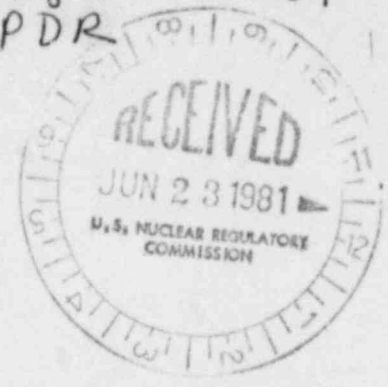


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Project WM-39  
PDR



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

JUN 16 1981



WMUR:WM-39

MEMORANDUM FOR: The Files

THRU: Ross A. Scarano, Chief  
Uranium Recovery Licensing Branch

FROM: William M. Shaffer III, Project Manager  
Uranium Recovery Licensing Branch

SUBJECT: MEETING TO REVIEW DOE PACIFIC NORTHWEST LABORATORY (PNL)  
REVEGETATION/ROCK COVER SUPPORTING R&D PROGRAM FOR UMTRAP  
(MAY 21, 1981, NRC - SILVER SPRING, MD)

Mr. Larry L. Cadwell, Research Scientist, Ecological Sciences Dept., PNL, requested that NRC staff meet with him such that he could provide a brief overview of PNL's current R&D for UMTRAP in the area of revegetation/rock covers to stabilize uranium mill tailings. Attachment I is the handout from the subsequently arranged subject meeting.

This R&D program is currently funded at \$400K in FY81 with planned FY82 funding of \$200K. In FY81 the program was reoriented to place increased effort on rock covers while maintaining an active revegetation program element. Mr. Cadwell confirmed that this was at DOE direction and undoubtedly reflects increased emphasis on the importance of rock covers to long term erosion resistance in the arid and semi-arid climates where almost all UMTRAP sites are located. The program is not conducted on a site specific basis however but is regionalized such that results may be applicable to groupings of UMTRAP sites.

I asked Mr. Cadwell if the program timing was geared to obtaining results that could effectively contribute to the planned conduct of remedial action on the schedules currently assumed for the UMTRAP sites. He indicated that it was and that his field tests were in coordination with the comparative Grand Junction Field Tests of complete tailings stabilization systems. Various rock/vegetation covers are thus actively under actual field test.

Mr. Cadwell stressed that PNL views rock and vegetation as working together as a system, even in an arid environment. I indicated that I also felt the systems approach was to be preferred and that NRC staff had commented to that effect when we reviewed PNL's Asphalt Tailings Seal System R&D program in

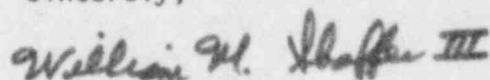
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February, 1981. The significant implications of the rock/vegetation system are noted on Attachment I. With a clay tailings seal, for example, rock cover can help maintain the clay in a moist state by reducing vegetative cover (and therefore plant transpiration water loss) and surface evaporation water loss from the soil/atmosphere interface which is reduced in area by the presence of the rocks.

I advised Mr. Cadwell that we appreciated the opportunity to receive an update on this program and would also appreciate future similar progress meetings.

Sincerely,



William M. Shaffer III, Project Manager  
Uranium Recovery Licensing Branch

cc: Robert W. Ramsey, DOE-HQ  
Richard H. Campbell, DOE-Alb.  
Dr. William E. Mott, DOE-HQ  
Larry L. Cadwell, PNL

