



Nevada Site Specific Advisory Board

Table of Contents

Full Board Meeting Handouts for Wednesday, January 16, 2013

Please note: For your convenience, this Table of Contents has a link to the first page of each handout.

If you just want to print certain pages, the directions are: file, print, Pages to Print, choose the radio button-Pages and enter just the pages that you want printed, then choose print

Page 2	Pre-meeting briefing: Nevada National Security Site - A Historical Look
Page 48	January 16, 2013 Agenda
Page 50	Attendance Spreadsheet
Page 51	Recommendation Regarding Removal or Retention of Use Restrictions at Seven Specific Industrial Sites – Work Plan Item #2
Page 53	Recommendation Regarding Nye County Drilling Proposal – Work Plan Item #4
Page 55	Nevada National Security Site (NNSS) Final Site-Wide Environmental Impact Statement (SWEIS) Update Briefing
Page 75	Fiscal Year (FY) 2015 Baseline Prioritization Briefing – Work Plan Item #5
Page 110	NSSAB Baseline Prioritization Worksheet
Page 111	Groundwater Strategy Handout
Page 112	Recommendation for Fiscal Year (FY) 2015 Baseline Prioritization – Work Plan Item #5

Nevada National Security Site: A Historical Look



The Nevada National Security Site



✓ Large – 1,360 square miles

✓ Surrounded by NTTR providing for 4,200 square miles of federally owned land

Travel Distances

Las Vegas	NNSS Entrance	65 miles	
Las Vegas	Tonopah	215 miles	
Las Vegas	Reno	452 miles	

Nuclear Testing Road to the Nevada National Security Site

- U.S. enters World War II in 1941 after Japanese attack Pearl Harbor
- U.S. Manhattan Project begins developing first atomic bomb in 1942 to influence the outcome of the war
- Manhattan Project tests first atomic bomb in New Mexico on July 16, 1945, called “Trinity”
- U.S. drops two atomic bombs on two cities in Japan on August 6 and 9, 1945 – Japan surrenders August 14, 1945
- Nuclear testing begins in the South Pacific Ocean in 1946



NNSS Established in 1950

- Atomic testing in the South Pacific presented challenges
 - Logistics
 - Weather
 - Security
 - Safety
- Urgent need for continental test site
 - Top secret feasibility study, code named *Nutmeg*, commenced to search for a continental test site
 - Study concluded arid, southwest section of U.S. as an ideal location
- President Truman officially established Nevada Proving Grounds, now the Nevada National Security Site, on December 18, 1950





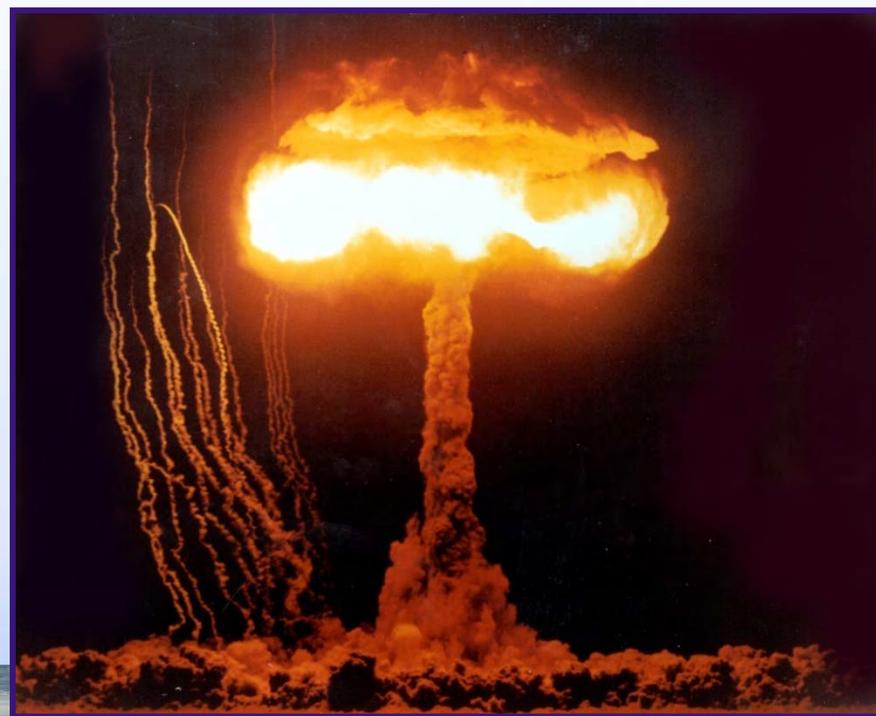
Atmospheric Testing at the Nevada National Security Site

- 100 atmospheric tests conducted at the Nevada National Security Site from January 1951 through July 1962 to study weapons-related effects, as safety experiments, and to study peaceful effects of nuclear explosions

Climax – an airdrop test at the Nevada National Security Site on June 4, 1953

- Conducted aboveground in the atmosphere

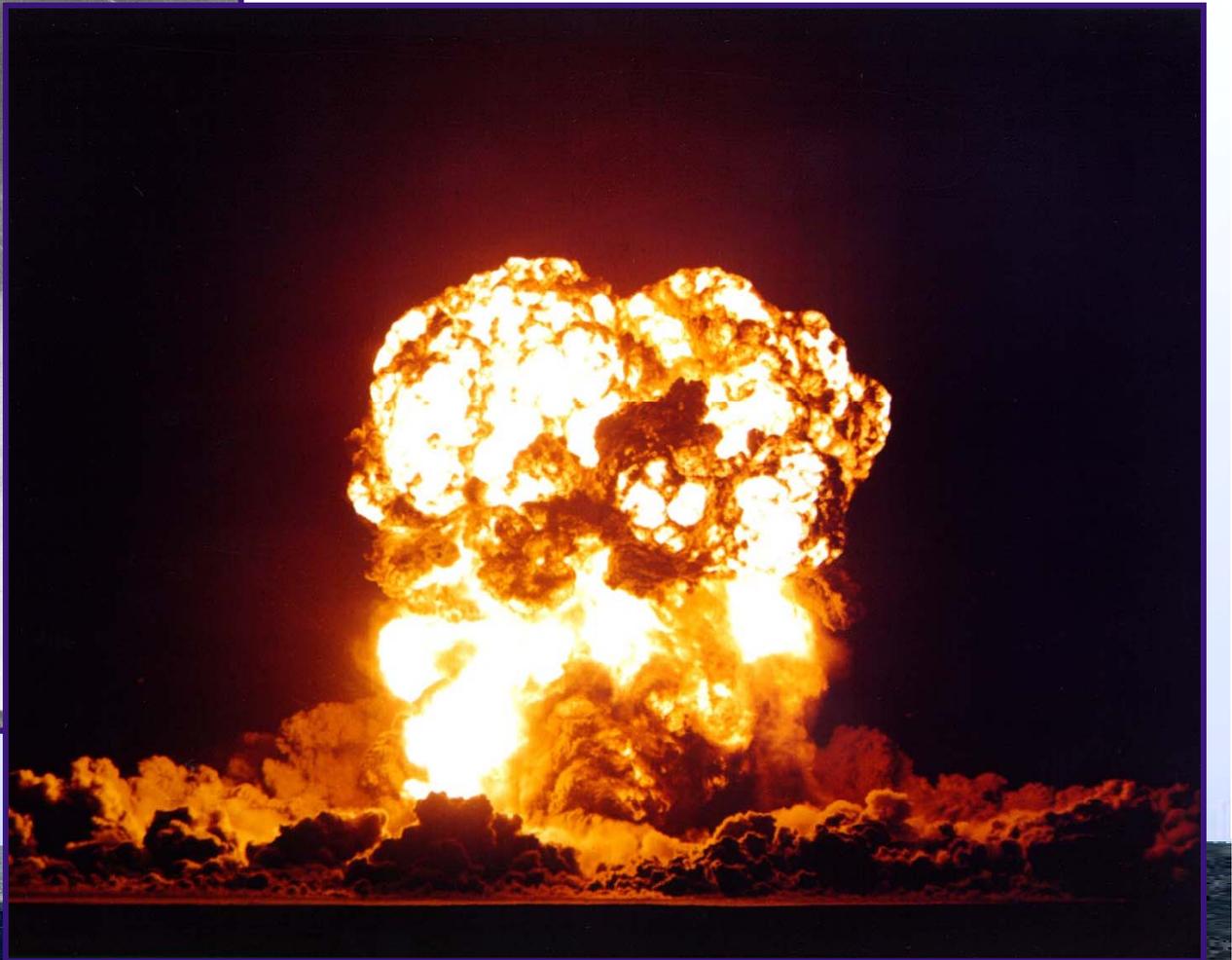
– Tower	42
– Balloon	24
– Airdrop	19
– Surface	11
– Rocket	3
– Airburst	1







Smoky – tower soars 700 feet into the air above Yucca Flat at the Nevada National Security Site; first atomic tower test of this height (**Smoky** detonation below)





Fireball of **Charleston** lights Yucca Flat at the Nevada National Security Site; 12-kiloton device was suspended by a balloon at a height of 1,500 feet

Balloon used in the detonation of **Charleston** on September 28, 1957

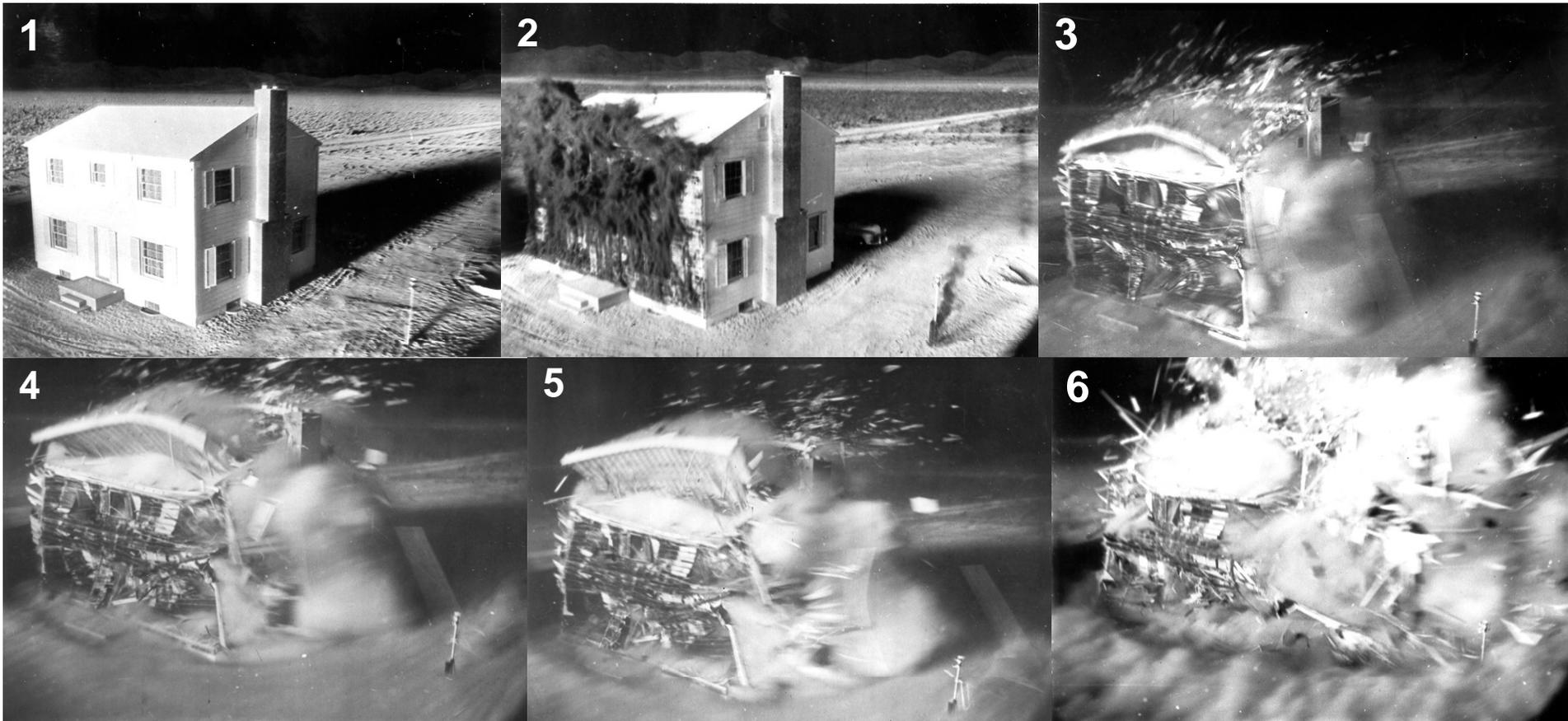


Two colonial two-story homes were erected at 3,500 feet and 7,500 feet from **Annie** ground zero

