



Nevada Site Specific Advisory Board Table of Contents

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NSSAB FULL BOARD MEETING ATTENDANCE

October 2019 through September 2020 (FY 2020)

Name	11/13/19	1/15/20	3/18/2020*	5/20/20**	7/15/2020***	9/23/20	Max Terms
MEMBERS							
Amina Anderson	√	√		E			2020
Francis Bonesteel	√	√		√			2022
William DeWitt	√	√		√			2024
Karen Eastman	√	√		√			2020
Pennie Edmond	E	√		√			2022
Charles Fullen	√	√		√			2022
Richard Gardner	E	√		√			2022
Anthony Graham	√	√		√			2024
Tanya Henderson	E	√		√			2024
Donald Neill	√	√		√			2020
Steve Rosenbaum	√	√		E			2020
Janice Six	√	√		√			2024
Richard Stephans	√	√		√			2022
Richard Twiddy	√	√		√			2022
Dina Williamson-Erdag	E	√		√			2022
LIAISONS							
Clark County	√	E		√			
Consolidated Group of Tribes & Organizations	E	E		√			
Elko County Commission (limited)							
Esmeralda County Commission	U	U		E			
Lincoln County Commission	U	√		U			
Nye County Commission	U	√		√			
Nye County Emergency Management	√	√		E			
Nye Co. Nuclear Waste Repository Project Office	√	√		√			
State of NV Division of Env Protection	√	√		√			
U.S. Natl Park Service (limited)							
KEY: √ - Present E - Excused V - Vacant U - Unexcused							
*Meeting cancelled due to COVID-19							
**Virtual Administrative Meeting							
***Virtual Full Board Meeting							

Waste Verification Strategy Updates – Work Plan #1



Robert Boehlecke, Program Manager
U.S. Department of Energy (DOE)
Environmental Management (EM) Nevada Program
July 15, 2020



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safety – performance – cleanup – closure

ID 2471 – 07/15/2020
Log No: EMRP-2020-054

Nevada Site Specific Advisory Board (NSSAB) Work Plan Item #1

- Provide a recommendation, from a community perspective, on the potential verification strategies identified and/or how these strategies may be implemented
- NSSAB recommendation is due tonight



NSSAB Meeting at Amargosa Community Center - 3/20/2019



Review: Verification Purpose

- Verification is the monitoring of Nevada National Security Site Waste Acceptance Criteria (NNSSWAC) compliance
- NNSSWAC provides the criteria to ensure protection of workers and the public
 - Prescribes regulatory, health and safety, technical, and administrative requirements for programmatic, container, and profile certification
 - Generator programs and profiles are reviewed by Radioactive Waste Acceptance Program (RWAP) for NNSSWAC compliance
 - Generators are required to certify that the wastes submitted to NNS are compliant with the NNSSWAC



Review: Verification Objectives

- Assess generator programs to determine that:
 - Radionuclides present are correctly identified with the correct concentrations for proper radioactive categorization
 - Chemical constituents are sufficiently evaluated so that waste is correctly categorized as low-level radioactive waste (LLW) or mixed low-level radioactive waste (MLLW)
 - Other hazards, such as, polychlorinated biphenyls or asbestos are correctly identified
 - No prohibited items are present
 - Waste conforms to the waste profile as approved



Review: Programmatic Verification

Methodology	Primary Use	Current NNSC Capability	Effectiveness/ Limitations	Costs*	Other Factors
Facility Evaluation Program	Evaluation of programmatic systems used by the waste generator	RWAP maintains staff to conduct facility evaluations in core areas	Identifies issues prior to shipment and receipt Programmatic function - limited review of individual containers	Capital expenditures minimal Operational costs moderate	Funded by DOE EM Nevada Program
Independent Waste Certification Program	Evaluation of programmatic systems and review of each individual waste package	NNSC requires each waste generator to have an Independent WCO and requisite resources	Provides for review of each individual container as well as programmatic elements	Capital expenditures none Operational costs minimal	Ownership and cost assumed by the generator
Defined Profile Submission and Review Program	Provides detailed technical basis for the characterization and categorization of each waste stream	WARP chartered to review all profiles	Programmatic function - no review of individual containers	Capital expenditures minimal Operational costs moderate	Reviews funded by DOE EM Nevada Program
<p>*Capital Costs: "high" is more than \$10 million, "moderate" ranges from \$1 million to \$10 million, and "minimal" is less than \$1 million Operational Costs: "high" is more than 10 full-time equivalent employees (FTE), "moderate" is 2 to 10 FTE, and "minimal" is less than or equal to one (1) FTE</p>					



