STATE OF COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

TR-103 - Corrective Action Response to Comments

Johnna Gonzalez <Johnna.Gonzalez@newmont.com> Fri, Sep 9, 2022 at 11:09 AM
To: "Amy.Eschberger@state.co.us" <amy.eschberger@state.co.us>
Cc: Katie Blake <Katie.Blake@newmont.com>, Norma Townley <Norma.Townley2@newmont.com>, "Michaela.Cunningham@state.co.us" <Michaela.Cunningham@state.co.us>, Patrick Lennberg - DNR <patrick.lennberg@state.co.us>, "Cazier - DNR, Tim" <tim.cazier@state.co.us>, "Russell - DNR, Elliott" <elliott.russell@state.co.us>

Amy,

Please find attached response to comments regarding TR-103 corrective actions. If you have any questions or concerns, please contact me at Johnna.Gonzalez@Newmont.com or Katie.Blake@Newmont.com.

Thank you.

Newmont
CRIPPLE CREEK & VICTOR

Johnna Gonzalez

ENVIRONMENTAL

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2 attachments

09Sep2022_DRMS04192022InspectionResponse.docx.pdf
587K

0106.054 Booster Pump Slope Stability_Appendix Combined-final.pdf
3617K

Newmont
NORTH AMERICA

CRIPPLE CREEK & VICTOR
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100 N. 3rd Street
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September 9, 2022

SENT BY ELECTRONIC MAIL

Ms. Amy Eschberger
Environmental Protection Specialist
Colorado Department of Natural
Resources Division of Reclamation,
Mining and Safety Office of Mined
Land Reclamation
1313 Sherman Street, Room 215
Denver, Colorado 80203

Re: Permit No. M-1980-244;Cripple Creek & Victor Gold Mining Company; Cresson Project; TR-103 Non-Compliance Corrective Action Response to Comments

Dear Ms. Eschberger:

On July 11, 2022, CC&V received comments from the Colorado Division of Reclamation, Mining, and Safety (the Division) regarding TR-103 Compliance Corrective Actions. This letter is in response to the report issued by the Division.

The Division comments are in italic text and CC&V response provided in bold text.

1. *Division comment: How long is it expected to take to place additional lifts above the booster pump building to "flatten" the overall slope?*

   The additional lift around the booster pump station will commence in the first quarter 2023 at the current forecasted mining rates and should take approximately 6 months to complete.

2. *Division comment: Provide a slope stability analyses for the slope below the booster pump building based on the Mined Land Reclamation Board's Policy No. 30 for both the existing slope and the expected final slope. The analyses should include worst case conditions for normal leaching and address the stability should there be a process solution breach in the vicinity.*

   Please see the attached Technical Memorandum prepared by NewFields titled Stability Analysis of an Upset Condition around the Booster Pump.

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As indicated in the report the upset condition of a pipe breach scenario does not influence the stability of the surrounding slopes and the calculated factors of safety are acceptable for all loading conditions evaluated.

Should you require further information please do not hesitate to contact Johnna Gonzalez at 719-851-4190 or Johnna.Gonzalez@newmont.com or me at 719-851-4048 or Katie.Blake@newmont.com.

Sincerely,

DocuSigned by:
Katie Blake
5A3D013B629844B...

Katie Blake
Suitability and External Relations Manager
Cripple Creek & Victor Mine

EC T. Cazier - DRMS
M. Cunningham – DRMS
E. Russell – DRMS
P. Lennberg - DRMS
K. Blake – CC&V
J. Gonzalez – CC&V

Enclosure
File

NewFields
Perspective. Vision. Solutions.

TECHNICAL MEMORANDUM

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T: 720.508.3300
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To: **Cripple Creek & Victor Mining Company, Inc.**

From: **Felicia Lepore**

Reviewed By: **Nicholas Rocco, Jay Janney-Moore**

Project: **Cresson Project, Permit No. M-1980-244; TR-103 Non-Compliance Corrective Action Response Regarding VLF2**

Project No: **475.0106.054**

Subject: **Stability Analysis of an Upset Condition around the Booster Pump**

Date: **23 August 2022**

1.0 INTRODUCTION

In response to the Colorado Division of Reclamation, Mining, and Safety (DRMS) request on July 11, 2022 in correspondence RE: Cresson Project, Permit No. M-1980-244; TR-103 Non-Compliance Corrective Action Response Comments, NewFields has completed the following analysis: "Provide slope stability analysis for the slope below the booster pump building based on the Mined Land Reclamation Board's Policy No. 30 for the existing slope and the expected final slope. The analyses should include the worst-case condition for normal leaching and address the stability should there be a process solution pipe breach in the vicinity. This technical memorandum summarizes the results of the stability analysis completed on the slope located below the booster pumps for the existing and proposed slope in normal leach conditions and in the pipe breach scenario.

Figure 1 shows the current heap configuration and the future heap configuration. The Booster Pump is sited on the 11000' bench of VLF2, north of the Mill. The downhill heap slope near the pumps was over steepened to an overall slope of 1.6H:1V to facilitate the construction of the Booster Pump and associated infrastructure. The pump is in line with a 24-inch diameter pipeline which has the flow capacity of 16,000 gallons per minute (gpm). Based on our understanding of the current and future leaching plan in the vicinity of the booster pumps is that the slopes below the booster pump were leached prior to the installation of the pumps and there are no plans to leach the slope below the booster station in the future.

CC&V has installed controls which would turn off pumps which pressurize the 24-inch diameter pipeline if a loss in pressure is detected. For the purpose of these analysis, NewFields has assumed the controls failed to shut off the pumps and solution was allowed to flow on the heap at the booster pump house for 12 hours.

NewFields, as the Engineer of Record, has conducted a geotechnical evaluation of upset conditions associated with the booster pump. Upset conditions were evaluated by assuming a rupture of the solution pipe near the booster pump and predictive modeling of the percolation of the solution into the heap and draindown over the following 24-hours. Stability was subsequently evaluated at 12-hours and 24-hours to assess the impact of the seepage "plume" below the area on the stability of the surrounding slopes. The seepage and stability evaluations utilized are discussed herein along with a discussion of the results.

2.0 SEEPAGE EVALUATION

The percolation and draindown of solution from an upset condition near the booster pump was completed evaluated using a finite element groundwater seepage analysis within RS2 (Rocsience, 2022). The model numerically solves Richards' equation to estimate saturated and unsaturated water flow in soil. Specific input parameters for the model are discussed in the following subsections.

The model simulated a 24-hour upset conditions with uncontrolled peak flows from the booster pump and was continued for an additional 24-hours after the upset conditions was terminated to assess draindown of the solution plume towards the base of the facility. It was decided that a 24-hour upset condition was suitably conservative and allowed ample time for a shut-off of the system to occur by operations.

A description of the development of the seepage model inputs, material characterization, and results are presented.

2.1 Model Development

A two-dimensional draindown geometry around the booster pump was used within RS2 model. The geomembrane composite liner at the base of the facility was defined as an external, no-flow boundary. The lateral sides and upper boundaries were defined to allow flow of solution, as necessary. The upper boundary was defined as a *seepage face* so that calculated pore pressure over time could not exceed the elevation of the booster pump bench.

The upset condition was simulated by applying a transient flow input to the model at the booster pump. The booster pump flow was set at 16,000 gpm from the initial timestep to 24 hours and then removed from the model.

Initial conditions within the ore were specified to simulate approximately 60 percent saturation at the start of the model. This value is reasonable and consistent with our understanding of the overall phreatic conditions within the VLF.

2.2 Hydraulic Properties

The unsaturated hydraulic properties are characterized by the soil water characteristic curve (SWCC) and hydraulic conductivity curve. The SWCC defines the amount of water in soil versus soil suction. SWCCs were defined using van Genuchten parameters (van Genuchten 1980), and unsaturated hydraulic conductivity functions were defined using the corresponding van Genuchten parameters in conjunction with the saturated hydraulic conductivity (K_{sat}) Hydraulic conductivity curves are described in terms of the van Genuchten-Mualem function (Mualem, 1976).

Required soil parameters include saturated hydraulic conductivity, residual water content (θ_r), saturated water content (θ_s), as well as a series of empirical fitting parameters used by the hydraulic function. The 'α' parameter is inversely related to the air entry pressure, and the 'n' parameter is related to the pore-size distribution.

In general, measurement of the unsaturated hydraulic conductivity properties of very coarse ores, such as the VLF2 ore, is very difficult in the laboratory due to the particle sizes of the material. As such, most of the properties used in the seepage model were estimated from the literature and considered based on our experience with similar materials.

The saturated hydraulic conductivity for the ore was measured as part of previous evaluations of VLF2 (NewFields, 2019). The remaining parameters were derived from a case study of an active landslide in Summit County, Colorado located approximately 100 miles from the project site (Wayllace et al, 2019). As part of this study, a tunnel fill material developed from colluvium and layers of fractured rock was evaluated. Due to the relative proximity to the mine site, material description, it was determined that these properties reasonably represent the ore to complete the seepage evaluation. Hydraulic properties used in the seepage analyses are summarized in Error! Reference source not found., and the SWCC and hydraulic conductivity curves for the ore are presented in **Figure 1** and **Figure 2**, respectively

TABLE 1 - HYDRAULIC PROPERTIES OF ORE

Material	K_{sat} (cm/sec)	Van Genuchten Parameters Note 1			
		α (cm^{-1})	n	θ_R (%, vol)	θ_S (%, vol)
Ore	3.2E-01	0.0235	2.12	8.0	33.0
Notes: [1] Values estimated based on tunnel fill material from Wayllace et al. (2019)					

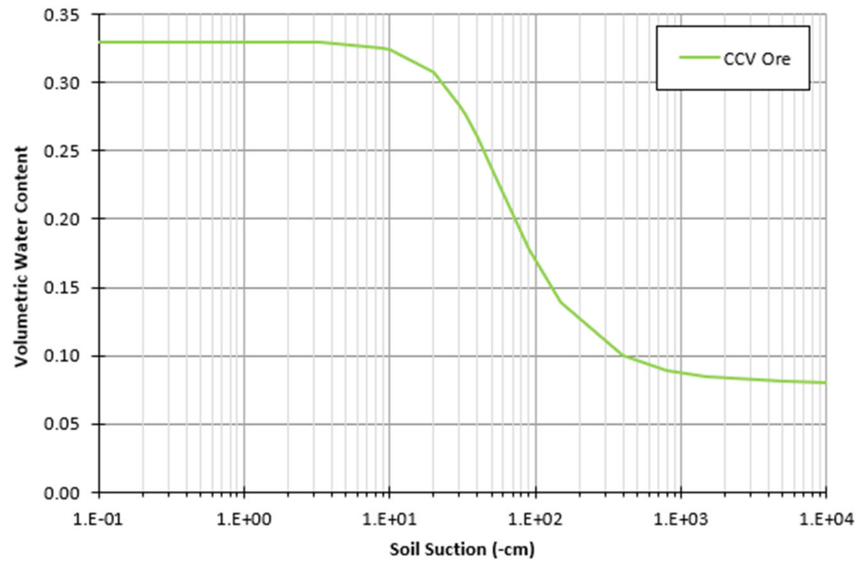

FIGURE 1 – SWCC FOR ORE

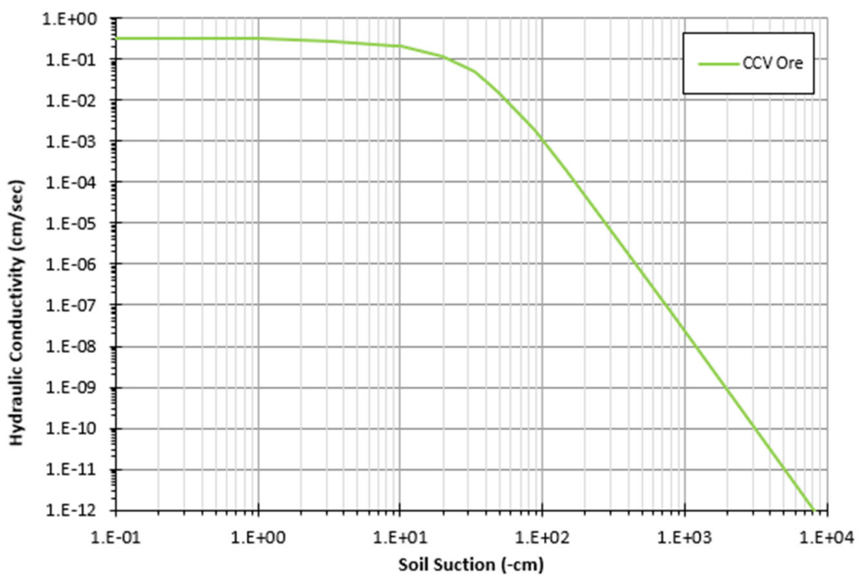

FIGURE 2 – HYDRAULIC CONDUCTIVITY RELATIONSHIP FOR ORE

2.3 Results

Output graphics for initial conditions (presented as degree of saturation) and at various timesteps over the 48-hour simulation are presented in **Attachment A**.

At the start of the upset condition a seepage plume develops in the facility subsurface and propagates down towards to the base liner. At 24 hours the plume is at the base of the liner and solution follows along the base of the liner. After the upset condition is cut off, the plume continues to draw down and at 48 hours it has entirely dissipated down to the base of the liner.

3.0 STABILITY EVALUATION

The results of the stability evaluation are discussed in the following sections along with descriptions of the model development and relevant material properties. The computer program SLIDE2 v.9 (Rocscience, 2022) was utilized to assess the stability of the embankment using limit equilibrium procedures. The Morgenstern-Price and Spencer methods of slices were implemented to evaluate the factor safety. Minimum acceptable factors of safety for static and pseudostatic conditions were established as 1.3 and 1.15, respectively, based on Colorado Division of Reclamation Mining and Safety (DRMS) guidelines and the facility being designated a critical structure as slope failures could impact the adjacent highway or propagate outside of containment.

3.1 Seismicity

A seismic hazard assessment was previously included by as part of the VLF Design Report (AMEC, 2011). A recent re-evaluation of VLF2 stability (NewFields, 2019) included a review of publicly available information regarding the seismic hazard at the site using the United States Geologic Survey (USGS) Unified Hazard Tool. The peak ground acceleration (PGA) for the site was referenced as 0.14g for the 2,475-year-return seismic events with a mean earthquake magnitude of 5.5 at a distance of approximately 20 miles from the site.

