



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

September 27, 2024

EA-24-071

Fraser Wyllie, Managing Director
New Zealand & Pacific
McConnell Dowell (American Samoa) Ltd.
P.O. Box 4664
Pago Pago, AS 96799

SUBJECT: MCCONNELL DOWELL (AMERICAN SAMOA) LTD. - NRC INSPECTION
REPORT 030-38318/2024-001

Dear Fraser Wyllie:

This letter refers to the unannounced routine inspection that was conducted on February 20-21, 2024, at your facility in Pago Pago, American Samoa, with continued in-office review through September 3, 2024. The purpose of the inspection was to examine activities conducted under your license as they relate to public health and safety, and to confirm compliance with the U.S. Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your license. Within these areas, the inspection consisted of an examination of selected procedures and representative records, observation of activities, independent radiation measurements, and interviews with personnel. The enclosed inspection report presents the results of this inspection. The inspectors discussed the preliminary inspection findings with Apensia (Ben) Maraivalu, Project Engineer; Max Tomasi, Laboratory Supervisor; and Ienisei Matautia, Safety Officer, at the conclusion of the onsite portion of the inspection. On September 3, 2024, a final exit briefing was conducted via videoconference with Benoit Midol, General Manager, Pacific; Craig Wrigglesworth, Branch Manager, American Samoa; and Apensia (Ben) Maraivalu, Project Engineer.

Based on the results of the inspection, 11 apparent violations were identified and are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's website at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The apparent violations involve the failure to: (1) name an individual on the license to fulfil the duties and responsibilities of the Radiation Safety Officer (RSO); (2) conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license; (3) have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position; (4) use a minimum of two independent physical controls that formed tangible barriers to secure portable gauges from unauthorized removal; (5) test sealed sources for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration; (6) maintain a logbook that remained at the storage location, indicating for each portable gauge possessed by the licensee: the date(s) of use, name(s) of the authorized users

who will be responsible for the gauge, and the temporary job site(s) where the gauge will be used; (7) possess and use, or have access to and use, a radiation survey meter; (8) maintain documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of the NRC regulatory limits; (9) provide portable nuclear gauge users with training that met the NRC criteria; (10) instruct individuals in the U.S. Department of Transportation requirements related to the transport of Class 7 (radioactive) materials; and (11) use shipping papers that described the transport of Class 7 (radioactive) materials.

The circumstances surrounding these apparent violations, the significance of the issues, and the need for lasting and effective corrective action were discussed with members of your staff during the exit meeting on September 3, 2024.

Before the NRC makes its enforcement decision, we are providing you an opportunity to: (1) respond in writing to the apparent violations addressed in the inspection report within 30 days of the date of this letter; (2) request a predecisional enforcement conference (PEC); or (3) request alternative dispute resolution (ADR). If a PEC is held, it will be open for public observation and the NRC may issue a press release to announce the time and date of the conference. Please contact Dr. Lizette Roldán-Otero, Chief, Materials Inspection Branch, at 817-200-1455 or Lizette.Roldan-Otero@nrc.gov within 10 days of the date of this letter to notify the NRC of your intention to either provide a written response, participate in a PEC, or pursue ADR. A PEC should be held within 30 days and an ADR session within 45 days of the date of this letter.

If you choose to provide a written response, it should be clearly marked as a "Response to Apparent Violations in NRC Inspection Report 030-38318/2024-001; EA-24-071" and should include for each apparent violation: (1) the reason for the apparent violation or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be (or has been) achieved. Your response may reference or include previously docketed correspondence if the correspondence adequately addresses the required response. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the public without redaction.

Your written response, should you choose to provide one, should be sent to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with identical copies mailed to the Director, Division of Radiological Safety & Security, Region IV, 1600 East Lamar Boulevard, Arlington, TX 76011, and emailed to R4Enforcement@nrc.gov within 30 days of the date of this letter. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a PEC.

If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a PEC does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference may include information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned.

In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations. The guidance in NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be helpful in preparing your response (Agencywide Documents Access and Management System (ADAMS) Accession No. [ML061240509](#)).

In lieu of a PEC, you may request ADR with the NRC in an attempt to resolve this issue. Alternative dispute resolution is a general term encompassing various techniques for resolving conflicts using a neutral third party. The technique that the NRC employs is mediation. Mediation is a voluntary, informal process in which a trained neutral mediator works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues.

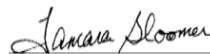
Additional information concerning the NRC's ADR program can be obtained at <http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html>. The Institute on Conflict Resolution at Cornell University has agreed to facilitate the NRC's program as a neutral third party. Please contact the Institute on Conflict Resolution at 877-733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of this issue through ADR.

Since the NRC has not made a final determination in this matter, a notice of violation is not being issued for the apparent violations at this time. Please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results on our deliberations in this matter.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or in the NRC's ADAMS, accessible from the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions concerning this matter, please contact Dr. Lizette Roldán-Otero of my staff at 817-200-1455.

Sincerely,



Signed by Bloomer, Tamara
on 09/27/24

Tamara Bloomer, Director
Division of Radiological Safety & Security

License No.: 56-29396-01

Docket No.: 030-38318

Enclosure:

NRC Inspection Report 030-38318/2024-001

F. Wyllie

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cc w/Enclosure:

Fa'amao Asalele

American Samoa Environmental Protection Agency

ASEPA Building - Utulei

Pago Pago, AS 96799

Motusa Tuileama Nua

American Samoa Department of Public Health

LBJ Hospital - Fagaalu

Pago Pago, AS 96799

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 030-38318/2024-001 - DATED SEPTEMBER 27, 2024

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ADAMS ACCESSION NUMBER: ML24249A326

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**U.S. NUCLEAR REGULATORY COMMISSION
REGION IV**

Docket No.: 030-38318

License No.: 56-29396-01

Inspection Report No.: 030-38318/2024-001

EA No.: EA-24-071

Licensee: McConnell Dowell (American Samoa) Ltd.

