SETTLEMENT AGREEMENT AND ADMINISTRATIVE ORDER ON CONSENT BETWEEN THE STATE OF NEVADA AND THE U.S. DEPARTMENT OF ENERGY FOR RESOLUTION OF THE FINDING OF ALLEGED VIOLATION AND ORDER, DATED JUNE 15, 2020

I. JURISDICTION AND GENERAL PROVISIONS

1. This Settlement Agreement and Administrative Order on Consent (Agreement) is entered into between the U.S. Department of Energy, National Nuclear Security Administration, Nevada Field Office (DOE/NNSA/NFO), the DOE Environmental Management Nevada Program (EM NV), and the State of Nevada, Department of Conservation and Natural Resources, Division of Environmental Protection (NDEP).

2. The Department of Conservation and Natural Resources (Department) is the solid waste management authority for all areas of the State of Nevada not regulated by a district board of health (Nevada Revised Statutes [NRS] 444.495).

3. The Director of the Department delegated its solid waste management authority to NDEP, which enforces the provisions of the Collection and Disposal of Solid Waste statutes, codified at NRS 444.440 to NRS 444.620, inclusive, and its implementing regulations, codified at, Nevada Administrative Code (NAC) 444.570 to 444.7499. See NRS 444.570 and Department Delegation and Division Delegation and Re-delegation of Authority under the State of Nevada's Environmental Statutes and Regulations Memorandum.

4. For purposes of understanding and clarity, the responsibilities of the implementing entities for DOE are described below.

   a. The National Nuclear Security Administration Nevada Field Office (NNSA/NFO) is responsible for environmental permits, safety authorizations, and operational approvals for waste disposal at the Area 5 Radioactive Waste Management Complex (RWMC).

   b. The NNSA/NFO and EM NV Program are jointly responsible for the Nevada National Security Site Waste Acceptance Criteria (NNSSWAC) which sets the criteria for generators to characterize, package, and dispose of waste at the NNSS.

   c. The EM NV Program is responsible for approval of radioactive waste generators programs and waste profile approvals under the NNSSWAC.

   d. The EM NV Program is responsible for programmatic oversight and coordination of radioactive waste acceptance program activities for NNSS-approved waste generators.

   e. The NNSA/NFO and the NNSS M&O contractor are the assigned owner and operator, respectively, for Solid Waste Permit SW-532. This permit authorizes disposal of low-

level radioactive waste that also has a solid waste constituent including, but not limited to, asbestiform, hydro-carbon-burdened media and debris, and/or polychlorinated biphenyl (PCB).

5. NDEP is the solid waste management authority for Nye County, Nevada.

6. The NNSS's Area 5 Radioactive Waste Management Complex (RWMC) is located in Nye County, Nevada.

7. NDEP has jurisdiction to enforce provisions of the Collection and Disposal of Solid Waste statutes, codified at NRS 444.440 to NRS 444.620, inclusive, and its implementing regulations, codified at, NAC 444.570 to 444.5499 at the Nevada National Security Site by virtue of its location in Nye County, Nevada.

8. DOE/NNSA/NFO holds a Solid Waste Disposal Permit, SW-532, issued by NDEP which governs solid waste acceptance and disposal at the RWMC. The Parties recognize that solid waste requirements are applicable as identified in Permit SW-532.

9. NDEP issued a Finding of Alleged Violation (FOAV) and Order to DOE/NNSA/NFO on June 15, 2020, related to certain waste disposal by DOE/NNSA/NFO which allegedly violated SW-532 (Appendices A and B). The FOAV cited two alleged violations of solid waste regulations and concerned thirty-three (33) waste packages received from the NNSA Y-12 National Security Complex (Y-12).

10. On April 21, 2021, the United States Environmental Protection Agency (EPA) issued a **Resource Conservation and Recovery Act ("RCRA") Referral for Department of Energy at Nevada National Security Site (DOE-NNSS)** to NDEP for resolution of the potential violations of the State of Nevada's authorized RCRA hazardous waste management program identified during a RCRA Compliance Evaluation Inspection (CEI) conducted on August 13 and 14, 2019. The referral recommended that NDEP take the appropriate action against the DOE/NNSA for the potential violations stated in EPA's inspection report (Appendix D).

11. The purpose of this Agreement is to resolve all NDEP issues related to the FOAV and Order, dated June 15, 2020, and all of EPA's "Area of Potential Violations" and "Area(s) of Concern" as stated in the April 10, 2020, CEI Report.

12. DOE/NNSA/NFO, EM NV and NDEP recognize that this Agreement has been negotiated in good faith and that the actions undertaken by DOE/NNSA/NFO and EM NV in accordance with this agreement do not constitute an admission of liability and shall not be used by any person related or unrelated to this Agreement for purposes other than to implement or enforce this Agreement.

13. DOE/NNSA/NFO and EM NV agree to comply with and be bound by the terms of the Agreement and, subject to the terms of this Agreement, agree to perform all actions required by this Agreement and any modification to it.

II. FACTUAL FINDINGS AND CONCLUSIONS OF LAW

14. The FOAV and Order are attached at Appendices A and B and incorporated into this Agreement by reference, except that DOE/NNSA/NFO, EM NV, and NDEP agree that matters concerning the as-packaged pressure of the Y-12 wastes have been determined to not be a NNSSWAC violation and therefore not a violation of SW-532 or the NNSSWAC.

III. WORK

15. Having given due consideration to the previous factual findings and conclusions of law, the parties have identified and agreed upon the following information and mitigation measures to resolve these matters:

    a. DOE/NNSA/NFO will submit to NDEP a revision to the Solid Waste Permit SW-532 application and the mixed low-level waste Permit NEV HW0101 application. The scope of the permit revisions will be coordinated between all Parties and will include the clarification of requirements for solid waste acceptance and disposition.

    b. DOE/NNSA/NFO and EM NV will assure that the activities included in *Table 1: Settlement Agreement Waste Management Improvements* (Appendix C), to improve waste characterization and verification processes, and therefore, waste management confidence, are implemented. The scope and schedule of these improvements have been negotiated with input from all Parties.

    c. DOE/NNSA/NFO and EM NV will assure that the activities included in *Table 2: Settlement Agreement Actions to Resolve EPA Potential Violations* (Appendix E) are implemented. The scope and schedule of these improvements have been negotiated with input from all Parties.

    d. DOE/NNSA/NFO, EM NV, and NDEP will periodically meet to monitor the status of actions identified in Appendix C and Appendix E.

IV. RESPONSE COSTS REIMBURSEMENT

16. DOE/NNSA/NFO agrees to transfer funds to NDEP in the amount of $65,000.00 (Sixty-five Thousand Dollars) for reimbursement of the NDEP's enforcement investigation costs pursuant to issues addressed in this Agreement. DOE/NNSA/NFO shall make this payment within 30 days after the Effective Date of this Agreement.

17. Electronic payment shall be made to the Nevada Division of Environmental Protection, "Hazardous Waste Reimbursement – Las Vegas" through the secure website: https://epayments.ndep.nv.gov/.

18. Should DOE/NNSA/NFO and EM NV fail to complete all actions identified in *Table 1: Settlement Agreement Waste Management Improvements (*Appendix C), DOE/NNSA/NFO, EM NV, and the NDEP will negotiate a prorated cash settlement or additional, mutually agreed-upon Waste Management Improvements for a cost similar to the non-completed actions. If the parties cannot negotiate a prorated cash settlement, the dispute resolution procedures in Section XII will be used to determine the amount. Any prorated cash settlement will not exceed the estimated costs of any uncompleted actions identified in Appendix C.

V. CONSENT, ACKNOWLEDGEMENTS, AND WAIVER

19. Based upon the foregoing Findings of Fact and Conclusions of Law, the DOE/NNSA/NFO and EM NV:

    a. Acknowledge that the NDEP has jurisdiction over the subject matter alleged in the FOAV pursuant to NRS 459.400 to 459.600;

    b. Consent to the terms of this Agreement; and

    c. Waive their rights to appeal the FOAV and Order to the State Environmental Commission or judicial authority on any issue of law or fact set forth in the FOAV and Order adopted by reference into this agreement.

VI. COVENANTS NOT TO SUE BY NDEP

20. In consideration of the action or actions that will be performed and the payments that will be made by DOE/NNSA/NFO under the terms of this Agreement, and except as otherwise provided in this Agreement, NDEP covenants not to sue or to take administrative action against DOE/NNSA/NFO or EM NV pursuant to NRS Chapters 444 and 459 and NAC Chapter 444 related to the legal and factual matters addressed in the FOAV and Order, the Work, and Response Cost Reimbursement. This covenant shall take effect upon the Effective Date and is conditioned upon the complete and satisfactory performance by DOE/NNSA/NFO and EM NV of its obligations under this Agreement, including, but not limited to, payment of Response Costs Reimbursement under Section IV. This covenant extends to DOE/NNSA/NFO and EM NV and their contractors.

VII. RESERVATION OF RIGHTS

21. The covenant not to sue set forth in Section VI does not pertain to any matter other than those expressly identified in that section and is limited to the facts and circumstance known by or conveyed to NDEP as of the Effective Date of this Agreement.

22. Nothing in this Agreement shall limit the power and authority of NDEP under relevant and applicable federal and/or state environmental law, including but not limited to NRS Chapters 444, 445A, and 459; NAC Chapters 444 and 445A; the Solid Waste Disposal Act (SWDA), the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to order or seek legal or equitable relief directing all actions, including actions beyond the scope of Work identified in Section III of this Agreement, to protect public health, welfare, or the environment or to prevent, abate, minimize, or remedy an actual or threatened release of hazardous substances, pollutants, or contaminants but only to the extent that facts not known by or conveyed to NDEP or new facts obtained by NDEP after the Effective Date of this Agreement demonstrate that such actions are reasonable and appropriate. Further, NDEP reserves its authority to seek civil penalties, damages, and costs for new violations or material changes to NDEP's understanding of the alleged violations described in the FOAV and Order resulting from these additional facts.

23. Nothing in this Agreement resolves or releases DOE/NNSA/NFO and EM NV from legal or equitable liability, including but not limited to, administrative orders, injunctive relief, civil penalties, damages, and costs, for any breach of terms of this Agreement.

24. Nothing in this Agreement resolves or releases DOE/NNSA/NFO and EM NV from legal or equitable liability, including but not limited to, administrative orders, injunctive relief, civil penalties, damages, and costs, for any action or omission outside the scope of the FOAV and Order that constitute a violation of relevant and applicable federal and/or state environmental law, including but not limited to, NRS Chapter 444, 445A, and 459; NAC Chapters 444 and 445A; the SDWA, RCRA, CERCLA.

25. Nothing in this Agreement resolves or releases DOE/NNSA/NFO and EM NV from any claims NDEP may have against DOE/NNSA/NFO and EM NV in the event NDEP is sued for any act or omission of DOE/NNSA/NFO and EM NV identified in, or directly or indirectly associated with, the factual and legal matters in the FOAV and Order; or on account of, negligent or other wrongful acts or omissions of DOE/NNSA/NFO and EM NV, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Agreement.

VIII. COVENANTS NOT TO SUE BY DOE

26. DOE covenants not to sue and agrees not to assert any claims or causes of action against NDEP, or its contractors or employees, with respect to the Work, Response Costs, this Agreement, or any findings by the NDEP Administrator at the conclusion of the Dispute Resolution process under Section XII.

IX. OTHER CLAIMS

27. By issuance of this Agreement, the State of Nevada and NDEP assume no liability for injuries or damages to persons or property resulting from any act or omission of DOE

identified in, or directly or indirectly associated with, the factual and legal matters in the FOAV and Order.

28. The State of Nevada and/or NDEP shall not be deemed a party to any contract entered into by DOE or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions required by this Agreement.

29. Except as expressly provided in Section VI (Covenant Not to Sue by NDEP), nothing in this Agreement constitutes a satisfaction of, or release from, any claim or cause of action against DOE or any person not a party to this Agreement, for any liability such person may have under any other state and federal law not identified in Section VII (Reservation of Rights).

XI. NOTICES

30. Any notices required or desired to be given under this Agreement shall be in writing and personally served or sent by certified mail with return receipt requested, or by email with read receipt or delivery notification. All notices shall be addressed to the receiving party at the following address, or at such other address as the party may from time-to-time direct in writing:

If to the DOE/NNSA/NFO then to:

Mr. Scott Wade
Senior Advisor for Environmental Management
National Nuclear Security Administration/Nevada Field Office
P.O. Box 98518
Las Vegas, NV 89193-8518

If to the DOE/EM Nevada Program then to:

Mr. Robert Boehlecke
Program Manager
DOE Environmental Management Nevada Program
100 N. City Parkway, Ste. 1750
Las Vegas, NV 89106

If to the Division of Environmental Protection, then to:

Christine Andres, Chief
Bureau of Federal Facilities
Nevada Division of Environmental Protection
375 E. Warm Springs Road, Suite 200
Las Vegas, NV 89119

XII. DISPUTE RESOLUTION

31. While not anticipated to be invoked, in the event a dispute arises under this Agreement, the Parties will use the Informal Dispute Resolution and Appeal Procedures outlined in Part IX of the Federal Facility Agreement and Consent Order established between the DOE and the State of Nevada. The relevant dispute resolution areas are as follows:

    a. All parties to this Agreement shall make reasonable efforts to informally resolve outstanding issues and/or disputes. During the informal dispute resolution process, the parties shall meet as many times as necessary to discuss and attempt resolution of the dispute. If resolution at the agreement coordinator level cannot be reached, efforts may be elevated to the immediate supervisors of the agreement coordinators or, if necessary, to the agency executive level. If resolution cannot be achieved informally, the appeal procedures of this Part may be implemented.

    b. In the event DOE are aggrieved by a written determination by the NDEP agreement coordinator or designee, DOE may appeal the matter as follows: (a) Within fifteen (15) calendar days following DOE receipt of the NDEP determination being appealed, DOE shall request an informal administrative hearing. Seven calendar days prior to the informal administrative hearing, DOE shall provide NDEP with a witness list, list of exhibits, and summary of evidence intended to be presented. The informal administrative hearing shall be held in the NDEP offices within thirty (30) calendar days of the request, unless otherwise agreed. Following the informal administrative hearing, the NDEP administrator shall issue the final decision; (b) If the informal administrative hearing fails to resolve the issue, DOE may, within twenty (20) calendar days following receipt of the NDEP administrator's final decision, appeal the administrator's decision to the Nevada State Environmental Commission (SEC). An appeal is made by filing SEC Form #3 with the Secretary of the SEC. SEC Form #3 will be enclosed with the decision document referenced in paragraph IX.2.a; (c) A hearing before the SEC shall be conducted within twenty (20) calendar days pursuant to the Nevada Administrative Procedure Act, NRS 233B.010 et seq. and the Rules of Practice and Procedure of the SEC, NAC 445B.875 through 445B.897.

    c. Any of the parties may appeal the final decision of the SEC as provided for in paragraph IX.2.c by filing a petition for judicial review pursuant to NRS 233B.010 et seq.

