an oil platform out there. (Vol. I, pp. 2.1-18 and 2.1-19.) The logic escapes me. With each additional platform the chances for a spill quite clearly are increased."

"Moreover, the report also asserts that "offshore oil processing would not increase the potential for major oil spills since the large oil spills are associated with the oil extraction activities and not with oil processing." (Vol. I, S-55) This is an irresponsible statement."

"More offshore spills have come from "extraction" than from offshore processing because there have been very few offshore processing plants. But the potential for a spill from such a facility is surely present. Pipelines and storage tanks can rupture, valves can fail, and maritime collisions have a long history. There is indeed more than one way to spill oil."

Response: The pages referenced (2.1-18 and 2.1-19) relate to the recreation and tourism impacts to the Isla Vista area associated with the No Project alternative and are not part of the systems safety analysis as the context of Mr. Sollen's comment appears to suggest. In context, the cited passage was simply noting that the No Project Alternative would not eliminate the possiblity of an oil spill from a platform since Platform Holly exists and could be the source of a spill even if no other facilities were constructed offshore.

It is a statement of fact that offshore processing does not increase the potential of a major oil spill. Well blowouts, which are the most severe oil spill accident, may occur whether or not oil is processed offshore. Such accidents may result in spills of more than 15,000,000 gallons of crude oil. The collision of a tanker with the platform could result in spillage of 100,000 to 15,000,000 gallons of oil -- basically the cargo of the tanker. Again, the volume of the spill is not related to whether or not oil is processed on the platform.

Offshore processing adds to the amount of oil that could be spilled in a catastrophic event since process vessels and surge tanks would be part of the facilities, a fact that was clearly stated in the analysis, but the additional volume of oil is very small by comparison to the amount that could be spilled from a major well blowout or tanker collision. The issue is not that no more oil could be spilled, but whether the amount of additional oil that could be spilled related to offshore processing is great enough to significantly alter the amount of oil that would be spilled in a catastrophic event.

[Finalizing Addendum, Vol. I, pages S-54, S-55; Draft EIR/EIS, Vol. II, pages 4-48, 4-49, 4-4, 4-37 and 5-37]

15. Comment: (Robert Vatter, Page 250 of Transcript)

"How many of the reports and statistics the Chambers Group has drawn upon in their compilation of this report were erroneous, incomplete, or subject to bias. How will these discrepancies influence the possibility of catastrophe, should any portion of this project be approved? Where is our professional watch dog? The truth squad? And, that second opinion? Must we depend solely on what the Chambers Group dictates?"

Response: The report was prepared by the firm of Reese-Chambers Systems Consultants, a noted systems engineering firm who has conducted several similar studies for projects in the Santa Barbara Channel. This analysis has been prepared under the direction of the Joint Review Panel and was extensively reviewed by federal, state and local agencies during the EIR/EIS process.

16. Comment: [Hal Kopeikin, Page 259 of Transcript)

"In case of a disaster, I might remind you also, that there are two roads that lead out of one of the most densely populated areas in America. We have 18,000 people in less than a half-a-square mile. There is no way to get out of there during rush hour. In the

event of a disaster you would have a real disaster on your hands, because there is no way of getting out. I didn't see that in the EIR either, and I did look"

Response: The EIR/EIS provided a full analysis of the potential accidents associated with the operation of the proposed Coal Oil Point Project. This discussion is provided to address the concerns raised during the hearing and focuses particularly on the accidents associated with proposed Platform Heron.

The following categories of accidents were included in the analysis:

1. Fire and explosions at the platform;

2. Release of toxic gas from the platform;

3. Ship collisions with platforms; and

4. Oil spills.

Fire and explosions at the platform would create hazard footprints around the platforms. These hazard footprints for blast overpressure, flying debris and radiant heat are 300 feet, 1500 feet and 800 feet respectively from the platform. Since the platform is approximately 12,000 feet from nearest onshore point, no public safety impacts to onshore areas including Isla Vista is projected. While onshore areas remain unimpacted, fishermen, boats and others within the confines of these footprints could be subjected to injury or death.

Release of gas containing toxic hydrogen sulfide from all blowouts or sour gas pipeline rupture would create hazard footprints extending 5,280 feet. The lethal effects of this gas would not extend to shore. This estimate is also based on very conservative assumptions including that of gas containing 3 percent hydrogen sulfide would be released even though gas containing only 2 percent hydrogen sulfide is expected.

Ship collisions on platform accidents and well blowouts would have the potential to create oil spills that may reach shore. Although these will create significant biological and recreational impacts, there will be no significant public safety impacts.

The EIR/EIS therefore concludes that accidents offshore will not create public safety impacts to onshore areas. Although it may be desirable for any community to have emergency evacuation plans, the presence of the Coal Oil Point Project will not create the specific need for these plans.

[Draft EIR/EIS, Vol. II, Section 4.3.1]

17. Comment: (Michael Boyd, Isla Vista Parks and Recreation District, Page 221 of Transcript)

"Okay, now what I wanted to comment on, specifically, was in this section of the final EIR where they talked about recreational programs, they address the potential of a Class 1 impact due to a major oil spill, and they specifically only cite one area of the park, which is the county frontage, the beach park, and no where do they mention the Isla Vista Recreation and Park District and potential impact on the district."

Response: While the EIR/EIS does not specifically address oil spill impacts to the Parks and Recreation District, the overall impacts to recreation of oil spills to recreation activities are addressed both in Section 2.1 of the Isla Vista Supplement and in Section 4.3.18 of the Draft EIR/EIS and in Appendix 2. Oil spills would produce Class I impacts to recreation. The major impact of the oil spill will be on beaches and nearshore areas.

[Draft EIR/EIS, Sections 2.1, 4.3.18]

ISSUE: AIR QUALITY

1. Comment: (Curtis B. Anderson, UCSB, Page 129 of Transcript; written comments)

"1. Catastrophe could be an accident or it could be caused by a natural event like an earthquake. Just how serious a disaster might be is seen in the toxicity of the gas which is 2% hydrogen sulfide (H_2S). The lowest lethal concentration for H_2S (LC/O) is 600 parts per million (ppm) for 30 minutes. Note that 2% H_2S is 20,000 ppm. By way of comparison, the lowest lethal concentration for hydrogen cyanide (HCN) which is/was used in the California gas chamber is about 110 ppm for 1 hour. If the gas and oil caught fire, sulfur dioxide (SO_2) would be formed. The lowest lethal concentration for SO_2 is 611 ppm for 5 hours. The possibility of such a catastrophe, accidental or natural, is very very small, but the consequences could be very grim for I.V."

Response: The systems safety analysis fully examined all potential accidents due to safety failures identified in Professor Anderson's comments. The air quality analysis, Section 15 of Appendix 4, included discussion of H_2S, SO_2, and methyl mercaptan (RSH) impacts, in the context of human odor detection thresholds, which are substantially below lethal levels.

Professor Anderson notes that lethal doses of H_2S occur at exposures of 600 ppm for 30 minutes. The EIR/EIS impact analyses found no onshore H2S impacts from the platforms at levels of 0.0947 ppm, which is the odor detection threshold. The highest levels of H_2S predicted near Isla Vista were at the plant boundary for Ellwood -- where the concentration would be about 76 ug/m^3 (.055 ppm). At this concentration odors would be detectable as the EIR/EIS states, but the concentration is far from health threatening.

He further notes that lethal concentrations of SO_2 occur at 611 ppm for 5 hours. The EIR/EIS impact analysis found no SO_2 impacts at levels of 3 ppm (7865 ug/m^3). The highest SO_2 impacts were predicted to be 2001 ug/m^3 or 0.76 ppm at 5.8 km from the platform (about 3.6 miles) under upset conditions which would be only momentary events (i.e., a few minutes at most), not ones lasting 5 hours. The facilities design is such that accidents that could happen could not result in the volume of emissions Professor Anderson has assumed would occur.

2. Comment: (Curtis B. Anderson, UCSB, Page 131 of Transcript; written comments)

"3. Emissions to the atmosphere during production after construction and drilling will probably be manageable like those at Platform Holly. But the intentional flaring of gas when wells are tested must be eliminated as I will show. In some places the flaring is said to be necessary for 48 hours per well at 1 million standard cubic feet of gas per day."

"Simple calculation (Chemistry 1A) of the burning of the natural gas which is mostly methane indicates that the composition of the plume from the flare will be about 10% carbon dioxide, 18 percent water, 72% nitrogen, 200 ppm SO_2 and 10 ppm H_2S. This assumes that the minimum of air was used to burn the gas, but it should be noted that using a 100% excess of air will only reduce the concentrations of SO_2 and H_2S by a factor of 2. Also it was assumed that the flare burns 99.5% of the H_2S to SO_2 (Estimates are 99.0 - 99.5% efficiency.) These calculated concentrations also are undiluted by convection, diffusion, or turbulence. Now if there is a strong onshore wind of say 20 mph, the plume will reach I.V. in 4 minutes, and in so short a time the plume will not be significantly diluted."

"Let us now consider the significance of these levels of H_2S and SO_2. The concentration of H_2S in the plume is just

under the U.S. Occupational standard which is 20 ppm for an hour day. Furthermore the smell of the H_2S and mercaptans can be detected with the nose in the range of 10 parts per billion which is 1000 times less than in 10 ppm. H_2S has the smell of rotten eggs. This plume will smell badly even when diluted by a factor of several hundreds. The prevailing westerly winds will most often carry the smell to Hope Ranch and Santa Barbara, although I.V. will be downstream from Platform Haven."

"The SO_2 at 200 ppm in the undiluted plume is 400 times the U.S. Occupational Standard of 5 ppm for an 8 hour work day. Even if much diluted, the air will not be safe. SO_2 under certain conditions in the atmosphere can transform into sulfuric acid and produce acid rain or acid fog. The EIR notes that no studies of acid rain or fog have been done in the area, and no incidents have been reported, and therefore declines to estimate such effects. In this context, 1 million cubic feet of gas with 2% H_2S contains about one Ton of H_2S and would make about 2 Tons of SO_2. There is plenty there to make acid fog." I should like to point out that the Los Angeles Times p. 2 on 5 January reported a case of acid rain in the port of Jacksonville, Florida, which pitted the paint on 2000 new BMWs requiring repainting. It could happen here, and what of the effects on people's lungs?"

Response: ARCO has recently proposed to do no intentional flaring of gas wells. Professor Anderson assumes that if such flaring were to occur, the plume containing 10 ppm of H_2S would reach Isla Vista in 6 minutes and "will not be significantly diluted" because the "calculated concentration . . . are undiluted by convection, diffusion, or turbulence" in wind of 20 mph. The Professor's assumptions are simply contrary to the known processes of atmospheric physics. He neglects the dilution caused by high wind speeds passing the point of emissions and erroneously maintains that other physical processes would not cause dilution. The contention that oder

impacts from the project will be experienced as far away as Hope Ranch and Santa Barbara is unsupportable by known evidence and is contrary to the analyses within the EIR/EIS.

