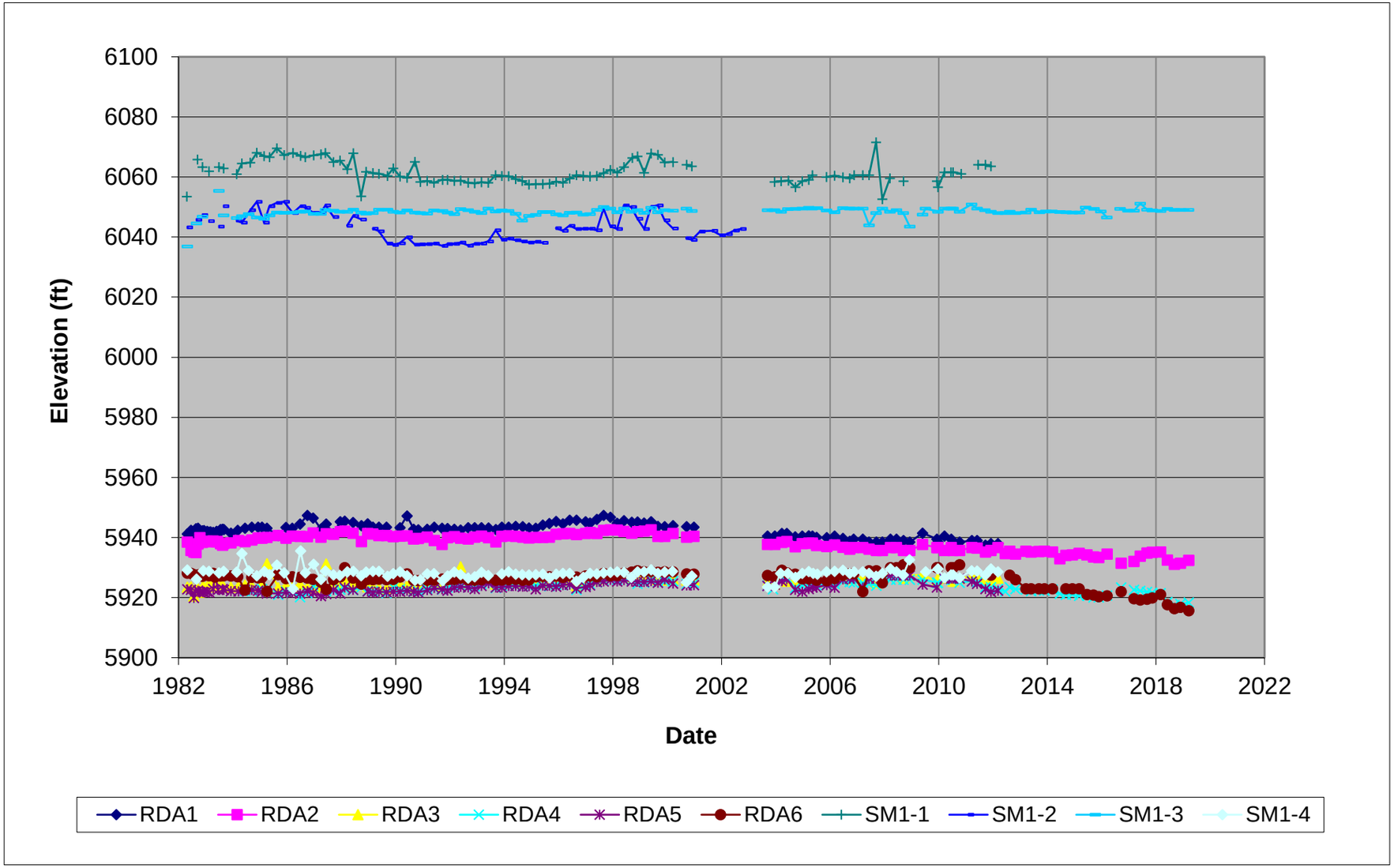


FIGURE VI-2. HYDROGRAPHS OF WELLS COMPLETED IN QUATERNARY DEPOSITS.

