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**Subject:      Docket No. 50-206**  
**30-Day Response**  
**Inspection Report No. 50-206/2006-011**  
**San Onofre Nuclear Generation Station, Unit 1**

**Reference:    Letter, Mr. Leonard D. Wert (USNRC) to Mr. Richard M. Rosenblum (SCE),**  
**dated July 5, 2006**

Dear Sir or Madam:

The reference letter transmitted the results of NRC Inspection Report No. 20-206/2006-011 to Southern California Edison (SCE). The inspection was conducted May 8 - 11, 2006, at San Onofre Nuclear Generating Station (SONGS), Unit 1 and included a follow-up on the transportation event that occurred on February 23, 2006 when minor leakage of radioactive water was discovered from a waste water shipment enroute from SONGS Unit 1.

The inspection report identified three apparent violations of NRC regulations associated with the transportation event and offered SCE the option of a predecisional enforcement conference or a written response within 30 days of the date of the inspection report. During a conference call on July 12, 2006, SCE (Mr. C. E. Williams) informed the NRC (Dr. D. Blair Spitzberg) that SCE was electing to provide a written response to the inspection report. The enclosure to this letter provides SCE's acceptance and response to the apparent violations.

The enclosure also provides SCE's perspective on the safety significance of the apparent violations. SCE's assessment of this occurrence concludes, consistent with the NRC's statements in the inspection report, that NRC limits were not exceeded and that there was no substantial potential for significant consequences such as personnel exposure or contamination above regulatory limits. Once notified of the tanker leakage, SCE initiated actions to dispatch a team of SCE employees to the location and provided prompt and comprehensive corrective actions, including on-site remediation. These proactive measures limited the potential for adverse consequences.

Based on the details of this occurrence and Supplement V of the NRC Enforcement policy, SCE believes it would be appropriate to disposition these apparent violations as severity level IV violations.

The inspection report noted a civil penalty may not be warranted and SCE agrees.

*Nmssol*

If you have any questions, please contact me or Mr. C. E. Williams at (949) 368-6707.

A handwritten signature in black ink, appearing to read "Brian Kelly", with a long horizontal line extending from the end of the signature.

Enclosure: As stated

cc: B. S. Mallett, Regional Administrator, NRC Region IV  
L. D. Wert, Director, Division of Nuclear Materials Safety, NRC Region IV  
D. B. Spitzberg, Chief, Fuel Cycle & Decommissioning, NRC Region IV  
C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Unit 1  
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ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

## BACKGROUND AND EVENT SUMMARY

On February 22, 2006, at 1000 PST two tankers containing wastewater with trace levels of radioactivity departed SONGS Unit 1 Industrial Site for the EnergySolutions waste processing facility in Clive, Utah.<sup>1</sup> Each truck contained about 4,500 gallons of water. At about 2100 PST, the driver of one of the tankers pulled into a truck stop in Parowan, Utah. When the driver returned to his vehicle, he observed water leaking from a drain hose connected at the top of the tanker where several components are housed inside a lock-sealed enclosure.

After identifying the presence of a leak, the driver moved the vehicle to a remote area of the truck stop parking lot and phoned his district manager. At about 0000 PST on February 23, 2006, the trucking company district manager arrived at the site and proceeded to open the locked enclosure. He identified that the source of the leak was the gasket between the discharge isolation valve and discharge siphon tube flanges. Attempts to stop the leak by tightening the flange bolts were unsuccessful. The leak was stopped by relieving air pressure from inside the tanker using an adjacent valve assembly.

At about 0330 PST, February 23, 2006, the trucking company notified SCE of the leakage. SCE then began mobilizing an incident response team. The Utah Hazardous Materials Response Team was also notified and arrived onsite at approximately 0715 PST. The first members of SCE's incident response team arrived at the site at approximately 1250 PST. In addition to briefing the NRC resident inspectors and project manager at approximately 0900 PST, SCE formally reported this event to the NRC on February 23, 2006 at 1207 PST (event number 42370).