XIII. FORCE MAJEURE

32. DOE/NNSA/NFO and EM NV agree to perform all requirements of this Agreement within the time limits established under this Agreement unless the performance is delayed by a force majeure. For purposes of this Settlement Agreement, a force majeure is defined as any event arising from causes beyond the control of DOE, or of any entity controlled by DOE, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under this Agreement despite DOE's best efforts to fulfill the

obligation. Force majeure does not include financial inability to complete the Work, or increased cost of performance, but may include pandemic related work delay.

33. If any event occurs or has occurred that may delay the completion of any activity under this Agreement, whether or not caused by a force majeure event, DOE shall notify NDEP orally or via email within seven (7) calendar days of when DOE first knew that the event might cause a delay. Within fourteen (14) calendar days thereafter, DOE shall provide to NDEP in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; DOE's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of DOE, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall preclude DOE from asserting any claim of force majeure for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

34. If NDEP agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Agreement that are affected by the force majeure event will be extended by NDEP for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. If NDEP does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, NDEP will notify DOE/NNSA/NFO and EM NV in writing of its decision. Should DOE not agree with NDEP's decision, the DOE may seek to invoke the Dispute Resolution process cited in Section XII. If NDEP agrees that the delay is attributable to a force majeure event, NDEP will notify DOE/NNSA/NFO and EM NV in writing of the length of extension, if any, for performance of the obligations affected by the force majeure event.

XIV. SUCCESSORS AND ASSIGNS

35. The provisions of this Agreement shall apply to, and be binding upon, all the parties to this action, their officers, directors, agents, servants, employees, contractors, successors, and assigns.

XV. GOVERNING LAW

36. To the extent not covered by Federal Law, this Agreement shall be governed by, and construed in accordance with, the laws of the State of Nevada. Any action at law, suit in equity, or judicial proceeding for the enforcement of the remaining provisions of this Agreement, shall be instituted and maintained in either federal or state court of the State of Nevada, wherever the action is filed, and jurisdiction is proper.

XVI. OBLIGATIONS AND AVAILABLITY OF FUNDS

37. The duties, obligations and requirements of the DOE under this Agreement calling for the expenditure of appropriated funds, except past and future NDEP Response Cost Reimbursement required by Section IV, shall be subject to the availability of funds appropriated by the U.S. Congress that DOE may legally spend for such purposes. DOE shall make reasonable efforts to ensure that such funding is available for the Work under Section III and any other obligation it assumes by signing this Agreement.

XVII. MODIFICATION

38. If DOE seeks permission to deviate from the Work or schedule, DOE/NNSA/NFO and EM NV shall submit a written request to NDEP for approval outlining the proposed modification and its basis. DOE/NNSA/NFO and EM NV may not proceed with the requested deviation until receiving oral or written approval from NDEP under Section XI.

39. No informal advice, guidance, suggestion, or comment by NDEP representatives regarding reports, plans, specifications, schedules, or any other writing submitted by DOE shall relieve DOE of its obligation to obtain any formal approval required by this Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

XVIII. NOTICE OF COMPLETION OF WORK

40. DOE/NNSA/NFO and EM NV may submit a Notice of Completion of Work, in accordance with Section XI, to NDEP after it considers actions or obligations under this Agreement complete.

41. If NDEP determines, after NDEP's review of all submissions, reports, and other evidence, that DOE has satisfied all of its obligations under this Agreement, NDEP will provide written notice, in accordance with Section XI, to DOE/NNSA/NFO and EM NV that it concurs with the notice. This Agreement will terminate upon NDEP submitting this notice to DOE/NNSA/NFO and EM NV.

42. If NDEP determines after NDEP's review of all submissions, reports, and other evidence, that DOE/NNSA/NFO and EM NV have not satisfied all of its obligations under this Agreement, NDEP will provide written notice, in accordance with Section XI, to DOE/NNSA/NFO and EM NV of the same, provide a list of the deficiencies, and require that DOE correct such deficiencies. DOE shall correct the deficiencies and resubmit a Notice of Completion of Work for NDEP review and response. Failure by DOE to correct the deficiencies as directed by NDEP shall be a violation of this Settlement Agreement.

XIX. SEVERABILITY/INTEGRATION/APPENDICES

43. If a court issues an order that invalidates any provision of this Agreement, DOE shall remain bound to comply with all provisions of this Agreement not invalidated by the court's order.

44. This Agreement and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to this Agreement. The parties acknowledge that there are no representations, agreements or understandings relating to this Agreement other than those expressly contained in this Agreement. The following appendices are attached to, and incorporated in, this Agreement:

    a. APPENDIX A: FINDING OF ALLEGED VIOLATION, dated June 15, 2020;

    b. APPENDIX B: ORDER, dated June 15, 2020;

    c. APPENDIX C: TABLE 1, SETTLEMENT AGREEMENT WASTE MANAGEMENT IMPROVEMENTS;

    d. APPENDIX D: EPA REFERRAL TO NDEP, dated April 21, 2021; and

    e. APPENDIX E: TABLE 2, SETTLEMENT AGREEMENT ACTIONS TO RESOLVE EPA POTENTIAL VIOLATIONS.

XX. EFFECTIVE DATE

45. This Agreement shall be effective upon NDEP providing notice, in accordance with Section XI, to DOE/NNSA/NFO and EM NV of the fully executed Agreement.

XXI. AUTHORITY

46. Those persons executing this Agreement represent they are authorized to act on behalf of and bind the parties to this Agreement.

G. E. Lovato, Administrator
Nevada Division of Environmental Protection

June 22, 2021
Date

D. R. Bowman, Ph.D., Manager
NNSA Nevada Field Office

6/14/21
Date

R. F. Boehlecke, Program Manager
DOE EM Nevada Program

6/14/21
Date

NEVADA DIVISION OF
ENVIRONMENTAL PROTECTION

STATE OF NEVADA
Department of Conservation & Natural Resources
Steve Sisolak, Governor
Bradley Crowell, Director
Greg Lovato, Administrator

June 15, 2020

Mr. Scott Wade
U.S. Department of Energy
National Nuclear Security Administration
Nevada Field Office
P.O. Box 98518
Las Vegas, NV 89193-8518

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Dear Mr. Wade:

The enclosed Finding of Alleged Violation and Order are issued under the authority of the Administrator of the Nevada Division of Environmental Protection (Division) pursuant to Nevada Revised Statutes (NRS) 444.440 through NRS 444.620, specifically NRS 444.553, NRS 444.570, and NRS 444.592. The Finding of Alleged Violation and Order relate to the alleged failure of the U.S. Department of Energy/National Nuclear Security Administration/Nevada Field Office (NNSA/NFO) to comply with provisions of a Solid Waste Permit issued by the Division under NRS 444.553.

As part of the FOAV and Order, the Division may recover civil penalties up to $5,000 per day for each day the NNSA/NFO committed and continues to commit the violations described in these documents as well as actual damages, including attorney's fees and costs, incurred as a result of these same unlawful acts or practices. NRS 444.596, 444.598.

The enclosed Order requires the NNSA/NFO to take certain corrective action measures and either request an in-person show cause hearing for the purpose of demonstrating why the Division should not seek civil penalties for the violations cited in the FOAV and Order, or, alternatively, engage in good faith with the Division to set and complete a mediation schedule to resolve the Division's factual and legal claims, including civil penalties and damages, associated with these same violations.

The Order is final and not subject to review unless, within 10 days of receipt of the Order, a representative of the NNSA/NFO files a written request for a hearing with the State Environmental Commission (SEC) using SEC Form #3 which can be found online at www.sec.nv.gov/participate/sec-appeal-process/. Appeal requests should be sent to:

State Environmental Commission
Valerie King, Executive Secretary
901 S. Stewart Street, Ste. 4001
Carson City, NV 89701-5249
vking@ndep.nv.gov
(775) 687-9374, FAX (775) 687-8335

All questions of a technical nature should be directed to Justin Costa Rica, Bureau of Federal Facilities at 702-486-2850 ext. 234. Questions concerning the Order or scheduling meetings should be directed to Christine Andres, Bureau of Federal Facilities at 702-486-2850 ext. 232.

Sincerely,

Christine D. Andres
Chief, Bureau of Federal Facilities
Nevada Division of Environmental Protection

Certified Mail #: 7014 2870 0001 8500 4814

Enc: FOAV
Order

ec/encs: Bradley Crowell, Director, DCNR
Jim Lawrence, Deputy Director, DCNR
Greg Lovato, Administrator, NDEP
Christine D. Andres, Chief, BFF
Justin Costa Rica, BFF
Robert Boehlecke, EM Nevada Program
State Environmental Commission
Amy Miller, US EPA
Kaoru Morimoto, US EPA

cc/encs: File

FINDING OF ALLEGED VIOLATION

I. INTRODUCTION

This is a Finding of Alleged Violation and Order issued by the State of Nevada, Department of Conservation and Natural Resources, Division of Environmental Protection (Division) to the U.S. Department of Energy/National Nuclear Security Administration/Nevada Field Office (NNSA/NFO) under Nevada's Collection and Disposal of Solid Waste statutes, codified at NRS 444.440 to NRS 444.620, inclusive, and its implementing regulations, codified at, NAC 444.570 to 444.7499.

II. STATEMENT OF LAW

1. The Department of Conservation and Natural Resources (DCNR) is the solid waste management authority for all areas of the State of Nevada not regulated by a district board of health. NRS 444.495.

2. The Director of the DCNR delegated its solid waste management authority to the Division, which enforces the provisions of the Collection and Disposal of Solid Waste statutes, codified at NRS 444.440 to NRS 444.560, inclusive, and its implementing regulations, codified at, NAC 444.570 to 444.7499. *See* NRS 444.570, Department Delegation and Division Delegation and Re-delegation of Authority under the State of Nevada's Environmental Statutes and Regulations Memorandum.

3. NRS 444.553(2) requires a person to obtain a permit to operate or authorize the operation of a disposal site and comply with the terms of that permit while operating or authorizing the operation of the disposal site.

4. The term person includes a federal agency. NRS 444.480.

5. Disposal site means, in relevant part, any place at which solid waste is dumped, abandoned or accepted or disposed of by incineration, land filling, composting or any other method. NRS 444.460.

6. The Division has the power and authority to issue such permits within its solid waste management jurisdiction. NRS 444.553(1).

7. The Division has the power and authority to issue an order to, among others, the permittee to take steps to prevent an act or eliminate a practice which is a threat to human health, public safety or the environment, or a violation of a term or condition of a permit issued pursuant to NRS 444.553. NRS 444.592(1).

8. The Division has the power and authority to recover civil penalties up to $5,000 for each day a person, including but not limited to the permittee, committed an act or practice which is a threat to human health, public safety or the environment, or violated a term or condition of a permit issued pursuant to NRS 444.553. NRS 444.596.

9. The Division may also recover actual damages, including but not limited to testing for and removing, correcting, or terminating any adverse effects, and attorney's fees and costs, including but not limit to those incurred in administrative proceedings, incurred as a result of an act or practice which is a threat to human health, public safety or the environment, or a violation of a term or condition of a permit issued pursuant to NRS 444.553. NRS 444.598.

III. STATEMENT OF FACTS

A. Solid Waste Permit

1. The Nevada National Security Site's (NNSS) Area 5 Radioactive Waste Management Complex (RWMC) is located in Nye County, Nevada.

2. The Division is the solid waste management authority for Nye County, Nevada.

3. On October 8, 2018, the Division issued Revision 4 of Solid Waste Disposal Permit SW-532 to the NNSA/NFO under NRS 444.553.

4. By its terms, SW-532 requires the NNSA/NFO to comply with the Nevada Collection and Disposal of Solid Waste statutes, codified at NRS 444.440 to 444.620, and regulations, codified at NAC 444.570 to 444.7499, Federal law, and the NNSS Waste Acceptance Criteria (NNSSWAC).

5. The NNSSWAC is incorporated into the terms of SW-532, which provides the requirements, terms, and conditions under which the NNSS will accept the following:

- U.S. Department of Energy (DOE) low-level radioactive waste (LLW)
- DOE mixed low-level waste (MLLW)
- DOE classified waste/matter
- U.S. Department of Defense (DOD) classified waste/matter

6. The following two sections of the NNSSWAC are relevant to this FOAV and Order:

- Section 3.1.7 – "Waste gases **shall** be packaged at a pressure that does not exceed 1.5 atmospheres absolute at 20 degrees Celsius..."
- Section 4.0 – "...The characterization methods and procedures employed by the WG [Waste Generator] **shall** ensure the physical, chemical and radiological characteristics of the waste are recorded and known during all stages of the waste management process..."

B. Waste Packaging, Shipment, and Disposal

1. On July 3, 2019, U.S. Department of Energy, Environmental Management Nevada Program (EM NP) and NNSA/NFO personnel notified Division personnel that a classified waste stream had been transported from the Y-12 National Security Complex in Oak Ridge, TN (Y-12) and disposed of at the RWMC on the NNSS.