To assess the stability of slopes during seismic loadings, a pseudostatic approach was utilized in which the potential sliding mass was subjected to an additional, destabilizing horizontal force that represents the effects of earthquake motions and is related to the PGA. The seismic force is the weight of the sliding mass multiplied by a horizontal pseudostatic earthquake coefficient (k_h). The k_h coefficient is typically considered as a portion of the PGA because during an actual earthquake the acceleration within the potential sliding mass is cyclic and varies over the duration of the seismic event. Therefore, an average horizontal coefficient is assigned that is typically less than the PGA experienced at the base of the structure. For the current evaluation, one-half of the PGA was applied and is consistent with previous stability evaluations (NewFields, 2020).

3.2 Model Development

A section extending through the area above and below the location of the booster pump building was evaluated. The geometry of the foundation and the liner were developed using available construction records and project data.

The draindown pore water pressure estimates from the seepage evaluation were imported into the stability model to assess the impact of the upset condition. Pore pressures were imported at 24-hours after the upset occurred, which is the worst-case simulated condition. Baseline phreatic conditions within the heap were assumed to be unsaturated outside the area influence by the upset conditions since these slopes have been previously leached and there are no plans to re-leach the area.

3.3 Material Properties

Material properties used in the stability assessment are summarized in **Table 2**. Parameters for the composite core were defined from index and shear strength laboratory test work as previously reported (NewFields, 2019). Due to the coarse nature of the ore and high hydraulic conductivity, a drain shear response is expected for all loading conditions. VLF2 includes soil liner fill overlain by 80-mil, double-side textured LLDPE geomembrane, overlain by drain cover fill. The shear strength of the composite liner was previously measured and interpreted, and a non-linear power fit was considered the most representative failure envelope for the measured data (NewFields, 2020). The foundation was assumed to have infinite strength to force the failures along the overlying composite liner interface.

TABLE 2 - MATERIAL PROPERTIES FOR STABILITY EVALUATION

Material	Moist Unit Weight (psf)	Power Curve $\tau = A \cdot {\sigma_n}^B$		Mohr – Coulomb $\tau = c' + \sigma_n \tan\varphi'$	
		A	B	ϕ' (deg)	c' (psf)
Ore	120	-	-	34.5	1,500
Composite Liner Interface	120	1.2	0.9	-	-
Foundation (Intact Rock)	150	-	-	Infinite Strength	

3.4 Stability Results

The results of the stability analysis are presented in **Table 3** and output graphics from the stability evaluations are presented in **Attachment A**. The results indicate that the upset condition does not influence the stability of the surrounding slopes and the calculated factors of safety are acceptable for all loading conditions evaluated.

TABLE 3 – SUMMARY OF CALCULATED FACTORS OF SAFETY

Location	Scenario	Factor of Safety	
		(prior to upset condition)	(after upset condition) Note 1
Current Design	Static Conditions	2.4	2.1
	Pseudostatic Conditions	2.0	1.8
Ultimate Design (Global Failure Surface)	Static Conditions	2.9	2.9
	Pseudostatic Conditions	2.4	2.4
Ultimate Design (Local Failure Surface)	Static Conditions	2.4	2.1
	Pseudostatic Conditions	1.8	1.8

Notes: [1] Factors of safety after the upset condition were evaluated at 24 hours.

4.0 CONCLUSIONS

An upset seepage condition of a breach in a solution pipe with a 16,000 gal/min flow rate was modelled to evaluate the percolation and draindown of solution around the booster pump. A subsequent stability evaluation to determine if the seepage would affect the stability of the slopes in the proximity of the booster pump. The results and evaluations presented indicate that the seepage within acceptable factors of safety for all scenarios are achieved in accordance with the minimum factors of safety for critical structures recommended by the DRMS.

COLORADO REGISTERED PROFESSIONAL ENGINEER
JAY N. JANNEY-MOORE
37571
9-8-2022

5.0 REFERENCES

AMEC Earth and Environmental . (2011). *Cripple Creek & Victor Gold Mining Company, Squaw Gulch Overburden Storage Area including Mill Platform Stability Evaluation .*

Colorado Division of Reclamation, M. S. (2015). *Cripple Creek & Victor Mining, Co., Cression Project, M-1980-244; Clarification on Slope Stability/Geotechnical Analysis.* Denver: Department of Natural Resources.

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Mualem, Y. (1976). “A New Model for Predicting Hydraulic Conductivity of Unsaturated Porous Media,” Water Resource Res., Vol. 12(3), 513-572.

NewFields. (2019). VLF2 Tailings Study Laboratory Testing & Stability Re-Evaluation.

NewFields. (2020). Cripple Creek & Victor Gold Mining Company Valley Leach Facility 2 Phase 3 Detailed Design for Permitting, Revision 1. July.

van Genuchten, M.Th. (1980). “A Closed Form Equation for Predicting the Hydraulic Conductivity of Unsaturated Soils,” Soil Science Society of America Journal, Vol. 44 (5), 892-898.

Rocscience Inc. . (1989-2002). *Slide 2D limit eqilibrium slope stability for soil and rock slopes*

Wayllace, A., Thunder, B., Lu, N., & Godt, J. (2019). Hydrological Behavior of an Infiltration-Induced Landslide in Colorado, USA, Geofluids, Volume 2019.

ATTACHMENT A

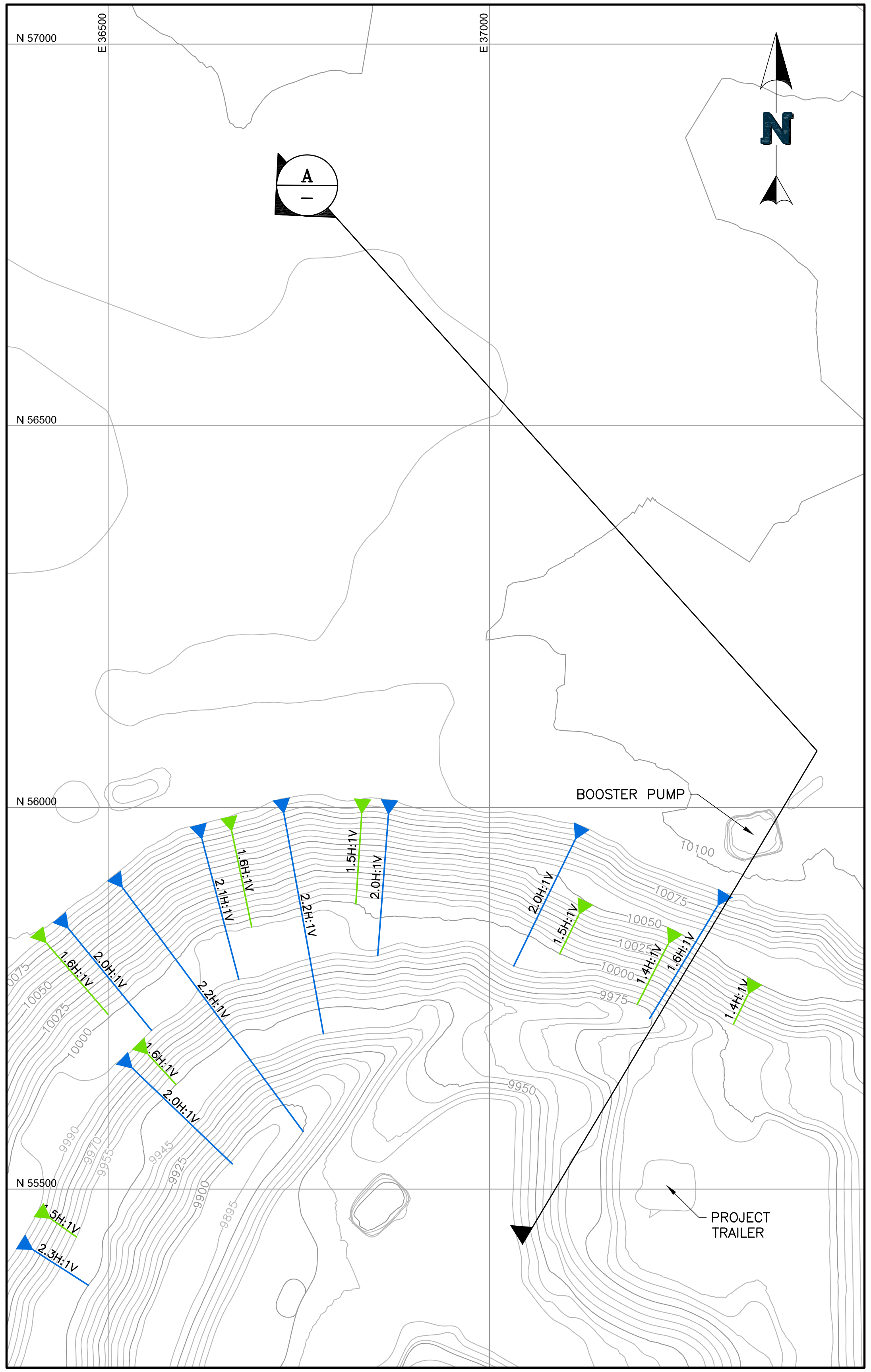
VLF2 Slope Stability At Booster Pump

LEGEND:

VLF2 CONTOURS

2.2H:1V — OVERALL OPERATIONAL ORE SLOPE

1.5H:1V — ANGLE OF REPOSE SLOPE(DUMPED ORE SLOPE)



MARCH 2, 2022

0 100 200 FEET

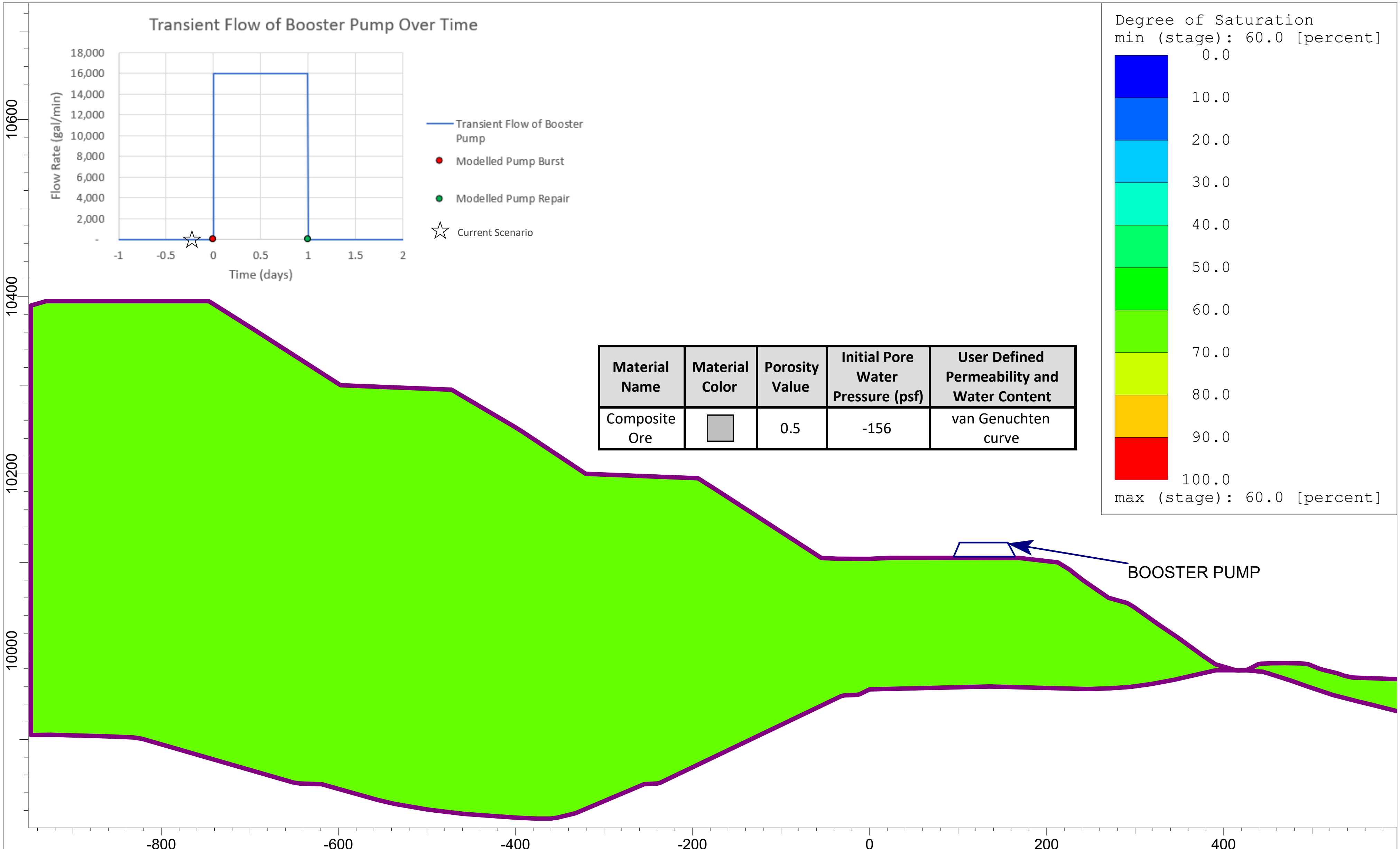
2029

REFERENCE:
MARCH 2, 2022 TOPOGRAPHY WAS RECEIVED BY NEWFIELDS ON APRIL 28,2022 IN A FILE CALLED "VLF2_3-2-22.DXF"
2029 TOPOGRAPHY WAS RECEIVED BY NEWFIELDS ON AUGUST 5, 2022 IN A FILE CALLED "Final Topo-VL2-20211201.DXF"

COLORADO REGISTERED PROFESSIONAL ENGINEER
JAY N. JANNEY-MOORE
37571
9-8-2022

NewFields	CLIENT: CRIPPLE CREEK & VICTOR GOLD MINING COMPANY
PROJECT	CRESSON PROJECT, PERIMT NO. M-1980-244; TR-103 NON-COMPLIANCE CORRECTIVE ACTION RESPONSE REGARDING VLF2
TITLE	VLF2 SLOPE STABILITY AT BOOSTER PUMP
FILENAME	0106.054.001F
FIGURE NO.	1
REVISION	A

P:\Projects\0106.054 Stormwater Improvements\A-CAD\WORK\Stability\0106.054.001F.dwg-9/7/2022 3:30 PM



