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DATE:
1973

TELEPHONE
(505) 748-3311

EASYLINK
62905278

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

November 5, 1997

Mr. Benito J. Garcia, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street
Santa Fe, New Mexico 87502

RE: Letter of Violation
NMD048918817

Dear Mr. Garcia:

With this letter please find the Revised RCRA Facility Investigation, Phase II Report, North Colony Landfarm, Navajo Refinery, Artesia, New Mexico, which is being submitted to the NMED pursuant to the Hazardous & Radioactive Materials Bureau (HRMB) letter of April 21, 1997. The report addresses the deficiencies detailed in the April 21 letter, and the written comments in HRMB's Letter of Violation to Navajo Refining Company (NRC) dated May 21, 1997.

Also enclosed with this letter is our Attachment - Navajo Refining Company Response to HRMB May 21, 1997 Letter of Violation, and April 21, 1997 Deficiency Letter for the North Colony Landfarm RCRA Facility Investigation Phase II Report. The Attachment is an update of the document previously submitted to HRMB by NRC as appended to our June 13, 1997 letter. The June 13, 1997 letter as appended represented NRC's Response and Proposed Plan of Corrective Action to HRMB's April and May letters. The Attachment to today's letter lists the deficiencies presented by the HRMB in those letters, NRC's June 13 reply, and an updated response (dated November 5) based on NRC's review and evaluation of the scientific information generated during our additional investigation of the site during the past several months.

The enclosed report and the attached response to comments provide extensive details on our further investigation into the NCL site. However, in brief, the following are the most important conclusions reached as a result of the additional work:

1. Water quality samples from temporary monitor wells installed within the NCL demonstrate the existence of a dissolved-phase hydrocarbon plume that has emanated from the vicinity of the above-ground storage tank areas south of the NCL. No free-phase hydrocarbons were detected, but monitor well NCL-34, adjacent to the NCL,

contains a free-phase hydrocarbon mixture of weathered crude oil and more recent diesel fuel that originated from a source or sources other than the NCL.

2. An EPA-approved vadose zone model (VLEACH) was used to simulate impact on groundwater of assumed releases of organic constituents from the base of the NCL treatment unit. To simulate a worst-case scenario, maximum soil organic contaminant concentrations immediately below the treatment zone detected in the various 1990 through 1997 NCL sampling programs were used as input values and the model assumed instantaneous solution of soil contaminants in water and immediate transport to groundwater. Because of the similarity of the constituents, no attempt was made to differentiate whether the contamination originated in the treatment zone or the underlying groundwater plume. Modeled impacts on groundwater for all constituents (including benzene) are less than EPA drinking water standards. In reality, any contaminants immediately below the base of the treatment zone still must pass through from 5 to 10 feet of low permeability silt and clay to reach groundwater. Therefore it can be concluded that releases from the treatment zone (assuming there were any) will have had no significant impact on groundwater.

3. Statistical t-test comparisons of background chromium and lead metals in soils with samples obtained from the NCL below the base of the treatment unit did not result in any statistically significant difference between background levels and NCL sample values at the 95% confidence level. Comparison of upgradient groundwater from MW-53 with water samples from downgradient monitor wells using the t-test also did not show a significant difference.

4. The near-surface saturated zone (NSSZ) beneath the NCL unit is very sensitive to changes in hydraulic head. Changes in hydraulic head in an upgradient well are transmitted within several hours to downgradient wells. The result is a pulse mechanism that drives water and contaminants under the NCL and vertically upward toward the base of the unit.

Investigation and conclusions related to any potential release from the North Colony Landfarm (NCL) are complicated by the presence of an unrelated dissolved-phase hydrocarbon plume and residual hydrocarbons under the NCL from an earlier release at an adjacent above ground tank storage area. This release continues to be mitigated under the direction of the New Mexico Oil Conservation Division. Additional hydrocarbon product recovery systems are scheduled to be installed downgradient from the NCL in the next several months. These recovery efforts will assist in capturing any hydrocarbons that may have been released from the treatment unit and, however unlikely, have migrated to groundwater.

Given the overwhelming impact on soils and groundwater from the unrelated hydrocarbon contamination and the similarities of the hydrocarbons, NRC continues to believe it is not possible to demonstrate absolutely that a release of hydrocarbons from the NCL has not occurred. However, this investigation report moves a long way toward quantifying the impact of

any such release. The weight of the evidence now indicates that preponderance, if not the totality, of the hydrocarbons observed at depth in groundwater beneath the NCL are from the unrelated hydrocarbon releases as mentioned above. A scientific basis now exists that will allow decision-making regarding the future of the NCL to proceed, and RCRA issues of unit Closure and Post-Closure Care to be resolved.

We look forward to hearing from the NMED to resolve any remaining technical issues regarding the site. If you have any questions regarding this letter, the Revised RFI Phase II Report or the enclosed NRC Response, please do not hesitate to contact me at (505) 748-3311.

Sincerely,

Phillip L. Youngblood
Director of Environmental Affairs

Enclosure

cc. David G. Boyer, Covenant Technical Associates

CERTIFICATION OF STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and/or imprisonment for knowing violations.

(Signature)

Phillip L. Youngblood
Director of Environmental Affairs
(Printed Name & Title)

November 5, 1997
(Date)

Attachment

Navajo Refining Company Response to HRMB May 21, 1997 Letter of Violation, and April 21, 1997 Deficiency Letter for the North Colony Landfarm RCRA Facility Investigation Phase II Report

Preamble

Pursuant to the requirements of the New Mexico Hazardous Waste Act and the New Mexico Environment Department's Hazardous & Radioactive Materials Bureau (HRMB), Navajo Refining Company (NRC) has conducted a Phase I and Phase II RCRA Facility Investigation (RFI) at NRC's North Colony Landfarm (NCL). The most recent submittal, the February 1996 RFI Phase II report, was determined to be deficient and disapproved by the HRMB in a letter to NRC dated April 21, 1997. The inadequacies listed in the April 21 letter were to be addressed by Navajo in a complete RFI Phase II report due within 180 days from receipt of the letter (on or before October 22, 1997).

Subsequently, on May 21, 1997, the HRMB sent Navajo a Letter of Violation which included and reiterated the major deficiencies presented in the April 21, 1997 letter, plus listing a violation involving marking of an improper waste code on paperwork accompanying a hazardous waste shipment. The May letter requested NRC present a voluntary corrective action plan to address these five issues. The letter stated NMED would suspend enforcement options if NRC could provide NMED with a satisfactory resolution to the violations or a detailed plan of corrective action acceptable to NMED within fifteen working days of receipt of the letter (June 17, 1997).

Following receipt of the May 21 letter, NRC scheduled a Tuesday, June 10 meeting with staff of the HRMB to discuss the deficiencies listed in the two letters. At the meeting, HRMB staff presented their concerns regarding the Phase II RFI document which was followed by discussion between HRMB staff and NRC representatives. To respond to the deficiencies and comply with HRMB requirements, NRC prepared the detailed plan of action presented below. The action plan addressed deficiency items listed in both the April and May 1997 HRMB letters. NRC's response was based on the information in the two letters together with our understanding of HRMB staff's concerns as presented in the June 10 meeting. The NMED received the corrective action plan (dated June 13) on June 17, 1997.

Beginning in July, NRC commenced a supplemental investigation in accordance with the proposed plan of corrective action. Soils and groundwater investigation occurred in late July and August, and data collection and compilation continued through September until mid-October. On October 21 NRC requested an extension of time to submit the report until on or before November 5 which was approved by the NMED.

To complete the RFI submittal, NRC is updating our June 13 response to NMED's concerns by re-addressing and responding to the April and May HRMB comments with information generated by the recent supplemental investigation.

Response to Comments, May 21, 1997 Letter, Hazardous Waste Violation

Item 1: *NRC has failed to mark the proper waste code (D001) on the LDR notification accompanying hazardous waste manifest #00386. This is a violation of 20 NMAC 4.1.800, which incorporates 40 CFR § 268.7 (a)(1)(I).*

NRC Response, June 13, 1997:

This inadvertent error has been corrected. During the April inspection, NMED discovered one LDR notification form had listed D001 as the waste code, but that was not reflected on the LDR notification form. The facility that this material was sent to (Dakota Catalyst) has subsequently had some difficulties, the result being that Mr. Darrell Moore of NRC went to the facility in May to load up this catalyst, and re-manifest it to Cri-Met Metals Recovery in New Orleans, LA. As part of re-manifesting this material, a new LDR notification form was completed and that document along with a copy of the manifest is attached. You will note that both D001 and D004 are listed as waste codes on both the LDR notification form and the manifest. This slight modification came about because of additional testing that has been performed on this catalyst. When we manifested the material to Dakota Catalyst, we knew it was pyrophoric (D001). As part of the profiling process into Cri-Met, additional samples were caught and analyzed by Cri-Met. These results showed the catalyst to be relatively high in total arsenic, from which it may be concluded that it is probably characteristically hazardous for arsenic (D004). Therefore, Cri-Met requested that we add D004 to the manifest and LDR notification form.

NRC Response, November 5, 1997:

This violation was addressed in the June 13 submittal and has been satisfactorily resolved.

Response to Comments, May 21, 1997 Letter, Phase II RFI Report Violations

Item 1: *NRC has failed to determine the dissolved phase hydrocarbon extent and concentrations (page 22 of the Phase II RFI workplan).*

NRC Response, June 13, 1997:

As was presented in the Phase II report, a large area of groundwater in the vicinity of, and beneath, the NCL has been impacted by an unrelated release of phase-separated hydrocarbon from an adjacent above-ground storage tank area. A figure showing the approximate location of the free-phase hydrocarbon plume (Figure 8-1, p. 8-2) was included in the Phase II report.