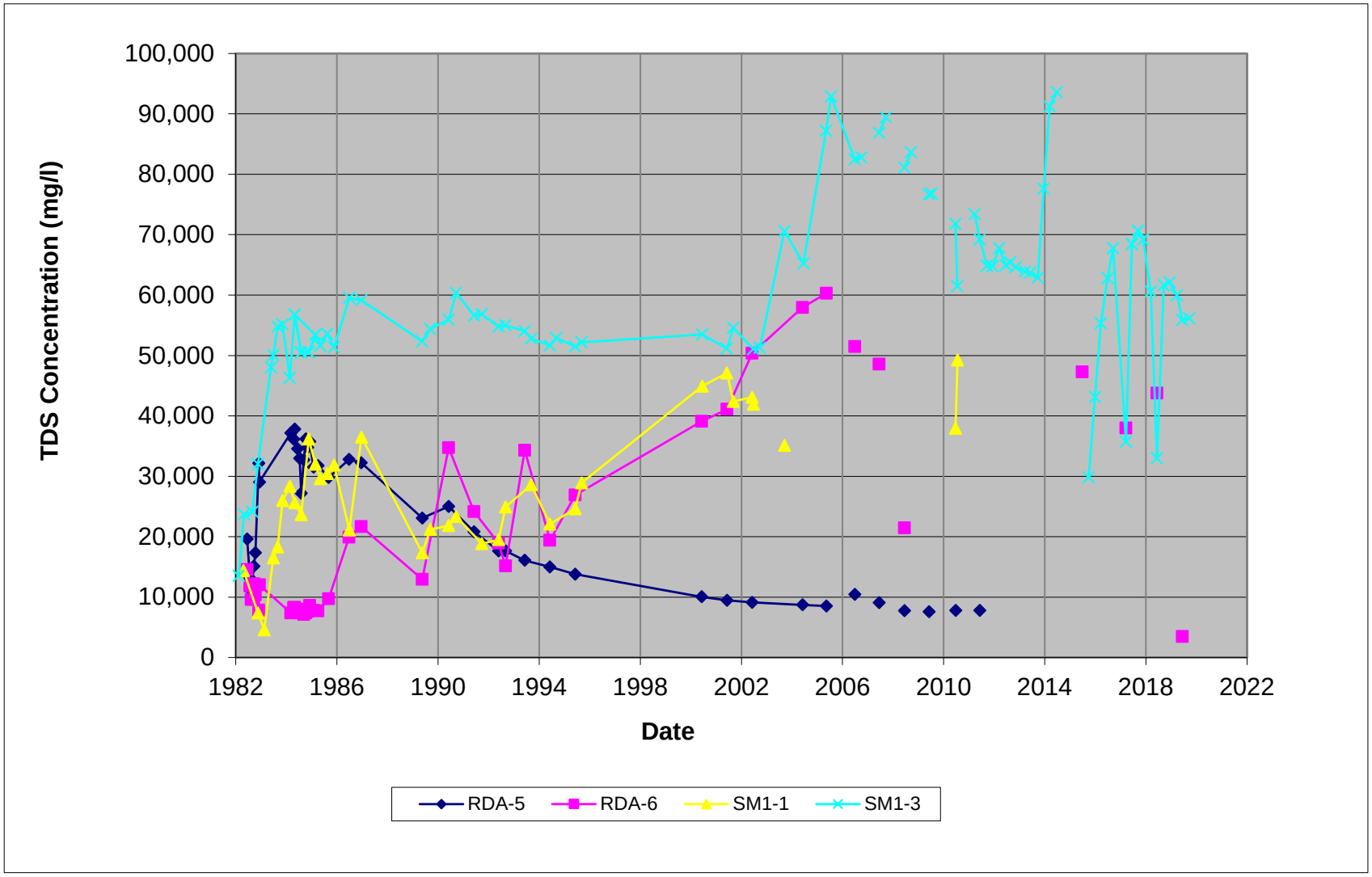


FIGURE VI-3. TDS CONCENTRATIONS OF SELECTED WELLS COMPLETED IN QUATERNARY DEPOSITS.

