



CALENDAR ITEM NO. 11. (CONTD)

ANY ADVERSE AIR QUALITY EFFECTS ARE FURTHER MITIGATED BY THE IMPOSITION OF STANDARDS FOR THE PERCENTAGE OF SULPHUR IN THE FUEL OIL BURNED BY TANKERS WHILE IN THE TERMINAL; WHICH STANDARDS ARE PROPERLY IMPOSED BY THE LOCAL AIR POLLUTION CONTROL DISTRICT.

d. PREPARATION OF THE OIL SPILL CONTINGENCY PLAN REFERRED TO IN PARAGRAPH (b) IS THE RESPONSIBILITY OF THE UNITED STATES COAST GUARD, AND SHOULD BE COMPLETED IN THE IMMEDIATE FUTURE. IN SO DOING, THE COAST GUARD SHOULD SOLICIT THE ACTIVE PARTICIPATION OF AFFECTED STATE AND LOCAL AGENCIES, INCLUDING THE STATE LANDS COMMISSION. DRILLS TO TEST THE EFFECTIVENESS OF THE PLAN SHOULD BE CONDUCTED BY THE COAST GUARD AT THE MOSS LANDING ON A REGULAR, UNANNOUNCED BASIS, WITH THE RESULTS OF ALL DRILLS FORWARDED PROMPTLY TO INTERESTED STATE AND LOCAL AGENCIES.

e. THE RISKS OF AN OIL SPILL AT THE TANKER FACILITY CAN BE MITIGATED BY THE ADOPTION OF MONTEREY BAY NAVIGATIONAL STANDARDS AND TANKER EQUIPMENT STANDARDS THAT PROVIDE FOR THE MAXIMUM PRACTICABLE LEVEL OF SAFETY AND ECOLOGICAL PROTECTION. THESE MEASURES ARE WITHIN THE JURISDICTION OF THE UNITED STATES COAST GUARD AND SHOULD BE ADOPTED BY THE COAST GUARD AS SOON AS POSSIBLE, IN ANY EVENT PRIOR TO THE TIME FEDERAL AUTHORIZATION IS GRANTED FOR THE MOSS LANDING TERMINAL FACILITY.

4. FINDS THAT ADEQUATE PROVISIONS HAVE BEEN MADE FOR THE PROTECTION OF THE SIGNIFICANT ENVIRONMENTAL CHARACTERISTICS IDENTIFIED PURSUANT TO SECTION 6370.1, OF THE PUBLIC RESOURCES CODE.
5. DETERMINES THAT THE PROJECT IS CONSISTENT WITH THE PROVISIONS OF THE CALIFORNIA COASTAL ACT OF 1976, INCLUDING SECTIONS 30232-3 AND 30260-1 OF THE PUBLIC RESOURCES CODE AND ARTICLE 6.5, TITLE 2 OF THE CALIFORNIA ADMINISTRATIVE CODE.
6. AUTHORIZES ISSUANCE TO PACIFIC GAS & ELECTRIC COMPANY OF A 20-YEAR GENERAL LEASE - INDUSTRIAL USE FROM JANUARY 1, 1978, WITH LESSEE'S OPTION TO RENEW FOR 2 SUCCESSIVE PERIODS OF 10 YEARS EACH; IN CONSIDERATION OF ANNUAL RENTAL STATED BELOW:

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COMMENCING JANUARY 1, 1978 ANNUAL VOLUMETRIC RENTAL ACCRUES ACCORDING TO THE FOLLOWING SCHEDULE:

