

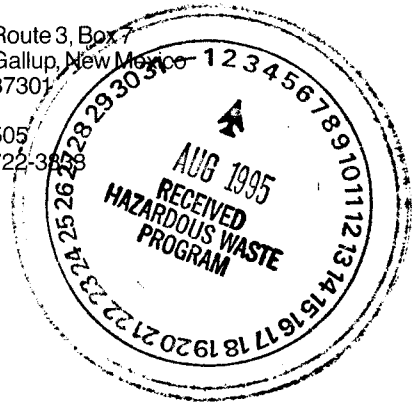
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RAK X  
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Gallup, New Mexico  
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505  
722-3888



July 28, 1995

Ronald A. Kern  
RCRA Technical Compliance Program Manager  
Hazardous & Radioactive Materials Bureau  
New Mexico Environment Department  
525 Camino De Los Marquez  
Santa Fe, New Mexico 87502

Re: **SMW-6 Well Replacement**  
**Giant Refining Company - Ciniza**  
**NMD000333211**

Dear Mr. Kern:

Giant Refining Company - Ciniza (Giant) submits the following responses to the questions in the July 25, 1995 letter from your office.

Specifically, and in the order presented in your letter, those responses are:

- 1) In the 4th paragraph of your letter you state GRC's belief that the stainless steel casing in SMW-6 is damaged and that water samples from this well are similar to the water in the evaporation lagoons. Has damaged casing provided a pathway for lagoon water to reach the Ciniza Sands? Can GRC provide an analysis of the evaporation lagoon water so that HRMB can compare it to the groundwater analyses?

Giant's belief that the stainless steel casing in SMW-6 is damaged is based on observation of a separation at ~ seven feet, the occurrence of a clay/shale plug at ~ fifty feet, the ability to hear water flowing into the wellbore and the abrupt change in water analysis results. That the casing is damaged is certain. The nature of the damage and its effect on the groundwater characteristics are less clear.

Obviously, water entering the wellbore above the screened interval could potentially affect the water contained within the Ciniza Sands, assuming hydrostatic pressure is sufficient to recharge those sands. At the very least, water entering the wellbore will most certainly bias the sample and diminish the credibility of the analytical data obtained

from laboratory analysis. For that reason, Giant believes that the damaged casing could, in fact, create a pathway for water other than that produced by the Ciniza Sands to migrate into the Ciniza Sands.

The statement that the water samples obtained from SMW-6 were similar to the evaporation lagoon water is based on the fact that evaporation lagoon water is much higher in total dissolved solids and electro-conductivity and of lower pH than water samples obtained from the Ciniza Sands (see attached analytical data).

Please note that the levels of salts, TDS, and pH in a given sample will vary in direct proportion to the levels in the ponds (due to evaporation). For example, a sample taken near the end of the evaporation season when water levels are extremely low will be considerably higher in some constituents than a sample taken when ponds are full).

- 2) In the 5th paragraph of your letter you suggest earth moving activities in the evaporation lagoons adjacent to SMW-6 may have exposed a route for lagoon water to migrate to the Ciniza Sands. Could you explain in greater detail what you have in mind?

Giant assumes that in reconditioning the evaporation lagoons immediately adjacent to SMW-6 that a sand stringer or similar porous formation may have been exposed. In that the depth increase in the pond was minimal, the possibility of exposing a pathway to the Ciniza Sands is remote. Nevertheless, in trying to imagine all of the potential reasons for the change in the characteristics of water from SMW-6, this was considered a possibility.

It is also conceivable that the well casing may have been physically damaged by some of the earthmoving equipment, either by striking the steel protective well casing or the concrete pad the surrounds it.

- 3) In the 6th paragraph you propose drilling an offset monitoring well prior to plugging and abandoning SMW-6. Unless SMW-6 is providing a conduit for contaminants to reach groundwater, HRMB sees no reason to plug it. The new monitoring well, if approved, will need to be designed and constructed similar to the existing SMW-6 (with the obvious difference in casing materials). The U.S. Environmental Protection Agency's RCRA GROUNDWATER MONITORING: DRAFT TECHNICAL GUIDANCE, November 1992 contains the guidelines for design, construction and development of a monitoring well.

