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DUPLICATE

March 9, 2007

United States Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

Fed Ex: 7916 4872 1686

Attn: Administrator

Reference: Event No. 43160 – Report of Loss of Licensed Material

Dear Sir:

Pursuant to 10 CFR 20.2201(b), attached in duplicate is the required information regarding the loss of a 3.8 mCi Ta-182 source, a quantity greater than 10 times the quantity (10 uCi) specified in appendix C to part 20, which requires telephone notification within 30 days after the loss occurrence and a follow-up written report within 30 days of the telephone notification. The loss occurred on February 10, 2007. The initial telephone notification was also made on February 10, 2007, within eight hours of the occurrence becoming known to the licensee.

The lost licensed material was being used under the authority of reciprocal recognition of Tracerco's Texas Radioactive Material License No. L03096. The work being performed was pig tracking within a subsea pipline from the BP Atlantis Platform located in the Gulf of Mexico. At the time of the loss the pig containing the Ta-182 source was being removed from the pipeline by a romtely operated vehicle (ROV) in about 5000 feet of water in Green Canyon Block 645, Gulf of Mexico.

Do not hesitate to contact us if additioanl information is required. Pursuant to 10 CFR 20.2202 (d), Tracerco will report any additional substantive information on the loss within 30 days after Tracerco learns of such information

Best regards,

Norman Lanier
Tracerco

Enclosure: Event No. 43160 – Report of Loss of Licensed Material

Event No. 43160
Report of Loss of Licensed Material
10 CFR 20.2201(b)

Desciption of licensed material involved [10 CFR 20.2201(b)(i)]
The lost licensed material is a 3.8 mCi Ta-182 wire sealed in an aluminum capsule. The aluminum capsule is sealed in a ½" x 1 ¼" carbon steel hexagon head bolt, screwed into a 1 ½ " carbon steel sleeve that was secured using epoxy resin into one end of a 16" x 54" poly ribbed foam pig used to dewater a subsea pipeline. A brass tag was affixed to the flat surface head of the bolt. The radiation symbol and the words "Radioactive" and "Ta-182" were engraved on the tag.

Description of the circumstances under which the loss occurred [10 CFR 20.2201(b)(ii)]
On January 31, 2006 the licensee installed a single Ta-182 source into each of three foam pigs supplied to the customer by a third party pig manufacturing company. Each pig was successfully lauched into the same pipeline from a platform in the Gulf of Mexico. Once the pigs were lauched and traveled subsea the licensee withdrew its technician. The licensee's technician was to return once the pigs were retrieved from the pipeline, to remove the Ta-182 sources from the pigs. As reported by the customer, at 0450 hours (CST) on February 10, 2007 the first of three foam pigs was being removed from the sub-sea pipeline end terminal (PLET) on a gas export line. The pig was being used to dewater the line after hydrotest. The pig removal was being carried out by a remotely operated vehicle (ROV) in about 5000 feet of water. Pursuant to procedures, the ROV took hold of the pig as it was pushed out of the PLET and moved the pig over to a nearby basket on the seabed. The pig was to be placed in the basket and secured for future transit to the surface. According to the customer, based on previous experience of over 20 removals, the pig has been neutrally or negatively buoyant. As the pig was being manipulated into the basket it pulled free of the ROV. Unlike previous experiences, the pig was buoyant and the ROV lost sight of it immediately. The pig surfaced near the ROV vessel after about 15 minutes.

Statement of probable disposition of the licensed material involved [10 CFR 20.2201(b)(iii)]
The licensee's customer reported that the pig was last seen on the surface in the Green Canyon Block 645, with coordinates of: Latitude 27 degrees 14'4" North and Longitude 90 degrees 14'4" West. The licensee's customer employed a specialty marine company to model the most probable path of the pig if it remained afloat on the surface. The model suggested the pig could end up on the Texas coast or leave the Gulf of Mexico through the Florida Straits in late spring.

The other potential outcome is that the pig sinks in deepwater. It is difficult to assign probabilities to the behaviour of a foam pig immediately after dewatering a pipeline as the specific conditions experienced by each pig are unique. However, because of bouyancy properties shown by subsequent pigs it seems that the more likely scenario is that the pig will remain on the surface rather than sink.

