GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Emergency Sampling Of Primary Coolant
PROCEDURE TITLE

HNP-4825
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X)   NON-SAFETY RELATED (   )

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
5	Page 1,4, & 5	RCHand for WHR	Tom Greene for	3/8/82
6	Page 3 thru 7	[illegible] for WHR	Harvey Nix	8/6/82

REFERENCE ONLY

WE

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP- 4825

Revision No. 5

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
Violet McHowan	7/6/82	W F Rogers	7/9/82

REVISION CHANGES MODE OF OPERATION OR INTENT AS DESCRIBED IN FSAR:
( ) Yes (✓) No

CHANGE INVOLVES:
( ) An unreviewed Safety Question ( ) Tech. Specs. (✓) Neither
(See back for Safety Evaluation if required).

Safety Related (✓) Non-Safety Related ( )

Safety/Non-safety Status Change ( ) Yes (✓) No

Attach marked up copy of procedure to this form.

REASON FOR REQUEST

- Paragraph H.3 page 6 of 6. To assure isolation of Sample bomb in Sampling of Primary Coolant during an emergency.
- Paragraph F. page 3 of 6. To check and make sure control room operated valves are open before proceding to take emergency sample of primary coolant.
- Paragraph G. page 4 of 6. To assure control room operated valves are open before proceding to take emergency sample of primary coolant.
- Paragraph F.2.b. - Refer to attached sketch for assistance.
- Paragraph G.2.b. - Refer to attached sketch for assistance.

PRB RECOMMENDS APPROVAL: (✓) Yes ( ) No Steve Jips
PRB Secretary

82-118
PRB Number

7/13/82

manual-set

EMERGENCY SAMPLING OF PRIMARY COOLANT

A. PURPOSE

To provide a procedure for sampling primary coolant using the Jet Pump instrument rack as sample location for Units I and II. Sampling will be done with the assumptions of a fuel cladding failure accident of the worse degree possible.

B. SAFETY

Observe Radiation Protection Procedures.

C. PRECAUTIONS

Due to the high dose rates and contamination levels which are to be expected with this kind of an accident, extreme care and good sampling techniques must be adhered to and followed.

Laboratory supervision shall be consulted on all activities associated with sampling and counting any material obtained for post-accident analysis.

All attempts to get samples will be followed with the most restrictive H.P. practices. Constant H.P. monitoring will be provided and adhered to. A minimum of two persons will be required while getting the sample.

NOTE

At no time during sampling will personnel be allowed to receive more than 1.25 R unless a lab Supervisor or his designee signs FORM 2 of HNP-8002, Authorization to Exceed Administrative Exposure Guides.

D. EQUIPMENT

1. High range survey meter (PIC-6A, Teletector, or equivalent)
2. Count rate instrument (E-120, or equivalent)
3. High range dosimeter (10R) and TLD's
4. Assorted poly bags and bottles
5. Full PC's

6. Lead shield on wheels

7. Remote handling tools with various attachments

8. Self-contained breathing air (SCBA)

9. Finger ring T.L.D.'s

10. 75 ml sample bomb

11. Remote sampling equipment control panel

12. Key 1P33 P300 (For Unit 1 Control Box) or 2P33 P300 (For Unit 2 Control Box) from "Remote Emergency Handling Tool" Box.

13. Absorbant material to be used in case of spill.

NOTE

The equipment referenced in Section D may not be adequate to perform the sampling requirements. All considerations must be given though prior to actual sampling. A.R.M. read outs located in either control room will be read prior to entry into the Reactor Building.

Dose rates will be taken while enroute to the sampling station. Air samples will also be taken while getting samples.

While enroute to the sampling station if the whole body dose rate of 10 R/hr is exceeded, retreat (10 R/hr = 166.5 mr/min).

E. LOCATION

Unit I

Sample will be taken off the jet pump instrument rack located on the 130' elevation southside of the reactor building.

The temporary sampling system will be used until the permanent sampling system is installed and operable.

NOTE

The control panels for the emergency sampling system(s) are located on the reactor building 164' elevation on the westside by the stairway.

Unit II

Sample will be taken off the jet pump instrument rack located on the 130' elevation northside of the reactor building.

NOTE

The control panels for the emergency sampling system(s) are located on the reactor building 164' elevation on the westside by the stairway.

F. SAMPLING (PRESSURIZED VESSEL)

An R.W.P. will be initiated to get a sample. While sample is being gotten the dose rates will be taken continuously on the sample bomb and other associated equipment.

NOTE

Call Control Room to check and assure that valves B31-F019 and B31-F020 are open before proceeding.

