

Fukushima, Niigata, and IUJ – Is IUJ out of Radiation Danger??

By Jay Rajasekera, International University of Japan (Mar 17, 2011)

Everyone knows the huge earth quake in East side of Japan and the frightening Tsunami that gobbled up everything in its wake – ships, airplanes, trains, homes, trucks, cars, and basically anything on its gushing path..!

Fukushima is one of the prefectures which received much damage...In Fukushima, one of the worst affected was the **Fukushima Daiichi Nuclear Plant**, which was built in 1971. While nuclear plants built using current technology has much improved safety mechanisms, this 40 year plant, one of the first nuclear power plants built in Japan, was not blessed with such advanced safety measures. Indeed, one of the reactors in this plant was supposed to have de-commissioned last month, but it kept operating due to high electricity demand.



But, according to experts, this plant design was still much better than the Chernobyl plant, which blew off in 1986. Experts believe that Chernobyl type explosion is unlikely. But, the memory of Chernobyl is still in people's memory and the word "radiation" is enough to create the psychic of panic. Chernobyl blew off while in operation. This facility's reactors were properly shut down, but the failure of cooling system created overheating and explosions, even exposing rods to outside. According to latest news (Mar 17, morning), it is possible some meltdown may have happened.

Indeed, Niigata prefecture is adjacent to Fukushima prefecture. From IUJ to the border of Fukushima prefecture, the direct distance may be something like 20 km. And, the direct distance from the affected

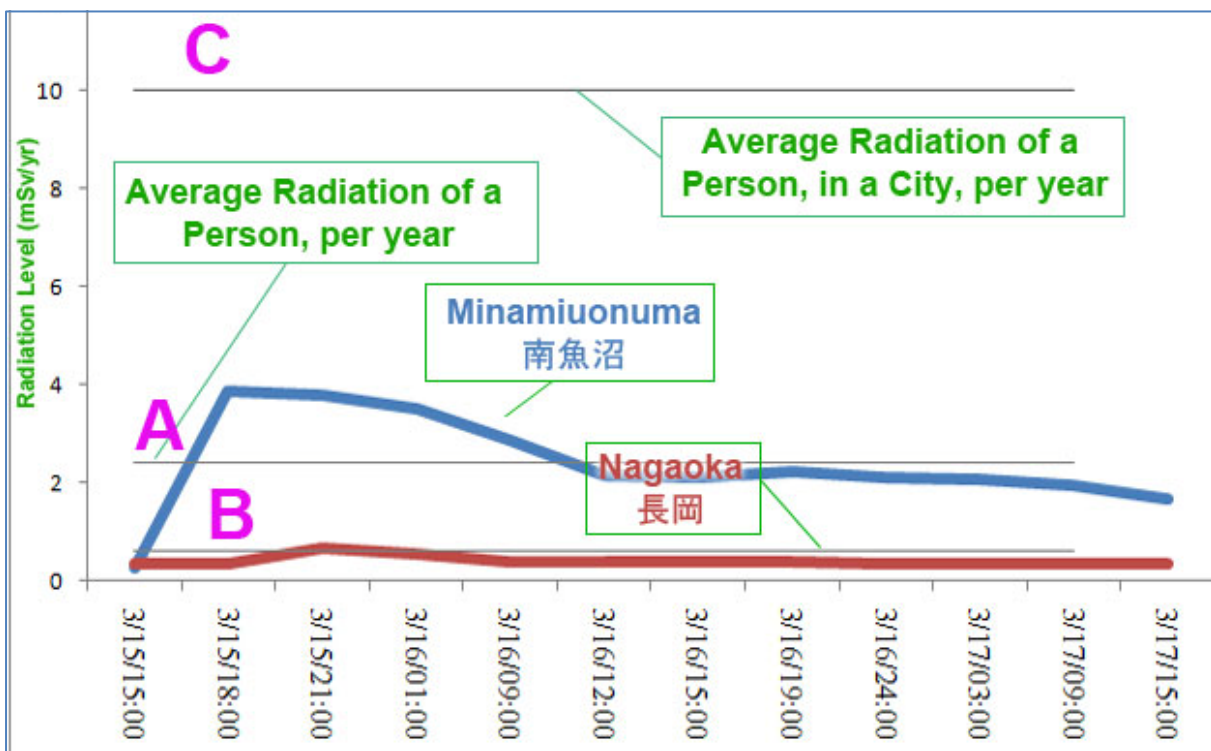
Daiichi Nuclear Plant to IUJ is about 185km, according to Google Maps.