- (1) UNTIL THE MINIMUM ANNUAL RENTAL PROVIDED FOR IN SUBPARAGRAPH (3) HEREOF IS EQUALED IN EACH LEASE YEAR, THE ANNUAL RENTAL SHALL BE COMPUTED BY MULTIPLYING THE NUMBER OF BARRELS OF CRUDE OIL AND PRODUCTS AND DERIVATIVES THEREOF PASSING OVER THE STATE'S LAND BY \$0.01 (ONE CENT).
- (2) FOR THE NEXT 5,000,000 BARRELS BEYOND THE NUMBER OF BARRELS NECESSARY TO SATISFY THE MINIMUM RENTAL UNDER SUBPARAGRAPH (1) HEREOF, THE RENTAL SHALL BE \$0.002 (2 MILS) PER BARREL; AND THEREAFTER \$0.005 (5 MILS) PER BARREL FOR EACH ADDITIONAL BARREL OF SUCH COMMODITIES PASSING OVER THE STATE'S LAND IN THAT SAME LEASE YEAR.
- (3) THE MINIMUM ANNUAL RENTAL SHALL BE \$70,000; EXCEPT THAT THE MINIMUM ANNUAL RENTAL FOR THE FIRST LEASE YEAR (JANUARY 1, 1978 THROUGH DECEMBER 31, 1978) SHALL BE \$10,000. THE COMMISSION RESERVES THE RIGHT TO FIX A DIFFERENT RENTAL ON EACH FIFTH ANNIVERSARY OF THE LEASE.

PROVISION OF PUBLIC LIABILITY INSURANCE IN AMOUNTS OF \$1,000,000 PER OCCURANCE FOR BODILY INJURY AND \$5,000,000 FOR PROPERTY DAMAGE; FOR THE CONSTRUCTION, OPERATION AND MAINTENANCE OF MARINE OIL TERMINAL AND APPURTENANCES WHICH WILL UTILIZE TANKERS OF 90,000 DEAD WEIGHT TONS OR LESS, ON THE LAND DESCRIBED ON EXHIBIT "A" ATTACHED AND BY REFERENCE MADE A PART HEREOF.

Attachment: Exhibit "A"

CALENDAR ITEM

11.

4/78  
W 20681  
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GENERAL LEASE  
INDUSTRIAL USE

APPLICANT: Pacific Gas and Electric  
Company (PG&E)  
77 Beale Street, Room 1113  
San Francisco, California 94106

AREA, TYPE LAND AND LOCATION:  
Approximately 75 acres of coastal submerged  
lands in Monterey Bay, offshore of Moss  
Landing, Monterey County.

LAND USE: Marine petroleum terminal and appurtenances.

TERMS OF PROPOSED LEASE:

Initial period: 20 years from January 1,  
1978.

Renewal options: 2 successive periods  
of 10 years each.

Public liability insurance: \$1,000,000  
per occurrence for bodily  
injury and \$5,000,000  
for property damage.

Special: The terminal will be  
limited to vessels of  
90,000 Dead Weight Tons  
(DWT) or less.

CONSIDERATION: Commencing January 1, 1978, annual volumetric  
rental accrues according to the following  
schedule:

- (a) \$0.01 (one cent) per barrel of commodities  
until the minimum annual rental below (d)  
is equaled.
- (b) \$0.002 (2 mills) per barrel for the  
next 5,000,000 barrels; and
- (c) \$0.005 (5 mills) per barrel for each  
additional barrel passing over the

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State's land in that same lease year.

- (d) The minimum annual rental is \$70,000; except that the minimum annual rental for the first lease year (January 1, 1978 through December 31, 1978) shall be \$10,000. The Commission reserves the right to fix a different rental on each fifth anniversary of the lease.

**BASIS FOR CONSIDERATION:**

Volumetric rental pursuant to 2 Cal. Adm. Code 2006.

**PREREQUISITE TERMS, FEES AND EXPENSES:**

Applicant is owner and permittee of the various upland parcels.

Filing fee has been received.

Environmental costs will be billed to PG&E. Staff has devoted hundreds of hours to completion of the environmental documentation for this project.

**STATUTORY AND OTHER REFERENCES:**

- A. Public Resources Code: Div. 6, Parts 1 & 2.
- B. Administrative Code: Title 2, Div. 3, Arts. 1, 2, 6.5, 10 & 11.