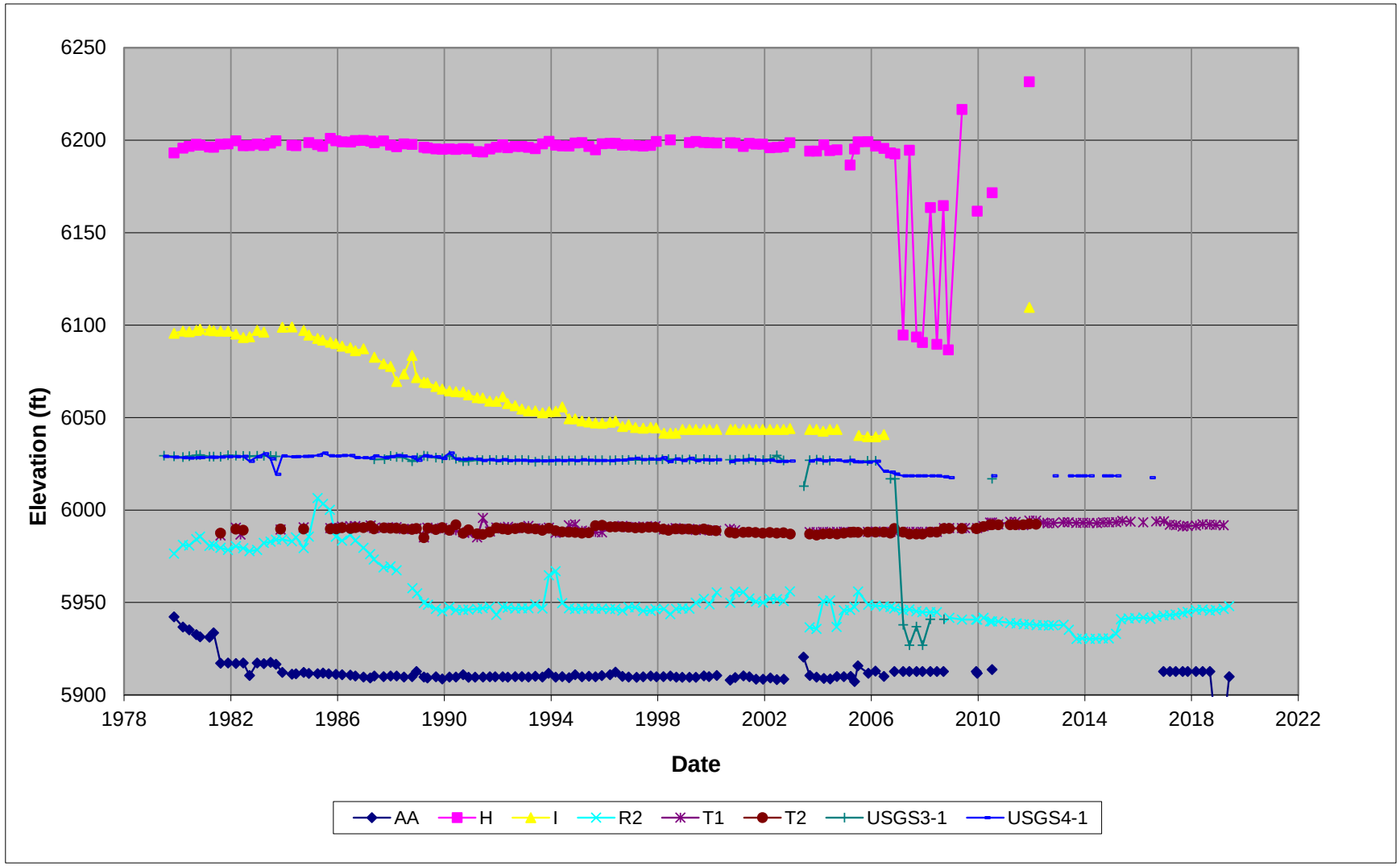


FIGURE VI-4. HYDROGRAPHS OF WELLS COMPLETED IN THE BLUE GATE MEMBER