On February 24, 2006, the tanker was decontaminated and the valve at the leak location was replaced with a blind flange and new gasket. The shipment then continued to the EnergySolutions waste processing site in Clive, Utah. SCE escorted and performed periodic inspections of the tanker enroute. The tanker arrived at its destination without further incident. The other tanker had successfully completed the transport to the EnergySolutions site on February 23, 2006 and no leakage was noted during the receipt inspection process.

SCE identified two areas of contamination at the truck stop. The first area was the remote parking lot where the tanker was parked after the leak was observed (Area 1); the second area was just forward of the truck stop fuel pumps where the truck had parked for approximately five minutes before the driver identified the leak (Area 2). SCE coordinated remediation of both areas. The contaminated material was shipped as low-level waste to EnergySolutions. The remediation was completed on March 1, 2006.

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<sup>1</sup> This radioactive water resulted from decommissioning activities at SONGS Unit 1. SCE was shipping the water offsite for disposal at a licensed facility.

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

**DESCRIPTION OF APPARENT VIOLATION 06-01**

The inspection report states:

"Prior to the shipment of liquid radioactive LSA material on February 22, 2006, SONGS did not ensure by examination or appropriate tests that the top discharge valve of a package containing licensed material was properly closed and sealed. The gasket was not properly seated due to incorrect bolt sizes, and due to the incorrect bolt sizes on the top discharge valve assembly, the package was therefore not properly closed and sealed. This failure was identified as an apparent violation of 10 CFR 71.5(a) and 49 CFR 173.475 (APV 050-00206/06-01)."

10 CFR 71.5, "Transportation of licensed material," Subsection (a) states:

"(a) Each licensee who transports licensed material outside the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the Department of Transportation (DOT) regulations in 49 CFR parts 107, 171 through 180, and 390 through 397, appropriate to the mode of transport."

49 CFR 173.475, "Quality control requirements prior to each shipment of Class 7 (radioactive) materials," states in part:

"Before each shipment of any Class 7 (radioactive) materials package, the offeror must ensure, by examination or appropriate tests, that--

"...(f) Each closure, valve, or other opening of the containment system through which the radioactive content might escape is properly closed and sealed."

**SCE RESPONSE TO APPARENT VIOLATION 06-01**

**1. Reason for the Violation**

Based on a post-incident evaluation, EnergySolutions determined that the outlet valve flange on the siphon drain line was connected to the tank using improperly sized bolts. The improperly sized bolts resulted in insufficient compression being applied to the gasket, which allowed leakage by the flange. The tank as supplied to SCE was not capable of adequately fulfilling its designed function within requested specifications and requirements. It is postulated that when the truck changed in altitude from sea level (at SONGS) to approximately 6,000 feet at Parowan, a positive differential pressure was created inside the tanker, which resulted in wastewater leaking from the inadequate seal at the valve flange.

SCE also performed a post-incident evaluation and concluded the tanker had not been pressure tested following decontamination activities and that invalidated the prior test.

Before allowing the tanker to depart for the EnergySolutions site, SCE had appropriately reviewed the test records to verify that periodic testing requirements were met. SCE confirmed the tanker had been pressure tested on February 5, 2005 and was not due for

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

another pressure test until May 19, 2006. Therefore, at the time of the shipment, SCE believed the tank had been tested within the required testing frequency as specified in 49 CFR 180.600, Subpart G, "Qualification and Maintenance of Portable Tanks."

EnergySolutions, however, did not inform SCE that decontamination activities had been performed on the tank subsequent to the most recent pressure test. Based on the history of the tanker prior to being sent to SONGS, SCE concluded the improper bolts were most likely installed during the decontamination activities. Since retesting to verify the pressure boundary integrity was not performed after the improperly sized bolts were installed as required by 49 CFR 180.605, "Requirements for periodic testing, inspection, and repair of portable tanks," the deficiency was not identified prior to the event. During the post-incident investigation, the tank was pressurized with the improperly sized bolts installed. This test demonstrated the tank could not pass the pressure test with the improper bolts installed.