House at 3,500 feet was completely destroyed

House at 7,500 feet was badly damaged



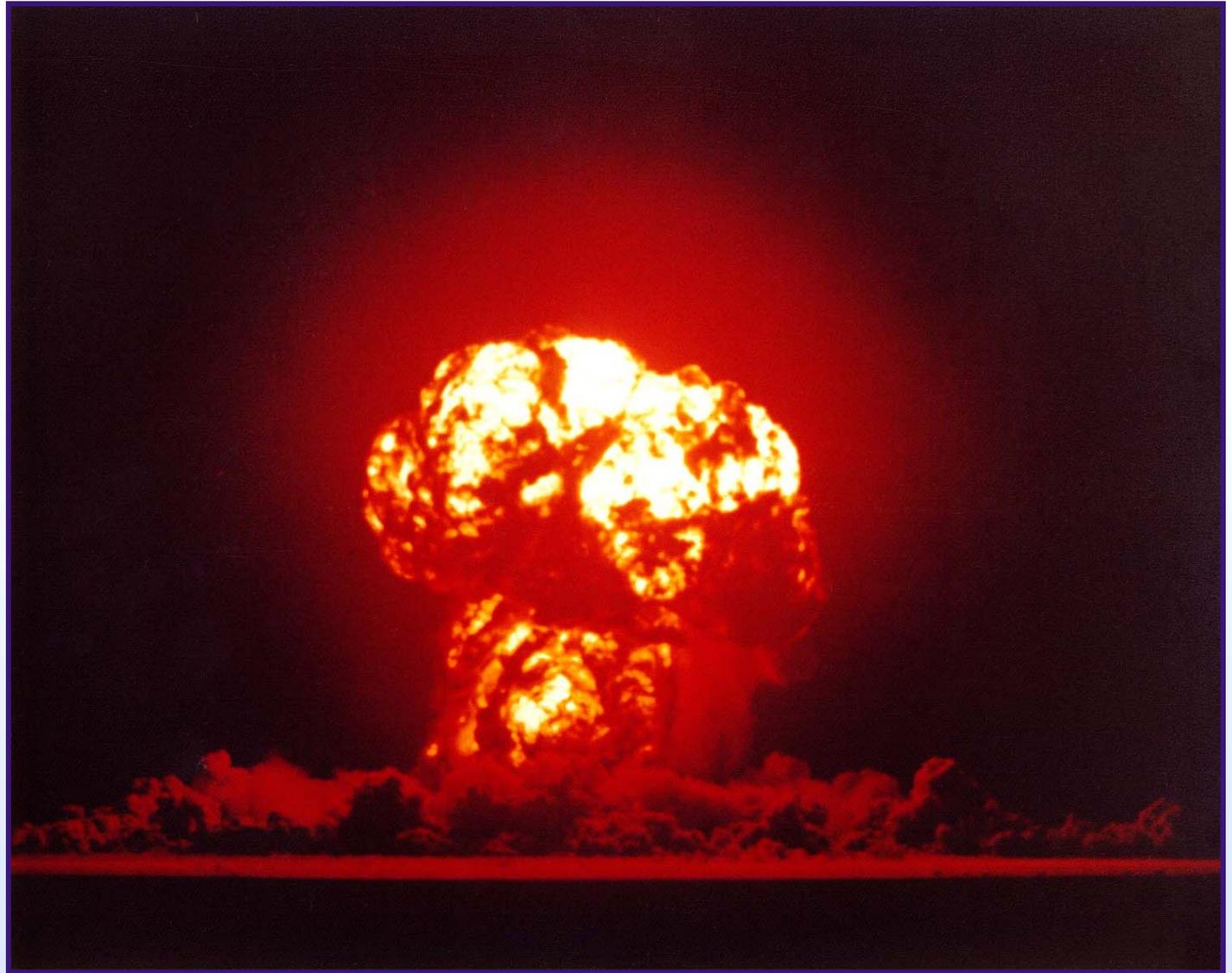


Sequential photos show the complete destruction of the colonial style house located 3,500 feet from **Annie** ground zero



Apple-2 – 29-kiloton nuclear test detonated from the top of a 500-foot tower at the Nevada National Security Site on May 5, 1955

65-associated experiments conducted at various distances from ground zero, including 48-civil effects tests on different types of typical American homes





Located 7,800 feet from **Apple-2** ground zero, this existing two-story wooden house was one of two such structures erected for civil effects tests; the other one, located 5,500 feet from ground zero, was severely damaged



Located 10,500 feet from **Apple-2** ground zero, this existing two-story brick house was one of two such structures erected for civil effects tests; the other house located 4,700 feet from ground zero was demolished beyond repair

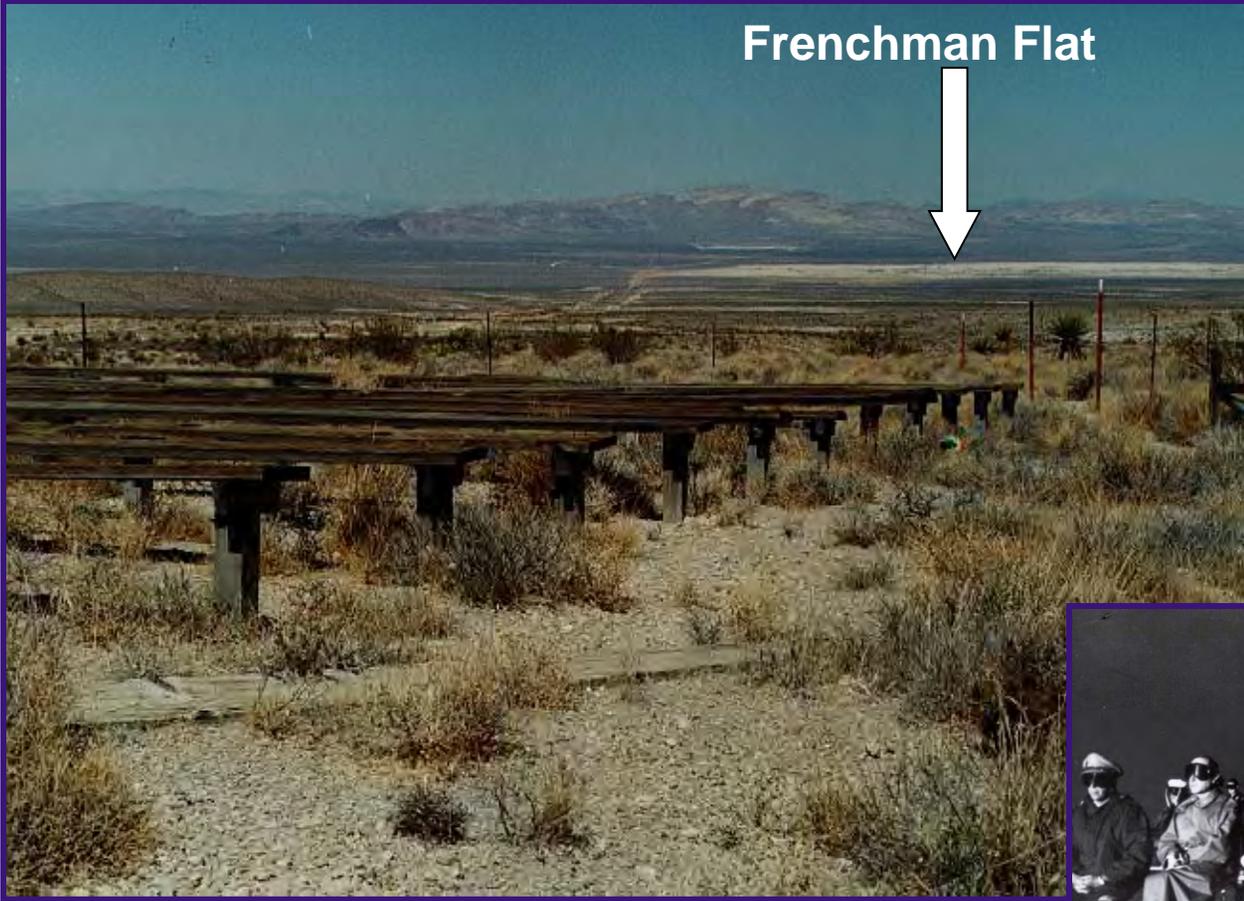


**OPERATION DOORSTEP
and
OPERATION CUE**

**Film #0800033
(Two Films Combined)**



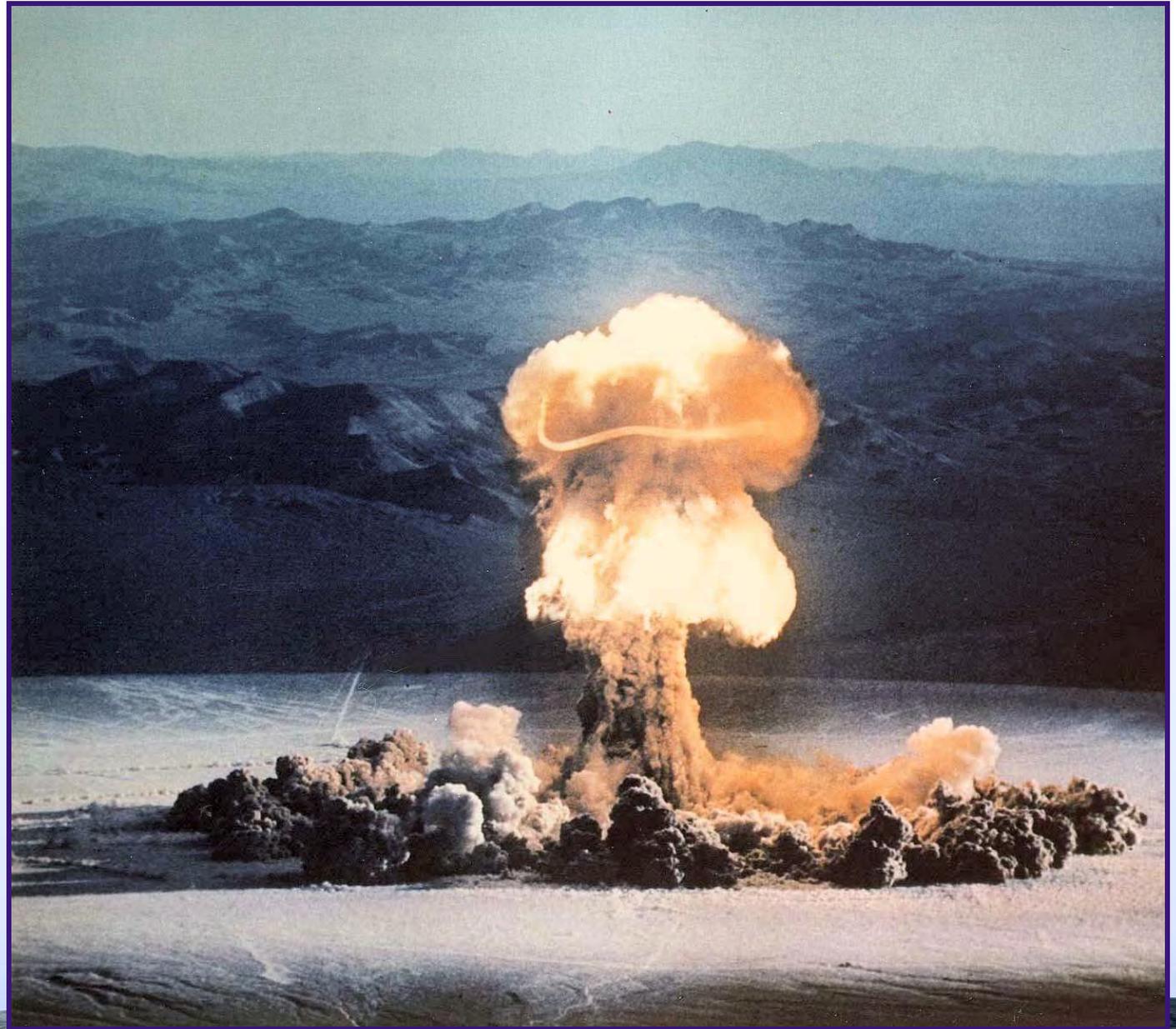
Frenchman Flat



Seated at these bleachers, located alongside the Mercury Highway, official observers viewed the detonation of 14 atmospheric tests in Frenchman Flat



