

T. Cultural Resources.

Yes Maybe No

- 1. Will the proposal result in the alteration of or the destruction of a prehistoric or historic archeological site?
- 2. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?
- 3. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?
- 4. Will the proposal restrict existing religious or sacred uses within the potential impact area?

U. Mandatory Findings of Significance.

- 1. Does the project have the potential to degrade the quality of the environment, reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?
- 2. Does the project have the potential to achieve short term, to the disadvantage of long-term, environmental goals?
- 3. Does the project have impacts which are individually limited, but cumulatively considerable?
- 4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

III. DISCUSSION OF ENVIRONMENTAL EVALUATION (See Comments Attached)

SEE ATTACHMENT

IV. PRELIMINARY DETERMINATION

On the basis of this initial evaluation:

- I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared
- I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date: 5 128 1992

Mary George
 For the State Lands Commission
 MINUTE PAGE

DISCUSSION OF THE POTENTIAL ENVIRONMENTAL IMPACTS

A.1 Unstable Earth Conditions

SFPP intends to install approximately 25 miles combined, of 16 inch and 12 inch diameter plastic coated steel pipeline underground. The majority of the route will follow along existing road and railroad rights-of-way. The average depth of burial will be approximately 48 inches below ground surface. Burial depths may be greater where the pipeline passes under stream channels, drainage ditches or other intersecting pipelines.

The depths reached in this construction will not be great enough to cause impacts to geologic substructures or to create unstable earth conditions. During the construction, removed spoil from the trenching will be placed along the pipeline route. This displaced soil will remain for the period of time necessary for assembly, installation and burial of the pipe section. It could be subject to seismic disturbance, rain or wind erosion. This situation will be brief lasting generally one day for each half mile removed. The displaced soil will be put back into the trench in layers and sufficiently compacted to restore its integrity. Upon the completion of burial, the project right-of-way will be restored to the original grades. The potential for soil instability will be low.

A.2 Disruptions, Displacement of Soil

The project will require the grading, trenching and temporary removal of soil along approximately 25 miles of right-of-way for a proposed petroleum products pipeline. The excavated material will be temporarily placed along the pipeline route while the pipe is assembled and placed in the exposed trench. Upon completion of the pipe assembly and coating, the pipe will be lowered into the open trench. The removed soil will be replaced in the trench, in layers and compacted to follow the original project site grades. There will be some disruptions to soils as the trench is dug to a depth of approximately 48 inches and the removed material is placed in a long mound next to the trench. The displaced soil will remain in the right-of-way until the pipe is assembled and ready for burial.

The spoil will remain out of the trench for approximately one day for each half mile of pipeline constructed. The majority of the project route will follow along existing road, railway and pipeline rights-of-way. The impacts of displaced soil and compaction will not be major. There are no plans to permanently cover existing features or soil surfaces with the displaced soil. All excavated soil surfaces will be brought back to original grades as is practicable. To prohibit erosion or slumping, natural soil surfaces will be re-seeded

with native plants upon completion and grading.

A.3 Change in Topography

The project will involve the digging of a trench to a depth of 48 inches and for a length of approximately 25 miles.

The majority of the project will be along existing road, railway and pipeline rights-of-way located in urban industrial and business environments in Contra Costa County. The trenching operation will remove soil for the pipeline and place it along the pipeline route. Upon installation of the pipe, the removed soil will be replaced in the trench and compacted to assume the original grades of the sites through which the pipeline passes. There will be a temporary change in topography as the right-of-way is graded and trenched. Upon completion, the right-of-way grades will be returned to their original profiles. Most of the route is along existing rights-of-way for streets, roads, and railroads. These areas will be already graded flat for these facilities. Stream crossings which are open-trenched will be regraded to their natural bank profiles once the pipeline is installed and buried.

Approximately 1/2 mile of the pipeline right-of-way follows along a bridle trail maintained by the East Bay Regional Park District. This portion will be temporarily impacted by the trenching operation. The ground will be restored to its original profile once the pipeline is buried. The impacts to topography will be temporary, lasting one day for each 1/2 mile of pipeline route installed.

A.4. Unique Features.

The pipeline is planned to be installed along 25 miles of existing street, road, railway and pipeline rights-of-way. The majority of this proposed route is within urban development including major industrial areas. Significant modification or alteration to natural features has already occurred to these sites. A small portion of the project is located in rural lands which includes approximately 1/2 mile along a bridle path managed by East Bay Regional Park District. The pipeline is also planned to cross approximately fourteen stream crossings between Richmond and Concord. There will be a temporary disturbance of physical features including creation of a linear mound of soil dug from the trench intended for the completed pipe string. Once the pipe sections are welded together and installed in the trench the displaced soil will be placed back into the trench. There will not be any modification or covering of any unique physical features along the project route.

A.5 Erosion

The pipeline project will require the grading and trenching of approximately 25 miles of right-of-way between Richmond and Concord. The greater portion of this excavation

will occur along existing street, road, railway and pipeline rights-of-way. These rights-of-way have been graded from previous construction. Some minor grading may be required on some of the route prior to trenching and construction. Some baring of soil could make it vulnerable to wind or water erosion.