**OTHER PERTINENT INFORMATION:**

1. Early in 1974, the Commission received an application from PG&E to construct a new marine terminal facility at their Moss Landing electric generating station.

The new facility will enable PG&E to provide fuel oil (or low sulfur crude oil) to its power plant in a more economic manner than at present. The existing terminal, located partly on lands granted to the Moss Landing Harbor District, would be abandoned with the pipelines left in place.

Originally, PG&E proposed constructing a new facility capable of accommodating 130,000 DWT tankers. The Commission

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acting as lead agency under CEQA, circularized a draft EIR on the expansion project, and subsequently received numerous comments on the environmental document. A public hearing on the draft EIR was held in Monterey in August of 1974.

As a result of the numerous comments on the project, PG&E requested that the project be held in abeyance pending reevaluation and to have sufficient time to respond to the comments generated on the draft EIR.

In 1976, PG&E revised the project and provided staff with a scaled-down expansion project and additional environmental data. The present project is engineered similarly to the original project but will be limited to vessels of 90,000 DWT. Staff reviewed the revised project data, responses to comments on the original draft EIR and new environmental data. Several workshop sessions with representatives of other agencies were held so that their concerns would be adequately addressed in the environmental document. As a result of these sessions, PG&E was required to conduct additional studies and submit additional data. A revised draft EIR was then prepared and circularized during August and September, 1977. Another public hearing was held in Monterey during September, 1977.

Again, numerous comments were generated on the document. Commission's Staff and PG&E have been working on responses to these comments and have prepared a final EIR on the project. The final EIR has been circulated in accordance with the State EIR Guidelines and staff believes the document fully complies with CEQA.

In brief, the document shows that construction impacts will be minimal. Sufficient safeguards will be taken to insure

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that dune restoration and channel dredging activity impacts are limited. The EIR does point out that the potential for environmental degradation will exist; that is, if a major oil spill occurs. However, staff believes that the project has been designed and will be operated in a manner that such potential for environmental degradation is minimized.

2. Staff also believes that the project conforms with the Commission's coastal regulations, Article 6.5, 2 Cal. Adm. Code, especially Section 2541 thereof. The environmental documentation on this project has led to a project design that staff believes meets the criteria in said Section 2541 and the California Coastal Act of 1976. Although staff does not believe that the project is a new tanker terminal situated outside of an existing terminal area within the meaning of Section 30261(a) of the Coastal Act; the project has been designed and situated to minimize risk to the environment; but does not utilize a monobuoy mooring system. The conventional 7-buoy mooring system is in use at many locations along the California coast and has proven its effectiveness in providing a safe facility for the transfer of bulk petroleum products. In addition, the EIR shows that the 7-point mooring facility is environmentally preferable because of the geological hazards that would be encountered if a monobuoy system were utilized.
3. The project is situated on State land identified as possessing significant environmental values pursuant to Public Resources Code 6370.1, and is classified in a use category, Class "R" which authorizes Limited Use. The project, in the event of a major oil spill, could impact lands that are classified in use categories "A" and "C" as well. However, staff believes that the project has been designed and will be operated in a manner that reduces the chances

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of adverse impact on said environmentally significant lands.

FURTHER APPROVALS REQUIRED:

Since the Commission is acting as lead agency on this project no other approvals have been obtained. In addition to local agency approvals, PG&E must obtain approval from the United States Coast Guard, United States Army Corps of Engineers, Regional Air Resources Board, Regional Coastal Commission, State Department of Parks and Recreation and the State Water Resources Control Board.

Because of the additional time necessary to obtain these approvals, the construction limiting dates in the proposed lease to PG&E have been extended. The reduction in minimum annual rental for the first lease year is in recognition of PG&E's projected construction time table. It is unlikely that PG&E will physically occupy the leased lands before the end of 1978.

EXHIBITS:           A. Land Description.    B. Location Map.  
                  C. Final EIR #214.