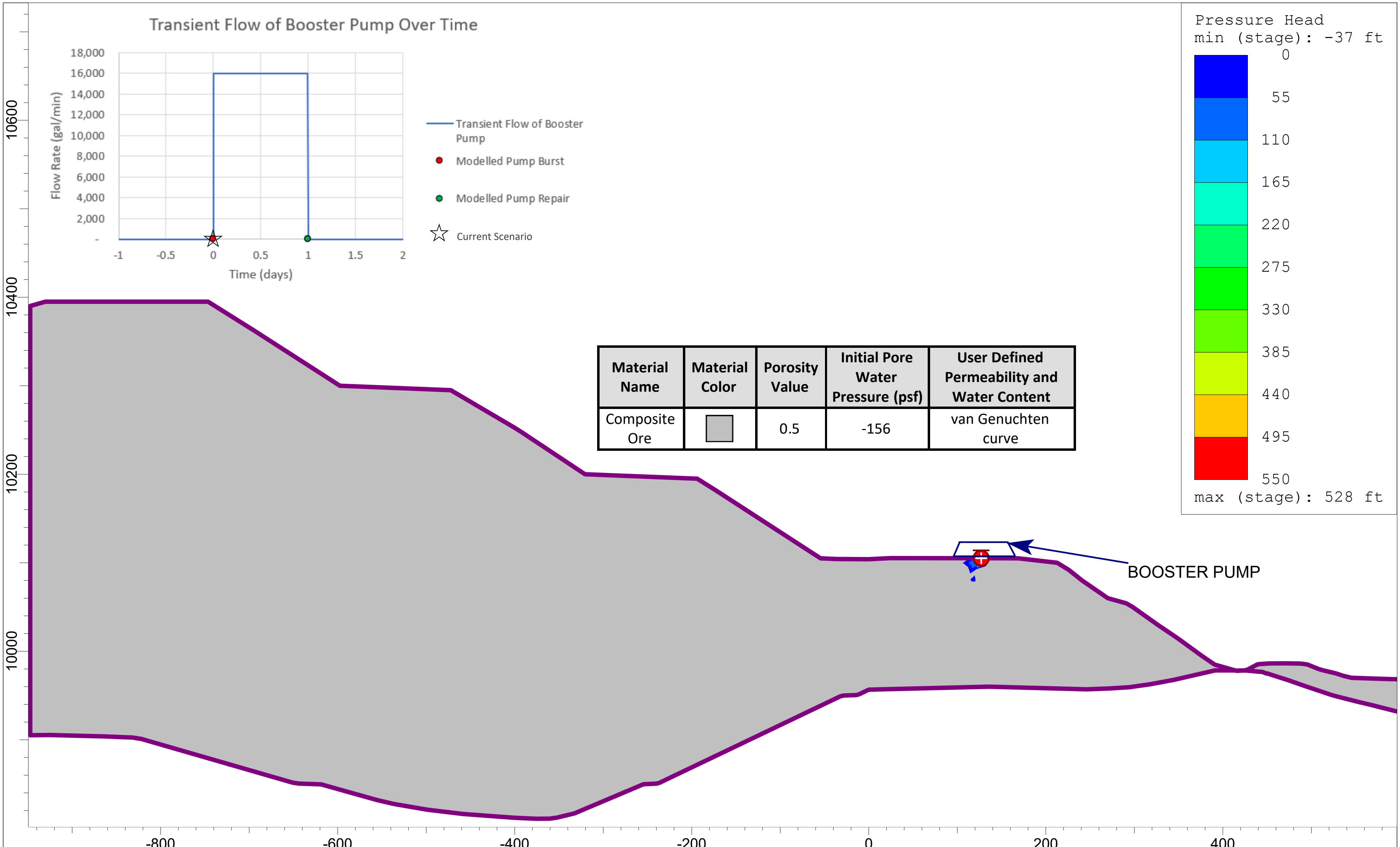
Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore		0.5	-156	van Genuchten curve

NewFields

INTERPRET 11.016

VLF2 Slope Stability at Booster Pump

Analysis Description	Seepage Analysis of a Breach in Process Solution Pipe - Initial Conditions		
Drawn By FL	*Scale* 1:1800	*Company*	Newmont
Date Printed	9/1/2022	*File Name*	Pipe Burst Model - Shut Off 24 hr.fez



Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore		0.5	-156	van Genuchten curve

NewFields

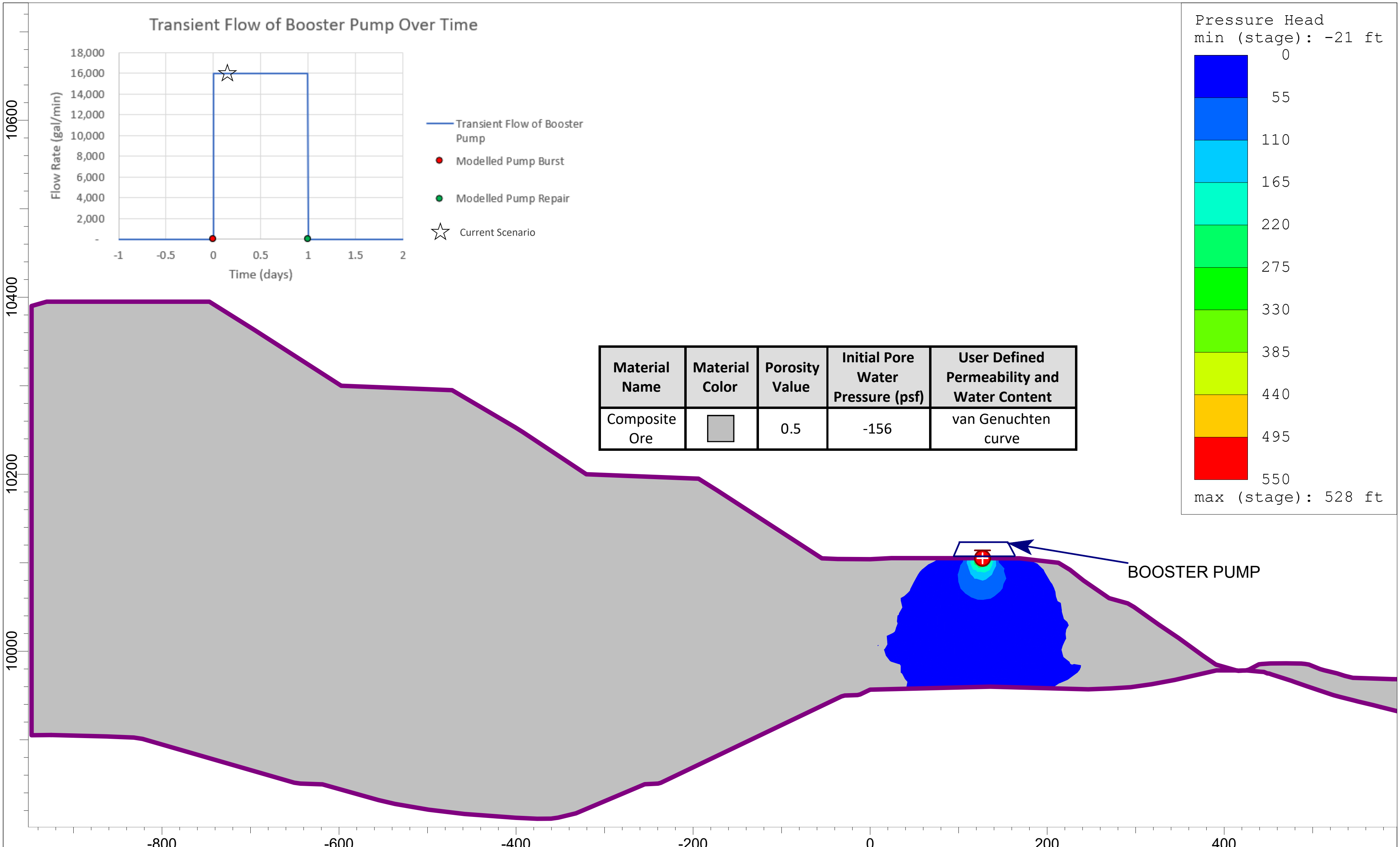
INTERPRET 11.016

VLF2 Slope Stability at Booster Pump

Analysis Description Seepage Analysis of a Breach in Process Solution Pipe - At Upset Condition

Drawn By FL | *Scale* 1:1800 | *Company* Newmont

Date Printed 9/1/2022 | *File Name* Pipe Burst Model - Shut Off 24 hr.fez



Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore		0.5	-156	van Genuchten curve

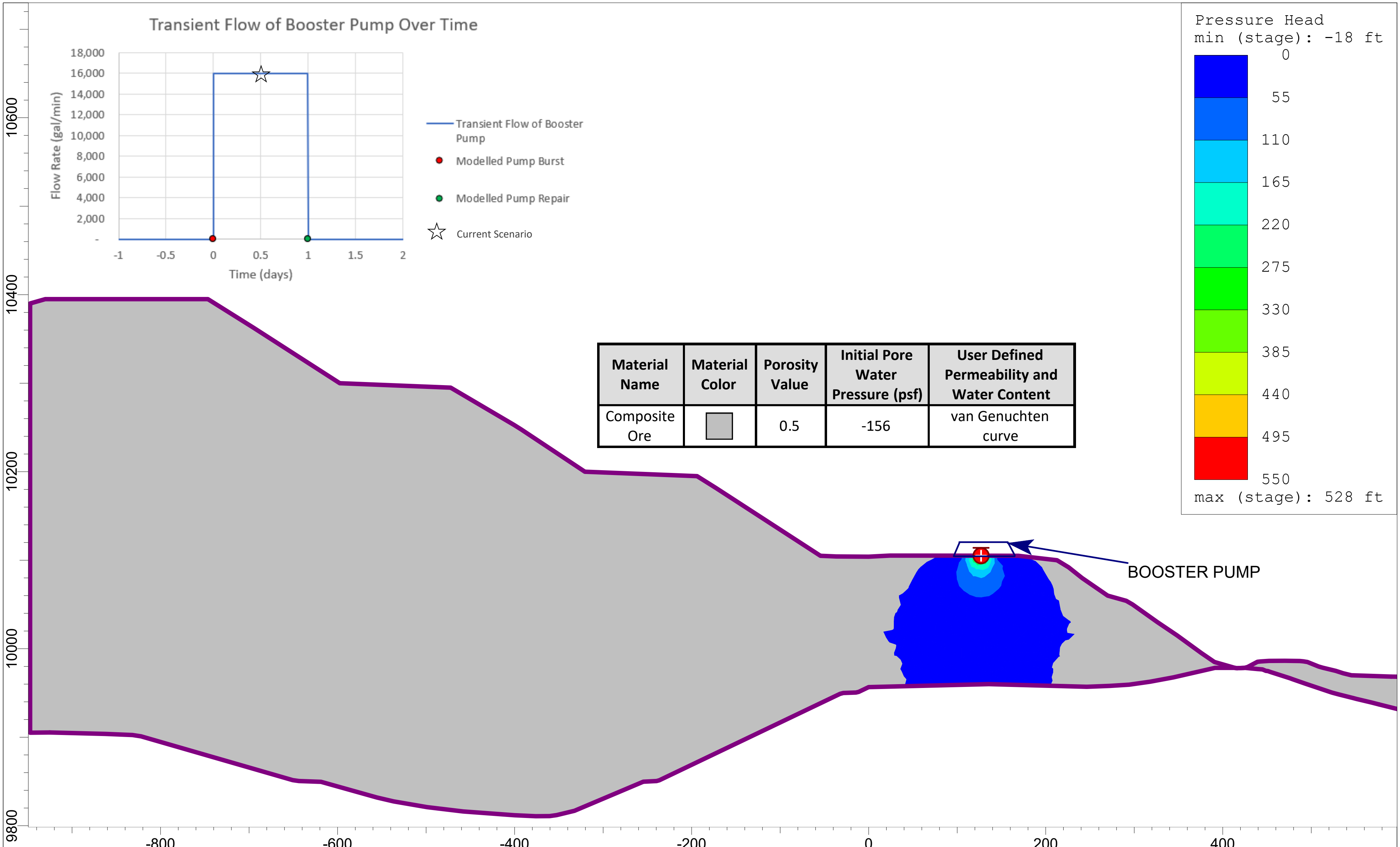
NewFields

INTERPRET 11.016

	VLF2 Slope Stability at Booster Pump
Analysis Description	Seepage Analysis of a Breach in Process Solution Pipe - 4 Hours After Upset Condition

Drawn By	*Scale*	*Company*
FL	1:1800	Newmont

Date Printed	*File Name*
9/1/2022	Pipe Burst Model - Shut Off 24 hr.fez



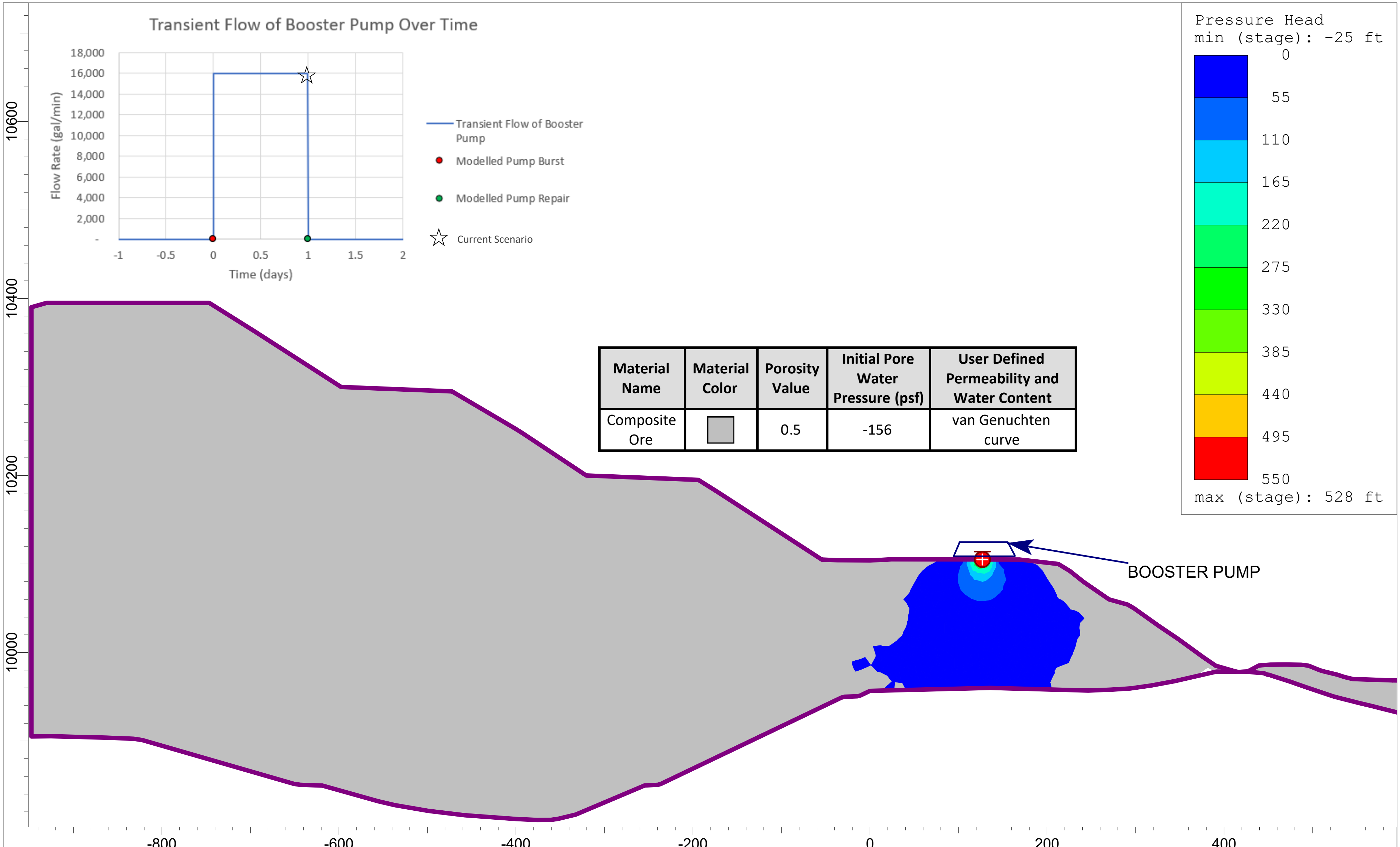
Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore		0.5	-156	van Genuchten curve