[Appendix 4, Vol. II, Section 15.1.1]

No quantitative relationship between the emission of chemicals causing acid deposition and low pH (elevated acidity) in atmospheric moisture has yet been established. It is not scientifically supportable to state in even an approximate way that the conversion of x tons of SO_2 results in a pH of y in atmospheric moisture. The EIR/EIS does not deny the possiblity of acid deposition in the region. It simply notes that there is not evidence to support the conclusion that significant levels of acid rain or acid fog will occur from the project.

[Draft EIR/EIS, Vol. I, Section 2.1]

3. Comment: (Curtis B. Anderson, UCSB, Page 134 of Transcript, written comments)

"I am not discussing the EIR's concern with nitrogen oxides (NO_x) and hydrocarbons (HC) whose effects are computer modeled. The concentrations of NO_x and HC needed with sunlight to produce photochemical smog are very small, of the order of 0.1 ppm which we already often attain. The common assumption that less NO_x emitted means less oxidant concentration is probably not correct. The chemical system is not that simple."

Response: No claim is made in the EIR/EIS that lower levels of NO_x mean less oxidant. In fact, highly sophisticated models used to simulate atmospheric chemistry, demonstrate increased oxidant (ozones) impacts from the project.

[Draft EIR/EIS Vol. II, Section 4.3.6]

4. Comment: (Robert Vatter, Page 247 of Transcript)

"I do not believe that there has been adequate, an adequate baseline for air quality established for the pre-1964

establishment of Platform Holly. We do not know therefore that in fact ARCO will be getting offset credit towards further polluting by capturing through seep containment structures the pollution they are already enhancing through their present drilling and reinjection methods."

Response: ARCO's Holly and existing Ellwood facilities are currently regulated by the Santa Barbara County Air Pollution Control District. Also ARCO does not currently reinject gas into the revision.

Offset credit for the seep emissions is currently being studied and negotiated with the APCD and ARCO as a portion of the authority to construct phase of project approval. Baseline air quality prior to construction of Holly is not relevant to this process since the seep containment structure was constructed primarily to offset future emissions and not those from the existing Platform Holly.

[Draft EIR/EIS, Vol. II, Section 4.3.6.9]

5. Comment: (Janice Keller, GOO, Page 1 of written comments)

"Our comment to the draft EIR questions the classification of some air quality impacts as Class III. We question the justification for this decision. The Response blindly accepts the impact criteria established for the air quality analysis as the basis for Class III designation. This is unacceptable."

Response: The entire analysis for every issue area, including air quality, was based on the significance criteria identified for the issue area. These criteria were carefully defined and reviewed by the EPA, the State ARB the Santa Barbara APCD."

[Draft EIR/EIS, Vol. II, Section 4.3.6]

6. Comment: (Janice Keller, GOO, Page 2 of written comments)

"8. ORG-66 - We are pleased that a table summarizing the air quality impacts of the projects and its alternatives has been added to the document, but where is it?"

Response: This was included in the summary in Volume I of the finalizing addendum of the EIR/EIS.

[Finalizing Addendum, Vol. I, pages S-22 and S-23]

7. Comment: (Janice Keller, GOO, Page 1 of written comments)

"1. ORG-57 - GOO recognizes the importance of keeping the summary table brief. However, to whimsically omit certain data while including other less significant data is misleading. This is especially the case in a document the size of the EIR. Stating what are the total emissions in pounds/tons and what is the percentage reduction through mitigations is more accurate than using the meaningless phrase "reduction in NOx."

Response: The requested information concerning reductions is provided in the air quality analysis and varies greatly depending upon the process, project component, and pollutant. Such information could not readily be conveyed in a summary table.

[Appendix 4, Section 6]

8. Comment: (Janice Keller, GOO, Page 2 of written comments)

"5. ORG-63 - Since when do the "beliefs" of the preparers govern the viability of a mitigation measure? Seven day work shifts are used on other platforms and do result in a reduction of vessel and helicopter traffic and associated air quality impacts. This is based on fact not beliefs!"

Response: The location of these platforms close to shore does not lend itself to this mitigation measure since little savings in emissions would occur.

9. Comment: (Roger Lagerquist, Isla Vista resident, Page 142 of Transcript)

"The most incredible statement in the finalizing addendum is that no significant impacts are expected in Isla Vista from inert pollutants. That is paragraph 2.1.3.2. This fantasy is refuted over nd over again in the body of the EIR."

Response: The EIR/EIS does maintain a consistent response that no Class I impacts from inert pollutants will occur to Isla Vista. Class I impacts from reactive pollutants will occur within the region however. This conclusion was based on extensive modeling that has been reviewed extensively by both the County APCD and the State Air Resources Board.

[Finalizing Addendum, Vol. I, Section 2.1; Section 4.3.6 of the Draft EIR/EIS]

10. Comment: (Roger Lagerquist, Page 143 of Transcript; written comments)

"Let's consider a simple proposition. When there is flaring on Platform Heron and the wind is blowing onshore, what does it mean to people accustomed to clean air?"

"Platform Heron is expected to have an upset condition every 21 days on the average (EIR 5.2.1.1). Each event is expected to release up to 3,778.87 pounds of sulfur dioxide (EIR Table 5.1)."

"I don't believe that .87 pounds part, do you? It implies a precision to .01 pounds out of 3,800; less than a thousandth of a percent error! Does the consultant believe this? What IS the precision of the number? Where are the assumptions and error analyses to support the bare number; 3,778.87?"

"Sloppy presentation of data throughout the report should lead the Commission to suspect ALL of the data and question ALL of the conclusions. A student couldn't get into UCSB doing this kind of work, let alone graduate. The Commission is not obligated to certify an EIR that is as poorly done as this one is."

Response: Mr. Lagerquist has correctly identified the largest number on Table 5-1 of Appendix 4 (3778.89 pounds per hour of SO_2). This number is derived as the sum of emissions from various sources, not all of which are the same order of magnitude. The raw data are presented in the tables to report the numbers as they were calculated. A careful review of the analysis itself and the conclusions reported will indicate that no special relevance was accorded the .89 pounds.

[Appendix 4, Section _]

11. Comment: (Roger Lagerquist, Page 144 of Transcript; written comments)

"An upset condition at platform Heron would violate state, county and federal air pollution standards (EIR 9.7.1.1). The current background level of sulfur dioxide in Goleta is 52 micrograms per cubic meter (EIR Table 3-14). During upset flaring on Platform Heron, the sulfur dioxide concentration on shore is expected to reach as high as 792 micrograms per cubic meter. How can the Finalizing Appendix (SIC) find there is "not a significant impact" due to sulfur dioxide when this pollutant is predicted to increase 1,500 percent over present levels?"

Response: Mr. Lagerquist suggests that a concentration of 792 ug/m^3 compared to a background concentration of 52 ug/m^3 must be significant since the number is large relative to the background. The analysis indicates that approximately 18 upsets per year could occur at Platform Heron which would result in sour gas flaring. (This is based on the original proposal by ARCO for

this project, which has since been revised to further limit flaring.) All but one of these upset events would involve flaring at the rate of 5.5 MMSCFD for one hour (230 thousand cubic feet total). The remaining one would result in flaring at the rate of 37 MMSCFD for one hour (1,542 thousand cubic feet total) which was the modeled upset. These flows are conservative in that the platform is assumed to be full production during the peak production year. During an upset while the platform is not at full production, the expected flow rate to the flare would be less due to the availability of excess compressor capacity. The impact presented in the document represents the worst-case flaring event under worst case meterological conditions. Impacts for the smaller flaring events would be correspondingly lower.

[Appendix 4, Section 5]

12. Comment: (Roger Lagerquist, page 144 of Transcript; written comments)

"The EIR suggests mitigations for SO_2 emissions, including: ". . . minimize the amount of sour gas sent to the flare during upset conditions." That's good. Reduce pollution by not polluting so much! A paragraph later the option is nullified: ". . . these measures have been implemented as part of the proposed project and could not be used as mitigation measures." (EIR 6.1.5.4). The impact of sulfur dioxide is significant and it cannot be mitigated."

Response: The section referenced (Section 6.1.5.4) does not say "The impact of sulfur dioxide . . . cannot be mitigated." It simply indicates that most of the standard mitigation measures that would be applied had already been proposed by ARCO as part of the project and were accounted for in the analysis. Thus, these measures "could not be used as mitigation measures . . ." on this project. The project cannot be permitted under APCD rules unless the sulfur dioxide impacts can be mitigated.

[Appendix 4, Vol. II, page 6-9, Section 6.1.5.4]

13. Comment: (Roger Lagerquist, Page 145 of Transcript; written comments)

"The statement in the staff report (page 12) that ". . . odors from the offshore platforms would dissipate to levels not detectable by humans before they reached the shoreline" is incorrect."

"The gas being flared is assumed to contain 1.45 mole percent hydrogen sulfide. (EIR 5.2.1.2). The staff report indicates flaring is 99.0% to 99.5% efficient in burning hydrogen sulfide, although no source for the figures is cited. Using the 99.0% figure, about 20 pounds of unburned hydrogen sulfide will escape during a flaring event. Twenty pounds of a material whose rotten egg odor is detectable in concentrations as low as 5 parts per BILLION (EIR Table 15-2) and is fatal in 30 minutes at 800 to 1000 per million. (Dangerous Properties of Industrial Materials, Fourth Edition, N. Irving Sax, Van Nostrand Reinhld Co.)."

Response: Please see the response to Comments 1 and 2 of this section relating to the hydrogen sulfide impacts of gas flaring. The dilution of the gas by physical atmospheric processes would reduce concentrations to levels below the human detection threshold by the time the gas reached the shoreline.

[Appendix 4, Vol. II, Sections 15.1.1 and 15.1.3.1]

14. Comment: (Roger Lagerquist, Page 145 of Transcript)

"Table 15-1 of the EIR estimates 10,518 pounds per hour of hydrogen sulfide emissions from Heron during an upset, but this figure was not included in the odor calculations. "H_2S and RSH emissions were treated as fugitive emissions while SO_2 emissions were caused by flaring." (EIR 15.1.3). The maximum predicted concentration of 4.63 micrograms per cubic meter in Table 15-3 is

based on the fugitive emission rate of 0.488 pounds per hour and not on the upset release quantity of 10 to 20 pounds. Hence Table 15-3 shows virtually the same hydrogen sulfide release for normal and upset conditions. This is incorrect."

"Applying the dilution factor from Table 15-1 to a 20 pound release given a concentration of 190 micrograms per cubic meter, or 2,900 percent above the level required for detection. There will be severe odor impact despite all the words to the contrary. No mitigation has been suggested."