Except for occasional traces of BTEX (noted in quarterly sampling results), dissolved phase hydrocarbons are not regularly present in monitoring wells located outside the free-phase plume. Further, because of the presence of hydrocarbon product and semi-confined artesian conditions in groundwater beneath the landfarm, NRC has been and continues to be reluctant to place monitor wells inside the unit boundary to more closely delineate free-phase location and dissolved phase concentrations. However, in an attempt to be responsive to HRMB concerns, NRC will collect a minimum of two (2) groundwater/product samples in each of the landfarm's four cells for a total of eight (8) samples which will be analyzed for the same groundwater constituents as required in Tables G-2 and G-3 of NRC's permit. NRC intends to collect the samples by use of a temporary well point hydraulically pushed or percussion-driven to the shallow water bearing zone underlying the NCL. Because of the presence of caliche at some locations, it may be necessary use auger flights to bore most of the distance to groundwater, with the screened well point driven the final several feet. When the target zone is reached, water and/or product elevations will be measured and a sample will be withdrawn through the sample tube. Upon removal of the well point, the hole will be immediately grouted to prevent vertical fluid migration. All standard RCRA decontamination procedures and quality assurance procedures will be utilized in equipment cleaning and sample collection, including use of field, equipment, and trip blanks, and collection of duplicate samples. To provide a basis for comparison, existing monitor wells outside the landfarm will be similarly measured and sampled. The results of the chemical analyses will be tabulated and, to the extent possible, will be visually presented through the use of planar maps and cross-section figures showing constituents and concentrations.

NRC Response, November 5, 1997:

Soil borings were drilled in each of the NCL's four cells for installation of temporary monitor wells as described in report Section 6.2.7.2. The wells were installed with 5 feet of screen at depths from 17 to 23 feet below the current landfarm surface using direct push technology. Strong hydrocarbon odors but no free-phase hydrocarbons were detected in soil or groundwater samples. Of the 12 wells drilled, two were dry after being left open for a minimum of 24 hours. Water samples taken from the other wells were analyzed for constituents currently sampled at the permanent monitor wells. Samples were extracted with a peristaltic pump. Wells having high turbidity and high total dissolved solids experienced elevated concentration of inorganic

constituents, including metals. Contour maps drawn for benzene and total BTEX constituents show elevated concentrations highest at the south NCL boundary and decreasing to the north. Dissolved-phase hydrocarbon concentrations range up to 564 ug/L for benzene and 1,128 ug/L for BTEX. The concentration map defines a plume that emanates from the above-ground storage tank area south of the landfarm, and trends northeasterly in the general direction of groundwater movement.

Item 2: *NRC has failed to ensure that the properties of soil chemicals and contaminants, including solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, and other contaminant migration and transformation factors are described (page 4 of the approval letter).*

NRC Response, June 13, 1997:

NRC will provide information on the soil chemical and contaminant properties listed. Much of this information is available from existing literature, and studies performed by and for EPA. The review will focus on three classes of constituents found at the site: Volatile and semi-volatile organic compounds, and heavy metal contaminants. Additional site-specific information on the physical and chemical characteristics of some constituents is available from earlier studies performed at the site. The information will be reviewed, discussed, and summarized in the revised RFI report with discussion emphasis given to processes especially applicable to the NCL site.

NRC Response, November 5, 1997:

The requested information on the soil chemical and contaminant properties has been compiled and is presented in Section 4.4 of the report.

Item 3: *NRC has failed to ensure that soil concentrations, and the direction and velocity of movement, of specific contaminants are determined (page 4 of the approval letter).*

NRC Response, June 13, 1997:

Using the soil chemical and contaminant data obtained from the information review conducted as required by Item 2, the site-specific data obtained from previous NCL investigations, and technical literature describing vertical movement of fluids and contaminants in unsaturated materials, NRC will use appropriate modeling tools to provide estimates of movement and retardation of specific contaminants in the vadose (unsaturated) zone overlying the groundwater, and to provide concentration estimates in groundwater at the base of the unit.

NRC Response, November 5, 1997:

NRC has performed vadose zone modeling for organic contaminants using the highest soil concentration values detected during the several sampling episodes and employing conservative assumptions, the most conservative of which was the instantaneous solution of the contaminant mass into water followed by immediate transport to the groundwater by a preferential pathway such as an open root hole. Even with these worst-case assumptions, the highest concentration of the most sensitive contaminant (benzene) in the groundwater was 2.6 ug/L, which is less than the EPA MCL of 5 ug/L (Section 6.1.5). Modeling was not performed for lead and chromium constituents; the statistical analysis comparing background values with concentrations detected in sampling of the landfarm at the base of the treatment unit concluded that there was no statistically significant difference at the 95% confidence level in landfarm sample concentrations when compared to background values (Section 6.1.4).

Item 4: *NRC has failed to ensure that the horizontal and vertical concentration profiles and extent (in ground water), as well as direction and rate of movement, of all constituents listed [in] Tables G-2 and G-3 of NRC's Permit for the NCL will be portrayed (page 4 of the approval letter).*

NRC Response, June 13, 1997:

As mentioned in NRC's response to Item 1 (May 21, 1997 letter, Phase II RFI Report Violations) above, there were insufficient detections of constituents of concern to warrant separate portrayal in horizontal and vertical concentration profiles. Accordingly, the summary results of water quality sampling were presented in Table 6-7 (p. 6-25) of the Phase II report, and copies of all analyses were included in Appendix B. In addition to tables, the revised Phase II RFI report will map all sampling results, including new data collected in response to Item 1, and utilize cross-section figures as appropriate. Section 6.2 of the Phase II report discussed groundwater movement including direction, gradient and flow rate. The revised report will update this information and will use appropriate groundwater modeling tools to provide estimates on the movement and retardation of specific constituents.

NRC Response, November 5, 1997:

Additional graphical depiction of subsurface conditions have been provided with the revised RFI report in Sections 6 and 7. These include benzene and total benzene maps of dissolved-phase hydrocarbon concentrations under the landfarm, additional geologic cross-sections under

the landfarm using data collected in July 1997, photographic logs showing cores and drill cuttings, and vertical cross-sectional diagrammatic representations of soil contamination under each landfarm cell. Groundwater contour maps are updated and all previously presented RFI contour maps are included in the report.

Response to Comments, April 21, 1997 Letter, Phase II RFI Report Deficiencies:

Item 1: *NRC must determine the dissolved phase hydrocarbon extent and concentrations (page 22 of the Phase II RFI workplan).*

Item 2: *NRC must ensure that the properties of soil chemicals and contaminants, including solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, and other contaminant migration and transformation factors are described (page 4 of the approval letter).*

Item 3: *NRC must ensure that soil concentrations, and the direction and velocity of movement, of specific contaminants are determined (page 4 of the approval letter).*

Item 4: *NRC must ensure that the horizontal and vertical concentration profiles and extent (in ground water), as well as direction and rate of movement, of all constituents listed [in] Tables G-2 and G-3 of NRC's Permit for the NCL will be portrayed (page 4 of the approval letter).*

These four comments are the same four Phase II report comments listed in HRMB's May 21 letter. NRC's reply to Items 1 through 4 were presented in our response to the May 21 letter (see attachment Pages 2 through 5 above).

NMED Comments, April 21, 1997 Letter, Attachment 1, Technical Comments, Summary:

NRC Response, June 13, 1997:

HRMB's summary discussion focused on omissions in the NRC Phase II RFI report and critically reviewed NRC's summary and discussion presented in Section 7 of the report.

The Phase II RFI report focused on characterizing and delineating the extent of hydrocarbon contamination in groundwater in the vicinity and downgradient of the NCL. To that end, the report did not extensively review the Phase I soil investigation nor discuss in detail the results. The Phase II report was meant to supplement not supplant the Phase I study. However, not including Phase I material in the Phase II report may have lead to some confusion as to whether material was omitted from the RFI report. To avoid the problem in the future, the revised Phase II report will incorporate all NCL and background soil sampling data in the report.

In its summary, the HRMB misstates NRC's conclusion as presented in the Phase II report (See report Section 7, Discussion). NRC does not claim that all contamination found at depth is entirely due to the free product plume. Rather, as discussed on page 7-2 of the report, NRC does not believe it is possible to demonstrate absolutely that a release of hydrocarbons from the NCL

has not occurred, although it is much more likely that hydrocarbon contaminants found at depth in the vadose zone beneath the NCL are from the unrelated hydrocarbon release at the storage tank area. Further, because of the types of mobile constituents that might have been released from the landfarm (i.e. hydrocarbons), it is not possible to quantify any contribution by the NCL, or to distinguish between any contaminants which may have been released and contaminants contained in the release from the storage tank area.

However, to demonstrate our willingness to voluntarily comply with HRMB requirements, NRC will undertake additional investigation as described above in our response to the HRMB May 21 letter, and will address the technical deficiencies enumerated in the April 21 letter and further discussed below.

NRC Response, November 5, 1997:

The revised RFI report submitted with this attachment incorporates all previous RFI submittals plus earlier data which is useful for evaluation of changes in soil and groundwater conditions. Also, NRC is modifying our June 13 response statement regarding quantification of the impact any releases from the base of the treatment unit may have had on groundwater Without differentiating the contamination as to whether it originated in the treatment zone or the underlying hydrocarbon plume, we have performed worst-case vadose zone modeling for maximum concentrations of organic constituents detected in the soil sampling episodes. The results of the modeling, presented in report Section 6.1.6, do not show exceedances of EPA MCL standards in the underlying groundwater, including benzene.

NMED Comments, April 21, 1997, Attachment 1, Technical Comments, Specific Comments:

Item 1: *Neither of the RFI reports show or discuss the analytical results from monitor wells adjacent to the NCL. NRC shall include the analytical results and the lithological logs from monitor wells NCL 32, NCL 44, NCL 33, NCL 34, and NCL 31 in its report.*

NRC Response, June 13, 1997:

NRC will provide the required lithologic logs for the aforementioned wells. Because these wells are sampled regularly as part of NRC hazardous waste permit, separate groundwater sampling was not performed on the wells (for the RFI Phase II report). To address this

deficiency, NRC will present in tabular and/or graphical form the results of current and past sampling events.

NRC Response, November 5, 1997:

NRC has researched and compiled, and is presenting in Appendix G of this report the tabulated sampling data for all NCL monitor wells from 1990 until the present date. The data shows significant concentrations of dissolved phase organics in both up- and down- gradient wells during the early 1990's. Except for NCL-34, which continues to show free-phase hydrocarbons, the other wells have recovered and today are generally free of dissolved phase hydrocarbons. Lithologic logs are included in Appendix B except for the log of NCL-44 which was not located.

Item 2: *Phase II Report, Figure 6-1, page 6-2:*
How can the free product plume be drawn through the middle of the NCL with no data to support it? None of the borings (presented in the Phase I Report) drilled in the NCL penetrated the near-surface saturated zone (NSSZ). NRC must justify the plume boundary presented in Figure 6-1, present the missing data, or redraw the plume boundary to reflect the available data.

