June 3, 2022

Ms. Leigh Barr
Environmental Specialist Supervisor
Administrative Permitting Program
EMNRD - Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

RE: North Ranch Surface Waste Management Facility Permit Modification
Sections - 9and 10; Township – 25 South; Section - 34 East NMPM
Lea County, New Mexico
Permit No. NM1-66

Dear Ms. Barr

Trammco Environmental Solutions, LLC (TES) appreciates the opportunity to provide New Mexico's Oil Conservation Division (OCD) with this minor permit modification for the existing Commercial Surface Waste Management permit (NM1-66) at the referenced site. The facility consists of approximately 313 acres and is located in Sections 9and 10; Township 25 South; Section 34 East NMPM, Lea County, New Mexico approximately 16 miles west of Jal (Site). A copy of the executed OCD Form 137A and associated lab report is included with this modification.

Item 1. Operation Information – *See attached executed OCD Form 137A*

Item 2. Site Location – *See attached executed OCD Form 137A*

Item 3. Permit Number – *NM1-66*

Item 4. Attach a description of the proposed minor modification(s) to the surface waste management facility.

Response:#*"NGL proposes to amend Permit NM1-66 wherein it requires that "oil field waste" only be placed over the leachate collection and removal system protective layer. The proposed minor modification adjusts this requirement to facilitate the use of contaminated soil (otherwise considered oil field waste) within and as part of the leachate collection and removal system protective layer. (See NMAC 19.15.36.14.C.(7)). Specifically, NGL proposes to insert language at Paragraph 6.L. of the Permit as follows:*

> *The request for an alternative to the leachate collection system and removal protective cover requirements of 19.15.36.14.C (6) NMAC, including the use of oil field waste as part of the leachate collection system and removal protective cover, is adequately addressed and supported in the application and hereby approved."*

To ensure the oil field waste is consistent with the approved modeling parameters ($1x10^{-5}$) provided with the initial application, soils samples were collected from the off site soils that were impacted with chloride and petroleum constituents. The samples were collected from three locations at various depths and analyzed using ASTM Method D2434. Permeability from the samples of oil field waste ranged from $1x10^{-3}$ to $4.5x10^{-3}$ which meets or exceeds the permeability requirement of the approved modeling parameters for the protective soil layer. A copy of the lab report summarizing the results is included with this application.

Item 5. If the Minor Modification involves changes to a treatment, remediation, or disposal method, attach engineering designs, certified by a registered professional engineer, including technical data on the design elements of each applicable treatment, remediation, and disposal method and detailed designs of surface impoundments.

Response: *There are no proposed changes to the Site's approved treatment, remediation, or disposal methods. Not applicable*

Item 6. If the Minor Modification will affect the closure and post-closure plan, attach an updated closure and post closure plan, including a responsible third party contractor's cost estimate, sufficient to close the surface waste management facility in a manner that will protect fresh water, public health, and the environment (the closure and post closure plan shall comply with the requirements contained in 19.15.36.18 NMAC).

Response: *There are no modifications that will impact the Site's approved closure or post closure plan. Not applicable*

Item 7. If the Minor Modification will affect the contingency plan, attach an updated contingency plan that complies with the requirements of Subsection N of 19.15.36.13 NMAC and with NMSA 1978, Sections 12-12-1 through 12-12-30, as amended (the Emergency Management Act).

Response: *There are no modifications that will impact the Site's approved contingency plan. Not applicable*

Item 8. If the Minor Modification will affect the control of run-on or run-off water at the site, attach an updated plan to control run- on water onto the site and run-off water from the site that complies with the requirements of Subsection M of 19.15.36.13 NMAC.

Response: *There are no modifications that will impact the control of run-on or run-off water at the Site. Not applicable.*

Item 9. If the Minor Modification will affect the best management practice plan, attach a best management practice plan to ensure protection of fresh water, public health, and the environment.

Response: *There are no modifications will impact the Site's approved best management practice plan. Not applicable*

Item 10. The division may require additional information to demonstrate that the surface waste management facility's operation will not adversely impact fresh water, public health, or the environment and that the surface waste management facility will comply with division rules and orders.

Response: *There are no proposed changes to the Site's operations. Not applicable*

Item 11. Certification - *See attached executed OCD Form 137A.*

If you have any questions or require additional information, please do not hesitate to contact me at (404) 788-8606 or matt@trammco.com.

Sincerely,

Matthew Trammell
Project Manager

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

For State Use Only:

Form C-137A
June 30, 2016

Submit 1 Copy to Santa Fe Office

APPLICATION FOR MINOR MODIFICATION TO SURFACE WASTE MANAGEMENT FACILITY

1. Operator: NGL Waste Services, LLC

   Address: 864 N. Albion St., Ste. 400 Denver, CO 80220

   Contact Person: Matthias Sayer Phone: (307) 365-1814

2. Location: NA /4 NA /4 Section 9 and 10 Township 25 South Range 34 East

3. Provide permit number NM1-66

4. Attach a description of the proposed minor modification(s) to the surface waste management facility.

5. If the Minor Modification involves changes to a treatment, remediation, or disposal method, attach engineering designs, certified by a registered professional engineer, including technical data on the design elements of each applicable treatment, remediation, and disposal method and detailed designs of surface impoundments.

6. If the Minor Modification will affect the closure and post-closure plan, attach an updated closure and post closure plan, including a responsible third party contractor's cost estimate, sufficient to close the surface waste management facility in a manner that will protect fresh water, public health, and the environment (the closure and post closure plan shall comply with the requirements contained in 19.15.36.18 NMAC).

7. If the Minor Modification will affect the contingency plan, attach an updated contingency plan that complies with the requirements of Subsection N of 19.15.36.13 NMAC and with NMSA 1978, Sections 12-12-1 through 12-12-30, as amended (the Emergency Management Act).

8. If the Minor Modification will affect the control of run-on or run-off water at the site, attach an updated plan to control run-on water onto the site and run-off water from the site that complies with the requirements of Subsection M of 19.15.36.13 NMAC.

9. If the Minor Modification will affect the best management practice plan, attach a best management practice plan to ensure protection of fresh water, public health, and the environment.

10. The division may require additional information to demonstrate that the surface waste management facility's operation will not adversely impact fresh water, public health, or the environment and that the surface waste management facility will comply with division rules and orders.

11. CERTIFICATION

I hereby certify that the information submitted with this application is true, accurate, and complete to the best of my knowledge and belief.

