

## MOJAVE

- GEOLOGY:** Operation
- Impact:** Geologic and seismologic hazards may result in damage to the pipeline and related facilities in the vicinity of the Ludlow, Pisgah and Calico Faults.
- Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
- B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING THE FINDING:

Although it is difficult to quantify the probability of surface fault rupture, it is generally accepted that the more recently a fault has moved, the more likely it is to move again in any given period of time in the future. All faults with evidence of displacement during Quaternary times were examined. The State of California Division of Mines and Geology (CDMG) also identifies faults which are judged to be sufficiently capable of surface rupture in the short-term and thus require special study and design before facilities can be built in the vicinity. Among the criteria, evidence of Holocene offset is sufficient to cause the fault to be zoned.

Along the Mojave route in California, the EIR identified three faults within the portion of the route now under study that showed evidence of Quaternary movement (FEIR/S I, Table 3.1-6). Field investigations of these faults indicated that only the Pisgah and Calico Faults had Holocene activity and would be crossed by the present pipeline alignment.

The Pisgah Fault is located at MP 98 of the Mojave Pipeline route. The Pisgah Fault is a right-lateral strike-slip fault with the potential for 7.5 feet of lateral displacement. The estimated maximum magnitude earthquake for rupture along the fault is 6.9.

The Calico Fault is located near the intersection of Interstate Highway 15 and Newberry Road near Daggett, California between MP 130 and 134. The Calico Fault is a right-lateral strike-slip fault zone about 0.6 mile wide with evidence of repeated Holocene activity. Three splays of the fault were located which cross the alignment, the main trace of the Calico Fault and two fault subsidiaries to the main trace. Potential displacements have been estimated to be seven feet on the main trace and five feet on a subsidiary fault.

Because of the linear nature of the pipeline, many government agencies have land use responsibility and jurisdiction over the project, and thus, can require mitigation measures as part of the right-of-way (ROW) or construction permit or grant. In California, San Bernardino County would have jurisdiction over private lands along the pipeline route, while the BLM administers the public lands associated with the Mojave route.

The following mitigation measures were suggested in the FEIR/S, which each of the above agencies as appropriate, can require to reduce the impact of ROW construction.

Detailed geologic, seismologic, and geotechnical studies shall be conducted by the applicant to identify and characterize geologic hazards as appropriate. In areas where hazards are identified, information shall be collected to aid in the design and construction of the pipeline and ancillary facilities. In general, care shall be taken during construction to minimize surface disturbance and related soil erosion, and not to alter the drainage of the affected area (FEIR/S Mitigation Measure #4).

Additional studies shall be conducted by the applicant to evaluate potential seismological hazards along the proposed routes. The potential for surface offset along Quaternary faults shall be evaluated in detail so that appropriate pipeline crossings can be designed. Field studies shall be completed to delineate the areas where movements may occur (FEIR/S Mitigation Measure #5).

Results of the proposed applicants' geotechnical studies indicated in Nos. 4 and 5 above shall be submitted to the SLC. The following geotechnical studies and mitigating design measures shall be submitted for review and approval by the SLC staff prior to implementation of these measures. Such studies shall include identification of: (a) all Holocene faults crossed by the proposed facilities; (b) all areas where potentially liquefiable deposits are crossed and likely effects on the facilities; and (c) all landslides or areas of significant slope instability crossed by, or possibly affecting, the proposed facilities.

Specific mitigating measures shall be developed to minimize the potential for slope failures, ruptures or failure of pipeline facilities wherever such failure could result in direct or indirect hazards to public safety and environmental resources. The nature and locations of significant geologic hazards shall be considered in the siting of block valves. The applicant shall also consider use of automatic or remote-controlled block valves in areas which may be inaccessible following a major earthquake or landslide.

Studies shall be done in sufficient detail to allow characterization of the particular geologic hazard using state-of-the-art techniques. Sufficient justification should be included for not implementing specific mitigating measures in areas identified as subject to significant geologic hazards (FEIR/S Mitigation Measure #8).

Implementation of these measures have been completed by Mojave (Woodward-Clyde Consultants, 1989) and will result in minimization of the potential for serious damage to the pipeline and related facilities. This has been accomplished by recommending that faults that require mitigation be flagged in the field prior to excavation; examination and

mapping of the pipeline trench to locate fault crossings and to confirm fault parameters for the mitigation design at each crossing by a seismic geologist; and inspection of the pipeline by a seismic geologist or earthquake engineer following earthquakes larger than a magnitude of 5 that occur within 50 miles of the pipeline.

## MOJAVE

- GEOLOGY:** Operation
- Impact:** Liquefaction could occur in the vicinity of Troy Lake in conjunction with a seismic episode at the Calico Fault.
- Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
- B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING THE FINDING:

There may be a significant potential for liquefaction where the route crosses playa lakes in the Mojave Desert. Liquefaction is a condition in which an earthquake-induced increase of pore pressure in saturated loose, granular sediments causes a temporary but complete loss of shear strength. The potential conditions of greatest concern for the proposed pipeline would be lateral spreading, which may carry the pipeline downslope and result in rupture. Another effect on the pipeline would be flotation which could result in exposure of the pipeline and possible rupture.

Because of the linear nature of the pipeline, many government agencies have land use responsibility and jurisdiction over the project, and thus, can require mitigation measures as part of the right-of-way (ROW) or construction permit or grant. In California, San Bernardino County would have jurisdiction over private lands along the pipeline route, while the BLM administers the public lands associated with the Mojave route.

The following mitigation measures were suggested in the FEIR/S, which each of the above agencies as appropriate, can require to reduce the impact of geologic activities on operation of the pipeline.

Detailed geologic, seismologic, and geotechnical studies shall be conducted by the applicant to identify and characterize geologic hazards as appropriate. In areas where hazards are identified, information shall be collected to aid in the design and construction of the pipeline and ancillary facilities (FEIR/S Mitigation Measure #4).

Results of the proposed applicants' geotechnical studies indicated in No. 4 shall be submitted to the SLC. The following geotechnical studies and mitigating design measures shall be submitted for review and approval by the SLC staff prior to implementation of

these measures. Such studies shall include identification of: (a) all Holocene faults crossed by the proposed facilities; (b) all areas where potentially liquefiable deposits are crossed and likely effects on the facilities; and (c) all landslides or areas of significant slope instability crossed by, or possibly affecting, the proposed facilities.

Specific mitigating measures shall be developed to minimize the potential for slope failures, ruptures or failure of pipeline facilities wherever such failure could result in direct or indirect hazards to public safety and environmental resources. The nature and locations of significant geologic hazards shall be considered in the siting of block valves. The applicant shall also consider use of automatic or remote-controlled block valves in areas which may be inaccessible following a major earthquake or landslide.

Studies shall be done in sufficient detail to allow characterization of the particular geologic hazard using state-of-the-art techniques. Sufficient justification should be included for not implementing specific mitigating measures in areas identified as subject to significant geologic hazards (FEIR/S Mitigation Measure #8).

Implementation of these measures have been completed by Mojave (Woodward-Clyde Consultants, 1989) and will result in minimization of the potential for serious damage to the pipeline and related facilities. This has been accomplished by recommending that an aerial inspection of the pipeline by a seismic geologist or earthquake engineer be conducted immediately after any significant earthquake in the region to examine the route for evidence of liquefaction and possible damage to the pipeline.

Implementation of these measures should reduce impact to insignificant levels.

## MOJAVE

**GEOLOGY:** Operation

**Impact:** Volcanic activity may cause damage to the pipeline in the vicinity of the Amboy and Pisgah Craters.

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING THE FINDING:

The Mojave Pipeline route traverses two areas of geologically recent volcanic activity. The lava fields associated with the Amboy Crater are located south of the pipeline route with the lava from future eruptions flowing away from the pipeline along nature topographic gradients. The Pisgah Crater and related volcanic areas occur between MP 110 and 122. Basalt flows from the Pisgah Crater occupy an old playa basin between Troy Lake and Lavic Lake. The route crosses the northern margin of the lava field.

The risk of volcanic activity damaging the pipeline is small. There may be a hazard due to possible recurrence of volcanism with the greatest potential for damage in a cinder cone area west of Amboy Crater.