These factors resulted in the requirements of 49 CFR 173.475(f) not being met.

2. Corrective Actions Taken and Results Achieved

- a. SCE shared lessons learned from this incident with the industry by issuing an operating experience report.
- b. To reduce the possibility of using a shipping container that has not been adequately pressure tested, SCE added an on-site, prior-to-use pressure test for bulk radioactive liquid transport containers that have no means of secondary containment. The SONGS radioactive materials shipping procedure has been revised accordingly. Although such prior-to-use pressure testing is not required by DOT (or NRC) regulations, adding this test strengthens the barriers that reduce the likelihood of releasing radioactive materials during transport in the future.
- c. SCE reviewed the other process used to ship liquid radioactive waste and found that no additional compensatory measures were necessary.
- d. The corrective actions taken to stop the leak and remediate the spill site are discussed in SCE's response to apparent violation 06-03 (below).

3. Corrective Actions That Will Be Taken

No other corrective actions are planned or required for apparent violation 06-01.

4. Date When Full Compliance Will Be Achieved

Full compliance was achieved when the procedure revision was issued on June 26, 2006.

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

**DESCRIPTION OF APPARENT VIOLATION 06-02:**

The inspection report states,

"On February 22, 2006, the licensee failed to load two IM portable tanks with a volume greater than 7,500 L to a filling density of more than 20% and less than 80% by volume and offered these portable tanks for shipment. Specifically, the licensee loaded two IM portable tanks with a capacity of 6,340 gallons with 4,500.7 gallons (17.037 m<sup>3</sup>) for a filling density of 71% by volume. This failure was identified as an apparent violation of 10 CFR 71.5(a) and 49 CFR 173.32 (APV 050-00206/06-02)."

49 CFR 173.32, "Requirements for the use of portable tanks," section (f)(5) states:

"Except for a non-flowable solid or a liquid with a viscosity of 2,680 centistokes (millimeters squared per second) or greater at 20°C (68° F), an IM or UN portable tank, or compartment thereof, having a volume greater than 7,500 L (1,980 gallons) may not be loaded to a filling density of more than 20% and less than 80% by volume. This filling restriction does not apply if a portable tank is divided by partitions or surge plates into compartments of not more than 7,500 L (1,980 gallons) capacity; this portable tank must not be offered for transportation in an ullage condition liable to produce an unacceptable hydraulic force due to surge. "

**SCE RESPONSE TO APPARENT VIOLATION 06-02:**

1. Reason for the Violation:

SCE's investigation determined this violation occurred because SCE personnel involved with the shipment were not aware of the 49CFR173.32 tanker fill restriction. SONGS personnel failed to perform a comprehensive review of all applicable regulations for the bulk liquid shipment. In addition, the supervisor did not perform an independent review of the applicable regulations for a unique, first-time evolution.

When SCE was filling the tanker, the truck driver was concerned with DOT weight restrictions and requested SCE to load no more than 4,500 gallons on the tanker. Taking into consideration the amount of diesel fuel in the truck, adding more than 4,500 gallons could have put the total weight of the truck over the 80,000-pound limit. Because SCE was not aware of the fill volume restriction, SCE personnel did not object to this request. Loading 4,500 gallons caused the fill percentage to be about 71%.

Because the tanker was not filled to greater than 80% (or less than 20%) the requirements of 49 CFR 173.32(f)(5) were not met.

2. Corrective Actions Taken and Results Achieved:

This violation was noted only after the shipment had reached its destination. Therefore, the following corrective actions were focused on reducing the likelihood of future occurrences of shipping violations:

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

- a) SCE revised procedure SO123-VII-8.2, "Shipment of Radioactive Material," to include the requirements of 49 CFR 173.32(f)(5).
- b) SCE counseled the first-line supervisor to reinforce the need to review all regulations that may be applicable to activities being conducted at SONGS. SCE Management reiterated that, for "first-time evolutions" such as this bulk shipment of radioactive water, it is essential to identify all regulations that are applicable.
- c) SCE reviewed this event with SONGS personnel responsible for radioactive shipments.