NewFields

INTERPRET 11.016

VLF2 Slope Stability at Booster Pump

Analysis Description	Seepage Analysis of a Breach in Process Solution Pipe - 12 Hours After Upset Condition		
Drawn By FL	*Scale* 1:1800	*Company* Newmont	
Date Printed 9/1/2022		*File Name* Pipe Burst Model - Shut Off 24 hr.fez	



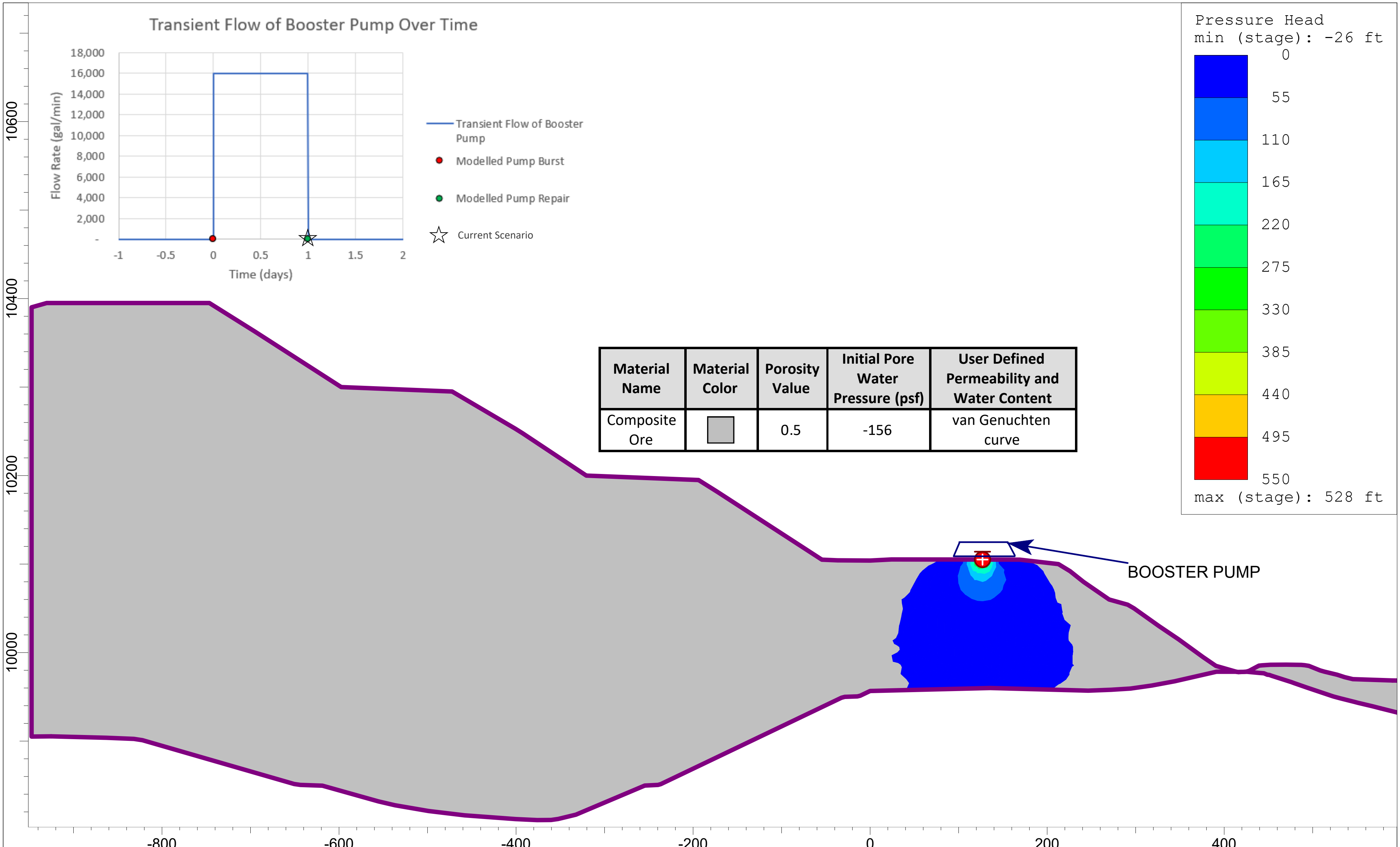
Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore	(grey)	0.5	-156	van Genuchten curve

NewFields

INTERPRET 11.016

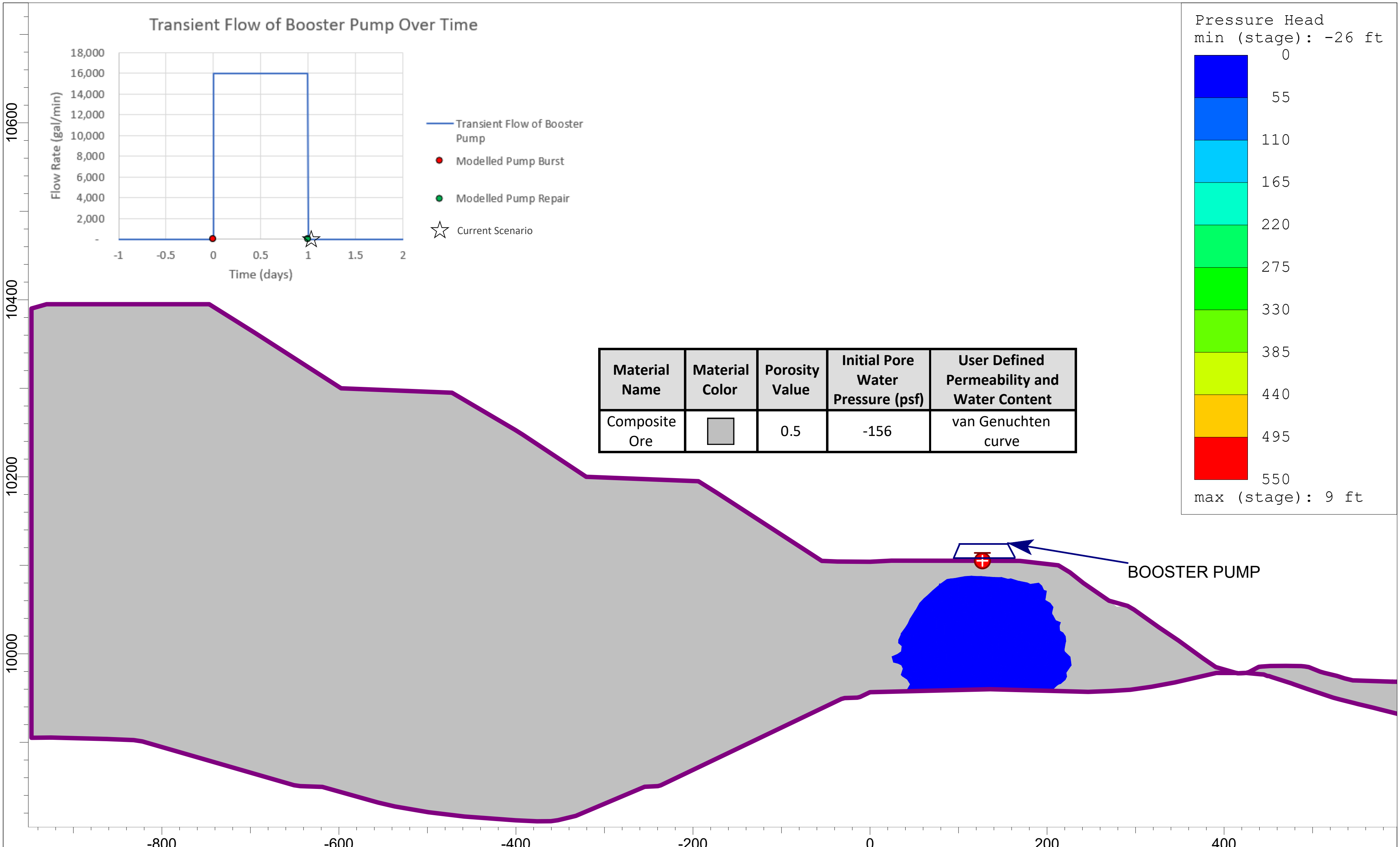
VLF2 Slope Stability at Booster Pump

Analysis Description	Seepage Analysis of a Breach in Process Solution Pipe - 24 Hours After Upset Condition, Immediately Before Repair		
Drawn By	FL	*Scale*	1:1800
Company	Newmont		
Date Printed	9/1/2022	*File Name*	Pipe Burst Model - Shut Off 24 hr.fez



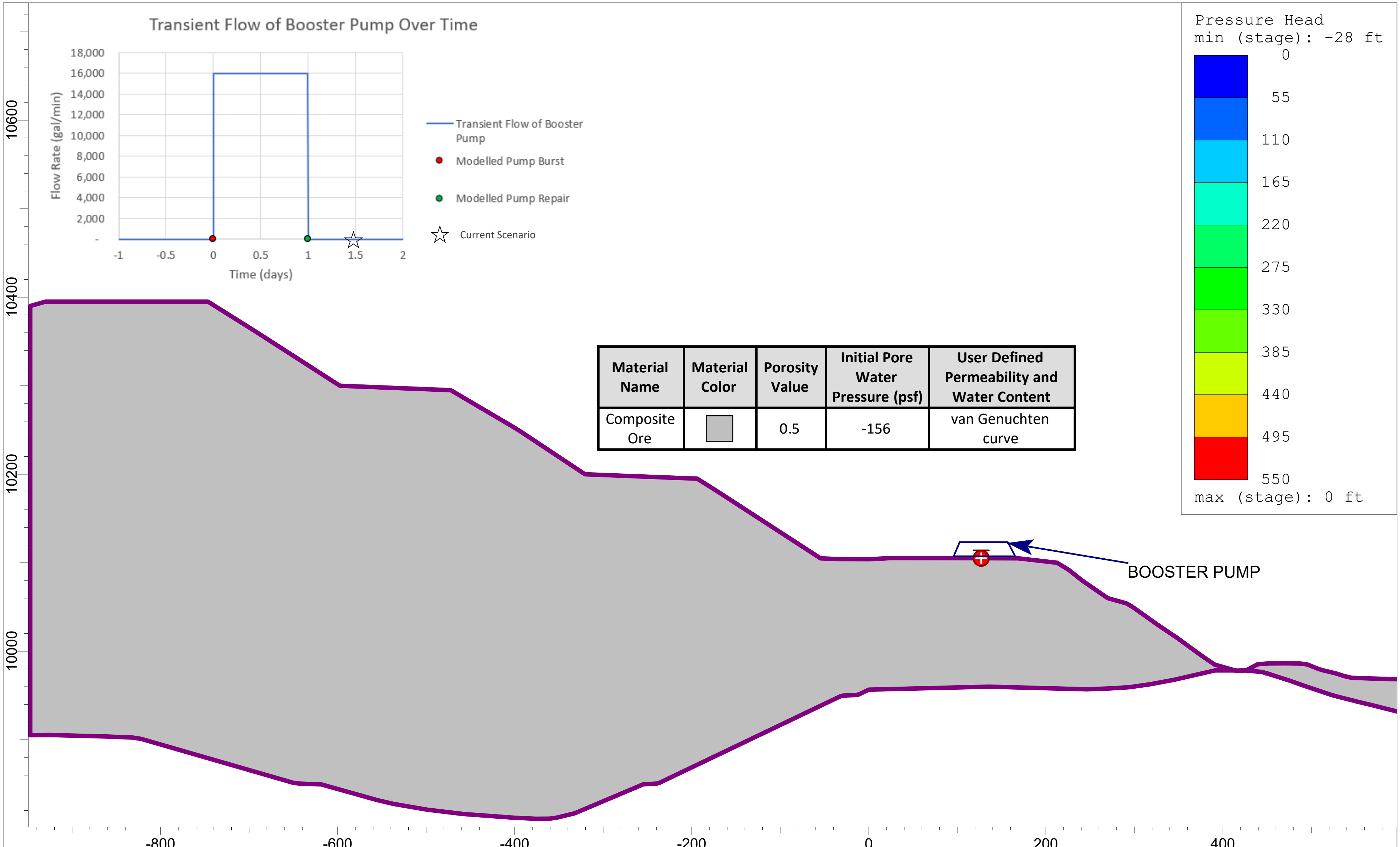
Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore		0.5	-156	van Genuchten curve