NRC Response, June 13, 1997:

The product plume shown in Figure 6-1 was drawn based on information collected during the Phase I and Phase II investigations and corresponds well with the direction of groundwater flow shown in Figures 6-6 and 6-7 (pages 6-16 and 6-18). Specific information as to the presence of product at the south boundary of the NCL was provided in Appendix E of the Phase I report. Free-phase hydrocarbons are reported in NCL 34 but are absent in NCL 33 (although a sheen is sometimes observed in that well). Also, the presence of elevated levels of volatile hydrocarbons at the base of borings drilled in southwest landfarm cell C and southeast landfarm cell D indicate the presence of a nearby product plume. However, since no holes have been drilled to groundwater within the confines of the landfarm unit, the plume boundary should have been shown as a dashed line indicating the approximate location. This figure will be corrected and updated in the revised report with the addition of subsurface groundwater data from borings to be drilled as part of this proposed plan of corrective action.

NRC Response, November 5, 1997:

The hydrocarbon product plume has been redrawn with a dashed line to reflect the NMED comments provided above (Figure 8-1). The recently completed drilling and temporary well installation did not detect free-phase hydrocarbon product under the landfarm, although elevated benzene and BTEX concentrations were found within the plume area shown on the 1996 report figure, as well as in other areas of the unit. As stated in the June 13 response, measurable amounts of free-phase product are found in NCL-34 whose location is immediately adjacent to the east boundary fence at cell D. Because of the proximity of the well to the landfarm, it is reasonable to assume that some component of the free-phase plume is also present under the east boundary landfarm. Also, earlier reports prepared by Shomaker in 1990 for submittal to the agency show the plume in approximately the same location as the current map.

Item 3: *There is a lack of discussion on background soil concentrations in either RFI report. There is no discussion on it in the Phase II report and very little in the Phase I Report. There were a total of five sentences in the Phase I Report that mentioned anything about background concentrations in soil. Each one will be discussed below.*

Phase I Report, Section 5.1.2, paragraph 1, page 5-3:
"Soil borings were obtained at 23 locations, as well as at a background soil boring location north of the unit (Figure 5-1). Of the completed soil borings, sixteen, including one background boring, were shallow." The text never mentions the name of the only background boring. The reader has to guess that it is BG-6. NRC shall formally identify its only background boring. NRC shall justify the location of BG-6.

NRC Response, June 13, 1997:

The background boring drilled for the Phase I report is indeed BG-6 and the report text will be corrected to reflect this fact. Because the area where the landfarm is located has been heavily industrialized for over 70 years, the closest undisturbed location suitable for collection of background samples is immediately north of, and directly adjacent to, the landfarm. This location is also the area where the Core Laboratories background samples were obtained (See discussion immediately below). These background samples will be compared with additional background core samples taken from the Truck Bypass Landfarm (TBL) and Tetra-Ethyl Lead (TEL) areas, both of which are east of the NCL. The Phase II report will be modified to include a discussion of background samples (see additional responses below).

NRC Response, November 5, 1997:

A revised map (Figure 5-1) providing background locations has been prepared. In addition, further background sampling was performed in early August in the area between NCL-32 and NCL-49, and adjacent to wells MW-54, MW-55, and MW-56 installed in 1995.

> *Phase I Report, Section 7.1, paragraph 1, page 7-1:*
> *"The sample results were compared with previous analyses of background samples at the NCL (Core Laboratories, 1990)." In a meeting between NRC and HRMB (February 6, 1995), NRC promised that background data from other locations on its property; would be sent to the HRMB. NRC must include all analyses performed on all background samples in its RFI report and mark all background sample locations on a site map. The comparison of analytical results from NCL samples to the background samples was absent in the RFI reports. NMED requires that the on-site data be compared to the background data, using standard parametric (e.g., a t-test) or non parametric methods (e.g., the Wilcox Rank Sum test), depending upon the distributions of the data sets involved. Therefore, NRC must submit all of the background data it used, all of the equations it used for the background constituent comparisons, and the justification for choosing a particular parametric or nonparametric method in the RFI report.*

NRC Response, June 13, 1997:

NRC provided soil sample background information to HRMB in a February 7, 1995 memo to Bob Sweeney authored by Brian Sullivan of Research Specialists in Albuquerque. An updated copy of the tabulated information is included at the conclusion of this response. Background information and the location of all background borings drilled will be presented in the revised report together with the necessary statistical tests for comparison of on-site data to background data.

NRC Response, November 5, 1997:

NRC has prepared maps showing the locations of the background borings together with updated tabulated information on soil sampling performed prior to the RFI Phase I in 1994 (current report at Figure 5-1, Tables 6-10, 6-13). As mentioned in response to an earlier item, standard statistical t-tests did not detect a statistically significant difference at the 95% confidence level between background chromium and lead concentrations, and constituent concentrations of chromium and lead obtained from below the treatment zone.

> *Phase I Report, Section 8.0, Conclusion #1, page 8-1:*

"The clay soils prevalent in the upper treatment zone of the unit have effectively immobilized metal constituents. Soil sample concentrations for chromium and lead in soils underlying the base of the unit essentially represent background conditions, and pose no environmental risk to groundwater underlying the unit." Three things: (1) The comparison to background concentrations was never done or it was not included in the RFI report. (2) The vadose zone concentrations below the NCL exceed the only background data provided in the Phase I Report. This was noted in the December 30, 1994 NOD on the Phase I Report and it was noted in the February 6, 1995 meeting. Except for boring A-11, all borings exceeded the background concentration for chromium (8 ppm). Except for A-11, A-12, A-17, C-14, and C-18, all borings exceeded the background concentration for lead (4 ppm). This means that the NCL has released lead and chromium to the vadose zone, and probably to the underlying groundwater. Thus, if NRC wishes to end the background study with its only background boring, BG-6, it must agree with NMED that a release has occurred, and then NRC must (3) delete the text, "Soil sample concentrations for chromium and lead in soil underlying the base of the unit essentially represent background conditions," and perform a risk assessment to determine the risk to the ground water, the risk to NRC workers and to the people off-site. Furthermore, the analysis of risk to the ground water that NRC did provide was inadequate. It lacked any discussion on the physical/chemical properties of the soil that would retard migration of contaminants. It lacked any discussion on how long it would take to transport contaminants to the nearest water table and it lacked discussion on what the contaminant concentrations would be if they did reach the ground water. NRC shall provide an adequate analysis of risk to the ground water. The risk analysis shall consider inorganic and organic contaminants.

On June 13, 1997, NRC provided the following in our response to this item:

"NRC continues to believe that the composition and permeability of the soils beneath the treatment zone will effectively immobilize any metal constituents which may be released from the treatment zone. However, NRC will reevaluate the information leading to Conclusion #1 by performing the required comparison of soil core data to background using the additional background information from earlier testing at the refinery, plus any additional background samples which may be collected during the drilling investigation planned for the interior of the NCL. In addition, NRC will discuss the physical/chemical properties of the soil that would retard migration of contaminants, and discuss time of travel to the nearest water table (see response to Item 3, May 21 letter found on Attachment pages 4 and 5). NRC will provide an analysis of risk to the groundwater that will consider inorganic and organic contaminant migration and concentration in the groundwater."

NRC Response, November 5, 1997:

The comparison of soil sample concentrations for chromium and lead in soils underlying the base of the unit with background concentrations was performed for this supplemental study. The results (Table 6-26 and Appendix D this report) show that there is not a statistically significant difference between the two sets of data at the 95 percent confidence level. A discussion of the properties of chromium and lead in relation to the soil environment is presented in Section 4.4 of the report. NRC has concluded that the data and resultant statistical analysis demonstrate that these two constituents have been effectively immobilized in the treatment zone. As a result of this outcome, no further vadose zone testing or modeling was performed.

Item 4: *Phase I report, Section 7.1, last sentence of paragraph 1, page 7-1:*
"Without exception, the analytical data obtained from samples collected during the trench and borings investigations indicated that unit soils pose no risk to underlying groundwater due to the release of either chromium or lead constituents". See comments on Item #3 above.

NRC Response, June 13, 1997:

NRC will modify this statement as necessary after performing the evaluations and analyses discussed in Item 3 (p. 10 - 11) above.

NRC Response, November 5, 1997:

Because of the discussion presented in report Section 6.1.5, NRC believes the conclusion in the statement above remains valid (i.e. *data obtained ... indicated that unit soils pose no risk to underlying groundwater due to the release of either chromium or lead constituents.*).

Item 5: *Phase II report, Section 3.2, page 3-, last sentence:*
"...and transient infiltration of hydrocarbon-containing groundwater into overlying low-permeability strata via existing preferential pathways (old root channels and the discontinuous network of caliche gravel seams underlying the base of the unit) has also been documented (RFI Phase I report, Section 6.1.1)." NRC refers to the "preferential pathways" mechanism time and time again when discussing upward hydrocarbon migration from the near surface saturated zone. HRMB recognizes that preferential pathways also serve downward migration of contaminants. NRC has emphasized the presence of plant roots discovered at depth in Trench C and the discontinuous network of caliche gravel seams below the NCL. Since plant roots originate at or near the soil surface, contaminants would also be transported downward and preferentially flow downward along roots and then disperse horizontally when they encounter more permeable material. There is nothing in the Phase II RFI report that can refute that very likely scenario.

On June 13, 1997, NRC provided the following in our response to this item:

"NRC continues to believe that horizontal and vertical preferential pathways provide the most likely explanation for movement of the phase-separated product into soils beneath the treatment zone. Indeed, contaminants can move downwards from the surface through these pathways if they intersect the treatment zone. However, the driving force moving the fluids is hydraulic gradient. The gradient at the surface is a nominal 1:1 since no hydraulic head is maintained on the waste in the landfarm. By contrast, the hydraulic head on fluids in the near-surface saturated zone, as measured in monitoring wells adjacent to landfarm, is pressurized in response to transient rainfall events that occur at the site. Even a small rainfall was demonstrated to cause a significant rise in water level in the monitor well adjacent to the landfarm. This phenomenon will be explored further during the coming months with the addition of water level data recorders in several wells at the site, and the role of the root channels as preferential pathways will be discussed further in the revised Phase II report."