Location Inspected: McConnell Dowell Materials Laboratory
Tafuna Road Industrial Park
Airport Road
Pago Pago, American Samoa 96799

Inspection Date: February 20-21, 2024, with in-office review through
September 3, 2024

Exit Meeting Date: September 3, 2024

Inspector: Janine F. Katanic, PhD, CHP
Senior Health Physicist
Materials Inspection Branch
Division of Radiological Safety & Security, Region IV

Approved by: Lizette Roldán-Otero, PhD
Chief, Materials Inspection Branch
Division of Radiological Safety & Security, Region IV

Attachment: Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

McConnell Dowell (American Samoa) Ltd. (McDow or Licensee) NRC Inspection Report 030-38318/2024-001

On February 20-21, 2024, the NRC performed an unannounced routine inspection of the licensee. The purpose of the inspection was to examine activities conducted under the McDow NRC license as they relate to public health and safety, and to confirm compliance with NRC rules and regulations and with the conditions of the McDow NRC license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of licensed activities, independent radiation measurements, and interviews with personnel. McConnell Dowell (American Samoa) Ltd. is authorized under NRC Materials License No. 56-29396-01 to possess and use byproduct material in portable nuclear gauging devices for measuring the physical properties of materials.

One previous violation was reviewed regarding the licensee's failure to have the named individual on the license fulfil the duties and responsibilities of the Radiation Safety Officer (RSO). Based on the inspection, there was a recurrence of this violation and therefore the violation could not be closed.

Based on the current inspection, 11 apparent violations were identified regarding the licensee's failure to: (1) name an individual on the license to fulfil the duties and responsibilities of the RSO; (2) conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license; (3) have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position; (4) use a minimum of two independent physical controls to secure portable nuclear gauges from unauthorized removal; (5) test sealed sources for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration; (6) maintain a logbook indicating for each portable gauge possessed by the licensee: the date(s) of use, name(s) of the authorized users who will be responsible for the gauge, and the temporary job site(s) where the gauge will be used; (7) possess and use, or have access to and use, a radiation survey meter; (8) maintain documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of the NRC regulatory limits; (9) provide portable nuclear gauge users with training that met the NRC criteria; (10) instruct individuals in the U.S. Department of Transportation (DOT) requirements related to the transport of Class 7 (radioactive) materials; and (11) use shipping papers that described the transport of Class 7 (radioactive) materials.

As corrective actions, the licensee made changes to its portable gauge storage area such that the portable nuclear gauges would have two independent tangible barriers to prevent unauthorized removal or access. On May 17, 2024, the licensee submitted a license amendment request to NRC to change the named RSO on the license. On August 16, 2024, the licensee provided additional information to support its request. The additional information included the individual's recently acquired portable nuclear gauge user training certificate from a portable gauge manufacturer. The documentation provided also included training that met the criteria for DOT Hazmat training for the transport of portable nuclear gauges. The licensee has arranged for the individual to complete RSO training from the portable gauge manufacturer in the fall of 2024; upon completion of this training, the individual would meet the NRC criteria to be qualified as RSO. The licensee has not provided any specific corrective actions that it has taken or plans to take to correct the other identified deficiencies.

REPORT DETAILS

1 Program Overview (Inspection Procedure (IP) 87139)

McConnell Dowell (American Samoa) Ltd. (McDow or Licensee) is authorized under NRC Materials License No. 56-29396-01 to possess and use byproduct material in portable nuclear gauging devices for measuring the physical properties of materials. McConnell Dowell is an infrastructure construction company that was founded in New Zealand and operates in over 15 countries. The licensee performs large construction projects in American Samoa with a base of operations at its facilities in Pago Pago, American Samoa. The licensee's major construction work activities in American Samoa include the "Tri-Marine Dock, Seawall, and Wharf Project" for Samoa Tuna Processors and the "Leone Village Bridge Replacement Project."

2 Portable Nuclear Gauge Activities (IP 87139)

2.1 Inspection Scope

On February 20-21, 2024, the NRC performed an unannounced routine inspection of McDow. The purpose of the inspection was to examine activities conducted under the McDow NRC license as they relate to public health and safety, and to confirm compliance with NRC rules and regulations and with the conditions of the McDow license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observation of licensed activities, independent radiation measurements, and interviews with personnel.

The inspection also reviewed the licensee's corrective actions to address a Severity Level IV violation that was identified in NRC Inspection Report 030-38318/2022-001 and Notice of Violation (NOV) dated March 2, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23060A400).

2.2 Observations and Findings

2.2.1 Review of Previous Inspection Findings

The previous NRC routine inspection of McDow commenced on July 15, 2022, and was performed remotely. At that time, due to the Covid-19 Public Health Emergency, commercial flights to American Samoa were suspended and the border remained closed. The inspection continued remotely through January 23, 2023. The NRC inspectors determined that the Radiation Safety Officer (RSO) listed on the new license was no longer employed by the licensee. The NRC issued Inspection Report 030-38318/2022-001 and NOV dated March 2, 2023 (ML23060A400). The NOV identified one Severity Level IV violation (VIO) related to the licensee's failure to name and assign an individual to perform the duties and fulfill the responsibilities of the RSO.