37-kiloton **Priscilla**
test detonated on
June 24, 1957 on the
Nevada National
Security Site
Frenchman Flat



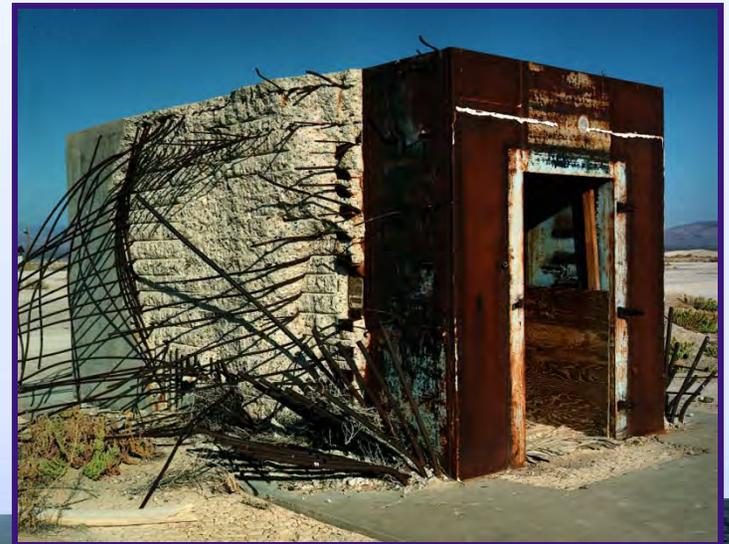


900-square foot underground dual purpose garage and mass shelter built and tested for **Priscilla** in 1957





Mosler Safe Company designed a 12-foot by 8-foot reinforced concrete vault for the **Priscilla** test in 1957; trim on the steel door was loosened by the blast, but the door itself was not damaged – contents placed within the safe remained intact





Four railroad trestles constructed for **Operation Plumbbob** in 1953 – only one structure remains in place today with visible significant bowing of the steel “I” beams



The End of Atmospheric Testing

- U.S. agreed to observe Limited Test Ban Treaty in October 1963, effectively ending atmospheric testing

Little Feller I test location 46 years after the last atmospheric test was detonated on July 17, 1962



Life in Mercury



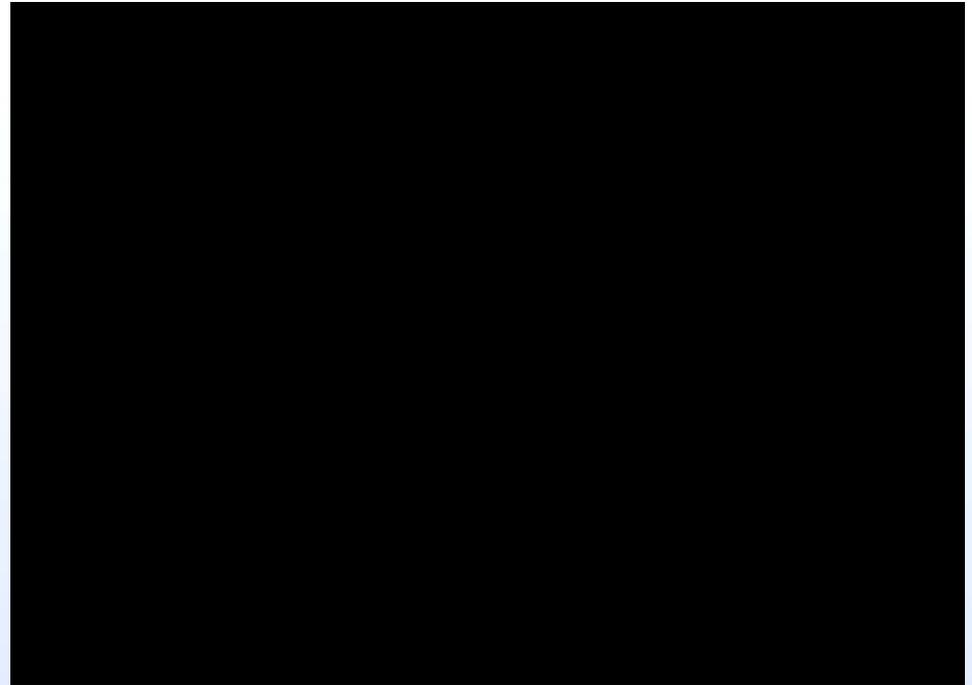
Life in Mercury



Nuclear Rocket Development at the NNSS – Project Rover

- U.S. launched nuclear rocket development program in 1955
- Ground tests conducted at facilities in southwest corner of Nevada National Security Site
- Four basic segments:

KIWI tested non-flyable nuclear test reactors



Nuclear Rocket Development at the NNSS – Project Rover



PHOEBUS Extension of KIWI, designed to produce higher power levels and longer duration operations than KIWI reactors – PHOEBUS 2A was the most powerful, non-flyable nuclear rocket reactor ever built. Reactor operated for about 32 minutes; 12 minutes at power levels more than a million watts

Nuclear Rocket Development at the NNSS – Project Rover

- NERVA (Nuclear Engine for Rocket Vehicle Applications) developed the first nuclear rocket engine suitable for space flight; and
- RIFT (Reactor In-Flight Test) objectives were to design, develop, and flight-test a NERVA-powered vehicle as an upper stage for a Saturn V launch vehicle

Project Rover a technical success, terminated in 1973 as a result of the cancellation of Saturn V launch vehicle program in 1969

March 1963

**President Kennedy visits
Nuclear Rocket
Development Station in
Area 25**

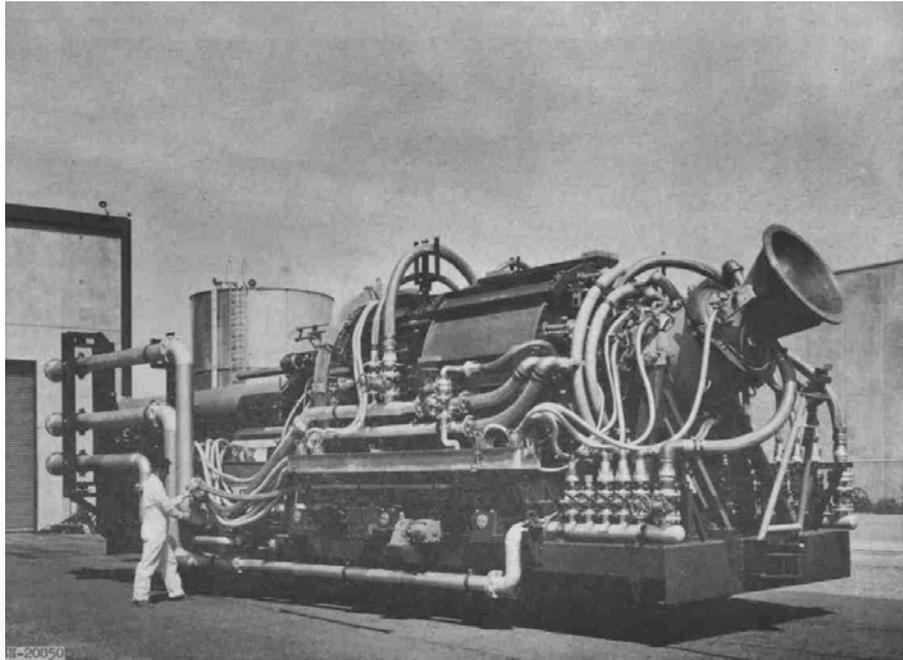
Engine Test Stand 1



Nuclear Rocket Development at the NNSS – Project Pluto

- Code name for the project to develop a nuclear powered ramjet for a Supersonic Low-Altitude Missile (SLAM).
- The principle was to draw in air at the front of the vehicle under ram (great pressure), heat it to make it expand, and then exhaust it out the back, providing thrust.
- The reactor designed for the experiment was named “**Tory**” and was capable of 35,000 pounds of thrust.
- Testing was conducted at the **Pluto Facility** in Area 26 at the Nevada National Security Site.





On May 14, 1961, the world's first nuclear ramjet engine, Tory II-A, mounted on a railroad car, roared to life for just a few seconds.



Three years later, Tory II-C was tested for 5 minutes. Despite its success, the Pentagon and Pluto sponsors had second thoughts about the project and on July 1, 1964, seven years after its inception, Project Pluto was cancelled.

BREN Tower

- 1,527 ft. tall, largest free-standing structure west of Mississippi River, 73 feet taller than Empire State Building; 378 feet taller than Stratosphere
- 1962 experiment in Area 4 to accurately estimate radiation doses received by survivors of Hiroshima and Nagasaki
- Mock Japanese village erected at base of Tower
- Tower destroyed May 23, 2012



EPA Farm



- Operated 16 years
- Study radionuclide uptake in cows, horses, pigs, goats, chickens and crops
- Closed in December 1981

AEC had its own brand







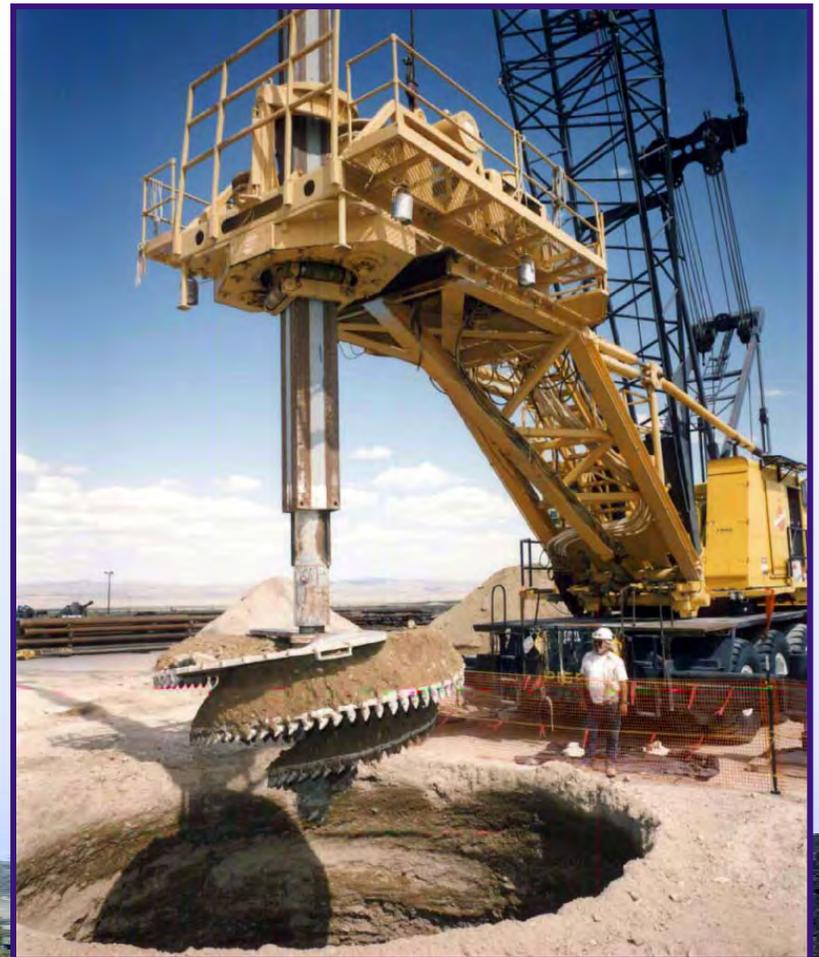
Underground Testing at the NNSS

- First underground nuclear test was *Uncle* on November 29, 1951 (*Rainier 1st* contained test 9/19/1957)
- Last underground nuclear test, *Divider*, detonated on September 23, 1992
- Underground nuclear testing occurred at depths of 600 to 5,000 feet
- 828 underground nuclear tests conducted at Nevada National Security Site

