NOTED - DUNAWAY

Texaco, Inc., 133 W. Santa Clara Ave., P. O. Box 811, Ventura, CA 93001

January 7, 1985

United States Department of the Interior
Minerals Management Service
1340 West Sixth Street
Los Angeles, CA 90017

Attn: Mr. T. W. Dunaway

Re: Lease OCS P-0315
Platform Harvest Development and Production Plan
Amendment No. 2

Gentlemen:

Enclosed with this letter is an amendment to the Platform Harvest Project Development and Production Plan. This amendment includes DPP changes associated with Texaco's reevaluation of reservoir data and our incorporation of mitigation measures suggested by the California Coastal Commission and other agencies during the consistency review and environmental review processes. When combined with our earlier DPP Amendment addressing platform relocation, all project modifications have been addressed. Proprietary information concerning our reservoir reevaluation has been submitted to you under separate cover.

We trust you will find the enclosed amendment acceptable. Please contact Mr. S. C. Cox at (805) 643-2154 if you have any questions or comments concerning the proposed project changes.

Yours very truly,

TEXACO, INC.

D. L. Hynek
District Production Manager

SCC:ta

Attachments

AMENDMENT NO. 2
DEVELOPMENT AND PRODUCTION PLAN
PLATFORM HARVEST PROJECT
LEASE P-0315
POINT ARGUELLO FIELD, OFFSHORE CALIFORNIA

1.0 INTRODUCTION

As a result of interactions with the U.S. Minerals Management Service and responsible agencies during the environmental review process, and Texaco's continuing evaluation of available geologic and reservoir data, several minor modifications of the existing Platform Harvest Project Development and Production Plan are proposed. The modifications proposed are associated with platform relocation, well locations and production, and environmental mitigation measures. Project modifications associated with platform relocation were described in an earlier amendment submitted to the MMS, and are not repeated in this text. Specific modifications associated with well locations and production rates and environmental mitigation measures are discussed in relation to specific DPP sections in the paragraphs to follow. This text combined with the earlier amendment present a complete discussion of all Platform Harvest modifications proposed by Texaco.

2.0 GEOLOGY

The only changes to the Geology section of the DPP are those reported in the earlier DPP Amendment.

3.0 RESERVOIR EVALUATION

Continued evaluation of available test data has resulted in a revision of the estimated production rates from Platform Harvest. Oil Production is expected to peak at 44 MBPD during 1988. Gas production rates are expected to peak at 26 MMSCF/D (19 MMSCF/D sales gas) during 1989. The timing of these peaks assumes that platform installation, pipeline installation, well drilling, and onshore processing and transportation system installation are all accomplished on schedule. A revised production forecast has been submitted to you with our proprietary information transmittal.

Texaco's reevaluation of available data has also resulted in a modification of our proposed well spacing. Revisions to the well locations table and the well locations map included in the DPP Proprietary Appendix have been submitted with our proprietary information transmittal.

Original plans for gas production wells completed in the Foxen formation to provide sweet gas to fuel platform equipment called for four wells. Texaco currently plans to complete only two such wells.

4.0 PLATFORM HARVEST SITE STUDIES, STRUCTURAL ENGINEERING DESIGN, AND INSTALLATION

The introduction to this section (subsection 4.1) should be modified to reflect Texaco's commitment to paint Platform Harvest whatever color is recommended by the MMS in consultation with the U.S. Coast Guard and California Coastal Commission. This commitment was made to the Coastal Commission, and reiterated in our comments on the Point Arguello Field EIR/EIS to help resolve conflicting concerns regarding visual impacts and vessel safety. Neutral marine gray is the platform color proposed by Texaco.

Several details should be added to subsection 4.6.2 (General Construction Information) to clarify earlier plans and document commitments to the California coastal Commission regarding construction vessel impacts. Texaco previously submitted construction support vessel corridors intended to minimize conflicts with commercial fishing operations. These vessel corridors should be modified to reflect our commitment to abide by the corridors developed in consultation with commercial fishermen through the fisheries liason office. These vessel routes are also expected to minimize onshore noise impacts and minimize the potential for vessel collisions with marine mammals. Construction vessel operators will also be required to complete the MMS approved fisheries and environmental training program (not specifically required for Lease P-0315, but agreed to in consultation with the California Coastal Commission). Texaco also agreed to work with the Western Oil and Gas Association to upgrade the training program's discussion concerning the gray whale if necessary.