Giant is committed to plugging and abandoning SMW-6, before drilling

SMW-6A. As SMW-6 will serve no purpose, Giant is reluctant to leave an open pathway, from either the surface or the subsurface, to a zone that is used to monitor the potential migration of hazardous constituents from the Land Treatment Area.

The design of the new well, SMW-6A, is an improvement on the well design and construction of SMW-6, primarily because it will have a sand pack around the screened interval as opposed to a gravel pack. The well design for SMW-6A that was submitted to HRMB in the July 6, 1995 letter is consistent with the requirements of the New Mexico Oil Conservation Division and, again, exceeds the design/construction specifications of SMW-6. A more detailed list of construction features is included in the following response.

- 4) In the 8th paragraph you state GRC does not consider the abandonment of SMW-6 and its replacement with SMW-6A to be permit modifications. Because the proposed well, SMW-6A, will replace a monitoring well which may be damaged and/or will have a different design than the existing well, SMW-6, a permit modification may be required. Please submit a more detailed diagram (e.g. where the centralizers will be placed, slot size, thickness and location of bentonite plug above the slotted screen, height of top of casing above ground level, radius of concrete pad, etc.) than the well diagram sent with your July 6 letter.

Giant still does not believe that the replacement of SMW-6 with SMW-6A should be a permit modification. Although technically the design of SMW-6A is an improvement on the design of SMW-6, the function of the well within the permit is exactly the same. The same constituents, sampling interval (Spring/Fall), geologic formation, and reporting requirements of SMW-6A are identical to those of SMW-6. Only the physical location of the wellbore will change very slightly.

A list of construction details of SMW-6A are listed below:

Total depth	72' to 75'
Casing size and type	2" PVC (flush screw joints)
Sand packing	16 - 40 sand
Screened casing	.010" slots
Bentonite seal-bottom	≥ 3' bentonite pellets
Bentonite seal-top	3' bentonite pellets (immediately above sand pack)
Height of casing	36" above ground level
Steel protective casing	2' into grout
Cement pad	36" x 36" x 6"
Screened interval	Ciniza Sand formation only

Centralizers

Stainless steel - bottom of pipe,  
top of screen, and every 20' to  
surface

The cement pad will be 3' x 3' x 6" and sloped away from the protective casing. The protective casing will be installed 2' into the grout. A locking cap will be installed on the protective casing. A centralizer will be installed at the bottom of the casing, at the top of the slotted screen casing and at  $\geq 20'$  intervals to the surface.

After installation of the well is complete, the formation will be surged and developed. After development activities are complete, the dedicated pump (presently in SMW-6) will be decontaminated and installed in SMW-6A. Water samples for analysis are expected to be taken in conjunction with the semi-annual groundwater sampling event in late September or October provided that HRMB approval for this replacement is received in time to complete the project prior to the Fall sampling event.

Giant hopes that the responses contained in this letter adequately answer your inquiries. If you need additional information, please contact me at (505) 722-0277.

