

APPENDIX A CONNECTION ASSESSMENT

AESO Engineering Connection Assessment

Whitla Wind Facility Connection

AESO Project Number: 1800

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Executive Summary

Project Overview

Capital Power (Whitla) L.P. (Market Participant) has submitted a request for system access service to the Alberta Electric System Operator (AESO) to connect its proposed Whitla Wind Facility (the Facility) to the Alberta interconnected electricity system (AIES). The Facility includes the market participant's proposed collector station, to be designated the Shamrock 1018S substation.

The request for system access service includes a Rate STS, *Supply Transmission Service*, contract capacity of 201.6 MW and a Rate DTS, *Demand Transmission Service*, contract capacity of 3.5 MW for new system access service in the area, and a request for transmission development (collectively, the Project).

The scheduled in-service date (ISD) for the Project is September 1, 2019.

This report details the system performance studies undertaken to assess the impact of the Project on the performance of the Alberta interconnected electric system (AIES).

Existing System

Geographically, the Project is located in the AESO planning area of Medicine Hat (Area 4), which is part of the AESO South Planning Region. Medicine Hat (Area 4) is surrounded by the AESO planning areas of Empress (Area 48), Brooks (Area 47), Vauxhall (Area 52), and Glenwood (Area 55).

From a transmission perspective, Medicine Hat (Area 4) is connected to Empress (Area 48), Brooks (Area 47) and Vauxhall (Area 52) through the 138 kV and 240 kV transmission systems. The City of Medicine Hat, within Medicine Hat (Area 4), is an independent utility. It is connected to the rest of Alberta interconnected electric system (AIES) by one single 138 kV circuit.

There are a number of existing constraints in the area that are mitigated by remedial action schemes (RASs). Constraints in the Study Area are also managed in accordance with Section 302.1 of the ISO rules, *Real Time Transmission Constraint Management* (TCM Rule).

Study Summary

Study Area for the Project

The Study Area for the Project consists of the following AESO planning areas: Vauxhall (Area 52), Medicine Hat (Area 4), Empress (Area 48) and Brooks (Area 47). The Study Area also includes the tie lines that connect these planning areas to surrounding planning areas. All transmission facilities within the Study Area were studied and monitored to assess the impact of the Project on the AIES, including any violations of the Reliability Criteria (as defined in Section 2.1.1).

Studies Performed for the Project

Power flow studies were performed for 2019 Summer Peak (SP) and 2019 Summer Light (SL) pre-Project and post-Project scenarios under Category A and Category B conditions.

Transient stability studies were performed for 2019 SP and 2019 SL post-Project scenarios under Category B conditions.

Short-circuit studies were performed for 2019 SP pre-Project, 2019 SP post-Project, and 2027 SP post-Project scenarios under Category A conditions.

Results of the Pre-Project Studies

No Reliability Criteria violations were observed under Category A or Category B conditions for 2019 SP and 2019 SL pre-Project scenarios.

Connection Alternative Selected for Further Examination

The AESO, in consultation with the TFO and the market participant, examined one alternative, Alternative 1, to respond to the market participant's request for system access service. Alternative 1 involves modifying the Whitla 251S substation, including adding a 240 kV circuit breaker and adding a 240 kV circuit to connect the Facility to the existing Whitla 251S substation in a radial connection configuration.

Results of the Post-Project Studies

No Reliability Criteria violations were observed under Category A or Category B conditions for 2019 SP and 2019 SL post-Project scenarios.

No transient stability issues were identified for the Category B contingencies studied in the 2019 SP and 2019 SL post-Project scenarios. The post-Project short-circuit fault levels were not significantly higher than pre-Project levels. The long term short circuit levels were found to be within the designed capabilities of the nearby facilities.

Conclusions and Recommendations

Based on the study results, Alternative 1 is technically viable. The connection assessment did not identify any system performance issues in the pre-Project or post-Project scenarios. The connection of the Project with Alternative 1 will not adversely affect the performance of the AIES.

It is recommended to proceed with the Project using Alternative 1 as the preferred option to respond to the Market Participant's request for system access service.

A minimum rating of 340 MVA is recommended for the new 240 kV circuit. This will meet the market participant's total requested Rate STS contract capacity of 298.8 MW, which includes the requested Rate STS contract capacity associated with the Project (201.6 MW), and the Rate STS contract capacity increase of 97.2 MW associated with the future expansion to the Facility.

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1 Introduction

This report details the engineering studies conducted to assess the impact of the Project (as defined below) on the performance of the Alberta interconnected electrical system (AIES).

1.1 Project

1.1.1 Project Overview

Capital Power (Whitla) L.P. (Market Participant) has submitted a request for system access service to the Alberta Electric System Operator (AESO) to connect its proposed Whitla Wind Facility (the Facility) to the AIES. The Facility includes the market participant's proposed collector station, to be designated the Shamrock 1018S substation.

The request for system access service includes a Rate STS, *Supply Transmission Service*, contract capacity of 201.6 MW and a Rate DTS, *Demand Transmission Service*, contract capacity of 3.5 MW for new system access service in the area, and a request for transmission development (collectively, the Project).

The scheduled in-service date (ISD) for the Project is September 1, 2019.

1.1.2 Generation Component

The Project includes a generation component:

- Maximum authorized real power (MARP): 201.6 MW
- Maximum capability (MC): 201.6 MW
- Requested Rate STS contract capacity: 201.6 MW
- Generator type: Wind
- Power factor assumed: 0.9 power factor (PF) lagging and 0.95 PF leading is assumed at the Facility output as measured at the generating unit terminal, per the technical requirements of Section 502.1 of the ISO rules, *Aggregated Generating Facilities Technical Requirements*.

1.1.3 Load Component

The Project includes a load component:

- Requested Rate DTS contract capacity: 3.5 MW
- Load type: Station service

1.1.4 Future Development

The market participant has submitted a request for system access service to expand the Facility. This request for system access service includes: a request to increase its Rate STS

contract capacity by 97.2 MW, from 201.6 MW to 298.8 MW, and a request to increase its Rate DTS contract capacity by 1 MW, from 3.5 MW to 4.5 MW. The requested ISD for the Facility expansion is December 2020.

An assessment of the impact of the Facility expansion on the performance of the AIES is not presented in this report.

1.2 Study Scope

1.2.1 Study Objectives

The objectives of the AESO Engineering Connection Assessment are as follows:

- Assess the impact of the Project on the performance of the AIES.
- Evaluate Project connection alternatives and identify the AESO's preferred alternative.
- Identify any violations of the relevant AESO criteria, standards or requirements, both pre-Project and post-Project.
- Recommend mitigation measures to address system performance concerns, if any, to enable the reliable connection of the Project to the AIES.

1.2.2 Study Area

1.2.2.1 Study Area Description

Geographically, the Project is located in the AESO planning area of Medicine Hat (Area 4), which is part of the AESO South Planning Region. Medicine Hat (Area 4) is surrounded by the AESO planning areas of Empress (Area 48), Brooks (Area 47), Vauxhall (Area 52), and Glenwood (Area 55).

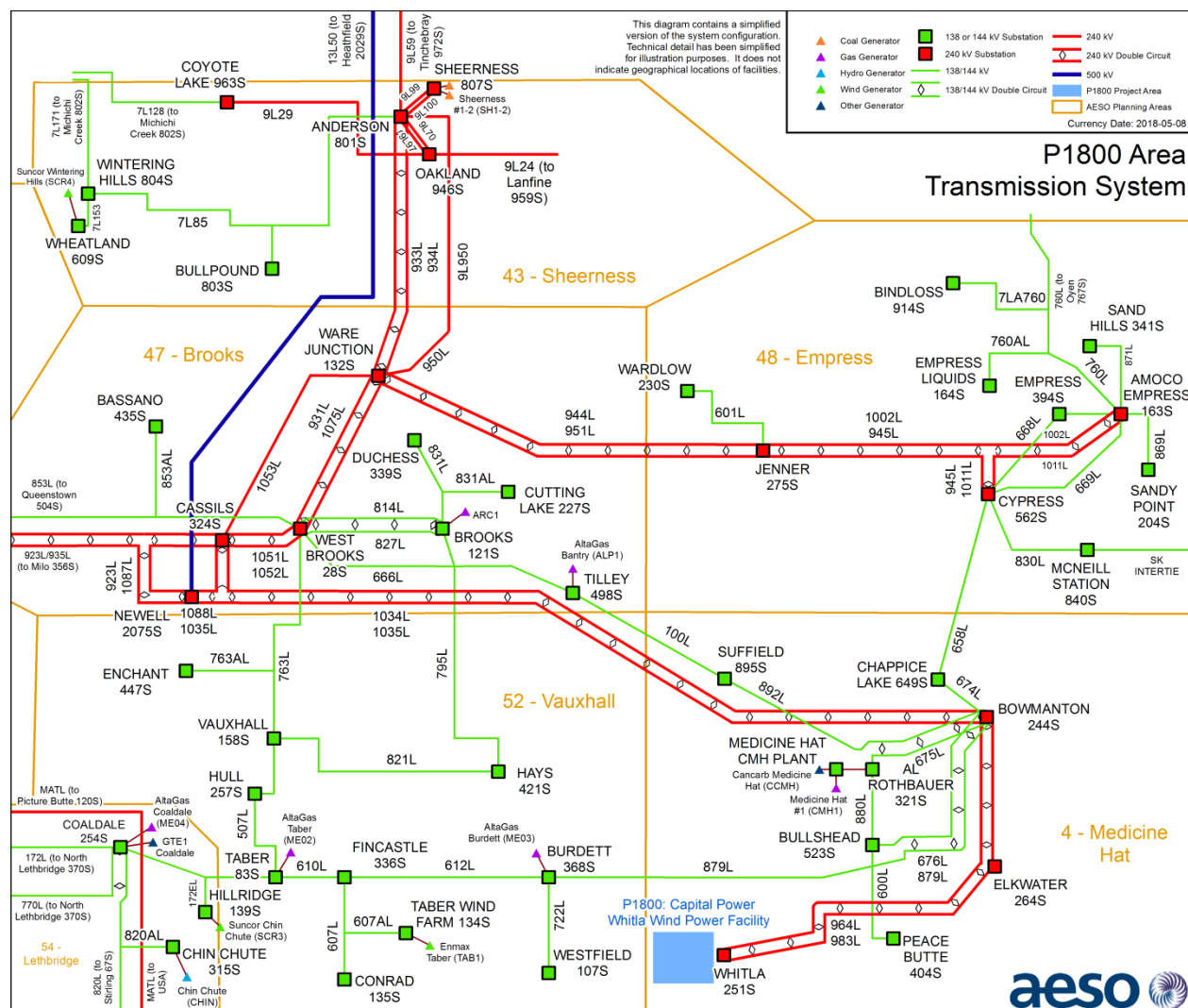
From a transmission perspective, Medicine Hat (Area 4) is connected to Empress (Area 48), Brooks (Area 47), and Vauxhall (Area 52) through the 138 kV and 240 kV transmission systems. The City of Medicine Hat, within Medicine Hat (Area 4), is an independent utility. It is connected to the rest of the AIES by one single 138 kV circuit.

The Study Area for the Project consists of the following AESO planning areas: Vauxhall (Area 52), Medicine Hat (Area 4), Empress (Area 48), and Brooks (Area 47). The Study Area also includes the tie lines that connect these planning areas to surrounding planning areas.

All transmission facilities within the Study Area will be studied and monitored to assess the impact of the Project on the performance of the AIES, including any violations of the Reliability Criteria (as defined in Section 2.1.1).

The existing transmission system in the Study Area is shown in Figure 1-1.

Figure 1-1 Existing Transmission System in the Study Area



1.2.2.2 Existing Constraints

There are a number of existing constraints in the area that are mitigated by remedial action schemes (RASs). Constraints in the Study Area are also managed in accordance with Section 302.1 of the ISO rules, *Real Time Transmission Constraint Management* (TCM Rule).

1.2.2.3 AESO Long-Term Transmission Plan

The *AESO 2017 Long-term Transmission Plan* (2017 LTP)¹ includes system transmission developments in the vicinity of the Study Area. Table 1-1 summarizes the system transmission developments in the Study Area:

¹ The 2017 LTP document is available on the AESO website.

Table 1-1: 2017 LTP Development in the Study Area¹

Development	Description	In-Service Date
Rebuild SE 138 kV circuits to higher capacity	Rebuild 138 kV lines from Bowmanton substation to Suffield substation, and from substation to Tilley substation Restore the 138 kV line from Chappice Lake substation to Cypress substation to higher capacity	Post-2022

¹ From page 59 of the 2017 LTP document.

The 2017 LTP system transmission developments in the Study Area will not be included in the system topology for the pre-Project and post-Project studies because these transmission developments are not expected to be in service before the Project ISD.

1.2.3 Studies Performed

The following studies were performed for the pre-Project scenarios:

- Power flow studies
- Short circuit studies

The following studies were performed for the post-Project scenarios:

- Power flow studies
- Transient stability studies
- Short circuit studies

1.3 Report Overview

The Executive Summary provides a high-level summary of the assessment and its conclusions. Section 1 provides an introduction to the Project and the Study Area. Section 2 describes the criteria, system data, and other assumptions used in the studies. Section 3 describes the methodology used for the studies. Section 4 discusses the pre-Project studies results. Section 5 presents the connection alternatives examined and selected for further study. Section 6 provides post-Project studies results. Section 7 presents the short-circuit studies results. Section 8 identifies the Project dependencies, if any. Section 9 presents the conclusions and recommendations of this Project connection assessment.

2 Criteria, System Data and Study Assumptions

2.1 Criteria, Standards and Requirements

2.1.1 AESO Standards and Reliability Criteria

The Transmission Planning (TPL) Standards, which are included in the Alberta Reliability Standards, and the AESO's *Transmission Planning Criteria – Basis and Assumptions*² (collectively, the Reliability Criteria) were applied to evaluate system performance under Category A system conditions (i.e., all elements in-service) and following Category B contingencies (i.e., single element outage), prior to and following the studied alternatives. Below is a summary of Category A and Category B system conditions.

Category A, often referred to as the N-0 condition, represents a normal system with no contingencies and all facilities in service. Under this condition, the system must be able to supply all firm load and firm transfers to other areas. All equipment must operate within its applicable rating, voltages must be within their applicable range, and the system must be stable with no cascading outages.

Category B events, often referred to as an N-1 or N-G-1 with the most critical generator out of service, result in the loss of any single specified system element under specified fault conditions with normal clearing. These elements are a generator, a transmission circuit, a transformer, or a single pole of a DC transmission line. The acceptable impact on the system is the same as Category A. Planned or controlled interruptions of electric supply to radial customers or some local network customers, connected to or supplied by the faulted element or by the affected area, may occur in certain areas without impacting the overall reliability of the interconnected transmission systems. To prepare for the next contingency, system adjustments are permitted, including curtailments of contracted firm (non-recallable reserved) transmission service electric power transfers.

The TPL standards, TPL-001-AB-00 and TPL-002-AB-0, have referenced Applicable Ratings when specifying the required system performance under Category A and Category B events. For the purpose of applying the TPL standards to the studies documented in this report, the Applicable Ratings are defined as follows:

- Normal thermal rating of the line's loading limits.
- Highest specified loading limits for transformers.
- For Category A conditions: Voltage range under normal operating condition per the AESO Information Document #2010-007RS *General Operating Practices – Voltage Control* (ID #2010-007RS). ID #2010-007RS relates to Section 304.4 of the ISO

² Filed under a separate cover

rules, *Maintaining Network Voltage*. For the busses not listed in ID #2010-007RS, Table 2-1 in the *Transmission Planning Criteria – Basis and Assumptions* applies.

- For Category B conditions: The extreme voltage range values per Table 2-1 in the *Transmission Planning Criteria – Basis and Assumptions*.
- Desired post-contingency voltage change limits for three defined post event timeframes as provided in Table 2-1, below.

Table 2-1: Post-Contingency Voltage Deviation Guidelines for POD Low Voltage Busses

Parameter and Reference Point	Time Period		
	Post-Transient (Up to 30 sec.)	Post-Auto Control (30 sec. to 5 min.)	Post-Manual Control (Steady State)
Voltage deviation from steady state at POD low voltage bus	±10%	±7%	±5%

2.1.2 ISO Rules and Information Documents

ID #2010-007RS was applied to establish pre-contingency voltage profiles in the Study Area. The TCM Rule was followed in setting up the study scenarios and assessing the study results. In addition, due regard was given to the AESO's *Connection Study Requirements* document and the AESO's *Generation and Load Interconnection Standard*.

2.1.3 Other Requirements

Wind Aggregated Generation Facility (WAGF) Requirements

The Facility should meet the technical requirements presented in Section 502.1 of the ISO rules, *Wind Aggregated Generating Facilities Technical Requirements*.

2.2 Study Scenarios

The scheduled ISD for the Project is September 1, 2019. As a result, the studies were performed using 2019 study scenarios. The Study Area has low load variation between winter and summer seasons; however the transmission facilities in the Study Area have summer ratings that are lower than their winter ratings; therefore, only summer loading scenarios including summer peak (SP) and summer light (SL) scenarios were selected for engineering studies as they provide the most stressed operating conditions.

The Project's request Rate DTS of 3.5 MW is not significant compared to the load in the Study Area, which is in a generation rich area, hence it was not considered in this study.

Table 2-2 provides a list of the study scenarios considered for the power flow, transient stability and short-circuit studies.

Table 2-2: Connection Study Scenarios

Scenarios	Year / Season Load	Pre-Project/ Post Project	Project Generation (MW)	System Generation Dispatch conditions	City of Medicine Hat Outflow (MW)
1	2019 SP	Pre-Project	0	Economic Coal, High Wind, High Import	73
2	2019 SL	Pre-Project	0	Economic Coal, High Wind, Zero Import	57
3	2019 SP	Post-Project	201.6	Economic Coal, High Wind, High Import	73
4	2019 SL	Post-Project	201.6	Economic Coal, High Wind, Zero Import	57
5	2027 SP	Post-project	201.6	All generation in the Study Area on	73

2.3 Load and Generation Assumptions

2.3.1 Load Assumptions

The relevant AESO regional planning load forecasts used for this connection assessment are shown in Table 2-3. The Study Area forecasts are based on the *AESO 2017 Long-term Outlook* (2017 LTO) at South Planning Region peak.

For the studies, when loads for the Alberta internal load (AIL) were modified to align with the load forecast from the 2017 LTO, the active power to reactive power ratio in the base case scenarios were maintained.

Table 2-3: Forecast Area Load

AESO Planning Area or Region	Forecast Peak Load (MW)	
	2019 SP	2019 SL
Vauxhall (Area 52)	189	111
Medicine Hat (Area 4)	214	102
Empress (Area 48)	191	182
Brooks (Area 47),	118	70
AESO South Region (including planning Areas 4, 43, 44, 45, 46, 47, 48, 49, 52, 53, 54, and 55)	1395	838

2.3.2 Generation Assumptions

The generation forecast used for the studies is based on the 2017 LTO.

Local Non Renewable Generation

The existing non-renewable generation units in the vicinity of the Study Area and their dispatch levels for the studies are shown in Table 2-4. This dispatch level was used for the economic coal dispatch condition for the Study Area.

Table 2-4: Non-wind Generation in the Study Cases

Generating Facility Unit Name	Bus No.	AESO Planning Area	P _{max} (MW)	Unit Net Generation (MW)	
				2019 SP	2019 SL
Lethbridge Taber	3272	52	8	6.3	0
Taber Burdett	4269	52	7	6.1	0
Altogas Bantry	4275	47	7	3.6	0

*Unit Net Generation refers to Gross Generating unit MW output less Unit Service Load

Renewable Generation

Per the 2017 LTO, the total forecast renewable electricity generation in 2019 is 1,891 MW. This includes existing and future planned renewable electricity generation facilities. The generation assumptions dispatch the renewable electricity generation facilities to yield the credible worst-case power flow conditions for the Study Area.

The post-Project dispatch levels for the existing and planned renewable electricity generation facilities are shown in Table 2-5 and Table 2-6.

Table 2-5: Existing Renewable Generation Dispatch Levels (Post-Project)

Existing	Generating Facility	Energy Resource	AESO Planning Area	Bus No.	P _{max} (MW)	Post-Project Unit Net Generation (MW) 2019 SP and 2019 SL
South Planning Region						
Existing	Ardenville Wind (ARD1)	Wind	53	4735, 4740	68	68
Existing	Blue Trail Wind (BTR1)	Wind	53	66328, 67328	66	66
Existing	Castle River #1 (CR1)	Wind	53	2234, 3234	39	39
Existing	Castle Rock Wind Farm (CRR1)	Wind	53	67221	77	77
Existing	Cowley Ridge (CRWD)	Wind	53	4264	20	20
Existing	Enmax Taber (TAB1)	Wind	52	15343, 16343	81	81
Existing	Kettles Hill (KHW1)	Wind	53	2402, 3402	63	63
Existing	McBride Lake Windfarm (AKE1)	Wind	53	2901, 3901, 4901	75	75
Existing	Soderglen Wind (GWW1)	Wind	53	12358, 13358	68	68
Existing	Summerview 1 (IEW1)	Wind	53	2338, 3338	66	66
Existing	Summerview 2 (IEW2)	Wind	53	4339, 5337	66	66
Existing	Suncor Chin Chute (SCR3)	Wind	54	2389	30	30

Existing	Generating Facility	Energy Resource	AESO Planning Area	Bus No.	P _{max} (MW)	Post-Project Unit Net Generation (MW) 2019 SP and 2019 SL
Existing	Suncor Magrath (SCR2)	Wind	53	11002	30	30
Existing	Suncor Wintering Hills (SCR4)	Wind	43	60789, 60791, 60793, 60846, 60848, 60850	88	88
Existing	Old Man River (OWF1)	Wind	53	61543	46	46
Existing	Blackspring Ridge (BSR1)	Wind	49	61736, 61737	300	300
Existing	Brooks Solar (BSC1)	Solar PV	47	3256	15	15
Subtotal (Southern Alberta)						1,198
Central Alberta						
Existing	Ghost Pine (NEP1)	Wind	42	2621 to 2625	82	82
Existing	Halkirk (HAL1)	Wind	42	66435, 67435	150	0 ^a
Existing	Fortis Bull Creek Phases 1 and 2 (BUL1 and BUL2)	Wind	37	4222	29.5	15.5 ^b
Subtotal (Central Alberta)						97.5
Subtotal (Existing and under-construction renewable)						1,295.50

^a Halkirk (HAL1) unit net generation was set to 150 MW for the pre-Project study case.

^b Fortis Bull Creek Phases 1 and 2 (BUL1 and BUL2) unit net generation was set to 29.5 MW for the pre-Project study case.

Table 2-6.Planned Renewable Generation Dispatch Levels (Post-Project)

AESO Project Name	Energy Resource	AESO Project Number	Planned ISD	AESO Planning Area	Stage	P _{max} (MW)	Post-Project Unit Net Generation (MW) 2019 SL and 2019 SP
South Planning Region							
Enel Alberta Riverview Wind Farm	Wind	524	30-Jun-19	53	4	115	115
Enel Alberta Castle Rock Wind Farm	Wind	462	01-Nov-19	53	5	30.6	30.6
Capital Power Whitla Wind Facility	Wind	1800	01-Sept-19	4	3	201.6	201.6 ^a
Subtotal (Southern Alberta)							347.2
Central Alberta							
Sharp Hills Wind Facility	Wind	1567	01-Aug-19	42	4	300	248.4
Subtotal (Central Alberta)							248.4
Subtotal (Planned Renewable)							595.6
Total Existing and Planned Renewable Generation							1,891

^a For Capital Power Whitla Wind Facility, the Facility being connected as a part of the Project, unit Net Generation was set to 0 MW for the pre-Project study case.

2.3.3 Intertie Flow Assumptions

The Intertie assumptions for the British Columbia-Alberta (BC-AB), Saskatchewan-Alberta (SK-AB), and Montana-Alberta Tie Line (MATL) interties are shown in Table 2-7.

Table 2-7: Intertie Assumptions

Scenario	Intertie Dispatch Condition	Intertie		
		Import (+) /Export (-) to BC-AB (MW)	Import (+) /Export (-) to SK-AB (MW)	Import (+) /Export (-) to MATL (MW)
2019 SP Pre-Project	High Import	800	150	300
2019 SL Pre-Project	Zero Import	0	0	0
2019 SP Post-Project	High Import	800	150	300
2019 SL Post-Project	Zero Import	0	0	0

2.3.4 High-Voltage Direct Current (HVDC) Power Order

The Western Alberta Transmission Line (WATL) and the Eastern Alberta Transmission Line (EATL) are high-voltage direct current (HVDC) transmission lines. The 500 kV HVDC power order assumptions for the studies were set based on the reduced system loss assumptions in the pre-Project and post-Project study scenarios, as shown in Table 2-8.

Table 2-8: HVDC Power Order by Scenario

Scenario No.	Scenario Name	WATL (MW)*	EATL (MW)*
1	2019 SP Pre-Project	400 S → N	750 S → N
2	2019 SL Pre-Project	Blocked	525 S → N
3	2019 SP Post-Project	400 S → N	750 S → N
4	2019 SL Post-Project	Blocked	525 S → N

Note: *S → N: HVDC flow direction is South to North

2.4 System Projects

No system transmission project will be considered in the system topology for the study scenarios because these transmission developments are not expected to be in service before the scheduled Project ISD.

2.5 Connection Projects

The AESO Connection Projects considered in this study include projects to connect the renewable generation facilities listed in Table 2-6.

2.6 Facility Ratings and Shunt Elements

The legal owner of transmission facilities (TFO) provided the thermal ratings for the existing transmission lines and existing transformers in the Study Area. The normal and emergency ratings for the key transmission lines in the Study Area are shown in Table 2-10.

Table 2-9: Key Transmission Line Ratings in the Study Area (MVA on a 138 kV and 240kV Base)

Line ID	Line Description (substation termination points)	Voltage Class (kV)	Summer Thermal Rating (MVA)	
			Normal	Emergency
964L	Bowmanton 244S - Whitla 251S	240	952	1047
983L	Whitla 251S- Elkwater 264S	240	952	1047
1034L	Bowmanton 244S- Cassils 324S	240	931	1024
1035L	Bowmanton 244S- Newell 2075S	240	952	1047
676L	Bowmanton 244S- Medicine Hat 41S	138	369	406
675L	Bowmanton 244S- Bullshead 523S	138	96	133
880L	Bullshead 523S- Medicine Hat 41S	138	123	135
892L	Bowmanton 244S- Suffield 895S	138	67	74
666L	West Brooks 28S- Tilley 498S	138	98	108
100L	Tilley 498S- Suffield 895S	138	78	86
612L	Fincastle 336S- Burdett 368S	138	85	94
610L	Taber 83S- Fincastle 336S	138	85	94
879L	Bowmanton 244S- Burdett 368S	138	85	94
658L	Chappice Lake 649S- Cypress 562S	138	81	89
668L	Cypress 562S- Empress 394S	138	121	133
669L	Cypress 562S- Amoco Empress 163S	138	177	195
674L	Bowmanton 244S- Chappice Lake 649S	138	121	133

The transformer ratings for the key transformers in the Study Area, are shown Table 2-10.

Table 2-10: Ratings of Key Transformers in the Study Area

Substation Name and Number	Transformer ID	Transformer Voltages (kV)	Transformer Rating (MVA)
North Lethbridge 370S	T3	240/138 kV	193.6
	T5	240/138 kV	200
	T6	240/138 kV	200
Westbrooks 28S	T1	240/138 kV	400
	T2	240/138 kV	400
Bowmanton 244S	T1	240/138 kV	200
	T2	240/138 kV	200

The details of the shunt elements in the Study Area, as provided by the TFO, are shown in Table 2-12.

Table 2-11: Details of Shunt Elements in the Study Area

Substation Name and Number	Voltage Class (kV)	Capacitors			Reactors		
		Number of Switched Shunt Blocks	Total at Nominal Voltage (MVar)	Status in Study (on or off)	Number of Switched Shunt Blocks	Total at Nominal Voltage (MVar)	Status in Study (on or off)
Taber 83S	138	1	24.46	Switch as required	-	-	Switch as required
		1	24.5		-	-	
Hays 421S	138	1	24.46		-	-	
Picture Butte 120S	240	2	50		-	-	
Burdett 368S	138	1	24.46		-	-	
		1	24.5		-	-	
Tilley 498S	138	1	27.17		-	-	
West Brooks 28S	240	-	-		1	50	
Whitla 251S	240	-	-		2	75	
Bowmanton 244S	240	-	-		-	-	
MH69S-3	69	2	8		-	-	
McNeil 840S	138	2	24.8		-	-	
Bullshead 523S	138	1	18.3		-	-	

2.7 Protection Fault Clearing Times

The transient stability studies will be performed for the contingencies shown in Table 2-12. The studies will be performed using the actual fault clearing times for the selected contingencies, which will be provided by the TFO. If the TFO does not specify the fault clearing times for one of the selected contingencies, then the studies for that contingency will be performed using the standard fault clearing times that are specified in Table 2-3 of the *Transmission Planning Criteria – Basis and Assumptions*.

Table 2-12: Summary of Protection Fault Clearing Times

Line	Nominal Bus Voltage (kV)	Terminal Location			Faulted Location	Total Clearing Time			State if it is Actual or Generic
		Terminal 1	Terminal 2	Terminal 3		Terminal 1	Terminal 2	Terminal 3	
983L	240	Bowmanton 244S	Whitla 251S	-	244S	4	5	-	Generic
					251S	5	4	-	Generic
964L	240	Whitla 251S	Bowmanton 244S	-	251S	4	5	-	Actual
					244S	5	4	-	Actual
1034L	240	Cassils 324S	Bowmanton 244S	-	A2075S	4	5	-	Actual
					244S	5	4	-	Actual
1035L	240	Newell A2075S	Bowmanton 244S	-	A2075S	4	5	-	Actual
					244S	5	4	-	Actual
892L	138	Suffield 895S	Bowmanton 244S	-	895S	6	27	-	Actual
					244S	27	6	-	Actual
676L	138	Bullshead 523S	Bowmanton 244S	-	523S	6	27	-	Actual
					244S	27	6	-	Actual
675L	138	Al Rothbauer 321S	Bowmanton 244S	-	321S	6	7	-	Actual
					244S	7	6	-	Actual
879L	138	Burdett 368S	Bowmanton 244S	-	368S	6	27	-	Actual
					244S	27	6	-	Actual
658L/674L	138	Cypress 562S	Bowmanton 244S	-	562S	6	27	-	Actual
					244S	27	6	-	Actual

2.8 Voltage Profile Assumption

AESO ID #2010-007RS will be used to establish system normal (i.e., pre-contingency) voltage profiles for key area busses prior to commencing any studies. Table 2-1 of the *Transmission Planning Criteria – Basis and Assumptions* applies for all the busses not included in ID #2010-

007RS. These voltages will be used to set the voltage profile for the study base cases prior to power flow analysis.

3 Study Methodology

The studies for this connection assessment were completed using PTI PSS/E version 33.

3.1 Connection Studies Carried Out

The studies that were completed for this connection assessment are identified in Table 3-1.

Table 3-1: Engineering Studies Performed

Scenario No.	Scenario Name	System Conditions	Studies Performed		
			Power Flow	Transient Stability	Short-Circuit*
1	2019 SP Pre-Project	Category A and Category B	✓		✓
2	2019 SL Pre-Project	Category A and Category B	✓		
3	2019 SP Post-Project	Category A and Category B	✓	✓	✓
4	2019 SL Post-Project	Category A and Category B	✓	✓	
5	2027 SP Post-Project	Category A			✓

*Short-circuit study methodology is described in Section 3.4, below.

3.2 Power Flow Studies

Power flow studies were conducted to identify thermal and voltage criteria violations as per the Reliability Criteria, and to identify any POD low voltage bus deviations from the limits listed in Table 2-1.

For the Category B power flow studies, the transformer taps and switched shunt reactive compensating devices such as shunt capacitors and reactors were locked and continuous shunt devices will be enabled.

POD low voltage bus deviations were assessed for both the pre-Project and post-Project networks by first locking all tap changers and area shunt reactive compensating devices to identify any post-transient voltage deviations above 10%. Second, tap changers were allowed to move while shunt reactive compensating devices remained locked to determine if any voltage deviations above 7% would occur in the area. Third, all the taps and shunt reactive compensating devices were allowed to adjust, and voltage deviations above 5% would be reported.

3.2.1 Contingencies Studied

Power flow studies were performed for all Category B contingencies 69 kV and above in the Study Area.

3.3 Transient Stability Studies

Transient stability studies were performed under selected Category B contingencies for the 2019 SL and 2019 SP post-Project scenarios.

Genesee unit #3 was considered as the reference for the transient stability studies.

For the proposed generation facility, the following variables were monitored:

- Active power
- Reactive power
- Terminal voltage

In addition to above, response plots for rotor angle, active power, reactive power, terminal voltage of generators at the substations listed below were plotted:

- Cancarb unit #1 from the City of Medicine Hat's transmission system
- Shepard unit #1 from the Shepard Energy Centre

The transient response voltages were monitored at the following key 240 kV busses:

- Bowmanton 244S substation 240 kV bus
- Elkwater 264S substation 240 kV bus
- Whitla 251S substation 240 kV bus

3.3.1 Contingencies Studied

Transient stability analysis was performed for the Category B contingencies that are listed in Table 2-12.

3.4 Short Circuit Studies

Short-circuit studies were performed for the 2019 SP pre-Project and post-Project scenarios, as well as for the long-term assessment using the 2027 SP post-Project scenario.

A maximum fault level is provided for the substations in the vicinity of the Project assuming normal system operation with all transmission elements in service and all Study Area generators dispatched; three-phase faults and single line to ground faults were simulated; polar coordinates and per unit values was used for reporting the results. Fault levels are provided with currents in kilo-amperes (kA), and positive and zero sequence impedances in per unit (p.u.).

Three-phase faults and single-phase short circuit current levels are reported for the following busses:

- Whitla 255S substation 240 kV bus
- Bowmanton 244S substation 240 kV and 138 kV busses

- ShomRock 1018S substation 240 kV bus

4 Pre-Project System Assessment

This section provides the results for the pre-Project power flow studies. All power flows are based on 138 kV system voltage. The results of the steady state analysis are illustrated by the single line diagrams in Attachment A.

4.1 Power Flow Studies

4.1.1 Scenario 1: 2019 Summer Peak (2019 SP Pre-Project)

No Reliability Criteria violations were observed under Category A or Category B conditions. No POD (low voltage) bus voltage deviations were observed in this scenario under Category B conditions.

4.1.2 Scenario 2: 2019 Summer Light (2019 SL Pre-Project)

No Reliability Criteria violations were observed under Category A or Category B conditions. No POD (low voltage) bus voltage deviations were observed in this scenario under Category B conditions.

5 Connection Alternatives

5.1 Overview

The AESO, in consultation with the TFO and the market participant, identified and examined one connection alternative to respond to the market participant's request for system access service. Details of this alternative are presented below.

5.2 Connection Alternative Examined

The following alternative was studied.

Alternative 1: Radial connection to the Whitla 251S substation

This alternative includes the following developments:

- Modify the existing Whitla 251S substation, including adding one 240 kV circuit breaker.
- Add a 240 kV circuit to connect the proposed Facility to the Whitla 251S substation using a radial configuration
- Add or modify associated equipment as required to for the above transmission developments.

6 Post-Project System Assessment

This section provides the results of the post-Project power flow and transient stability studies for Alternative 1.

6.1 Power Flow Studies

This section provides the results for the post-Project power flow studies. All power flows are based on 138 kV system voltage. The results of the steady state analysis are illustrated by the single line diagrams in Attachment B.

6.1.1 Scenario 3: 2019 Summer Peak (2019 SP Pre-Project)

No Reliability Criteria violations were observed under Category A or Category B conditions. No POD (low voltage) bus voltage deviations were observed in this scenario under Category B conditions.

6.1.2 Scenario 4: 2019 Summer Light (2019 SL Pre-Project)

No Reliability Criteria violations were observed under Category A or Category B conditions. No POD (low voltage) bus voltage deviations were observed in this scenario under Category B conditions.

6.2 Transient Stability

Transient stability studies were performed on the 2019 SP and 2019 SL post-Project scenarios for the selected Category B contingencies shown in Table 2-12. The transient stability results plots are provided in Attachment C.

No transient stability issues were identified for the Category B contingencies studied in the 2019 SP and 2019 SL post-Project scenarios.

6.2.1 Scenario 3: 2019 Summer Peak (2019 SP Pre-Project)

The summary of transient stability analysis is shown in Table 6-1.

Table 6-1: Summary of Transient Stability Results for Scenario 3 (2019 SP Post-Project)

Studied Contingency (System Element Lost)	Three-Phase Fault Location	Transient Stability Performance
983L (Bowmanton 244S to Whitla 251S)	Elkwater 264S	Stable
983L (Elkwater 264S to Whitla 251S)	Whitla 251S	Stable
964L (Bowmanton 244S to Whitla 251S)	Whitla 251S	Stable
964L (Bowmanton 244S to Whitla 251S)	Bowmanton 244S	Stable
1034L (Bowmanton 244S to Cassils 324S)	Cassils 324S	Stable
1034L (Bowmanton 244S to Cassils 324S)	Bowmanton 244S	Stable
1035L (Bowmanton 244S to Newell 2075S)	Newell 2075S	Stable
1035L (Bowmanton 244S to Newell 2075S)	Bowmanton 244S	Stable
892L (Suffield 895S to Bowmanton 244S)	Suffield 895S	Stable
892L (Suffield 895S to Bowmanton 244S)	Bowmanton 244S	Stable
676L (Bowmanton 244S to Bullshead 523S)	Bullshead 523S	Stable
676L (Bowmanton 244S to Bullshead 523S)	Bowmanton 244S	Stable
675L (Bowmanton 244S to Al Rothbauer 321S)	Al Rothbauer 321S	Stable
675L (Bowmanton 244S to Al Rothbauer 321S)	Bowmanton 244S	Stable
879L (Bowmanton 244S to Burdett 368S)	Burdett 368S	Stable
879L (Bowmanton 244S to Burdett 368S)	Bowmanton 244S	Stable
658L/674L (Bowmanton 244S to Cypress 562S)	Cypress 562S	Stable
658L/674L (Bowmanton 244S to Cypress 562S)	Bowmanton 244S	Stable

6.2.2 Scenario 4: 2019 Summer Light (2019 SL Pre-Project)

The summary of transient stability analysis was shown in Table 6-2.

Table 6-2: Summary of Transient Stability Results for Scenario 4 (2019 SL Post-Project)

Studied Contingency (System Element Lost)	Three-Phase Fault Location	Transient Stability Performance
983L (Bowmanton 244S to Whitla 251S)	Elkwater 264S	Stable
983L (Elkwater 264S to Whitla 251S)	Whitla 251S	Stable
964L (Bowmanton 244S to Whitla 251S)	Whitla 251S	Stable
964L (Bowmanton 244S to Whitla 251S)	Bowmanton 244S	Stable
1034L (Bowmanton 244S to Cassils 324S)	Cassils 324S	Stable
1034L (Bowmanton 244S to Cassils 324S)	Bowmanton 244S	Stable
1035L (Bowmanton 244S to Newell 2075S)	Newell 2075S	Stable
1035L (Bowmanton 244S to Newell 2075S)	Bowmanton 244S	Stable
892L (Suffield 895S to Bowmanton 244S)	Suffield 895S	Stable
892L (Suffield 895S to Bowmanton 244S)	Bowmanton 244S	Stable

Studied Contingency (System Element Lost)	Three-Phase Fault Location	Transient Stability Performance
676L (Bowmanton 244S to Bullshead 523S)	Bullshead 523S	Stable
676L (Bowmanton 244S to Bullshead 523S)	Bowmanton 244S	Stable
675L (Bowmanton 244S to Al Rothbauer 321S)	Al Rothbauer 321S	Stable
675L (Bowmanton 244S to Al Rothbauer 321S)	Bowmanton 244S	Stable
879L (Bowmanton 244S to Burdett 368S)	Burdett 368S	Stable
879L (Bowmanton 244S to Burdett 368S)	Bowmanton 244S	Stable
658L/674L (Bowmanton 244S to Cypress 562S)	Cypress 562S	Stable
658L/674L (Bowmanton 244S to Cypress 562S)	Bowmanton 244S	Stable

7 Short-Circuit Analysis

7.1 Pre-Project

Table 7-1 provides the 2019 SP pre-Project short circuit levels.³

Table 7-1: Summary of Short-Circuit Current Levels – 2019 SP Pre-Project

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (pu) ^a	3-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance ($R1+jX1$) (pu)	1-Φ Fault (kA)	Zero Sequence Thevenin Source Impedance ($R0+jX0$) (pu)
Bowmanton 244S	138	1.04	10.2	0.010+0.046j	8.5	0.016+0.074j
Bowmanton 244S	240	1.05	6.2	0.008+0.045j	5.3	0.016+0.069j
Whitla 251S	240	1.06	3.5	0.011+0.083j	2.4	0.045+0.183j

Note: ^aper unit (pu) quantities are on 100 MVA and base voltages.

7.2 Post-Project

Table 7-2 provides the 2019 SP post-Project short circuit levels. Table 7-3 provides the 2027 SP post-Project short circuit levels.

The post-Project short-circuit fault levels were not significantly higher than pre-Project levels. The long term short circuit levels were found to be within the designed capabilities of the nearby facilities.

Table 7-2: Summary of Short-Circuit Current Levels – 2019 SP Post-Project

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (pu)	3-Φ Fault (kA)	Positive Sequence Thevenin Source Impedance ($R1+jX1$) (pu)	1-Φ Fault (kA)	Zero Sequence Thevenin Source Impedance ($R0+jX0$) (pu)
Bowmanton 244S	138	1.02	10.5	0.009+0.044j	9.3	0.012+0.061j
Bowmanton 244S	240	1.06	6.3	0.007+0.045j	5.9	0.012+0.054j
Whitla 251S	240	1.05	3.7	0.009+0.076j	3.8	0.010+0.070j

³ Short-circuit current studies were based on modeling information provided to the AESO by third parties. The authenticity of the modeling information has not been validated. Fault levels could change as a result of system developments, new customer connections, or additional generation in the area. It is recommended that these changes be monitored and fault levels reviewed to ensure that the fault levels are within equipment operating limits. The information provided in this study should not be used as the sole source of information for electrical equipment specifications or for the design of safety-grounding systems.

ShomRock 1018S	240	1.05	3.5	0.010+0.082j	3.8	0.006+0.062j
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Table 7-3: Summary of Short-Circuit Current Levels – 2027 SP Post-Project

Substation Name and Number	Base Voltage (kV)	Pre-Fault Voltage (pu)	3- Φ Fault (kA)	Positive Sequence Thevenin Source Impedance ($R1+jX1$) (pu)	1- Φ Fault (kA)	Zero Sequence Thevenin Source Impedance ($R0+jX0$) (pu)
Bowmanton 244S	138	1.03	11.4	0.007+0.037j	11.5	0.005+0.036j
Bowmanton 244S	240	1.03	8.3	0.003+0.030j	9.7	0.002+0.017j
Whitla 251S	240	1.03	4.7	0.004+0.052j	5.9	0.002+0.021j
ShomRock 1018S	240	1.03	4.3	0.005+0.058j	5.3	0.002+0.024j

8 Project Dependencies

The Project does not require the completion of any other AESO plans to expand or enhance the transmission system prior to connection.

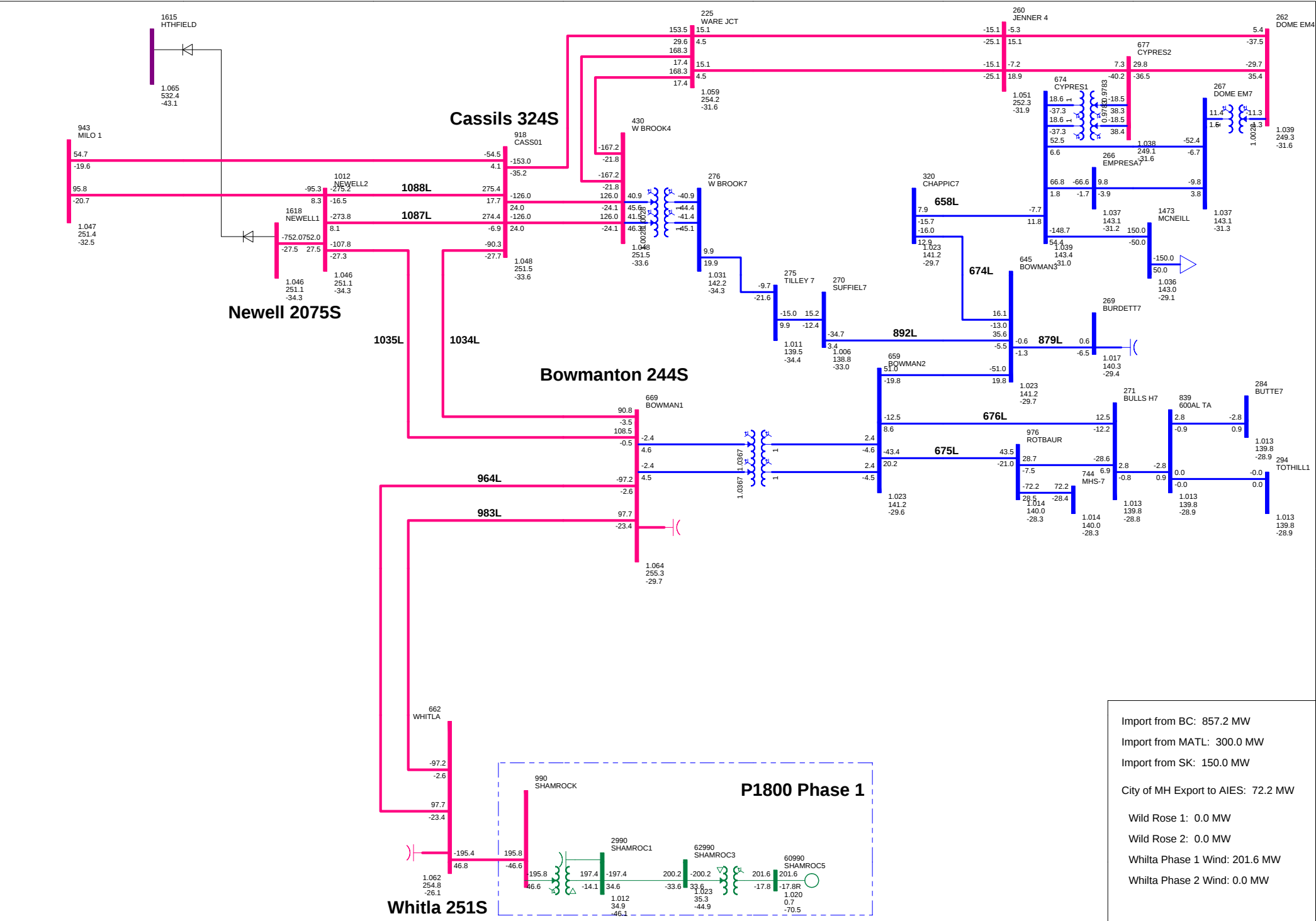
9 Conclusions and Recommendations

Based on the study results, Alternative 1 is technically viable. The connection assessment did not identify any system performance issues in the pre-Project or post-Project scenarios. The connection of the Project with Alternative 1 will not adversely affect the performance of the AIES.

It is recommended to proceed with the Project using Alternative 1 as AESO's preferred option to respond to the market participant's request for system access service. Alternative 1 involves modifying the existing Whitla 251S substation, including adding a 240 kV circuit breaker and adding a 240 kV circuit to connect the Facility to the Whitla 251S substation in a radial configuration.

A minimum rating of 340 MVA is recommended for the new 240 kV circuit. This will meet the market participant's total requested Rate STS contract capacity of 298.8 MW, which includes the requested Rate STS contract capacity associated with the Project (201.6 MW), and the Rate STS contract capacity increase of 97.2 MW associated with the future expansion to the Facility.

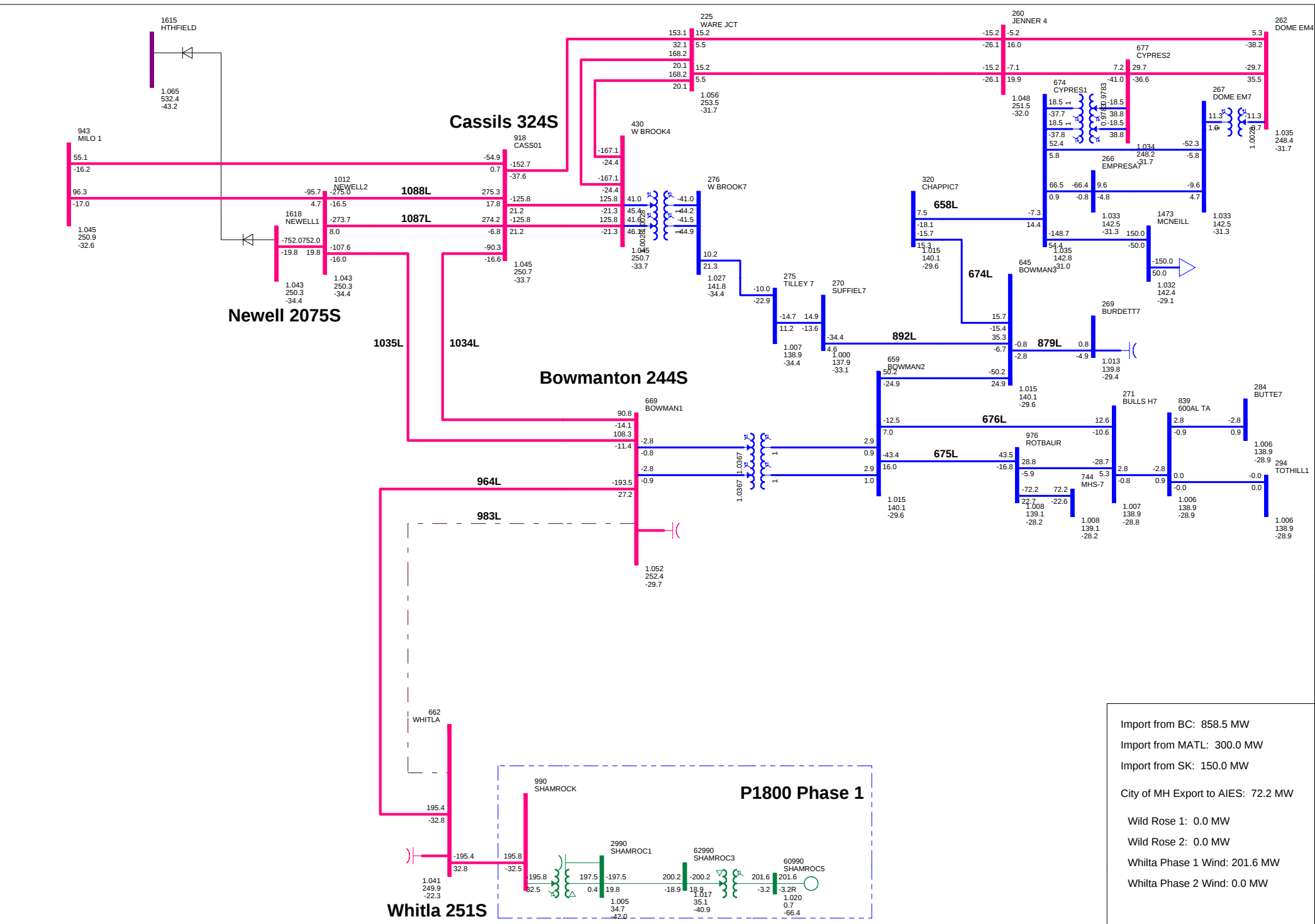
Attachment A: Pre-Project Power Flow Single Line Diagrams

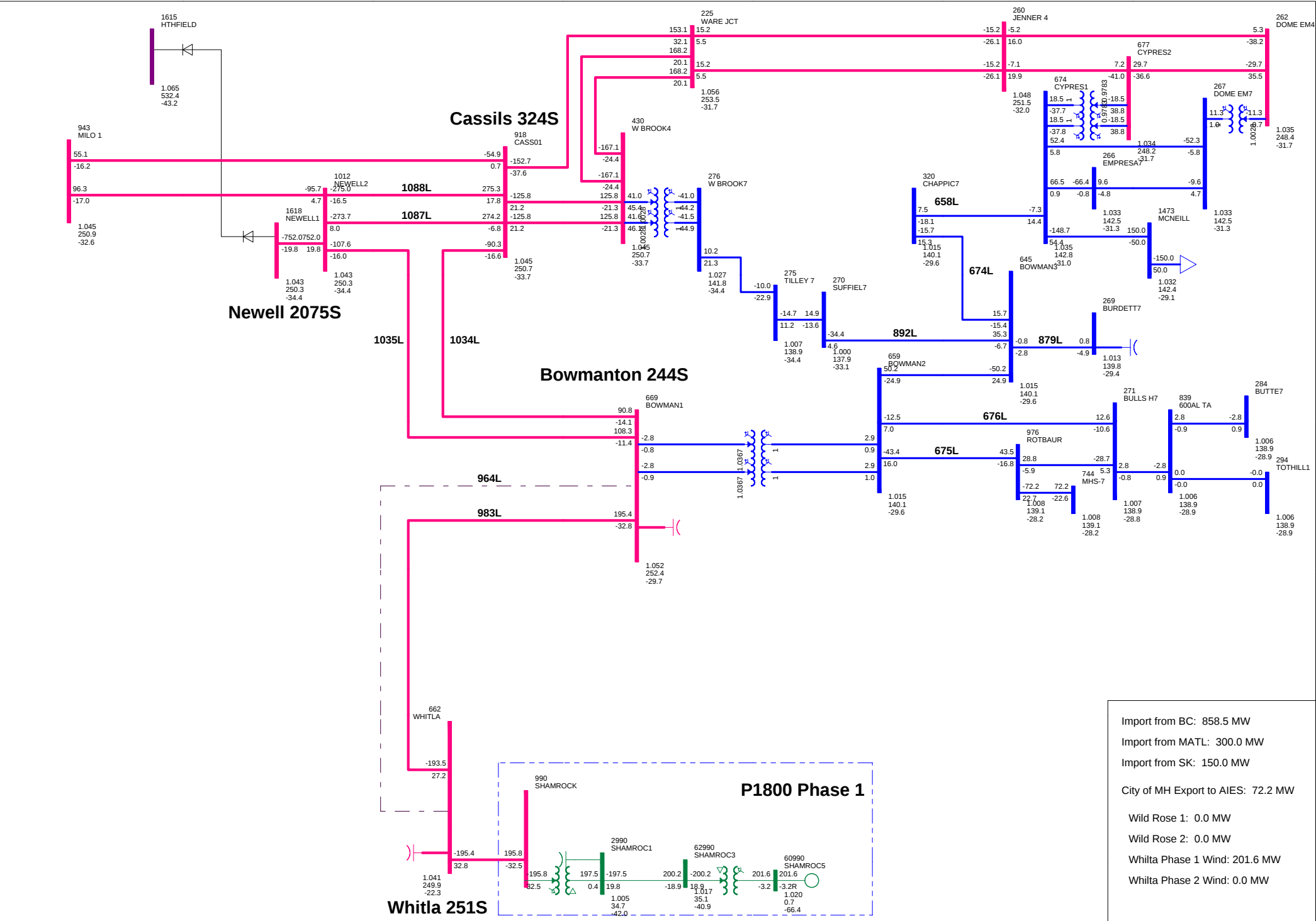


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2019 SUMMER PEAK (POST-PHASE 1 CONNECTION)
N-0: NO CONTINGENCY
FIG B1-1
FRI, MAY 04 2018 13:40

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.100OV 0.950UV
kV: <=50.000 <=100.000 <=180.000 <=280.000 <=600.000 >600.000





Capital Power Whitla Wind Power Facility
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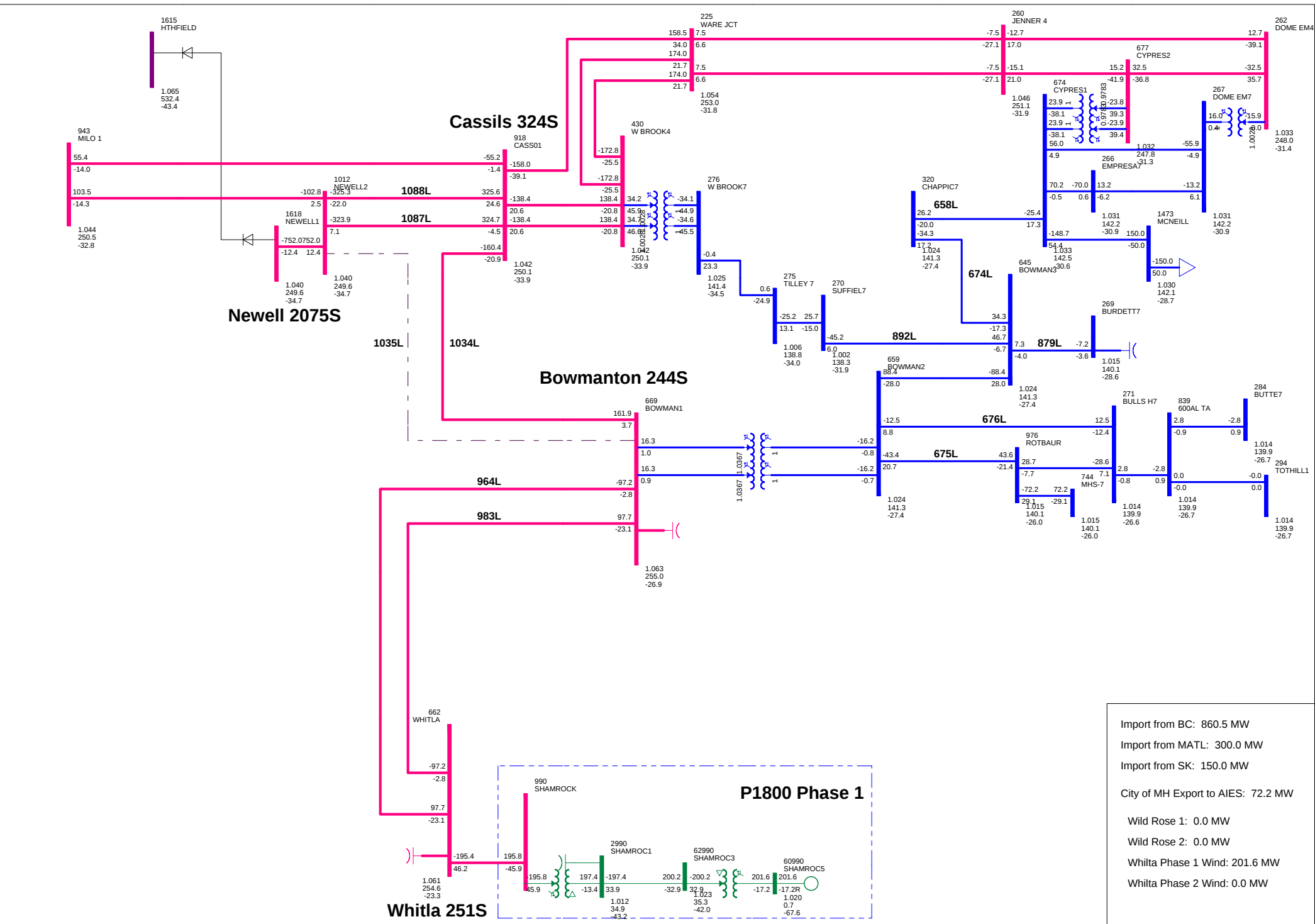
2019 SUMMER PEAK (POST-PHASE 1 CONNECTION)
N-1: 964L (BOWMANTON 244S TO WHITLA 251S)
FIG B1-3
FRI, MAY 04 2018 13:40

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.100OV 0.950UV
kV: <=50.000 <=100.000 <=180.000 <=280.000 <=600.000 >600.000

Import from BC: 858.5 MW
Import from MATL: 300.0 MW
Import from SK: 150.0 MW

City of MH Export to AIES: 72.2 MW

Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whitla Phase 1 Wind: 201.6 MW
Whitla Phase 2 Wind: 0.0 MW



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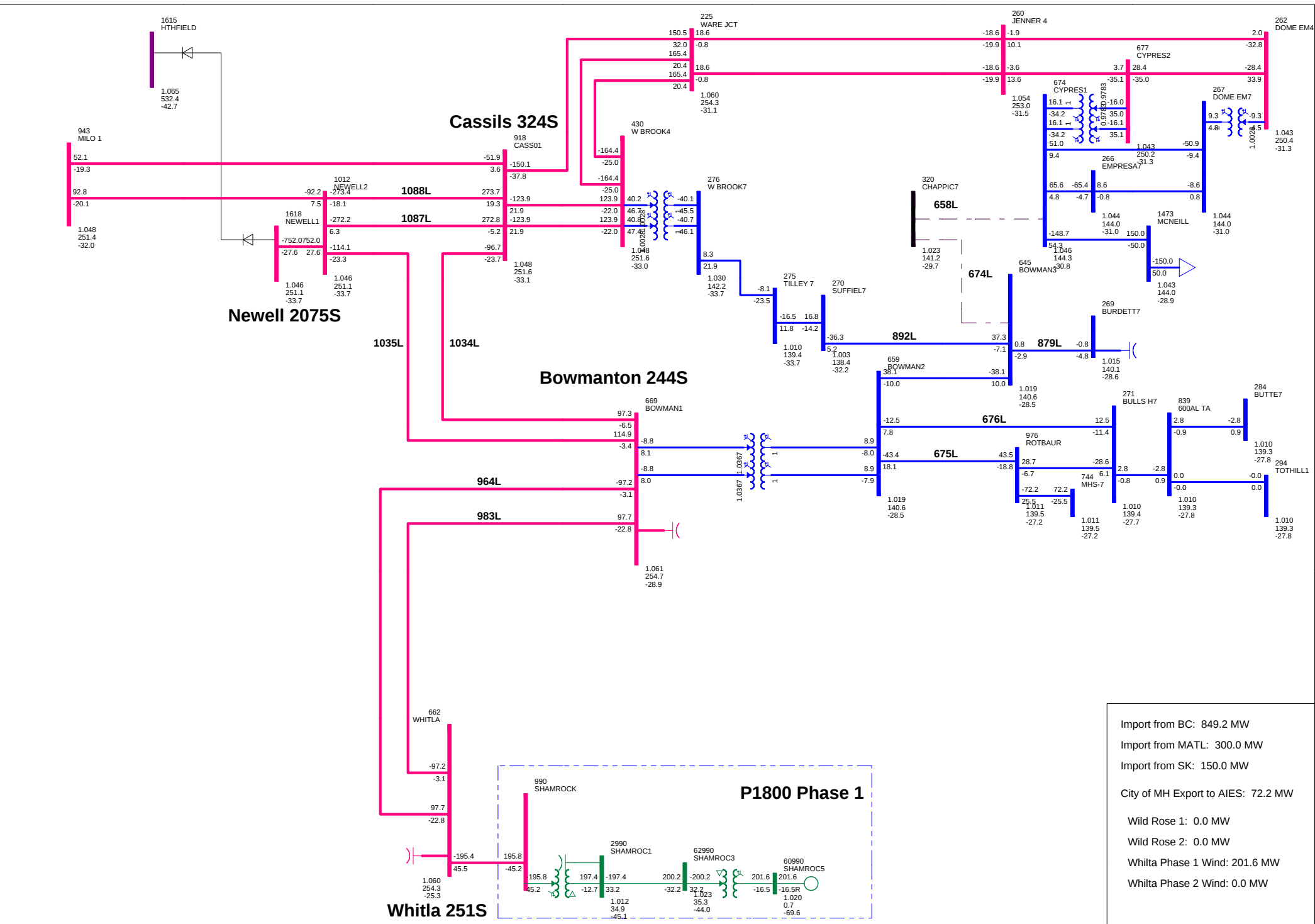
2019 SUMMER PEAK (POST-PHASE 1 CONNECTION)
N-1: 1035L (BOWMANTON 244S TO NEWELL 2075S)
FIG B1-5
FRI, MAY 04 2018 13:40

