Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			estimation of both vertical and horizontal anticipated peak ground accelerations.
GEO.2	Wastewater injection would potentially induce seismicity in the vicinity of the Proposed Project.	II	GEO-2a Injection pressures associated with wastewater injection shall not exceed reservoir fracture pressures as specified in California Code of Regulations Title 14, Division 2, Section 1724.10, and as approved by the California Division of Oil, Gas, and Geothermal Resources. GEO-2b In coordination with the Caltech Seismological Laboratory, the Applicant shall install an accelerometer at the Project Site to determine site-specific ground accelerations as a result of any seismic event in the region (Los Angeles/Orange County and offshore waters of the Santa Monica Bay and San Pedro Channel). Readings from the accelerometer shall be recorded at the Oil Field and transmitted in real-time to the Caltech Seismological Laboratory. The drilling operator shall cease operations and inspect all onsite oil field-related pipelines, storage tanks, and other infrastructure following any seismic event that exceeds ground acceleration at the Project Site of 13 percent of gravity (0.13 g). The drilling operator shall not reinstitute operations at the Project Site and associated pipelines until it can be determined that all oil field infrastructure is structurally sound. GEO-2c In the event that monitoring indicates that Proposed Oil Project-induced seismicity is occurring, wastewater injection operations shall be adjusted to alleviate such seismicity. The drilling operator shall first receive approval from the California Division of Oil, Gas, and Geothermal Resources prior to any change (increase) in the injection operations.
GEO.3	The Proposed Project is not located in an area at risk of landslides/mudflows; defined as areas with slopes greater than 10 percent.	II	GEO-3 All slope stability related recommendations provided by NMG Geotechnical (2012) shall be incorporated into the Proposed Oil Project design. Temporary excavations shall be stabilized per the latest edition of Cal/OSHA requirements for loose sands, including shoring or laying back of trench walls. Shoring along the northern perimeter of the Project Site shall be designed by an experienced structural engineer due to the proximity to existing buildings that must be protected from potential settlement and lateral movements.
GEO.4	The Proposed Oil Project would potentially result in ground subsidence from oil and gas withdrawal.	II	GEO-4a Prior to approval of the Phase 4 first drilling permit, the Applicant shall have submitted and the City of Hermosa Beach and the California Coastal Commission shall have approved a Subsidence Monitoring and Avoidance Program, for both onshore and offshore areas. The onshore monitoring plan shall be completed throughout the life of this Project, in accordance with Appendix A, Subsidence Monitoring Program, of the Subsidence and Induced Seismicity Technical Report, E&B Oil Development Project (Geosyntec Consultants 2012), included as Appendix F of this EIR. The offshore monitoring plan shall be completed throughout the life of this Project in

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			accordance with the Offshore Subsidence Monitoring Program and Possible Mitigation Measures, Hermosa Beach, California (Coastal Environments 1998), included as Appendix F of this EIR. The latter shall be updated, as applicable, to reflect advances in science since 1998. In addition, Section 7.6, Mitigation of Onshore Subsidence, of the latter report, shall not be applied to this mitigation measure, as the onshore monitoring program would be completed in accordance with the Geosyntec Consultants (2012) report. GEO-4b The Subsidence Monitoring Program shall include: Ground elevation survey methodologies with high vertical resolution, including onshore surface elevations and offshore bathymetric elevations; Prior to Phase 4 ~~II~~ drilling, establishment of a network of onshore and offshore survey or subsidence monitoring locations, including continuous GPS stations, GPS benchmarks, and tautly anchored offshore monitoring points, positioned within the City, outside the City, and in offshore areas, that are sufficiently spaced to draw conclusions about subsidence within the zone of influence of the Project; Because subsidence can occur for a variety of reasons, establishment of control points outside the zone of influence to allow differentiation of possible subsidence effects related to other activities; Use of InSAR imagery technology to evaluate regional subsidence patterns both within and beyond the proposed oil field; Sufficient monitoring frequency to establish trends in subsidence in order to distinguish background ground movement from any subsidence caused by proposed oil field operations; Reservoir monitoring, including documentation of produced fluid volume (oil, gas and water) and reservoir pressures at similar frequency to ground elevation measurements; Reporting requirements; and Action levels, as specified in the onshore and offshore subsidence monitoring reports. Surveying for both vertical and horizontal ground movement shall be completed along the perimeter and throughout the interior of the oil field, including both onshore and offshore areas, utilizing Global Positioning System technology in combination with a network of ground stations. The onshore continuous monitoring GPS stations shall include: Hermosa Beach Pier. The pier will serve as the furthest offshore point in the onshore monitoring program. Longfellow Outfall. This Outfall is larger and more structurally stable than some of the other outfalls along the City's coast. King Harbor Jetty. This location was selected to achieve a distribution of continuous monitoring points along the coast of Hermosa Beach. This will help provide a limited regional picture of the subsidence between survey events. GEO-4c An onshore and offshore baseline subsidence report shall be completed and made available to the City of Hermosa Beach and the California Coastal Commission at least two months

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			and no more than six months prior to planned commencement of Phase 4 ~~II~~ drilling operations. Subsidence monitoring reports shall be completed annually and the results shall be forwarded to the California Coastal Commission and the City of Hermosa Beach for review, no more than one month following the end of each annual monitoring cycle. In addition, results shall be forwarded to the adjoining City of Redondo Beach and City of Manhattan Beach. GEO-4d In the event that the Global Position System monitoring indicates that significant subsidence, as defined by the onshore and offshore subsidence monitoring reports described in GEO-4a, is occurring in and/or around the Proposed Project area, wastewater or water reinjection operations shall be increased to alleviate such subsidence. The Applicant shall coordinate with the California Division of Oil, Gas and Geothermal Resources, which will approve increased levels of wastewater or water reinjection operations in accordance with the approved Subsidence Monitoring Program. The Applicant will also coordinate with the City of Hermosa Beach, Public Works Department, to verify that subsidence has been mitigated sufficiently. GEO-4e In the unlikely event that subsidence related mitigation induces seismicity, corrective actions related to subsidence shall proceed until baseline surface elevations have been achieved, as subsidence related damage would likely be more pronounced in comparison to damage associated with Project related micro-seismicity. Upon reestablishment of baseline elevations, drilling operations shall cease until a balance between subsidence avoidance and induced seismicity avoidance can be established, as agreed upon by the California Division of Oil, Gas and Geothermal Resources and the City of Hermosa Beach.
GEO.5	Site grading could increase erosion and impact water quality offsite.	III	
GEO.6	Expansive soils could be present at Proposed Project Sites. *(Also applicable to the Proposed City Maintenance Yard Project)*	II	GEO-6 A Registered Civil Engineer shall analyze surficial and near-surface soils at the Project Site subsequent to grading and prior to on-site construction, to determine whether expansive soils are present. Similarly, soils at the Proposed City Maintenance Yard Project Site and along the proposed pipeline route shall be analyzed for soil expansion potential. In the event that clay-rich, expansive soils are present, foundations shall be designed to accommodate expansive soils and pipelines shall be placed within a blanket of non-expansive soils to prevent structural damage and/or failure. Foundation and pipeline design shall be reviewed and approved by a Registered Civil Engineer.
GEO.7	Corrosion could potentially damage the structural components and pipelines which	II	GEO-7a Proposed Oil Project design must conform to the recommendations of HDR Schiff (2012), included within Appendix C in NMG Geotechnical (2012), or as per the City Engineer, and should occur prior to completion of the final Project design. GEO-7b All buried metal pipelines shall be coated and placed under impressed cathodic protection. To monitor for internal corrosion, corrosion coupons or equivalent measures can be

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			during normal operations. SR-1e The Applicant shall ensure that warning tape is installed above the pipelines within the pipeline trench to warn third parties that pipelines are located below the warning tape and that the pipelines are capable of utilizing a smartpig. SR-1f The odorant system shall have its own, smaller containment area around it limiting the spilled pool size to the minimum size attainable, in order to prevent any offsite impacts. Transfer of odorant shall utilize carbon canisters and a canister change-out/maintenance program to ensure that filling of odorant tanks do not cause offsite impacts. SR-1g The comingled produced gas shall be continuously monitored for hydrogen sulfide. If H_2S levels in the produced gas from any individual well exceeds 100 ppm, then that well shall be shut in and abandoned as per DOGGR requirements. Wells shall be tested when fluids first flow, when the well is placed into production and periodically thereafter in order to ensure that all wells operate below 100 ppm H2S.
SR.2	Grading at the site could mobilize soil contamination.	II	SR-2 The Applicant shall sample soil during Phase 1 grading to ensure that soil lead contamination levels are below 9,500 mg/kg and that soil contaminated with TPH are below the regulatory guidelines. If soils are encountered above these levels, then those soils shall be removed from the site and transported to a disposal site. This may necessitate implementing the RAP during Phase 1 if substantial amounts of contamination are encountered.
Section 4.9 Hydrology and Water Quality			
HWQ.1	New grading, construction,and soil remediation could degrade surface water quality	III	No mitigation required.
HWQ.2	A rupture or leak during oil drilling operations, from pipelines, or from other infrastructure could substantially degrade surface water and groundwater quality	I	HWQ-2a The Applicant shall properly maintain the associated crude oil pipelines, storage tanks, and processing facilities within and outside the Project Site, including smart-pigging according to State of California Office of the State Fire Marshal requirements and the standards outlined by the Department of Oil, Gas and Geothermal Resources, and the Los Angeles Regional Water Quality Control Board. The Applicant shall visually inspect onsite storage tanks and processing equipment at least daily and provide a visual inspection of the crude oil pipeline right-of-way on a weekly basis. HWQ-2b The Applicant shall install a leak detection system for crude pipelines to the ~~selected valve box~~ transfer of custody location. The system shall include pressure and flow meters, flow balancing, supervisor control and data acquisition system, and a computer alarm system in the event of a suspected leak. Temperature, pressure, and flow shall be monitored at each pipeline entry and exit. If any variable deviates by more than 10 percent of the normal operating range, the system shall trigger both audible and visual alarms. Flow balancing shall be conducted every 15 minutes, 1 hour, 24 hours,

