GW - 1

WORK PLANS

2005

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor

Joanna Prukop
Cabinet Secretary
Mark Fesmire
Director
Oil Conservation Division

May 09, 2005

Randy Schmaltz
Environmental Supervisor
Giant Refining Company
P.O. Box 159
Bloomfield, New Mexico 87413

Re: Discharge Permit renewal GW-01 request and;
Approval of North Boundary Barrier Collection Design and Monitoring Plan Phase II.

Dear Mr. Schmaltz:

This letter is to notify Giant Refining Company that the New Mexico Oil Conservation Division (OCD) hereby approves and concurs with the approval conditions specified in the May 09, 2005 letter (attached hereto) from New Mexico Environmental Department Approval of North Boundary Barrier Collection Design and Monitoring Plan Phase II issued to Giant Refining Company with the following condition(s):

1. OCD shall receive copies as listed in item 4. of the approval conditions.

2. Please be advised that NMOCD approval of this plan does not relieve (Giant Refining Company) of liability should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve (Giant Refining Company) of responsibility for compliance with any other federal, state, or local laws and/or regulations.

In addition, please be advised that the current permit (GW-01) for the Giant Bloomfield refinery expired on June 07, 2004. The Oil Conservation Division has received a renewal application and $100 filing fee. Public notice was issued and OCD did not receive any public comments. In order to complete the application process please provide the following:

1. Submit a complete up-dated comprehensive discharge plan that reflects the current operating practices and conditions at the refinery. Please submit by July 15, 2005.

2. The plan shall incorporate the North Boundary Barrier Collection Design and Monitoring Plan Phase II as spelled out in the New Mexico Environment Department Letter dated May 09, 2005.

3. The plan shall include a comprehensive groundwater remediation and monitoring plan to include all new wells on and off-site.

If you have any questions please do not hesitate to contact me at 505-476-3487 or e-mail WPRICE@state.nm.us.

Sincerely;

Wayne Price-Pet. Engr. Spec.

cc: OCD Aztec Office
Hope Monzeglio- NMED Hazardous Waste Bureau

attachments-1

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

May 9, 2005

Randy Schmaltz
Environmental Supervisor
Giant Refining Company
P.O. Box 159
Bloomfield, New Mexico 87413

Ed Riege
Environmental Superintendent
Giant Refining Company
Route 3, Box 7
Gallup, New Mexico 87301

Subject: **APPROVAL WITH CONDITIONS**
NORTH BOUNDARY BARRIER COLLECTION SYSTEM DESIGN AND MONITORING PLAN PHASE II
RCRA PERMIT NO. NMDD 089416416
HWB-GRCB-04-005

Dear Messrs. Schmaltz and Riege:

The New Mexico Environment Department (NMED) has completed the review of the *North Boundary Barrier Collection System Design and Monitoring Plan Phase II* (NBBCSD) dated April 7, 2005, submitted on behalf of Giant Refining Company, Bloomfield Refinery (GRCB). NMED hereby approves the NBBCSD with the conditions listed below:

1. Upon completion of observation and collection well installations, GRCB must collect depth to water (DTW) and depth to product (DTP) measurements from all observation and collection wells in accordance with the following schedule:

   - Month one - DTW and DTP measurements shall be collected two times a week.
   - Month two – DTW and DTP measurements shall be collected once a week.

- Month three –DTW and DTP measurements shall be collected every other week (biweekly).

- Month four and there after – DTW and DTP measurements shall be collected once a month unless otherwise specified by NMED.

2. GRCB must collect initial groundwater samples from all observation and collection wells that do not contain separate phase hydrocarbons (SPH) within 30 days, but no later than July 1, 2005, after the wells have been installed and developed. The samples must be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8021B, RCRA metals, total dissolved solids (TDS), and general chemistry parameters using EPA Method 300. During sampling, GRCB must collect the following field measurements: conductivity, temperature, dissolved oxygen, and pH. If pH and TDS are collected using field equipment, they do not need to be analyzed at the laboratory. The collected data will establish a baseline identifying what contaminant concentrations are present and help determine the effectiveness of the slurry wall.