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.100OV 0.950UV
kV: <=50.000 <=100.000 <=180.000 <=280.000 <=600.000 >600.000

Import from BC: 860.5 MW
Import from MATL: 300.0 MW
Import from SK: 150.0 MW

City of MH Export to AIES: 72.2 MW

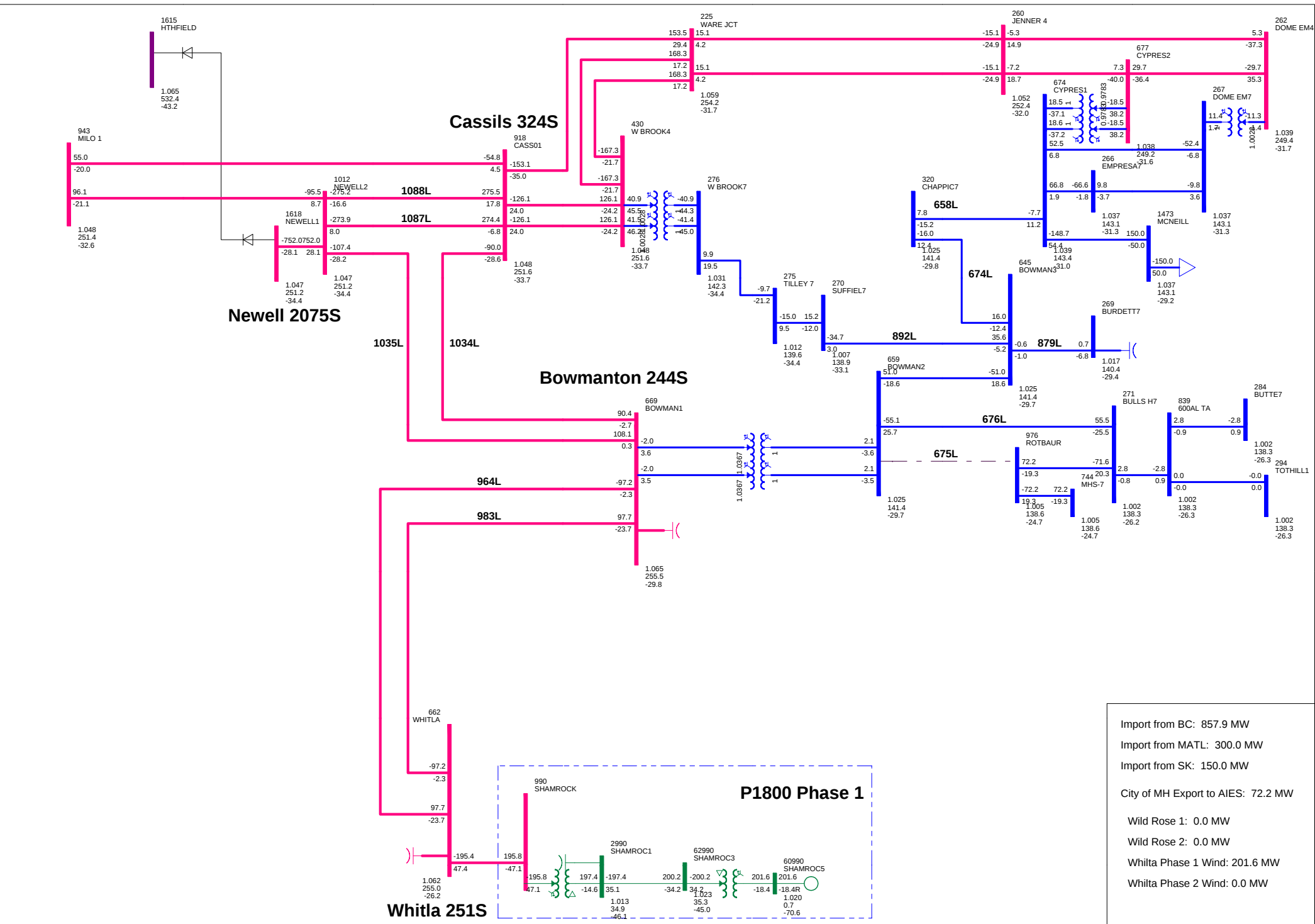
Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whilta Phase 1 Wind: 201.6 MW
Whilta Phase 2 Wind: 0.0 MW

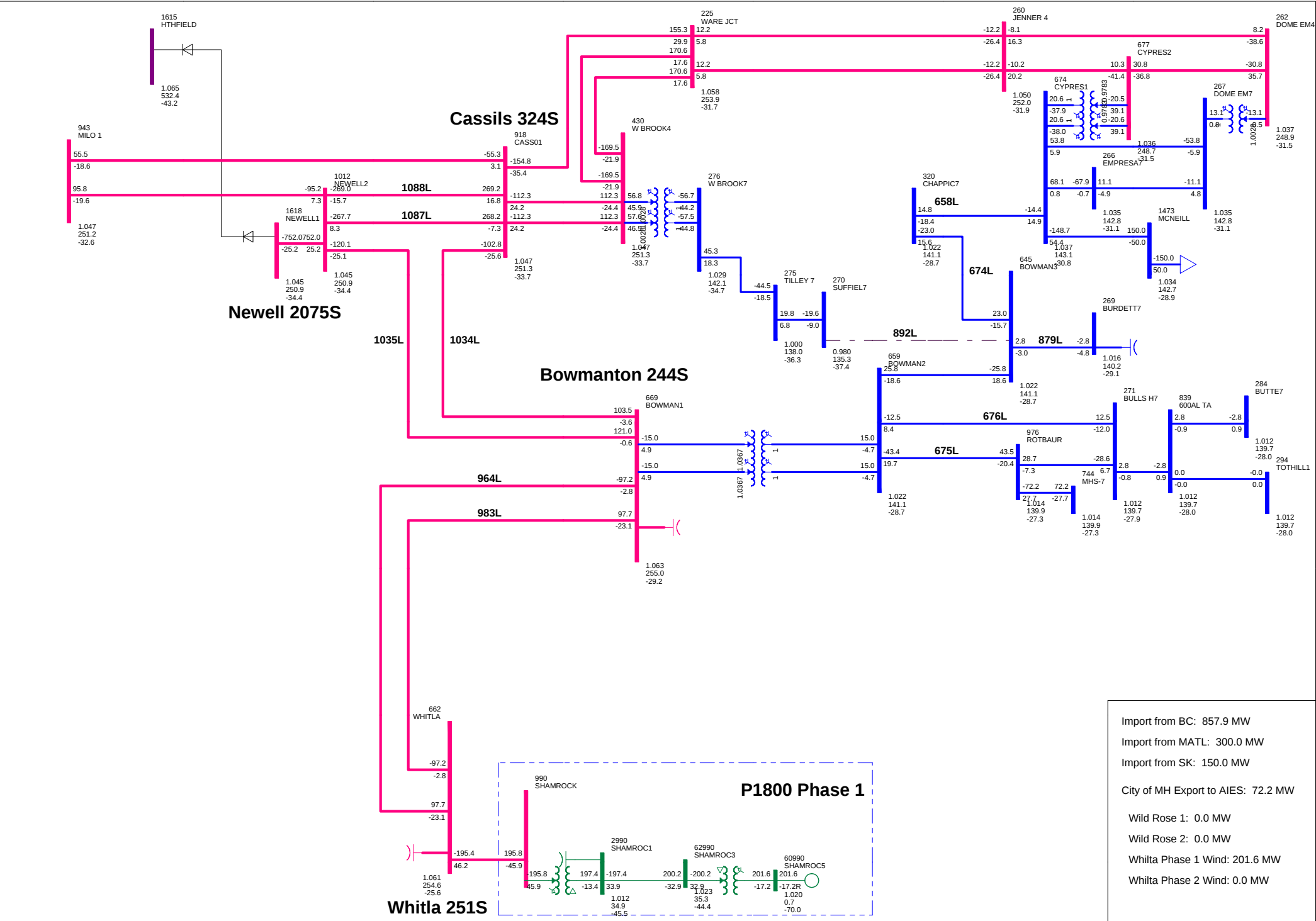


Import from BC: 849.2 MW
Import from MATL: 300.0 MW
Import from SK: 150.0 MW

City of MH Export to AIES: 72.2 MW

Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whitla Phase 1 Wind: 201.6 MW
Whitla Phase 2 Wind: 0.0 MW

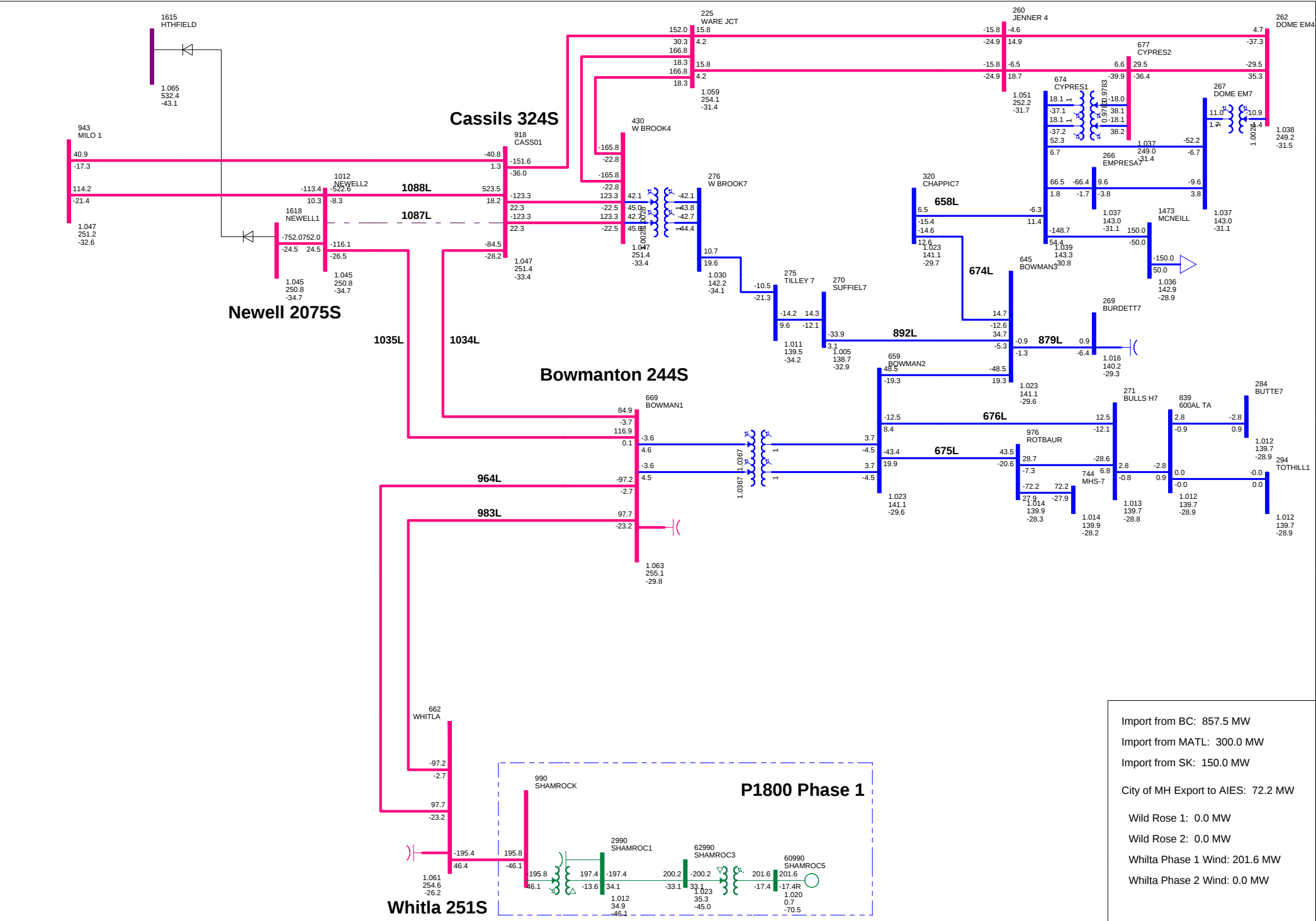




Import from BC: 857.9 MW
Import from MATL: 300.0 MW
Import from SK: 150.0 MW

City of MH Export to AIES: 72.2 MW

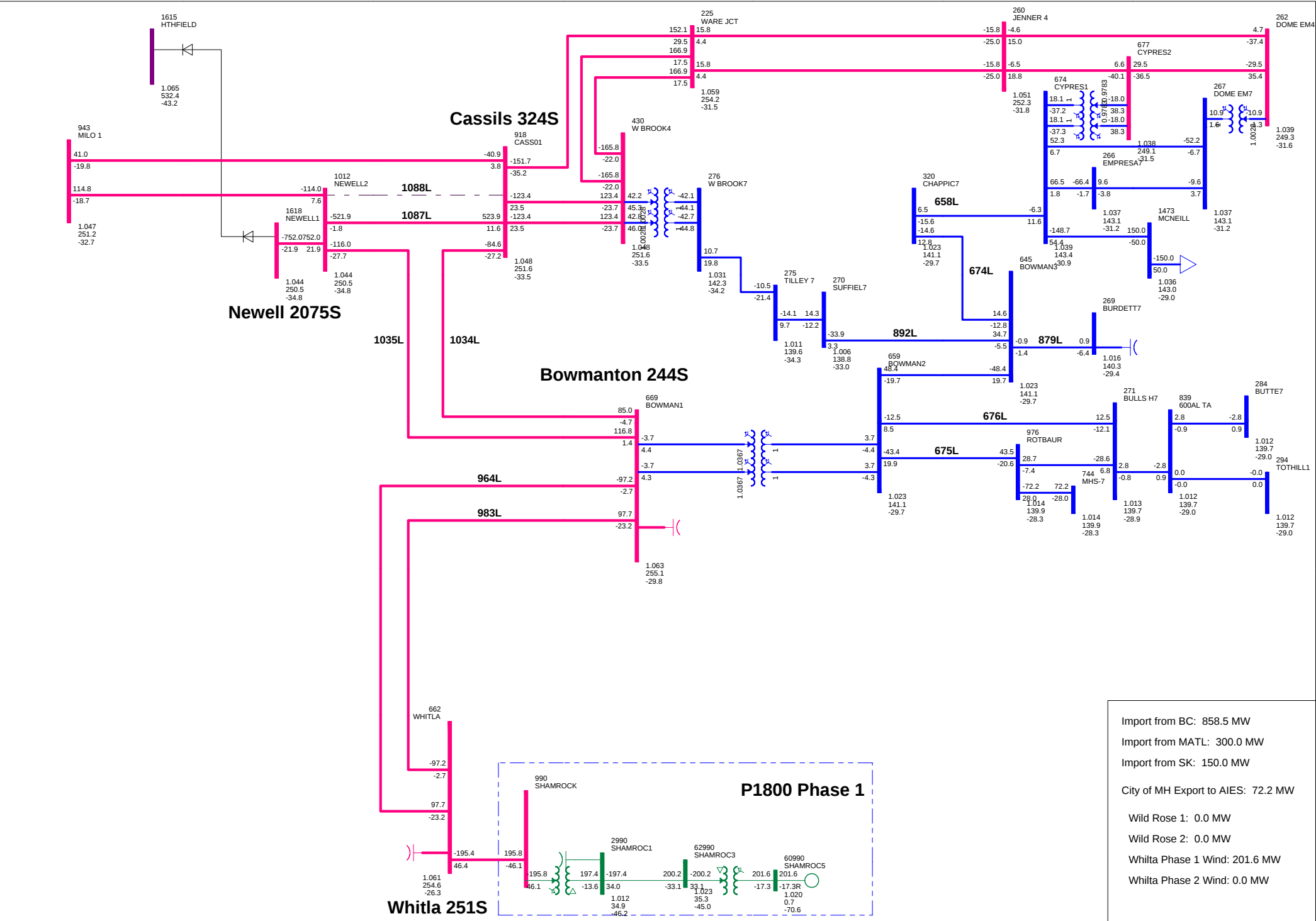
Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whilta Phase 1 Wind: 201.6 MW
Whilta Phase 2 Wind: 0.0 MW

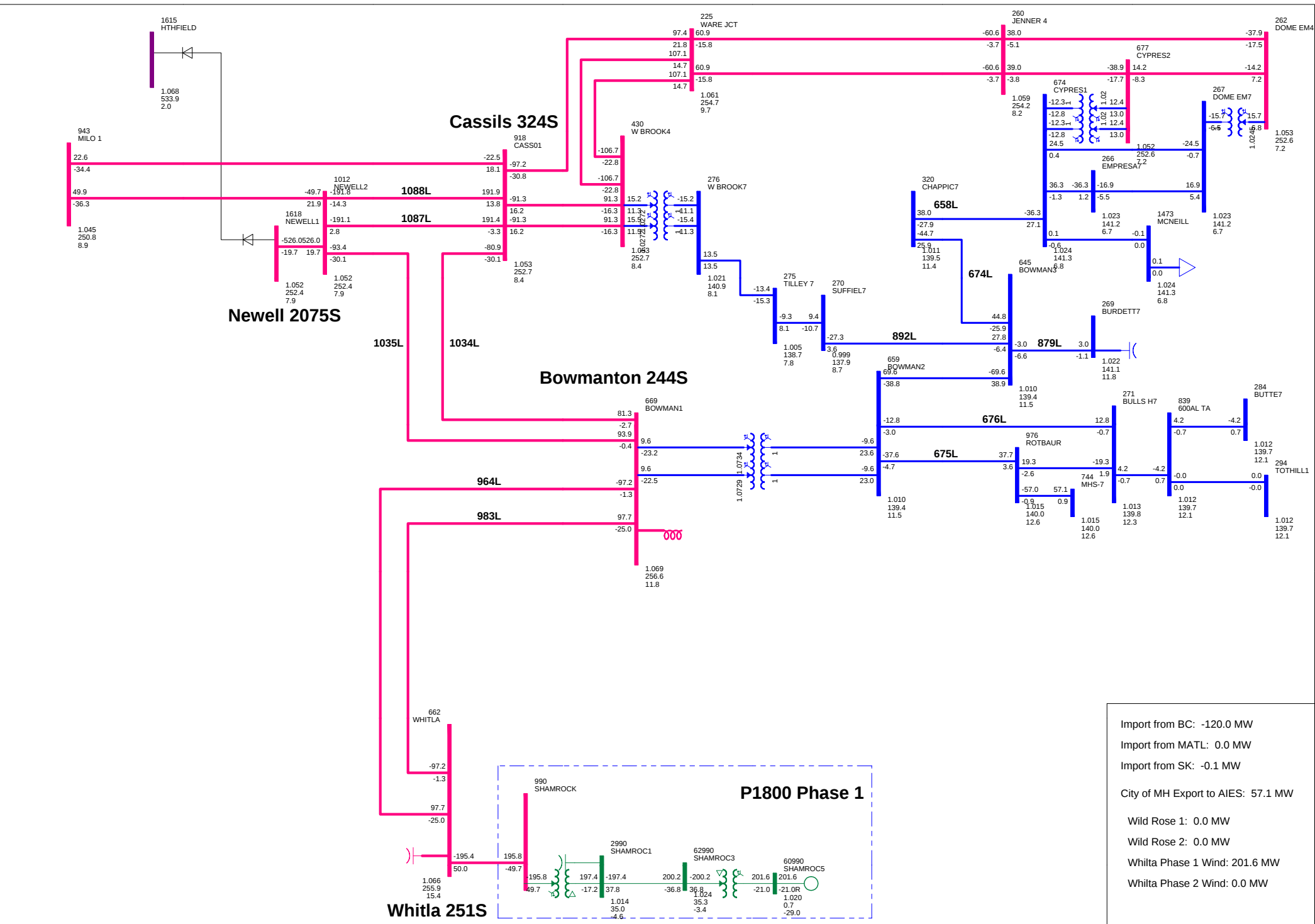


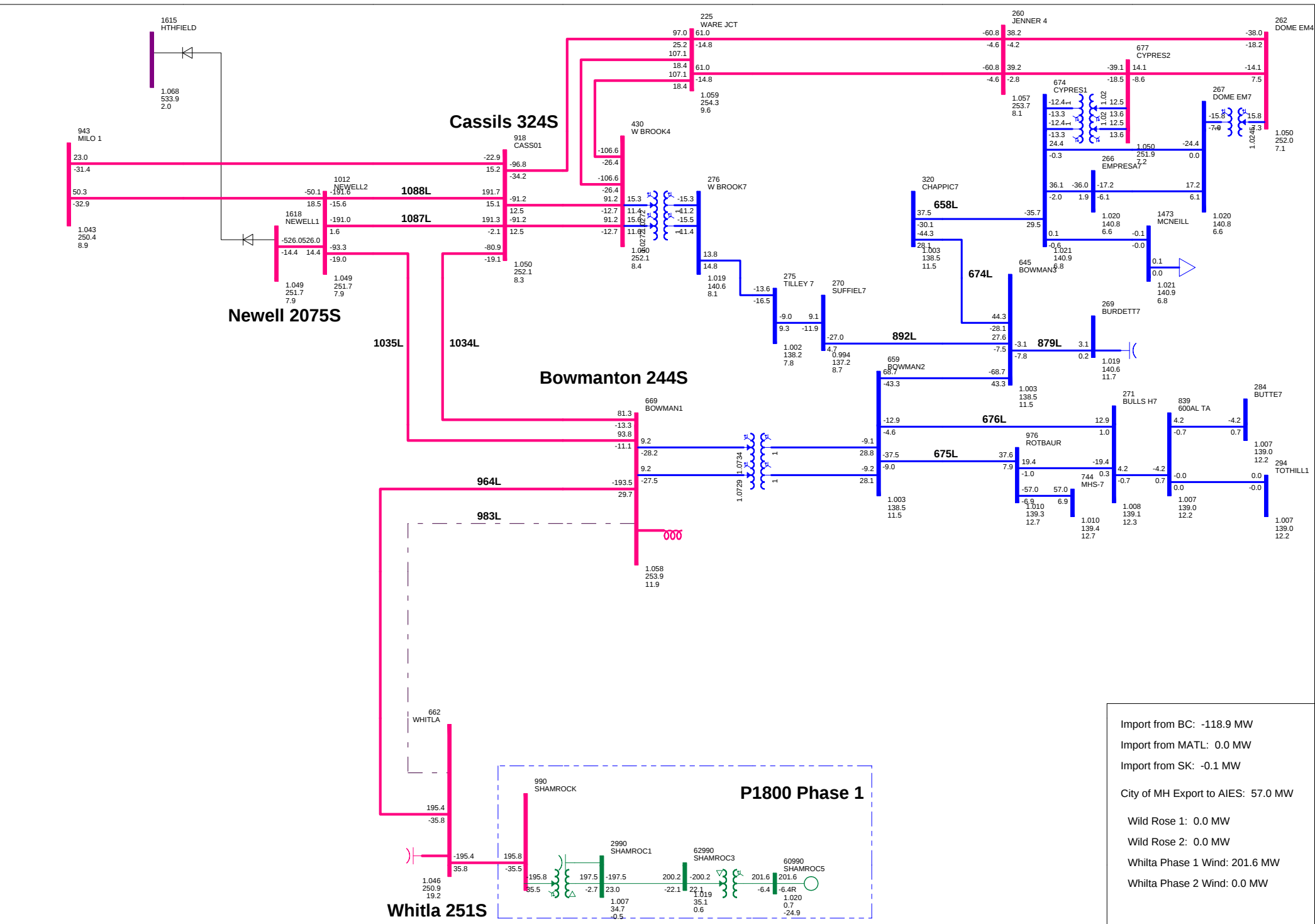
Capital Power Whitla Wind Power Facility
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2019 SUMMER PEAK (POST-PHASE 1 CONNECTION)
N-1: 1087L (NEWELL A20175S TO CASSILS 324S)
FIG B1-11
FRI, MAY 04 2018 13:40

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1:100OV 0.950UV
kV: <=50.000 <=100.000 <=180.000 <=280.000 <=600.000 >600.000







Import from BC: -118.9 MW
Import from MATL: 0.0 MW
Import from SK: -0.1 MW

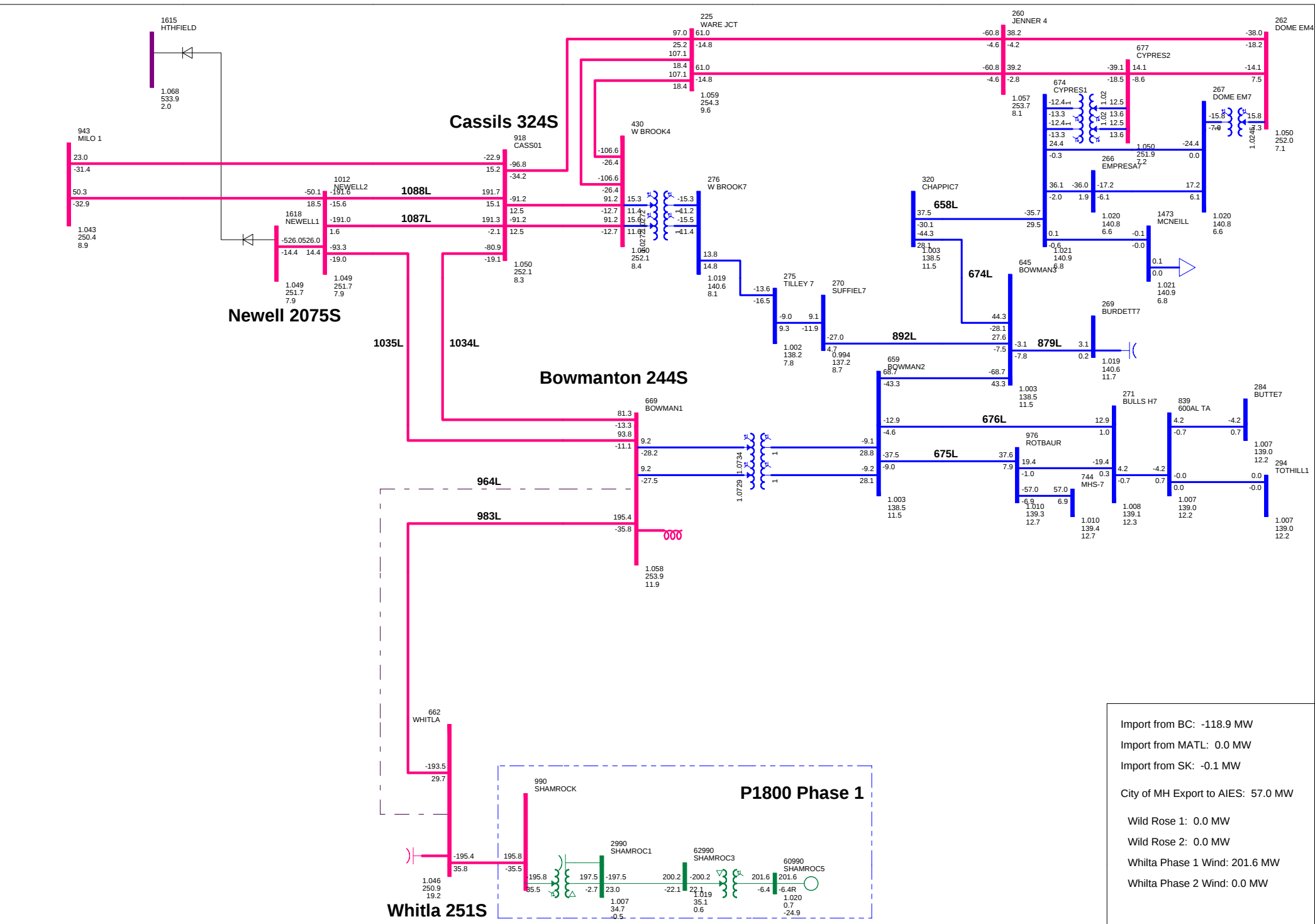
City of MH Export to AIES: 57.0 MW

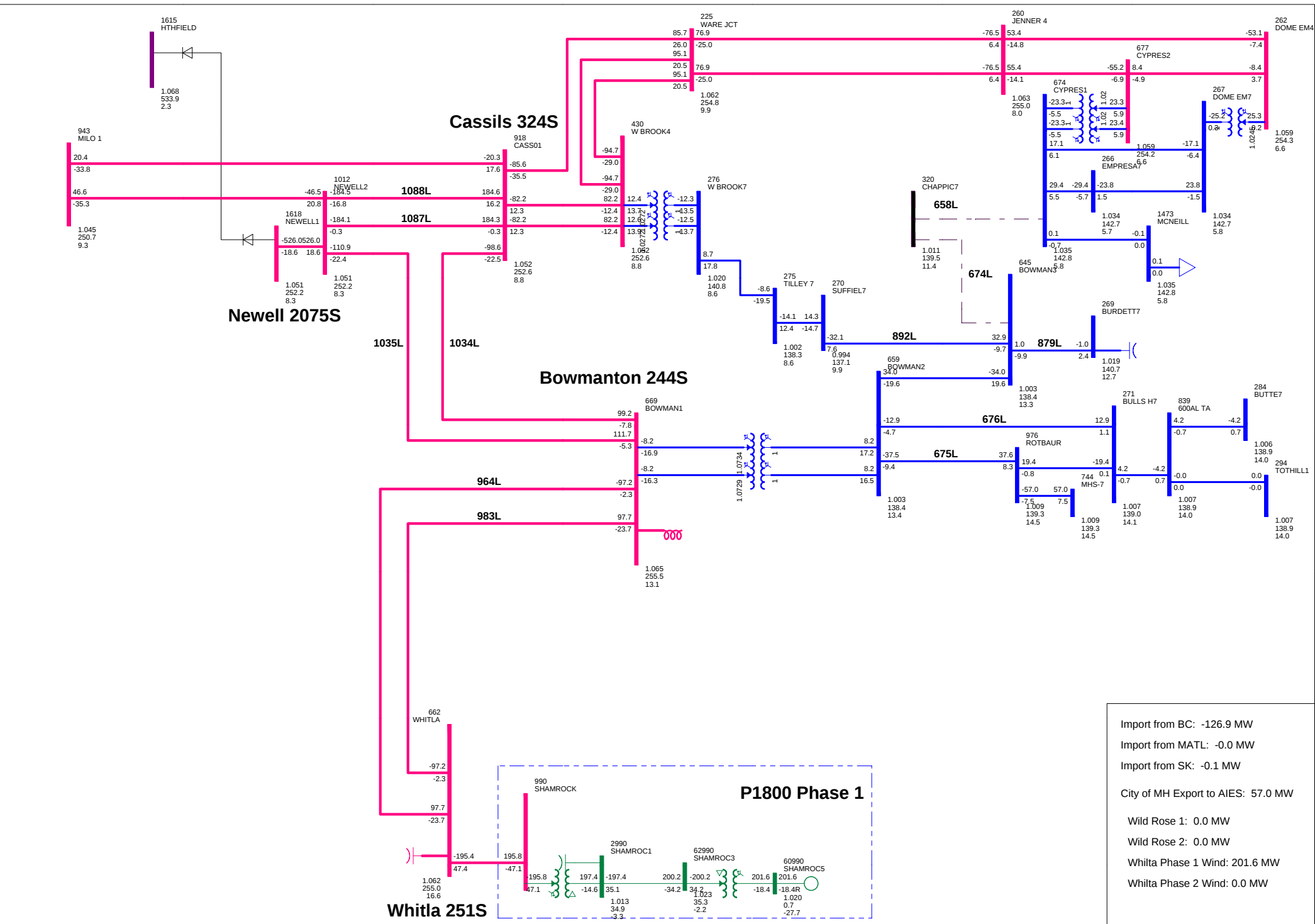
Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whilta Phase 1 Wind: 201.6 MW
Whilta Phase 2 Wind: 0.0 MW

Capital Power Whitla Wind Power Facility
AESO Project Number: P1800

2019 SUMMER LIGHT (POST-PHASE 1 CONNECTION)
N-1: 983L (BOWMANTON 244S TO WHITLA 251S)
FIG B2-2
FRI, MAY 04 2018 13:40

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.100OV 0.950UV
kV: <=50.000 <=100.000 <=180.000 <=280.000 <=600.000 >600.000





Capital Power Whitla Wind Power Facility
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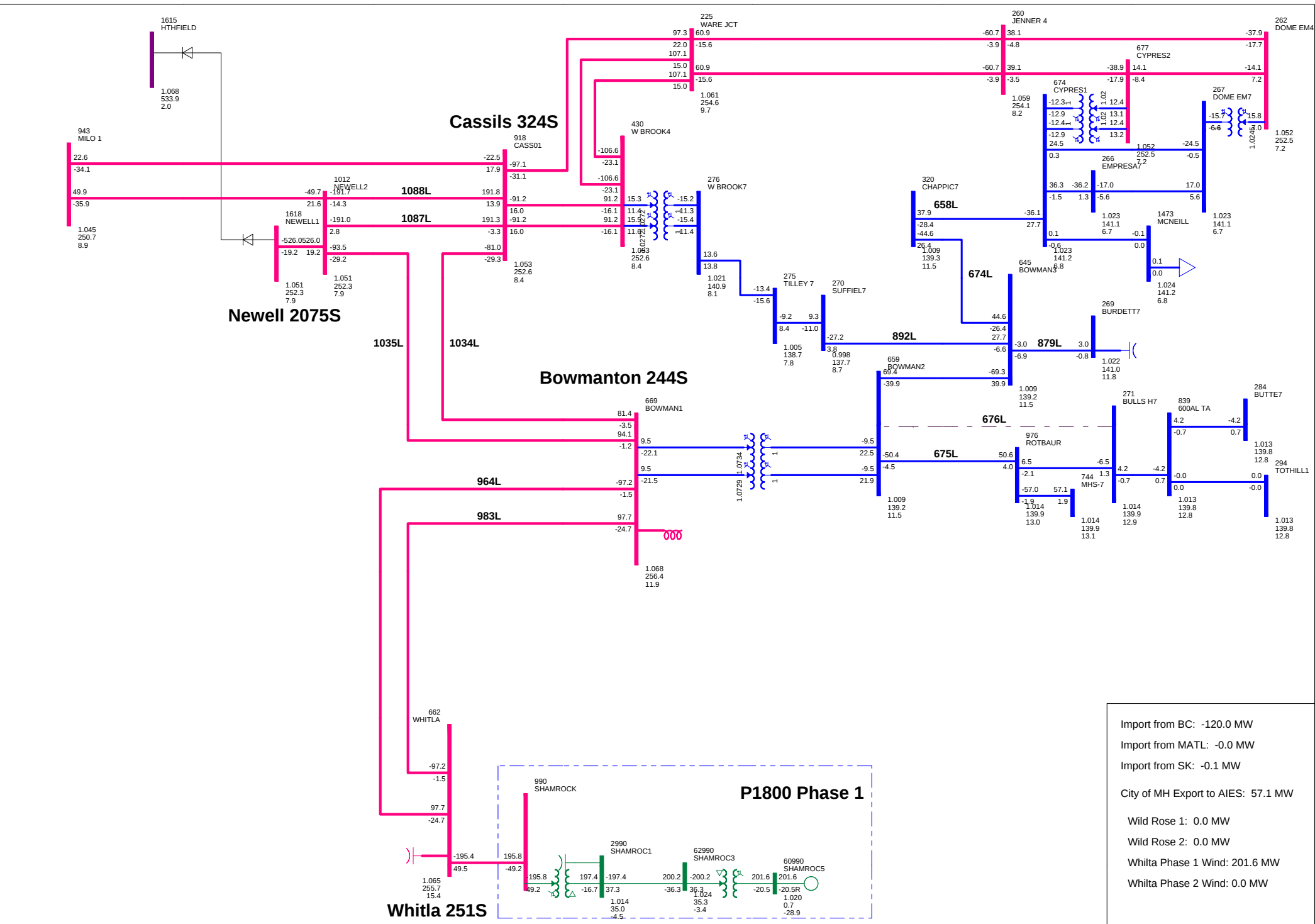
2019 SUMMER LIGHT (POST-PHASE 1 CONNECTION)
N-1: 674L_658L (BOWMANTON 244S TO CYPRESS 562S)
FIG B2-6
FRI, MAY 04 2018 13:41

Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.100OV 0.950UV
kV: <=50.000 <=100.000 <=180.000 <=280.000 <=600.000 >600.000

Import from BC: -126.9 MW
Import from MATL: -0.0 MW
Import from SK: -0.1 MW

City of MH Export to AIES: 57.0 MW

Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whitla Phase 1 Wind: 201.6 MW
Whitla Phase 2 Wind: 0.0 MW



Capital Power Whitla Wind Power Facility
AESO Project Number: P1800

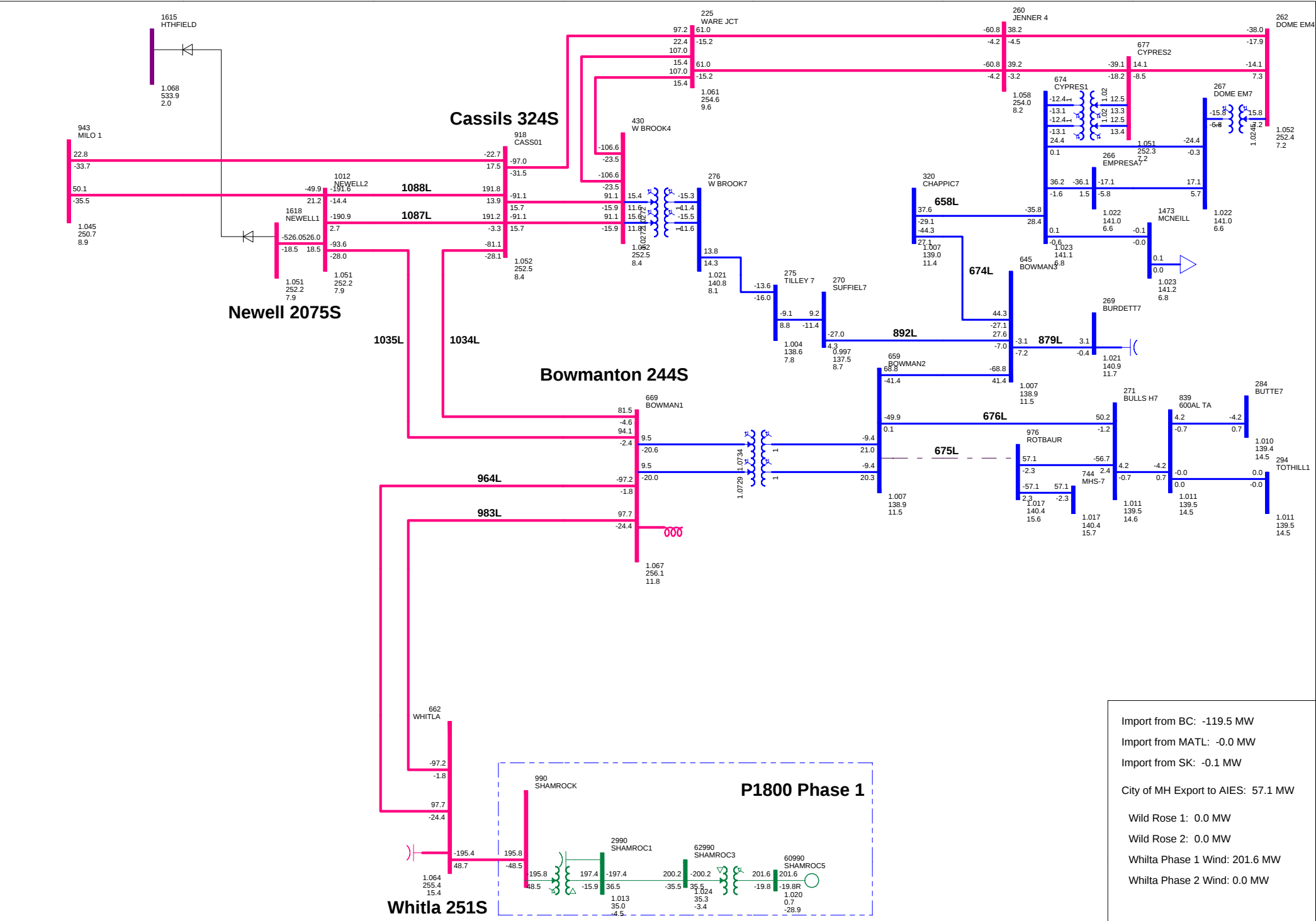
2019 SUMMER LIGHT (POST-PHASE 1 CONNECTION)
N-1: 676L (BOWMANTON 244S TO BULLSHEAD 523S)
FIG B2-7
FRI, MAY 04 2018 13:41

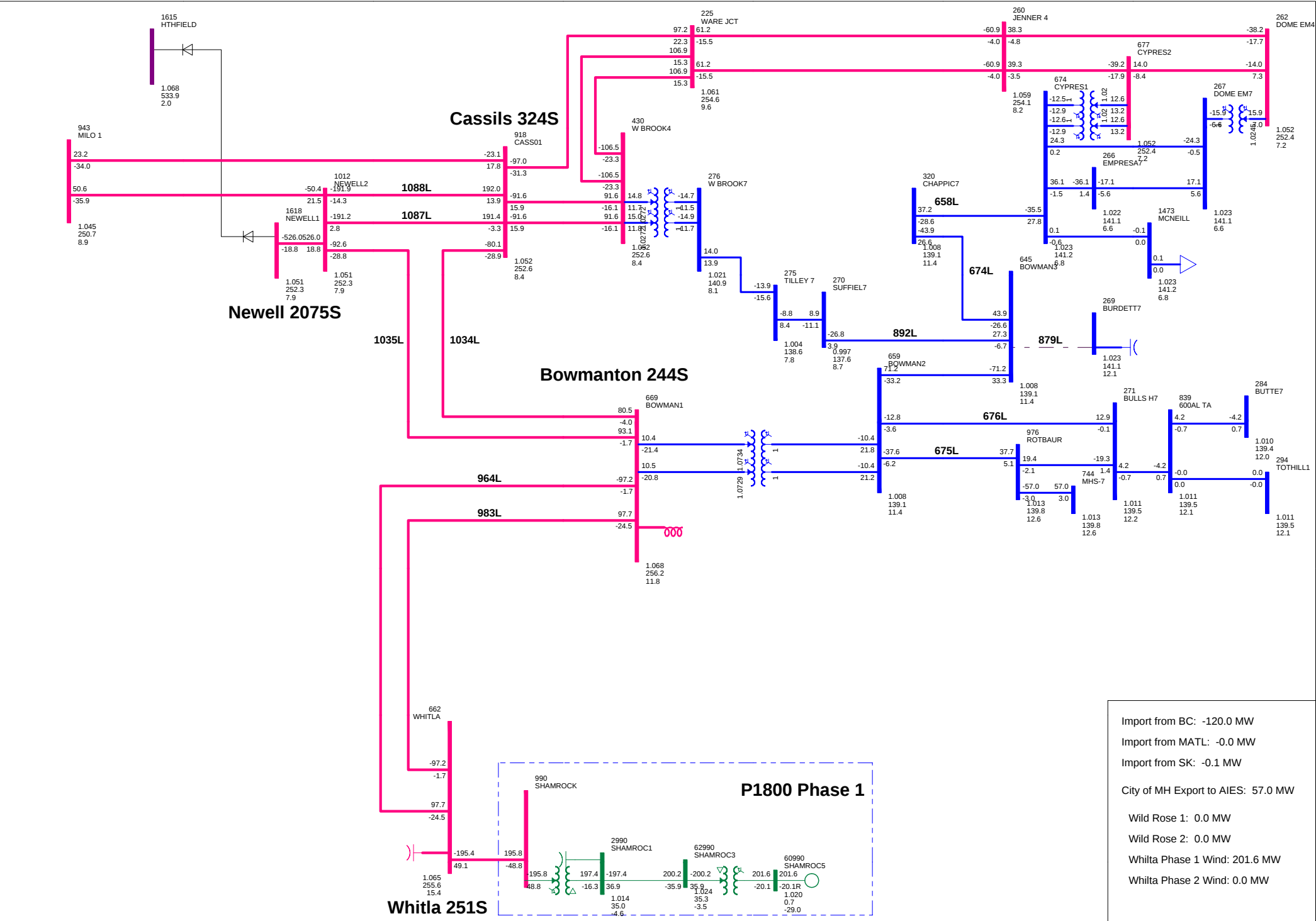
Bus - Voltage (kV/pu)/Angle
Branch - MW/Mvar
Equipment - MW/Mvar
100.0%Rate A
1.100OV 0.950UV
kV: <=50.000 <=100.000 <=180.000 <=280.000 <=600.000 >600.000

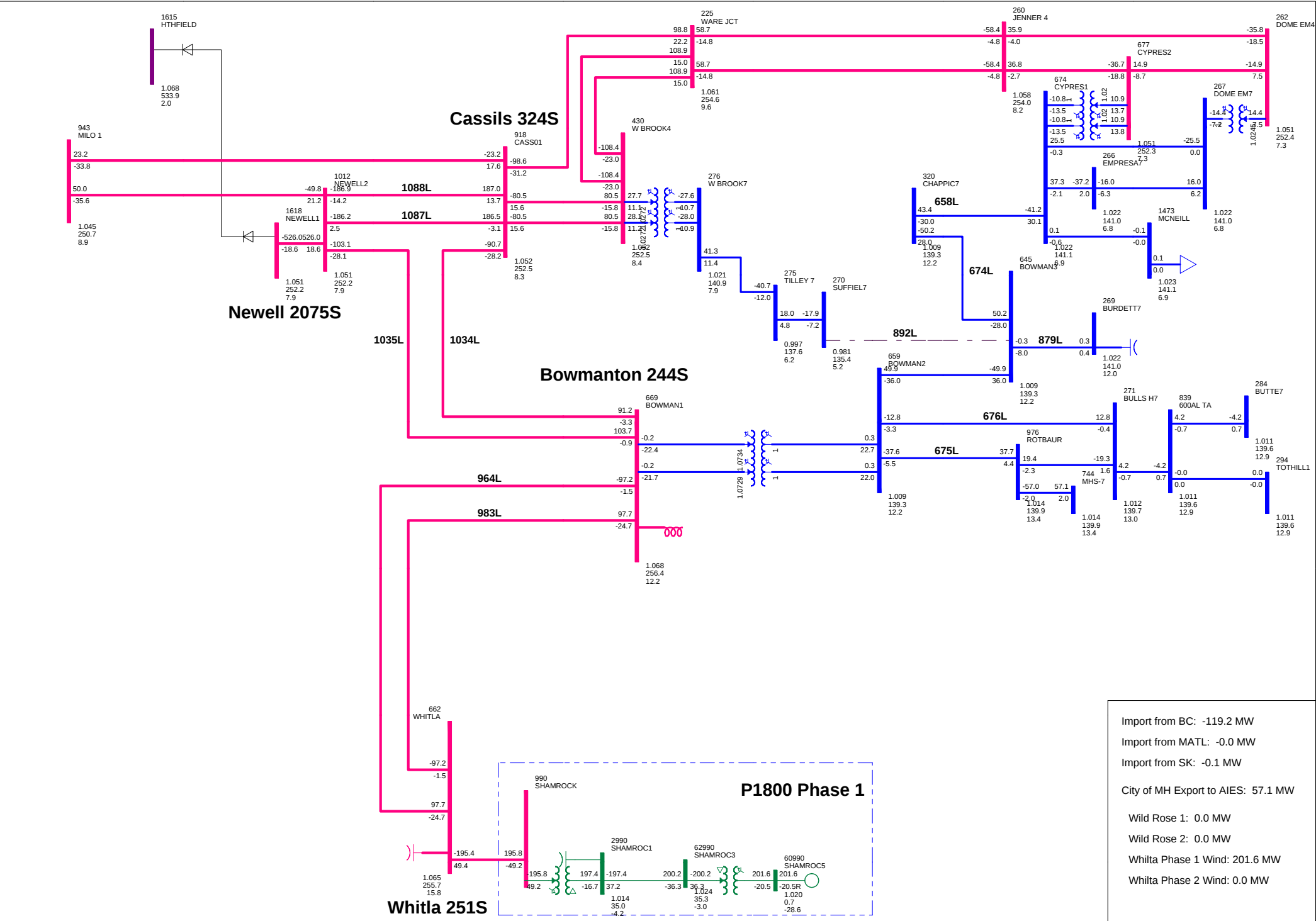
Import from BC: -120.0 MW
Import from MATL: -0.0 MW
Import from SK: -0.1 MW

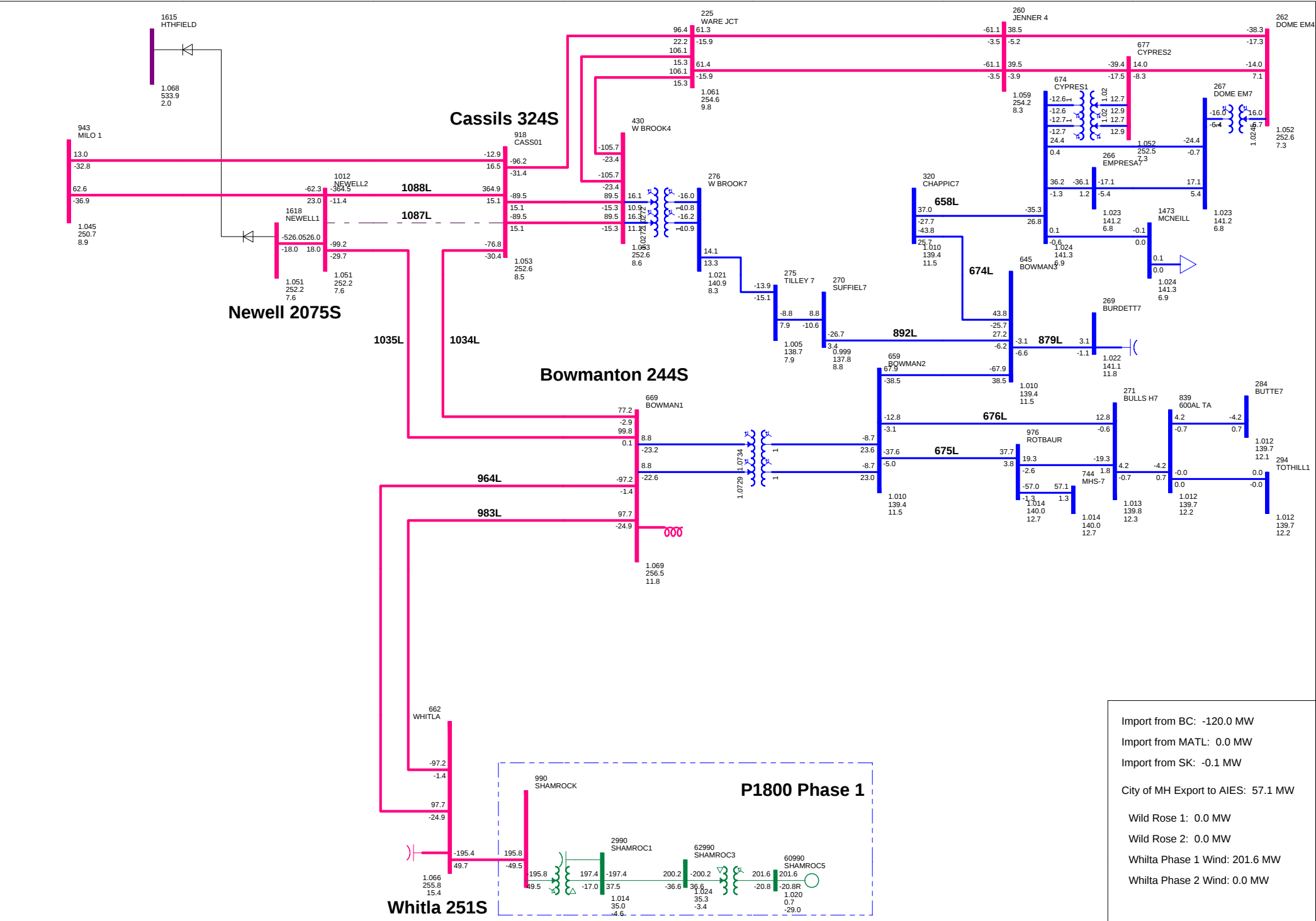
City of MH Export to AIES: 57.1 MW

Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whilta Phase 1 Wind: 201.6 MW
Whilta Phase 2 Wind: 0.0 MW

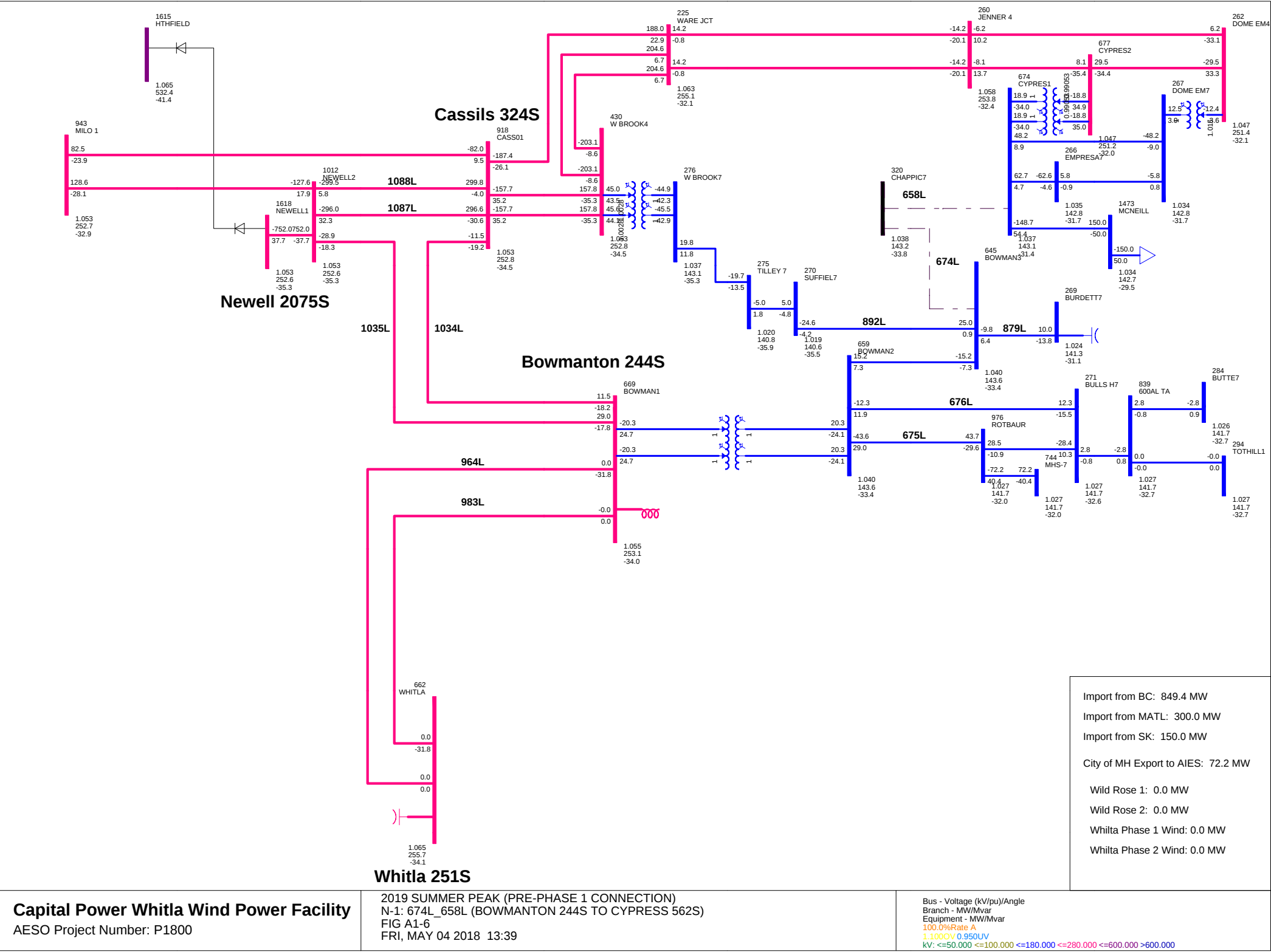


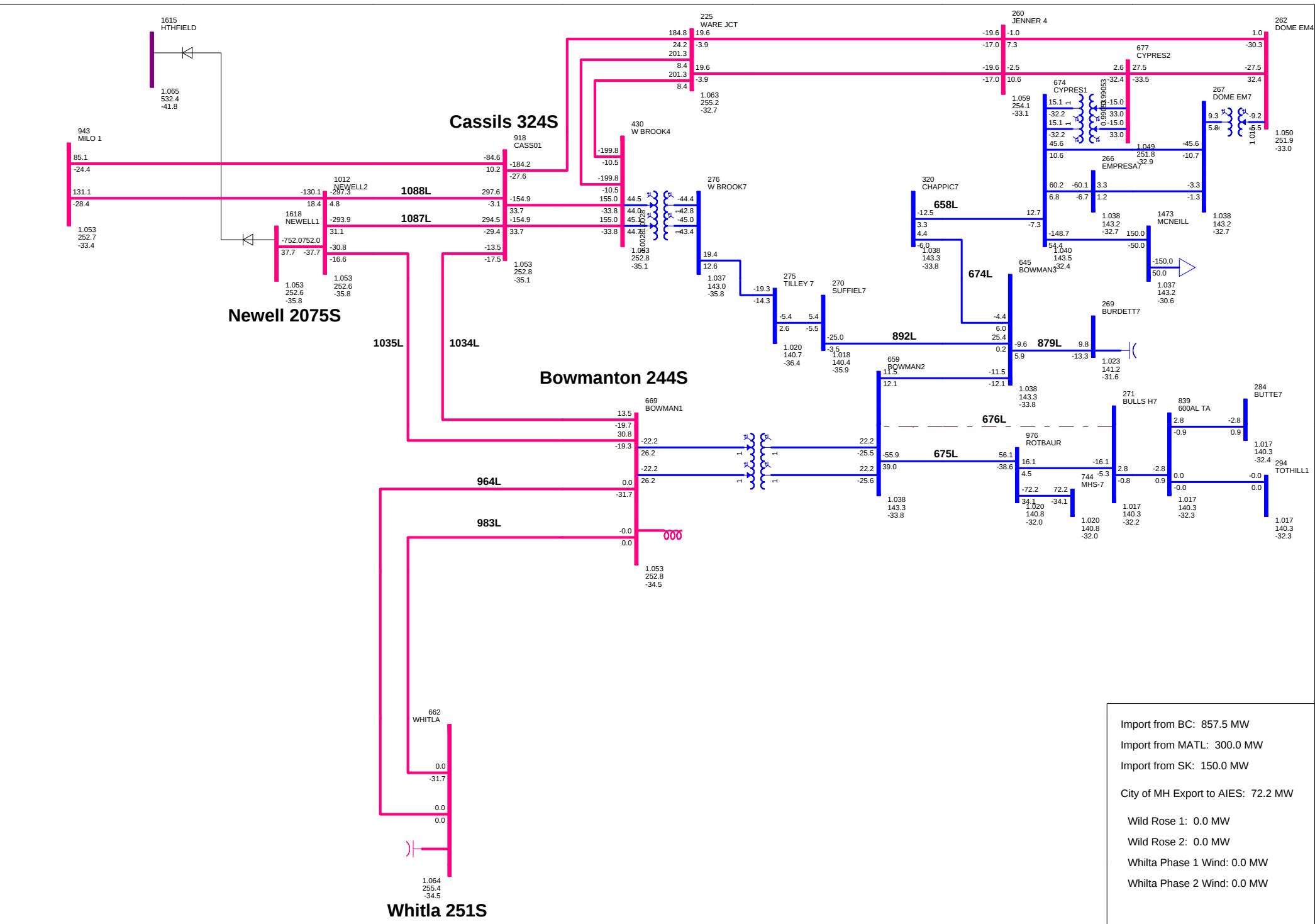






Attachment B: Post-Project Power Flow Single Line Diagrams

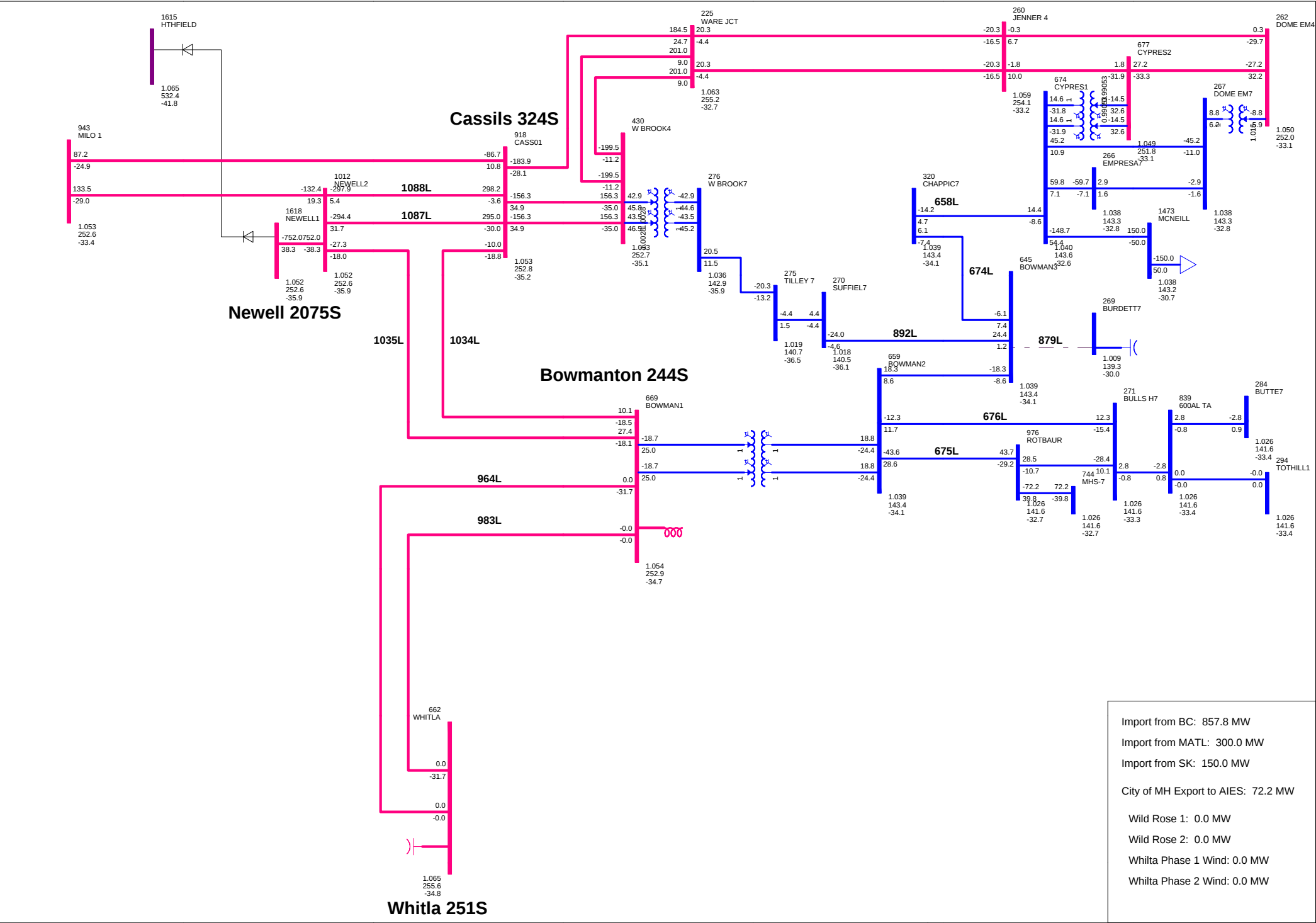


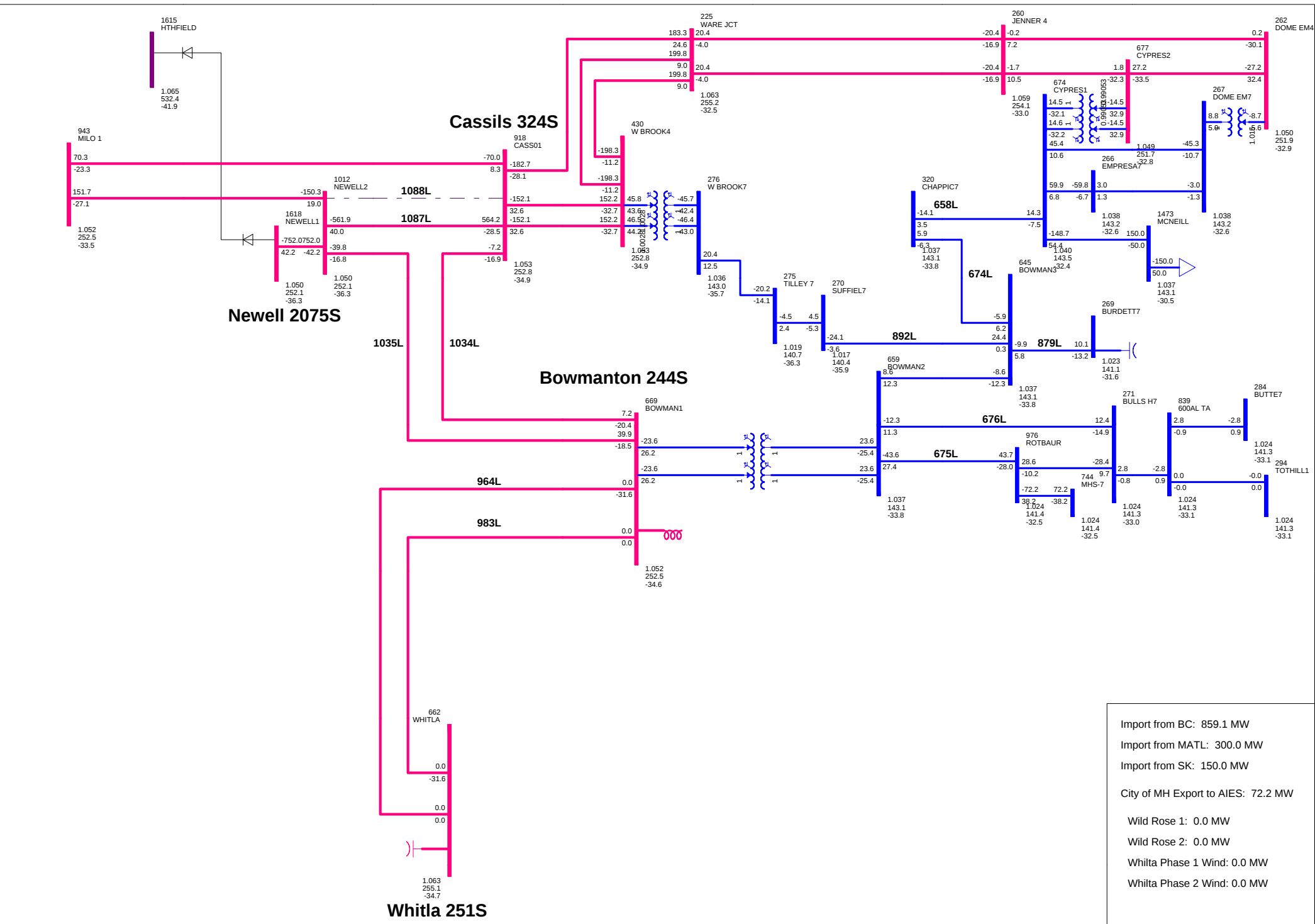


Import from BC: 857.5 MW
Import from MATL: 300.0 MW
Import from SK: 150.0 MW

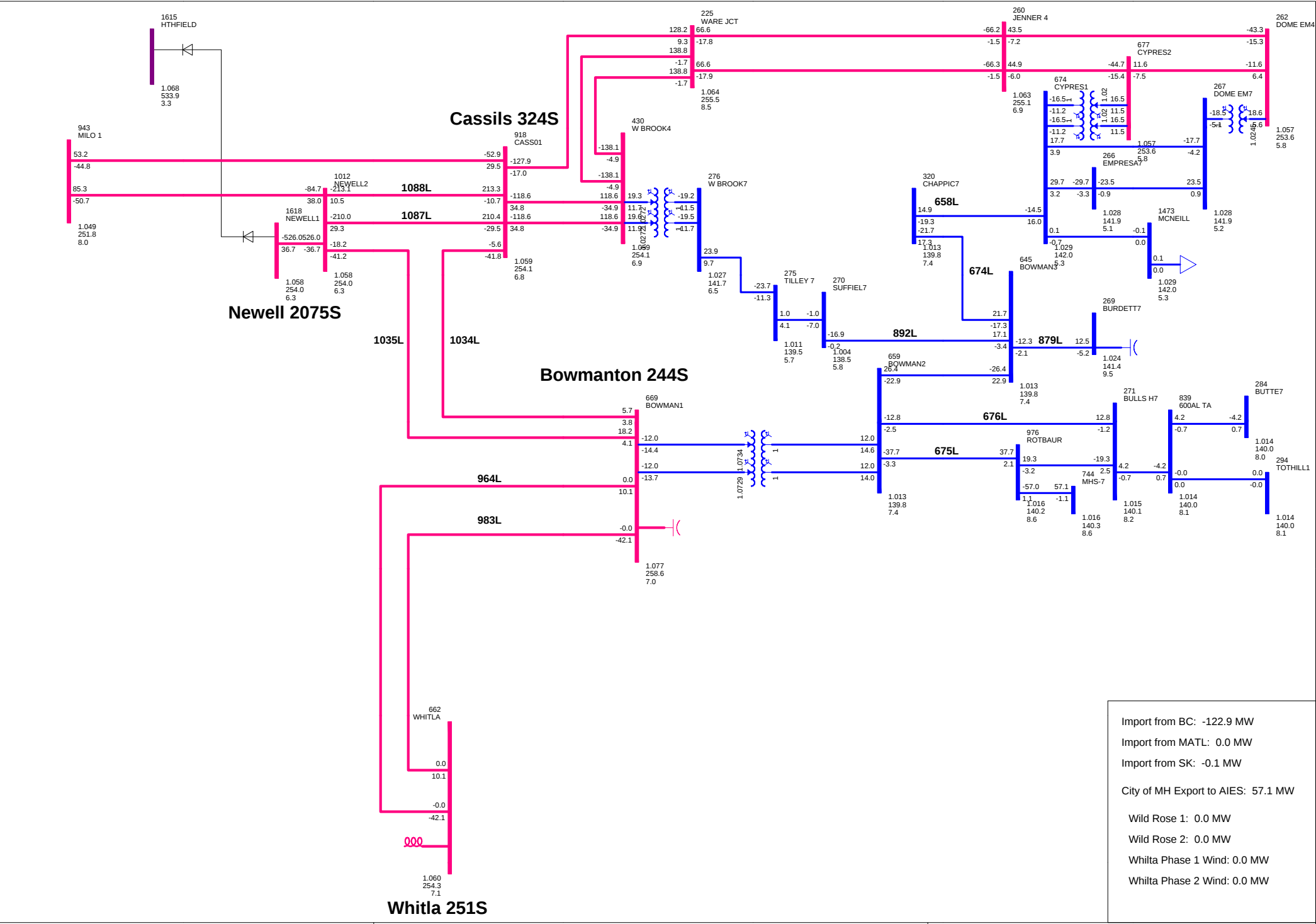
City of MH Export to AIES: 72.2 MW

Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whitla Phase 1 Wind: 0.0 MW
Whitla Phase 2 Wind: 0.0 MW