Subsection 4.6.2 (General Construction Information) should also be expanded to more completely reflect Texaco's plans concerning construction worker transportation and housing. Texaco has committed to acquiring inland parking accommodations, and providing a shuttle service to transport construction workers to the Santa Barbara Airport or Ellwood Pier if available parking is insufficient at those locations. Construction workers will be housed offshore on work barges or platform accommodations during working shifts, and are expected to return to their permanent residences during off-periods. No increased demand for temporary accommodations onshore are anticipated.

Texaco's commitment to minimize impacts associated with construction vessel anchor disturbances should also be added to subsection 4.6.2. Texaco has agreed to develop specific anchoring plans in consultation with the MMS to minimize effects on hard bottom habitats. Preliminary maps showing proposed platform construction vessel anchor placements have already been submitted to the MMS, and final maps reflecting MMS comments and the final platform location will be submitted when complete. These maps will be provided to our platform installation contractor as part of their specifications packet.

A new subsection should be added to Section 4.6 to address post-construction procedures (new subsection 4.6.3). This subsection will document Texaco's commitment to conduct a side-scan sonar survey of the construction area (including the platform vicinity and all anchor placements) to identify seafloor obstructions associated with anchor scars or construction-related debris. If obstructions are identified, Texaco agrees to implement corrective action as appropriate and feasible.

5.0 PIPELINE CORRIDOR STUDIES, ENGINEERING DESIGN, AND INSTALLATION

Section 5.3 should include specific information concerning pipeline pig launchers to address concerns regarding pipeline spills raised during EIR/EIS preparation. Pig launchers on both the oil and gas pipelines at Platform Harvest will be equipped with mechanical interlocks on access doors which prevent opening while under pressure, and will be outfitted with pressure gauges ranging from 0 to 2000 psi. The pig launcher on the 8-inch gas line will be repressured through a 4-inch inlet line.

Section 5.6 (Pipeline Installation) should be expanded to include information analagous to that presented for subsection 4.6.2. This information includes a commitment to specified construction vessel traffic corridors, requirement that construction vessel operators complete a fisheries and environmental training program, construction worker parking and transportation, construction worker housing, and a commitment to develop anchoring plans to minimize impacts on significant hard-bottom features designated by the MMS. The specific details of the anchor placement restrictions for the pipeline lay barge are currently under discussion with the MMS, and maps documenting the results of these discussions will be prepared for MMS approval and inclusion in the pipeline lay barge operator's specifications packet.

A new section (Section 5.8) should be added to address post-installation procedures. This section will document Texaco's commitment to conduct a side-scan sonar survey of the pipeline route and anchor disturbance corridor to identify seafloor obstructions associated with anchor scars or construction-related debris. If obstructions are identified, Texaco will implement corrective action as appropriate and feasible.

6.0 DRILLING PROGRAM, EQUIPMENT, AND PROCEDURES

Concerns raised during the California Coastal Commission review of Platform Harvest project resulted in Texaco's elaboration of several details concerning proposed drilling muds disposal practices, and commitments to mitigation measures addressing drilling muds disposal and oil spill response. These commitments should be added to subsection 6.3.4 (OCS Order No. 7 - Pollution Prevention and Control), and are discussed below in relation to the divisions they should be included in.