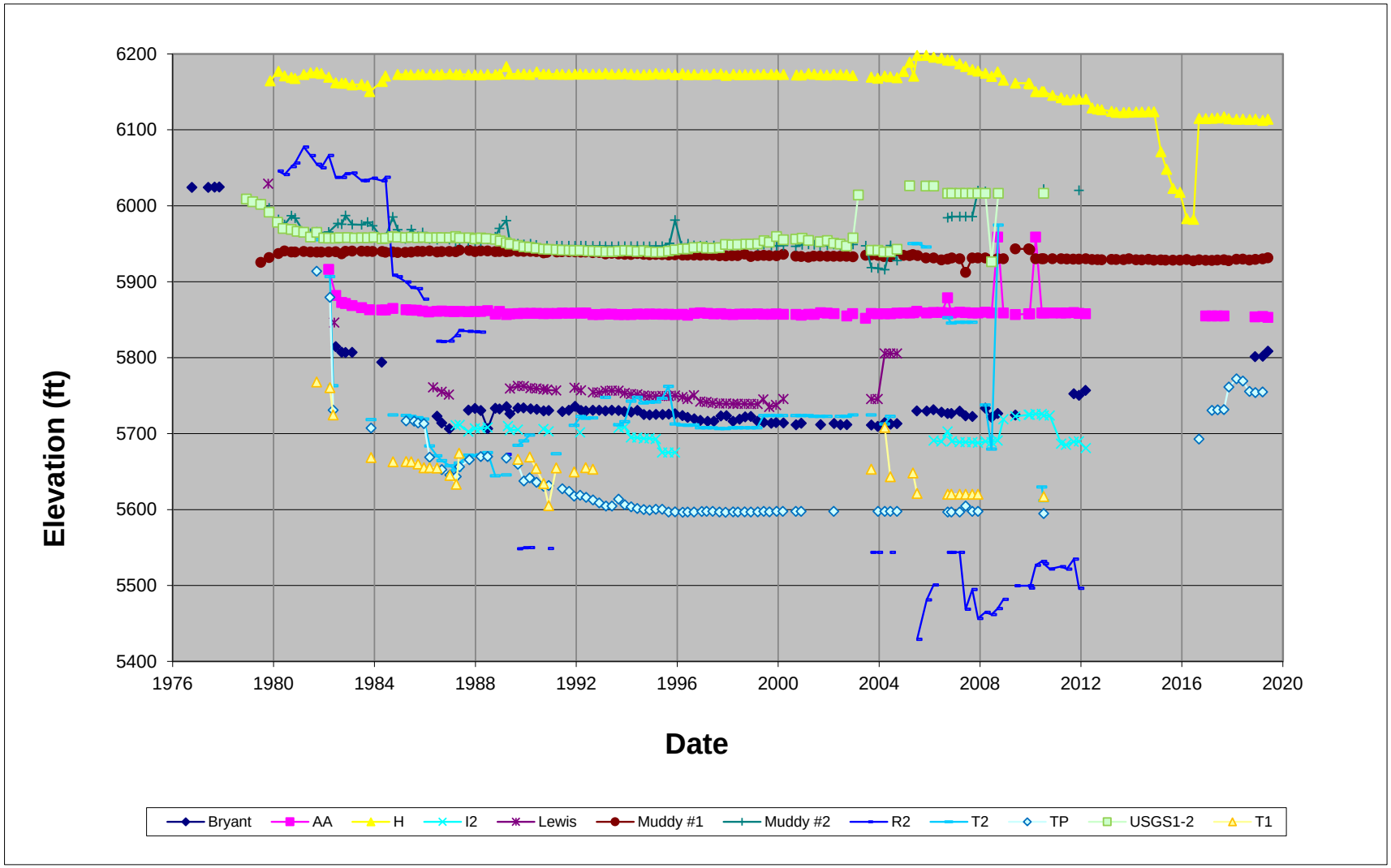


FIGURE VI-5. HYDROGRAPHS OF WELLS COMPLETED IN THE UPPER FERRON SANDSTONE.