The licensee responded with an email dated March 3, 2023 (ML23073A261) and a license amendment request dated March 14, 2023, to change the RSO (ML23080A003). The licensee summarized its response to the NOV in letter dated May 25, 2023 (ML23164A131). The licensee's short term corrective actions were to submit an amendment request to the NRC to change the RSO on the license. The licensee's actions to prevent recurrence included a "handover process" detailing changes in RSO,

an audit to be performed every 6 months to confirm that the RSO has valid training and that a second individual is also current in their training, and an annual audit to review NRC requirements.

On February 20, 2024, the inspector commenced a routine, unannounced inspection at the licensee's facilities located in American Samoa. The inspector was informed that the RSO named on the license was unavailable. At first the inspector was told that the RSO recently returned to New Zealand to take care of a personal matter. When the inspector inquired as to when the RSO was expected to return, the inspector was informed that the individual would be away indefinitely. The inspector was later informed that the RSO had returned to New Zealand months prior to the inspection. Subsequently, the inspector was informed that the individual had a going away reception the week prior to the NRC inspection and had returned to New Zealand permanently because their term with McDow in American Samoa was complete.

The inspector informed the licensee that they needed to promptly identify a qualified individual to serve as RSO and submit a license amendment request to the NRC. Based on the inspector's preliminary reviews of the staff qualifications at McDow, it did not appear that any individuals had training that would satisfy the NRC's criteria to be named the RSO on the license. The inspector discussed the NRC's training criteria at length with the licensee.

Based on the results of the inspection, VIO 030-38318/2022-001-01 was unable to be closed because the licensee's corrective actions were not adequate to prevent recurrence. As a result, at the time of the inspection, the licensee had no individual performing the duties and fulfilling the responsibilities of the RSO.

Apparent violation of License Condition 12

License Condition 12 of NRC License 56-29396-01, Amendment No. 5, dated May 17, 2023, specifies a named individual as the RSO.

Contrary to the above, on February 20, 2024, the individual named on the license as the RSO was no longer performing those duties and fulfilling those responsibilities. Specifically, the RSO named on the license had completed their term of employment and was no longer performing those duties and fulfilling those responsibilities at the licensee's facility in American Samoa. The licensee had not identified or appointed any qualified individual to serve as RSO.

The licensee's failure to name an individual on the license to fulfil the duties and responsibilities of the RSO was identified as an apparent violation of License Condition 12. (030-38318/2024-001-01)

2.2.2 Current Inspection Findings

At the time of the inspection, the licensee possessed three Humboldt Scientific Model 5001 portable nuclear gauges. One portable nuclear gauge was described to the inspector as broken and was not being used, one gauge was being used regularly for licensed activities, and one gauge was described as being at the vendor for calibration. However, the licensee had no documented physical inventory to account for the portable nuclear gauges possessed under the license.

The licensee had a white board outside of the portable gauge storage room that was serving as its inventory. The white board listed three portable nuclear gauges: the one that was broken, the one that was used regularly, and a Seaman Nuclear Corporation Model C-300 portable nuclear gauge. Based on NRC records related to the license, the Seaman gauge had been disposed of by the licensee in 2018. The gauge that was noted by the licensee to be at the vendor for calibration was not listed on the white board. Based on the information reviewed during the inspection, it appeared that no physical inventory had been performed by the licensee since at least when the most recent portable nuclear gauge was received by the licensee in October 2022.

The inspector observed an empty transportation container for a portable nuclear gauge on a workbench in the materials laboratory. The inspector inquired where the gauge was and was informed that the gauge had gotten wet at a construction site earlier in the day and was “drying out” in the concrete curing room. The gauge was observed by the inspector to be on a countertop in the concrete curing room with no lock in its handle and it was not under the direct surveillance of an authorized user. When portable nuclear gauges are not in their locked transportation containers, they are required to have a lock in the handle to prevent unauthorized or accidental removal of the sealed source from its shielded position.

The inspector observed the storage room where portable nuclear gauges would normally be stored when not in use. The storage room door was not capable of locking. There was no other means, such as a locked cabinet, or cables/chains, to provide a barrier to secure portable nuclear gauges from unauthorized removal or access. As a result, during non-business hours, only the materials testing laboratory door to the outside of the building would be locked, and there was only one tangible barrier to secure portable nuclear gauges.

The leak test frequency specified in the Sealed Source and Device Registry Certificate for the Humboldt Model 5001 is 12 months. Based on the records available for the inspector to review, one of the licensee’s portable nuclear gauges was last tested for leakage and contamination on November 2, 2022, one was last tested for leakage and contamination on September 23, 2022, and one was last tested for leakage and contamination on August 29, 2023. As a result, two portable nuclear gauges had not been tested for leakage or contamination at the specified frequency.

The inspector observed that the licensee had a logbook to record when the portable nuclear gauges were removed from storage and used but noted that it was not regularly completed when gauges were removed from storage and used. The inspector observed many lengthy gaps in the logbook that could not be accounted for because licensee personnel acknowledged that the portable nuclear gauges had been used during those periods of time. The limited number of entries that were recorded in the logbook were missing required information. For example, the morning of the inspection on February 20, 2024, licensee personnel stated that one gauge had been removed from storage, brought to a job site for use, and subsequently returned to storage when it started raining. The removal and return of the portable nuclear gauge were not recorded in the logbook. There were no logbook entries for the entire month of February 2024, although the licensee stated that one gauge had been removed from storage many times for use at job sites. Other entries for prior months and years listed an erroneous gauge serial number or did not record the responsible gauge user.

In its license application, the licensee committed to possess and use, or have access to and use, a radiation survey meter that meets the criteria in NUREG-1556, Volume 1, Revision 2. The licensee possessed a Mirion RDS-30 radiation survey meter. The licensee showed it to the inspector, and although the instrument turned on, it was non-functional. The instrument displayed the error code "Err 1 Def", which is a type of error code that cannot be cleared by the user unless the instrument is sent for calibration.