A trench approximately 48 inches deep will be dug to accept the pipe. The soil removed for this trench will be placed as a linear mound alongside the excavation. This soil mound could be susceptible to wind or water erosion. The project is proposed to be conducted during the later spring and summer season which will reduce the possibility of rain fall and runoff impacts but could increase wind erosion. The trench is expected to be open for approximately one day per half mile the operation travels. The soil will be returned to the trench upon installation of the pipe string. This short duration of soil disturbance will reduce the possibility of water or wind erosion occurring. After the soil has been regraded, the surface will be restored to its original condition including paving on streets and roadways and seeding in rural areas. Water spraying of the bare ground along the construction right-of-way during construction would reduce fugitive dust and potential wind erosion problems. To mitigate the potential for erosion, following construction, all areas previously vegetated will be reseeded (slopes to be hydroseeded) with appropriate native seed mixes in agreement with the property owner. Erosion control measures (sand bagging, chevrons) will be employed where necessary to aid in the revegetation. During years following installation, since the right-of-way is continuously inspected by SPPL inspectors, if an inspector sees that revegetation is not progressing properly or that erosion is occurring, appropriate action will be taken.

A.6 Deposition, Siltation

Fourteen watercourses will be crossed by the proposed pipeline (Exhibit I). Two of the crossing (Refugio Creek and Rodeo Creek) are concrete box culverts and will be spanned, and two other crossings (Franklin Canyon Creek and Arroyo del Hambre) will actually be within roadway crossings over the creeks. Hence, these four streams will experience no impacts due to pipeline construction. Crossings of the remaining ten watercourses (with the exception of San Pablo Creek and Pinole to be bored) will be accomplished by open cutting the streambed and by burying the pipeline in a trench at least five feet below the existing streambed, below water-saturated zones prone to instability. The creeks to be crossed by the proposed route have only slight to moderate scour potential due to low gradient and relatively small drainages. Maximum scour depths cannot be calculated without one hundred year flood depth information, which is unavailable for most of the proposed points of crossing. However, California Department of Water Resources (CDWR) personnel recommend a minimum of five foot of cover (and SFPP has agreed). Prior to

construction, DWR personnel will review SFPP stream crossing design plans for all stream crossings and make final determination as to the amount of cover deemed adequate to prevent the pipeline being uncovered by scouring. CDWR final determination will be adhered to by SFPP.

The majority of natural unlined stream channels are to be crossed with the open trenching technique. If stream flows require it, prior to crossing the channel, a diversion "flume" pipe will be installed in the channel. This pipe will be approximately 18 to 30 inches in diameter. Sand bags will be placed across the stream channel to either side of the flume pipe opening, forming a diversion dam to direct the stream flow into the pipe. A second coffer dam at the downstream end of the pipe will be built across the stream channel and around the open pipe outlet end. Between these two sandbag dams will be the construction right of way. The trenching operation will be carried out between the dams, isolated from the stream waters.

No major siltation will result from the trenching in this manner. The pipeline will be installed and buried and the stream banks and bottom returned to grade. Upon completion of the crossing, the sand bag diversion dams and the flume pipes will be removed. A small amount of turbidity may stem from the flume pipe removal but this should not be a significant impact. There will not be a significant impact to channel characteristics.

San Pablo Creek and Pinole Creek will be crossed by boring under the channel with a low angled boring system. This device uses a rotary holder for the drill string which is pushed through the soil under the stream channel to be crossed. A water circulating fluid is sent from the surface drillsite through the drill string and out through the drill bit. This pressured fluid erodes the soil in front of the drill string and circulates it back out through the hole (annulus) created by the drill string. The exiting fluid is passed across a shaker table which removes hard rock material from the drilling fluid. The remaining drilling fluid (water and mud) is captured in a mud tank and recirculated via mud pumps back into the drill string to the drilled hole. Upon completion, the drilling fluid is pumped into a vacuum truck and transported to an approved waste disposal site. No siltation should result from this operation. No impacts to the stream channel crossed will occur.

The remainder of the project will involve grading a right-of-way, opening a trench to 48 inch depth, installing the 16 inch or 12 inch pipeline and reburying the pipe followed by restoring the right-of-way to original state. There will be the creation of loose soil during this operation. Some siltation could result from some of this excavated material washing or winnowing into nearby drainages (gutters or streams). Spraying the work site lightly with water will reduce fugitive dust which could blow offsite into

adjacent drainages. Sweeping of street and road sites to keep soil in order could help to keep material from entering gutters. Upon completion of pipelaying, the street or road paving will be replaced. The short time the displaced soil is left out during pipelaying (one day per 1/2 mile) will reduce the chance for soil to enter adjacent drainages. No major impacts to stream drainages, or other water bodies will occur.

A.7 Geologic Hazards

The proposed project will follow existing road, railroad and pipeline rights-of-way and will cross fourteen stream channels between the Richmond and Concord pumping stations. The existing ROW's are graded and levelled to support their respective facilities (streets, roads, railways). There will not be a possibility of landslide, mudslide or other ground failure along the ROW's jointly occupied by existing roads, streets or railways.