Radiation Level as Recorded in IUJ Area and Nagaoka Town

Time	nGy/ph		mSv/ph		mSv/yr	
	Minamiuonuma	Nagaoka	Minamiuonuma	Nagaoka	Minamiuonuma	Nagaoka
3/15/15:00	39	46	0.0000312	0.0000368	0.273312	0.322368
3/15/18:00	553	49	0.0004424	0.0000392	3.875424	0.343392
3/15/21:00	541	91	0.0004328	0.0000728	3.791328	0.637728
3/16/01:00	498	76	0.0003984	0.0000608	3.489984	0.532608
3/16/09:00	407	54	0.0003256	0.0000432	2.852256	0.378432
3/16/12:00	306	55	0.0002448	0.000044	2.144448	0.38544
3/16/15:00	302	52	0.0002416	0.0000416	2.116416	0.364416
3/16/19:00	317	56	0.0002536	0.0000448	2.221536	0.392448
3/16/24:00	301	49	0.0002408	0.0000392	2.109408	0.343392
3/17/03:00	294	49	0.0002352	0.0000392	2.060352	0.343392
3/17/09:00	276	50	0.0002208	0.00004	1.934208	0.3504

Source: Niigata Prefecture Government Information:
<http://www.bousai.pref.niigata.jp/contents/538/index.html>

After the radiation panic, Niigata Prefecture started reporting radiation level for several key areas, which includes Minamiuonuma, the town where IUJ is located (Ref. 1).



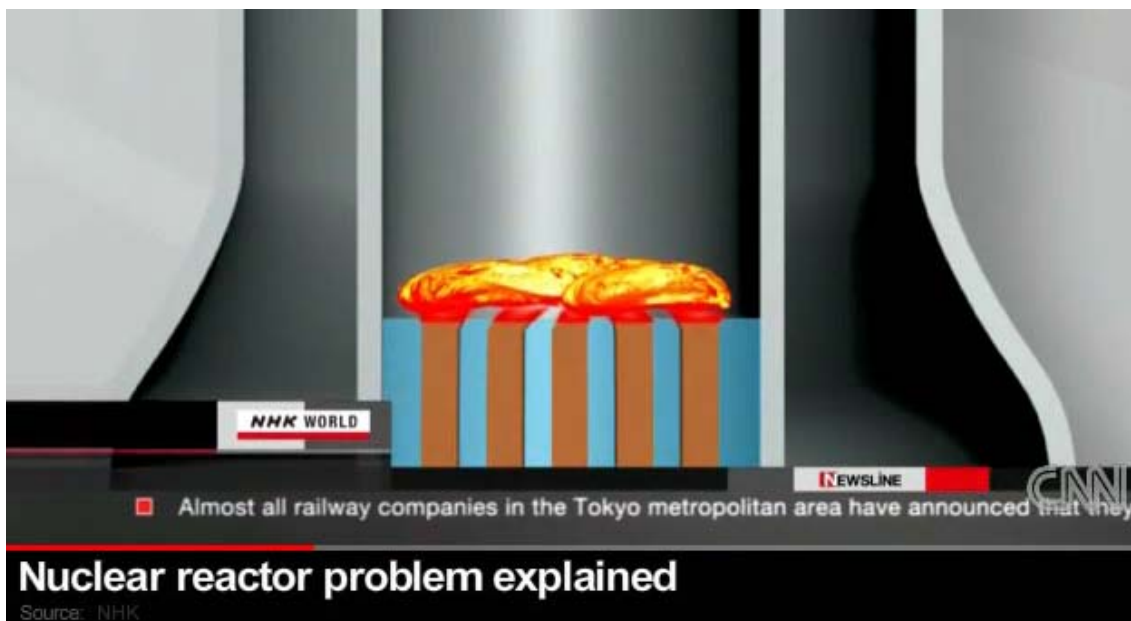
The data is reported every hour as nGy (neon Gray per hour, which is a unit used to measure radiation). The table you see is a summary of such data. I have converted nGy/ph to mSv/ph (mili Sievert, which is another unit) and then to **mSv/year**, because mSv/yr is more widely used.

In order to see the radiation impact, the chart shown above compares to the radiation we receive per year

during our normal living.

For example if we continuously receive 553 nGy/hr (or 3.875 mSv/yr), whole year, then the level would be close to one and half times the normal radiation we get during a year (2.4 mSv/yr, the line marked as A). The most recent data, shows the radiation level is going down; as of 9:00am on Mar 17th, it fell below 2.4 mSv/yr level. The line marked as B is the radiation you get from one X-Ray. And, line marked as C is the radiation received during one year in a town in Brazil (called in Japanese as カラバリ). As you can see, IUJ is much safer than that Brazilian town, in terms of radiation exposure.

The **US Government radiation safety level is 50 mSv/yr** (Ref. 2); The **Japanese government limit is 250 mSv/yr** (Ref 3). Thus at IUJ, the highest recorded level so far is far less than the harmful level.



In other words, unless very severe radiation leak occurs, perhaps 20 times more powerful explosion than what had occurred, it is unlikely that IUJ becomes a danger zone. I am no nuclear expert, my analysis is based on numbers.

Ref. 1: Niigata Prefecture Bosai Portal (新潟県防災ポータル)

<http://www.bousai.pref.niigata.jp/contents/538/index.html>

Ref. 2: Fred A. Mettler, Institute of Medicine (U.S.). Committee on Battlefield Radiation Exposure Criteria, J. Christopher Johnson, Susan Thaul, National Academies, 1997.

Ref. 3: Scientific American, <http://www.scientificamerican.com/article.cfm?id=fukushima-workers>

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