   GRCB must complete a second round of sampling following the same conditions as stated above in conjunction with the next groundwater monitoring event.

3. In accordance with the schedule stated in comment one, GRCB must also collect DTW and DTP measurements from the following monitoring and recovery wells: MW-11, MW-12, MW-20, MW-21, MW-24, MW-39 MW-45, MW-46, MW-47, RW-1, RW-9, RW-22, RW-23, and RW-28. Measurements shall only be collected from inactive recovery wells.

4. GRCB must submit draft results of all collected data to NMED within 30 days of acquisition. The results of baseline groundwater monitoring and sampling must be included in Giant's subsequent groundwater monitoring report.

Should you have any questions regarding this letter, please call me at 505-428-2545.

Sincerely,

Hope Monzeglio

Hope Monzeglio
Project Leader
Hazardous Waste Bureau

HM:hcm

cc: J. Bearzi, NMED HWB
J. Kieling, NMED HWB
D. Cobrain, NMED HWB
W. Price, OCD
D. Foust, OCD Aztec Office
B. Wilkinson, EPA

Reading File and GRCB 2005 File

GIANT
REFINING COMPANY

RECEIVED
APR 13 2005
OIL CONSERVATION DIVISION

CERTIFIED MAIL # 7099 3220 0010 2242 4757

April 7, 2005

Mr. Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505

Re: Giant Bloomfield Refinery
North Boundary Barrier Collection System Design and Monitoring Plan

Dear Mr. Price:

Giant Refining Company Bloomfield (GRCB) is submitting for your review and approval the attached two exhibits (Figures 2 and 3) depicting the locations of the collection and observation wells to be installed along the north boundary barrier at the Giant Refinery in Bloomfield, New Mexico. These exhibits include the Phase II wells described in the March 7, 2004 North Boundary Collection System Design and Monitoring Plan submitted to OCD.

All wells will be installed as described in the March 7, 2005 plan, with the exception that the collection well filter pack has changed to a 8 X 12 Colorado silica sand from the 10 X 40 Colorado silica sand stated in the March 7, 2005 plan. All other aspects of the plan remain the same.

We are looking forward to receiving your approval of the Phase II collection system design. If you have any questions in this matter, please contact me at 505-632-4171.

Sincerely,

GIANT REFINING COMPANY

James R. Schmaltz
Environmental Manager

cc: Denny Foust - OCD Aztec Office
Hope Monzeglio – NMED Hazardous Waste Bureau
Bob Wilkinson – EPA
Ed Riege
Chad King

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505-632-8013
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505-632-3911

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BLOOMFIELD
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GIANT
REFINING COMPANY

CERTIFIED MAIL # 7099 3220 0010 2242 4740

April 7, 2005

Ms. Hope Monzeglio
State of New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Re: Giant Bloomfield Refinery – NMED Approval with Conditions
North Boundary Collection System Design and Monitoring Plan
RCRA Permit No. NMD 089416416
HWB-GRCB-04-005

Dear Ms. Monzeglio:

Giant Refining Company Bloomfield (GRCB) received the March 25, 2005 letter from the New Mexico Environmental Department (NMED) stating NMED's conditional approval of the North Boundary Collection System Design and Monitoring Plan. The plan was submitted by GRCB to NMED on March 7, 2005. The North Boundary Collection System Design and Monitoring Plan describes the design of the collection and monitoring well system to be implemented by GRCB at the Bloomfield refinery. The purpose of this letter is to the respond to the two conditions stated in NMED's March 25th letter regarding justification for the collection well spacing. In addition, GRCB is including the collection well system spacing for the eastern portion (i.e., Phase II Wells) of the north boundary barrier for your approval.