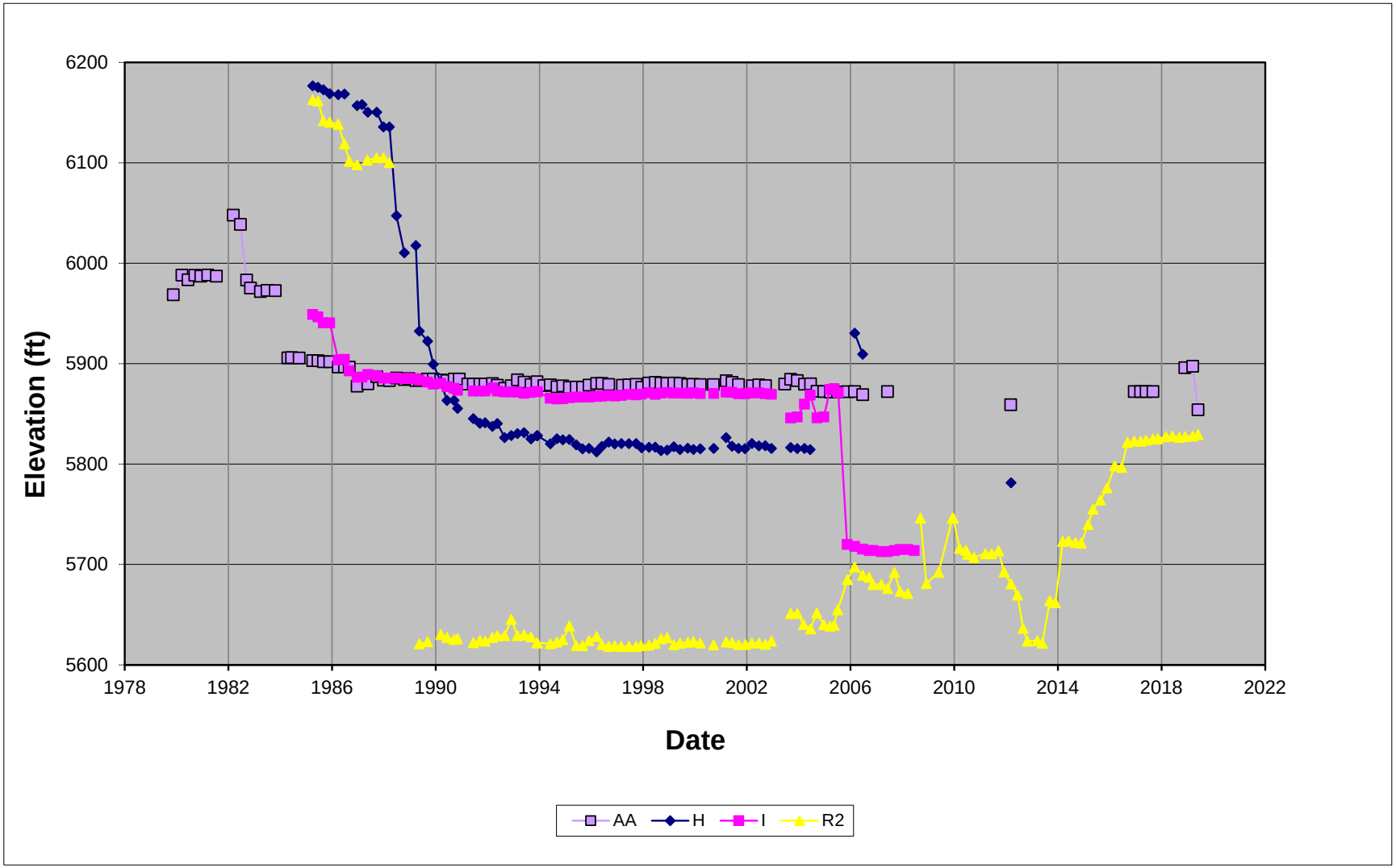


FIGURE VI-6. HYDROGRAPHS OF WELLS COMPLETED IN THE MIDDLE FERRON SANDSTONE.