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	machinery would increase noise levels.		performance of the barrier shall remain at STC-25. NV-1b The gates on the east and south sides of the site shall be ~~24-feet high,~~ consistent with the height of the acoustical barrier around the perimeter of the site. The gates shall have no holes or gaps in them and shall be designed to deliver a minimum sound insulation performance of STC-25. NV-1c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.
NV.2	Drilling + Production activities would increase noise levels.	II	NV-2a Increase the height of the noise barriers on all sides of the site from 32-feet to 35-feet (35-feet is the maximum height allowed by zoning). Minimum sound insulation performance of the barrier material shall be STC-32. NV-2b The gates on the east and south sides of the site shall have no holes or gaps in them and shall be designed to deliver a minimum STC of 32. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-32 noise barrier in all locations. NV-2c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14. NV-2d Install pads on the V-door and other appropriate areas, timbers and pads on the drill deck, pads between drill and casing pipe while in storage and pad and timbers at the boards on the mast to reduce metal-on-metal noise. NV-2e Provide full acoustical enclosures around the mud pumps. The enclosures shall be factory-assembled by a manufacturer with a proven track-record of building noise-reducing enclosures for industrial applications. The total sound power level radiated by the enclosure shall not exceed 77 dBA, including noise contributions from: the access door(s), observation windows, ventilation openings and ventilation fans (if required). NV-2f Provide enhanced inlet and outlet silencers for the Hydraulic Power Unit enclosure and upgrade the walls, roof and floor of the enclosure as necessary to limit the total sound power level radiated by the enclosure to 77 dBA. NV-2g The acoustical shroud around the drilling rig mast shall be comprised of acoustical ~~blankets~~ material with a minimum STC rating of 25. The acoustical ~~blankets~~ material shall provide continuous coverage of three sides of the mast and shall cover the uppermost 26-feet of the fourth side. NV-2h Provide acoustical treatment within the combustor fan housing and/or at the ventilation openings, as necessary to limit the total sound power level radiated by the housing (including contributions from the door and ventilation openings) to 86 dBA. NV-2i Eliminate use of the combustor during drilling in Phase 2 or prior to the initiation of production occurring concurrent with drilling in Phase 2, acoustical treatment shall be provided: within the combustor fan housing and/or ventilation openings, as necessary to limit the total sound power level radiated by the housing (including contributions from the door and ventilation openings) to 86 dBA; and to the combustor stack to limit the power level radiated by the stack to 80 dBA. NV-2j During the drilling portion of Phase 2, implement a “Super-Quiet Mode” of operation between the hours of 2AM and 5AM, during which time drilling would essentially be suspended to minimize

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			noise. Super-Quiet Mode would impose the following additional measures and limitations: no pipe-handling of any kind anywhere on the project site, shakers switched off, top drive and rig floor completely enclosed on four sides by acoustical ~~blankets~~ material with a minimum STC rating of 25, operation of the top drive limited to "exercising" the pipe string only, top drive travel limited to the bottom half of the drilling rig mast. Super-Quiet Mode shall be implemented from the outset of drilling work during Phase 2; however, if monitoring shows consistently that noise emissions for normal drilling operations (with mitigation measures NV2a through NV2i in place) would result in less-than-significant impact during all or part of the period between 2AM and 5AM, the Applicant may, at the discretion of the City, be permitted to reduce the hours Super-Quiet Mode operations, or eliminate Super-Quiet Mode altogether.
NV.3	Test Production activities would increase noise levels.	II	NV-3a Increase the height of the noise barriers on all sides of the site from 32-feet to 35-feet (35-feet is the maximum height allowed). Minimum sound insulation performance of the barrier material should be STC-32. NV-3b The gates on the east and south sides of the site shall have no holes or gaps in them and shall be designed to deliver a minimum STC of 32. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-32 noise barrier in all locations. NV-3c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14. NV-3d Provide acoustical treatment within the combustor fan housing and/or at the ventilation openings, as necessary to limit the total sound power level radiated by the housing (including contributions from the door and ventilation openings) to 86 dBA.
NV.4	Site construction machinery would result in a substantial increase in ambient noise levels.	I	NV-4a Increase the height of the noise barrier on all sides of the site to 24-feet (24-feet is the maximum feasible height for a noise barrier during Phase 3). Minimum sound insulation performance of the barrier shall remain at STC-25. NV-4b The gates on the east and south sides of the site shall be ~~25-feet high,~~ consistent with the height of the acoustical barrier around the perimeter of the site. The gates shall have no holes or gaps in them and shall be designed to deliver a minimum sound insulation performance of STC-25. NV-4c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
NV.5	Pipeline construction machinery would result in a substantial increase in ambient noise levels.	I	None
NV.6	Drilling-plus-production activity on the site would result in a substantial increase in ambient noise levels.	II	NV-6a Increase the height of the noise barriers on all sides of the site from 32-feet to 35-feet (35-feet is the maximum height allowed by zoning code). Minimum sound insulation performance of the barrier material shall be STC-32. NV-6b The gates on the east and south sides of the site shall have no holes or gaps in them and shall be designed to deliver a minimum STC of 32. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-32 noise barrier in all locations. NV-6c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14. In the event that a permanent 35-foot wall is built, the interior surfaces of the wall (i.e. those facing inwards towards the drilling and production operations) shall be treated with exterior grade acoustical panels offering equivalent sound absorption performance to that specified in this Measure above a height of 10-feet from the ground. NV-6d Install pads on the V-door and other appropriate areas, timbers and pads on the drill deck, pads between drill and casing pipe while in storage and pad and timbers at the boards on the mast to reduce metal-on-metal noise. NV-6e Provide full acoustical enclosures around the mud pumps. The enclosures shall be ~~factory-~~assembled by a manufacturer with a proven track-record of building noise-reducing enclosures for industrial applications. The total sound power level radiated by the enclosure shall not exceed 77 dBA, including noise contributions from: the access door(s), observation windows, ventilation openings and ventilation fans (if required). NV-6f Provide enhanced inlet and outlet silencers for the Hydraulic Power Unit enclosure and upgrade the walls, roof and floor of the enclosure as necessary to limit the total sound power level radiated by the enclosure to 77 dBA. NV-6g The acoustical shroud around the drilling rig mast shall be comprised of acoustical ~~blankets~~ material with a minimum STC rating of 25. The acoustical ~~blankets~~ material shall provide continuous coverage of three sides of the mast and shall cover the uppermost 26-feet of the fourth side. NV-6h During the drilling portion of Phase 4, implement a “Super-Quiet Mode” of operation between the hours of 2AM and 5AM, during which time drilling would essentially be suspended to minimize noise. Super-Quiet Mode would impose the following additional measures and limitations: no pipe-handling of any kind anywhere on the project site, shakers switched off, top drive and rig floor

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			completely enclosed on four sides by acoustical ~~blankets~~ material with a minimum STC rating of 25, operation of the top drive limited to "exercising" the pipe string only, top drive travel limited to the bottom half of the drilling rig mast. Super-Quiet Mode shall be implemented from the outset of drilling work during Phase 4; however, if monitoring shows consistently that noise emissions for normal drilling operations (with mitigation measures NV6a through NV6g in place) would result in less-than-significant impact during all or part of the period between 2AM and 5AM, the Applicant may, at the discretion of the City, be permitted to reduce the hours of Super-Quiet Mode operations, or eliminate Super-Quiet Mode altogether.
NV.7	Long term production activity on the site would result in a substantial increase in ambient noise levels.	II	NV-7a Increase the height of the masonry walls on the north and west sides of the site to a minimum of 27-feet. NV-7b Apply outdoor acoustical panels to all available surfaces of the north and west walls that face the production operations above a height of 10-feet above the ground. The purpose of the acoustical panels is to control reflection of production noise in the direction of the sensitive uses to the east and south. The acoustical panels shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.28, 0.68, 0.95, 0.86, 0.89, 0.72. NV-7c Well workover rigs shall be powered by electric drive/sources or the use of "ultra-quiet" generators or engines - either diesel or natural gas-powered - that are capable of operating below the noise significance thresholds for daytime operation.
NV.8	Demolition and construction equipment would increase noise levels. *(Applicable to the Proposed City Maintenance Yard Project)*	I	NV-8a Provide a continuous, 25-foot high noise control barrier along the north, west and south boundaries of the City Yard site. Minimum sound insulation performance of the barrier material should be STC-32. NV-8b Provide a continuous, 16-foot high noise control barrier along the east boundary of the site. Minimum sound insulation performance of the barrier material shall be STC-25. NV-8c Access to the site for construction shall be limited to a gate on the east side in order to maintain the integrity of the noise barrier on the north side. Gates shall be constructed of solid (no holes) plywood or sheet metal and be designed to deliver a minimum sound insulation performance of STC-25. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-25 noise barrier. NV-8d All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.
NV.9	Operational noise from the relocated City Maintenance Yard would increase	II	NV-9a Increase the height of the masonry wall on the west side of the Yard (the wall that spans between the office and shop building) from 6-feet to 12-feet. NV-9b No noise-producing activity allowed in the City Yard before 8AM or after 7PM on weekdays and anytime on Saturdays and Sundays except during emergencies.