1. Connections

   a. Place sample bomb in lead cask and place lead brick on shield top to make a sealed cask.

   b. Open stem valves on sample bomb (outside of cask) two valves to be opened.

   c. Connect flex tubing to sample bomb (two connections to be made outside the cask).

2. Flushing Through Bomb

   a. Open manual valve (1821 N033C TVI for Unit 1 or 1821 N033C TVI for Unit 2) on jet pump rack. The valves are painted red and are usually in the open position. Must check to make sure the valve is open.

b. Open valve F306 (chiller water, demin) on control box. Chiller water will return to CRW. Refer to Figure 1.

c. Open valves F300, F302, and F304 on control box and flush system for 10 minutes. Sample may now be taken.

3. Taking Sample

a. Close valve F300, F302, and F304 on control box.

b. Purge sample lines using demin water using Section H.

c. Close manual valves on sample bomb (two valves to be closed) using remote handling tools if dose rates require it.

d. Disconnect flex tubing from sample bomb (two disconnections to be made).

NOTE

Any water which may have been dripped when the disconnection was made must be covered up or cleaned up as soon as possible.

e. After survey of the lead cask has been done, the sample is returned to the lab or other area as required by Lab Supervisor to await shipment to an outside vendor for analysis.

NOTE

Upon the discretion of a lab Supervisor, the sample may be analyzed in the Hatch Lab if dose rates are low enough.

G. SAMPLING (DEPRESSURIZED VESSEL)

NOTE

An R.W.P. will be initiated to get a sample. While sample is being gotten, the dose rates will be taken continuously on the sample bomb and other associated equipment.

NOTE

Call Control Room to check and assure valves B31-F019 and B31-F020 are open before proceeding.

1. Connections

   a. Place sample bomb in lead cask and place lead brick on shield top to make a sealed cask.

   b. Open stem valves on sample bomb. (outside of cask two valves to be opened)

   c. Connect flex tubing to sample bomb. (two connections to be made outside of case)

2. Flushing Through Bomb

   a. Open manual valve (1B21 N033C TVI for Unit 1 or 2B21 N033C TVI for Unit 2) on jet pump rack. The valves are painted red and are usually in the open position. Must check to make sure the valve is open.

   b. Open valve F306 (chiller water), F300, F301, F302 and F304 on control panel. Flush system for 10 minutes, sample may now be taken. Refer to Figure 1.

3. Taking Sample

   a. Close valves F300, F301, F302, and F304 on control box.

   b. Purge sample lines with demin water using Section H.

   c. Close manual valves on sample bomb (two valves to be closed) using remote handling tool is required by dose rate.

   d. Disconnect flex tubing from sample bomb (two disconnections to be made)

NOTE

Any water which may have been dripped when the disconnection was made must be cleaned up or covered as soon as possible.

e. After survey of the lead cask has been done, the sample and cask are returned to the lab or other area as required by Lab Supervisor to await shipment to an outside vendor for analysis.

NOTE

Upon the discretion of a lab Supervisor, the sample may be analyzed in the Hatch Lab if dose rates are low enough.

H. SYSTEMS FLUSHING

Systems will be flushed upon taking a sample to lower the dose rates in the local area. Flushing time will depend upon the amount of crud stuck in the tubing lines and valves and dose rate in the area (Background).

1. Open valve F305, F301, and F303 and flush for 15 minutes or until Lab Supervision specifies otherwise.

2. Close valves F301 and flush through pressure regulator for 30 minutes or until Lab Supervision specifies otherwise.

3. Close valve F305 and F303; this returns system to a ready-to-sample system.

NOTE

Systems flushing (Section H above) may be used to demonstrate skills in sample taking.