NRC Response, November 5, 1997:

NRC believes that preferential pathways provide the most likely explanation for movement of the phase-separated product into soils beneath the treatment zone. The analyses of the water level hydrographs obtained from July through October 1997 (Section 6.2.1) demonstrated the existence of a pulse mechanism that transmits diminished but measurable hydraulic head changes rapidly beneath the landfarm from MW-19 to at least NCL-32 and NCL-44. The hydraulic head is the driving mechanism for movement of off-site contaminants to beneath the unit and vertically upward. The benzene and BTEX contour maps (Figures 6-19 and 6-20) prepared from water quality data collected at the NCL temporary wells show a dissolved-phase hydrocarbon plume emanating from off-site and oriented in generally the same direction as water level contour maps. Finally, as discussed in Section 6.1.6, vadose zone modeling performed for organic constituents demonstrated resultant concentrations in groundwater less than EPA maximum contaminant levels for drinking water, including benzene. For concentration inputs, the model used maximum soil values detected from sampling beneath the NCL treatment zone. The model assumes instantaneous solution of soil contaminants in water and immediate transport to the groundwater. In reality, any contaminants immediately below the base of the treatment zone still must pass through up to several feet of low permeability silt and clay to reach groundwater.

NRC insists that contamination found in the vadose zone beneath the NCL at depth is caused by contaminants migrating upward from the near surface saturated zone, yet no analytical data from the near surface saturated zone directly beneath the NCL is presented. In fact, the free-product plume shown in Figure 6-1 (Phase II Report) is inferred to transect the NCL area. Not only that, but, it is inferred to transect only the southeast portion of the NCL. Is NRC implying that the free product plume that occurs only below the southeast portion of the NCL contaminates all portions of the NCL? NRC must present analytical data of samples taken directly beneath the NCL such that it is able to delineate the plume in the near surface saturated zone.

On June 13, 1997, NRC provided the following in our response to this item:

"Based on current information, NRC believes that the free phase portion of the hydrocarbon plume intersects portions of the southwest, southeast and northeast cells of the landfarm (Phase II report, Figure 6-1, page 6-2). Additionally, we believe that dissolved phase contamination from the same unrelated product release may occur under other portions of the landfarm. Dissolved phase movement is likely to be to the north and east along preferential pathways due to transient pressure increases resulting from precipitation and stormwater runoff in the ditch paralleling the south landfarm boundary. This supposition will be tested this summer when additional monitoring and investigation inside the landfarm is performed."

NRC Response, November 5, 1997:

The total BTEX and benzene maps (Figures 6-18 and 6-19) prepared from data collected from 12 temporary monitor wells installed within the NCL do indeed show a dissolved-phase hydrocarbon plume as postulated above. No free-phase hydrocarbons were found even though MW-34 immediately adjacent to the NCL contains a combination of crude oil and diesel fuel. Accordingly, the plume boundary line has been changed from dashed to inferred.

NRC has presented data indicating that contamination extends from the soil surface to depth without interruption. The Phase I Report, page 6-5, last paragraph states: "For four of the six soil boring locations in which BTEC constituents were reported, detection events were reported at only the deepest sample interval (13-15 ft). For the remaining two boring locations, the occurrence of BTEX constituents was distributed across all five sample intervals (Boring C-13) or at four of the five sample intervals (Boring C-15)", and page 7-2, paragraph 1 of the Phase I report: "Of the remaining five soil borings in which evidence of apparent hydrocarbon contamination was found to extend to significant depth below the base of the unit, the hydrocarbon-impacted soils were

visually observed to extend continuously to the maximum boring depth". Five borings were observed to show visual signs of continuous contamination at depth. This is an indication that the NCL is contaminating the vadose zone at depth.

NRC Response, June 13, 1997:

Three of the borings in the Phase I study (C-11, C-13, and C-15) were found to have evidence of continuous contamination from surface to bottom, although the intermediate zone contamination was very much less than that at the bottom. All other borings were observed to contain zones of clean material intermediate between the treatment zone and the bottom of the boring. In the revised Phase II report, the cited text will be expanded and accompanied by maps and drawings to emphasize Navajo's contention that most, if not all, of the contamination is moving from the base of the unit upwards, although some small contribution from the surface can not be ruled out. As described above in our response to Item 3 of the April 21 letter, for the revised Phase II report NRC plans to examine contaminate movement from the surface and discuss contaminant behavior and interaction with subsurface soil material.

NRC Response, November 5, 1997:

NRC continues to assert that most if not the totality of contamination seen at depth in the vadose zone has occurred from an unrelated source. The three borings in the Phase I study (C-11, C-13, and C-15) which show continuous visual and or olfactory contamination throughout the column length are located in the central area of the landfarm having the highest concentration of dissolved BTEX and benzene as shown on Figures 6-18 and 6-19. As discussed in previous responses above, both the statistical analyses of the lead and chromium metals and the vadose zone modeling of the organic constituents lead to, at worst, a conclusion of minimal contamination of the groundwater at below EPA drinking water standards.

Item 6: *Phase II Report, Figure 6-4, page 6-11:*
Figure 6-4 shows the hydrograph for Monitor Well 19. The lithologic log for Monitor Well 19 is missing from the RFI reports. NRC must include the lithologic log for Monitor Well 19 in its RFI report.

NRC Response, June 13, 1997:

Monitor well 19 was drilled in the early 1980's for monitoring the NCL and was replaced in 1982 by adjacent well NCL 31, which freed MW-19 for water level observations. The lithologic log of this well has not been located, but additional research of Navajo files will be performed in an attempt to find it.

NRC Response, November 5, 1997:

The log for this well (and NCL-44) have not been located. However, the total depth for this well is 22.2 feet as measured from the top of casing which is 2 feet above the ground surface. Therefore, the well is completed in the water-bearing interval known as the near-surface saturated zone (NSSZ).

Item 7: *Phase II Report, Section 6.1.2, page 6-6, paragraph 2:*
"Of those borings receiving a temporary casing, the maximum thickness of any resulting hydrocarbon was 1/8 inch or less." The lithologic log of boring 95-E found on the last page of Appendix A-1 shows a free product thickness of 3.6 ft. NRC must correct the text to reflect the lithologic log in Appendix A-1.

NRC Response, June 13, 1997:

A test hole was not drilled at the location of Boring 95-E. This was due to the discovery of an existing PVC cased borehole near the location where it was to be drilled. The depth of the existing borehole was at the target depth for borings so it was designated 95-E. No information other than total depth and product thickness is available on the borehole. The use of this hole for product detection in lieu of drilling a new boring will be clarified in the revised Phase II report.

NRC Response, November 5, 1997:

Investigation during the October 1997 did not locate this borehole. The area of the boring has been cleared and leveled for other uses. However, a hydrocarbon recovery trench is slated for installation immediately downgradient from this location.

Item 8: *HRMB's approval of the Phase II RFI Workplan, dated April 10, 1995, required that:*

"The properties of soil chemicals and contaminants, including solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, and other contaminant migration and transformation factors are described in the RFI report." --This was not done. NRC shall include this information in the RFI report.

"Concentrations, direction, and velocity of movement of specific contaminants shall be determined." --This was not done. NRC shall include this information in the RFI report.

"The horizontal and vertical concentration profiles and extent as well as direction and rate of movement, of all constituents listed in Tables G-2 and G-3 of NRC's Permit for the NCL will be portrayed." --This was not done. NRC shall include this information in the RFI report.

NRC Response, June 13, 1997:

NRC committed to including the information required by Item 8 in the revised RFI workplan.

NRC Response, November 5, 1997:

NRC has provided the required information in the revised RFI report in Sections 4 and 6. Please see our responses to Items 2, 3 and 4 present on Attachment pages 2 through 6 above.

Item 9: *The dissolved phase plume is undefined. NRC agreed to define the dissolved phase plume at a meeting with HRMB on February 6, 1996 [sic]. This was noted and referenced in a letter to NRC from HRMB dated February 10, 1995. This was also required in the Phase II Workplan. NRC shall delineate the horizontal and vertical extent of the dissolved phase plume.*

NRC Response, June 13, 1997:

NRC committed to provide this information with the revised report.

NRC Response, November 5, 1997:

NRC has provided the required information in the revised RFI report. See Section 6.2.7.2 and Figures 6-18 and 6-19. Please see our responses to Violation Item 1 of HRMB's May 21, 1997 letter, which is presented on Attachment pages 2 through 4 above.

Item 10: *Phase II Report, Section 6.3.1, pages 6-24 and 6-25:*
Monitor Well MW-53 was meant to be the background well for the NCL. Chromium concentrations in MW-55 and MW-56 were greater than the concentrations found in MW-53, yet this was not discussed anywhere in the report. NRC shall mention this discrepancy in the text. NRC shall determine if the down-gradient wells exhibit a statistically significant increase in hazardous constituent concentrations through ground water monitoring, as per 40 CFR 264.97.

NRC Response, June 13, 1997:

Chromium concentrations in all sampled wells were approximately 10 times lower than the Federal safe drinking water standard. The minimally elevated numbers may be due to some slight turbidity in the well, or due to sampling technique. NRC will investigate this discrepancy and may perform additional sampling of the wells. The results of the investigation will be presented and discussed in the revised report, including whether the values represent a statistically significant increase in hazardous constituent concentrations.

NRC Response, November 5, 1997:

Statistical analyses of chromium and lead concentrations in groundwater were performed on available water quality information. Results are shown in Section 6.2.7.3. Monitor well NCL-34 was excluded from the analysis due to its having free-phase hydrocarbons and exhibiting highly variable concentrations of metals from sampling to sampling. For the other monitor wells, there was no statistically significant difference at the 95% confidence level in downgradient chromium or lead concentrations from background concentrations.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

Glenn

RECEIVED
FEB 29 1996
SURFACE WATER
QUALITY BUREAU

'96 MAR 1 AM 8 52

FEB 16 1996

CERTIFIED MAIL: RETURN RECEIPT REQUESTED (Z 049 668 509)

Mr. Mathew P. Clifton, Sr., Vice President
Navajo Refining Company
501 E. Main
Artesia, NM 88210

cc→ Roger Anderson OCD
Garrison McCaslin NMED Dist 4

Re: Administrative Order Docket No. VI-96-2100
NPDES Permit No. NMR00A159

Dear Mr. Clifton:

Recent review of your NPDES file, indicates that your facility is not in compliance with your NPDES permit and/or the Clean Water Act (CWA). In order to ensure continued protection of public health and the environment, the Environmental Protection Agency (EPA) must take necessary steps to ensure compliance with applicable regulations and statutes.

