

Clean Sand No. 4 – Lot LRAB0558

Inorganic and Physical Properties

METALS ANALYSIS

Element	MDL	Value
Aluminum, Al	3	1400
Antimony, Sb	1	ND
Arsenic, As	0.5	ND
Barium, Ba	0.3	5.2
Beryllium, Be	0.2	ND
Cadmium, Cd	0.3	ND
Calcium, soluble (Sat. Paste)	0.01	5.8
Cation Exchange Capacity (CEC)	0.03	2.0
Chromium, Cr (total)	1	ND
Cobalt, Co	1	ND
Copper, Cu	1	ND
Iron, Fe	1	257
Lead, Pb	2	ND
Manganese, Mn	0.5	40.1
Magnesium, Mg	0.02	ND
Mercury, Hg	0.02	ND
Nickel, Ni	1	ND
Potassium, soluble (Sat. Paste)	0.008	ND
Selenium, Se	0.1	ND
Silver, Ag	0.5	ND
Sodium, soluble (Sat. Paste)	0.01	ND
Thallium, Tl	1	ND
Vanadium, V	1	ND
Zinc, Zn	1	10.0

All values given in mg/Kg except Cation Exchange meq/100g, and Calcium, Magnesium, Potassium, and Sodium meq/L

SOIL ANALYSIS

Parameter	MDL	Value
Carbon, total (TC)		240 µg/g
Carbonate, total (as CaCO ₃)	0.01	1.5%
Conductivity @ 25°C	0.001	0.67mmhos/cm
Exchangeable Acidity	0.2	9.9 meq/100g
Organic Matter	0.01	0.21%
pH, Saturated Paste	0.1	7.2 units
Solids, Percent	0.1	99.7%
Sulfate, soluble (Water)	30	19mg/Kg
Sulfur, total, %	0.01	ND%

Texture by Hydrometer

Clay	1	1.0%
Sand	1	98.0%
Silt	1	1.0%
Texture Classification		Sand

WET CHEMISTRY

Parameter	MDL	Value
Cyanide, reactive	0.03	ND
Nitrate as N, soluble (Water)	0.5	ND
Nitrogen, ammonia (KCl)	0.3	ND
Nitrogen, total Kjeldahl	0.01	ND
Phosphorus, extractable (AB-DTPA)	1	ND
Phosphorus, total	0.01	0.01
Sulfide, reactive	0.1	ND

All values given in mg/Kg except Nitrogen, total Kjeldahl and Phosphorus, total which are given in %.

METHODS

All Metals analyzed by SW-846 6010 and 7000 series, 3051 digestion.

Cation Exchange	USDA No. 60(19)
TC	ASTM D4129
Carbonate	ASTM D4129
Conductivity	M120.1 – Meter
Exchangeable Acidity	ASA No. 9 9-4.1
Organic Matter	USDA No. 60 Method 24
pH, Saturated Paste	USDA No. 60 (21A)
Solids, %	CLPSW390, Part F, D-98
Sulfate, soluble Water	M375.3 – Gravimetric
Sulfur, total	ASTM D4239-85C
Texture	ASTM D 422 Hydrometer

Soil Preparation

AB-DPTA Extraction	ASA No. 9 3-5.34
Air Dry at 34°C	USDA No. 1, 1972
Digestion	M3051, HNO ₃
KCL Extraction	ASA No. 9 33-3.22
Sat. Paste Ext.	M2, USDA Handbook 66
Water Ext.	ASA No. 9 10-2.3.2

Wet Chemistry

CN, reactive	Section 8.3 SW-846 & M9012
Nitrate as N	M353.2
KCL	M350.1
N, Total Kjeldahl	M351.2 – TKN
P, extractable	M365.1
Sulfide, reactive	Section 8.3 SW-846 & M9012