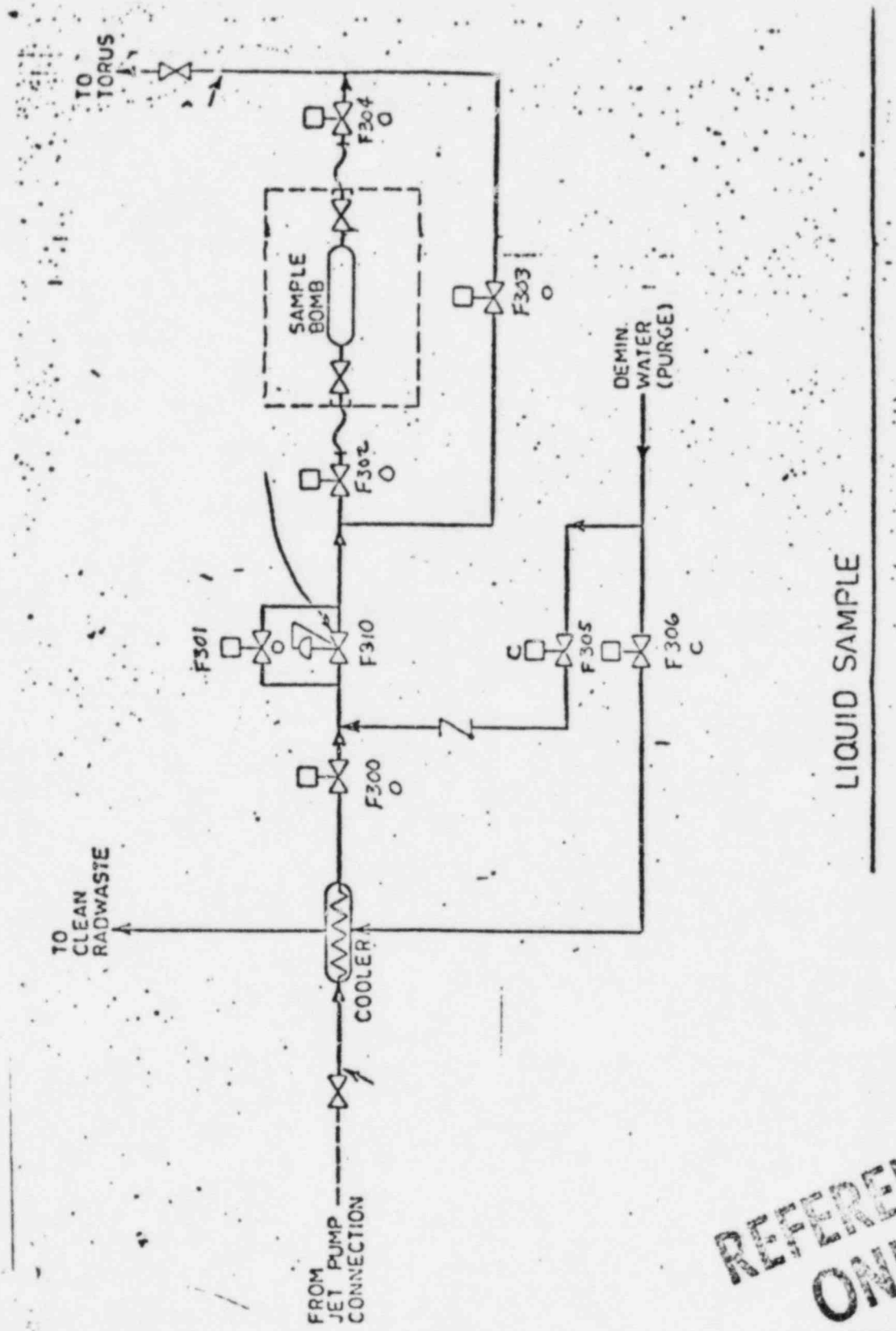
NOTE

Recommended route is through the railroad airlock, around the CSTs and in through T-16.

NOTE

After obtaining the sample, refer to HNP-4828 "Transferring Primary Coolant from 75 ml Bomb" and HNP-4829 "Analysis of Primary Coolant."

FIGURE 1



GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Primary Coolant Analysis
During Post-Accident Condition

PROCEDURE TITLE

HNP-4829

PROCEDURE NUMBER

Lab

RESPONSIBLE SECTION

SAFETY RELATED (X)   NON-SAFETY RELATED (   )

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
2	Pages 1,2,3,4 & 5 Deletion on Page 3	RCHand for WHR	Tom Greene for	3/4/82
3	Pages 1, 2, and 3	WHRogers	Harvey Nix	4/29/82
4	Page 3	Doug Smith for WHR	Harvey Nix	8/6/82

REFERENCE ONLY

HNP-9

manual set

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP-4829

Revision No. 3

REQUESTED BY	DEPARTMENT HEAD APPROVAL
Name: Violet McGowan Date: 7/6/82	Signature: W H Rogers Date: 7/8/82

REVISION CHANGES MODE OF OPERATION OR INTENT AS DESCRIBED IN FSAR:
( ) Yes (✓) No

CHANGE INVOLVES:
( ) An unreviewed Safety Question ( ) Tech. Specs. (✓) Neither
(See back for Safety Evaluation if required).

Safety Related (✓) Non-Safety Related ( )

Safety/Non-safety Status Change ( ) Yes (✓) No

Attach marked up copy of procedure to this form.

REASON FOR REQUEST

Paragraph E.4 page 3 of 5. Need to correct typo in dilution ratio.