Pursuant to the CWA (33 U.S.C. § 1251 et seq.), the enclosed Administrative Order (AO) sets forth the findings of fact and how you violated the Act. The Order also provides a mechanism for resolving these violations. All responses and reports required by the Order, should be submitted within the time frames provided. In all responses, please reference AO Docket No. VI-96-2100 and your NPDES permit number, and send correspondence to the attention of Mr. Taylor M. Sharpe (6EN-WT).

The violations cited in the attached Order should be corrected within a reasonable time period. Our staff will assist you in any way possible to ensure that your facility returns to compliance.

As part of the enforcement process, EPA is authorized to require corrective action and, possibly, assess appropriate penalties. If penalties are assessed, the Agency will consider a number of factors, including the nature and magnitude of the violations, the period of noncompliance and the impact of the violations on human health, or the environment. By statute, the penalties assessed can be as much as $25,000 per day. In order to avoid any such action, or to minimize the amount of penalties you may be assessed if further action is warranted, noncompliance should be corrected as soon as possible.

Your cooperation and prompt attention will be appreciated. If you have any questions, please contact Mr. Sharpe, EPA, Dallas, Texas at (214) 665-7112.

Sincerely yours,

Samuel Coleman

Samuel Coleman, P.E.
Director
Compliance Assurance and
Enforcement Division (6EN)

Enclosure

cc: Mr. Wayne Wiley
Section Chief, Enforcement
Watershed Management Division
Texas Natural Resource Conservation
Commission

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 6

IN THE MATTER OF	§	DOCKET NO. VI-96-2100
	§	
NAVAJO REFINING COMPANY	§	
	§	
PROCEEDINGS UNDER SECTION 309(a)(3),	§	
CLEAN WATER ACT,	§	
[33 U.S.C. § 1319(a)(3)],	§	ADMINISTRATIVE ORDER
In RE: NPDES PERMIT NO. NMR00A159	§	

The following FINDINGS are made and Order issued pursuant to the authority vested in the Administrator of the Environmental Protection Agency (EPA), by the above referenced statute (hereinafter the Act) and duly delegated to the Regional Administrator, Region 6, and duly redelegated to the undersigned Director, Compliance Assurance and Enforcement Division, Region 6.

I.

The Navajo Refining Company (hereinafter the Permittee) is a business in Eddy County, of the State of New Mexico, the mailing address for which is 501 E. Main, Artesia, New Mexico 88210.

II.

Pursuant to the authority of Section 402(a)(1) of the Act, 33 U.S.C. § 1342, Region 6 issued National Pollutant Discharge Elimination System (NPDES) General Permits for Storm Water Discharges From Construction Sites on September 9, 1992, with an effective date of September 9, 1992. The permit authorizes discharges associated with industrial activity from a point

source (including discharges through a municipal separate storm sewer system) to waters of the United States, in accordance with the requirements of the permit. The permit requires implementation of a site-specific storm water pollution prevention plan.

III.

PERMIT FINDINGS

Part IV.C. Keeping Plans Current

> The Permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States, or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part IV.D.2. (description of potential pollutant sources) of this permit, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Amendments to the plan may be reviewed by EPA, in the same manner as part IV.B.

Part IV.B. Signature and Plan Review

1. The plan shall be signed in accordance with Part VII.G. (signatory requirements), and be retained on-site at the facility which generates the storm water discharge in accordance with Part VI.E. (retention of records) of this permit.

2. The Permittee shall make plans available upon request, to the Director, or authorized representative, or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system, to the operator of the municipal system.

3. The Director, or authorized representative, may notify the Permittee at any time that the plan does not meet one or more of the minimum requirements of this Part. Such notification shall identify those provisions of the permit which are not being met by the plan, and identify which provisions of the plan requires modifications, in order to meet the minimum requirements of this Part. Within thirty (30) days of such notification from the Director, (or as otherwise provided by the Director), or authorized representative, the Permittee shall make the required changes to the plan and shall submit to the Director a written certification that the requested changes have been made.

Part IV.D.2.a. Drainage

(1) A site map indicating an outline of the portions of the drainage area of each storm water outfall that are within the facility boundaries, each exiting structural control measure to reduce pollutants in storm water runoff, surface water bodies, locations where significant materials are exposed to precipitation, locations where major spills or leaks identified under Part IV.D.2.c. (spills and leaks) of this permit have occurred, and the locations of the following activities where such activities are exposed to precipitation: fueling stations, vehicle and equipment maintenance and/or cleaning areas, loading/unloading areas, locations used for the treatment, storage or disposal of wastes, liquid storage tanks, processing areas and storage areas.

Part IV.D.2.h. Sediment and Erosion Control

The plan shall identify areas which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

Part VI.B.1. Limitations on Monitoring Requirements

a. Except as required by paragraph b., only those facilities specifically identified in Parts VI.B.2. (semi-annual monitoring requirements) and VI.B.3. (annual monitoring

requirements) of this permit are required to conduct sampling of their storm water **discharges** associated with industrial activity.

IV.

FINDINGS OF FACT

The State of New Mexico Environment Department (NMED) performed an NPDES compliance inspection of the Permittee's facility on July 25, 1995. The following are the findings of the inspection:

Section D: Summary of Findings/Comments:

1. Permittee has not reviewed, and revised and updated SWPPP since its preparation to include personnel and operational changes at the facility.

2. Permitttee is sampling storm water after it enters Eagle Creek (a water of the U.S.), rather than prior to entering these waters.

3. The Permittee had a spill of mixed storm water and hydrocarbon product from one of its waste water separators on June 29, 1995, resulting in a discharge to the creek.

Storm Water Status

The Permittee has a Storm Water Pollution Prevention Plan (SWPPP) on-site which is dated March 29, 1993, and is only partially complete. Various required certifications are unsigned, some structural and all non-structural controls are not shown on the site map, employee training records are not included (although the Permittee's representatives stated that these records are included with safety training records), areas with a high potential for significant soil erosion are not addressed, etc. In addition, the SWPPP has apparently not been reviewed for completeness and accuracy since it was initially prepared, nor has it been updated to include personnel and operational changes.

This facility is required to conduct semi-annual storm water sampling due to its classification as an EPCRA Section 313 facility subject to reporting requirements for water priority chemicals. According to the permittee, Eagle Creek (which is a waters of the U.S.) and another small drainage enter the west side of the refinery site, merge with the facility boundary and the combined channel exits the east side of the site. Eagle Creek then continues east, entering Pecos River in Segment 2206 of the Pecos River Basin.

For purposes of sampling and reporting on the Discharge Monitoring Reports (DMRs) (last submitted - January 30, 1995), the Permittee samples each drainage where it enters the refinery site (upstream), samples the combined offsite drainage and industrial storm water runoff where it leaves the refinery site (downstream) and subtracts the analysis results and flows at the upstream sites from the results at the downstream sampling site. The net results are then reported on the DMRs as outfall 002. Even though these are all in-stream samples, the permittee designates the upstream samples as outfall 007 and 009, and the downstream sample as outfall 002.

During previous communication with the permittee (telephone - February 3, 1995, written - February 13, 1995) from NMED, and again during this inspection, the Permittee was encouraged to contact USEPA, Region 6 regarding the propriety of this sampling and reporting scheme.

Although direct discharges to Eagle Creek continue to occur, the Permittee is in the process of constructing a storm water containment lagoon to capture a majority of the storm water runoff from this site. It is unclear what treatment (other than settling) the Permittee expects to provide with this lagoon, but it will serve, at the very least to provide a sampling location for storm water discharges, prior to entering Eagle Creek and form the only storm water outfall at this facility. This will replace those outfalls currently located within Eagle Creek itself ...

V.

FINDINGS OF VIOLATION

Based on information provided by EPA, the NMED, and the Permittee, the Regional Administrator, through the Director of the Compliance Assurance and Enforcement Division, finds that the Permittee has violated Parts IV.C., IV.B.1., IV.B.2., IV.D.2.a., IV.D.2.h., and VI.B.1. of the permit.

Part IV.C. of the permit has been violated in that the Permittee failed to keep the Storm Water Pollution Prevention Plan current.

Part IV.B.1. of the permit has been violated in that the plan has not been signed in accordance with Part VII.G.

Part IV.B.2. of the permit has been violated in that the Permittee failed to make available the entire SWPPP to NMED for the NDPES inspection on July 25, 1995. Specifically, employee training records were not included in the SWPPP submitted to NMED for the inspection.

Part IV.D.2.a. of the permit has been violated in that not all structural controls are included on the site map.

Part IV.D.2.h. of the permit has been violated in that not all areas with a high potential for significant soil erosion have been identified.

Part VI.B.1. of the permit of the permit has been violated in that the Permittee is monitoring in-stream instead of the discharge.

VI.

Issuance of this Order does not preclude the pursuit of additional enforcement action including additional administrative penalty orders, and/or civil or criminal judicial actions for the violations cited herein. If an EPA administrative penalty order is issued or a judicial action is initiated by the U.S. Department of Justice, you will be subject to a monetary fine.

ORDER

Based on the foregoing FINDINGS OF VIOLATION and pursuant to the authority vested in the Administrator under Section 309(a)(3) of the Act, 33 U.S.C. § 1319(a)(3), and duly delegated to the Regional Administrator, Region 6, and duly redelegated to the undersigned Director, Compliance Assurance and Enforcement Division, Region 6, it is ordered:

A. That the Permittee, within thirty (30) days of the effective date of this Order, shall take whatever corrective action is necessary to eliminate and prevent recurrence of the violations cited in the FINDINGS OF VIOLATION. In addition, the Permittee shall, within thirty (30) days of the effective date of this

Order, submit a report detailing the specific actions taken and why such actions are sufficient to prevent recurrence of the violations.

B. That the Permittee, within thirty (30) days of the effective date of this Order, shall submit a current copy of the Storm Water Pollution Prevention Plan (SWPPP) as authorized by Part IV.B.2. of the permit to EPA Region 6. The SWPPP is to contain any necessary changes to make the plan current and in accordance with Part IV of the permit.

To arrange a meeting or to provide any comments or questions concerning this matter, please contact Mr. Taylor Sharpe of our office at telephone (214) 665-7112.

The effective date of this Order shall be the date it is received by the Permittee.