In its license application, the licensee committed to maintain, for inspection by the NRC, documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of the limits in 10 CFR 20.1502(a) or provide and require the use of individual monitoring devices (dosimeters). The licensee did not have documentation demonstrating that unmonitored individuals were not likely to exceed a radiation dose in excess of the limits in 10 CFR 20.1502(a). When the inspector inquired about the use of individual monitoring devices, or dosimeters, the licensee produced one "Radpro" direct ion storage dosimeter. Radpro is a New Zealand company that serves as a third-party distributor for Mirion Instadose personnel dosimeters. The licensee only had one such dosimeter, which would not be capable of monitoring multiple individuals if they were using any of the licensee's three gauges at different job sites. Furthermore, the one dosimeter had not been being used during licensed activities because no one at the licensee's site had access to the software necessary to download the personnel doses from the dosimeter or to assign the dosimeter to an individual.

Based on interviews with personnel, there appeared to be significant deficiencies in knowledge regarding NRC requirements regarding the possession and use of portable nuclear gauges, U.S. Department of Transportation (DOT) requirements for the transportation of portable nuclear gauges, and the terms and conditions of the NRC license.

Licensees are required to provide documentation demonstrating that the RSO has training and experience through, for example, a certificate of completion of an RSO course and/or the authorized user's course (portable nuclear gauge user course). Before using licensed materials, portable nuclear gauge users are required to successfully complete one of the training courses described in the criteria in NUREG-1556, Volume 1, Revision 2. The criteria states that the NRC has found the following acceptable for RSOs: portable gauge manufacturer's course for users and RSOs with hands on experience, or an equivalent course that meets the criteria in Appendix C. The NUREG states that the NRC has found the following acceptable for portable nuclear gauge users: portable gauge manufacturer's course for users with hands on experience, or an equivalent course that meets the criteria in Appendix C.

Appendix C of NUREG-1556, Volume 1, Revision 2, provides that acceptable course content will include 1.5 to 2 hours of training on radiation safety and regulatory requirements, emphasizing practical subjects important to safe use of the gauge; radiation versus contamination; internal versus external exposure; concepts of time, distance, and shielding to minimize exposure; control and surveillance of gauges; location of the sealed source within the portable gauge; inventory; recordkeeping; incidents; licensing and inspection by the regulatory agency; need for complete and accurate information; employee protection; and deliberate misconduct, and 1.5 to 2 hours of practical training to include portable gauge theory, operating procedures, emergency procedures, security, maintenance, and transportation procedures; and field training emphasizing radiation safety, including dry runs of setting up and taking

measurements with the gauge, controlling and maintaining surveillance over the portable gauge, performing routine cleaning and lubrication, packaging and transporting the gauge, storing the gauge, and following emergency and security procedures. Appendix C also specifies that the training course include a 25-50 question test with a passing score of 70 percent, and specifies the training and experience required for the course instructor. It further notes that online courses are acceptable when supplemented by hands-on training.

At the time of the last NRC license renewal, the licensee's previous RSO had taken "Radiation Safety CSP 15" and "Radiation Safety NRL C15" provided by an organization called "civiltrain.nz." The RSO named on the license at the time of the inspection had taken "Radiation Safety CSP 15" and "Radiation Safety NRL C15," also provided by civiltrain.nz. Two other individuals present during the inspection who were portable nuclear gauge users took the "Nuclear Density Meter" user course from civiltrain.nz, and one individual took a portable nuclear gauge user course from a gauge manufacturer that was provided in Fiji.

The inspector reviewed the course content of the various courses provided by civiltrain.nz. Civiltrain.nz is a training provider based in New Zealand. Since civiltrain.nz is not a gauge manufacturer, the courses provided would need to meet the NRC criteria in Appendix C of NUREG-1556, Vol. 1, Rev. 2. The names of the various courses offered by civiltrain.nz vary over the years, but the inspector determined that some were RSO courses and others were portable nuclear gauge user courses. The civiltrain.nz course director based in New Zealand acknowledged to the inspector that the courses do not reference United States regulations and requirements but instead reference New Zealand regulations and requirements. Although the various courses appeared to appropriately provide training on radiation safety basics (time, distance, shielding, etc.) and gauge use (theory of operation, etc.), they did not address NRC regulations, NRC license requirements, NRC security requirements, NRC incident reporting, NRC occupational and public dose limits, DOT transportation requirements, etc.

For example, the training materials stated that "it is mandatory in New Zealand to perform wipe tests on all sealed radioactive sources used in industry. A wipe test must be performed if: the gauge is involved in an accident, once the gauge reaches 10 years old, and then every 2 years." This is not consistent with NRC's regulatory requirement that the portable nuclear gauge must be tested for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration issued by the NRC under 10 CFR 32.210 or by an Agreement State. For the manufacturer and model portable nuclear gauge possessed by the licensee, this requirement is every 12 months. Another inconsistent example from the training is that if a gauge is lost, the New Zealand regulatory agency must be "notified of the loss within 7 days of the incident." This is not consistent with NRC regulatory requirements that require an immediate report by telephone to the NRC Headquarters Operations Center.

Several different licensee employees had transported portable nuclear gauges from the licensee's storage location to various job sites in American Samoa. Employees were interviewed and were unfamiliar with DOT requirements regarding the transport of Class 7 (Radioactive) materials. Based on the records available for review, it did not appear that any individual received the required DOT Hazmat training to transport

Class 7 (Radioactive) materials. Furthermore, the portable nuclear gauge user training and other training courses provided by civiltrain.nz did not include training on DOT transportation requirements.