2. Also on July 3, 2019, DOE then-Deputy Secretary Brouillette notified State of Nevada Governor Sisolak that shipments of this waste had occurred monthly for the past 12 years.

3. At all relevant times to this FOAV, the DOE contractor, Consolidated Nuclear Security, LLC (CNS, LLC), managed and operated Y-12. The Y-12 facility, according to its website, manufactures, maintains, and dismantles components for the nuclear stockpile.

4. On July 8, 2019, the Division received a Five-Day Notification Report from the NNSA/NFO, as required by the Division-issued Resource Conservation and Recovery (RCRA) Permit NEV HW0101. The NNSA/NFO report stated that on July 3, 2019, their office "was notified by staff at the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee, that classified low-level waste had been shipped to the Nevada National Security Site (NNSS) with classified assemblies which have constituents which are in violation of the NNSS Waste Acceptance Criteria (DOE/NV—325-16-00, November 2016)." Additional review of these waste shipments was continuing, including the number of waste shipments and the dates of shipments.

5. On July 9, 2019, DOE personnel held two briefings with personnel from the Nevada's Governor's Office, DCNR, the Division, NNSA/NFO, EM NP and DOE Headquarters to convey information known at that time about the Y-12 shipments, further details on the waste stream, and a

path forward. DOE identified the specific portion of the waste stream, pressurized volumes of gases, that was disposed of in violation of the NNSSWAC.

6. On July 11, 2019, the EM NP suspended the CNS, LLC Y-12 Waste Certification Program and issued Finding I-2790 in a letter to the NNSA's Production Office (NPO), which oversees the Y-12 facility. Specifically, the EM NP cited the NPO for CNS, LLC Y-12 violating NNSSWAC, DOE/NV--325-16-00, Section 3.1.7, which states "Waste gases **shall** be packaged at a pressure that does not exceed 1.5 atmospheres absolute at 20 degrees Celsius." According to the EM NP letter, the violation occurred in "multiple shipments made under [profile] BWXTDUM020001 containing items that did not comply with this requirement."

7. On July 13, 2019, the NNSA/NFO provided the Division with CNS, LLC's list of shipment numbers and nine (9) shipment dates for thirty-two (32) waste packages that were shipped to the NNSS between January 2013 and December 2018 under Profile BWXTDUM020001. This information corrected information that had been conveyed to the Division on July 3 and July 9, 2019 regarding the number of shipments made to the NNSS and the timeline of those shipments.

8. On July 26, 2019, the Division received the NNSA/NFO's Fifteen-Day Notification Report as required by the RCRA permit. The report contained additional information on the assemblies that were shipped for disposal, each containing "two small squib valves, and two small pressure vessels containing inert gases." NNSA/NFO also provided confirmation in this report that the thirty-two (32) waste packages shipped to the NNSS containing this waste type were disposed of in Cell 19 at the RWMC and all waste packages had been covered by at least four (4) feet of soil.

9. On August 23, 2019, the Division received a document titled *Y-12 Waste Issue Investigation Report and Follow-On Actions*, from the NNSA/NFO. The cover letter from the NNSA/NFO stated that as part of its investigation, CNS, LLC identified that there were ten (10) "NNSS Waste Acceptance Criteria non-compliant shipments sent to the NNSS between January 2013 and December 2018." There were a total of 33 containers of waste transported to the RWMC in these ten (10) shipments.

10. On September 3, 2019, the EM NP issued Finding I-2817 to the NPO. In Finding I-2817, the EM NP cited CNS LLC Y-12 for "failure to accurately characterize [weapons related materials (WRM)] prior to shipment." The requirement was listed as "NNSSWAC, DOE/NV-325-16-00, Section 4.0: *Waste Characterization,* The characterization methods and procedures employed by the Waste Generator **shall** ensure the physical, chemical and radiological characteristics of the waste are recorded and known during all stages of the waste management process." The deficiency was cited as: "Contrary to the aforementioned requirement, failure to re-characterize the WRM after a process change resulted in a failure to communicate critical characteristics of the waste shipped to the NNSS under profile BWXTDUM020001."

IV. FINDINGS

The Division finds as follows:

A. Division Authority to Regulate Disposal of Solid Waste at the NNSS.

1. The Division is the solid waste management authority for all areas of the State of Nevada not regulated by a district board of health. NRS 444.495.

2. In these areas, the Division enforces the provisions of the Collection and Disposal of Solid Waste statutes, codified at NRS 444.440 to NRS 444.560, inclusive, its implementing regulations, codified at, NAC 444.570 to 444.7499. *See* NRS 444.570, Department Delegation and

Division Delegation and Re-delegation of Authority under the State of Nevada's Environmental Statutes and Regulations Memorandum.

3. The Division is the solid waste management authority for Nye County, Nevada.

4. The Division has jurisdiction to enforce the provisions of the Collection and Disposal of Solid Waste statutes, codified at NRS 444.440 to NRS 444.560, inclusive, and its implementing regulations, codified at, NAC 444.570 to 444.7499 at the NNSS by virtue of its location in Nye County, Nevada.

B. Permit Required for Solid Waste Disposal in NNSS's RWMC Cell 19.

1. NRS 444.553(2) requires a person to obtain a permit to operate or authorize the operation of a disposal site and comply with the terms of that permit while operating or authorizing the operation of the disposal site.

2. The RWMC accepts and disposes of solid waste by landfilling and is a disposal site as defined in NRS 444.460.

3. The NNSA/NFO is a federal agency and therefore a person as defined in NRS 444.480.

4. As required by NRS 444.553, the NNSA/NFO obtained a permit (SW-532) from the Division to operate a Solid Waste Disposal Facility within the RWMC, which includes Cell 19.

5. SW-532 included and incorporated the NNSSWAC which defines the acceptance criteria for disposal of waste within Cell 19.

6. At all times relevant to this FOAV, the NNSA/NFO was responsible for ensuring its operation or any of its contractor's operation of RWMC Cell 19 complied with the terms of SW-532 and its incorporated NNSSWAC.

C. Disposal of the Waste Stream Violated SW-532 and its incorporated NNSSWAC

1. SW-532, Section 4 states that "[t]he governing document for waste acceptance criteria is the [NNSSWAC], which requires disposal site operators to verify that waste received at the site is from approved generators who must comply with all requirements of the NNSSWAC." As such, violations of the NNSSWAC are necessarily permit violations.

2. NNSSWAC, Section 3.1.7, states "Waste gases **shall** be packaged at a pressure that does not exceed 1.5 atmospheres absolute at 20 degrees Celsius."

3. NNSSWAC, Section 4.0: *Waste Characterization,* states that "...The characterization methods and procedures employed by the Waste Generator **shall** ensure the physical, chemical and radiological characteristics of the waste are recorded and known during all stages of the waste management process..."

4. The NNSS/NFO and its contractor(s) violated SW-532, Section 4.0 and NNSSWAC, Section 3.1.7 when thirty-three (33) waste packages were packaged at Y-12 and shipped to and disposed of at RWMC Cell 19 under profile BWXTDUM020001 containing gases at a pressure that exceeded 1.5 atmospheres absolute at 20 degrees Celsius.

5. The NNSS/NFO and its contractor(s) violated SW-532, Section 4.0 and NNSSWAC, Section 4.0 when they failed to re-characterize the WRM after a process change, which resulted in a failure to ensure the physical, chemical, and radiological characteristics of thirty-three (33) waste packages shipped to and disposed of at RWMC Cell 19 under profile BWXTDUM020001 were recorded and known during all stages of the waste management process.

D. Violation of SW-532 Authorizes the Division to Issue an Order and Collect Civil Penalties and Actual Damages.

1. The Division has the power and authority to issue an order to take steps to prevent an act or eliminate a practice which is a threat to human health, public safety or the environment, or a violation of a term or condition of a permit issued pursuant to NRS 444.553. NRS 444.592(1).

2. The Division has the power and authority to recover civil penalties up to $5,000 for

each day the permittee committed an act or practice which is a threat to human health, public safety or the environment, or violated of a term or condition of a permit issued pursuant to NRS 444.553. NRS 444.596.

3. The Division may also recover actual damages, including but not limited to testing for and removing, correcting, or terminating any adverse effects, and attorney's fees and costs, including but not limit to those incurred in administrative proceedings, incurred as a result of an act or practice which is a threat to human health, public safety or the environment, or a violation of a term or condition of a permit issued pursuant to NRS 444.553. NRS 444.598.

4. The NNSS/NFO violated SW-532, Section 4.0 and NNSSWAC Sections 3.1.7 and 4.0 and by virtue of these violations the Division is authorized to issue an order under NRS 444.592(1), assess civil penalties under NRS 444.596, and collect damages under NRS 444.598.

Justin Costa Rica

Justin Costa Rica
Environmental Scientist III
Bureau of Federal Facilities
Division of Environmental Protection

Date June 15, 2020

IN THE MATTER OF
U.S. Department of Energy
National Nuclear Security Administration
Nevada Field Office
June 15, 2020

ORDER

The Administrator of the Nevada Division of Environmental Protection (Division) adopts and incorporates by reference the Finding of Alleged Violation (FOAV), finds that the Nevada Solid Waste Disposal Permit SW-532 is a lawfully issued permit under NRS 444.553 and that the U.S. Department of Energy/National Nuclear Security Administration/Nevada Field Office (NNSA/NFO) violated Nevada Solid Waste Disposal Permit SW-532, Section 4 by virtue of its violations of the Nevada National Security Site Waste Acceptance Criteria, **Sections 3.7.1 and 4.0,** and issues the following order to the NNSA/NFO under NRS 444.592.

IT IS HEREBY ORDERED:

That the NNSA/NFO complete the following acts by the dates specified:

1. **By no later than close of business on July 10, 2020**, request an in-person meeting to show cause why the Division should not seek civil penalties and damages or, alternatively, engage in good faith with the Division's Bureau of Federal Facilities to set, and subsequently complete, a mediation schedule to resolve all factual and legal claims, including civil penalties and damages, associated with the statutory, regulatory, and permit violations cited in the FOAV. The Division has designated Bureau Chief, Christine Andres, as its contact for these items. Chief Andres may be contacted at 702-486-2850, ext. 232 until June 30, 2020, 702-668-3911 after June 30, 2020, or candres@ndep.nv.gov.

2. **By no later than July 24, 2020 (or another date agreed to by the Division in writing under Section 1 of this Order),** submit a written status report of investigation of the incident.

3. **By no later than August 21, 2020 (or another date agreed to by the Division in writing under Section 1 of this Order),** submit a DRAFT Corrective Action Plan (CAP) that includes steps taken to prevent a recurrence of the alleged violation, including any appropriate revisions needed to the Nevada National Security Site's Waste Acceptance Criteria.

    a. The Division will review the DRAFT CAP and submit comments to the NNSA/NFO within 45 days of document receipt (or another date agreed to by the Division in writing under Section 1 of this Order).

4. **Within 45 days of receipt of the Division's comments on the DRAFT document (or another date or time agreed to by the Division in writing under Section 1 of this Order.),** the NNSA/NFO will provide a FINAL CAP to the Division that satisfactorily addresses all of the Division's comments.

The dates provided only serve to set a schedule for this Administrative Order. After a show cause or a mediation schedule is set under Section 1 of this Order and the Division receives and reviews the written report required under Section 2 of this Order, the Division will issue the Final Finding.

Christine D. Andres
Chief, Bureau of Federal Facilities
Division of Environmental Protection

June 15, 2020
Date

APPENDIX C
Table 1
Settlement Agreement (SA)
Waste Management Improvements

Category	Program Improvement	Documented Metrics	Action
Enhanced Waste Verification	Resource Conservation and Recovery Act (RCRA) Permit NEV HW0101 Programmatic Improvements		
	Mixed low-level waste (MLLW) streams disposed in the NEV HW0101 permitted cell(s) will include physical and/or chemical verification methods. For new profiles, a generator site visit by appropriate personnel (e.g., Radioactive Waste Acceptance Program [RWAP], State of Nevada Division of Environmental Protection [NDEP], U.S. Department of Energy [DOE], National Nuclear Security Administration [NNSA], and/or contractors) may be conducted prior to approval (i.e., based on waste type, risk, and input from the Waste Acceptance Review Panel (WARP). The WARP will assess the profiles (i.e., Revision 0, Profile Revision, and/or Profile Recertification) to determine the method(s) of verification. These include: • Physical verification 1. Real Time Radiography (RTR) 2. Visual (observing packaging operations) 3. Other verification method recommended by WARP (e.g., video) • Chemical verification 1. Sampling and analysis provided by the Generator 2. Sampling and analysis overseen by RWAP 3. Other verification method recommended by WARP (e.g., field kits) • Alternative verification methods as recommended by the WARP The recommended verification methods for each profile will be documented in the WARP meeting minutes. The selected verification method will be documented in the DOE approval-to-ship letter. Verification requirements will be incorporated into the revision of the Nevada National Security Site Waste Acceptance Criteria (NNSSWAC) as described in Action 27.	• DOE will develop a draft Technical Basis Paper (A) *Guidance for WARP Selection of Waste Verification Methods and Rates* detailing the criterion for: determining the need for a generator site visit when a new profile is submitted for approval; and the verification method recommendation. o Technical Basis paper (A) is due in final draft to NDEP within 60 days of signature of the Settlement Agreement (SA).	**1**