3. Corrective Actions That Will Be Taken:

No additional corrective actions are planned or required for apparent violation 06-02.

4. Date When Full Compliance Will Be Achieved:

Full compliance was achieved when the procedure revision was issued on June 26, 2006.

**DESCRIPTION OF APPARENT VIOLATION 06-03:**

The inspection report states,

"On February 22, 2006, SONGS used a package that was not maintained, filled and closed, so that under conditions normally incident to transportation that there will be no identifiable release of hazardous materials to the environment. On February 23, 2006, SONGS was notified by the carrier that under conditions normally incident to transportation, that there was a leak of hazardous materials to the environment. This failure was identified as an apparent violation of 10 CFR 71.5(a) and 49 CFR 173.24 (APV 050-00206/06-03)."

49 CFR 173.24, "General requirements for packagings and packages", Section (b) states:

"(b) Each package used for the shipment of hazardous materials under this subchapter shall be designed, constructed, maintained, filled, its contents so limited, and closed, so that under conditions normally incident to transportation --

"(1) Except as otherwise provided in this subchapter, there will be no identifiable (without the use of instruments) release of hazardous materials to the environment;

"(2) The effectiveness of the package will not be substantially reduced; for example, impact resistance, strength, packaging compatibility, etc. must be maintained for the minimum and maximum temperatures, changes in humidity and pressure, and shocks, loadings and vibrations, normally encountered during transportation;

"(3) There will be no mixture of gases or vapors in the package which could, through any credible spontaneous increase of heat or pressure, significantly reduce the effectiveness of the packaging;

"(4) There will be no hazardous material residue adhering to the outside of the package during transport."

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

**SCE RESPONSE TO APPARENT VIOLATION 06-03:**

1. Reason for the Violation:

As noted in "Response to Apparent Violation 06-01," the post-incident evaluation of this event indicated that incorrect bolts had been used to attach the siphon drain line outlet valve flange to the tank. The incorrect bolts prevented adequate compression of the outlet valve flange and caused the sealing deficiency. The change in altitude from sea level (at SONGS) to about 6,000 feet at Parowan, Utah is likely to have resulted in a positive differential pressure between the tanker and the environment and provided sufficient motive force for the water to leak past the inadequate flange seal.

Therefore, the shipment failed to meet the requirements of 49 CFR 173.24.

2. Corrective Actions Taken and Results Achieved

- a) The truck driver noticed the leak while stopped at a truckstop. Upon noticing the leak, the truck driver moved his vehicle to a remote area of the truck stop parking lot and contacted his management. The trucking company manager traveled to the truck stop, identified the leak location, and stopped the leak. He then contacted EnergySolutions and SONGS. The area around the parked truck was cordoned off until the response team from SCE arrived later that day.
- b) Upon notification of the leak at approximately 0330 PST on February 23, 2006, SCE began mobilizing an incident response team. The first three members of the team arrived at the truck stop at approximately 1250 PST that day and began response operations.
- c) SCE performed extensive radiological surveys of the truck, truck stop, and potentially affected individuals in the area. SCE identified areas of contamination on the tank, two areas of contamination at the truck stop, and contamination on the pants of the trucking company manager who had stopped the leak. No contamination above background was detected at the other locations surveyed.
- d) SCE performed radiological surveys of the ramp used by the truck to exit the highway and the stop sign area on the exit ramp where the truck had stopped. The surveys showed no detectable activity above background.
- e) On February 24, 2006, the outside of the tanker was decontaminated and the leaking valve assembly was replaced with a blind flange and new gasket. The shipment then continued to the EnergySolutions waste processing site in Clive, Utah. SCE escorted the tanker and performed hourly inspections of the blind flange enroute. The tanker arrived at its destination without further incident.
- f) On March 1, 2006, SCE completed remediation of the contaminated areas at the truck stop. The contaminated materials from the areas next to the fuel pump and the remote parking area were removed and disposed of as low-level waste at EnergySolutions. Concurrence by the Utah Division of Radiation Control was obtained prior to backfilling and restoring the areas to unrestricted public use.



ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

- g) SCE suspended all further shipments of bulk radioactive liquids in portable tank containers until the cause was determined and corrective actions to prevent recurrence were completed.
- h) SCE performed a post-incident evaluation of the event and determined the appropriate corrective actions to be taken to prevent recurrence. As discussed in "Response to Apparent Violation 06-01," SCE concluded that performing a prior-to-use pressure test on a portable tank would be a prudent measure to reduce the likelihood of using a tank that could not properly contain its contents. Therefore, SCE revised the procedure for shipping radioactive material to require an on-site, prior-to-use pressure test for bulk radioactive liquid transport containers. Adding this administrative requirement strengthens the barriers that reduce the likelihood of releasing radioactive materials during transport in the future.

3. Corrective Actions That Will Be Taken

No other corrective actions are planned or required for apparent violation 06-03.

4. Date When Full Compliance Will Be Achieved

Full compliance was achieved when the procedure revision was issued on June 26, 2006.

**LICENSEE PERSPECTIVE OF APPARENT VIOLATIONS**

The apparent violations involved failures to comply with the DOT requirements for the shipment of radioactive materials. The NRC Enforcement Policy, Supplement V, "Transportation", classifies these types of violations into four severity levels depending on the significance of the actual and potential effects of the failure to comply. SCE evaluated the violations against the examples provided in Supplement V for Severity Levels III and IV, which are reproduced below:

"Severity Level III Examples:

- 1. "Surface contamination in excess of five but not more than 10 times the NRC limit;
- 2. "External radiation in excess of one but not more than five times the NRC limit;
- 3. "Any noncompliance with labeling, placarding, shipping paper, packaging, loading, or other requirements that could reasonably result in the following:
  - a. "A significant failure to identify the type, quantity, or form of material;
  - b. "A failure of the carrier or recipient to exercise adequate controls; or
  - c. "A substantial potential for either personnel exposure or contamination above regulatory limits or improper transfer of material; or
- 4. "A failure to make required initial notification associated with Severity Level III violations."

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

**"Severity Level IV Examples**

1. "A breach of package integrity without external radiation levels exceeding the NRC limit or without contamination levels exceeding five times the NRC limits;
2. "Surface contamination in excess of but not more than five times the NRC limit;
3. "A failure to register as an authorized user of an NRC-Certified Transport package;
4. "A noncompliance with shipping papers, marking, labeling, placarding, packaging or loading not amounting to a Severity Level I, II, or III violation.
5. "A failure to demonstrate that packages for special form radioactive material meets applicable regulatory requirements;
6. "A failure to demonstrate that packages meet DOT Specifications for 7A Type A packages; or
7. "Other violations that have more than minor safety or environmental significance."

SCE believes these violations would be appropriately dispositioned as severity level IV violations because the criteria for severity level III were not met. This conclusion is based on the following comparison to the severity level III examples:

1. "Surface contamination in excess of five but not more than 10 times the NRC limit"

Surveys of the truck found the maximum non-fixed contamination levels of 20,000 disintegrations per minute (dpm) per 100 square centimeters (200 dpm/cm<sup>2</sup>). This level is below the limit of 220 dpm/cm<sup>2</sup> permitted for this exclusive use vehicle in transit specified in DOT requirements as found in 49 CFR Part 173.443, Table 9, "Non-Fixed External Radioactive Contamination Limits for Packages."

Although no applicable NRC limit was identified, the contamination levels of the package remained below the DOT limit and well below five-times the DOT limit. Therefore, the surface contamination criteria for severity level III are not met.

Contamination levels of the two areas at the truck stop are discussed in example number two below.

2. "External radiation in excess of one but not more than five times the NRC limit"

The maximum external radiation level observed during the initial survey of Area 1 (remote parking area) was 0.4 mrem per hour at 30 centimeters from the ground (1 mrem per hour on contact). This radiation level is less than the radiation dose limit from external sources for individual members of the public of 2 mrem in one hour in any unrestricted area as specified in 10 CFR Part 20.1301(a)(2).