The inspector inquired about the use of DOT-required shipping papers for the transport of portable nuclear gauges. A licensee employee produced a "Hazardous Material Shipping Paper" from June 19, 2020, that had been used by the licensee in the past for portable nuclear gauge transportation. The individual stated that the licensee no longer used these forms when transporting portable nuclear gauges but could not explain why the form stopped being used in 2020.

Based on the inspector's review of licensed activities, 11 apparent violations were identified regarding the licensee's failure to: (1) name an individual on the license to perform the duties and fulfil the responsibilities of the RSO; (2) conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license; (3) have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position; (4) use a minimum of two independent physical controls that formed tangible barriers to secure portable gauges from unauthorized removal; (5) test sealed sources for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration; (6) maintain a logbook indicating for each portable gauge possessed by the licensee: the date(s) of use, name(s) of the authorized users who will be responsible for the gauge, and the temporary job site(s) where the gauge will be used; (7) possess and use, or have access to and use, a radiation survey meter; (8) maintain documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of the NRC regulatory limits; (9) provide portable nuclear gauge users with training that met the NRC criteria; (10) instruct individuals in the DOT requirements related to the transport of Class 7 (radioactive) materials; and (11) use shipping papers that described the transport of Class 7 (radioactive) materials.

Apparent violation of License Condition 15

License Condition 15 of NRC License No. 56-29396-01, Amendment Nos. 4 and 5, dated January 6, 2022, and May 17, 2023, respectively, requires, in part, that the licensee shall conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 3 years from the date of each inventory, and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.

Contrary to the above, from April 2023 to February 20, 2024, the licensee failed to conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license. Specifically, the licensee did not perform any physical inventory of materials possessed under the license, which consisted of three Humboldt Scientific, Inc., Model 5001 portable nuclear gauges, since at least October 2022.

The licensee's failure to conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license was identified as an apparent violation of License Condition 15. (030-38318/2024-001-02)

Apparent violation of License Condition 17

License Condition 17 of NRC License No. 56-29396-01, Amendment No. 5, dated May 17, 2023, requires that each portable nuclear gauge shall have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. The gauge or its container must be locked when in transport, storage, or when not under the direct surveillance of an authorized user.

Contrary to the above, on February 20, 2024, for a portable nuclear gauge in storage and not under the direct surveillance of an authorized user, the licensee failed to have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. Specifically, one portable nuclear gauge was on a countertop in the licensee's concrete curing room and not under the direct surveillance of an authorized user. The portable nuclear gauge was not in its transportation container and did not have a lock on the portable nuclear gauge handle.

The licensee's failure to have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position was identified as an apparent violation of License Condition 17. (030-38318/2024-001-03)

Apparent violation of 10 CFR 30.34(i)

Title 10 CFR 30.34(i) requires that each portable gauge licensee shall use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal, whenever portable gauges are not under the control and constant surveillance of the licensee.

Contrary to the above, during February 19-20, 2024, the portable gauge licensee failed to use a minimum of two independent physical controls that formed tangible barriers to secure portable gauges from unauthorized removal, whenever the portable gauge was not under the control and constant surveillance of the licensee. Specifically, portable nuclear gauges were secured in the licensee's facility with only one physical barrier, the locked door to the materials laboratory. The portable nuclear gauges were not under the constant control and surveillance of the licensee.

The licensee's failure to use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal, whenever portable gauges are not under the control and constant surveillance of the licensee was identified as an apparent violation of 10 CFR 30.34(i). (030-38318/2024-001-04)

Apparent violation of License Condition 13

License Condition 13 of NRC License No. 56-29396-01, Amendment Nos. 4 and 5, dated January 6, 2022, and May 17, 2023, respectively, requires, in part, that sealed sources shall be tested for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration issued by the NRC under 10 CFR 32.210 or by an Agreement State.

The certificate of registration for the Humboldt Scientific, Inc., portable moisture and density gauge, NC-356-D-101-S, specifies that the leak test frequency is 12 months. Contrary to the above, from September 23, 2023, to February 20, 2024, the licensee

failed to test sealed sources for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration issued by the NRC under 10 CFR 32.210 or by an Agreement State, as evidenced by the following two examples:

1. One of the licensee's Humboldt Scientific, Inc., Model 5001 portable nuclear gauges was last tested for leakage and contamination on November 2, 2022, and as of February 20, 2024, had not been tested for leakage and contamination, a period in excess of 12 months.
2. One of the licensee's Humboldt Scientific, Inc., Model 5001 portable nuclear gauges was last tested for leakage and contamination on September 23, 2022, and as of February 20, 2024, had not been tested for leakage and contamination, a period in excess of 12 months.

The licensee's failure to test sealed sources for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration was identified as an apparent violation of License Condition 13. (030-38318/2024-001-05)

Apparent violation of License Condition 19

License Condition 19 of NRC License No. 56-29396-01, Amendment Nos. 4 and 5, dated January 6, 2022, and May 17, 2023, respectively, requires, in part, that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures listed in the license.

Application dated June 26, 2020, Item 10.6, states, in part, that the licensee will implement and maintain the operating, emergency, and security procedures in Appendix G to NUREG-1556, Volume 1, Revision 2.

Appendix G to NUREG-1556, Volume 1, Revision 2, states, in part, under "Operating Procedures," that a gauge must be signed out in a logbook (that remains at the storage location), including the date(s) of use, name(s) of the authorized users who will be responsible for the gauge, and the temporary jobsite(s) where the gauge will be used.