NewFields	VLF2 Slope Stability at Booster Pump		
	Analysis Description Seepage Analysis of a Breach in Process Solution Pipe - 24 Hours After Upset Condition, Immediately At Repair		
	Drawn By FL	*Scale* 1:1800	*Company* Newmont
INTERPRET 11.016	*Date Printed* 9/1/2022		*File Name* Pipe Burst Model - Shut Off 24 hr.fez



Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore		0.5	-156	van Genuchten curve

NewFields	VLF2 Slope Stability at Booster Pump			
	Analysis Description	Seepage Analysis of a Breach in Process Solution Pipe - 24 Hours After Upset Condition, 1 Minute After Repair		
	Drawn By FL	*Scale* 1:1800	*Company* Newmont	
INTERPRET 11.016	*Date Printed* 9/1/2022		*File Name* Pipe Burst Model - Shut Off 24 hr.fez	



Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore		0.5	-156	van Genuchten curve

NewFields

VLF2 Slope Stability at Booster Pump

Analysis Description	Seepage Analysis of a Breach in Process Solution Pipe - 36 Hours After Upset Condition		
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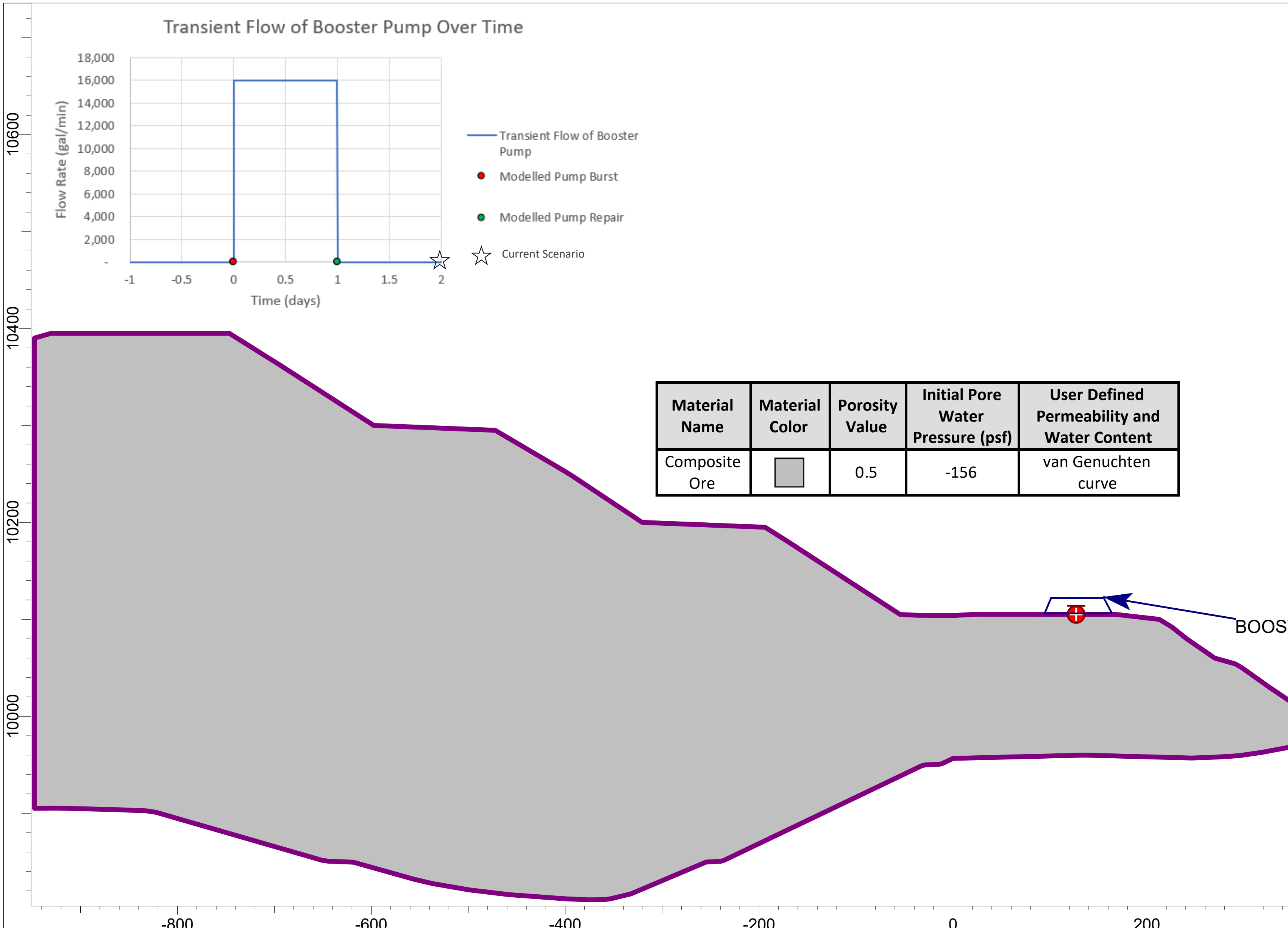
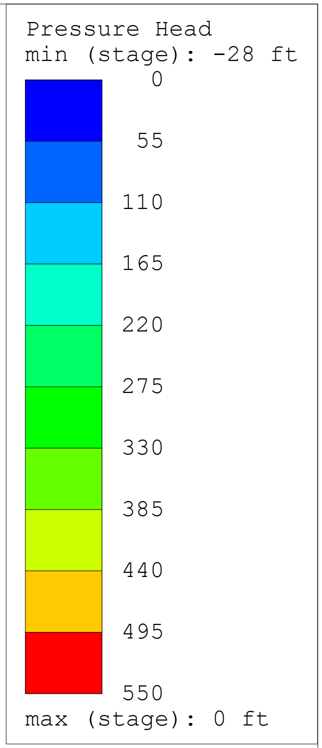
Date Printed 9/1/2022		*File Name* Pipe Burst Model - Shut Off 24 hr.fez	

INTERPRET 11.016



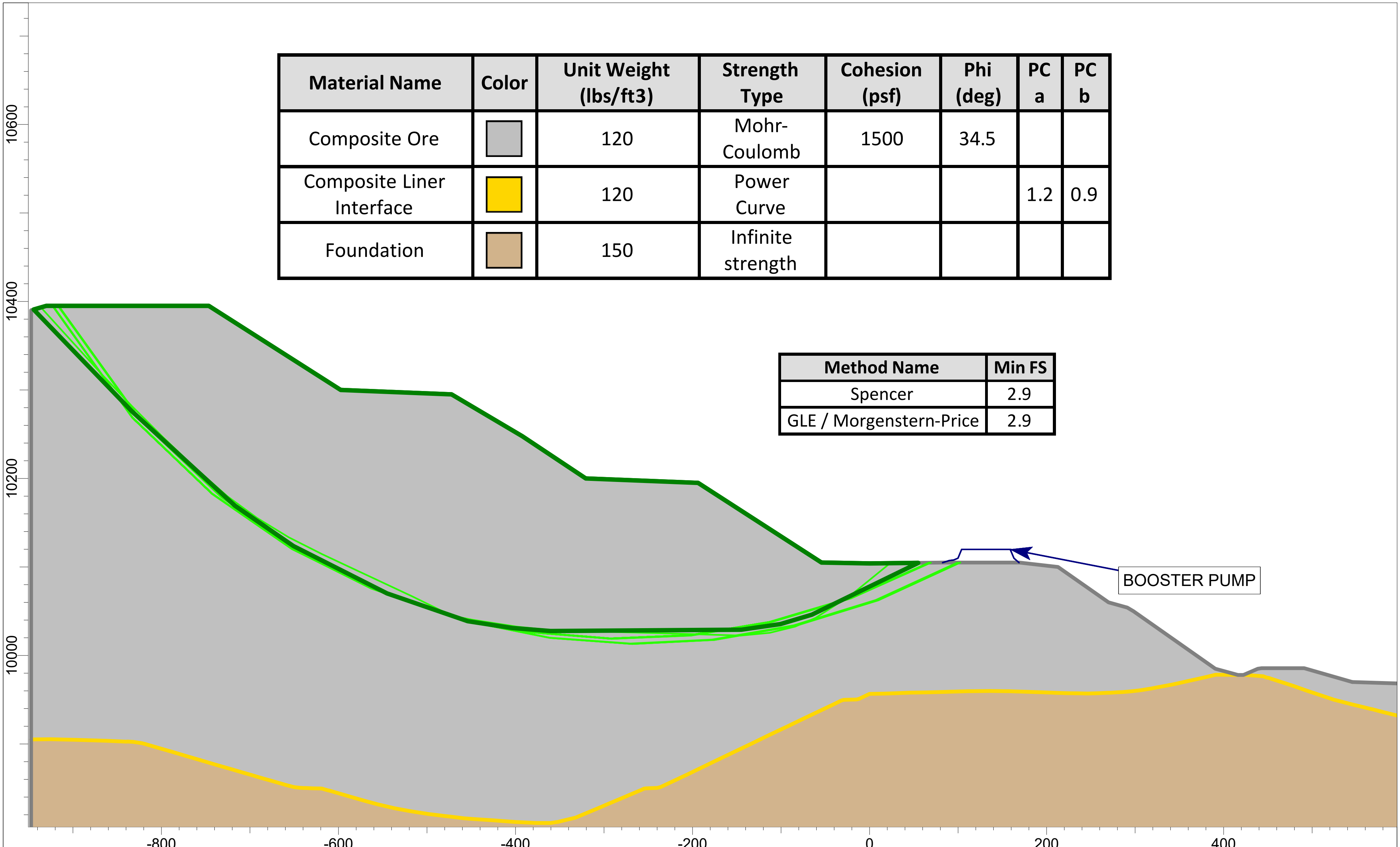
Material Name	Material Color	Porosity Value	Initial Pore Water Pressure (psf)	User Defined Permeability and Water Content
Composite Ore		0.5	-156	van Genuchten curve



NewFields	VLF2 Slope Stability at Booster Pump		
	Analysis Description Seepage Analysis of a Breach in Process Solution Pipe - 48 Hours After Upset Condition		
	Drawn By FL	*Scale* 1:1800	*Company* Newmont
INTERPRET 11.016	*Date Printed* 9/1/2022		*File Name* Pipe Burst Model - Shut Off 24 hr.fez

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.9
GLE / Morgenstern-Price	2.9

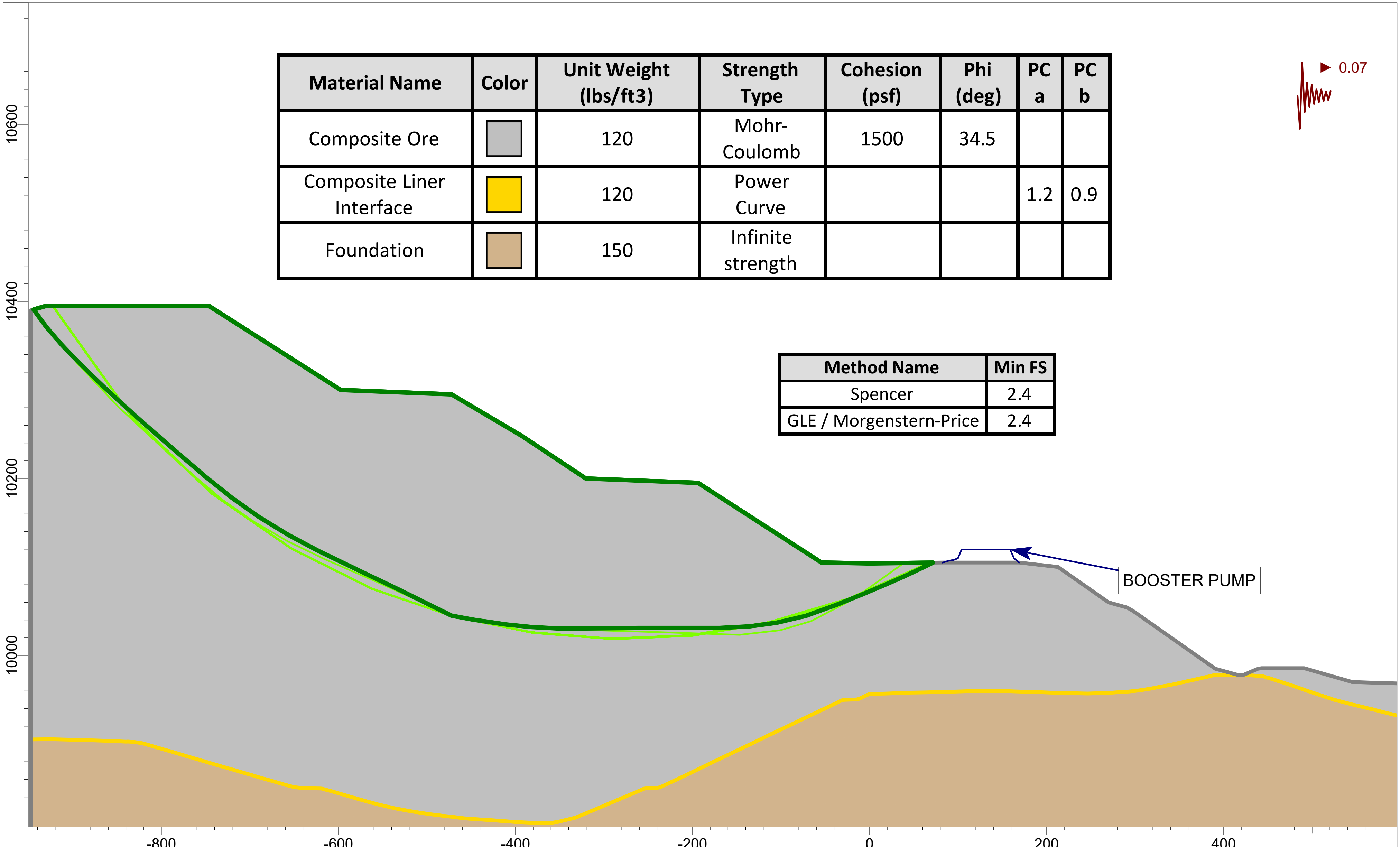


VLF2 Slope Stability at Booster Pump

Analysis Description	Stability Prior to Upset Condition - Static Conditions - Ultimate Design - Global Failure		
Drawn By FL	*Scale* 1:1800	*Company* Newmont	
Date Printed 9/1/2022		*File Name* CC&V - Booster Pump Slope Stability - Prior to Upset.slmd	

NewFields

SLIDEINTERPRET 9.022



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.4
GLE / Morgenstern-Price	2.4