IT IS RECOMMENDED THAT THE COMMISSION:

1. DETERMINE THAT A FINAL EIR HAS BEEN PREPARED FOR THIS PROJECT BY THE COMMISSION'S STAFF, FOLLOWING EVALUATION OF COMMENTS AND CONSULTATION WITH PUBLIC AGENCIES WHICH WILL ISSUE APPROVALS FOR THE PROJECT.
2. CERTIFY THAT THE FINAL EIR #214 HAS BEEN COMPLETED IN COMPLIANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT OF 1970, AS AMENDED, AND THE STATE EIR GUIDELINES, AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.
3. MAKE THE FOLLOWING DETERMINATIONS PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT:
  - a. CONSTRUCTION OF THE PROJECT ON BEACH AREAS COULD POTENTIALLY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT; HOWEVER, THESE EFFECTS ARE MITIGATED BY THE REGRADING

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AND REVEGETATION PROGRAM REQUIRED AS A CONDITION OF PROJECT APPROVAL;

b. IN THE EVENT OF A MAJOR OIL SPILL, A SIGNIFICANT EFFECT ON THE ENVIRONMENT IS LIKELY TO OCCUR; THIS POSSIBILITY IS REDUCED BY THE INCORPORATION OF SEVERAL MITIGATION MEASURES DISCUSSED IN THE FINAL ENVIRONMENTAL IMPACT REPORT, INCLUDING A CURRENT OIL SPILL CONTINGENCY PLAN, THAT SUBSTANTIALLY LESSEN THE POSSIBILITY OF AN OIL SPILL AS WELL AS THE POSSIBLE EFFECTS OF SUCH A SPILL;

c. THE PROJECT WILL INCREASE PEAK AIR EMISSIONS AS COMPARED TO THE PRESENT TANKER FACILITY, WHILE OVERALL ANNUAL EMISSIONS WILL DECREASE AS A RESULT OF THE PROJECT. ANY ADVERSE AIR QUALITY EFFECTS ARE FURTHER MITIGATED BY THE IMPOSITION OF STANDARDS FOR THE PERCENTAGE OF SULPHUR IN THE FUEL OIL BURNED BY TANKERS WHILE IN THE TERMINAL; WHICH STANDARDS ARE PROPERLY IMPOSED BY THE LOCAL AIR POLLUTION CONTROL DISTRICT.

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Attachment: Exhibit "A"

EXHIBIT "A"

W 20681

Two parcels of submerged land, lying in Monterey Bay, Pacific Ocean, State of California, immediately offshore from the Town of Moss Landing and in the vicinity of the mouth of Elkhorn Slough, more particularly described as follows:

PARCEL 1

A strip of submerged land 30 feet wide extending westerly from the westerly boundary line of the land conveyed to the Moss Landing Harbor District by the State of California (Chapter 131, page 1160, Statutes of 1967) and lying 15 feet on each side of the following described centerline:

COMMENCING at the U.S.C.E. Monument designated "NEW BLOCK" having a California Coordinate System, Zone 4 coordinates of  $Y = 549,316.41$  and  $X = 1,183,981.79$ ; thence  $S 12^{\circ} 19' 00'' E$ , 169.20 feet; thence  $N 85^{\circ} 30' 00'' W$ , 2,490 feet more or less to said westerly boundary of land conveyed to the Moss Landing Harbor District and the TRUE POINT OF BEGINNING of this description; thence continuing  $N 85^{\circ} 30' 00'' W$ , 1,880.85 feet to a point hereinafter designated as Point "A"; thence continuing  $N 85^{\circ} 30' 00'' W$ , 1,244.15 feet to the end of the herein described centerline.

EXCEPTING THEREFROM any portion lying easterly of the westerly boundary of the above mentioned grant to the Moss Landing Harbor District.

SUBJECT TO the effect of the decree in the judgement of condemnation in Monterey County Superior Court Case No. 31277, P.G. & E. Co. vs. Moss Landing Harbor District, et. al.