Contrary to the above, from July 16, 2022, to February 20, 2024, the licensee failed to conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed in the license. Specifically, for its portable nuclear gauge storage location in American Samoa, the licensee failed to maintain a logbook that remained at the storage location, indicating for each portable nuclear gauge possessed by the licensee: the date(s) of use, name(s) of the authorized users who will be responsible for the gauge, and the temporary job site(s) where the gauge will be used.

The licensee's failure to maintain a logbook that remained at the storage location, indicating for each portable gauge possessed by the licensee: the date(s) of use, name(s) of the authorized users who will be responsible for the gauge, and the temporary job site(s) where the gauge will be used was identified as an apparent violation of License Condition 19. (030-38318/2024-001-06)

Apparent violation of License Condition 19

License Condition 19 of NRC License No. 56-29396-01, Amendment No. 5, dated May 17, 2023, requires, in part, that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures listed in the license.

Application dated June 26, 2020, Item 10.2, states, in part, that the licensee will either possess and use, or have access to and use, a radiation survey meter that meets the criteria in the section titled, "Radiation Safety Program – Radiation Monitoring Instruments," in NUREG-1556, Volume 1, Revision 2.

Contrary to the above, on February 20, 2024, the licensee failed to conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed in the license. Specifically, the licensee had a radiation survey meter, but it displayed an error code that could not be cleared, was not functional, and therefore did not meet the criteria in the section titled, "Radiation Safety Program – Radiation Monitoring Instruments," in NUREG-1556, Volume 1, Revision 2.

The licensee's failure to either possess and use, or have access to and use, a radiation survey meter that meets the criteria in NUREG-1556, Volume 1, Revision 2, was identified as an apparent violation of License Condition 19. (030-38318/2024-001-07)

Apparent violation of License Condition 19

License Condition 19 of NRC License No. 56-29396-01, Amendment No. 5, dated May 17, 2023, requires, in part, that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures listed in the license.

Application dated June 26, 2020, Item 10.4, states, in part, that the licensee will either maintain, for inspection by the NRC, documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of the limits in 10 CFR 20.1502(a) or will provide and require the use of individual monitoring devices.

Contrary to the above, on February 20, 2024, the licensee failed to conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed in the license. Specifically, the licensee failed to maintain, for inspection by the NRC, documentation demonstrating that portable nuclear gauge users, who are unmonitored, are not likely to receive a radiation dose in excess of the limits in 10 CFR 20.1502(a). Although the licensee possessed one individual monitoring device, they did not use or require the use of the monitoring device and the licensee had no means to process the individual monitoring device or to assign it to individual users.

The licensee's failure to maintain, for inspection by the NRC, documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of the NRC regulatory limits was identified as an apparent violation of License Condition 19. (030-38318/2024-001-08)

Apparent violation of License Condition 19

License Condition 19 of NRC License No. 56-29396-01, Amendment No. 5, dated May 17, 2023, requires, in part, that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures listed in the license.

Application dated June 26, 2020, Item 8, states, in part, that before using licensed materials, authorized users will have successfully completed one of the training courses described in the "Criteria" Part of the section titled "Training for individuals working in or frequenting restricted areas," in NUREG-1556, Volume 1, Revision 2.

The criteria in NUREG-1556, Volume 1, Revision 2, states, in part that individuals using the gauges are usually referred to as "authorized users." Authorized users must have adequate training and experience in the use of portable gauges. The NRC has found successful completion of one of the following to be evidence of adequate training and experience: portable gauge manufacturer's course for users and hands-on training in the use of portable gauges, or equivalent course that meets the criteria in NUREG-1556, Volume 1, Revision 2, Appendix C.

NUREG-1556, Volume 1, Revision 2, Appendix C, Criteria for Acceptable Training Courses for Portable Gauge Users, states that acceptable course content for training courses for portable gauge users includes the following: (1) 1.5 to 2 hours of radiation safety and regulatory requirements, emphasizing practical subjects important to safe use of the gauge; radiation versus contamination; internal versus external exposure; concepts of time, distance, and shielding to minimize exposure; control and surveillance of gauges; location of the sealed source within the portable gauge; inventory; recordkeeping; incidents; licensing and inspection by the regulatory agency; need for complete and accurate information; employee protection; and deliberate misconduct, and (2) 1.5 to 2 hours of practical training, to include portable gauge theory, operating procedures, emergency procedures, security, maintenance, and transportation procedures; and field training emphasizing radiation safety, including dry runs of setting up and making measurements with the gauge, controlling and maintaining surveillance over the portable gauge, performing routine cleaning and lubrication, packaging and transporting the gauge, storing the gauge, and following emergency and security procedures.

Contrary to the above, from July 16, 2022, to February 20, 2024, the licensee failed to conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures listed in the license. Several licensee employees that used portable nuclear gauging devices did not have adequate training and experience in the use of portable gauges. The individuals took a course that was not equivalent to and did not meet the criteria in NUREG-1556, Volume 1, Revision 2, Appendix C. The course did not contain instruction in the NRC's regulatory requirements, including in the areas of inventory; recordkeeping; incidents; licensing and inspection by the NRC; need for complete and accurate information; employee protection; and deliberate misconduct. The practical training did not include training on NRC's requirements for operating procedures, emergency procedures, security, maintenance, transportation, controlling and maintaining surveillance over the portable gauge, performing routine cleaning and lubrication, packaging and transporting the gauge, storing the gauge, and following emergency and security procedures.

The licensee's failure to provide portable nuclear gauge users with training that met the criteria in NUREG-1556, Vol. 1, Rev. 2, was identified as an apparent violation of License Condition 19. (030-38318/2024-001-09)

Apparent violation of 10 CFR 71.5(a)

Title 10 CFR 71.5(a) requires, in part, that each licensee who transports licensed material on public highways shall comply with the applicable requirements of the DOT regulations in 49 CFR Parts 171 through 180 appropriate to the mode of transport.

