DOCUMENTATION PAGE

Project: Utah Forge; Jul 2023	**For**: Frontier Observatory for Research in Geothermal Energy (FORGE), Energy & Geoscience Institute
Doc. No.: A37190176	**Performing Organization**: Neubrex Energy Services (US), LLC
Report Date: Jul 12, 2023	
Title/Subtitle: Final Report	**Author(s)**: Dana Jurick, Artur Guzik
Contractor Name and Address: Neubrex Energy Services (US), LLC 11125 Hwy 159 West Bellville, TX 77418	**Type of Report**: Final Technical Report
Client Name: Forge	**P.O. No**:
	Consultant Name & Address: N/A
Supplementary Note: Report is supported by a PowerPoint presentation.	Wells: Utah Forge 16B(78)-32 (**API: NA**)
Key Words: Utah Forge 16B(78)-32, Evo 0 Temperature, Strain, Acoustic DTS, DSS, DAS DFOS Monitoring	
Distribution:	**Copyright**: N/A
Security Class:	**No. of Pages**: 4
File Name:	

Final Deliverables Transmittal Page*

From: Neubrex Energy Services (US), LLC.	**To**: Energy & Geoscience Institute
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Attention: Dana Jurick	**Attention**: Dr. John McLennan
Deliverable Description	**Format**
Project Final Report:	PDF Digital
Processed Digital Data	File names: See following pages

Sent By: Dana Jurick, Neubrex Energy Services (US), LLC

Signature: _____

Date: _____

Received By: _____

Signature: _____

Date: _____

***Please sign and return dated copy/scan to:** dana.jurick@neubrex.com

Data description

The following data is made available in electronic form as files.

All measurements were performed between **Jul 13, 2023, 01:13** and **Jul 14, 2023, 11:13**.

All reported times are UTC-06:00.

File format

Files are provided in HDF5 or csv formats. For HDF5 file the following structure is used. Traces time stamps are provided in standard and UNIX formats.

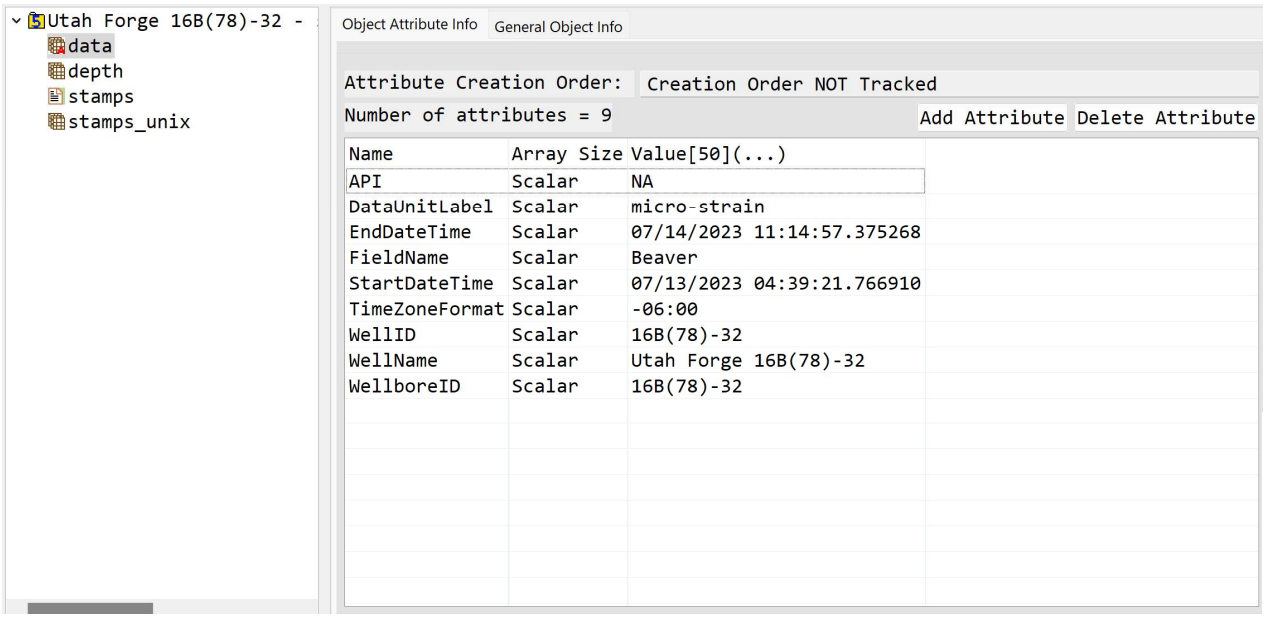

Figure 1. The HDF5 file format

File reading tools

HDF5 file can be read using various applications and many programming languages. An example code in Python is provided along all deliverables. Using the reader and plotting library the sample data set as shown below can be created.