Review: Container Verification

Methodology	Primary Use	Current NNSS Capability	Safety Considerations	Effectiveness/ Limitations	Costs*
Visual Verification	Detect prohibited items; evaluate void space; confirm profile description	None, currently performed at generator by RWAP staff	Opening waste containers has inherent risks; requires appropriate engineering and administrative controls and personnel protective equipment	No chemical or radiological information	Capital expenditures moderate Operational costs moderate
Real-Time Radiography (RTR)	Detect prohibited items; evaluate void space; confirm profile description	Full capabilities to perform RTR on drums and boxes	Minimal with standard controls	Visuals may be indeterminate due to the resolution limitations; No chemical or radiological information	Capital expenditures minimal Operational costs minimal
Fingerprinting via Analytical Sampling	Confirming chemical and or radiological categorization of waste	None, NNSSWAC allows for splits to be collected at generator site	Same as Visual Verification when performed at NNSS	Chemical and radiological information obtained; Effective for particulates; Limited effectiveness for debris	Capital expenditures moderate Operational costs moderate
Radiological Scanning	Radiological data indicator	Full capability	Minimal with standard controls	Gross indications on radiological activity or contamination	Capital expenditures minimal Operational costs moderate
Non-Destructive Assay	Radiological data confirmation	None	Minimal with standard controls	To be effective must be calibrated to expected radionuclides	Capital expenditures moderate to high Operational costs moderate
<p>*Capital Costs: “high” is more than \$10 million, “moderate” ranges from \$1 million to \$10 million, and “minimal” is less than \$1 million Operational Costs: “high” is more than 10 FTE, “moderate” is 2 to 10 FTE, and “minimal” is less than or equal to one (1) FTE</p>					



Updates Since January

- DOE reviews completed since January included verification strategies as a focus
- Feedback from the reviews is being used to strengthen the established verification tools, particularly:
 - Visual verifications
 - RTR
 - Analytical sampling
- Since March, aligned resources to the waste generator's status of operations
 - Remote evaluations are being utilized for program reviews.
- The resumption of priority EM NV Program travel has been authorized as of July 6; primarily RWAP onsite visual verifications and targeted assessments
- On-site verifications have been identified as an area for enhancement and will be a top priority moving forward



NSSAB Path Forward

- Provide a recommendation, from a community perspective, on the potential verification strategies identified and/or how these strategies may be implemented
- NSSAB recommendation is due tonight



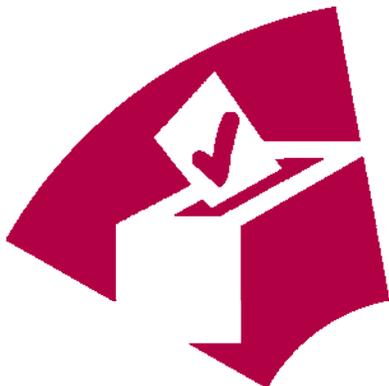
NSSAB Meeting at Amargosa Community Center - 3/20/2019



Questions



FY 2021 Election Time



Elections of the FY 2021 NSSAB Chair and Vice-Chair will take place at the September Full Board meeting. A response is needed from all. Please contact the NSSAB office by August 31 and advise if you would like to be considered for either position.

You may also nominate someone who you feel would be a valuable chair/vice-chair. Anyone nominated will be contacted to ensure they would accept the nomination. A list of interested members will be provided to the Full Board and the officers will be elected by ballot at the September Full Board meeting.

What are the Chair responsibilities?

- Serves as the Chair for 12 months (October 1 - September 30)
- Participates in EM SSAB Chairs conference calls
- Assists in the development of draft meeting agendas
- Leads full board meetings and ensures all members have the opportunity to participate
- Certifies to the accuracy of all minutes within 45 days
- Signs recommendations that the Board has passed
- Serves as spokesperson for the NSSAB between regular meetings of the Board
- Attends national EM SSAB meetings and/or workshops semi-annually
- Adheres to all standard NSSAB member responsibilities (i.e. attendance requirements, etc.)



What are the Vice-Chair responsibilities?