Category	Program Improvement	Documented Metrics	Action
	A minimum of 10% of waste containers will be verified (e.g., physical and/or chemical) for each newly established/revised waste stream disposed of in an NDEP permitted RCRA Cell. The 10% verification requirement will be applicable upon signature of the SA and revision of the RCRA permit NEV HW0101. This additional verification requirement will be applied as allowed under current local, state and Centers for Disease Control and Prevention Guidelines for COVID-19. The 10% verification frequency requirement will be incorporated into the NNSSWAC as described in Action 27.	• DOE will revise the RCRA Permit NEV HW0101 Application (i.e., Mixed Waste Disposal Unit [MWDU] application) increasing the physical and chemical verification frequency from 5% to 10%. o DOE will submit a revised application to NDEP within 210 days of signature of the SA.	2*
	Solid Waste Permit SW 532 Programmatic Improvements		
	Solid waste streams disposed in cells permitted under SW-532 will include physical and/or chemical verification methods. For new profiles, a Generator site visit by appropriate personnel (e.g., RWAP, NDEP, DOE, NNSA and/or contractors) may be conducted prior to approval (i.e., based on waste type, risk, and input from WARP). The WARP will assess the profiles (i.e., Revision 0, Profile Revision, and/or Profile Recertification) to determine the method of verification. These include: • Physical verification 1. Real-Time Radiography (RTR) 2. Visual (observing packaging operations) 3. Other verification method recommended by WARP (e.g., video) • Chemical verification 1. Sampling and analysis provided by the Generator 2. Sampling and analysis overseen by RWAP 3. Other verification method recommended by WARP (e.g., field kits) • Alternative verification methods as recommended by the WARP with NDEP consultation. The recommended verification methods for each profile will be documented in the WARP meeting minutes. The selected verification method will be documented in the approval-to-ship letter by DOE. Verification requirements will be incorporated into the revision of the NNSSWAC as described in Action 27.	• DOE will develop a draft Technical Basis Paper (A) *Guidance for WARP Selection of Waste Verification Methods and Rates* detailing the criterion for: determining the need for a Generator site visit when a new profile is submitted for approval; and the verification method recommendation. o Technical Basis paper (A) is due in final draft to NDEP within 60 days of signature of the SA. (Same Paper as in Action 1.)	3

Category	Program Improvement	Documented Metrics	Action
	A minimum of 10% of the total containers of waste received per year will be verified (e.g., RTR, visual, or other, etc.). The 10% verification requirement will be applicable upon signature of the SA and applied as allowed under current local, state and National Health Guidelines for COVID-19. The minimum 10% verification requirement of the total number of containers of waste received per year will be incorporated into the revision of the NNSSWAC as described in Action 27.	• DOE will revise the SW-532 application adding a physical verification requirement of 10% of the total containers received per year. o DOE will submit a revised application for solid waste permit SW-532 within 210 days of signature of the SA.	4*
	Low Level Waste (LLW) Programmatic Improvements		
	Low-level waste, not regulated by NDEP, that is disposed under DOE Order 435.1, may be verified by physical and/or chemical verification methods as recommended by the WARP. For new profiles, a Generator site visit by appropriate personnel (e.g., RWAP, NDEP, DOE, NNSA, and/or contractors) may be conducted prior to approval (i.e., based on waste type, risk, and input from WARP). The WARP will assess the profiles (i.e., Revision 0, Profile Revision, and/or Profile Recertification) to determine the method of verification. These include: • Physical verification 1. RTR 2. Visual (observing packaging operations) 3. Other verification method recommended by WARP (e.g., video) • Chemical verification 1. Sampling and analysis provided by the Generator 2. Sampling and analysis overseen by RWAP 3. Other verification method recommended by WARP (e.g., field kits) • Alternative verification methods as recommended by the WARP with NDEP consultation. This could include a determination that no verification is required. The recommended verification methods for each profile will be documented in the WARP meeting minutes. The selected verification method will be documented in the DOE approval-to-ship letter. Verification requirements will be incorporated into the revision of the NNSSWAC as described in Action 27.	• DOE will develop a draft Technical Basis Paper (A) *Guidance for WARP Selection of Waste Verification Methods and Rates*, detailing the criterion for: determining the need for a Generator site visit when a new profile is submitted for approval; and the verification method recommendation. o Technical Basis paper (A) is due in final draft to NDEP within 60 days of signature of the SA. (Same Paper as in Action 1.)	5

Category	Program Improvement	Documented Metrics	Action
	DOE will conduct a two-year enhanced verification demonstration study examining profiles that are selected using risk factors. The profiles will be selected on criteria established by RWAP including previously ranked profiles, high risk profiles/sites, classified waste/matter, and emerging issues. Profile selection criteria will be determined in consultation with the NDEP. This demonstration study will inform future verification changes/approaches that could be incorporated into the NNSSWAC.	• DOE will develop a draft Technical Basis Paper (B) *Guidance for Selection of the LLW Profiles Subject to Enhanced Verification During the Two-Year Study*, which identifies the verification criteria, approach, and a schedule for conducting enhanced verification of the selected LLW profiles during year one of the study. o Technical Basis Paper (B) is due in final draft to NDEP within 90 days of signature of the SA.	**6**
		• DOE will provide a letter report to NDEP which identifies the selected profiles and schedule for verification in year two of the study. o The Letter Report will be provided to NDEP within 395 days of signature of the SA.	**7**
		• Results of the enhanced verification study will be reported to DOE in the Federal Fiscal Year (FFY) Annual Report on the NNSS Radioactive Waste Acceptance Program for FY2022 and FY2023. The FFY 2023 Annual Report will provide a recommendation on further verification that may be conducted including any rate of verification. (See Annual Report Actions 23 and 24.)	**8**

Category	Program Improvement	Documented Metrics	Action
	For new and revised profiles supported by classified information/processes, a classified briefing to WARP members will be provided (as necessary) or as requested by a WARP member. Access to classified documentation for matter/waste streams will be provided to appropriately cleared personnel, including NDEP. Existing profiles supported by classified information/processes will be reviewed during the Generator's annual review to determine if the characterization documentation meets NNSSWAC criteria. The WARP process will assess profiles supported by classified information/processes (i.e., Rev. 0, Profile Revision and/or Profile Recertification) and document, in an unclassified manner in the WARP minutes, review of any classified data/documentation at the Generator site by an active appropriately-cleared WARP member(s). Documentation requirements for profiles supported by classified information/process will be incorporated into the revision of the NNSSWAC as described in Action 27.	• DOE will revise the waste profile form and instructions to require the Generator to denote whether classified information/data was used and if the waste was derived from a classified process. o DOE will revise the waste profile form and instructions and will provide a final draft to NDEP within 60 days of signature of the SA. • DOE will revise the profile screening guide and instructions to address waste/matter derived from classified information/processes for more in-depth review. o DOE will revise the guide and instructions and will provide a final draft to NDEP within 60 days of signature of the SA. • The results of screening of new/revised classified matter/waste profiles supported by classified information/processes will be reported in the FFY Annual Report on the NNSS Radioactive Waste Acceptance Program. (See Annual Report Actions 22 through 24.)	**9*** **10*** **11**
	Miscellaneous Programmatic Improvements		
	Increase the use of RTR at the NNSS for a broad spectrum of waste: LLW, solid waste, MLLW and classified waste/matter.	• DOE will conduct a minimum of 24 RTR operational (workday) sessions per year for two years at the NNSS beginning in FFY 2022. • Results of the RTR operational sessions and lessons learned will be reported in the Federal Fiscal Year Annual Report on the NNSS Radioactive Waste Acceptance Program for FFY 2022 and 2023. The lessons learned from the RTR verification will be evaluated after two years and reported in the FFY 2024 Annual Report. (See Annual Report Actions 23 and 24.)	**12** **13**

Category	Program Improvement	Documented Metrics	Action
	Increase Generator RWAP facility evaluation site visits to increase Generator waste oversight. Facility evaluations will be conducted as allowed under current local, state and Centers for Disease Control and Prevention Guidelines for COVID-19.	• DOE commits that RWAP Generator facility evaluation audits, surveillances and waste verifications will be increased by 10% beginning in Federal Fiscal Year (FFY) 2022 and continuing in FFY 2023 as compared to the number of RWAP facility evaluations conducted in FFY 2019. RWAP facility evaluations will be prioritized as informed by such items including risk factors, external assessments findings/observations, other information (e.g., ORPS), and NDEP input. o The FFY 2022 and 2023 RWAP Audits, Surveillances, Verifications, or other (e.g., walk down, etc.), will be an increase compared to FFY 2019 rate of audits, surveillances and verifications. • Results of the RWAP Generator facility evaluation audits, surveillances and waste verification activities will be reported in the Federal Fiscal Year Annual Report on the NNSS Radioactive Waste Acceptance for FFY 2022 and 2023. (See Annual Report Actions 23 and 24.)	**14*** **15**
	The Generator may conduct split sampling on new or revised waste streams that are amenable to chemical sampling. The WARP will recommend if split sampling is warranted and any recommendation will be documented in the WARP meeting minutes. If identified for split sampling, the split sampling requirement will be documented in the DOE approval-to-ship letter. Requirements for split sampling will be incorporated into the revision of the NNSSWAC as described in Action 27.	• DOE will develop a draft Technical Basis Paper (C): *Guidance for WARP to Determine Profiles Subject to Split Sampling*, which identifies the criteria for split sampling, laboratory analyses and frequency of sampling. o Technical Basis Paper (C) will be provided in a final draft to NDEP within 90 days of signature of the SA. • A summary analysis of the results of split sampling will be reported in the Federal Fiscal Year Annual Report on the NNSS Radioactive Waste Acceptance for FFY 2021, 2022, and 2023. (See Annual Report Actions 22 through 24.)	**16*** **17**

Category	Program Improvement	Documented Metrics	Action
	To confirm the RCRA status of LLW and MLLW identified on the profile (i.e., RCRA or non-RCRA), the Generator shall conduct verification resampling of waste streams that are amenable to sampling. The WARP will recommend if resampling is warranted and the recommendation will be documented in the WARP meeting minutes. Laboratory analysis of resampled waste streams will utilize a State of Nevada-certified, a DOECAP accredited laboratory, or other laboratory as identified and accepted in the WARP meeting minutes. DOE and RWAP may review analytical results from the resampling during facility evaluation onsite visits. The resampling criterion will be incorporated into the revision of the NNSSWAC (as described in Action 27) and the DOE-issued Implementation Plan.	• Waste streams that have been previously sampled or determined to be amenable to sampling must be resampled for appropriate RCRA analytes as determined by WARP. o The target for resampling is every two years or as recommended by WARP and approved by DOE. • A summary analysis of the results of sampling will be reported in the Annual Report on the NNSS Radioactive Waste Acceptance Program for FFY 2021, 2022, and 2023. (See Annual Report Actions 22 through 24.) • DOE will develop a draft Technical Basis Paper (D) *Guidance for Determining when Verification Sampling is Required for Existing Waste Streams*, which identifies criteria for resampling to be used by the Generator to assess its profiles. o Technical Basis Paper (D) will be provided in a final draft to NDEP within 90 days of signature on the SA. • DOE will require Generator site input on the resampling criteria identified in Technical Basis Paper (D). o Within 270 days of signature of the SA, DOE will provide NDEP a list of profiles and schedule for resampling.	**18*** **19** **20** **21**
	A Federal Fiscal Year Annual Report on the NNSS Radioactive Waste Acceptance Program for FFY 2021, 2022, and 2023 which includes trend analyses, will be prepared.	• **DOE will provide a Federal Fiscal Year Annual Report on the NNSS Radioactive Waste Acceptance Program for FFY 2021, 2022, and 2023. The report will include a trends analysis and recommendations. The Annual Report will address commitments from actions. An outline on the FFY Annual Report will be agreed to between DOE and NDEP.** o **The Federal Fiscal Year 2021 Annual Report will be provided to NDEP by January 31, 2022.** o **The Federal Fiscal Year 2022 Annual Report will be provided to NDEP by January 31, 2023.** o **The Federal Fiscal Year 2023 Annual Report will be provided to NDEP by January 31, 2024.**	**22** **23** **24**

Category	Program Improvement	Documented Metrics	Action
NNSS Profiles	Identifying criteria for determining waste streams (e.g., PCB only, Asbestos only, Classified, and weapons related material [WRM]) requiring a stand-alone profile. When scope criteria for narrowing profiles are finalized, DOE will issue interim guidance to Generators. The requirements for identifying criteria for determining stand-alone profiles will be incorporated into the revision of the NNSSWAC as described in Action 27.	• DOE will develop draft Technical Basis Paper (E) *Guidance for Setting the NNSSWAC Criteria for Scope of Waste Profiles*, which identifies the criteria narrowing the profile scope for existing waste profiles. o Technical Basis Paper (E) will be provided in a final draft to NDEP within 60 days of signature of the SA.	**25***
NNSS Waste Certification	Requirements for waste Generator certification and recertification of waste profiles will be expanded. Waste generators will be required to reexamine waste characterization and, on an annual basis, recertify LLW, LLW requiring disposal under the Solid Waste permit (e.g., asbestiform waste), MLLW, and classified waste/classified matter profiles. The changed requirements for profile certification and recertification will be incorporated into the revision of the NNSSWAC as described in Action 27.	• DOE will develop draft Technical Basis Paper (F) *Guidance for setting the NNSSWAC Requirements for Generator Waste Profile Certification and Recertification*. o Technical Basis Paper (F) will be provided to NDEP in a final draft within 60 days of signature of the SA.	**26***
NNSSWAC	The NNSSWAC will be revised incorporating waste management improvements. This revision will address LLW, LLW requiring disposal under the Solid Waste permit (e.g., asbestiform waste), MLLW, and classified matter/waste.	• DOE will develop draft revision to the NNSSWAC addressing waste management improvements. o The preliminary draft NNSSWAC will be provided to NDEP within 120 days of signature of the SA.	**27***
NNSS Waste Categorization Processing	The requirements that support waste disposal cell categorization under DOE Order 435.1 (LLW), solid waste (SW-532), and mixed waste (NEV HW0101), and classified matter/classified waste will be clarified and incorporated into profile preparation forms and RWMC disposition processes. The changes in LLW, solid and MLLW disposal operational requirements applicable to the Generator will be incorporated into the revision of the NNSSWAC as described in Action 27.	• DOE will incorporate a differentiator into the profile form for new and revised profiles differentiating final disposal into DOE authority cells versus NDEP-permitted cells (SW-532 or NEV HW0101). o DOE will revise the profile form within 120 days of signature of the SA. • DOE will add a requirement into the Package Shipment and Disposal Request form (PSDR) correlating with waste categorization: low-level waste (DOE Order 435.1, solid waste (SW-532), or mixed low-level waste (NEV HW0101). o DOE will revise the PSDR/receipt process within 120 days of signature of the SA.	**28*** **29**