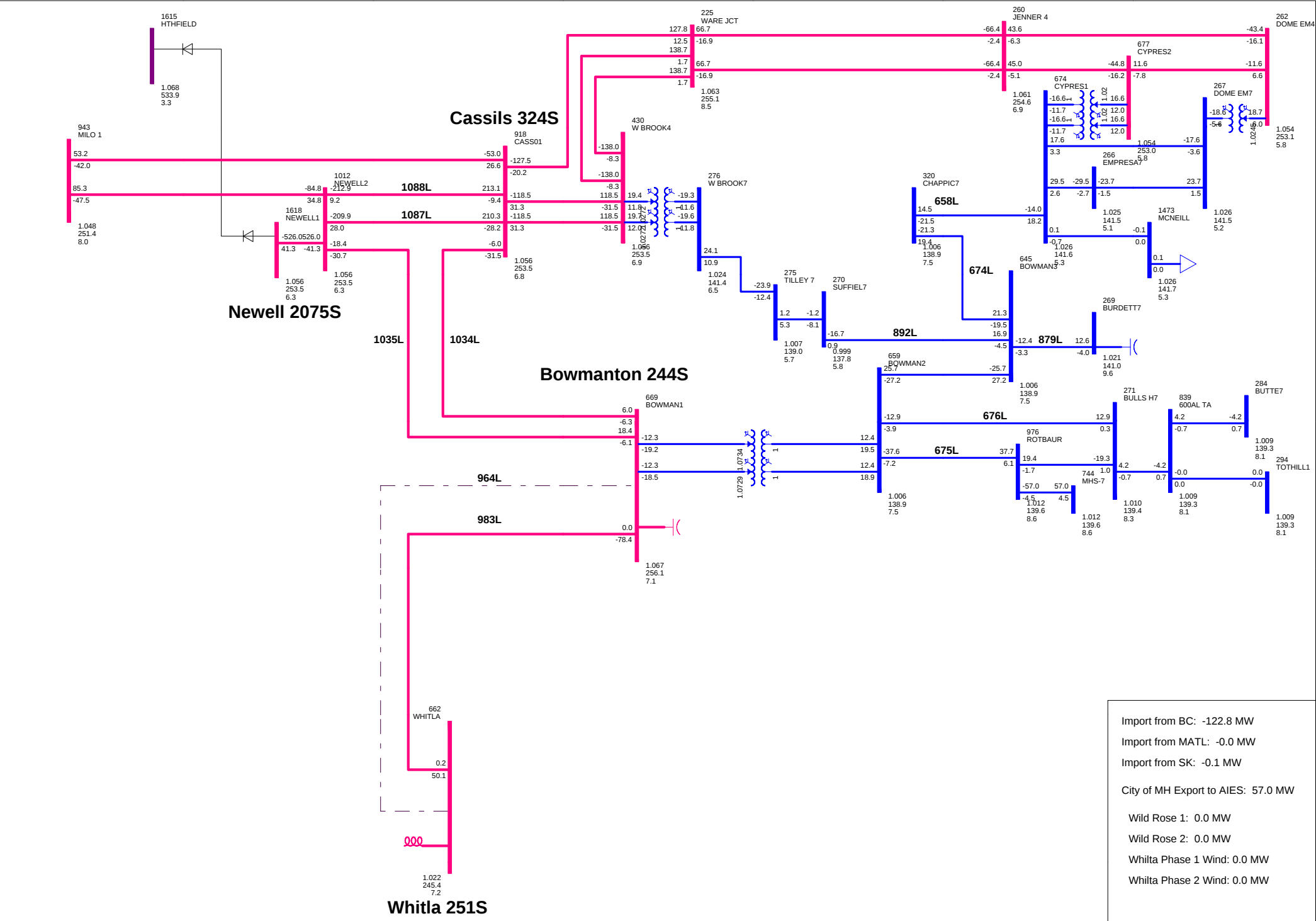


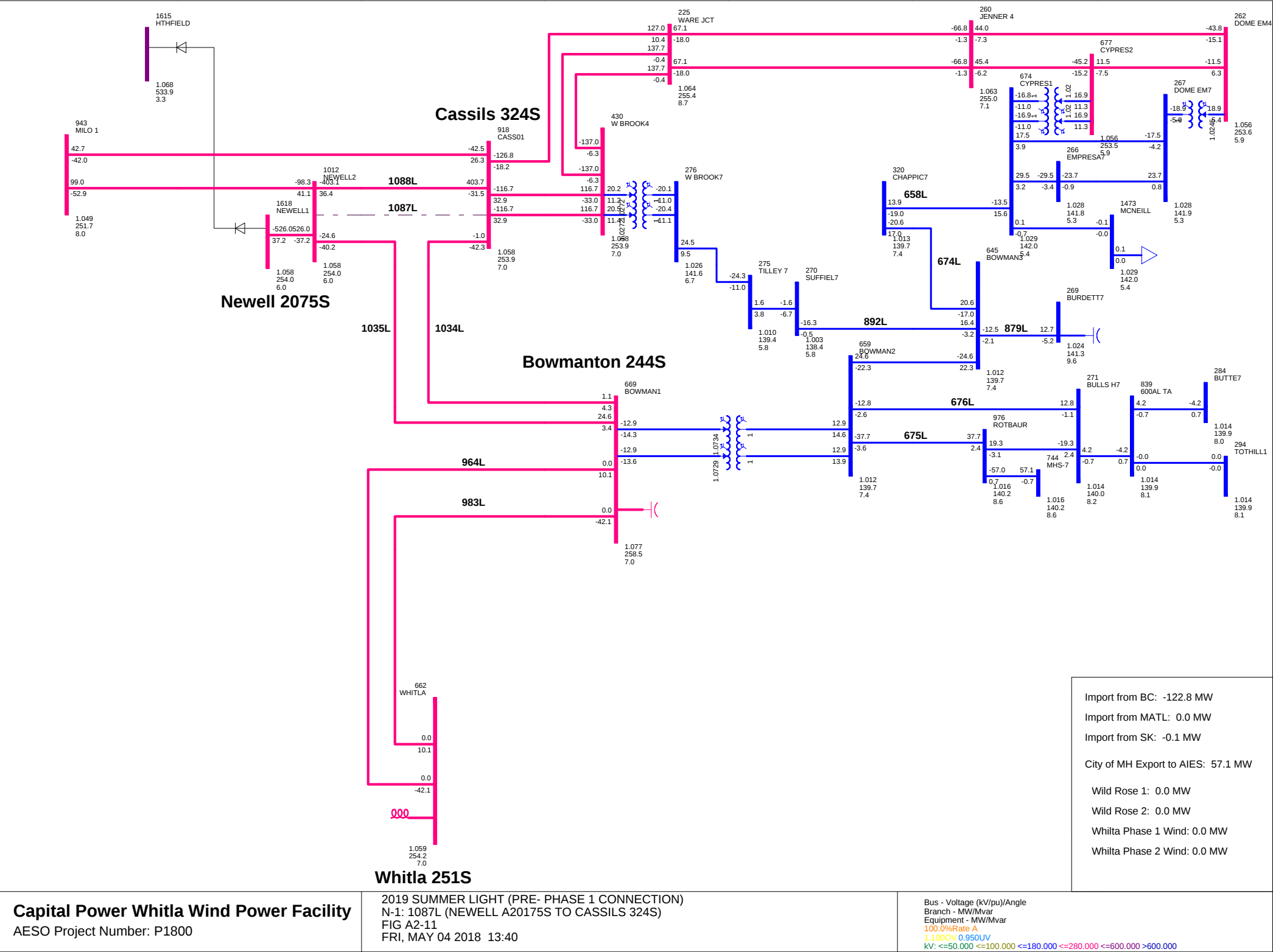


Import from BC: 859.1 MW
Import from MATL: 300.0 MW
Import from SK: 150.0 MW
City of MH Export to AIES: 72.2 MW
Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whitla Phase 1 Wind: 0.0 MW
Whitla Phase 2 Wind: 0.0 MW



Import from BC: -122.9 MW
Import from MATL: 0.0 MW
Import from SK: -0.1 MW
City of MH Export to AIES: 57.1 MW
Wild Rose 1: 0.0 MW
Wild Rose 2: 0.0 MW
Whitla Phase 1 Wind: 0.0 MW
Whitla Phase 2 Wind: 0.0 MW





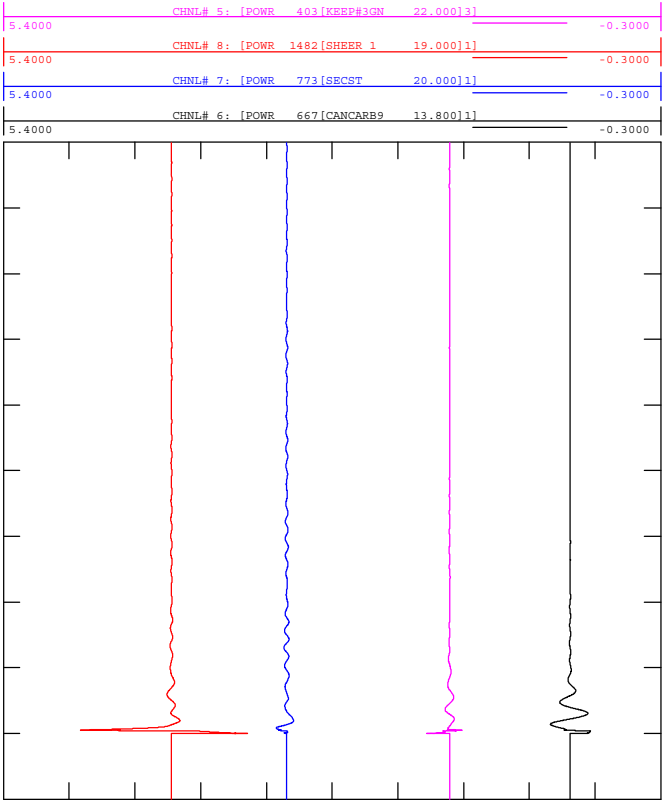
Attachment C: Post-Project Transient Stability Diagrams



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

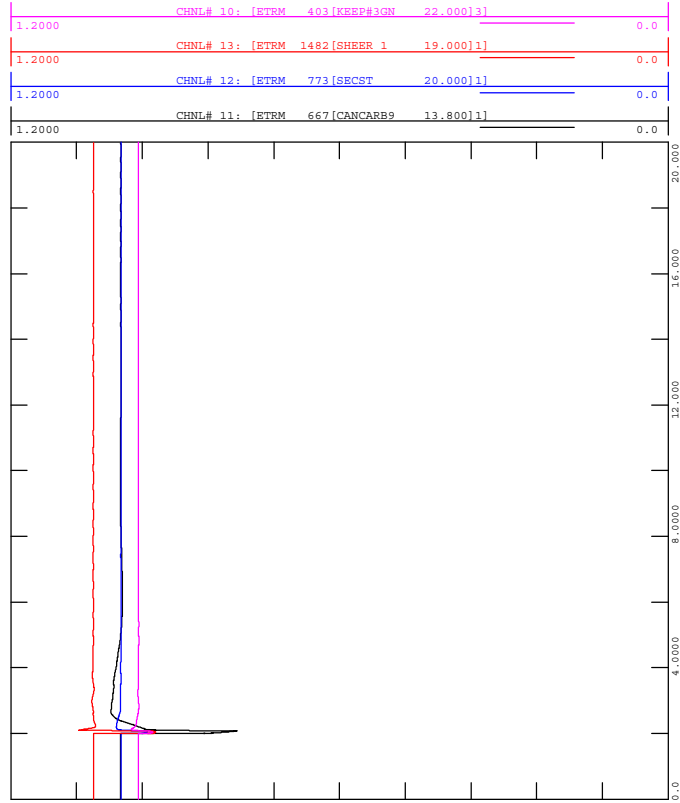
FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

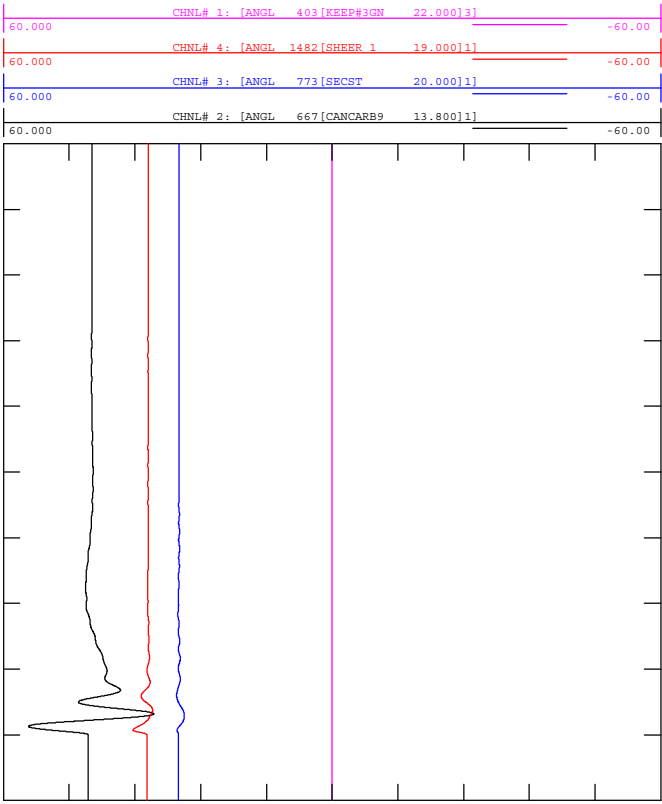
FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

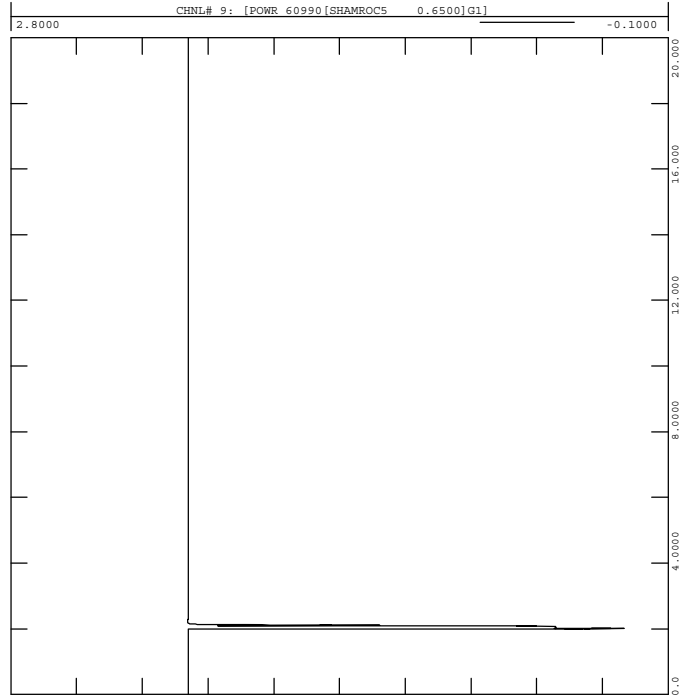
FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

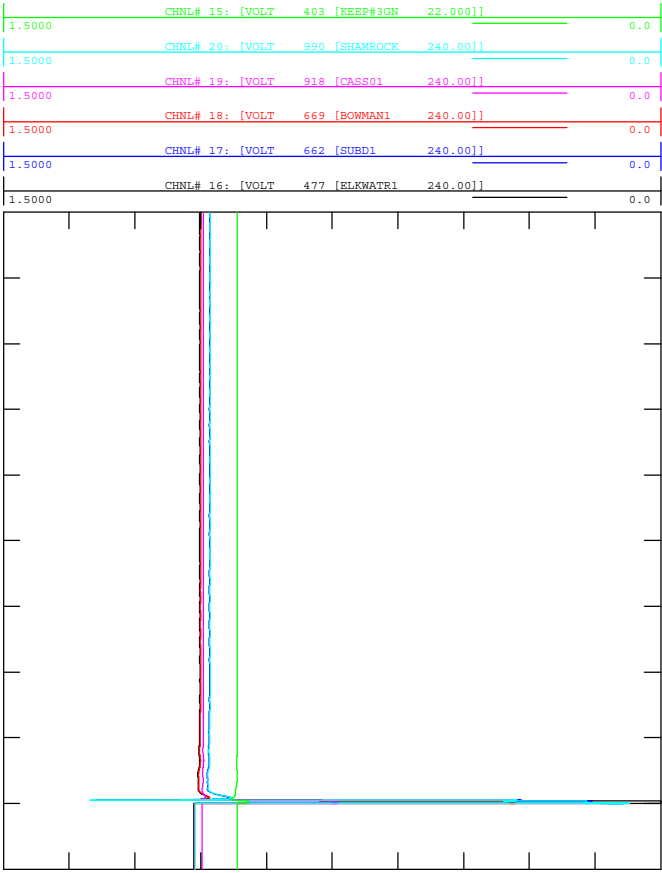
FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)





2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

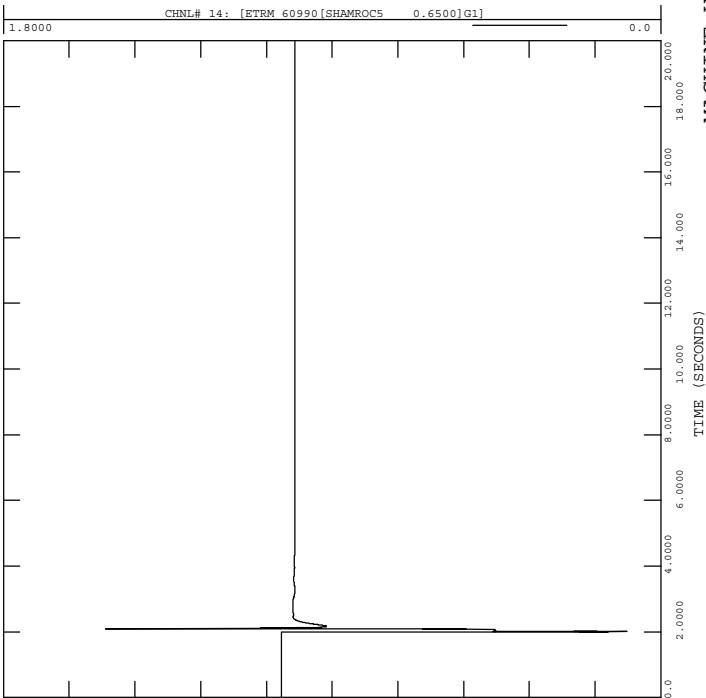


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

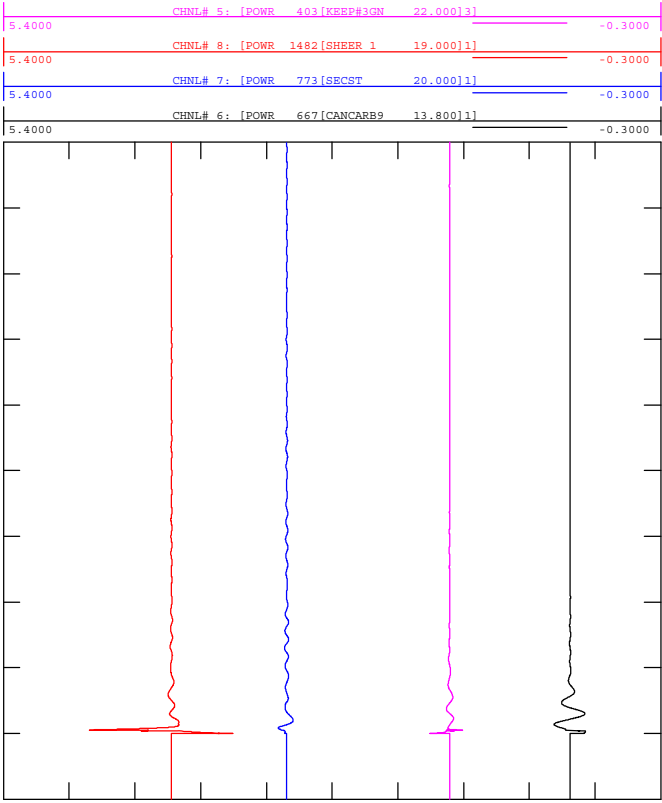


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

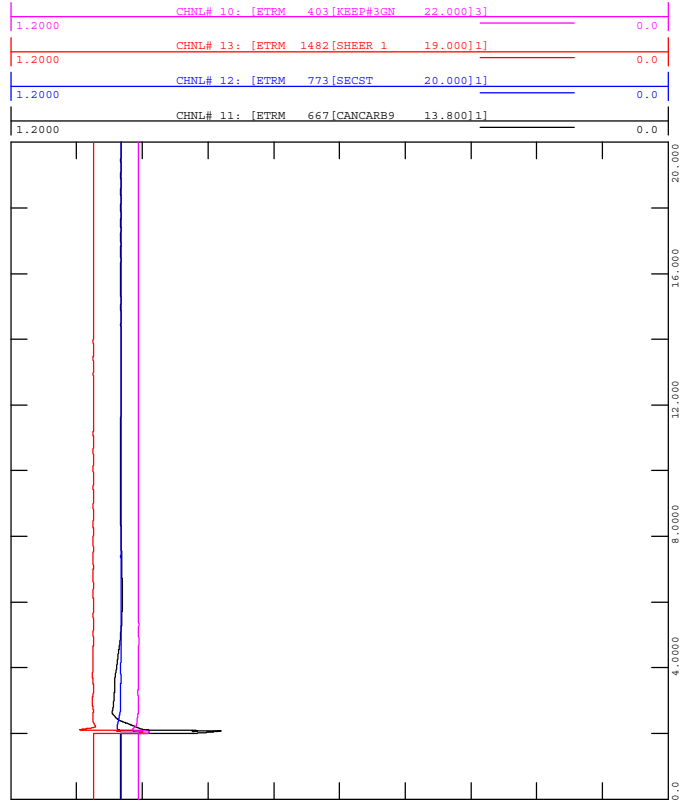


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

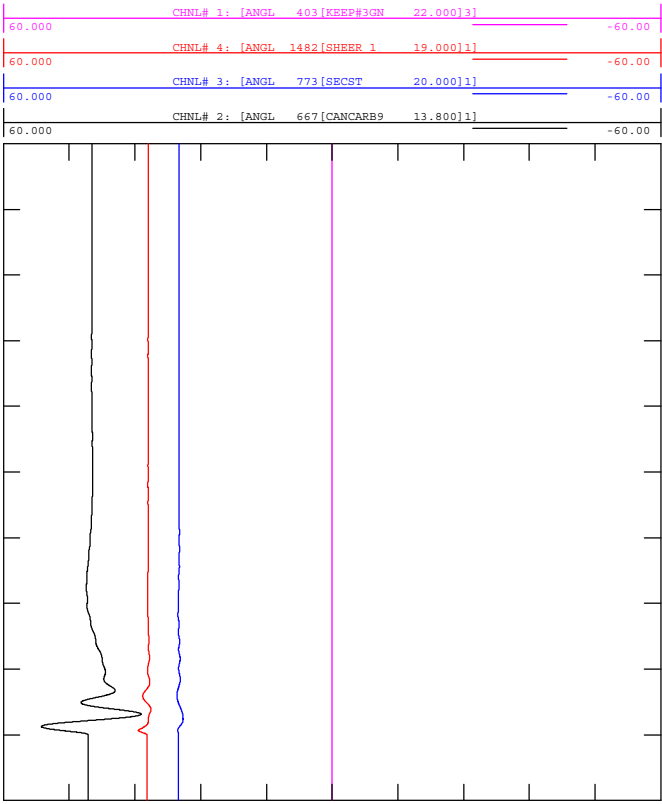


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

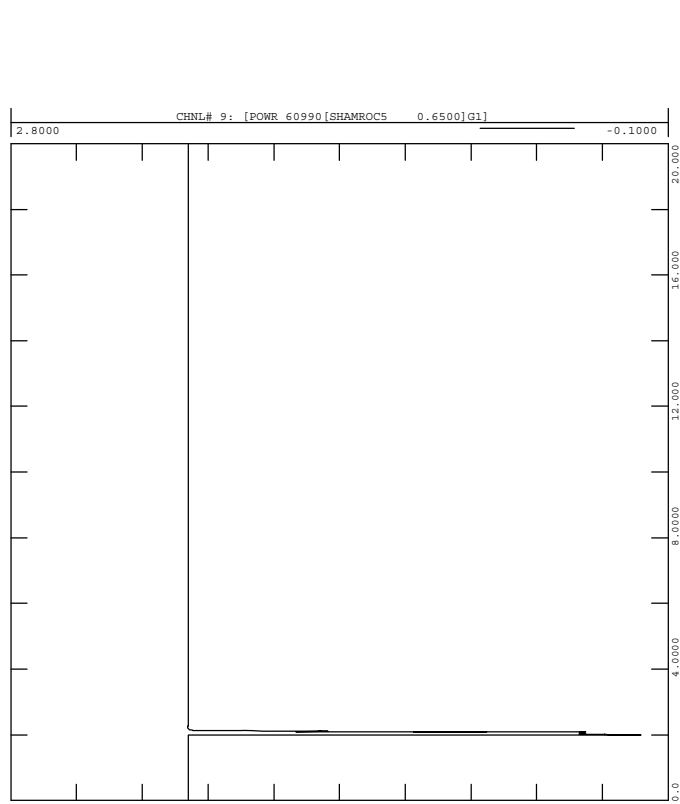


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

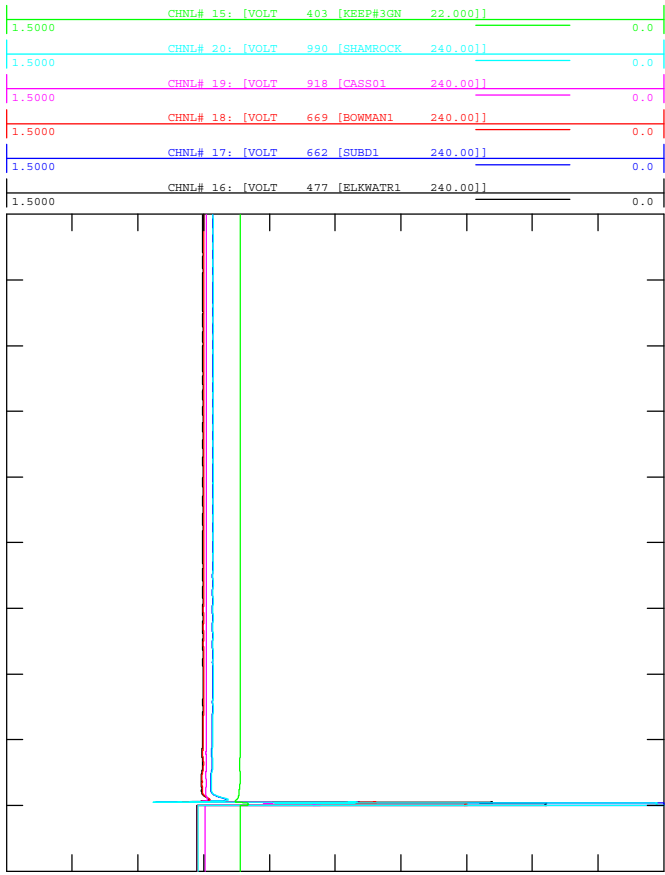


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

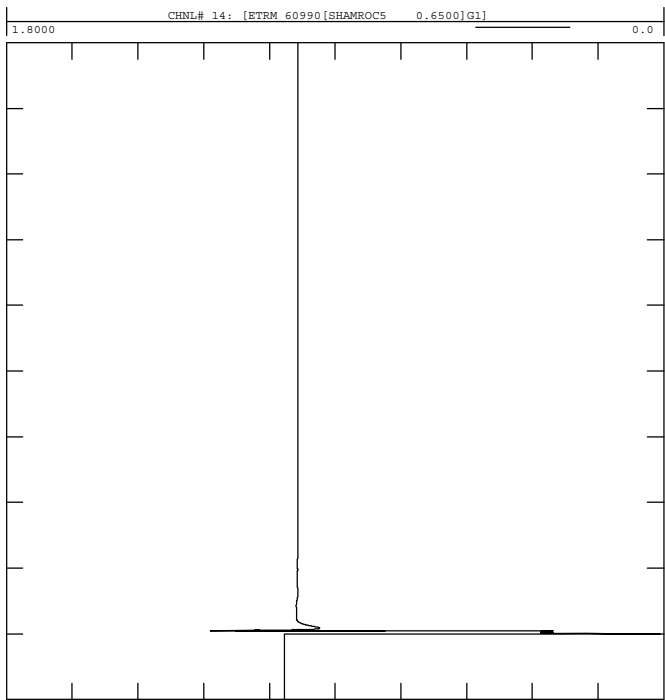


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

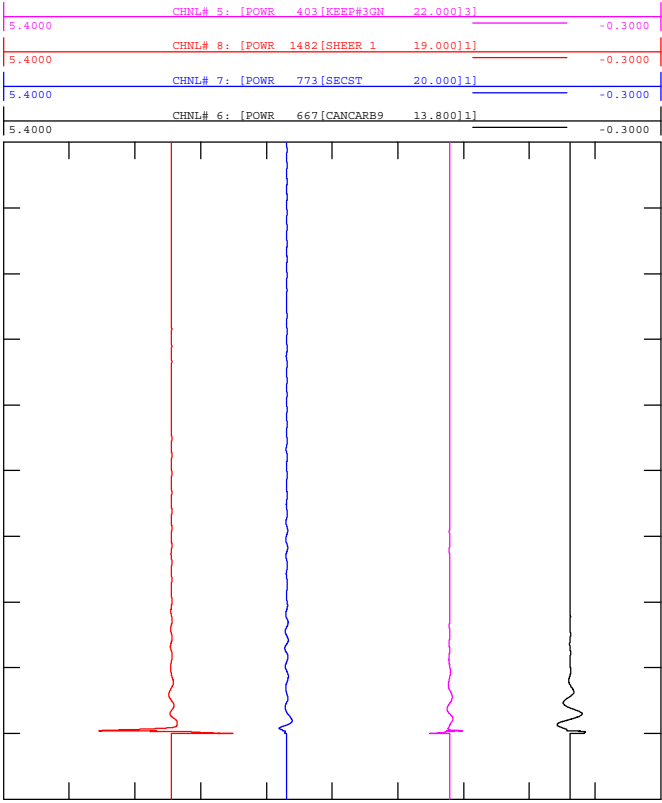


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
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CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

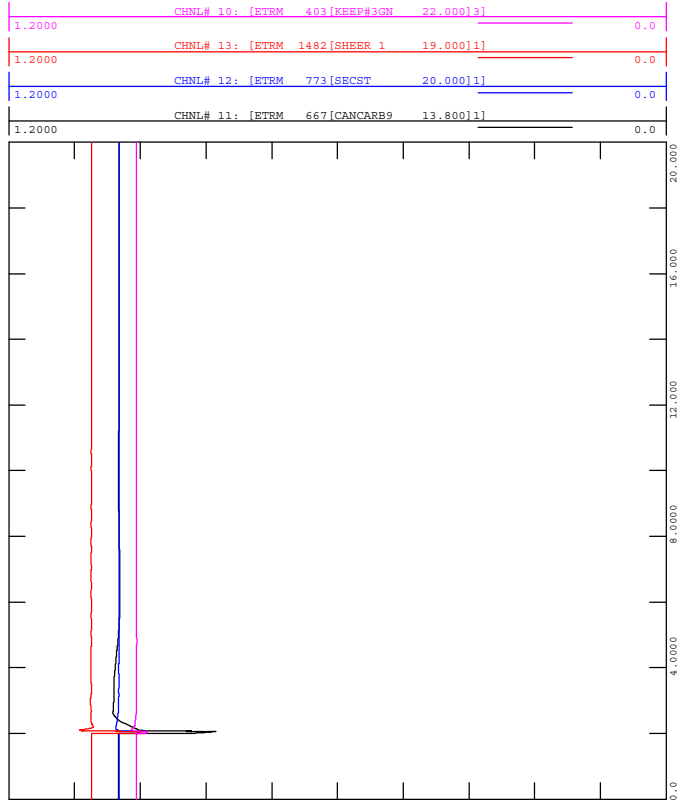


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

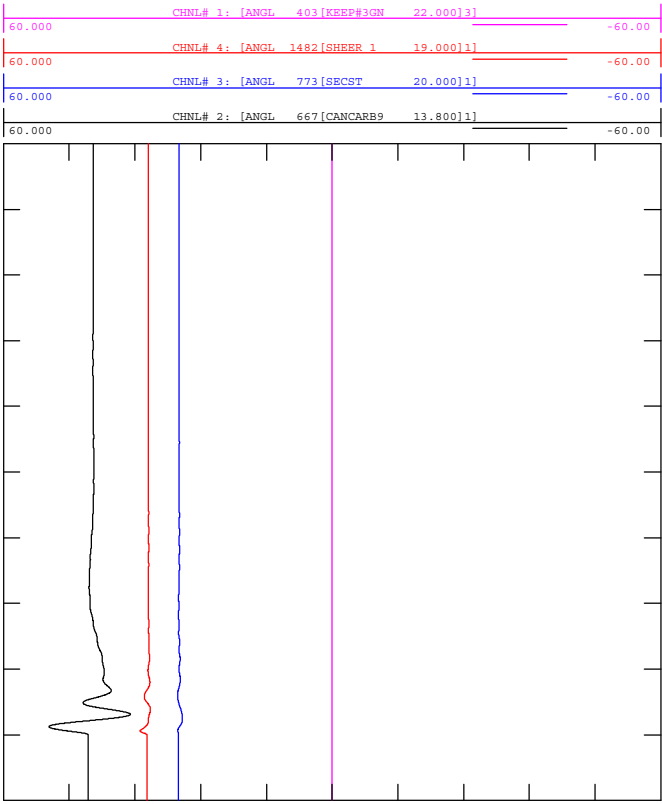


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

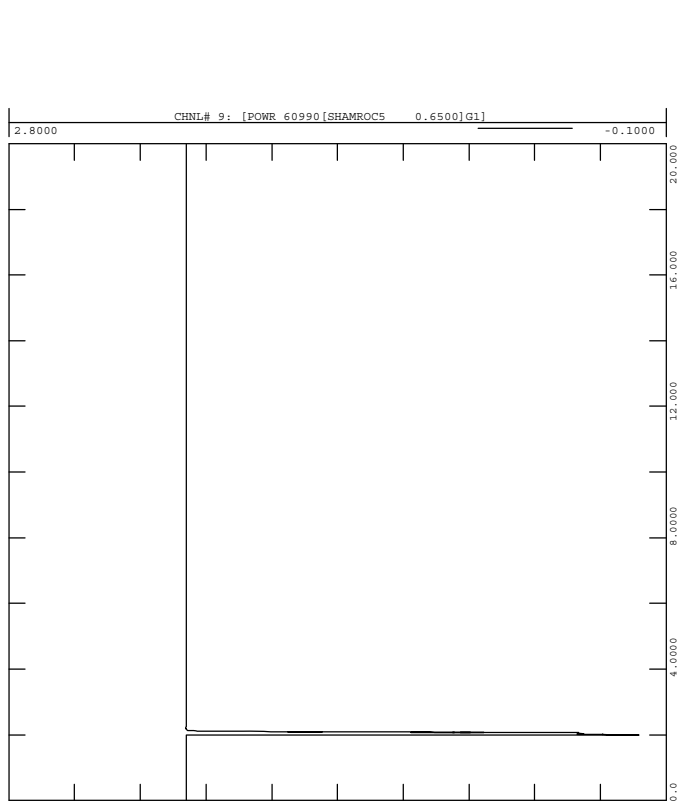


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

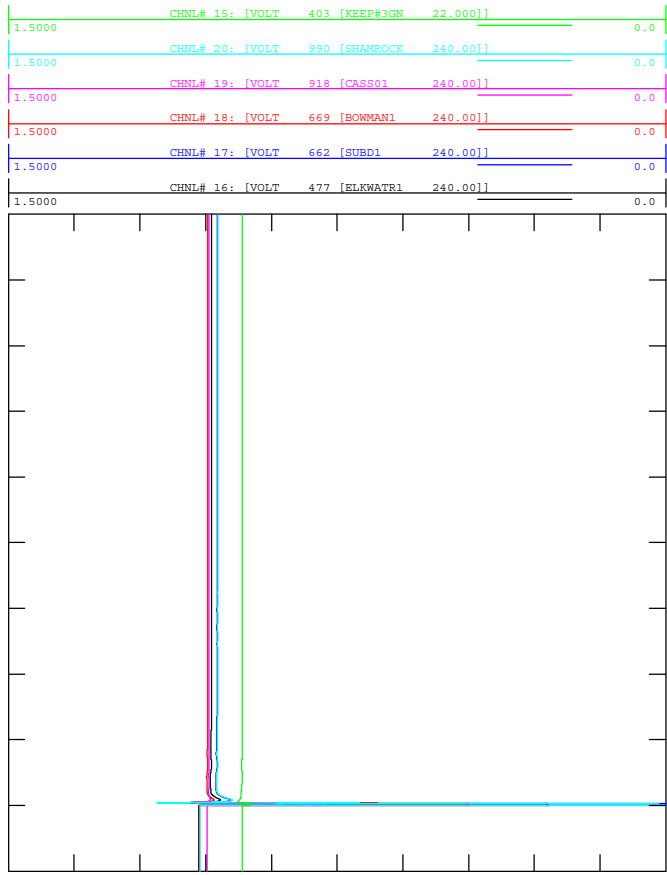


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

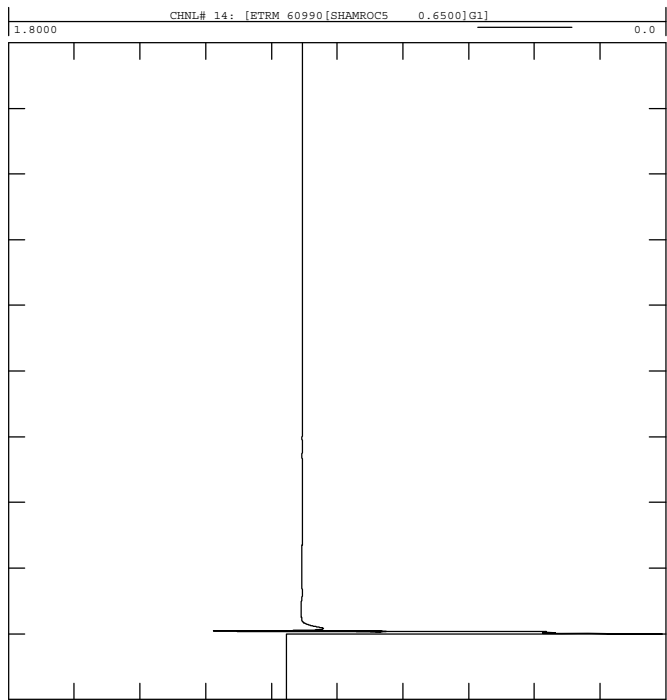


FRI, MAR 30 2018 12:42



2019 SP POST PROJECT
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CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

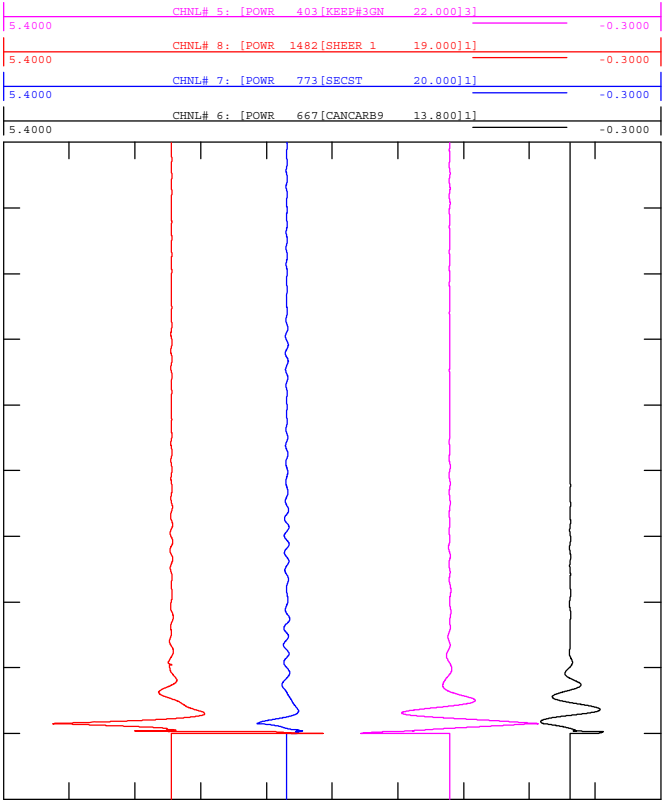


FRI, MAR 30 2018 12:42



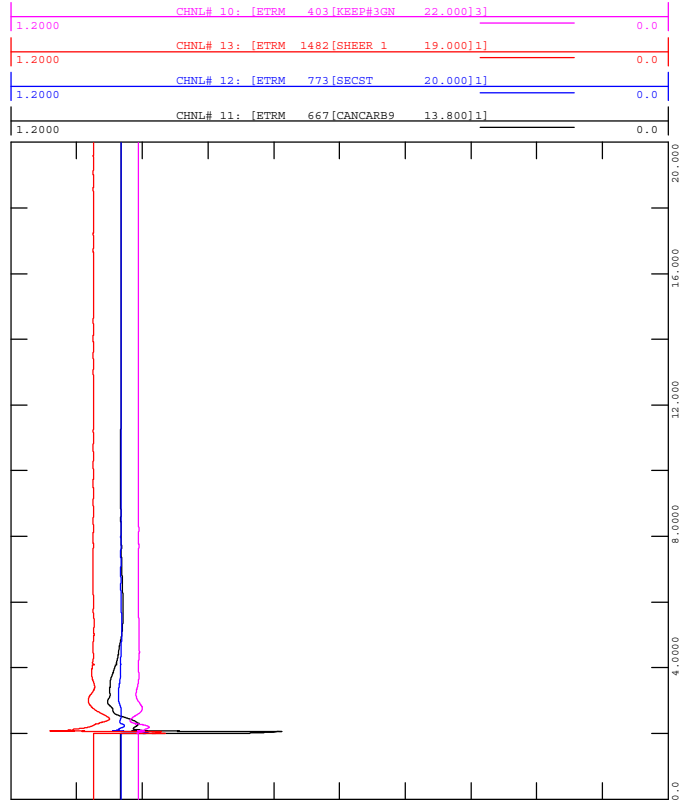
2019 SP POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out



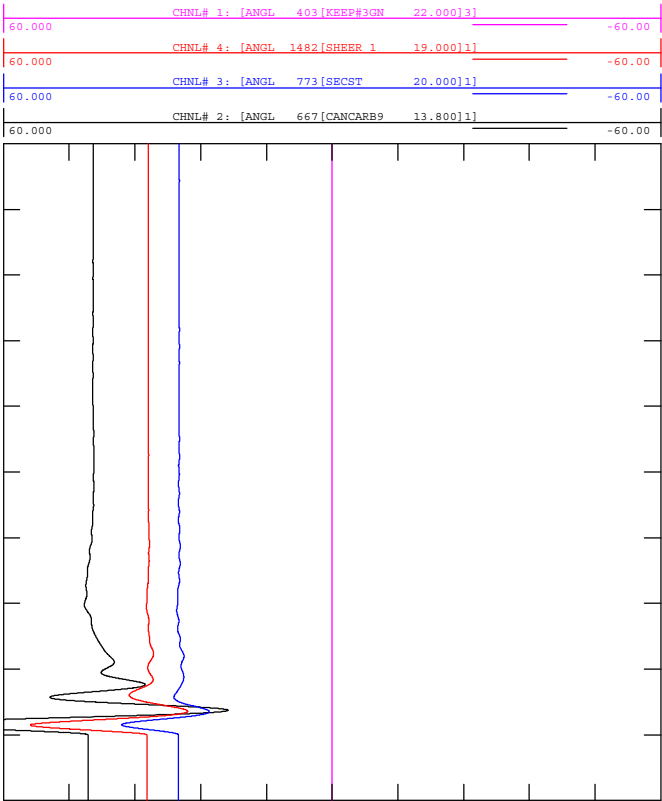
2019 SP POST PROJECT
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CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out



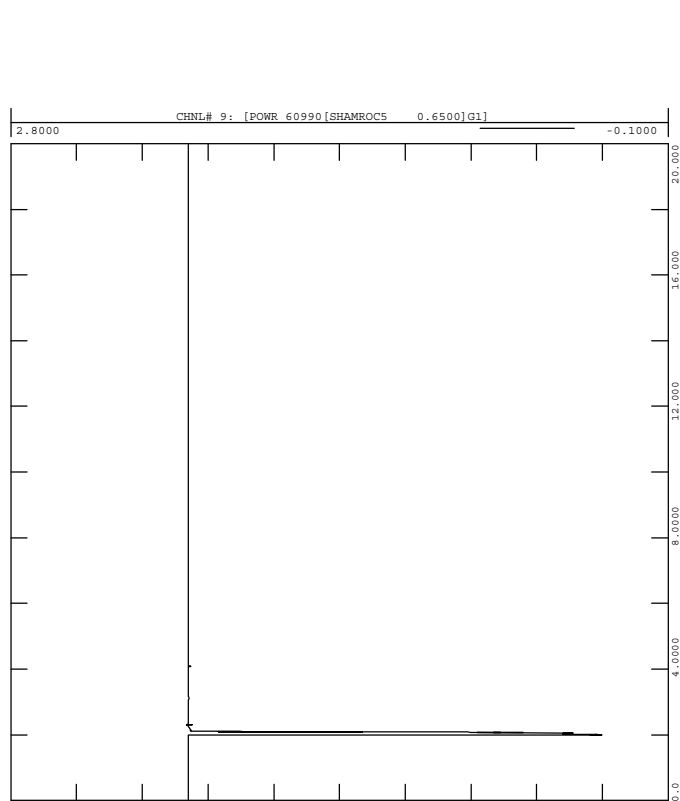
2019 SP POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out



2019 SP POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

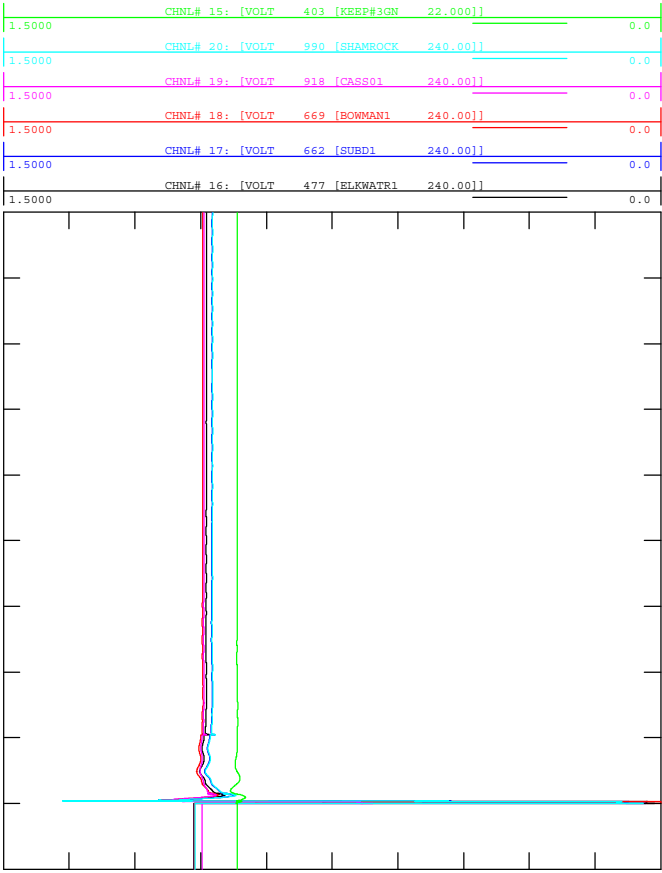
FILE: 964L (Bowmanton 244S).out





2019 SP POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out

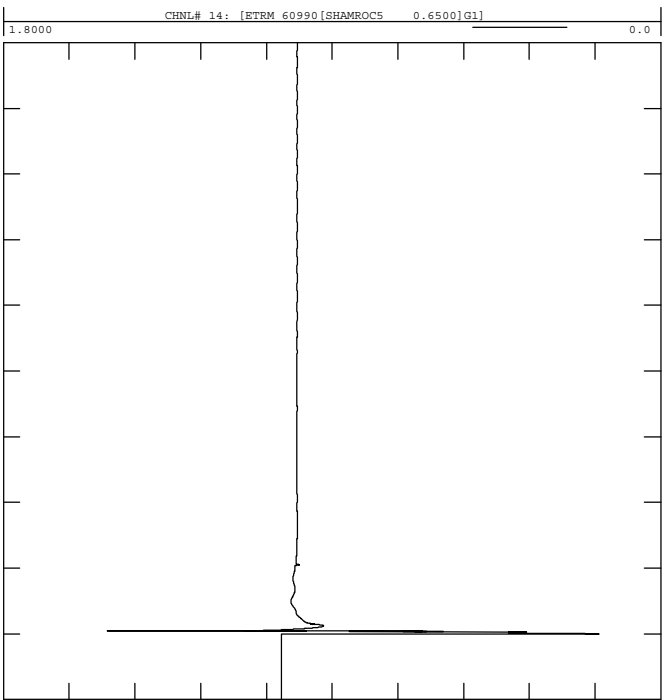


FRI, MAR 30 2018 12:42



2019 SP POST PROJECT
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CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out

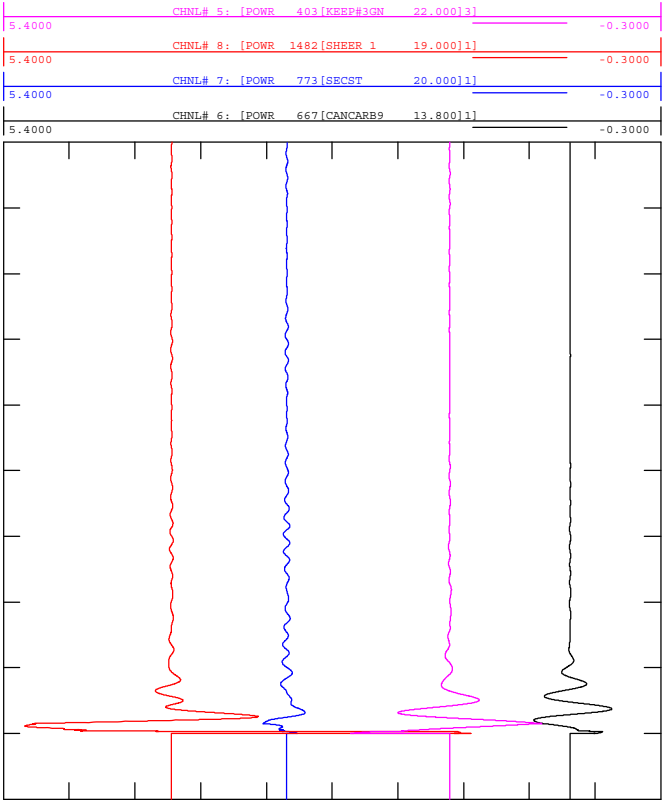


FRI, MAR 30 2018 12:42



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

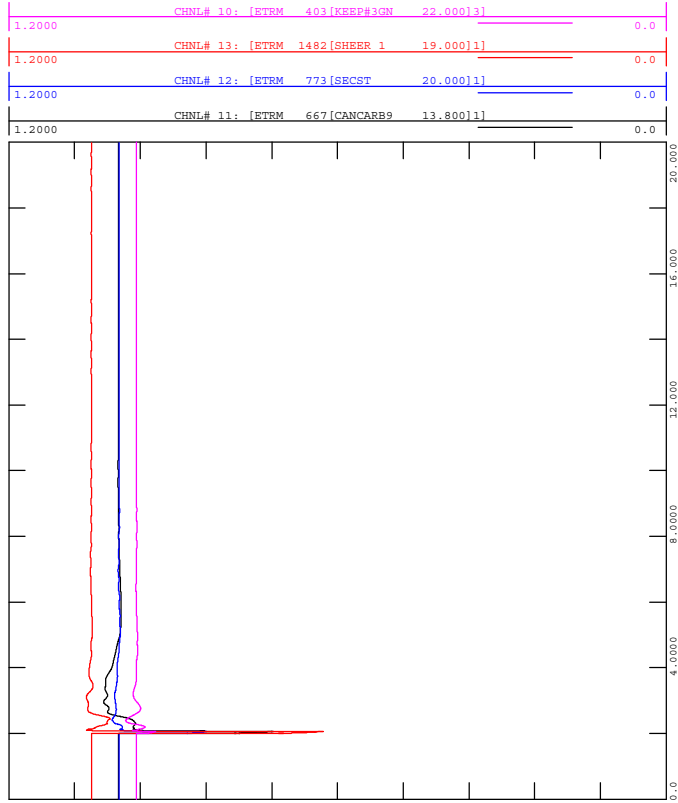


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

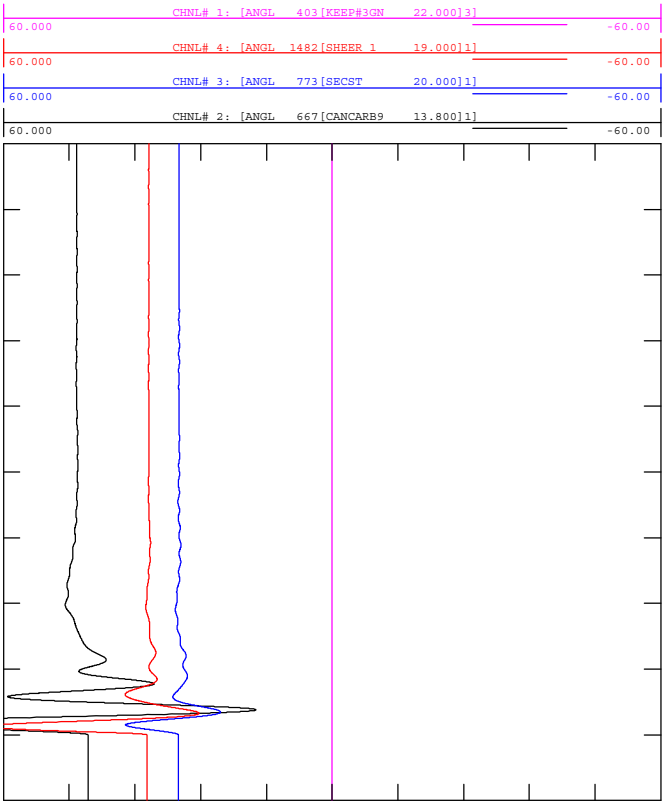


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

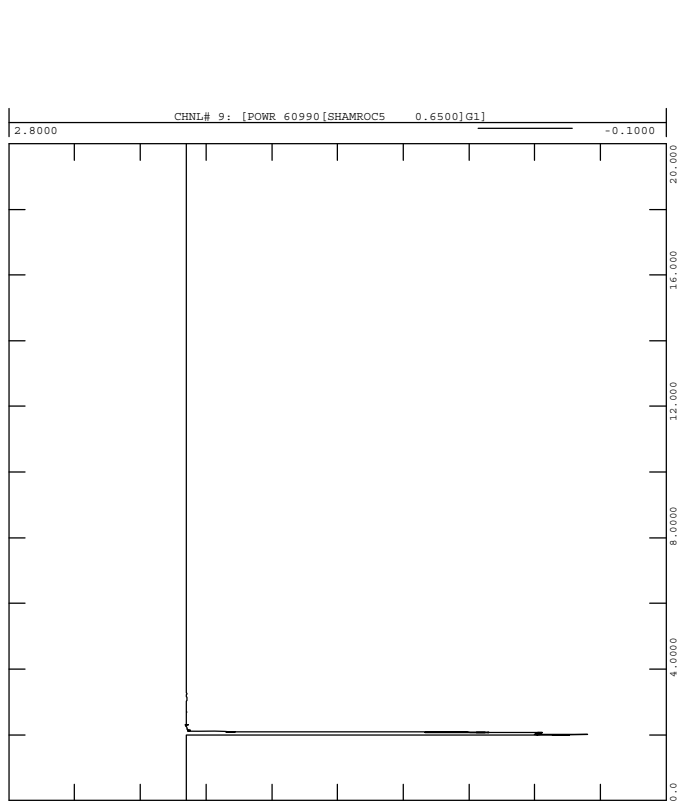


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

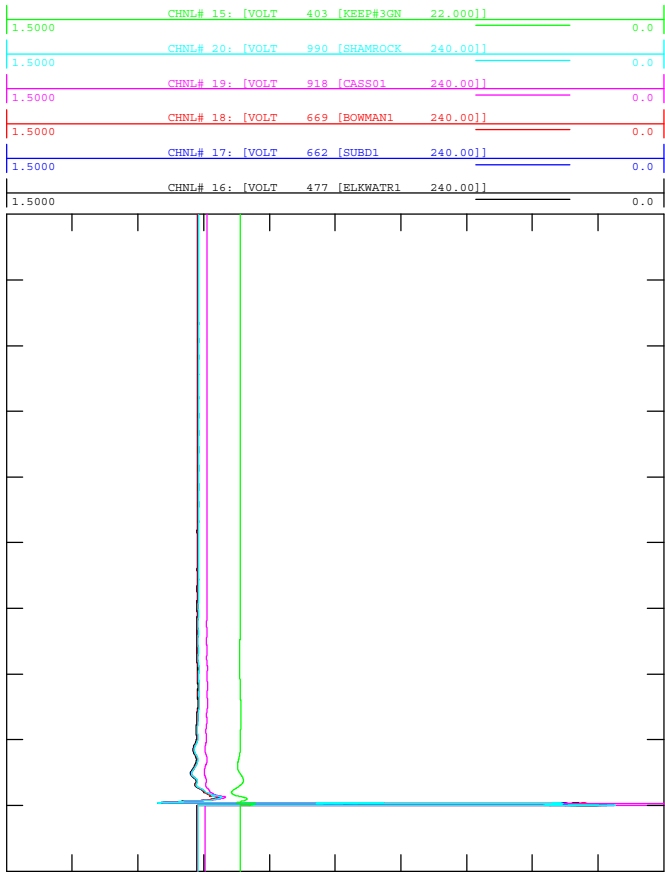


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

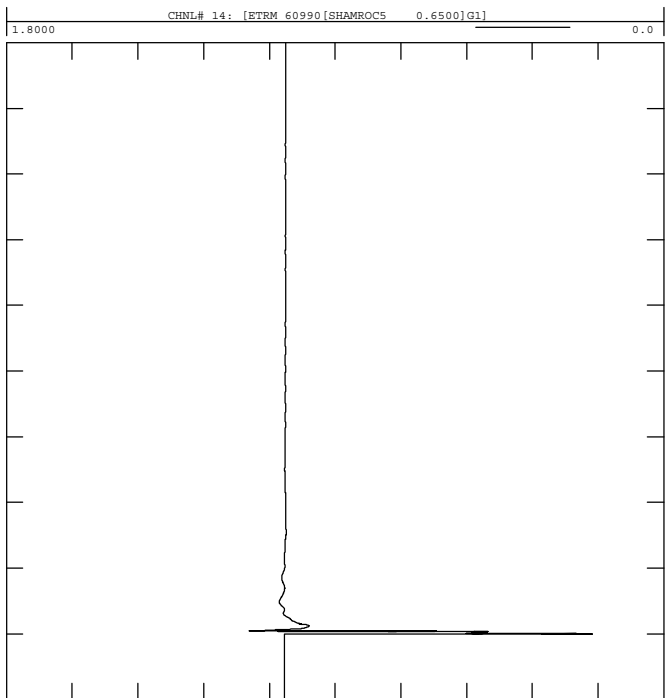


FRI, MAR 30 2018 12:42



2019 SP POST PROJECT
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CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