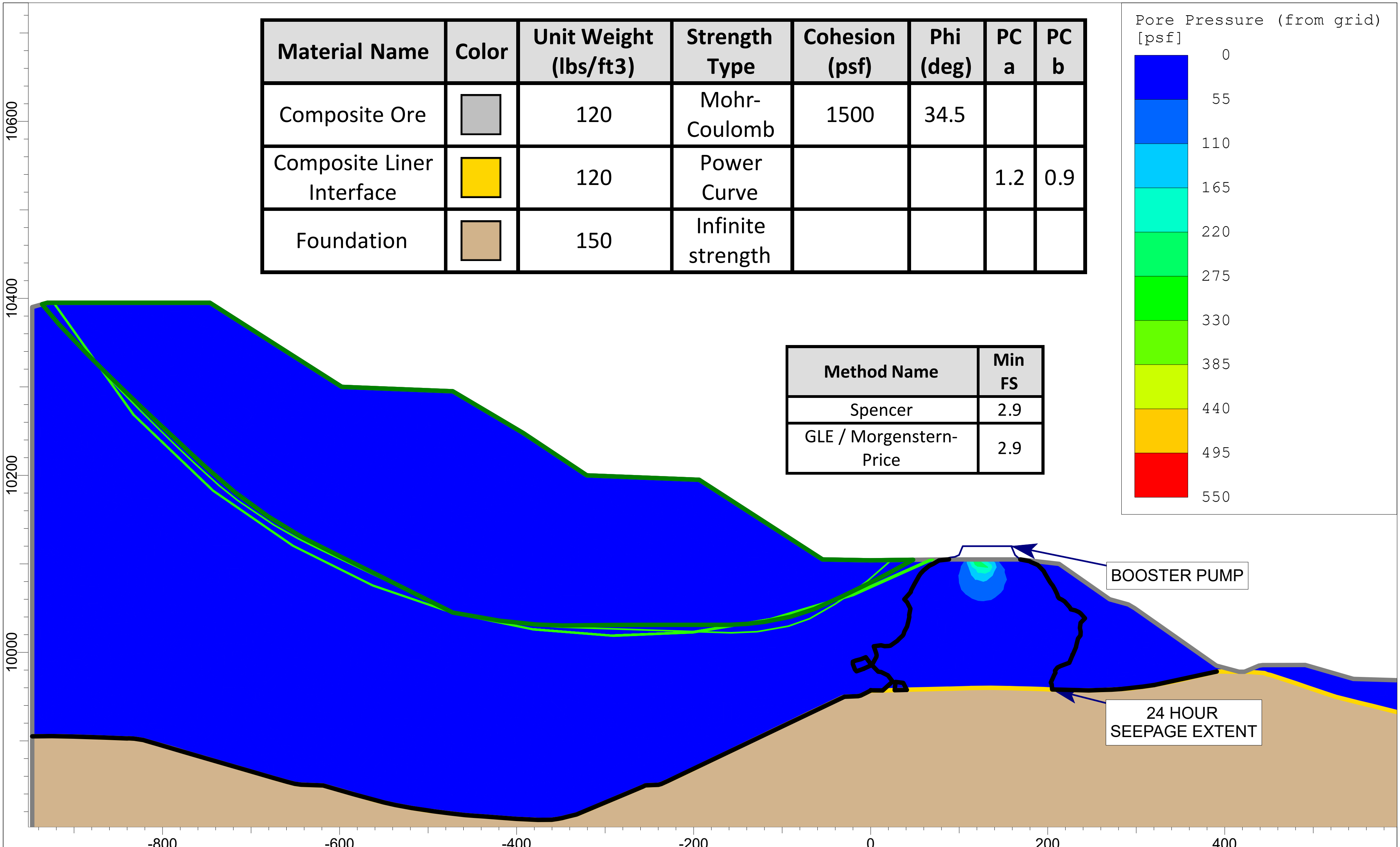
NewFields

SLIDEINTERPRET 9.022

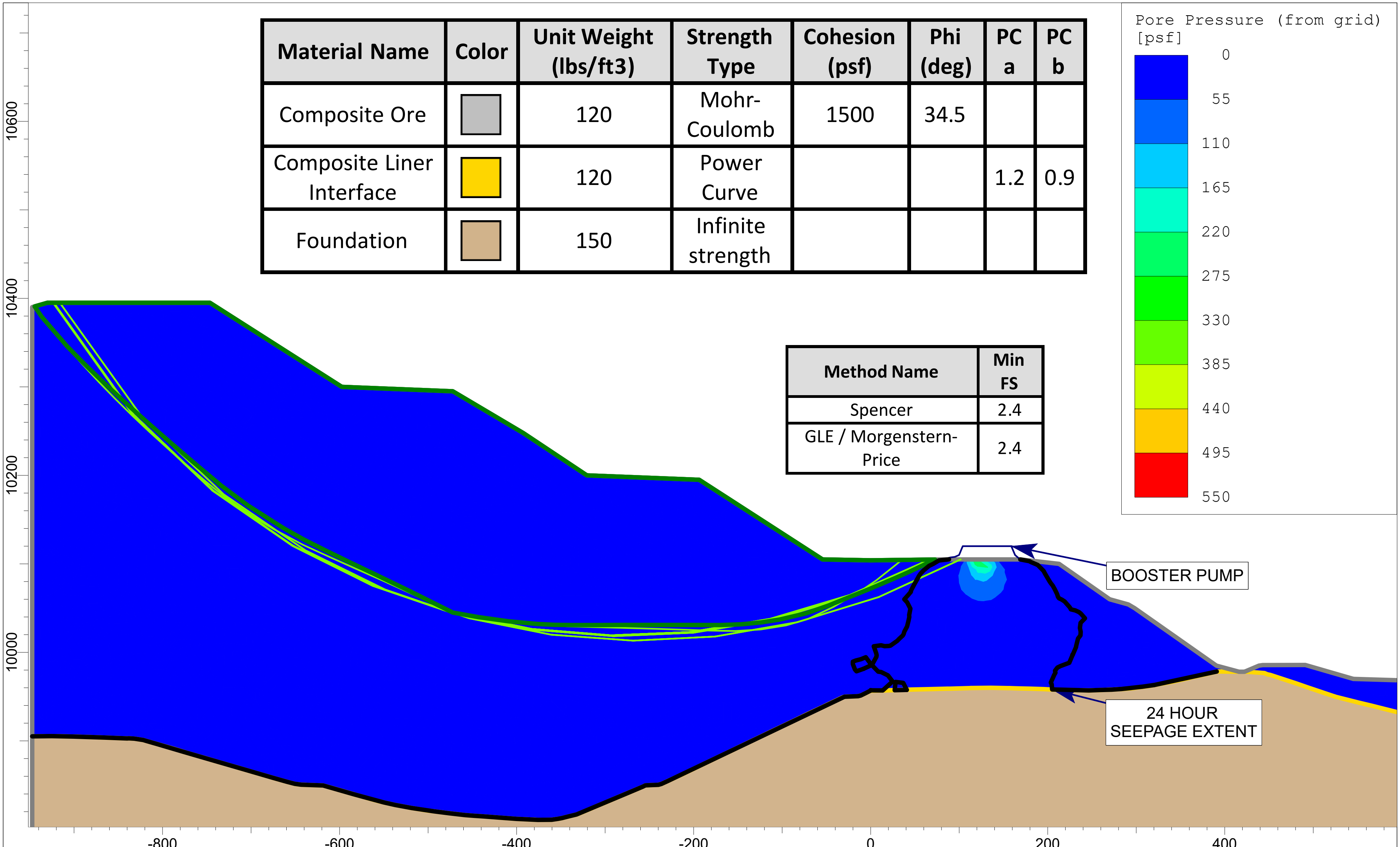
VLF2 Slope Stability at Booster Pump			
Analysis Description Stability Prior to Upset Condition - Pseudostatic Conditions (2,475 Year Return) - Ultimate Design - Global Failure			
Drawn By FL	*Scale* 1:1800	*Company* Newmont	
Date Printed 9/1/2022		*File Name* CC&V - Booster Pump Slope Stability - Prior to Upset.slmd	

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.9
GLE / Morgenstern-Price	2.9



NewFields	VLF2 Slope Stability at Booster Pump		
	Analysis Description Stability 24 Hours After Upset Condition - Static Conditions - Ultimate Design - Global Failure		
	Drawn By FL	*Scale* 1:1800	*Company* Newmont
SLIDEINTERPRET 9.022	*Date Printed* 9/1/2022		*File Name* CC&V - Booster Pump Slope Stability - After Upset Condition.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.4
GLE / Morgenstern-Price	2.4

NewFields

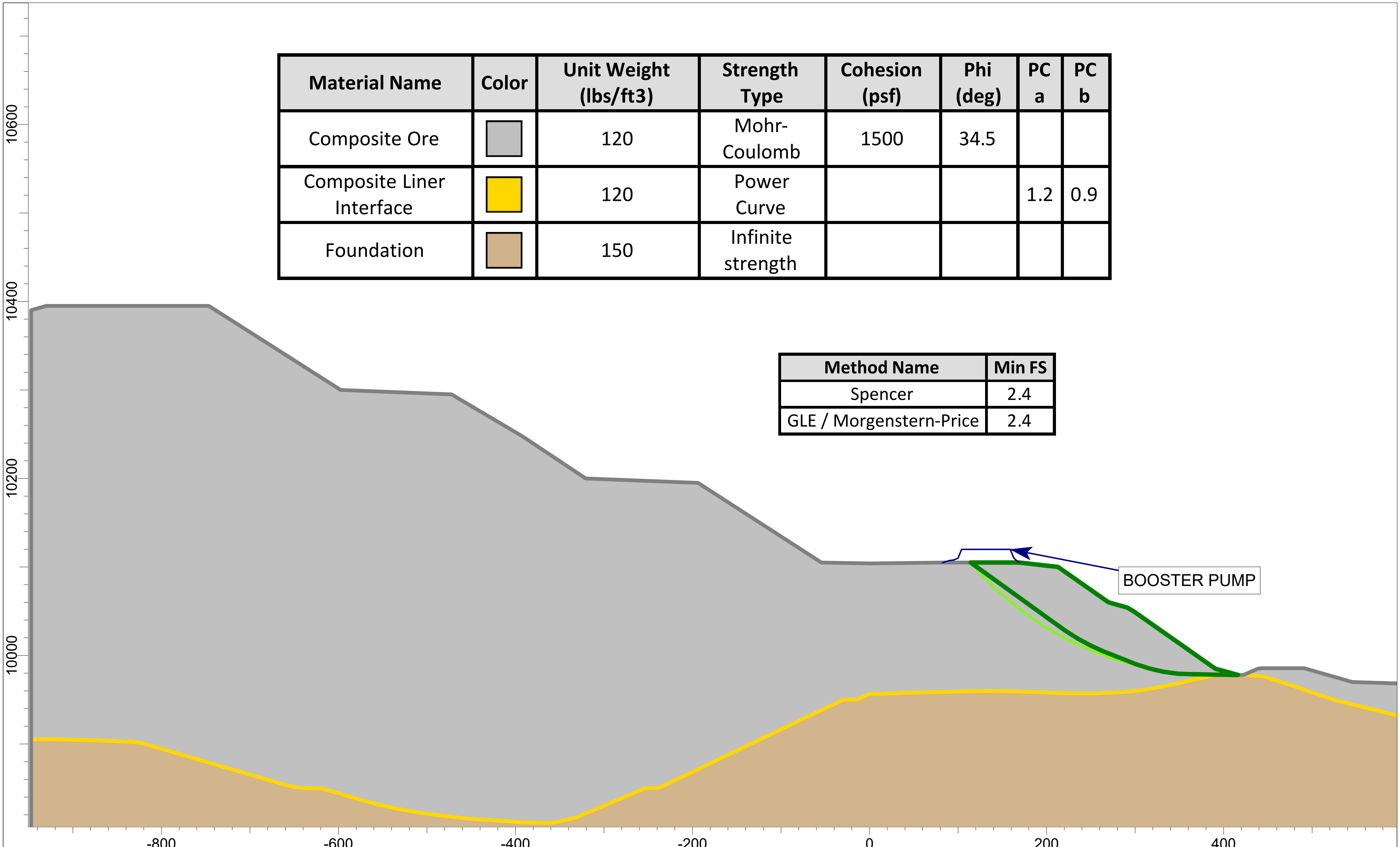
VLF2 Slope Stability at Booster Pump

Analysis Description Stability 24 Hours After Upset Condition - Pseudostatic Conditions (2,475 Year Event) - Ultimate Design - Global Failure

Drawn By FL | *Scale* 1:1800 | *Company* Newmont

Date Printed 9/1/2022 | *File Name* CC&V - Booster Pump Slope Stability - After Upset Condition.slmd

SLIDEINTERPRET 9.022



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.4
GLE / Morgenstern-Price	2.4