Portions of the proposed project will be constructed along existing pipelines which are in open rural environments. These areas could be subject to downslope movements, slumping.

Where the pipeline traverses steep terrain, construction precautions will be taken to stabilize slopes after the construction is completed. Slopes will be graded and reseeded to discourage erosion. Future right-of-way inspections will be conducted to monitor ROW condition for possible erosion and the reseeded for proper reestablishment of plantings. Corrective action will be taken if necessary.

The project will not produce fluids or generate forces which could induce seismic events or landslides.

The proposed pipeline will be constructed in a region which is well known for its seismic activity. The pipeline

will be constructed with features which will reduce the potential of damage and danger from seismic disturbances. The pipe will be constructed with high tensile steel pipe with connection of the pipe sections by full penetration butt welds. This will allow for high flexibility from ground movement and possible surface displacement reducing possible damage. These additional precautions will reduce potential damage:

- (1). Adding slack pipe (extra length) to the pipeline.
- (2). Where practical, pipeline crossing at a strike-slip fault will be oriented in such a way to place the pipeline in tension.
- (3). In areas of potential ground rupture, pipelines will be laid in relatively straight sections, taking care to avoid sharp changes in direction and elevation. As much as possible, pipelines will be constructed without field

bends, elbows, stub-ins or flanges that tend to anchor the pipeline.

- (4). The depth of pipeline burial will be minimized in fault zones to reduce soil restraint on the pipeline during fault movement.
- (5). Pipe sections with greater wall thickness will increase the pipeline's capacity for fault displacement at a given level of maximum tensile strain. Relatively thick-walled pipe will be used within 1,000 feet of each side of the fault.
- (6). Reduction of the angle of interface friction between the pipeline and the soil will increase the pipeline's capacity for fault displacement at a given level of maximum strain. This will be accomplished by using a hard, smooth coating such as an epoxy coating in the vicinity of the fault crossing.
- (7). Close control will be exercised over the backfill surrounding the pipeline over a distance of 1,000 feet on each side of the fault. A loose to medium packed granular soil without cobbles or boulders will be used as backfill material. If the native soil differs substantially from this, oversize trenches will be excavated for a distance of approximately 50 feet on each side of the fault.
- (8). Construction procedures to mitigate potential damage due to fault movement in extreme conditions include:
 - (A). Placement of the pipeline in an aboveground berm constructed of low strength soil.
 - (B). Placement of the pipeline in oversized ditches surrounded by low-strength, crushable material or selected backfill.
 - (C). Encasement of the pipeline within buried oversize culverts or conduits.
 - (D). Placement of the pipeline on aboveground sliding supports.

To insure the fullest precaution in the planning and construction of the pipeline, a definitive study of the route has been carried out by an outside professional geotechnical consulting firm to be sure all appropriate measures are incorporated into the final engineering design and route.

B.1 Air Emissions

The project will involve the use of approximately 57 pieces of construction equipment along the project site. In addition to this equipment will be the added use of individual crew vehicles arriving at and leaving the project site during

each work day. Each piece of construction equipment is powered by a diesel engine. The engine emissions for the equipment used on the project will be controlled under local and state licensing and should be maintained to minimize emissions impacts.

The balance of construction related air emissions will result from dust generated during excavation, equipment movement, pipe welding, pipe installation, recovering and regrading of soil surfaces. Water spraying or some other method of dust abatement will be employed to control fugitive dust. Reseeding of natural soil surfaces will keep future dust problems under control. Gases generated from the welding activities will be of little significance to ambient air quality. These gases will only be generated during actual contact of the electrode with the work.

B.2 Objectionable Odors

The project construction activities will be a source of odors generated by construction equipment and crew vehicle engine exhaust, welding gases, possible coating and adhesive vapors during pipe coating operations and from wet soil during excavation.

These odors will be temporary in duration, lasting for the approximately four-month duration of the pipeline installation. There may be some objectionable odors generated during construction by the machinery as acceleration of power engines is required during intense work operations. These episodes will usually last for seconds or, at most, minutes.

The odors should be dissipated within a short distance from their source. Additionally, the engines will be maintained under local and state licensing for emissions control further reducing their potential for impact.

Construction of the pipe will involve welding of the sections to form a continuous length of pipe. Electric arc welding will be employed in this operation. A gas is generated during this procedure as metal is melted and vaporized. The accompanying metal coating also will vaporize creating odors. The odor created by this activity should not be noticeable beyond the immediate work area.

After the welding is completed, the welded pipe joints will be wrapped with a plastic coating similar to the coating put on the pipe sections at the factory. This additional coating will be bonded to the bare joints with an adhesive. This adhesive could create an objectionable odor. This impact should be minimal as only approved adhesives not harmful to personal health will be employed and the source will be isolated from public contact.

Odors from disturbed soils or muds will be most detectable during the excavation and re-burial of the

ENCL. NO.	PAGE	229
MINUTE PAGE		

pipeline. This odor will be of a natural quality versus a synthetic nature such as petroleum or other chemical sources. The impact should not be significant.