Title 49 CFR 172.702(b) requires, in part, except as provided in 49 CFR 172.704(c)(1), that a hazmat employee who performs any function subject to the requirements of 49 CFR Chapter I, Subchapter C, may not perform that function unless instructed in the requirements of 49 CFR Chapter I, Subchapter C, that apply to that function. It is the duty of each hazmat employer to comply with the applicable requirements of 49 CFR Chapter I, Subchapter C, and to thoroughly instruct each hazmat employee in relation thereto.

Title 49 CFR 172.704(c)(1) requires, in part, that a new hazmat employee may perform those functions prior to the completion of the training provided that the employee performs those functions under the direct supervision of a properly trained and knowledgeable hazmat employee and the training is completed within 90 days after employment.

Contrary to the above, from July 16, 2022, to February 20, 2024, licensee hazmat employees performed functions subject to the requirements of 49 CFR Chapter I, Subchapter C, but the licensee failed to instruct the individuals in the requirements of 49 CFR Chapter I, Subchapter C, that applied to that function. Specifically, on numerous occasions, licensee hazmat employees transported portable nuclear gauges containing licensed Class 7 (radioactive) materials on public highways in NRC jurisdiction, and the individuals had not been instructed in the requirements of 49 CFR Chapter I, Subchapter C, that apply to that function. The individuals did not perform the functions under the direct supervision of a properly trained and knowledgeable hazmat employee and the training was not completed within 90 days after performing those functions.

The licensee's failure to instruct individuals (hazmat employees) in the requirements of 49 CFR Chapter I, Subchapter C, related to the transport of Class 7 (radioactive) materials was identified as an apparent violation of 10 CFR 71.5(a). (030-38318/2024-001-10)

Apparent violation of 10 CFR 71.5(a)

Title 10 CFR 71.5(a) requires, in part, that each licensee who transports licensed material on public highways shall comply with the applicable requirements of the DOT regulations in 49 CFR Parts 171 through 180 appropriate to the mode of transport.

Title 49 CFR 172.200(a) requires, in part, that each person who offers a hazardous material for transportation shall describe the hazardous material on the shipping paper in the manner required by 49 CFR Part 172, Subpart C – Shipping Papers.

Contrary to the above from June 20, 2020, to February 20, 2024, the licensee offered hazardous material for transportation and failed to describe the hazardous material on the shipping paper in the manner required by 49 CFR Part 172, Subpart C – Shipping Papers. Specifically, on numerous occasions, the licensee transported portable nuclear gauges containing licensed Class 7 (radioactive) materials on public highways in NRC jurisdiction and failed to have shipping papers that described the hazardous materials.

The licensee's failure to use shipping papers that described the transport of Class 7 (radioactive) materials was identified as an apparent violation of 10 CFR 71.5(a). (030-38318/2024-001-11)

2.3 Causal Evaluation

A formal root cause analysis was not performed by the inspector as it was beyond the scope of the inspection. The inspector's general observations were that the deficiencies could largely be attributed to licensee turnover at the RSO position over the past few years. Many of the positions at the licensee are unable to be filled locally; instead, they are often filled by licensee employees from New Zealand that are assigned "terms" in American Samoa and return to New Zealand when the term is complete. The RSO that was listed in the license at the time of the inspection seemed to be away from American Samoa for significant periods of time, precluding adequate oversight of the licensed activities and hindering the radiation safety program.

This issue was compounded by the RSO and the portable nuclear gauge users' lack of adequate training to implement the portable gauge program, because the training they received was based on New Zealand regulatory and license requirements rather than NRC's requirements. Although the gauge users appeared competent and knowledgeable in the operation of a portable nuclear gauge, they did not have the knowledge necessary to implement the radiation safety program and assure compliance with NRC regulatory and license requirements. This lack of adequate training is borne out by the number and type of inspection findings and actual licensee performance issues observed.

Furthermore, the licensee's corrective actions to prevent recurrence of the previous violation, which involved the failure to name an individual on the license to fulfil the duties and responsibilities of the RSO, were ineffective. There was no "handover process" put in place detailing changes in RSO. Although regular audits of the licensed activities were performed, these audits were ineffective in identifying regulatory noncompliances, or the lack of a second trained and qualified individual that could perform the duties and fulfil the responsibilities of the RSO.

2.4 Corrective Actions

Later in the week, the inspector returned to the licensee's facility and observed that the licensee had taken actions to secure its portable nuclear gauges from unauthorized removal or access. The licensee relocated two portable gauges in their transportation cases to a cabinet within the gauge storage room and locked it, serving as the primary barrier to prevent unauthorized removal or access; the outside door to the materials laboratory would serve as the secondary barrier.

Because the licensee had three portable nuclear gauges, this storage configuration for two portable nuclear gauges would not be adequate when the third gauge was received back from the vendor where it was being calibrated. Accordingly, the licensee was in the process of building out a separate area within the storage room where all three portable nuclear gauges could be securely stored. The inspector observed that the wall had been built and the licensee was waiting on hanging the door until sufficient hinges could be acquired to support the door. When complete, the lock on the door would be the primary barrier to prevent unauthorized removal or access, and the outside door to the materials laboratory would serve as the secondary barrier.

On May 17, 2024, the licensee submitted a license amendment request to the NRC to change the named RSO on the license (ML24138A150). The licensee provided the names of four individuals and training certificates for three of the four individuals. All of the training certificates provided were for civiltrain.nz courses that did not meet the NRC's criteria for RSOs. The courses were taken by the individuals after the NRC's onsite inspection. One individual also took the portable nuclear gauge user course from civiltrain.nz, which also did not meet the NRC's criteria.