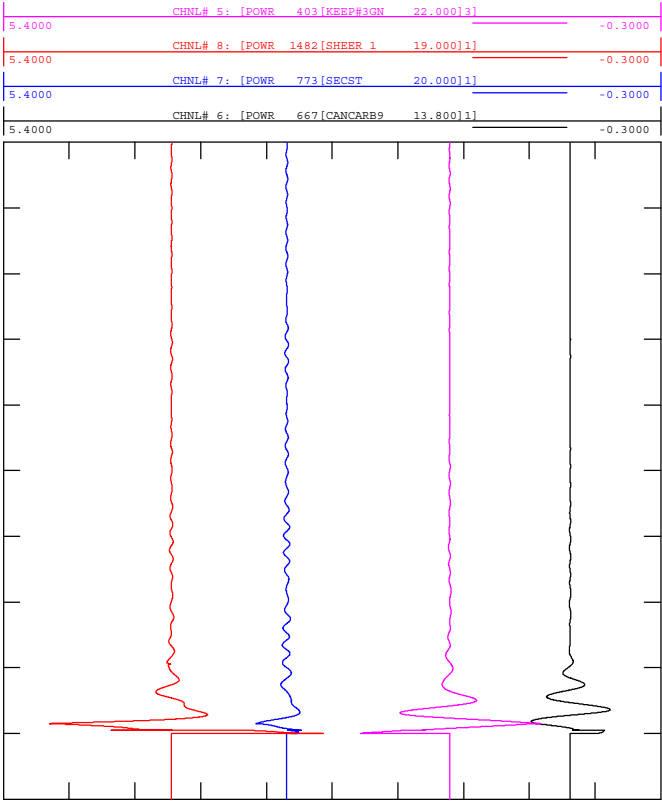


FRI, MAR 30 2018 12:42



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

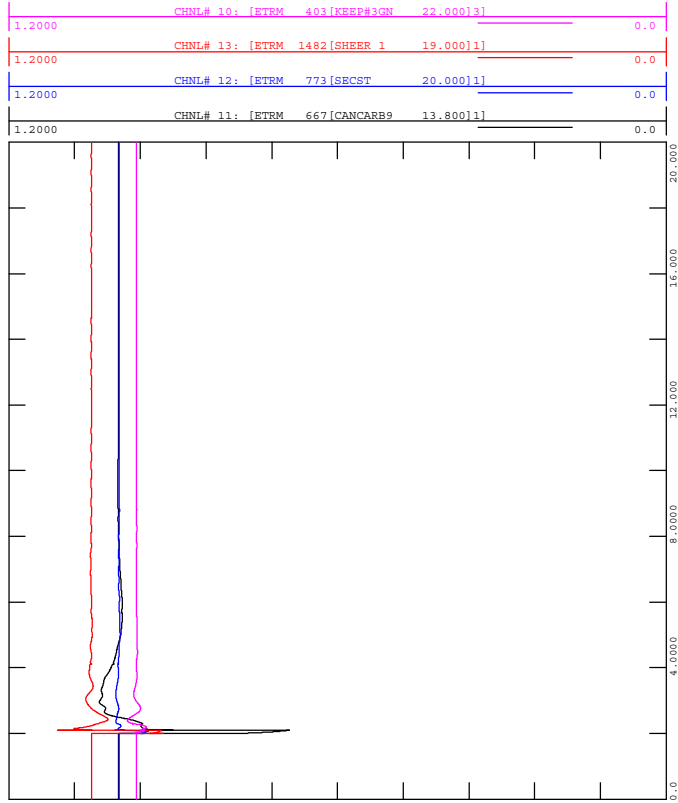


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

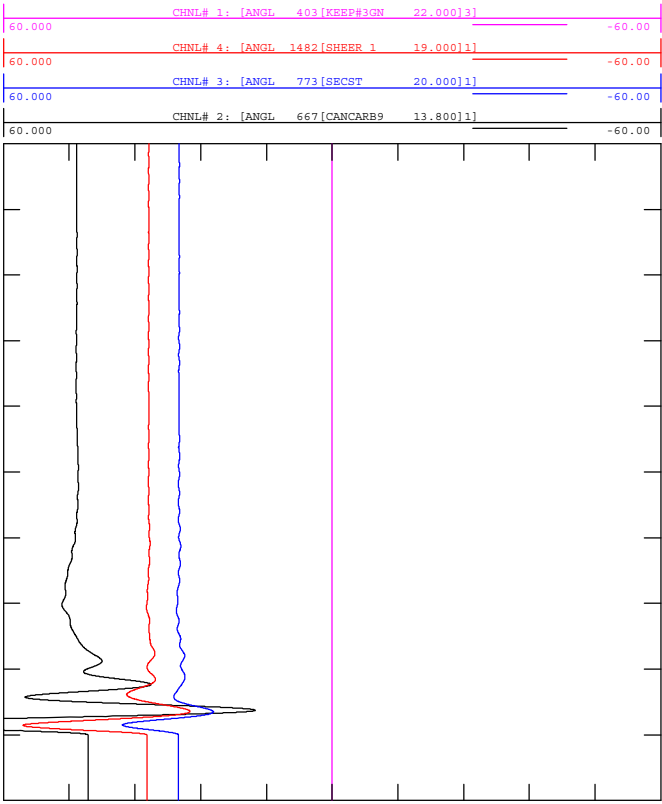


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

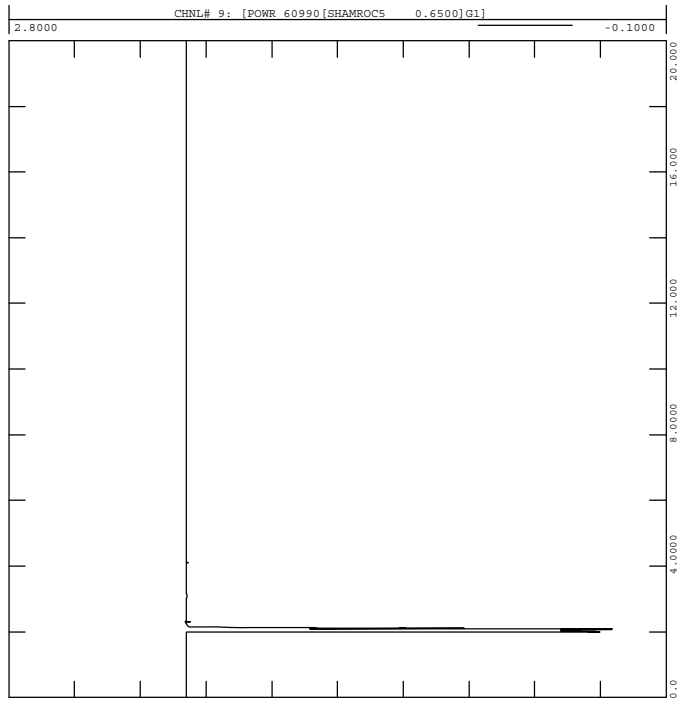


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

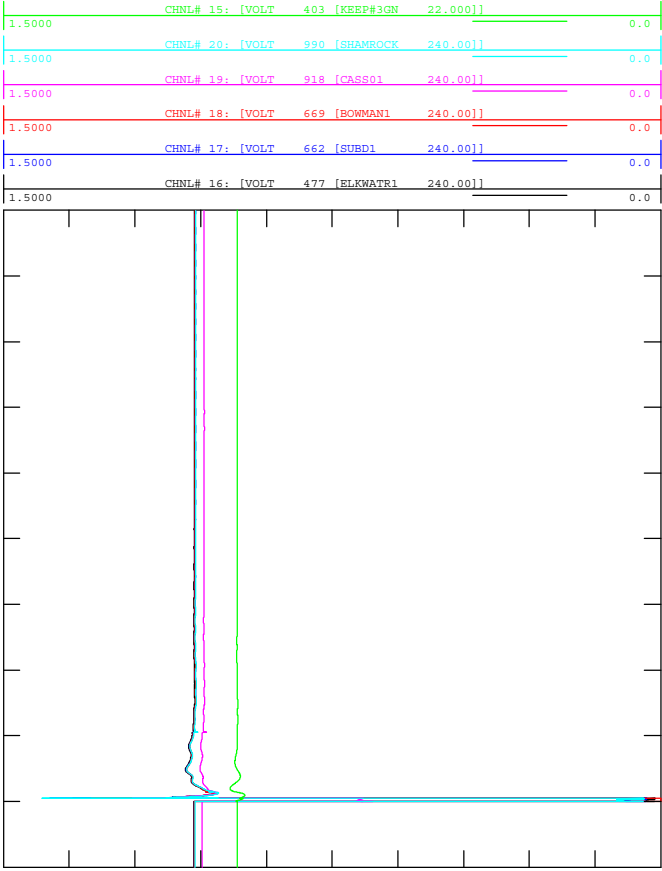


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

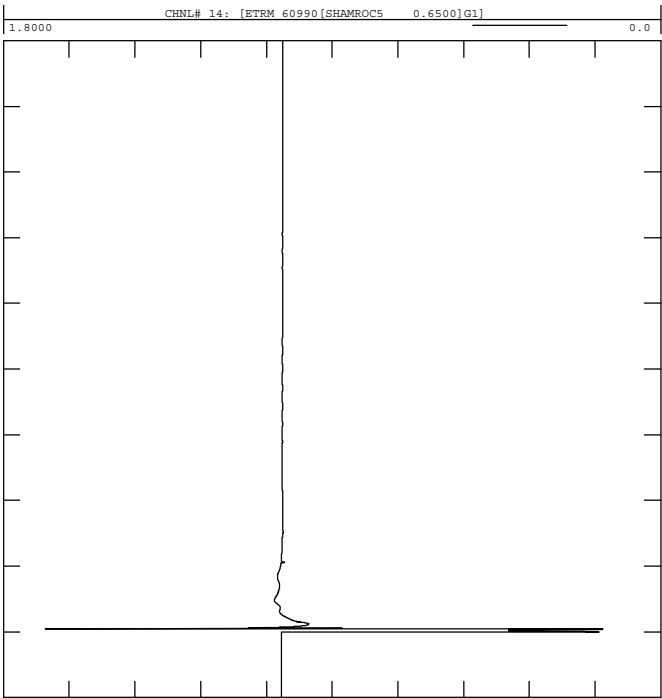


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

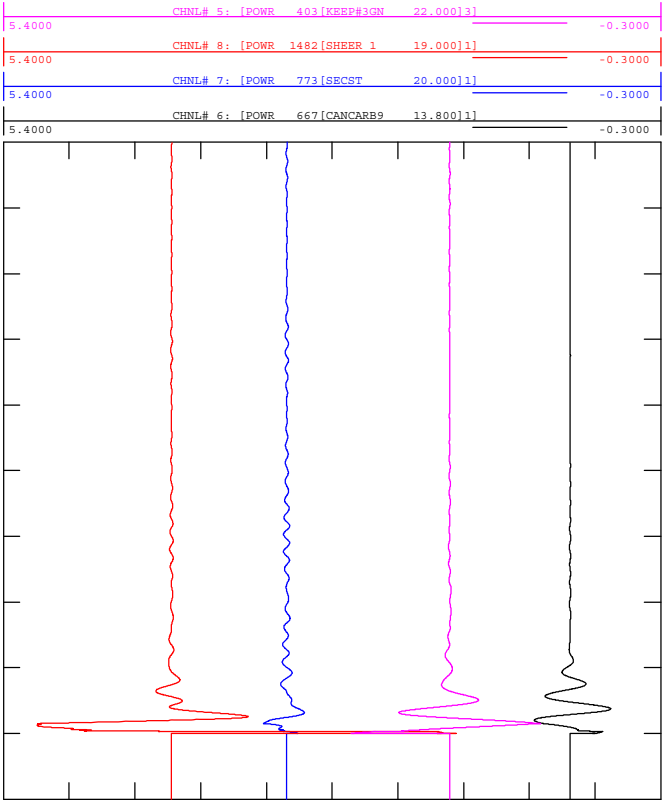


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

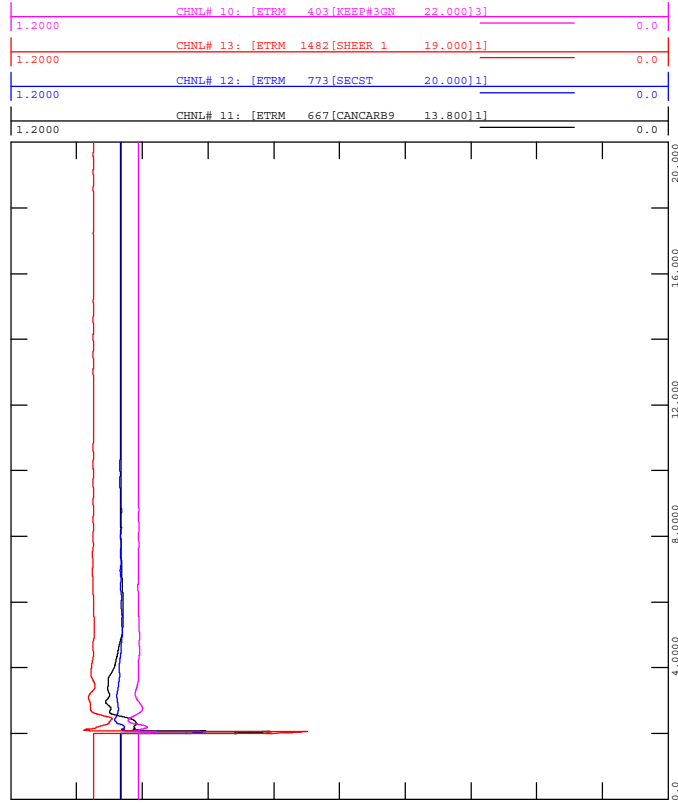


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

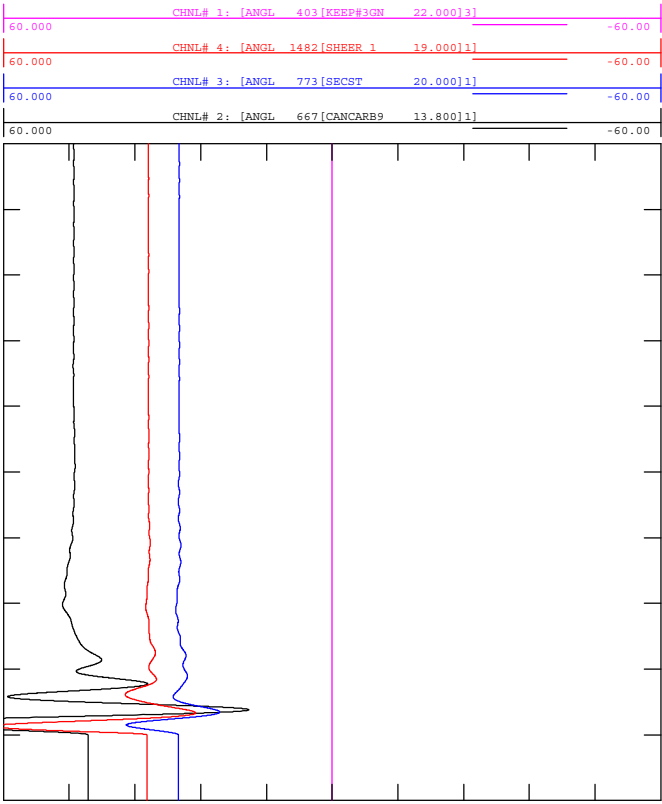


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

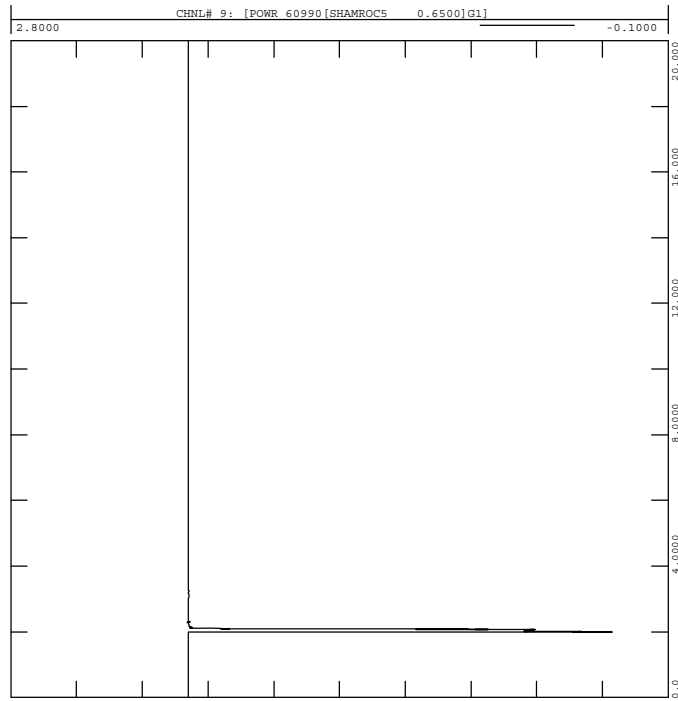


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

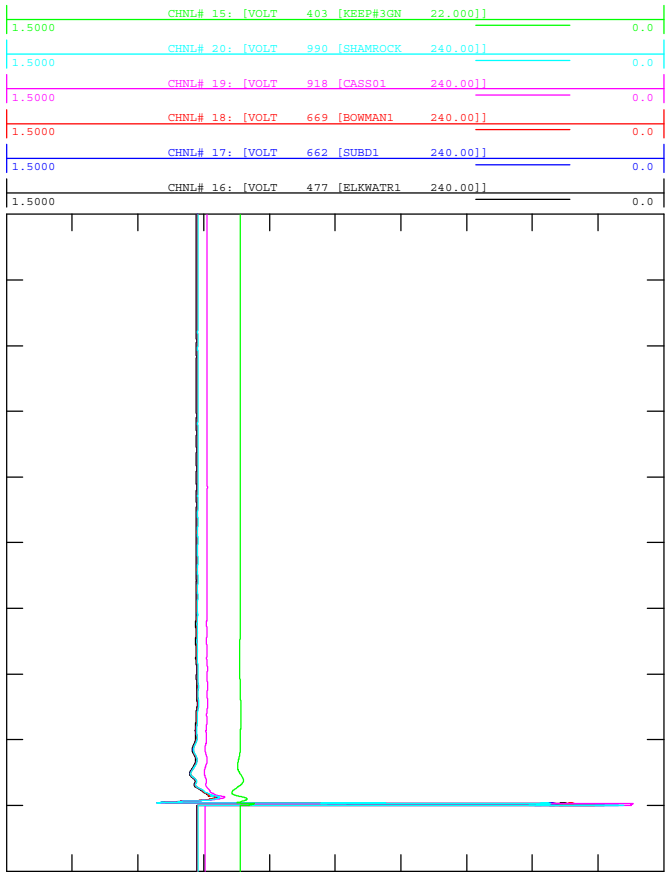


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

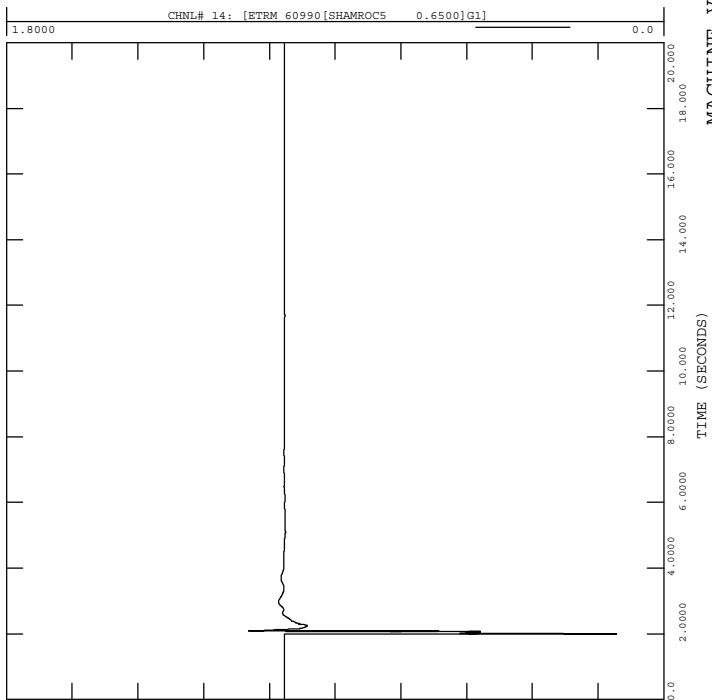


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

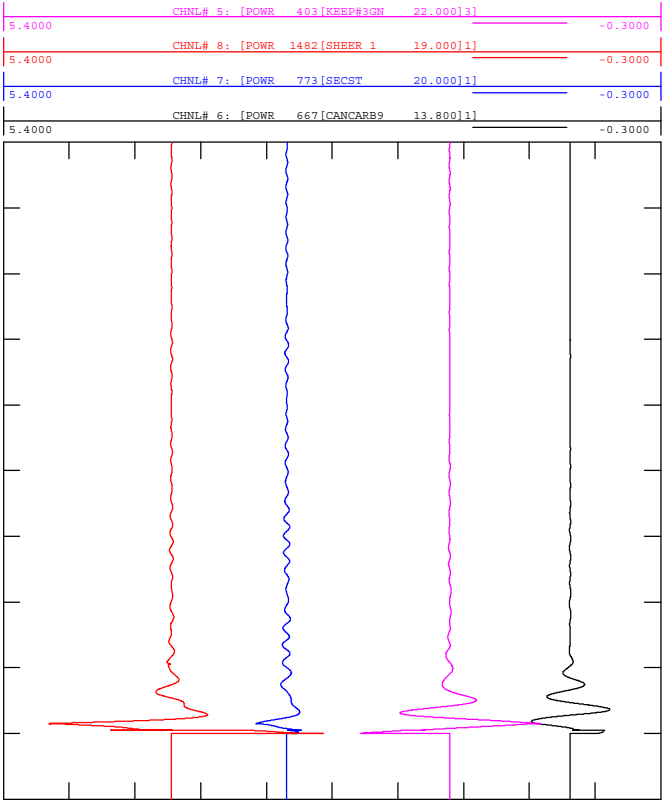


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

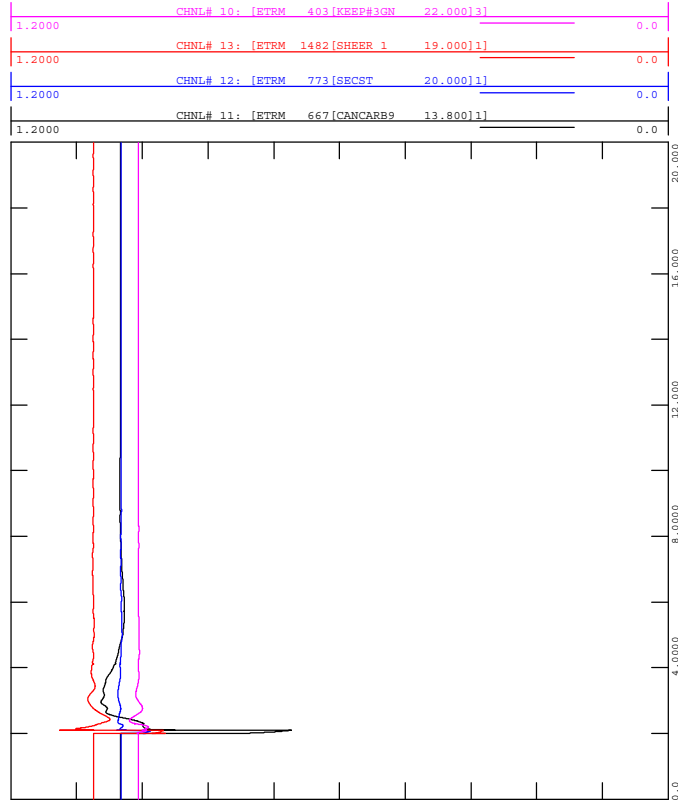


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

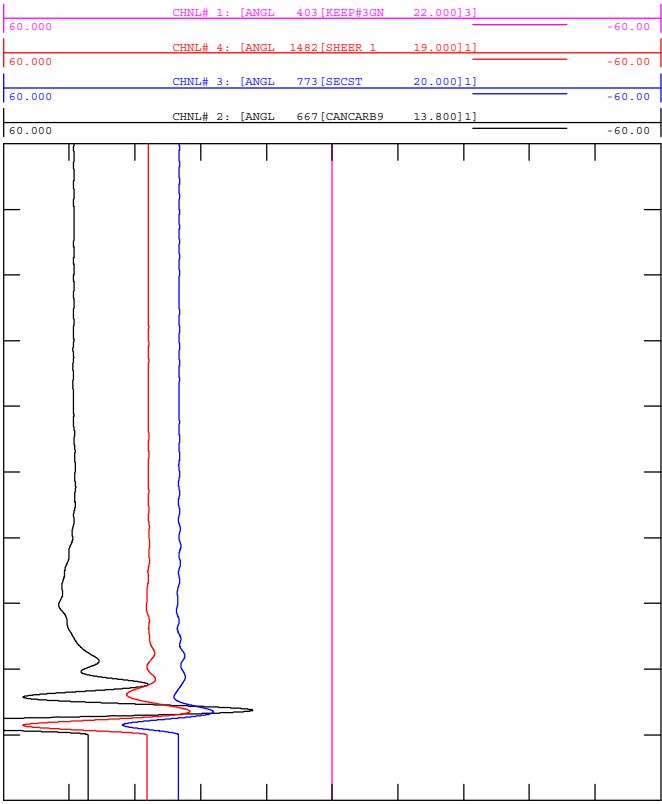


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

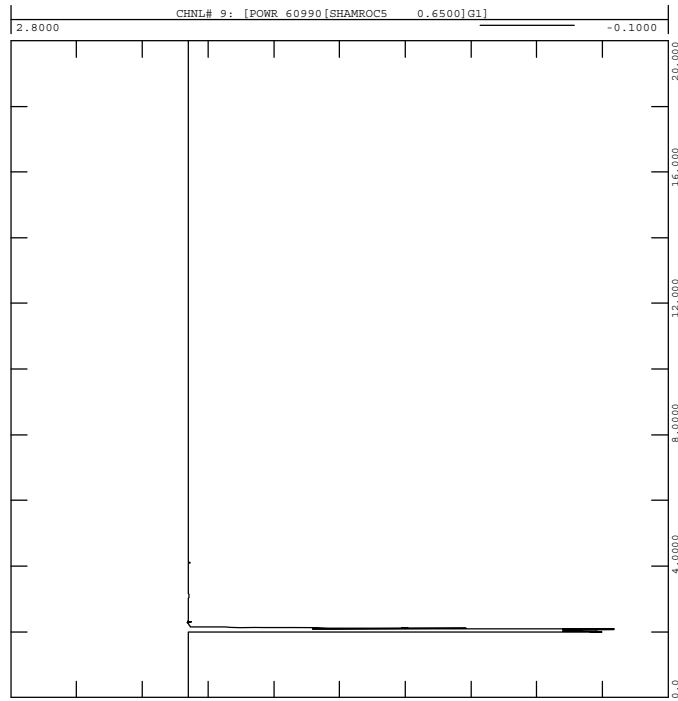


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

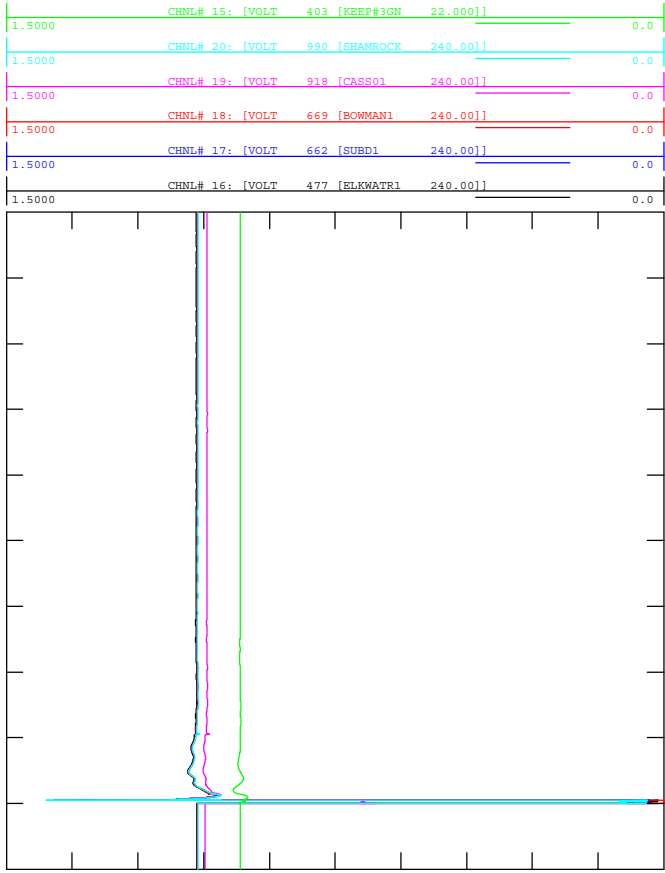


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

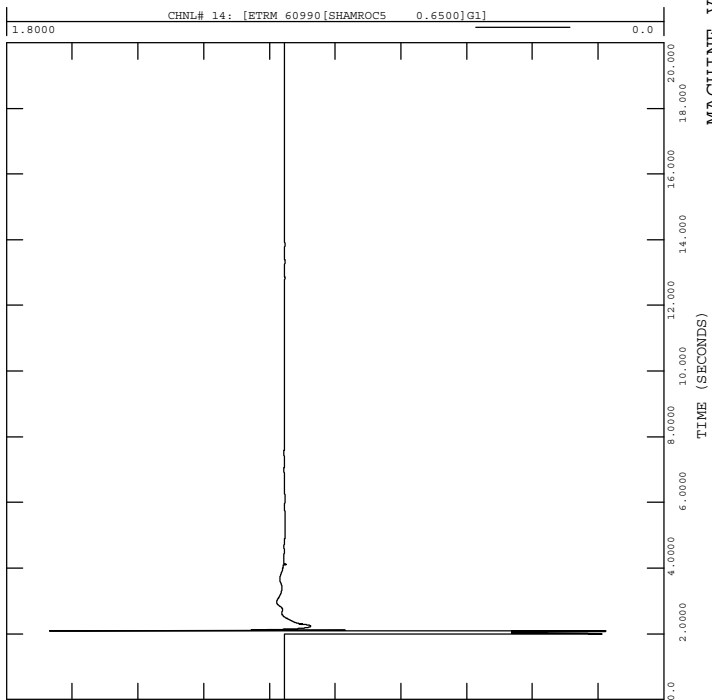


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

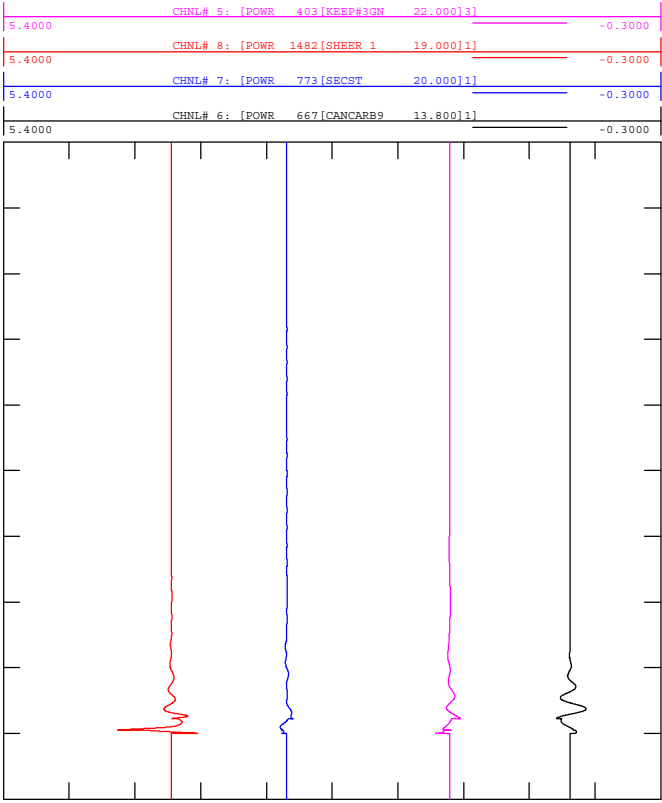


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



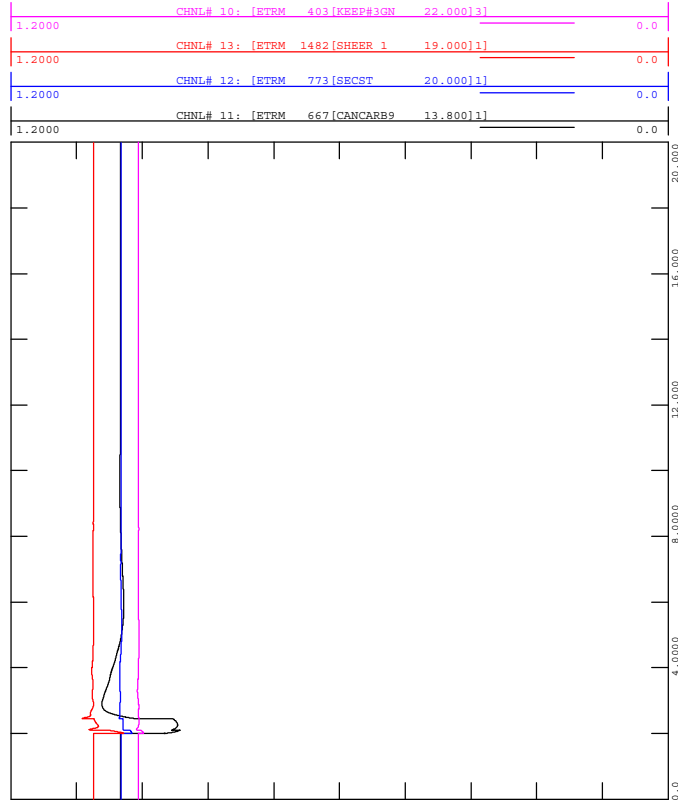
2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out



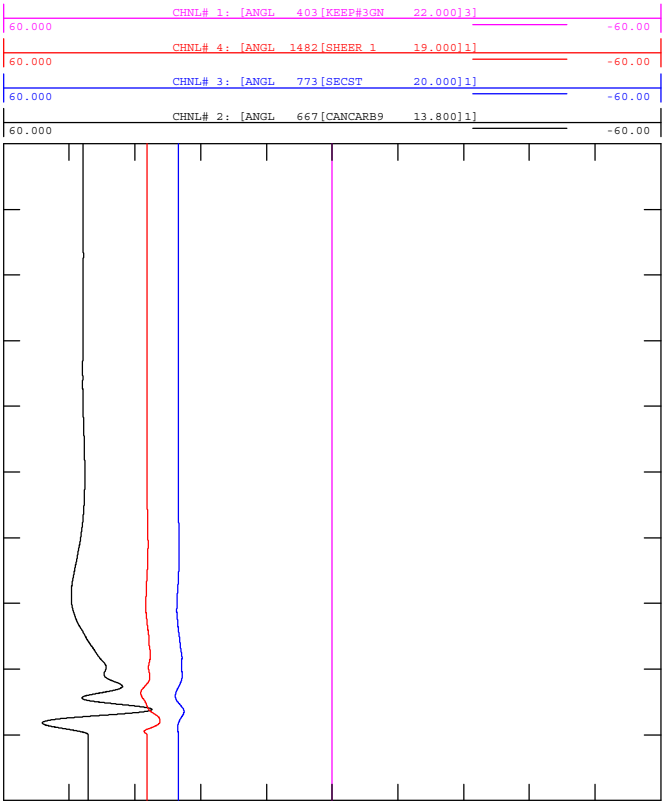
2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out



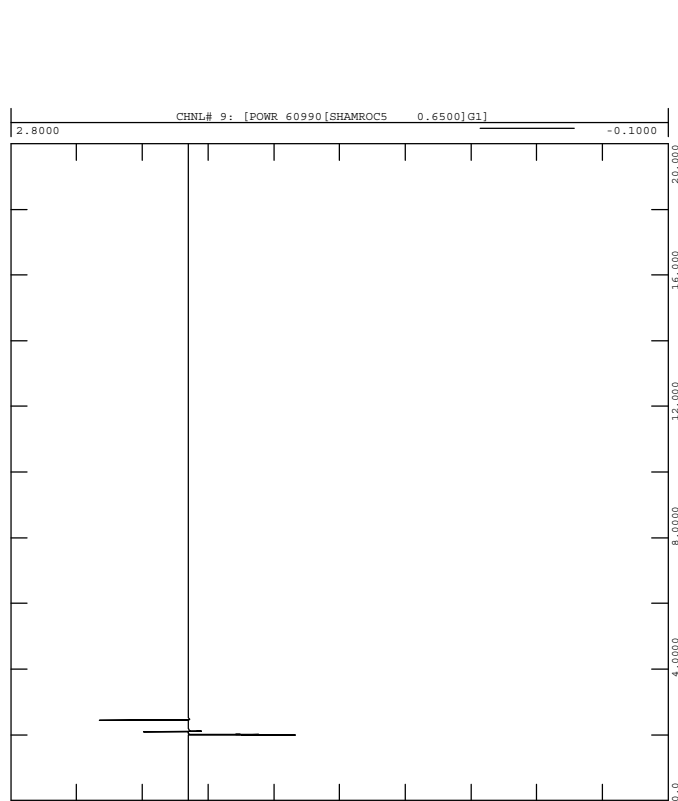
2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out



2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

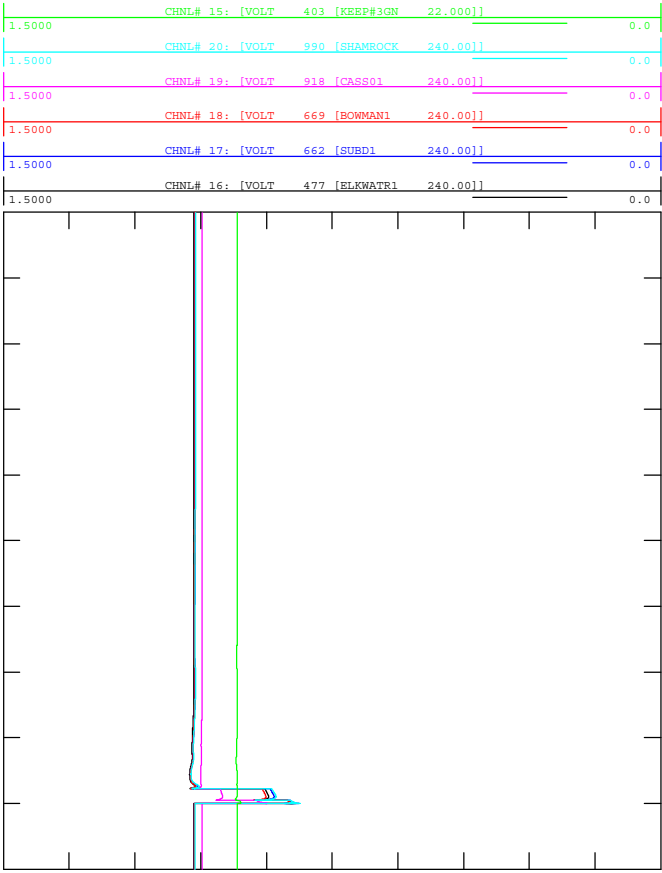
FILE: 892L (Suffiel 895S).out





2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out

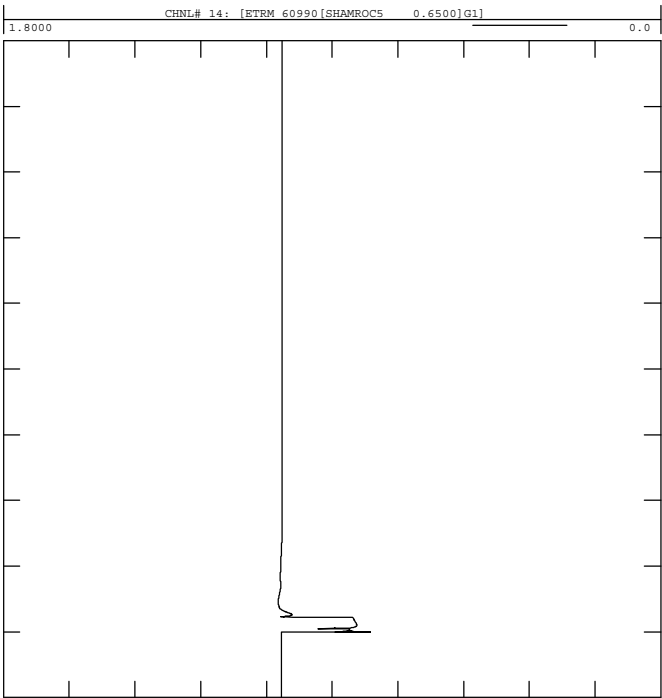


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out

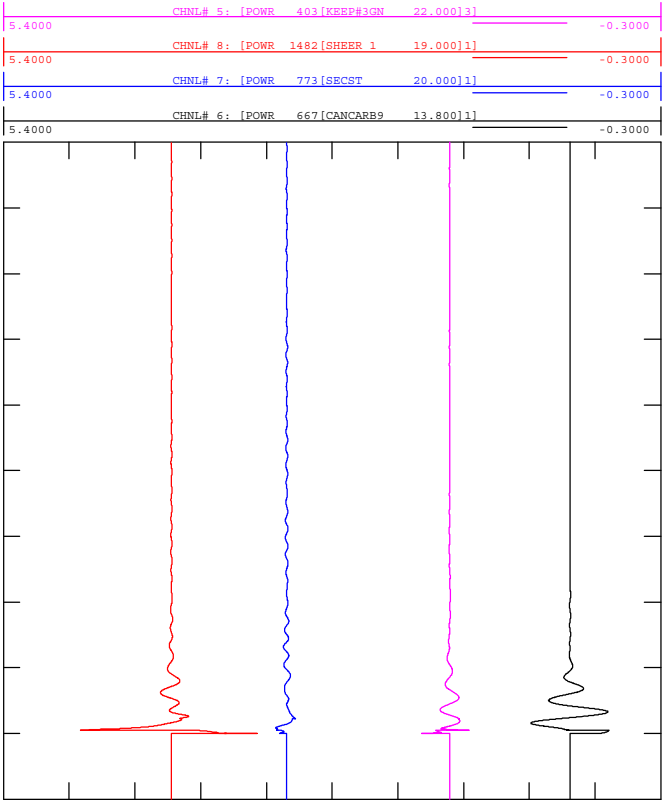


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out

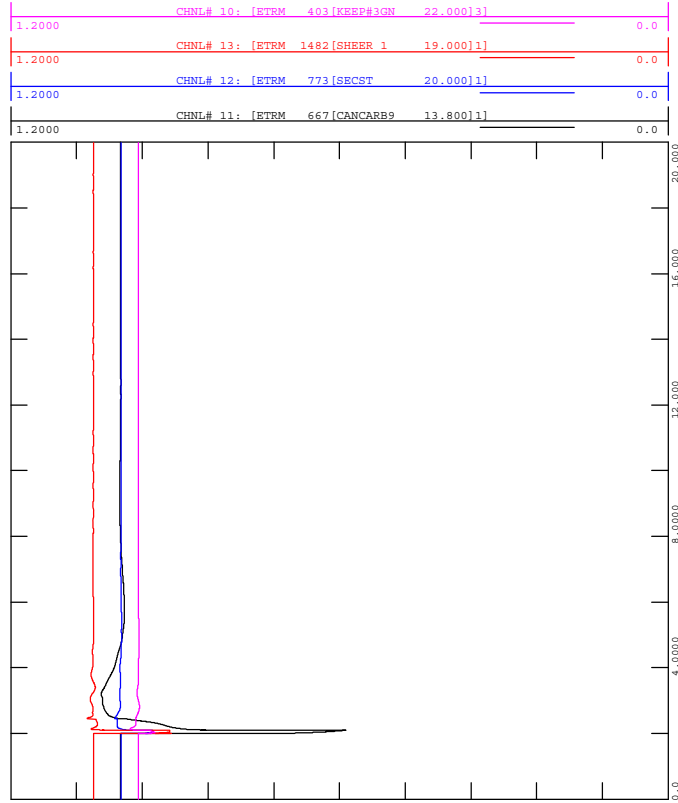


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out

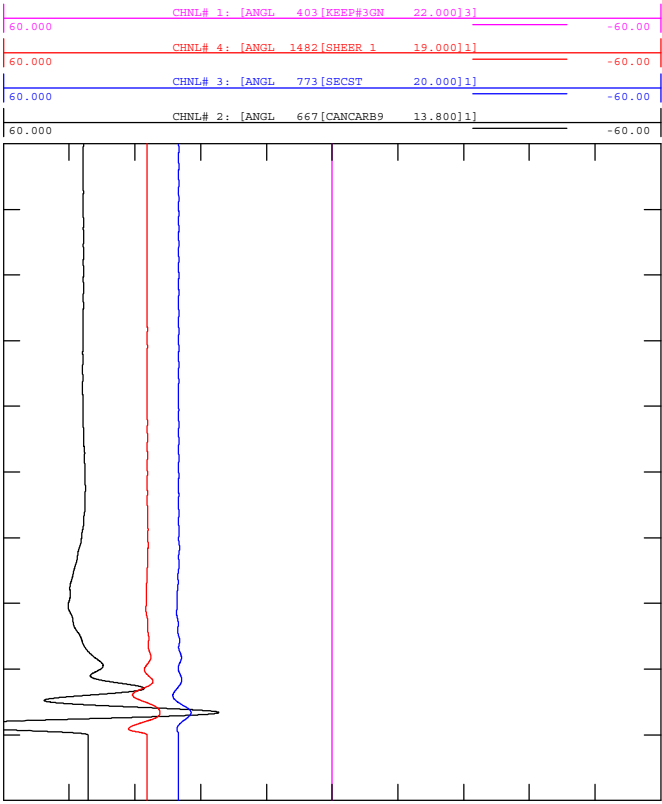


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out

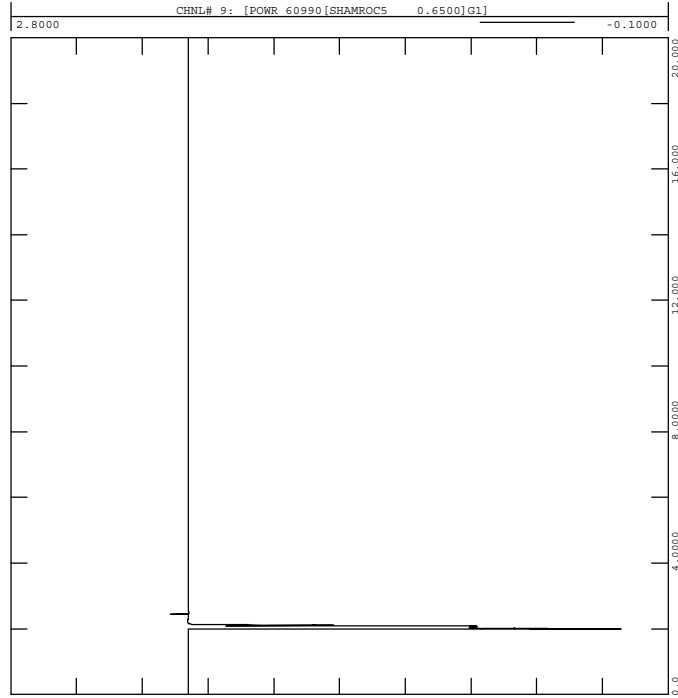


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out

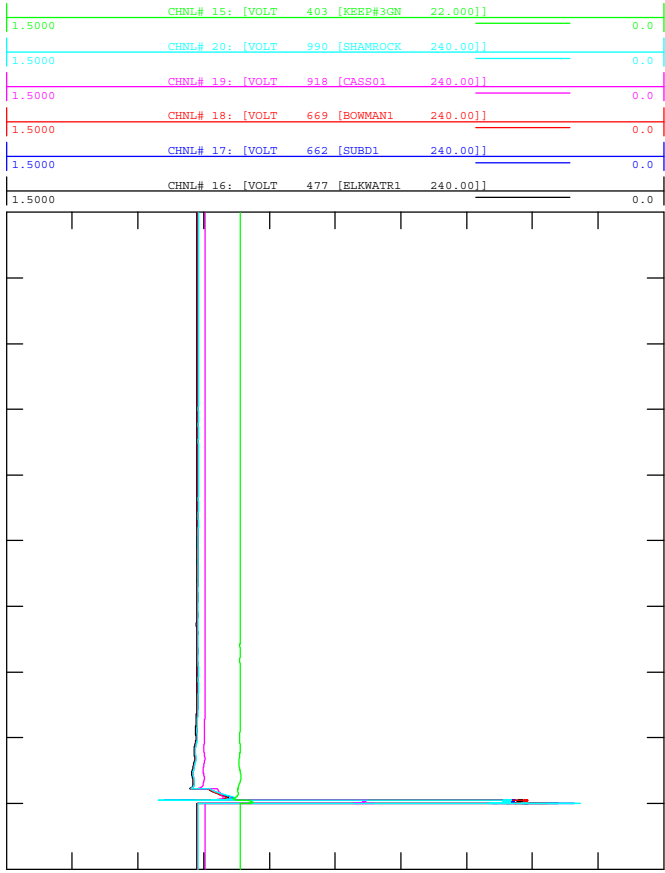


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out

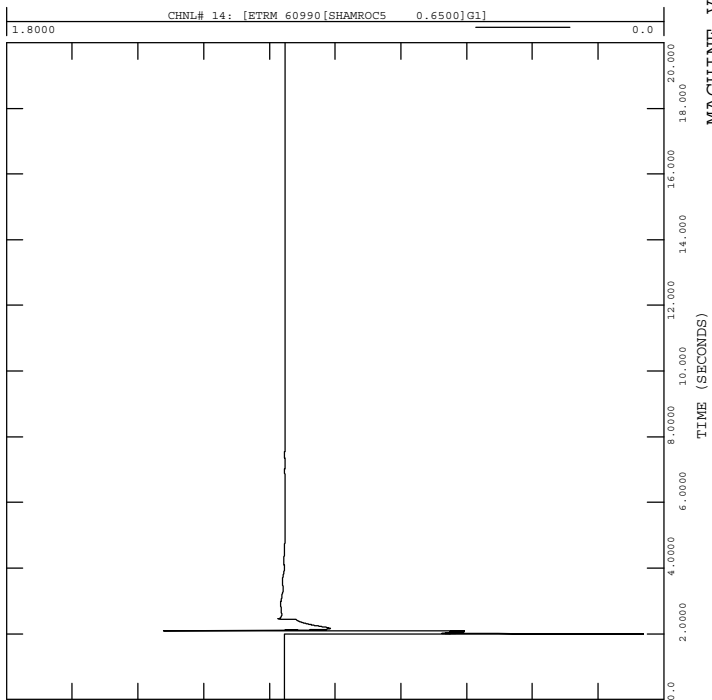


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out

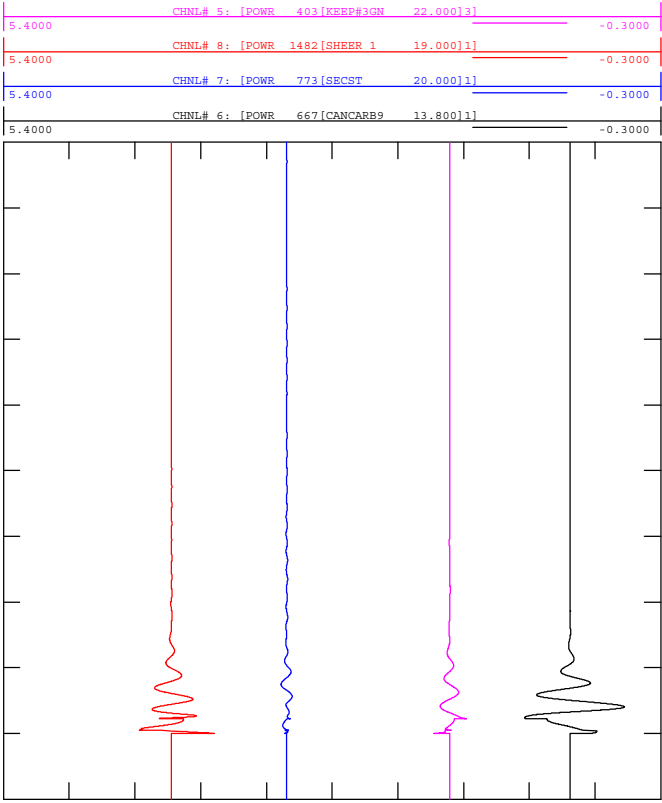


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out

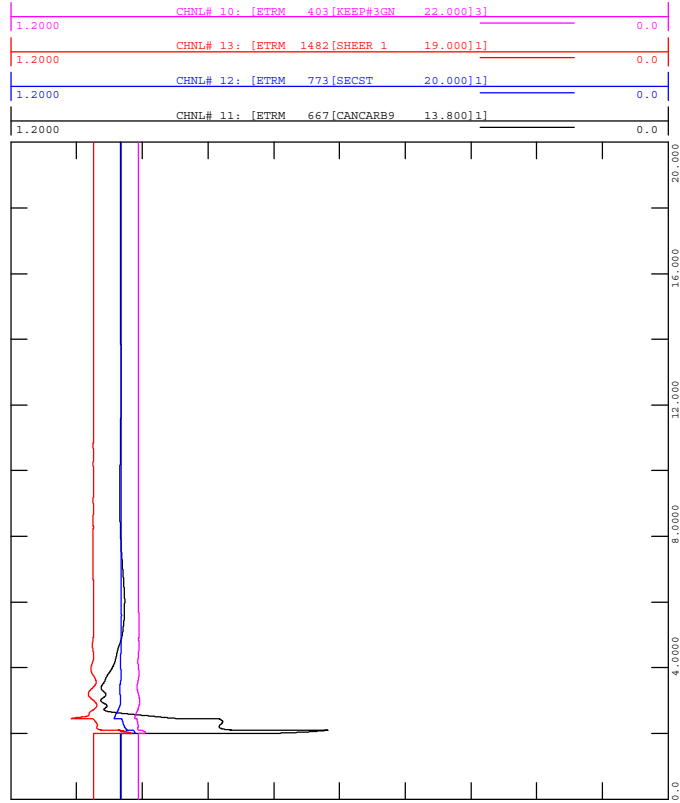


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out

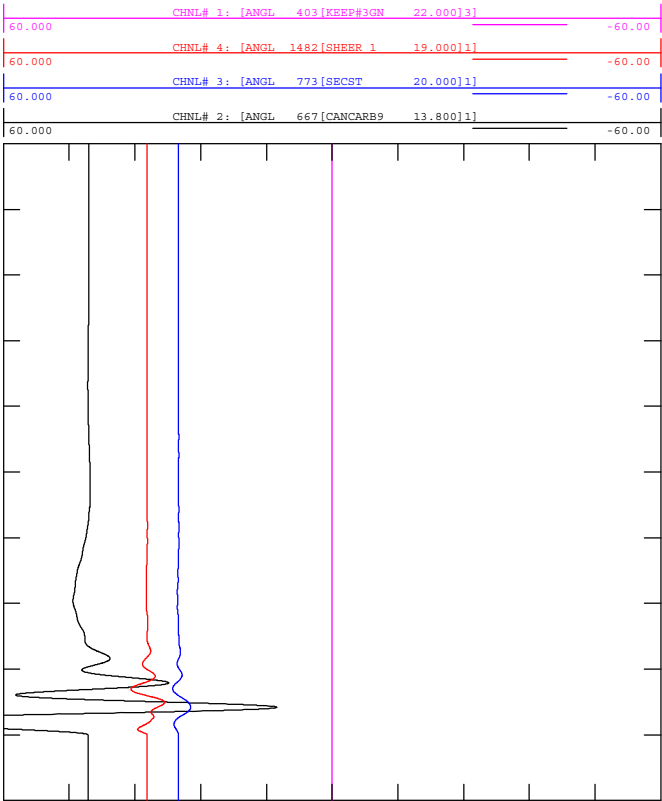


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out

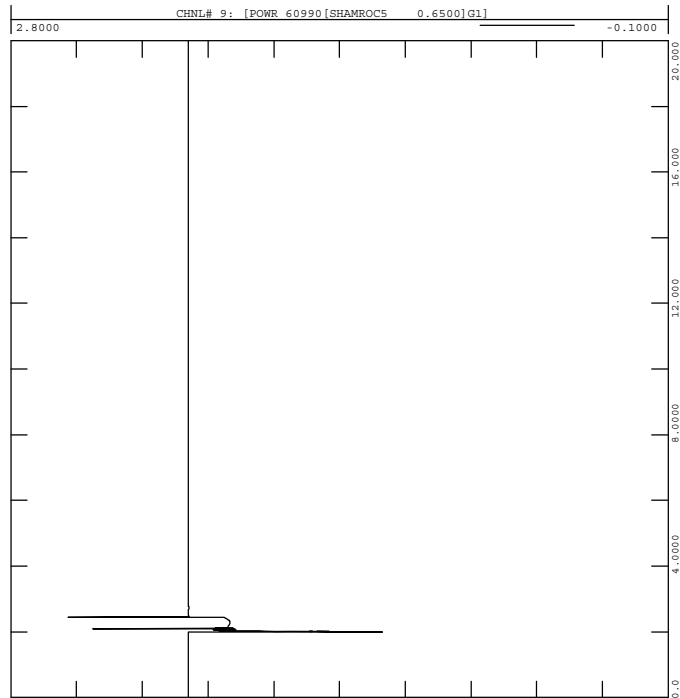


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out

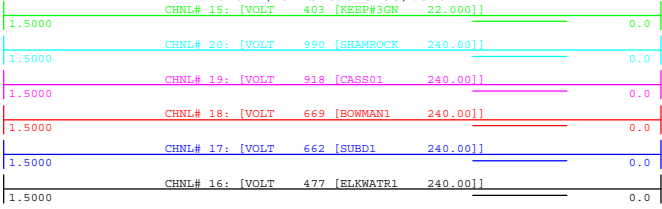


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out

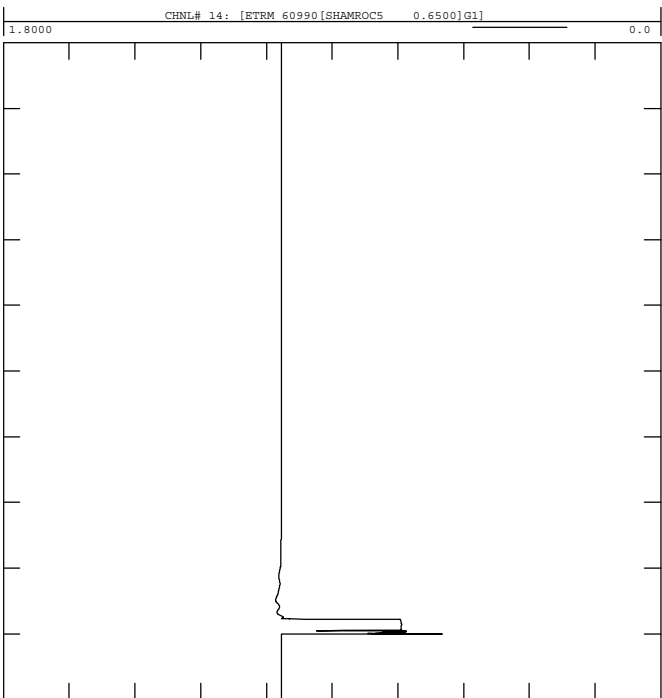


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out



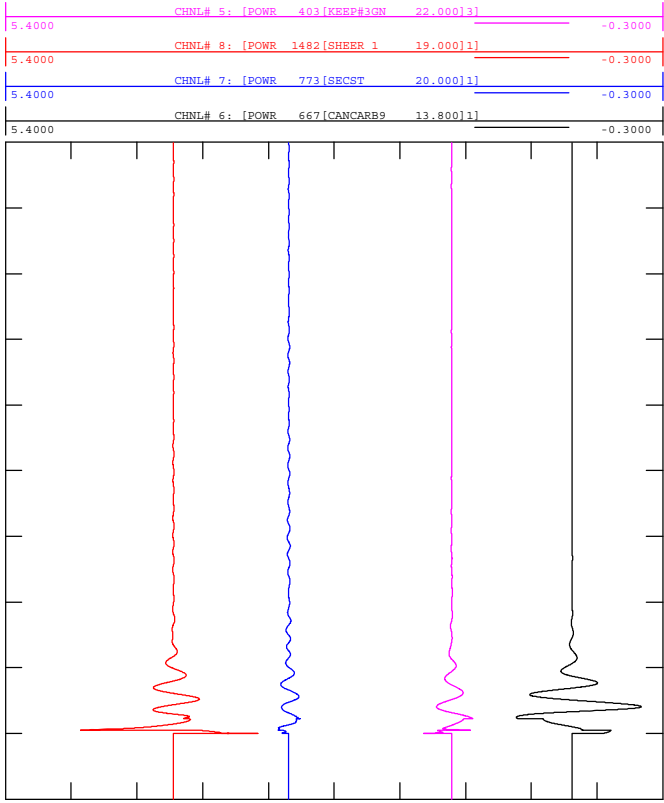
FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out

