



**Department of Energy**  
 Yucca Mountain Site Characterization  
 Project Office  
 P. O. Box 98608  
 Las Vegas, NV 89193-8608

WBS 1.2.11  
 QA: N/A

**FFB 0 4 1993**

Larry R. Hayes  
 Technical Project Officer  
 for Yucca Mountain  
 Site Characterization Project  
 U.S. Geological Survey  
 101 Convention Center Drive  
 Suite 860  
 Las Vegas, NV 89109

**APPROVAL OF CORRECTIVE ACTION EXTENSION REQUEST FOR CORRECTIVE ACTION REQUEST (CAR) YM-92-060 AND YM-93-012 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD) AUDITS YMP-92-20 AND YMP-93-01 OF U.S. GEOLOGICAL SURVEY**

References: (1) Ltr, Chaney to Spence, dtd 1/26/93  
 (2) Ltr, Chaney to Spence, dtd 1/29/93

The referenced letter requested that the corrective action due date for CARs YM-92-060 and YM-93-012 be extended to February 26, 1993. Please be advised that this date is acceptable to YMQAD; however, it is recommended that you apply the necessary resources to complete the corrective actions. No further extensions will be granted.

If you have any questions, please contact either Robert B. Constable at 794-7945 or Donald J. Harris at 794-7356.

Richard E. Spence, Director  
 Yucca Mountain Quality Assurance Division

YMQAD:RBC-2338

CC:

- ~~K. R. Hoops, NRC, Washington, DC~~
- J. W. Gilray, NRC, Las Vegas, NV
- S. W. Zimmerman, NWPO, Carson City, NV
- T. H. Chaney, USGS, Denver, CO
- R. W. Craig, USGS, Las Vegas, NV
- R. L. Maudlin, MACTEC, Las Vegas, NV
- N. J. Brogan, SAIC, Las Vegas, NV
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ADD: Ken Hoops Ltr. Encl.  
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FEB 01 1993

Distribution--Memorandum dated

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J. A. Blink, LLNL, Las Vegas, NV  
Local Records Center, LLNL, Livermore, CA  
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D. G. Wilder, LLNL, Livermore, CA  
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WBS 1.2.5.3.6  
QA: N/A

FEB 01 1993

DISTRIBUTION

SITE ATLAS USER SURVEY

Attached for your review is a User Survey for the 1992 Yucca Mountain Site Characterization Project Site Atlas (enclosure). The purpose of the survey is to obtain information that will be used to provide an improved product which will better serve user needs. Your input will be used to assess format and composition of the fiscal year (FY) 1993 Site Atlas, provide a better understanding of how the Site Atlas is used, identify information that will be used in field work, and identify data that are critical for FY 1994 applications.

Anticipated improvements to the FY 1993 Site Atlas will include: 1) a standard page size to allow easier map copying, 2) a spiral binding to allow users to lay the Atlas flat and insert updates, 3) a standardization of symbols for uniform interpretation, 4) reorganization of sections and maps to conform with Work Breakdown Structure element activities, and 5) a companion volume to the Site Atlas map portfolio that will contain data sheets with descriptive information about Site Atlas activities. FY 1992 information will be updated in the FY 1993 Site Atlas and new data will be added to increase its versatility.

Please complete the survey and return it by February 22, 1993, to Barbara Kistler, Site Atlas Coordinator, EG&G Energy Measurements, Inc., Remote Sensing Laboratory, Yucca Mountain Site Characterization Project Support Office, M/S V-02.

Other questions regarding the Site Atlas should be directed to either C. Elaine Ezra at (702) 794-7449 or Ardyth M. Simmons at (702) 794-7998.

*J. Timothy Sullivan*  
for J. Russell Dyer, Director  
Regulatory & Site Evaluation Division

RSED:AMS-2254

Enclosure:  
Site Atlas User Survey

FEB 01 1993

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C. L. Smith, YMP, NV  
J. A. Gonzalez, YMP, NV  
S. B. Jones, YMP, NV  
R. J. White, YMP, Mercury, NV

**FY92 YMP SITE ATLAS  
USER SURVEY**

To Be Completed by the Survey Respondent

**NAME:**  
**TITLE:**  
**ORGANIZATION:**  
**ADDRESS:**  
**TELEPHONE:**

**PART I - REVIEW OF THE 1992 SITE ATLAS**

1a. Was the FY92 Site Atlas useful to your work? \_\_\_ Y \_\_\_ N

1b. If it was useful, for what purposes did you use it?

