

**Appendix C**  
**WELL CLOSURE CRITERIA**

In June 1988, the Final Decision Document for the Interim Response Action for the Closure of Abandoned Wells at Rocky Mountain Arsenal was issued by the U.S. Department of the Army (Army). This final document was issued following review and comment by Region VIII U.S. Environmental Protection Agency (EPA) and the Colorado Department of Health. This Interim Response Action (IRA) included only onpost wells in its coverage. EPA proposed modification of this IRA to include offpost wells in a letter to the Army dated March 15, 1990. EPA proposed criteria for the selection of wells to be abandoned and closed in the Offpost Study Area. In a letter dated June 13, 1991 (U.S. Army, 1991) to the Colorado Department of Public Health and Environment (CDPHE), the Army agreed in principle with the EPA request to modify the Well Closure IRA to include wells meeting the criteria in the Offpost Study Area.

The following set of criteria were developed to identify wells to be abandoned in the Offpost Study Area.

1. Offpost wells will be abandoned according to the regulations set forth by the Office of the State Engineer
  - a. if the well is completed in one or more aquifers below the alluvial aquifer, and
  - b. if the well is judged to be of improper construction or is in deteriorating condition such that it is leaking from the alluvial aquifer to lower aquifers as indicated by physical parameters (such as hardness and conductivity measurements), and
  - c. if the well contains contaminants which originated from RMA in excess of the remediation goals.
2. Offpost wells will be monitored a minimum of annually
  - a. if the well is completed in one or more aquifers below the alluvial aquifer, and
  - b. if the well is within 50 feet of a groundwater plume which originated from the RMA, or
  - c. if the well is judged to be of improper construction or is in deteriorating condition such that it is leaking from the alluvial aquifer to lower aquifers as indicated by physical parameters (such as hardness and conductivity measurements), and
  - d. if the well contains contaminants originating from the RMA at any level.
3. If, based on current water table data, the well is located in an area of dry alluvium, the well will not be considered a candidate for closure.
4. Wells located on the property currently owned by Shell are included in this well closure plan.

5. Well closure will be at the expense of the United States.
6. Well closure methods will be identical to those used for the closure of onpost wells.
7. The United States and the Department of the Army are removed from liability for dealing with unpermitted wells.
8. Following identification of wells meeting all of the criteria listed in item 2 above, the Tri-County Health Department (TCHD) will notify individual well owners informing them of suspected faulty construction and request permission to enter the property and abandon the well. THCD will inform the Army if and when permission has been received from the well owner to close the well.
9. Well closure expenses will not be borne by the United States in the event that unused wells are listed for closure and the well owner is known. Pursuant to Rule 11.1.1, Abandonment Standards (2 Code of Colorado Regulations 402-2), it is the responsibility of the well owner to have an unused well properly plugged and abandoned.

A list of wells meeting the closure criteria will be compiled at a meeting of the parties' technical staff. A list of wells to be monitored will also be compiled. A consensus will be reached on guidelines to be used to evaluate the hardness and conductivity data. At the time of the five year review the monitoring information will be reviewed and it will be determined by the parties if a continued monitoring of wells in the deeper aquifers is warranted.

**REFERENCES**

Shell Oil Company, 1991, Letter to U.S. Department of the Army, July 3.

U.S. Department of the Army, 1991, Letter to Colorado Department of Health, June 13.

U.S. Environmental Protection Agency, 1991, Letter to U.S. Department of the Army and Shell Oil Company, January 6.