Name: Mr. Dustin Bailey Title: CEO

Signature: Dustin Bailey Date: June 6, 2022

E-mail Address: dustin@highrollergroup.com

INTEGRATED GEOSCIENCES LABORATORIES, LLC
*Environmental * Geotechnical * Core Analysis*

6016 Centralcrest Street • Houston, Texas 77092
Telephone (713) 316-1800 • Fax (877) 255-9953

May 27, 2022

Jessica Kramer
Lab Project Manager,
Eurofins Midland,
1211 W Florida Ave,
Midland, TX 79701.

Re:	IGL File No:	**2205-85**
	Project Name:	**Cosmo Booster.**
	Project Number:	**88001091**
	Site Location:	**N/A**

Subject: **Final Report: Permeability of Granular Soils (Constant Head) - ASTM D2434**

Dear Jessica Kramer,

Please find enclosed report for the **Permeability of Granular Soils (Constant Head) – ASTM D2434** analyses conducted on soil samples received from your "**COSMOS BOOSTER"** project. All analyses were performed by applicable ASTM, EPA, and API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

Integrated Geosciences Laboratories appreciate the opportunity to be of service. If you have any questions or require additional information, please contact me or Emeka Anazodo at (713) 316-1800.

Sincerely,

Integrated Geosciences Laboratories, LLC.

Debo Ogunsola
Laboratory Manager.
Encl.

Integrated Geosciences Laboratories, LLC.

Project Name: Cosmo Booster
Project Number: 88001091
Site location: N/A

IGL File No: 2205-85
Client: Eurofins Midland
Date Received: 5/26/2022

TEST PROGRAM - 20220526

Serial Number	Sample ID	Date Sampled	Time Sampled	Depth (feet)	Matix Type	Permeability of Granular Soils (ASTM D2434)	Comments
Date Received: 20220526							
1	GTS-1 (1-2') (880-15086-1)	5/23/2022	Mountain	N/A	Solid	X	1- [Ziploc grab sample]
2	GTS-1 (2-3') (880-15086-2)	5/23/2022	Mountain	N/A	Solid	X	1- [Ziploc grab sample]
3	GTS-1 (1-2') (880-15086-3)	5/23/2022	Mountain	N/A	Solid	X	1- [Ziploc grab sample]
4	GTS-1 (2-3') (880-15086-4)	5/23/2022	Mountain	N/A	Solid	X	1- [Ziploc grab sample]
5	GTS-1 (1-2') (880-15086-5)	5/23/2022	Mountain	N/A	Solid	X	1- [Ziploc grab sample]
6	GTS-1 (2-3') (880-15086-6)	5/23/2022	Mountain	N/A	Solid	X	1- [Ziploc grab sample]
	TOTAL					**6**	**6**

Laboratory Test Program Notes

1. Rush TAT - 24 HOURS
2. Samples suitable for Permeability of Granular Soils (Constant Head).

Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins Midland
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Sample Number: GTS-1 (1-2') (880-15086-1)

IGS ID NO:- 1

BRIEF DESCRIPTION OF SOIL:

(See details of Particle Size Analysis for grain distribution) - There were no samples larger than 3/4" size.

UNIT WEIGHT DETERMINATION:

Avg. Diameter, D, cm:	6.985				Weight Before, W1:	1320.00
Area, A, cm^2:	38.32				Weight After, W2:	413.99
Avg. Length, L, cm:	12.7				Net Weight, g:	906.01
W (max)	-	Moisture Content (air-dried), (%):	0.153739		Volume of Sample (cc):	486.66
W (min)	-	Dry Unit Weight, g/cm:	-		Bulk Density of Soil Specimen, g/cm^3:	1.65
					Viscosity of Water at 68^oF:	1.021

Test Run No:		Head, h mm	Head, h (cm)	Volume, Q (cc)	Time, t (sec)	Oulet Distance, L (cm)	Velocity, Q/At (cm/s)	Hydraulic Gradient h/L	Temperature, T oF	Water Viscosity (cp)	Coefficient of Permeability, K (cm/s)	Temperature Corrected Coefficient of Permeability, K_{68oF} (cm/s)
Average_Run 1		355	35.5	50.0	283	12.7	0.0046	2.795	85	0.8064	0.0016	0.0013
Average_Run 2		431.8	43.2	62.0	311	12.7	0.0052	3.400	85	0.8064	0.0015	0.0012
Average_Run 3		558.8	55.9	82.0	370	12.7	0.0058	4.400	85	0.8064	0.0013	0.0010
Average_Run 4		584.2	58.4	102.0	411	12.7	0.0065	4.600	85	0.8064	0.0014	0.0011
Average_Run 5		635	63.5	115.0	411	12.7	0.0073	5.000	85	0.8064	0.0015	0.0012

Note: 1g/cc = 62.427961 ib/cu-ft
Permeability to water and hydraulic conductivity measured at saturated conditions.

Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins Midland
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

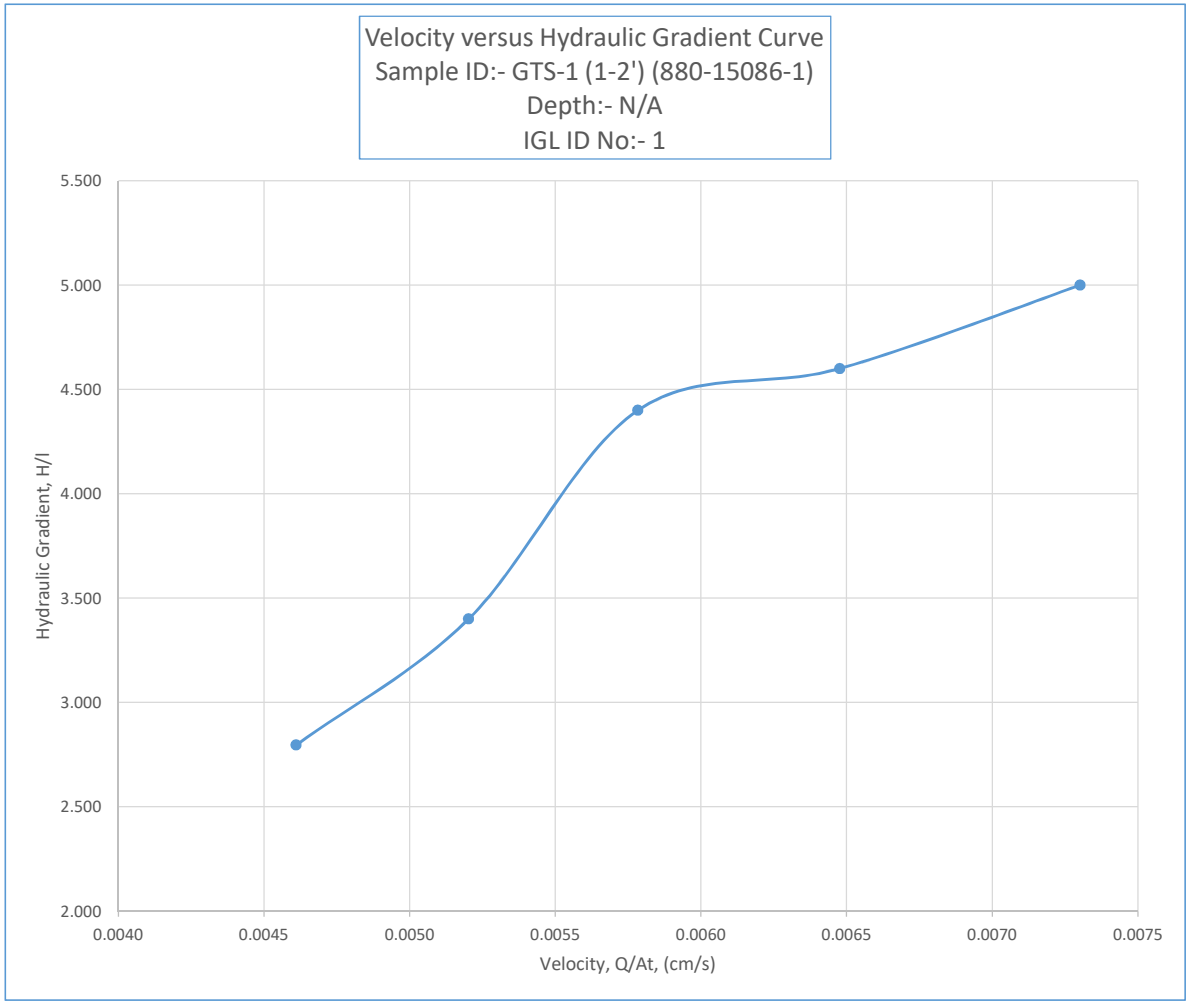
Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Water = filtered Laboratory Fresh (tap)

