ATTACHMENT 3.2-5 TO RMPP 3.2

EXAMPLES OF REPORTABLE EVENTS

Immediately reportable under 10 CFR20.2201(a)(1)(i)	**Stolen Portable Moisture Density Gauge** Licensee [Name] [License Number] reported that a [Manufacturer] [Model #] [serial #] portable gauge containing 10 millicuries of cesium-137 and 50 millicuries of americium-241: beryllium was stolen from the licensee's vehicle parked at the licensee's facility [Address]. The gauge was padlocked in its original carrying case. The Vermont Department of Health (Department) is following the incident and working with local authorities to develop a press release. Local law enforcement and the FBI have been notified. Follow-up information will be provided to NRC on the recovery of the stolen gauge and entered into NMED.
Immediately reportable under 20.1906(d)(2)	**Shipment of Brachytherapy Sources Received with Radiation Levels Exceeding Regulatory Limits** A medical licensee [Name] [License Number] reported receiving a shipment of two packages containing cesium-137 brachytherapy sources. Radiation surveys of the packages found radiation levels of 250 millirem per hour on one package, which exceeds the Department and Federal limit at the external surface of a package of 200 millirem per hour. The third and final package was received two days later with radiation levels of 400 millirem per hour at the surface of the package. The shipper has retained a consultant to determine the cause of the elevated radiation levels. The Department will keep NRC informed of the results of the consultant's review of the event.
Reportable within 24 hours Under 10 CFR 20.2202 (b)(1)(i)	**Exposure to Non-radiation Worker at a Licensed Facility** A licensee [Name] [License Number] reported to the Department that a non-radiation worker had received an exposure as a result of picking up a 5 curie americium-241:beryllium neutron source used for well logging and placing it in his pocket. The worker, a temporary contractor's employee, was cleaning a well logging tool at the licensee's facility. (The licensee was under the assumption that all the source material had been removed from the equipment.) While cleaning the tool, the source fell out and the worker picked it up and placed it his pocket. The worker was not a radiation worker and had no knowledge of what the object was. Preliminary calculations performed by [identify Consultant/Contractor] indicate that the individual may have received a dose of 4-6 Rem. The licensee's Radiation Safety Officer (RSO) is investigating the incident. The Department plans to keep NRC informed of the ongoing results of the investigation.
Reportable within 24 hours under 10 CFR 30.50(b)(2)	**Radiography Camera Source Unable to Retract** A licensee [Name] [License Number] reported the inability to retract a 2.072 TBq (56 Ci) Ir-192 source ([Source Model #], [Serial #]) into the radiography exposure device ([Manufacturer], [Model#], [Serial #]) on [Date]. The radiographers had used a double gear control assembly throughout the day without a problem. Later, the radiographers cranked out the source to conduct an exposure and were unable to retract the source. The radiographers removed the cover

