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(54) Gamma ray well logging for radial tracer distances.

(57) Gamma ray well logging to obtain relative distance indications of tracers from the well bore comprises separating a measured gamma ray spectrum into component parts attributable to individual tracers, using standard spectra, and then obtaining the relative distance indicators from those parts of the spectrum. For cased borehole, using standard spectra as a guide, the proportions of the borehole component and the formation component can be determined and a composite spectrum obtained for each individual tracer by adding the borehole and formation components together. A Compton ratio R_c of gamma ray counts in an energy region of the spectrum which is sensitive to Compton scattering to gamma ray counts in an energy region of the spectrum which is not sensitive to Compton scattering is then obtained. By a linear transformation which parameterizes the Compton ratio R_c with the inverse square of the annulus diameter of a distributed region of tracer surrounding the well bore, a relative distance indication of the distribution of each tracer with respect to the well bore is obtainable for each tracer.

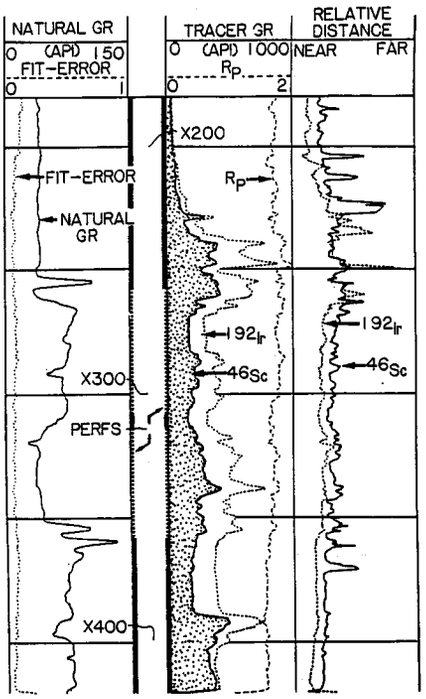

FIG. 7

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EUROPEAN SEARCH REPORT

Application Number

EP 90 30 2472

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
P,A	EP-A-0 348 098 (HALLIBURTON) * claims 1-7; figure 1 * ---	1,2,6	G01V5/06 E21B47/10 E21B43/26
D,A	TEH LOG ANALYST 1 May 1988, pages 159 - 177; GADEKEN: 'CALIBRATION AND ANALYSIS OF BOREHOLE AND FORMATION SENSITIVITIES FOR GAMMA RAY SPECTROSCOPY MEASUREMENTS WITH MULTIPLE RADIOACTIVE TRACERS' * the whole document * ---	1,6	E21B33/14
A	GB-A-2 024 409 (TEXACO) * page 14, line 1 - line 6 * -----	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

E21B
G01V

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	16 APRIL 1992	FONSECA Y FERNANDEZ

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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