The external radiation levels observed during the initial survey of Area 2 was significantly lower than in Area 1. Based on the direct frisker measurements in Area 2, the maximum external radiation level was estimated to be 0.05 mrem per hour at 30 centimeters from the ground (0.12 mrem per hour on contact).

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

SCE determined the potential radiation exposure to a member of the public from ingestion or inhalation of the leaked radioactive material was negligible based on the following.

SCE estimates that no more than 5 gallons of water leaked from the tanker and that most of the leakage occurred in a remote area of the truck stop parking lot (Area 1).

Area 2 forward of the fuel pumps consisted of broken and cracked asphalt. Initial inspection of this area showed the wastewater seeped between the cracks. Large area masslinn wipes of the asphalt showed very low levels of removable contamination. The maximum large area masslinn wipe showed 140 net counts per minute. Extensive surveys of the adjacent truck stop interior, entry floor mats, brooms, and related items were all negative. Therefore, SCE concludes that radioactive material was not spread beyond the affected areas.

In summary, surveys showed the actual consequences from the releases of radioactive wastewater did not result in either external radiation levels or non-fixed contamination levels exceeding NRC limits. SCE's remediation activities ensured that all detectable licensed radioactive material was removed from the truck stop for proper disposal.

3. "Any noncompliance with labeling, placarding, shipping paper, packaging, loading, or other requirements that could reasonably result in the following:
  - a. "A significant failure to identify the type, quantity, or form of material;
  - b. "A failure of the carrier or recipient to exercise adequate controls; or
  - c. "A substantial potential for either personnel exposure or contamination above regulatory limits or improper transfer of material"

As previously discussed, three instances of non-compliance were identified: SCE failed to: (1) ensure by examination or appropriate tests that the package containing licensed material was properly closed and sealed, (2) load both intermodal portable tanks to the required filling volume, and (3) maintain, fill, and close the package used for shipment of radioactive material such that there would be no identifiable release of hazardous materials to the environment.

These instances of non-compliance could not reasonably have resulted in the failure to identify the type, quantity, or form of material or a failure of the carrier or recipient to exercise adequate controls, since there were no labeling, placarding, or shipping paper violations. Upon discovering the leak, the trucking company personnel took appropriate action to establish adequate controls.

To evaluate if the leaking tanker could have reasonably resulted in a "substantial potential for either personnel exposure or contamination above regulatory limits or improper transfer of material," SCE considered the potential significance of the following three scenarios:

- 1) If the leak started while the tanker was on the highway;
- 2) If a greater volume of wastewater leaked onto the ground in the remote area of the truck stop parking lot (Area 1); and

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

- 3) If a greater volume of wastewater leaked onto the asphalt in the temporary parking area of the truck stop (Area 2).

**SCENARIO #1: WASTEWATER LEAKED ONTO THE HIGHWAY**

Wastewater was leaking from the outlet valve flange on the siphon drain line. The change in altitude from San Onofre at sea level to Parowan at approximately 6,000 feet elevation likely created a positive internal pressure inside the tanker. Parowan was near the high point along the route to Clive, Utah. Thus, the pressure differential providing the motive force for the leak was near its maximum value at the Parowan truck stop.

If the wastewater began leaking while driving on the highway, the release rate would have been no greater than that observed at the truck stop. That leak rate was estimated to be less than 5 gallons over 5 hours.

Traveling with a leak rate of less than one gallon per hour would have resulted in minute contamination densities over the affected area. Contamination surveys would have been unlikely to detect any radioactivity on the highway. The resulting dose consequences and dose rates would have been negligible.

**SCENARIO #2: GREATER VOLUME IN REMOTE AREA OF PARKING LOT**

At about 0000 PST, the trucking company's district manager had joined the driver and proceeded to stop the leak by relieving air pressure inside the tanker. Had the tanker internal pressure not been relieved, the leak may have continued until noon when the EnergySolutions representative arrived on the scene.

