UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: JUL 27 1981

SUBJECT: Casing and Cementing Requirements for Existing Class II Wells. Ground-Water Program Guidance No. 25 (GWPG #25) UIC

FROM: Victor J. Kimm, Deputy Assistant Administrator
Office of Drinking Water (WH-550)

TO: Water Division Directors Regions I - X
Water Supply Branch Chiefs
UIC Representatives

PURPOSE

Questions have been raised by industry and states concerning construction requirements for existing Class II wells as outlined in §146.22(b) and as applied in certain circumstances in paragraph (e). This guidance is intended to respond to these inquiries.

BACKGROUND

Casing and cementing practices for existing Class II wells show considerable disparity across the nation. As a result of geological and hydrological conditions it is possible that a variety of construction practices may be effective in preventing migration of fluids into underground sources of drinking water (USDW).

GUIDANCE

Questions have been raised as to whether specific construction designs were intended to be required by §146.22 (b). The wording in §146.22(b) is as follows: "All Class II wells shall be cased and cemented to prevent movement of fluids into or between underground sources of drinking water." The Agency was careful in selecting this wording, since our intent was to allow a variety of existing construction practices, provided such practices do not allow migration of fluids into USDWs. Furthermore, it is conceivable that existing casing and cementing practices which are not "typical," may be considered as adequate under §146.22(e) if it can be demonstrated that they have not resulted in contamination of USDWs and will not do so in the future. (For example, local geologic and hydrologic conditions such as competent bedrock or plastic shales may make it possible to construct wells without long string casing or cement recirculated to the surface, as long as the

injection zone is adequately isolated and there is no significant movement of fluids between aquifers through the well bore.) Such a demonstration should involve a monitoring program which will satisfy the Director that the project has not contaminated USDWs, provided that the project has been in operation for a time sufficient to assure that migration of fluids into USDWs would have occurred if such an event was possible.

It should be noted that a change to existing operations such as an increase in the injection pressure at which the wells operate, would necessitate confirmation of the adequacy of the construction practices. In specifying monitoring requirements, the Director should consider the following criteria:

- Pressure of the injection zone/hydrostatic level of water in wells penetrating the injection zone
- Base of lowermost formation containing an USDW
- Depth of the injection zone
- Permeability/transmissivity of the injection zone, and the aquifers containing the USDW(s)
- Hydraulic gradient/flow direction of aquifers containing an USDW
- A density of monitoring wells sufficient to assure early detection of fluid movement, if it should occur, into an USDW
- Location of water supply wells in the vicinity.

IMPLEMENTATION

Regional offices are instructed to use this guidance in operating UIC programs where EPA has primary enforcement responsibility. They are further instructed to make this guidance available to States working towards primacy and to advise the State Director that these interpretations represent EPA policy.

FILING INSTRUCTIONS

This guidance should be filed as Ground-Water Program Guidance No. 25.

ACTION RESPONSIBILITY

For further information on this guidance contact:

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