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OILFIELD SERVICES

Pulsed Neutron Gamma Ray Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal RU 512-17
Field	Rulison
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal RU 512-17
Field Rulison
County Garfield State Colorado
Location: API # : 05-045-23732
SEC 17 TWP 7S RGE 93W
Other Services: RBL

Permanent Datum	Ground Level	Elevation 8365.6'	Elevation
Log Measured From	Kelly Bushing	24 FT	K.B. 8389.6' D.F. 8388.6' G.L. 8365.6'
Drilling Measured From	Kelly Bushing		

Date	12-APR-2018
Run Number	One
Depth Driller	10804 FT
Depth Logger	10759 FT
Bottom Logged Interval	10755 FT
Top Log Interval	6602 FT
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	---
Estimated Cement Top	---
Time Well Ready	---
Time Logger on Bottom	---
Equipment Number	---
Location	Grand Junction, CO
Recorded By	J.Donnelly
Witnessed By	---

Borehole Record			Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size (in)	Wgt (lbs/Ft)	Grade	Top	Bottom
Surface Casing	9 5/8	32.3	H-40	Surface	1121 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	10765 FT
Intermediate #2					
Liner					

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Log ran as per customer request
Depth referenced to Reliance Bond Log dated 11-APR-2018
Log ran from 10755 FT to 6602 FT
PDN data logged with Hunter RAS Tool

Thank you for choosing Reliance Oilfield Services, LLC!!

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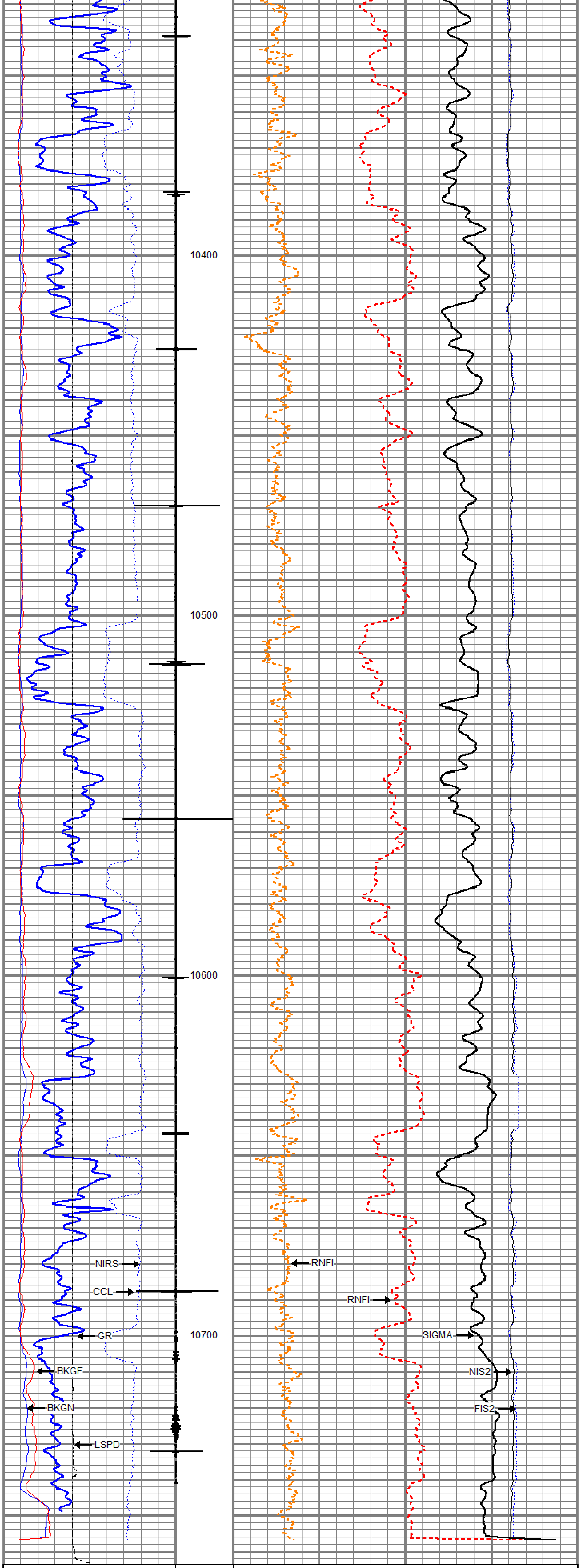
Main Pass