Attachment I

REVEGETATION/ROCK COVER FOR  
STABILIZATION OF INACTIVE  
U-TAILINGS SITES

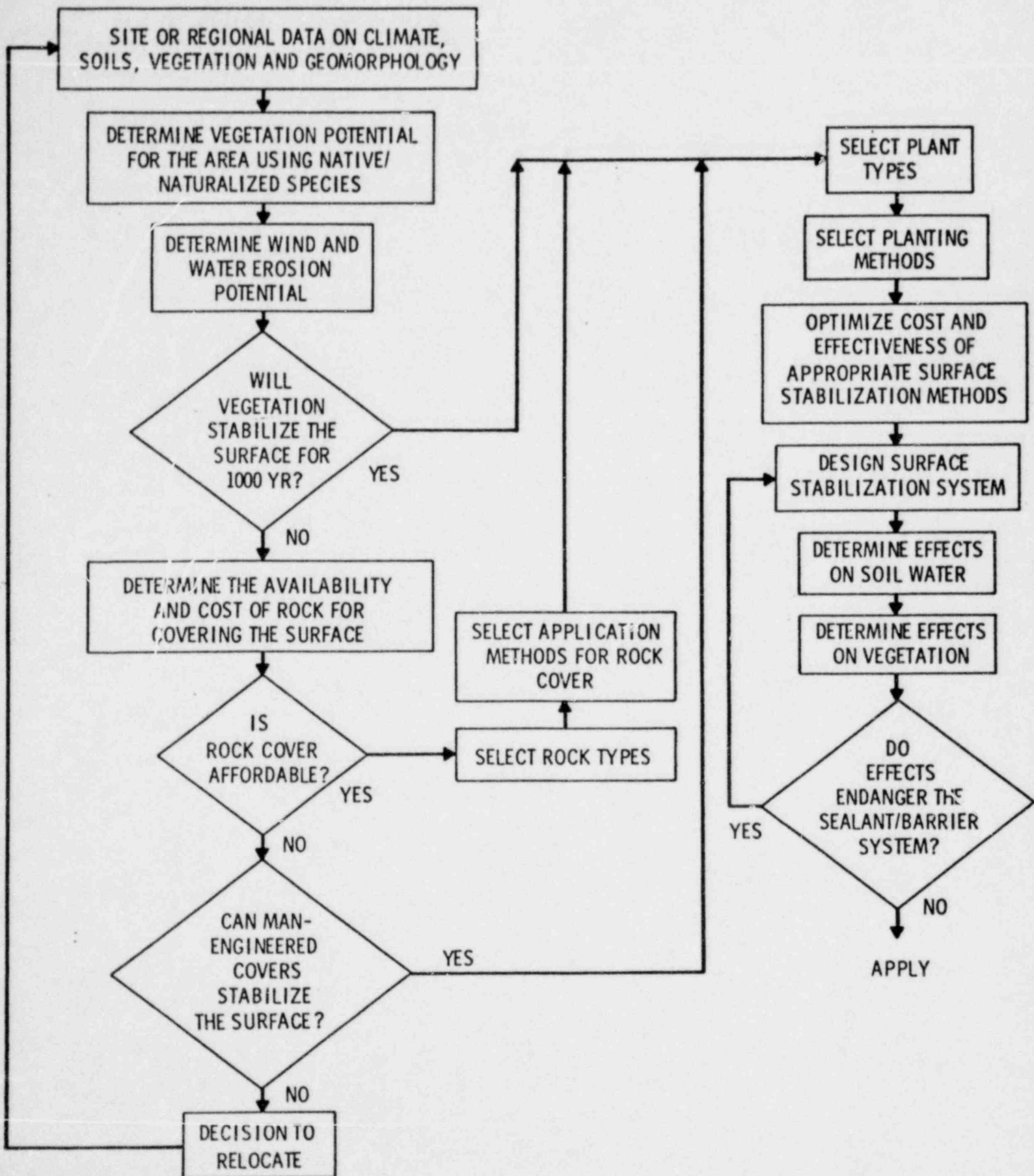
UMTRAP D.O.E. ALBUQUERQUE

L. L. CADWELL  
(FTS 444-6241)

P. A. BEEDLOW  
(FTS 444-2839)

BATTELLE, PACIFIC NORTHWEST LABORATORY  
RICHLAND, WASHINGTON

# Program Logic Diagram



ROCK COVER INTERACTIONS  
WITH SEALANT-BARRIER SYSTEM

ROCK COVER CAN:

DECREASE SURFACE EVAPORATION  
DECREASE PLANT COVER AND THEREFORE PLANT  
TRANSPIRATION

THE NET RESULT WILL BE AN INCREASE IN THE SOIL MOISTURE  
MOVING DOWNWARD THROUGH THE SOIL PROFILE.

POSSIBLE IMPLICATIONS FOR SEALANT-BARRIER SYSTEMS.

OVERBURDEN ONLY - INCREASED POTENTIAL FOR  
LEACHING OF CONTAMINANTS

OVERBURDEN PLUS - ADDITIONAL ENGINEERING DESIGN  
ASPHALT TO DRAIN WATER OVER ASPHALT

OVERBURDEN PLUS - RECHARGE THE CLAY TO MAINTAIN  
CLAY RADON SEALING PROPERTIES