Mitigation measures to reduce the impacts of volcanism include the investigations discussed above conducted by Woodward-Clyde consultants (1989) and examination of the pipeline and possible shut down of the line if volcanic activity occurs in the region.

Implementation of these measures should reduce impacts to insignificant levels.

## MOJAVE

**SOILS:** Construction

**Impact:** Construction of the pipeline will result in a loss of topsoil due to wind and/or water erosion. Removal of vegetation and/or desert pavement will result in increased erosion. Reclamation potential of the soils along the route are generally poor due to sandy texture and/or saline alkaline conditions.

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

C) Specific economic, social or other considerations make infeasible the mitigation measures or project alternatives identified in the Final EIR.

### FACTS SUPPORTING FINDING:

Significant adverse impacts to soils would result from the construction of the pipeline. These impacts would consist of the permanent removal of vegetation from a portion of the ROW for at least five years. Vegetation removal could result in increased wind and/or water erosion. Furthermore the poor reclamation potentials of most of the soils along the route would preclude rapid recovery of the vegetative community.

Many government agencies have land use responsibility and jurisdiction over the project, and thus, can require mitigation measures as part of the right-of-way (ROW) or construction permit or grant. In California, San Bernardino County would have jurisdiction over private lands along the pipeline route, while the BLM administers the public lands associated with the Mojave route.

Several mitigation measures are suggested in the FEIR/S which the appropriate agencies can require to reduce the impact of pipeline construction. These measures include:

Selective salvage and replacement of topsoil (A horizon) shall be done for cultivated lands and those lands for which the land management agency or the landowner requests that topsoil be salvaged and replaced or on lands underlain by soils poorly suited or with

unsuitable reclamation potential. Topsoil shall not be used for filling of sack breakers or for padding of the trench (FEIR/S Mitigation Measure #13).

The applicant shall minimize the amount of vegetation removed, and where it is removed leave the roots intact (FEIR/S Mitigation Measure #17).

During construction of the project, on-site reclamation specialists, certified by The Soil Conservation Society of America, shall be employed by the company for each construction spread to provide direct applicable restoration procedures when special conditions are encountered, without causing construction delays (FEIR/S Mitigation Measure #19).

Where practical, as determined by the appropriate regulatory agency, the pipeline shall be located on side-slopes of less than 30 percent (FEIR/S Mitigation Measure #21).

The applicant shall minimize the areas of disturbance to a minimum necessary to construct and operate the pipeline. Steep slopes and particularly sensitive areas prone to significant impact shall be avoided where practicable (FEIR/S Mitigation Measure #24).

Soil areas with rock fragments, such as very coarse gravel, cobble or stone scattered on the surface or desert pavement conditions shall be restored as nearly as possible to the original preconstruction surface condition to blend with the adjoining area, to avoid a smooth surface ROW area, and to control accelerated erosion (FEIR/S Mitigation Measure #26).

On federal lands, a detailed site-specific geotechnical and restoration and reclamation plan shall be developed and become part of the Forest Service/Bureau of Land Management construction, operation, and maintenance (COM) plan. Because the proposed ROW is composed of many types of terrain, soils, water, bedrock, vegetation, land uses, and climatic conditions, the detailed plan shall include sets of techniques and measures tailored to each condition encountered. Local expertise and locally effective slope stabilization and reclamation methods shall be followed when the site-specific procedures for the detailed plans are developed. Site-specific geotechnical and erosion control, revegetation, and restoration measures from the plans shall be implemented under the direction of the appropriate agency official. Consultation with all appropriate state and federal agencies and other local experts will be required when developing detailed site-specific revegetation plans (FEIR/S Mitigation Measure #27).

All topsoil on federal lands shall be conserved for reclamation requirements unless otherwise directed by the FS/BLM; excess topsoil shall be stockpiled at designated locations. Topsoil shall be removed, windrowed separately, protected, and replaced last during backfilling (FEIR/S Mitigation Measure #29).

During adverse weather conditions, as determined by the FS/BLM authorized officer, stop and start orders on federal lands shall be issued to prevent rutting or excessive tracking of soils and deterioration of vegetation in the ROW area (FEIR/S Mitigation Measure #30).

On all federal lands, design and construction of all temporary, reconstructed, and newly constructed roads shall be based on an approved COM plan transportation section and shall ensure proper drainage, minimize soil erosion, and preserve topsoil. This plan shall include clearing work, rehabilitation, and use and maintenance agreements associated with transportation needs.

Where possible, the ROW itself shall be used as an access road during the construction period. Overland access may be specified in lieu of road construction or reconstruction.

All temporary roads shall be closed and areas restored without undue delay or maintained as specified in the ROW grant(s) or special use permit(s). Restoration to near original slope and contour, including redistribution of topsoil, would be to the satisfaction of the appropriate land management agency (FEIR/S Mitigation Measure #31).

Areas with dense brush and/or boulders shall be cleared by construction machinery prior to grading and trenching. Trees and large shrubs that are too large to be bladed by a bulldozer shall be avoided or removed. Vegetation removed shall be windrowed within the ROW during construction and spread on the ROW after construction, for use as wildlife cover. The upper two to six inches of topsoil from the construction ROW requiring grading shall be removed and windrowed with the vegetation and kept separate from the remaining spoils.

Grading shall be limited to that area necessary to permit movement and operation of equipment. Grading shall not be permitted in areas where sensitive plant species occur, until after sensitive plants are removed and transplanted or soil seed banks are removed (EIR Amendment: Appendix C, Section 3.1.2.2).

Once construction is complete and the pipeline trench backfilled, the pipeline alignment and access roads shall be recontoured to approximate the original contour. Heavily compacted soils shall be loosened through the use of a cultivator or similar device. Stockpiled topsoil shall then be placed on the surface in a manner to reduce disturbance to the topsoil and recompaction of the soil. In order to reduce water erosion, slope angle and slope length shall be reduced where appropriate. In addition to the replacement of topsoil, rock and natural plant debris shall also be replaced to reduce erosion potential (EIR Amendment: Appendix C, Section 3.3.2.4).

All areas of the pipeline ROW containing native vegetation shall be restored by the replacement of the segregated topsoil onto the disturbed ROW. After return of the topsoil and the windrowed vegetation, the disturbed areas shall be imprinted. Imprinting is a shaped roller which forms funnel-shaped seedbed and seedling cradles which concentrate water and improve infiltration.

No mulching, fertilization or reseeding shall take place within the Mojave Desert beyond the replacement of the windrowed vegetation which will be mixed with the topsoil.

Restoration activities shall be monitored in the same manner as other construction activities.

Areas with a high potential; for either wind or water erosion shall be stabilized by the use of a tackifier such as J-tac (40-80 lbs/acre). The feasibility of usage shall be evaluated by the on-site biological monitoring staff and the reclamation specialist at the time of restoration (EIR Amendment: Appendix C, Section 3.3.3.1).

Utilization of all of these measures will significantly reduce impacts to soils and vegetation; however, even with the implementation of these measures, impacts to soils will remain significant.

### ALTERNATIVES

#### No Project Alternative

While the EIR does not address whether the No Project Alternative would result in greater or lesser impacts to soils, it is assumed that by not building the project would result in fewer impacts. However, the No Project Alternative would not provide important benefits to the State of California which would result from operation of the Mojave Pipeline, particularly with respect to additional tax based revenues associated with the construction and operation of the facility, air quality benefits in the Kern County region, and a lessened dependence on foreign oil sources as a result of the Enhanced Oil Recovery goals of the project.

#### No Action Alternative

While the EIR does not address whether the No Action Alternative would result in greater or lesser impacts, it is assumed that the building of the Mojave project as originally proposed would result in greater impacts to soils than the route currently under consideration.

#### PGT/PG&E Alternative

While the EIR does not address whether the PGT/PG&E Alternative would result in greater or lesser soil erosion impacts, the CPUC Final EIR indicated that significant and unavoidable soils impacts would occur as a result of the building of the project. However, the PGT/PG&E Alternative would not overlap with the proposed Joint Mojave-Kern River Proposal and would not serve the same gas market place. As a result the feasibility of the PGT/PG&E alternative must be questioned. In order for the PGT/PG&E Alternative to be feasible an unknown amount of additional construction would have to be undertaken.