DATED: This FEB 16 1996 day of _____, 1996.

Samuel Coleman, P.E.
Director
Compliance Assurance and Enforcement
Division (6EN)

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

October 30, 1984

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Yates Petroleum Corporation
207 South 4th Street
Artesia, New Mexico 88210

Re: SWD Injection Permit
State CK No. 1
Unit C, Sec. 4, T-17-S
R-26-E, Eddy County

Gentlemen:

In an effort to update our files regarding Salt Water Disposal Permits, we are requesting some information on the above-mentioned well. Our records show that your company was issued a SWD Injection Permit No. SWD-141 by us on May 23, 1973. Our records also show that since that time, this well has not been used for salt water disposal. Since a great deal of time has passed since your injection permit was granted, we assume that it is no longer your intention to use this well for water disposal purposes.

We are requesting information on the present status of this well, and whether or not your company intends to utilize this well for water disposal purposes at this time or in the near future. We would appreciate a response to this letter within thirty days. If we have not had a written response within that period of time, the injection permit granted by us will be rescinded.

Thank you for your cooperation in this matter.

Sincerely,

David Catanach

DAVID CATANACH
Petroleum Engineer

DC/dr

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

June 7, 1973

Losee & Carson, P.A.
P. O. Drawer 239
Artesia, New Mexico

Re: Order No. SWD-141
Navajo Refining Company

Gentlemen:

Enclosed herewith please find Administrative Order SWD-141 for Navajo Refining Company's State CK Well No. 1 located in Unit C of Section 4, Township 17 South, Range 26 East, NMPM, Eddy County, New Mexico.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/JEK/og

cc: Oil Conservation Commission
Drawer DD
Artesia, New Mexico

- Oil & Gas Engineering Committee
Box 127
Hobbs, New Mexico

SUBJECT: SALT WATER DISPOSAL WELL ORDER NO. SWD-141

THE APPLICATION OF NAVAJO REFINING COMPANY FOR A SALT WATER DISPOSAL WELL.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION COMMISSION

Under the provisions of Rule 701 (C) Navajo Refining Company, made application to the New Mexico Oil Conservation Commission on May 23, 1973, for permission to complete for salt water disposal its State CK Well No. 1 located in Unit C of Section 4, Township 17 South, Range 26 East, NMPM, Eddy County, New Mexico.

The Secretary-Director finds:

1. That application has been duly filed under the provisions of Rule 701 (C) of the Commission Rules and Regulations;

2. That satisfactory information has been provided that all offset operators, surface owners, and the New Mexico State Engineer Office have been duly notified; and

3. That the applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 (C) will be met.

4. That no objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED:

That the applicant herein, Navajo Refining Company, is hereby authorized to complete its State CK Well No. 1 located in Unit C of Sec. 4, Township 17 South, Range 26 East, NMPM, Eddy County, New Mexico, in such a manner as to permit the injection of salt water for disposal purposes into the Devonian formation at approximately 8,550 feet to approximately 8,650 feet through 2 1/2 inch internally plastic coated tubing with a packer set at approximately 8,600 feet.

PROVIDED HOWEVER, That the casing-tubing annulus shall be filled with an inert fluid and that a pressure gauge shall be attached to the annulus to determine leakage in the casing, tubing, or packer.

IT IS FURTHER ORDERED:

That jurisdiction of this cause is hereby retained by the Commission for such further order or orders as may seem necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of applicant to comply with any requirement of this order after notice and hearing, the Commission may terminate the authority hereby granted in the interest of conservation. That applicant shall submit monthly reports of the disposal operation in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

APPROVED at Santa Fe, New Mexico, on this 7th day of June, 1973.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

A. L. PORTER, Jr.
Secretary-Director

S E A L

LAW OFFICES
LOSEE & CARSON, P.A.
300 AMERICAN HOME BUILDING
P. O. DRAWER 239
ARTESIA, NEW MEXICO 88210

A. J. LOSEE
JOEL M. CARSON

AREA CODE 505
746-3508

21 May 1973

SWD-141

Mr. A. L. Porter, Jr., Secretary-Director
Oil Conservation Commission of New Mexico
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Porter:

In support of the application of Navajo Refining Company for administrative approval of an exception to the requirements of Rule 701-A of the Oil Conservation Commission of New Mexico, for a salt water disposal well, please find:

1. Commission Form C-108 in triplicate;

2. Plat of area;

3. Electric log;

4. Diagrammatic sketch of proposed injection well.

In addition to the foregoing, you will please consider the letter of Mr. Fred G. Hansen, President of Navajo Refining Company, addressed to you under date of May 9, 1973, setting forth the components of the refinery waste water which is proposed to be disposed of in this well.

In addition you are advised that this well was originally drilled by Charles Loveless to a total depth of 6,871 feet below the surface, where it was plugged and abandoned. Yates Petroleum Corporation, as Operator, proposes to re-enter this well and deepen the same to the Morrow zone of the Pennsylvanian system, where, if it is found non-productive of oil or gas, it will be deepened to the Devonian formation, where, if it is again found non-productive of oil or gas, it is proposed to be completed as a salt water disposal well and turned over to Navajo Refining Company.

The consent of Yates Petroleum Corporation, the operator of all leases within 1/2 mile of the proposed injection well, and Mr. Phillip Hefner, the surface owner, are hereto attached and made a part hereof.

If there is any further information I can furnish you in this matter, please do not hesitate to let me know.

Very truly yours,

LOSEE & CARSON, P.A.

A. J. Losee

AJL:jw
Enclosures

cc w/enclosures: Navajo Refining Company
Yates Petroleum Corporation
Mr. Phillip Hefner

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR	ADDRESS
Navajo Refining Company	P. O. Drawer 159, Artesia, N.M., 88210

LEASE NAME	WELL NO.	FIELD	COUNTY
State CK	1	Wild Cat	Eddy

LOCATION

OWDD UNIT LETTER C ; WELL IS LOCATED 660 FEET FROM THE North LINE AND 2,180 FEET FROM THE West LINE, SECTION 4 TOWNSHIP 17-S RANGE 26-E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING: Yes	8-5/8"	1,228'		Circulated	(Set)
INTERMEDIATE					
LONG STRING: Yes	5/2"	8,600'	300	7,000'	Temp. Survey
TUBING: Internal Plastic	2-1/2"	8,600'	NAME, MODEL AND DEPTH OF TUBING PACKER: Baker model D - 8,600'		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Devonian	8,500'	8,600-8,700'

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
2-1/2" tubing	Perf	8,550-8,650

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	OWDD oil or gas	No

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
1,000'	None in area	None in area

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
5,000	10,000	Open	Pressure	1,000

ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE —	WATER TO BE DISPOSED OF	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
Unfit	Refinery waste	Salt brine	

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

State land

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Yates Petroleum Corporation, Artesia, New Mexico

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
Yes	Yes	No

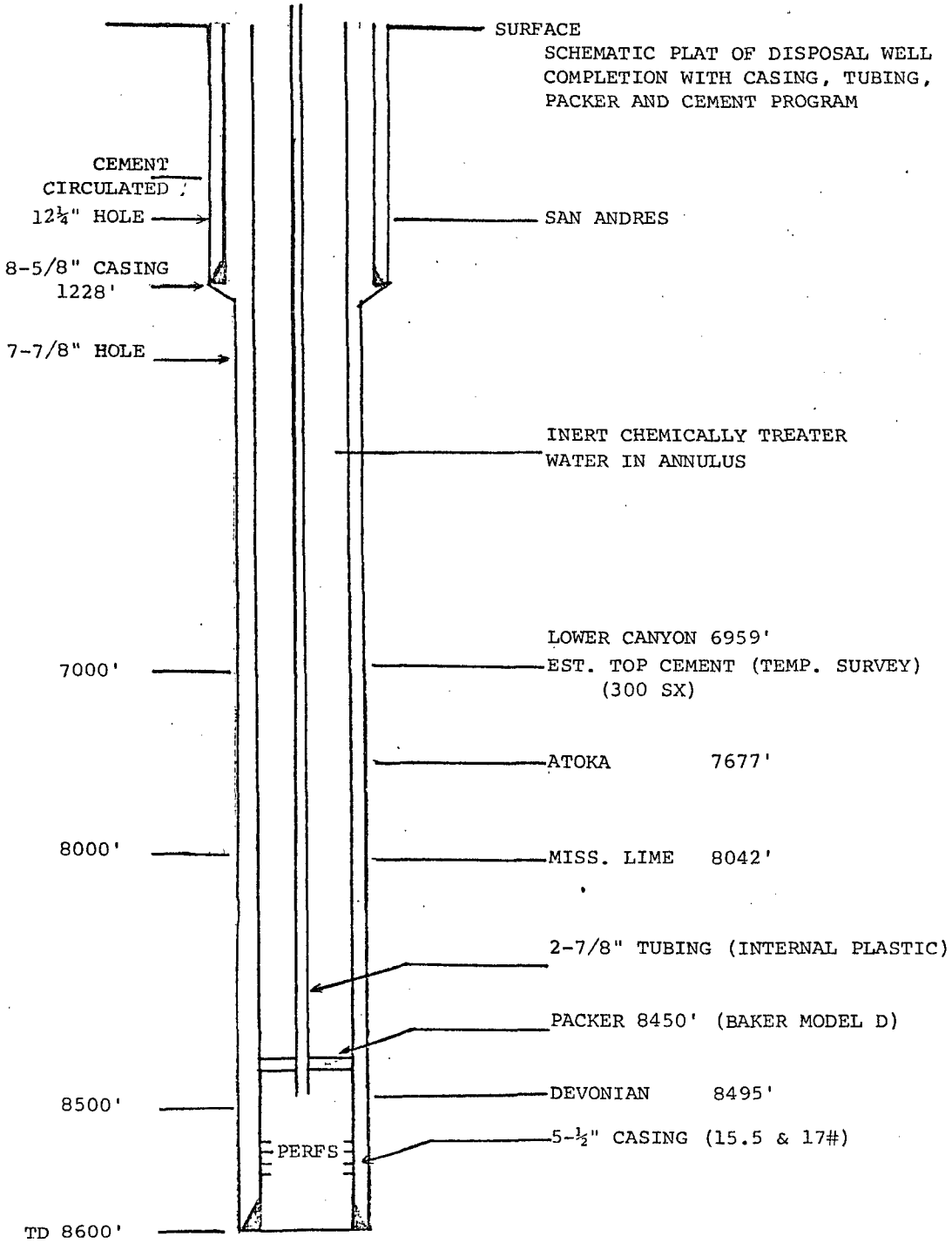
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL
Attached	Attached	Attached