Proposed Oil Project and Pipeline Mitigation Measures				
Mitigation Measure	**Requirements**	**Compliance Verification**		
		Method	**Timing**	**Responsible Party**
AQ-1b	The Applicant shall implement a NOx reduction program including the following, or equivalent, measures to the satisfaction of the SCAQMD (this mitigation is applicable to both the Proposed Oil Project and the Proposed City Maintenance Yard Project): - All off-road construction equipment shall be tuned and maintained according to manufacturers' specifications. - Any temporary electric power shall be obtained from the electrical grid, rather than portable diesel or gasoline generators. - All off-road diesel construction equipment with greater than 100-horsepower engines shall meet Tier 3 NOx requirements. - Limit onsite truck idling to less than 5 minutes. - A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be kept onsite during all operations	Plan review, site inspections	Before and during construction	SCAQMD City of Hermosa Beach
AQ-3a	The Applicant shall limit flaring during Phase 4 to a total of 5 hours per day at the full flaring capacity (or to an equivalent volume of flared gas) during all emergency or routine flaring events in order to ensure that NOx emissions are reduced below the thresholds. Lower NOx emission combustors or other equivalent measures can also be used to satisfy the requirement.	Plan review, site inspections	Before Phase 4 operations	SCAQMD City of Hermosa Beach
AQ-3b	The Applicant shall implement methods to reduce the off-gassing of muds by at least 90 percent through the installation of fully enclosed mud pit areas with vapor control (either through carbon canisters or vapor recovery) and/or the use of mud degassing units routed to vapor control systems. The Applicant shall monitor the muds vapor immediately above the muds exit point from the wellbore and at other areas above the mud pits where muds may be exposed to the atmosphere in order to ensure that hydrocarbon vapors are captured at the minimum rate of 90 percent.	Plan review, site inspections	Before Phase 2 and Phase 4 drilling	SCAQMD City of Hermosa Beach

Proposed Oil Project and Pipeline Mitigation Measures				
Mitigation Measure	**Requirements**	**Compliance Verification**		
		Method	**Timing**	**Responsible Party**
AQ-4	The Applicant shall limit the microturbine PM emissions to 0.0035 lbs/mmbtu, or an equivalent reduction in the number and/or size of the microturbines, in order to reduce emissions to below the localized thresholds. The City shall be responsible for ensuring that the applicant will be subject to permit conditions that limit emissions from the set of microturbines, not just individual permit units.	Plan review, site inspections	Before Phase 4 operations	SCAQMD City of Hermosa Beach
AQ-5a	The Applicant shall at all times have a gas buster and SCAQMD-approved portable flare at the site and connected for immediate use to circulate out and combust any gas encountered during drilling. The flare shall be capable of recording the volume of gas that is flared. The operator shall report any flared gas from drilling to the Hermosa Beach Fire Chief and the SCAQMD.	Plan review, site inspections	Before Phase 2 drilling	SCAQMD City of Hermosa Beach
AQ-5b	The Applicant shall install a compressor seal vent collection system. In the event of a seal leak, vapors shall be collected and sent to the vapor recovery system or flare for destruction.	Plan review, site inspections	Before Phase 4 operations	SCAQMD City of Hermosa Beach
AQ-5c	The Applicant shall develop and implement an Odor Minimization Plan, submitted to and approved by the City and the SCAQMD. The Odor Minimization Plan shall address reducing the frequency from potential sources of odors from all site equipment, including wells and drilling operations, temporary operations such as truck loading, and measures to reduce or eliminate these odors (e.g., containment, design modifications, carbon canisters). The Plan shall address issues such as facility information, buffer zones, signs with contact information, logs of odor complaints, the protocol for handling odor complaints and odor release investigations and methods instituted to prevent a re-occurrence. The Plan shall require that all odor complaints and issues be immediately communicated to the City and that the City shall have the authority to implement and enforce contingency measures to ensure that any nuisance odors from the facility are eliminated.	Plan review, site inspections	Before Phase 2 and Phase 4 Drilling ~~operations~~	SCAQMD City of Hermosa Beach

Proposed Oil Project and Pipeline Mitigation Measures				
Mitigation Measure	**Requirements**	**Compliance Verification**		
		Method	**Timing**	**Responsible Party**
AQ-5d	The Applicant shall develop and implement an Air Monitoring Plan. The Plan shall provide for the monitoring of total hydrocarbon vapors and hydrogen sulfide and total hydrocarbon vapors at all perimeter locations of the facility as well as at strategic locations near processing equipment. At all times during operations, drilling, redrilling and workover operations, the Operator shall maintain monitoring equipment that shall monitor and digitally record the levels of hydrogen sulfide and total hydrocarbon vapors. Such monitors shall provide automatic alarms that are audible and visible to the Operator of the drilling equipment, and gas plant, and shall be triggered by the detection of hydrogen sulfide or total hydrocarbon vapors. Alarm points shall be set at a maximum of ~~1~~ 5 and ~~5~~–10 ppm H_2S and 500 and 1,000 ppm hydrocarbons, with the higher level requiring shut-down of drilling or plant operations and the lower level requiring notification to appropriate agencies, including the Hermosa Beach Fire Department and SCAQMD. A meteorological station to monitor wind speed and direction under the guidance and specification of the SCAQMD shall be installed at the site. The Air Monitoring Plan shall be reviewed and approved by the City and the SCAQMD.	Plan review, site inspections	Before Phase 2 and Phase 4 Drilling ~~operations~~	SCAQMD City of Hermosa Beach
AQ-5e	The Applicant shall use an odor suppressant spray system on the mud shaker tables, and shall install carbon capture canisters on all tanks (permanent and portable) that are not equipped with vapor recovery, containing potentially odiferous materials (for example; the mud baker-type tanks) for all drilling operations so that no odor can be detected at the closest receptor.	Plan review, site inspections	Before Phase 2 and Phase 4 Drilling ~~operations~~	SCAQMD City of Hermosa Beach
AQ-5f	The fugitive component leak detection program under Rule 1173 shall utilize a Leak Detection and Reporting (LDAR) level of monthly detections with an action level of 100ppm, the installation of bellows valves where applicable (valves 2 inches or smaller) and the use of IR cameras or equivalent during monthly detections to	Plan review, site inspections	Before Phase 2 operations	SCAQMD City of Hermosa Beach

bathymetry – with the potential secondary effects discussed above in Section 4.7.1.3, Geologic Hazards.

As indicated in Section 4.7.4.2, Geosyntec (2012) conducted a subsidence study for the Proposed Oil Project that was peer reviewed by the EIR preparers. The report concluded that subsidence has not occurred to date in the Torrance Oil Field and subsidence is not expected to occur as a result of the Proposed Oil Project related oil extraction, for the following reasons:

- Sand-grain packing is mature in the Torrance Oil Field reservoir formations, unlike the adjacent Wilmington Oil Field reservoir formations, where historical subsidence has occurred.
- Lithology of the target reservoir formations includes lenses/layers of compacted and cemented shale units, which inhibits subsidence, unlike the greater unconsolidated thicknesses of sandstone of the adjacent Wilmington Oil Field.
- Water injection would be conducted to minimize subsidence as oil is extracted during the operational life of the Proposed Oil Project.

The Proposed Oil Project will remove an unknown volume of oil, gas, and associated water. In the absence of injection of wastewater back into the subsurface, the potential for settlement of overlying onshore and offshore infrastructure increases. Similarly, most of the subsidence could occur offshore, as oil would be extracted beneath offshore waters and most of the initial water reinjection is planned for portions of reservoir zones located beneath onshore areas. Waste water reinjection is a standard practice in the oil and gas industry, not only for the disposal of wastewater, but also to prevent ground subsidence. Although reinjection of wastewater in proposed injection wells would substantially reduce the potential for ground subsidence, such reinjection does not ensure avoidance of subsidence. Therefore, impacts would be *potentially significant* in the absence of onshore and offshore subsidence monitoring and corrective actions.

As indicated in Section 4.7.3.2, Proposed Project Design Features, the applicant proposes a Subsidence Monitoring Program to detect subsidence as a result of drilling activities to ensure that subsidence would not be allowed to the degree that it could endanger the facility, off-site structures, and the shoreline. In addition, DOGGR will review the Proposed Project operations including plans for fluid withdrawal, water re-injection and reservoir pressure maintenance. DOGGR maintains jurisdiction to arrest or ameliorate subsidence under Division 3, Chapter 1, Article 5.5 of the California Public Resources Code (beginning with Section 3315). Furthermore, section 3319 (c) requires that "field wide re-pressuring plans be based upon a competent engineering study that includes re-pressuring operations designed to most effectively arrest or ameliorate subsidence." Consequently, oil field operations will be conducted under the oversight of DOGGR and will be designed to reduce potential subsidence. In addition to the Applicant proposed Subsidence Monitoring Program, the following mitigation measures would further reduce potential impacts related to subsidence.

Mitigation Measures

GEO-4a Prior to approval of the first Phase 4 drilling permit, the Applicant shall have submitted and the City of Hermosa Beach and the California Coastal Commission shall have approved a Subsidence Monitoring and Avoidance Program, for both onshore and offshore areas.

The onshore monitoring plan shall be completed throughout the life of this Project, in accordance with Appendix A, Subsidence Monitoring Program, of the *Subsidence and Induced Seismicity Technical Report, E&B Oil Development Project* (Geosyntec Consultants 2012), included as Appendix F of this EIR. The offshore monitoring plan shall be completed throughout the life of this project in accordance with the *Offshore Subsidence Monitoring Program and Possible Mitigation Measures, Hermosa Beach, California* (Coastal Environments 1998), included as Appendix F of this EIR. The latter shall be updated, as applicable, to reflect advances in science since 1998. In addition, Section 7.6, Mitigation of Onshore Subsidence, of the latter report, shall not be applied to this mitigation measure, as the onshore monitoring program would be completed in accordance with the Geosyntec Consultants (2012) report.