PARCEL 2

A parcel of submerged land more particularly described as follows:

BEGINNING at the aforementioned Point "A"; thence  $N 23^{\circ} 54' 03'' E$ , 89.36 feet; thence  $N 29^{\circ} 21' 51'' W$ , 801.00 feet; thence  $N 78^{\circ} 07' 13'' W$ , 848.72 feet; thence  $N 80^{\circ} 44' 06'' W$ , 553.72 feet; thence  $S 14^{\circ} 20' 27'' W$ , 1111.01 feet; thence  $S 18^{\circ} 07' 48'' E$ , 1284.69 feet; thence  $N 75^{\circ} 20' 58'' E$ , 504.17 feet; thence  $N 67^{\circ} 20' 09'' E$ , 980.91 feet; thence  $N 05^{\circ} 15' 27'' E$ , 476.83 feet; thence  $N 23^{\circ} 54' 03'' E$ , 282.39 feet to the point of beginning.

EXCEPTING THEREFROM any portion described in Parcel 1.

This description is based on the California Coordinate System Zone 4,  
the distances used in the above description are ground distances.  
Multiply ground distances by 0.9999459 to obtain grid distances.

END OF DESCRIPTION

Prepared John K. Gering Checked gaa  
Reviewed J.P. Gunnick Date 2/17/76  
J.P.



EXECUTIVE SUMMARY

In 1974, Pacific Gas and Electric Company applied to the State Lands Commission to lease submerged lands for the purpose of expanding the Moss Landing Marine Terminal to accommodate up to 130,000 DWT (dead weight tons) tankers. As a result of significant opposition to the project, PG&E requested the transaction be held in abeyance pending reconsideration of the project. Currently PG&E proposes to construct the facility as originally proposed. However, this project will be limited by lease from the State Lands Commission to utilities utilizing tankers below 90,000 DWT capacity.

PROJECT DESCRIPTION

The facility will include an offshore seven-point mooring system as well as two pipelines which will lie on the ocean bottom from the offshore terminal until just before the surf zone. The larger (36") pipeline will transport crude oil from offloading tankers to PG&E's onshore storage tank. The smaller (16") pipeline will be used for cutter stock recirculation. Also included are onshore additions to the facility. These will include several new pumps needed to move the oil through the pipelines and oily water or rainwater to PG&E's oily water disposal system, heaters for the cutter stock and a special cutter stock storage tank. Construction is expected to require approximately seven months and will begin after permit approval for the project when weather conditions permit.

PROJECT SETTING

The project will be located in the Moss Landing area on the shore of central Monterey Bay. The land area consists of floodplains and eastward sloping coastal upland, with the region influenced by the coastal marine climate. Moss Landing is located at the mouth of the Salinas River Valley, which trends northwest/southeast between the Santa Lucia Mountain Range along the coast and the Gabilan and Diablo mountain ranges to the east.

The offshore topography of the area is characterized by a broad gently sloping shelf of the bay floor cut by a large system of deep submarine canyons. The largest of these is Monterey submarine Canyon which heads about one half mile offshore from Moss Landing. Within the canyon water depths can exceed 400 feet, however, water depths along the shelf seldom exceed 90 feet.

The Monterey Bay region occupies a structural block of ground that is bounded by the San Andreas fault on the northeast, and by Sur-Nacimiento system on the west. Major structural features within this block are systems of seismicity active northwest and north-northwest trending faults.

Some large east-west trending faults may also exist along the alignment of the Monterey Submarine Canyon, although this has not been determined conclusively.

The seismicity of Monterey Bay is well known. Recent studies by Greene (Greene, U.S.G.S. 1977) Monterey Bay have just been completed and indicate that a magnitude 7+ quake is possible in the Bay. Other estimates indicate a magnitude 6 to 7 at the site could occur at the proposed terminal site.

Slump features that exist along the part of the Monterey Submarine Canyon near the proposed marine terminal and pipeline have been the subject of special geological studies (Ref. ESA report). These studies indicate that the pipeline will extend across geologically stable ground on the floor of the Monterey Bay and pass well north of the nearest submarine landslide area.