Category	Program Improvement	Documented Metrics	Action
Cost Recovery	Provide cost recovery funding to the state of Nevada for the NDEP investigation costs associated with the Y-12 waste issue.	• NDEP will provide DOE its final costs in parallel with signature of the SA. o DOE will provide future payments to the NDEP for its investigation costs, subject to the availability of appropriations.	**30**
Enterprise Assessment & Enhanced Waste Verification	RWAP waste management assessments will provide additional focus on EA-31 identified weaknesses from the FFY 2020 complex-wide waste management assessment. This action will increase oversight focus at the point of generation where the waste stream is most vulnerable to the introduction of prohibited items. RWAP assessments will also focus on waste stream or process changes. During its Facility Evaluation assessments, RWAP will identify at least one profile that will be walked-down from the point of generation through packaging.	• Applicable RWAP facility evaluation procedures and checklists will be revised to evaluate the point of generation by visual inspection. o The final draft RWAP procedure and checklists will be revised within 60 days of signature of the SA. • Results of the RWAP assessment profile point-of-generation walkdowns will be reported in the Annual Review of NNSS Radioactive Waste Acceptance Program for FFY 2021, 2022, and 2023. (See Annual Report Action 22 through 24.)	**31** **32**
Enterprise Assessment Lessons Learned	Discuss with the Carlsbad Field Office and DOE Complex sites enhancements made to the TRU waste characterization process that could be applied to characterization of LLW and MLLW.	• DOE will develop two draft Technical Reports: o Technical Report (G) *NNSSWAC Comparison to WIPP WAC*, will be developed on waste characterization and certification differences between the WIPP WAC and the NNSSWAC. Technical Report (G) will be provided in a final draft to NDEP within 270 days of signature of the SA. o Technical Report Paper (H) *Review of Waste Characterization and Related Lessons Learned Items within DOE*, will be developed on the review of available existing Lesson Learned processes/formats on waste characterization, packaging and disposition, (e.g., OPEX, ORPS, etc.) This Technical Report will review three years of these reports and will summarize both the result of the search and any potential/recommended changes to NNSS waste characterization, packaging, and disposition processes or procedures. Technical Report (H) will be provided in a final draft to NDEP within 270 days of signature of the SA.	**33**** **34****

*** These actions identified on the table will require activities or support by the waste generator site. For example, Action 18 would require the waste generator to periodically resample waste streams that are amendable to sampling.**

**** These actions are long-term activities generated from complex lessons learned reviews and other reviews.**

A preliminary draft is defined as an initial document ready for an external iterative review.

A final draft is defined as a revised document that has already had a preliminary review.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX
75 Hawthorne Street
San Francisco, CA 94105

Via electronic mail: glovato@ndep.nv.gov

Greg Lovato, Administrator
Nevada Division of Environmental Protection
9001 South Stewart Street, Suite 4001
Carson City, NV 89701-5249

RE: **Resource Conservation and Recovery Act ("RCRA")**
Referral for Department of Energy at Nevada National Security Site (DOE-NNSS)

Dear Administrator Lovato:

EPA requests that the Nevada Division of Environmental Protection (NDEP) implement an appropriate enforcement response against the Department of Energy at Nevada National Security Site (DOE-NNSS) based on EPA's inspection findings and subsequent discussions among EPA, NDEP and DOE.

EPA Region 9 conducted a Resource Conservation and Recovery Act (RCRA) compliance evaluation inspection (CEI) of the DOE-NNSS, EPA ID No. NV 3890090001, in Mercury, Nevada on August 13 and 14, 2019, with assistance provided by EPA Region 4. The EPA inspectors were accompanied by NDEP representatives. The purpose of the inspection was to evaluate DOE-NNSS' compliance with applicable federal environmental statutes and regulations, and in particular, RCRA, as amended, the regulations provided in the Code of Federal Regulations (CFR), Chapter 40, Parts 261-265, 268, 273, and 279, Nevada Revised Statutes (NRS) 459.520 and Nevada Administrative Code (NAC) 444.842 through 444.8746 and 444.960, and permit provisions in the RCRA Hazardous Waste Facility Permit NEV HW0101 Revision 6 issued by NDEP on May 21, 2018. Under Section 3006 of RCRA, 42 U.S.C. § 6926, the potential violations of the State of Nevada's authorized RCRA hazardous waste management program identified in the attached report are federally enforceable.

EPA has had several discussions with your staff and with DOE-NNSS personnel regarding how to resolve the potential violations identified by EPA's inspection as presented in the attached EPA inspection report. A table summarizing the outcomes of those discussions is attached to this letter.

This referral recommends that NDEP take the appropriate action against the DOE-NNSS for the violations stated in the attached EPA inspection report.

If you have any questions, please contact me or have your staff contact Kaoru Morimoto, Manager, Hazardous Waste and Chemicals Section, at (415) 972-3306 or morimoto.kaoru@epa.gov.

Sincerely,

AMY MILLER-BOWEN

Digitally signed by AMY MILLER-BOWEN
Date: 2021.04.21 09:21:04 -07'00'

Amy C. Miller-Bowen
Director
Enforcement & Compliance Assurance Division

Enclosures
EPA Inspection Report w/o Appendices
Table of Potential Violation Resolutions

cc:
Chris Andes, Chief
NDEP Bureau of Federal Facilities

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

April 10, 2020

Via electronic mail: Scott.Wade@NNSA.DOE.GOV

Mr. Scott Wade
Senior Advisor
United States Department of Energy/National Nuclear Security Administration
Nevada Field Office
P.O. Box 98518
Las Vegas, NV 89193-8515

RE: Notice of Violation
Nevada National Security Site, Mercury, NV
EPA Identification Number: NV 3890090001

Dear Mr. Wade:

U.S. Environmental Protection Agency (EPA) inspectors conducted a Compliance Evaluation Inspection (CEI) at the NNSS in Mercury, Nevada on August 13 and 14, 2019. The purpose of the inspection was to evaluate NNSS's compliance with the Resource Conservation and Recovery Act's (RCRA) hazardous waste management requirements, 42 U.S.C. §§ 6921-6939, and the implementing regulations; Nevada Revised Statutes (NRS) 459.520 and Nevada Administrative Code (NAC) 444.842 through 444.8746 and 444.960, and permit provisions in the RCRA Hazardous Waste Facility Permit NEV HW0101 Revision 6 issued by the Nevada Division of Environmental Protection on May 21, 2018. Under Section 3006 of RCRA, 42 U.S.C. § 6926, violations of the State of Nevada's authorized RCRA hazardous waste management program are federally enforceable.

A copy of the RCRA CEI report is enclosed for your information and response. The CEI report describes conditions at the facility at the time of inspection, and identifies areas of noncompliance with RCRA regulations and the State of Nevada's authorized program under RCRA Subtitle C. In addition, the report identifies other areas of concern at NNSS. Please note that omissions in the CEI report shall not be construed as a determination of compliance with any other applicable regulation.

Pursuant to Section 3008(g) of RCRA, 42 U.S.C. § 6928, and EPA's Civil Monetary Penalty Inflation Adjustment Rule, 84 Fed. Reg. 2056 (February 6, 2019), violations of RCRA hazardous waste management requirements may be punishable by civil penalties of up to $74,552 per day for each day such violation continues. EPA requests that you submit documentation that you have corrected each of the potential violations identified in the enclosed RCRA CEI report within **thirty (30) calendar days** of your receipt of this letter via electronic mail and hard copy. Documentation of corrective actions taken by NNSS to address the potential violations identified

in the CEI report may consist of, among other things, photographs, manifests, and revised records.

Confidential Business Information: EPA regulations governing the confidentiality of business information are set forth in 40 CFR Part 2, Subpart B. EPA routinely provides copies of investigation reports to state agencies, and upon request, to the public. Such releases are handled according to the Freedom of Information Act regulations (40 CFR Part 2). If NNSS believes this letter contains information entitled to treatment as confidential business information, please assert a confidentiality claim in accordance with 40 CFR § 2.203(b) within fourteen (14) calendar days from the date of receipt of this letter. Business confidentiality includes the concept of trade secrecy and other related concepts. Your claim must specifically identify the information covered by the claim and should be sent to EPA by certified mail. EPA will construe the failure to furnish a confidentiality claim within fourteen (14) calendar days from the date of NNSS's receipt of this letter as a waiver of that claim and information may be made available to the public by the EPA without further notice. See 40 CFR § 2.203(a)(2).

Additionally, if NNSS believes that any information in NNSS's response to this letter is entitled to treatment as confidential business information, please identify any such information and assert a confidentiality claim in accordance with 40 CFR § 2.203(b) in NNSS's response. EPA will construe the failure to make a confidentiality claim when the response is submitted to EPA as a waiver of that claim and information may be made available to the public by the EPA without further notice.

If EPA determines that any information over which NNSS asserts a claim meets the criteria set forth in 40 CFR § 2.208, the information will be disclosed only to the extent, and by means of the procedures specified in 40 CFR Part 2, Subpart B.

If you have any questions regarding this letter and the enclosed inspection report, please contact Sharon Lin of my staff at lin.sharon@epa.gov or (415) 972-3446.

Sincerely,

KAORU MORIMOTO

Digitally signed by KAORU MORIMOTO
Date: 2020.04.10 16:26:54 -07'00'

Kaoru Morimoto
Manager, Hazardous Waste & Chemical Section
Enforcement & Compliance Assurance Division

Enclosure

cc: Michael Richardson, Branch Supervisor, Hazardous Waste Inspection and Enforcement Program, Nevada Division of Environmental Protection (w/o enclosure)

Christine Andres, Chief, Bureau of Federal Facilities, Nevada Division of Environmental Protection (w/o enclosure)

EPA United States Environmental Protection Agency

Region 9 Enforcement & Compliance Assurance Division

INSPECTION REPORT

Inspection Date(s):	8/13/2019-8/14/2019	**Inspection Announced:** Yes
Time:	**Entry:** 8 am	**Exit:** 1:00 pm
Media:	RCRA	
Facility Name:	United States Department of Energy (DOE), Nevada Field Office, Nevada National Security Site	
Facility Location:	Mercury, Nevada	
County:	Nye County	
Facility/Site Contact:	Scott Wade	Senior Advisor
	Nevada Field Office	
	National Nuclear Security Administration	
	Department of Energy	
Facility Identifier:	NV 3890090001	
NAICS:	562211	
Facility Personnel Participating in Inspection:		
Troy Belka	Mission Support & Test Services LLC (Contractor to DOE)	Principal Scientist
Tom Hergert	Mission Support & Test Services LLC (Contractor to DOE)	Manager, Radioactive Waste Management Complex
Doug Frenette	Mission Support & Test Services LLC (Contractor to DOE)	Manager, Environmental Waste Operations, Radioactive Waste Management Complex
Robert Boehlecke	Depart of Energy Environmental Management Nevada Program	Program Manager
State Personnel Participating in Inspection:		
Justin Costa Rica	Bureau of Federal Facilities, Nevada Division of Environmental Protection	Environmental Scientist III
Mark McLane	Bureau of Federal Facilities, Nevada Division of Environmental Protection	Bureau Supervisor
Michael Richardson	Hazardous Waste I Compliance and Enforcement Program, Nevada Division of Environmental Protection	Branch Supervisor
EPA Inspectors:		
Sharon Lin	Sharon Lin	April 13, 2020
	US EPA Region 9, ENF 2-2	RCRA Inspector
	Lin.sharon@epa.gov	(415) 972-3446

Larry Lamberth	US EPA Region 4, Enforcement and Compliance Assurance Division	Branch Chief
Peer Review:		
Larry Lamberth	**{Signature}** 	**{date}**
	US EPA Region 4	Chief, Chemical Safety and Land Enforcement Branch
Supervisor Review:		
Kaoru Morimoto	KAORU MORIMOTO Digitally signed by KAORU MORIMOTO Date: 2020.04.10 16:28:09 -07'00'	
	US EPA Region 9, ENF 2-2	Manager, Hazardous Waste & Chemical Section, Enforcement and Compliance Assurance Division
	Morimoto.kaoru@epa.gov	415-972-3306

Section I Introduction

Purpose and Inspection Objectives

On August 13 and 14, 2019, representatives from the U.S. Environmental Protection Agency (EPA) conducted a compliance evaluation inspection (CEI) of the Nevada National Security Site (NNSS), EPA ID No: NV 3890090001. The purpose of the inspection was to evaluate the NNSS' compliance with applicable federal environmental statutes and regulations, and in particular, the Resource Conservation and Recovery Act (RCRA), as amended, the regulations provided in the Code of Federal Regulations (CFR), Chapter 40, Parts 261-265, 268, 273, and 279, Nevada Revised Statutes (NRS) 459.520 and Nevada Administrative Code (NAC) 444.842 through 444.8746 and 444.960, and permit provisions in the RCRA Hazardous Waste Facility Permit NEV HW0101 Revision 6 issued by the Nevada Division of Environmental Protection on May 21, 2018.

Facility Background

The NNSS is a federal hazardous waste treatment, storage, and disposal facility (TSDF) owned by Department of Energy (DOE) National Nuclear Security Administration and operated by DOE and its contractor(s). NNSS, formerly known as the Nevada Test Site (NTS), currently encompasses 1,389 square miles of federally owned land in southern Nye County in Nevada. The NNSS was formerly a nuclear weapon testing facility. Since 1992 there has not been any testing due to the Comprehensive Test Ban Treaty. Present operations at the facility include defense testing, controlled study of hazardous materials spills, radioactive and nonradioactive waste management, and other national security related research, development and testing activities. Approximately 2,000 personnel are currently working at NNSS.