ORGANICS

SW-846 Method 8140

Organo-phosphorus pesticides

Parameter	MDL (µg/Kg)	Value
Azinphos methyl	5	ND
Bolstar	5	ND
Chlorpyrifos	5	ND
Coumaphos	5	ND
Demeton	5	ND
Diazinon	5	ND
Dichlorvos	5	ND
Disulfoton	5	ND
Ethoprop	5	ND
Fensulfothion	5	ND
Fenthion	5	ND
Merphos	5	ND
Mevinphos	5	ND
Naled	5	ND
Parathion methyl	5	ND
Phorate	5	ND
Ronnel	5	ND
Stirophos	5	ND
Tokuthion	5	ND
Trichloronate	5	ND

SW-846 Method 8150B

Chlorinated Herbicides

Parameter	MDL (µg/Kg)	Value
2,4-D	20	ND
2,4-DB	5	ND
2,4,5-TP	5	ND
2,4,5-T	5	ND
Dalapon	5	ND
Dicamba	20	ND
Dichloroprop	20	ND
Dinoseb	20	ND
MCPA	20	ND
MCPP	5	ND

SW-846 Method 8081A

Chlorinated Pesticides

Parameter	MDL (µg/Kg)	Value
Aldrin	8	ND
Alpha-BHC	8	ND
Beta-BHC	8	ND
Delta-BHC	8	ND
Gamma-BHC (Lindane)	8	ND
Chlordane (technical)	80	ND
4,4'-DDD	16	ND
4,4'-DDE	16	ND
4,4'-DDT	16	ND
Dieldrin	16	ND
Endosulfan I	8	ND
Endosulfan II	16	ND
Endosulfan sulfate	16	ND
Endrin	16	ND

SW-846 Method 8081A

Chlorinated Pesticides

Parameter	MDL (µg/Kg)	Value
Endrin aldehyde	16	ND
Endrin ketone	16	ND
Heptachlor	8	ND
Heptachlor epoxide	8	ND
4,4'-Methoxychlor	80	ND
Toxaphene	80	ND

SW-846 Method 8270

Semi-Volatile Organics

Parameter	MDL (µg/Kg)	Value
Acenaphthene	300	ND
Acenaphthylene	300	ND
Anthracene	300	ND
Benzidine	300	ND
Benzo(a)anthracene	300	ND
Benzyl butyl phthalate	300	ND
Benzo(b)fluoranthene	300	ND
Benzo(k)fluoranthene	300	ND
Benzo(g,h,i)perylene	300	ND
Benzo(a)pyrene	300	ND
4-Bromophenyl-phenylether	300	ND
bis(2-Chloroethoxy)methane	300	ND
bis(2-Chloroethyl)ether	300	ND
bis(2-Chloroisopropyl) ether	300	ND
Bis(2-ethylhexyl) phthalate	300	ND
4-Chlorophenyl-phenylether	300	ND
2-Chloronaphthalene	300	ND
Chrysene	300	ND
Dibenzo(a,h)anthracene	300	ND
Dibenzofuran	300	ND
1,2-Dichlorobenzene	300	ND
1,3-Dichlorobenzene	300	ND
1,4-Dichlorobenzene	300	ND
3,3'-Dichlorobenzidine	300	ND
Diethyl phthalate	300	ND
Dimethyl phthalate	300	ND
Di-n-butylphthalate	300	ND
2,4-Dinitrotoluene	300	ND
2,6-Dinitrotoluene	300	ND
Di-n-octylphthalate	300	ND
Fluoranthene	300	ND
Fluorene	300	ND
Hexachlorobenzene	300	ND
Hexachlorobutadiene	300	ND
Hexachlorocyclopentadiene	300	ND
Hexachloroethane	300	ND
Indeno(1,2,3, cd)pyrene	300	ND
Isophorone	300	ND
2-Methylnaphthalene	300	ND
Naphthalene	300	ND
Nitrobenzene	300	ND
N-Nitrosodimethylamine	300	ND
N-Nitroso-di-n-propylamine	300	ND
N-Nitrosodiphenylamine	300	ND