Following this scenario, the amount of time the leak persisted would have extended from about 5 hours to about 14 hours. Roughly, 3 times the volume of wastewater could have leaked onto the ground in the remote area of the parking lot (Area 1) resulting in a maximum of 3 times the observed external radiation dose rates. Three times the maximum external radiation level would be 1.2 mrem per hour at 30 centimeters from the ground (3 mrem per hour on contact).

These higher external dose rates would not have been accessible to a member of the public because:

- (1) the truck driver excluded public access to this area after noting the leak,
- (2) at about 0000 PST, the trucking company manager arrived and was available to assist with access control,
- (3) at about 0540 PST, the Utah Highway Patrol arrived on scene, and
- (4) at about 0715 PST, the Utah Hazardous Materials Response Team arrived on scene.

Because no member of the public would have had access to this area, the NRC limits would not have been exceeded.

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

**SCENARIO #3: GREATER VOLUME ONTO ASPHALT IN FRONT OF PUMPS**

Common practice for drivers making short stops after refueling is to pull through the refueling lanes and stop forward of the fuel pumps. Other truck drivers can pull in behind these temporarily parked vehicles to refuel, the expectation being that once refueled, the truck in front would already have left.

Following this scenario, the amount of time the leak persisted could have extended from about 5 minutes to about 15 minutes. Roughly, 3 times the volume of wastewater would have leaked onto the asphalt in front of the fuel pumps (Area 2) resulting in a maximum of 3 times the observed external radiation dose rates (assuming none was absorbed into the asphalt). Three times the maximum external radiation level would be 0.15 mrem per hour at 30 centimeters from the ground (0.36 mrem per hour on contact). This maximum external radiation level would have been below the NRC's dose rate limit of 2 mrem in one hour specified in 10 CFR Part 20.1301, "Dose limits for individual members of the public."

Based on the above evaluation, SCE concludes the leaking tanker could not have reasonably resulted in a "substantial potential for either personnel exposure or contamination above regulatory limits or improper transfer of material". Therefore, these criteria for a severity level III violation were not met.

4. "A failure to make required initial notification associated with Severity Level III violations."

There were no failures to make required initial notifications associated with this event.

SCE believes the above evaluation demonstrates the apparent violations associated with the tanker leak do not meet the criteria for Severity Level III. Severity Level IV Examples 1 and 4, however, do apply since there was a breach of package integrity without exceeding NRC limits and a noncompliance with packaging and loading not amounting to a Severity Level I, II, or III violation occurred.

**SUMMARY**

SCE accepts the apparent violations.

SCE reviewed the apparent violations against the criteria provided in the NRC Enforcement Policy and concluded they would be appropriately dispositioned as severity level IV violations based on the following.

- a. The actual safety consequences of this event were negligible because maximum external radiation levels were below the dose rate limit of 2 mrem in one hour specified in 10 CFR 20.1301.
- b. The potential safety consequences of this event were evaluated and no credible scenarios with potentially significant actual consequences were identified. Three realistic scenarios that may have had greater safety significance than the actual

ENCLOSURE  
30-Day Response  
Inspection Report No. 50-206/2006-011

event were analyzed. Results indicated the dose consequences and dose rates would have remained below NRC limits specified in 10 CFR 20.1301.

- c. SCE and contractors took prompt and comprehensive corrective action to stop the leak, mitigate the consequences of the leak, fully remediate the contaminated areas, and determine the cause so that corrective actions to reduce the likelihood of recurrence could be taken. As a result, SCE revised the procedure for shipping radioactive material to add an on-site, prior-to-use pressure test for bulk radioactive liquid transport containers. The DOT fill-level requirements were also added to the procedure.

Finally, as to severity level and potential civil penalty, SCE wishes to note that: (1) SCE has not been the subject of escalated enforcement actions within the past two years, (2) SCE took prompt and comprehensive action to mitigate the leak and remediate the contaminated areas, and (3) SCE aggressively implemented corrective actions to reduce the likelihood of recurrence in the future.