Response: The odor analysis for Platform Heron consisted of two parts: normal hour and upset hour analyses. The normal hour analysis assumed that non-buoyant fugitive hydrocarbons containing H_2S were being emitted by the platform. The upset hour analysis assumed a flare event (once per year likelihood) in addition to the fugitive emissions. These upset emissions were included in the modeling analysis and are reported in Table 15-3. The commentor's methodology for applying the same dilution factor to the flare as was used for the fugitives is incorrect. The plume height associated with the flare is over one hundred meters higher than for the fugitive emissions. Therefore, the results for fugitives cannot be extrapolated to the flare.

[Appendix 4, Vol. II, pages 15-6 through 15-9, Section 15.1.3.1]

15. Comment: (Chancellor Aldridge, Page 35 of Transcript)

"For example, UCSB was fortunate in having as a consultant on the Air Quality valuations in the EIR, Dr. Edgar Stephens, a nationally respected expert who is a member of the faculty at UC Riverside. More precisely, he conducts continuing research through the Air Pollution Research Center there."

"Dr. Stephens disputes some of the EIR's conclusions on air quality problems associated with the proposed ARCO project.

He suggests that the sulfur chemistry of the oil and associated gas would be rather consistent in contrast to the document's assertion that such odors "can vary" and would be "very sporadic." He further notes that the potential for H_2S odor impacts is high because of the large portion of the petroleum resource which is sour gas."

"Moreover, Professor Stephens views as improbable the assessment that under upset conditions, H_2S concentrations from the offshore platforms are just barely larger than they are under normal conditions. And, he notes, for Platform Holly, the upset projections are actually said to be smaller than they are expected to be on the day-to-day operations. This, despite the fact that emissions under upset conditions are shown to be very much larger."

Response: Dr. Stephens may not be familiar with the characteristics of Monterey formation oil and gas wells where production is highly irregular and sporadic. ARCO's proposed sour gas system is also a high pressure system capable of withstanding higher than normal pressures without requiring the release and flaring of sour gas. Instances where sour gas would need to be flared in such a system are rare and the time periods, brief, specifically on the order of minutes.

Upset conditions, given the design of the sour gas system noted above, are of short duration. The emissions for normal operations are presented for an average hour. Since upsets only last a few minutes the comparable hourly averages are, in some cases, lower than the hourly averages of normal operation fugitive emissions.

[Appendix 4, Vol. I, Section 5.2]

16. Comment: (Chancellor Aldridge, Page 36 of Transcript)

"Dr. Stephens' misgivings about the credibility of the air quality model's trajectories are shared by his colleague, Dr. William P.L. Carter, also a member of the

faculty at UC Riverside, who notes that the EIR dismisses the project's impact upon visibility and does not address the extent to which SO_2 will be converted to sulfate. Such conversion, of course, can have an adverse effect upon visibility at very low concentrations. More important, the potential adverse consequences for human health are somewhat alarming."

Response: Trajectory modeling is not employed to assess visibility impacts as one comment suggests, but only as one way of assessing ozone (oxidant) impacts. Ozone does not reduce visibility.

Visibility analysis was done, as reported in Section 15.2 of Appendix 4, according to the EPA Level 1 screening technique, applying this widely accepted technique to the worst case emissions of pollutants affecting visibility impact. Further, the EIR/EIS notes that visibility impacts may occur during construction, but that they would be only of short duration. Reference to page 15-16 of Appendix 4, Vol. II indicates that sulfur dioxide was included in the analysis at an emission rate of 16 metric tons per day. The visibility analysis indicated that any visibility effects would be two orders of magnitude below the visibility threshold established by EPA. (Please see the response to Professor Anderson's comments 1 and 2 for further discussion of odorous and toxic pollutant impacts and potential deleterious effects.)

[Appendix 4, Volume II Section 15.2]

17. Comment: (Chancellor Aldridge, Page 37 of Transcript; written comments)

"Class I impacts related to NOx, TSP, ozone, and NO_2 are predicted for this project, if the impact analysis taken from the flawed air quality model can be believed. Generally speaking, the response to comments related to these local and regional air quality impacts refers us to the authority to construct permit process when

additional mitigations and offset calculations models will be considered by the Air Pollution Control District."

Response: The analysis was based on the use of multiple air quality models, not just one. Inert pollutants were analyzed using four models, depending on the type and location of emissions, to assure that the model most appropriate to the situation was used. The results from all inert pollutant models led to similar conclusions. Finally, reactive pollutants were analyzed using two quite different models and the results of both models were comparable. We believe that no more thorough air quality analysis has ever been done. Lastly, the models were accepted prior to their use by one or more of the EPA, the California Air Resources Board, the the Santa Barbara County Air Pollution Control District.

[Appendix 4, Vol. I and II, Sections 8.1, 9.1, 10.1, 13.1, and 14.1]

The analysis indicates that, even after applying reasonably available mitigation measures, significant impacts remain. The analysis did not rely on the Authority to Construct (ATC) permit process to state that no impacts would occur. The references to the ATC process were made to indicate that the project would not be granted air quality permits until the impacts identified in the EIR/EIS were fully mitigated to the satisfaction of the local APCD.

[Appendix 4, Vol. II, Section 16]

18. Comment: (Robert Sollen, Page 15 of Transcript; written comments)

"At the October 24, 1986 hearing on the draft report, I requested that the final report include numbers on how much gas was being trapped by the ARCO devices placed over ocean-bottom natural seeps in the Coal Oil Point area. This experiment was a mitigation measure for this project, and it seemed pertinent to have a report on its effectiveness."

"The final report does not include these figures, which could have been disclosed in a couple lines of copy."

"Instead, we are told that this data will be disclosed in the application for the authority to construct. I see no reason that this information should be delayed."

"Beyond that, there is a confusing statement about the seeps in the final report. It says that reinjection of sour gas may cause an increase in oil seepage in the area (p. S-53, Vol. I). In a report prepared under the auspices of the Lands Commission 10 years ago, however, it was concluded that "the present data do not demonstrate a close relationship between seepage and petroleum exploration and seepage areas are independent of each other, and that chemical analyses of seep gas do not demonstrate a correlation between gas seepage and reinjection of produced gas, but it adds that "this should be a matter of consideration."

"Nothing done in the intervening 10 years has to my knowledge provided data to the contrary. I repeat what I said before this commission last October: "The seeps too long have been used by the industry as an excuse for all oil found on the waters and beaches here, and conversely by others to put all the blame on the industry. We have everything but facts . . . Studies to date have been fragmentary, underfunded, short-term and inconclusive." We continue to get guesswork."

Response: We direct Mr. Sollen's attention to page 16-12 of Appendix 4 of the draft EIR/EIS for the data concerning the amounts of reactive seep gases captured by ARCO's seep containment structure. A little over 6 tons per day of reactive hydrocarbons are captured, which we believe is a measure representative of the effectiveness of the structure.

The total amount of gas captured during the period of October, 1982 to January, 1987 was 1.7 million cubic feet. Also, 428 barrels of oil have been captured. The current rate of gas capture is 1.5 million cubic feet per day.

The comment concerning the Application to Construct (ATC) process disclosing the effectiveness of the structure appears to represent a misunderstanding of the issue in question concerning the ATC. The issue is not whether the structure is effective at capturing reactive hydrocarbons, but at what ratio the captured gases could be "traded" against increase in emission of other pollutants, in this instance NO_x. That trade-off ratio is the subject of the ATC process and is not assessed in the EIR/EIS.

We do not dispute Mr. Sollen's comments concerning the relationship between the seeps and the reinjection of sour gas. Since data supporting a link between seep activity and gas reinjection or reservoir flooding are fragmentary at best, we felt it was necessary to note that a relationship may exist and that current data support neither the conclusion that absolutely no relationship exists nor that a definite relationship exists. Opinions on both sides of this issue have been expressed at public hearings on the project.

[Appendix 4, Vol. II, Section 16.4.1; ad Draft EIR/EIS, Vol. II, Section 5.3.14]

19. Comment: (Mike Webb, Anthrosphere, Inc., Page 104 of Transcript)

"Again, this is subjective as to whether this is considered a significant impact, which would be Class I or Class 3, which is an adverse, though not a significant impact."

Response: Any increase in pollutant levels that exacerbate the violation of standards is considered a Class I impact.

[Draft EIR/EIS, Vol. II, Section 4.1.6]

20. Comment: (Michael Herald, Student UCSB, Page 117 of Transcript)

"I feel that the final EIR does not adequately consider the impacts to the air quality of Isla Vista as the result of

Platform Heron. During certain times of the day, at my apartment, I can already smell the strong odor of hydrocarbon emissions generated by the oil activities on and offshore near Isla Vista. These odors would increase if Heron was approved."

Response: The EIR/EIS provides a thorough discussion of both air quality impacts and odor impacts associated with Heron. ARCO is proposing the use of a state-of-the-art emission control system and emissions will be substantially less than existing facilities.

[Draft EIR/EIS, Vol. II, Section 4.3.6]

21. Comment: (Kimberly Coy, Isla Vista resident, Page 187 of Transcript)

"And, I ask please, Hydrogen sulfide studies, including results that are consistent with itself."

Response: An intensive analysis of potential impacts related to sour gas is contained in the report.

[Draft EIR/EIS, Vol. II, Sections 4.3.1 and 4.3.6]

22. Comment: (Michael Boyd, Isla Vista Recreation and Park District, Page 214 of Transcript)

"And what I would like to comment on is the -- I guess it is the addendum to the Draft EIR that was done on Isla Vista Issues of Concern, and in there what I would like to address specifically is under air quality impacts."

"It seems that the study specifies that there are going to be Class I air pollution impacts on the community of Isla Vista. Yet in the mitigation section, they basically say the offsets are what they are propsoing to be used to mitigate some of the air pollution impacts, but it says that offsets that have been proposed to mitigate air quality impacts could result in the control of some regional air pollution offsets or reduction

in emssions from sources other than the project itself, and may occur at some distance from the new sources of emissions from the project."

Response: As discussed by Mr. Nelson, Mr. Moory and Mr. Vrat during the hearing, the ongoing Authority to Construct process is identifying potential offsets to produce a net air quality benefit on a basinwide basis. Normally, offsets are used as close to the proposed project site as feasible.

[Finalizing Addendum, Vol. I, Section 2.1]

23. Comments: (Hal Kopeikin, Resident, Page 258 of Transcript)

"I would also add that another thing that I found interesting, the pollution reports about air pollution? The statement that the air pollution, that there will be a significant increment in the air pollution. This assumes that the wind will be blowing 30 miles down the coast. After 30 miles of it being diluted, we are still going to have a significant impact, okay."

Response: The PARIS modeling effort for the reactive modeling referred to in the comment requires that the pollutants mix and "cook" prior to forming ozone. Highest ozone readings are normally found in inland areas against the mountains where the pollutants can no longer disperse. Our modeling is consistent with this observation. Dilution is not really a factor in this phenomenon.