The NNSS receives wastes from DOE/DOD facilities that have a nexus to the Manhattan project. The wastes shipped to NNSS are generated from Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) cleanup activities (remediation and/or removal action), Research and Development (R&D), Deactivation and Decommissioning (D&D) and ongoing research at various DOE facilities across the country. The waste generators include the Pantex Plant in Texas, Idaho National Laboratory in Idaho, Sandia National Laboratories in New Mexico, Lawrence Livermore National Laboratory in California, Y-12 National Security Complex, Energy Solutions, TRU Waste Processing Center, Nuclear Fuel Services, Oak Ridge National Laboratory, Oak Ridge Reservation in Tenessee, Paducah Gaseous Diffusion Plant in Kentucky, Portsmouth Gaseous Diffusion Plant in Ohio, West Valley in New York, General Atomics, Argonne National Laboratory, Brookhaven National Laboratory, Savannah River Site, Aberdeen Proving Ground, Los Alamos National Laboratory, DUF6 Uranium Conversion Project, PermaFix-Materials & Energy Corporation, Duratek/EnergySolutions, and Advanced Mixed Waste Treatment Project in Idaho. According to the records that were made available to EPA by DOE, these waste streams include low level radioactive waste, mixed low-level

radioactive waste, RCRA hazardous waste and PCBs. Depending on the waste characteristics, these wastes are disposed in Class III low-level radioactive waste & solid waste (LLW &SW) land disposal units, RCRA hazardous waste disposal land units or low-level radioactive waste (LLW) land disposal units at NNSS. Class III LLW&SW cells are Cell 19, Cell 20, Cell 22, Cell 23, Cell 24 (Under Construction), Cell 27, Cell 28. RCRA hazardous waste disposal units are Cell 18 and Cell 25. Active LLW cell: Cell 21. Closed/covered LLW cells: P16C, P08U, P10C, P12U, P13U, P14U, P15U, Cell 17.

Table 1
Total Volume of Wastes Received and Disposed
at NNSS Area 5 Radioactive Waste Management Site (RWMS)

Year	Low Level Waste (cubic feet)	Mixed Low Level Wastes (cubic feet)
2012	740,808	65,736
2013	1,025,379	99,144
2014	1,183,966	88,934
2015	1,238,210	95,975
2016	895,695	61,800
2017	1,035,845	108,961

Source: Nevada National Security Site Environmental Report 2012, 2013, 2014, 2015, 2015 and 2017

The current RCRA permit (NEV HW0101 Revision 6) includes the following permitted units at NNSS:

1. *Area 5 Radioactive Waste Management Site (RWMS) (Figure 1)*
   - *Mixed Waste (radioactive and hazardous waste) Disposal Unit (MWDU)*
     - *RCRA Subtitle C landfill cell 18 with a design capacity of 33,334 cubic yards*
     - *RCRA Subtitle C landfill cell 25 with a design capacity of 48,394 cubic yards*
     - *Aboveground tank holding leachate from Cell 18 (LPW-TNK-001) with a 3,000 gallon capacity*
     - *Aboveground tank holding leachate from Cell 25 (LPW-TNK-002) with a 10,000 gallon capacity*
   - *Mixed Waste Storage Unit (MWSU)*
   - *Nonradioactive hazardous waste storage unit (HWSU)*
2. *Area 11 Explosive Ordnance Disposal Unit (EODU)*
3. *Historical RCRA Corrective Action Units and Post Closure Units (Area 2, Area 3, Area 5, Area 6, Area 23)*

The facility is also a large quantity generator of RCRA hazardous waste. Wastes generated on site includes flammables/combustibles, acid corrosives, alkali corrosives, oxidizer/reactives,

toxics/poisons. The onsite generated wastes are all shipped off site for treatment and disposal. There are 16 satellite accumulation areas at NNSS according to information provided by the NNSS.

NDEP inspects NNSS annually. The last inspection by NDEP was on April 14-15, 2019.

The last EPA inspection was on September 15, 2011 for the purpose of CERCLA Offsite Rule eligibility evaluation.

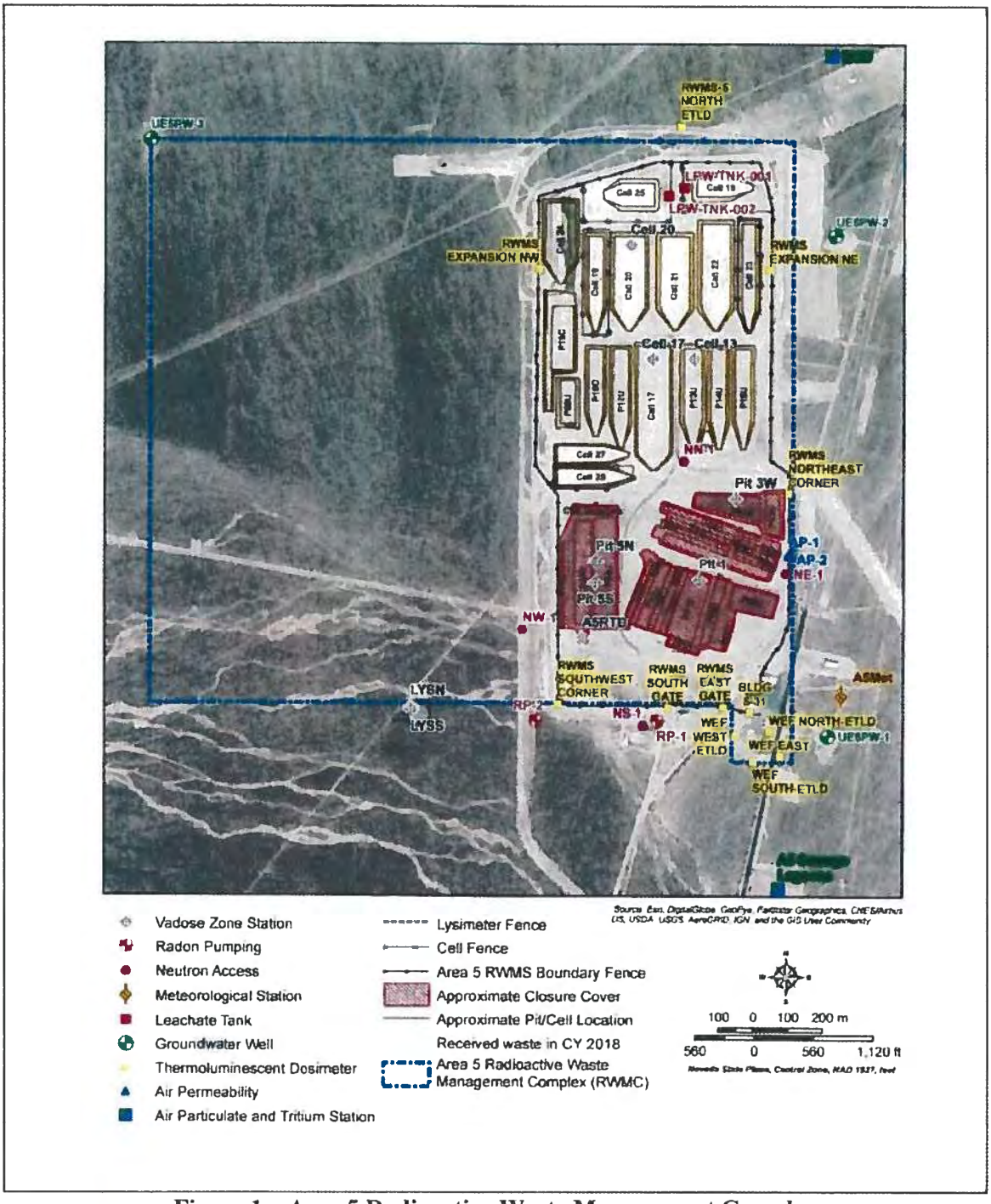


Figure 1 – Area 5 Radioactive Waste Management Complex

Section II On-Site Observations

The on-site inspection portion of the CEI started in the NNSS office area in Mercury at 8am on August 13, 2019. EPA inspectors presented credentials to Mr. Scott Wade, senior advisor for the DOE Nevada Field Office, who represented the facility. Mr. Wade granted EPA access to inspection. Mr. Wade provided an overview of the NNSS. The relevant facility background information is stated in the Section I Introduction Facility Background section of this inspection report.

The field portion of the EPA's inspection includes a site tour of the permitted units in the Area 5 Radioactive Waste Management Complex (RWMC) which includes the RWMS and selected hazardous waste satellite generation locations. EPA inspectors visited the following locations:

- **Cell 18 and Cell 25**: are lined, mixed waste disposal cells permitted under a RCRA permit issued by NDEP; These two cells also have a leachate collection system designed to each cell.
- **Cell 19**: Class III Industrial Solid Waste Cell permitted by NDEP; no liner, no leachate collection system, no groundwater monitoring designated to the Class III cells (sharing the same groundwater monitoring well with the two RCRA hazardous waste cells and the closure and post closure units according to NDEP).
- **Mixed Waste Storage Unit;**
- **Hazardous Waste Storage Unit;**
- **Satellite Accumulation Area NTS029** in the NNSS hospital in Mercury; and
- **Satellite Accumulation Area NTS1702** in the Blue Box Building in Mercury

After a brief introduction in the Area 5 RWMC office, the EPA inspectors first observed a freight truck in the parking lot area where it was preparing to leave Area 5 RWMC after delivering a waste shipment. According to MSTS personnel (contractor to DOE), the first step for delivery of wastes at Area 5 RWMS is performing a radiological survey and paperwork review in the parking lot area (Appendix A IMG_007).

EPA inspectors then arrived at Cell 18, a RCRA permitted landfill. This landfill cell with a design capacity of 33,334 cubic yards was near capacity at the time of EPA's inspection. According to MSTS personnel, Cell 18 started receiving mixed waste in 2011. The cell is on a 20' x 20' grid system. EPA observed containers of mixed wastes from DOE Oak Ridge National Laboratory Y-12 facility (Appendix A, IMG_020 and IMG_021). Tank LPW-TNK-001, a leachate collection tank with a 3,000 gallon capacity, is dedicated to collect leachate in the sumps in Cell 18. The leachate volume is monitored with a flow meter. When tank LPW-TNK-001 is full, a sample is collected for testing of Toxicity Characteristic Leaching Procedure (TCLP) metals (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver and Mercury), semi-volatiles, volatiles, PCBs, pH, SC, and tritium. When the sample results are below the applicable regulatory levels, the leachate in the tank is then applied on Cell 18 for dust

suppression. According to NNSS and MSTS personnel, the leachate samples have never exceeded the regulatory limits for the constituents outlined above. (Appendix A IMG_009 through IMG_036)

EPA then inspected Cell 25, the second RCRA permitted cell. Cell 25 began to receive mixed waste in July 2018. EPA observed large cargo containers containing mixed wastes in Cell 25. EPA also observed Tank LPW-TNK-002, a leachate collection tank with a 10,000-gallon capacity, is dedicated to collection of leachate for Cell 25. The leachate is managed in the same manner as Cell 18. (Appendix A IMG_037 through IMG_047)

The EPA inspectors were then led into Cell 19 which is a Class III industrial landfill permitted by NDEP (Reference #5) located adjacent to Cell 25. MSTS personnel informed EPA that the cell is at approximately 80% capacity. Cell 19 has a design capacity of 78,750 cubic yards. (Appendix A IMG_050 through IMG_056)

The EPA inspectors then visited Mixed Waste Storage Unit (MWSU) which consists of one Transuranic (TRU) Pad Cover Building (TPCB) and TRU Pad (TP), one Sprung Instant Structure Building, one Visual Examination and Repackaging Building, and one drum holding pad (Appendix A IMG_057). In the TPCB, EPA observed 34 container boxes of plutonium wastes. According to Mr. Scott Wade, the wastes in these containers were generated by the NNSS Joint Actinide Shock Physics Experimental Research (JASPER) facility and awaiting to be shipped to the Waste Isolation Pilot Plant (WIPP), a licensed transuranic waste storage site, in New Mexico. At the time of the inspection, Mr. Mark McLane from Nevada Division of Environmental Protection objected to EPA photographing these containers. EPA complied with his request since the containers were not RCRA-mixed low level radioactive waste but reminded Mr. McLane that since this is a RCRA permitted unit, EPA has full authority to inspect and take photographs as necessary to document the findings of the inspection.

The EPA inspectors inspected the Hazardous Waste Storage Unit (HWSU) adjacent to the Area 5 RWMS. The hazardous waste storage area is a prefabricated, rigid steel-framed, roofed structure used to store hazardous non-radioactive wastes generated at NNSS. Prior to entry, the EPA inspectors received a safety briefing. EPA observed waste containers holding D001, D002, D003, PCBs, and P042 wastes in the HWSU (Appendix A IMG_058 through IMG_072).

On August 14, 2019, the EPA inspected two hazardous wastes satellite accumulation areas (SAA): SAA NTS029 (hospital) and SAA NSS1702 (Blue Box Building). EPA observed P042 waste in a container at SAA NTS029 and mixed waste with D004-D011 (2 activated cameras from Device Assembly Facility) (Appendix A IMG_073 through IMG_077).

All inspection photographs were taken by Mr. Troy Belka with MSTS using a Cannon Camera IXUS185. All inspection photographs are included in Appendix A of this inspection report.

Section III Records Review

Prior to the onsite inspection, EPA transmitted an inspection document request to Mr. Scott Wade at NNSS on August 8, 2019 (Appendix B). NNSS provided the requested documents for EPA's review during the inspection.

EPA reviewed hazardous waste manifests, land disposal restrictions notification forms, contingency plan, inspection logs, biennial report and training records. EPA inspector focused her review on the records generated after April 15-16,2019, date of the last inspection by NDEP.