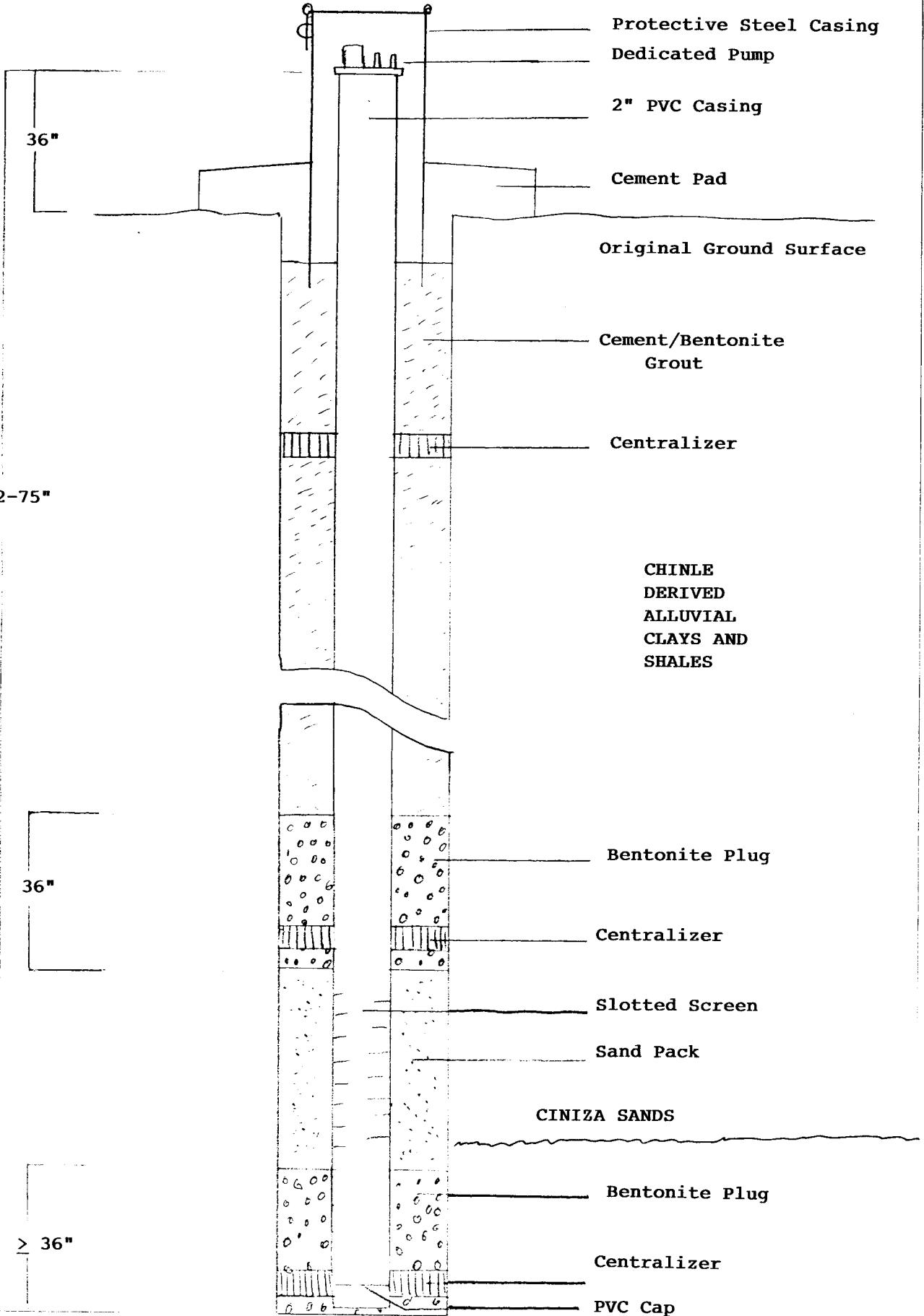
Sincerely,



Lynn Shelton  
Senior Environmental Coordinator  
Giant Refining Company

cc: David Pavlich, HSE Manger, Giant Refining Company  
Kim Bullerdick, Corporate Counsel, Giant Industries Arizona, Inc.  
Roger Anderson, NMOCD

PROPOSED SMW - 6A WELL DIAGRAM



36"

72-75"

36"

> 36"

Protective Steel Casing

Dedicated Pump

2" PVC Casing

Cement Pad

Original Ground Surface

Cement/Bentonite  
Grout

Centralizer

CHINLE  
DERIVED  
ALLUVIAL  
CLAYS AND  
SHALES

Bentonite Plug

Centralizer

Slotted Screen

Sand Pack

CINIZA SANDS

Bentonite Plug

Centralizer

PVC Cap

13-762 346 SHEET'S FILLER 5 SQUARE  
42-361 50 SHEET'S RELEASE 5 SQUARE  
42-362 100 SHEET'S RELEASE 5 SQUARE  
42-363 100 SHEET'S RELEASE 5 SQUARE  
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42-365 100 SHEET'S RELEASE 5 SQUARE  
42-366 100 SHEET'S RELEASE 5 SQUARE  
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42-368 100 SHEET'S RELEASE 5 SQUARE  
42-369 200 RECYCLED WHITE 5 SQUARE



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