- Serves as the Vice-Chair for 12 months (October 1 - September 30)
- Participates in EM SSAB Chairs conference calls
- Assists in the development of draft meeting agendas
- Acts as the NSSAB chair in the absence of the elected chair
- Attends national EM SSAB meetings and/or workshops semi-annually
- Adheres to all standard NSSAB member responsibilities (i.e. attendance requirements, etc.)

Please contact the NSSAB office by August 31 and advise if you are willing to be considered for the FY 2021 Chair and/or Vice-Chair positions.

Engine Maintenance, Assembly, and Disassembly (EMAD) Path Forward ~ Work Plan #6



Kevin Cabble, Acting Industrial Sites Activity Lead
U.S. Department of Energy (DOE)
Environmental Management (EM) Nevada Program
July 15, 2020



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safety – performance – cleanup – closure

ID 2425 – 07/15/2020
Log No: EMRP-2020-048

Nevada Site Specific Advisory Board (NSSAB) Work Plan Item #6

- From a community perspective, the NSSAB will provide a recommendation on the Department's planned end state for EMAD or how the plan could be improved
- NSSAB recommendation is due no later than September 2020



Past EMAD Recommendations

- NSSAB reviewed closure options in December 2009 with the following recommendations:
 - Finding no feasible alternatives, NSSAB recommended EMAD be demolished to slab
 - Lack of interest, logistical challenges of accessibility, and continuing maintenance costs did not support a museum conversion
 - Given historical value, NSSAB recommended that EM continue to explore any possible reuse inquiries/options between now and demolition
 - Costs for retrofitting have eliminated the feasibility of other entities reusing the facility



Outline

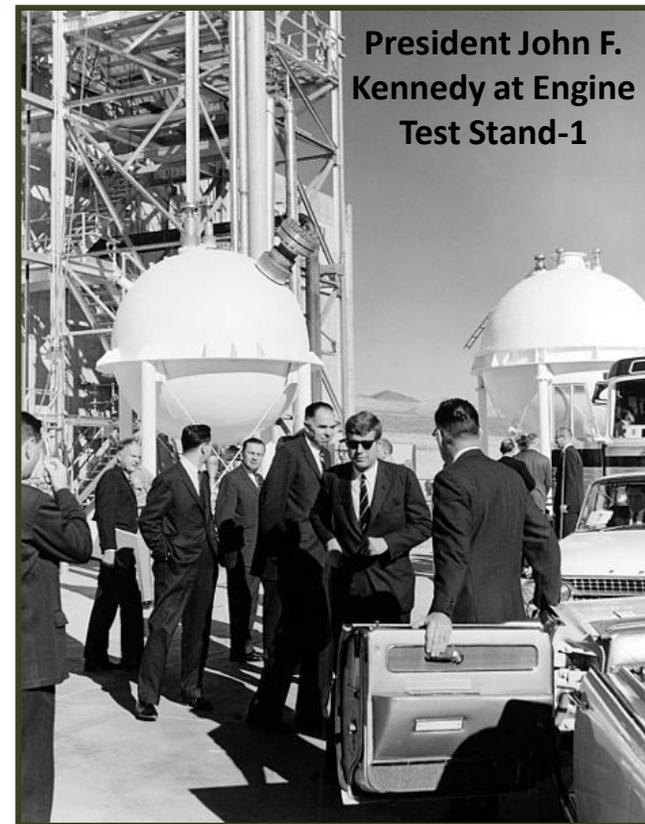


- Nuclear Rocket Development Station (NRDS) History
- Test Cell C (TCC) Background
- EMAD History
- Completed Activities at EMAD
- Current Conditions at EMAD
- Planned Closure Activities
- Cultural Resource Documentation



NRDS History

- NRDS mission supported Project Rover by developing and testing nuclear rocket engines
- Objective was to use atomic energy to propel a rocket for interplanetary travel and other terrestrial objectives
- NRDS activities began in 1957 and ended in 1973
- Jointly administered by the Atomic Energy Commission and the National Aeronautics and Space Administration
- Visited by President John F. Kennedy (only U.S. President to visit the Nevada National Security Site [NNSS])