Coastal processes in the Monterey Bay area are characterized by the offshore California current flowing southward and parallel to the coastline. Longshore currents flow northerly and southerly from the head of Monterey Canyon, parallel to the coast. These increase in strength during the winter. Significant breaking wave heights rarely exceed 11 feet in any one season.

Water quality observations indicate high levels of nutrients found in surface water due to winter and spring runoff. There is also an upwelling of nutrients from the Monterey Submarine Canyon in the spring.

The marine and estuarine environment around Moss Landing includes a variety of habitats and biological communities. Of special interest in the Monterey Bay is the presence of species which have received endangered or threatened status. These include the endangered northern elephant seal (Mirounga angustirostris) and the threatened Southern Sea Otter (Enhydra lutris nereis).

Monterey Bay has been designated as a Federal marine sanctuary while Elkhorn slough is designated a California State estuarine sanctuary. Several other areas of special biological significance exist within the Bay and two marine life refuges have been proposed.

The terrestrial environment is characterized by flora consisting of cultivated, native and adventitious non-native species. Much of the site and surrounding area reflect modifications made for industrial, agricultural and urban purposes, but include marsh or marshlike areas such as the Moro Cojo Slough and Elkhorn Slough.

These areas could easily be affected by contaminants introduced into the Moss Landing Harbor as a result of the regular salt-water tidal intrusions. The fauna of the Moss Landing area is dominated by a number of wild-fowl species. The Elkhorn Slough serves as an important link in the coastal flyway for migratory water-associated birds, and is also inhabited by resident species. In addition, there are several mammalian, reptilian, and amphibian populations of unusual interest.

Rare and endangered species of flora and fauna occur in the area. Flora include Castilleja calitolia and Pterostegia drymarioides, although neither species occurs in the immediate area of anticipated activity. Several species of endangered avi-fauna (birds) have been reported in the area including the American Peregrin Falcon, Clapper rail, and California Least Tern. The endangered Smith's blue butterfly (Shijimiaeoides entopes smithi) occurs in the Monterey sand dunes.

The Moss Landing area is adjacent to many varieties of land use, especially agricultural use in the Salinas Valley. The Moss Landing locale is one of Monterey County's most important industrial areas, including Kaiser Refractories and the PG&E power plant. Recreational use of the land tends to be water oriented. Commercial and sport fishing is a large industry for the area, which is the fifth largest fishing area in California.

#### PROJECT IMPACTS

##### Construction Impacts

Project impacts will occur in two phases. First, the initial disruption will occur during the construction of the project. Second will be the on-going impacts of the operation of the facility.

Construction impacts will generally be limited to the disruption of the onshore and offshore areas where new anchors will be installed. The natural wave action of the ocean should restore the surf zone within 2-3 weeks.

Construction will also require a 250 foot strip of land (over the sand dunes) across Moss Landing State beach to be graded flat, blocking public access.

Public access will be maintained with a foot path approximately 350 feet inland from the shore line. In addition, after construction the area will be regraded to blend with adjacent areas. A revegetation program coordinated within the Department of Parks and Recreation will ensure the stabilization of the dunes area into its near-native character.

Seismic events in the area may produce a magnitude 7+ at the site. Facilities have been designed to withstand this.

Water quality will be slightly affected by local trenching of water in the area. Boat anchors will also disturb bottom sediment. The visual effect can be expected to last a few weeks. Construction should not affect water quality on the continental shelf or within the Monterey Submarine Canyon.

Marine organisms lying along the pipeline route will be disrupted, however, the area disrupted and covered by the proposed pipeline is expected to be minimal. It is not expected to adversely affect the overall structure of the area's biological communities.

Terrestrial effects on vegetation and wildlife will be most evident in the construction area. Mitigation measures to restore the dunes area will be undertaken. Adverse effects on wildlife are not anticipated since existing habitats have been disturbed by man's past activity.