Division 6.3.4.1 should reflect Texaco's commitment to not discharge any chrome-lignosulfonate based drilling fluids, and our intention to use EPA generic muds (EPA Generic Mud #5 for spudding, and EPA Generic Muds #3 and #7 for general use) and only EPA approved additives in amounts approved for discharge. Table VI-2 in the DPP should be modified by adding the information presented in Table VI-2A attached. The muds discussion should explain that EPA Generic Mud #3 is a lime mud and EPA Generic Mud #7 proposed for use on

Platform Harvest is a lightly treated lignosulfonate mud, and both are expected to require only minimal treatment with biocides. If biocides are needed, their use will be minimized to the extent feasible, and only EPA approved biocides will be used. These mud mixtures are expected to be relatively non-toxic. Analyses of muds samples collected at Texaco's Platform Habitat indicate whole mud toxicity levels (96-hour LC_{50}) of 16,000 to 114,000 ppm for the suspended particulate phase. Drilling muds discharge modeling analyses conducted for the California Coastal Commission indicated rapid muds dispersion to insignificant concentrations (276.2 ppm within 50 meters of the discharge).

Texaco's commitments to minimize drilling muds discharge impacts by discharging from an outfall located 300 feet below mean lower low water, and predilution of muds by mixing with compressor cooling water prior to discharge should be presented in division 6.3.4.1. These commitments were part of the proposed project when the DPP was filed with the MMS, but subsequent questions from the Coastal Commission suggest that some elaboration of these details are appropriate in the DPP. Texaco contracted with Dames & Moore to evaluate the drilling muds and cuttings deposition on hard bottom habitats near Platform Harvest associated with muds discharges at 450 feet, 300 feet, 150 feet, and the surface. This analysis resulted in the conclusion that the 300 foot discharge depth represented the preferred depth because it allowed ample dispersion prior to seafloor impact, minimal deposition in hard bottom areas, and no surface or near-surface impacts.

Texaco also agreed to a muds discharge monitoring and recordkeeping procedure during the Coastal Commission review of Platform Harvest. Divison 6.3.4.3 of the DPP should be expanded to include Texaco's proposal to monitor drilling muds discharges by:

(1) mud flow metering;
(2) monthly record keeping of mud additives use; and,
(3) chemical analysis of muds to be discharged.

Flow meters will be installed on muds discharge lines to provide an accurate record of discharge rates (discharge rates are commonly determined by estimation on existing Santa Barbara Channel platforms).

Monthly records of the amounts and types of mud additives used will be compiled.

Texaco will also conduct chemical analyses of muds to be discharged. Drilling muds testing procedures will analyze for the concentrations of arsenic, cadmium, total chromium, copper, cyanides, lead, mercury, nickel, silver, zinc, barium, and hydrocarbons.

Texaco's proposed analysis of discharge amounts and chemical composition will provide additional information concerning the characteristics of muds discharges important to the understanding of effects in the marine environment, and will allow the monitoring of compliance with discharge limitations.

Texaco also agreed to Coastal Commission mitigation suggestions related to oil spill contingency planning (division 6.3.4.4 of the DPP). Project changes in accordance with these commitments include provision of an onsite oil spill response vessel (in cooperation with Chevron), and accomplishment of a limited dispersant effectiveness and toxicity testing program.

Although discussions concerning the possible location of a Clean Seas vessel in the Point Arguello Field area are underway, Texaco (along with Chevron) is formally committed to the provision of an onsite oil spill response vessel for dedicated service to Platforms Harvest, Hermosa, and Hidalgo, in accordance with the following description:

(1) A large (100-120') vessel located at or near the platform site;

(2) 3000' of open ocean boom;

(3) Advancing skimmers equal in capacity to Offshore Devices, Inc. skimming barrier (Voss system) and stationary skimmers equal in capability to Walosep W3 skimmers;

(4) Oil storage capability of 1000 barrels which can reach the platform site within six hours;

(5) Dispersant application equipment;

(6) Additional data on the effectiveness and toxicity of dispersants; and,

(7) A 30' deployment boat to be located onboard the onsite spill response vessel.

Texaco has also agreed to collect meteorological and oceanographic data that may be useful in oil spill trajectory analyses.