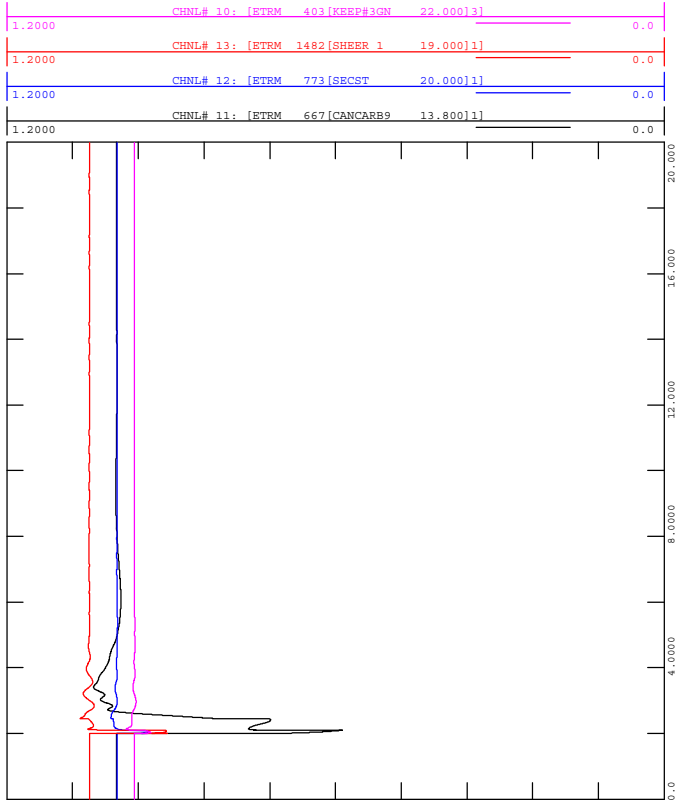
FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out

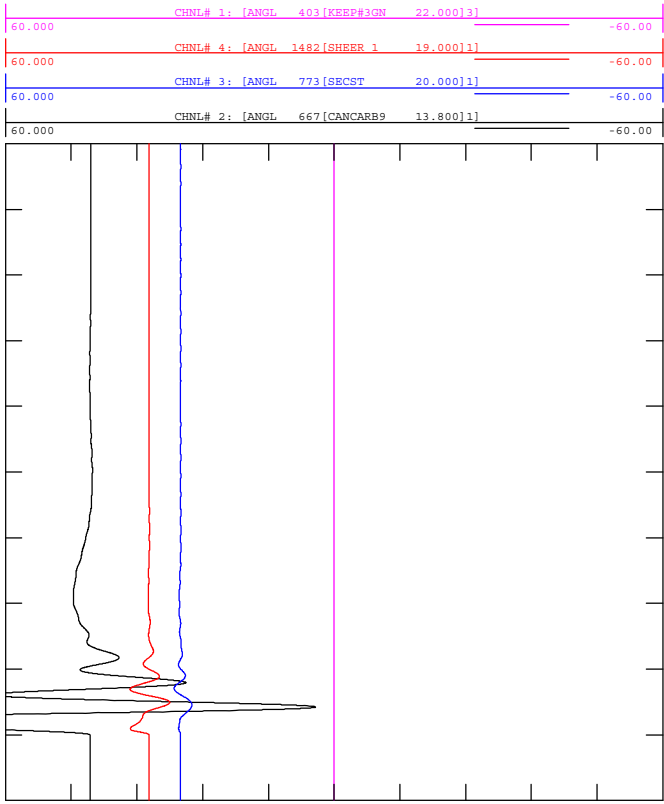
FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out

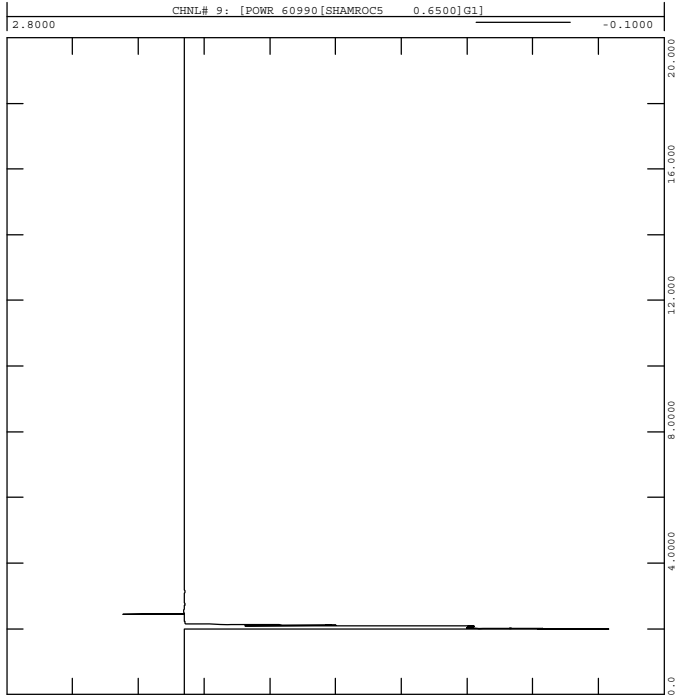
FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out

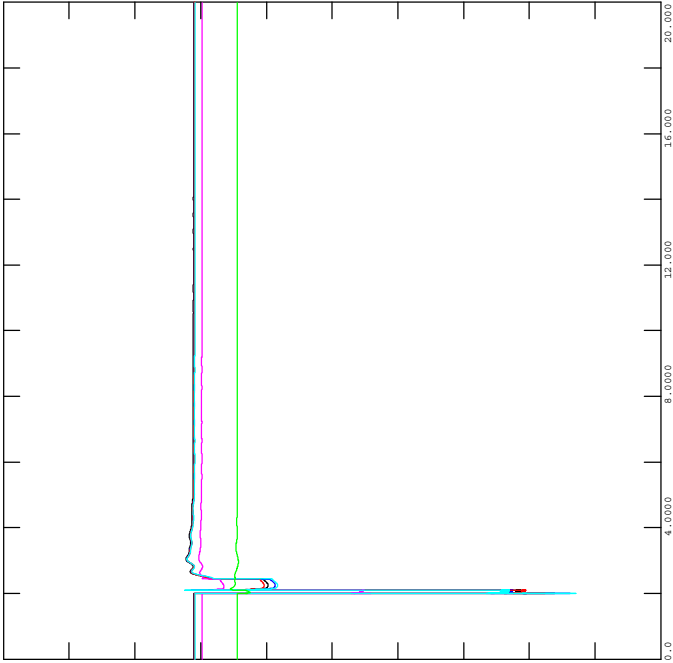
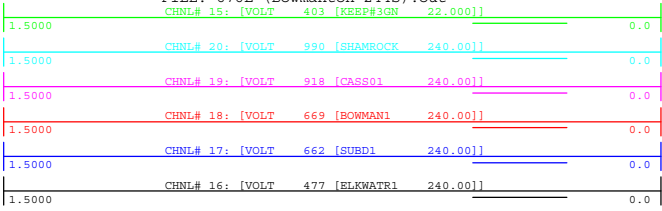
FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)





2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out

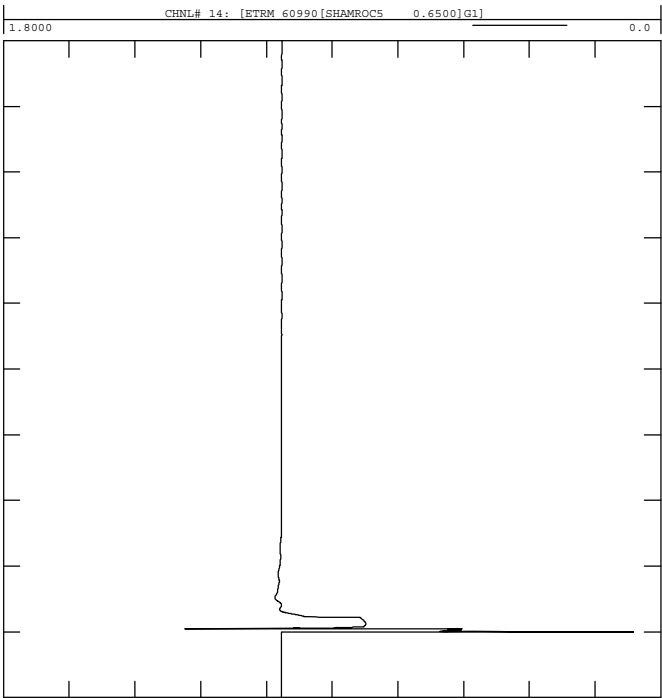


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out

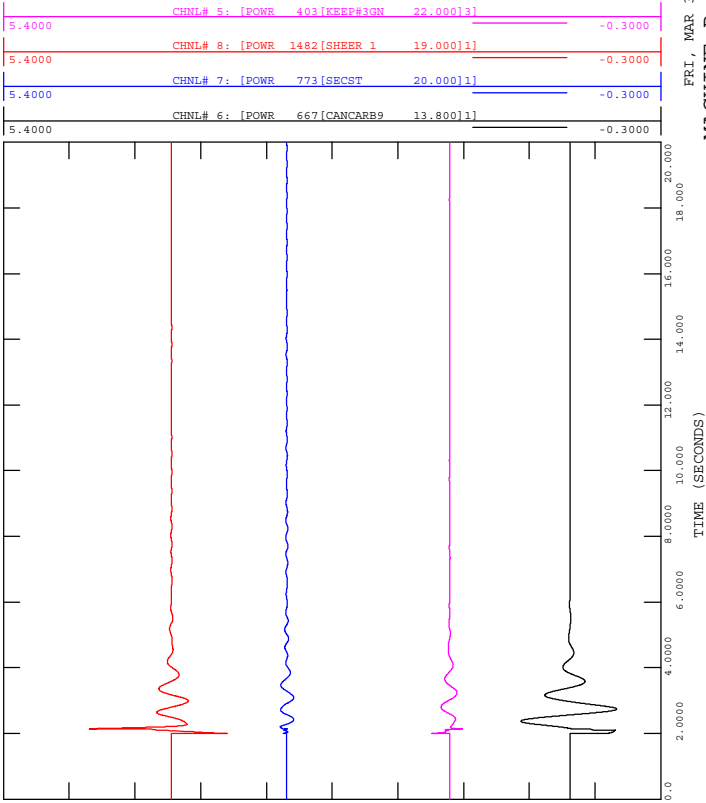


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



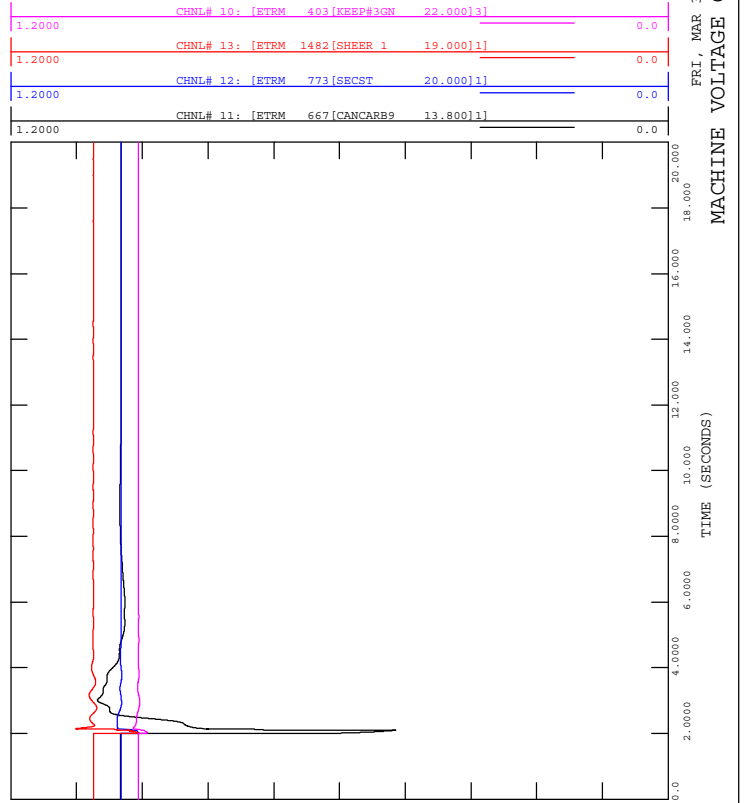
2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Al Rothbauer 321S).out



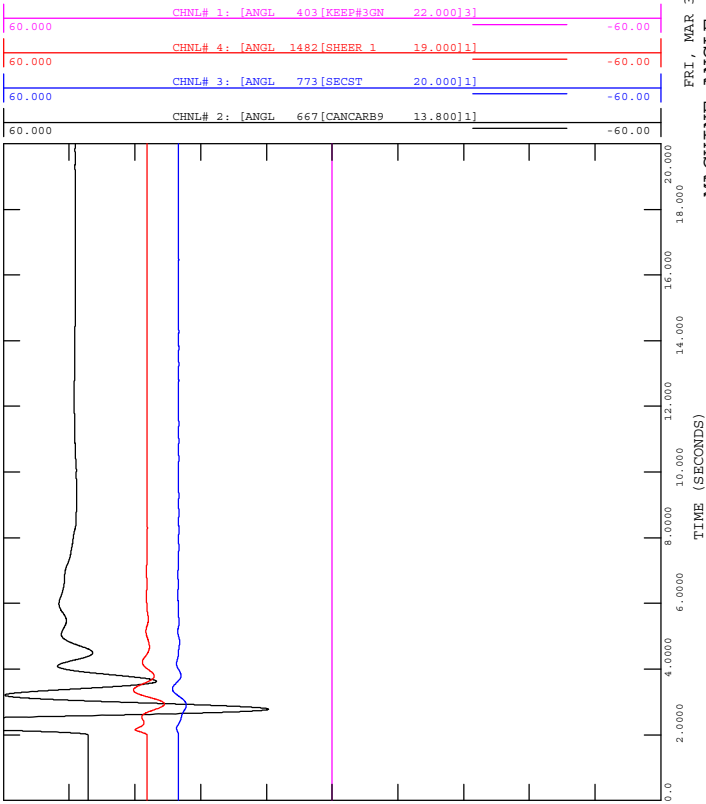
2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Al Rothbauer 321S).out



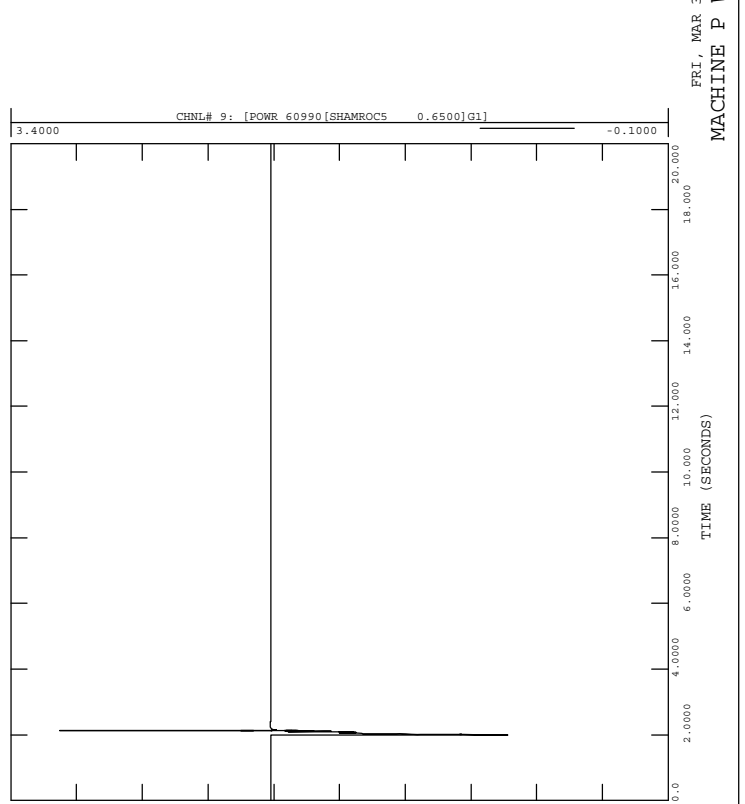
2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Al Rothbauer 321S).out



2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

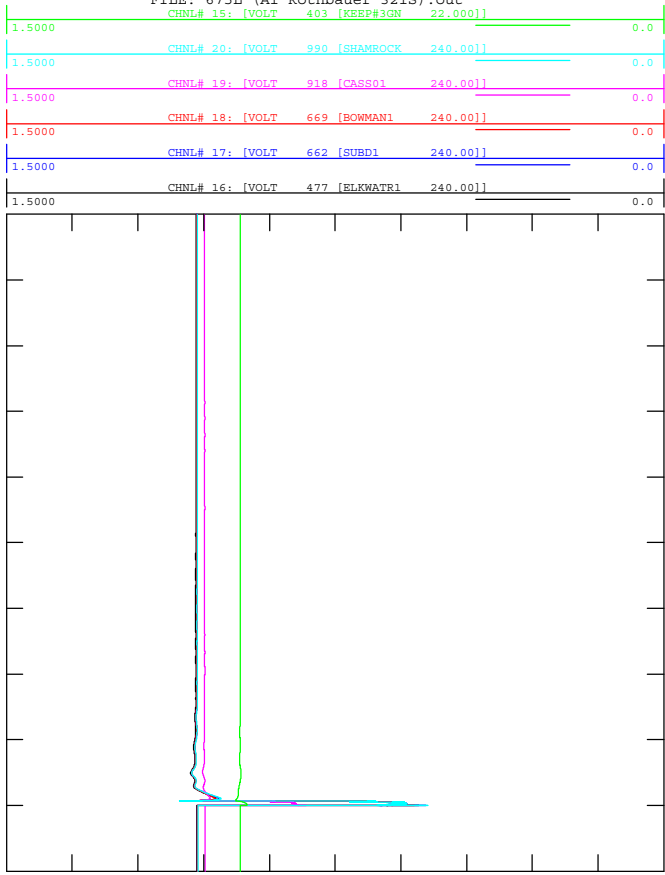
FILE: 675L (Al Rothbauer 321S).out





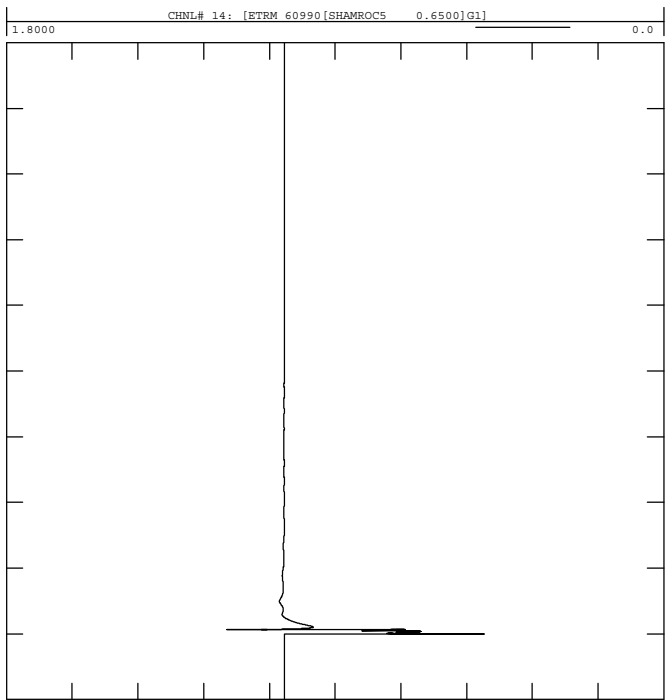
2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (AI Rothbauer 321S).out



2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (AI Rothbauer 321S).out

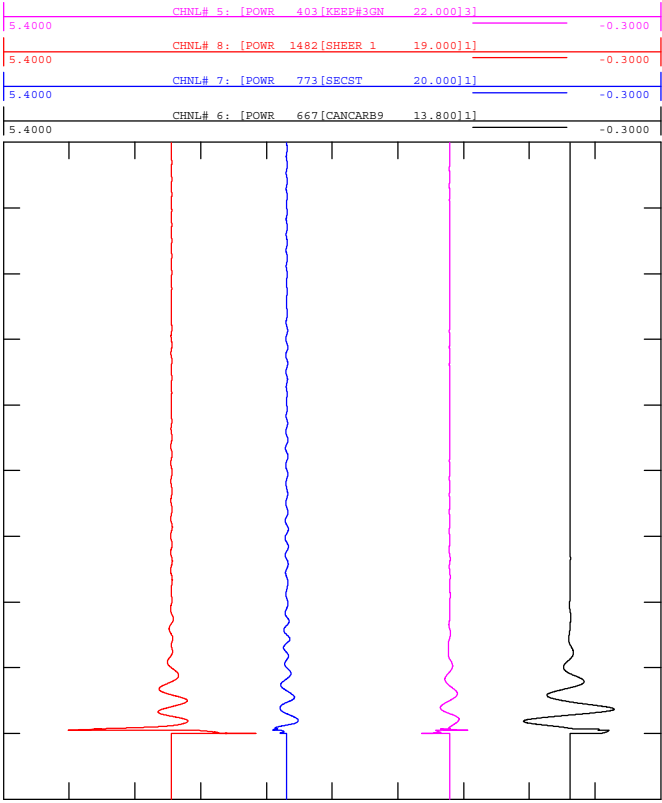




2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out

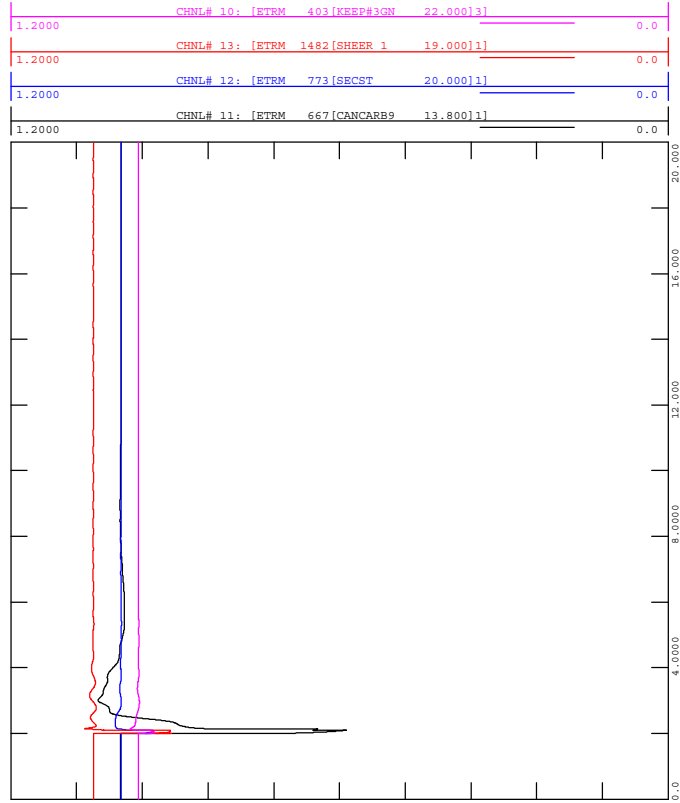
FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out

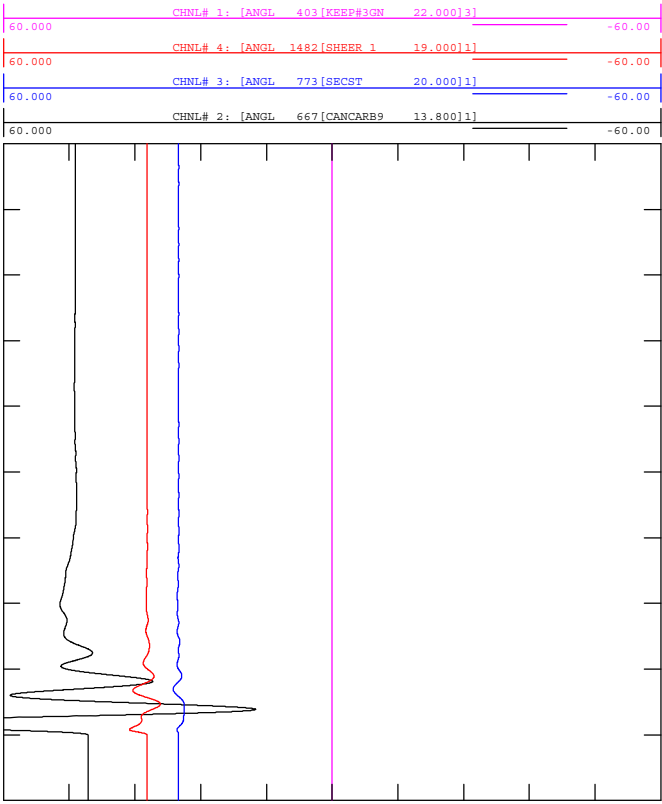
FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out

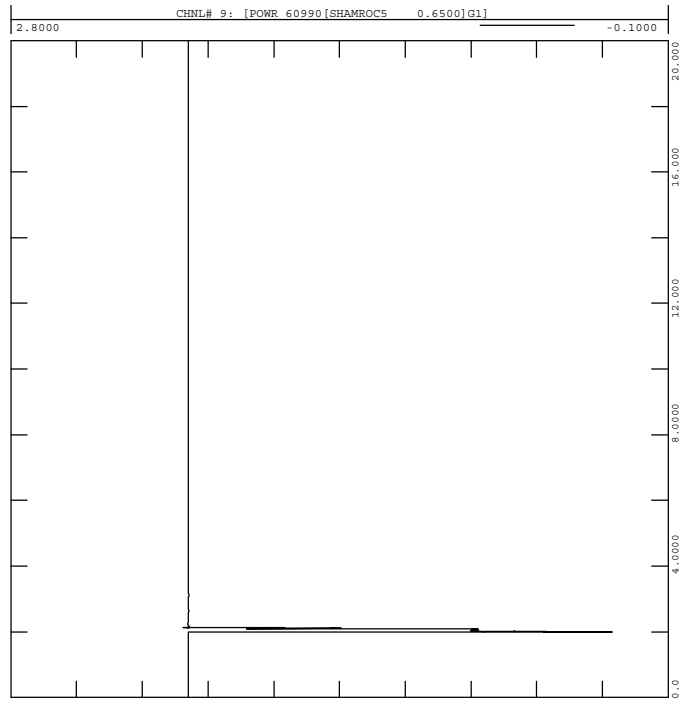
FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out

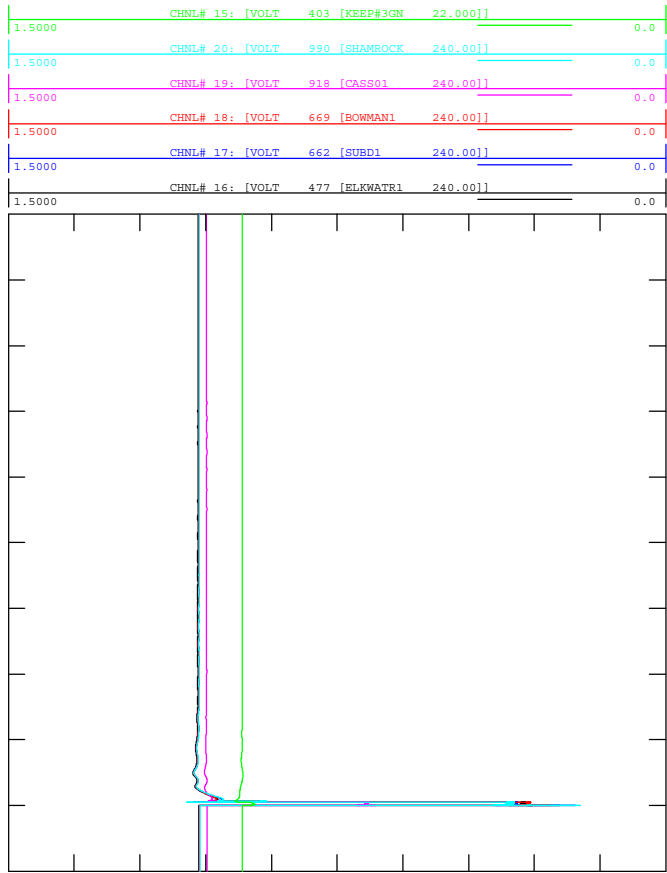
FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)





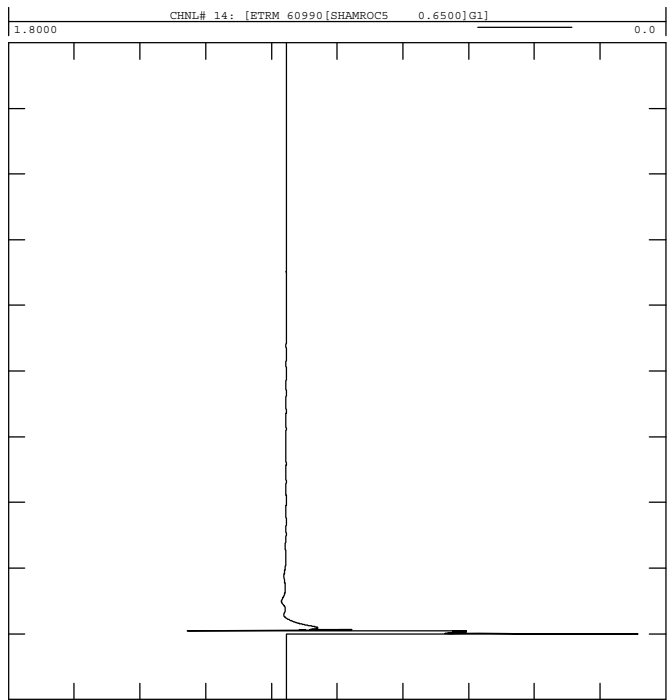
2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out



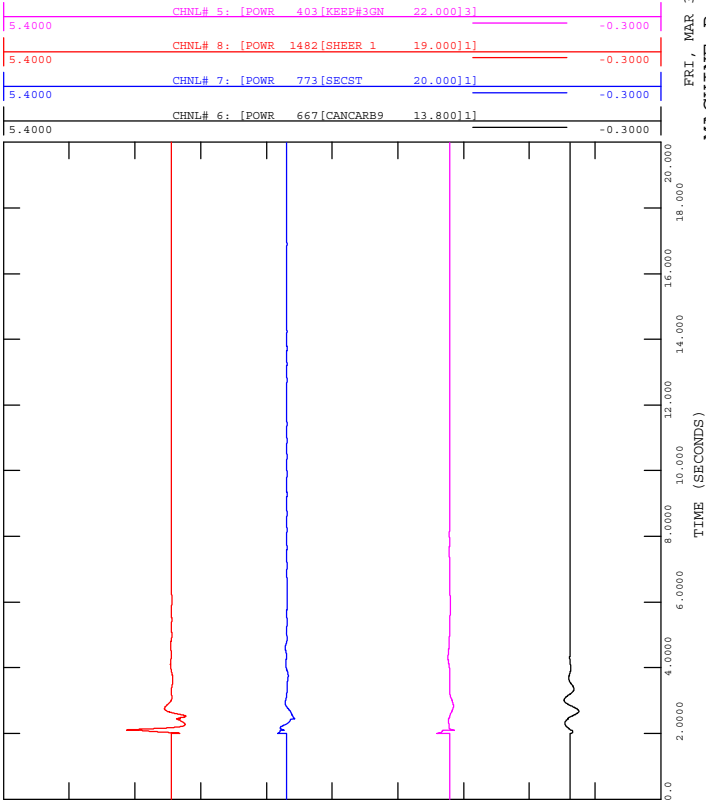
2019 SP POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out

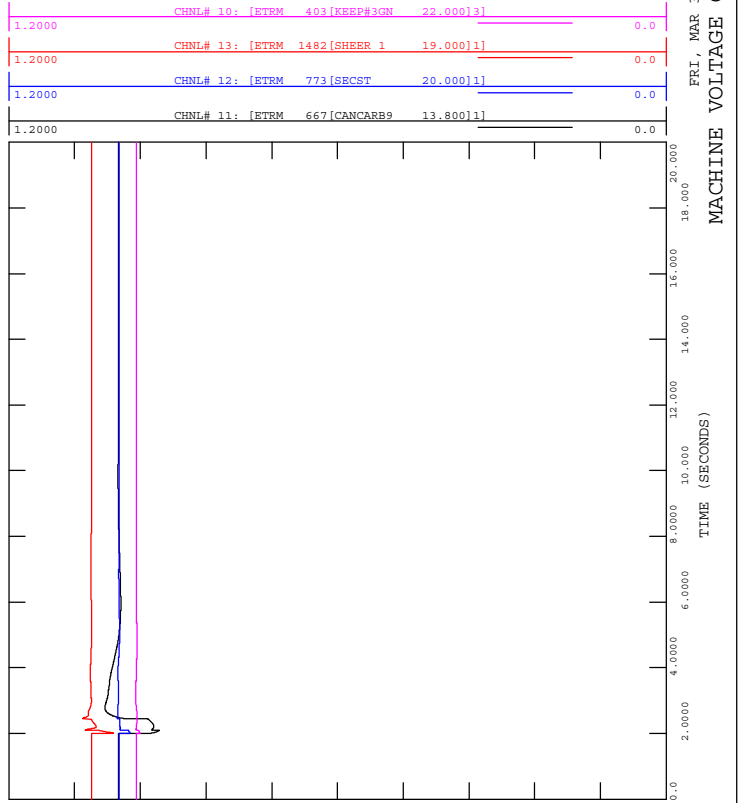




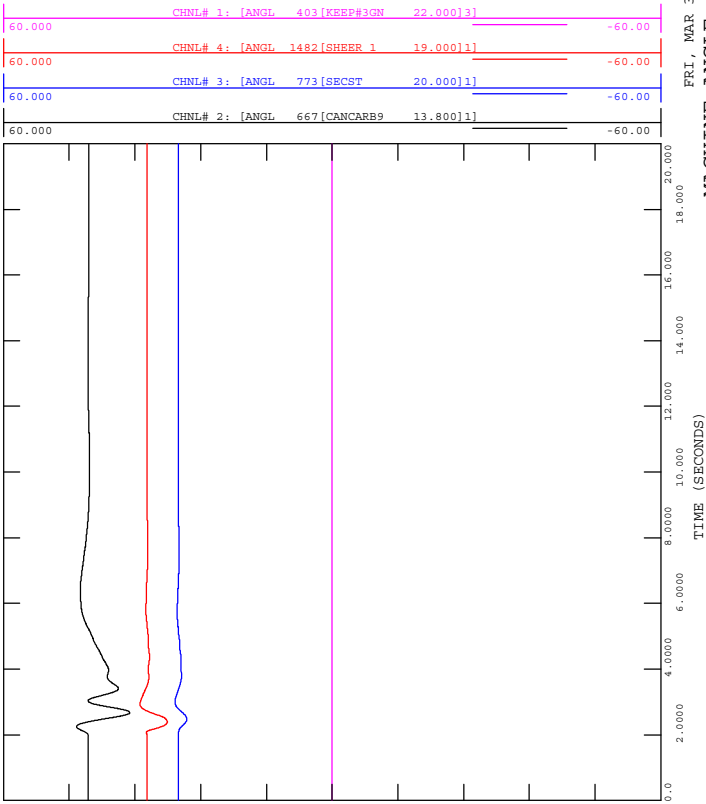
2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES
FILE: 879L (Burdett 368S).out



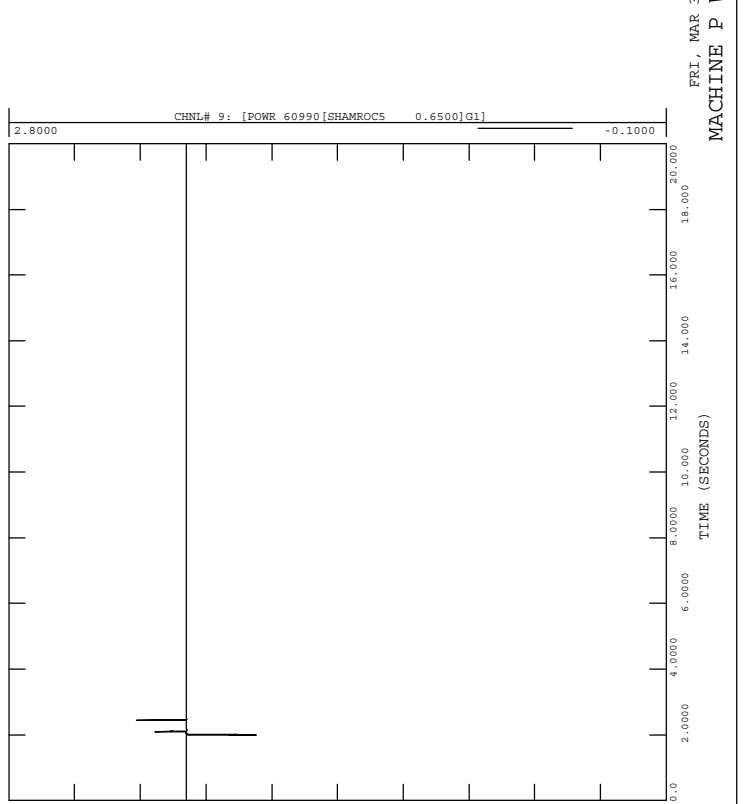
2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES
FILE: 879L (Burdett 368S).out



2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES
FILE: 879L (Burdett 368S).out



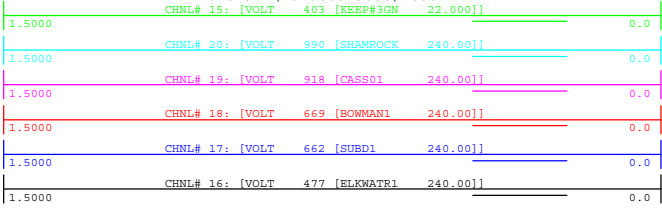
2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES
FILE: 879L (Burdett 368S).out





2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Burdett 368S).out

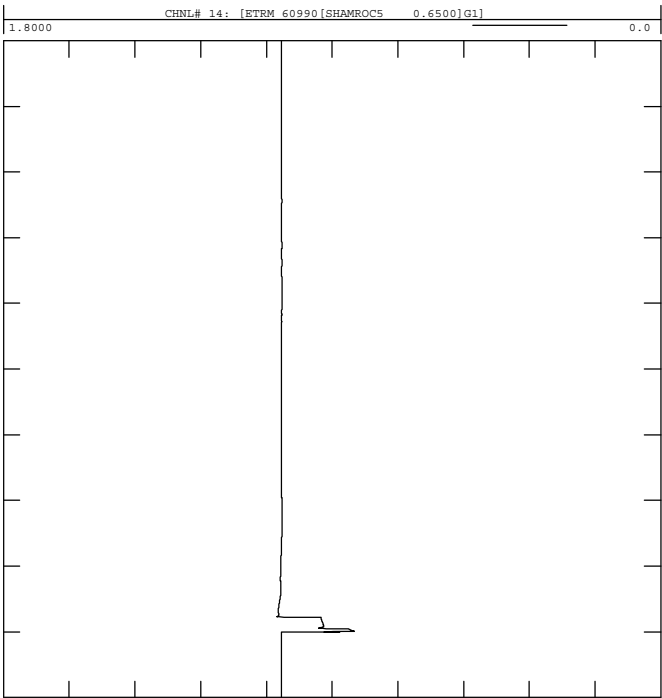


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Burdett 368S).out

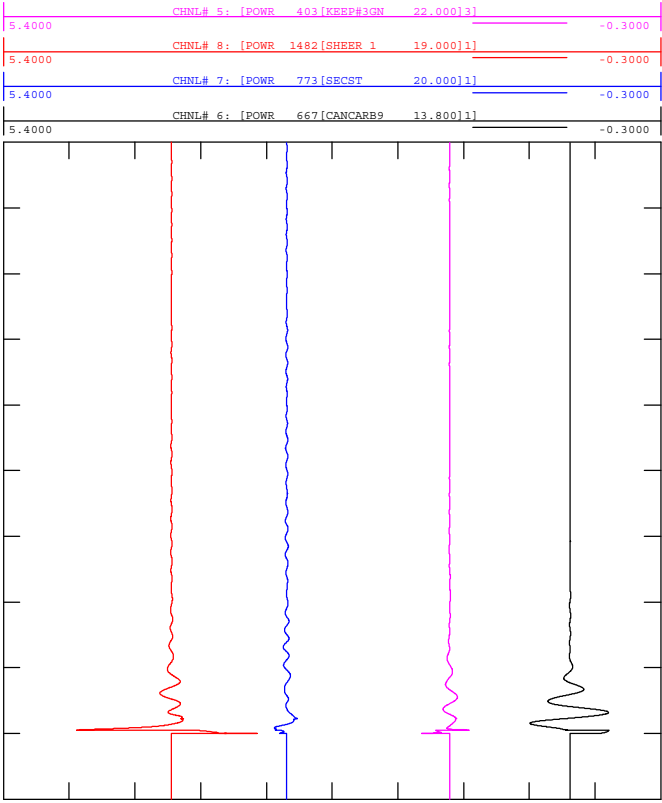


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out

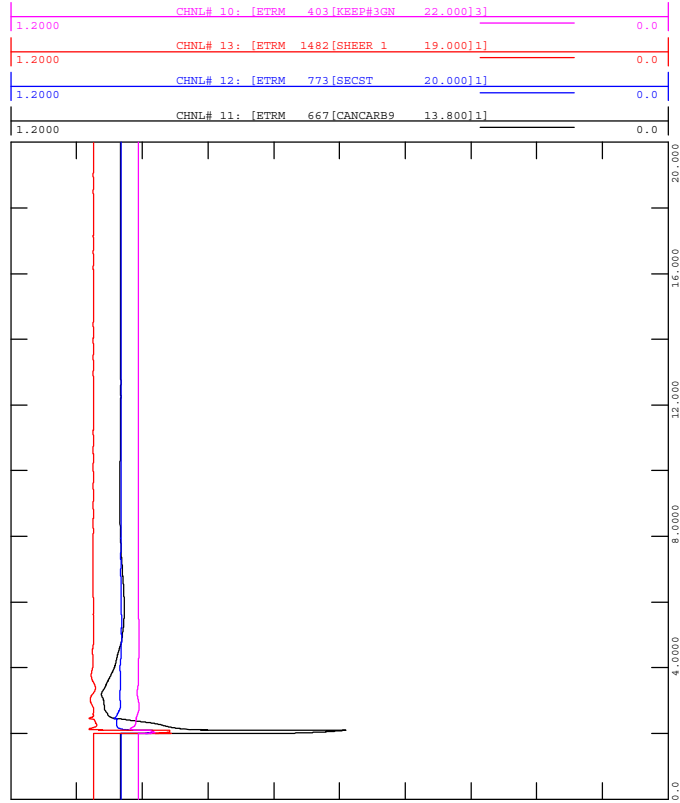


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out

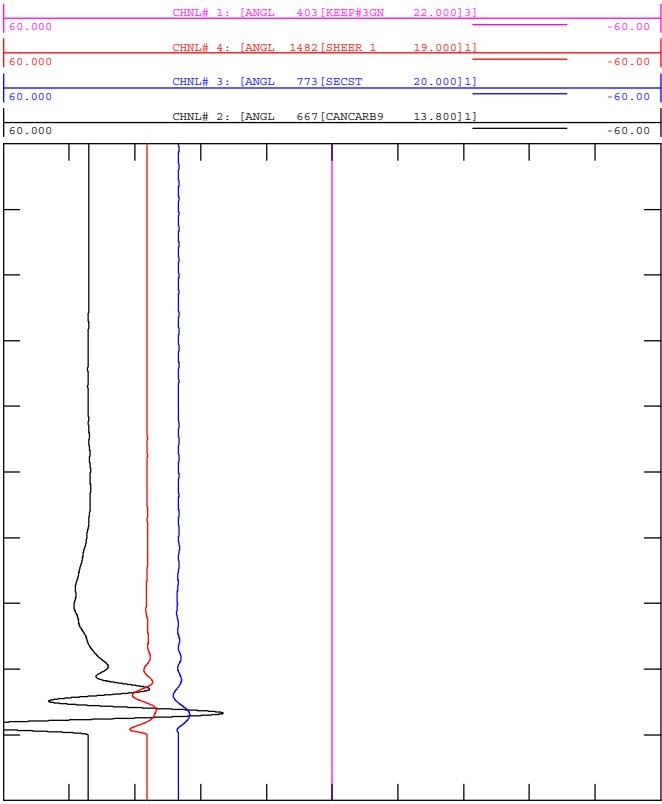


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out

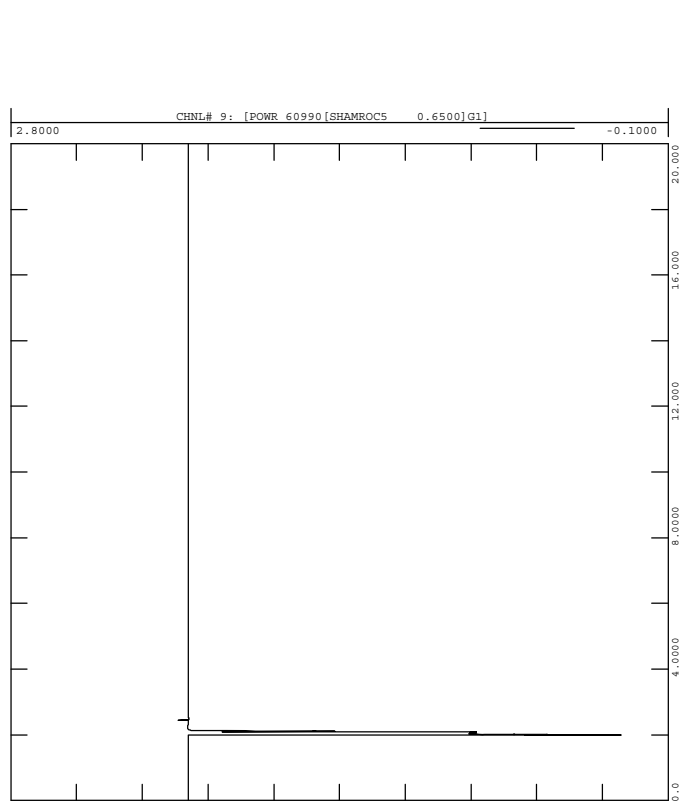


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out

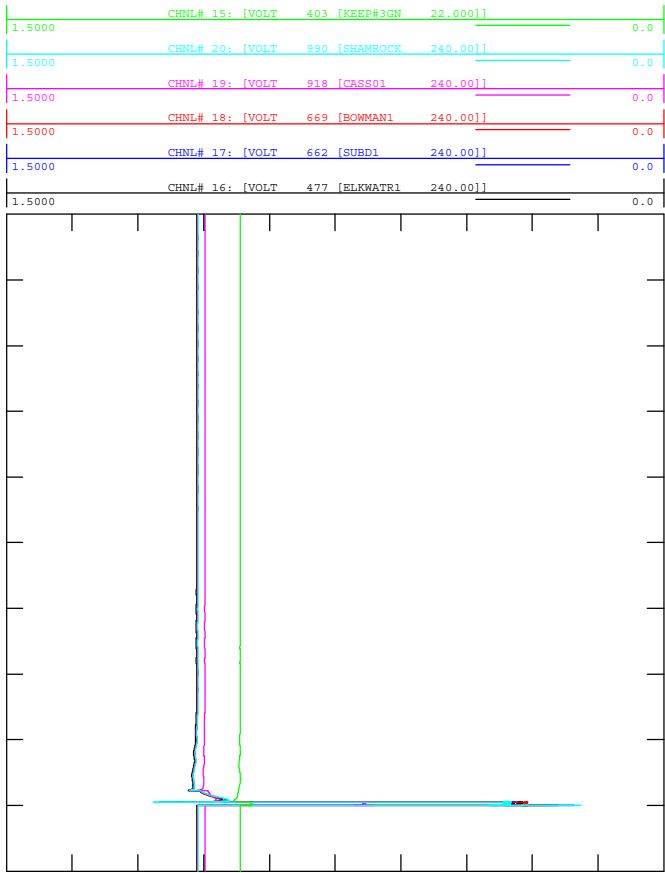


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out

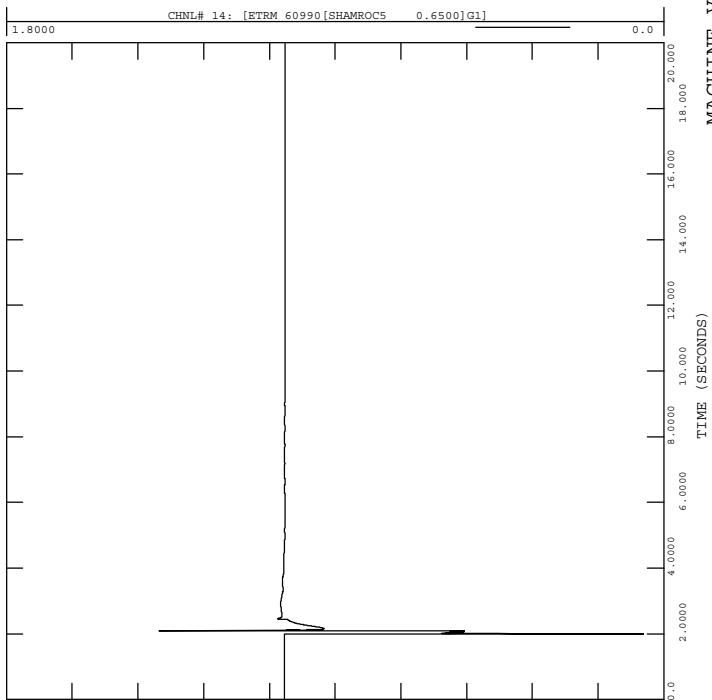


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out



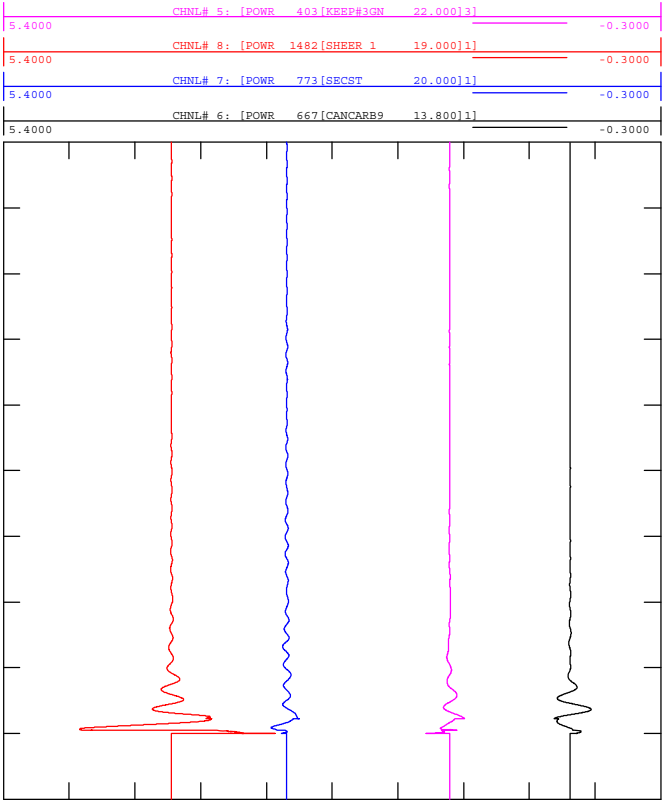
FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out

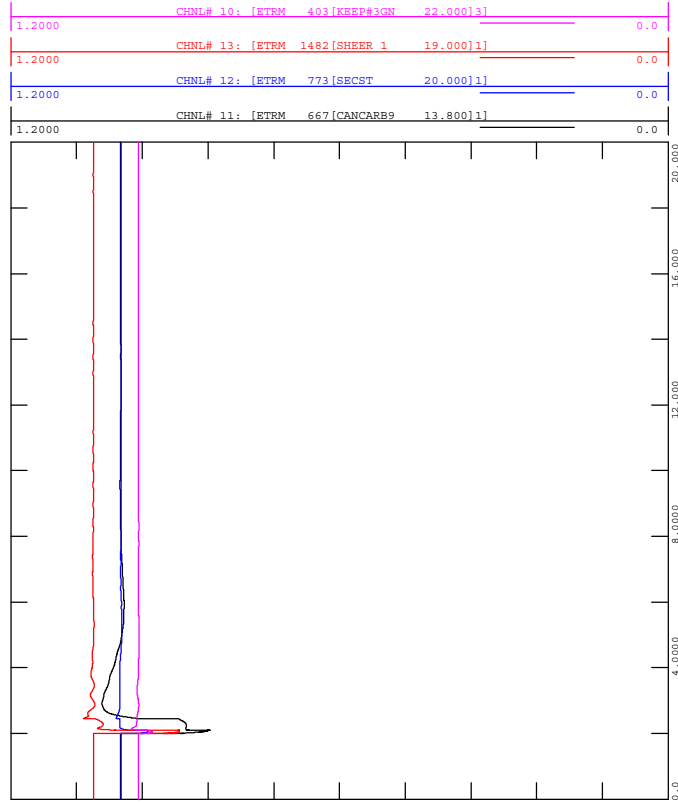
FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out

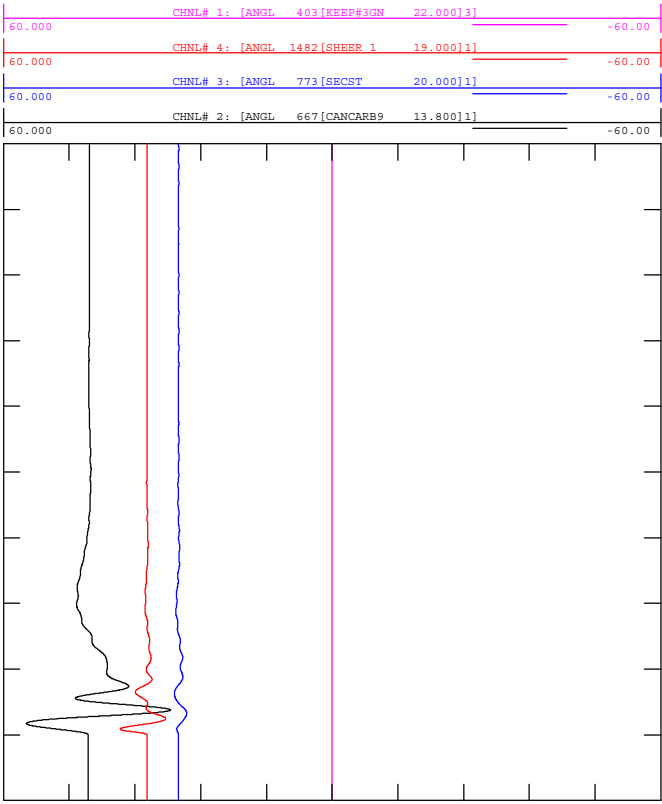
FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out

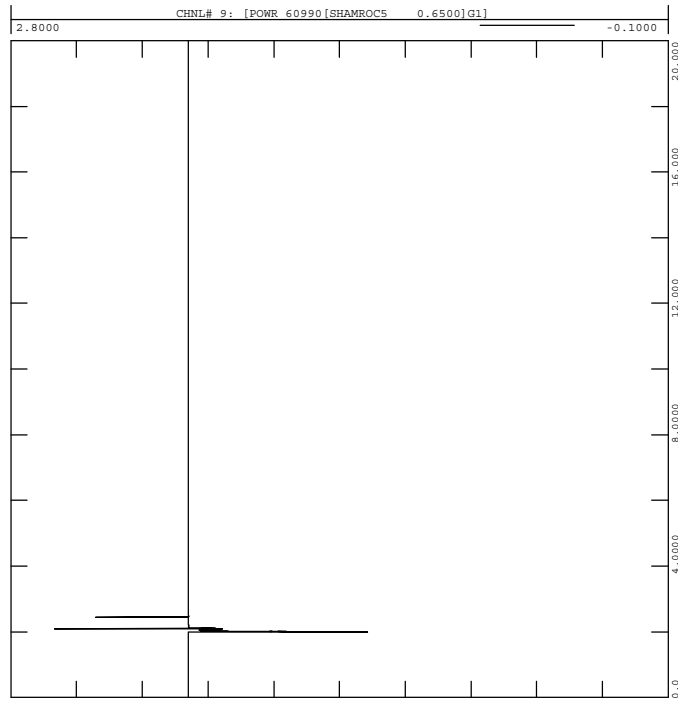
FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out

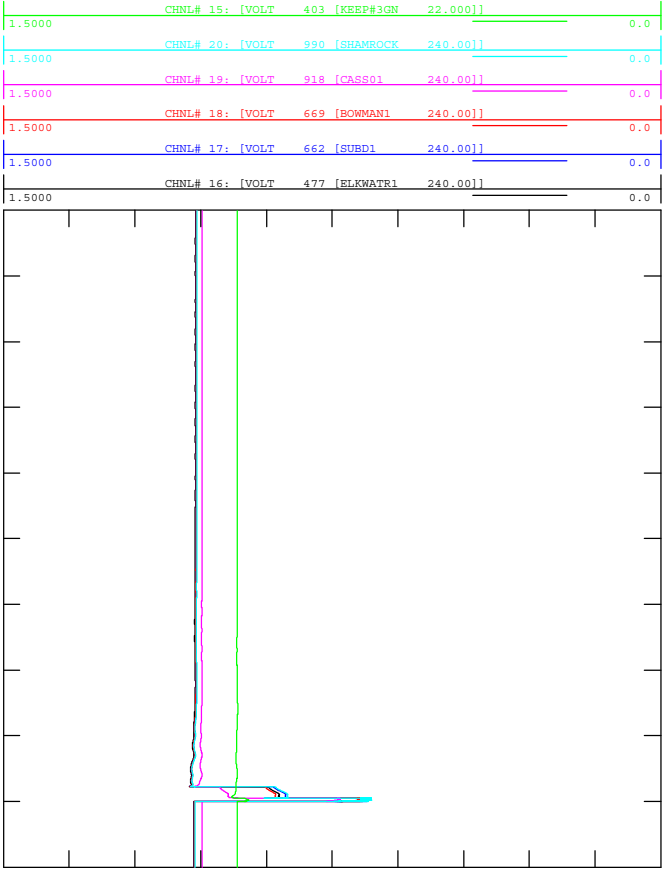
FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)