The majority of the project is being constructed along existing road, railroad and pipeline rights-of-way in urban and industrial environs. The ambient air quality along the project corridor is dominated by urban and industrial odor sources including heavy vehicle traffic, industrial sources and refinery sources. The impacts from odors generated by this project will be overshadowed by these other sources.

The finished pipeline will be used to convey refined petroleum products from the Richmond pumping station along an approximately 25 mile pipeline to a pumping facility near Concord. The refined petroleum product will be capable of generating significant objectionable odors if exposed to the air and sensitive receptors.

The finished pipeline will be buried, removing it from the free atmospheric air. The pipeline will be inspected at all joints where welding was performed for potential flaws in welds. All flanges, valves and other fittings in the pipeline will be properly connected with gaskets or seals to insure no leakage at these points into the air. The pipeline will be tested to within 90% of yield pressure of the pipe to insure safe operation. The pipeline will be operated at approximately 72% of the specified minimum yield strength. No significant objectionable odors should be generated by the operation of this pipeline.

B.3 Alteration of Air Movement

The construction of the pipeline will involve the use of low profile construction equipment; the tallest equipment being the side-hoist cranes to be used in lowering the welded pipe string into the open trench. The arm to these cranes will not exceed thirty feet above ground level. No phase of the construction should affect air currents.

The trenching, pipe link-up and burial will involve disturbance of soil while the trench is exposed. This could affect air temperature at the trench site. This impact will be negligible. There will not be any impact to the regional climate because of this project.

The completed pipeline and ancillary facilities will not affect the climate, moisture or temperature of the region.

C.1 Water Movements

The majority of the project will be conducted within the existing rights-of-way for roads, railroads and pipelines. There will not be an impact to water movements along these corridors.

The pipeline will cross fourteen waterways either by means of open trenching or by boring under the channel. Several of these waterways are small with minimal flow; the balance of them being intermittent and dry most of the year.

For those streams which exhibit flow, there may be a temporary minor alteration to streamflow as the open trenching is carried out.

The channels with high stream flows which are crossed with open trenching will be "flumed" with diversion pipes passing the flow to one side or the other of the channel. This activity might create a minor disturbance to streamflow as the pipes are installed and eventually removed. This interruption should last a day or two for each channel crossed by this means.

The channels which are crossed by boring under the channel will not be affected by the operations. All completed pipeline ROW will be returned to original condition so existing drainages will be returned to their original state. (See discussion in A.6.)

C.2 Surface Runoff

The construction phase of the project will involve preparatory grading of the ROW, trenching for the pipeline along the ROW and refilling of the trench with restoration of the project site to pre-project conditions.

The preparation and trenching operations will involve removal of existing surface features to accommodate the trench and construction equipment. This activity will affect surface absorption, drainage and runoff characteristics along the ROW.

Where the project passes through established roadways, a portion of the pavement will be penetrated by the trench, exposing bare soil to possible precipitation. This could temporarily affect absorption capacity for the soil during rains. This impact will be minor due to the narrowness of the trench, the short time the trench will be open (one day per 1/2 mile) and the time of year the operations will be conducted with least rainfall.

The balance of the project will be within unpaved lands, either on pipeline rights-of way, road shoulders, railways or open lands. The drainage characteristics of these areas could be more affected by the project.

Construction of the pipeline will require extensive use of heavy equipment for excavation, transporting materials and refilling and regrading of the project site upon completion. This equipment, due to its weight, could compress the soil within the ROW which could adversely affect surface absorption rates. This could increase surface runoff during rains. Vehicle tracks in the project site could trap water or

concentrate flow depending on their orientation in relation to slopes.

The trench and associated displaced soils could affect drainage patterns within the 1/2 mile the project activity is most intense. This barrier to drainage could concentrate water runoff along the spoil set alongside the trench.

The impacts by runoff will be reduced by the time of year the project is planned for construction. Rains will be at their minimum, reducing chances of concentrated runoff. Efforts will be made to minimize vehicle related impacts by vehicle uses being kept to a minimum; reducing compaction and scarring of the project site. The potential impact of the open trench will be minimized by the expected duration of one day per 1/2 mile along the project route.

The finished pipeline right-of-way will be restored to pre-project state after the pipeline is installed. Road and railroad right-of-ways will be regraded and/or paved as before. Natural ground areas will be regraded and seeded as required to prevent erosion. The soil in these areas will be compacted from construction but the soil will be tilled to achieve more natural porosity and absorptive characteristics prior to re-seeding. These steps should reduce potential impacts on drainage and runoff at the completed ROW .

C.3 Flood Waters

The proposed project will cross fourteen stream channels between the Richmond City pumping station and the terminal in Concord. Several of these channels will be crossed either by overhead pipes attached to existing bridges or by low angle boring under the channel. Neither of these procedures will interfere with the streamflow during flooding.