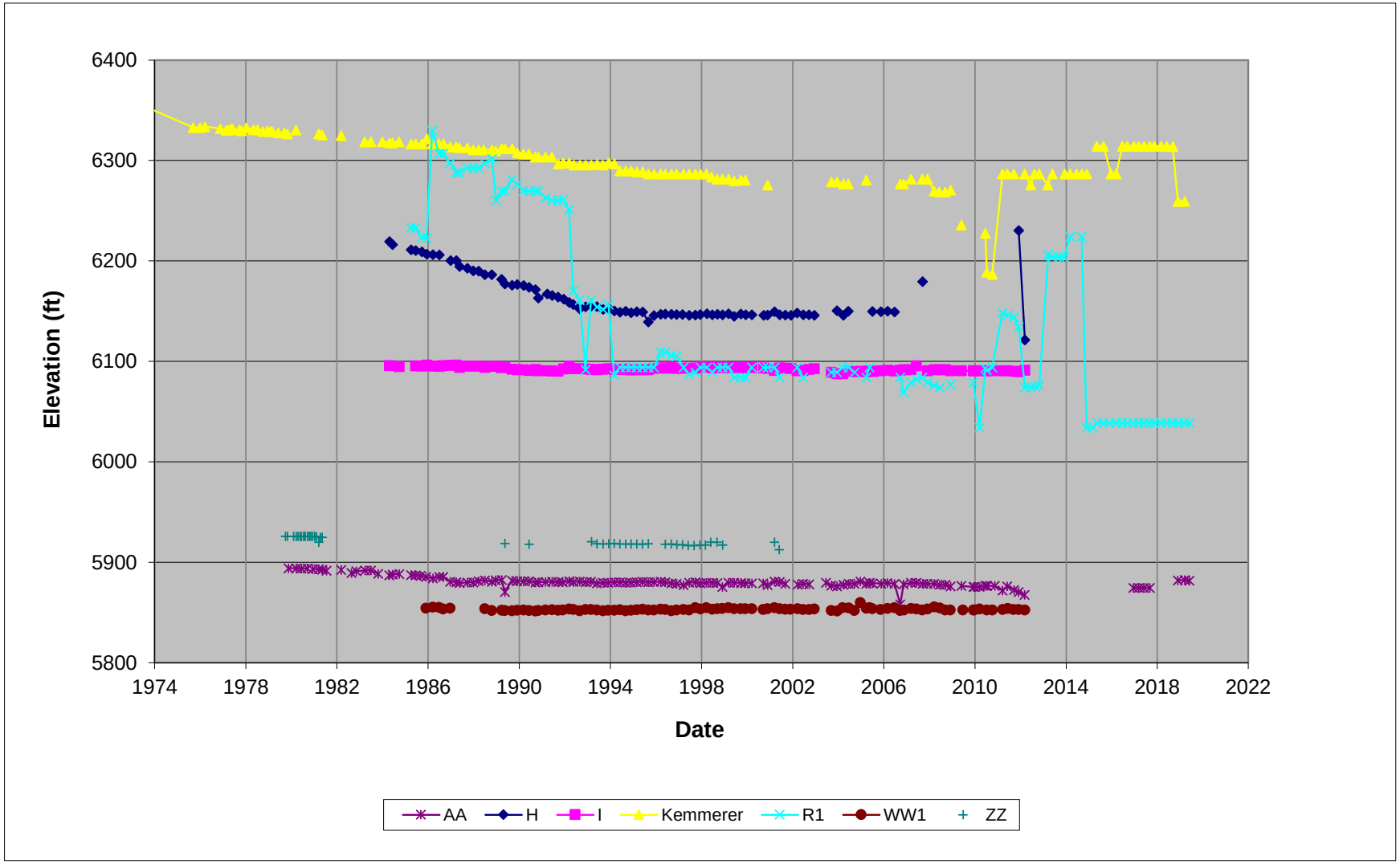
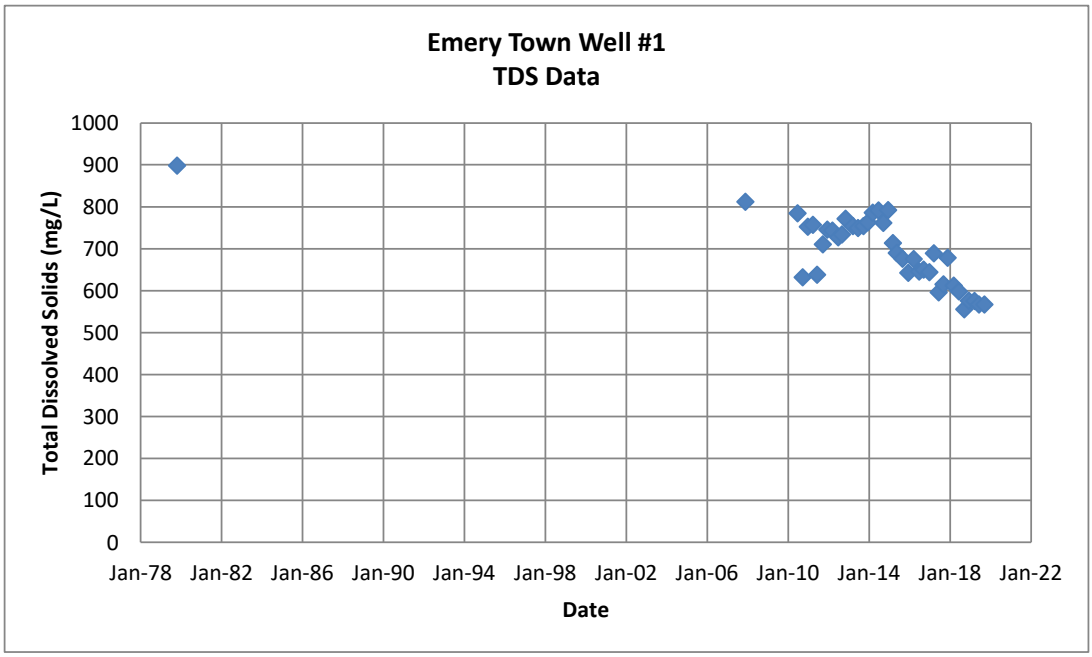