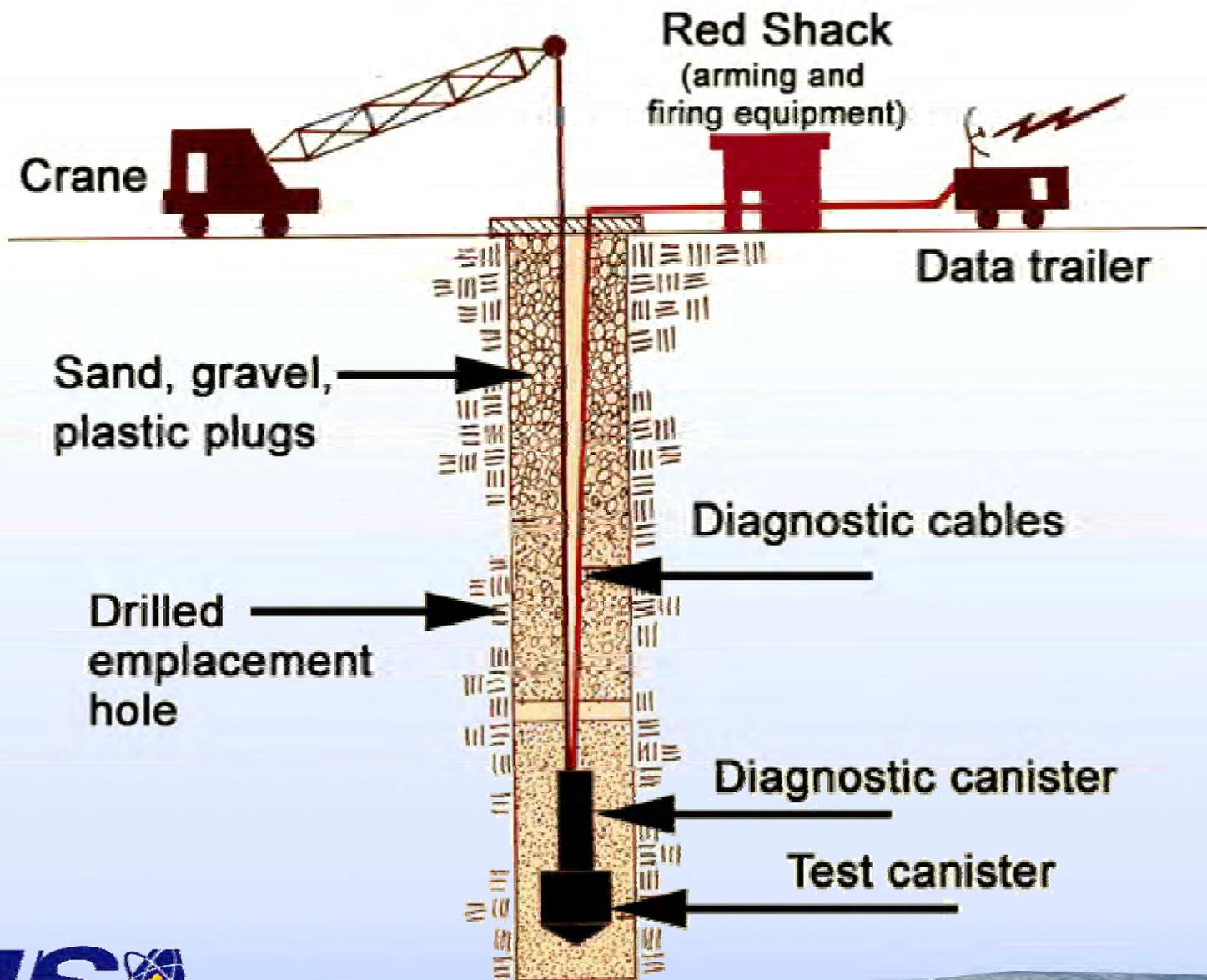


Underground Testing at the NNSS – Big Hole Drilling

- Holes were six to 12 feet in diameter
- A large hole required the removal of more than 4,280 cubic yards of soil
- If the depths of holes drilled for underground nuclear tests since 1961 were combined, it would total about 280 miles
- Drilling techniques developed at the Nevada National Security Site continue to be used throughout the world



Underground Test





Control Point

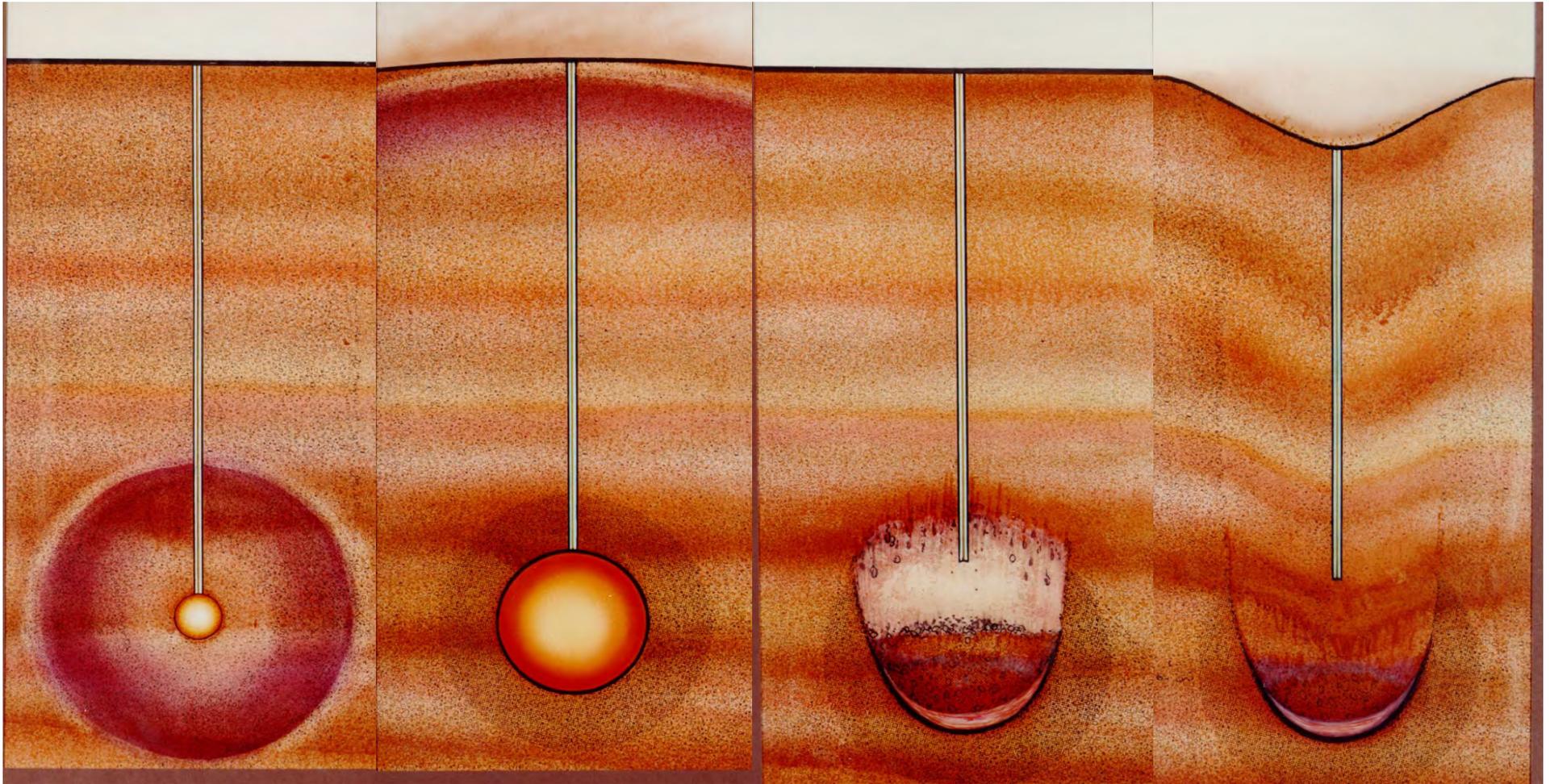
CP-1 was the firing control point for majority of tests.

Federal Test Controller with scientific panel determined “go” or “no go” on shot day.





Underground Testing at the NNSS Subsidence Crater Formation



Plowshare Program

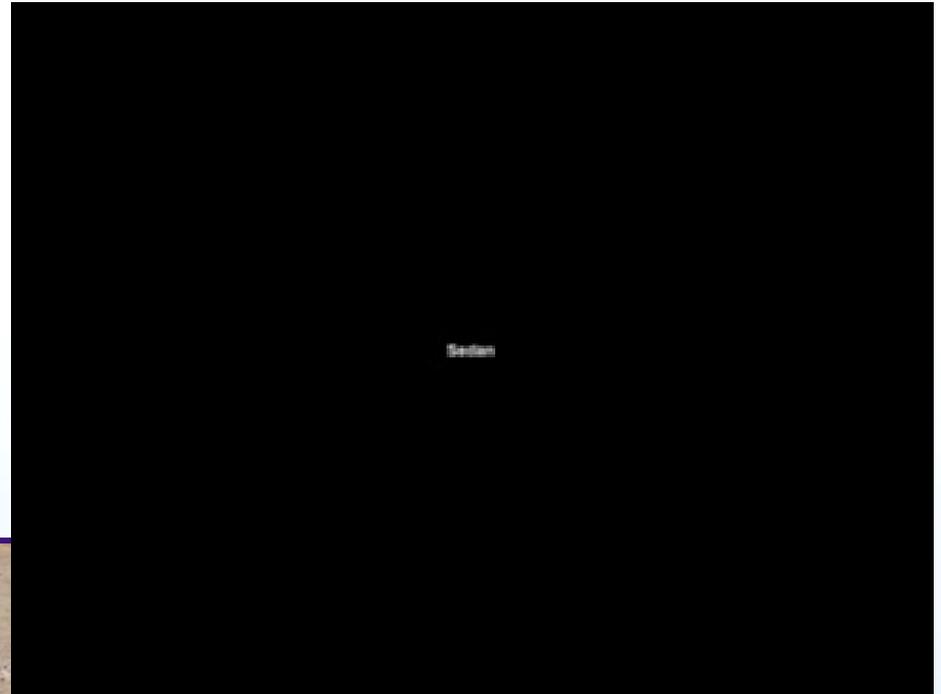
They shall beat their swords into plowshares, and their spears into pruning-hooks: nation shall not lift up sword against nation, neither shall they learn war any more. [Isaiah 2:4]

- Peaceful Uses for Nuclear Weapons
 - Radiopharmaceuticals
 - Gas Stimulation
 - Earth Moving, Trenching
- 40+ Experiments Conducted

July 6, 1962:

Sedan was part of the Plowshare Program to develop peaceful uses for nuclear weapons, in this case - massive earth excavation.

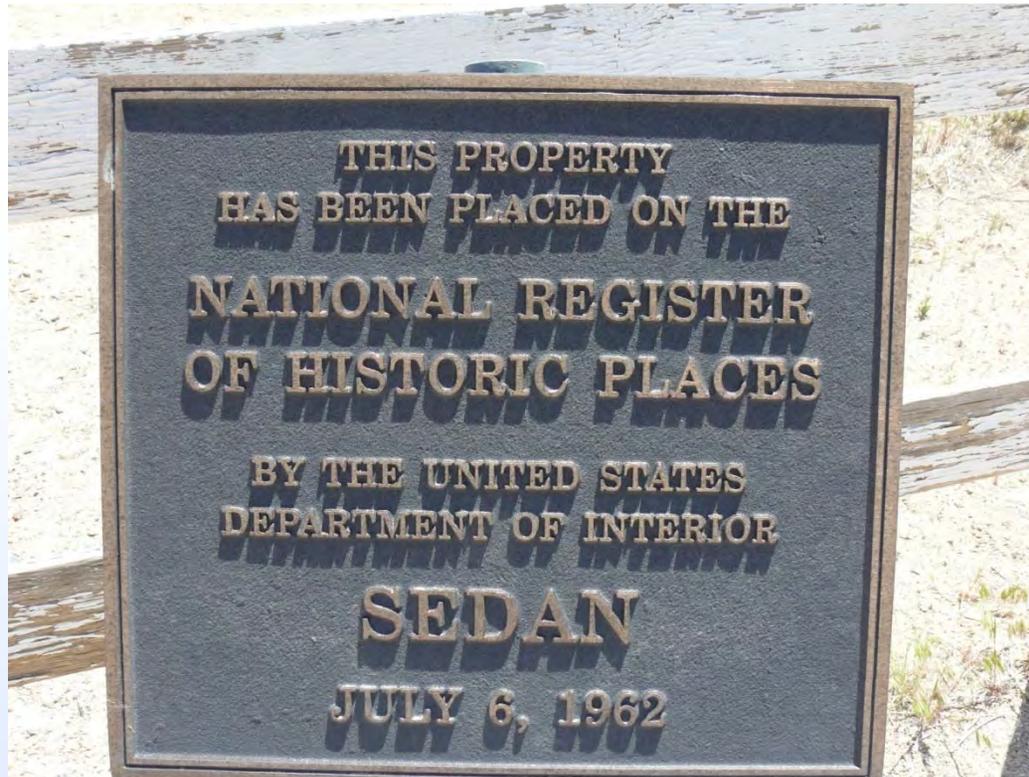
**Approximately
12 million tons
of earth was
displaced.
Creating a
crater 320 feet
deep and 1,280
feet in
diameter.**