GEO-4b The Subsidence Monitoring Program shall include:

- Ground elevation survey methodologies with high vertical resolution, including onshore surface elevations and offshore bathymetric elevations;
- Prior to Phase 4 ~~H~~ drilling, establishment of a network of onshore and offshore survey or subsidence monitoring locations, including continuous GPS stations, GPS benchmarks, and tautly anchored offshore monitoring points, positioned within the City, outside the City, and in offshore areas, that are sufficiently spaced to draw conclusions about subsidence within the zone of influence of the Project;
- Because subsidence can occur for a variety of reasons, establishment of control points outside the zone of influence to allow differentiation of possible subsidence effects related to other activities;
- Use of InSAR imagery technology to evaluate regional subsidence patterns both within and beyond the proposed oil field;
- Sufficient monitoring frequency to establish trends in subsidence in order to distinguish background ground movement from any subsidence caused by proposed oil field operations;
- Reservoir monitoring, including documentation of produced fluid volume (oil, gas and water) and reservoir pressures at similar frequency to ground elevation measurements;
- Reporting requirements; and
- Action levels, as specified in the onshore and offshore subsidence monitoring reports.

Surveying for both vertical and horizontal ground movement shall be completed along the perimeter and throughout the interior of the oil field, including both onshore and offshore areas, utilizing Global Positioning System technology in combination with a network of ground stations. The onshore continuous monitoring GPS stations shall include:

- Hermosa Beach Pier. The pier will serve as the furthest offshore point in the onshore monitoring program.
- Longfellow Outfall. This Outfall is larger and more structurally stable than some of the other outfalls along the City's coast. (It is also in close proximity to a locally important surf break.)
- King Harbor Jetty. This location was selected to achieve a distribution of continuous monitoring points along the coast of Hermosa Beach. This will help provide a limited regional picture of the subsidence between survey events.

GEO-4c An onshore and offshore baseline subsidence report shall be completed and made available to the City of Hermosa Beach and the California Coastal Commission at least two months and no more than six months prior to planned commencement of Phase 4 ~~II~~ drilling operations. Subsidence monitoring reports shall be completed annually and the results shall be forwarded to the California Coastal Commission and the City of Hermosa Beach for review, no more than one month following the end of each annual monitoring cycle. In addition, results shall be forwarded to the adjoining City of Redondo Beach and City of Manhattan Beach.

GEO-4d In the event that the Global Position System monitoring indicates that significant subsidence, as defined by the onshore and offshore subsidence monitoring reports described in GEO-4a, is occurring in and/or around the Proposed Project area, wastewater or water reinjection operations shall be increased to alleviate such subsidence. The Applicant shall coordinate with the California Division of Oil, Gas and Geothermal Resources, which will approve increased levels of wastewater or water reinjection operations in accordance with the approved Subsidence Monitoring Program. The Applicant will also coordinate with the City of Hermosa Beach, Public Works Department, to verify that subsidence has been mitigated sufficiently.

GEO-4e In the event that subsidence related mitigation induces seismicity, corrective actions related to subsidence shall proceed until baseline surface elevations have been achieved, as subsidence related damage would likely be more pronounced in comparison to damage associated with Project related micro-seismicity. Upon reestablishment of baseline elevations, drilling operations shall cease until a balance between subsidence avoidance and induced seismicity avoidance can be established, as agreed upon by the California Division of Oil, Gas and Geothermal Resources and the City of Hermosa Beach.

Residual Impacts

With implementation of measures GEO-4a through GEO-4e, residual impacts would be considered **less than significant with mitigation (Class II)**.

Impact GEO.5 pertains to the following significance criteria:

Proposed Oil Project and Pipeline Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
	experienced structural engineer due to the proximity to existing buildings that must be protected from potential settlement and lateral movements.			
GEO-4a	Prior to approval of the Phase 4 first drilling permit, the Applicant shall have submitted and the City of Hermosa Beach and the California Coastal Commission shall have approved a Subsidence Monitoring and Avoidance Program, for both onshore and offshore areas. The onshore monitoring plan shall be completed throughout the life of this Project, in accordance with Appendix A, Subsidence Monitoring Program, of the *Subsidence and Induced Seismicity Technical Report, E&B Oil Development Project* (Geosyntec Consultants 2012), included as Appendix F of this EIR. The offshore monitoring plan shall be completed throughout the life of this project in accordance with the *Offshore Subsidence Monitoring Program and Possible Mitigation Measures, Hermosa Beach, California* (Coastal Environments 1998), included as Appendix F of this EIR. The latter shall be updated, as applicable, to reflect advances in science since 1998. In addition, Section 7.6, Mitigation of Onshore Subsidence, of the latter report, shall not be applied to this mitigation measure, as the onshore monitoring program would	Monitor subsidence with GPS technology.	Prior to Phase 4 ~~Annually~~	Hermosa Beach Public Works Department

Proposed Oil Project and Pipeline Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
	be completed in accordance with the Geosyntec Consultants (2012) report.			
GEO-4b	The Subsidence Monitoring Program shall include: Ground elevation survey methodologies with high vertical resolution, including onshore surface elevations and offshore bathymetric elevations; Prior to Phase 4 ~~II~~ drilling, establishment of a network of onshore and offshore survey or subsidence monitoring locations, including continuous GPS stations, GPS benchmarks, and tautly anchored offshore monitoring points, positioned within the City, outside the City, and in offshore areas, that are sufficiently spaced to draw conclusions about subsidence within the zone of influence of the Project; Because subsidence can occur for a variety of reasons, establishment of control points outside the zone of influence to allow differentiation of possible subsidence effects related to other activities; Use of InSAR imagery technology to evaluate regional subsidence patterns both within and beyond the proposed oil field; Sufficient monitoring frequency to establish trends in subsidence in order to distinguish background ground movement from any subsidence caused by proposed oil field operations;	Monitor subsidence with GPS technology.	Prior to Phase 4 ~~Annually~~	Hermosa Beach Public Works Department

Proposed Oil Project and Pipeline Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
	Reservoir monitoring, including documentation of produced fluid volume (oil, gas and water) and reservoir pressures at similar frequency to ground elevation measurements; Reporting requirements; and Action levels, as specified in the onshore and offshore subsidence monitoring reports. Surveying for both vertical and horizontal ground movement shall be completed along the perimeter and throughout the interior of the oil field, including both onshore and offshore areas, utilizing Global Positioning System technology in combination with a network of ground stations. The onshore continuous monitoring GPS stations shall include: Hermosa Beach Pier. The pier will serve as the furthest offshore point in the onshore monitoring program. Longfellow Outfall. This Outfall is larger and more structurally stable than some of the other outfalls along the City's coast. King Harbor Jetty. This location was selected to achieve a distribution of continuous monitoring points along the coast of Hermosa Beach. This will help provide a limited regional picture of the subsidence between survey events.			
GEO-4c	An onshore and offshore baseline subsidence report shall be completed and made available to the City	Coordinate with Hermosa Beach	At least two months prior to Phase 4~~2~~	Hermosa Beach Public Works Department

Proposed Oil Project and Pipeline Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
	of Hermosa Beach and the California Coastal Commission at least two months and no more than six months prior to planned commencement of Phase 4 ~~II~~ drilling operations. Subsidence monitoring reports shall be completed annually and the results shall be forwarded to the California Coastal Commission and the City of Hermosa Beach for review, no more than one month following the end of each annual monitoring cycle. In addition, results shall be forwarded to the adjoining City of Redondo Beach and City of Manhattan Beach.	Public Works Department	drilling operations	
GEO-4d	In the event that the Global Position System monitoring indicates that significant subsidence, as defined by the onshore and offshore subsidence monitoring reports described in GEO-4a, is occurring in and/or around the Proposed Project area, wastewater or water reinjection operations shall be increased to alleviate such subsidence. The Applicant shall coordinate with the California Division of Oil, Gas and Geothermal Resources, which will approve increased levels of wastewater or water reinjection operations in accordance with the approved Subsidence Monitoring Program. The Applicant will also coordinate with the City of Hermosa Beach, Public Works Department, to verify that subsidence has been mitigated sufficiently.	Coordinate with California Division of Oil and Gas and Geothermal Resources (DOGGR)	Following monitoring results indicating subsidence	California Division of Oil and Gas and Geothermal Resources (DOGGR) and Hermosa Beach Public Works Department