24. Comment: (Michael Phinney, Resident, Page 263 of Transcript)

"First, the flaw of faulty logic, Section 2.1.3.1, dealing with air quality, states that there is no evidence that acid rain or fog exists here at present. It also states that no local studies have been made about its existence."

"Then, it states that no studies have been made relating acid rain and fog to offshore oil development, and then, it concludes that since there is no evidence and no study there is not and won't be any acid fog or rain here. That is some logic."

Response: Mr. Phinney fails to quote the following passage from the same section:

> "There is a potential for emissions of sulfur dioxide and oxides of nitrogen to increase the incidence of acid rain and acid fog in the Isla Vista area as well as at other locations along the south coast of Santa Barbara County."

A further passage states:

> "...(I)mpacts from acid rain or acid fog due to any project alternatives are considered insignificant."

The report acknowledges that impacts may occur, but it concludes that the evidence available leads to the conclusion that the impacts will be so small as to be considered insignificant. The report never concludes, as Mr. Phinney claims, that "there won't be any acid fog or rain here." In fact, as the first quotation clearly states, the report concludes that impacts are possible.

[Finalizing Addendum, Vol. I, Section 2.1.3.2]

ISSUE: VISUAL AESTHETICS

1. **Comment:** (David Gebhard, Page 79 of Transcript; written comments)

"Having myself over the years prepared segments of EIR's; and having reviewed many of them for governmental agencies, I would be the first to agree that one of the most difficult segments of any report is that of addressing the aesthetic element; both as to what it is and of utmost importance, the question of how it might be mitigated. The varied difficulties of identifying and addressing the aesthetic impact of this large scale project encounters the usual series of difficulties often found in EIR's."

Response: We agree with the observation made by Professor Gebhard in his testimony on behalf of the University of California at Santa Barbara that the assessment of visual aesthetic impacts is a difficult task. As the analysis noted, the subjective nature of visual interpretation leads individuals to come to widely differing conclusions about an object in their environment. Their conclusions are colored by their preconceived notions about the object and what it represents as well as the image they actually see. This is why the analysis did not attempt to interpret the objects (platforms and other installation) for the reader but, instead, presented readers with sufficient information about what the objects would look like to allow them to come to their own conclusions.

[Appendix 9B, Section 2.3]

2. **Comment:** (David Gebhard, Page 79 of Transcript; written comments)

"The underlying causes of those deficiencies are an outcome of two factors: the inadequacy of professional expertise utilized in preparing this Report; and of even more significance the visual uneasiness of all the parties concerned to admit the essential significance of the aesthetic element."

Response: The technical appendix and simulations were prepared by Archiplan, a highly regarded architecture and planning firm in Los Angeles. The work was overseen by Richard W. Thompson, AIA, AICP, a co-founder of the firm with a Master of Architecture in Urban Design from Harvard University. David Alpaugh, the person primarily responsible for the analysis, holds a Masters of Art degree in Architecture and an Urban Planning degree from the University of California, Los Angeles, a sister institution of UCSB. Mr Alpaugh was also the project manager for the South Lake Avenue Planning Framework for the City of Pasadena which received a 1986 award as outstanding planning project from the Los Angeles Chapter of the American Planning Association.

3. Comment: (David Gebhard, Page 80 of Transcript; written comments)

"The proposal before you is a classic textbook example of this problem. The Report which is now in your hands ends up either avoiding any meaningful discussion of the aesthetic impact of this proposal (and its various alternatives) whatsoever. Or, when an effort is made to treat it, as in the Appendix 6B [sic], it is approached in a vague manner, as an issue that is so ephemeral, that it is included only with embarrassment in what should be an objective, quantifiable report. The initial problem evident in the EIR is that those preparing it totally equated the aesthetic element to "view impact," i.e., what you or I, or any individual would see standing at this or that single point, looking out to the ocean and seeing Platform Heron (and/or its alternatives). The question of "Viewpoint" should indeed be one facet, a beginning, if you will. If we stop for a moment and think about it, a visual experience, such as observing an immense oil platform in the ocean, is composed of series of aesthetic reactions. The object, newly imposed, not only modifies in a major way, our reaction to the sea at this point, and the coast that lies adjacent to it, but equally it

...sthetically effects us as an aesthetic idea. ... the nineteenth century author John Ruskin observed, our sense (aesthetic and otherwise) of the moment (or of the past) assume reality through buildings, structures and other man-made objects."

Response: We refer Professor Gebhard to Appendix 9B, Sections 2.4, 4.1.1 and 4.1.2 for a more thorough discussion. This analysis included both photosimulations as well as description of the potential aesthetic impacts. These impacts were considered significant and non-mitigable to insignificant levels.

4. Comment: (David Gebhard, written comments)

"What will be the results if Platform Heron (or any of the alternative proposals) is allowed to be built at the site proposed? At present the aesthetic impression created when on approaches the UCSB campus from the east (on Ward Memorial freeway) is a remarkable combination of man-induced elements--the grove of palm trees to the left at Goleta Beach; then nature essentially takes over; it is the beach, the low cliff; the ocean itself and the island beyond. On the top of the mesa is the University itself--but here the man-introduced planting of Eucalyptus and other vegetation--all of which seems natural--pulls in and hides the numerous buildings of the campus."

"What a completely opposite experience will prevail if Heron or an alternative group of platforms are allowed to be built. Though two miles out to sea, the immense size and height, (literally a miniaturized city with a ten-story skycraper) will dominate this scene. The gross magnitude of this project will drastically compromise all else which lays before us. Its dominating effect--both as a visual object, and for what it has to say about our aesthetic and ethical values, will await us whenever we obtain a view of the ocean from varying points on the campus."

Response: The visual simulations presented by Professor Gebhard and purported to be of Platform Heron could not, in fact, be of that platform. The location on Goleta Beach, relative to Goleta Point, from which the first photographic simulation must have been taken is too far to the east for both the proposed platform and Goleta Point to be visible in the same frame.

Likewise, the simulation over the lagoon on the campus could not be of Platform Heron because the platform would not be visible from that location on the lagoon at all. Indeed, the only platform proposed for the current project that would be visible over the lagoon is Platform Holly, a photograph of which appears in Figure 3.2-5 of Appendix 9B and simulations for which were presented in Figures 4.3-7 and 4.5-4 of that appendix.

The scale of the platform presented in Professor Gebhard's simulation is inaccurate. Reference to the above-noted simulations of Platform Holly in its various existing and proposed configuration will confirm this observation.

Figure 4.1-1 in Appendix 9B shows the relative scale of Holly in its proposed configuration, including the existing platform, which appears to the left of the proposed complex in Figure 4.1-1. Reference again to Figures 3.2-5 (showing Holly as it appears now) and 4.3-7 (showing the proposed complex) as viewed over the campus lagoon clearly shows that, while the platform is imposing, it is not nearly as large as the simulations presented at the hearing suggested.

In fact, the distance between the campus lagoon viewpoint and Platform Holly (shown in Figures 3.2-5 and 4.3-7) is nearly identical to the distance between the proposed location for Platform Heron and the Goleta Beach Viewpoint that must have been used for the first photo simulation presented by Professor Gebhard. Thus, even if Platform Heron could be seen along with Goleta Point in that view, it would not appear as large as the platform

image in Professor Gebhard's simulation. Rather, it should appear to be of the same relative scale as the simulation presented in Figure 4.3-7 (from this angle, Heron and Holly would appear to be nearly the same size).

A great deal of care was taken in the EIR/EIS visual analysis to simulate the effects of atmospheric conditions on the visibility of the platforms. Similar care was not exercised in the simulations presented at the hearings. The platform image appears in those simulations to have been drawn or pasted directly on the slide.

Especially near water, atmospheric moisture creates a haze, even on apparently clear days, that tends to wash out the colors and contrast of objects in the distance. Reference to Figure 3.2-5 is a clear example of the atmospheric effects on Platform Holly. All the photosimulations prepared for this analysis take account of this atmospheric effect on the visibility of the platforms. The simulations presented at the hearings did not account for atmospheric effects at all.

[Appendix 9 generally]

5. Comment: (David Gebhard, Page 84 of Transcript; written comments)

"It can perhaps be argued, that there are other more pragmatic considerations which would justify the construction of such an incompatible industrial project dominating and overlooking a campus of the University of California. But, there can be no question, that, looking at it impartially and objectively, the construction of this platform will be a major aesthetic disaster for the University community. And as you have -- I am certain --- noted in the EIR and in Appendix 6B [sic], there is no conceivable mitigation for this negative aesthetic impact. Returning to John Ruskin, it was he who was one of the first to caution us to carefully consider the manner in which we

manipulate (and thereby design) the physical world around us--for we have an obligation not only to ourselves, but of even more importance to those who follow us."

Response: Professor Gebhard's comments concerning aesthetic compatibility with surrounding architectural and landscape elements are given full consideration in Sections 1.2, 2.3, and 2.4 and Figure 4.1-1 of Appendix 9B. The analysis was based on the fact that the platforms do, indeed, conflict aesthetically with the surroundings when structures and landscape are visible and stand in stark contrast to the otherwise featureless near offshore views.

[Appendix 9B, Section 4.1.1]

6. Comment: (Nigel Buxton, Isla Vista Rental Committee, Page 155 of Transcript)

"The visual impact of course can hardly be represented by black and white mock ups. The true effect can only be realized, unfortunately, with the placement of these monsters and it was shown very graphically by slides which I really appreciated."

Response: The use of black and white carefully prepared graphics in a reproducible medium accurately and correctly portrays the anticipated impacts to visual aesthetics. The slides provided by Dr. Gebhard did not show the current locations of the platforms, nor did they provide the proper scale and the proper fading within his photosimulations.

ISSUE: MUDS AND CUTTINGS

1. Comment: (Janice Keller, GOO, Page 2 of written comments)

"11. ORG-71 - GOO's concern deals with the effect of oil spills on marine water quality. We have asked three specific questions relating to this concern. Many of the questions were answered in the response. The answers are essential before certification can occur."

Response: We have assumed on a worst case basis that these measures will not be effective and that the marine water quality impacts are Class I and cannot be mitigated to insignificant levels.

2. Comment: (Janice Keller, GOO, Page 137 of Transcript)

"3. The project description in the Final EIR must include a statement that drilling muds, cuttings, and processed water will not be dumped into our coastal or near-coastal waters. We have heard your staff and ARCO say that such dumping will not occur. To insure that this environmentally devastating activity will not take place, the project description must reflect the intentions of all parties involved and the project must be conditioned accordingly."

Response: The project description states that drilling muds and cuttings will be discharged from the platform since that is what ARCO proposed at the time the finalizing addendum to the EIR/EIS was published. Prohibition of muds and cuttings has been recommended in the draft EIR/EIS as a way to reduce impacts. Prohibition of discharge can be made as a permit requirement.