PRB RECOMMENDS APPROVAL: (✓) Yes ( ) No Steve Jones
PRB Secretary

82-118
PRB Number

7/8/82
Date

REFERENCE ONLY

HNP-3

Manual Set

PRIMARY COOLANT ANALYSIS DURING POST-ACCIDENT CONDITION

A. PURPOSE

To provide a procedure for the analysis to be performed on the primary coolant during post-accident condition. (Fuel cladding failure.)

B. SAFETY

Observe Radiation Protection Procedures.

C. PRECAUTIONS

1. Due to the high dose rates and contamination levels which are to be expected with this kind of a sample, extreme care and good sampling technique must be adhered to and followed.

2. Laboratory Supervision shall be consulted on all activities associated with analysis and counting any material obtained for post-accident analysis.

3. All attempts to analyze samples will be followed with the most restrictive Health Physics practices. Constant H.P. monitoring will be provided and adhered to. A minimum of two persons will be required to analyze the sample.

4. Samples greater than 100 R/hr will be shipped to an outside vendor for analysis. See HNP-8016 for Radioactive Shipment procedure. (100 R/hr/liter = approximately 10 mCi/cc).

NOTE

At no time during analysis will personnel be allowed to receive more than 1.25 R unless a Lab Supervisor or his designee signs FORM 2 of HNP-8002 Authorization to Exceed Administrative Exposure Guides.

D. EQUIPMENT

1. High range survey meter (PIC-6A, teletector or equivalent)

2. Count rate instrument (E-120 or equivalent)

3. High range dosimeter (10R) and TLD's

4. Full PC's

5. Remote handling tools with various attachments

6. Finger ring TLD's

E. ANALYSIS

NOTE

All equipment must be placed behind lead shielding when performing the analysis. At no time will the liquid waste be allowed to enter the radwaste system.

NOTE

Steps E.2, E.3, E.4, E.5, and E.6 all need to be performed in the sample hood whenever possible.

The following analyses are to be performed on the primary coolant sample:

(1) D.O. HNP-7225
(2) pH HNP-7202 or 7203
(3) Conductivity HNP-7204 or 7205
(4) Chlorides HNP-7004
(5) Iodine Separation HNP-7110
(6) Borons HNP-7003
(7) Gross Alpha
(8) Isotopic

The analysis will be performed while the technicians are fully dressed out. Working time will limited to dose received. High range (10R or 20R) dosimeter and finger rings will be worn in addition to normal dosimeters. Prior to analysis, be sure to sign in on a blanket R.W.P.

1. D.O.

The D.O. probe will have to be placed in line after the 75 ml sample bomb has been taken or prior to taking the sample.

a. Place D.O. probe into sample line using quick disconnects and follow procedure HNP-4825 for valve manipulation.

NOTE

The center connection of the D.O. probe is the inlet and the farsided connection is the outlet. Read D.O. directly on meter face. The D.O. meter will be used with a 50 foot remote cable.

2. pH

With remote tools, pour enough sample in a 100 ml graduated cylinder and perform pH. Pour sample back into original flask when pH is finished.

3. Conductivity

With remote tools, pour enough sample into a 100 ml beaker and perform conductivity. Pour sample back into original flask when conductivity has been performed. Clean up equipment when finished.

4. Chlorides

Pour 25 mls of sample into a beaker and perform chlorides as per HNP-7004. Clean up all equipment when finished. Allow no waste to enter the rad waste system.

NOTE

Using a remote pipetter, pipet 1 ml of the sample into a one liter poly bottle filled with 999 mls of demin water. Close bottle and shake. Pipet 1 ml of diluted sample into 999 mls of demin water, close, and shake.

Dilution ratio is now after diluting two times $1:1x10^{6}$.

5. Iodine Separation

Perform iodine separation in normal manner as per HNP-7131, using a diluted sample from Section E.4

6. Boron

Perform borons in normal manner and as per HNP-7003, using a diluted sample from Section E.4

Prepare 2 more diluted samples as per Section E.4.

7. Gross Alpha

Perform gross alpha analysis as per HNP-7131 Section H.4.

8. Isotopic

Wrap a one liter poly bottle of diluted water and perform isotopic as per HNP-7131 and HNP-7215 and section F of this procedure.

F. COUNTING

NOTE

The counting room must be habitable for counting samples. If it is not, refer to HNP-7251 for procedure for mobilizing the counting room.

1. Open Ge(Li) shield and place sample on the first shelf of the sample holder and close Ge(Li) shield door.

2. Press the collect button on the MCA and observe the % dead time (%DT) meter. If % DT is greater than 20%, stop collecting spectra by pressing the collect button again and redilute sample until it reads less than 1 mr/hr. If %DT is less than 20% acquire spectra for 1000 seconds or as directed by the Counting Room Foreman.