Sample Number: GTS-1 (1-2') (880-15086-1) **IGS ID NO:- 1**

Description	Retained on Sieve #	Weight Percent	Passing through Sieve #	Cumlative Weights Percent Passing
Gravel	4	0.00	1	100.00
Coarse Sand	10	0.00	4	100.00
Medium Sand	40	5.03	10	100.00
Fine Sand	200	88.50	40	94.97
Silt	<200	5.28	200	6.47
Clay	Pan	1.19		
	Total	100		

For details of Grain Size Distribution, please see the ASTM D422 plots



Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Sample Number: GTS-1 (2-3') (880-15086-2)

IGS ID NO:- 2

BRIEF DESCRIPTION OF SOIL:

(See details of Particle Size Analysis for grain distribution) - There were no samples larger than 3/4" size.

UNIT WEIGHT DETERMINATION:

Avg. Diameter, D, cm:	6.985				Weight Before, W1:	885.78
Area, A, cm^2:	38.32				Weight After, W2:	56.61
Avg. Length, L, cm:	12.7				Net Weight, g:	829.17
W (max)	-		Moisture Content (air-dried), (%):	0.877609	Volume of Sample (cc):	486.66
W (min)	-		Dry Unit Weight, g/cm:	-	Bulk Density of Soil Specimen, g/cm^3:	1.65
					Viscosity of Water at 68^oF:	1.021

Test Run No:		Head, h mm	Head, h (cm)	Volume, Q (cc)	Time, t (sec)	Oulet Distance, L (cm)	Velocity, Q/At (cm/s)	Hydraulic Gradient h/L	Temperature, T oF	Water Viscosity (cp)	Coefficient of Permeability, K (cm/s)	Temperature Corrected Coefficient of Permeability, K_{68oF} (cm/s)
Average_Run 1		375	37.5	50.0	283	12.7	0.0046	2.953	85	0.8064	0.0016	0.0012
Average_Run 2		431.08	43.1	62.0	311	12.7	0.0052	3.394	85	0.8064	0.0015	0.0012
Average_Run 3		545	54.5	82.0	370	12.7	0.0058	4.291	85	0.8064	0.0013	0.0011
Average_Run 4		580	58.0	102.0	411	12.7	0.0065	4.567	85	0.8064	0.0014	0.0011
Average_Run 5		620	62.0	115.0	425	12.7	0.0071	4.882	85	0.8064	0.0014	0.0011

Note: 1g/cc = 62.427961 ib/cu-ft
Permeability to water and hydraulic conductivity measured at saturated conditions.

Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

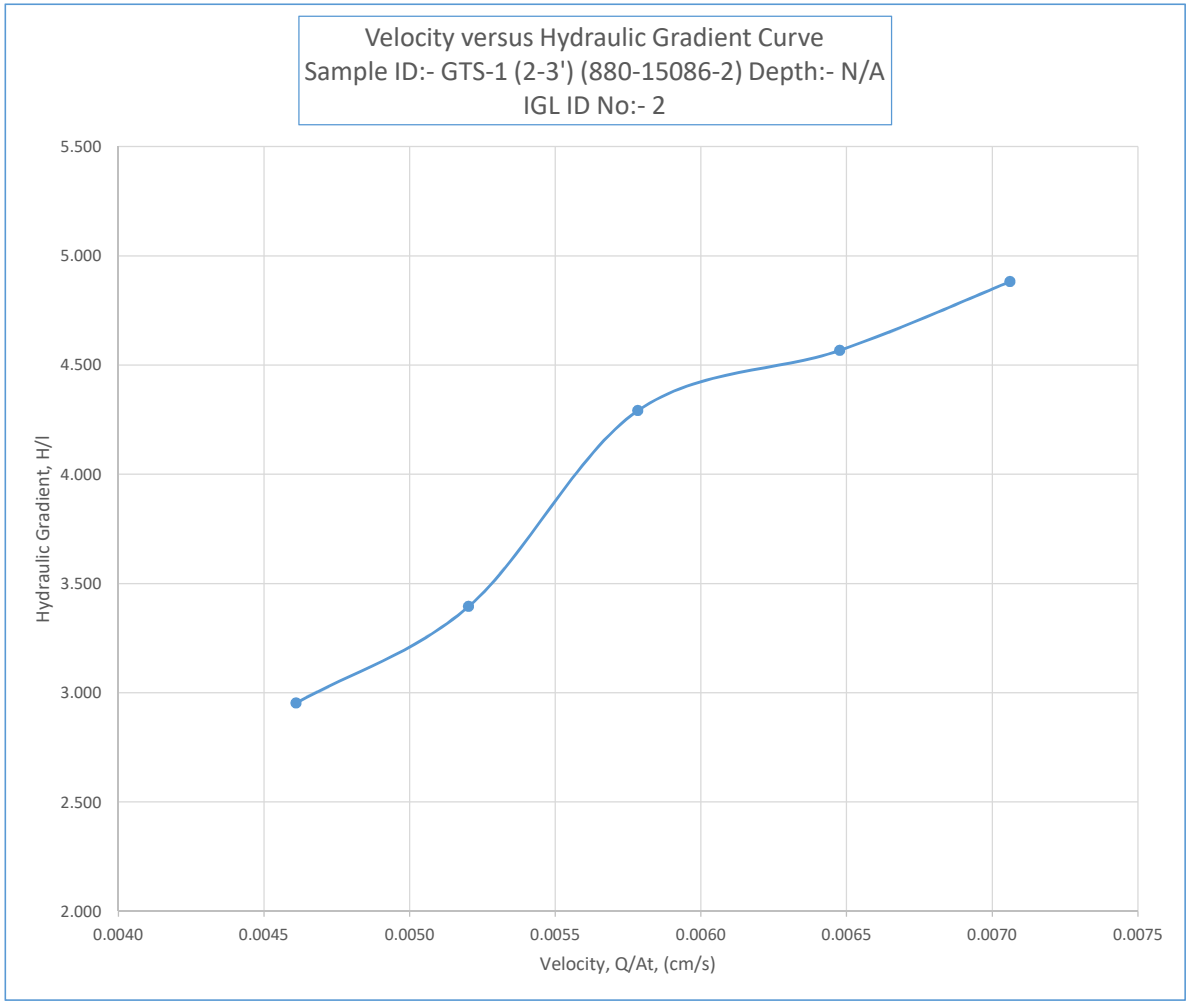
Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Water = filtered Laboratory Fresh (tap)