[Draft EIR/EIS, Vol. I, Section 2.3.1.1, page 2-17; Vol. II, page 4-206]

3. Comment: (Robert Sollen, Page 150 of Transcript; written comments)

"At the January 13 hearing, those who expressed concern about dumping drilling muds and drill cuttings into the ocean were assured by the commission staff that this was not an issue. The state has not permitted such discharges from production platforms, we were told."

"But the final impact report states that the disposition of drilling muds is yet to be decided (p. S-61, Vol. I). Barging mud ashore is recommended, but this is not part of the project description. We repeat our objection, then, to disposing of overwhelming amounts of drilling muds and drill cuttings in this extremely valuable and vulnerable habitat."

Response: Impacts of the project were identified on the basis that the ocean discharge of drilling muds would be prohibited at the platforms. Barging to shore was viewed as the most viable alternative since no approved ocean disposal site exists in the Santa Barbara Channel area.

[Draft EIR/EIS, Vol. II, Page 4-200 and elsewhere)

4. Comment: (Dr. Alice Alldredge, UCSB, Page 59 of Transcript)

"The final EIR contains an appendum by Ronald Kolpack, an expert on the sediment transport and resuspension. His report states that the rate of compaction of drilling solids will be on the order of months to years, rather than the days, claimed by the original sediment model in the EIR, and that the original model was unrealistically conservative in emphasizing that cohesion and compaction of muds will inhibit resuspension and transport."

"In fact, he concludes that it will take about one to three years, rather than the decades as projected in the draft EIR, for

most of the discharged materials, including cuttings, to be carried to the bottom of the Santa Barbara basin."

"This means that most of the discharge material will become resuspended at some point, and it will become resuspended on a fairly short time frame, on the order of a year, or slightly more, greatly increasing problems of water turbidity, and increasing concentrations of barium in the water. Most marine invertebrates and marine fish native to the California coast have larval stages in the water column, which then settle to the bottom and become adults. Dr. Case discussed testimony with you that indicates that many of the toxic materials, including barium sulfate, may inhibit that settlement."

Response: As is clearly stated on page 4-27 of Appendix 5B of the Coal Oil Point EIR/EIS, very little is known about the resuspension of drilling wastes. The National Research Council Review, "Drilling Discharges in the Marine Environment" says "There is little information on the dispersion of drilling fluids and cuttings in the bottom boundary layer." Most previous environmental studies of the impacts of drilling discharges have failed to address this issue at all. Because of the sensitive nature of the marine environment off Coal Oil Point, this document did not ignore this issue. Therefore, it undertook an analysis to address the potential for resuspension of ARCO's drilling discharges from the Coal Oil Point Project. The analysis in the draft EIR/EIS was done by Dr. Robert Guza of Scripps Institution of Oceanography. Dr. Guza is an Associate Professor of Oceanography with expertise in the field of sediment transport. He used a sediment suspension model to predict the frequency of resuspension of ARCO's discharges. The limitations of this analysis are emphasized in the document. Again, because of the importance of the resuspension issue, we had another sediment transport expert, Dr. Ronald Kolpack review the sections in the EIR/EIS dealing with resuspension of drilling wastes. Dr. Kolpack

used a different approach, observations on the transport of sediments carried into the Santa Barbara Channel by storms, and came up with a different opinion about rates of transport. However, both experts are in agreement that discharged muds will be resuspended. Conclusions on impacts of drilling wastes in the EIR/EIS were thus based on the belief that discharged wastes will be resuspended and transported beyond the area of initial settlement. Impacts on marine resources were consequently considered to be significant (Class II).

[Appendix 5B: Finalizing Addendum, Vol. III, Section 7.2]

ISSUE: OIL TRANSPORTATION

1. Comment: (Janice Keller, GOO, Page 138 of Transcript)

"If the consultant's preferred alternative is to become the approved alternative, additional environmental impacts must be discussed in the Final EIR before it can be certified. Primary among these is a discussion of how oil will be transported from the offshore processing facilities to the refineries. Both pipelines and tankers have significant environmental impacts. Information on them must be made available to you before you make your decision."

Response: The oil would be transported to shore and shipped via pipeline as it would in the other alternatives. The pipelines were analyzed in the EIR/EIS. It makes no difference if the contents of the offshore pipelines is treated or untreated crude oil. This is clearly stated in the project description.

[Draft EIR/EIS, Vol. II, Section 2.3.4]

2. Comment: (Janice Keller, GOO, Page 3 of written comments)

"27. ORG-95 - The impacts of tankers is significant. The availability of an oil pipeline would reduce or possibly even eliminate the impact. However, the Project Description should be modified to say that a pipeline will be used if the impacts of tankers are not going to be discussed thoroughly."

Response: The project description clearly states that a pipeline will be used for the Coal Oil Point Project if one is available. The near completion of the Celeron Pipeline virtually assures that a pipeline will be available.

[Draft EIR/EIS, Vol. I, page 278, Section 2]

ISSUE: ISLA VISTA

1. Comment: (Roger Lagerquist, Page 141 of Transcript; written comments)

"The EIR and its Finalizing Addendum offer no clue as to how the project might be built without imposing Class I impacts on a heavily populated urban area. The most incredible statement that the Finalizing Addendum made is that "no significant impacts are expected (in Isla Vista) from inert pollutants." (Finalizing Addendum 2.1.3.2). This fantasy is refuted over and over again in the body of the EIR."

Response: No inert pollutant impacts were identified that would affect Isla Vista. Perhaps Mr. Lagerquist has misunderstood the distinction, consistent throughout the document, between inert "criteria" pollutants and odorous pollutants. The odor analysis identified potential impacts to Isla Vista from upset conditions at the Ellwood facility resulting in the release of H_2S which is not a "criteria" pollutant. Otherwise, no inert pollutant impacts that would affect Isla Vista were identified in the analysis.

[Finalizing Addendum, Vol. I, Section 2.1]

2. Comment: (Roger Lagerquist, Page 142 of Transcript)

"The news is not all bad. We are making progress. While the original EIR didn't mention Isla Vista by name, the Finalizing Addendum devotes several pages to the topic. But the EIR still lacks an appreciation of the environment surrounding this project. Isla Vista is widely held to be the most densely populated urban area west of New York City. The County Sheriff's Department estimated that the population of Isla Vista increased by 30,000 (THIRTY THOUSAND) during the 1986 Halloween weekend!"

Response: The statement that "the original EIR didn't mention Isla Vista by name" is incorrect. The "new" Isla Vista section is not new

material at all, but was taken from other sections of the draft EIR/EIS and edited to reduce any redundancy. The information contained in this "new" section has always been in the document.

[Finalizing Addendum, Vol. I, Section 2.1]

3. Comment: (Joan Marie Michelsen, Student UCSB, Page 195 of Transcript)

"We looked at the old EIR, all undillylump pages of it and found that it was atrocious. We looked at the addendum and found that it helps, but it still is not sufficient and still does not address the issues that we feel need addressing."

"It still does not cover the issues of Isla Vista. As you can see by the number of Isla Vista residents here we are not happy with it, because it is not adequate."

"One way that would properly address the issues of Isla Vista and the only real solution that I can see for the issues there is the no project alternative. It is, in the first EIR we received, I believe about six lines. It is a little longer now, but it is still not -- there still isn't sufficient time devoted to it."

Response: Section 2.1 of the finalizing addendum, and the various technical analyses of the draft EIR/EIS, provide a full impact analysis that focuses on the particular impacts to Isla Vista. See response to Comment 2 of this section.

The No Project Alternative is discussed in Section 4.2 of the draft EIR/EIS and is identified as the environmentally superior alternative since most impacts would not occur if the proposed project were not constructed.

[Finalizing Addendum, Vol. I, Section 2.1; Draft EIR/EIS, Section 4.2]

ISSUE: SOCIOECONOMICS

1. Comment: (Michael Phinney, Page 264 of transcript)

"The second flaw is the flaw of omission. Any omission of major impacts on residents, namely plummeting property values. No one in Isla Vista wants to live where there is atrocity just off the beach, with its noise, air, visual pollution and health hazards, there will be a definite decrease in property values. It can reap economic havoc on many property owners."

Response: The socioeconomics analysis, far from omitting the impact identified by Mr. Phinney, simply came to a different conclusion. Based on a quantitative evaluation of the availability of housing compared to the potential demand for housing on the south coast of Santa Barbara County, the document concludes that housing prices are likely to rise rather than fall as Mr. Phinney contends. Page 4-8 of Appendix 8 says:

> "It is likely that the increase in demand for housing in what is clearly a tight housing market will force up housing prices. Such higher prices will decrease the affordability of housing for everyone . . ."

The identical wording also appears on page 4-341 in Volume II of the draft EIR/EIS.

The table accompanying this statment (Table 4.3.13-1 appearing facing page 4-341 in the EIR/EIS) indicates that Isla Vista, along with Goleta West and, for a limited number of units, Carpinteria, is clearly the area of the tightest housing market in Santa Barbara County. Thus, it is the area to which this conclusion most directly relates. Residents of Isla Vista may object to the change caused by the project in the environment to which they have become accustomed. However, this does not necessarily translate into the environment being less desirable for

potential residents who do not currently live there or to lower property values brought on by reduced demand.

[EIR/EIS Vol. II, Pages 4-341 and 4-342: App. 8, Page 4-8]

2. Comment: (Janice Keller, GOO, Page 3 of written comments)

"22. CRG-89 - The Response ignores GOO's question about increased revenues from increased population. Other sections of the EIR say the population increases are insignificant. Is this another internal inconsistency?"

Response: As stated, population increases themselves were not considered as significant, rather the consequences to housing, public services and public finance of population increases were evaluated as to their significance.

[EIR/EIS, Vol. II, Section 4.3.12]

3. Comment: (Janice Keller, GOO, Page 3 of written comments)

"15. ORG-79 - The suggestion that housing impacts can be mitigated to a level of non-significance by providing housing for workers outside of the Goleta/Isla Vista region fails to recognize the severity of the housing shortage elsewhere on the South Coast. A mitigation measure must be viable. This suggested mitigation is not."

Response: This mitigation measure is viable since subsidized housing for workers in North County coupled with van pools to work sites is both feasible and effective.

[Draft EIR/EIS, Vol. II, Section 4.3.13.2]

4. Comment: (Janice Keller, GOO, Page 3 of written comments)

"17. ORG-82 - The Response explains why "increased demand on water supplies already in overdraft situations" is identified as

Class I. However, it does not address why no mitigations are discussed. Classifying an impact as Class I does not eliminate the responsibility of identifying mitigations if any exist."

Response: We know of no way to increase the yield of aquifers already in overdraft and infrastructure to import sufficient new water supplies into the south coast area of Santa Barbara County is neither in place nor planned in the foreseeble future. Mitigation measures must be both feasible and available at reasonable cost.