Proposed Oil Project and Pipeline Mitigation Measures				
Mitigation Measure	**Requirements**	**Compliance Verification**		
		Method	**Timing**	**Responsible Party**
SR-1d	The Applicant shall install automatic valves on the gas pipeline that will automatically shut down under a low pressure scenario at the Processing Facility Area for all pipelines leaving the processing plant, and shall install a backflow prevention device at the main gas pipeline tie-in location, to prevent the release of gas from the main transmission pipeline in the event of a rupture in the gas pipeline. The second, return pipeline shall remain isolated from the main gas pipeline during normal operations.	Review of design documents	Before Phase 3 construction	City of Hermosa Beach HBFD Cities of Redondo Beach and Torrance
SR-1e	The Applicant shall ensure that warning tape is installed above the pipelines within the pipeline trench to warn third parties that pipelines are located below the warning tape and that the pipelines are capable of utilizing a smartpig.	Review of design documents	Before Phase 3 construction	City of Hermosa Beach HBFD Cities of Redondo Beach and Torrance
SR-1f	The odorant system shall have its own, smaller containment area around it limiting the spilled pool size to the minimum size attainable, in order to prevent any offsite impacts. Transfer of odorant shall utilize carbon canisters and a canister change-out/maintenance program to ensure that filling of odorant tanks do not cause offsite impacts.	Review of design documents	Before Phase 3 construction	City of Hermosa Beach HBFD
SR-1g	The comingled produced gas shall be continuously monitored for hydrogen sulfide. If H_2S levels in the produced gas from any individual well exceeds 100 ppm, then that well shall be shut in and abandoned as per DOGGR requirements. Wells shall be tested when fluids first flow, when the well is placed into production and periodically thereafter in order to ensure that all wells operate below 100 ppm H2S.	Review of design documents and in-field inspections	Before Phase 2 drilling	City of Hermosa Beach HBFD ~~Cities of Redondo Beach and Torrance~~

HWQ-2b The Applicant shall install a leak detection system for crude pipelines to the ~~selected valve box~~ transfer of custody location. The system shall include pressure and flow meters, flow balancing, supervisor control and data acquisition system, and a computer alarm system in the event of a suspected leak. Temperature, pressure, and flow shall be monitored at each pipeline entry and exit. If any variable deviates by more than 10 percent of the normal operating range, the system shall trigger both audible and visual alarms. Flow balancing shall be conducted every 15 minutes, 1 hour, 24 hours, and 48 hours with the accuracy defined once the system is established and tested.

HWQ-2c Personnel at the site shall be trained in equipment use and containment and cleanup of an oil spill. Dry cleanup methods, such as absorbents, shall be used on paved and impermeable surfaces and shall be included in a spill trailer maintained onsite. Spills in dirt areas shall be immediately contained with an earthen dike and the contaminated soil shall be dug up and discarded in accordance with local and state regulations.

HWQ-2d Oil spills shall be contained and cleaned according to measures outlined in the then-current California Stormwater Quality Association Best Management Practice Handbook.

HWQ-2e A United States Environmental Protection Agency, Spill Prevention, Control, and Countermeasure Plan, approved by the City of Hermosa Beach Fire Department, shall be implemented in the event of a spill. The Plan, which shall include a spill response trailer, equipment, and personnel training, shall be completed prior to Phase 2 and Phase 4, and in compliance with the California State Oil Spill Contingency Plan (California Department of Fish and Game, Office of Spill Prevention and Response 2010) and the Los Angeles/Long Beach Oil Spill Contingency Plan (California Department of Fish and Wildlife 2011). Spill cleanup shall be completed under the oversight of the lead regulatory agency, with respect to oil spills, as identified in the Spill Prevention, Control, and Countermeasure Plan.

HWQ-2f The well cellars shall be lined with an impermeable membrane to prevent oil-based substances from seeping into groundwater supplies. All drilling muds storage shall be contained within Baker-type enclosed tanks, which shall be sized to accommodate high intensity rainfall events without overtopping.

HWQ-2g The Applicant shall install a check valve in the crude oil pipeline at the Herondo and Valley drive intersection, where the crude oil pipeline turns eastward and starts uphill.

HWQ-2h The Applicant shall fund and install, under the direction of the Hermosa Beach Public Works Department, an oil/grit separators or oil/water separator located along Herondo Street, downstream of Valley Drive, in order to capture small to medium sized spills before they reach the ocean. Installation and maintenance costs shall be provided by the Applicant and the devices shall be inspected by the Applicant to ensure that the "trap" is operational before any storm events.

HWQ-2i The Applicant shall utilize a smaller 6" ERW pipe and a heat and impact resistant coating at a minimum comparable to a 3-layer fusion bonded epoxy (such as

4.9.7 Mitigation Monitoring Plan

Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
HWQ-2a	The Applicant shall properly maintain the associated crude oil pipelines, storage tanks, and processing facilities within and outside the Project Site, including smart-pigging according to State of California Office of the State Fire Marshal requirements and the standards outlined by the Department of Oil, Gas and Geothermal Resources, and the Los Angeles Regional Water Quality Control Board. The Applicant shall visually inspect onsite storage tank and processing equipment at least daily and provide a visual inspection of the crude oil pipeline ~~inspections~~ right-of-way on a weekly basis.	Review of maintenance reports	Before Phase 4 operations Annually	Cities of Hermosa Beach, Redondo Beach, and Torrance
HWQ-2b	The Applicant shall install a leak detection system for crude pipelines to the ~~Exxon Mobil Refinery~~ transfer of custody location. The system shall include pressure and flow meters, flow balancing, supervisor control and data acquisition system, and a computer alarm system in the event of a suspected leak. Temperature, pressure, and flow shall be monitored at each pipeline entry and exit. If any variable deviates by more than 10 percent of the normal operating range, the system shall trigger both audible and visual alarms. Flow balancing shall be conducted every 5 minutes, 1 hour, 24 hours, and 48 hours with the accuracy defined once the system is established and tested.	Review of system design and testing results	Before Phase 4 operations	Cities of Hermosa Beach, Redondo Beach, and Torrance
HWQ-2c	Personnel at the site shall be trained in equipment use and containment and cleanup of an oil spill. Dry cleanup methods, such as absorbents, shall be used on paved and impermeable surfaces and shall be included in a spill trailer maintained onsite. Spills in dirt areas shall be immediately contained with an earthen dike and the contaminated soil shall be dug up and discarded in accordance with local and state regulations.	Review of training and equipment	Before Phase 2 and Phase 4 operations, and intermittently thereafter	Cities of Hermosa Beach, Redondo Beach, and Torrance

- Amend the Hermosa Beach Municipal Code, including the "Oil Production" Code (Hermosa Beach Municipal Code, Chapter 21-A), to amend the prohibition on process operations to allow oil and gas processing and treatment activities. Oil and gas processing shall be defined as treatment activities that involve the chemical separation of oil and gas constituents and the removal of impurities. Processing activities would include oil stripping; hydrogen sulfide and carbon dioxide removal systems; depropanizers, debutanizers, or other types of fractionation; sulfur recovery plants; wastewater treatment plants; and separation and dehydration of oil/gas/water.
- Amend the Hermosa Beach Municipal Code to modify the definition of "grade" (adjacent ground elevation) to allow for a perimeter wall height of 35 feet. Grade shall be defined as the lowest point of elevation of the finished surface level of the ground, paving or sidewalk, excluding excavations for well cellars and storage tanks, within the enclosed area of the privacy wall, to also include the privacy wall (i.e., the perimeter wall around the Oil Project Site).

As proposed, and required by the March 2, 2012 Settlement Agreement, the land use plan revisions are subject to a ballot measure and a vote by the people of Hermosa Beach. If the ballot measure is approved, the land use conflicts would be resolved and the impact reduced to less than significant. The Proposed Project may also be considered to be inconsistent with certain land use policy goals pertaining to preservation of the City of Hermosa Beach's small town beach community atmosphere, although a project need not be in perfect conformity with each and every general plan policy. Specific discussion of consistency or inconsistency is provided in Section 4.10.6, Policy Consistency Analysis below.

Because pipelines are allowed in all zoning districts, no land use plan or policy conflicts associated with the construction of the Pipeline through the cities of Hermosa Beach, Redondo Beach, and Torrance exist.

Other Required Land Use Approvals

In addition to the actions noted above to resolve land use impacts, the Proposed Project requires the following land use permit and agreements:

- Adopt a Development Agreement to provide for the orderly development of the Oil Development Project, and to provide the Applicant with a vested right to proceed with the Project as required by the Settlement Agreement. Mitigation Measures in the certified EIR, any benefits and commitments to the City that may be proposed by the Applicant, and other provisions agreed to by E&B and the City will be incorporated into the Development Agreement. California Government Code section 65869 requires Coastal Commission approval of a development agreement in an area without a certified LCP, such as Hermosa Beach, before it can be applicable to a project. Therefore, even if the voters pass the ballot initiative for the Proposed Oil Project, the proposed Development Agreement will not be valid until after it has been approved by a formal Coastal Commission action.
- Approve a Franchise Agreement to allow the proposed oil and gas Pipelines within the City of Hermosa Beach.
- Amend Ordinance 87-897 Mandating that all Funds the City derives from Hydrocarbons Recovery go into the City's Park and Recreation Facilities Fund except the first $500 of

1. To maximize the level of fire prevention and to minimize the potential hazards to life and property in the City of Hermosa Beach.
2. To minimize the response time to fire and rescue emergencies.
3. To identify fire hazards and develop appropriate code requirements and inspections to mitigate this hazard.

Consistency Analysis: The conditions and requirements of the 1993 Conditional Use Permit (CUP) and the provisions of the City's Oil Code both contain requirements to minimize risk from fire. Section 4 of the CUP lists 9 conditions including that adequate fire detection and fire-fighting equipment be maintained onsite at all times. CUP Section 4, Condition 2 requires an analysis by a professional consultant to determine any necessary improvements to the City's Fire Department and a public notification, warning and evacuation plan. CUP Section 4, Condition 6 requires that the facility have an automatic fire detection sensor and suppression system including a tank cooling sprinkler system. The CUP also contains other requirements for fire prevention including that fire water flows to service the Proposed Project operation meet the City's Fire Department requirements. Article 9 of the City's Oil Code lists requirements for electrical equipment, internal combustion equipment, storage tanks, and flammable waste and vapors. The Proposed Project would also be subject to the requirements of the City's Municipal Code including Chapters 2.56 Emergency Services, 8.16 Hazardous Materials, and 15.20 the Fire Prevention Code. Operation of oil and gas Pipelines is subject to the requirements of the State Fire Marshal and the Department of Transportation.