NewFields

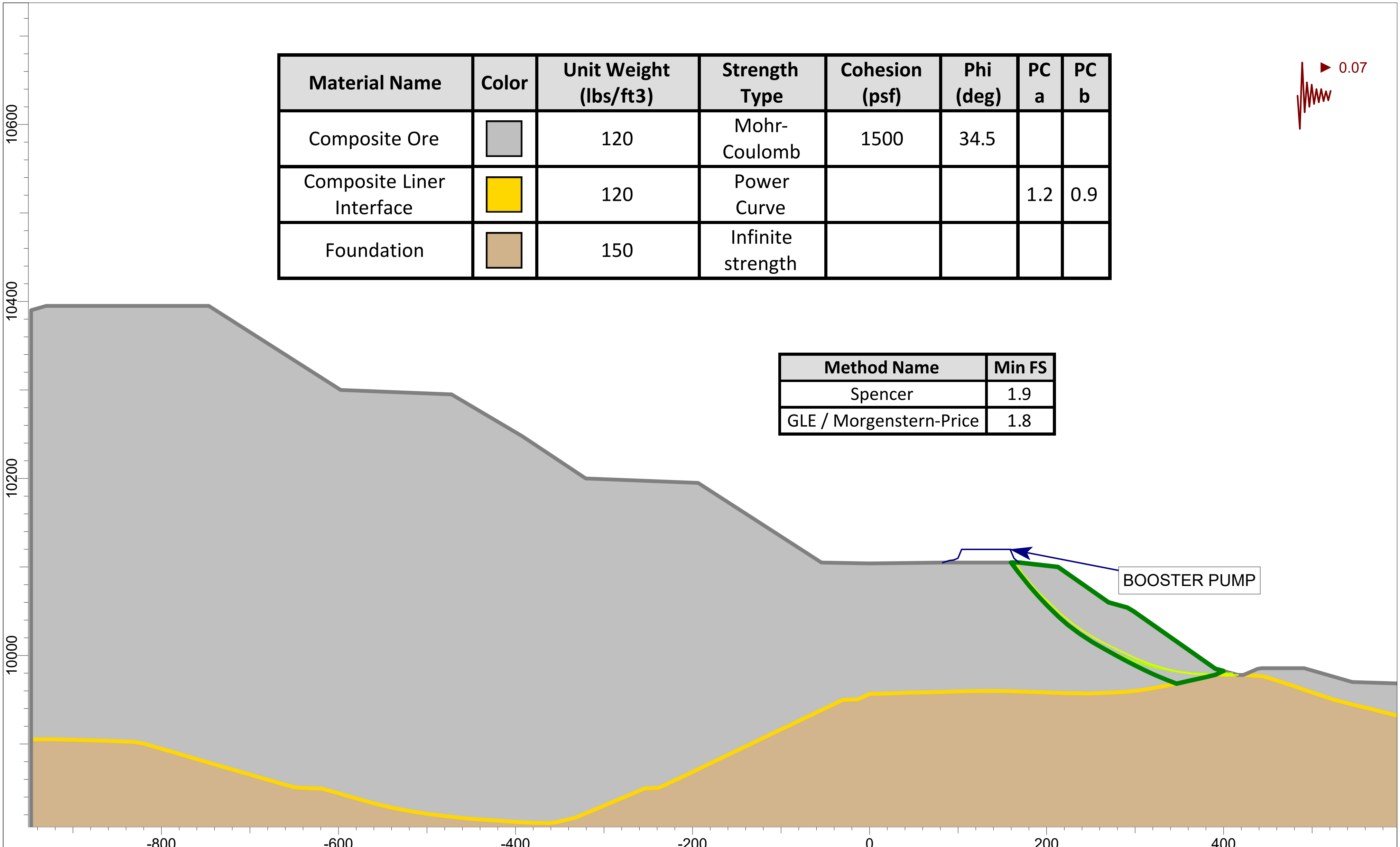
SLIDEINTERPRET 9.022

VLF2 Slope Stability at Booster Pump

Analysis Description	Stability Prior to Upset Condition - Static Conditions - Ultimate Design - Local Failure
Drawn By	FL
Scale	1:1800
Company	Newmont
Date Printed	9/1/2022
File Name	CC&V - Booster Pump Slope Stability - Prior to Upset.slmd

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	1.9
GLE / Morgenstern-Price	1.8



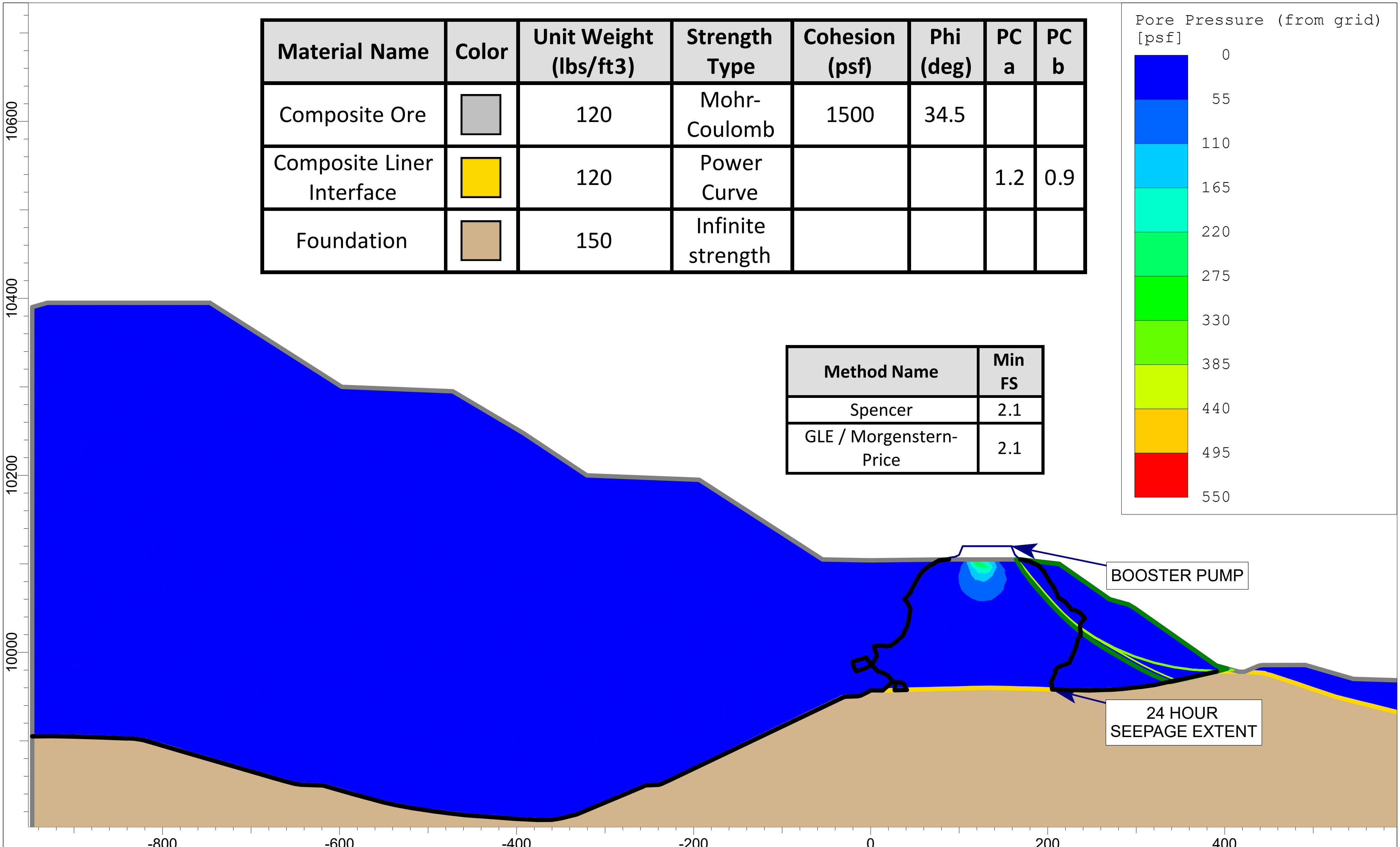
NewFields

SLIDEINTERPRET 9.022

	VLF2 Slope Stability at Booster Pump
Analysis Description	Stability Prior to Upset Condition - Pseudostatic Conditions (2,475 Year Return) - Ultimate Design - Local Failure
Drawn By	FL
Scale	1:1800
Company	Newmont
Date Printed	9/1/2022
File Name	CC&V - Booster Pump Slope Stability - Prior to Upset.slmd

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.1
GLE / Morgenstern-Price	2.1

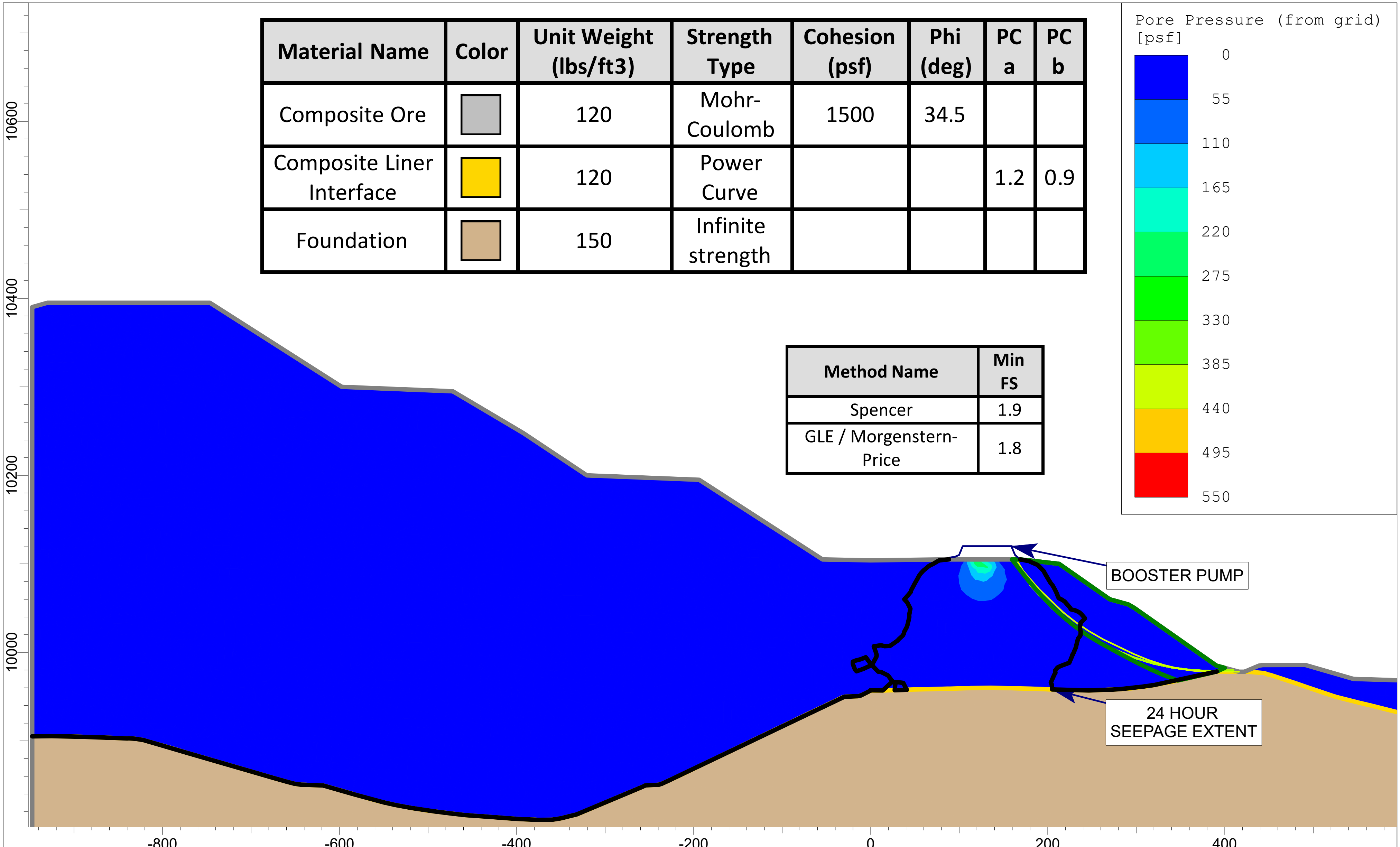


NewFields

VLF2 Slope Stability at Booster Pump

Analysis Description	Stability 24 Hours After Upset Condition - Static Conditions - Ultimate Design - Local Failure
Drawn By	FL
Scale	1:1800
Company	Newmont
Date Printed	9/1/2022
File Name	CC&V - Booster Pump Slope Stability - After Upset Condition.slmd

SLIDEINTERPRET 9.022



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	1.9
GLE / Morgenstern-Price	1.8

NewFields

VLF2 Slope Stability at Booster Pump

Analysis Description Stability 24 Hours After Upset Condition - Pseudostatic Conditions (2,475 Year Event) - Ultimate Design - Local Failure

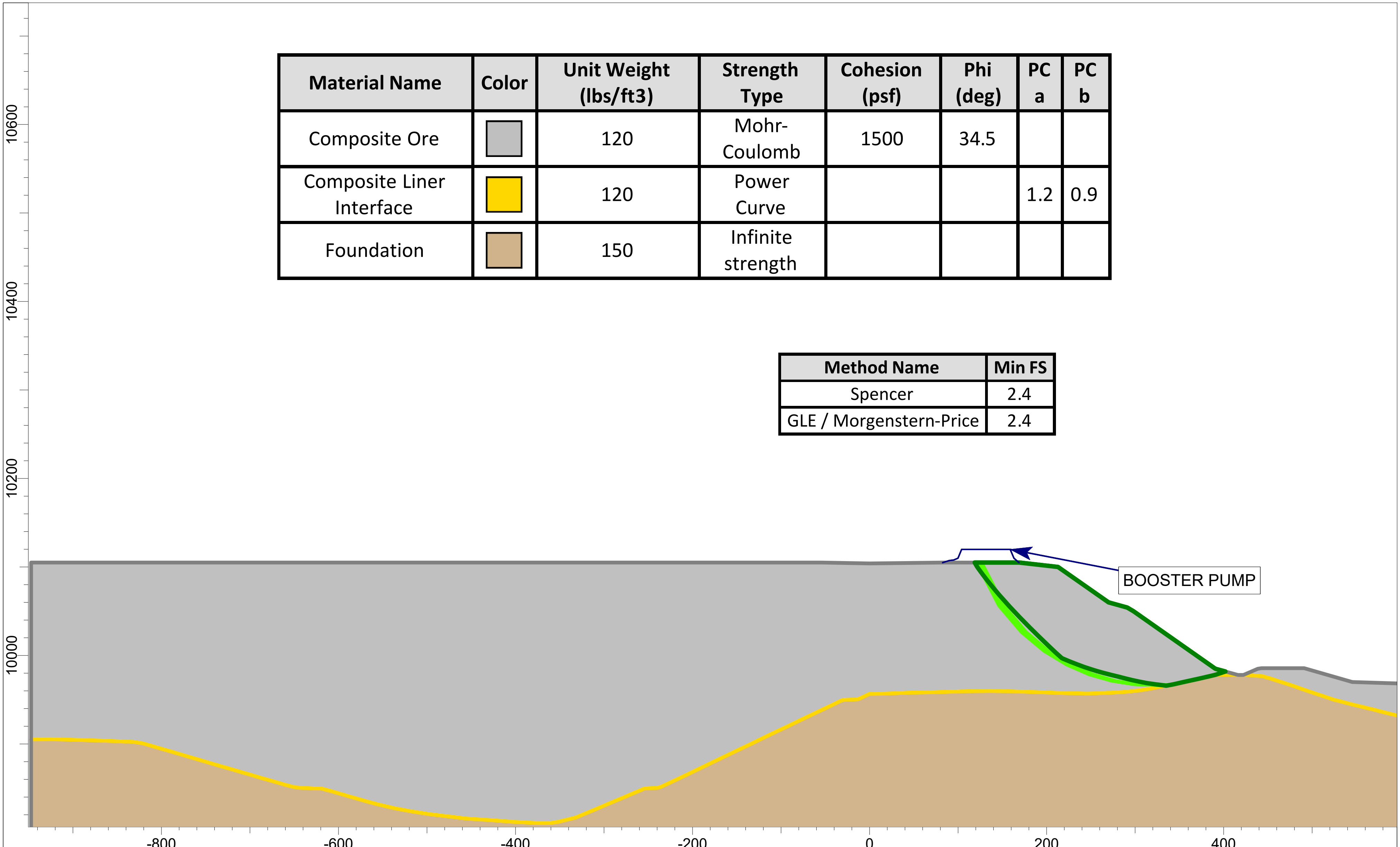
Drawn By FL | *Scale* 1:1800 | *Company* Newmont