2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out

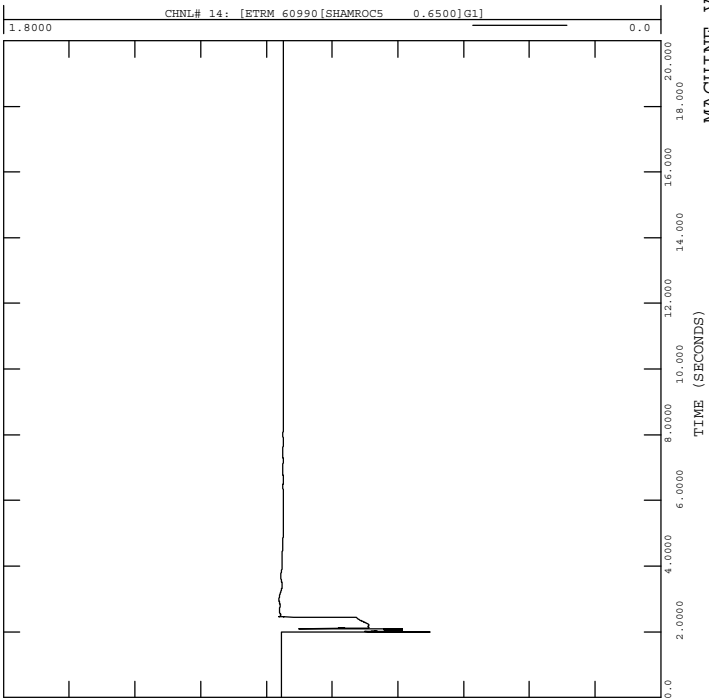


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out

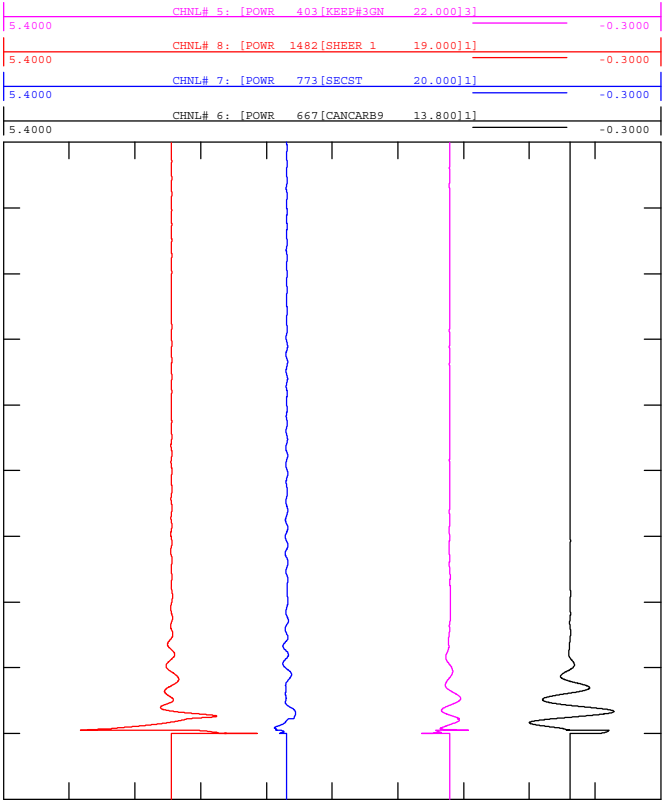


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

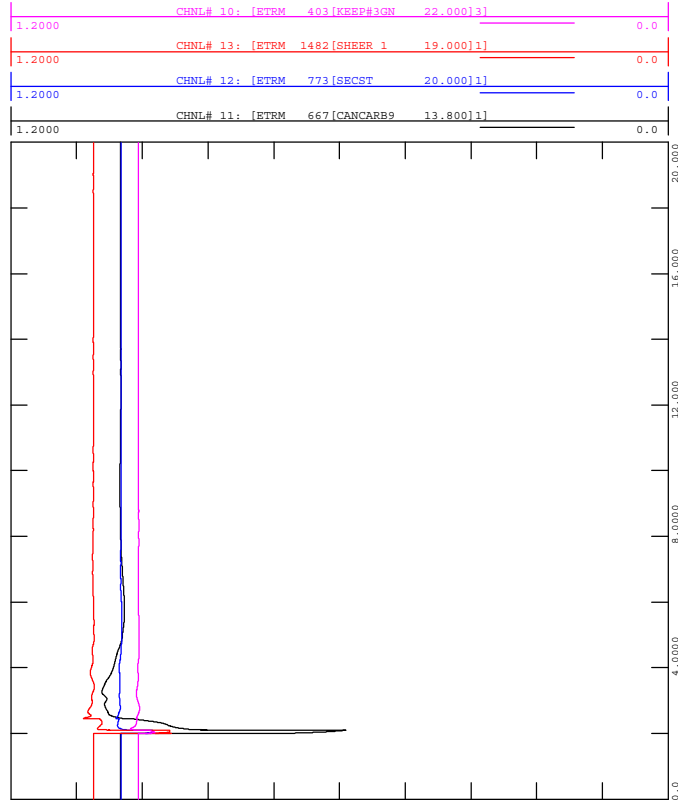


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

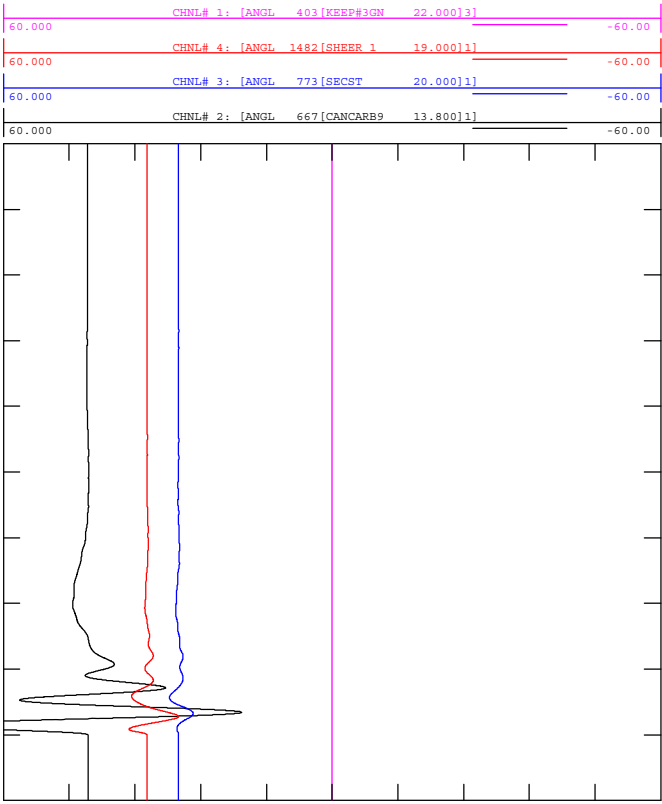


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

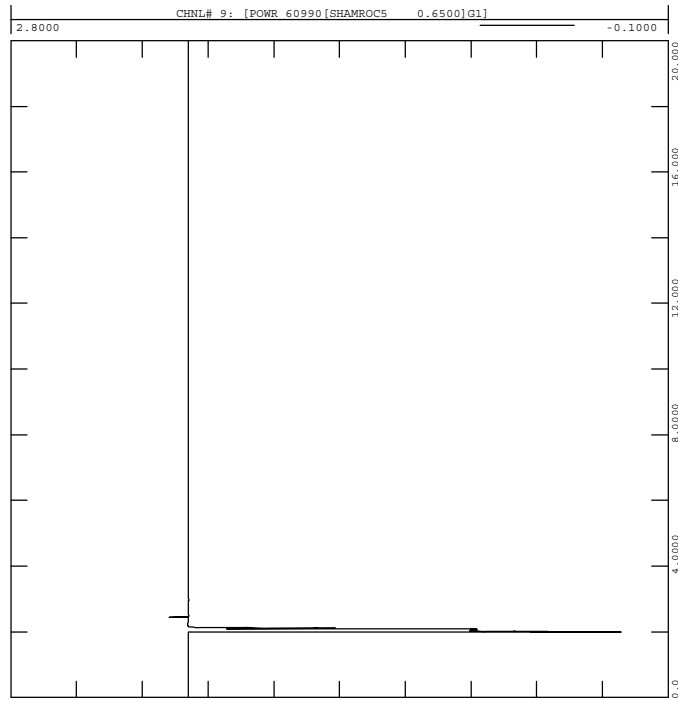


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

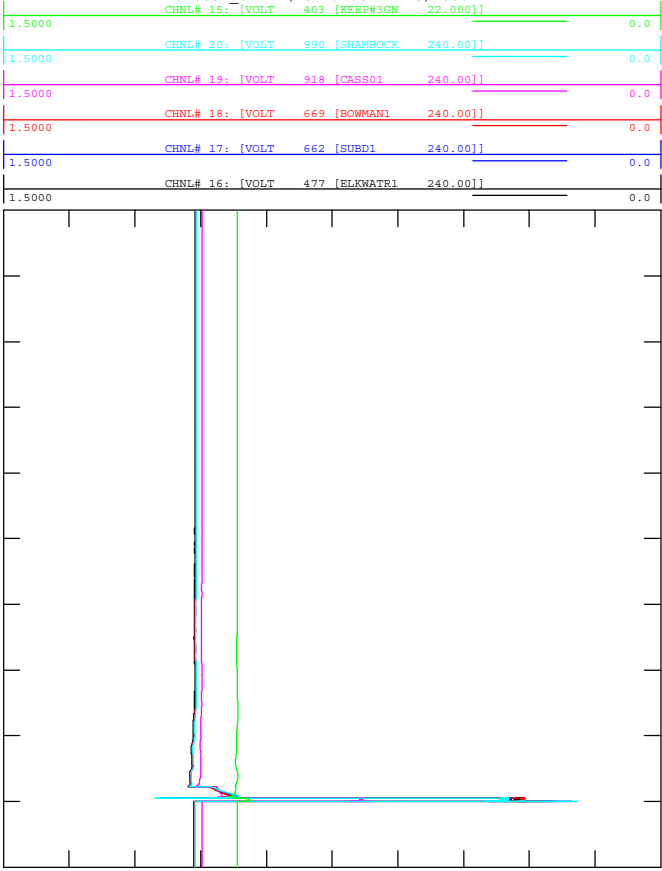


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

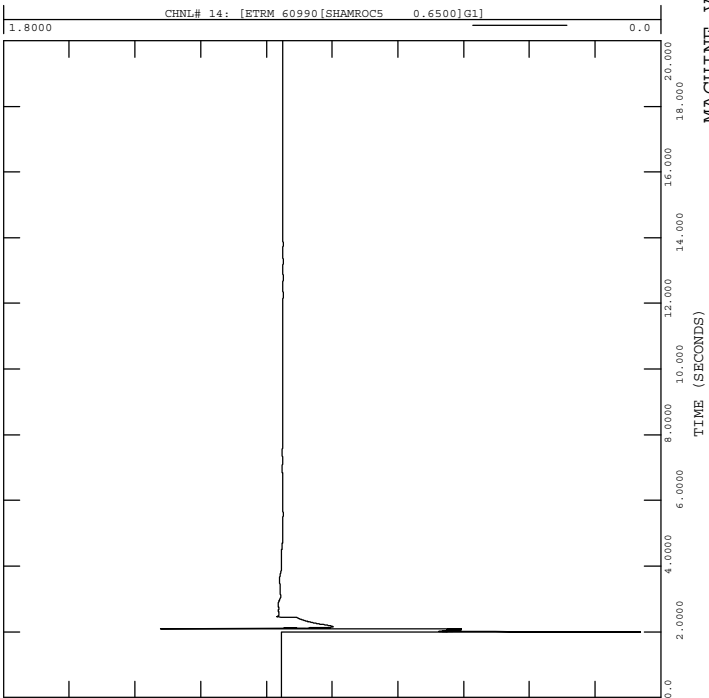


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SP POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

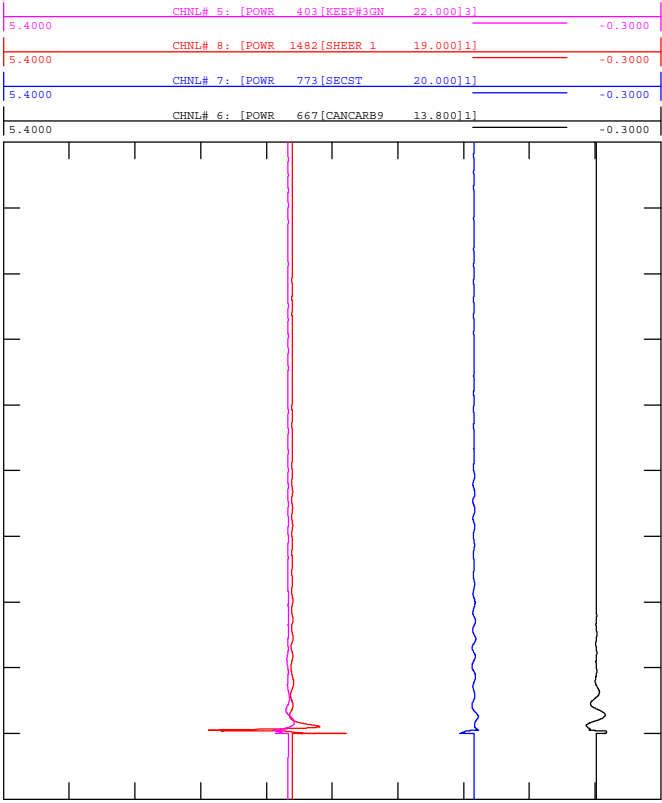


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

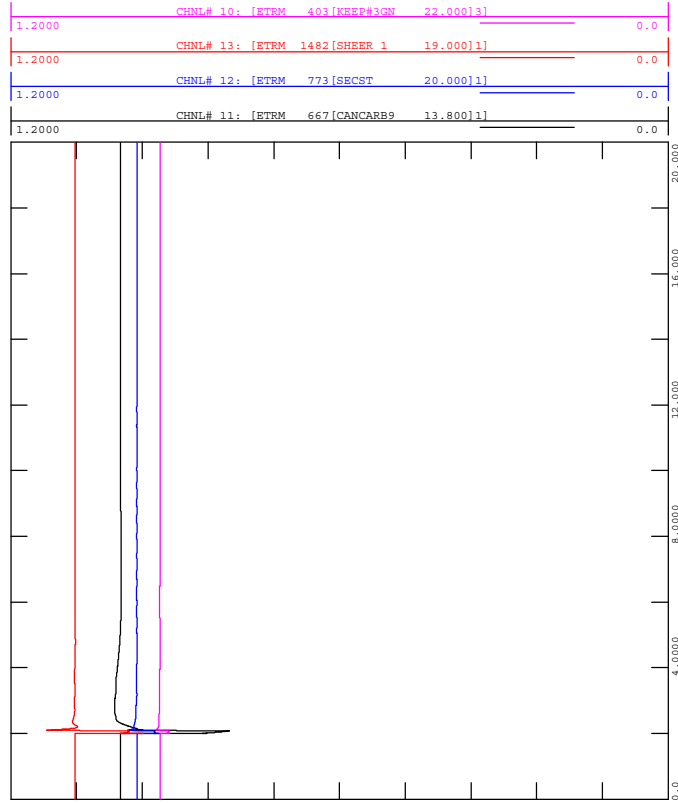


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

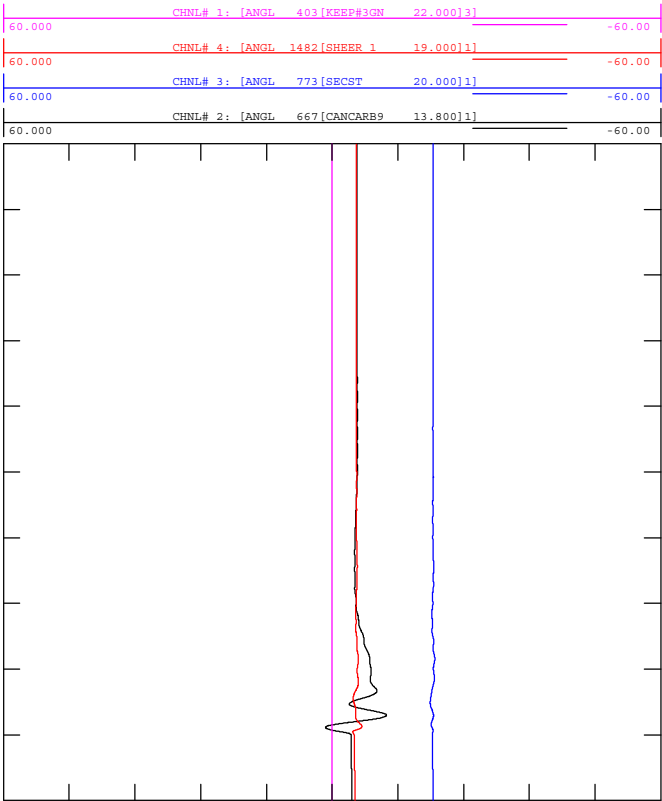


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

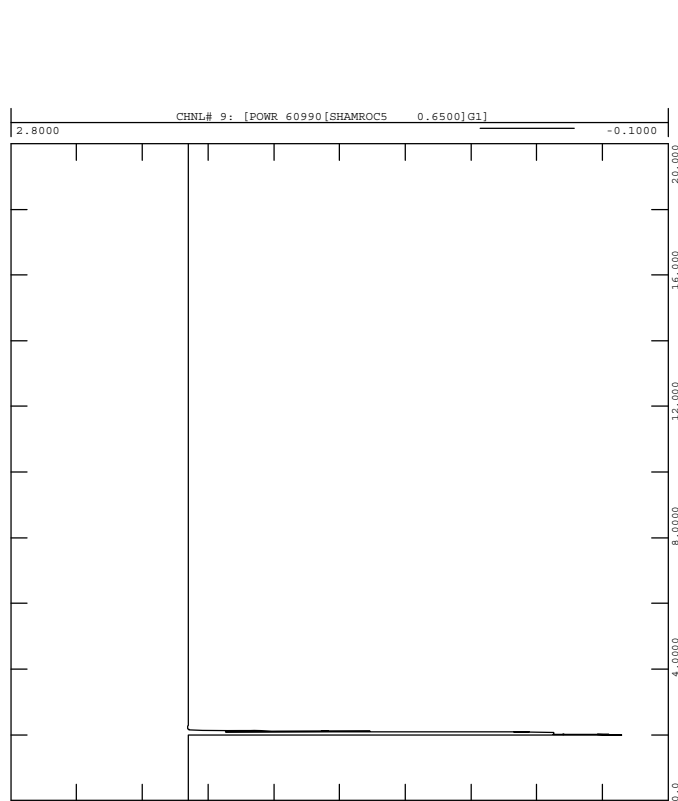


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

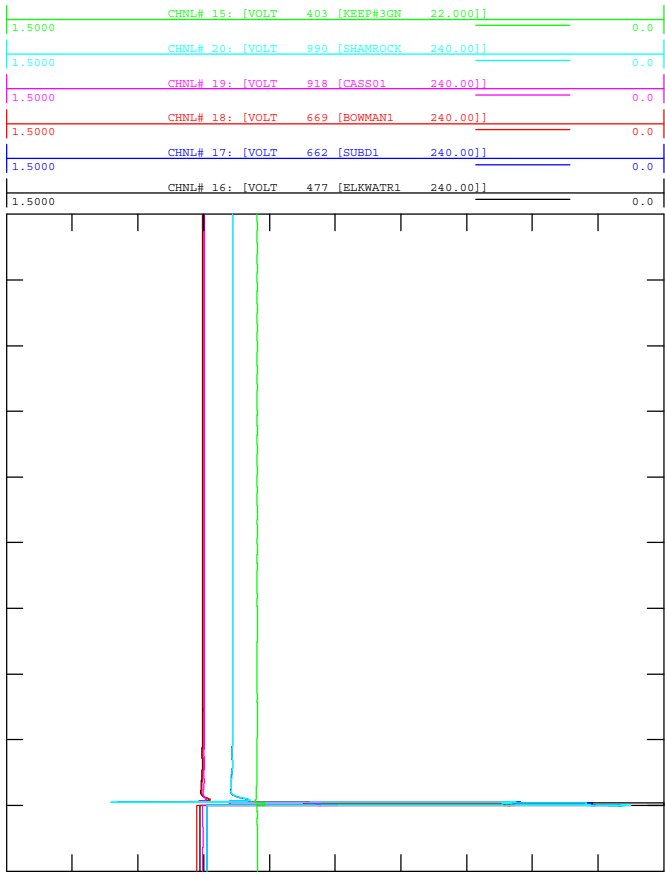


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

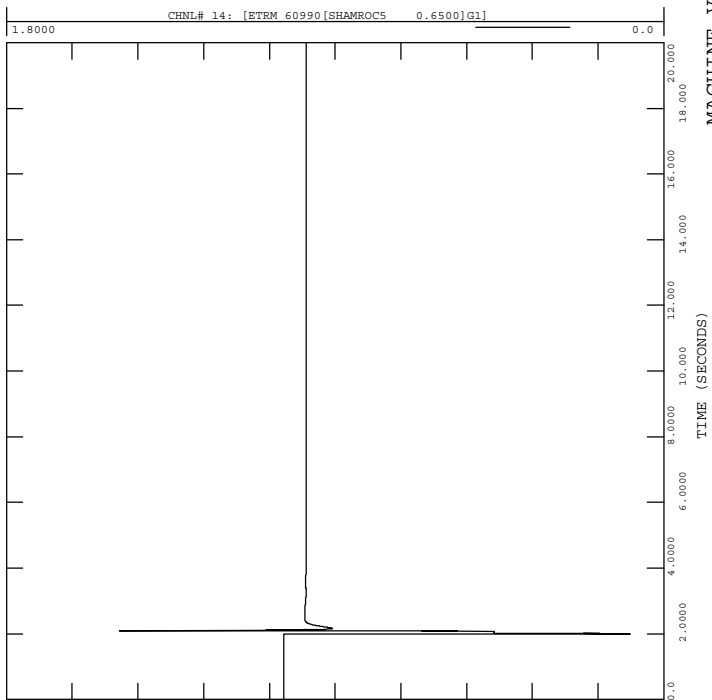


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Bowmanton 244S).out

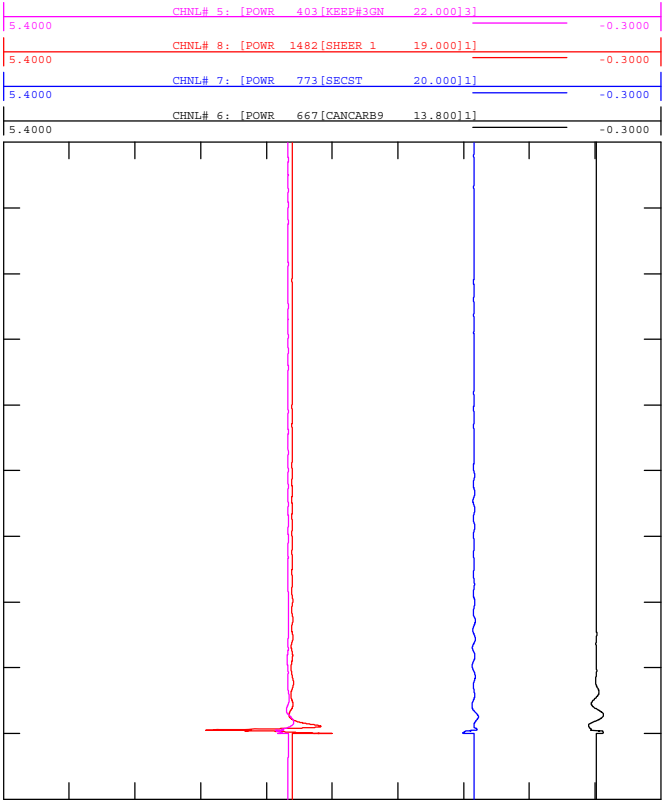


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

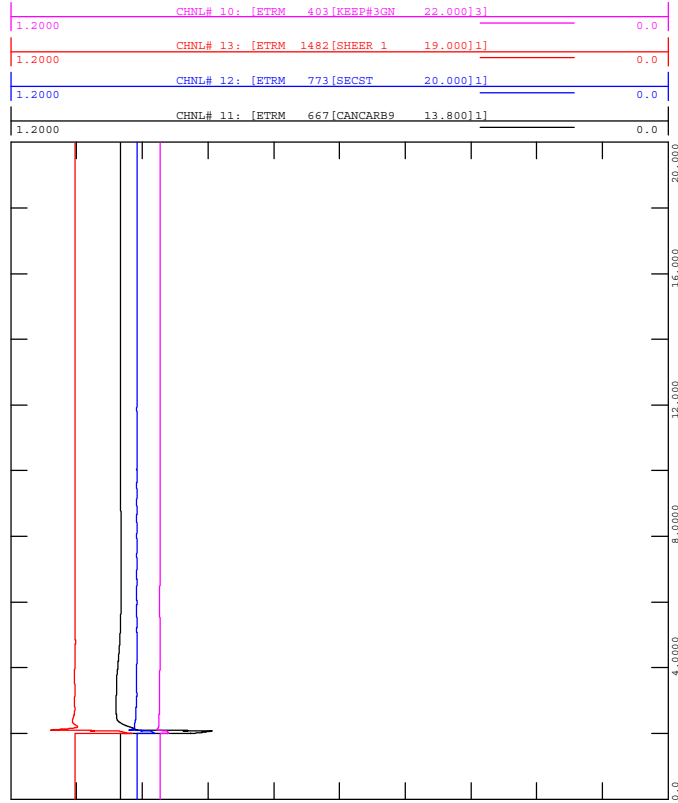


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

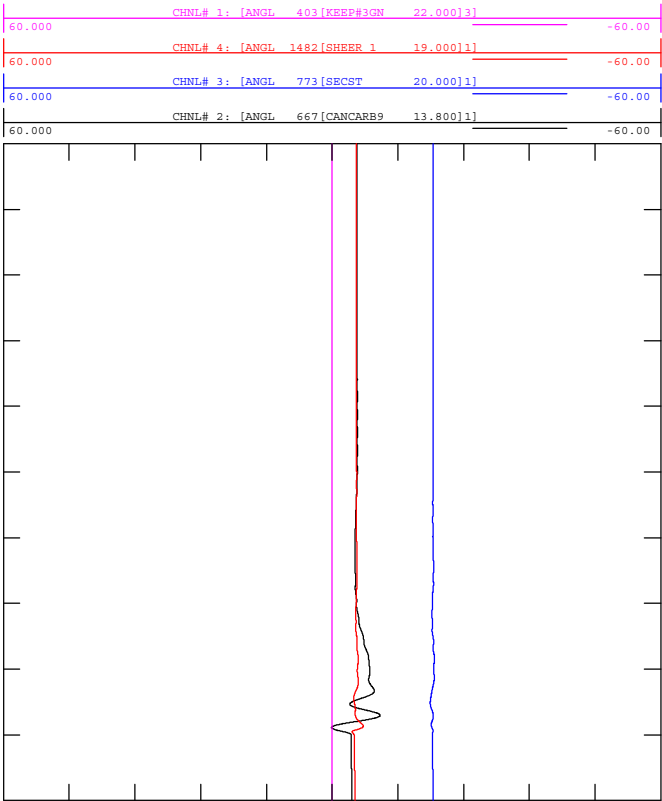


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

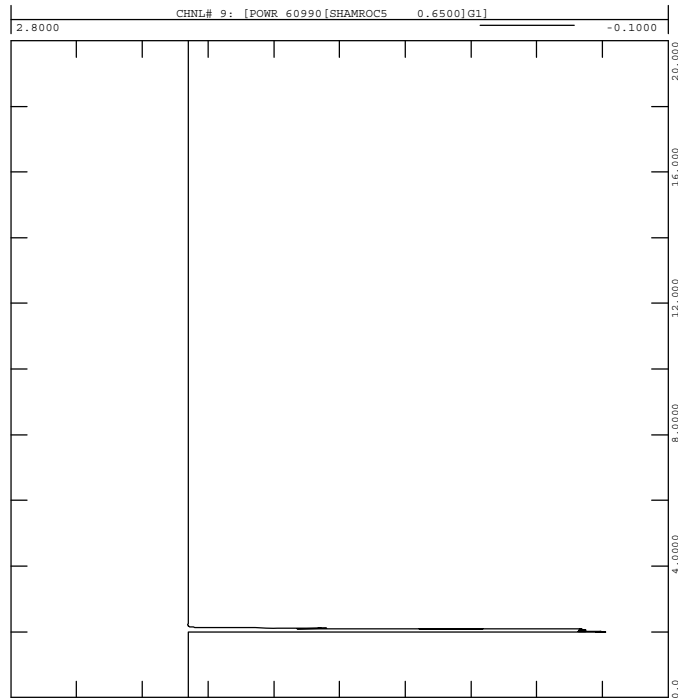


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

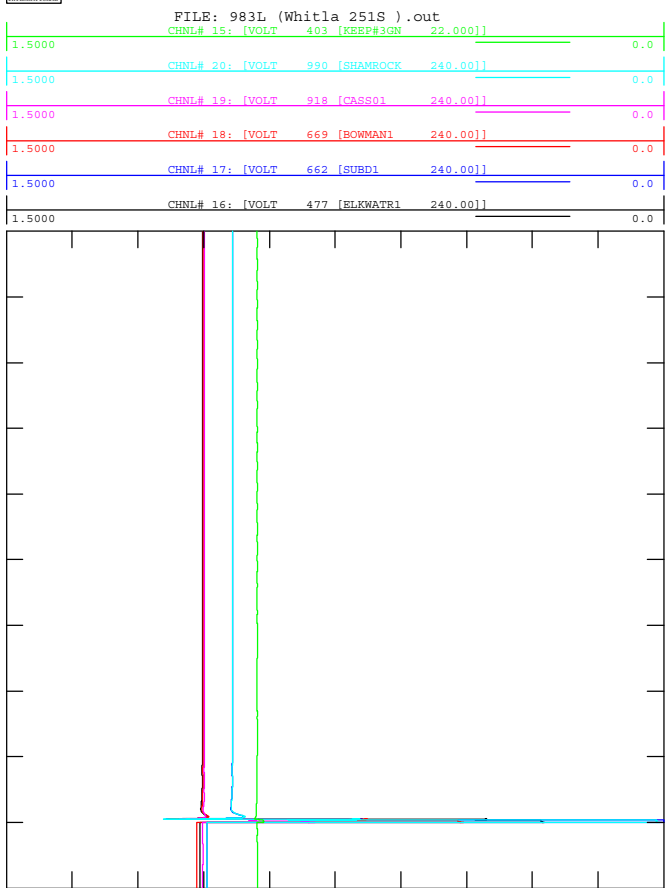


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

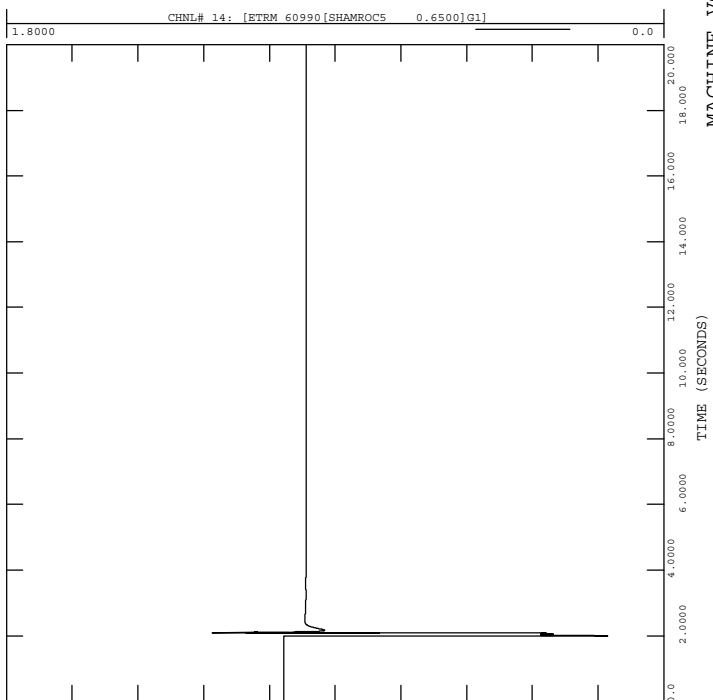


FRI, MAR 30 2018 12:42



2019 SL POST PROJECT
983L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 983L (Whitla 251S).out

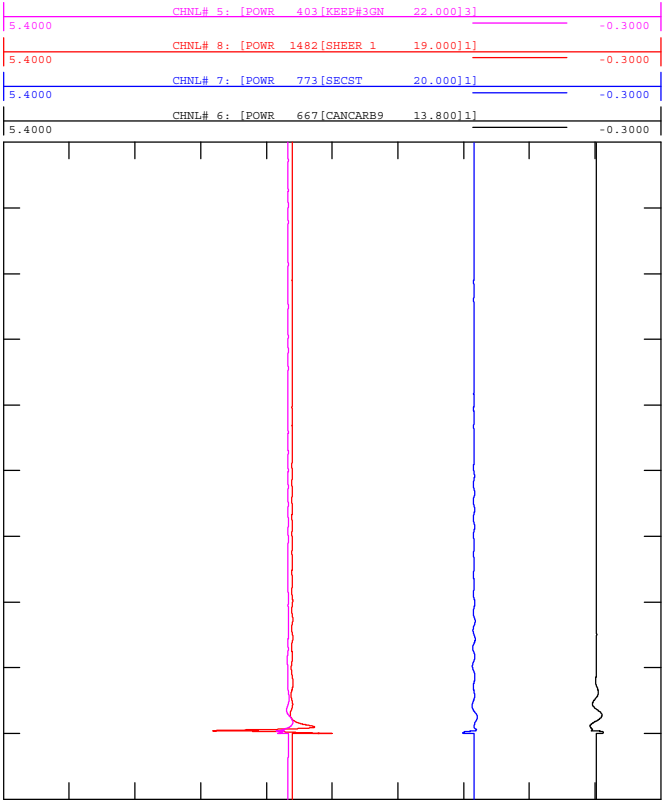


FRI, MAR 30 2018 12:42



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

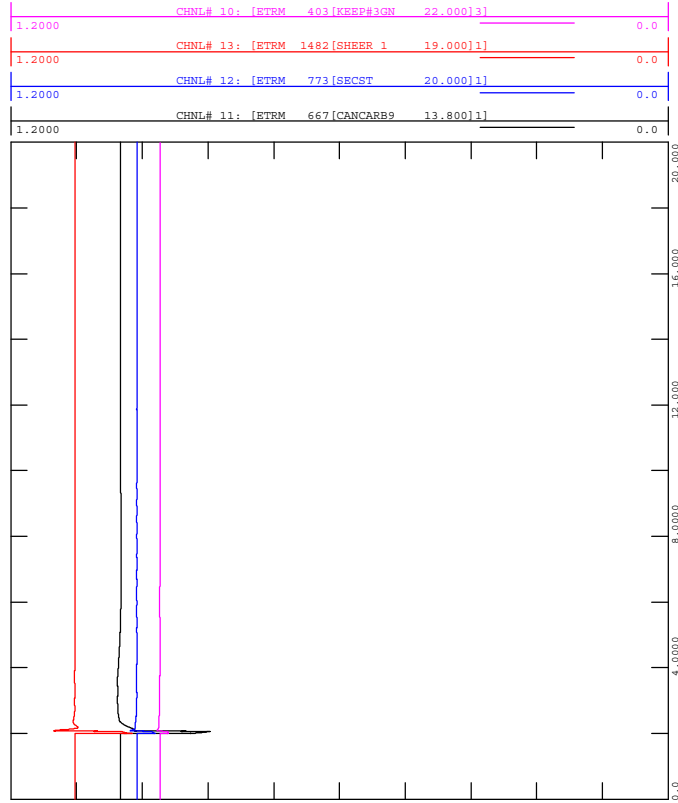


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

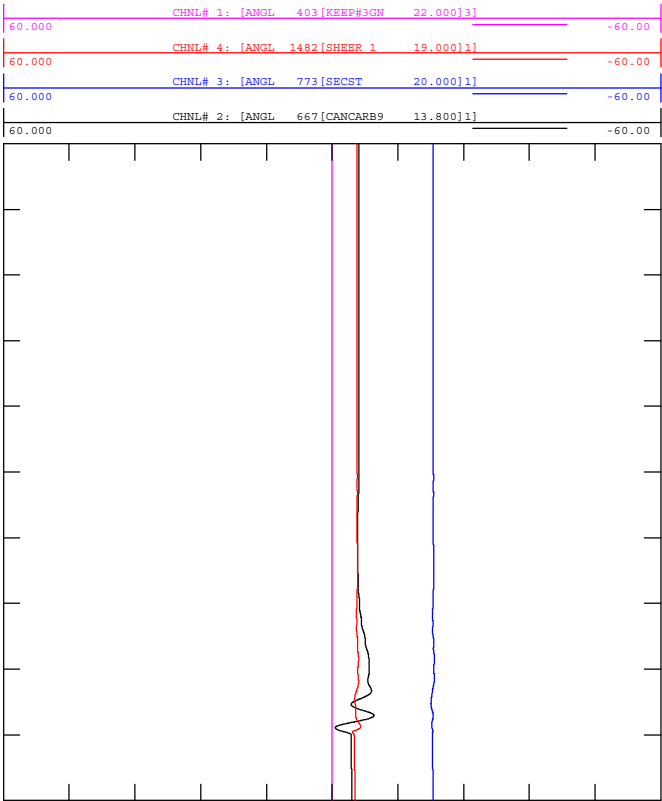


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

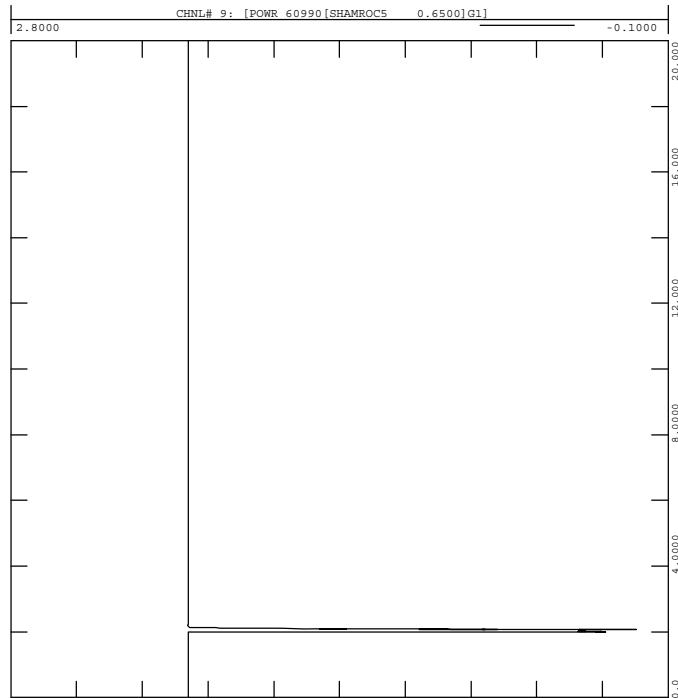


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

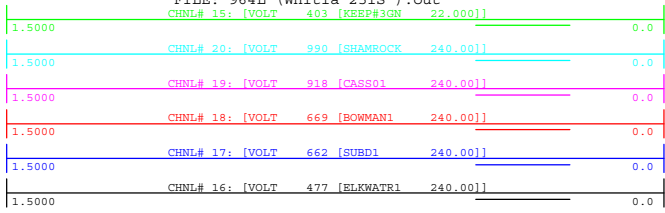


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

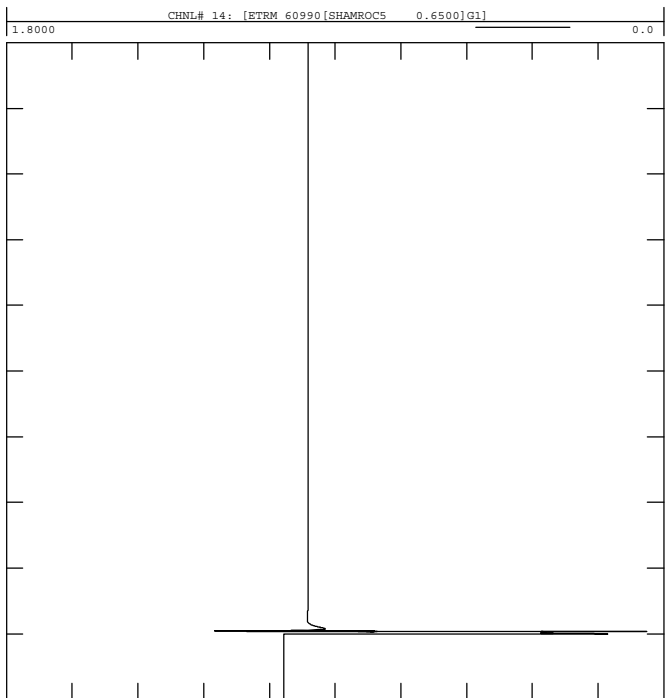


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 964L (Whitla 251S).out

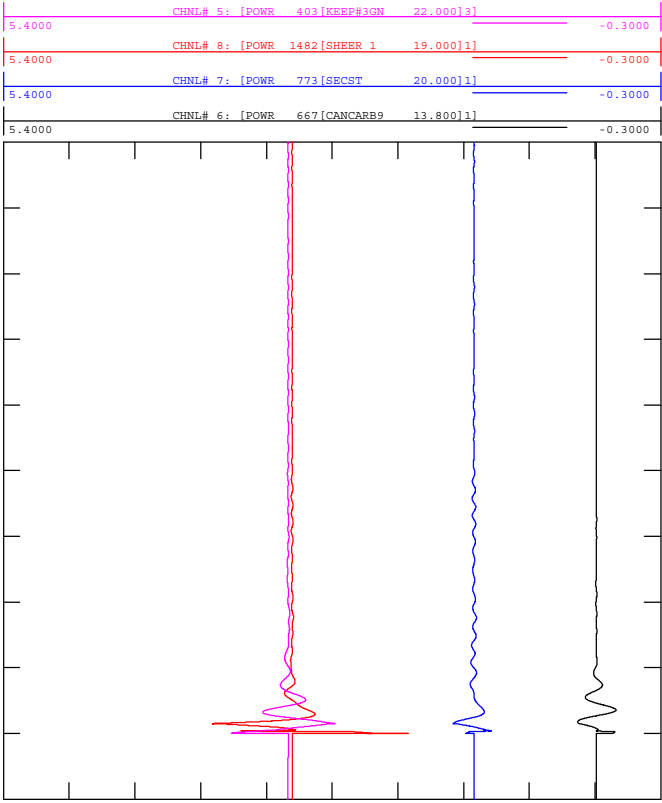


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out

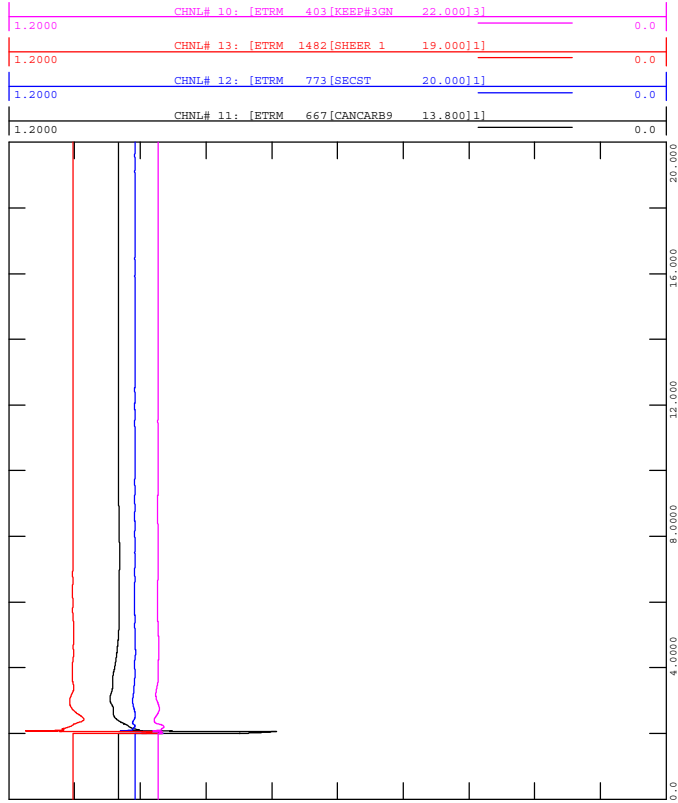


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out

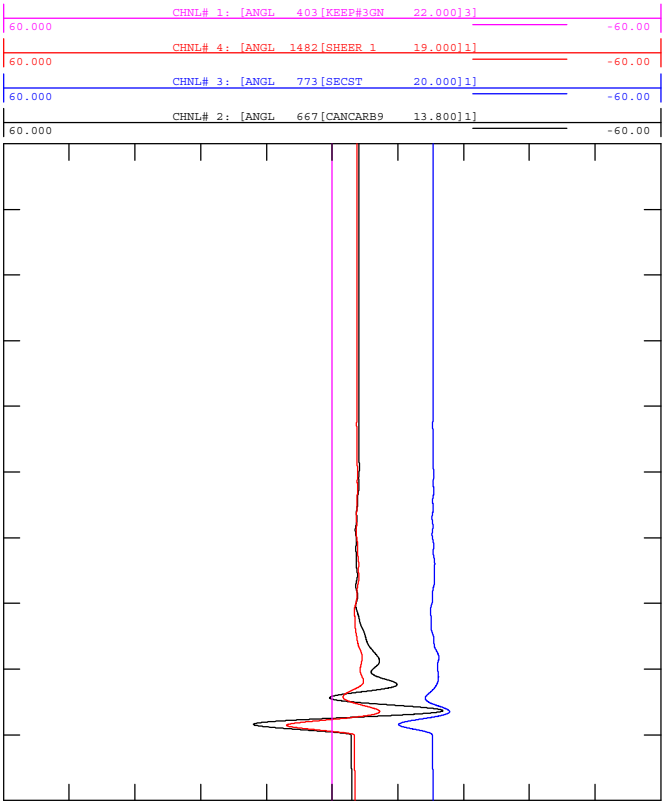


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out

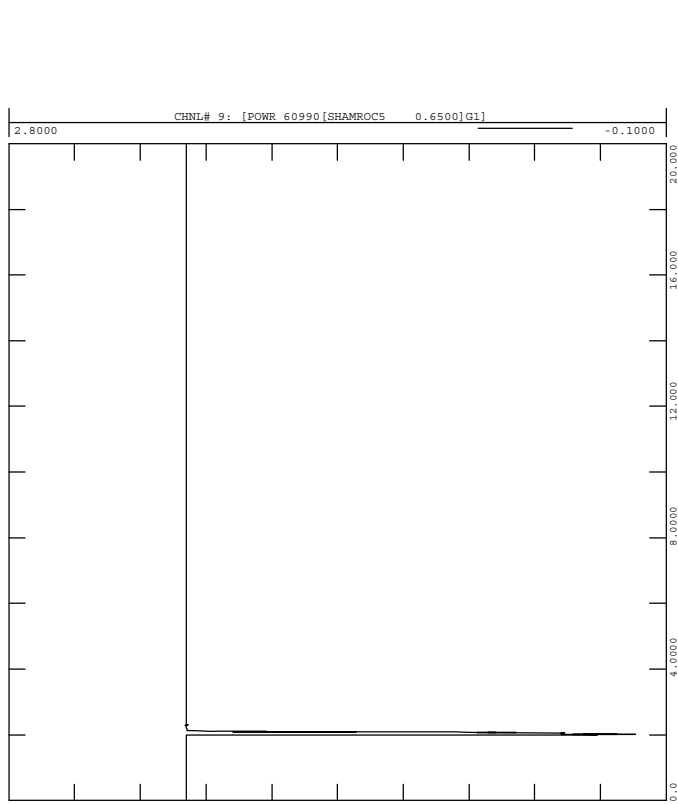


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out

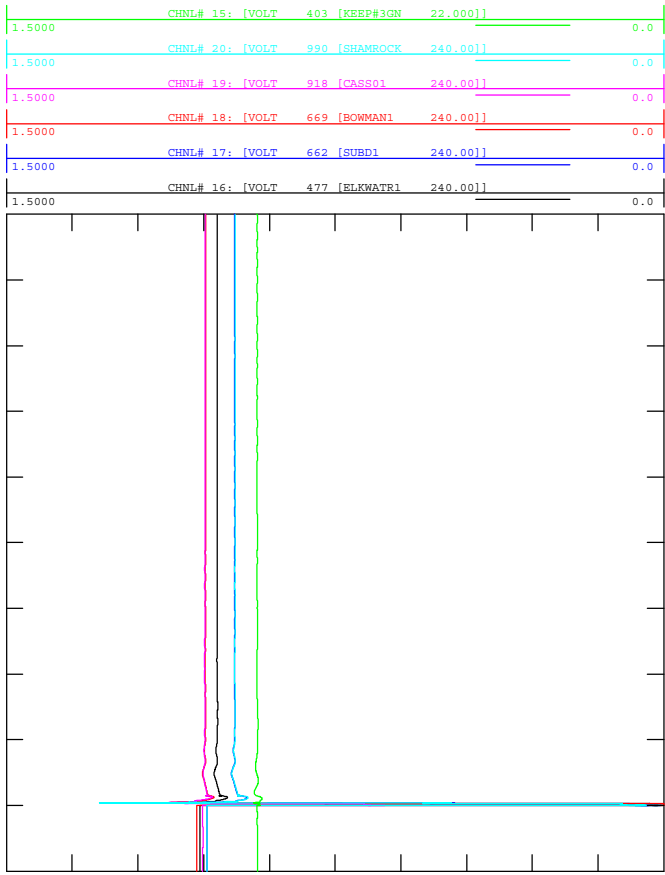


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out

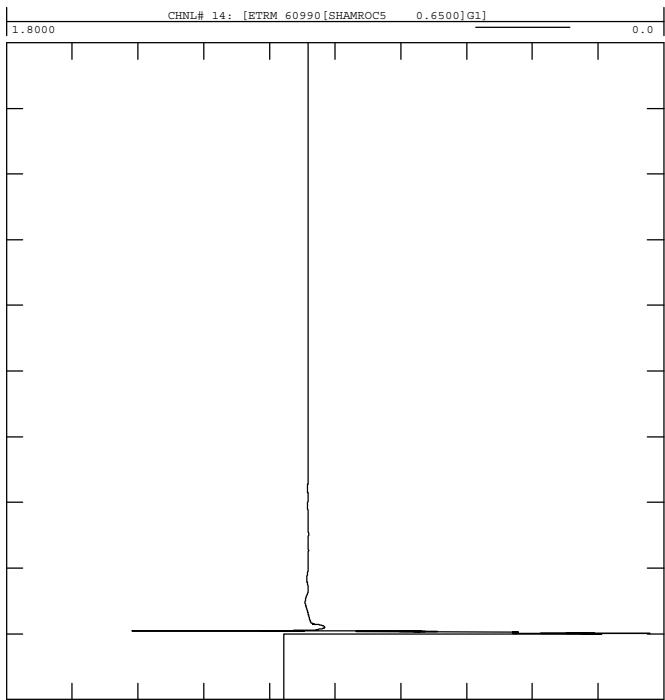


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SL POST PROJECT
964L (BOWMANTON 244S TO WHITLA 251S)
CLEARED IN 5 CYCLES, FAR END IN 4 CYCLES

FILE: 964L (Bowmanton 244S).out

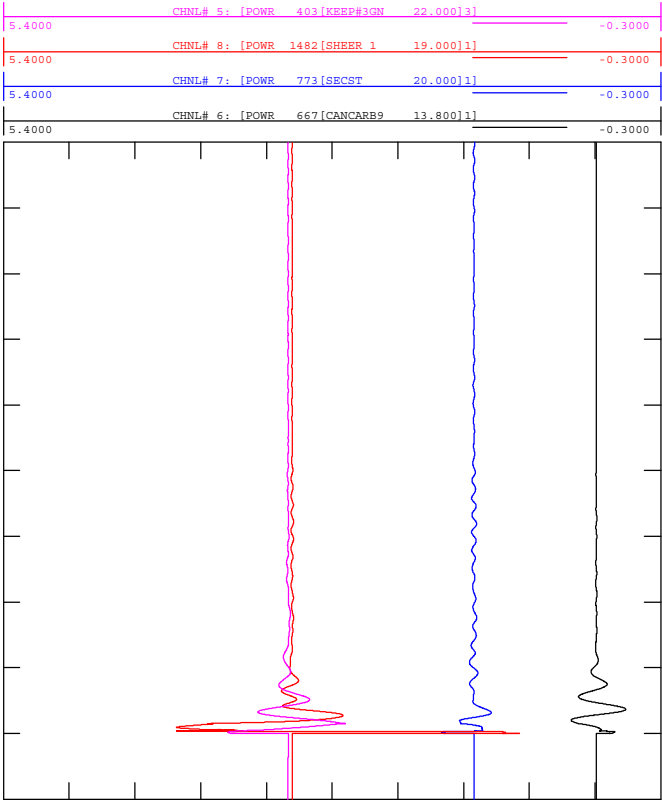


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

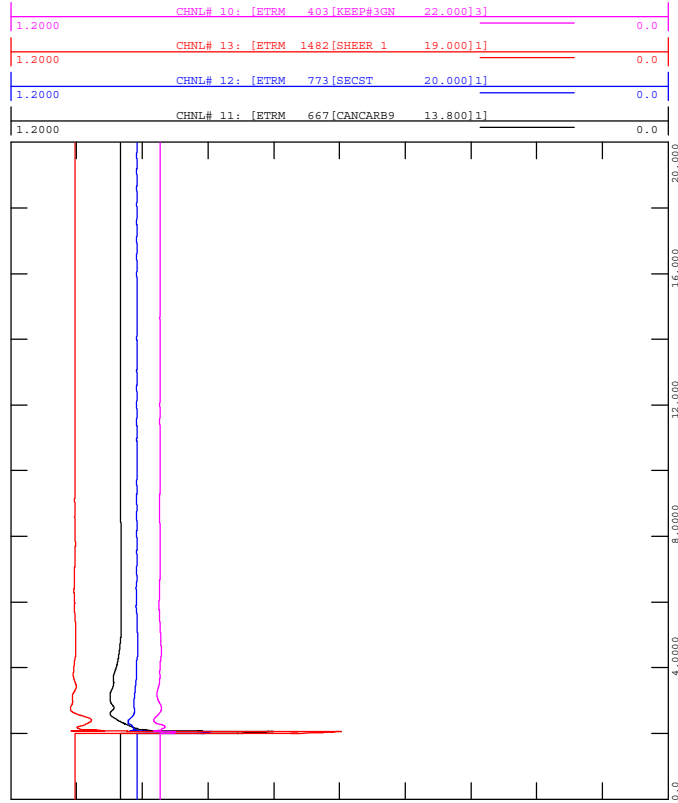


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

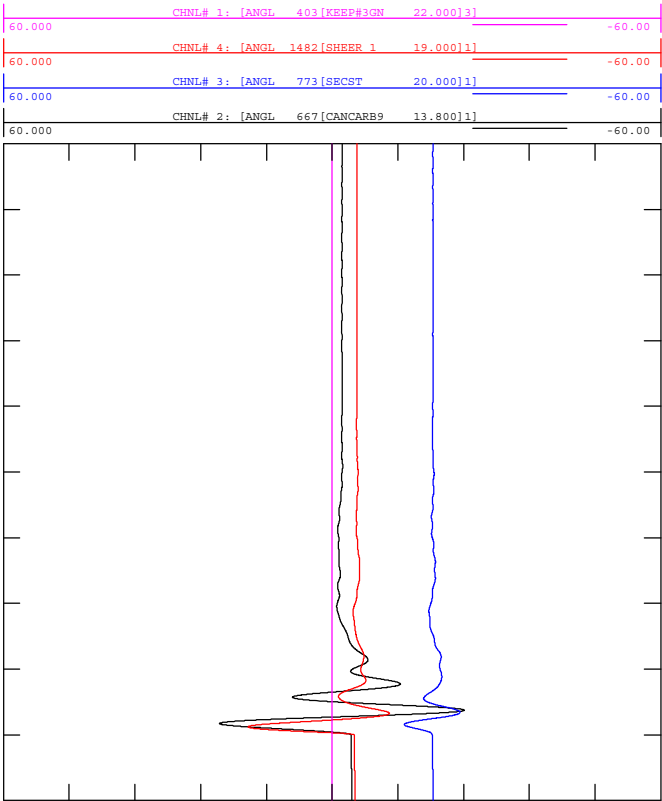


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

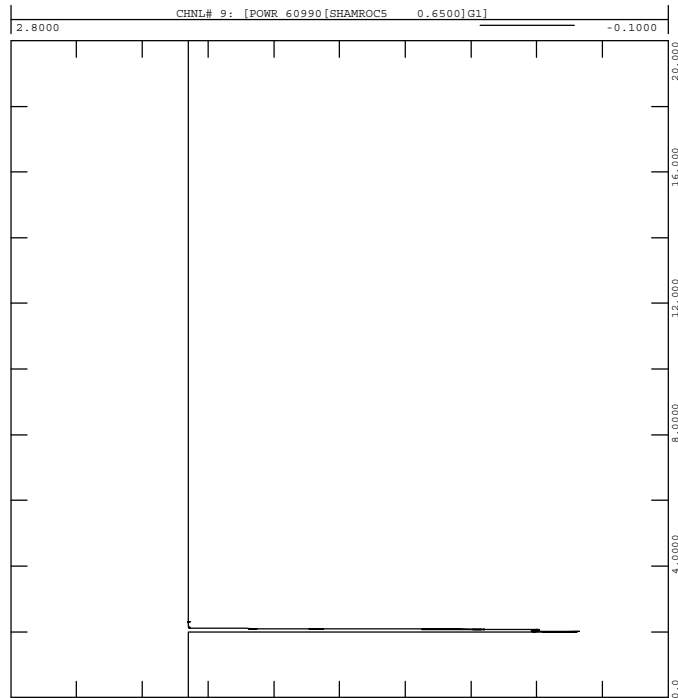


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

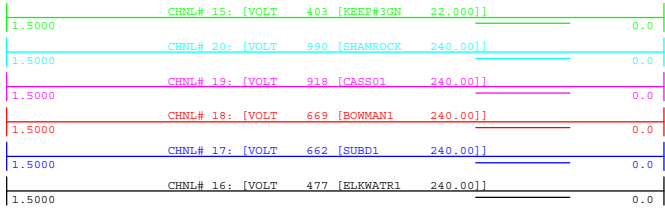


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

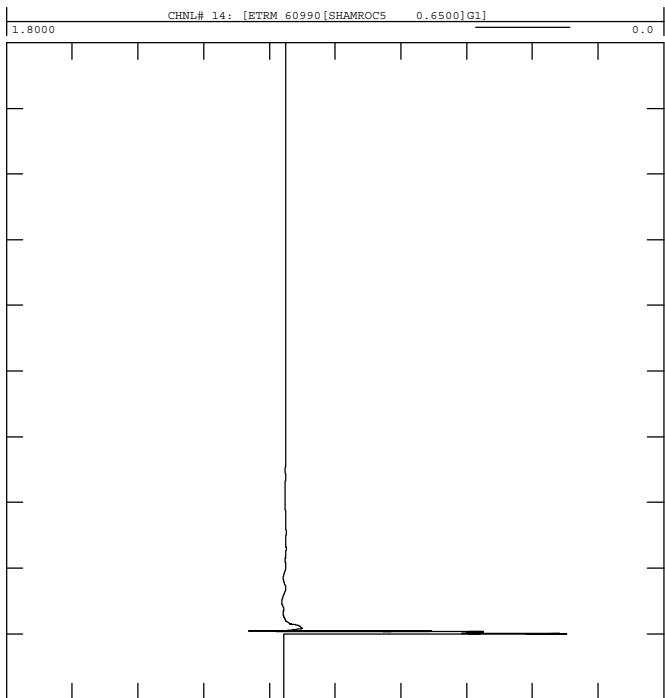


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (CASSILS 324S).out

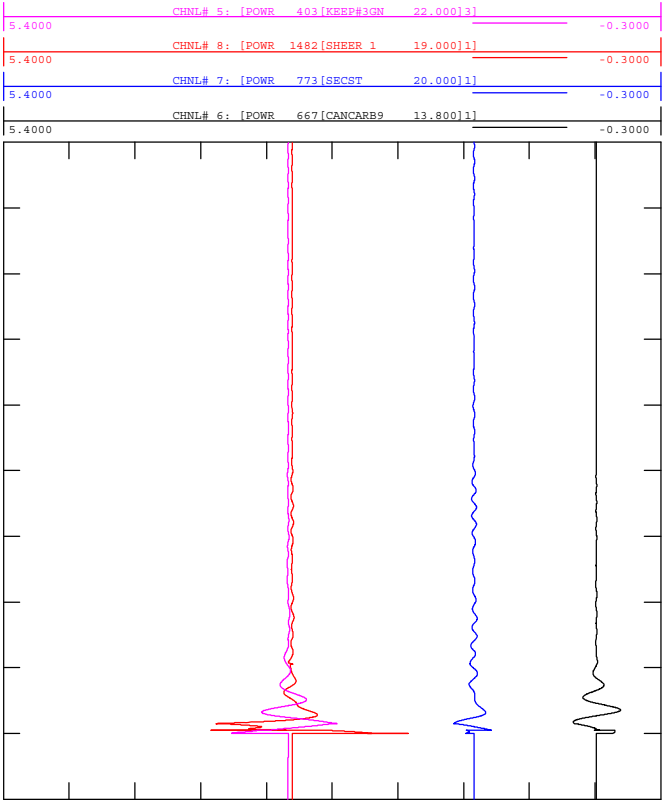


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

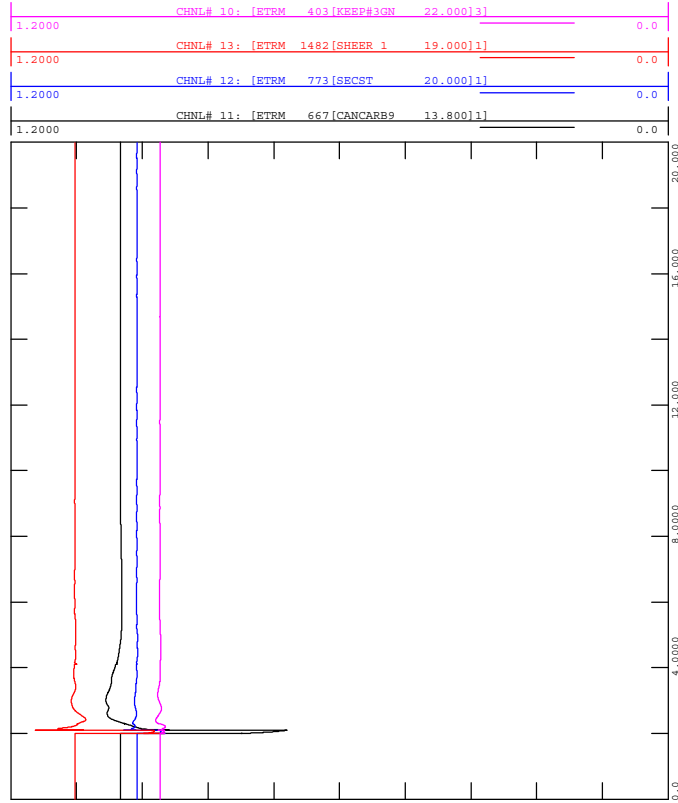


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

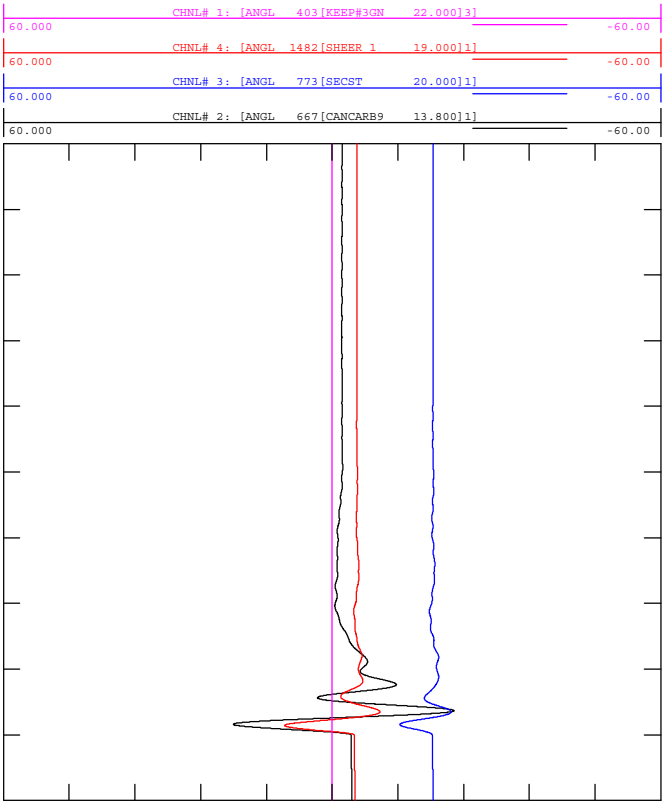


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

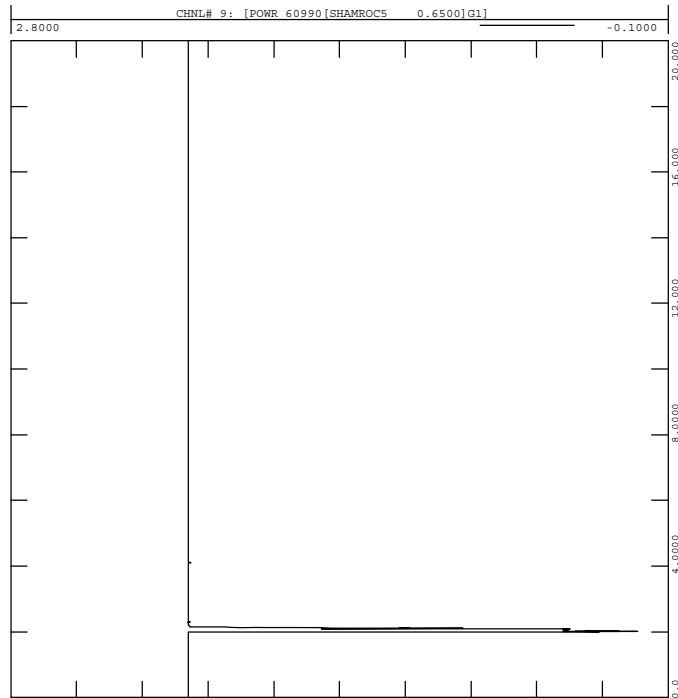


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

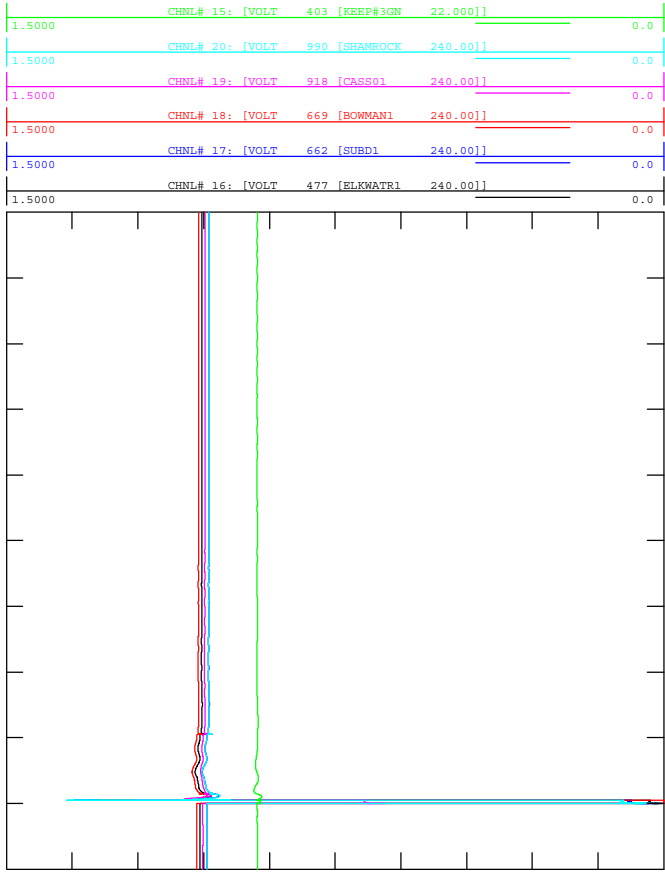


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

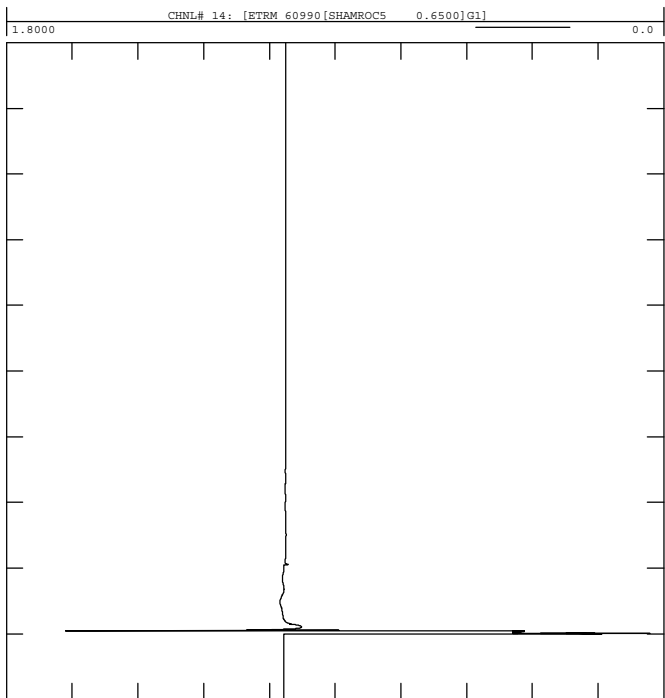


FRI, MAR 30 2018 12:42



2019 SL POST PROJECT
1034L (BOWMANTON 244S TO CASSILS 324S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1034L (Bowmanton 244S).out