Texaco's commitment to conduct a dispersant effectiveness and toxicity testing program also should be added to the DPP. The following discussion should be inserted into division 6.3.4.4:

> Prior to the initiation of drilling at Platform Harvest, Texaco will conduct a test of the effectiveness and toxicity of the dispersant to be included in our oil spill contingency plan (or another certified dispersant if considered appropriate by the involved agencies) to assist with spill response pre-planning. These tests should also facilitate responsible agencies' determinations concerning the appropriateness of dispersant application should a spill occur. This test program will include a dispersant effectiveness test in accordance with a method described by Mackay and Szeto (1980). Five data points will be obtained in accordance with Mackay and Szeto (1980) recommendations, up to a maximum dispersant to oil volume ratio of 0.2. The toxicity testing program will consist of a standard laboratory assay to estimate the 96-hour LC_{50} using a common laboratory test organism to allow the comparison of results with those associated with other dispersant products.
>
> The laboratory testing program proposed by Texaco will provide useful information for spill response pre-planning. It will assist agencies and Texaco with decisions concerning the amount of dispersant that should be readily available, the appropriate dispersant to oil application ratio, and the relative degree of toxicity of the dispersant (to be considered when use near sensitive areas is contemplated). This program

will provide additional data concerning an important topic, and so will improve our overall understanding of the effectiveness of dispersants on spilled oil. It is not intended as a substitute for a full scale research program to compare a variety of dispersants, oils, or other variables; or to evaluate the merits of products currently unapproved by regulatory agencies. Such a program, if one is to be conducted, would best be accomplished through a cooperative effort between product manufacturers and the responsible regulatory agencies.

Additional measures agreed to by Texaco require the addition of a new section in Chapter 6.0 of the DPP. These commitments are analogous to construction-phase commitments described for subsection 4.6.2 in this amendment. This information includes a commitment to specified drilling crew and supply vessel corridors, requirement that support vessel operators and other Platform Harvest drilling crew complete a fisheries and environmental training program, provision of inland parking and shuttle service for drilling crew if available parking at the Santa Barbara Airport or Ellwood Pier is insufficient, offshore housing of drilling crew during working shifts and their transportation to permanent residences during off-periods, and installation of a permanent mooring buey for platform support vessels.

7.0 OFFSHORE PRODUCTION FACILITIES AND SYSTEMS FLOW

Several modifications to the Platform Harvest DPP Chapter 7.0 are necessary to document Texaco's agreement to mitigation measures suggested by the California Coastal Commission or the Point Arguello Field EIR/EIS. Division 7.4.1.2 (Production/Separation component of the Production Systems subsection) should be modified to include Texaco's agreement to install an automatic fail-closed valve in the connecting line between the wet oil surge tanks to prevent the spillage of fluids from both tanks in the event one of them is ruptured.

Division 7.4.1.9 (Water Treating component of the Production systems subsection) should include information concerning Texaco's proposed installation of an oil-in-water analyzer to monitor the produced water stream prior to

its entry into the disposal pile to allow the early identification of and response to oil contamination not removed by the flotation unit treatment.

A new subsection should be added to Section 7.5 (Control and Monitoring Systems) or to Section 7.7 (Environmental Protection Measures) to present environmental monitoring programs required by the California Coastal Commission. The monitoring programs proposed will be conducted to identify potential impacts of both drilling muds and produced water discharges by monitoring seafloor sediment chemistry and benthic biota. Seafloor sediments will be sampled at the soft bottom sampling locations shown on the attached map, and will be analyzed for their hydrocarbon content. These samples will be collected six months following the commencement of drilling, again twelve months following the collection of the first samples, and a third time eighteen months following the second sample collection period. A biological impact monitoring program will be accomplished in accordance with the same schedule. The biological program includes site-specific photographic and/or video surveys of hard-bottom habitats in the vicinity of Platform Harvest (refer to the attached map for locations). Each field investigation will include up to 150- minutes of video tape, and approximately 50 photographs to be obtained by remote controlled vehicles or manned submersible. The survey locations may be modified if early survey results or agency preference indicates that other locations are more appropriate.

Texaco also agreed to special measures to reduce the potential for vessel collisions with the Platform Harvest structure. These DPP changes, which should be inserted into subsection 7.6.6 (Aids to Navigation) exceed the requirements of the U.S. Coast Guard "Class I Private Aids to Navigation for Artificial Islands and Fixed Structures" and include:

(1) installation of an alarm-equipped radar system to detect situations which could lead to a vessel/platform collision;
(2) establishment of a routine vessel warning system using a marine radio and, if necessary, a dispatch vessel if a potential collision is identified;
(3) five-mile visibility blinking lights on each corner of Platform Harvest; and,
(4) a two-mile fog horn.