Database File	tep_federal ru 512-17\tep_federal_ru_512-17_pn_12-apr-2018.db
Dataset Pathname	main.2
Presentation Format	ros_pdn_hunter
Dataset Creation	Thu Apr 12 08:29:35 2018
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150
	Casing Collar Locator	
-100	Line Speed (ft/min)	100
0	NIRS (cps)	400000
0	BKGN (cps)	4000
0	BKGF (cps)	2000

4	RNF2	0
60	SIGMA (cu)	0
4.5	RNFI	0

	FIS2	
0	(cps)	45000
	NIS2	
0	(cps	100000



0	Gamma Ray (GAPI)	150
	Casing Collar Locator	
-100	Line Speed (ft/min)	100
0	NIRS (cps)	400000
0	BKGN (cps)	4000
0	BKGF (cps)	2000

4	RNF2	0
60	SIGMA (cu)	0
4.5	RNFI	0
	FIS2	
0	(cps)	45000
	NIS2	
0	(cps	100000

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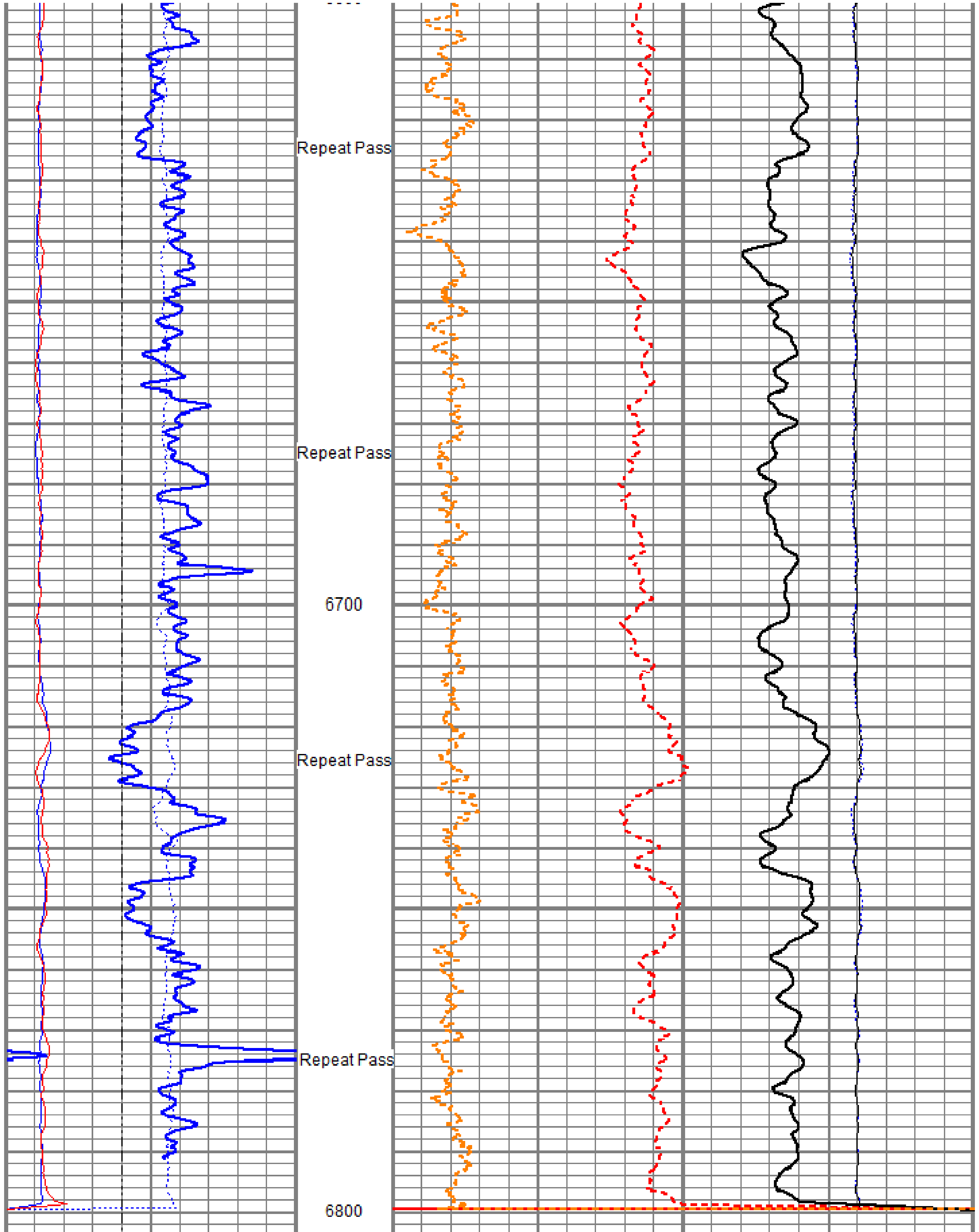
Repeat Pass