Sample Number: GTS-1 (2-3') (880-15086-2) **IGS ID NO:- 2**

Description	Retained on Sieve #	Weight Percent	Passing through Sieve #	Cumlative Weights Percent Passing
Gravel	4	0.00	1	100.00
Coarse Sand	10	0.00	4	100.00
Medium Sand	40	5.42	10	100.00
Fine Sand	200	89.78	40	94.58
Silt	<200	3.69	200	4.80
Clay	Pan	1.11		
	Total	100		

For details of Grain Size Distribution, please see the ASTM D422 plots



Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Sample Number: GTS-1 (1-2') (880-15086-3)

IGS ID NO:- 3

BRIEF DESCRIPTION OF SOIL:

(See details of Particle Size Analysis for grain distribution) - There were no samples larger than 3/4" size.

UNIT WEIGHT DETERMINATION:

Avg. Diameter, D, cm:	6.985				Weight Before, W1:	1202.80
Area, A, cm^2:	38.32				Weight After, W2:	355.04
Avg. Length, L, cm:	12.7				Net Weight, g:	847.76
W (max)	-		Moisture Content (air-dried), (%):	0.856362	Volume of Sample (cc):	486.66
W (min)	-		Dry Unit Weight, g/cm:	-	Bulk Density of Soil Specimen, g/cm^3:	1.65
					Viscosity of Water at 68^oF:	1.021

Test Run No:		Head, h mm	Head, h (cm)	Volume, Q (cc)	Time, t (sec)	Oulet Distance, L (cm)	Velocity, Q/At (cm/s)	Hydraulic Gradient h/L	Temperature, T oF	Water Viscosity (cp)	Coefficient of Permeability, K (cm/s)	Temperature Corrected Coefficient of Permeability, K_{68oF} (cm/s)
Average_Run 1		360	36.0	50.0	283	12.7	0.0046	2.835	85	0.8064	0.0016	0.0013
Average_Run 2		400	40.0	62.0	311	12.7	0.0052	3.150	85	0.8064	0.0017	0.0013
Average_Run 3		545	54.5	80.0	365	12.7	0.0057	4.291	85	0.8064	0.0013	0.0011
Average_Run 4		572	57.2	100.0	411	12.7	0.0063	4.504	85	0.8064	0.0014	0.0011
Average_Run 5		620	62.0	120.0	450	12.7	0.0070	4.882	85	0.8064	0.0014	0.0011

Note: 1g/cc = 62.427961 ib/cu-ft
Permeability to water and hydraulic conductivity measured at saturated conditions.

Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

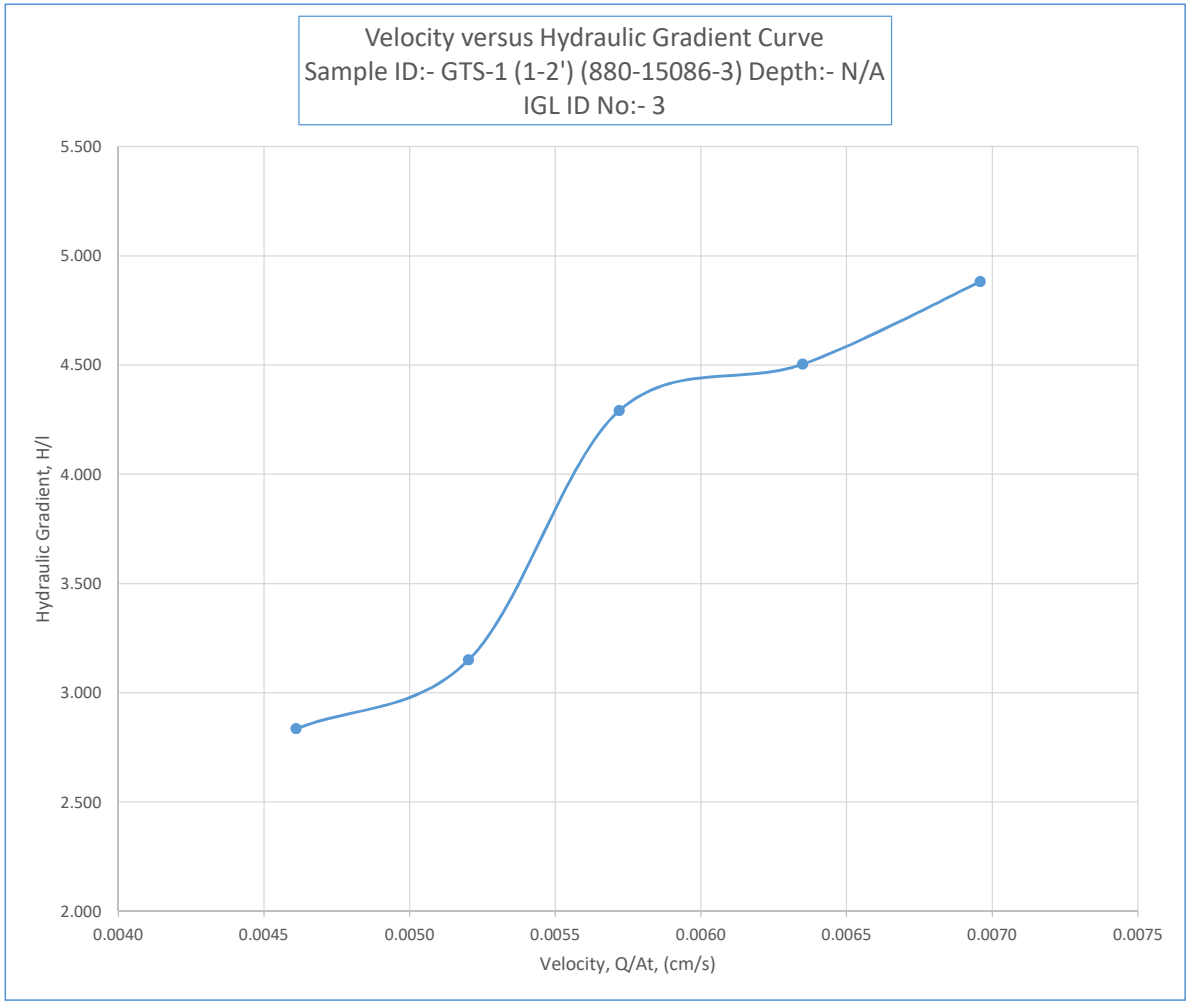
Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Water = filtered Laboratory Fresh (tap)