Texaco also plans to install aircraft obstruction lighting in accordance with Federal Aviation Administration guidelines.

Because there was apparently some confusion concerning the existing spare compressor capacity on Platform Harvest during the EIR/EIS preparation, subsection 7.7.4 (Operational Contingency Plans) should be expanded to more completely reflect Texaco's proposed project (which has not been changed). Platform Harvest compressor loads will be within the capacity of two of the platform's three compressors during even the peak gas production year. In fact, one of the platform's compressors would be adequate to handle total sales gas production during all but approximately three years of the platform life.

Texaco's commitment to require Platform Harvest production personnel and production-phase service contractors to complete a fisheries and environmental training program should be added to subsection 7.7.5 (other measures, in the Environmental Protection Measures section). In addition, Texaco has agreed to a continuing requirement that any support vessel collisions with marine mammals will be reported to the MMS in accordance with reporting guidelines to be developed by the MMS in consultation with Texaco.

Texaco also agreed to production-phase restrictions on vessel corridors, and provision of inland parking and a shuttle service to the Santa Barbara Airport or Ellwood Pier if parking at those locations is not adequate to meet production phase parking demands. These commitments should be added to the DPP subsection 7.7.5.

Additional measures to be added to DPP subsection 7.7.5 include air quality control measures not previously discussed. These measures include a fugitive hydrocarbons inspection and maintenance program and a commitment to require the injection timing retard of all crew and supply vessel diesel engines (to the extent allowed by the American Bureau of Shipping and considered safe by vessel captains) to reduce NO_x emissions.

8.0 OIL AND GAS TREATING FACILITIES

No changes are proposed to the existing Platform Harvest DPP.

9.0 PRODUCT STORAGE AND TRANSPORTATION

Although Texaco's position concerning product storage and transportation is accurately reflected in the existing DPP, the Coastal Commission review process resulted in the clarification of details and submittal of a formal written statement (signed by all Platform Harvest partners) concerning this topic. Texaco's position concerning the pipeline transportation of Platform Harvest crude oil should be included in Section 9.2 of the DPP as follows:

PLATFORM HARVEST PIPELINE STATEMENT

1. Recognizing environmental and coastal concerns, the Platform Harvest producers will transport crude oil from Platform Harvest to refineries or market outlets by pipeline if pipelines are available with accessible capacity to producer's market destinations.

2. As an initial step to promote pipeline construction, Texaco will participate in an industry study for a crude oil pipeline to its preferred market destination. Texaco recognizes that sufficient industry support is needed before a pipeline transportation system can be built. In support of this pipeline construction effort, Texaco will actively participate in the pipeline project to assure that it has an available pipeline with accessible capacity to its market destination.

3. Platform Harvest producers will not sell oil to other companies as a means to avoid commitments to transport oil by pipeline. Any oil produced from Platform Harvest that is sold to another company by the Platform Harvest producers will also be transported by pipeline, if a pipeline is available with accessible capacity to that purchasers market destination.

4. As an interim measure, until pipelines to producers market destinations are available with accessible capacity or during emergencies, oil produced from Platform Harvest will be transported by other available methods. Once a pipeline is available, with accessible capacity to a producer's market destination, no Platform Harvest oil will be shipped by that producer to that market destination from a marine terminal except during emergencies. Use of marine terminals will also be consistent with the transportation policies of the applicable Local Coastal Program. The Platform Harvest Producers recognize that Commission policy provides for only limited use of marine terminals and that existing marine terminal capacity, and even future capacity, may not provide adequate transportation opportunities for the Platform Harvest producers.

5. The Platform Harvest producers will continue to participate in the joint government/industry studies presently being conducted to evaluate various transportation facilities. These studies cover the movement of oil to markets both within California and out of the state. The Platform Harvest producers will cooperate with pipeline companies proposing such pipeline routes.