Response to NMED Conditions of Approval

The following responses correspond to the conditions in NMED's March 25, 2005 approval letter.

1. Condition accepted by Giant that all well screens will be screened across the water table.

2. The hydraulic conductivities of 100 to 150 ft/day estimated for the Jackson Lake terrace deposits were derived from aquifer test and slug test results that were presented in

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the Corrective Action Plan (CAP, page 11). Please refer to this report for technical details.

As described in the March 7, 2005 plan, the well screen and spacing design for the collection wells include the design of a filter pack and the screen open area to accommodate dewatering of the subsurface. The collection well filter pack material has been revised to a "8 X 12" Colorado Silica filter pack. This has changed from the March 7. 2005 plan because the larger filter pack will provide a higher hydraulic conductivity than that originally specified. To maximize the amount of groundwater extraction from the Jackson Lake Terrace Deposits. a screen slot size of 0.040-inches was selected in order to provide approximately 10 gallons per minute (gpm) flow *per foot of screen.*

The spacing of the collection wells was selected to adequately intercept and dewater the shallow perched water. Note that the estimated quantity of groundwater flow beneath the facility to the barrier (total flow across the entire length) has been estimated to be on the order of 10 gpm (see CAP), which is minor compared to the extraction design capacity of each well. Although each well has more than adequate capacity, the barrier wall is approximately 2,600 feet in length and therefore a number of collection wells will be required and must be spaced accordingly to intercept and extract the groundwater moving to and accumulating against the barrier.

An analytical model was used to evaluate dewatering rates and assess adequate spacing between wells. The Theis Well equation was used to solve for drawdown in the extraction well and to estimate drawdown in adjacent extraction wells with one well pumping. The Theis equation is as follows:

$$s = \frac{Q}{4\pi T} W(u)$$

s = drawdown, in feet
Q = gpm
T = transmissivity (k x b), ft/day
W(u) = well function

The following parameters were used as inputs for the model:

Hydraulic Conductivity (k) 100- 150 feet per day (ft/d)
Specific yield 0.16
Aquifer Saturated Thickness (b) = 7 to 10 feet (ft)
Pumping Rate 10 to 50 gallons per minute (gpm)
Duration of pumping 1 to14 days

The model output provided groundwater elevation drawdown for multiple distances from the pumping well. As the distance from the pumping well increases, the relative percent drawdown away from the pumping decreases. A minimum 10% relative drawdown was targeted for the maximum distance between pumping wells. The results of the model

indicated that approximately 15% relative drawdown can be achieved 300 feet from the pumping well with only one well pumping. The results indicate that a minimum 300 foot spacing between collection system pumping wells will adequately dewater the subsurface. Note that most wells are positioned along the barrier wall at distances less than 300 feet between wells, therefore the percent drawdown will increase. The actual pumping rates from each well (<5 gpm) and the saturated thickness (less than 2 feet) are anticipated to be significantly less than modeled above.

Phase II Collection Wells

The location of all collection wells, including the proposed location of the Phase II Collection wells along the eastern portion of the barrier, are shown on Figures 2 and 3. These figures supersede those included with the March 7, 2005 plan. The wells will be installed as described in the March 7, 2005 plan, with the exception that the filter pack design has changed as described above. The wells will be drilled into the Nacimiento formation and will be screened across the water table. Each collection well will have a corresponding observation well located on the river side of the barrier. Monitoring activities will follow the schedule outlined in the March 7, 2005 letter.

We are looking forward to receiving your approval of the Phase II collection system design and your acceptance of the well spacing rationale. If you have any questions in this matter, please contact me at 505-632-4171.