Sample Number: GTS-1 (1-2') (880-15086-3) **IGS ID NO:- 3**

Description	Retained on Sieve #	Weight Percent	Passing through Sieve #	Cumlative Weights Percent Passing
Gravel	4	0.00	1	100.00
Coarse Sand	10	0.00	4	100.00
Medium Sand	40	3.37	10	100.00
Fine Sand	200	91.72	40	96.63
Silt	<200	4.43	200	4.91
Clay	Pan	0.48		
	Total	100		

For details of Grain Size Distribution, please see the ASTM D422 plots



Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Sample Number: GTS-1 (2-3') (880-15086-4)

IGS ID NO:- 4

BRIEF DESCRIPTION OF SOIL:

(See details of Particle Size Analysis for grain distribution) - There were no samples larger than 3/4" size.

UNIT WEIGHT DETERMINATION:

Avg. Diameter, D, cm:	6.985				Weight Before, W1:	1018.70
Area, A, cm^2:	38.32				Weight After, W2:	258.62
Avg. Length, L, cm:	12.7				Net Weight, g:	760.08
W (max)	-		Moisture Content (air-dried), (%):	0.808474	Volume of Sample (cc):	486.66
W (min)	-		Dry Unit Weight, g/cm:	-	Bulk Density of Soil Specimen, g/cm^3:	1.65
					Viscosity of Water at 68^oF:	1.021

Test Run No:		Head, h mm	Head, h (cm)	Volume, Q (cc)	Time, t (sec)	Oulet Distance, L (cm)	Velocity, Q/At (cm/s)	Hydraulic Gradient h/L	Temperature, T oF	Water Viscosity (cp)	Coefficient of Permeability, K (cm/s)	Temperature Corrected Coefficient of Permeability, K_{68oF} (cm/s)
Average_Run 1		650	65.0	55.0	115	12.7	0.0125	5.118	85	0.8064	0.0024	0.0019
Average_Run 2		665	66.5	74.0	151	12.7	0.0128	5.236	85	0.8064	0.0024	0.0019
Average_Run 3		700	70.0	104.0	211	12.7	0.0129	5.512	85	0.8064	0.0023	0.0018
Average_Run 4		725	72.5	122.0	246	12.7	0.0129	5.709	85	0.8064	0.0023	0.0018
Average_Run 5		750	75.0	148.0	290	12.7	0.0133	5.906	85	0.8064	0.0023	0.0018

Note: 1g/cc = 62.427961 ib/cu-ft
Permeability to water and hydraulic conductivity measured at saturated conditions.

Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

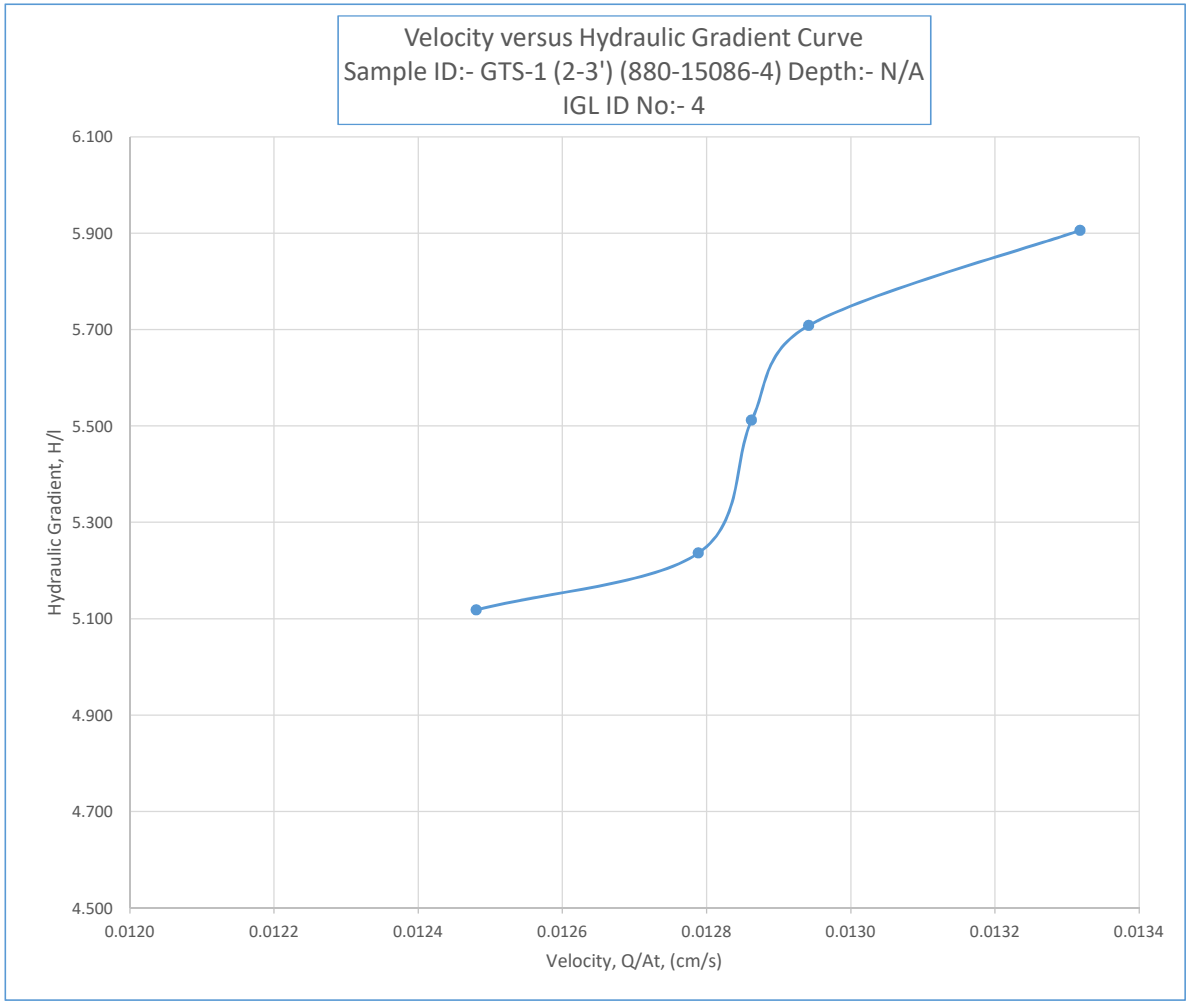
Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Water = filtered Laboratory Fresh (tap)