#### Alternative Energy Sources

While the EIR does not address whether the utilization of Alternative Energy Sources would result in greater or lesser soil erosion impacts, its utilization would result in fewer soils

related impacts in the short-term. The Alternative Energy Sources Project would not result in significant long-term benefits due to the lack of adequate supplies of energy. Utilization of fuels other than natural gas would not provide important benefits to the State of California which would result from operation of the Mojave Pipeline, particularly with respect to additional tax based revenues associated with the construction and operation of the facility, air quality benefits in the Kern County region, and a lessened dependence on foreign oil sources as a result of the Enhanced Oil Recovery goals of the project.

#### Route Alternatives

A number of routing alternatives were examined in the EIR. Mojave Alternative A had greater impacts to soils than the proposed routing, while Alternative B would have roughly equal impacts. Mojave has changed their routing in the FERC certificate to include Alternative B as required by mitigation measure 113.

## MOJAVE

### SURFACE WATER: Construction

**Impact:** Reduced water quality, increased sediment loading, and aggradation and degradation of stream channels due to channel bed disruption could occur during construction across the Colorado and Mojave rivers and several intermittent streams along the route.

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING FINDING:

The proposed crossing of the Colorado River would be on an existing bridge and thus would not result in any construction related impacts associated with sedimentation, aggradation, degradation or streambed alteration.

The proposed crossing of the Mojave River would be buried below the channel bottom at a depth below the estimated scour. If the Mojave River were flowing during the construction phase, an unlikely event, an increase in sediment load and subsequent decrease in water quality would be expected downstream.

Mitigation measures have been developed to ensure that impacts to the Mojave River as well as all intermittent streams are minimized. These measures include the following:

The applicant shall develop and implement site-specific erosion control, revegetation, and stabilization plans as soon as possible to limit soil erosion and potential sediment input. This plan must be acceptable to the appropriate regulatory agency. In addition to this plan, an anti-degradation analysis of water quality should be undertaken to assure that the highest statutory and regulatory requirements and best management practices for pollutant controls are achieved (FEIR/S Mitigation Measure #35).

The applicant shall minimize stream bank and streambed disturbance to the extent practicable. Construction impact should not exceed two weeks. Periods of low flow shall be utilized when crossing stream channels (FEIR/S Mitigation Measure #36).

Construction across intermittent and perennial streams shall be done during periods of low or no flow where practicable. Stringent water quality control measures shall be utilized on crossings made during moderate to high flow periods (FEIR/S Mitigation Measure #37).

After pipeline construction is completed, construction contractors shall stabilize disturbed areas promptly (FEIR/S Mitigation Measure #38).

The pipeline shall be buried at stream crossings below the estimated scour depths associated with a 100-year flood event. Where channel degradation during operation reduces the burial depth to less than the 100-year scour depth, the applicant shall ensure the integrity of the pipeline through reburial to the proper depth wherever feasible. Where reburial is not practicable other methods such as installation of anchors and riprapping shall be employed (FEIR/S Mitigation Measure #44).

Pipeline operators shall check the pipeline burial depth periodically at stream/channel crossings (FEIR/S Mitigation Measure #45).

Stream crossings shall be made as perpendicular to the axis of the channel as possible (FEIR/S Mitigation Measure #47).

Spoil from trench excavation shall be placed out of the stream on the banks at narrow stream crossings. Spoil shall be carefully placed downstream of the trench at wide crossings. Backfilling at streams shall be performed slowly to minimize agitation and increased sediment loading. Good quality backfill shall be placed in streams (FEIR/S Mitigation Measure #48).

Implementation of these measures should reduce impacts to surface waters to insignificant levels.

## MOJAVE

### SURFACE WATER: Construction and Operation

**Impact:** Reduction in water quality due to fuel or chemical spillage and impacts to surface water resources could occur during construction, operation and abandonment of the pipeline

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING FINDING:

The most significant impact on surface water would be the result of a fuel or chemical spill during construction or operation of the pipeline which could contaminate downstream water supplies. These accidental spills would generally be minor but have the potential to cause significant damage to water supplies.

Mitigation measures to reduce these impacts have been proposed which can be implemented to reduce impacts to insignificant levels. These measures include: requiring that chemicals, fuel, and lubricating oils shall not be stored near stream channels. Spill containments shall be installed or constructed around all chemical, fuel, and oil storage areas. Refueling and changing of lubricating oil shall not be done in or near stream channels, or where an accidental spill could run into a stream channel or shallow ground water zone. Any accidental spills shall be promptly cleaned up (FEIR/S Mitigation Measure #49).

Implementation of these measures should reduce impacts to insignificant levels.

## MOJAVE

### TERRESTRIAL BIOLOGY

VEGETATION: Construction

Impact: Loss of sensitive plant communities or individual sensitive plant species could occur as a result of the construction of the pipeline.

Finding: A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties: Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

C) Specific economic, social or other considerations make infeasible the mitigation measures or project alternatives identified in the Final EIR.

### FACTS SUPPORTING FINDING:

Construction of the pipeline will involve clearing a minimum 75 foot ROW with heavy earth moving equipment. Above-ground obstacles such as trees, brush and boulders are removed and any stumps or roots in the ditch line are taken out. After clearing, the ROW is graded and leveled as necessary for vehicle and equipment operation. These operations would generally remove or kill all vegetation in the 75 foot ROW corridor. Mojave has agreed to reduce this construction impact to the maximum extent possible by utilizing clearing methods which reduce the amount of impact to vegetation. In addition to these impacts, certain portions of the route such as stockpile areas, stream and road crossings, etc., may require additional construction space. These areas have been identified by Mojave.

Where the pipeline route crosses through sensitive and ecologically valuable plant communities such as riparian vegetation, Sonoran creosote bush scrub, Sonoran mixed and succulent scrub, Mojavean creosote bush scrub, alkali sink scrub, desert saltbush scrub, and Mojave wash scrub ROW construction would cause significant impact. In addition, where the route would pass through areas with individuals of sensitive plant species such as crucifixion thorn, Mojave spineflower, foxtail cactus, desert cymopterus, Barstow woolly sunflower, barrel cactus, sand linanthus, Mojave monkeyflower, white-margined beardtongue, Mojave indigo bush and Mojave fishhook cactus, ROW construction would cause a significant impact.

Because of the linear nature of the pipeline, many government agencies have land use responsibility and jurisdiction over the project and thus can require mitigation measures as a part of ROW or construction permits or grants. San Bernardino County would have jurisdiction over private lands along the pipeline route while the BLM administers the federal lands in the desert. The U.S. Fish and Wildlife Service (USFWS) may require stipulations to protect certain plant communities on federal lands and the California Department of Fish and Game has to enforce certain protections for state-listed or otherwise state protected plant species.

A number of mitigation measures have been developed in the FEIR/S and in the EIR Amendment to reduce impacts to sensitive plant communities and individual plant species. These measures are available for appropriate agencies as a method of reducing impacts of ROW construction. A listing of the measures are presented below.

The applicant shall design and implement site-specific revegetation plans according to the requirements and guidelines of the land management agency (BLM or USFWS), state agency or landowner. These plans shall include the necessary topsoil replacement, seedbed preparation, mulching, fertilization, use of seed mixtures containing native species, noxious weed control and additional erosion control. Generally the revegetation objective would be to return the disturbed area to a condition that would perpetuate previous land use. Guidelines established by the SCS shall be used where the pipeline would traverse private land, and if it is agreeable to the owner. Periodic inspection of the ROW shall be conducted by the applicant and reclamation efforts enhanced where needed (FEIR/S Mitigation Measure #57).

During construction in sensitive areas, the applicant shall clear the minimum ROW width possible and minimize ROW damage where possible (e.g. not stripping vegetation less than four inches in height, leaving trees standing and/or mowing taller vegetation as opposed to clearing, the last being particularly desirable in Mojavean shrub communities). This shall include local adjustment of pipeline alignment to avoid areas with high densities of sensitive plant species or sensitive communities (FEIR/S Mitigation Measure #57).

Trees and shrubs that are not cleared shall be protected from damage during construction (FEIR/S Mitigation Measure #60).

Trench backfilling operations shall be conducted in such a manner to minimize further disturbance of vegetation (FEIR/S Mitigation Measure #61).