EPA reviewed Mixed Waste Disposal Unit Cell 18 round sheet for the time period of 4/29/19-8/5/2019. From 5/23/2019-7/11/2019, operator noted the alarm light for the secondary leachate pump 2 sump high level alarm was not illuminated.

EPA reviewed weekly inspection logs for HWSU for the time period of 4/15/2019 to 8/7/2019. No issues were identified.

EPA reviewed employee training records for Cirilo Gonzales and Brett Bushnell. All training records are up to date.

EPA reviewed selected waste profiles, groundwater monitoring data and the leachate collection analytical data.

Waste Profile:

Mr. Scott Wade stated that the waste profile for all incoming wastes are based on chemical analysis and/or process knowledge. The waste profile review and approval process is performed by the Radioactive Waste Acceptance Program (RWAP) comprised of personnel from DOE, DOE's contractor(s), and NDEP.

EPA obtained the following selected waste profiles during the inspection:

Waste Profile #	Waste	Waste Classification	Generator	Manifest #	Shipment Date
LRY5MLWFY1904	Disposal Area Remedial Action Contaminated Soil	Mixed low level radioactive hazardous waste (F001, F002, F004, F005, F039) and PCBs	DOE Oak Ridge Y-12	005023658FLE	8/1/2019
AMWP000000024	Special Product Drum	Mixed low level radioactive hazardous waste	DOE Idaho National Laboratory	001942541GBF	8/11/2019

		(F001, F002, F005, D004, D005, D008)			
ORTNMWJOEP001	Decontamination and decommissioning activities mixed waste debris	Mixed low level radioactive hazardous waste (F001, F002, F039)	DOE Oak Ridge Reservation	011764352FLE	06/06/2019
INEL167869QR2	Combined solids repack project of mixed low level debris	Mixed low level radioactive hazardous waste (D004, D005, D006, D007, D008) and PCBs	DOE Idaho National laboratory	015197461JJK	8/12/2019

Leachate Data

EPA reviewed analytical data for the collected leachate in Cell 18 for 2011, 2012, 2013, 2014 (in 2014 Data report for Groundwater Monitoring Program for Area 5 RWMS), 2015, 2016, 2017 and 2018. All data were within prescribed limits.

Post Closure Units

NNSS RCRA Hazardous Waste Facility Permit NEV HW0101 includes RCRA post closure units (Section 9 Historical RCRA Corrective Action Units). One of these units is the Area 5 Retired Mixed Waste Pits and Trenches (CAU111). Based on the 9/18/2019 email from Mr. Reed Poderis with MSTS (see Appendix E), the following is the history of these closed units:

"*The 92-Acre Area was closed under a single closure under the Federal Facility Agreement and Consent Order (FFACO). The 92-Acre Area includes the following categories of landfill units:*

- *Pit 3 Mixed Waste Disposal Unit (MWDU): an Interim Status RCRA-permitted unit under 40 CFR 265*
- *Corrective Action Unit (CAU) 111: a historic RCRA Corrective Action Unit identified in Section 9 of RCRA Permit NEV HW0101. The requirements for closure of historic RCRA Corrective Action Units are fulfilled under the FFACO. Mixed waste was disposed in the landfill units included in CAU 111 prior to the implementation of RCRA.*
- *CAU 207: a FFACO Corrective Action Unit that includes 13 Greater Confinement Disposal (GCD) Boreholes.*
- *Low-level waste disposal units*
- *Asbestiform low-level waste disposal units*

Final closure activities were completed on January 29, 2012. The final Closure Report was approved by NDEP on February 21, 2012, which is the official closure date for the 92-Acre Area. Wastes were left in place. The following table lists the operational dates for each unit in the 92-Acre Area:

DISPOSAL UNIT	FIRST RECORD OF WASTE RECEIPT	LAST RECORD OF WASTE RECEIPT
Pit 1	20-Sep-78	25-Apr-85
Pit 2	18-Dec-84	19-Nov-95
Pit 3	18-Sep-85	17-Jul-08
Pit 4	14-Jun-88	25-Oct-95
Pit 5	15-May-95	27-Sep-07
Pit 6	3-Dec-04	7-Feb-08
Pit 7	15-Sep-97	10-Feb-03
Pit 9	10-Dec-03	9-Oct-07
Pit 11	27-Jan-04	5-Apr-05
Trench 1B	7-Jan-61	29-Jun-65
Trench 2B	5-Jul-72	5-May-78
Trench 3B	2-Mar-92	10-Sep-92
Trench 4B	25-Feb-70	29-Nov-77
Trench 6B	1-Jul-65	25-May-70
Trench 7B	16-May-78	22-Sep-78
Trench 1A	10-Oct-65	19-May-76
Trench 2A	7-Nov-88	22-Jul-93
Trench 3A	26-Aug-69	10-Dec-76
Trench 4A	12-Dec-85	3-Aug-95
Trench 5 and Trench 6A	31-Jan-74	31-Jan-74
Trench 7A and Trench 8	14-May-01	23-Apr-03
Trench 9	3-Aug-95	31-Oct-02
GCD Test	15-Dec-83	6-Mar-84
GCD-01	1984	1984
GCD-02	1984	1984
GCD-03	1984	1984
GCD-04	19-Jul-85	14-Jan-87
GCD-05	26-Jun-85	9-Apr-87
GCD-06	16-Jul-86	20-Feb-87
GCD-07	7-Jul-89	7-Jul-89
GCD-10	11-Dec-87	27-Oct-89

The 92-Acre Area was closed in place with administrative controls by constructing an engineered, vegetated, native soil mono-layer evapotranspiration cover. A 2.5-meter-thick cover was installed over the boreholes, trenches, and pits in the 92-Acre Area. The cover consists of three smaller covers separated by drainage channels and/or roads. The three covers are designated as the North Cover, South Cover, and West Cover. The North Cover is separated into two portions by a drainage channel."

Section V Closing Conference

During the closing conference, Sharon Lin informed the facility that EPA plans to evaluate information gathered during the inspection and will contact DOE for additional information if needed. Sharon Lin noted that EPA will transmit the inspection report to NNSS as soon as it becomes available. Sharon Lin also stated that NNSS will have 14 days to identify any potential confidential business information (CBI) in EPA's inspection report and EPA will share the inspection report with NDEP after NNSS clears potential CBI. Sharon Lin thanked the NNSS team for assisting EPA during the inspection.

On-Site inspection concluded shortly after 1pm on August 14, 2019.

Section VI Area of Potential Violations

#	Regulatory citation	Observations	Evidence
1.	**Permit NEV HW0101** **2.4 General Waste Analysis** *The Permittee shall comply with the waste analysis requirements of 40 CFR 264.13 by following the Waste Analysis Plan procedures of Permit Application Section B.3 (MWSU, EODU & HWSU), Permit Application Section B.4 (MWDU) and the conditions listed below:* *The Permittee shall verify the analysis of each waste stream annually as part of this quality assurance program, in accordance with Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846 or an equivalent method as specified in the Waste Analysis Plan, as approved by the Director.* **B.4 Waste Analysis Plan** *B.4.h.2.5.4 Oxidizer Screening: Failure Criteria: A positive oxidizing indication is a waste that is not consistent with documented constituents fails verification.* **40 CFR §264.13(a)(3) General Waste Analysis** *The analysis must be repeated as necessary to ensure that it is accurate and up to date.*	EPA reviewed manifest 005023658FLE with accompanying waste profile LRY5MLWFY1904. The manifest identifies this waste in 5 metal containers at a total weight of 14,719 kg as a mixed waste carrying the following waste codes: F001, F002, F004, F005, and F039. This waste also includes PCBs. The NNSS waste verification program chemical screening record (dated 4/22/2019) stated that the waste failed the oxidizer screening test twice. The NNSS waste profile continued to state that the alternative test to the oxidizer screening test strips would be the SW 846 Method 1040, however, since no radiological licensed laboratory had been identified to perform the test, the mixed waste sample could not be analyzed using SW 846 Method 1040. The NNSS waste profile then stated that the historic data would support sample is not a "DOT oxidizer/ignitable." EPA found no historic data supporting the statement in the waste profile.	*Appendix C - Waste Profile & Manifest* *Reference #7 EPA RCRA Waste Sampling Draft Technical Guidance Table B-1. Summary of Waste Analysis Drivers for Major RCRA Regulatory Program Areas*

#	Regulatory citation	Observations	Evidence
2.	***Permit NEV HW 0101*** ***Section 9 Historical RCRA Corrective Action Units*** *The requirements for this section have superseded by the Federal Facility Agreement and Consent Order (FFACO). The FFACO, its amendments, and all schedules are hereby incorporated by reference...* ***FFACO Corrective Action Unit 111 Area 5 Waste Management Division Retired Mixed Waste Pits*** *The closure plan must meet RCRA standards under 40 CFR 265 subpart G.* ***Subpart G 40 CFR §265.111(c)** closure performance standard complies with the closure requirements of this subpart, including the requirement of §265.310* ***Closure and Post Closure Care for landfill:*** ***40 CFR §265.310(b)** After final closure, the owner or operator must comply with all post-closure requirements. The owner or operator must:* *(2) Maintain and monitor the leak detection system in accordance with §§ 264.301(c)(3)(iv) and (4) and 265.304(b), and comply with all other applicable leak detection system requirements of this part;*	EPA reviewed post closure reports for 2014, 2015, 2016, 2017, 2018, and found no information on leachate collection and removal system; leak detection system or groundwater monitoring system. EPA reviewed Groundwater Monitoring Program Data Reports for Area 5 Radioactive Waste Management Site for 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017. However, it is unclear whether and how the groundwater monitoring data in these reports met the applicable requirements in the Subpart F Ground-Water Monitoring for the post closure units.	*Appendix E - Email from Reed Poderis, contractor to DOE, to EPA on September 18, 2019* *Reference #2 Post Closure Report for Closed Resource Conservation and Recovery Act Corrective Action units, Nevada National Security Site, NV for calendar years 2014, 2015, 2016, 2017, 2018.* *Reference #1 Groundwater Monitoring Program Data Report*

#	Regulatory citation	Observations	Evidence
	(3) Maintain and monitor the ground-water monitoring system and comply with all other applicable requirements of subpart F of this part. ***Subpart F Ground-Water Monitoring (40 CFR §§265.90-265.95)*** ***40 CFR §265.91(a)** A ground-water monitoring system must be capable of yielding ground-water samples for analysis and must consist of (2) Monitoring wells (at least three) installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the waste management area. Their number, locations, and depths must ensure that they immediately detect any statistically significant amounts of hazardous waste or hazardous waste constituents that migrate from the waste management area to the uppermost aquifer.*		*for Area 5 Radioactive Waste Management Site for 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017.*
3.	**Solid Waste Permit #SW 532 Revision #4** 4.2.2 Prohibited Solid Wastes: Hazardous Wastes, as defined by State and Federal Regulations.	From 2013 to 2018, several shipments of waste from Y-12 of DOE Oak Ridge National Lab under profile BWXTDUM020001 were disposed in an unlined landfill at RWMS permitted as a Class III industrial solid waste disposal unit by NDEP (permit #SW532). In July 2019, DOE disclosed that the wastes that have been shipped under this profile could be a RCRA hazardous waste. Based on subsequent information provided by DOE to EPA in August 2019, EPA has determined that the waste at issue exhibits RCRA hazardous waste characteristics of reactivity (D003) and ignitibility (D001). Solid Waste Permit #SW 532 issued by NDEP prohibits the disposal of hazardous wastes in Class III industrial solid waste disposal units at NNSS.	*Appendix F - DOE Response to EPA Information Request* *Reference #5 NNSS Solid Waste Permit SW532*

Area(s) of Concern:

	Regulatory Citation	Observations	Evidence
1.	**Permit NEV HW 0101** *Section 8 Groundwater Detection Monitoring The Permittee is required to conduct a Groundwater Detection Monitoring Program in compliance with 40 CFR 264.97 and 40 CFR 264.98.* **Detection Monitoring Program: 40 CFR §264.98 (c)** *The o/o must conduct a ground-water monitoring program for each chemical parameter and hazardous constituent specified in the permit pursuant to paragraph (a) of this section in accordance with §264.97(g).* **40 CFR §264.97 General ground-water monitoring requirements:** *The owner or operator must comply with the following requirements:* *(a) The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield ground-water samples from the uppermost aquifer that: (3) allow for the*	Area 5 RWMS only has three wells, one downgradient and two upgradient. RCRA Permit NEV HW0101 designates UE5PW01 as the Point of Compliance (POC) well and UE5PW-2 and UE5PW-3 as background wells. According to the information in the 2017 groundwater monitoring report (pg. 2-1) (report date March 2018) the purpose of these three wells, drilled in 1992, was to characterize water quality and hydrologic properties of the uppermost aquifer. **<u>Monitoring Well Location:</u>** The POC well, UE5PW01, is located outside the southeastern boundary of the Area 5 RWMS, approximately 5,000 feet (approximately 1 mile) south of Cell 18 and Cell 25 which are the permitted RCRA hazardous waste landfill disposal units. Within this 1 mile distance between Cells 18/25 and well UE5PW01, there are other active land disposal units and closed hazardous waste landfills where hazardous wastes were left in place. The current location for pilot well UE5PW01 doesn't allow for the detection of migration of the hazardous waste or constituents from Cell 18 and/or Cell 25 as required in the permit and regulations. **<u>Hazardous Constituents:</u>** According to the permit, the groundwater monitoring program includes analysis of analytes for pH, conductivity, total organic carbon, total organic halides, tritium, TCLP metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, mercury), general water chemistry cations and anions (calcium, iron, magnesium, manganese, potassium, sodium), silicate and alkalinity.	*Reference #1 Groundwater Monitoring Program Data Report for Area 5 Radioactive Waste Management Site 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017* *Reference #6 Permit Section 3, 3.1.1, Permitted Wastes Permit Application NNSS for Waste Management Activities at NNSS Mixed Waste Disposal Unit (MWDU) May 2018 pg. 21, Table 3* *Appendix G - NNSS 2017*