Date Printed 9/1/2022 | *File Name* CC&V - Booster Pump Slope Stability - After Upset Condition.slmd

SLIDEINTERPRET 9.022

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.4
GLE / Morgenstern-Price	2.4



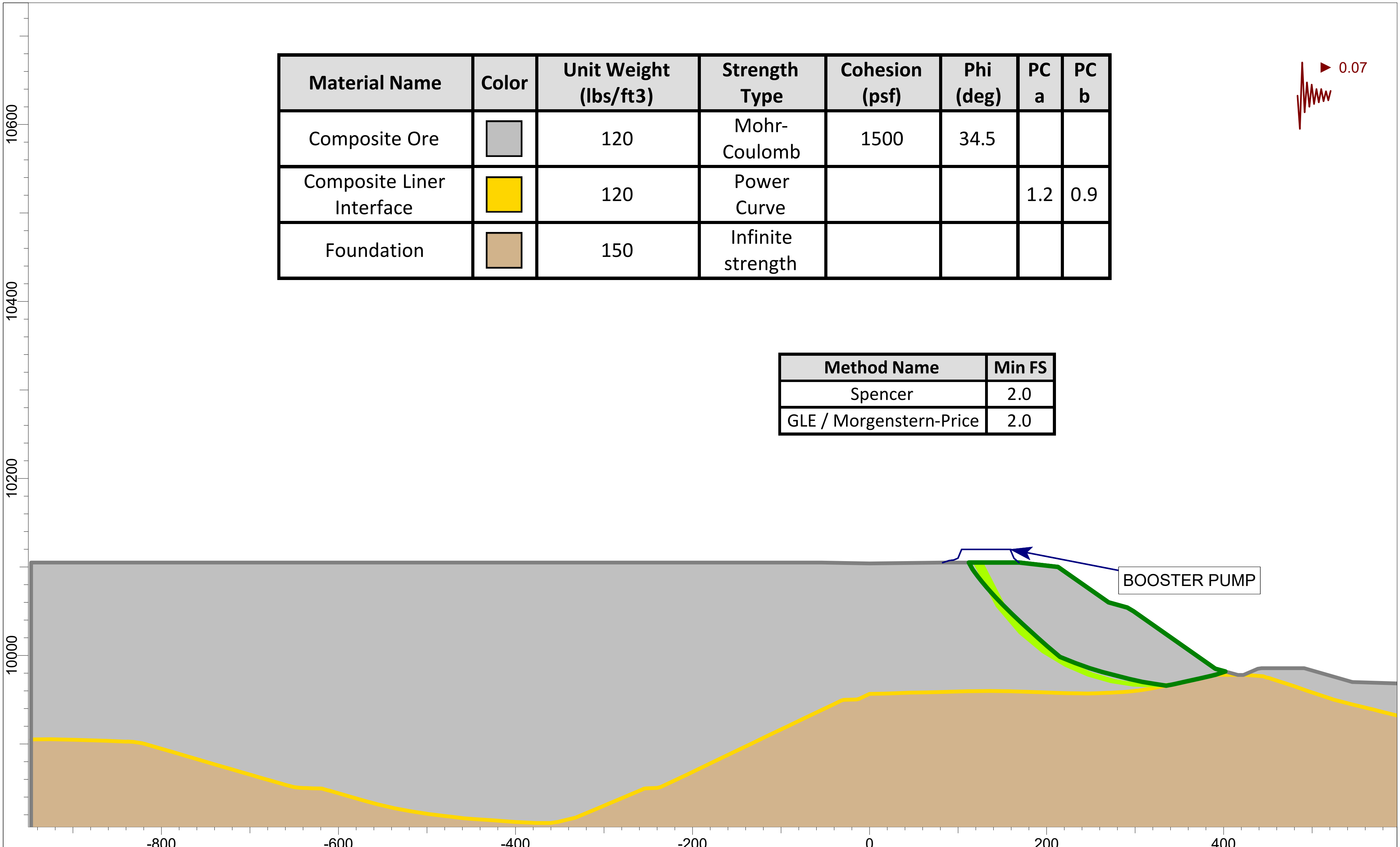
NewFields

	VLF2 Slope Stability at Booster Pump
Analysis Description	Stability Prior to Upset Condition - Static Conditions - Current Conditions
Drawn By FL	*Scale* 1:1800
Company	Newmont
Date Printed	9/1/2022
File Name	CC&V - Booster Pump Slope Stability - Prior to Upset.slmd

SLIDEINTERPRET 9.022

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.0
GLE / Morgenstern-Price	2.0

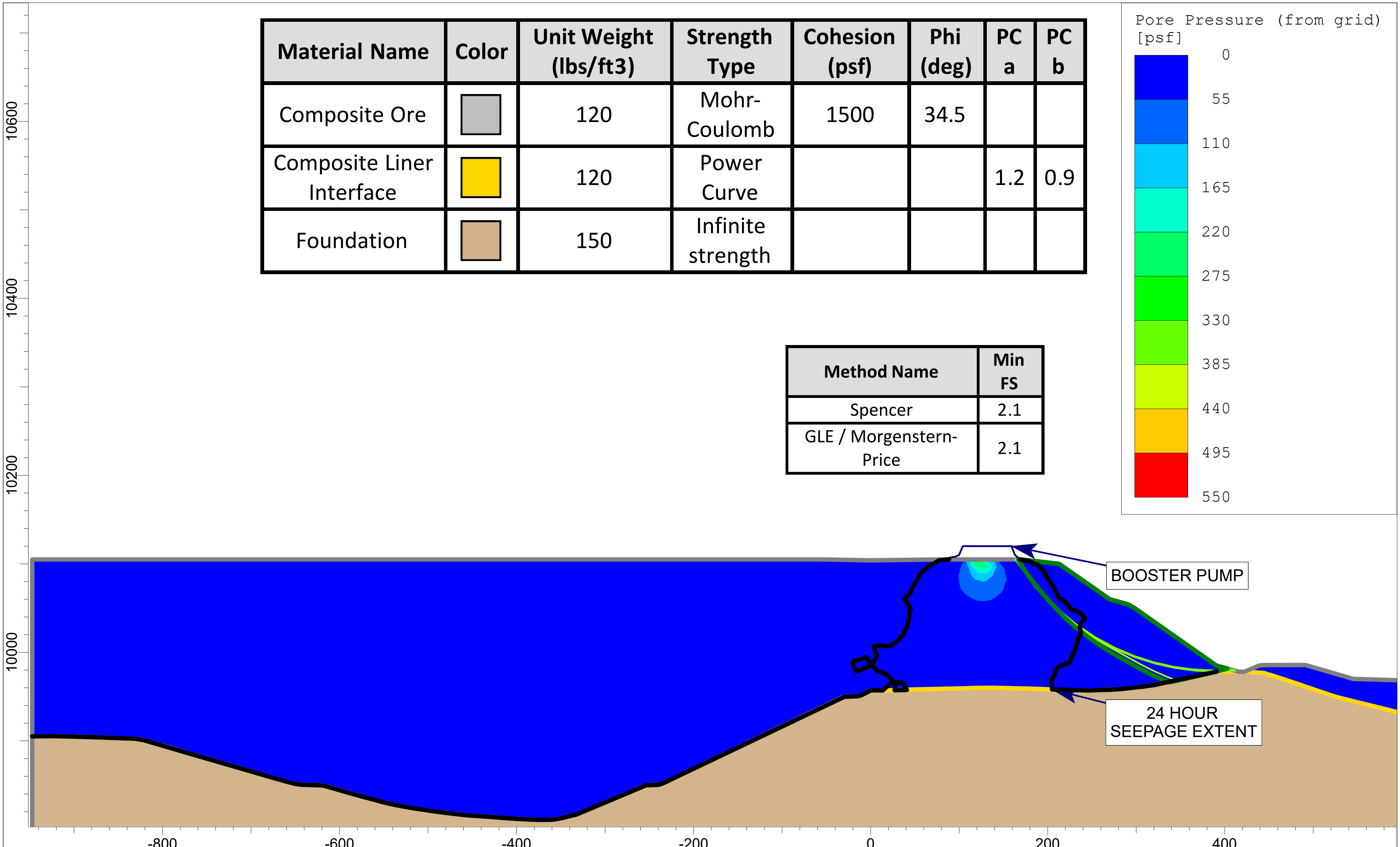


NewFields

SLIDEINTERPRET 9.022

VLF2 Slope Stability at Booster Pump

Analysis Description	Stability Prior to Upset Condition - Pseudostatic Conditions (2,475 Year Return) - Current Conditions		
Drawn By FL	*Scale* 1:1800	*Company* Newmont	
Date Printed 9/1/2022		*File Name* CC&V - Booster Pump Slope Stability - Prior to Upset.slmd	



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	2.1
GLE / Morgenstern-Price	2.1

NewFields

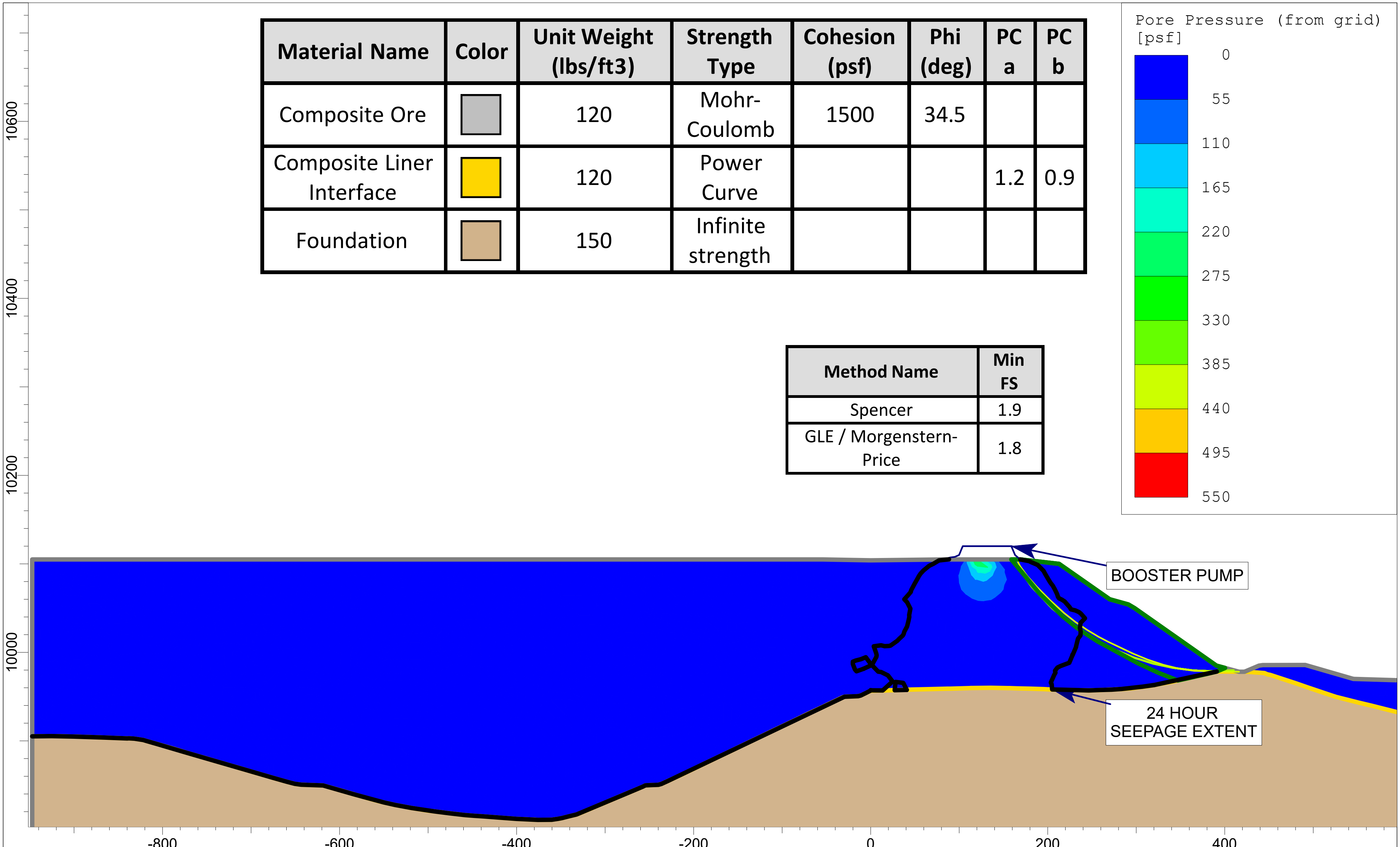
SLIDEINTERPRET 9.022

VLF2 Slope Stability at Booster Pump

Analysis Description	Stability 24 Hours After Upset - Static Conditions - Current Conditions		
Drawn By FL	*Scale* 1:1800	*Company* Newmont	
Date Printed 9/1/2022		*File Name* CC&V - Booster Pump Slope Stability - After Upset Condition.slmd	

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	PC a	PC b
Composite Ore		120	Mohr-Coulomb	1500	34.5		
Composite Liner Interface		120	Power Curve			1.2	0.9
Foundation		150	Infinite strength				

Method Name	Min FS
Spencer	1.9
GLE / Morgenstern-Price	1.8



NewFields	VLF2 Slope Stability at Booster Pump		
	Analysis Description Stability 24 Hours After Upset - Pseudostatic Conditions (2,475 Year Return) - Current Conditions		
	Drawn By FL	*Scale* 1:1800	*Company* Newmont
SLIDEINTERPRET 9.022	*Date Printed* 9/1/2022		*File Name* CC&V - Booster Pump Slope Stability - After Upset Condition.slmd