The remainder of the stream crossings will be carried out using the open trench and/or "flume pipe" bypassing operations. These operations could conceivably interfere with flood water flows. This impact will be minimized by the timing of construction which will occur during the dry time of year, reducing the chance of heavy rains occurring coincident with the project.

Should rain occur during the stream excavation, the pipes installed for the bypassing should accommodate the expected streamflow. This impact will be temporary, lasting only for the duration of trenching, pipe installation and ROW restoration. The flume pipes will be removed and the channels brought back to original condition.

The rest of the project will be in existing road, railroad and pipeline rights-of-way. These portions of the project route are outside any stream channels or floodplains and will not interfere with flood waters.

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C.4 Surface Water

The project will be constructed along existing road, railroad, and pipeline rights-of-way. Fourteen stream channels will be crossed along the route. There will be no change in surface water area along the non-stream portions of the ROW. There might be a temporary change in surface water in the stream channels crossed by the open trench/flume pipe operations. If so, this impact would be minimal. Once the trench is re-filled the surface water volume will be restored to pre-project state.

C.5 Surface Water Quality

The project will involve construction of approximately 25 miles of pipeline with the majority of the project occurring within existing road, railroad and pipeline rights-of-way. There will not be any direct impact of the route with surface waters other than at fourteen stream crossings. (See A.6.)

There may be some siltation created by the trenching operation releasing material into nearby drainages. This impact is expected to be small because the project is planned for construction during the dry season. With rain being the most likely means of transporting loose soil from the project site, the prospect of siltation is low.

The trenching operations across the stream crossings are the only other possible points during the construction where siltation could impact water quality. These crossing points will be protected during the trenching with flume pipes where necessary to isolate disturbances by construction from any free moving water in the channels. A small bit of siltation could occur while the flume pipes and sandbag dams are installed and removed, but this impact should be minor and temporary.

The completed project could be a source of siltation along some of the bare ground portions of the right-of-way. This potential impact will be mitigated with seeding of the ROW to prevent erosion which could be a source of silt. Grading of slopes will be done to prevent excessive water velocity downslope which could lead to soil erosion.

The project will not create any impacts on water temperatures or dissolved oxygen.

Impacts to surface water quality could occur if there was a break in the pipeline. The pipeline will be designed and constructed to conform with 49 CFR 195 of the U. S. Department of Transportation Pipeline Safety Regulations and with applicable sections of Section I, Chapter 5.5 of the California Pipeline Safety Act, paragraphs 51010-51020.

Block valves or check valves are planned for the proposed pipeline. These valves will be spaced at locations

specifically engineered to minimize the flow of product in the event of a spill.

Wildcat Creek and San Pablo Creek drain into marshes on San Pablo Bay. Because of the valves and other safety controls (see Attachment A for a full discussion of environmental and safety controls) no impacts are anticipated. The ground and pipeline elevation changes little in this area. Location of a check valve upstream from San Pablo Creek will prevent any back flows in case of a spill. That, along with the relatively flat terrain, will limit any spill to a minimum. The applicant has received a Streambed Alteration Agreement from the Department of Fish and Game. It has been extended without change through October 1993. A copy is attached as Attachment B.

C.6 Ground Water Flow

The majority of the project right-of-way will occupy existing road, railroad and pipeline rights-of-way and will be buried approximately 48 inches below ground surface. This construction will be too shallow to affect ground water formations or intercept ground water flows. The portions of the pipeline which are bored under stream channels will not exceed 15 feet below ground surface and thus will not impact ground water.

There are no portions of the project which will involve water withdrawal or injection of water into underground formations. The project will not impact ground water formations by these means.

C.7 Ground Water Quantity

The project will involve the construction, via trenching and burial of a 25 mile petroleum product pipeline. The pipeline will be buried approximately 18 inches below ground surface with some portions no deeper than 15 feet at stream crossings bored under the channels. The facility will not be used for water withdrawal or to inject water into formations. The construction depths are too shallow to intercept ground water formations. The project is not intended to remove or place ground water into or from subsurface formations. There should be no impact on ground water quantity.

C.8 Water Supplies

The project is intended for the transportation of refined petroleum products between the Richmond City pumping station and the Concord station of Santa Fe Pacific Pipeline Partners.

There will be no significant impacts, either in the construction phase or the operation phase, on public water supplies. Some water may be used in dust suppression, some construction activities and boring the stream channel crossings but this will not affect public supplies.

243
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C.9 Water Hazards

The project will involve the trenching, installation and burial of a 25 mile length of 12 and 16 inch O.D. steel pipe. The project will be built along existing rights-of-way and across 14 stream channels. The pipeline construction will not create flood hazards on the land portions of the project. There is a possibility of flood hazard in the stream channel crossings but this is expected to be remote as the project will be built during the dry season and the bypass process in the channels is designed to accommodate the expected water flow in those channels.

C.10 Thermal Springs

There are no known thermal springs in the project area. The project will not affect thermal springs.