\_\_\_\_\_

\_\_\_\_\_

1c. For what other applications do you feel the Site Atlas may be used?

\_\_\_\_\_

\_\_\_\_\_

2a. Do you use the Site Atlas in the field? \_\_\_ Yes \_\_\_ No

2b. If yes, was it portable and easy to use? \_\_\_ Yes \_\_\_ No  
If no, why not?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Would the Site Atlas be more useful to your work if:

- \_\_\_ Existing and Planned Activities were on separate maps
- \_\_\_ Existing and Planned Activities were on the same map
- \_\_\_ Existing and Planned Activities were shown on three maps (a map showing existing activities, planned activities, and both activities)

4. Would the Site Atlas be more usable if it were organized using WBS element activities/terminologies? \_\_\_ Y \_\_\_ N

**FY92 YMP SITE ATLAS  
USER SURVEY**

5. Provide comments in the list below on any of the 1992 Site Atlas maps that were applicable to your work:

<b>Site Atlas Map No.</b>	<b>Related WBS or Study Plan</b>	<b>Comments</b>
<b>ADMINISTRATION</b>		
SA1-1.0		
SA1-2.0		
SA1-3.0		
SA1-4.0		
SA1-5.0		
SA1-6.0		
<b>SOCIOLOGY</b>		
SA2-1.0		
SA2-2.0		
<b>BOREHOLE/TRENCHES /PITS/PAVEMENTS</b>		
SA3-1.0		
SA3-2.0		
SA3-3.0		

Site Atlas Map No.	Related WBS or Study Plan	Comments
SA3-4.0		
SA3-5.0		
SA3-6.0		
SA3-7.0		
SA3-8.0		
SA3-9.0		
SA3-10.0		
SA3-11.0		
SA3-12.0		
SA3-13.0		
SA3-14.0		
<b>ECOLOGY</b>		
SA4-1.0		
SA4-2.0		
SA4-3.0		
<b>HYDROLOGY</b>		
SA5-1.0		

<b>Site Atlas Map No.</b>	<b>Related WBS or Study Plan</b>	<b>Comments</b>
SA5-2.0		
SA5-3.0		
SA5-4.0		
SA5-5.0		
SA5-6.0		
SA5-7.0		
SA5-8.0		
SA5-9.0		
SA5-10.0		
SA5-11.0		
SA5-12.0		
<b>GEOLOGY</b>		
SA6-1.0		
SA6-2.0		
<b>GEOPHYSICAL</b>		
SA7-1.0		
SA7-2.0		

<b>Site Atlas Map No.</b>	<b>Related WBS or Study Plan</b>	<b>Comments</b>
SA7-3.0		
SA7-4.0		
SA7-5.0		
SA7-6.0		
SA7-7.0		
SA7-8.0		
SA7-9.0		
SA7-10.0		
SA7-11.0		
SA7-12.0		
SA7-13.0		
SAA-1.0		
SAA-2.0		
SAA-3.0		
SAA-4.0		
SAA-5.0		

6. **What other general comments would you suggest for improvement of the content, layout, or format of the Site Atlas?**

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7. **Who in your organization should receive a copy of the 1993 Site Atlas?**

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**PART II - 1993 SITE ATLAS**

1. What types of data/information do your organization collect that could be useful for inclusion to the Site Atlas?

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2. Who within your organization would be the appropriate point-of-contact to provide this information?

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_

3. From the following list, identify the data that may be useful for your current and/or planned FY94 studies (check if applicable):

**LAND ADMINISTRATION**

\_\_\_\_\_ Additional Detailed Administrative Boundaries  
\_\_\_\_\_ Other: \_\_\_\_\_

**SOCIOLOGY**

\_\_\_\_\_ Additional 1990 Census Data  
\_\_\_\_\_ Pre-1990 Census Data  
\_\_\_\_\_ Transportation Impacts  
\_\_\_\_\_ Transportation  
\_\_\_\_\_ Other: \_\_\_\_\_