	plate on the control assembly and pulled the drive cables to retract the source into the exposure device. The device was locked, and the drive cable was disconnected from the source pigtail. The radiation area was repositioned and maintained throughout the incident. The source had been extended for approximately three minutes. The exposure device was physically inspected and determined to be in good working condition. The double gear control assembly was returned to the manufacturer. The manufacturer stated that they were unable to replicate the failure. However, they did note that the gears offered a large amount of resistance, had impurities, and that the drive cable was out of tolerance.
Reportable by next calendar day under 10 CFR Parts 35.3045(a)(1)(i) and within 24 hours under 10 CFR 30.50(b)(2)	**Medical Event Involving a Gamma Knife Malfunction** A licensee [Name] [License Number] reported that a patient only received 5% of the prescribed dose during a gamma knife procedure performed on [Date]. The RSO stated that while conducting a single fraction exposure to the patient, the computer screen froze. The patient was immediately removed from the gamma knife unit ([Manufacturer], [Model#], [Serial #]), which contained Co-60 sources ([Source Model #], [Serial #]) with a total activity of 102.34 TBq (2,766 Ci). The patient was prescribed to receive 2,000 cGy (rad) to one location and 1,500 cGy (rad) to a second location, both to be delivered simultaneously. The referring physician and patient were notified of the event. The service provider for the gamma knife responded and replaced the control unit. The manufacturer stated that the event occurred due to a computer programming problem. The timer that froze is used to display the total run time of the treatment and does not control any part of the treatment. They also stated that the treatment would have run normally had the technician not stopped it and the patient would have received the prescribed dose. The manufacturer is resolving the problem in their latest upgrade to the system.
Reportable by next calendar day under 10 CFR Part 35.3045 Note: May be classified as a potential AO.	**Medical Event Involving Prostate Brachytherapy** A licensee [Name] [License Number] reported a medical event involving a patient treated for prostate cancer. The treatment included implanting 65 I-125 brachytherapy seeds ([Manufacturer] [Model #]), containing a total activity of 0.814 GBq (22 mCi), in the patient's prostate for a prescribed therapeutic radiation dose of 14,500 cGy (rad). The prostate gland only received approximately 500 cGy (rad). The seeds were implanted on [Date] using real time dosimetry under ultrasonic guidance. On [Date], the patient returned to the facility for a 30-day post implant CT scan. The scan showed that the implanted seeds, although in an appropriate pattern, were placed outside the intended target. The Licensee's Radiation Oncology Group determined that an additional quality assurance review was warranted. The Department performed a reactive inspection during the week of [Date]. Initially, a malfunction of the ultrasound unit was suspected. That unit was re-evaluated and was determined to be working properly. The cause was determined to be human error. An unintended dose to the penile bulb of approximately 16,100 cGy (rad) was received, where no dose was anticipated. The Radiation Oncology Department suspended prostate brachytherapy treatments. Corrective

	actions included changes to the prostate brachytherapy protocol to incorporate an additional step to ensure the urologist and radiation oncologist clearly identifies the prostate gland and the surrounding anatomy. The treatment will be cancelled if the prostate gland and surrounding anatomy cannot be visualized adequately.
Written report within 30 days under 10 CFR Part 31.5(c)(5)	**A Leaking Source from a General Licensed Device** On [Date], a licensee [Name] [License Number] reported that a 555 MBq (15 mCi) Ni-63 source was leaking. The source was part of a Hewlett Packard electron capture detector ([Manufacturer], [Model#], [Serial #]). A routine wipe test of a gas chromatograph ([Manufacturer], [Model#], [Serial #]) containing two ECDs was performed on [Date] after receiving the gas chromatograph from another licensee. On [Date], the wipe test results indicated that the ECD had 222 Bq (0.006 uCi) of removable contamination wiped from the outlet port. The result of a second wipe of the same port was approximately 1.85 Bq (0.00005 uCi). The ECD was secured and stored pending disposal. The ECD was sent to the manufacturer for disposal on [Date].
Reportable within 24 hours under 10 CFR Parts 36.83(a)(9), 30.50(b)(2) (Note: since water level was later verified to be normal, this is no longer a 36.83 issue)	**Possible Loss of Water or Leakage from Source Water Pool at Irradiator Facility** Licensee [Name] [License Number] notified the Department that the controls at a Co-60 irradiator facility were indicating that the water level was low, circulating pump off, and fill valves were open. The pool water level gauge indicated pool water level of 93 inches, well below the normal level of 137 inches. Previous incidents indicated that a loss of compressed air pressure to the water level gauge could result in an erroneously low water level gauge reading, causing the automatic pool fill valves to open and the pool water circulating pump to turn off. The compressed air system pressure was found to be in the normal range, but the operator found water and congealed oil in the air line supplying the pool water level gauge and the air line supplying the elevator control valve. Further investigation found that the compressed air line water traps were full of water. A past similar incident resulted in a failure to raise the elevator. The operator then verified that the pool water level was in fact normal. The licensee requested the building maintenance personnel to diagnose and repair the compressed air supply immediately, to prevent the conductivity in the pool water from reaching abnormal levels as a result of the resin filter circulating pump being automatically turned off by the false low pool water level meter reading. Maintenance personnel responded and replaced a failed compressed air dryer and monitored the open air lines to clear the lines of water. A float activated automatic water drain was installed in the air line to prevent a possible recurrence by allowing any water to automatically drain from the air line.