[Finalizing Addendum, Vol. III (Section 5) page 7-26; Draft EIR/EIS, Vol. II, Section 4.3.14]

5. Comment: (Janice Keller of GOO, Page 3 of written comments)

"18. ORG-83 - Saying that desalination is not feasible is incorrect. Recently, even the Goleta Water District has been researching desalinization to remedy some of the District's water ills."

Response: Based on current information, desalinization does not appear economically feasible in the near term.

6. Comment: (Robert Sollen, Page 152 of Transcript; written comments)

"The report lists as beneficial impacts public revenue, recreation and tourism, and commercial and sport fishing. I have not seen a study that indicates that public revenue will exceed the cost of public services to be demanded by this project. And to say that it will enhance recreational activities and fishing is reaching beyond credibility. Such assertions should be substantiated or removed from the report."

"For reasons I presented Jan. 13, I believe the project is not justified. But for now, let it suffice to say that the impact report

itself is seriously deficient and must be corrected and completed before we talk any more about the merits of the project."

Response: Section 2 of Appendix 8 of the draft EIR/EIS contains the methodology for determining these beneficial impacts. The public services and public finance section of this document is just such a study. A beneficial socioeconomic impact was identified when the incremental cost of providing services in a jurisdiction was estimated to be less than the incremental revenue calculated to flow to the jurisdiction from added taxes attributable to the project and its associated population.

Costs of providing public services were determined on a per capita basis. Current costs of service were compared to current population to determine the existing per capita levels provided by each jurisdiction. Based on the additional population attributable to the project, by jurisdiction, future costs were calculated at existing per capita levels. These costs were compared to the separate calculation of additional revenues that would flow to the jursidiction. A benefit was said to accrue to the jurisdiction when the added revenues were estimated to exceed the added costs attributable to the project. This is a straight-forward method of assessing a "benefit."

[Appendix 8, Section 2]

Mitigation measures for some impacts affecting recreation and tourism entail the construction of new tourist or recreational facilities or the provision of access to currently inaccessible locations. Thus, as a result of the project and the implementation of mitigation measures, facilities or access would be provided that do not currently exist and that would enhance recreation and tourism opportunities. This is not to say that there are no other negative impacts of the project on recreation and tourism. The EIR/EIS never

suggests this. However, in some areas, the project could result in beneficial additions of facilities or access.

[Draft EIR/EIS, Vol. II, Section 4.3.19; Appendix 10A, Section 4]

No attempt was made to distill all the impacts, either adverse or beneficial, into one measure of overall impact. We believe such an attempt is ill advised and inappropriate. The analysis identified adverse impacts as well as the beneficial impacts of potential habitat enhancement once offshore facilities were in place. These were never presented in a way to suggest that they outweighed adverse impacts or even that they somehow compensated for them. These potential beneficial results from the project were noted only because they would occur from the installation of project components. The purpose of the EIR/EIS is to identify all impacts, not just negative impacts.

ISSUE: CUMULATIVE IMPACTS

1. Comment: (Marty Blum, League of Women Voters, Page 87 of Transcript; written comments)

"Third Reason for Noncertification: The final EIR does not adequately address the contentious subject of cumulative impacts. The League's critique of October 28 zeroed in on this cum impact and found the Draft EIR wanting in several respects. As EIRs and EISs go this particular EIR is more comprehensive on cum impact analysis than any previous EIR or EIS dealing with oil/gas development or other development in the Santa Barbara Planning Area, - but it stops short of completing the job."

"On January 13, at your previous hearing in Santa Barbara, the League commented that cumulative impacts are closing in on us. And indeed they are. This project, a precursor to greatly expanded oil/gas developments and production on existing and on proposed leases in the tidelands, brings cumulative impacts even closer to home. As Supervisor Wallace stated in the hearing held October 23, 1986 at UCSB, this project will have the greatest impact on the onshore urban area of Santa Barbara County of all offshore oil projects yet applied for."

"Since this project initiates an extensive tidelands program, its EIR, the League submits, is obligated to come up with a state-of-the-art cumulative impact assessment/analysis. This EIR fails to go that extra mile: it does not assess the area's admitted fragile, limited carrying capacity, nor does the EIR identify trigger points/thresholds either singly or collectively for twenty-one issue areas. Cum impacts in any one issue area are bad enough; they grow exponentially as cum impacts in other issue areas are factored into the equation."

Response: We believe that the cumulative impact analysis is as thorough as any done to date, a fact the League openly acknowledges while

still maintaining that it is inadequate. Every issue area was analyzed for the cumulative impacts of the project and all other reasonably foreseeable projects and these impacts were discussed separately in both the EIR/EIS and the technical appendices. In most instances, the cumulative impacts dwarfed the impacts of the project by itself, a fact never hidden in the document. We submit that this is a "state of the art" cumulative impact assessment/ analysis."

2. Comment: (Michael Boyd, Page 223 of Transcript]

"And, I just think that the EIR, the Final EIR, is failing to adequately examine what the cumulative impacts are going to be on vegetation and people in the Isla Vista area, as the result of these cumulative air pollution impacts and specifically acid precipitation in fog, because we don't have fog."

Response: Section 7 of the EIR/EIS as well as the Isla Vista section (Finalizing Addendum, Vol. I, Section 2) provide a full analysis of the cumulative air quality impacts as well as the potential impacts of acid fog and rain to the community of Isla Vista.

[Draft EIR/EIS, Vol. II, Section 7; Finalizing Addendum, Vol. I, Section 2]

3. Comment: (Alan Hur, Page 159 of Transcript]

"There is a need to assess the cumulative effects of all existing and proposed projects and how they will affect Santa Barbara when they are all on line at the same time. That is what is facing us as an industry."

"And, this leads into what we are very concerned about, in regards to this EIR and preceding EIRs and that deals with the key in all of the EIRs that have been overlooked, and that is consideration of all of the other projects proposed and going on to date, consideration of a cumulative effects of all

of these projects on line at one time, has been buried by the complexity of the process of review for the projects themselves being reviewed individually."

Response: Section 4.3.9 of the EIR/EIS as well as Appendix 10A provide a description of the cumulative impacts of all existing, approved, proposed, or reasonably foreseeable projects in the Santa Barbara Channel. This cumulative impact analysis on commercial and sport fishing provides a full disclosure of the potential cumulative impacts.

[Draft EIR/EIS, Vol. II, Section 4.3.9; Appendix 10A]

4. Comment: (Marc Evans, Student UCSB, Page 107 of Transcript)

"I would like to speak on an impact that the EIR did not address, an impact that is unmitigable that government as a whole has chosen not to address. This is the impact of incremental degradation of the environment."

Response: The impact of incremental degradation of the environment, or cumulative impacts is discussed in depth in Section 7 of the draft EIR/EIS.

[Draft EIR/EIS, Vol. II, Section 7]

ISSUE: GENERAL COMMENTS

1. Comment: (Curtis B. Anderson, UCSB, Page 130 of Transcript; written comments)

"2. Noise from the construction of the platforms such as pile driving probably cannot be mitigated as noted in the EIR, but drilling and production noises after a platform is built can be controlled. The EIR suggests noise will be at an insignificant level. Nevertheless we even heard workers talking on the exploratory drilling ship. Although a distance of 2 miles on land would attenuate noise to a minimal level, sound carries much further over open water. Also the machinery noise is of different frequency sound that the sound of surf and can be detected. This noise problem can be mitigated greatly if the platforms are constructed with sound deadening walls at least on the side toward land. ARCO engineers can solve this problem."

Response: The well reference in the comment was an exploratory well drilled from a jackup one mile from shore. ARCO's proposed Platform Heron facility is two miles from shore.

We note that ARCO has recently proposed sound shielding for its platforms, a proposal that has not been tried before in the Santa Barbara Channel. This may address Professor Anderson's concerns. The EIR/EIS identified the noise impacts from the platforms as being significant. It remains to be seen whether the proposed shielding is effective.

[Draft EIR/EIS, Vol. II, Section 4.3.17]

2. Comment: (Bill Wallace, Santa Barbara County Board of Supervisors, Page 6 of Transcript)

"In addition to the selection of the environmentally preferred alternative, there have been other entirely new sections of the document. The important new sections have been added, evaluating the impacts on Isla Vista, originally overlooked, the effects of

Exxon's SYU project offshore, including additional air quality modeling, and substantial new information on the very complex and controversial issue of commingled versus segregated oil processing."

Response: First, Isla Vista was not overlooked in the draft EIR/EIS. As we noted in response to other comments, the Isla Vista section inserted into Volume I of the finalizing addendum is simply a compilation of data already in the draft EIR/EIS. In response to the desires of community residents, information from the document concerning Isla Vista was gathered into one location for ready reference. Where it was necessary to address draft EIR/EIS, some clarifying text was added, but no new analyses were performed and analysis had been performed previously as part of the draft EIR/EIS, it was not necessary to do new analysis.

[Finalizing Addendum, Vol. I; Section 2.1]

Second, the sections on the potential changes in the Exxon SYU project were added at the specific direction of county representatives on the Joint Review Panel. Data from the ARCO document and the certified EIR on Exxon's project were used to assess the changes in impacts, if any, that may be attributable to ARCO's project if Exxon were to process its oil offshore. The air quality modeling reported in the finalizing addendum was based on data from these documents and was simply run again under different combinations of project components. The results of the air quality analysis confirmed the conclusions of the draft EIR/EIS. No new conclusions were reached as a result of the exercise.

[Finalizing Addendum, Vol. I, Section 2.2; and Vol. III, Supplemental Air Quality TA]

Third, the controversy over commingling versus segregation has expanded beyond the realm of environmental issues. It is true that, as of the time Supervisor Wallace's comments were made, there were still

substantial differences between the county and the State Lands Commission staff concerning the feasibility and desirability of commingled processing and oil measurement in such a system. However, we point out that the environmental issues related to commingling or segregation have not changed because of the constroversy. These environmental issues were analyzed in Section 6 of the draft EIR/EIS.

[Draft EIR/EIS, Section 6]

3. Comment: (Janice Keller, GOO, Page 137 of Transcript; written comments)

"What document are you and the public being asked to consider at this certification hearing? The three volume set we recently received is called two different and distinct things. The outer cover refers to the contents as a "finalizing addendum." This would indicate that the 14-volume draft and the three volume set together are the Final EIR. However if you look at the title page of the three volume set, it refers to the contents as the "Final Environmental Impact Report/Environmental Impact Statement for Proposed ARCO Coal Oil Point Project." Not only is this confusing, but it is misleading."

Response: As clearly provided for in CEQA, use of a finalizing addenda coupled with the Draft EIR constitutes the Final EIR. Volume III of the document provides changed pages that can be inserted in the Draft document to provide the final EIR/EIS.