The applicant shall avoid, where feasible and necessary, locations of sensitive species and environmentally sensitive areas which include sensitive communities and known and suspected habitat of plant species of special concern. Specific information on sensitive areas shall be obtained by conducting field surveys along portions of the proposed route for individuals and habitat of species of concern and sensitive communities. Field surveys shall be conducted during the appropriate time of year by a qualified botanist. Where feasible, pipeline alignment shall be adjusted to miss or minimize impacts to identified individuals or habitats (FEIR/S Mitigation Measure #69).

For areas supporting sensitive plant communities or plant species of special concern, the applicant shall restrict access onto the pipeline ROW where possible, by constructing barricades, fences with locked gates or by posting with signs (FEIR/S Mitigation Measure #70).

Wetland and riparian vegetation impacted by construction or operation shall be replaced in kind (FEIR/S Mitigation Measure #71).

Removal of certain sensitive plant species from the ROW may be a way to decrease impacts to certain plant species in California. If plants are removed, replanting shall occur in suitable habitat outside the zone of potential disturbance (construction and ORV use). Such sites shall be established in consultation with the appropriate land management agencies (FEIR/S Mitigation Measure #72).

When it is not feasible to avoid areas containing plant species of special concern, the applicant shall attempt to transplant such perennial plant species back into the ROW after construction (FEIR/S Mitigation Measure #74).

To minimize permanent and temporary construction disturbances, project-related vehicle traffic, construction activities, and equipment storage shall be restricted to established roads, designated access roads, the construction ROW, storage areas, staging and parking areas, and other designated project areas including the placement of portable restroom facilities. Off-road traffic outside of designated areas shall be prohibited. Parking, storage, and other areas shall be designated by flagged lath stakes at least 24 inches above ground height placed in line of sight with a maximum spacing of 200 ft. These areas shall be examined during preconstruction surveys for state and/or federally listed species, and shall be established in locations disturbed by previous activities, to the extent possible. The construction ROW shall also be clearly marked at the centerline and outside boundaries. The outside boundaries of the ROW shall be staked with at least 24 inch-tall flagged lath at a maximum interval of 200 ft prior to construction. If construction activities are repeatedly documented outside of these flagged areas, the outer boundaries of the ROW must be delineated by a continuously taped boundary. All access roads, both existing and proposed, shall be flagged. Only flagged access roads shall be used (EIR Amendment: Appendix C, Section 3.1.2.1).

Areas with dense brush and/or boulders shall be cleared by construction machinery prior to grading and trenching. Trees and large shrubs that are too large to be bladed by a bulldozer shall be avoided or removed. Vegetation removed shall be windrowed within the ROW during construction and spread on the ROW after construction, for use as wildlife cover. The upper two to six inches of topsoil from the construction ROW requiring grading shall be removed and windrowed with the vegetation and kept separate from the remaining spoils.

Grading shall be limited to that area necessary to permit movement and operation of equipment. Grading shall not be permitted in areas where sensitive plant species occur,

until after sensitive plants are removed and transplanted or soil seed banks are removed (EIR Amendment: Appendix C, Section 3.1.2.2).

Surface material ("topsoil") must be salvaged from trenching and any grading activities for preservation of topsoil and fertility in agricultural areas and existing seedbanks in natural vegetation. Topsoil shall also be salvaged at stream crossings and riparian areas. Topsoil salvage may be done using a double windrow method or other approved method to separate topsoil (the top 2 to 6 inches) from the remaining spoil material. Topsoil shall be bladed to the outside of the spoil pile. Replacement of the spoil pile followed by the topsoil must then be completed. During backfilling, spoil and topsoil shall be pulled back or pushed into the trench in a manner avoiding vehicular traffic outside the ROW.

Special care shall be given in areas (e.g., topsoil removal by hand or small mechanical equipment), where sensitive annual species have been found or may occur to stockpile topsoil from this specific habitat and replace this topsoil in the same area (EIR Amendment: Appendix C, Section 3.1.2.3).

Backfilling of the trench shall be done with an auger backfiller or other suitable equipment where root systems have been preserved and/or where topsoil has been segregated. Where blading has been done, backfilling may be done with a dozer (EIR Amendment: Appendix C, Section 3.1.2.5).

After construction is completed, a final ROW cleanup shall include removal of all stakes, lathe, flagging, barrels, cans, drums, accidental spills and any other refuse generated by construction. No shrub material or other plant cover shall be disturbed during this process (EIR Amendment: Appendix C, Section 3.1.3.1).

Although none is anticipated, if rodenticide and/or herbicide use is required, the pipeline company shall contact the USFWS and CDFG for review and concurrence with the proposed activity. This may result in reinitiation of consultation prior to the use of rodenticide. When use is necessary and approved, each company shall follow restrictions set by the agencies, and must follow label procedures and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation (EIR Amendment: Appendix C, Section 3.1.4.4).

Several candidate or otherwise sensitive plants have the potential to occur along the corridor as described in the Draft EIR Amendment. These include *Cymopterus deserticola*, *Penstemon albomarginatus*, *Linanthus arenicola*, *Eriophyllum mohavense*, and *Mimulus mohavensis* for the Mojave Pipeline. Additionally, other sensitive annual species may be located during new springtime surveys if substantial rain occurs in the 1990-1991 winter season. The following measures shall be taken:

Preconstruction surveys shall take place during the months of March to June to identify and flag all sensitive plant species at known occurrences and in potential habitat on the ROW and access points. These plants shall be avoided wherever feasible.

Cactus and other perennial species that would be lost during construction shall, where feasible, be transplanted to adjacent locations or replaced on the ROW after completion of construction. The guidelines for the feasibility of any transportation of these plants and the location where they would be replanted shall be determined in consultation with the Agencies at least 30 days prior to initiation of construction.

The top two inches of top soil in all known habitat for sensitive annual species shall be removed by hand or small equipment. No reseeding in the immediate vicinity shall be permitted (EIR Amendment: Appendix C, Section 3.2.2.3).

Utilization of these mitigation measures should reduce impacts to sensitive plant communities; however, significant impacts will still occur as a result of construction.

### ALTERNATIVES

#### No Project Alternative

While the EIR does not address whether the No Project Alternative would result in greater or lesser vegetation impacts, it is assumed that by not building the project would result in fewer impacts. However, the No Project Alternative would not provide important benefits to the State of California which would result from operation of the Mojave Pipeline, particularly with respect to additional tax based revenues associated with the construction and operation of the facility, air quality benefits in the Kern County region, and a lessened dependence on foreign oil sources as a result of the Enhanced Oil Recovery goals of the project.

#### No Action Alternative

While the EIR does not address whether the No Action Alternative would result in greater or lesser vegetation impacts, it is assumed that the building of the Mojave project as originally proposed would result in greater impacts to vegetation than the route currently under consideration.

#### PGT/PG&E Alternative

While the EIR does not address whether the PGT/PG&E Alternative would result in greater or lesser vegetation impacts, the CPUC Final EIR indicated that no significant impacts to terrestrial vegetation would occur as a result of the building of the project. However, the PGT/PG&E Alternative would not overlap with the proposed Joint Mojave-Kern River Proposal and would not serve the same gas market place. As a result the feasibility of the PGT/PG&E alternative must be questioned. In order for the PGT/PG&E Alternative to be feasible an unknown amount of additional construction would have to be undertaken.

### Alternative Energy Sources

While the EIR does not address whether the utilization of Alternative Energy Sources would result in greater or lesser impacts, its utilization would result in fewer related impacts in the short-term. The Alternative Energy Sources Project would not result in significant long-term benefits due to the lack of adequate supplies of energy. Utilization of fuels other than natural gas would not provide important benefits to the State of California which would result from operation of the Kern River Pipeline, particularly with respect to additional tax based revenues associated with the construction and operation of the facility, air quality benefits in the Kern County region, and a lessened dependence on foreign oil sources as a result of the Enhanced Oil Recovery goals of the project.

### Route Alternatives

A number of routing alternatives were examined in the EIR. Mojave Alternative A had greater impacts to vegetation than the proposed routing, while Alternative B would have roughly equal impacts. Mojave has changed their routing in the FERC certificate to include Alternative B as required by mitigation measure 113.

## MOJAVE

### TERRESTRIAL BIOLOGY

#### WILDLIFE: Construction and operation

**Impact:** Loss of sensitive wildlife habitat or disturbance to sensitive wildlife species could occur as a result of the construction of the pipeline.