The stipulations of the CUP, the Oil Code, the Municipal Code, and State and Federal requirements all represent requirements to minimize the risk of fire and make the Proposed Project safer. However, Fire Safety Objective 1 of the City's Safety Element is to maximize the level of fire prevention and minimize potential hazards to life and property in the City of Hermosa Beach. In addition, Section 4.8, Safety, Risk of Upset, and Hazards, identified a significant risk to safety from drilling operations. The Proposed Project represents a new potential hazard to the City and thus ~~is~~ could be potentially inconsistent with the Fire Safety Objective 1 of the Safety Element. However, the objective does not require that threats be eliminated. The objective uses the directives to maximize safety and minimize risk. If the voters approve the project, they will be making the judgment that the project has enough safeguards to not frustrate the Safety Element. Section 4.8 did not identify a significant risk from the relocation of the City Maintenance Yard; therefore, the City Maintenance Yard relocation would be consistent with the Safety Element.

Seismic Element

The City of Hermosa Beach Seismic Element contains information on active or potentially active faults, data on the earthquake readiness of the City's residential development, emergency communication objectives, and identifies certain "problem areas" with issues that have the potential for significant problems from seismic activity. The problem areas listed are existing private structures, dated land use and development code regulations, essential structures and services, public education, a disaster preparedness plan, and seismic safety research. For each of these subject areas, the Seismic Element provides recommendations to improve the City's infrastructure and preparedness for a seismic event.

Consistency Analysis: The stipulations of the Seismic Element relevant to the Proposed Project are the recommendations for the dated land use and development codes. Recommendation 3 requires consideration of seismic factors in the preparation of an Environmental Impact Report for new construction. Recommendation 4 requires a geologic and soils report for all proposed

Coastal Development and Design

Policies related to the Proposed Project and relocation of the City Maintenance Yard in the Coastal Development and Design section and Appendix G are associated with the aesthetics and visual impacts and include goals and policies "To preserve and enhance coastal overviews and key view point areas (section VI.B.2)." Applicable policies include "that the City should restrict building height to protect overview and view-shed qualities and to preserve the City's' existing low-rise profile". Appendix J to the Coastal Land Use Plan includes a map designating a "Scenic Highways Plan" (dated 1972, and as Amendment 9 to the Hermosa Beach General Plan dated 2/25/75). The Scenic Highways Plan designates Valley Drive from Gould Avenue south to about 2nd Street as a Scenic Corridor. This would include the Proposed Oil Project Site and the Proposed City Maintenance Yard Site. Appendix G to the Coastal Land Use Plan also contains a Viewshed and landscape map, Figure XXII.

Consistency Analysis: Section 4.1, Aesthetics and Visual Resources, provides an analysis of the structure height impacts of the Proposed Project and relocation of the City Maintenance Yard. The drill rig, work-over rig, and the perimeter wall of the Proposed Project would exceed existing zoning and building code height limitations and would require the amendments to the City's zoning ordinance and land use plans discussed above in Section 4.10.4.1 above to be approved~~. Therefore, the Proposed Project is inconsistent with the Coastal Development and Design policy on building heights~~. The proposed Amendment to the zoning ordinance regarding building height will allow the perimeter wall to maintain a uniform height regardless of the change in elevation of the westerly portion of the building site and the appearance of the wall looking westerly will be 35 feet; therefore this aspect of the Proposed Project will not materially affect coastal views and will be consistent with the Coastal Design and Development policy on building heights. While, the drill rig and work-over rig are temporary and mobile aspects of the project, they significantly exceed the allowable building height and heights that would be expected in the M-1 zone and are therefore potentially inconsistent with the Coastal Design and Development policy on building heights. However the proposed Coastal Land Use Plan Amendment to add policies regulating oil and gas recovery (below) provides policies and program to ensure such development can be designed generally consistent with the Coastal Act.

Proposed Amendment to City Local Coastal Plan

As noted above, the current City Coastal Land Use Plan does not contain energy policies that would guide the development of oil and gas resources within the city. Therefore, a component of the Proposed Project is to amend the Hermosa Beach Coastal Land Use Plan to add policies regulating oil and gas recovery, as proposed in Appendix P of the DEIR (see Section 4.10.4.1). Based on consultation with Coastal Commission staff, modifications to the amendment presented in the DEIR are provided in Appendix P of this Final EIR. The modifications provide the correct references to relevant Coastal Act sections as advised by Coastal Commission staff, clarify definitions regarding the exploration and production of oil and gas, and provide administrative procedures. The Appendix P revisions to the City Coastal Land Use Plan contained in this Final EIR are summarized below.

- Objective 1 is deleted in consultation Coastal Commission staff because it is a restatement of the requirements of the Coastal Act and need not be stated as an objective; the sum of the policies in this section ensure the intent of the Coastal Act is implemented and therefore removal of Objective will not adversely affect the environment.
- Policy 2 is modified such that drilling would be allowed offshore consistent with the E&B's Proposed Project to use directional drilling offshore; the impacts of drilling are evaluated in this EIR.
- New Policy 4 in Appendix P to the Final EIR specifies the land use designations where pipelines may be located per consultation with Coastal Commission staff that applicable land use designations accommodating pipelines should be specified. The general allowance for pipelines in the Industrial designation as well as rights-of-way is further restricted by Program 4.1 which limits pipelines to the locations proposed by the Proposed Project, which have been evaluated in the EIR. Program 4.2 (renumbered from

The Proposed Project would be contained entirely within the proposed oil and facility. None of the project would be built within an ESHA. Therefore, the Project could potentially be found consistent with Section 30240(a) of the Coastal Act.

Section 30244 - Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

As discussed in the Cultural Resources analysis (Section 4.4), the Proposed Project is not expected to directly impact any known cultural sites. This section contains a set of mitigation measures to ensure that unidentified cultural sites that might be found during construction are not significantly impacted. The proposed permanent or temporary City Yard relocation projects are not proposed to modify the identified buildings, and the permanent relocation site is on the site adjacent to the Civic Center; on this basis the Proposed Project could be potentially found consistent with Section 30244 of the Coastal Act. ~~However, construction of the new City Maintenance Yard has the potential to impact the City Hall complex which has been designated as a potentially significant historic resource. Therefore, the Proposed Project could potentially be found inconsistent with Section 30244 of the Coastal Act.~~

Section 30250 - (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have a significant adverse effect, either individually or cumulatively, on coastal resources.

(b) Where feasible, new hazardous industrial development shall be located away from existing developed areas.

The Proposed Oil Project has been granted a Conditional Use Permit to conduct an oil and gas project on the Project site if the voters agree to lift the ban. The Project Site is surrounded by developed areas in a highly urbanized environment. While the Proposed Oil Project site is designated Open Space in the Coastal Land Use Plan, the proposed Industrial designation is consistent with the proposed use. It is located within the City's major industrially zoned area and is bound by M-1 zoning and industrial and commercial uses. The analysis in the Safety, Risk of Upset and Hazards Section (Section 4.8) shows that with the implementation of mitigation measures that the safety impacts to residences would be less than significant. Therefore, the Proposed Project could potentially be found consistent with Section 30250(b) of the Coastal Act.

Section 30251 - The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.

Equipment associated with the Proposed Project includes a drilling rig as well as other associated oil and gas processing equipment. The drill rig would not be completely screened from public views and would be visible in the area around the City of Hermosa Beach.

The design of the Project, required conditions of approval from the original 1993 Conditional Use Permit and implementation of mitigation measures in Section 4.1, Aesthetics, reduce visual impacts, the Project could potentially be found consistent with Section 30251 of the Coastal Act.

NV-1b The gates on the east and south sides of the site shall be ~~24 feet high,~~ consistent with the height of the acoustical barrier around the perimeter of the site. The gates shall have no holes or gaps in them and shall be designed to deliver a minimum sound insulation performance of STC-25.

NV-1c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.

Tables 4.11-16 and 4.11-17 show how these additional mitigation measures would reduce noise impacts around the project site during Phase 1.

Table 4.11-16 Phase 1 - Predicted Demolition Noise Impact with Mitigation

Location	Receiver Height (ft)	Average Daytime Noise Level (Leq, dBA)			Increase in Daytime Noise Level (dBA)	Significant?
		Baseline	Prediction for Phase 1 Demolition	Phase 1 Demolition + Baseline		
Residential Uses North of Site on 8th Street	5	62.8	61.8	65.3	2.5	NO
	20	62.8	63.1	66.0	3.2	NO
Residential Uses Northwest of Site on Cypress Street	5	54.1	57.7	59.3	5.2	YES
	20	54.1	63.5	64.0	9.9	YES
Residential Uses East of Site on Ardmore Avenue	5	58.8	56.4	60.8	2.0	NO
	20	58.8	59.8	62.3	3.5	NO
Residential Uses West of Site on Loma Drive	5	52.4	62.1	62.5	10.1	YES
	20	52.4	62.3	62.7	10.3	YES
Veterans Parkway (Center)	5	52.7	55.9	57.6	4.9	NO

Impact #	Impact Description	Phase	Residual Impact
NV.2	Drilling + Production activities would increase noise levels.	Phase 2	Class II Less than Significant with Mitigation

Predicted noise impacts during the Phase 2 drilling and production stage are significant on all sides of the site and in many cases also exceed the 45 dBA limit prescribed by the Hermosa Beach Oil Code. The Applicant's proposed design features for Phase 2 already include extensive noise control measures: however, additional mitigation would be feasible.