President John F. Kennedy at Engine Test Stand-1



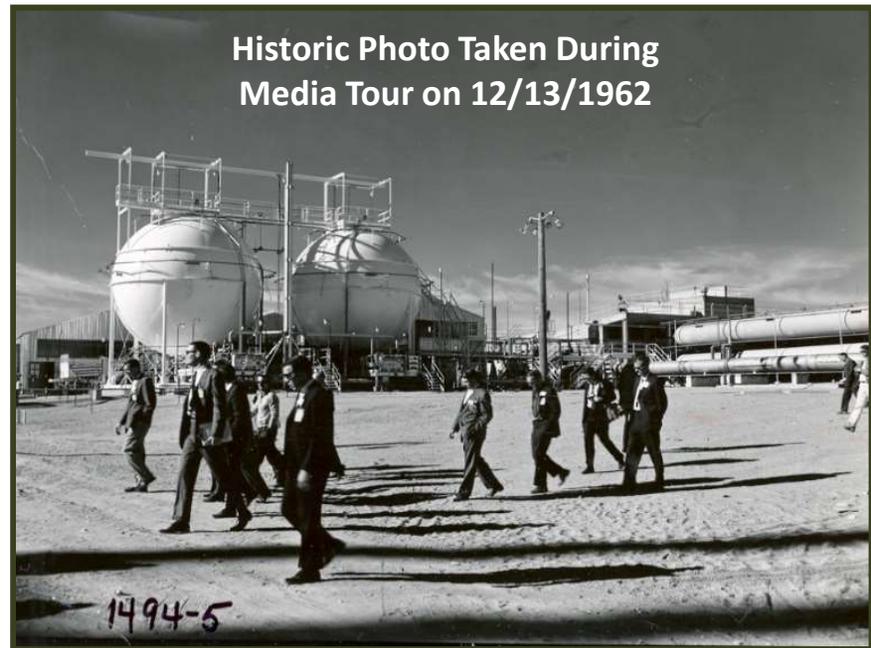
NRDS History (continued)

- NRDS activities conducted in Area 25 of the NNSC
 - NNSC chosen due to the history of nuclear testing and the potential to release radioactive exhaust
- NRDS facilities included:
 - Test Cell A (closed)
 - Test Cell C (partially closed)
 - Engine Test Stand-1 (currently active)
 - Reactor Maintenance, Assembly, and Disassembly [RMAD] (closed)
 - Jackass and Western Railroad (closed)
 - EMAD (scheduled for closure)



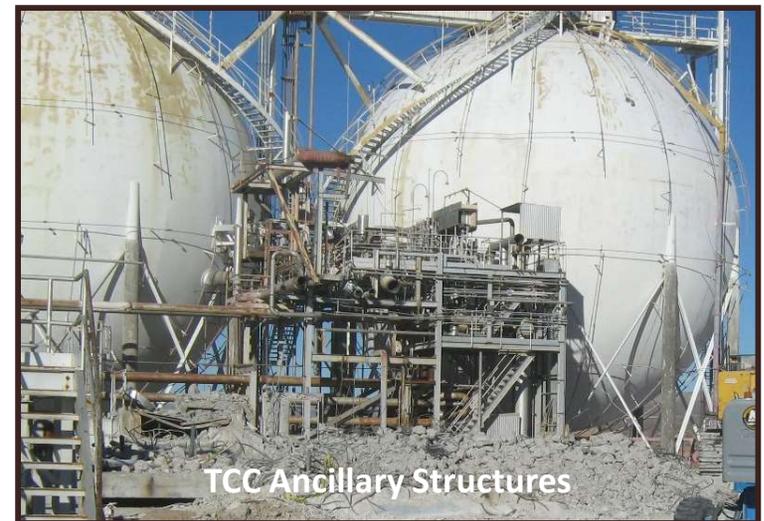
TCC Background

- Built in 1961, TCC was used to ground test nuclear reactors and engines for rockets
 - An upgrade from the earlier Test Cell A
 - Connected at that time by rail to the rest of the NRDS:
 - Test Cell A
 - Engine Test Stand-1
 - RMAD
 - EMAD
- Operations ceased in 1973 with the cancellation of Project Rover



TCC Background (continued)

- TCC has no current or future mission
- Scheduled for demolition and disposal starting in fiscal year (FY) 2023 and planned for completion by FY 2024
- Remove and demolish structures and properly dispose of the generated waste
- Demolition at TCC reduces the long-term cost of surveillance and maintenance
- End state is anticipated to be demolition to slab of remaining facilities
- NSSAB recommended in November 2019 that the Department accept the plan for the TCC end state