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

C) Specific economic, social or other considerations make infeasible the mitigation measures or project alternatives identified in the Final EIR.

#### FACTS SUPPORTING FINDING:

Construction of the pipeline will involve clearing a minimum 75 foot ROW with heavy earth moving equipment. Above-ground obstacles such as trees, brush and boulders are removed and any stumps or roots in the ditch line are taken out. After clearing, the ROW is graded and leveled as necessary for vehicle and equipment operation. These operations would generally remove all wildlife habitat, destroy dens or burrows and could kill most small mammals, and reptiles with limited mobility, in the 75 foot ROW corridor. Mojave has agreed to reduce this construction impact to the maximum extent possible by utilizing clearing methods which reduce the amount of impact to wildlife habitat. In addition to these impacts, certain portions of the route such as stockpile areas, stream and road crossings, etc., may require additional construction space. These areas have been identified by Mojave.

Construction in general would cause displacement of large mammals, birds and reptiles from the area for the duration of the construction. Additionally, the ROW and construction ditch may temporarily be a barrier to normal movement patterns and may separate animals from habitat requirements such as watering holes. Increased use of vehicles and human access into previously remote areas could increase the risk of wildlife harassment, a significant impact if sensitive species are killed or disturbed.

Loss of wildlife habitat would be significant along the Mojave route in California, in desert tortoise habitat areas, since revegetation could take up to 50 years. Loss of individual animals of sensitive species is also considered a significant impact.

Because of the linear nature of the pipeline, many government agencies have land use responsibility and jurisdiction over the project and thus can require mitigation measures as a part of ROW or construction permits or grants. San Bernardino County would have jurisdiction over private lands along the pipeline route while the BLM administers the federal lands in the desert. The U.S. Fish and Wildlife Service (USFWS) may require stipulations to protect certain wildlife species on federal lands and the California Department of Fish and Game has to enforce certain protections for state-listed or otherwise state protected wildlife species.

A number of mitigation measures have been developed in the FEIR/S and in the EIR Amendment to reduce impacts to sensitive wildlife species habitat and individual sensitive species. These measures are available for appropriate agencies as a method of reducing impacts of ROW construction. A listing of the measures are presented below.

The applicant shall conduct a preliminary survey using a competent wildlife biologist to identify any raptor nests within the area of concern. All raptor nests found within the ROW shall be avoided. Construction activities shall be scheduled so that they do not conflict with raptors nesting within 0.5 mile of the proposed alignment. The appropriate state or federal agency has guidelines defining calendar dates when activity should not occur for these species (FEIR/S Mitigation Measure #75).

Impacts to high interest species could be sufficiently mitigated through scheduling construction activities so that they do not conflict with resident wildlife during times of high stress. The appropriate state or federal management agency has guidelines defining calendar dates when activity should not occur for the species in question. Scheduling for construction may vary with the environment and climatological circumstances for any given year (FEIR/S Mitigation Measure #76).

The applicant shall prohibit vehicle operation off the ROW by construction workers, including construction work and employee access, except where specified by the landowner or land management agency or where roads already exist (FEIR/S Mitigation Measure #77).

Limit speed of vehicles along the ROW and access roads to 20 mph in sensitive habitats that support species of special concern with limited home ranges and mobility, e.g., the blunt-nosed leopard lizard and the desert tortoise. Construction and maintenance employees shall also be advised that care should be exercised when commuting to and from the project area to reduce road mortality (FEIR/S Mitigation Measure #78).

The applicant shall conduct detailed surveys prior to construction as directed by the appropriate governmental agencies in order to identify precise locations of viable populations. Surveys shall be conducted at the appropriate season and time to ensure that targeted species can be enumerated. The applicant shall utilize survey results to avoid or

alleviate impacts that would likely result in the loss of individuals of species of special concern (FEIR/S Mitigation Measure #82).

The length and duration of open trenches shall be kept to the minimum extent feasible. Limiting the length and duration of open trenches in areas of sensitive species shall be developed on a site-specific/species-specific basis. The amount of open ditch and duration of open ditch in areas of sensitive species shall be governed by cooperation of applicants and appropriate land management/wildlife agencies. Before backfilling, the trench shall be inspected for trapped animals. All such animals shall then be released in the same general locality, but beyond the area of disturbance (FEIR/S Mitigation Measure #86).

Trenches shall be inspected daily for species of special concern that might have fallen into the trenches. Any species of special concern found should be handled in accordance with prearranged agreements with the appropriate agencies (FEIR/S Mitigation Measure #87).

Access to the ROW shall be restricted wherever feasible by constructing barricades, fences with locked gates at road intersections, and by posting signs. State wildlife agencies, as well as federal agencies, shall be consulted to help identify and establish wildlife management areas. Vehicle access (except for administrative purposes) to these areas shall be restricted. On federal land, as directed by the Forest Service/SLM, temporary and/or permanent structures shall be installed at specific locations along the ROW and other disturbed sites to prevent off-road vehicle access (FEIR/S Mitigation Measure #88).

All disturbed designated critical habitat and habitat suitable for species of special concern shall be revegetated to predisturbance levels following guidelines formulated in consultation with the appropriate governmental agencies (FEIR/S Mitigation Measure #88).

To minimize permanent and temporary construction disturbances, project-related vehicle traffic, construction activities, and equipment storage shall be restricted to established roads, designated access roads, the construction ROW, storage areas, staging and parking areas, and other designated project areas including the placement of portable restroom facilities. Off-road traffic outside of designated areas shall be prohibited. Parking, storage, and other areas shall be designated by flagged lath stakes at least 24 inches above ground height placed in line of sight with a maximum spacing of 200 ft. These areas shall be examined during preconstruction surveys for state and/or federally listed species, and shall be established in locations disturbed by previous activities, to the extent possible. The construction ROW shall also be clearly marked at the centerline and outside boundaries. The outside boundaries of the ROW shall be staked with at least 24 inch-tall flagged lath at a maximum interval of 200 ft prior to construction. If construction activities are repeatedly documented outside of these flagged areas, the outer boundaries of the ROW must be delineated by a continuously taped boundary.

All access roads, both existing and proposed, shall be flagged. Only flagged access roads shall be used.

Unauthorized, public off-road vehicle use of the ROW, staging areas, and access roads by the construction crews shall be prevented by signs and monitoring by construction monitors. After construction is completed, unauthorized vehicle use shall, to the maximum extent practicable be prevented by physical barriers and signs.

Only permitted authorized vehicles which have been inspected to insure fire safety requirements shall be permitted on the ROW.

Project-related vehicles shall observe a 20 mph speed limit in all project areas within listed species habitat, except on county, state, or federal highways. Speed limits shall be assessed by the environmental monitors and reported to the construction supervision and Project Environmental Coordinator for corrective action. Construction activities, exclusive of identified night maintenance and security activities shall be limited to daylight hours, except for travel to and from the construction sites (EIR Amendment: Appendix C, Section 3.1.2.1).

Trench depths will in general range from 4 to 8 ft. The trench must be backfilled as quickly as possible following lowering of the pipe. The maximum length of open trench at any one time shall not exceed 10 miles. For trenches not filled at the end of the day, escape ramps for wildlife shall be installed at distances no greater than 0.25 mile apart.

Open, active work areas and trenches within listed species habitat shall be inspected by environmental monitors every morning (no later than one hour after sunrise) and immediately prior to initiation of daily construction activities, every evening (no more than 1/2 hour after sunset), and periodically (every 2-4 hours) throughout the day. This shall be accomplished seven days a week when open trenches are present. Environmental monitors shall remove any trapped state and/or federally listed animals from the areas as described under species-specific mitigations. A Memorandum of Understanding from the California Department of Fish and Game and a federal permit from the U.S. Fish and Wildlife Service must be obtained to handle the animals.

When blasting is required for trench excavation, mats, shields, or earth padding shall be used to protect sensitive vegetation as well as personnel and nearby structures. Listed species of burrowing animals shall be removed from the blast area and up to 50 ft from the ROW in areas to be blasted. Burrows of listed species 50-200 ft from the blasting zone shall be flagged by an environmental monitor prior to blasting and shall be surveyed afterward. Burrows of listed species which collapse as a result of blasting shall be hand-dug to remove any trapped animals (EIR Amendment: Appendix C, Section 3.1.2.4).