Sincerely,

GIANT REFINING COMPANY

James R. Schmaltz
Environmental Manager

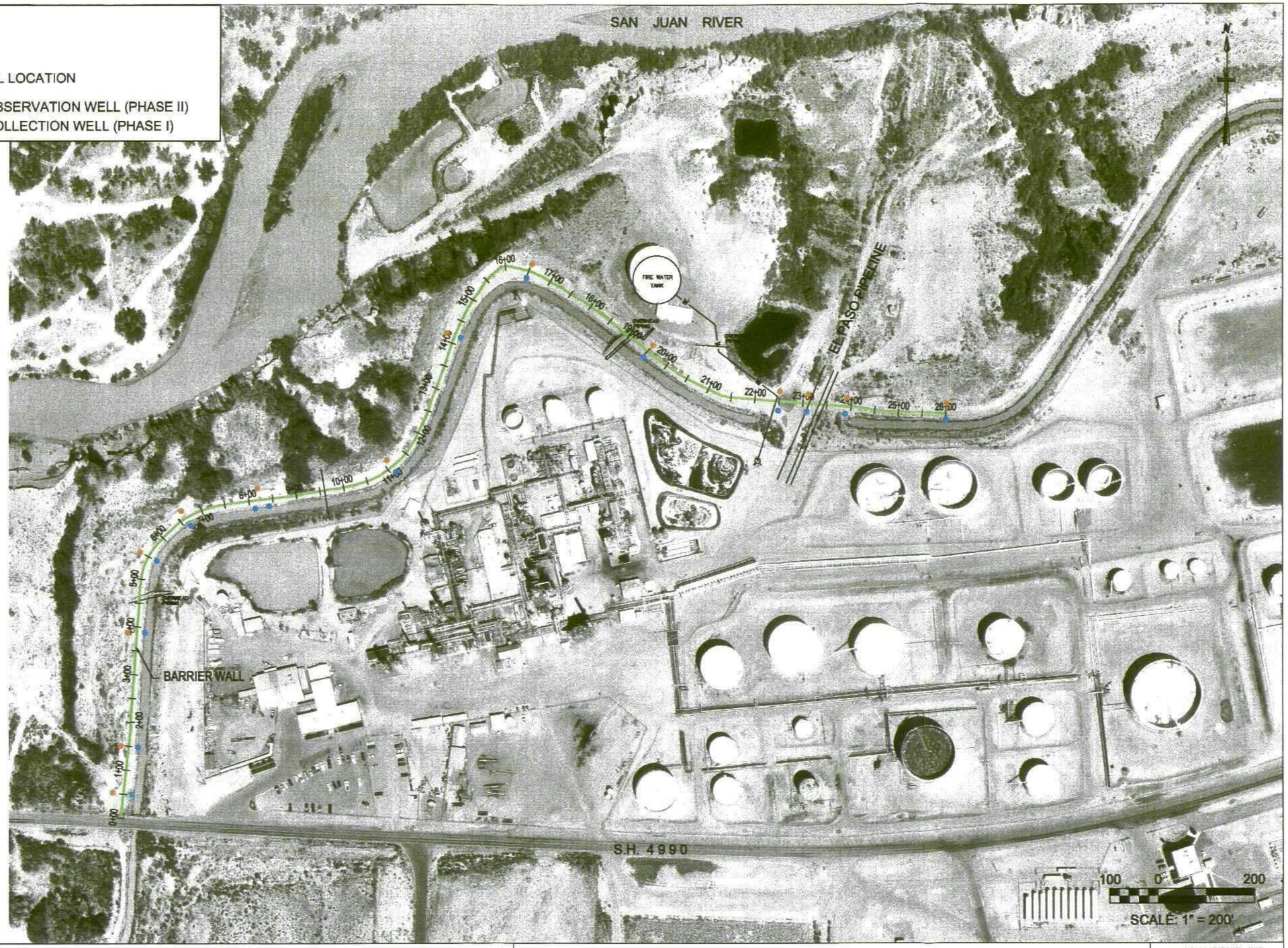
Cc: Denny Foust - OCD Aztec Office
Wayne Price - OCD
Bob Wilkinson – EPA
Ed Riege
Chad King

LEGEND:

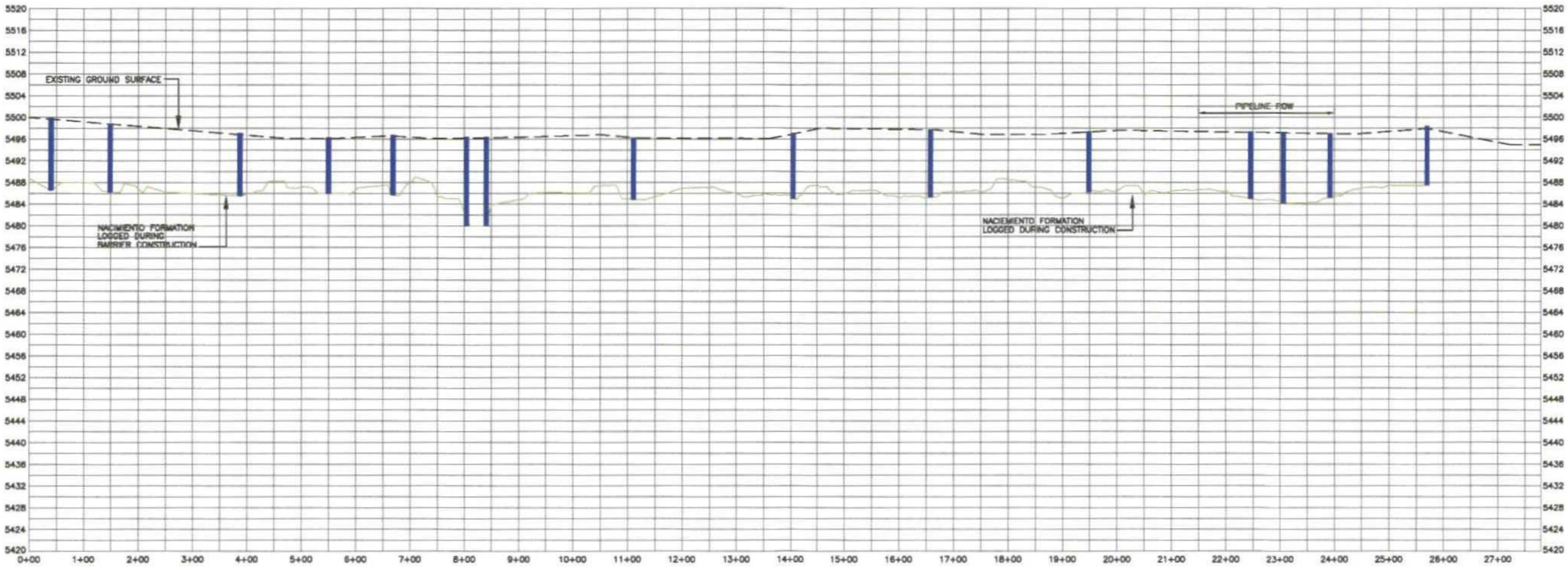
BARRIER WALL LOCATION

PROPOSED OBSERVATION WELL (PHASE II)

PROPOSED COLLECTION WELL (PHASE I)



MALCOLM PIRNIE	GIANT REFINERY BLOOMFIELD, NEW MEXICO CORRECTIVE ACTION PLAN	PHASE I AND II COLLECTION WELL LOCATIONS SCALE:1"=200'	MALCOLM PIRNIE, INC. MARCH 2005 FIGURE 2



NACIMIENTO SURFACE PROFILE

100 0 200

SCALE: 1" = 200'

MALCOLM PIRNIE	GIANT REFINERY BLOOMFIELD, NEW MEXICO COLLECTION SYSTEM PLAN	NORTH BOUNDARY BARRIER CROSS SECTION PHASE I AND II COLLECTION WELLS SCALE:1"=200'	MALCOLM PIRNIE, INC. MARCH 2005 FIGURE 3