DEFINITIONS

Available: In the context of this statement, the term "available" means that the pipeline exists and that the producer has access to it.

Accessible Capacity: In the context of this statement, the term "accessible capacity" means that the pipeline operator will provide room in the pipeline for the producer to transport the desired amount of crude and that access is provided for this transport.

Market Destination: In the context of this statement the term "market destination" means the location where a producer will sell the oil to obtain a reasonable rate of return for the product.

Participate: In the context of this statement the term "participate" means that the operator will have, take part or share in the efforts to produce the pipeline studies. This could include partial funding for the studies and the commitment of oil to the pipeline system once constructed.

Emergencies: In the context of this statement the term "emergencies" means the inability to operate the pipeline due to acts of God, natural disasters, labor disputes, or acts of government.

The term "Market Destination", as used by Texaco, means "the location where a producer refines or sells the oil under acceptable market conditions." This definition differs from the previous definition by adding the word "refines" and using the phrase "under acceptable market conditions" in place of "to obtain a reasonable rate of return for the product." The term "participate" as used by Texaco means the "the operator will have to take part or share in the efforts to produce the pipeline studies. This could include an equitable sharing of the funding of the studies and the commitment of oil to a feasible pipeline system once constructed." This definition differs from the one used by the other producers by replacing the word "partial" with the phrase "an equitable sharing of the."

In addition, Texaco has agreed that if a new consolidated industry marine terminal is used to transport Texaco's Platform Harvest oil, the tankships used will be compatible with the vapor balance system installed on that terminal.

10.0 TERMINATION AND ABANDONMENT

No changes are proposed to the existing Platform Harvest DPP.

TABLE VI-2A

PLATFORM HARVEST MUD TYPES AND COMPONENTS

Spud Mud (EPA Generic Mud #5)	lb/bbl
Bentonite or Attapulgite	10-50
Barite[1]	0-20
Soda Ash/Sodium Bicarbonate	0-2
Caustic	0-2
Lime	1/2-1
Lignite	0-3
Sea water	As needed

Lignosulfonate Mud (EPA Generic Mud #7)	lb/bbl
Bentonite	10-30
Barite[1]	0-35
Lignosulfonate	2-5
Caustic	1-3
Water	As needed
Lignite[2]	0-3
Soda Ash/Sodium Bicarbonate[3]	0-2
Detergent, Defoamer, Lubricants[4]	As approved by EPA
Zinc Carbonate[5]	0-7

Lime Mud (EPA Generic Mud #3)	lb/bbl
Bentonite	10-30
Barite[1]	0-35
Lime	2-10
Lignite[2]	0-10
Cellulosic polymer[6]	0-3
Starch[6]	0-4
Fresh water	As needed
Caustic or potassium hydroxide	0-2
Detergent, Defoamer, Lubricants[4]	As approved by EPA
Zinc carbonate[5]	0-7