FIGURE VI-7. HYDROGRAPHS OF WELLS COMPLETED IN THE LOWER FERRON SANDSTONE.



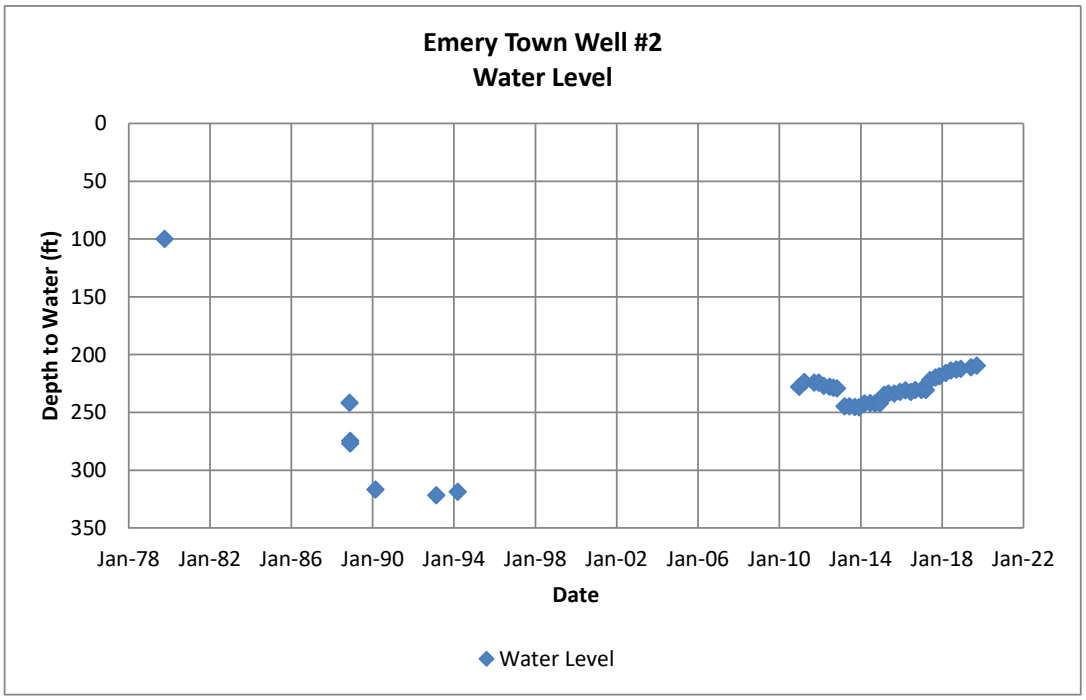
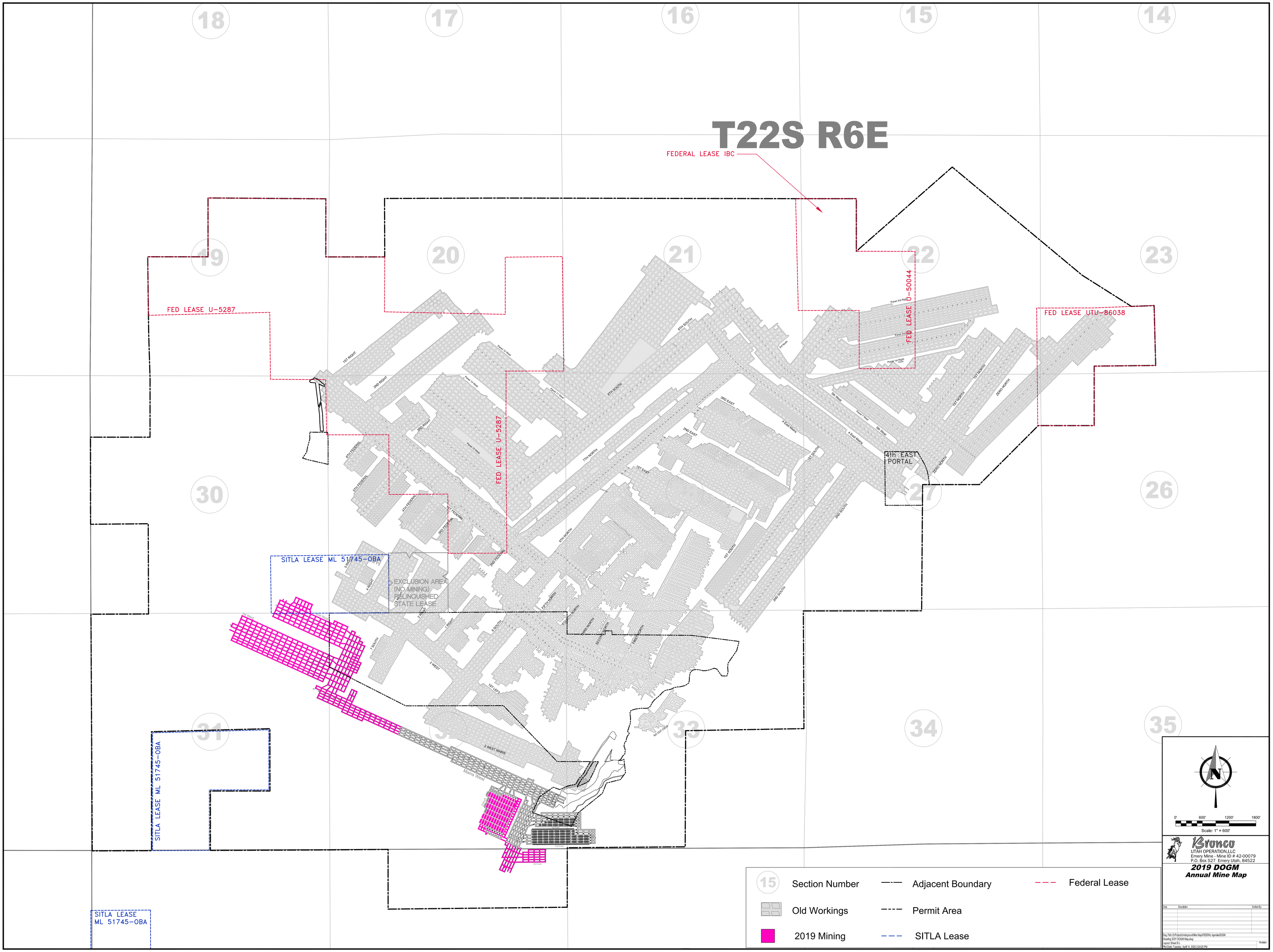


FIGURE VI-21. EMERY TOWN WELL DATA

Appendix D-1

Annual Map


T22S R6E
FEDERAL LEASE IBC
FED LEASE U-5287
FED LEASE U-50044
FED LEASE UTU-86038
FED LEASE U-5287
SITLA LEASE ML 51745-OBA
EXCLUSION AREA (NO MINING) RELINQUISHED STATE LEASE
SITLA LEASE ML 51745-OBA
SITLA LEASE ML 51745-OBA
41h EAST PORTAL
18
17
16
15
14
19
20
21
22
23
30
27
26
31
32
33
34
35
Section Number
Old Workings
2019 Mining
Adjacent Boundary
Permit Area
SITLA Lease
Federal Lease
0'
600'
1200'
1800'
Scale: 1" = 600'
Bronco
UTAH OPERATION,LLC
Emery Mine - Mine ID # 42-00079
P.O. Box 527 Emery Utah, 84522
2019 DOGM
Annual Mine Map
Date
Description
Drafted By:
Revision
Layout: Sheet 6 L
Plot Date: Tuesday, April 14, 2020 2:24:20 PM