On July 18, 2024, the NRC sent a letter to the licensee requesting additional information to support the amendment request (ML24200A118). On August 16, 2024, the licensee provided a written response to NRC that included the name of a specific individual requested to be named as the RSO on the license. The licensee provided a training certificate from a US-based portable nuclear gauge manufacturer dated August 13, 2024, which meets the NRC's criteria for a portable nuclear gauge user. The training also met the criteria for DOT Hazmat training for the transport of portable nuclear gauges. An additional DOT training course was taken by the individual on June 30, 2024. The individual is scheduled to take a portable nuclear gauge manufacturer's RSO course in the fall of 2024.

The licensee has not provided the inspector with any specific corrective actions that it has taken or plans to take to correct the other identified deficiencies.

2.5 Conclusions

One previous violation was reviewed regarding the licensee's failure to have the individual named as the RSO for the license fulfilling the duties and responsibilities of the RSO. Based on the inspection, there was a recurrence of this violation and therefore the violation could not be closed.

Based on the current inspection, 11 apparent violations were identified regarding the licensee's failure to: (1) name an individual on the license to perform the duties and fulfill the responsibilities of the RSO; (2) conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license; (3) have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position; (4) use a minimum of two independent physical controls that formed tangible barriers to secure portable gauges from unauthorized removal; (5) test sealed sources for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration; (6) maintain a logbook that remained at the storage location, indicating for each portable gauge possessed by the licensee: the date(s) of use, name(s) of the authorized users who will be responsible for the gauge, and the temporary job site(s) where the gauge will

be used; (7) possess and use, or have access to and use, a radiation survey meter; (8) maintain documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of the NRC regulatory limits; (9) provide portable nuclear gauge users with training that met the NRC criteria; (10) instruct individuals in the DOT requirements related to the transport of Class 7 (radioactive) materials; and (11) use shipping papers that described the transport of Class 7 (radioactive) materials.

3 Exit Meeting Summary

On September 3, 2024, a final exit briefing was conducted via videoconference with Benoit Midol, General Manager, Pacific; Craig Wrigglesworth, Branch Manager, American Samoa; and Apensia (Ben) Maraivalu, Project Engineer, to discuss the inspection findings. The NRC representative discussed the content of the inspection report, described the NRC's enforcement process, and described the options for the licensee to: (1) respond in writing to the apparent violations described in the inspection report; (2) request a predecisional enforcement conference; or (3) request alternative dispute resolution. The licensee did not identify any proprietary information.

Supplemental Inspection Information

PARTIAL LIST OF PERSONS CONTACTED

Benoit Midol, General Manager, Pacific
Craig Wrigglesworth, Branch Manager, American Samoa
Ienisei Matautia, Safety Officer
Max Tomasi, Laboratory Supervisor
Apenia (Ben) Maraivalu, Project Engineer

INSPECTION PROCEDURES USED

IP 87139 Portable Nuclear Gauge Programs

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

030-38318/2024-001-01	AV	Failure to name an individual on the license to fulfil the duties and responsibilities of the RSO. (License Condition 12)
030-38318/2024-001-02	AV	Failure to conduct a physical inventory every 6 months to account for all sealed sources and/or devices received and possessed under the license. (License Condition 15)
030-38318/2024-001-03	AV	Failure to have a lock or outer locked container designed to prevent unauthorized or accidental removal of the sealed source from its shielded position. (License Condition 17)
030-38318/2024-001-04	AV	Failure to use a minimum of two independent physical controls that formed tangible barriers to secure portable gauges from unauthorized removal. (10 CFR 30.34(i))
030-38318/2024-001-05	AV	Failure to test sealed sources for leakage and contamination at intervals not to exceed the intervals specified in the certificate of registration. (License Condition 13)
030-38318/2024-001-06	AV	Failure to maintain a logbook that remained at the storage location, indicating for each portable gauge possessed by the licensee: the date(s) of use, name(s) of the authorized users who will be responsible for the gauge, and the temporary job site(s) where the gauge will be used. (License Condition 19)

030-38318/2024-001-07	AV	Failure to either possess and use, or have access to and use, a radiation survey meter that meets the criteria in NUREG-1556, Vol. 1, Rev. 2. (License Condition 19)
030-38318/2024-001-08	AV	Failure to maintain, for inspection by the NRC, documentation demonstrating that unmonitored individuals are not likely to receive a radiation dose in excess of the NRC regulatory limits. (License Condition 19)
030-38318/2024-001-09	AV	Failure to provide portable nuclear gauge users with training that met the criteria in NUREG-1556, Vol. 1, Rev. 2. (License Condition 19)
030-38318/2024-001-10	AV	Failure to instruct individuals (hazmat employees) in the requirements of 49 CFR Chapter I, Subchapter C, related to the transport of Class 7 (radioactive) materials. (10 CFR 71.5(a))
030-38318/2024-001-11	AV	Failure to use shipping papers that described the transport of Class 7 (radioactive) materials. (10 CFR 71.5(a))

Closed

None

Discussed

030-38318/2022-001-01	VIO	Failure to have the named individual as the RSO for the license. (License Condition 12)
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LIST OF ACRONYMS AND ABBREVIATIONS USED

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ADAMS	Agencywide Documents Access and Management System
ADR	Alternative Dispute Resolution
AV	Apparent Violation
IP	Inspection Procedure
McDow	McConnell Dowell (American Samoa) Ltd.
NOV	Notice of Violation
NRC	U.S. Nuclear Regulatory Commission
PEC	Predecisional Enforcement Conference
RSO	Radiation Safety Officer
DOT	U.S. Department of Transportation
VIO	Violation