Historical Landmarks

Sedan

**Apple II
Houses**



**Frenchman
Flat**

**Japanese
Houses**





When underground nuclear testing was discontinued in 1992, preparation for the Icecap (left) Gabbs (below left) and Greenwater tests (below) ceased - today, the emplacement towers remain as they were in 1992



United States Nuclear Tests

Location	Tests	Detonations
South Atlantic	3	3
Pacific	106	106
Alamogordo, NM	1	1
Amchitka, AK	3	3
Carlsbad, NM	1	1
Central, NV	1	1
Fallon, NV	1	1
Farmington, NM	1	1
Grand Valley, CO	1	1
Hattiesburg, MS	2	2
Nellis Range	5	5
Rifle, CO	1	3
NTS Atmospheric	100	100
NTS Underground – U.S.	804	
NTS Underground – U.S./U.K.	24	921
	1,054	1,149

A test is defined in the Threshold Test Ban Treaty as either a *single underground nuclear explosion* (detonation) or *two or more underground nuclear explosions* (detonations) conducted within an area delineated by a circle having a diameter of two kilometers and conducted within a total period of time not to exceed 0.1 second.



Source: NV-209 Rev 15

NTS Nuclear Testing Trivia

- Largest Atmospheric...*Hood* 74kt
- Largest Underground...*Boxcar* 1.3mt
- First Underground.....*Uncle* 11/29/51
- First Underground Contained.....*Rainier* 09/19/57
- Last Underground.....*Divider* 9/30/92

U.S. Nuclear Testing Trivia

- Largest Atmospheric...*Bravo* 15mt
- Largest Underground...*Cannikin* >5mt (Alaska)



For More Information

For more information on
U.S. Department of Energy,
National Nuclear Security Administration
Nevada Site Office programs and activities:
visit our website at www.nv.energy.gov
or call the
Office of Public Affairs at
(702) 295-3521





AGENDA

NSSAB FULL BOARD MEETING

National Atomic Testing Museum (Frank Roberts Auditorium)
755 East Flamingo Road, Las Vegas, NV

January 16, 2013
5 p.m.

Open Meeting / Introductions

Barb Ulmer, Facilitator

Chair's Opening Remarks

Kathleen Bienenstein, Chair

- Agenda approval

Liaison Updates

- Clark County
- Elko County Commission
- Esmeralda County Commission
- Lincoln County Commission
- Nye County Commission
- Nye County Nuclear Waste Repository Project Office
- State of Nevada Division of Environmental Protection
- U.S. National Park Service
- West Career and Technical Academy
 - ◆ Update on Student Project
- White Pine County Commission
- U.S. Department of Energy

Phil Klevorick
Charlie Myers
Nancy Boland
Kevin Phillips
Joni Eastley
John Klenke
Tim Murphy
Genne Nelson
Marcy Brown

Mike Lemich
Scott Wade

Public Comment

Barb Ulmer, Facilitator

Recommendation: Industrial Sites-Closing Use Restriction Sites (Work Plan Item #2)

Kathleen Bienenstein, Chair

Recommendation: Nye County Drilling Proposal (Work Plan Item #4)

Kathleen Bienenstein, Chair

SWEIS Update

Scott Wade, DOE

Break

Barb Ulmer, Facilitator

FY 2015 Baseline Prioritization (Work Plan Item #5)

- Explanation of Process
- Baseline Overview
- Soils
- Groundwater Characterization
- Low-Level Waste
- Budget Prioritization Recommendation Development
 - ◆ Vote on Recommendation

Barb Ulmer, Facilitator
Kelly Snyder, DDFO
Robert Boehlecke, DOE
Tiffany Lantow, DOE
Bill Wilborn, DOE
Robert Boehlecke, DOE
Barb Ulmer, Facilitator
Kathleen Bienenstein, Chair

Other NSSAB Business:

- EM SSAB Chairs' conference call (December 18)
- National Chairs Meeting (April 23-25)
 - ◆ Develop Round Robin topics

Kathleen Bienenstein, Chair

Meeting Wrap-up/Assessment/Adjournment

Barb Ulmer, Facilitator

NSSAB MEETING ATTENDANCE

Full Board Meetings

October 2012 through September 2013 (FY 2013)

								Maximum Terms Limit
Name	11/28/12	1/16/13	4/17/13	5/15/13	8/21/13	9/18/13		
MEMBERS								
Jason Abel	√	E						2018
Kathleen Bienenstein	√	√						2014
Ed Brown	E	√						2018
Matthew Clapp	√	√						2017
Thomas Fisher	√	√						2017
Arthur Goldsmith	√	√						2017
Donna Hruska	√	√						2016
Cheryl Kastelic	√	√						2018
Janice Keiserman	√	√						2018
Barry LiMarzi	√	√						2017
Michael Moore	√	√						2016
Edward Rosemark	√	√						2018
William Sears	√	E						2018
Jack Sypolt	√	E						2017
James Weeks	√	√						2013
LIAISONS								
Nancy Boland		E						
Marcy Brown	E	E						2013
Demar Dahl (Elko)	√							
Joni Eastley	√	E						
John Klenke	√	√						
Phil Klevorick	√	√						
Mike Lemich		√						
Tim Murphy	√	√						
Charlie Myers		U						
Genne Nelson	E	√						
Kevin Phillips		U						
Scott Wade	√	E						
KEY:	√ = Present	Term Limit	E = Excused	U = Unexcused	RM = Remove	RS = Resign		

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Nevada Site Specific Advisory Board

January 16, 2013

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

SUBJECT: Recommendation Regarding Removal or Retention of
 Use Restrictions at Seven Specific Industrial Sites
 (Work Plan Item #2)

Dear Mr. Boehlecke:

The Nevada Site Specific Advisory Board (NSSAB) was asked to provide a recommendation to the U.S. Department of Energy (DOE) regarding the removal or retention of Use Restrictions at seven specific Industrial Sites at the Nevada National Security Site.

The NSSAB has completed the requested review of the cost/benefit analysis for each of the seven specific Industrial Sites listed below and recommends the following actions, which are consistent with DOE's preferred path forward.

Use Restricted Site	DOE Recommendation
CAS 06-04-01, Decon Pad Oil/Water Separator	Remove UR using paperwork option; if that is not possible, retain UR
CAS 01-34-01, Underground Instrument House Bunker	Open bunker and attempt to remove UR
CAS 02-34-01, Instrument Bunker	Open bunker and attempt to remove UR
CAS 03-34-01, Underground Bunker	Open bunker and attempt to remove UR
CAS 25-25-07, Hydraulic Oil Spill(s)	Remove UR using paperwork option; if that is not possible, retain UR
CAS 25-25-08, Hydraulic Oil Spill(s)	Remove UR using paperwork option; if that is not possible, retain UR
CAS 02-02-03, Underground Storage Tank 2-300-1	Remove UR using paperwork option; if that is not possible, retain UR

Members

- Jason Abel
- Kathleen Bienenstein, Chair**
- Edward Brown
- Matthew Clapp
- Thomas Fisher, PhD
- Arthur Goldsmith
- Donna Hruska, Vice Chair**
- Cheryl Kastelic
- Janice Keiserman
- Barry LiMarzi
- Michael Moore
- Edward Rosemark
- Williams Sears
- Jack Sypolt
- James Weeks

Liaisons

- Clark County
- Elko County Commission
- Esmeralda County Commission
- Lincoln County Commission
- Nye County Commission
- Nye County Nuclear Waste Repository Project Office
- State of Nevada Division of Environmental Protection
- U.S. Department of Energy, Nevada Site Office
- U.S. National Park Service
- West Career and Technical Academy (Clark County School District)
- White Pine County Commission

Administration

- Barbara Ulmer, Administrator
- Navarro-Intera*
- Kelly Snyder, DDFO
- U.S. Department of Energy, Nevada Site Office

The Board wishes to thank the Environmental Management staff for their assistance and for the opportunity to provide this recommendation.

Sincerely,

Kathleen L. Bienenstein, Chair

cc: M. A. Nielson, DOE/HQ (EM-3.2) FORS
C. B. Alexander, DOE/HQ (EM-3.2) FORS
M. R. Hudson, DOE/HQ (EM-3.2) FORS
T. A. Lantow, EMO, NNSA/NSO, Las Vegas, NV
C. G. Lockwood, EMOS, NNSA/NSO, Las Vegas, NV
K. K. Snyder, EMOS, NNSA/NSO, Las Vegas, NV
B. K. Ulmer, N-I, Las Vegas, NV
NNSAB Members and Liaisons
NNSA/NSO Read File

DRAFT



Nevada Site Specific Advisory Board

January 16, 2013

Mr. Scott Wade
Assistant Manager for Environmental Management
U.S. Department of Energy, Nevada Site Office
P. O. Box 98518
Las Vegas, NV 89193-8518

SUBJECT: Recommendation Regarding Nye County Drilling Proposal
(Work Plan Item #4)

Dear Mr. Wade:

The Nevada Site Specific Advisory Board (NSSAB) was asked by the Nevada Site Office to determine from a community perspective if the Board recommends that the Department of Energy (DOE) support the Nye County proposal titled *Far-Field Hydrogeologic Characterization Relevant to Underground Nuclear Test Areas*

After reviewing the proposal and receiving briefings from both the Nye County Nuclear Waste Repository Project Office (NWRPO) and the DOE Nevada Site Office at our November Full Board meeting, the NSSAB recommends DOE consider the proposal; however the NSSAB was not able to come to a consensus regarding fully supporting the proposal as it is currently written.

The NSSAB identified the following items as *benefits* of the existing proposal:

- All additional data points collected by NWRPO would be usable by DOE
- A better understanding of the geology would be gained through collaboration with NWRPO
- Data may be less expensive for NWRPO to collect
- Additional monitoring of groundwater flowing toward Beatty, Nevada, would be useful and valuable
- Funding the proposal would provide employment in Nye County
- Existing models could be enhanced and a better understanding of potential contaminant travel times
- Data collected during the activities could be a valuable resource in the future

Members

Jason Abel
Kathleen Bienenstein, Chair
Edward Brown
Matthew Clapp
Thomas Fisher, PhD
Arthur Goldsmith
Donna Hruska, Vice Chair
Cheryl Kastelic
Janice Keiserman
Barry LiMarzi
Michael Moore
Edward Rosemark
Williams Sears
Jack Sypolt
James Weeks

Liaisons

Clark County
Elko County Commission
Esmeralda County Commission
Lincoln County Commission
Nye County Commission
Nye County Nuclear Waste
Repository Project Office
State of Nevada Division of
Environmental Protection
U.S. Department of Energy,
Nevada Site Office
U.S. National Park Service
West Career and
Technical Academy
(Clark County School District)
White Pine County Commission

Administration

Barbara Ulmer, Administrator
Navarro-Intera
Kelly Snyder, DDFO
U.S. Department of Energy,
Nevada Site Office

- Involving Nye County would increase credibility of past and ongoing DOE efforts in the community
- Drilling will only get more expensive if deferred

The NSSAB identified the following items as *concerns* with regard to the existing proposal:

- DOE already has a constrained budget
- Identified project life (three-four years) is not long enough
- Long-term funding would be needed to allow for long-term data gathering
- Nye County's placement of wells is not appropriate to detect contamination
- Data analysis may be redundant and not conducted appropriately
- Wells already exist in these areas
- No evidence for additional wells needed in Frenchman Flat
- Efforts may be duplicative of work already being conducted
- Responsibility for long-term maintenance of wells has not been identified
- NWRPO may have underestimated cost

The Board recommends DOE consider the following:

- If the existing plan is modified, it should be a joint effort between DOE and NWRPO
- DOE should complete a formal cost/benefit analysis of the modified plan
- DOE should involve Nye County in DOE's groundwater characterization program and allow Nye County access to existing and future data
- DOE should fund a modified plan if agreement can be reached on such a plan and a cost/benefit analysis shows such work provides a benefit commensurate with the estimated cost

The NSSAB understands that DOE Headquarters is responsible for the process of determining if/how the proposal is implemented and appreciates the opportunity to provide meaningful input to the DOE in regard to this recommendation.