Exposures of individuals to radiation, circumstances under which exposures occurred, and the possible total effective dose equivalent to persons in unrestricted area [10 CFR 20.2201(b)(iv)]
At the time of writing this report there are no known exposures to any person from this radiation. The calcualted exposure to an unshielded 3.8 mCi Ta-182 source will be approximately 3 mrem/hour at a distance of one meter. The half-life of Ta-182 is approximately 115 days. Subsequently, the potential of exposure will decrease accordingly.

Actions that have been taken, or will be taken to, to recover the material [10 CFR 20.2201(b)(v)]
The event occurred at 0450 hours. The ROV vessel crew attempted to maintain visual contact with the pig on the surface. However, it was dark and the pig soon was lost from sight. A record was made of the direction in which the pig was moving. The crew carried out procedures to recover the ROV from the seabed that would allow them to "chase" after the pig. Once the ROV was recovered, which took about 30 minutes, the vessel drifted with the current until daylight. At daylight the vessel moved down current and began a systematic grid search. At the time the pig drifted away the sea state was about 1-3 feet, but then increased to 4-6 feet and the winds increased to 15 knots and higher. The wind chop on the water made sighting something floating low in the water very unlikely. Shore personnel were notified and another vessel and helicopters in the area were alerted to be on the look out for the pig. Subsequently, early in the event the National Response Center, US Coast Guard and USNRC were all notified. The search continued until dark on February 10, 2007. It was determined by the customer that there was uncertainty whether the pig was still floating or was beneath the sea surface; that continuing the search in the dark would be very difficult, especially in the existing seas (4 to 6 feet swell); and that starting the search the next morning would make finding the pig much more difficult, assuming it was still buoyant, as it could have moved into a much wider area. Consequently, the customer decided at nightfall on February 10, 2007 to terminate the search. The licensee in turn notified the USNRC on the evening of Feburay 10, 2007 to inform them of the decision to terminate the search and declare a loss of a licensed material..

Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss of material [10 CFR 20.2201(b)(vi)]
The licensee is not the owner/operator of the pipeline in which the pig containing the licensee's licensed material is launched into, nor is the licensee responsible for the operation of the ROV used to remove the pig or employing the ROV service provider. Subsequently, the following procedures were developed in collaboration with the customer (owner/operator) of the pipeline in which this event happened. While these procedures are binding with the customer involved in this event, they may be modified to accommodate other pig tracking customers, in accordance with their pipeline design and ROV capabilities.

- Prior to any planning and removal of pigs containing radioactive materials a licensee technician will be mobilized to the work site and will be actively involved in the job hazard analysis related to the radioactive source recovery from the pipeline.
- During the movement of any pig that contains a radioactive source within a pipeline with an open hub, the open hub will be protected by an end cap or suitable containment net in case of premature arrival of the pig and accidental release to the environment.
- Prior to the arrival of each pig at the open hub a clump weight with an attached lanyard and a toggle pin will be placed on the horizontal surface of the hub alignment structure adjacent to the hub. This lanyard will be approximately five feet long.
- After removal of an end cap on the hub a cargo net will be placed over the hub with clump weights at each of the four corners of the net. The cargo net will be lowered into position at the end of the winch wire and the wire slacked but kept attached to the net. The net will be of adequate size to ensure containment of the pig.

- When the pig is observed coming out of the open hub, if possible the pig travel will be stopped before it comes completely clear. At this point the ROV will have the cargo net lifted by the winch wire clear of the work site a few feet. The ROV will then attach the free end of the lanyard to the nose strap of the pig. At this time the net will be lowered back into contact with the pig and the pig will be pumped the remaining distance required to free it from the hub. Once the pig is clear of the hub the ROV will be used, along with the winch wire, to move the cargo net, the pig and the attached clump weight to the work basket parked next to the PLET. At this time the pig will also be secured by one of the pre-existing straps in the basket.

- If, in the above step, the pig comes completely free of the hub before its motion can be stopped the ROV will need to work through the mesh of the cargo net in place to secure the clump weight lanyard to the pig strap. As above, the pig with its clump weight attached will be moved to the basket along with the cargo net and properly secured in the basket by one of the straps in the basket. Only after the pig is held in the basket by both the clump weight and the basket strap will the cargo net be lifted clear of the basket and returned to the hub for the next pig, if needed.