Construction impacts on recreation water use will cause short-term effects. The noise, dust and visual effects of construction may decrease recreational use of the beach. Temporary disruption of pedestrian and vehicular traffic will also occur on portions of the beach. These effects will be heightened if construction corresponds to the peak recreation season.

There are no anticipated impacts on archeological resources in the area. However, a qualified archeologist will be present during construction activities.

#### OPERATIONAL IMPACTS

Normal operations will have insignificant impacts. Water quality may be slightly affected within a few feet of the exposed pipes and mooring anchors due to minor sediment changes. Temperature increase of water due to heated oil passing within the pipelines is not expected to exceed 0.04 degrees F, this should not effect the marine environment.

No detectable adverse effects to the sublittoral community have been reported as a result of the existing pipeline and there is no evidence that the proposed pipeline will show different impacts. Under normal operating procedures there will be no impact upon the biologically nutrient-rich Monterey Submarine Canyon and no significant planktonic impact is expected from the project. Operation of the proposed project will cause minimal impacts on vegetation and wildlife.

Expansion of the terminal facility is expected to result in a decrease in tanker activity when compared to the continued use of the existing berth. As a result, navigation hazards to small craft from tanker activity would also decrease.

No additional noise will be produced that will be audible above the ambient plant noise. Visual impacts will not be substantially different from what currently exists. A new valve box will be installed on the beach; however, it will only be

exposed one foot above grade and shall be painted a light tan "sand color" to blend with the landscape. It will not obstruct any long distance views.

Operation of the proposed facility will have air quality impacts. Peak emissions will increase with the new facility. Overall annual emissions will decrease however. (See response to Comments 105, 120, 121 for further details.)

While under normal operating conditions few adverse impacts would result; in the event of a major oil spill from either a pipeline break or tanker accident significant adverse impacts would occur. A discussion of the effects of oil spills is included in Appendix C of the 1974 EDS. A briefer discussion was presented in the Draft EIR.

Generally, the adverse effects of an oil spill are concentrated in the marine environment to planktonic and benthic communities. A major oil spill in Monterey Bay could have significant effects on the biota in Elkhorn Slough. Other significant impacts would occur to air quality, terrestrial bird life, and the social and economic environment in the case of a major spill.

#### MITIGATION MEASURES

Several mitigation measures have been incorporated into this project to reduce any significant impacts. These are:

- 1) The use of larger vessels to deliver the oil requirements of the power plant will reduce the chances of a major oil spill. Evidence indicates that the number of oil spills is proportional to the number of vessel trips.
- 2) PG&E will restore the beach areas on the North Spit by methods approved by the Department of Parks & Recreation, Coastal Commission and other agencies.
- 3) PG&E will provide an updated oil spill contingency plan to the U. S. Coast Guard, State Lands Commission, Coastal Commission, and other agencies.
- 4) Prior to dredging across Moss Landing Harbor, PG&E will bottom contour the site and back fill the trench to pre-construction conditions.
- 5) While in the terminal vessels will burn 0.5% S fuel oil in their boilers.

- 6) Attempts will be made by PG&E to contract for vessels utilizing the best commercially available technology. PG&E will try to obtain deliveries in vessels having segregated ballasts of 20% or more and inverting systems.

Other mitigation measures are addressed in the document.

## PROJECT ALTERNATIVES

### No Project Alternative

An alternative of no action would deny PG&E a lease to build an expanded facility leaving the Moss Landing power plant with the present marine terminal capable of accepting tankers below 50,000 DWT. Due to decreased availability of natural gas, PG&E would be required to increase tanker deliveries of fuel oil to the facility. This would result in increased environmental degradation. There would be an increased probability of tanker accidents as more vessels utilized the existing facility.

### Alternative delivery systems

Fuel oil could be delivered by overland pipeline from San Francisco area refineries, possibly utilizing some existing natural gas pipelines. Since extensive modification of existing natural gas pipelines to the plant would be required, impacts would be equal to the construction of a new line. This alternative would cause significant disruptions to land use, terrestrial vegetation and wildlife. Seismic problems would be greater.