D.1 Plant Species Diversity

Of the total 25 miles of proposed pipeline, approximately 9 miles are within city streets or county roadways. Of the remaining 16 miles, approximately 10 miles are within railroad right-of-way. Along the railroad right-of-way the dominant plant community is grassland, mixed with introduced herbaceous species. Long sections of the railroad right-of-way are devoid of vegetation due to regularly scheduled maintenance activities of the railroad companies within their rights-of-way. The remaining 6 miles of proposed pipeline route are those on Unocal's San Francisco Refinery property and those north of State Highway 4 parallel and adjacent to existing pipeline rights-of-way.

The coastal mountains and valleys of Contra Costa County and neighboring counties typically support an Oak-Woodland biotic community. Most typical of the upland hills are the grasses, such as wild oats (Avena sp.) which die back during the rain-free summer months. The Valley Oaks (Quercus lobata) and Coast Live Oaks (Q. agrifolia) of this community are most densely distributed on uncleared north-facing slopes and in deep valleys. Other plants typical of the community include the California Buckeye (Aesculus californica) and Poison Oak (Rhus diversiloba). The Star Thistle (Centaurea solstitialis) and the Coyote Bush (Baccharis pilularis) are also frequently encountered.

The project is designed to follow along existing road, railroad and pipeline rights-of-way with a small portion of the route traversing open range land. The majority of the rights-of-way are disturbed and will most likely lack significant plant communities beyond common weeds. These sites will be maintained relatively free of plants along road shoulders and railways. Streets will be repaved precluding plant populations there.

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The range land is occupied by more established plant communities but these areas are used for livestock grazing so impacts on plant populations there will already be high. Loss of plants by the construction will be unavoidable in these circumstances but this impact will be temporary. The resident plant communities will repopulate the excavation sites once the project is complete. Some reseeding of the graded route will be undertaken to reduce potential soil erosion otherwise, repopulation by local populations should occur.

Aquatic Ecology

Wildcat Creek and San Pablo Creek contain dense narrow bands of riparian vegetation such as willows (Salix sp.) and wild blackberries (Rubus ursinus). However, at the proposed point of crossing the streams, within the railroad right-of-way, no streamside vegetation is present. Wildcat Creek remains clear, with numerous riffles and the attendant benthic assemblage. San Pablo Creek at the point of crossing has substantial streamside vegetation also, with clear, relatively deep, moderate flow. However, since San Pablo Creek is to be bored, streamside impacts will be nonexistent. Refugio Creek will likewise be crossed within the railroad right-of-way and, since it is a concrete box culvert, will be spanned, thereby negating streamside impact. Garrity Creek and Pinole Creek in the vicinity of the route contain tidal marsh vegetation such as salt grass, cordgrass, and pickleweed, but provide little aquatic habitat. Pinole Creek will be bored with no stream impacts. At Garrity Creek a temporary cofferdam will be placed to reduce impacts.

Refugio Creek and Rodeo Creek both have substantial streamside vegetation, and are clear with moderate flow and apparent high quality water with tidal influence from San Pablo Bay. Rooted and floating aquatic vegetation is present in both streams. Bank stability is good, with vegetation cover to the water's edge. However, both will be crossed in SPRR right-of-way spans over the box culverts which will negate streambed impacts.

The tributaries to Canada del Cierbo and Franklin Canyon Creek proposed to be crossed are nothing more than grass-lined swales at the proposed points of crossing, and as a result provide no aquatic habitat. Furthermore, at the proposed point of crossing the Canada del Cierbo tributary, the pipeline will be installed within the right-of-way of Cummings Skyway as it crosses over the creek.

Franklin Canyon Creek provides substantial streamside habitat due to its gallery forest. The creek itself however is littered with trash, but the water is clear with only faint algal tinting, limited rooted and floating aquatic vegetation, and low to no flow. The proposed route however crosses the creek as the creek flows under Franklin Canyon Road, thereby negating any impacts since the pipeline will be installed

within the roadway.

Arroyo del Hambre is an urban, residential stream providing good streamside habitat. The stream has moderate flow, pebble bottom, and limited rooted aquatic vegetation. Since the proposed route places the pipeline within Muir Station Road as it crosses Arroyo del Hambre, construction of the pipeline will not impact the stream.

Grayson Creek is another urban stream providing good aquatic and streamside habitat. With the floodplain, the stream is braided. The water is clear with only faint algal tinting, rooted aquatic vegetation, occasional riffles, and a mud bottom. Water quality appears to be high based on the benthic assemblage present.

Walnut Creek is very similar to Grayson Creek, except much larger. The floodplain is approximately 375' wide and is completely vegetated. Numerous pools, bifurcations and braids occur throughout the length of the creek. Both banks are lined with rooted and floating aquatic vegetation. The water is clear and flows moderately over a mud bottom. Alternating pools and riffles cover the length of the creek. Numerous species of trees line the banks, providing habitat for red-winged blackbirds. Fish, crayfish, adult and larval insects, muskrats and bullfrogs are all readily observable on-site. However, no threatened or endangered aquatic or streamside species are known to exist along Walnut Creek at the proposed point of crossing, or at any of the other creeks crossed by the proposed pipeline route.