Mitigation Measures

NV-2a Increase the height of the noise barriers on all sides of the site from 32-feet to 35-feet (35-feet is the maximum height allowed by zoning). Minimum sound insulation performance of the barrier material shall be STC-32.

NV-2b The gates on the east and south sides of the site shall have no holes or gaps in them and shall be designed to deliver a minimum STC of 32. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-32 noise barrier in all locations.

NV-2c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.

NV-2d Install pads on the V-door and other appropriate areas, timbers and pads on the drill deck, pads between drill and casing pipe while in storage and pad and timbers at the boards on the mast to reduce metal-on-metal noise.

NV-2e Provide full acoustical enclosures around the mud pumps. The enclosures shall be ~~factory-~~assembled by a manufacturer with a proven track-record of building noise-reducing enclosures for industrial applications. The total sound power level radiated by the enclosure shall not exceed 77 dBA, including noise contributions from: the access door(s), observation windows, ventilation openings and ventilation fans (if required).

NV-2f Provide enhanced inlet and outlet silencers for the Hydraulic Power Unit enclosure and upgrade the walls, roof and floor of the enclosure as necessary to limit the total sound power level radiated by the enclosure to 77 dBA.

NV-2g The acoustical shroud around the drilling rig mast shall be comprised of acoustical ~~blankets~~ material with a minimum STC rating of 25. The acoustical ~~blankets~~ material shall provide continuous coverage of three sides of the mast and shall cover the uppermost 26-feet of the fourth side.

NV-2h Provide acoustical treatment within the combustor fan housing and/or at the ventilation openings, as necessary to limit the total sound power level radiated by the housing (including contributions from the door and ventilation openings) to 86 dBA.

NV-2i Eliminate use of the combustor during drilling in Phase 2 or prior to the initiation of production occurring concurrent with drilling in Phase 2, acoustical treatment shall be provided: within the combustor fan housing and/or ventilation openings, as necessary to limit the total sound power level radiated by the housing (including contributions from the door and ventilation openings) to 86 dBA; and to the combustor stack to limit the power level radiated by the stack to 80 dBA.

NV-2j During the drilling portion of Phase 2, implement a "Super-Quiet Mode" of operation between the hours of 2AM and 5AM, during which time drilling would essentially be suspended to minimize noise. Super-Quiet Mode would impose the following additional measures and limitations: no pipe-handling of any kind anywhere on the project site, shakers switched off, top drive and rig floor completely enclosed on four sides by acoustical blankets with a minimum STC rating of 25, operation of the top drive limited to "exercising" the pipe string only, top drive travel limited to the bottom half of the drilling rig mast. Super-Quiet Mode shall be implemented from the outset of drilling work during Phase 2; however, if monitoring shows consistently that noise emissions for normal drilling operations (with mitigation measures NV2a through NV2i in place) would result in less-than-significant impact during all or part of the period between 2AM and 5AM, the Applicant may, at the discretion of the City, be permitted to reduce the hours Super-Quiet Mode operations, or eliminate Super-Quiet Mode altogether.

Residual Impacts

Figures 4.11-17, 4.11-18 and Table 4.11-22 show predicted noise levels during the drilling and production stage of Phase 2 with mitigation, between the hours of 5AM and 2AM.

Table 4.11-22 Phase 2 - Predicted Drilling & Test Production Noise Impact with Mitigation Between 5AM and 2AM

Location	Receiver Height (ft)	Noise Level (Leq, dBA)			Increase in Noise Level (dBA)	Significant?
		Baseline (Lowest 1-hr Nighttime L_{eq})*	Drilling + Test Production	Drilling + Test Production + Baseline		
Residential Uses North of Site on 8th Street	5	48.3	36.2	48.6	0.3	NO
	20	48.3	37.6	48.7	0.4	NO
Residential Uses Northwest of Site on Cypress Street	5	40.9	32.4	41.5	0.6	NO
	20	40.9	38.3	42.8	1.9	NO
Residential Uses East of Site on Ardmore Avenue	5	40.3	33.5	41.1	0.8	NO
	20	40.3	37.5	42.1	1.8	NO
Residential Uses West of Site on Loma Drive	5	40.0	35.3	41.3	1.3	NO
	20	40.0	36.2	41.5	1.5	NO
Veterans Parkway (Center)	5	41.0	33.7	41.7	0.7	NO

* Excluding the hours between 2AM and 5AM

Impact #	Impact Description	Phase	Residual Impact
NV.4	Site construction machinery would result in a substantial increase in ambient noise levels.	Phase 3	Class I Significant and Unavoidable

As Table 4.11-27 shows, predicted noise impacts during Phase 3 construction are significant on the north, east and west sides of the site - with the greatest impacts shown at the upper floors of the residences on Cypress Street and Loma Drive.

Mitigation Measures

NV-4a Increase the height of the noise barrier on all sides of the site to 24-feet (24-feet is the maximum feasible height for a noise barrier during Phase 3). Minimum sound insulation performance of the barrier shall remain at STC-25.

NV-4b The gates on the east and south sides of the site shall be ~~25-feet high,~~ consistent with the height of the acoustical barrier around the perimeter of the site. The gates shall have no holes or gaps in them and shall be designed to deliver a minimum sound insulation performance of STC-25.

NV-4c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.

Residual Impacts

Table 4.11-28 shows predicted noise impacts during construction activities in Phase 3 with mitigations in place. The noise impact of site construction equipment in Phase 3 would remain significant after mitigation. Since the height of perimeter acoustical barrier cannot be increased beyond 24-feet due to the stability of a temporary structure, this noise impact cannot be further mitigated and is **significant and unavoidable (Class I).**

Impact #	Impact Description	Phase	Residual Impact
NV.6	Drilling-plus-production activity on the site would result in a substantial increase in ambient noise levels.	Phase 4	Class II Less Than Significant with Mitigation

As the preceding tables show, predicted noise levels during the drilling-and-production stage of Phase 4 are significant at almost all of the neighboring sensitive receivers. The most significantly impacted properties are expected to be the homes on Ardmore Avenue. Because the Applicant already proposes quite extensive noise controls for the drilling and production equipment, options for further mitigation are limited to increasing the height and extent of the noise reduction barrier around the perimeter as described below.

Mitigation Measures

NV-6a Increase the height of the noise barriers on all sides of the site from 32-feet to 35-feet (35-feet is the maximum height allowed by zoning code). Minimum sound insulation performance of the barrier material shall be STC-32.

NV-6b The gates on the east and south sides of the site shall have no holes or gaps in them and shall be designed to deliver a minimum STC of 32. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-32 noise barrier in all locations.

NV-6c All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14. In the event that a permanent 35-foot wall is built, the interior surfaces of the wall (i.e. those facing inwards towards the drilling and production operations) shall be treated with exterior grade acoustical panels offering equivalent sound absorption performance to that specified in this Measure above a height of 10-feet from the ground.

NV-6d Install pads on the V-door and other appropriate areas, timbers and pads on the drill deck, pads between drill and casing pipe while in storage and pad and timbers at the boards on the mast to reduce metal-on-metal noise.

NV-6e Provide full acoustical enclosures around the mud pumps. The enclosures shall be ~~factory-~~assembled by a manufacturer with a proven track-record of building noise-reducing enclosures for industrial applications. The total sound power level radiated by the enclosure shall not exceed 77 dBA, including noise contributions from: the access door(s), observation windows, ventilation openings and ventilation fans (if required).

NV-6f Provide enhanced inlet and outlet silencers for the Hydraulic Power Unit enclosure and upgrade the walls, roof and floor of the enclosure as necessary to limit the total sound power level radiated by the enclosure to 77 dBA.

NV-6g The acoustical shroud around the drilling rig mast shall be comprised of acoustical ~~blankets~~ material with a minimum STC rating of 25. The acoustical ~~blankets~~ material shall provide continuous coverage of three sides of the mast and shall cover the uppermost 26-feet of the fourth side.

NV-6h During the drilling portion of Phase 4, implement a "Super-Quiet Mode" of operation between the hours of 2AM and 5AM, during which time drilling would essentially be suspended to minimize noise. Super-Quiet Mode would impose the following additional measures and limitations: no pipe-handling of any kind anywhere on the project site, shakers switched off, top drive and rig floor completely enclosed on four sides by acoustical ~~blankets~~ material with a minimum STC rating of 25, operation of the top drive limited to "exercising" the pipe string only, top drive travel limited to the bottom half of the drilling rig mast. Super-Quiet Mode shall be implemented from the outset of drilling work during Phase 4; however, if monitoring shows consistently that noise emissions for normal drilling operations (with mitigation measures NV6a through NV6g in place) would result in less-than-significant impact during all or part of the period between 2AM and 5AM, the Applicant may, at the discretion of the City, be permitted to reduce the hours of Super-Quiet Mode operations, or eliminate Super-Quiet Mode altogether.

Residual Impacts

Figures 4.11-36 and 4.11-37 and Table 4.11-34 show mitigated noise levels for the drilling portion of Phase 4 between the hours of 5AM and 2AM.