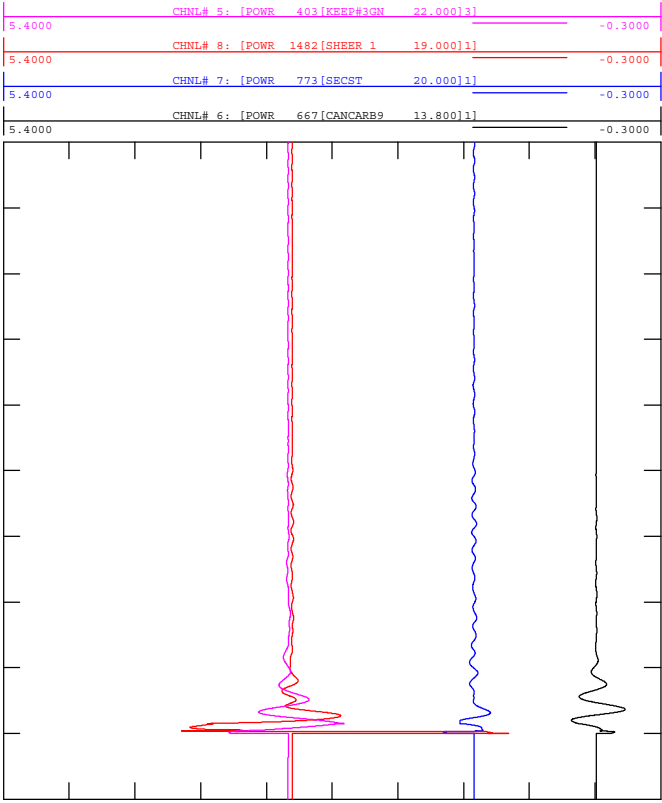


FRI, MAR 30 2018 12:42



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

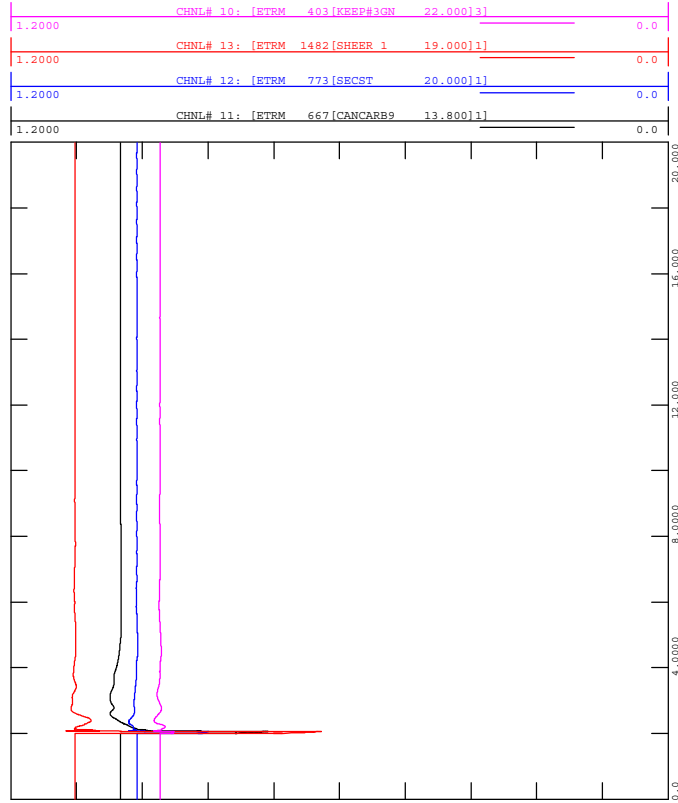


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

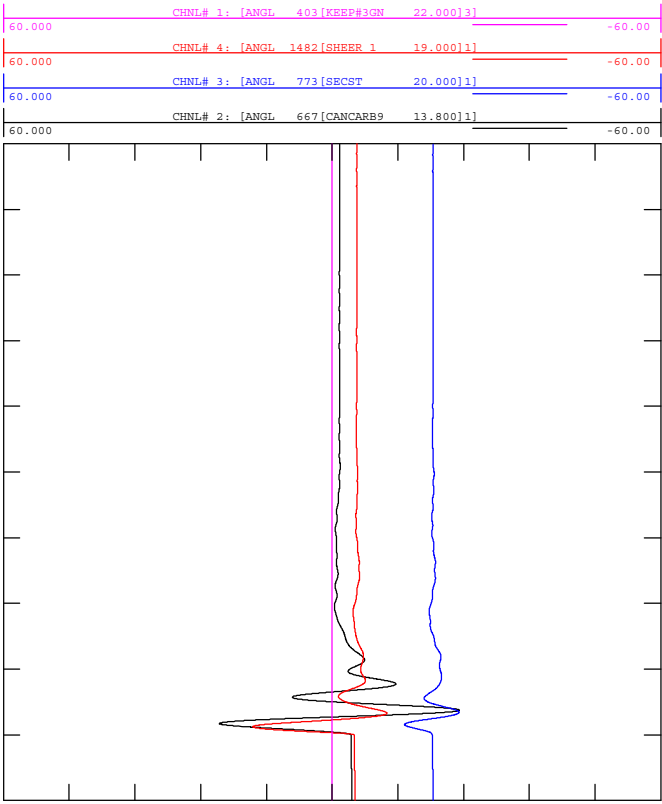


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

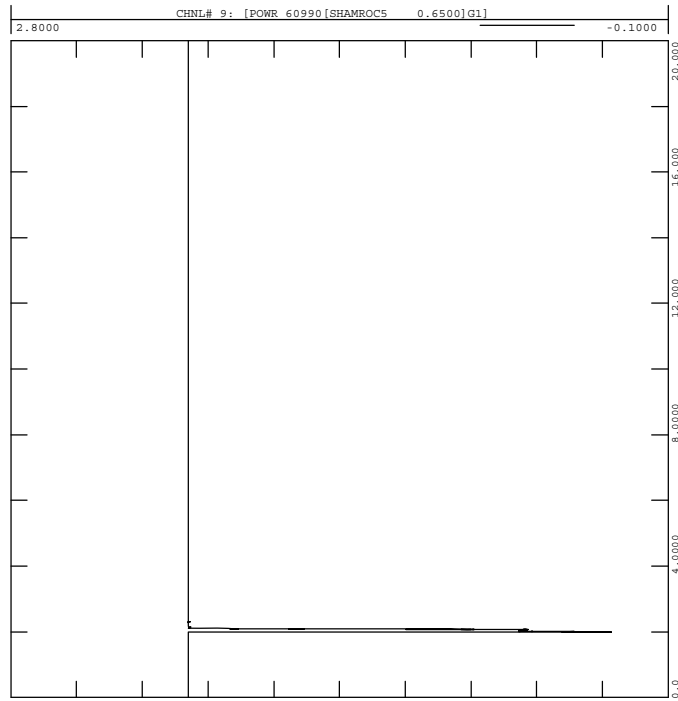


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

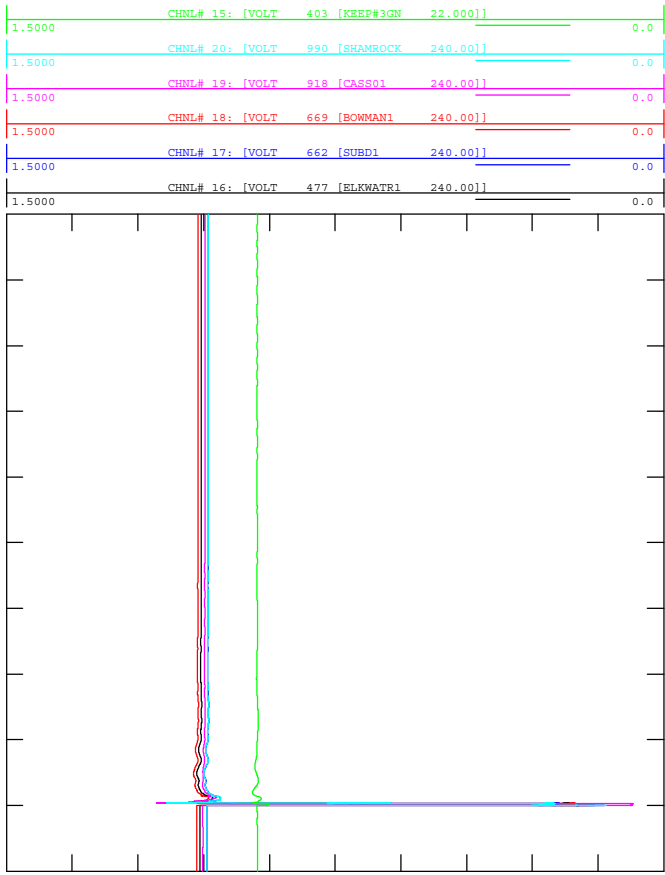


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

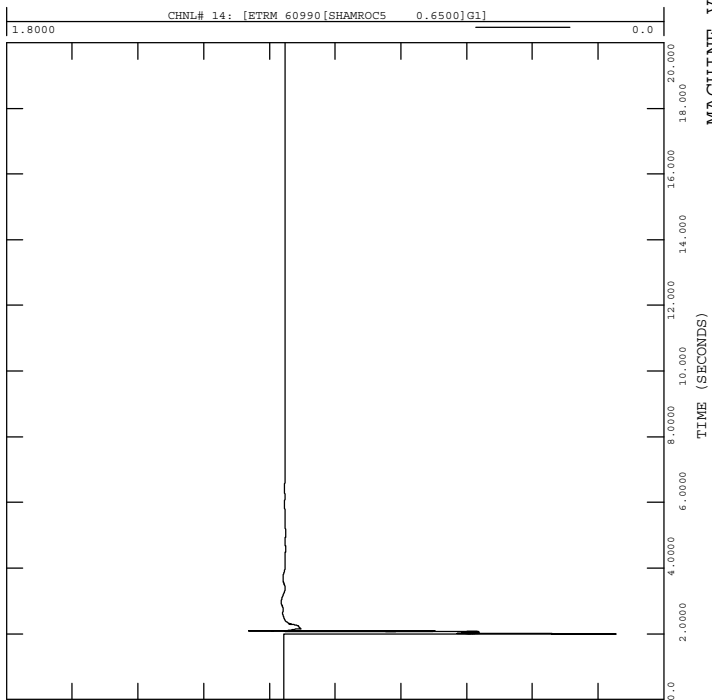


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Newell A2075).out

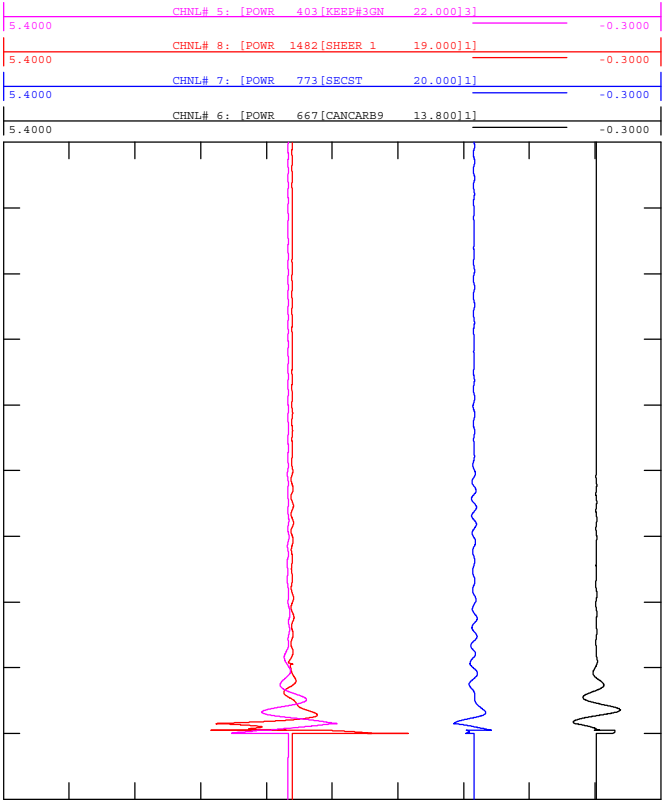


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

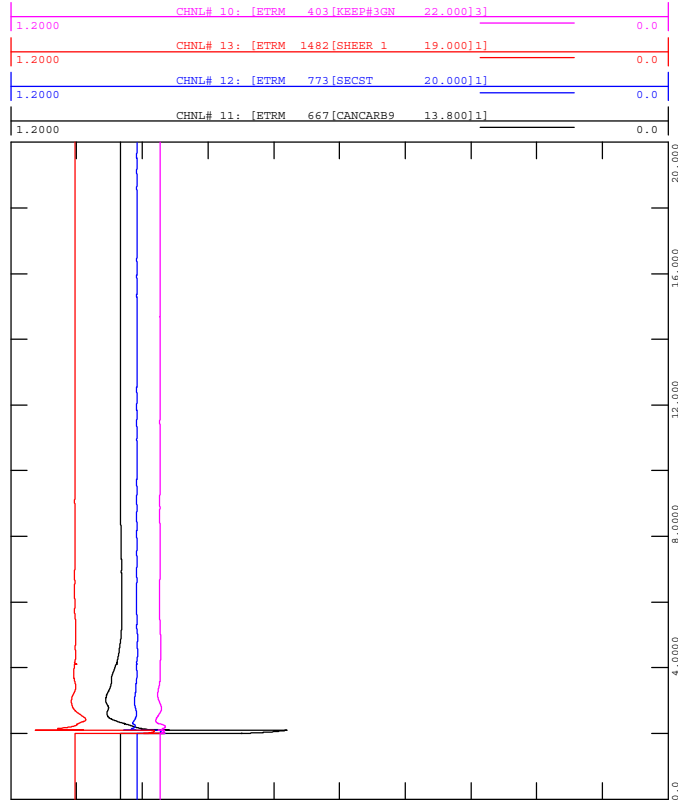


FRI, MAR 30 2018 12:42
MACHINE P COAL (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

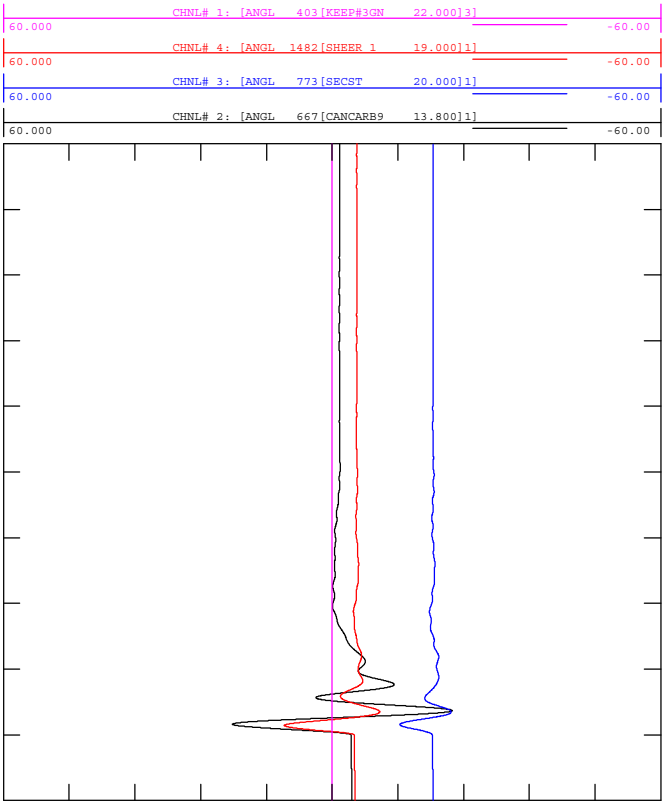


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

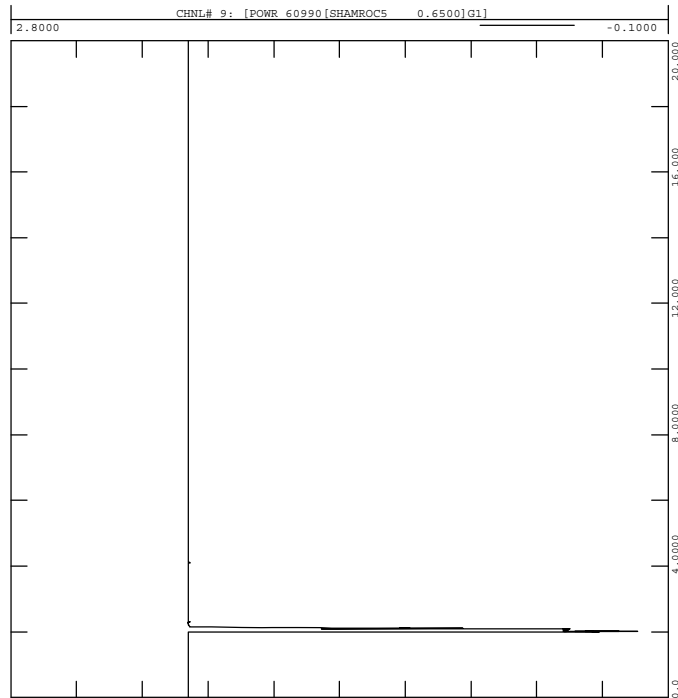


FRI, MAR 30 2018 12:42
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

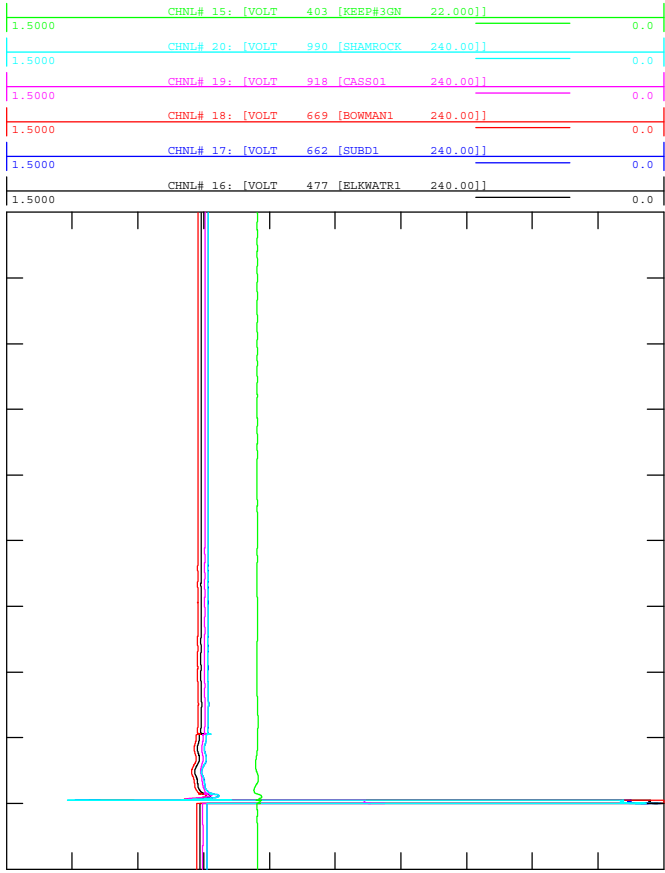


FRI, MAR 30 2018 12:42
MACHINE P WIND (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

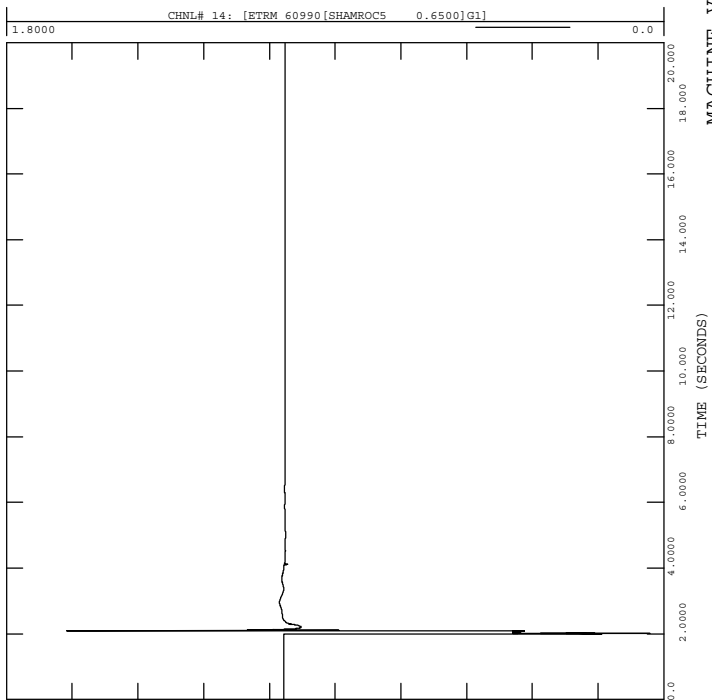


FRI, MAR 30 2018 12:42
BUS VOLTAGE (PU)



2019 SL POST PROJECT
1035L (BOWMANTON 244S TO NEWELL 2075S)
CLEARED IN 4 CYCLES, FAR END IN 5 CYCLES

FILE: 1035L (Bowmanton 244S).out

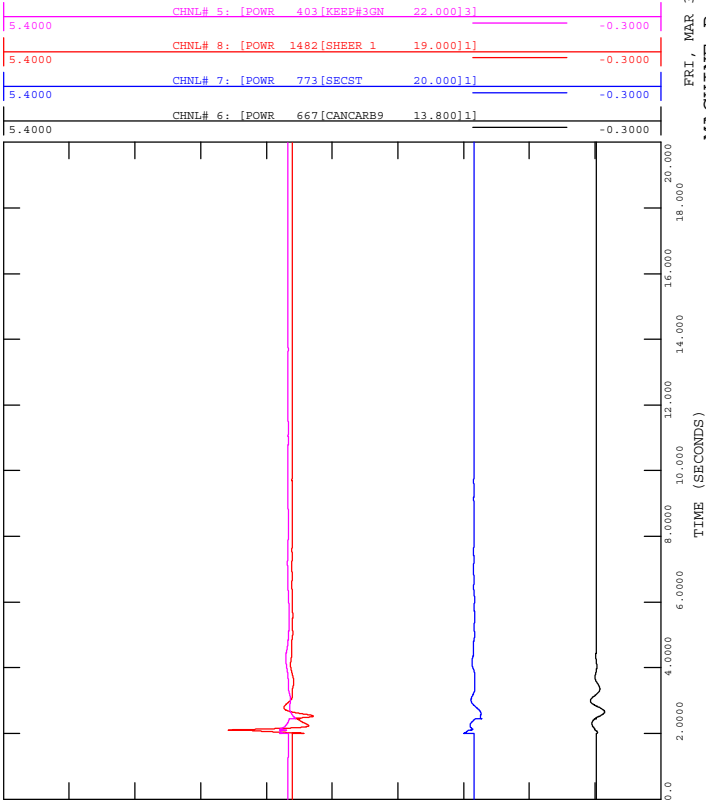


FRI, MAR 30 2018 12:42
MACHINE VOLTAGE WIND (PU)



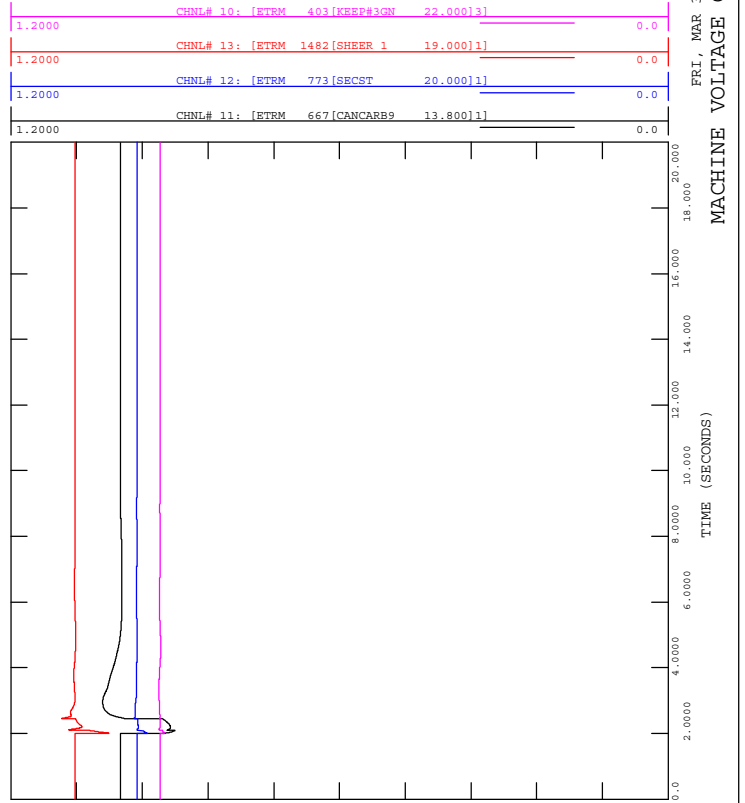
2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out



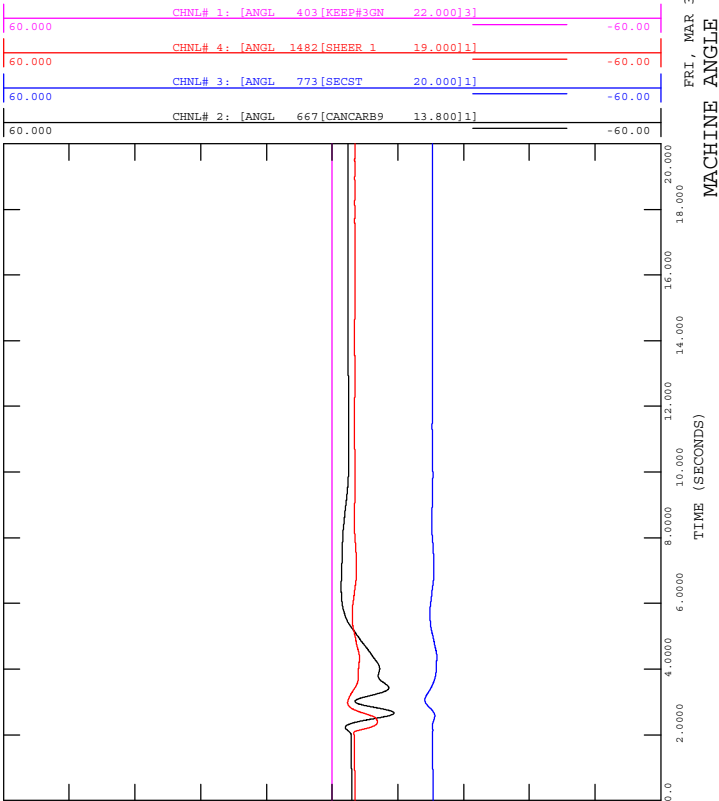
2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out



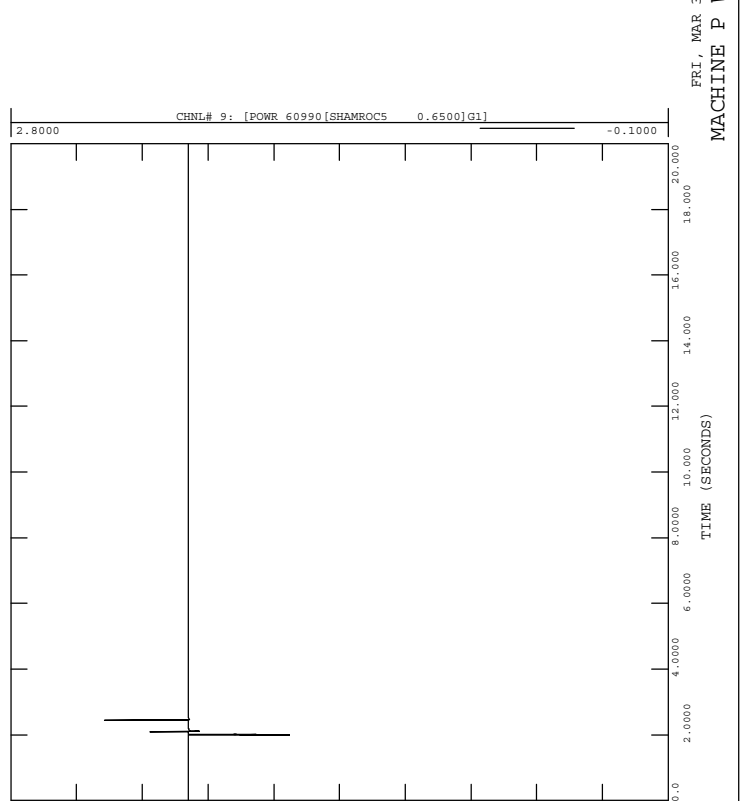
2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out



2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

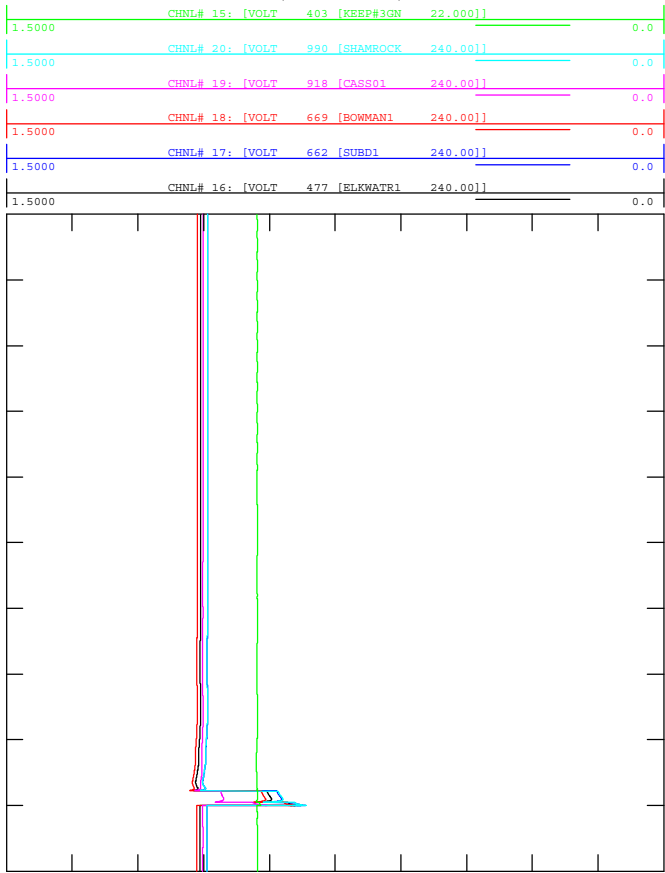
FILE: 892L (Suffiel 895S).out





2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out

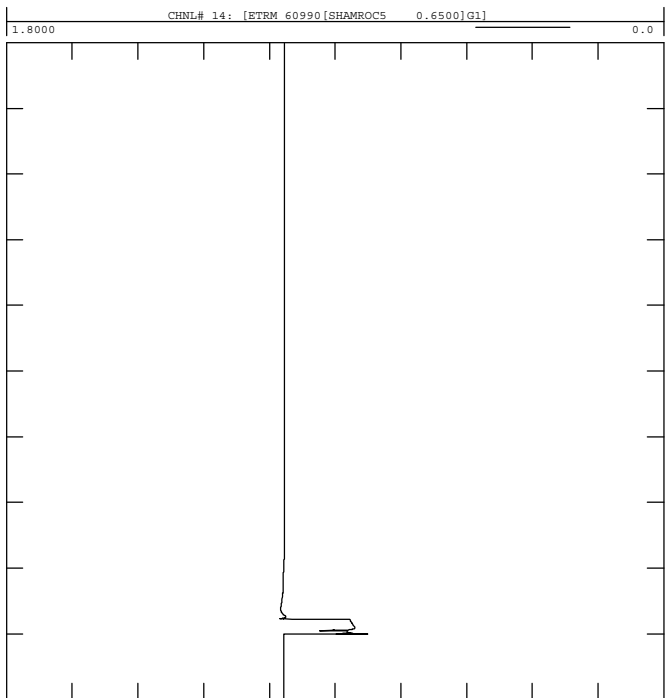


FRI, MAR 30 2018 12:43



2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Suffiel 895S).out

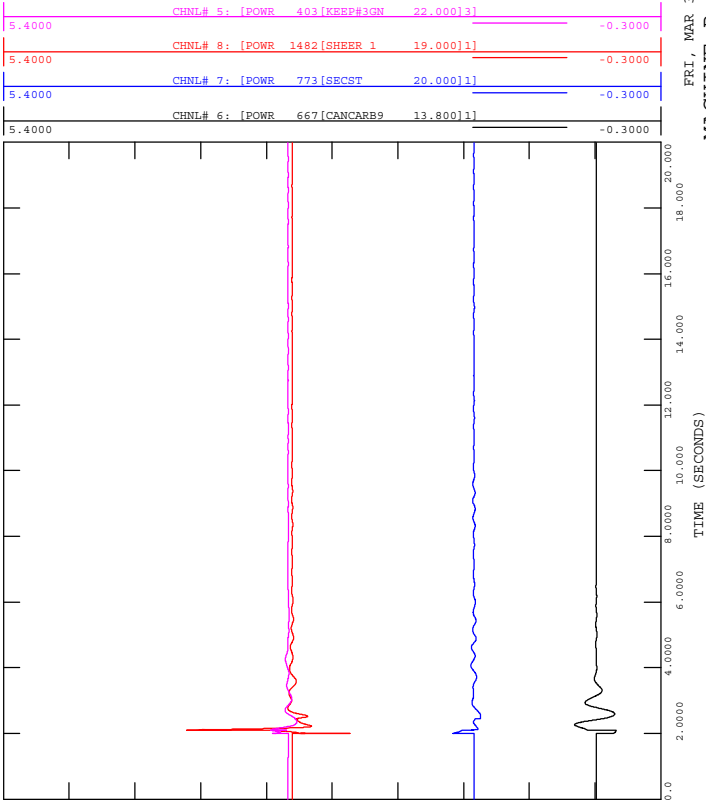


FRI, MAR 30 2018 12:43



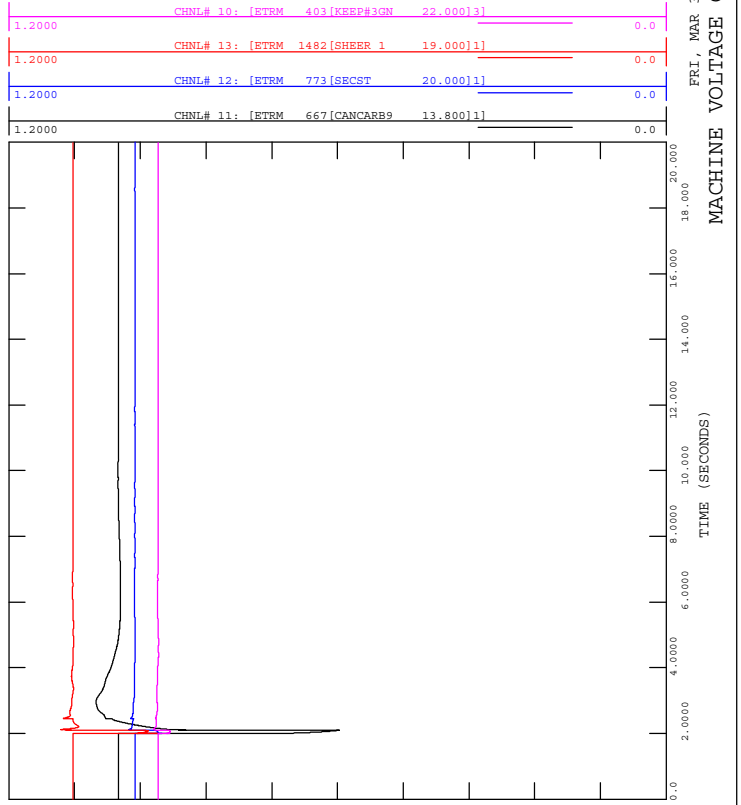
2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out



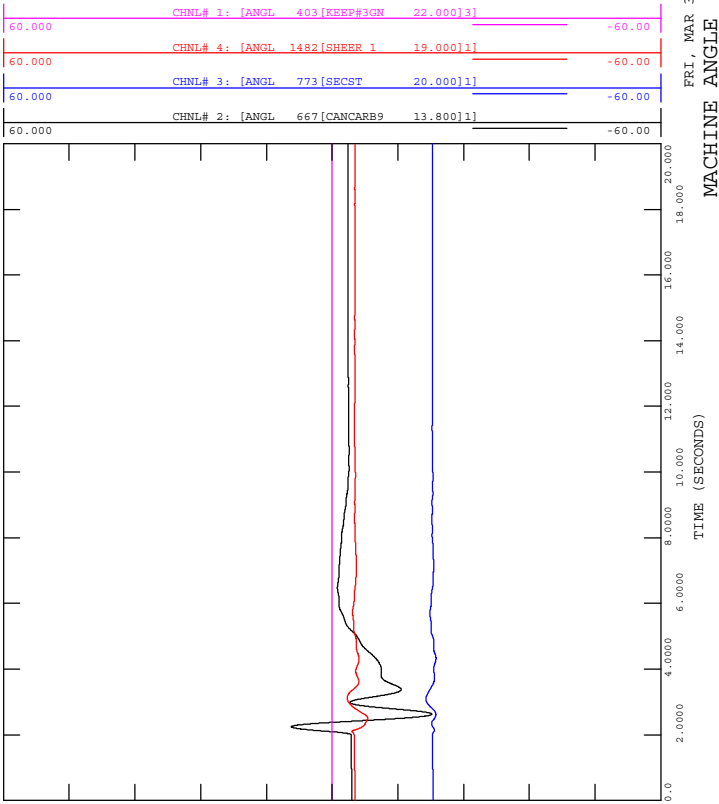
2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out



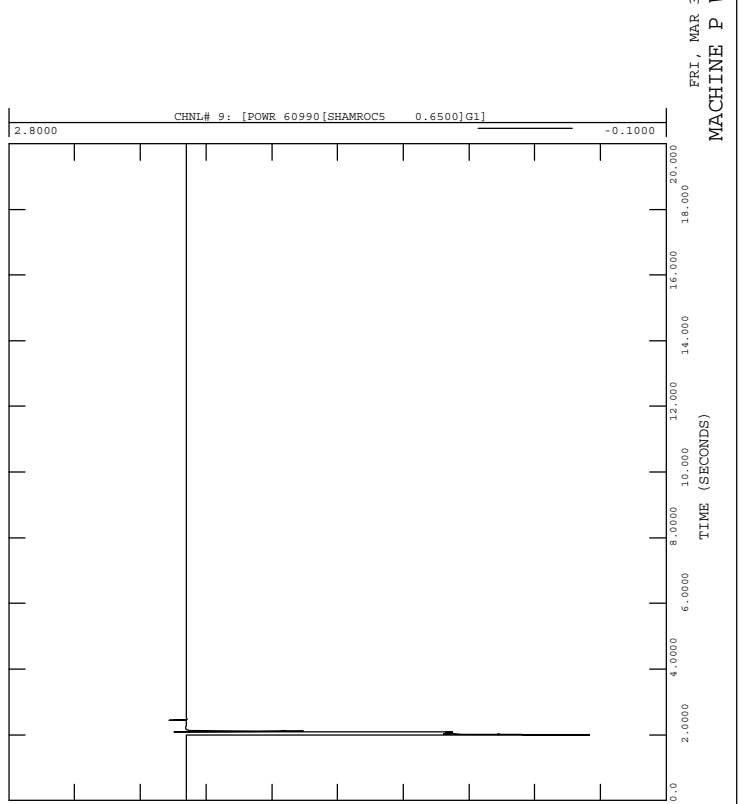
2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out



2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

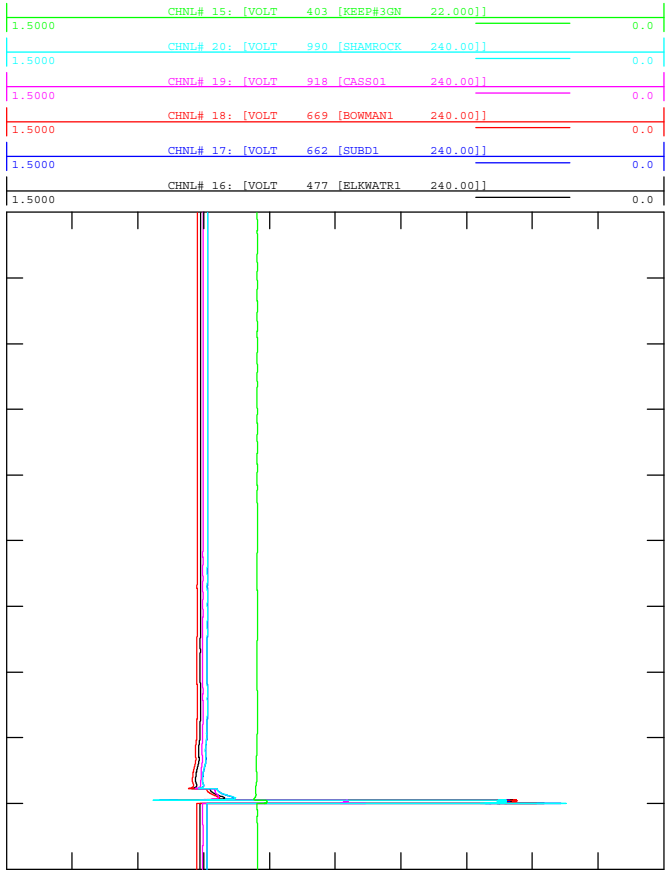
FILE: 892L (Bowmanton 244S).out





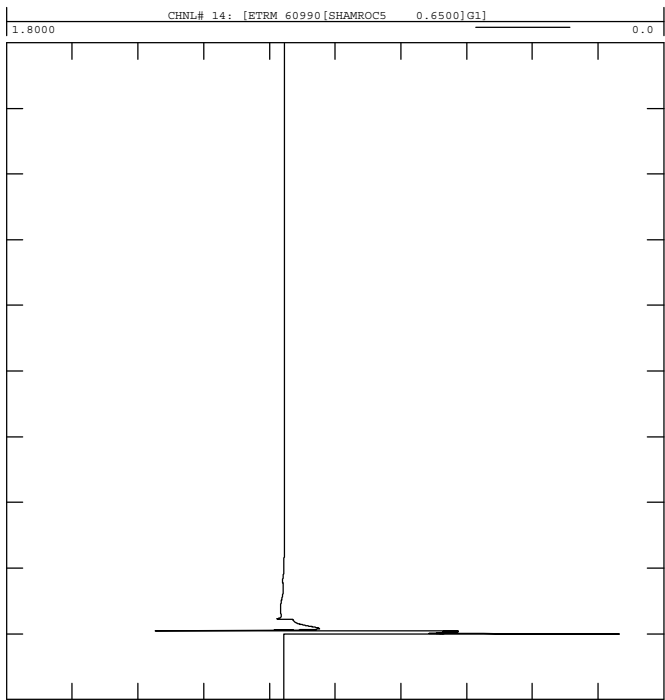
2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 892L (Bowmanton 244S).out



2019 SL POST PROJECT
892L (SUFFIELD 895S TO BOWMANTON 244S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

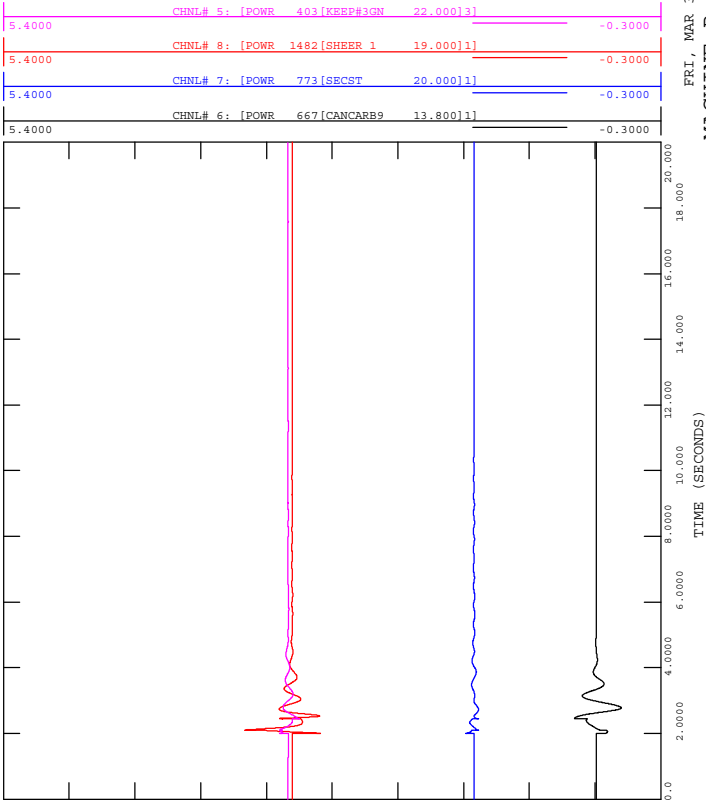
FILE: 892L (Bowmanton 244S).out





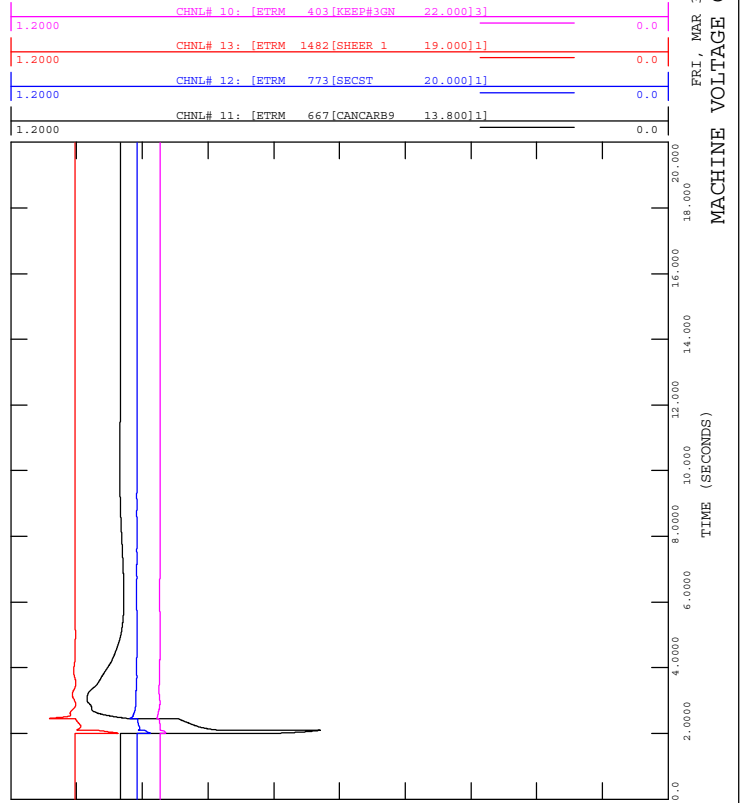
2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out



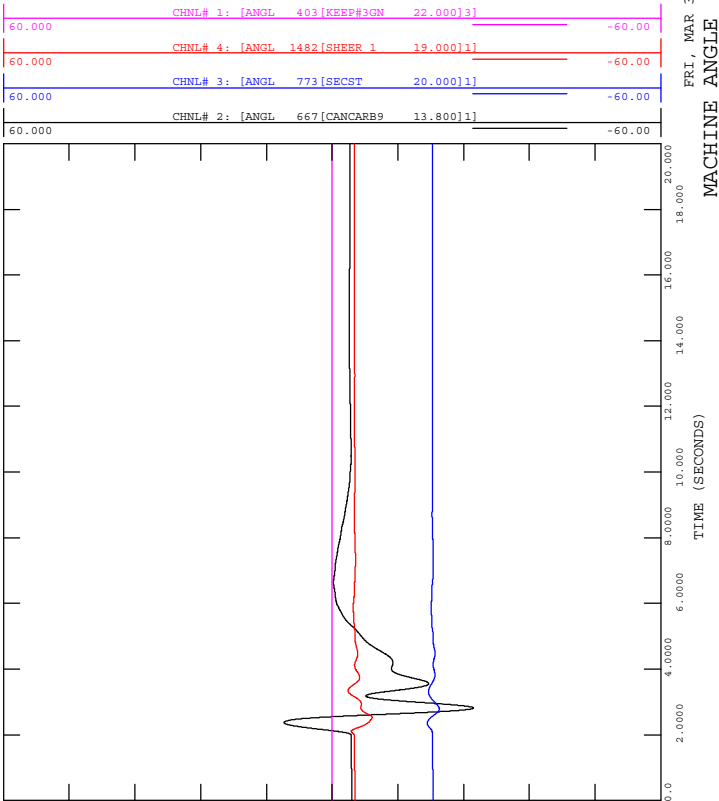
2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out



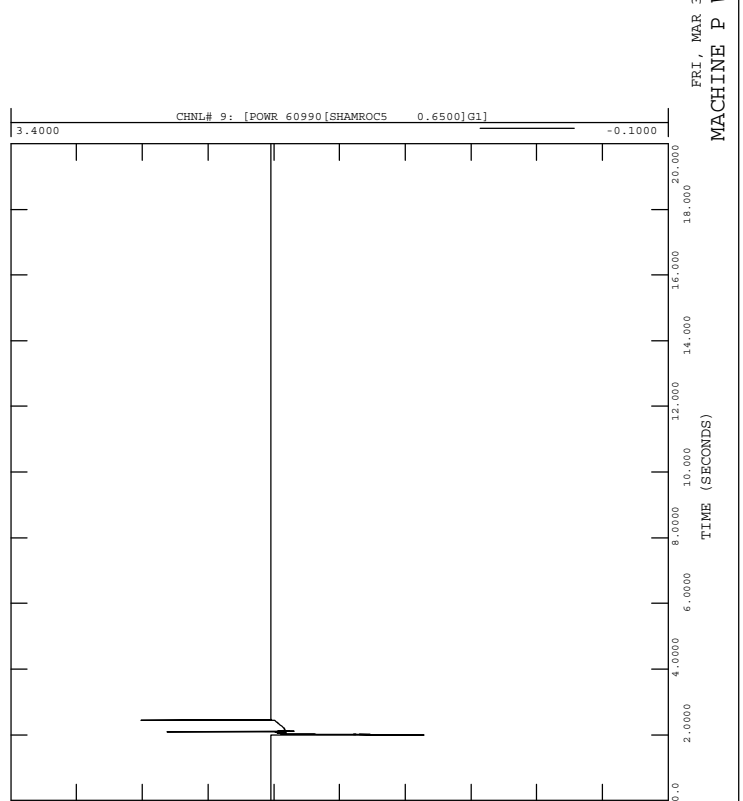
2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out



2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out

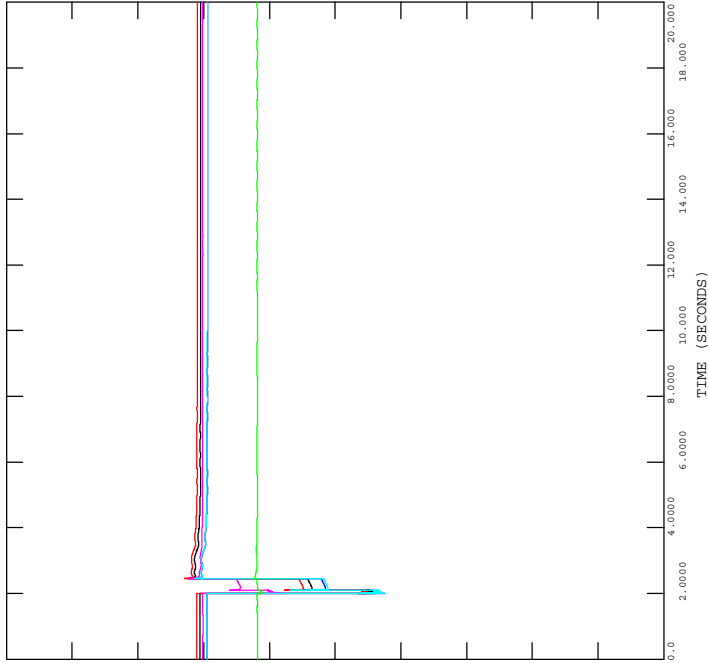




2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out

1.5000	CHNL# 15: [VOLT 403 [KEEP#3GN 22.000]]	0.0
1.5000	CHNL# 20: [VOLT 990 [SHAMROCK 240.00]]	0.0
1.5000	CHNL# 19: [VOLT 918 [CASS01 240.00]]	0.0
1.5000	CHNL# 18: [VOLT 669 [BOWMAN1 240.00]]	0.0
1.5000	CHNL# 17: [VOLT 662 [SUBD1 240.00]]	0.0
1.5000	CHNL# 16: [VOLT 477 [ELKWATR1 240.00]]	0.0



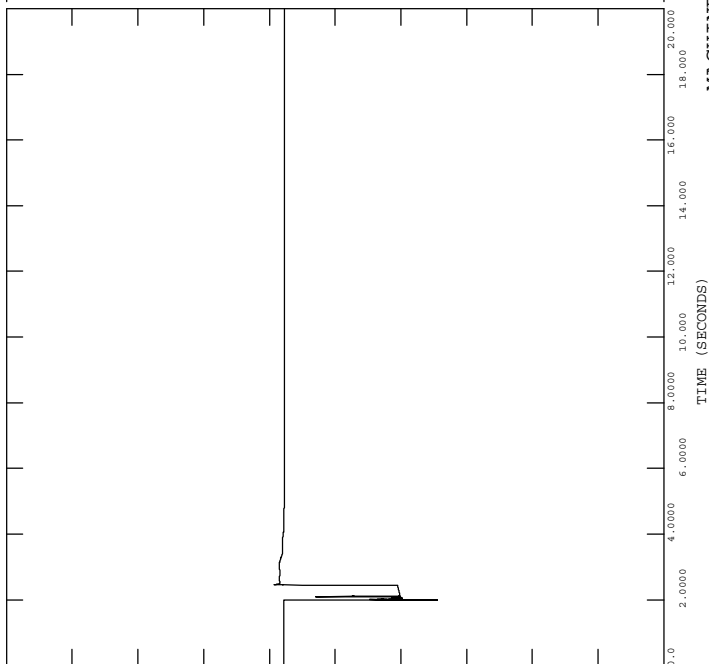
FRI, MAR 30 2018 12:43
BUS VOLTAGE (PU)



2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bullshead 523S).out

1.8000	CHNL# 14: [ETRM 60990 [SHAMROCS 0.6500]G1]	0.0
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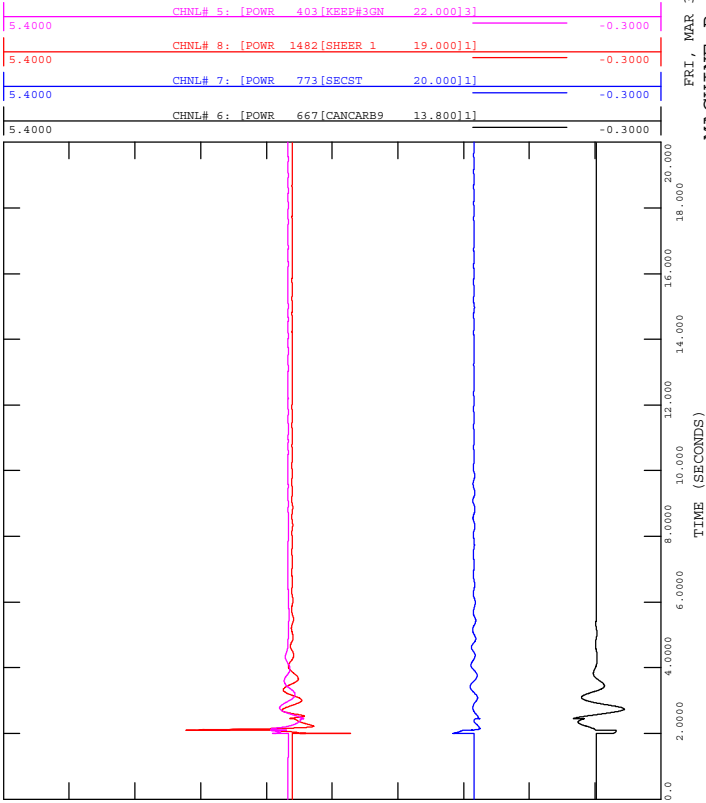


FRI, MAR 30 2018 12:43
MACHINE VOLTAGE WIND (PU)



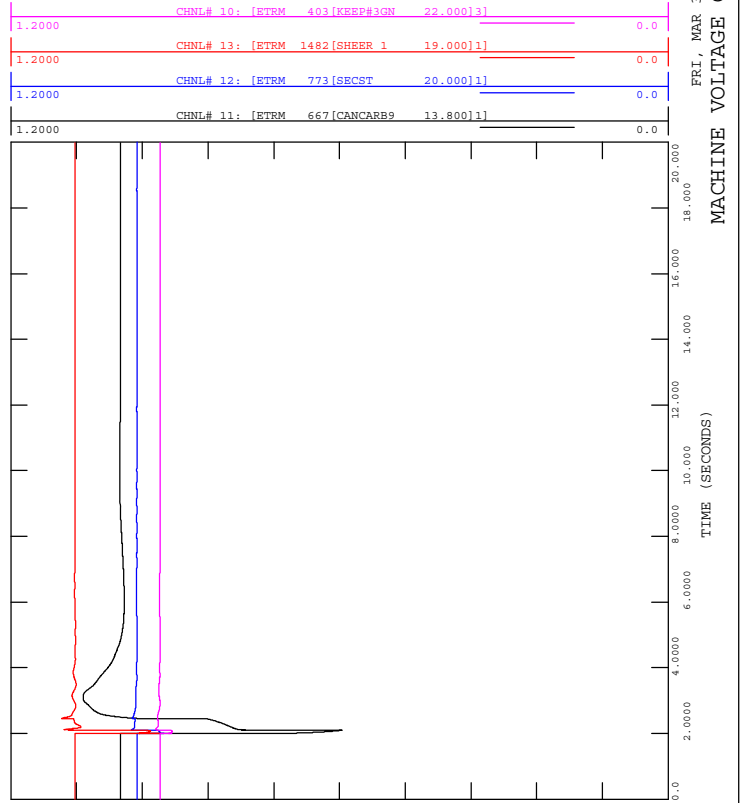
2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out



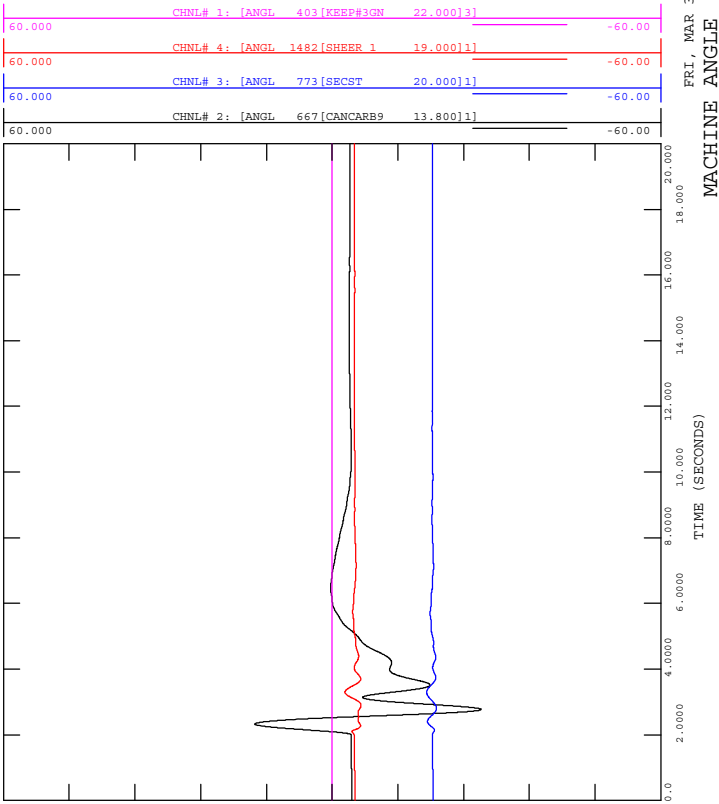
2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out



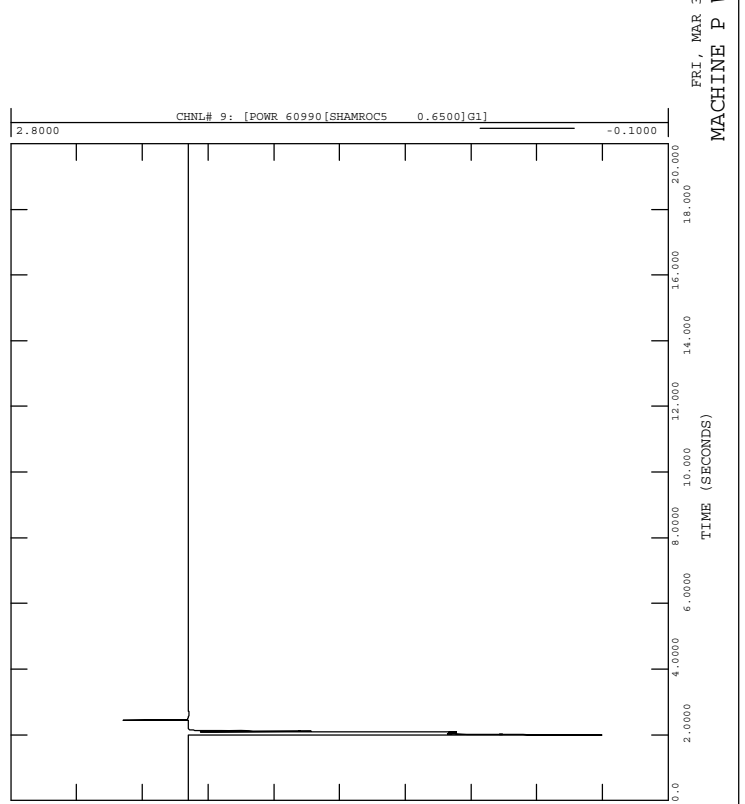
2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out



