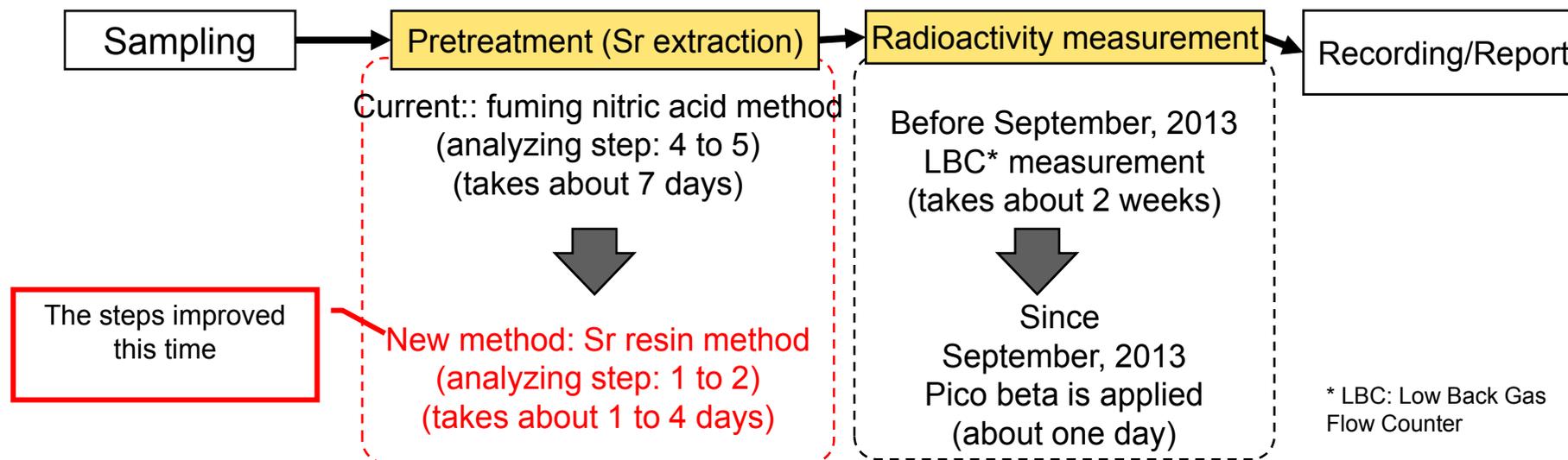


1. Current situation and improvement in strontium analysis

- Strontium-90 takes long time to analyze. To improve analysis efficiency, Beta nuclide analyzer (Picobeta), as radioactivity measuring instrument, has been applied since September, 2013.
- To further enhance analysis efficiency, Sr resin method instead of fuming nitric acid method will be used as sample pretreatment (chemical extraction of strontium).
- TEPCO will start pretreatment applying Sr resin method since the in house analysis procedure usable in publishing data of seawater analysis was completed recently.

<Procedure of strontium analysis>



2. Outline of strontium resin method

■ Shorten pretreatment time

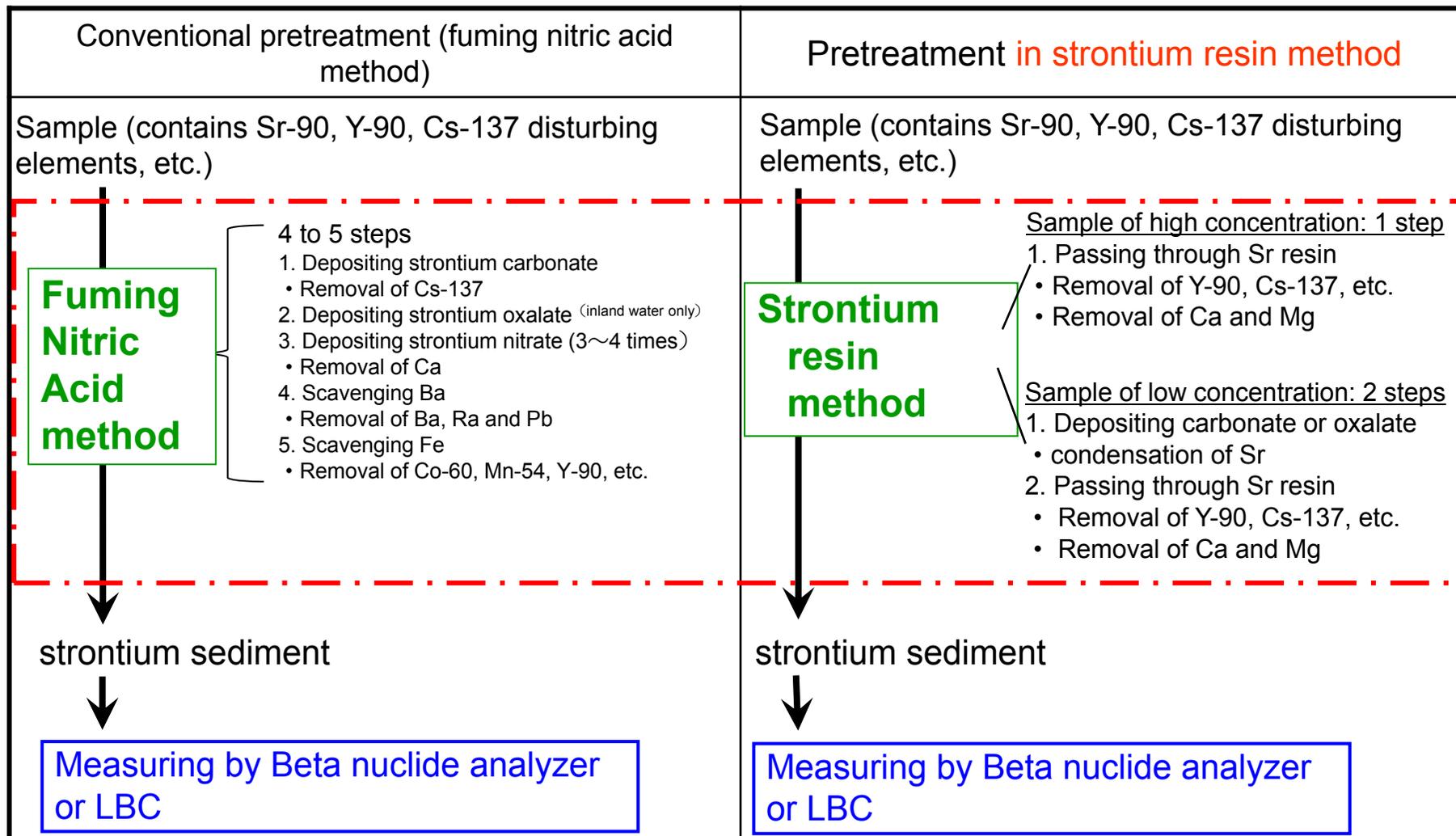
Before analysis using Beta nuclide analyzer (Picobeta), the sample (contains Sr-89, Sr-90, Y-90, Cs-137, and disturbing elements) needs to be pretreated and made into a condition of strontium sediment (mixture of Sr-89 and Sr-90).