Table 4.11-34 Phase 4 - Predicted Drilling + Production Noise Impact with Mitigation Between 5AM and 2AM

Location	Receiver Height (ft)	Noise Level (Leq, dBA)			Increase in Noise Level (dBA)	Significant ?
		Baseline (Lowest 1-hr Nighttime L_{eq})*	Drilling + Production	Drilling + Production + Baseline		
Residential Uses North of Site on 8th Street	5	48.3	36.7	48.6	0.3	NO
	20	48.3	38.4	48.7	0.4	NO
Residential Uses Northwest of Site on Cypress Street	5	40.9	33.4	41.6	0.7	NO
	20	40.9	38.7	42.9	2.0	NO
Residential Uses East of Site on Ardmore Avenue	5	40.3	34.4	41.3	1.0	NO
	20	40.3	37.9	42.3	2.0	NO
Residential Uses West of Site on Loma Drive	5	40.0	35.5	41.3	1.3	NO
	20	40.0	36.5	41.6	1.6	NO
Veterans Parkway (Center)	5	41.0	34.5	41.9	0.9	NO

* Excluding the hours between 2AM and 5AM

4.11.7 Mitigation Monitoring Plan

Proposed Oil Project Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
NV-1a	Increase the height of the noise barrier on all sides of the site to 24-feet (24-feet is the maximum feasible height for a noise barrier during Phase 1). Minimum sound insulation performance of the barrier shall remain at STC-25.	Review of design documents and in-field inspections	Before Phase 1	City of Hermosa Beach
NV-1b	The gates on the east and south sides of the site shall be ~~24 feet high~~, consistent with the height of the acoustical barrier around the perimeter of the site. The gates shall have no holes or gaps in them and shall be designed to deliver a minimum sound insulation performance of STC-25.	Review of design documents and in-field inspections	Before Phase 1	City of Hermosa Beach
NV-1c	All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.	Review of design documents and in-field inspections	Before Phase 1	City of Hermosa Beach
NV-2a	Increase the height of the noise barriers on all sides of the site from 32-feet to 35-feet (35-feet is the maximum height allowed). Minimum sound insulation performance of the barrier material should be STC-32.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-2b	The gates on the east and south sides of the site shall have no holes or gaps in them and shall be designed to deliver a minimum STC of 32. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-32 noise barrier in all locations.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-2c	All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-2d	Install pads on the V-door and other appropriate areas, timbers and pads on the drill deck, pads between drill and casing pipe while in storage and pad and timbers at the boards on the mast to reduce metal-on-metal noise.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-2e	Provide full acoustical enclosures around the mud pumps. The enclosures shall be ~~factory~~ assembled by a manufacturer with a proven track-record of building noise-	Review of design documents and in-field	Before Phase 2	City of Hermosa Beach

Proposed Oil Project Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
	reducing enclosures for industrial applications. The total sound power level radiated by the enclosure shall not exceed 77 dBA, including noise contributions from: the access door(s), observation windows, ventilation openings and ventilation fans (if required).	inspections		
NV-2f	Provide enhanced inlet and outlet silencers for the Hydraulic Power Unit enclosure and upgrade the walls, roof and floor of the enclosure as necessary to limit the total sound power level radiated by the enclosure to 77 dBA.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-2g	The acoustical shroud around the drilling mast shall be comprised of acoustical ~~blankets~~ material with a minimum STC rating of 25. The acoustical ~~blankets~~ material shall provide continuous coverage of three sides of the mast and shall cover the uppermost 26-feet of the fourth side.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-2h	Provide acoustical treatment within the combustor fan housing and/or at the ventilation openings, as necessary to limit the total sound power level radiated by the housing (including contributions from the door and ventilation openings) to 86 dBA.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-2i	Eliminate use of the combustor during drilling in Phase 2 or prior to the initiation of production occurring concurrent with drilling in Phase 2, acoustical treatment shall be provided: within the combustor fan housing and/or ventilation openings, as necessary to limit the total sound power level radiated by the housing (including contributions from the door and ventilation openings) to 86 dBA;and to the combustor stack to limit the power level radiated by the stack to 80 dBA.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-2j	During the drilling portion of Phase 2, implement a "Super-Quiet Mode" of operation between the hours of 2AM and 5AM, during which time drilling would essentially be suspended to minimize noise. Super-Quiet Mode would impose the following additional measures and limitations: no pipe-handling of any kind anywhere on the project site, shakers switched off, top drive and rig floor completely enclosed on four sides by acoustical ~~blankets~~ material with a minimum STC rating of 25, operation of the top drive limited to "exercising" the pipe string only, top drive travel limited to the bottom half of the drilling rig mast. Super-Quiet Mode shall be implemented from the outset of drilling work during Phase 2; however, if monitoring shows consistently that noise emissions for normal drilling operations (with mitigation measures NV2a	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach

Proposed Oil Project Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
	through NV2i in place) would result in less-than-significant impact during all or part of the period between 2AM and 5AM, the Applicant may, at the discretion of the City, be permitted to reduce the hours Super-Quiet Mode operations, or eliminate Super-Quiet Mode altogether.			
NV-3a	Increase the height of the noise barriers on all sides of the site from 32-feet to 35-feet (35-feet is the maximum height allowed). Minimum sound insulation performance of the barrier material should be STC-32.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-3b	The gates on the east and south sides of the site shall have no holes or gaps in them and shall be designed to deliver a minimum STC of 32. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-32 noise barrier in all locations.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-3c	All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-3d	Provide acoustical treatment within the combuster fan housing and/or at the ventilation openings, as necessary to limit the total sound power level radiated by the housing (including contributions from the door and ventilation openings) to 86 dBA.	Review of design documents and in-field inspections	Before Phase 2	City of Hermosa Beach
NV-4a	Increase the height of the noise barrier on all sides of the site to 24-feet (24-feet is the maximum feasible height for a noise barrier during Phase 3). Minimum sound insulation performance of the barrier shall remain at STC-25.	Review of design documents and in-field inspections	Before Phase 3	City of Hermosa Beach
NV-4b	The gates on the east and south sides of the site shall be ~~25-feet high,~~ consistent with the height of the acoustical barrier around the perimeter of the site. The gates shall have no holes or gaps in them and shall be designed to deliver a minimum sound insulation performance of STC-25.	Review of design documents and in-field inspections	Before Phase 3	City of Hermosa Beach
NV-4c	All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14.	Review of design documents and in-field inspections	Before Phase 3	City of Hermosa Beach

Proposed Oil Project Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
NV-6a	Increase the height of the noise barriers on all sides of the site from 32-feet to35-feet (35-feet is the maximum height allowed by zoning code). Minimum sound insulation performance of the barrier material shall be STC-32.	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach
NV-6b	The gates on the east and south sides of the site shall have no holes or gaps in them and shall be designed to deliver a minimum STC of 32. Any gaps above the gates must be closed off, by extending the acoustical barrier material from the sides. The intent is to maintain the acoustical integrity of the STC-32 noise barrier in all locations.	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach
NV-6c	All acoustical barriers around the site shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption Coefficient, 0.49, 0.72, 0.74, 0.29, 0.21, 0.14. In the event that a permanent 35-foot wall is built, the interior surfaces of the wall (i.e. those facing inwards towards the drilling and production operations) shall be treated with exterior grade acoustical panels offering equivalent sound absorption performance to that specified in this Measure above a height of 10-feet from the ground.	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach
NV-6d	Install pads on the V-door and other appropriate areas, timbers and pads on the drill deck, pads between drill and casing pipe while in storage and pad and timbers at the boards on the mast to reduce metal-on-metal noise.	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach
NV-6e	Provide full acoustical enclosures around the mud pumps. The enclosures shall be ~~factory-~~assembled by a manufacturer with a proven track-record of building noise-reducing enclosures for industrial applications. The total sound power level radiated by the enclosure shall not exceed 77 dBA, including noise contributions from: the access door(s), observation windows, ventilation openings and ventilation fans (if required).	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach
NV-6f	Provide enhanced inlet and outlet silencers for the Hydraulic Power Unit enclosure and upgrade the walls, roof and floor of the enclosure as necessary to limit the total sound power level radiated by the enclosure	Review of design documents and in-field	Before Phase 4	City of Hermosa Beach

Proposed Oil Project Mitigation Measures				
Mitigation Measure	Requirements	Compliance Verification		
		Method	Timing	Responsible Party
	to 77 dBA.	inspections		
NV-6g	The acoustical shroud around the drilling rig mast shall be comprised of acoustical ~~blankets~~ material with a minimum STC rating of 25. The acoustical blankets shall provide continuous coverage of three sides of the mast and shall cover the uppermost 26-feet of the fourth side.	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach
NV-6h	During the drilling portion of Phase 4, implement a "Super-Quiet Mode" of operation between the hours of 2AM and 5AM, during which time drilling would essentially be suspended to minimize noise. Super-Quiet Mode would impose the following additional measures and limitations: no pipe-handling of any kind anywhere on the project site, shakers switched off, top drive and rig floor completely enclosed on four sides by acoustical ~~blankets~~ material with a minimum STC rating of 25, operation of the top drive limited to "exercising" the pipe string only, top drive travel limited to the bottom half of the drilling rig mast. Super-Quiet Mode shall be implemented from the outset of drilling work during Phase 4; however, if monitoring shows consistently that noise emissions for normal drilling operations (with mitigation measures NV6a through NV6g in place) would result in less-than-significant impact during all or part of the period between 2AM and 5AM, the Applicant may, at the discretion of the City, be permitted to reduce the hours of Super-Quiet Mode operations, or eliminate Super-Quiet Mode altogether.	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach
NV-7a	Increase the height of the masonry walls on the north and west sides of the site to a minimum of 27-feet.	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach
NV-7b	Apply outdoor acoustical panels to all available surfaces of the north and west walls that face the production operations above a height of 10-feet above the ground. The purpose of the acoustical panels is to control reflection of production noise in the direction of the sensitive uses to the east and south. The acoustical panels shall offer the following minimum sound absorption performance: Center Frequency (Hz), 125, 250, 500, 1k, 2k, 4k - Sound Absorption	Review of design documents and in-field inspections	Before Phase 4	City of Hermosa Beach