4. Comment: (Janice Keller, GOO, Page 137 of Transcript; written comments)

"It is GOO's feeling that the Final EIR, be it three or seventeen volumes, does not fully and accurately address the environmental impacts of commingling. We know from the document itself and from statements made, that your staff prefers segregation and the consultants prefer offshore processing because of the staff's position that segregation is the only viable means of

assessing royalties. On the other hand, the applicant, the County and the community see commingling as a viable and the preferable method. Therefore, in order for you, in your role as decision makers on this project, to make a reasoned decision, you must have all the facts before you. This includes detailed information on commingling as well as segregation. The Final EIR should be sent back to the preparers so that this information is included for your consideration."

Response: The environmental effects associated with commingling and segregation were presented in Section 6 of the draft EIR/EIS. The selection of offshore processing as the environmentally preferable alternative had absolutely nothing to do with the commingling vs. segregation debate. It was the elimination of onshore facilities and their associated significant impacts that led to the selection of that alternative. Additional studies of the fiscal impacts of segregation and commingling were added as response to comments in the final document..

[Draft EIR/EIS, Vol. II, Section 6]

5. Comment: (Janice Keller, GCO, Page 1 of written comments)

"2. ORG-59 - The Final EIR preparers are adamant about including all impacts associated with each alternative in the summary table even though the repetition is voluminous. They insist this is more important than dealing with the differences in impacts of the various alternative. We do not concur with this conclusion. At the very least, the summary table should be footnoted to indicate that a discussion of differences in impacts is located in the text and where. This footnote should only be included if indeed a full discussion can be found in the text. This is essential before certification can occur."

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Response: The revised summary in Volume I also provides tables comparing impacts within each subject area for each alternative.

[Finalizing Addendum, Vol. I, Executive Summary, pages S-17 to S-51]

6. Comment: (Janice Keller, GOO, Page 1 of written comments)

"3. ORG-60 - Again, we must disagree with the preparers. Mitigation measures and residual impacts must be reflected in the summary table. Also, see #2 above re references to the main text."

Response: These cumulative impacts are generally significant. Although mitigation measures have been provided, the effectiveness in reducing these impacts to insignificant levels cannot be determined.

[Finalizing Addendum, Vol. I, Executive Summary, pages S-365 to S-383]

7. Comment: (Janice Keller, GOO, Page 2 of written comments)

"4. ORG-62 - Has the text of the EIR been revised to indicate this solution around the commingling/segregation issue? If it hasn't, it should be since this issue seems to be the main peg on which the consultants recommend an environmentally adverse alternative."

Response: The finalizing addendum does provide more discussion of the commingling/segregation issue. Renegotiation of leases is difficult and there is no assurance that this could be accomplished for the Coal Oil Point Project. The environmental consequences of segregation versus commingling are fully considered in Section 6 of the draft EIR/EIS. The fact that policy differences over the issue continue does not affect the environmental impacts which are described in the document. As stated previously in Response to Comment 4 in this section, the analysis of the environmentally preferable alternative does not rely on the commingling-segregation issue.

[Finalizing Addendum, Vol. II, pages 4.4-42 to 4.4-82; Vol. III, Section 7.1; Draft EIR/EIS, Vol. II, Section 6]

8. Comment: (Janice Keller, GOO, Page 2 of written comments)

"6. ORG-64 - Although we do not concur with the rationale that Platform Holly needs to be tripled in size in order to fully develop the leases, we appreciate the responsive answer. However, this rationale should appear in the text, not just in the Response to Comments section."

Response: The response to comments becomes part of the Final EIR/EIS. ARCO proposed the three platform complex originally, although the company has indicated that a single additional platform would be built.

9. Comment: (Janice Keller, GOO, Page 2 of written comments)

"10. ORG-68 - Removal of existing platforms from low productions leases in which the applicant has an interest should be a condition of any new project. The removal of platforms associated with the new project should also be a condition."

Response: Removal of platforms after the abandonment of oil activities is a condition for all projects.

[Draft EIR/EIS, Vol. I, Section 2]

10. Comment: (Janice Keller, GOO, Page 2 of written comments)

"12. ORG-73 - It is fine and dandy for the preparers to say that the EIR/EIS has an internally consistent organization, but is this reality? Our concern is that in a document the size of the EIR, references to other sections should be specific as to page or section number."

Response: Section numbers are given as appropriate. Page number citation is very difficult to provide since page numbers are added in the final editorial process of completing the document.

11. Comment: (Janice Keller, GOO, Page 4 of written comments)

"31. ORG-103 - A brief addition to an already brief section on Growth Inducing Impacts does not remedy the lack of analysis of this potentially significant impact."

Response: This analysis, though brief, fully describes the potential growth inducing impact of the proposed project.

12. Comment: (Janice Keller, GOO, Page 1 of written comments)

"References in the Response to Comments section to other sections of the EIR should include page numbers. This is essential in a document of this size. It also lets the decision makers know if the comment has actually been addressed."

Response: In some cases, a comment is best responded to by reference to a complete section where a series of related issues is thoroughly discussed rather than giving a specific page number.

13. Comment: (Janice Keller, GOO, Page 3 of written comments)

"20. ORG-87 - The text should reflect this Response even though it is inadequate."

Response: This discussion was provided in the new Isla Vista Section.

[Finalizing Addendum, Vol. I, Section 2.1]

14. Comment: (Janice Keller, GOO, Page 3 of written comments)

"21. ORG-88 - This response needs to be in the text also."

Response: This analysis was provided both within Appendix 8 and Section 4 of the EIR/EIS.

15. Comment: (Marty Blum, League of Women Voters, Page 85 of Transcript; written comments)

"First Reason for Noncertification: The Final EIR is impossible to cope with insofar as the public is concerned, and more than likely even for you decision makers. "The so-called Final EIR was received on January 14, - all twenty or more pounds of it in three hefty, unwieldy three-ring binders, an impressive overwhelming mass of data. The term "so-called" is used advisedly. What was received was a pre-final Final EIR, hundreds and hundreds of loose-leaf pages that first had to be collated with the Draft EIR's several volumes of data."

Response: We believe that the introduction to the EIR/EIS, combined with the Executive Summary, the Table of Contents and the Index, provides as useful a reader's guide as one could hope for in a document as complex as this

16. Comment: (Roger Lagerquist, Page 142 of Transcript; written comments)

"The staff report to the State Lands Commission repeats the factual errors from the EIR. It adds confusion to already confused issues. It introduced controversies and conjectures not previously discussed. One example: ARCO has long maintained that re-pressurization from Holly doesn't increase seeps because the reservoirs are not connected. Now the staff report informs us that de-pressuring the field will diminish the seeps. You can't have it both ways. Either the resevoirs are connected or they're not connected."

Response: The EIR states there is no known correlation between seep activity and oil production. The EIR does conclude, however, that gas injection might stimulate seep activity. This conclusion is reached because there is no conclusive data to support either hypothesis.

Periodic monitoring of the Coal Oil Point seeps show no correlation between production of oil from Holly and activity from this

seep. Aerial photographs of the seeps in 1929 show the seep clearly. The seep is also quite active after Holly began production as seen in 1970 aerial photography.

The staff report stated that depressurization could diminish the seep activity. This is supported by data showing a general pattern of seepage reduction over the entire Santa Barbara Channel since 1946. However, we cannot conclusively state that the Coal Oil Point seeps will diminish as a result of this proposed project.

17. Comment: (Mayor Sheila Lodge, Page 22 of Transcript)

"The summary comparison table, presented for the first time in the new Executive Summary, needs to be checked thoroughly for completeness and accuracy. Preliminary review suggests errors and omissions. As one example, in the tables for terrestrial and freshwater biology, Class I or Class II impacts, due to construction of oil processing facilities drop out for the offshore oil processing alternatives, however, turning to the marine biology table there is no discussion of oil processing facilities, per se."

Response: These comparison tables were provided in response to comments on the draft EIR/EIS. The tables cited by Mayor Lodge are correct. Class I and Class II impacts for terrestrial and freshwater biology associated with oil processing drop out for the offshore oil processing alternative. No additional Class I or Class II impacts to marine biology, in addition to those associated with oil production, are anticipated for the offshore oil processing alternative.

[Finalizing Addendum, Vol. II, Executive Summary, pages S-17 to S-51]

18. Comment: (Chancellor Daniel Aldrich, UCSB, Page 40 of Transcript)

"The Final EIR indicates that a good many unanswered questions remain about effects of the ARCO project upon its surroundings. They range from tangible effects, such as the effects upon kelp beds, or supply boats and the outcome of kelp transplants to less measurable impacts such as the potential change in the character of the west Goleta Valley."

Response: The EIR/EIS provides a thorough impact analysis based on the best available information. There are certainly areas where available data evaluates the exact degree of impact or effectiveness of mitigation. A conservative (i.e., worst case) approach was used in those instances. For example, although the mitigation of kelp transplant is suggested, we do not know the potential success of this transplant; therefore, we have not reduced the potential impact to insignificant levels.

19. Comment: (Dr. James Case, UCSB, Page 45 of Transcript)

"That the Coal Oil Point Project has an experimental flavor is recognized in the final EIR, because at several points ongoing research and monitoring are called for. NOAA recommends exploration of methods for detecting and monitoring cumulative effects. I find this a fascinating comment, because it is an example of a Federal agency worried about a state messing up its own waters, somewhat the obverse to what one frequently hears."

Response: The document recommends various monitoring programs to determine the exact levels of impacts and the effectiveness of mitigations in an effort to supplement the level of existing information.

20. Comment: (Marc Evans, Student UCSB, Page 148 of Transcript)

"As I was walking I noticed there were little sparkles of light every place that I stepped in the pools, little phyto-plankton there, were giving off bioluminescent energy

whenever I disturbed them. The EIR never assessed any impacts to these phyto-plankton. The EIR cannot assess the impact on all of the organisms, because we don't know all of the organisms."

Response: The Marine Biology analysis provides a thorough analysis of any potential impact to phyto plankton including the bioluminescent species. While it is true that the EIR/EIS does not mention all possible species that could be in the study region, it considers the various ecosystems present which would include all species in toto.

[Draft EIR/EIS, Vol. II, Sections 4.3.9.1, 4.5.2.9 and 7.9.1.4]

21. Comment: (Deborah Brown, Student UCSB, Page 198 of Transcript)

"I think the main problem with the EIR is that it does not make it clear that Santa Barbara and especially Isla Vista, will bear the enviromental and social costs, and yet receive little or no benefit from this project."

Response: The EIR/EIS certainly defines the extent and location of all environmental impacts and it is clear from the anlysis that much of the impacts occur around the Coal Oil Point area.

22. Comment: (Joan Marie Michelsen, Student UCSB, Page 195 of Transcript)

"And, the air quality, which in the EIR states that we won't be able to smell it. We smell the oil platforms that are there now. If anyone spends any time in Isla Vista, they will realize that the EIR is inaccurate in their assumptions."