EMAD History

- Fully completed in 1968, EMAD was used to stage, assemble, and disassemble engines for rockets
 - Constructed at a cost of more than \$50 million
 - Largest “hot cell” in the world
 - Eight stories high with 100,000 square feet of floor space
 - Six-foot thick walls and 32-inch thick roof
- Operations ceased in 1973 with the cancellation of Project Rover



EMAD History (continued)

- After Project Rover was cancelled, EMAD was used for various projects:
 - Late 1970s and early 1980s: Spent nuclear fuel handling and packaging demonstration project
 - Mid-1980s: EMAD considered for another project to develop a space nuclear power system that was never executed
 - Late 1990s: Fluid Tech, Inc. activities



Completed Activities at EMAD

- EMAD addressed under Corrective Action Unit 114 in the Federal Facility Agreement and Consent Order and consists of two Corrective Action Sites (CASs):
 - CAS 25-41-03, EMAD Facility including water tower
 - CAS 25-99-23, Manned Control Car and Engine Installation Vehicle
- Streamlined Approach for Environmental Restoration (SAFER) Plan was approved by the State of Nevada Division of Environmental Protection in 2009 and revised in 2010
- Another revision to the SAFER is necessary and will be prepared



EMAD Current Condition

- Since the 2009 NSSAB briefing, conditions at EMAD have changed:
 - Liquids have been drained from pipes and fixtures throughout
 - Floor tiles contain asbestos; some have been removed
 - Concrete west wall patched where breached by equipment
 - Flash flood in October 2015 flooded the basement and first floor with water and sediment
 - Cooling tower on top in danger of collapsing
 - Roofs have decayed and leak



Planned Closure Activities



- EMAD has no current or future mission
- Scheduled for demolition and disposal starting in FY 2025 and planned for completion by FY 2027
- Remove and demolish structures and properly dispose of the generated waste at the NNSS



Planned Closure Activities (continued)



- Demolition at EMAD reduces the long-term cost of surveillance and maintenance
- End state is anticipated to be demolition to slab of remaining facilities



Cultural Resource Documentation for EMAD



**Maureen King and Susan Edwards,
Associate Research Scientists, Archaeology
Desert Research Institute (DRI)**



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ID 2425 – 07/15/2020
Log No: EMRP-2020-048

Cultural Resource Documentation

- EMAD determined eligible to the National Register of Historic Places (NRHP) in 1996
- National Historic Preservation Act requires agencies to consider effects of federally-funded projects on historic properties through the Section 106 process
- Agencies must also provide opportunity for comment regarding avoiding or mitigating adverse effects to affected historic properties
 - A historic property is any property that is included in or eligible for inclusion in the NRHP
 - An adverse effect occurs when a project may diminish the integrity of a historic property
- If a historic property will be adversely affected, mitigation may be required, which can include:
 - Data recovery to preserve knowledge about the property
 - Preserving components of the property, if possible
 - Mitigation banking by preserving another historic property in lieu of the area of potential effect



Cultural Resource Documentation (continued)

- Initial cultural resource documentation conducted in 1996, prior to removal of manipulators
- Since then, nearly all interior furnishings and tools removed
 - Removed items were reused, disposed as radioactive waste, or disposed as construction waste
 - Some items donated to the National Atomic Testing Museum
 - Two locomotives donated to the Nevada Southern Railroad Museum in Boulder City, NV



Cultural Resource Documentation

(continued)

- In 2019, DRI archeologists completed additional cultural resource surveys and documentation including a current condition assessment
 - Based on DRI’s recommendation, DOE National Nuclear Security Administration (NNSA) determined EMAD retains its NRHP eligibility
 - Nevada State Historic Preservation Office (SHPO) concurred with NNSA eligibility determination
 - Any adverse effects due to the closure activities will require mitigation agreed to by SHPO, NNSA, and DOE
 - A Memorandum of Agreement, to include the mitigation measures to be performed, will be negotiated between SHPO, NNSA, and EM and is currently under review



Cultural Resource Documentation (continued)

- The report on the results of the 2019 EMAD current condition historic documentation effort is available through the DOE Office of Scientific and Technical Information (OSTI) using the link below:
 - <https://www.osti.gov/biblio/1576570-revised-architectural-survey-nuclear-engine-maintenance-assembly-disassembly-facility-area-nevada-national-security-site-nye-county-nevada>
- The 1996 Historic American Engineering Record (HAER) EMAD documentation is available through the Library of Congress using the link below:
 - <https://cdn.loc.gov/master/pnp/habshaer/nv/nv0200/nv0207/data/nv0207data.pdf>