Sample Number: GTS-1 (2-3') (880-15086-4) **IGS ID NO:- 4**

Description	Retained on Sieve #	Weight Percent	Passing through Sieve #	Cumlative Weights Percent Passing
Gravel	4	0.00	1	100.00
Coarse Sand	10	0.00	4	100.00
Medium Sand	40	1.37	10	100.00
Fine Sand	200	44.47	40	98.63
Silt	<200	53.92	200	54.16
Clay	Pan	0.24		
	Total	100		

For details of Grain Size Distribution, please see the ASTM D422 plots



Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Sample Number: GTS-1 (1-2') (880-15086-5)

IGS ID NO:- 5

BRIEF DESCRIPTION OF SOIL:

(See details of Particle Size Analysis for grain distribution) - There were no samples larger than 3/4" size.

UNIT WEIGHT DETERMINATION:

Avg. Diameter, D, cm:	6.985				Weight Before, W1:	830.37
Area, A, cm^2:	38.32				Weight After, W2:	93.83
Avg. Length, L, cm:	12.7				Net Weight, g:	736.54
W (max)	-		Moisture Content (air-dried), (%):	2.829625	Volume of Sample (cc):	486.66
W (min)	-		Dry Unit Weight, g/cm:	-	Bulk Density of Soil Specimen, g/cm^3:	1.65
					Viscosity of Water at 68^oF:	1.021

Test Run No:		Head, h mm	Head, h (cm)	Volume, Q (cc)	Time, t (sec)	Oulet Distance, L (cm)	Velocity, Q/At (cm/s)	Hydraulic Gradient h/L	Temperature, T oF	Water Viscosity (cp)	Coefficient of Permeability, K (cm/s)	Temperature Corrected Coefficient of Permeability, K_{68oF} (cm/s)
Average_Run 1		650	65.0	40.0	58.75	12.7	0.0178	5.118	85	0.8064	0.0035	0.0027
Average_Run 2		685.8	68.6	86.0	99.28	12.7	0.0226	5.400	85	0.8064	0.0042	0.0033
Average_Run 3		700	70.0	140.0	158.07	12.7	0.0231	5.512	85	0.8064	0.0042	0.0033
Average_Run 4		750	75.0	220.0	232.13	12.7	0.0247	5.906	85	0.8064	0.0042	0.0033
Average_Run 5		800	80.0	350.0	281.76	12.7	0.0324	6.299	85	0.8064	0.0051	0.0041

Note: 1g/cc = 62.427961 ib/cu-ft
Permeability to water and hydraulic conductivity measured at saturated conditions.

Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

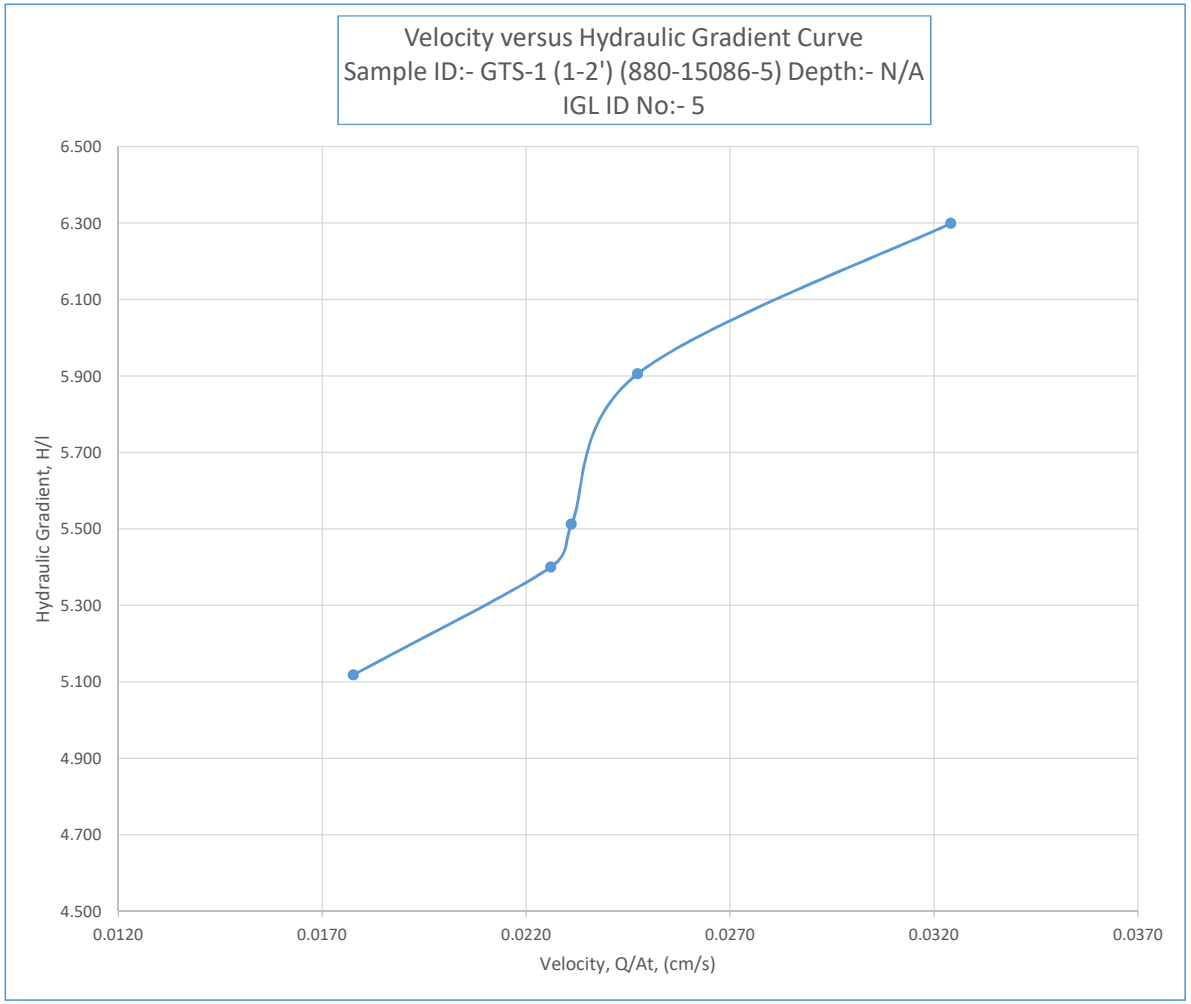
Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Water = filtered Laboratory Fresh (tap)