2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

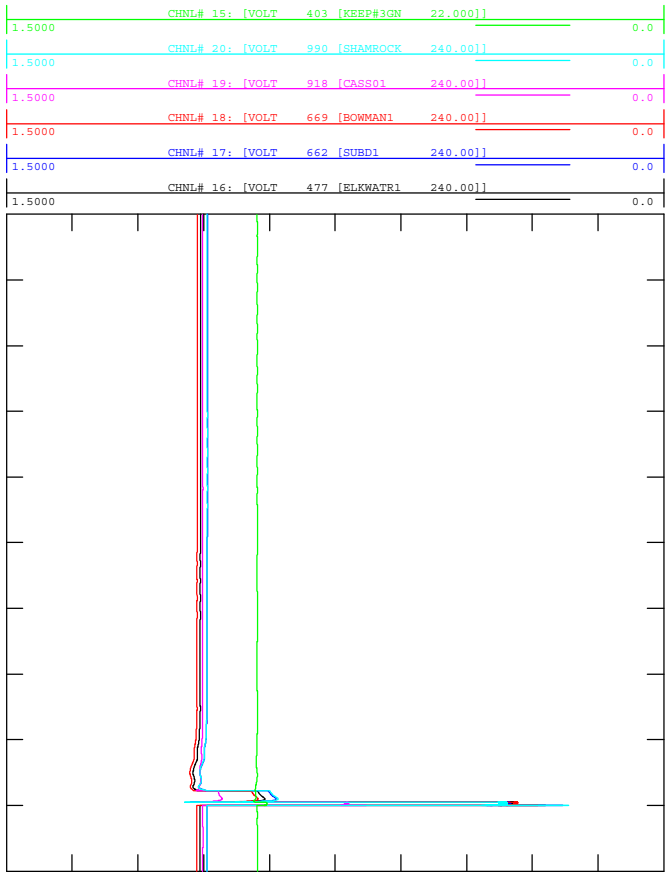
FILE: 676L (Bowmanton 244S).out





2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out

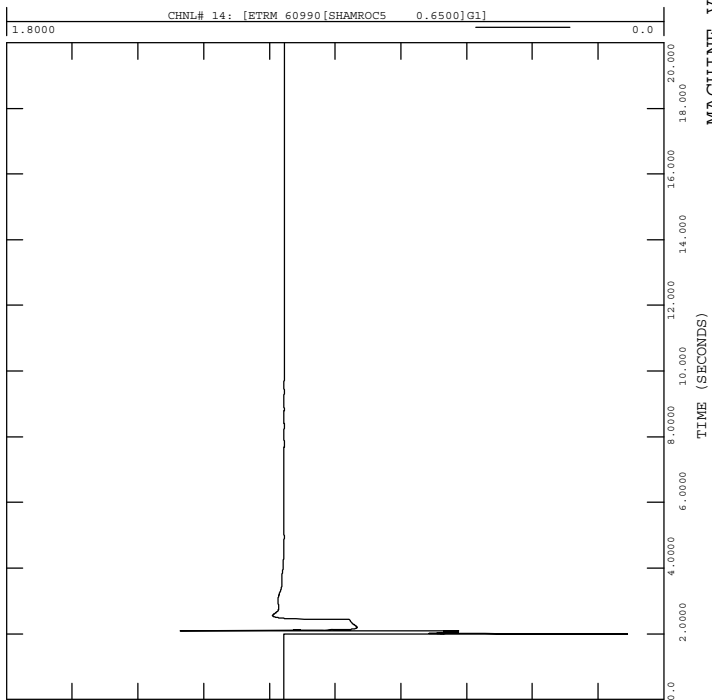


FRI, MAR 30 2018 12:43



2019 SL POST PROJECT
676L (BOWMANTON 244S TO BULLSHEAD 523S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 676L (Bowmanton 244S).out

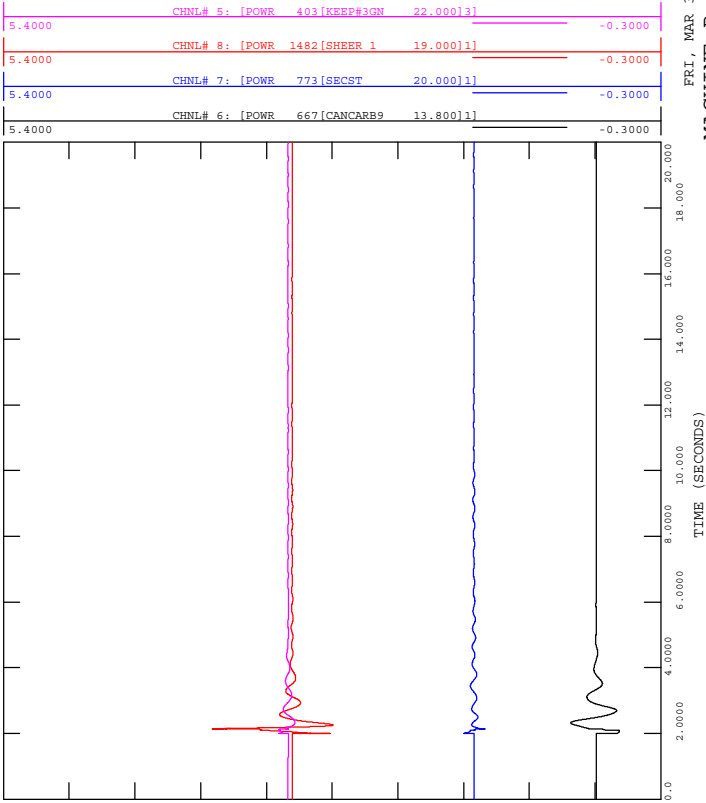


FRI, MAR 30 2018 12:43



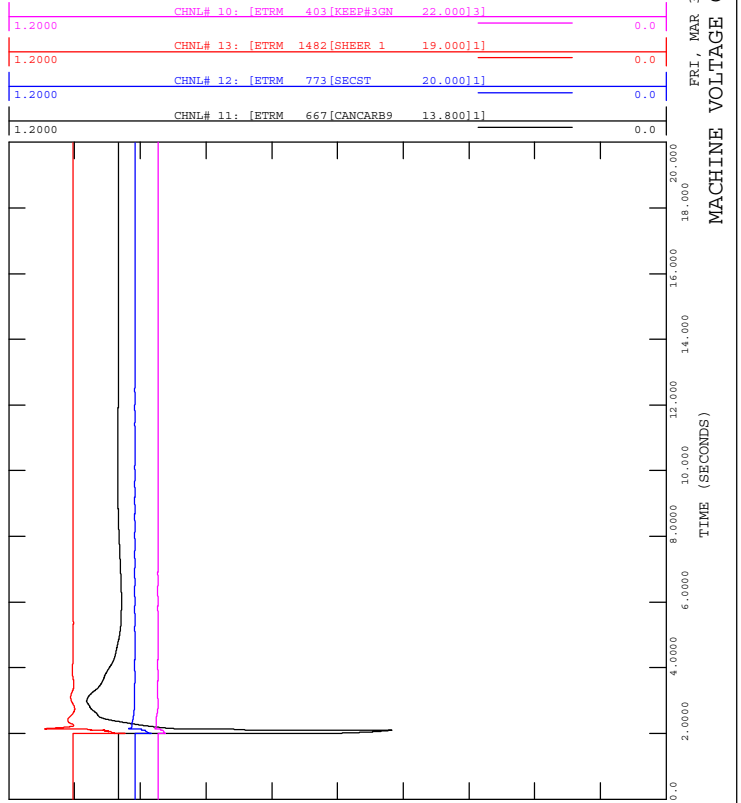
2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Al Rothbauer 321S).out



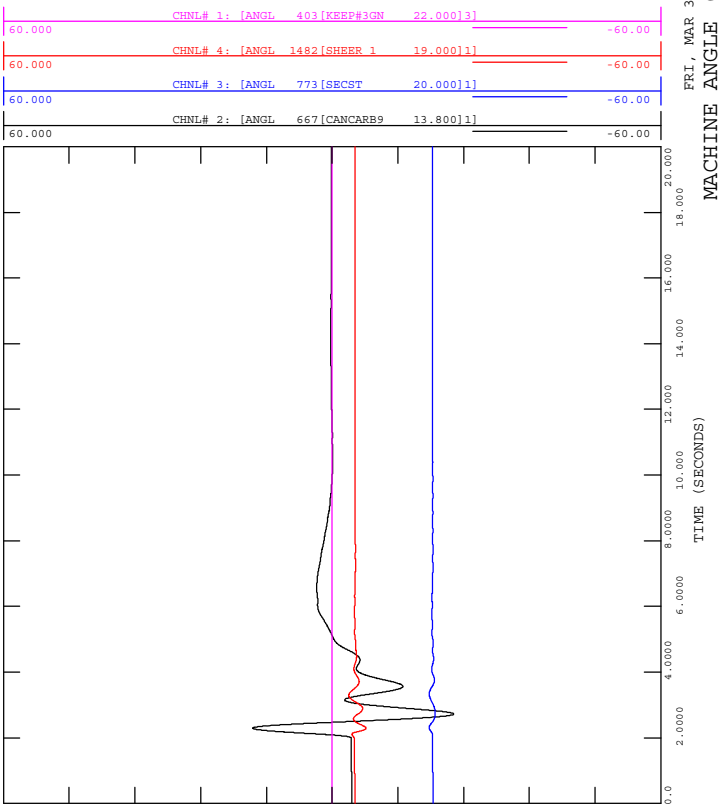
2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Al Rothbauer 321S).out



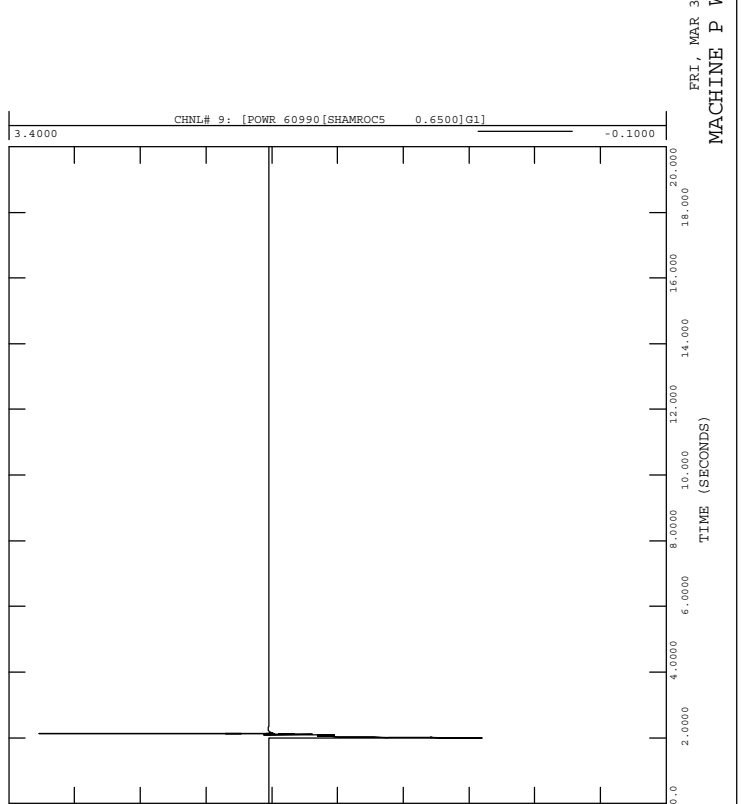
2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Al Rothbauer 321S).out



2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

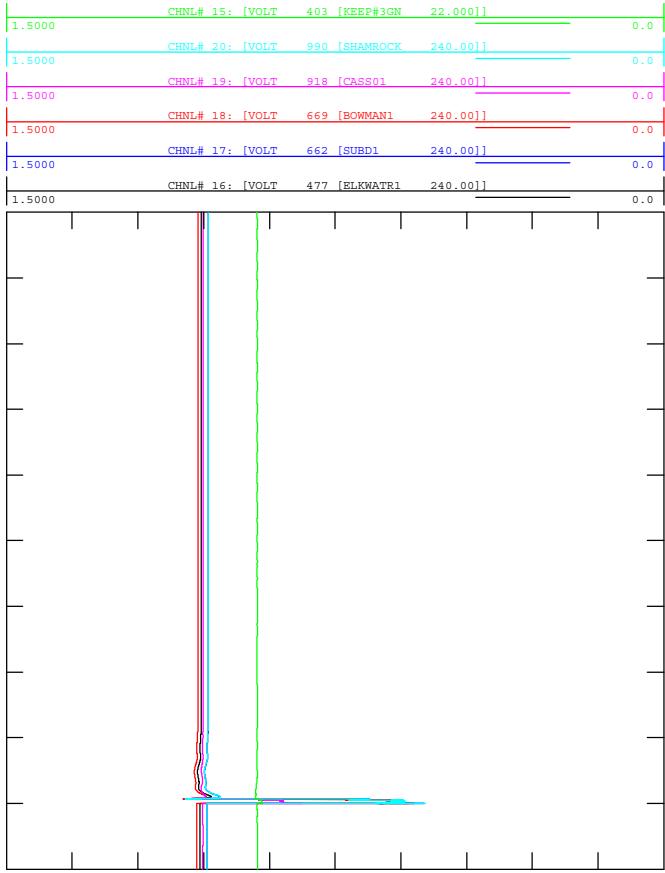
FILE: 675L (Al Rothbauer 321S).out





2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (AI Rothbauer 321S).out

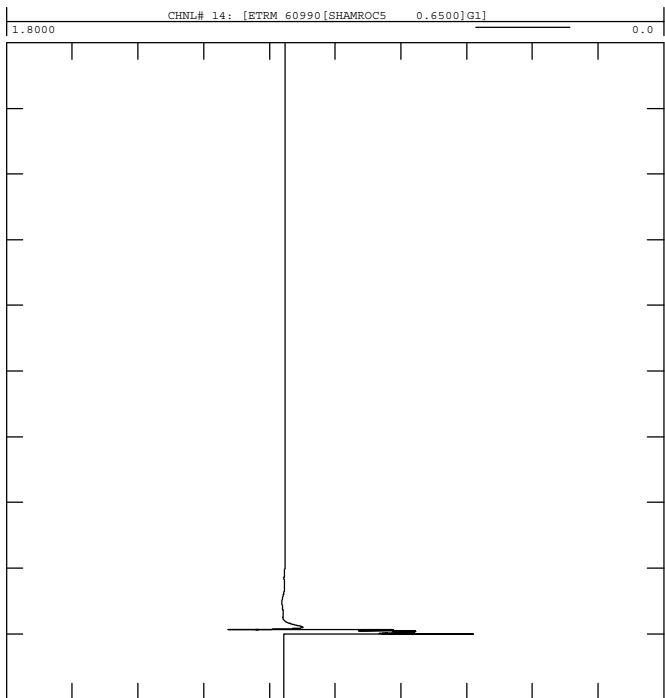


FRI, MAR 30 2018 12:43
BUS VOLTAGE (PU)



2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (AI Rothbauer 321S).out

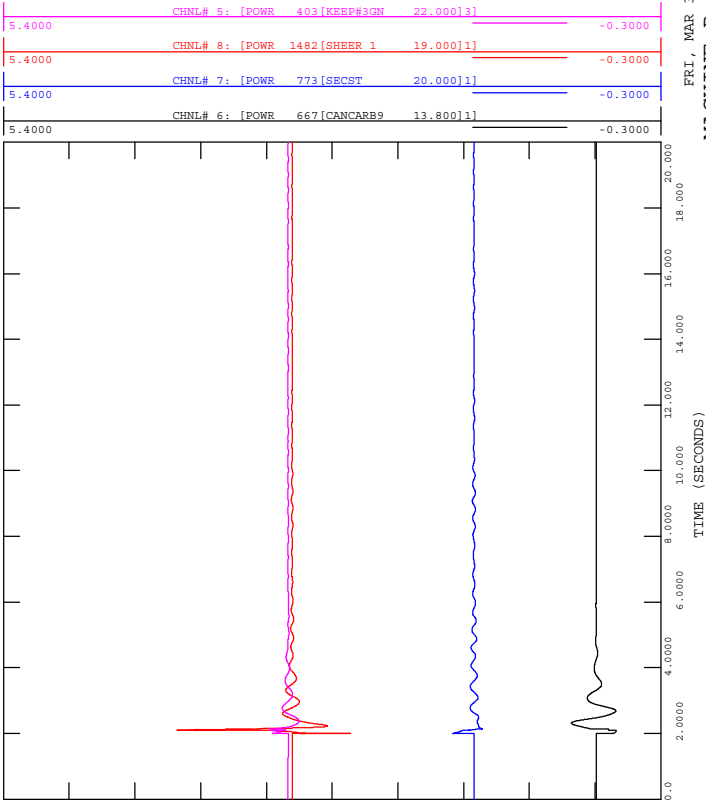


FRI, MAR 30 2018 12:43
MACHINE VOLTAGE WIND (PU)



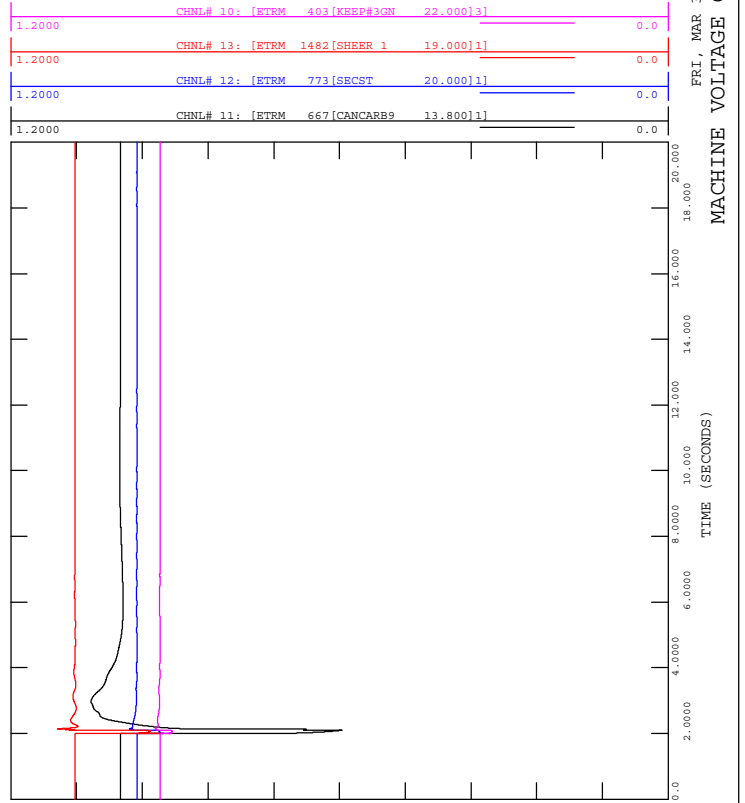
2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out



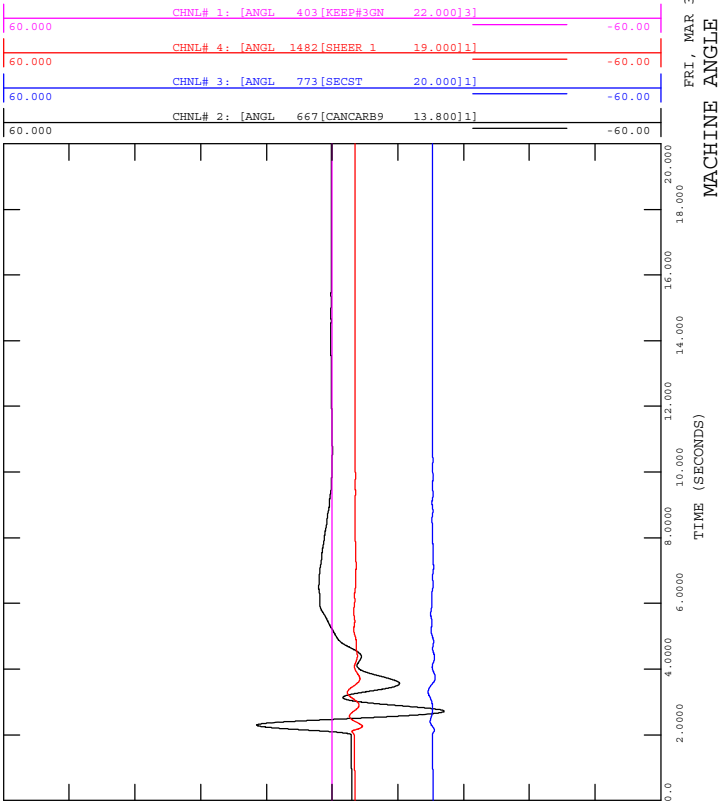
2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out



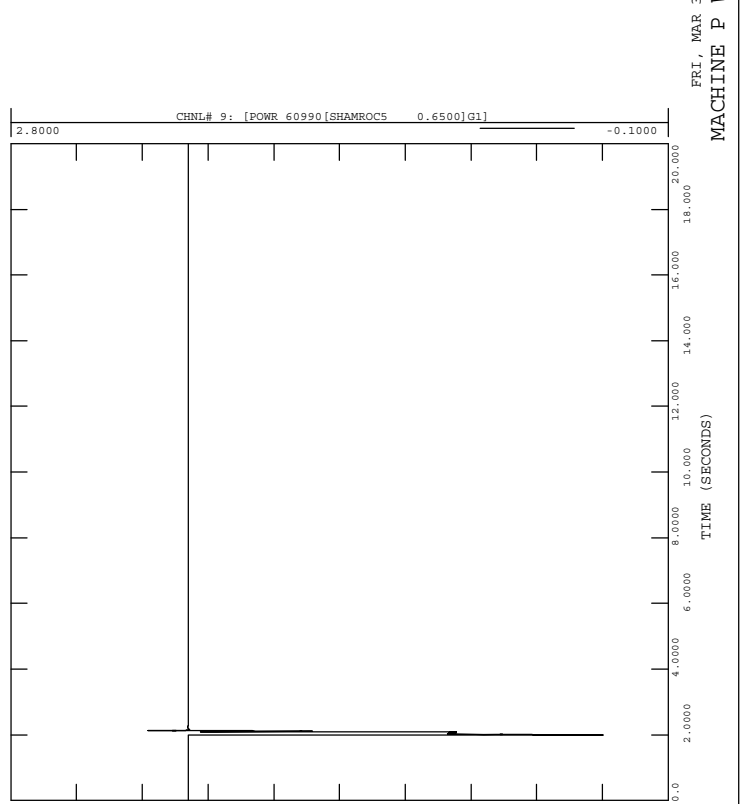
2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out



2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

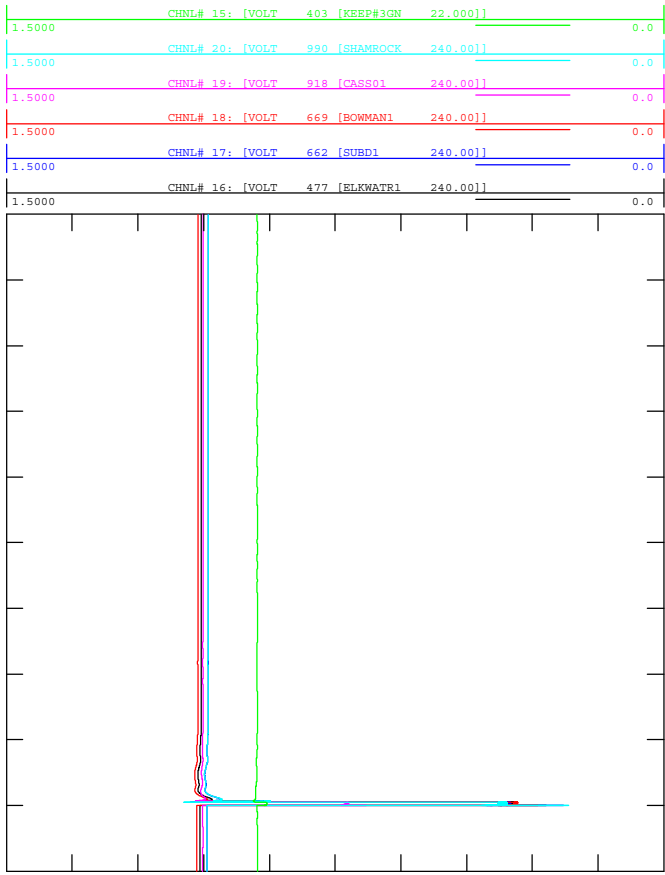
FILE: 675L (Bowmanton 244S).out





2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out

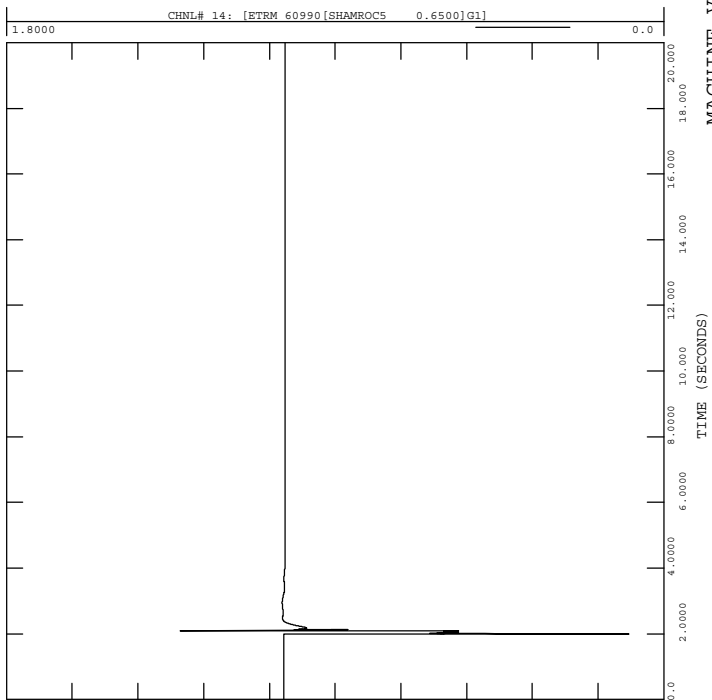


FRI, MAR 30 2018 12:43
BUS VOLTAGE (PU)



2019 SL POST PROJECT
675L (BOWMANTON 244S TO AI ROTHBAUER 321S)
CLEARED IN 6 CYCLES, FAR END IN 7 CYCLES

FILE: 675L (Bowmanton 244S).out

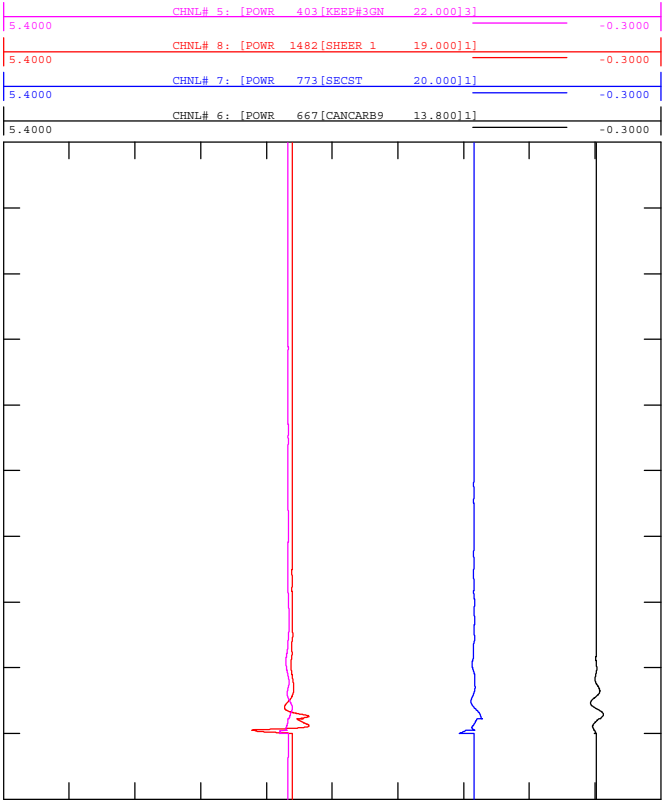


FRI, MAR 30 2018 12:43
MACHINE VOLTAGE WIND (PU)



2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Burdett 368S).out

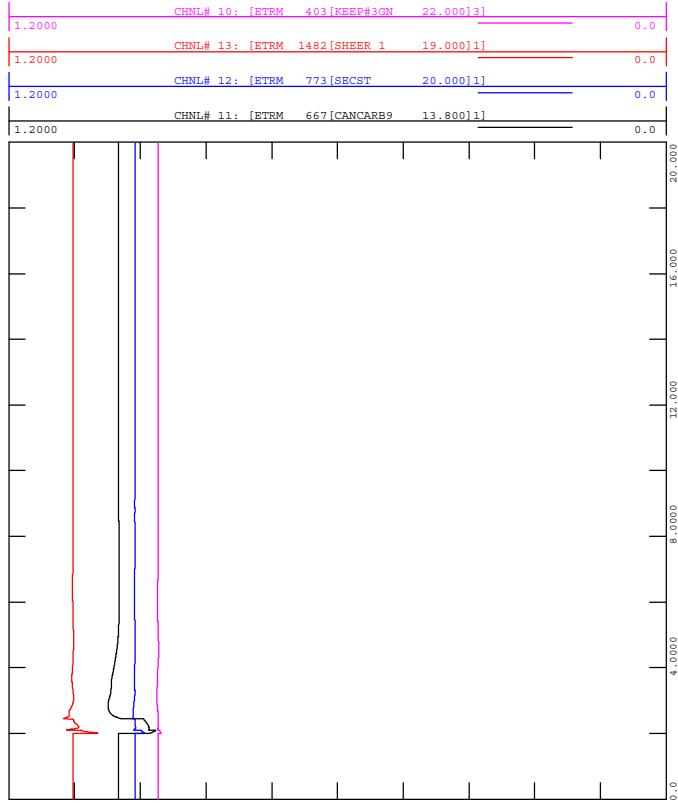


FRI, MAR 30 2018 12:43
MACHINE P COAL (PU)



2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Burdett 368S).out

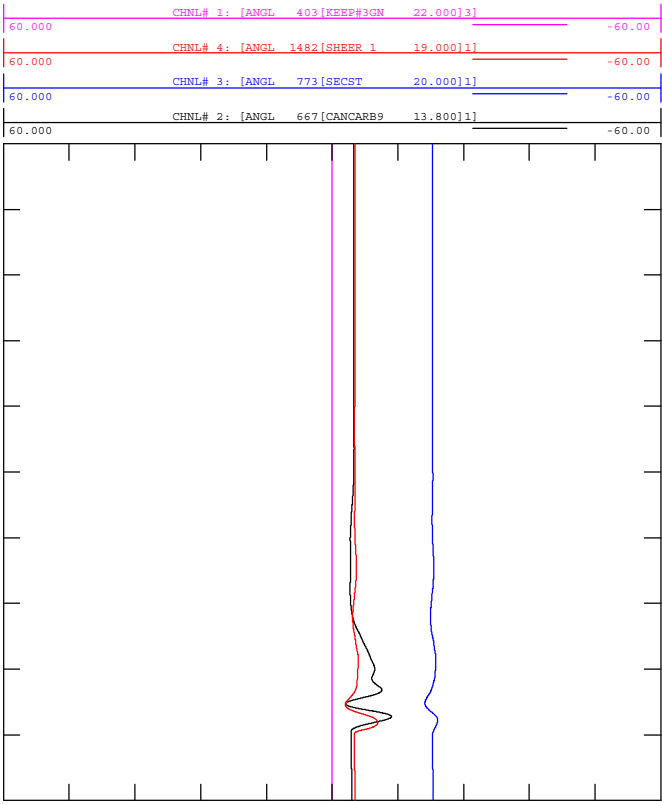


FRI, MAR 30 2018 12:43
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Burdett 368S).out

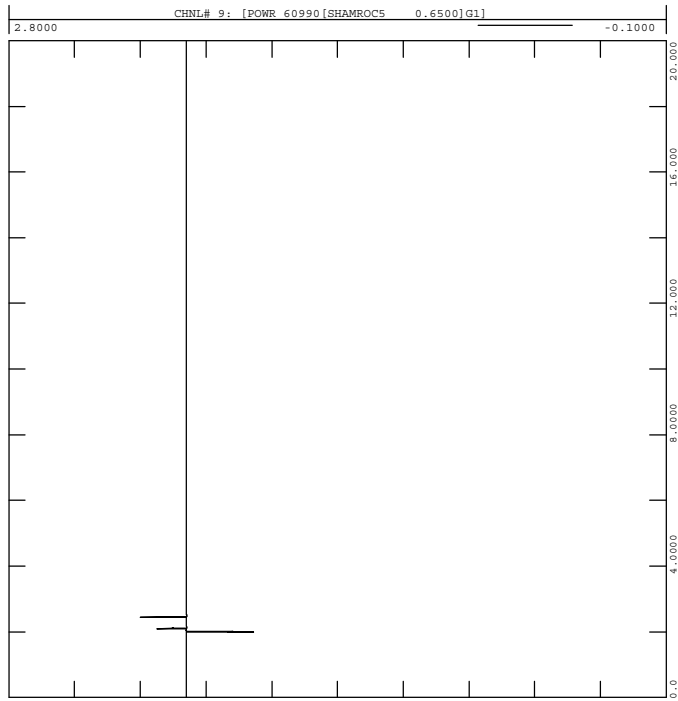


FRI, MAR 30 2018 12:43
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Burdett 368S).out

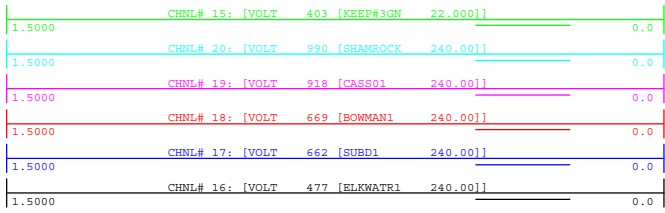


FRI, MAR 30 2018 12:43
MACHINE P WIND (PU)



2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Burdett 368S).out

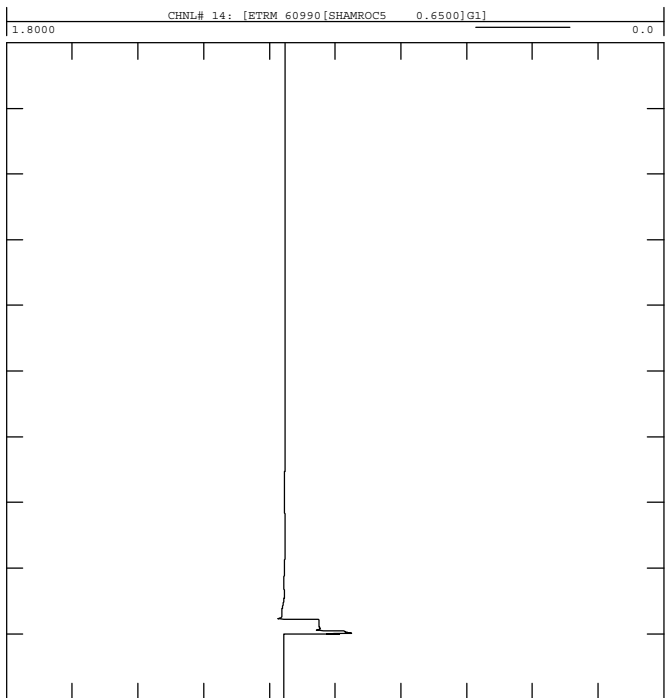


FRI, MAR 30 2018 12:43
BUS VOLTAGE (PU)



2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Burdett 368S).out

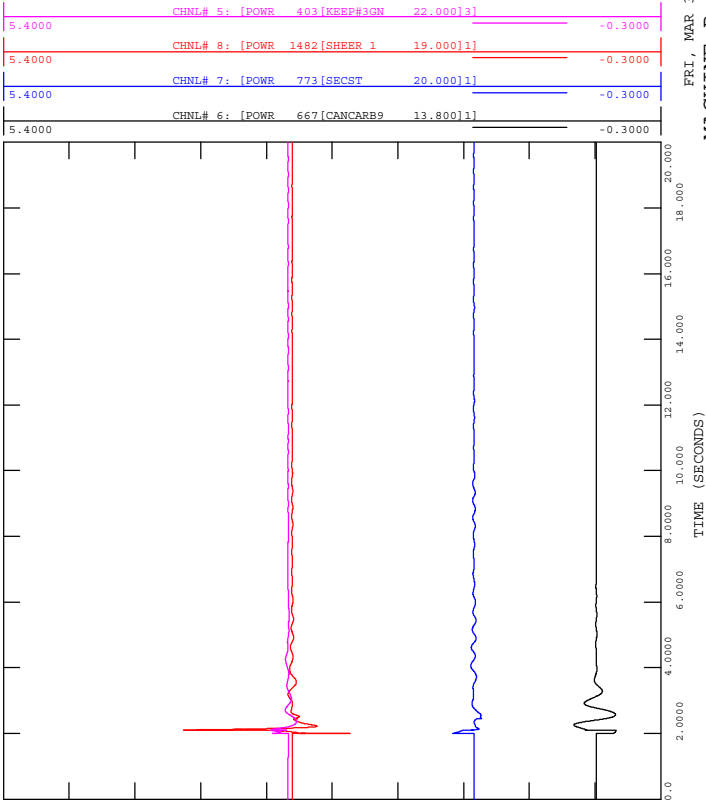


FRI, MAR 30 2018 12:43
MACHINE VOLTAGE WIND (PU)



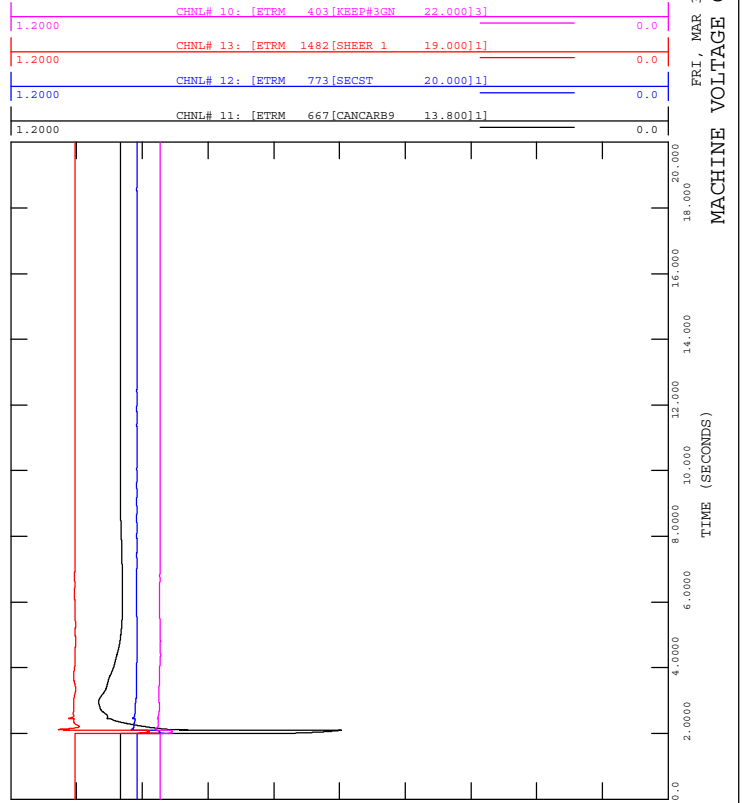
2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out



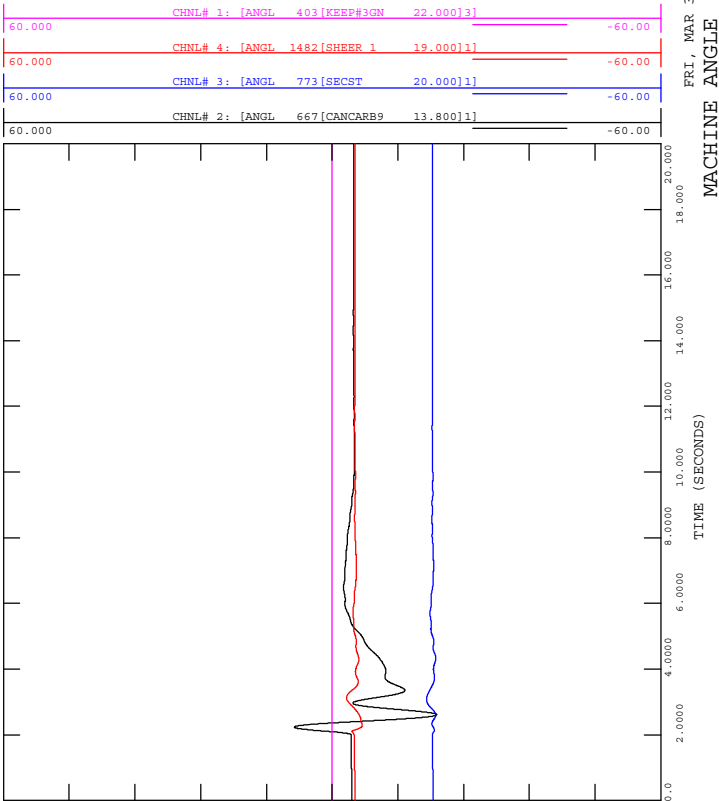
2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out



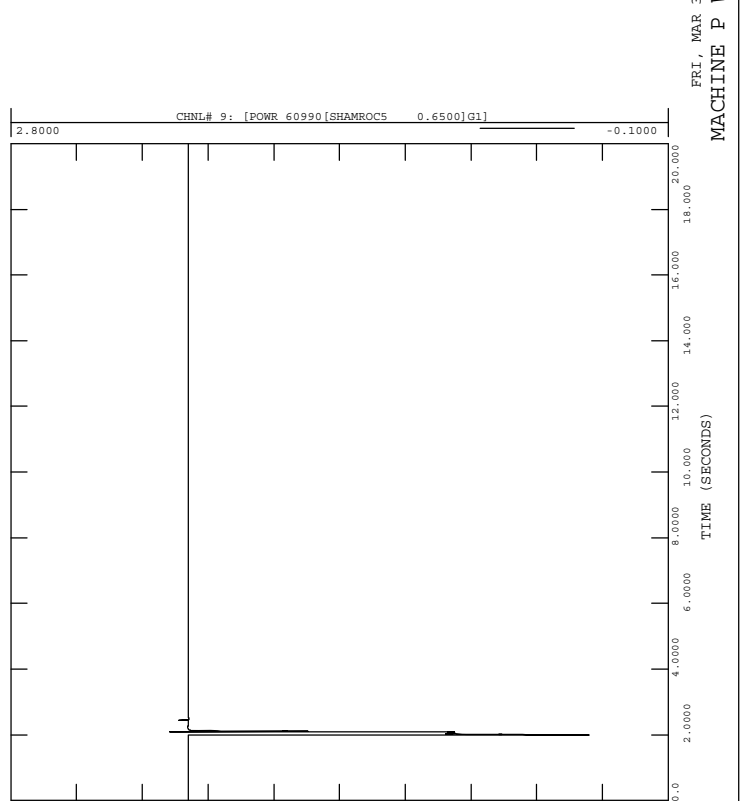
2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out



2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

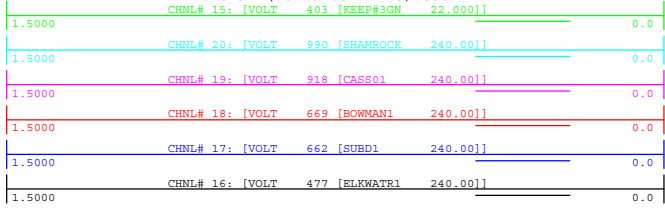
FILE: 879L (Bowmanton 244S).out





2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out

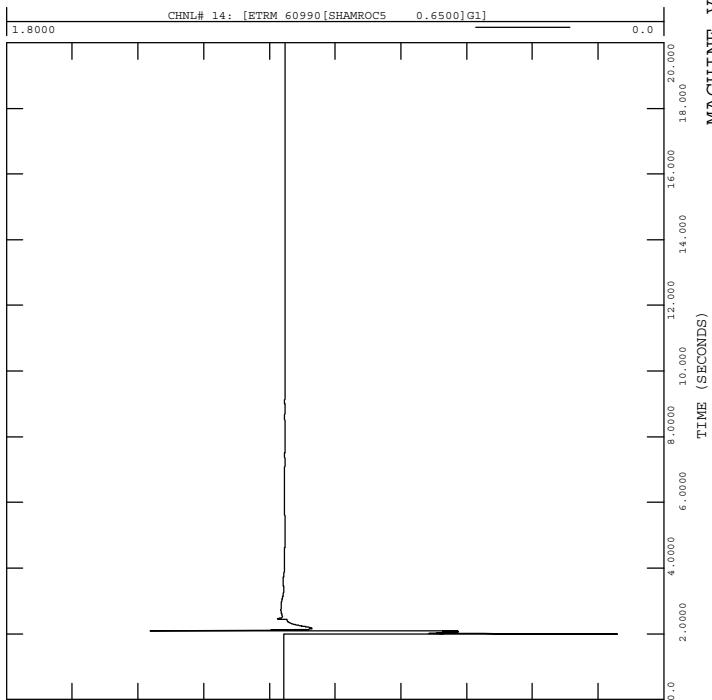


FRI, MAR 30 2018 12:43
BUS VOLTAGE (PU)



2019 SL POST PROJECT
879L (BOWMANTON 244S TO BURDETT 368S)
CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES

FILE: 879L (Bowmanton 244S).out

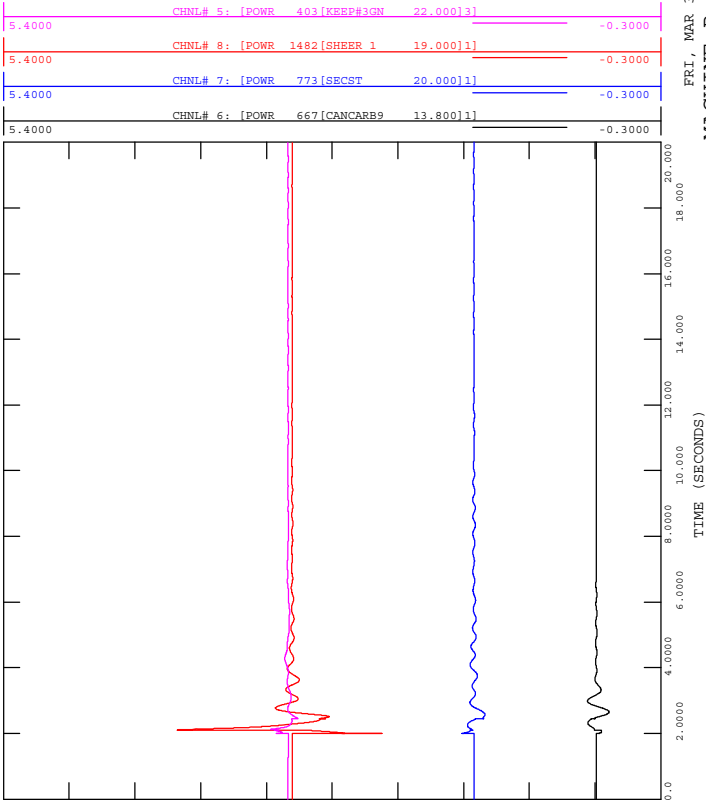


FRI, MAR 30 2018 12:43
MACHINE VOLTAGE WIND (PU)



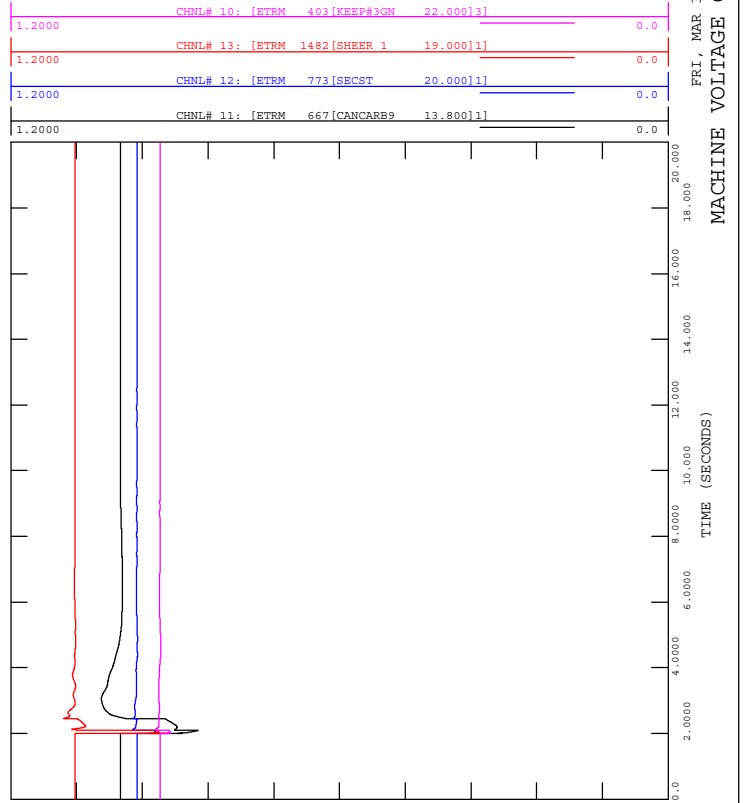
2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out



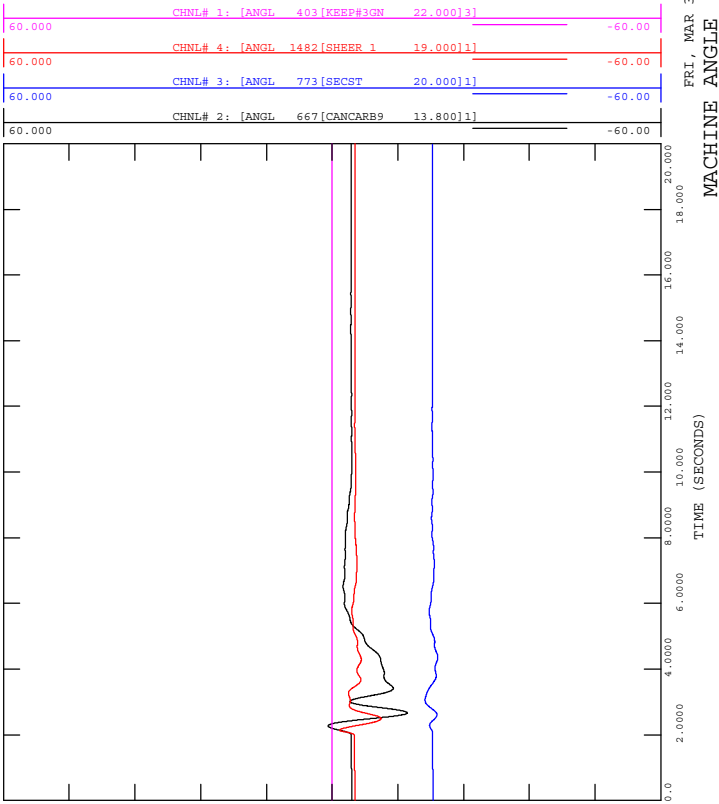
2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out



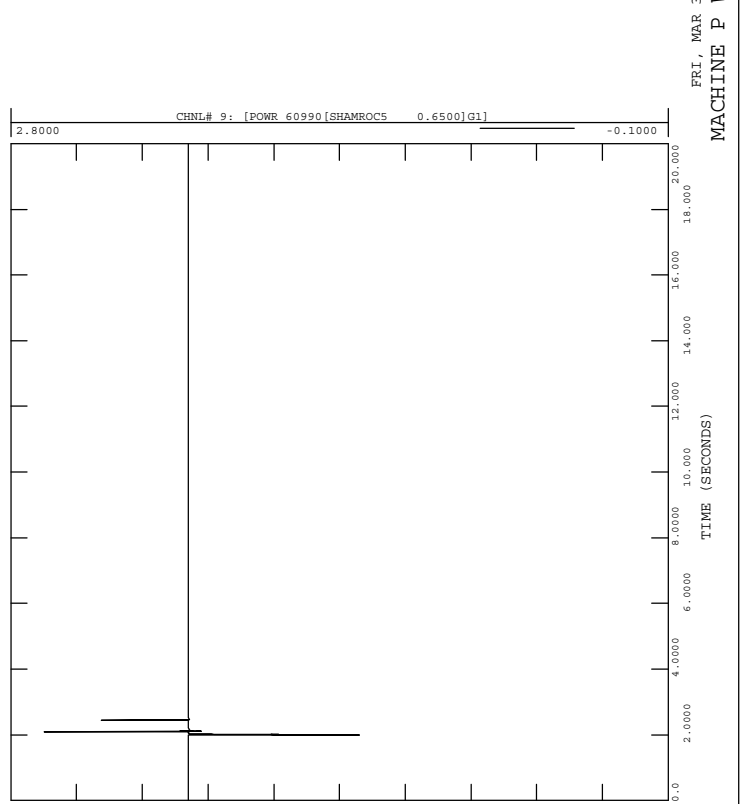
2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out



2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

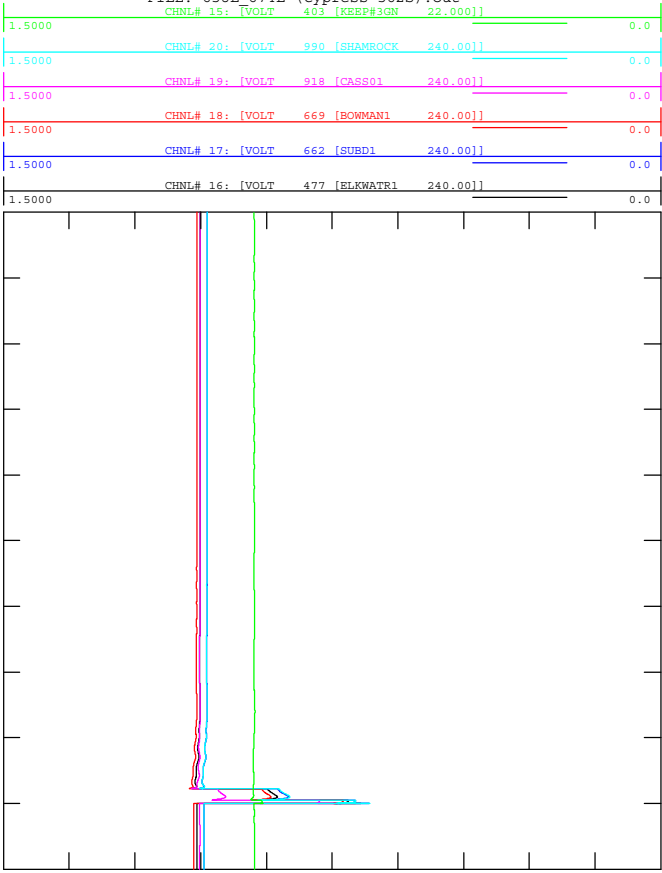
FILE: 658L_674L (Cypress 562S).out





2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out

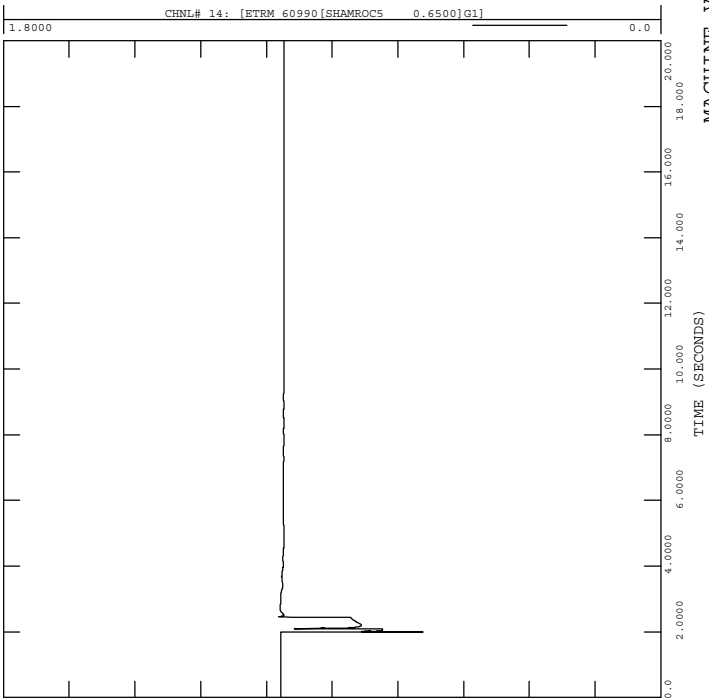


FRI, MAR 30 2018 12:43



2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Cypress 562S).out

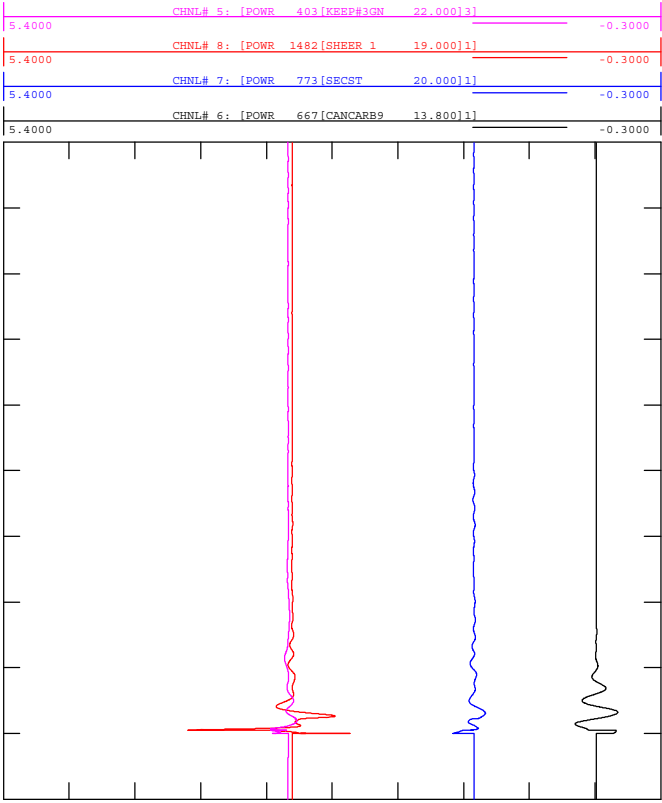


FRI, MAR 30 2018 12:43



2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

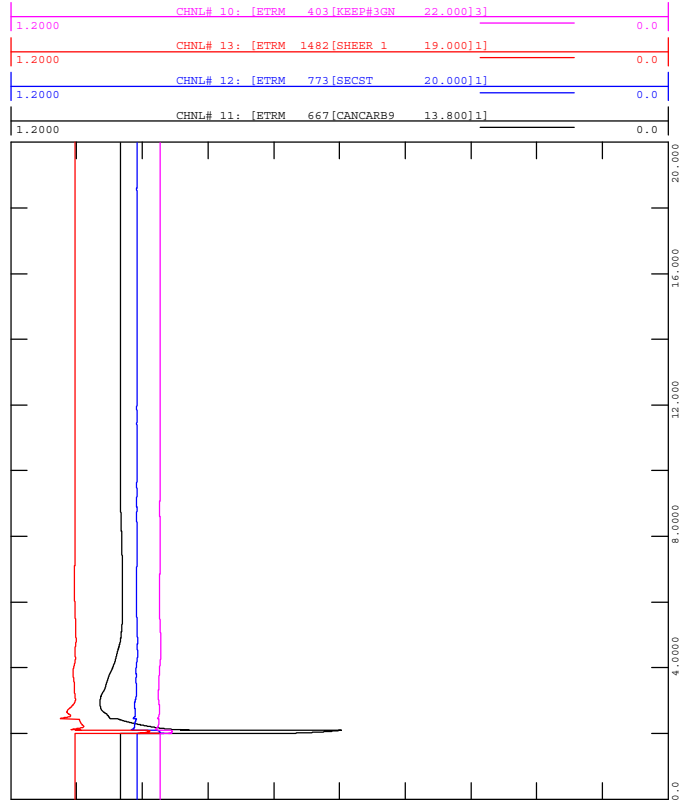


FRI, MAR 30 2018 12:43
MACHINE P COAL (PU)



2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

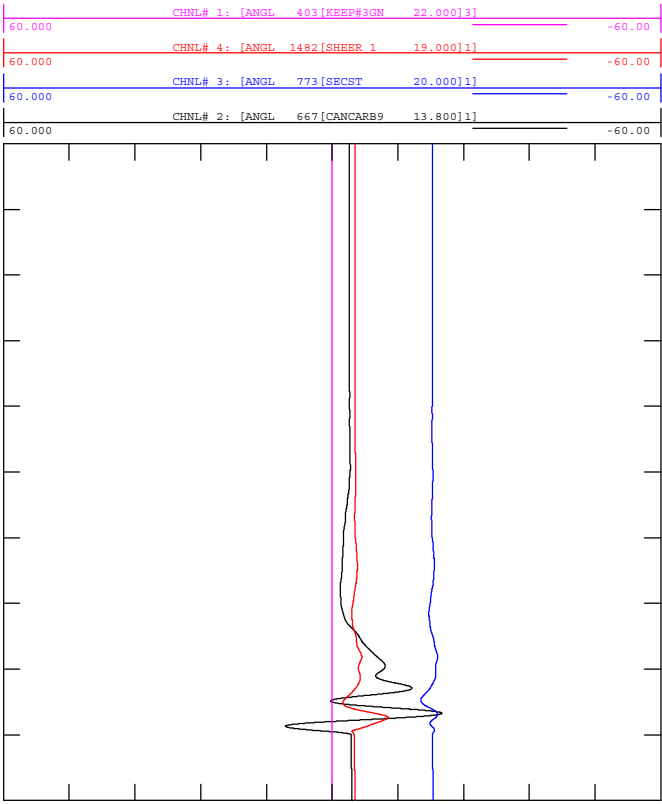


FRI, MAR 30 2018 12:43
MACHINE VOLTAGE COAL (PU)



2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

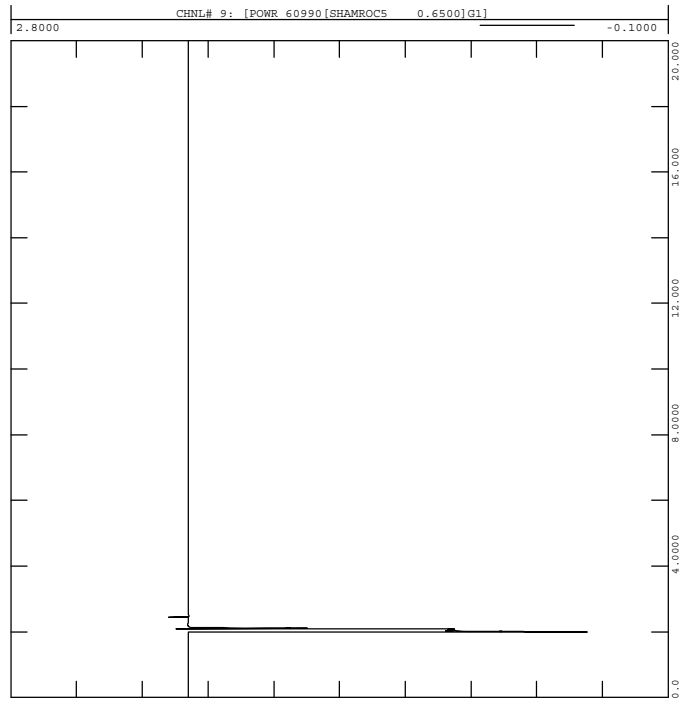


FRI, MAR 30 2018 12:43
MACHINE ANGLE (DEGREES)



2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
649S CLEARED IN 6 CYCLES, FAR END IN 27 CYCLES CYPRESS 56

FILE: 658L_674L (Bowmanton 244S).out

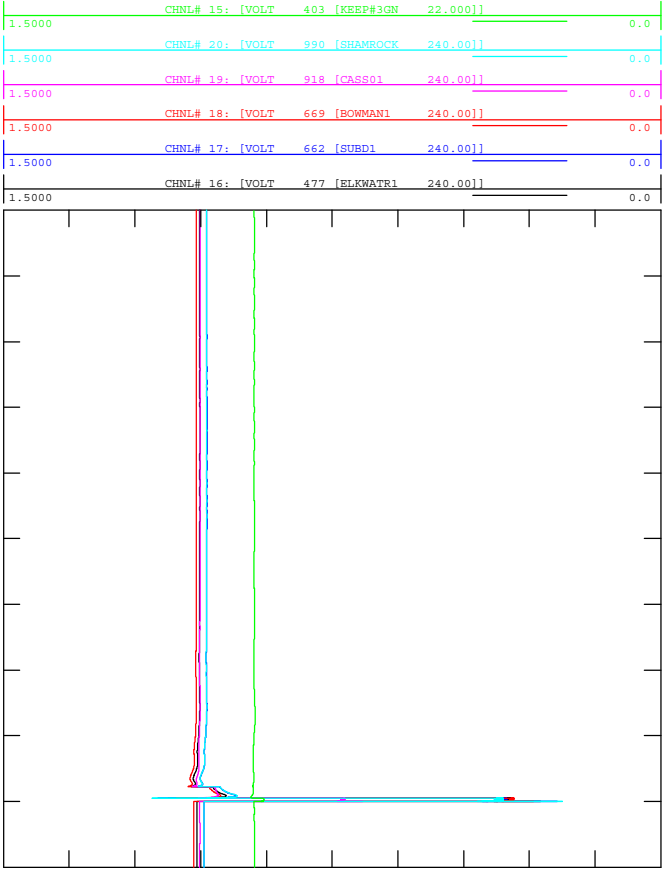


FRI, MAR 30 2018 12:43
MACHINE P WIND (PU)



2019 SL POST PROJECT
658L 674L (BOWMANTON 244S TO CHAPPICE LAKE
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