3. When 1000 seconds or count time is finished, the light behind the collect button will go out. Check calibration to see if it has drifted.

4. Remove sample from Ge(Li) shield and retain for other analysis as may be required later.

G. ANALYZING SPECTRA

NOTE

Refer to HNP-7215 Ge(Li) systems for additional information on counter system.

1. Transfer spectra from MCA to 9845 computer using computer program "CI-8100" or "OR7010."

2. After spectra has been transferred completely, run computer program "RWIDNE" and answer question as required by computer display. Submit printout to Counting Room Foreman for approval and review.

3. Run program "RAP" on the same spectrum if required by Laboratory Foreman. Store spectrum in computer memory for later analysis.

4. Program "RWIDNE" generates data and information on the following:

a. E Gamma MEV/DIS

b. E Beta MEV/DIS

c. E Total MEV/DIS

d. D.E.I^{131}

e. $I^{131, 132, 133, 134, 135}$ uci/ml

f. Percent of Tech Spec limit for I^{131} D.E.I.

NOTE

Computer libraries are not listed in this procedure because of the many different isotopes which may need to be identified in the sample.

H. SPECTRA INTERPRETATION

NOTE

Details of information shall not be released by anyone other than persons allowed to as directed by Plant Management. All samples and spectrums will be stored for review later.

I. DISPOSAL OF HOT SAMPLES

NOTE

Keep sample bomb and all samples in the fume hood behind lead bricks until proper disposal methods are arranged.

TABLE 6

PASQUILL F

WIND SPEED Mi/HR	DOSE RATE PER RELEASE RATE (REM SEC / Ci - HR)			
	NOBLE GASES		IODINE	
	STACK R/GNs	VENT R/GNv	STACK R/GIs	VENT R/GIv
0	8.2 E - 3	4.4 E 0	7.4 E 0	3.9 E + 3
1	4.0 E - 3	2.15 E 0	4.0 E 0	2.15 E + 3
2	2.1 E - 3	1.2 E 0	2.2 E 0	1.15 E + 3
3	1.35 E - 3	7.5 E - 1	1.45 E 0	7.4 E + 2
4	1.0 E - 3	5.4 E - 1	1.05 E 0	5.6 E + 2
5	7.4 E - 4	4.4 E - 1	8.0 E - 1	4.4 E + 2
6	6.7 E - 4	3.6 E - 1	6.7 E - 1	3.7 E + 2
7	5.7 E - 4	3.05 E - 1	5.7 E - 1	3.1 E + 2
8	4.9 E - 4	2.65 E - 1	5.0 E - 1	2.7 E + 2
9	4.3 E - 4	2.35 E - 1	4.4 E - 1	2.45 E + 2
10	3.9 E - 4	2.1 E - 1	3.9 E - 1	2.2 E + 2
11	3.55 E - 4	1.95 E - 1	3.6 E - 1	1.98 E + 2
12	3.29 E - 4	1.79 E - 1	3.3 E - 1	1.8 E + 2
13	3.05 E - 4	1.65 E - 1	3.05 E - 1	1.69 E + 2
14	2. 8 E - 4	1.52 E - 1	2.81 E - 1	1.55 E + 2
15	2.65 E - 4	1.44 E - 1	2.65 E - 1	1.45 E + 2
16	2.5 E - 4	1.35 E - 1	2.5 E - 1	1.38 E + 2
17	2.35 E - 4	1.27 E - 1	2.35 E - 1	1.3 E + 2
18	2.2 E - 4	1.20 E - 1	2.24 E - 1	1.21 E + 2
19	2.1 E - 4	1.14 E - 1	2.12 E - 1	1.16 E + 2
20	2.0 E - 4	1.08 E - 1	2.0 E - 1	1.1 E + 2
21	1.9 E - 4	1.02 E - 1	1.92 E - 1	1.05 E + 2
22	1.8 E - 4	9.8 E - 2	1.85 E - 1	1.0 E + 2
23	1.75 E - 4	9.4 E - 3	1.77 E - 1	9.5 E + 1
24	1.65 E - 4	9.0 E - 3	1.7 E - 1	9.0 E + 1
25	1.6 E - 4	8.6 E - 3	1.6 E - 1	8.8 E + 1
26	1.52 E - 4	8.2 E - 3	1.55 E - 1	8.4 E + 1
27	1.48 E - 4	7.9 E - 3	1.50 E - 1	8.1 E + 1
28	1.4 E - 4	7.6 E - 3	1.45 E - 1	7.8 E + 1