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

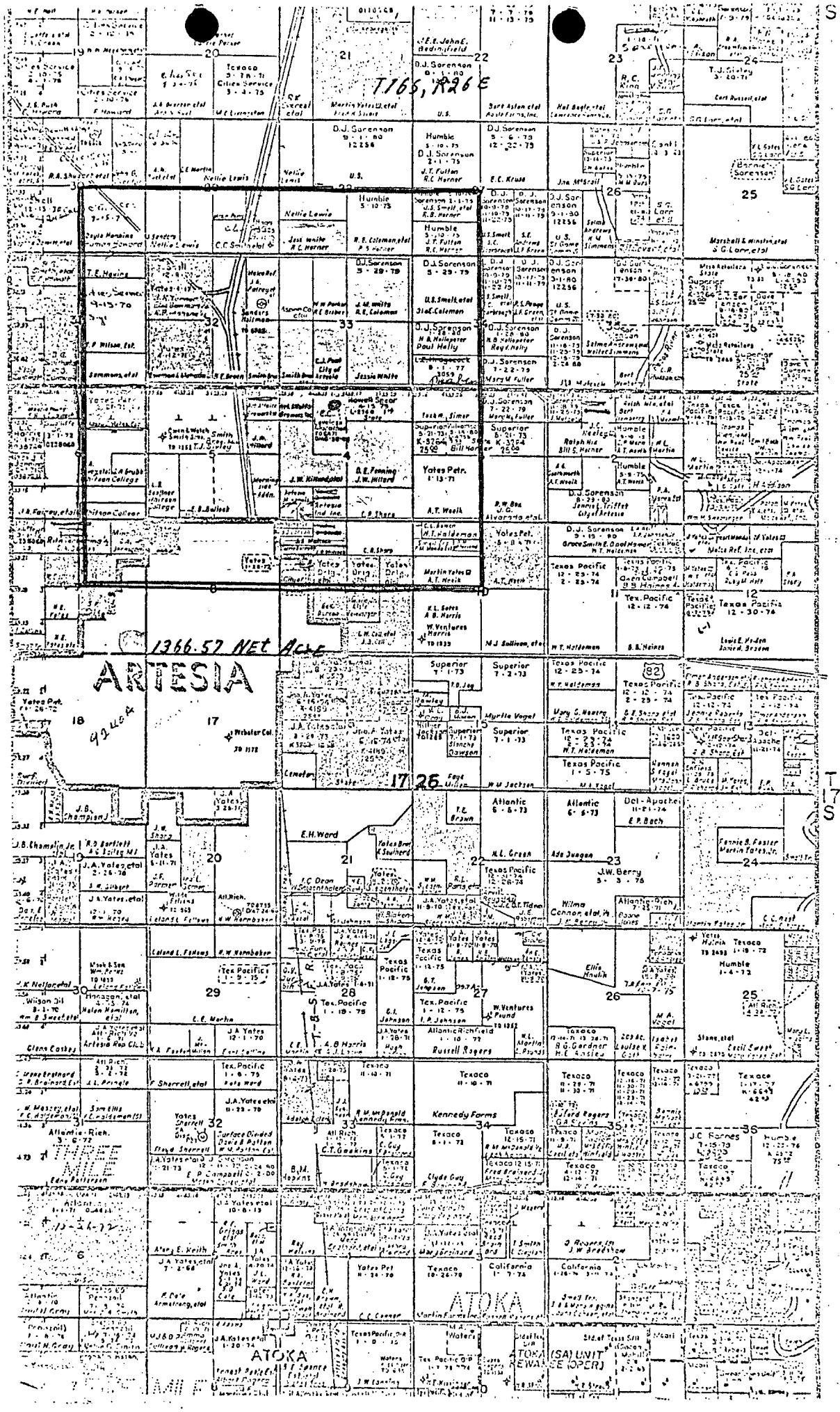
(Signature)	(Title)	(Date)
[signature]	Attorney	May 21, 1973

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well. not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

NAVAJO REFINING COMPANY
STATE CK #1 UNIT C 4-17-26
EDDY COUNTY, NEW MEXICO



N. RAYMOND LAMB MAY 19, 1973


T16S, R26E
1366.57 Net Acre
ARTESIA
ATOKA
T-17-S

TELEPHONE
A. C. (505) 746-9851

NAVAJO REFINING COMPANY
501 EAST MAIN STREET • P. O. DRAWER 159
ARTESIA, NEW MEXICO • 88210

TELETYPE
910-986-0990

May 9, 1973

Mr. A. L. Porter
Commissioner of Oil and Gas
State Land Office Building
Santa Fe, New Mexico 87501

Dear Sir:

Navajo Refining Company plans to drill a disposal well in the NENW of Section 4-T17S-R26E, approximately two miles north of the City of Artesia. We plan to use the Devonian formation for disposal of H_2S gases and some refinery waste water. The H_2S will be stripped from fuel gases prior to burning in our boilers and furnaces. This will be necessary to meet environmental standards. The refinery waste water will be wastes from certain processes in the refinery which contribute most heavily to the chemicals and biological oxygen demand in our overall waste disposal system. The following is more specific:

Gases

H_2S - 12 mols per hour
CO_2 - relatively small amounts.

These gases will come from an amine scrubbing process.

Liquids and Solids

Rate - estimated at 100 GPM containing the following in parts per million.

Oil and Grease	-		155 ppm
Phenols	-		34 ppm
Fluoride	-		30 ppm
Lead	-	less than	100 ppb
Iron	-	less than	100 ppb
Copper	-	less than	10 ppb
Chromium	-	less than	50 ppb
Phosphorus (as P)	-		1 ppm
Sodium Chloride	-		710 ppm
Sulfide	-		164 ppm

Total Dis. Solids	-	2875 ppm
Chemical Oxygen Demand	-	200 ppm
Total Alkalinity	-	200 ppm
Total Hardness	-	700 ppm

This method of disposing of waste appears to be the best economic alternate available to Navajo Refining Company. Other methods are much more costly and could threaten the continued operation of the Artesia refinery.

For the reasons stated, Navajo plans to request permission to dispose of 12 mols per hour of H_2S gases and 100 GPM of waste water into the Devonian formation through this well in Section 4-T17S-R26E, Eddy County, New Mexico. All reasonable safety and control requirements will be followed and your office will be advised before disposal begins.

This preliminary information is being forwarded at the suggestion of A. J. Losee who will contact your office the week of May 14, 1973 concerning the proper procedure to follow in obtaining commission approval for this disposal well.

Very truly yours,

Fred G. Hansen
President

FGH-eh

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

October 10, 1983

COPY

Navajo Refining Company
Box 159
Artesia, New Mexico 88210

Gentlemen:

Enclosed herewith please find Administrative Order SWD-149 for the following well:

Bolton CU Well No. 1 located in Unit B of Section 9, Township 17 South, Range 26 East, NMPM, Eddy County, New Mexico.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/CU/og

cc: Oil Conservation Commission
Drawer DD
Artesia, New Mexico

SUBJECT: SALT WATER DISPOSAL WELL ORDER NO. SWD-149

THE APPLICATION OF NAVAJO REFINING COMPANY FOR A SALT WATER DISPOSAL WELL.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION COMMISSION

Under the provisions of Rule 701 (C) Navajo Refining Company, made application to the New Mexico Oil Conservation Commission on September 17, 1973, for permission to complete for salt water disposal its Bolton CU Well No. 1 located in Unit B of Section 9, Township 17 South, Range 26 East, NMPM, Eddy County, New Mexico.

The Secretary-Director finds:

1. That application has been duly filed under the provisions of Rule 701 (C) of the Commission Rules and Regulations;

2. That satisfactory information has been provided that all offset operators, surface owners, and the New Mexico State Engineer Office have been duly notified; and

3. That the applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 (C) will be met.

4. That no objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED:

That the applicant herein, Navajo Refining Company, is hereby authorized to complete its Bolton CU Well No. 1 located in Unit B of Section 9, Township 17 South, Range 26 East, NMPM, Eddy County, New Mexico, in such a manner as to permit the injection of salt water for disposal purposes into the Devonian formation at approximately 8850 feet to approximately 9040 feet through 2 1/2-inch tubing with a packer set at approximately 8650 feet.

IT IS FURTHER ORDERED:

That jurisdiction of this cause is hereby retained by the Commission for such further order or orders as may seem necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of applicant to comply with any requirement of this order after notice and hearing, the Commission may terminate the authority hereby granted in the interest of conservation. That applicant shall submit monthly reports of the disposal operation in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

APPROVED at Santa Fe, New Mexico, on this 2nd day of October, 1973.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

A. L. PORTER, Jr.
Secretary-Director

S E A L

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR	ADDRESS
Navajo Refining Company	Box 159, Artesia, New Mexico 88210

LEASE NAME	WELL NO.	FIELD	COUNTY
Bolton CU	1	Wildcat	Eddy

LOCATION

UNIT LETTER B ; WELL IS LOCATED 660 FEET FROM THE N LINE AND 2180 FEET FROM THE East LINE, SECTION 9 TOWNSHIP 17S RANGE 26E NMPM.

