



August 11, 2016

Mr. Dan Kowalski
Project Manager
Guardian Environmental Services, Inc.
70 Albe Drive
Newark, DE 19702

RE: Results of Borehole Geophysical Logging: ERT-44-S
Site: Crown Cleaners Superfund Site, Village of Herrings, NY

Dear Mr. Kowalski,

In response to your request, Earth Data Northeast, Inc. ("EDN") is pleased to provide Guardian Environmental Services, Inc. ("GES") with the following summary of borehole geophysical logging services performed July 25, 2016 at the Crown Cleaners Superfund Site, located in Village of Herrings, New York.

Borehole Geophysical Logging

The following suite of geophysical logs was performed (as indicated by the "X") in well ERT-44-S.

- ☐ Color Borehole Video Survey
- ☒ Fluid Temperature / Fluid Conductivity
- ☒ 3-Arm Caliper
- ☐ Electrical Resistivity Suite
 - ☐ Spontaneous Potential ("SP")
 - ☐ Single Point Resistance ("SPR")
 - ☐ Short (16") & Long (64") Normal Resistivity
- ☒ Natural Gamma
- ☒ Acoustic Televierer ("ATV")
- ☒ Optical Televierer ("OTV")
- ☐ Heat Pulse Flowmeter
 - ☐ Ambient conditions
 - ☐ Pumping conditions; Depth of pump: _____; Rate: _____
- ☐ Additional Tooling: _____

Results of Borehole Geophysical Logging

The results of the borehole geophysical logging conducted in ERT-44-S are summarized below. A geophysical composite graph containing the logs performed in ERT-44-S is included as an attachment.

Features identified with the ATV & OTV are presented in both tabular and graphical format, referenced to True North, and are also attached. A qualitative classification of each feature, with respect to its potential aperture, was assigned according to the following criteria:

Fracture/Feature – obvious, dark sinusoidal line across the entire acoustic image; usually supported by the response of the 3-arm caliper.

Hairline Fracture/Feature – as above, though not as evident; generally minimal aperture noted

Discontinuous Fracture (Hairline or otherwise)/Feature – shape of sinusoidal line is intact; does not span across entire acoustic image.

Bedding/Change in Lithology – shape of sinusoidal line is intact, usually supported by natural gamma log and/or response of acoustic return; generally minimal aperture noted

More features may exist than could be identified. Characterization of features was aided by software provided by the geophysical tool manufacturer.

All geophysical logs presented in this report are referenced from below top of casing (“toc”).

ERT-44-S

Well diameter: nominal 6"

Total depth: 29'

Casing depth: 7.5'

Casing stick-up (above grade): 1.7'

Static water level: 12.0'

Field observations / Remarks:

Fluid characteristics:

- Slight changes in the slope of the fluid temperature log at 15.5', 17'-19', & 23' (periodic decreases in fluid temperature)
- Fluid temp at the bottom of the borehole: 11.2 °C
- Slight changes in the slope of the fluid conductivity log at 15', 17'-19', 21', & 23.5'.

Rock characteristics:

- Hairline features observed near 13', 15', 16.5', & 21.5'
- Relatively uniform lithology throughout open borehole.

ATV & OTV features: 14 (see attached summary table and graphical presentation)

Apparent strike: East-Northeast – West-Southwest


Apparent dip: North-Northwest

The findings and conclusions presented in this report are the result of fieldwork, data analysis, and interpretations completed by EDN personnel as of this date. This report was prepared in response to a request from GES, using generally accepted geophysical practices, for the exclusive use of GES. No other warranty, express or implied, is made.

Additional copies of the geophysical logs are available upon request.

If you should have any further questions or comments, please feel free to contact me at (610) 524-9466 or via email at eonuskanych@earthdatane.com.


Sincerely,




Evan Onuskanych
Staff Geoscientist
Earth Data Northeast, Inc.