Review

- NRDS History
- TCC Background
- EMAD History
- Completed Activities at EMAD
- Current Conditions at EMAD
- Planned Closure Activities
- Cultural Resource Documentation

*Let's
Recap*

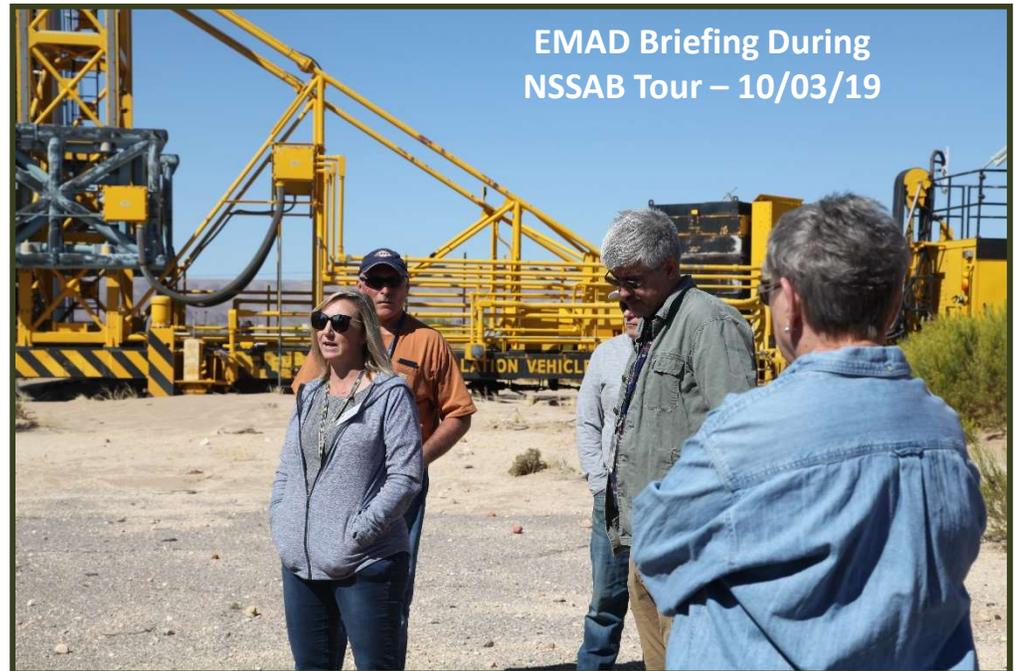


Questions?



Path Forward

- From a community perspective, the NSSAB will provide a recommendation on the Department's planned end state for EMAD or how the plan could be improved
- NSSAB recommendation is due no later than September 2020





Community Advisory Board for Nevada Test Site Programs

December 17, 2009

Members

Walter Wegst, PhD, *CAB Chair*
Harold Sullivan, *CAB Vice-Chair*
Chair, Outreach Committee

Kathleen Bienenstein, Chair
Membership and
Industrial Sites Committees
Robert Gatliff, Chair
Underground Test Area (UGTA) Committee
David Hermann
Robert Johnson, Chair
Transportation/Waste Committee
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Jackson Ramsey, PhD
Theodore Schweitzer
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Nevada Site Office
Robert Gamble
Nye County
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Clark County
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Bureau of Federal Facilities,
State of Nevada Division of
Environmental Protection
Genne Nelson
U.S. National Park Service

Administration

Denise Rupp, Administrator
Navarro Research & Engineering, Inc.
Kelly Snyder, DDFO
U.S. Department of Energy,
Nevada Site Office

Mr. Rob Boehlecke,
Environmental Restoration Project Director
U.S. Department of Energy, Nevada Site Office
P. O. Box 98518
Las Vegas, NV 89193-8518

SUBJECT: Corrective Action Unit (CAU) 114, Engine Maintenance
Assembly and Disassembly Facility (EMAD) Closure

Dear Mr. Boehlecke,

The Community Advisory Board for Nevada Test Site Programs (CAB) has completed an in-depth review of CAU 114 and the closure options for the EMAD facility.