All open construction pipes, culverts, or similar structures stored in stockpile areas or on the ROW for overnight periods shall be inspected for small mammals or reptiles (e.g. San Joaquin kit fox, desert tortoise) before the pipe is buried, capped, or otherwise used or moved in any way. All in-place pipeline segments shall be capped daily until backfilled to prevent entry of animals. Checks around vehicles and other equipment before moving or operating equipment for other sensitive wildlife species shall also be completed prior to moving. If a state and/or federally listed species is identified during these inspections, only

an environmental monitor may be utilized to remove the animal (EIR Amendment: Appendix C, Section 3.1.2.6).

To prevent harassment, mortality, or destruction of dens/burrows of wildlife species, pets shall not be allowed on the ROW, staging areas, access roads or any other sites required for construction activities. Firearms shall also be prohibited in the same areas. Compliance with these restrictions is mandatory. No unauthorized construction workers shall be permitted off of the established ROW at any time. Unauthorized workers shall not be permitted at construction areas during non-scheduled hours (EIR Amendment: Appendix C, Section 3.1.2.7).

To avoid attracting species of concern and potential predators, all food-related trash and litter (wrappers, cans, bottles, food scraps) shall be placed in closed containers and disposed of daily. The working ROW of each spread shall be policed daily to remove any trash or litter which may not have been disposed of properly. Food items may attract wildlife species onto the project site at night, consequently exposing them to construction-related or other types of hazards (EIR Amendment: Appendix C, Section 3.1.2.8).

Hazardous materials that are most likely to be used in construction areas include explosives, fuels (gasoline and diesel), lubricants, and solvents. Refueling and storage of these materials shall occur in previously disturbed areas and not be allowed within 200 yards of a flagged sensitive plant species or sensitive wildlife habitat feature (e.g., den, burrow, etc.), nor within 200 yards of a perennial stream or riparian habitat. Areas where refueling or storage of hazardous materials is prohibited shall be marked by the environmental monitors. The storage of these materials near streams shall be consistent with CDFG code 5650 (EIR Amendment: Appendix C, Section 3.1.2.9).

No intentional killing or collection of either plants or wildlife shall be permitted. If wildlife species, e.g., rattlesnakes enter the construction corridor, they shall be removed by a qualified environmental monitor. No intentional damage to trees or other vegetation shall be permitted outside of the construction ROW; this shall include the collection of plants including cacti without prior authorization (EIR Amendment: Appendix C, Section 3.1.2.11).

The objective of post-construction access control is to implement procedures to limit access on the permanent ROWs and thus prohibit a new travel corridor after construction in order to limit additional intrusion into wildlife habitat and speed recovery and revegetation of the ROW. Approved means of access shall be a component of environmental training for operational personnel.

Required inspection of the ROW shall be conducted by air to detect encroachment by unauthorized vehicles or machinery, damage to equipment that may not be detected by instrumentation, and success of erosion control and revegetation. This shall be supplemented by required Department of Transportation inspections on foot. Travel by maintenance crews shall be restricted to existing access roads. Maintenance vehicles must avoid sensitive areas that have been designated in the post-construction monitoring program.

The permanent ROW may be used to access the pipeline in emergency situations as defined under conditions stipulated by the Agencies. Damage to vegetation on the ROW shall be fixed and the ROW restored as soon as possible following the emergency. The appropriate agencies shall be notified.

Signs shall be posted indicating the ROW is closed to vehicles. The signs shall state "Pipeline Right-of-Way Closed To All Vehicles To Protect Plants and Wildlife". Intersection of existing roads with the permanent ROW shall be clearly marked with signs identifying the presence of a high pressure pipeline. Earthen berms shall be placed at all intersections with access to the ROW where authorized by landowners. Water bars and rock mulches installed on the ROW during reclamation may also serve to deter vehicle use of the ROW (EIR Amendment: Appendix C, Section 3.1.3.3).

Populations of or potential habitat for desert tortoise were found along the Mojave Pipeline between MP 0 and the Interconnection with the Kern River pipeline (MP 142). Mitigation requirements and procedures are outlined below for the species. Specific details on the handling procedures for desert tortoise are presented below.

- o All personnel handling desert tortoises shall approved by the U.S. Fish and Wildlife Service and the California Department of Fish and Game. Each monitor shall be permitted by the USFWS and the CDFG to handle tortoises. Additionally, each monitor shall undergo an agency mandated training program in the handling of desert tortoises. A handbook shall also be developed and approved by the Agencies and distributed to each monitor detailing survey, monitoring, and handling requirements.
- o Based on current USFWS and CDFG biological opinions, construction of pipelines within fair to good quality tortoise habitat as defined by the desert tortoise survey maps submitted by Mojave shall be conducted between March 15 and June 15 (spring activity period) when the tortoises are active and can be easily transported off-site with presumably less mortality than removing the animals during months when they are inactive. Areas required for this period of construction include: MPs 8.8-116.5 and 140.9-142 on the Mojave portion of the route.

Construction shall start in these areas no earlier than March 15 and each company shall submit to the responsible agencies a construction schedule and location of pipeline segments to accomplish the construction no later than February 15. If construction delays are encountered which will require construction in these areas beyond June 15, responsible agencies shall be notified at least by June 1 and procedures outlined below for collapsing of burrows and monitoring of the corridor shall be followed.

Other areas of the pipeline within tortoise habitat can be constructed when the tortoises are inactive following the set procedures provided in this document.

o Rights-of-way shall be surveyed by qualified biologists within 48 hours before construction activities (i.e., grubbing, grading, trenching) begin to ensure maximum avoidance of impacts to desert tortoises and their burrows. All desert tortoise burrows, as well as large mammal burrows that could be used by desert tortoises, shall be flagged with a different color of flagging from that used to denote operational area boundaries. Inactive burrows shall be plugged (e.g., newspaper and earth) or collapsed. Two types of burrows shall receive special marking: active burrows; and those burrows which, because of soil types and/or historical use, represent a major energy expenditure by desert tortoises for construction. These burrows are henceforth referred to as "special resource burrows." The active and special resource burrows shall be mapped and presented to construction engineers to determine the feasibility of minor rerouting of the pipeline to avoid these burrows.

o Burrows that cannot be avoided shall be treated as follows: between 8 and 48 hours prior to the commencement of clearing and grading activities, all burrows not designated for avoidance, except for special resource burrows, shall be excavated by hand by qualified biologists. All active burrows shall be recorded and desert tortoises that are encountered shall be moved.

o Each desert tortoise that is encountered during clearing and construction activities shall be given an identifying number; have its sex, weight, and maximum carapace length recorded; and be permanently and uniquely marked using criteria listed on the data sheet. Identification numbers for the project, as well as those used for other nearby projects, shall be supplied by the responsible agencies. A 35mm slide shall be taken from directly above the animal to show a full view of the carapace after processing. The data sheet shall include the above information plus the location, date, time, and name of the individual collecting the data. All information shall be submitted to responsible agencies upon completion of clearing and again in the post-construction report.

Researchers shall wear disposable gloves when handling each tortoise. These gloves shall be disposed of after each tortoise is handled. Any desert tortoise that voids its cloaca while being handled or during processing shall be hydrated by an Agency approved method.

During pioneer clearing activities (i.e., the initial pass through the ROW with heavy equipment, with the intent to clear or crush vegetation), desert tortoises that are encountered shall be processed, then moved a minimum of 150 ft off the construction ROW and placed under a shrub in the shade. Desert tortoises that are encountered when the temperature exceeds 90°F shall be processed and, unless temperatures are decreasing, shall be held overnight in a clean cardboard box as detailed above and released the following morning shortly after sunrise. The location of each tortoise that is held overnight shall be accurately located by flagging or other means, and the tortoise shall be released as close to the location it was removed from as possible. Desert tortoises encountered within two hours

before sunset shall be placed in a clean cardboard box of appropriate size with one tortoise to a box and held overnight in a cool location. The box shall be covered and kept by a designated monitor until the desert tortoise is released the following morning.