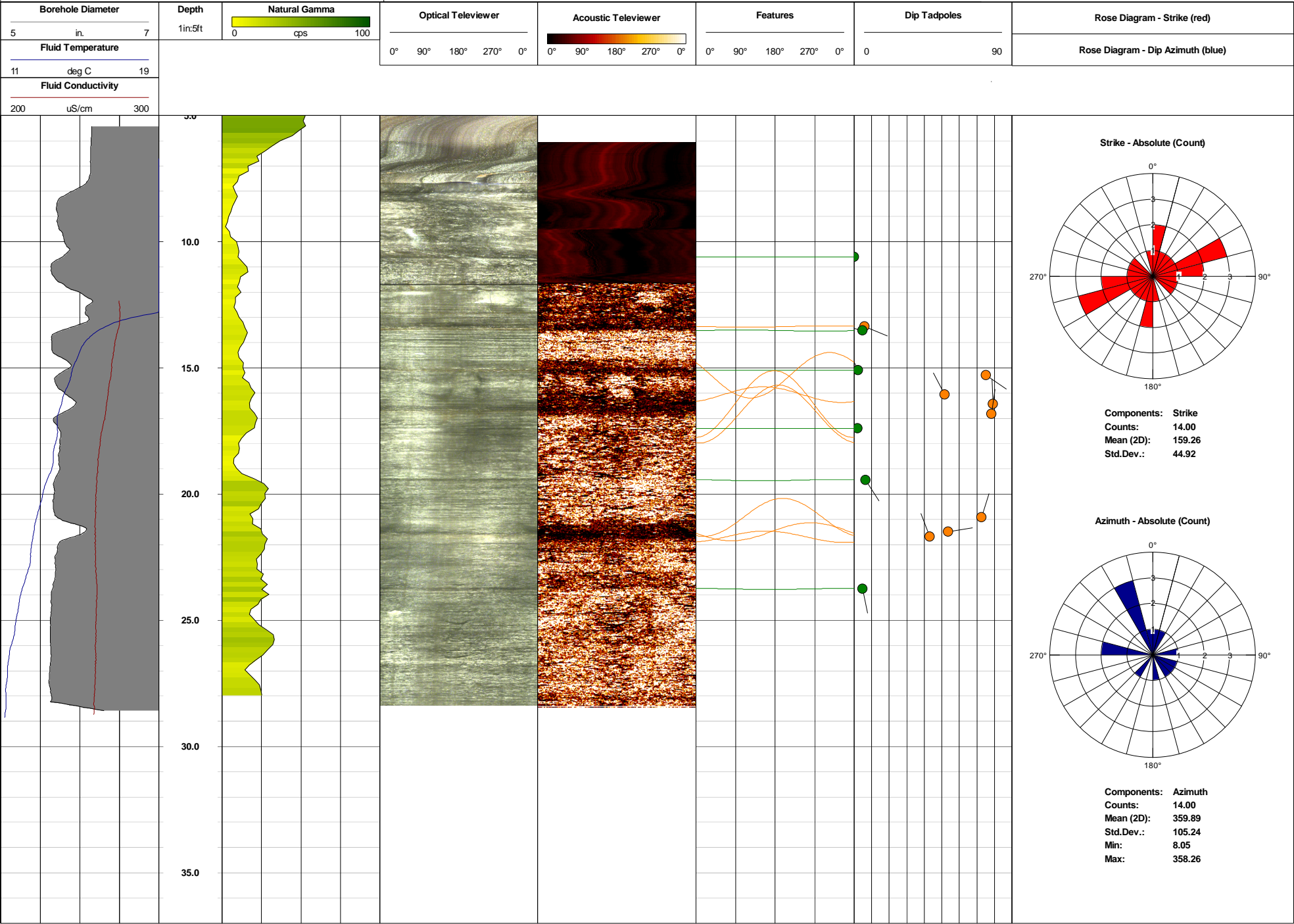
Client: **Guardian Environmental**
Location: **Crown Cleaners Site**
Well Name: **ERT-44-S**
Date: **07/25/16**
Depth Reference: **Top of Casing**
Magnetic Declination: **-12.97 deg**
North reference: **True North**

Borehole Diameter: **6" nominal**
Static Water Level: **12.0'**
Casing Depth: **7.5'**
Total Depth: **29'**

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Discontinuous Hairline Fracture/Feature
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Bedding/Change in Lithology



ERT-44-S ATV & OTV Feature Summary Table
Crown Cleaners Superfund Site; Village of Herrings, NY

Avg. Depth of Feature (ft)	Dip Azimuth (deg from North)	Dip Angle (deg)	Strike (deg from North)	Feature Description
10.6	222	0	132	Bedding/Change in Lithology
13.4	113	6	23	Discontinuous Hairline Fracture/Feature
13.5	284	5	194	Bedding/Change in Lithology
15.1	334	2	244	Bedding/Change in Lithology
15.3	124	75	34	Discontinuous Hairline Fracture/Feature
16.1	332	52	242	Discontinuous Hairline Fracture/Feature
16.4	358	79	268	Discontinuous Hairline Fracture/Feature
16.8	8	78	278	Discontinuous Hairline Fracture/Feature
17.4	273	2	183	Bedding/Change in Lithology
19.4	148	7	58	Bedding/Change in Lithology
20.9	18	73	288	Discontinuous Hairline Fracture/Feature
21.5	81	54	351	Discontinuous Hairline Fracture/Feature
21.7	339	43	249	Discontinuous Hairline Fracture/Feature
23.8	168	5	78	Bedding/Change in Lithology