Fuel oil could be shipped by rail or truck. Both alternatives, would be exceedingly costly, consuming a great deal of fuel. Both would pose extreme traffic difficulties for the Moss Landing area and great significant environmental problems to air. Additionally, the potential for accidents would increase. Logistically, transporting the quantity of oil needed by these methods to Moss Landing would be impossible.

A pier and docking facility could be extended into the ocean about one mile to reach the desired depth. It would be more costly than the proposed project. A dock would involve higher maintenance cost; much greater environmental impact; greater exposure of the pipeline to accidents and an increased visual impact.

Another alternative would change the mooring location. Mooring farther north would have the same effects as the present proposal. Mooring farther south would require relocating the pipeline around the steep sides of the Monterey Submarine Canyon. This would require additional equipment, energy use, and place the pipeline in a precarious position.

A third mooring alternative would involve mooring farther out to sea. If moved out greater than 120 feet in depth a single point mooring system (SPM) would be used. An advantage to this system is that it allows a ship to remain moored and discharge oil even in extreme weather, enhancing safety in some cases. A conventional mooring system such as the proposed project utilized requires the ship to stop discharging oil, disengage the hose, and leave the mooring in case of hazardous weather. Disadvantages to the SPM are numerous. A SPM would require a longer pipeline, involving a greater amount of energy for heating and exposure to additional physical damage. A SPM is more designed for accommodating vessels up to 300,000 DWT, unnecessary for this project. The SPM would require the pipeline to shore to be placed in hazardous locations near and in the Monterey Canyon slumping areas.

#### SHORT-TERM USE OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The long-term productivity of the environment in the vicinity of the proposed project will not be affected by construction or normal operation. There is no evidence of negative effects upon organisms in the area caused by buoys, chains or anchors. The part of the north spit to be used for the new pipeline already contains the existing pipeline and therefore will not preempt any land use, and the impact of the new valve box should be minimal.

Should the facility be removed, the area could potentially revert to its natural condition.

An event such as a large oil spill would substantially alter the environment. In this case, the long-term productivity of the area would be reduced. A detailed discussion of oil spill impacts is included in Appendix C).

#### Possible Energy Use Reduction Alternatives

Energy conservation is a possible alternative to the project. However, the facility at Moss Landing is one of PG&E's most efficient fossil fueled power plants. A decrease in energy demand as a result of conservation programs would affect other plants before the Moss Landing Plant would begin to curb energy production. Several other energy production methods have been considered. An increase in hydroelectric generation plants would reduce the fuel oil requirements of PG&E's thermal plants. Few, if any of the remaining hydrosites in Northern California are expected to be developed however. The availability of nuclear energy is uncertain at this time, and cannot be depended upon to provide an alternative to the current problem facing Moss Landing power plant. Geothermal energy will probably be developed further in Northern and Central California. It is presently not able to produce sufficient energy to reduce the demand for fuel oil at the Moss Landing Plant. Natural Gas is not expected to be a significant power plant fuel due to its decreasing availability and government restrictions on its use. Solar, wind, tidal fusion and other methods for generating electric energy will require long lead times to develop and to construct new

generating facilities.

#### PROJECT IRREVERSIBLE EFFECTS

Some small bottom organisms will be destroyed in the trenching activity and installation of sheet piles.

It is possible that some irreversible changes in drive structure and vegetation will occur in the area to be used as a construction site. The dunes will be restored and revegetated as nearly as possible to original condition.

#### GROWTH INDUCING IMPACT

No direct growth inducing effects are associated with this proposed action. The existing power generating equipment at the Moss Landing Power Plant will not be expanded as a result of the project. The Moss Landing plant has exclusive and only use of the proposed terminal. It cannot be used by new refineries or to transship crude oil to other areas.

The project will have some indirect growth inducing effect. Some of the project costs will flow to the local economy through salaries. The construction work force will be drawn from local sources to the extent practical, and the work force will have a short term effect on the local economy during the seven months construction time. No new employees will be required to operate the proposed facilities.