D.2 Endangered Plant Species

Several plant species along the proposed route of the pipeline have been identified by either the California Department of Fish and Game, the California Native Plant Society, or the United States Fish and Wildlife Service as either threatened, endangered, rare, or limited distribution, plants about which insufficient information is available, or plants which are not threatened or endangered (i.e. plentiful and/or too widespread to be listed as either threatened or endangered). Representative plant species of the north county area are presented in Exhibit M along with their individual designations.

Of all the plant species listed in Table 4-1, only five are reported to potentially be in the general area, and they are 1) Alameda Manzanita, Arctostaphylos pallida, 2) Santa Cruz Tarplant, Holocarpha macradenia, 3) Soft Bird's Beak, Cordylanthus moolis, 4) Delta Tule Pea, Lathyrus jepsonii, and 5) Diablo Helianthella, Helianthella castanea. Of these five, Alameda Manzanita and Santa Cruz Tarplant are state listed endangered and Soft Bird's Beak is state listed rare. The other two, along with all the others listed in Table 4-1, are neither state or federally listed. Exact locations of these three state listed plants along the proposed pipeline route

ENDORSE PAGE 22
DATE 11/15

are unknown, reported by the California Native Plant Society (CNPS) only as being in the area (CNPS reports locational data according to 7 1/2' quadrangle only).

The majority of the project will be constructed in existing road, railroad and pipeline rights-of-way which have been disturbed to various degrees. Paved and cleared areas along roads and railways will reduce the possibility of plant occupation. Two State listed-Endangered, one State-listed Rare and federal listed rare plants are known to be within the general area in which the pipeline will be constructed.

Prior to construction, a definitive survey of the pipeline route where impacts could potentially occur was carried out by an outside professional biological consulting firm in order to identify any environmentally sensitive areas either on or adjacent to the proposed pipeline route. Several areas were located which were conducive to supporting the sensitive plant species known to populate the region. Site surveys were conducted during the spring and fall seasons to ensure location of early and late blooming plants. No individuals of the candidate species were found within the proposed project right-of-way. A copy of the survey is attached as Attachment C.

D.3 New Plant Species.

The project will involve construction of a petroleum products pipeline along a 25 mile long corridor from Richmond to Concord. The majority of the pipeline route will be constructed in urban industrial, business and some open rangeland. The pipeline right-of-way will be aligned along existing road, railroad and pipeline rights-of-way which are currently paved or maintained. A small portion of the route will be in rangeland which is used for grazing and is continuously disturbed.

The construction will involve grading and trenching of the pipeline right-of-way, stringing and installing of the pipe, burial and restoration of the pipeline ROW to original condition. The grading before and after pipe installation will disturb plants along the route, uprooting many in the process.

Though some plant individuals along the route may be inadvertently uprooted and transplanted by construction equipment, new species should not be introduced. Some seeding to prohibit erosion will be conducted along portions of the pipeline route. This will be carried out with native grasses commonly used for such operations.

The project will involve restoration of the ROW back to original condition. There should not be any alteration to land surfaces to modify growth patterns of plant populations.

253
2005

EXHIBIT M

REPRESENTATIVE PLANT SPECIES OF
NORTHERN CONTRA COSTA COUNTY

Common Name	Scientific Name
Alameda Manzanita	<u>Arctostaphylos pallida</u> - CE/C2*
Brass Buttons	<u>Cotula coronopifolia</u>
Bull Tule	<u>Scirpus robustus</u>
Bur Clover	<u>Medicago hispida</u>
Canadian Thistle	<u>Cirsium arvense</u>
Centaury	<u>Centaureum floribundum</u>
Common Plantain	<u>Plantago major</u>
Coyote Bush	<u>Baccharis pilularis</u>
Delta Tule Pea	<u>Lathyrus jepsonii</u> - C2
Diablo Rock Rose	<u>Helianthella castanea</u> - C2
Dock	<u>Rumex</u> sp.
Elderberry	<u>Sambucus caerulea</u>
Fescue grass	<u>Festuca</u> spp.
Fiddleneck	<u>Amsinckia intermedia</u>
Foxtail	<u>Hordeum murianum</u>
Gum Weed	<u>Grindelia</u> sp.
Heliotrope	<u>Heliotropium curassavicum</u>
Lupine	<u>Lupinus</u> sp.
Milk Thistle	<u>Silybum marianum</u>
Mustard	<u>Brassica campestris</u>
Owls Clover	<u>Orthocarpus purpurascens</u> - C
Periwinkle	<u>Vinca major</u>
Pickleweed	<u>Salicornia</u> sp.
Popcorn Flower	<u>Plagiobothrys</u> sp.
Poverty Weed	<u>Iva axillaris</u>
Rabbitfoot Grass	<u>Polypogon maritimus</u>
Red Alder	<u>Alnus rubra</u>
Red-stem Filaree	<u>Erodium cicutarium</u>
Ripgut	<u>Bromus rigidus</u>
Rye grass	<u>Elymus</u> sp.
Salt Grass	<u>Distichlis spicata</u>
Santa Cruz Tarplant	<u>Holocarpha macradenia</u> - CE/C1
Slender Wild Oat	<u>Avena barbata</u>
Soft Bird's Beak	<u>Cordylanthus mollis</u> - CR/C1
Star Thistle	<u>Centaurea melitensis</u>
Sweet Fennel	<u>Foeniculum vulgare</u>
Tule	<u>Scirpus</u> sp.
Wild Oats	<u>Avena fatua</u>
Wild Radish	<u>Raphanus sativus</u>