Sincerely,

Kathleen L. Bienenstein, Chair

cc: M. A. Nielson, DOE/HQ (EM-3.2) FORS
C. B. Alexander, DOE/HQ (EM-3.2) FORS
M. R. Hudson, DOE/HQ (EM-3.2) FORS
C. G. Lockwood, EMOS, NNSA/NSO, Las Vegas, NV
K. K. Snyder, EMOS, NNSA/NSO, Las Vegas, NV
W. R. Wilborn, EMO, NNSA/NSO, Las Vegas, NV
B. K. Ulmer, N-I, Las Vegas, NV
NSSAB Members and Liaisons
NNSA/NSO Read File

Nevada National Security Site (NNS) Final Site-Wide Environmental Impact Statement (SWEIS) Update



Rob Boehlecke

EM Operations Manager

U.S. Department of Energy (DOE) Nevada Site Office (NSO)

Nevada Site Specific Advisory Board Meeting

January 16, 2013



EM *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

Overview of NSO Activities

- Historic nuclear weapons testing conducted from 1951 to 1992
 - 100 atmospheric tests
 - 828 underground tests
 - Nuclear reactor/rocket development
- Current major mission areas include stockpile stewardship/non-proliferation, national security training, emergency response, and EM



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

National Security Mission Area

- Certifying the reliability of nuclear stockpile through experiments
 - Subcritical
 - Conventional explosives
 - Shock physics
 - Plasma physics and fusion
- Disposition of improvised nuclear devices
- Conducting controlled chemical and biological simulant releases



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

EM Mission Area

- Waste Management
 - Low-level waste (LLW)
 - Mixed low-level waste (MLLW)



- Environmental Restoration
 - Surface soils
 - Industrial sites
 - Groundwater



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov
ID 462 – 1/16/2013 – Page 4
Log No. 2012-267

Non-Defense Mission Area

- General site support and infrastructure
- Renewable energy
- Other research and development



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

SWEIS Alternatives

- No Action – Reflects use of existing facilities and operations consistent with those experienced in recent years
- Reduced Operations – Reflects diminished activity levels and decommissioned facilities; includes continued implementation of previous *National Environmental Policy Act* (NEPA) decisions, but may not retain all capabilities from those decisions and no new projects or facilities are proposed
- Expanded Operations – Includes activities and level of operations under “No Action” plus expansion of existing activities and additional capabilities



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

Preferred Alternative

- “Hybrid” alternative
 - Elements selected from each action alternative
- Process for selecting Preferred Alternative
 - Consulted key program officials and management at the Nevada Site Office
 - Incorporated public comments



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

Public Comments on the Draft SWEIS

- Statistics
 - 128 comment documents received
 - Form letters (three campaigns) only counted once
 - Only 39 unique documents from individual commenters
 - 758 comments identified
 - State of Nevada: 172 (transportation was primary topic)
 - Healing Ourselves and Mother Earth (HOME): 73
 - Nevada Site Specific Advisory Board: 68



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

Public Comments on the Draft SWEIS

(continued)

- State of Nevada (Attorney General, NDEP, Nuclear Projects Office)
- Clark, Lincoln and Nye Counties, NV
- Las Vegas, Henderson, North Las Vegas and Indian Springs, NV
- State of California
- Bureau of Land Management
- National Park Service
- Nevada Desert Experience
- Sierra Club
- So. Nevada Building and Construction Trades
- Tri-Valley CARES
- Nuclear Watch of New Mexico
- Consolidated Group of Tribes and Organizations
- HOME
- Solar Energy Industries Association



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Public Comments on the Draft SWEIS

(continued)

- Key issues raised
 - Unconstrained transportation routing in Las Vegas
 - General risks from waste transportation and disposal
- Other themes raised
 - DOE's definition of No Action Alternative
 - General concerns about risks of radiation
 - Concerns about resumption of nuclear testing



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Public Comments on the Draft SWEIS

(continued)

- Alternate uses of land or return to the public
- Perception-based impacts to local economy
- Alternative energy
 - Mostly positive
 - Concerns about water/land use



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Current Transportation Practices

- Primarily all truck transport to NNSS
- Minimal rail-to-truck shipments
- Transportation within Las Vegas Valley restricted by previous agreements with State of Nevada
 - Routing through I-15/U.S. 95 interchange or over O'Callaghan-Tillman Bridge is prohibited



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Estimated Number of Shipments Over a 10-year Period

	<i>No Action Alternative</i>	<i>Expanded Operations Alternative</i>	<i>Reduced Operations Alternative</i>
Truck			
In-state radioactive waste shipments	2,300	15,000	2,300
Out-of-state radioactive waste shipments	25,000	30,000	25,000
Out-of-state radioactive material shipments	240	11,000	180
Truck-to-Rail			
Out-of-state radioactive waste shipments (rail only)	2,300	15,000	2,300
Out-of-state radioactive waste shipments (rail and truck)	38,000	92,000	38,000



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SWEIS Transportation Analysis

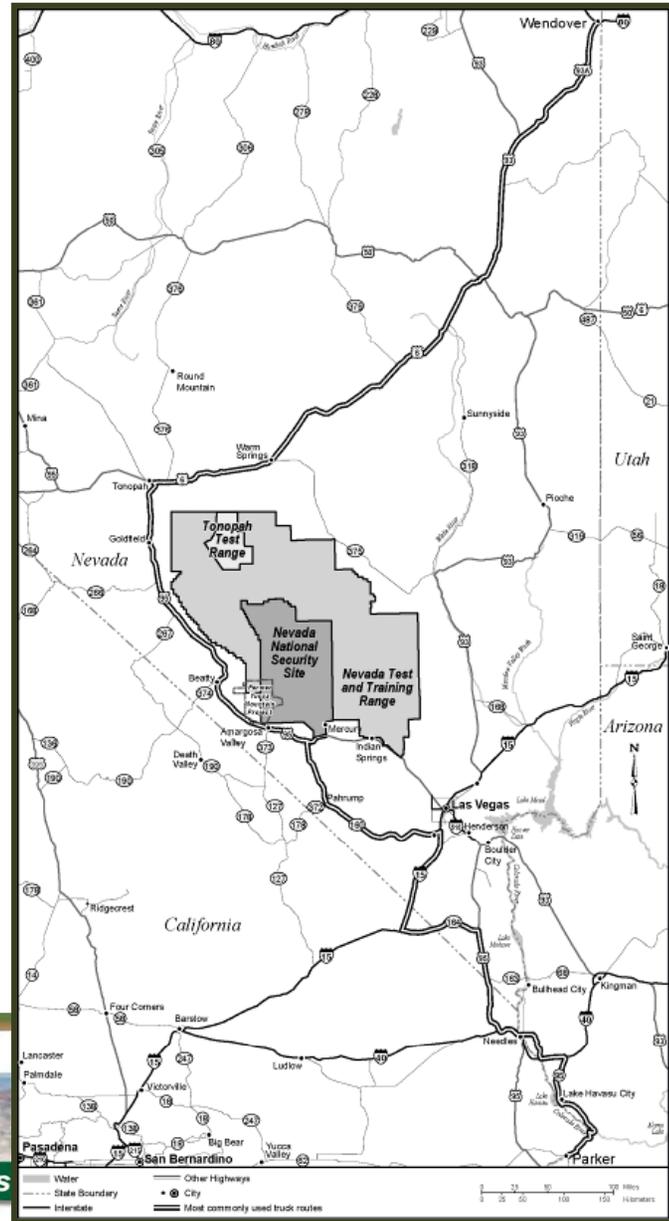
- SWEIS analyzes two cases:
 - Constrained Case
 - Status quo maintained avoiding truck shipment through I-15/ U.S.-95 interchange in Las Vegas and via Hoover Dam or the new O’Callaghan-Tillman bridge, and continue transloading at Parker, AZ and West Wendover, NV
 - Transportation by (a) all truck and (b) the combination rail-to-truck analyzed
 - Unconstrained Case
 - Analyzed several routes for truck transport through Southern Nevada
 - Analyzed additional rail-to-truck transload locations: Apex and Arden, NV and Kingman, AZ
 - Transportation by (a) all truck and (b) the combination rail-to-truck analyzed



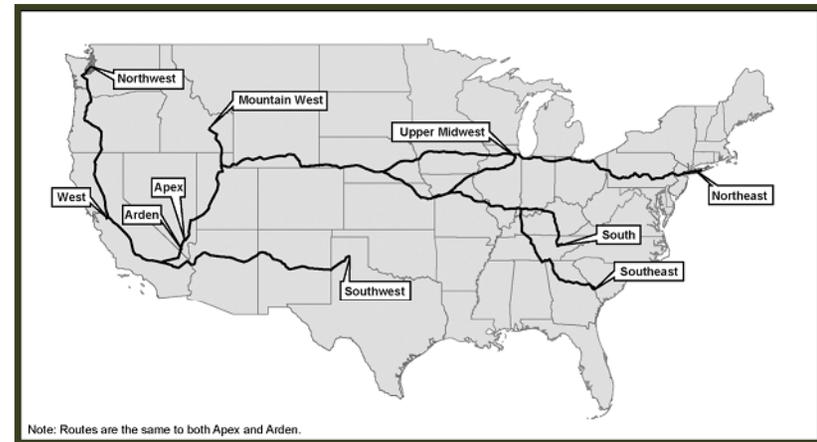
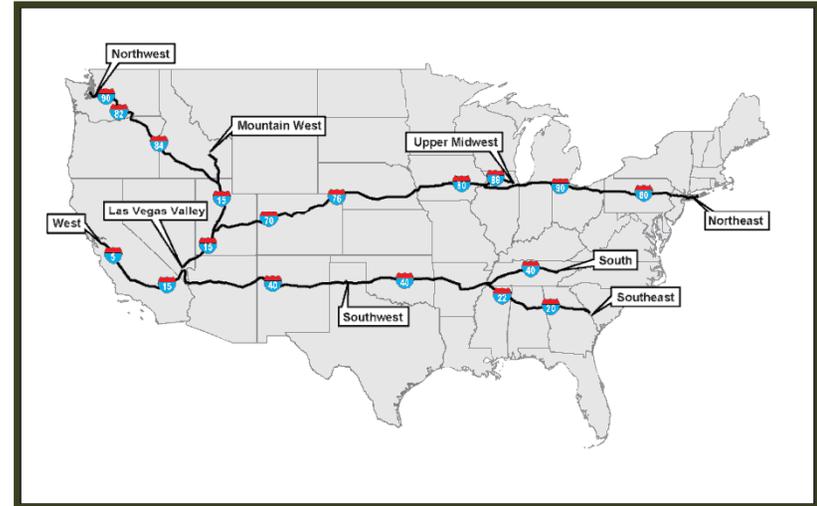
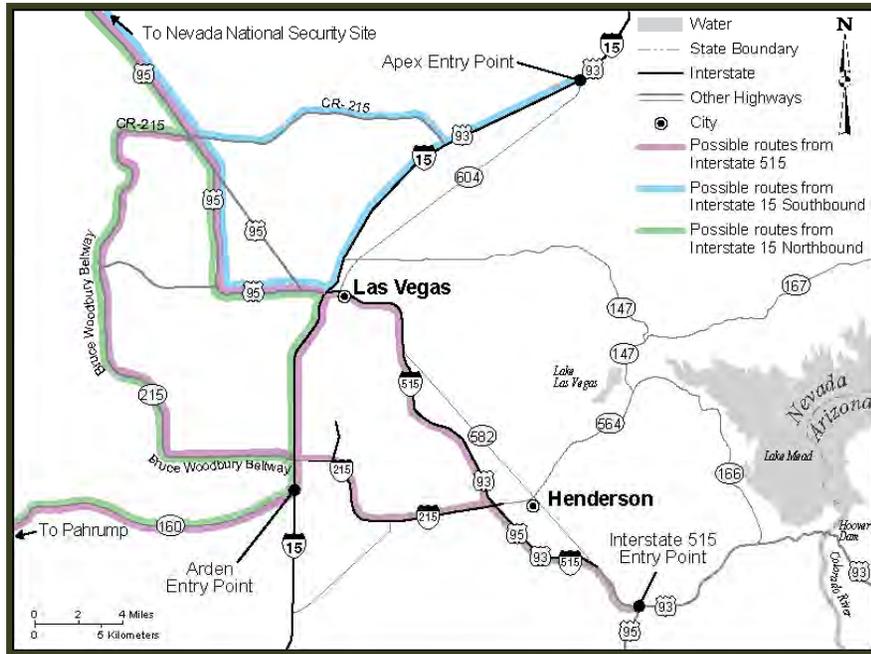
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Constrained Case Routes