Database File tep_federal ru 512-17\tep_federal_ru_512-17_pn_12-apr-2018.db
Dataset Pathname repeat.5
Presentation Format ros_pdn_hunter
Dataset Creation Thu Apr 12 08:10:55 2018
Charted by Depth in Feet scaled 1:240

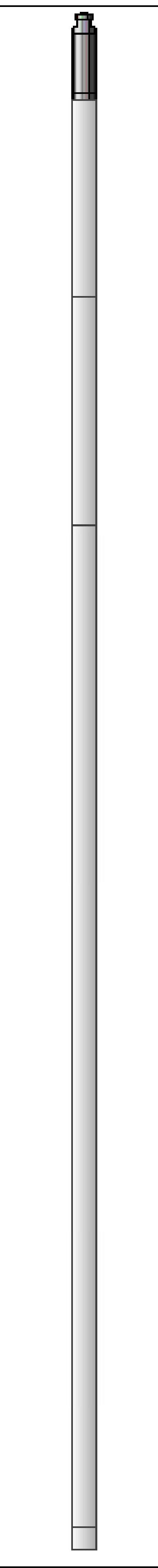
0	Gamma Ray (GAPI)	150
	Casing Collar Locator	
-100	Line Speed (ft/min)	100
0	NIRS (cps)	400000
0	BKGN (cps)	4000
0	BKGF (cps)	2000

4	RNF2	0
60	SIGMA (cu)	0
4.5	RNFI	0
	FIS2	
0	(cps)	45000
	NIS2	
0	(cps	100000



0	Gamma Ray (GAPI)	150
	Casing Collar Locator	
-100	Line Speed (ft/min)	100
0	NIRS (cps)	400000
0	BKGN (cps)	4000
0	BKGF (cps)	2000

4	RNF2	0
60	SIGMA (cu)	0
4.5	RNFI	0
	FIS2	
0	(cps)	45000
	NIS2	
0	(cps	100000

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Titan CHD-16875 GO Titan 1-11/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.69	5.40
			HWS_TCU-002 (001704) HWS Telemetry Control Unit (TCU002)	2.30	1.69	10.87
TCUTEMP TCUVOLT GCL_CCL	14.69 14.69 13.97					
			HWS_GCL-001 (001475) HWS Gamma Ray Collar Locator (1.6875")	2.69	1.69	13.40
GCL_GR GCL_GR	12.50 12.50					
Long Far Near Anci	6.25 6.25 6.25 6.25		HWS_RAS-RAS002 (003040) Hunter Well Science Pulsed Neutron Tool	11.75	1.69	55.82
			HWS_TBN-001 (001725) HWS Terminator Bull Nose (1.6875")	0.25	1.69	0.99

Dataset: tep_federal_ru_512-17_pn_12-apr-2018.db: field/well/run1/main.2
Total length: 18.02 ft
Total weight: 86.48 lb
O.D.: 1.69 in

Calibration Report

Database File c:\programdata\warrior\data\tep_federal ru 512-17\tep_federal_ru_512-17_pn_12-apr-2018.db
Dataset Pathname main.2
Dataset Creation Thu Apr 12 08:29:35 2018

Gamma Ray Calibration Report

Serial Number: 001475
Tool Model: 001
Performed: (Not Performed)

Calibrator Value: 1.0 GAPI

Background Reading: 0.0
Calibrator Reading: 1.0

Sensitivity: 1.0000 GAPI/

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