If desert tortoises are encountered on the ROW during construction, each desert tortoise shall be processed, then moved a minimum of 150 ft off the construction ROW in the direction of its travel and placed under a shrub in the shade. If appropriate shade cannot be found, the desert tortoise shall be held overnight and released as detailed above. Any desert tortoise encountered two hours before sunset shall be kept and released as detailed above. Desert tortoises that are found on the construction ROW more than three (3) times shall be penned in a temporary 10 ft by 10 ft enclosure around a burrow next to the right-of-way. This shall be removed after construction activities have ceased. Alternatively, the right-of-way may be fenced temporarily with tortoise proof fence.

- o In the event construction is delayed so that construction will occur within high quality habitats past June 15, presurveys, hand excavation of burrows, and movement of tortoises prior to June 15 shall take place. These areas shall be monitored closely to assure that tortoises do not try to reestablish burrows prior to construction.
- o Tortoises may be found in burrows which cannot be avoided, or may be found above-ground if there is a period of warm weather. Tortoises excavated from unavoidable burrows along the route shall be relocated to unoccupied natural or artificially constructed burrows immediately following excavation. The artificial or unoccupied natural burrows shall be constructed approximately 150-300 ft from the original burrow. The artificial burrow shall be a similar size, shape, and orientation to the original burrow.

Tortoises removed from occupied burrows and relocated to newly constructed burrows shall be handled using disposable surgical gloves. The gloves shall be disposed of after each handling.

- o Activities requiring a biological monitor shall include, but are not limited to: Surveying, Pioneer Clearing, Final Clearing and Grading, Ditching, Pipe Stringing and Bending, Welding, Backfilling and Taping, Hydrostatic Testing, Tie-In, and Final Cleanup (EIR Amendment: Appendix C, Section 3.2.2.1).

In addition to these measures to reduce impacts to sensitive wildlife species habitat, a habitat compensation program has been proposed to replace the habitat of the desert tortoise. It is the opinion of the CDFG, USFWS and BLM agency personnel that on-site mitigation measures alone will not provide adequate mitigation for impact to the desert tortoise. Habitat loss due to the Mojave project will be further compensated by acquisition of habitat off-site which supports the species, and the management of this habitat for

wildlife enhancement purposes in perpetuity. The off-site compensation acreages have been calculated based on acres of habitat impacted, the term of the impact, the condition and classification of the impacted habitat, the proposed reclamation, and other factors. These measures would eliminate most significant impacts to state and federally listed species. The loss of individuals or their habitat which occurs as a result of construction would still be an unavoidable significant adverse impact.

#### ALTERNATIVES

##### No Project Alternative

While the EIR does not address whether the No Project Alternative would result in greater or lesser wildlife impacts, it is assumed that by not building the project would result in fewer impacts. However, the No Project Alternative would not provide important benefits to the State of California which would result from operation of the Mojave Pipeline, particularly with respect to additional tax based revenues associated with the construction and operation of the facility, air quality benefits in the Kern County region, and a lessened dependence on foreign oil sources as a result of the Enhanced Oil Recovery goals of the project.

##### No Action Alternative

While the EIR does not address whether the No Action Alternative would result in greater or lesser wildlife impacts, it is assumed that the building of the Mojave project as originally proposed would result in greater impacts to wildlife than the route currently under consideration.

##### PGT/PG&E Alternative

While the EIR does not address whether the PGT/PG&E Alternative would result in greater or lesser wildlife impacts, the CPUC Final EIR indicated that no significant impacts to wildlife would occur as a result of the building of the project. However, the PGT/PG&E Alternative would not overlap with the proposed Joint Mojave-Kern River Proposal and would not serve the same gas market place. As a result the feasibility of the PGT/PG&E alternative must be questioned. In order for the PGT/PG&E Alternative to be feasible an unknown amount of additional construction would have to be undertaken.

##### Alternative Energy Sources

While the EIR does not address whether the utilization of Alternative Energy Sources would result in greater or lesser impacts, its utilization would result in fewer related impacts in the short-term. The Alternative Energy Sources Project would not result in significant long-term benefits due to the lack of adequate supplies of energy. Utilization of fuels other than natural gas would not provide important benefits to the State of California which would result from operation of the Kern River Pipeline, particularly with respect to additional tax based revenues associated with the construction and operation of the facility,

air quality benefits in the Kern County region, and a lessened dependence on foreign oil sources as a result of the Enhanced Oil Recovery goals of the project.

#### Route Alternatives

A number of routing alternatives were examined in the EIR. Mojave Alternative A had greater impacts to vegetation than the proposed routing, while Alternative B would have roughly equal impacts. Mojave has changed their routing in the FERC certificate to include Alternative B as required by mitigation measure 113.

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## MOJAVE

### SOCIOECONOMICS: Construction

**Impact:** Housing shortages and effects on tourism may occur due to construction workers needs.

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING FINDING:

Housing problems would occur along the Mojave Pipeline route within the State of California. The FEIR/S identifies communities with accommodations within commuting distances of the pipeline route. Very few areas for accommodation exist along the Mojave route between Needles and Barstow, California. This distance represents approximately 140 miles with virtually no accommodations. The impact of approximately 400 construction workers in the Barstow area may result in a severe strain on the motel, rental housing and R.V. sites available in the area. These problems will be further exacerbated if construction were to occur during the peak tourist season.

Several mitigation measures have been developed to reduce the impact of construction related housing shortages.

Construction of the pipeline shall be scheduled to avoid peak tourist seasons in the affected area if possible (FEIR/S Mitigation Measure #94).

In rural areas, workers should consider housing and services in larger, more distant communities. Project employees may be able to travel to and from construction areas together (FEIR/S Mitigation Measure #95).

To further mitigate housing impacts in rural areas or in crowded tourist areas, workers should try to reside in temporary trailer camps (FEIR/S Mitigation Measure #96).

Implementation of these mitigation measures should reduce impacts to non-significant levels.

## MOJAVE

### CULTURAL RESOURCES: Construction

**Impact:** Potential disturbance to at least two sites eligible for listing on the National Register of Historic Places.

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING FINDING:

The criteria for evaluating cultural resources on federal lands and lands impacted by federally funded or licensed projects are the eligibility criteria of the National Register of Historic Places (NRHP). The criteria apply to resources (prehistoric and historic sites) significant to the national, regional, state, or local levels. Adverse effects on resources either direct or indirect are considered for sites listed on the NRHP or which meet the criteria of eligibility.

For the purposes of the California Environmental Quality Act (CEQA), the criteria for evaluating cultural resources on state and private lands in California are significance criteria listed in Appendix K of the CEQA Guidelines.

Federal agencies cannot authorize federally licensed projects without prior compliance with Section 106 of the National Historic Preservation Act. This involves consultation with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation to determine the existence and significance of cultural resources sites and the development of procedures to mitigate adverse effects.

Cultural resources impacted by the Mojave proposal in California include archaeological and historical sites that are located in areas which would be directly or indirectly affected by project construction and operation. Direct impacts would result from actual surface disturbance of a site's spatial configurations or stratigraphy during a facilities construction or use. Construction and/or maintenance activities would destroy cultural resources during the clearing, grading ditching, hauling stringing and placement of pipe, as well as during

backfilling. Other impacts include disturbances associated with vehicular activity associated with access roads, storage facilities, parking areas etc.

Indirect impacts refer to the increased potential for site disturbances due to a general intensification of the land use activities in the area surrounding the cultural sites. The construction of the pipeline may result in increased access into an area where cultural resources could be impacted by intentional disturbances (e.g., unauthorized excavation) or unintentional disturbances (e.g., off-road vehicle use).

Both prehistoric and historic period cultural resources were documented along the Mojave route in California. Twenty-eight resources, primarily prehistoric lithic scatters were identified. Of the 28 sites recorded, 2 were recommended as eligible to the NRHP. All of the eligible resources that would be potentially affected by the project were recommended for avoidance.

San Bernardino County would have jurisdiction over private lands along the Mojave route, while the BLM would administer the federal lands along the route.

Mitigation measures have been developed which were designed to reduce impacts to cultural resources. These measures included conduct of a records search to determine the presence of known cultural resources along the proposed route; an intensive 100 percent inventory of the Mojave route; preparation of a survey report assessing the significance of the sites identified and if necessary a testing plan to determine the eligibility of a property; a data recovery plan to reduce impacts to eligible sites which cannot be avoided; and a plan for monitoring of construction in areas suspected of containing buried cultural resources and the treatment of those sites. Mojave has completed all of the measures discussed above with the exception of the monitoring of construction.