RECEIVED
SEP 25 1973
O. C. C.
ARTESIA, OFFICE

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13 3/8	421'	275	Circulated	
INTERMEDIATE	8 5/8	1320'	600	Circulated	
LONG STRING	5 1/2	9040'	475	6560	Bennet W.L.
TUBING	2 1/2	9040'	NAME, MODEL AND DEPTH OF TUBING PACKER: To be selected - Baker		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Devonian 8650'	8845	9040

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Tubing	8850-9040 Perf. selected	Same as perforations

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
Yes		No

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
1125'	Morrow 7963'	None known

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
3000	7000	Closed	Gravity	Max 3000 PSI

ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE — WATER TO BE DISPOSED OF	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
Unfit	Unfit	No

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

G. W. & Curtis Bolton (Agreement approved)

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Yates Drilling Company & Yates Petroleum Company

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
Yes	Yes	Yes

ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL
Yes	Yes	Yes

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Jack M. Hanson — (Signature)
President — (Title)
September 24, 1973 — (Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

SWD-149

New Cert 2

LAW OFFICES
LOSEE & CARSON, P.A.
300 AMERICAN HOME BUILDING
P. O. DRAWER 239
ARTESIA, NEW MEXICO 88210

A. J. LOSEE
JOEL M. CARSON

AREA CODE 505
746-3508

14 September 1973

Mr. A. L. Porter, Jr., Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Porter:

In support of the application of Navajo Refining Company for administrative approval of an exception to the requirements of Rule 701(A) of the Oil Conservation Commission of New Mexico for a salt water disposal well, please find:

1. Plat of area;

2. Electric log on Bolton "CU" No. 1 Well;

3. Diagrammatic sketch of injection well.

You are advised that the applicant proposes to dispose of refinery waste water through the Bolton "CU" No. 1 Well, located in the NW/4 NE/4 Section 9, Township 17 South, Range 26 East, N.M.P.M., through perforations in the Devonian formation. The components of the refinery waste water were set forth in a letter from Mr. Fred G. Hansen, President of applicant, addressed to you under date of May 9, 1973, a copy of which is enclosed. This refinery waste water is mineralized to such a degree as to be unfit for domestic stock, irrigation or other general use. The Devonian formation is not productive of oil or gas within a radius of two miles from the proposed injection well. You are advised that the well has actually been drilled and completed, subject to your administrative approval, in accordance with the enclosed diagrammatic sketch.

The consent of Yates Petroleum Corporation, the operator of all leases within 1/2 mile of the proposed injection well, and Messrs. C. D. and G. W. Bolton, the surface owners, is hereto attached and made a part hereof. We enclose an additional copy of this letter, with its enclosures, so that if you deem it necessary or desirable, such copy may be furnished to the State Engineer.

If there is any further information I can furnish you in this matter, please do not hesitate to let me know.

Very truly yours,

LOSEE & CARSON, P.A.

A. J. Losee

AJL:jw
Enclosures

cc: Mr. N. Raymond Lamb
Navajo Refining Company
Yates Petroleum Corporation w/enclosures
Messrs. C. D. and G. W. Bolton w/enclosures

The undersigned acknowledge receipt of the foregoing letter with all enclosures therein described, and hereby consent to the application of Navajo Refining Company to dispose of salt water by injection through the Bolton "CU" No. 1 Well into the Devonian formation.

DATED this September 14, 1973.

YATES PETROLEUM CORPORATION

By: _____

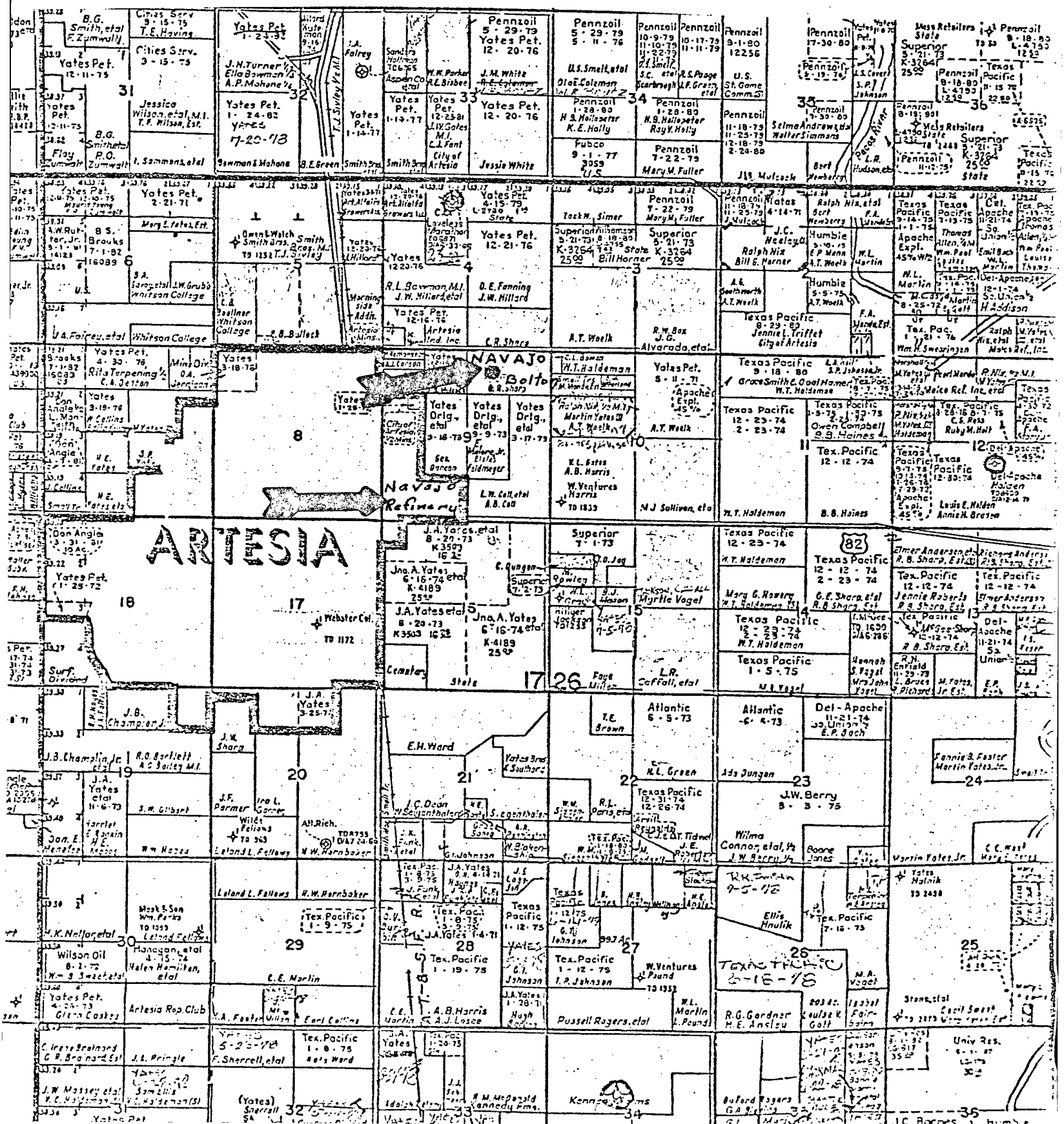
_____
C. D. Bolton

_____
G. W. Bolton

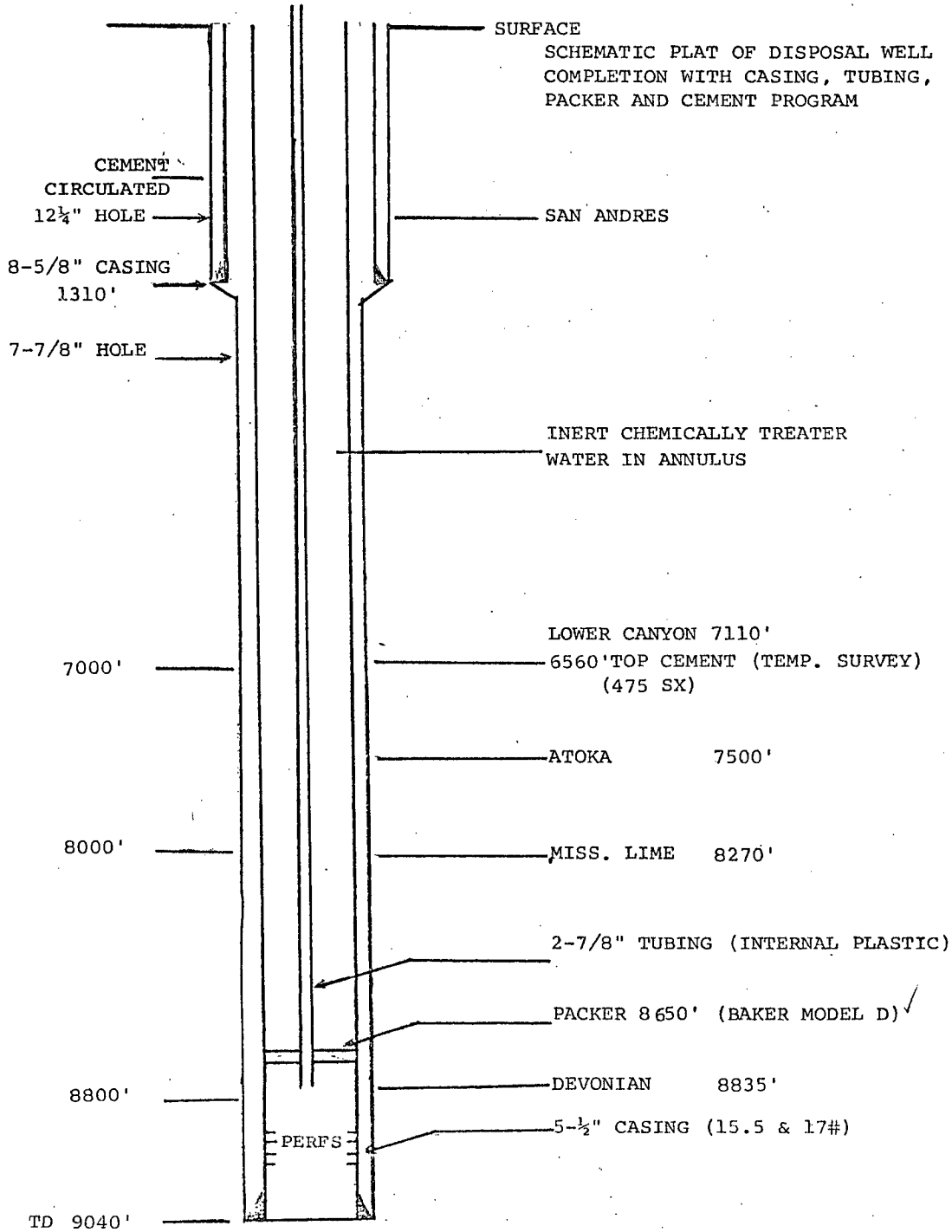
NAVAJO REFINING COMPANY

BOLTON CU #1 UNIT B 9-17-26

EDDY COUNTY, NEW MEXICO



NAVAJO REFINING COMPANY
BOLTON CU #1 UNIT B 9-17-26
EDDY COUNTY, NEW MEXICO



N. RAYMOND LAMB Sept. 3, 1973