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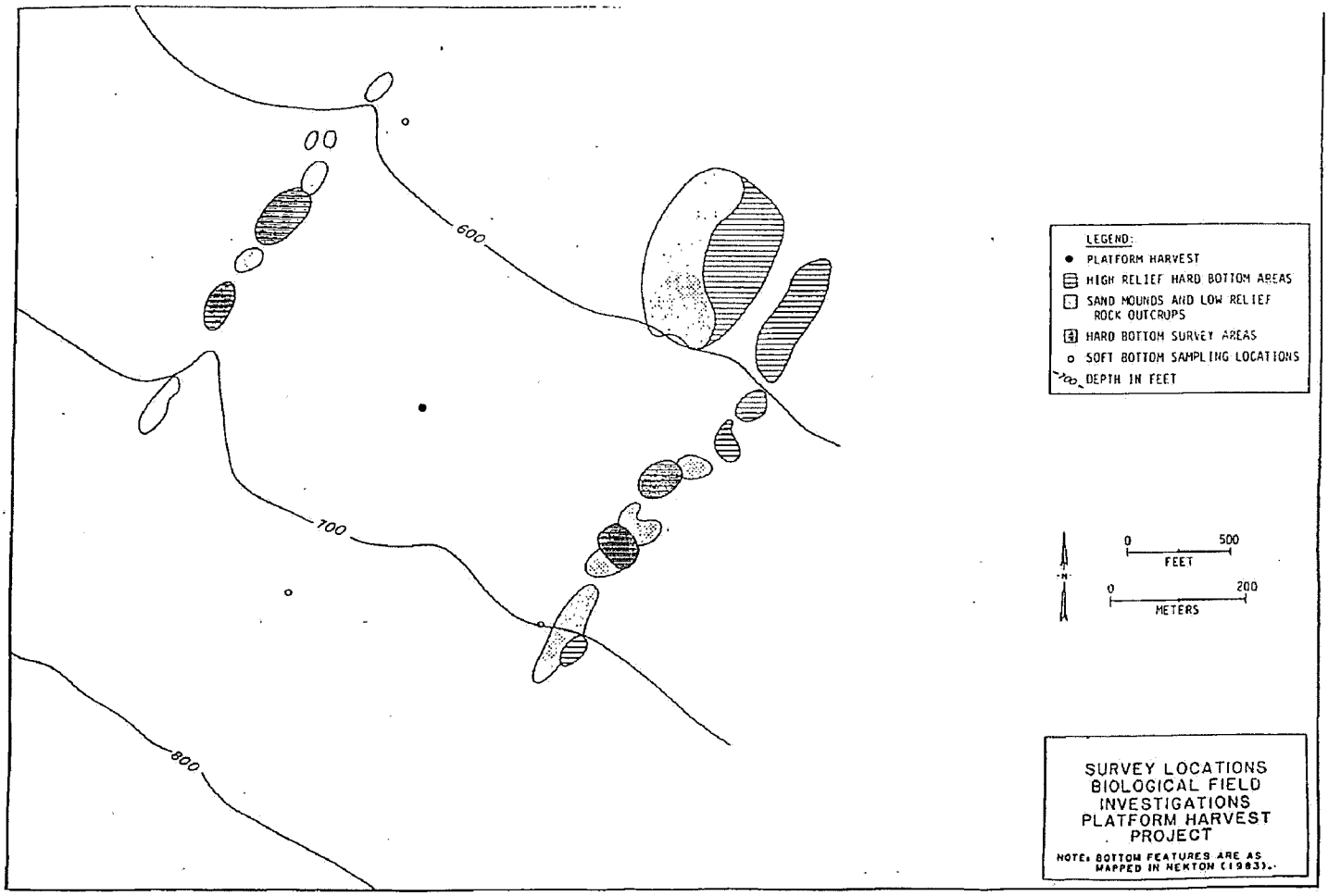
[1] Barite mined in the vicinity of Battle Mountain, Nevada, will be used.
[2] Lignite (brown coal) may be used to help reduce filtration (loss of mud liquid phase) and as a thinner. Will reduce requirements of lignosulfonate.
[3] Soda Ash (Sodium Carbonate) and Sodium Bicarbonate used to treat out calcium contamination in mud after a cement job.
[4] Detergent, defoamer, and lubricants are used in small amounts as needed under special circumstances.
[5] Zinc Carbonate used infrequently to treat out H_2S in mud.
[6] Cellulosic polymer and/or starch may be added to control mud rheology and filtration.

Additionally, sawdust, nut shells, mica, cellophane or other similar fibrous substances may be used to control lost circulation.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600
700
800
LEGEND:
PLATFORM HARVEST
HIGH RELIEF HARD BOTTOM AREAS
SAND MOUNDS AND LOW RELIEF ROCK OUTCROPS
HARD BOTTOM SURVEY AREAS
SOFT BOTTOM SAMPLING LOCATIONS
100 DEPTH IN FEET
N
0 500
FEET
0 200
METERS
SURVEY LOCATIONS
BIOLOGICAL FIELD
INVESTIGATIONS
PLATFORM HARVEST
PROJECT
NOTE: BOTTOM FEATURES ARE AS MAPPED IN NEKTON (1983).