	detection of contamination when hazardous waste or hazardous constituents have migrated from the waste management area to the upper-most aquifer; *(e) The ground-water monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents in ground-water samples.* *(g) In detection monitoring or where appropriate in compliance monitoring, data on each hazardous constituent specified in the permit will be collected from background wells and wells at the compliance point(s)... The sample size shall be as large as necessary to ensure with reasonable confidence that a contaminant release to ground water from a facility will be detected.* *Appendix VII to 40 CFR Part 261 – Hazardous constituents for listed RCRA wastes*	The permit and the 2017 biennial report indicated the following hazardous wastes are allowed to be disposed in the landfill: D004 through D043 F001 through F11, and F039 P001 through P018, P020 through P024, P026 through P031, P033, P034, P036 through P051, P054, P056 through P060, P062 through P078, P081, P082, P084, P085, P087 through P089, P092 through P099, P101 through P106, P108 through P116, P118 through P123, P127, P128, P185, P188 through P192, P194, P196 through P199, and P201 through P205 U001 through U012, U014 through U039, U041 through U053, U055 through U064, U066 through U099, U101 through U103, U105 through U138, U140 through U174, U176 through U194, U196, U197, U200, U201, U203 through U211, U213 through U223, U225 through U228, U234 through U240, U243, U244, U246 through U249, U271, U278 through U280, U328, U353, U359, U364, U367, U372, U373, U387, U389, U394, U395, U404, and U409 through U411 PCBs For example, the manifest EPA reviewed (manifest number 005023658FLE) indicated that 14,719 kg of the mixed low level radioactive hazardous wastes from Y-12 Oak Ridge carrying the RCRA waste codes of F001, F002, F004, F005, F039 and PCBs were disposed in the permitted RCRA landfill at NNSS on 8/5/2019. The hazardous constituents for F001 are tetrachloroethylene, methylene chloride trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons. The hazardous constituents for F002 are tetrachloroethylene, methylene chloride trichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,1,2-trifluoroethane, ortho-dichlorobenzene, and trichlorofluoromethane. The hazardous constituents for F004 are cresols and cresylic acid, and nitrobenzene. The hazardous constituents for F005 are toluene, methyl ethyl ketone, carbon disulfide, isobutanol,	*biennial report* *Hazardous Waste Manifest # 005023658FLE*

		pyridine, 2-ethoxyethanol, benzene, and 2-nitropropane. The hazardous constituents for F039 (landfill leachate) are too long to list here (refer to treatment standards table in 40 CFR §268.40 for the list of hazardous constituents for F039). None of the hazardous constituents for these RCRA wastes or PCBs is being monitored for the groundwater monitoring program associated with the RCRA permitted land disposal units.	

Appendix

Appendix A – EPA Inspection Photo Log
Appendix B – EPA Inspection Document Request
Appendix C - Waste Profile LRY5MLWFY1904 & Manifest
Appendix D – MWSU Inventory
Appendix E – Post Closure Units at Area 5 RWMS - Email from Reed Poderis, contractor to DOE, to EPA on September 18, 2019
Appendix F - DOE responses to EPA's information request on Y-12 waste characterization on August 8, 2019 and August 29, 2019.
Appendix G - NNSS 2017 Biennial report

References:

1. Groundwater Monitoring Program Data Report for Area 5 Radioactive Waste Management Site for 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017
2. Post Closure Report for Closed Resource Conservation and Recovery Act Corrective Action units, Nevada National Security Site, NV for 2014, 2015, 2016, 2017, 2018
3. NNSS Environmental report for 2012, 2013, 2014, 2015, 2016, 2017 *https://www.nnss.gov/pages/resources/library/NNSSER.html*
4. Federal Facility Agreement & Consent Order (FFACO) *https://ndep.nv.gov/land/department-of-energy-oversight/federal-facility-agreement-consent-order-ffaco*
5. NNSS Solid waste permit *https://ndep.nv.gov/land/department-of-energy-oversight/agreement-in-principle-aip/solid-waste*
6. RCRA Hazardous Waste Facility Permit and Permit Application, Permittee: United States Department of Energy, Nevada Field Office, Nevada National Security Site, Permitting Agency: Nevada Division of Environmental Protection/Bureau of Federal Facilities, NEV HW0101, May 2018.
7. RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment, EPA530-D-02-002, August 2002 *https://www.epa.gov/sites/production/files/2015-10/documents/rwsdtg_0.pdf*
8. RCRA Groundwater Monitoring Technical Enforcement Guidance Document September 1986. *https://www.epa.gov/sites/production/files/documents/rcragwguiddoc-rpt_0.pdf*
9. Introduction to Groundwater Monitoring 40 CFR 264/265, Subpart F. EPA530-K-02-010, October 2001. *https://www.epa.gov/sites/production/files/2015-07/documents/gwm.pdf*
10. Ground Water Monitoring Requirements for Hazardous Waste Treatment, Storage and Disposal Facilities *https://www.epa.gov/hwpermitting/ground-water-monitoring-requirements-hazardous-waste-treatment-storage-and-disposal*

APPENDIX E
Table 2
Settlement Agreement (SA)
Actions to Resolve EPA Potential Violations

#	EPA Regulatory Citation	Resolution	Documented Metric
Potential Violation #1	**Permit NEV HW0101** **2.4 General Waste Analysis** *The Permittee shall comply with the waste analysis requirements of 40 CFR 264.13 by following the Waste Analysis Plan procedures of Permit Application Section B.3 (MWSU, EODU & HWSU), Permit Application Section B.4 (MWDU) and the conditions listed below:* *The Permittee shall verify the analysis of each waste stream annually as part of this quality assurance program, in accordance with Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846 or an equivalent method as specified in the Waste Analysis Plan, asapproved by the Director.* **B.4 Waste Analysis Plan** *B.4.h.2.5.4 Oxidizer Screening: Failure Criteria: A positive oxidizing indication is a waste that is not consistent with documented constituents fails verification.* **40 CFR §264.13(a)(3) General Waste Analysis** *The analysis must be repeated as necessary to ensure that it isaccurate and up to date*	DOE will modify Permit NEV HW 0101 Waste Analysis Plan (WAP) Section B.4.H (Physical and Chemical Screening) to: • Clarify field waste chemical screening criteria including unexpected result threshold criteria. • Formalize notification to NDEP if a waste exceeds/ fails chemical screening threshold. • Require a "pause" in shipping during investigationfor waste that failed chemical screening. • Provide analytical and/or process knowledge (PK) documentation to NDEP for review and approval for resumption of shipping after the "pause." DOE will work with NDEP to address issue notification andinvestigation in Permit NEV HW 0101 Mixed Waste Disposal Unit Section or Section(s) identified by NDEP.	• The Department of Energy (DOE) will revise the Resource Conservation and Recovery Act (RCRA) Permit NEV HW0101 application (i.e., Mixed Waste Disposal Unit) to address changes in the Waste Analysis Plan including revising screening criteria, notification criteria, and actions upon sample results exceeding screening thresholds. o DOE will submit a revised application to the Nevada Division of Environmental Protection (NDEP) within 210 days of signature of the SA.

#	EPA Regulatory Citation	Resolution	Documented Metric
Potential Violation #2	***Permit NEV HW 0101*** ***Section 9 Historical RCRA Corrective Action Units*** *The requirements for this section have superseded by the Federal Facility Agreement and Consent Order (FFACO). TheFFACO, its amendments, and all schedules are hereby incorporated by reference...* ***FFACO Corrective Action Unit 111 Area 5 Waste Management Division Retired Mixed Waste Pits*** *The closure plan must meet RCRA standards under 40 CFR 265 subpart G.* ***Subpart G 40 CFR §265.111(c)*** *closure performance standardcomplies with the closure requirements of this subpart, including the requirement of §265.310* ***Closure and Post Closure Care for landfill:*** ***40 CFR §265.310(b)*** *After final closure, the owner or operatormust comply with all post-closure requirements. The owner or operator must:* ***(2)*** *Maintain and monitor the leak detection system in accordance with §§ 264.301(c)(3)(iv) and (4) and 265.304(b),and comply with all other applicable leak detection system requirements of this part;* ***3)*** *Maintain and monitor the ground-water monitoring systemand comply with all other applicable requirements of subpartF of this part.* ***Subpart F Ground-Water Monitoring (40 CFR §§265.90-265.95)*** ***40 CFR §265.91(a)*** *A groundwater monitoring system must be capable of yielding ground-water samples for analysis and must consist of* ***(2)*** *Monitoring wells (at least three) installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the waste management area. Their number, locations, and depths must ensure that they immediately detect any statistically significant amounts of hazardous waste or hazardous waste constituents that migrate from the waste management area to the uppermost aquifer.*	DOE will modify Groundwater Monitoring Plan under Permit NEV HW0101 to address the following: • Include within the NNSS Part B application's Groundwater Monitoring Plan an updated historical and operational disposal cell and monitoring location map for the Area 5 Radioactive Waste Management Complex (RWMC) shallow and groundwater monitoring (Pilot Wells PW-1, PW-2,and PW-3, and Monitoring Well MW-4). • Work with NDEP to include in the Groundwater Monitoring Section of Permit NEV HW 0101 a description of the shallow (e.g. lysimeter and time domain refractory) and at-depth monitoring (e.g. PW-1 and MW-4).	• DOE will revise the RCRA Permit NEV HW0101 application to address changes to the Groundwater Monitoring Plan including addressing shallow infiltration monitoring and groundwater well monitoring. o DOE will submit a revised application to NDEP within 210 days of signature of the SA.

#	EPA Regulatory Citation	Resolution	Documented Metric
Potential Violation #3	**Solid Waste Permit #SW 532 Revision #4** 4.2.2 Prohibited Solid Wastes: Hazardous Wastes, as definedby State and Federal Regulations.	• DOE will transmit a letter to EPA Region 9 and copy NDEP stating that either the squibs will be removed or rendered inert for any future shipments of Y-12 weapon related material. • DOE will construct an 8' thick compacted vegetative closure cap over disposal cell 19 (locationof the 33 containers of Y-12 weapon related material). • DOE will monitor cell 19 under NDEP permit SW-532.	• DOE will provide a letter to U.S. Environmental Protection Agency (EPA) Region 9 on future shipments of squibs within Weapons Related Material from Y-12. o DOE will provide the letter to EPA within 60 days of signature of the SA. • DOE will provide a letter to NDEP providing the schedule for construction of the vegetative cap on cell 19. o DOE will provide the letter to NDEP within 60 days of signature of the SA. • DOE will submit a closure and post-closure plan for cell 19 with a commitment to conduct post-closure monitoring. o DOE will submit within 210 days of signature of the SA a post-closure plan for cell 19 with the SW-532 permit application.

#	EPA Regulatory citation	Resolution	Documented Metric
Area of Concern #1	**Permit NEV HW 0101** *Section 8 Groundwater Detection Monitoring The Permittee is required to conduct a Groundwater DetectionMonitoring Program in compliance with 40 CFR 264.97 and 40 CFR 264.98.* **Detection Monitoring Program: 40 CFR §264.98 (c)** *The o/o must conduct a ground-water monitoring program foreach chemical parameter and hazardous constituent specifiedin the permit pursuant to paragraph (a) of this section in accordance with §264.97(g).* **40 CFR §264.97 General ground-water monitoring requirements:** *The owner or operator must comply with the following requirements:* *(a) The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield ground-water samples from the uppermostaquifer that: (3) allow for the detection of contamination when hazardous waste orhazardous constituents have migrated from the wastemanagement area to the upper-most aquifer;* *(e) The ground-water monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardousconstituents in ground-water samples.* *(g) In detection monitoring or where appropriate in compliance monitoring, data on each hazardous constituent specified in the permit will be collected from background wellsand wells at the compliance point(s)...* *The sample size shall be as large as necessary to ensure withreasonable confidence that a contaminant release to ground water from a facility will be detected.* *Appendix VII to 40 CFR Part 261 – Hazardous constituents forlisted RCRA wastes.*	• DOE will update the RCRA Part B Groundwater Monitoring Plan to clarify analysis and sampling location including increasing sampling suite in existing leachate tanks and monitoring wells to facilitate early detection given the sites hydrological conditions. • DOE will work with NDEP to develop investigation limits and a tiered response to exceedances. (E.G., if tritium or another analyte are detected in monitoring well at a specified level, sampling should be done in response, need for an additional well, etc...) • DOE will construct a new monitoring well to support an additional mixed waste disposal unit(s). • DOE will work with NDEP to reflect monitoring updates in Permit NEV HW0101's Groundwater Monitoring Section.	• DOE will revise the RCRA Permit HW0101 application's Groundwater Monitoring Plan to clarify analysis and sampling. This will include evaluating waste codes for disposal at cell 25 and monitoring of the primary leachate collection liner for cell 25. o DOE will submit a revised application to NDEP including the Groundwater Monitoring Plan within 210 days of signature of the SA. • DOE will revise the RCRA Permit application's Groundwater Monitoring Plan to clarify the use of tiered investigation levels using total organic carbon, total halides, and tritium as indicator parameters. The Plan will also address response actions following receipt of analytical results above agreed upon action levels. o DOE will submit a revised application to NDEP including the Groundwater Monitoring Plan within 210 days of signature of the SA. • DOE will commit within the RCRA Permit HW0101 application that a new groundwater monitoring well will be developed concurrent with the construction any new Mixed Waste Disposal Unit (anticipated for construction between 2027 to 2030 based on need). o DOE will submit the revised application to NDEP within 210 days of signature of the SA. • DOE will revise the RCRA Permit NEV HW0101 application including shallow vadose and groundwater monitoring proposed text. o DOE will submit a monitoring summary in a letter to NDEP within 210 days of signature of the SA.