



Department of Energy  
Office of Legacy Management

AUG 04 2008

Stephen J. Cohen, Project Manager  
U.S. Nuclear Regulatory Commission  
Fuel Cycle Facilities Branch  
Mail Stop T-8A33  
Washington, DC 20555-0001

Subject: Proposal to Address ACL Issue at the Shirley Basin South, Wyoming, UMTRCA  
Title II Disposal Site

Dear Mr. Cohen:

Ground water monitoring at the U.S. Department of Energy (DOE) Shirley Basin South, Wyoming, UMTRCA Title II Disposal Site indicates that the alternate concentration limit (ACL) for radium-228 continues to be exceeded at two well locations. The ACL for cadmium has also been exceeded in one well, although not since the December 2005 sampling event. Records indicate that these ACLs were exceeded on several sampling occasions prior to the site being transferred to DOE custody. As we have discussed, DOE proposes to address this issue in the following manner.

1. Install additional monitor wells to provide a better understanding of the characteristics and behavior of the affected aquifers at the site. Location and completion requirements for these wells will be dependent on an evaluation of the geologic, hydrogeologic, and ground water chemistry characteristics at the site. Preliminary recommended well locations are shown on the enclosed figure.
2. Review the ACL application developed by Petrotomics and ground water data to date to (a) determine if the elevated radium-228 concentrations are due to leakage from the cell or are due to natural causes; (b) compare ground water data (concentrations and elevations) with the ACL model predictions to see if the aquifers are responding as predicted; (c) evaluate and, if appropriate, recommend new ACLs for radium-228 and cadmium, for concurrence by the U.S. Nuclear Regulatory Commission (NRC); and (d) evaluate all ground water quality data to recommend if the analyte suite is appropriate or should be modified.
3. Revise the long-term surveillance plan for the site to include changes to the monitoring network, analyte suite, and ACLs, and submit it to NRC for review and concurrence.

2597 B 3/4 Road, Grand Junction, CO 81503  
626 Cochran Mill Road, P.O. Box 10940, Pittsburgh, PA 15236  
11025 Dover St., Suite 1000, Westminster, CO 80021  
955 Mound Road, Miamisburg, OH 45342  
REPLY TO: Westminster Office

3600 Collins Ferry Road, Morgantown, WV 26505  
1000 Independence Ave., S.W., Washington, DC 20585  
10995 Hamilton-Cleves Highway, Harrison, OH 45030  
232 Energy Way, N. Las Vegas, NV 89030

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Mr. Cohen

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Please let me know as soon as possible if you have any objections or recommended revisions to this proposed plan. We are currently reviewing the ACL application and available geologic and hydrogeologic information pertaining to the site, and are planning to install the new monitor wells as early as this September.

Please contact me at (720) 377-9682 if you have any questions.

Sincerely,



2008.08.04

08:24:42 -06'00'

Scott R. Surovchak  
Site Manager

Enclosure

cc w/enclosure:

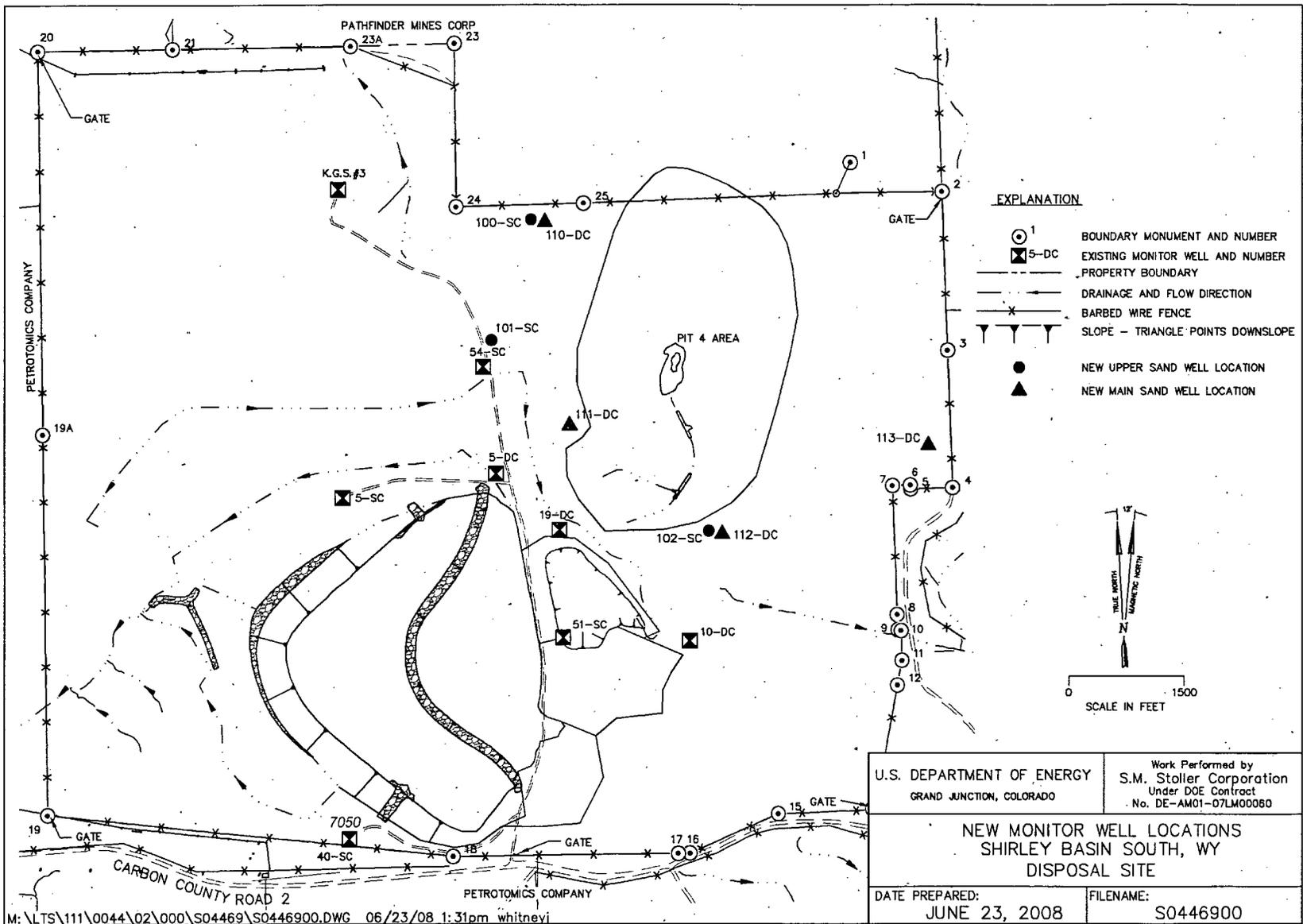
G. Janosko, NRC

M. Thiesse, WDQ

T. Pauling, DOE

D. Johnson, Stoller

File: SBS 410.02 (Roberts)



**EXPLANATION**

- BOUNDARY MONUMENT AND NUMBER
- EXISTING MONITOR WELL AND NUMBER
- PROPERTY BOUNDARY
- DRAINAGE AND FLOW DIRECTION
- BARBED WIRE FENCE
- SLOPE - TRIANGLE POINTS DOWNSLOPE
- NEW UPPER SAND WELL LOCATION
- NEW MAIN SAND WELL LOCATION



0 1500  
SCALE IN FEET

U.S. DEPARTMENT OF ENERGY  
GRAND JUNCTION, COLORADO

Work Performed by  
S.M. Stoller Corporation  
Under DOE Contract  
No. DE-AM01-07LM0060

**NEW MONITOR WELL LOCATIONS  
SHIRLEY BASIN SOUTH, WY  
DISPOSAL SITE**

DATE PREPARED:  
JUNE 23, 2008

FILENAME:  
S0446900