**BOREHOLES, TRENCHES, PITS AND PAVEMENTS  
(or SURFACE BASED INVESTIGATION SUPPORT)**

- \_\_\_\_\_ Water Table Boreholes
- \_\_\_\_\_ Fortymile Wash Boreholes and Pond Construction
- \_\_\_\_\_ Natural Infiltration Boreholes
- \_\_\_\_\_ Rainfall Simulation/Artificial Infiltration Boreholes
- \_\_\_\_\_ Unsaturated Zone, Vertical Seismic Profile, and Prototype Boreholes
- \_\_\_\_\_ Solitario Canyon Horizontal Borehole and Tests in the Unsaturated Zone
- \_\_\_\_\_ Multipurpose Boreholes
- \_\_\_\_\_ Gas Phase Circulation Tests
- \_\_\_\_\_ Gas Phase Chemical Tests
- \_\_\_\_\_ Solitario Canyon Fault Boreholes and Tests in the Saturated Zone
- \_\_\_\_\_ Multiple Well Interference Tests at the C-hole complex
- \_\_\_\_\_ Conservative Tracer Tests
- \_\_\_\_\_ Reactive Tracer Tests
- \_\_\_\_\_ Saturated Zone Hydrochemistry Tests
- \_\_\_\_\_ Prototype Air Coring
- \_\_\_\_\_ Other: \_\_\_\_\_

**HYDROLOGY**

- \_\_\_\_\_ Geohydrology
  - \_\_\_\_\_ Stream Sediment Analyses (NV)
  - \_\_\_\_\_ Stream runoff
- \_\_\_\_\_ Unsaturated Zone Hydrology
  - \_\_\_\_\_ Infiltration
- \_\_\_\_\_ Saturated Zone Hydrology
  - \_\_\_\_\_ Location of Adequate Water Supplies
- \_\_\_\_\_ Geochemistry
- \_\_\_\_\_ Other: \_\_\_\_\_

**ECOLOGY or  
ENVIRONMENT (new title)**

- \_\_\_\_\_ Aesthetics
- \_\_\_\_\_ Air Quality/Meteorology
- \_\_\_\_\_ Archaeological Resources
- \_\_\_\_\_ Radiological Studies
- \_\_\_\_\_ Soils
- \_\_\_\_\_ Water Resources
- \_\_\_\_\_ Land Use/Resource Lands
- \_\_\_\_\_ Environmental Reclamation
- \_\_\_\_\_ Terrestrial ecosystems
- \_\_\_\_\_ Other: \_\_\_\_\_

## GEOLOGY

- Mineralogy and Petrology
- Rock Characteristics
- Erosion/Pluvial Characteristics
- Tectonics
  - Faults/linear features
  - Earthquake epicenters
  - Underground Nuclear Explosion locations
  - Historical and current seismic activities
- Geologic Mapping (Surficial & Bedrock)
  - Yucca Mountain Area
  - Regional
  - Statewide (NV & CA)
- Geomorphology
- Lithotectonic Terranes
- Permissive Terranes for Ore Deposits
- Rock Analyses (NV)
- Statewide Geochemical Analyses (NV)
- Las Vegas Valley Subsidence
- Other: \_\_\_\_\_

## GEOPHYSICS

- Gravity
- Aeromagnetic
- Radon (NV)
- NURE Radiological
- NURE Water Analyses
- Other: \_\_\_\_\_

## APPENDICES

- Digital Elevation Model & Digital Line Graph Availability
- Other Agency Basemap Availability
- Other: \_\_\_\_\_

## FACILITIES (new category)

- Surface facilities
- Test facilities
- Exploratory Studies facilities
- Other: \_\_\_\_\_

**CLIMATOLOGY (new category)**

- \_\_\_\_\_ Modern Regional Climate
- \_\_\_\_\_ Paleoclimate
- \_\_\_\_\_ Other: \_\_\_\_\_

**SURFACE CHARACTERISTICS (new category)**

- \_\_\_\_\_ Topography
- \_\_\_\_\_ Soil and Rock properties
- \_\_\_\_\_ Wetlands
- \_\_\_\_\_ Other: \_\_\_\_\_

**RESOURCE POTENTIAL (new category)**

- \_\_\_\_\_ Natural resources
- \_\_\_\_\_ Water resources
- \_\_\_\_\_ Mining Districts/Active Mines
- \_\_\_\_\_ Mineral Reserves/Resources
- \_\_\_\_\_ Mineral Resources Data Sheets
- \_\_\_\_\_ Other: \_\_\_\_\_

4. From the data identified above as "applicable", please provide source information (if known):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Identify any other useful data (and source information) not listed above:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Which of the following types of information would you like to see included in a companion data report(s) to the Site Atlas map portfolio?