Sample Number: GTS-1 (1-2') (880-15086-5) **IGS ID NO:- 5**

Description	Retained on Sieve #	Weight Percent	Passing through Sieve #	Cumlative Weights Percent Passing
Gravel	4	0.00	1	100.00
Coarse Sand	10	0.00	4	100.00
Medium Sand	40	2.57	10	100.00
Fine Sand	200	93.66	40	97.43
Silt	<200	3.47	200	3.77
Clay	Pan	0.30		
	Total	100		

For details of Grain Size Distribution, please see the ASTM D422 plots



Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Sample Number: GTS-1 (2-3') (880-15086-6)

IGS ID NO:- 6

BRIEF DESCRIPTION OF SOIL:

(See details of Particle Size Analysis for grain distribution) - There were no samples larger than 3/4" size.

UNIT WEIGHT DETERMINATION:

Avg. Diameter, D, cm:	6.985				Weight Before, W1:	998.32
Area, A, cm^2:	38.32				Weight After, W2:	260.60
Avg. Length, L, cm:	12.7				Net Weight, g:	737.72
W (max)	-		Moisture Content (air-dried), (%):	3.247357	Volume of Sample (cc):	486.66
W (min)	-		Dry Unit Weight, g/cm:	-	Bulk Density of Soil Specimen, g/cm^3:	1.65
					Viscosity of Water at 68^oF:	1.021

Test Run No:		Head, h mm	Head, h (cm)	Volume, Q (cc)	Time, t (sec)	Oulet Distance, L (cm)	Velocity, Q/At (cm/s)	Hydraulic Gradient h/L	Temperature, T oF	Water Viscosity (cp)	Coefficient of Permeability, K (cm/s)	Temperature Corrected Coefficient of Permeability, K_{68oF} (cm/s)
Average_Run 1		550	55.0	40.0	58.75	12.7	0.0178	4.331	85	0.8064	0.0041	0.0032
Average_Run 2		600	60.0	86.0	99.28	12.7	0.0226	4.724	85	0.8064	0.0048	0.0038
Average_Run 3		720	72.0	140.0	158.07	12.7	0.0231	5.669	85	0.8064	0.0041	0.0032
Average_Run 4		750	75.0	220.0	232.13	12.7	0.0247	5.906	85	0.8064	0.0042	0.0033
Average_Run 5		810	81.0	350.0	253	12.7	0.0361	6.378	85	0.8064	0.0057	0.0045

Note: 1g/cc = 62.427961 ib/cu-ft
Permeability to water and hydraulic conductivity measured at saturated conditions.

Integrated Geosciences Laboratories, LLC

IGL File No: 2205-85
Client: Eurofins
Report Date: 05/27/22

PHYSICAL PROPERTIES DATA - GRANULAR PERMEABILITY (Constant Head Method) - ASTM D2434 (Method A)

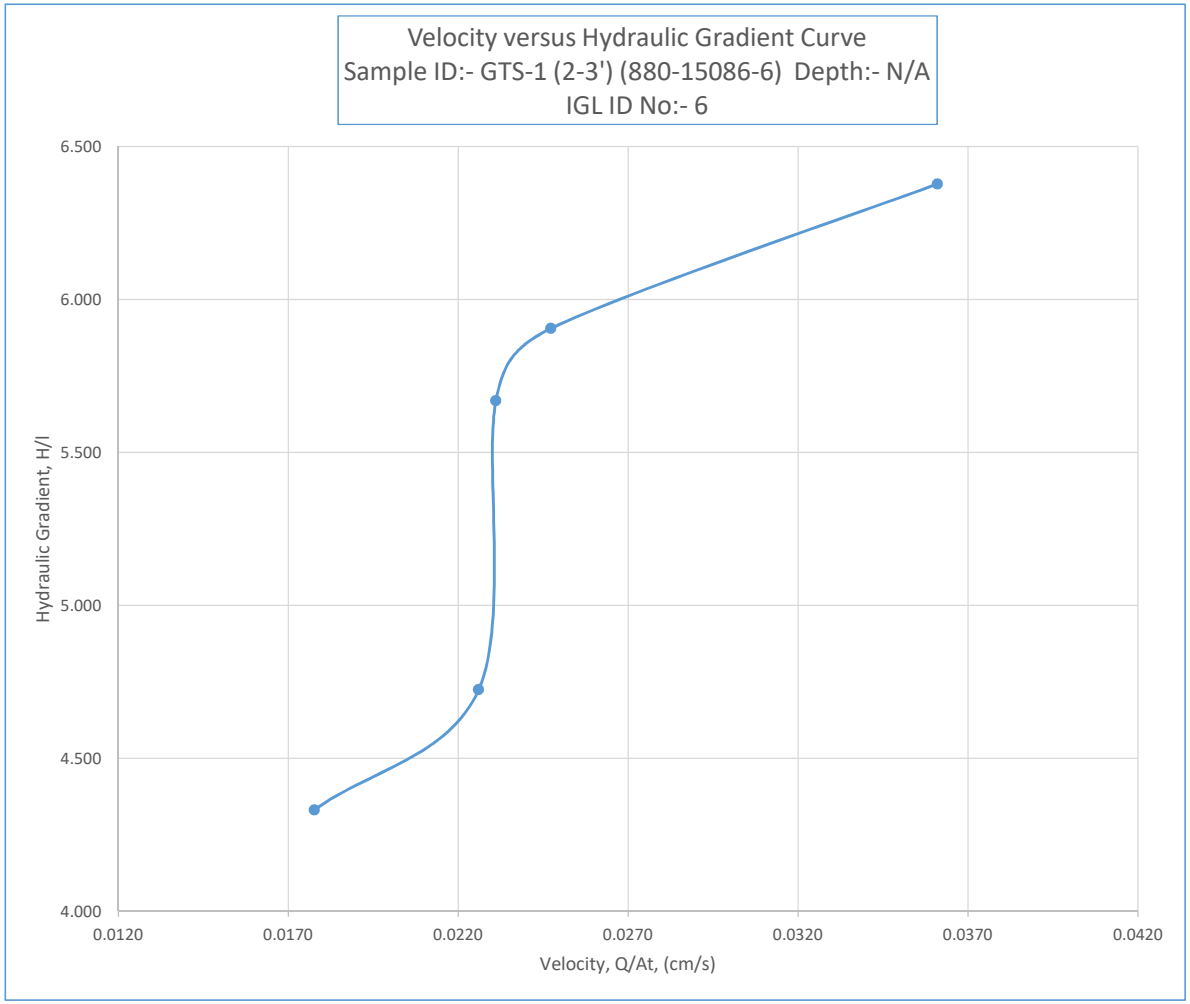
Project Name: COSMO BOOSTER
Project No: 88001091
Site Location:

Water = filtered Laboratory Fresh (tap)

Sample Number: GTS-1 (2-3') (880-15086-6) **IGS ID NO:- 6**

Description	Retained on Sieve #	Weight Percent	Passing through Sieve #	Cumlative Weights Percent Passing
Gravel	4	0.00	1	100.00
Coarse Sand	10	0.00	4	100.00
Medium Sand	40	1.76	10	100.00
Fine Sand	200	94.29	40	98.24
Silt	<200	3.61	200	3.95
Clay	Pan	0.34		
	Total	100		

For details of Grain Size Distribution, please see the ASTM D422 plots



Eurofins Midland
1211 W. Florida Ave
Midland, TX 79701
Phone: 432-704-5440

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kramer, Jessica	Carrier Tracking No(s):	COC No: 880-4473.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Jessica.Kramer@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Integrated Geosciences Laboratories LLC		Accreditations Required (See note): NELAP - Texas		Job #: 880-15086-1
Address: 6016 Centralcrest St,	Due Date Requested: 5/26/2022			
City: Houston	TAT Requested (days):			
State, Zip: TX, 77092				
Phone:	PO #:			
Email:	WO #:			
Project Name: Cosmo Booster	Project #: 88001091			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)
Other:

2205-85

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Permeability of granular soils ASTM D2434)/ Permeability of granularsoils ASTM D2434	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
GTS-1 (1-2') (880-15086-1)	5/23/22	Mountain		Solid			X	1	
GTS-1 (2-3') (880-15086-2)	5/23/22	Mountain		Solid			X	1	
GTS-2 (1-2') (880-15086-3)	5/23/22	Mountain		Solid			X	1	
GTS-2 (2-3') (880-15086-4)	5/23/22	Mountain		Solid			X	1	
GTS-3 (1-2') (880-15086-5)	5/23/22	Mountain		Solid			X	1	
GTS-3 (2-3') (880-15086-6)	5/23/22	Mountain		Solid			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	JKramer	5.24.22 1700			5/26/22 1030	TGS Labs. LLC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

State of New Mexico
Energy, Minerals and Natural Resources Department

BY ELECTRONIC AND CERTIFIED MAIL

June 15, 2022

Mr. Matthias Sayer
NGL Waste Services, LLC
864 N. Albion St., Suite 400
Denver, CO 80220

RE: Approval of Minor Permit Modification
Permit NM1-66, North Ranch Surface Waste Management Facility, Sections 9 and 10, Township 25 South, Range 34 East NMPM, Lea County, New Mexico

Dear Mr. Sayer:

The Oil Conservation Division (OCD) has completed its review of NGL Waste Services, LLC (NGL) permit modification request, dated June 3, 2022, for commercial surface waste management facility permit NM1-66 wherein NGL requested the following:

- An alternative to 19.15.36.14.C(7) NMAC regarding the protective layer of a landfill's leachate collection and removal system. This citation states that the operator shall place oil field waste over the leachate collection and removal system protective layer. NGL proposes to place oil field waste within and as part of the protective layer.

OCD reviewed the supporting documentation provided by NGL. This documentation demonstrated that the hydraulic conductivity, determined by test method ASTM D2434, of the actual material to be used exceeds the hydraulic conductivity modeling parameter of $1x10^{-5}$ centimeters per second (cm/s). As provided in the approved application, all Hydrologic Evaluation of Landfill Performance (HELP) Model simulations assumed that native soils achieved a compacted hydraulic conductivity of at least $1x10^{-5}$ cm/s based on the permeability testing results of onsite soils presented. Given the hydraulic conductivity exceeds the HELP Model parameter and that leachate originating from the waste material will over time infiltrate through the protective layer as intended into the collection system resulting in contaminants being adsorbed to the soil particles therein, OCD has determined the use of oil field waste as part of the protective layer will not adversely affect the performance of the leachate collection and removal system.

Pursuant to 19.15.36.19.A NMAC, OCD may approve an alternative if OCD determines that the proposed alternative provides equivalent protection of fresh water, public health, and the environment. OCD's

determination of NGL's minor permit modification request is that the proposed alternative provides equivalent protection of fresh water, public health, and the environment. Therefore, OCD hereby approves the minor permit modification request and has changed permit condition 6.L to read as follows:

- The request for an alternative to the leachate collection system and removal system protection layer requirement of 19.15.36.14.C(6) NMAC, including the use of oil field waste as part of the leachate collection system and removal system protection layer, is adequately addressed and supported in the application and hereby approved.

The OCD considers this to be only a minor modification of the permit as there will be no increase in land area, no change in the landfill's design capacity, no change to the nature of oil field waste received at the facility, no addition of a new treatment process, nor any exception, waiver, or change to a numeric standard provided in the rule (19.15.36.7.B(9) and (10) NMAC). If you have any questions, please contact Leigh Barr of my staff at (505) 670-5684 or by email at LeighP.Barr@state.nm.us.

Respectfully,

Adrienne Sandoval
OCD Director

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 114076

CONDITIONS

Operator:	OGRID:
NGL Waste Services, LLC 1008 Southview Circle Center, TX 75935	329268
	Action Number: 114076
	Action Type: [C-137] SWMF Minor Modification (C-137A)

CONDITIONS

Created By	Condition	Condition Date
lbarr	The approval letter was mailed to Matthias Sayer on June 15, 2022. The approval letter is attached to the minor permit modification request.	8/2/2022