- * C - too common to include
 C2 - data are insufficient to support a federal listing
 C1 - enough data are on file to support a federal listing
 CE - State listed, endangered
 CR - State listed, rare

349

207

D.4 Crop lands

The pipeline right-of-way will be constructed along the existing rights-of-way for roads, railroads and pipelines. These corridors are not used for agricultural purposes. The project does cross some open rangeland where some existing pipelines already pass. This land is used primarily for cattle grazing. These rights of way are left open as the original range land surrounding them. The new pipeline right-of-way will be constructed with open trenching, making the range land inaccessible to cattle grazing while the construction is going on. Upon completion of the pipeline, the land will again be made accessible to grazing. Construction impacts will be temporary lasting approximately one day for each 1/2 mile of pipe laid.

E.1 Animal Species Diversity and E.2 Rare, Endangered

The project route is planned along existing road, railroad and pipeline rights-of-way. These areas are occupied by urban and industrial activities. A small portion of the pipeline route will traverse open rangeland which is used for grazing.

Typical wildlife species include Blacktail Deer (Odocoileus heminous), the Acorn Woodpecker (Malanerpes formicivorous), the Brush Mouse (Peromyscus boylei), and the California Ground Squirrel (Citellus beecheyi). Red-tailed Hawks (Buteo jamaicensis) and Sparrow Hawks (Falco sparverius) are frequently observed foraging for their mammalian prey. Representative animal species of the north county area are presented in Table 4-2.

Only four animals are reported from specific sightings to potentially occur in the general area of the proposed pipeline route as follows:

The Black Rail has been sighted in two areas along the proposed route, the first in marshlands north of San Pablo on San Pablo Bay, west of the SPTCo railroad right-of-way, and the second in the vicinity of north Pinole. In the first area the proposed route is on Santa Fe railroad right-of-way, and in the second area the route is on Santa Fe railroad right-of-way first and then changes to SPTCo right-of-way. The Clapper Rail has been sighted in the same general area as the first above-listed sighting of the Black Rail, north of San Pablo, on San Pablo Bay and the adjacent marshlands.

The Tiger Salamander has been sighted in the Pacheco-Concord area, most likely in the Pacheco Creek drainage (Walnut Creek and Grayson Creek empty into Pacheco Creek). The San Pablo Vole has been sighted in the general area surrounding the Richmond Golf Club south of Pinole Point, as the proposed route on Santa Fe railroad right-of-way turns east toward Pinole.

Four State and/or Federally listed animal species are located within the general vicinity of the project route though not on the right-of-way itself.

The pipeline route will cross through the habitat zone of two federally and/or state listed birds, the California Black Rail is state listed threatened, Laterallus jamaicensis coturniculus and the California Clapper Rail is both state and federally listed endangered, Rallus longirostris obsoletus.

The pipeline will be constructed along railroad right-of-way where it passes through these birds' habitat zones and should not impact their territory. The animals' high mobility will further reduce impacts the project may have on their activities. No nests or nesting habitat has been reported to occur on the proposed route.

Two rodents, the Salt Marsh Harvest Mouse, Reithrodontomys maniculatus and the Salt Marsh Wandering Shrew are reported to potentially occur along the pipeline route. The Salt Marsh Harvest Mouse is State and Federally listed endangered. The Salt Marsh Wandering Shrew is not listed. The sightings of the Wandering Shrew and the Harvest Mouse have been sighted in the same general area, but to the west, closer to San Pablo Bay.

The project activity along existing road and railroad rights-of-way should not impact their habitats. Activities along existing pipeline routes should not create a significant impact as these areas will have been disturbed and maintained clear for inspection purposes. Highest impacts will occur in open lands used for grazing. The impact should be minimized by maintaining a narrow construction zone sufficient for construction. The completed ROW will be returned to original profiles and re-seeded with native plants to restore the surface vegetation.

Two State species of special concern, the California Tiger Salamander, Ambystoma tigrinum californiense and the San Pablo Vole, Microtus californicus sanpabloensis, are also within the vicinity of the project. The Tiger Salamander has been sighted in the Pacheco-Concord area, most likely in the Pacheco Creek drainage (Walnut Creek and Grayson Creek empty into Pacheco Creek). The San Pablo Vole has been sighted in the general area surrounding the Richmond Golf Club south of Pinole Point, as the proposed route on Santa Fe railroad right-of-way turns east toward Pinole. An additional siting of the San Pablo Vole has been reported in this same area. Impacts at stream crossings will be minimized or avoided either by boring under the stream channel in active flow or sensitive streams or by fluming, diverting water around the trenching operation.

The project construction will be temporary in duration and the project site will be restored to original condition in open lands. The project should not affect species diversity.

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