In conventional method (fuming nitric acid method) the pretreatment takes 4 to 5 steps (about 7 days). Comparatively, in strontium resin method it takes only 1 to 2 steps (2 to 4 days).

Pretreatment	Standard time required (pretreatment)	<Reference> Standard time required (whole process) *
Fuming nitric acid method	About 7 days	About 8 days
Sr resin method (sample of high concentration)	1 to 2 days	2 to 3 days
Sr resin method (sample of low and middle concentration)	2 to 4 days	3 to 5 days

* The number shown here is a standard time using Picobeta. Using LBC, it may be longer. The number of days is a standard since analysis starts, and it may be subject to change by analyzing conditions.

<Reference 1> Pretreatment (procedure for analysis) comparison with conventional method

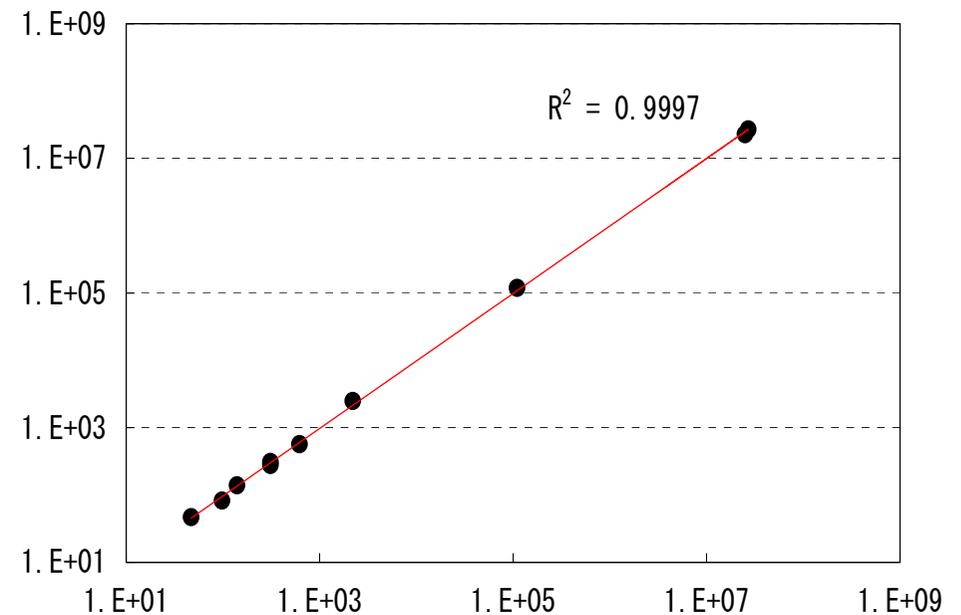


<Reference 2> Validity confirmation result of pretreatments (comparing with the conventional method)

- Using real sample of 1F site we compared the strontium resin method and the conventional method (fuming nitric acid method). The difference was not identified for measurements by the two pretreatment methods in samples of low to high concentration.

samples	conventional method [Bq/L]	strontium resin method [Bq/L]
T/B accumulated water of Unit 1	1.1E+05	1.2E+05
T/B accumulated water of Unit 2	2.7E+07	2.7E+07
T/B accumulated water of Unit 3	2.5E+07	2.3E+07
Screened seawater of Unit 2	3.1E+02	2.8E+02
Screened seawater of Unit 3	3.1E+02	3.1E+02
Screened seawater of Unit 4	9.8E+01	8.3E+01
groundwater observation pit No.1	1.4E+02	1.4E+02
groundwater observation pit No.1-12	4.7E+01	4.7E+01
groundwater observation pit No.1-14	2.2E+03	2.5E+03
groundwater observation pit No.1-17	6.2E+02	5.7E+02

A comparison of strontium resin method and conservative method



※ Used equipment: Beta nuclide analyzer (Picobeta)

※ T/B accumulated water sample was pretreated by an evaporation drying method. Seawater and observation well sample were pretreated by the carbonate deposition method.