The CAB acknowledges the unique and integral role the EMAD facility played in the development of a nuclear propulsion engine for use in space exploration. The facility was designed and constructed specifically for the safe assembly and disassembly of a nuclear powered engine and non-nuclear engine subsystems during testing, making it truly one of a kind. Although the mission was cancelled in 1973, the work accomplished at EMAD helped to demonstrate the potential technical feasibility for far-reaching space exploration. Upon initial review, the Board wholeheartedly agreed every effort should be made to preserve the EMAD facility, ideally turning it into a museum.

At the CAB's request, your office contacted the Nevada Test Site Historical Foundation regarding their interest in the possibility of converting EMAD to a museum. While they have no interest in EMAD as a museum, the Foundation did express an interest in obtaining artifacts from the facility for use at the Atomic Testing Museum. The CAB would like to encourage DOE to make available as many historical artifacts as possible to the Foundation.

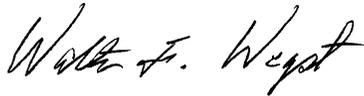
The lack of interest, logistical challenges of accessibility and continuing maintenance costs do not support a museum conversion. The Board also reviewed the possibility of other entities re-using the facility. Unfortunately, the costs for retrofitting the facility have discounted this option despite numerous discussions DOE has had with interested parties over the last several years.

Mr. Rob Boehlecke
December 17, 2009
Page 2

Finding no feasible alternatives, it is the CAB's recommendation the EMAD facility be demolished to slab. Given the historic value of the facility, the Board would request Environmental Management continue to explore any possible re-use inquiries/options between now and demolition.

The CAB appreciates the opportunity to review and comment on Industrial Sites at the Nevada Test Site.

Sincerely,

A handwritten signature in black ink, appearing to read "Walter F. Wegst". The signature is written in a cursive style with a large initial 'W'.

Walter F. Wegst, Chair
Community Advisory Board
for Nevada Test Site Programs

cc: C. Lockwood, PSG, NNSA/NSO, Las Vegas, NV
K. Snyder, PSG, NNSA/NSO, Las Vegas, NV
D. Rupp, NREI, Las Vegas, NV
M. Nielson, DOE/HQ (EM-13) FORS
C. Brennan, DOE/HQ (EM-13) FORS
A. Clark, DOE/HQ (EM-13) FORS
CAB Members and Liaisons
NNSA/NSO Read File



Department of Energy
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JAN - 4 2010

Walt Wegst, Chair
Community Advisory Board
for Nevada Test Site Programs
232 Energy Way
North Las Vegas, NV 89030

RESPONSE TO THE COMMUNITY ADVISORY BOARD (CAB) FOR NEVADA TEST SITE PROGRAMS' 12-17-09 RECOMMENDATION LETTER REGARDING CORRECTIVE ACTION UNIT (CAU) 114 ENGINE MAINTENANCE ASSEMBLY AND DISASSEMBLY (EMAD) FACILITY CLOSURE

We sincerely appreciate the CAB's efforts in reviewing the closure options for CAU 114, the EMAD facility. The EMAD facility played a unique and significant role in the development of a nuclear propulsion engine for use in space exploration. The CAB's interest in exploring the option of preserving the building as a museum is understandable and appreciated given its historical significance. We agree the economic and logistical factors do not, unfortunately, support a museum option. Every reasonable effort will be made to make historical artifacts from the building available to the Atomic Testing Museum. Please keep in mind, some potentially desirable artifacts may not be available due to possible risks associated with radiological, chemical or biological contamination.

Current planning will proceed for the ultimate demolition of the facility to grade and clean closure of CAU 114 by the end of FY 2013. Depending upon conditions encountered, a land use restriction may be implemented to close below grade contamination in place. Activities planned for FY 2010 include stabilization of potentially hazardous conditions in the building, characterization and removal of asbestos-containing materials, draining and stabilization of all systems that may contain liquids, and the planning and preparation for future field activities. The Nevada Site Office (NSO) Environmental Restoration Project (ERP) will continue to explore re-use inquiries and options if identified prior to the start of demolition, currently planned for early 2012.

NSO ERP appreciates the CAB's interest in EMAD and the efforts made to review the closure options. We will continue to keep the CAB informed on this project.

Robert F. Boehlecke
Federal Project Director
Environmental Restoration Project

PSG:5974.RB

cc via e-mail:

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C. A. Brennan, DOE/HQ (EM-13) FORS

A. E. Clark, DOE/HQ (EM-13) FORS

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Las Vegas, NV

NNSA/NSO Read File