Certificate of Analysis

Reference Material

SW-846 Method 8270

Semi-Volatile Organics

Parameter	MDL (µg/Kg)	Value
Pyrene	300	ND
1,2,4-Trichlorobenzene	300	ND
4-Chloro-3-methylphenol	600	ND
2-Chlorophenol	600	ND
2,4-Dichlorophenol	600	ND
2,4-Dimethylphenol	600	ND
2,4-Dinitrophenol	600	ND
2-Methyl-4,6-Dinitrophenol	600	ND
2-Methylphenol (o-Cresol)	600	ND
4-Methylphenol (p-Cresol) ¹¹	600	ND
2-Nitrophenol	600	ND
4-Nitrophenol	600	ND
Phenol	600	ND
Pentachlorophenol	600	ND
2,4,5-Trichlorophenol	600	ND
2,4,6-Trichlorophenol	600	ND

SW-846 Method 8260

Volatile Organics

Parameter	MDL (µg/Kg)	Value
1,1,1,2-Tetrachloroethane	5	ND
1,1,1-Trichloroethane	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,1,2-Trichloroethane	5	ND
1,1-Dichloroethane	5	ND
1,1-Dichloroethylene	5	ND
1,1-Dichloropropene	5	ND
1,2-Dichloropropane	5	ND
1,2,3-Trichlorobenzene	5	ND
1,2,3-Trichloropropane	5	ND
1,2,4-Trichlorobenzene	5	ND
1,2,4-Trimethylbenzene	5	ND
1,2-Dibromo-3-chloropropane (DBCP)	5	ND
1,2-Dichlorobenzene	5	ND
1,2-Dichloroethane	5	ND
1,3,5-Trimethylbenzene	5	ND
1,3-Dichlorobenzene	5	ND
1,3-Dichloropropane	5	ND
1,4-Dichlorobenzene	5	ND
2,2-Dichloropropane	5	ND
2-Butanone	10	ND
2-Chlorotoluene	5	ND
4-Chlorotoluene	5	ND
4-Isopropyltoluene	5	ND
Acetone	20	175
Acrylonitrile	20	ND
Benzene	5	ND
Bromochloromethane	5	ND
Bromobenzene	5	ND

SW-846 Method 8260

Volatile Organics

Parameter	MDL (µg/Kg)	Value
Bromomethane	5	ND
Carbon Tetrachloride	5	ND
Chlorobenzene	5	ND
Chloroethane	5	ND
Chloromethane	5	ND
Cis-1,2-Dichloroethylene	5	ND
Cis-1,3-Dichloropropene	5	ND
Dibromomethane	5	ND
Dichlorodifluoromethane	5	ND
Dichloromethane (Methylene Chloride)	5	ND
Ethylbenzene	5	ND
Ethylene Dibromide (EDB)	5	ND
Hexachlorobutadiene	5	ND
Isopropylbenzene	5	ND
Methyl-tert-butylether (MTBE)	5	ND
n-Butylbenzene	5	ND
n-Propylbenzene	5	ND
Sec-Butylbenzene	5	ND
Styrene	5	ND
Tert-Butylbenzene	5	ND
Tetrachloroethylene	5	ND
Toluene	5	ND
Total Xylenes	5	ND
Trans-1,2-Dichloroethylene	5	ND
Trans-1,3-Dichloropropene	5	ND
Trichloroethylene	5	ND
Trichlorofluoromethane	5	ND
Vinyl Chloride	5	ND

Certification Date: December 29, 2015

Expiration Date: December 31, 2020

Storage & Handling: Store at room temperature.

Certified by: 
Christopher Rucinski – QA Director

CLNSAND4 Lot LRAB0558

3 of 3



2931 Soldier Springs Road
Laramie, WY 82070
Phone: 800.576.5690 or 307.742.5452
Fax: 307.745.7936
Web: www.RT-Corp.com