Implementation of these measures should reduce impacts to insignificant levels.

## MOJAVE

### PALEONTOLOGY: Construction

**Impact:** Potential disturbance to significant paleontologic formations could occur along approximately 50 miles of the Mojave route.

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING FINDING:

Paleontological resources were examined based on a records and literature search conducted for the FEIR/S (Morales et al. 1987) of the entire Mojave pipeline route in California. The results of these studies indicated that significant paleontologic resources exist within the construction ROW of the proposed project. Approximately 50 miles of the route within California contain paleontologically significant deposits that would be adversely affected by construction of the pipeline.

Mitigation measures have been proposed to reduce these impacts to significant paleontologic deposits. The FEIR/S recommended that pre-construction surveys be conducted to determine the presence of significant paleontologic remains; to develop site-specific mitigation measures in areas where significant remains were identified; to implement those measures during the construction phase; and to monitor construction activities in areas determined to potentially contain significant fossil remains.

Implementation of these measures should result in a reduction of impacts to paleontological remains to non-significant levels.

## COMMON FACILITIES

- GEOLOGY:** Operation
- Impact:** Geologic and seismologic hazards may result in damage to the pipeline and related facilities in the vicinity of the Lenwood, Garlock, Tejon Canyon, Springs, White Wolf, and an unnamed fault east of Bakersfield
- Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
- B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING THE FINDING:

Although it is difficult to quantify the probability of surface fault rupture, it is generally accepted that the more recently a fault has moved, the more likely it is to move again in any given period of time in the future. All faults with evidence of displacement during Quaternary times were examined. The State of California Division of Mines and Geology (CDMG) also identifies faults which are judged to be sufficiently capable of surface rupture in the short-term and thus require special study and design before facilities can be built in the vicinity. Among the criteria, evidence of Holocene offset is sufficient to cause the fault to be zoned.

Along the Common Facilities route in California, the EIR identified seven faults within the portion of the route now under study that showed evidence of Quaternary movement (FEIR/S 1, Table 3.1-6). Field investigations of these faults indicated that the Lenwood, Garlock, Tejon Canyon, Springs, White Wolf, and an unnamed fault system east of Bakersfield show evidence of Holocene activity and would be crossed by the present pipeline alignment.

The Lenwood Fault is located at MP 155.7 of the Common Facilities route. It is a right-lateral strike-slip fault with the potential for 4.6 feet of lateral displacement. The estimated maximum magnitude earthquake for rupture along the fault is 6.7.

The Garlock Fault is located between MPs 231.6 and 232.8. The Garlock Fault is a left-lateral strike-slip with a reverse component with repeated evidence of recent historic activity. Six strands of the fault were located which cross the alignment. Potential

displacements have been estimated to be up to 20 feet with the potential for producing 28 feet of left-lateral and 2 feet of vertical displacement in a single event. The estimated maximum magnitude earthquake for rupture along the fault is 7.4.

The Tejon Canyon Fault is located at MP 255 along the Common Facilities route. It is a right-lateral strike-slip fault with two additional strands. Potential displacements have been estimated at four feet with a maximum magnitude event of 6.7.

The Springs Fault is located along the Common Facilities route between MP 260 and 261. It is a normal fault with three strands crossed by the pipeline. Potential displacements have been estimated at 4.6 feet with a maximum magnitude event of 6.7.

The White Wolf Fault is located at MP 262-263 along the Common Facilities Mainline. The pipeline route would cross three strands of the fault. It is predominantly a reverse fault with a large left-lateral component. The total maximum displacement estimated for the fault is 12.5 feet, with a maximum magnitude event of 7.2.

An unnamed fault was identified east of Bakersfield on the East Side Lateral at MP 24. This is a three strand fault with a right-lateral strike-slip. The pipeline route parallels the fault. Maximum displacement is 1 foot with a maximum magnitude event of 6.1.

The most significant active fault crossed by the Common Facilities is the Garlock Fault, located west of the town of Mojave. It has the highest level of activity, the potential for the largest displacements, and the broadest zone of deformation.

Because of the linear nature of the pipeline, many government agencies have land use responsibility and jurisdiction over the project, and thus, can require mitigation measures as part of the right-of-way (ROW) or construction permit or grant. In California, San Bernardino County would have jurisdiction over private lands along the pipeline route, while the BLM administers the public lands associated with the Common Facilities routes and the East Side Lateral.

The following mitigation measures were suggested in the FEIR/S, which each of the above agencies as appropriate, can require to reduce the impact of ROW construction.

Detailed geologic, seismologic, and geotechnical studies shall be conducted by the applicant to identify and characterize geologic hazards as appropriate. In areas where hazards are identified, information shall be collected to aid in the design and construction of the pipeline and ancillary facilities. In general, care shall be taken during construction to minimize surface disturbance and related soil erosion, and not to alter the drainage of the affected area (FEIR/S Mitigation Measure #4).

Additional studies shall be conducted by the applicant to evaluate potential seismological hazards along the proposed routes. The potential for surface offset along Quaternary faults shall be evaluated in detail so that appropriate pipeline crossings can be designed. Field

studies shall be completed to delineate the areas where movements may occur (FEIR/S Mitigation Measure #5).

Results of the proposed applicants' geotechnical studies indicated in Nos. 4 and 5 above shall be submitted to the SLC. The following geotechnical studies and mitigating design measures shall be submitted for review and approval by the SLC staff prior to implementation of these measures. Such studies shall include identification of: (a) all Holocene faults crossed by the proposed facilities; (b) all areas where potentially liquefiable deposits are crossed and likely effects on the facilities; and (c) all landslides or areas of significant slope instability crossed by, or possibly affecting, the proposed facilities.

Specific mitigating measures shall be developed to minimize the potential for slope failures, ruptures or failure of pipeline facilities wherever such failure could result in direct or indirect hazards to public safety and environmental resources. The nature and locations of significant geologic hazards shall be considered in the siting of block valves. The applicant shall also consider use of automatic or remote-controlled block valves in areas which may be inaccessible following a major earthquake or landslide.

Studies shall be done in sufficient detail to allow characterization of the particular geologic hazard using state-of-the-art techniques. Sufficient justification should be included for not implementing specific mitigating measures in areas identified as subject to significant geologic hazards (FEIR/S Mitigation Measure #8).

Implementation of these measures have been completed by Mojave (Woodward-Clyde Consultants, 1989) and will result in minimization of the potential for serious damage to the pipeline and related facilities. This has been accomplished by recommending that faults that require mitigation be flagged in the field prior to excavation; examination and mapping of the pipeline trench to locate fault crossings and to confirm fault parameters for the mitigation design at each crossing by a seismic geologist; and inspection of the pipeline by a seismic geologist or earthquake engineer following earthquakes larger than a magnitude of 5 that occur within 50 miles of the pipeline.

## COMMON FACILITIES

**GEOLOGY:** Operation

**Impact:** Unstable slopes may result in landslides which could result in pipeline rupture in the vicinity of MP 255 in the Tehachapi Mountains.

**Finding:** A) Changes or alteration have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

B) Such changes or alterations are within the responsibility or jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by other such agencies or can or should be adopted by other such agencies. (California counties; Bureau of Land Management (BLM); Federal Energy Regulatory Commission (FERC)).

### FACTS SUPPORTING THE FINDING:

Landslides are mass movements of soil and/or rock that can occur due to seismic shaking, saturation, over-steepening, or failure along a dipping bedding plane or fracture. The risk of pipelines posed by rockfalls is relatively low. Slumps and shallow soil failures commonly occur and could result in the shearing of a pipeline under certain conditions. Deep rotational slides are commonly catastrophic and can involve large volumes of material. It is possible that a slide could be severe enough to subject a pipeline to stress associated with folding, lateral shearing, extension or compression.

A relatively small area of potential landsliding was identified along the Common Facilities route between MP 254.9 and 255.1. The proposed route would cross one large rotational slide mass and is routed over several others along the western portion of a steep hillside. The slides in the area are deep and are part of an ancient, large slide complex which encompasses a large part of the hillside.

Mitigation measures were developed to reduce the effects of this landslide area. The most effective method of mitigation within the slide complex is to reroute the pipeline to avoid the active slides along the hillside.