Unconstrained Case Routes



What We Learned

- Constrained vs. unconstrained truck-only transport
 - Radiological impacts (dose and latent cancer fatalities [LCFs]) to public and workers slightly lower under unconstrained case
 - Primarily a function of lower route mileage and/or quicker trips due to higher average speed on roadways
- Constrained vs. unconstrained for rail-to-truck transport
 - Radiological impacts to public and workers under unconstrained case vary slightly (depending on transfer stations utilized), but generally lower than those seen in constrained case



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What We Learned

(continued)

- Truck-only vs. mainly-rail modes
 - Rail-to-truck mode results in lower doses and LCFs than truck-only
 - Rail-to-truck is much more fuel-efficient, and results in much lower (~1:4 ratio) levels of greenhouse gas and criteria pollutant emissions
- Public and stakeholder primary concerns
 - Human health and safety in the event of a transportation accident
 - Clear preference to maintain existing route preference



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Outcome

- Maintain current routing commitments
 - Avoid Las Vegas metropolitan area (I-15/U.S. 95)
 - Avoid Hoover Dam and O’Callaghan-Tillman Bridge



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Anticipated Key Dates for Final SWEIS

February 6, 2013	Publication and distribution of the final NNSS SWEIS
February 15, 2013	Federal Register notice of availability for final SWEIS
March 2013	Record of Decision (minimum of 30 days after Notice of Availability)



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Work Plan Item #5 FY 2015 Baseline Prioritization



Kelly Snyder
Deputy Designated Federal Officer
Briefing to Nevada Site Specific Advisory Board
January 16, 2013



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A New Approach to the Budget Prioritization Recommendation

- Previously, the NSSAB prioritized projects as a whole (i.e., #1 priority – Underground Test Area, #2 - Waste Disposal, etc)
- Environmental Management is working itself out of business
 - From six projects to three
- New recommendation approach will allow for greater impact

New Approach...

Rather than ranking the major activities, the Board will prioritize the tasks within the activities



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Tonight's Path Forward

- Baseline briefing
- The Ranking Process
- Description of each task
- Group discussion
- Individuals rank tasks
- Tallying of prioritizations
- Vote on final recommendation



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Environmental Management Baseline Overview



Robert Boehlecke
Environmental Management Operations Manager



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Environmental Management (EM) Baseline Defined

- Tool that provides for life-cycle planning and execution of a mission
 - Includes scope of work, budget, and schedule
 - Elements are fully integrated



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EM Baseline Components

- Scope of Work – the description of all work elements that need to be accomplished
- Budget – the estimated cost, number of hours, and type of labor resources, material, equipment, etc.
- Schedule – timeline and prioritization of work to be completed that identifies predecessor/successor tasks



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EM Baseline Planning Considerations

- Annual Funding
 - Approved fiscal year budgets versus continuing resolution
 - Scope prioritized to maximize the amount of work that can be accomplished
- Resource Availability
- Weather Conditions
- Risk Analysis
 - Uncertainties built into baseline



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EM Baseline Status and Changes

- EM Contractors report monthly performance status to Nevada Site Office (NSO)
- Baseline changes are made when scope is added, deleted, or modified
 - Requires NSO approval



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EM Baseline Project Baseline Summaries

- EM Baseline separated into three Project Baseline Summaries (PBS) as follows (not in priority order):
 - Soil and Water Remediation (PBS VL-NV-0030)
 - Soils
 - Underground Test Area
 - Industrial Sites
 - EM Program Management (includes NSSAB support)
 - Operate Waste Disposal Facility (PBS VL-NV-0080)
 - Low-Level Waste
 - Nevada Community and Regulatory Support (PBS VL-NV-0100)
 - Agreements in Principle and Grants



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EM Life-Cycle Baseline for Fiscal Year (FY) 2013 - 2032

Scope	Budget (\$K)	Schedule Completion
Soils	\$143,476	FY 2027
Underground Test Area	\$507,955	FY 2032
Industrial Sites	\$80,307	FY 2029
Program Management	\$154,988	FY 2032
Low-Level Waste	\$539,940	FY 2032
Agreements in Principle and Grants	\$87,021	FY 2032
EM NSO Grand Total	\$1,513,687	FY 2032



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ID# 440FY13 Jan. 16, 2013 Page 10

Log No. 2013-003

Tonight's Path Forward

- Baseline briefing
- [The Ranking Process](#)
- Description of each task (11 tasks total)
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The Ranking Process

- Presentation of each of the 11 tasks
 - Each task has been assigned a letter
 - Tasks are either individual items or groupings of items
- Group discussion with members and liaisons
- Each member will rank the tasks with 1-11 points using their worksheet
 - 11 points being highest priority and 1 point being lowest priority

ENVIRONMENTAL MANAGEMENT PROGRAM

Task – A

Off-Site Soils - Three Corrective Action Units (CAUs)
FY 2015 Baseline - \$753K

- CAU 411, Double Tracks—(located on the Nevada Test and Training Range [NTTR])
 - Complete closure activities and request closure approval (via a Closure Report) from the State of Nevada
- CAU 412, Clean Slate I (located on the NTTR)
 - Complete closure activities and request closure approval (via a Closure Report) from the State of Nevada

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NSSAB Baseline Prioritization Worksheet Name _____

Task	Title	Baseline	Notes	Baseline Ranking (1-11 points)*
A	Off-Site Soils - Three Corrective Action Units (CAUs)	\$753K		
B	NSS Soils - Four CAUs	\$1,337K		
C	Soils Studies	\$778K		
D	Frenchman Flat Groundwater Characterization Closure Activities	\$673K		
E	Frenchman Flat Post Closure Drilling	\$3,289K		
F	Pahute Mesa Well Development, Testing, and Sampling	\$483K		
G	Pahute Mesa Aquifer Tests	\$1,892K		
H	Pahute Mesa Modeling Analysis and Evaluation	\$2,879K		
I	Yucca Flat	\$1,241K		
J	Rainier Mesa/Shoshone Mountain (CAU 99) Closure Report	\$398K		
K	Area 5 Radioactive Waste Management Disposal Operations	\$15,140K		

*11 points being highest priority and 1 point being lowest priority



The Ranking Process

(continued)

- NSSAB Office will tally the rankings and present the results to the Full Board tonight
- Further discussion, if necessary
- NSSAB will vote on final ranking recommendation



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Tonight's Path Forward

- Baseline briefing
- The Ranking Process
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ID# 440FY13 Jan. 16, 2013 Page 14

Log No. 2013-003

FY 2015 Soils Tasks



Tiffany Lantow
Soils Activity Lead



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Task – A

Off-Site Soils - Three Corrective Action Units (CAUs) *FY 2015 Baseline - \$753K*

- CAU 411, Double Tracks Plutonium Dispersion (located on the Nevada Test and Training Range [NTTR])
 - Complete closure activities and request closure approval (via a Closure Report) from the State of Nevada
- CAU 412, Clean Slate I Plutonium Dispersion (located on the NTTR)
 - Complete closure activities and request closure approval (via a Closure Report) from the State of Nevada



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Task – A

(continued)

Off-Site Soils – Three Corrective Action Units (CAUs)
Baseline - \$753K

- CAU 541, Small Boy (partially located on the NTTR)
 - Continue determining the recommended corrective action for the site and document the proposed actions (Corrective Action Decision Document)



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Task – B

NNSS Soils – Four CAUs *Baseline - \$1,337K*

- CAU 571, Area 9 Yucca Flat Plutonium Dispersion Sites
 - Complete remediation planning and submit plan to State of Nevada
 - Start closure activities
- CAU 550, Smoky Contamination Area
 - Complete remediation planning and submit plan to State of Nevada
 - Start closure activities



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Task – B

(continued)

NNSS Soils - Four CAUs
Baseline - \$1,337K

- CAU 568, Area 3 Plutonium Dispersion Sites
 - Finalize the recommended corrective actions for the site (Corrective Action Decision Document) and request approval from the State of Nevada
- CAU 573, Alpha Contaminated Sites
 - Continue determining the recommended corrective action for the site and document the proposed actions (Corrective Action Decision Document)



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Task – C

Soils Studies *Baseline - \$778K*

- Conducted by Desert Research Institute in support of the Soils Activity
- Includes:
 - Air monitoring on NNSS and NTTR
 - Fire studies
 - Contaminant transport studies
- Research can affect closure decisions for CAUs in similar environments or with similar features to those studied



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FY 2015 Groundwater Characterization Tasks



Bill Wilborn
Underground Test Area Activity Lead



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Task – D

Frenchman Flat Groundwater Characterization Closure Activities *Baseline - \$673K*

- Complete negotiations with the State of Nevada regarding regulatory boundaries
- Establish long-term monitoring requirements
- Complete internal peer review
- Prepare closure documents
- Request approval from the State of Nevada to conclude characterization activities (via a Closure Report)



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ID# 440FY13 Jan. 16, 2013 Page 22

Log No. 2013-003

Task – E

Frenchman Flat Post Closure Drilling Baseline - \$3,289K

- Start drilling one post-closure monitoring well



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Task – F

Pahute Mesa Well Development, Testing, and Sampling *Baseline - \$483K*

- Complete analysis of three wells (ER-20-11, ER-EC-14, and ER-EC-15)



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Task – G

Pahute Mesa Aquifer Tests *Baseline - \$1,892K*

- Start planning and implement aquifer testing of multiple existing wells



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Task – H

Pahute Mesa Modeling Analysis and Evaluation *Baseline - \$2,879K*

- Start Flow and Transport Modeling
 - Based on additional data collected, complete analysis of the geology and continue analysis of the hydrology, transport and source term parameters



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Task – I

Yucca Flat *Baseline - \$1,241K*

- Complete external peer review
- Begin drafting the Corrective Action Decision Document/Corrective Action Plan
 - Documents the results of the characterization, the recommended corrective action, and the plan for implementing the corrective action



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Task – J

Rainier Mesa/Shoshone Mountain (CAU 99) Closure Report *Baseline - \$398K*

- Begin negotiations with the State of Nevada regarding regulatory boundaries
- Establish long-term monitoring requirements
- Prepare closure documents



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FY 2015 Low-Level Waste Tasks



Robert Boehlecke
Environmental Management Operations Manager



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Task - K

Area 5 Radioactive Waste Management Disposal Operations *Baseline - \$15,140K*

- Maintain capability to safely dispose up to 1.2 million cubic feet (ft³) of U.S. Department of Energy Low-Level Waste (LLW)/Mixed LLW
- Continue environmental monitoring activities at the Area 5 Radioactive Waste Management Complex
- Maintain Performance Assessment and Composite Analysis and Documented Safety Analysis to dispose waste
- Continue facility evaluations of generators per the Nevada National Security Site Waste Acceptance Criteria



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Name _____

Task	Title	Baseline	Notes	Baseline Ranking (1-11 points)*
A	Off-Site Soils - Three Corrective Action Units (CAUs)	\$753K		
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D	Frenchman Flat Groundwater Characterization Closure Activities	\$673K		
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*11 points being highest priority and 1 point being lowest priority



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ID# 440FY13 Jan. 16, 2013 Page 32

Log No. 2013-003

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Final Tallied Rankings

Final Ranking	Task	Title	Able	Bienenstein	Brown	Clapp	Fisher	Goldsmith	Hruska	Kastelic	Keiserman	LiMarzi	Moore	Rosemark	Sears	Sypolt	Weeks	Total Points	
A	Off-Site Soils - Three Corrective Action Units (CAUs)																		0
B	NNSS Soils - Four CAUs																		0
C	Soils Studies																		0
D	Frenchman Flat Groundwater Characterization Closure Activities																		0
E	Frenchman Flat Post Closure Drilling																		0
F	Pahute Mesa Well Development, Testing, and Sampling																		0
G	Pahute Mesa Aquifer Tests																		0
H	Pahute Mesa Modeling Analysis and Evaluation																		0
I	Yucca Flat																		0
J	Rainier Mesa/Shoshone Mountain (CAU 99) Closure Report																		0
K	Area 5 Radioactive Waste Management Disposal Operations																		0