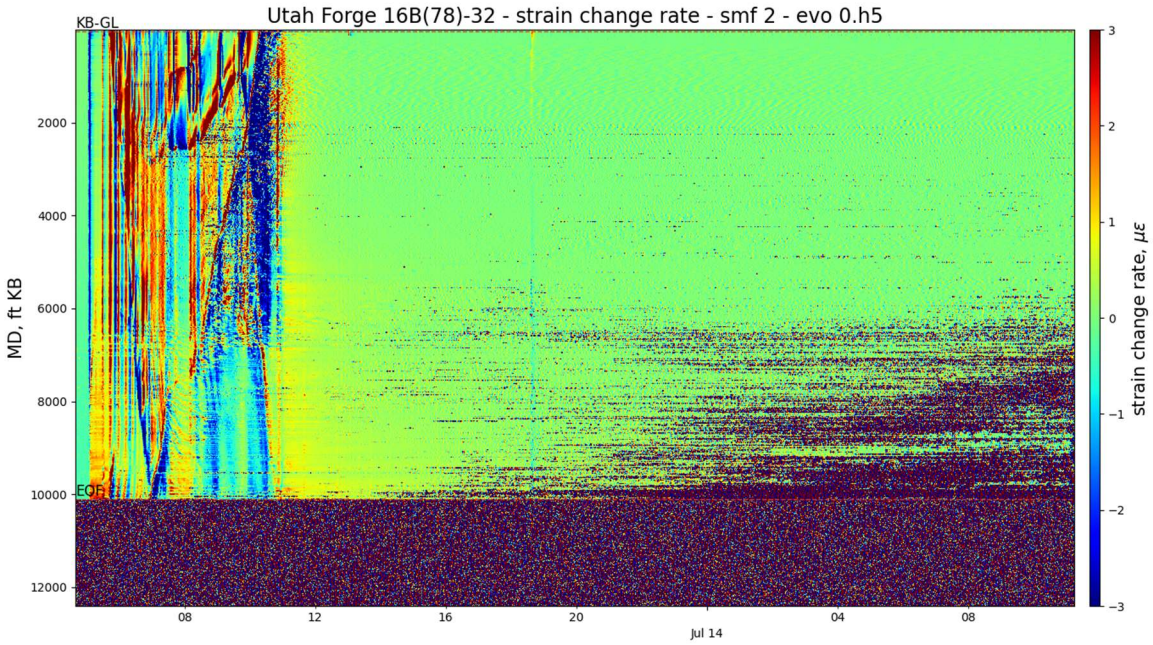

Figure 2. Example of data file content plot

Well Utah Forge 16B(78)-32

List of deliverables for this well is shown in tables below.

Table 1. Deliverable files – names and description of their content

File name	Description of content
Utah Forge 16B(78)-32 - DTS - mmf 2 – evo 0.h5	Absolute temperature
Utah Forge 16B(78)-32 - absolute strain - smf 2 - evo 0.h5	Absolute strain
Utah Forge 16B(78)-32 - strain change - smf 2 - evo 0.h5	RFS based strain change
Utah Forge 16B(78)-32 - strain change rate - smf 2 - evo 0.h5	RFS based strain change rate

Table 2. Data distributed in electronic form

File name	First trace	Last trace	Number of traces	Samples per trace	Format
Utah Forge 16B(78)-32 - DTS - mmf 2 – evo 0.h5	Jul 13, 2023, 01:13:57	Jul 14, 2023, 11:13:55	458	6,183	HDF5
Utah Forge 16B(78)-32 - absolute strain - smf 2 - evo 0.h5	Jun 24, 2023, 13:40:11	Jul 13, 2023, 04:27:25	56	74,910	HDF5
Utah Forge 16B(78)-32 - strain change - smf 2 - evo 0.h5	Jul 13, 2023, 04:39:21	Jul 14, 2023, 11:14:57	2,069	37,026	HDF5
Utah Forge 16B(78)-32 - strain change rate - smf 2 - session 1.h5	Jul 13, 2023, 04:39:21	Jul 14, 2023, 11:14:57	2,069	37,026	HDF5