**FOR ALL ACTIVITIES**

- Identifier/number of the activity
- Activity type
- Purpose of activity
- WBS Number
- Study Plan number(s)
- SCP reference number(s)
- Principal organization
- Other participant organizations
- Principal investigator(s)
- Surveyed (Y or N)
- Survey organization
- Type of survey
- Location in geographic coordinates and description
- Elevation
- Location rationale
- Land ownership
- Access
- Specific tests and sampling to be conducted
- Site restoration requirements, if any
- Data source
- Originator of data
- Comments

**ADDITIONAL INFORMATION FOR COMPLETED OR IN-PROGRESS BOREHOLES**

- Ground elevation
- Status:
  - Spud date:
  - In progress?
  - Completion date:
  - Abandoned?
  - Plugged/Date:
  - Manner:
- Hole depth
- Hole diameter
- Casing depth
- Casing diameter

**ADDITIONAL INFORMATION FOR COMPLETED OR IN-PROGRESS BOREHOLES (cont)**

- \_\_\_\_\_ Drilling equipment used
- \_\_\_\_\_ Drilling method used
- \_\_\_\_\_ Drilling fluids used
- \_\_\_\_\_ Tracers used
- \_\_\_\_\_ Amount of discharge water
- \_\_\_\_\_ Testing equipment used
- \_\_\_\_\_ Disturbed surface area
- \_\_\_\_\_ Comments

**ADDITIONAL INFORMATION FOR PLANNED BOREHOLES**

- \_\_\_\_\_ Estimated start and completion dates
- \_\_\_\_\_ Anticipated schedule for milestone activities
- \_\_\_\_\_ Required preactivities (environmental or archaeological surveys)
- \_\_\_\_\_ Anticipated depth
- \_\_\_\_\_ Anticipated diameter of borehole
- \_\_\_\_\_ Minimum core size
- \_\_\_\_\_ Required surface preparation
- \_\_\_\_\_ Anticipated area of surface disturbance
- \_\_\_\_\_ Recommended drill rig
- \_\_\_\_\_ Well construction requirements
- \_\_\_\_\_ Testing and support equipment needed
- \_\_\_\_\_ Logistical requirements for access and drilling
- \_\_\_\_\_ Estimated amount of water to be discharged to the ground surface
- \_\_\_\_\_ Planned use of tracers
- \_\_\_\_\_ Comments

**ADDITIONAL INFORMATION FOR EXISTING PAVEMENTS, PITS AND TRENCHES**

- \_\_\_\_\_ Site Preparation Date
- \_\_\_\_\_ Dimensions of Pavement Study Area, if applicable
- \_\_\_\_\_ Dimensions of Excavation
  - \_\_\_\_\_ Length
  - \_\_\_\_\_ Depth
  - \_\_\_\_\_ Volume
- \_\_\_\_\_ Ground elevation
- \_\_\_\_\_ Disturbed surface area
- \_\_\_\_\_ Comments
- \_\_\_\_\_ Site Reclaimed?
- \_\_\_\_\_ Date of Reclamation

**ADDITIONAL INFORMATION FOR PLANNED PAVEMENTS, PITS AND TRENCHES**

- \_\_\_\_\_ Anticipated Dimensions of Pavement Study Area, if applicable
- \_\_\_\_\_ Anticipated Dimensions of Excavation
  - \_\_\_\_\_ Length
  - \_\_\_\_\_ Depth
  - \_\_\_\_\_ Volume
- \_\_\_\_\_ Anticipated Date of Reclamation
- \_\_\_\_\_ Estimated start and completion dates
- \_\_\_\_\_ Anticipated schedule for milestone activities
- \_\_\_\_\_ Required preactivities (environmental or archaeological surveys)
- \_\_\_\_\_ Required surface preparation
- \_\_\_\_\_ Anticipated area of surface disturbance
- \_\_\_\_\_ Recommended excavation equipment
- \_\_\_\_\_ Excavation requirements
- \_\_\_\_\_ Testing and support equipment needed
- \_\_\_\_\_ Logistical requirements for access and excavation
- \_\_\_\_\_ Comments

7. Is there any other type of information you would like to see included in the Site Atlas data report? If yes, please list.

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**THANK YOU FOR COMPLETING THIS SURVEY.**