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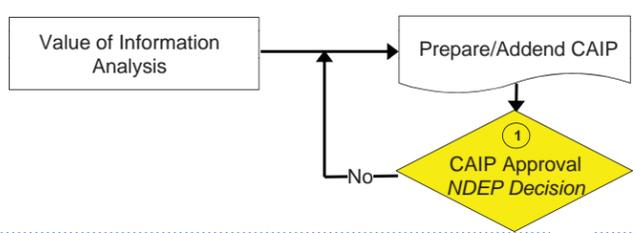
NSSAB Baseline Prioritization Worksheet

Name _____

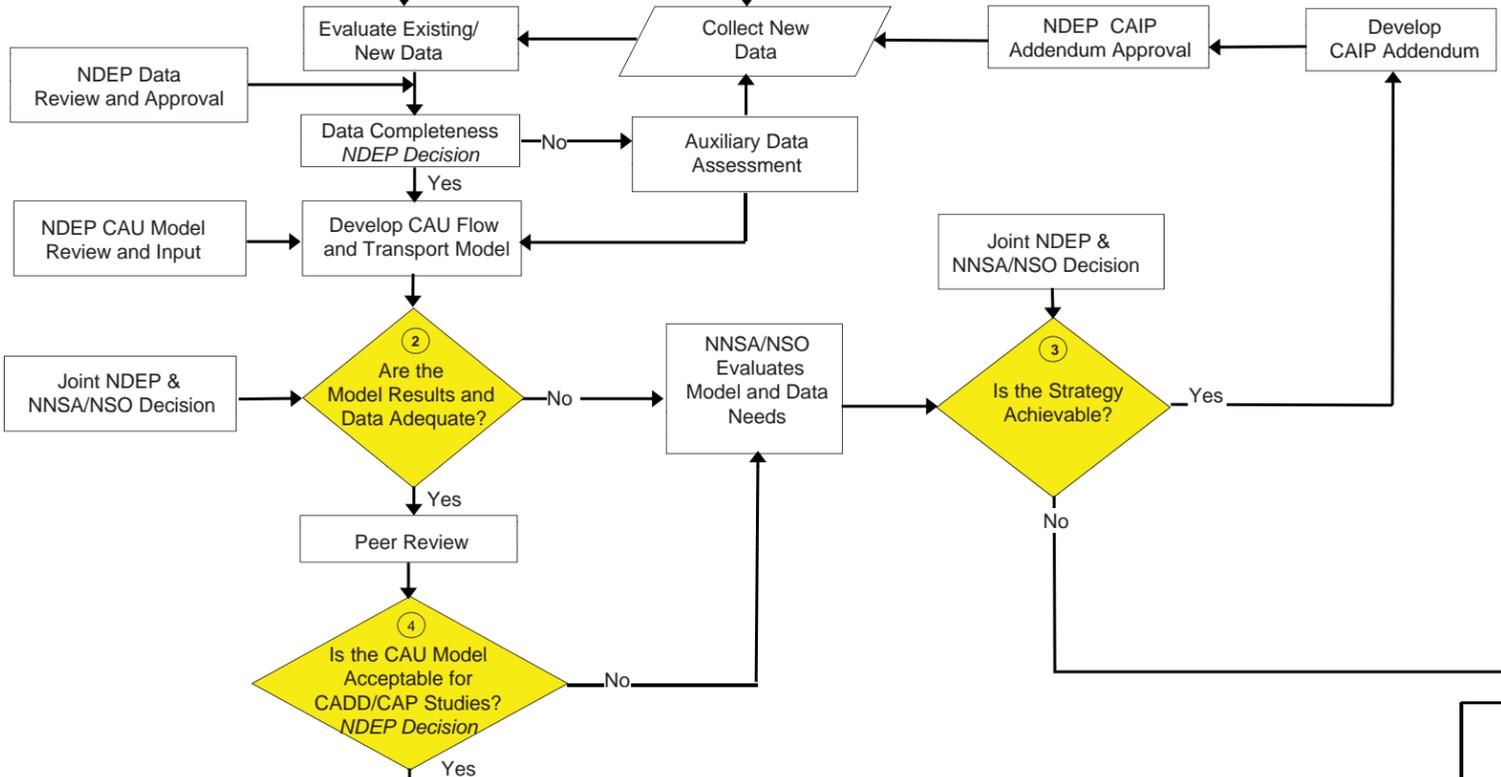
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*11 points being highest priority and 1 point being lowest priority

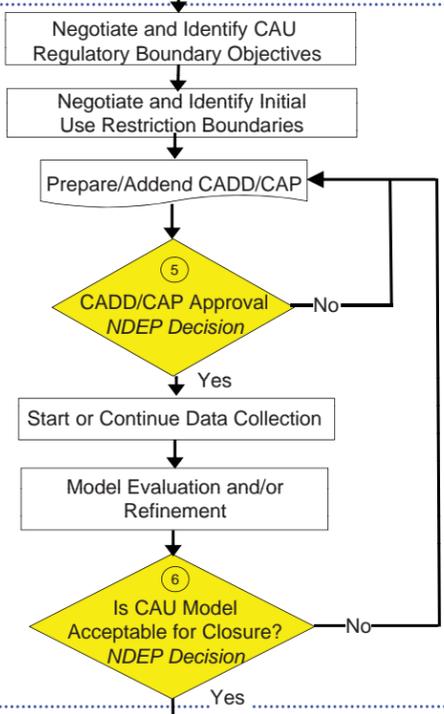
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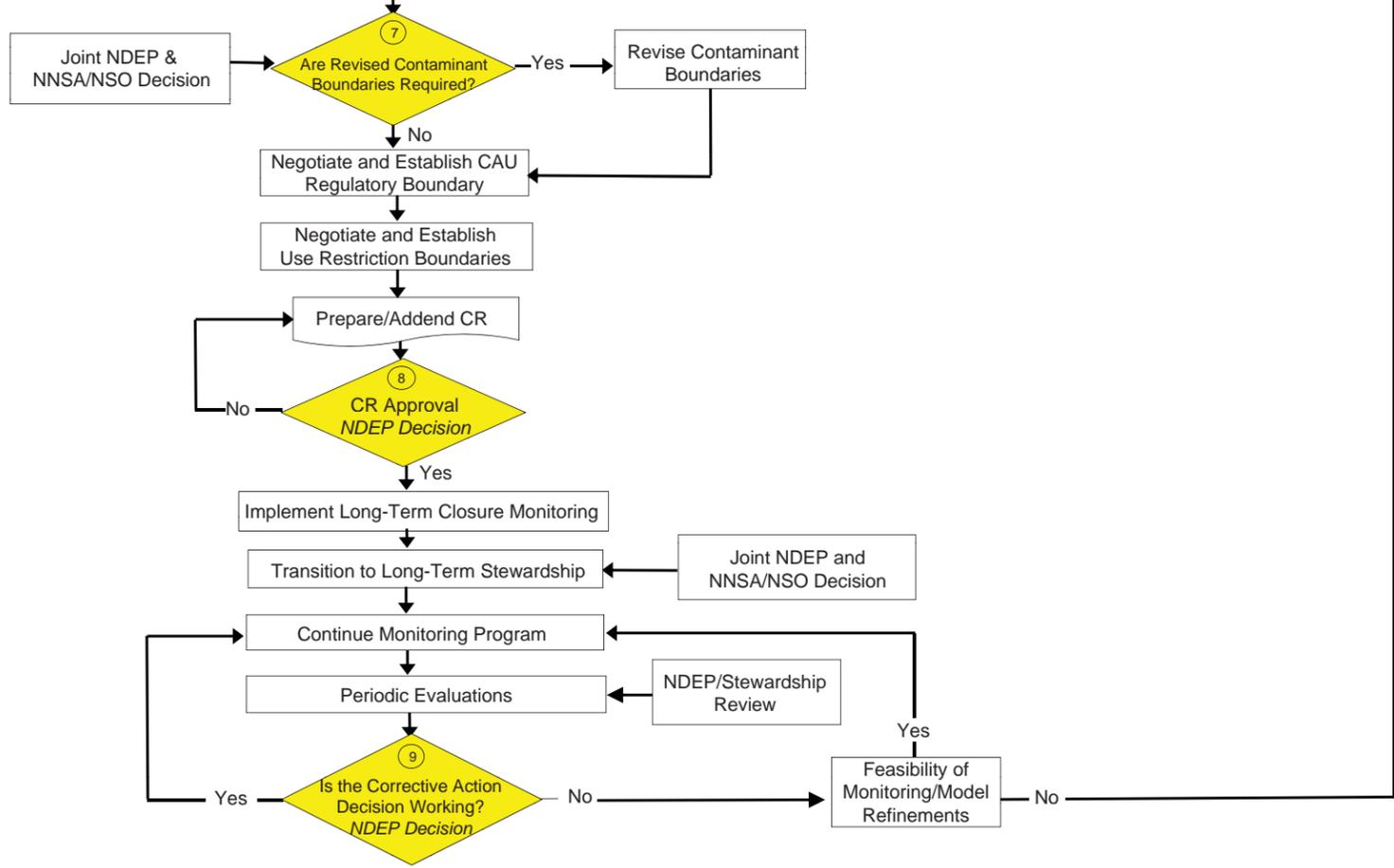
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Nevada Site Specific Advisory Board

January 16, 2013

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Nye County Nuclear Waste
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State of Nevada Division of
Environmental Protection
U.S. Department of Energy,
Nevada Site Office
U.S. National Park Service
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Barbara Ulmer, Administrator
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Kelly Snyder, DDFO
U.S. Department of Energy,
Nevada Site Office

Mr. Scott Wade
Assistant Manager for Environmental Management
U.S. Department of Energy, Nevada Site Office
P. O. Box 98518
Las Vegas, NV 89193-8518

SUBJECT: Nevada Site Specific Advisory Board (NSSAB)
Recommendation for Fiscal Year (FY) 2015 Baseline
Prioritization
Work Plan Item #5

Dear Mr. Wade:

The NSSAB has completed its annual review and prioritization of the U.S. Department of Energy (DOE) Nevada Site Office Environmental Management (EM) activities for the FY 2015 budget submittal.

At the last Full Board meeting, the NSSAB was provided a list of EM activities and was asked by DOE to prioritize them by related groupings. The items listed below were ranked by the Board from the highest to the lowest priority, as follows:

- Off-Site Soils—Three Corrective Action Units (CAUs)
- NNSS Soils—Four CAUs
- Soils Studies
- Frenchman Flat Groundwater Characterization Closure Activities
- Frenchman Flat Post Closure Drilling
- Pahute Mesa Well Development, Testing, and Sampling
- Pahute Mesa Aquifer Tests
- Pahute Mesa Modeling Analysis and Evaluation
- Yucca Flat
- Rainier Mesa/Shoshone Mountain (CAU 99) Closure Report
- Area 5 Radioactive Waste Management Disposal Operations

Thank you for the opportunity to participate in the annual budget prioritization and for the assistance provided by the EM staff. The federal staff took the

time to meet with the NSSAB and provided detailed information. We sincerely appreciate this support and look forward to your response regarding this year's budget submittal.

Sincerely,

Kathleen L. Bienenstein, Chair

cc: M. A. Nielson, DOE/HQ (EM-3.2) FORS
C. B. Alexander, DOE/HQ (EM-3.2) FORS
M. R. Hudson, DOE/HQ (EM-3.2) FORS
R. F. Boehlecke, EMO, NNSA/NSO, Las Vegas, NV
J. T. Carilli, EMO, NNSA/NSO, Las Vegas, NV
C. G. Lockwood, EMOS, NNSA/NSO, Las Vegas, NV
K. K. Snyder, EMOS, NNSA/NSO, Las Vegas, NV
T. A. Lantow, EMO, NNSA/NSO, Las Vegas, NV
W. R. Wilborn, EMO, NNSA/NSO, Las Vegas, NV
B. K. Ulmer, N-I, Las Vegas, NV
NSSAB Members and Liaisons
NNSA/NSO Read File

DRAFT