"The safety is also a concern to us, especially with the increased air traffic, most of which will be going over Isla Vista. We are students. We need to study. You know, it is hard to study if 24-hours a day there are airplanes going over your head. There are clangings, bashings and things going on right offshore."

"There is also the issue of toxics with the drilling muds. They are going to be putting those within two miles of our beaches. We have heard about the impacts on the University of California, the researchers there all agree that those impacts will be severe and will do substantial damage to their area."

"But we haven't heard very much about the impacts to the people there. It is a very used beach and we would like to keep using our beach in safety."

Response: The air quality analysis does not project any odor impacts from the platforms. Emission control equipment will be much improved over that currently on facilities in the Coal Oil Point Area. Additionally, much of the odor currently experienced by residents may be from the marine terminal which would not be used by the proposed project.

Helicopter use by the proposed Coal Oil Point Project will be extremely limited and will not present an increased hazard to the community of Isla Vista. The EIR/EIS addresses the increased noise impacts associated with airport operation.

The impacts of drilling muds are intensively analyzed in the EIR/EIS and a significant impact to marine resources are projected if drilling muds and cuttings are allowed to be discharged from the platforms.

Recreation and tourism impacts on the beaches are addressed within Section 4.3.19 of the EIR/EIS.

ISSUE: COMMINGLING/SEGREGATION

1. Comment: (Bill Wallace, Santa Barbara County, Page 8 of Transcript)

"Finally, this issue can be put behind us; however, the new information in the final EIR indicates that the operator -- in this case ARCO-- could and will manipulate equipment or accounting to cheat the state out of royalties that it deserves. We do not believe that this is the only method to resolve a deliberate royalty misallocation as physical segregation of oil streams."

Response: The additional information in the final EIR was prepared in response to a study prepared by the County of Santa Barbara and submitted as comments on the draft EIR/EIS. The additional information provided by State Lands pointed up potential difficulties associated with a commingling system that the County did not provide in their study. Other methods, including renegotiation of leases, could be used to reduce the potential of cheating in a wet commingling system.

[Finalizing Addendum, Vol. III, Section 7.1]

2. Comment: (Marty Blum, League of Women Voters, Page 86 of Transcript)

"Furthermore, concerning the Executive Summary, the League notes that there is no overview mention of the final EIR's Section 6, entitled: Environmental Aspects of Commingled and Segregated Oil Dehydration. Errata sheets were received for this section, and we understand that we are talking about this section, but presumably it is still in the picture."

Response: Section 8.2 of the Executive Summary provides a summary of the contents of Section 6.

[Finalizing Addendum, Vol. I, Section 8.2 of Executive Summary (pages 8-60)]

NO CALENDAR PAGE 121

NO MINUTE PAGE 649

EXHIBIT "E"

DISCUSSION OF AIR QUALITY

The project will be a major contributor of emissions of nitrous oxides (NO_X), reactive organic gases (ROG), sulfur oxides (SO_X), total suspended particulates (TSP), and carbon monoxide (CO). NO_X and ROG are important pollutants because they are necessary components in the formation of oxidant.

Odors result from the emissions of hydrogen sulfide (H_2S), methyl mercaptans, and sulfur dioxide. Acid rain and acid fog are also of concern.

General Impacts Identified in the EIR

Oxidant, NO_2, TSP, and odor impacts were defined in the EIR/EIS. Generally, the impacts of all alternatives were comparable. The impacts varied depending on the locations of the various oil and gas processing facilities.

Air quality impacts during construction are short-term and localized and while they may affect average yearly emissions, the impacts will not continue to occur once construction is completed.

Under regular operating conditions, when all equipment is operating properly, the EIR/EIS predicts minimal emissions. Under emergency conditions caused by short-term equipment failure or malfunctions, the release of more significant emissions is anticipated which would continue until the emergency condition is discovered and operations are modified to permit the resumption of routine operations or the plant is shut down. The impact analyses recognize that ARCO's design reduces the potential for releases during emergency conditions because of the increased design operating pressures. Although the project as originally proposed by the applicant could result in long term significant air quality impacts, the EIR/EIS identified extensive mitigation measures which could be used by the applicant to meet the standards set by the SBCAPCD. The applicant cannot obtain a permit from the SBCAPCD unless a net air quality benefit is demonstrated.

The odor and inert pollutant (SO_2. H_2S, mercaptans, and toxic air pollutants) analyses used in the EIR/EIS all employ mathematical models which simulate physical processes in the atmosphere. All the models employed for this analysis are either approved by the EPA, the California Air Resources Board, or the local Air Pollution Control District or are functionally equivalent to approved models, having been modified to improve performance or account for multiple pollutants in one

simulation run while otherwise performing identically to those approved models. These modifications were made in consultation with the SBAPCD and California Air Resources Board modeling staffs.

There are three key physical conditions for which the models account:

- **Diffusion**

  Diffusion is the physical process whereby molecules in a fluid or gas move by molecular motion from areas of higher concentration to areas of lower concentration, in the process reducing the maximum concentration of pollutants. Diffusion occurs even in windless conditions.

- **Stability**

  Stability is a measure of the amount of mechanical turbulence of the air -- lower stability (greater turbulence) increases diffusion and decreases the concentration of pollutants as they are transported away from the source of emissions. Stability of an air mass is a function of wind speed and solar radiation with higher wind speeds and greater sunlight intensity being associated with lower stabilities (more turbulence).

- **Wind Speed**

  Wind speed determines how much air passes the point of pollutant emissions in a given time period. Pollutants are generally emitted at a constant rate over time. In low winds, a smaller volume of air passes the emission source in a given time span and higher initial concentrations occur than in highest winds. In winds twice as fast, there is twice the volume of air diluting the pollutant, resulting in concentrations half as great. Higher wind speeds also cause greater mixing and even lower pollutant concentrations than lower wind speeds.

  A worst case air quality situation occurs when a low wind speed is combined with highly stable conditions so that the odorous or toxic gas reaches the highest possible concentrations at the farthest points from the source of emissions. The low winds and high stability minimize dilution and, thus, maximize concentrations. By comparison, during high winds, two factors contribute toward lower pollutant

concentrations. First, more air passes the point of emission in a given time, thus increasing the dilution of the pollutant. Second, the air itself is much less stable, increasing atmospheric turbulence and further increasing dilution between the point of emission and the receptor location.

Odors, H_2S, SO_2, and Toxic Effects

ARCO has designed its production facilities on the platforms in a manner which differs significantly from most existing platforms. These design features allow the gas system to sustain higher than typical pressures. As such, much less H_2S and SO_2 are likely to be emitted from ARCO's platforms than would be emitted by existing platforms.

The ability of humans to detect odors is a function of the concentration of the pollutants. Likewise, the toxic impacts of various air pollutants is also a function of the concentration of the pollutants. The mathematical models used in the EIR /EIS's air quality analysis simulate the physical atmospheric processes that control diffusion and the other factors contributing to dilution of air pollutants.

To assess the potential for toxic effects or odors on sensitive receptors, the model is run under the wind and stability conditions that would result in the highest concentrations at the farthest distances from the emissions source. This is the worst case situation reported in the EIR/EIS. As reported in this document, no emissions of any toxic or potentially toxic pollutants from the platforms would reach the shoreline in toxic concentrations.

Toxic or detectable odor concentrations are determined by comparison to applicable standards, threshold limit values, and odor detection levels reported in the available literature. The odor detection thresholds for H_2S, methyl mercaptans, and SO_2 are reported on page 15-7 of Appendix 4. These are substantially lower than concentrations that could be hazardous to health.

Acid Rain/Acid Fog

The conditions leading to acid rain and acid fog are discussed in the draft EIR/EIS and in Isla Vista section of the finalizing addendum. During the document's preparation, no documentation for the existence of acid rain or acid fog along the south coast of Santa Barbara County was found in the available literature.

Acid precipitation, in its dry or wet forms, results from complex chemical reactions involving oxides of nitrogen or sulfur and other atmospheric chemicals. These reactions occur only in atmospheric conditions with the right mix of sunlight, moisture, and chemical components. Even under conditions most favorable for the formation of acid droplets in the air, the reactions occur slowly. The highest concentrations of acid (the lowest measured pH) are thus substantially removed in time and space from the emissions source, unless the air mass either stays in one location or returns to the point of origin. Given these facts, the close proximity of Isla Vista to project components does not lead to the conclusion that the community is any more subject to acid rain or acid fog impacts from the proposed project than any other locality on the south coast.

Studies conducted by researchers at Cal Tech in the early 1980's noted that the worst observed conditions of acid fog off of southern California (Corona del Mar) appeared to occur when pollutants from many sources were blown out to sea and mixed. Worst acid fog appeared to occur when this airmass was blown back onshore after several hours elapsed. Where the pollutants came from initially appeared to have virtually nothing to do with which locations are ultimately affected by the acid fog.

The EIR/EIS does not state that there would not be acid rain or acid fog impacts to the communities in Santa Barbara County. It does indicate that data linking emissions of pollutants necessary to cause acid precipitation to actual measured acidic atmospheric conditions in the area do not exist. Therefore, it is not possible to state categorically that there is a scientific basis to conclude that acid precipitation will result from the project. What the EIR/EIS does say is that impacts from acid rain and acid fog may very well occur, but that, given the concentrations of pollutants that could cause acid precipitation, these impacts are unlikely to be significant.

Flaring

Flaring resulting from the malfunction of platform equipment occurs infrequently. The flare is used to burn released gases and is 99.0% to 99.5% efficient in converting H_2S to SO_2. SO_2 emissions from the project would not effect the air quality status of the air basin.

Impacts to Isla Vista

Generally, Isla Vista will experience air quality impacts similar to those experienced by other communities along the south coast of Santa Barbara County.

Residents of Isla Vista currently detect odors that have been attributed to the seeps, Platform Holly, the ARCO marine terminal loading operations or some combination of these sources. Modeling conducted for the EIR/EIS indicated that odors from the new offshore facilities would not be detectable in Isla Vista. It is possible that odors from upset conditions at an Ellwood oil and/or gas processing facility could be detected in Isla Vista under certain wind conditions.

Residents have also indicated concern about acid rain and acid fog. The previous discussion of acid fog and acid rain conditions is applicable to Isla Vista residents.

EXHIBIT "F"

DISCUSSION OF DRILL MUDS AND CUTTINGS

Drilling muds are used to: (1) lubricate the drilling bit as it cuts through the earth; (2) clean the drill bore of rock chips and other material cut by the drill bit; and (3) control the flow of the well by maintaining overburden pressure on geologic formations capable of producing fluids.

I. Toxicity

The applicant proposes to use E.P.A. approved drilling muds. These muds have been determined by the State Regional Water Quality Control Board and the Environmental Protection Agency (EPA) to be non-toxic. As such, ARCO would not be prohibited by these agencies from discharging these muds into the ocean.

Drilling muds contain many compounds mostly in trace amounts. The primary constituents of drilling muds are Bentonite Clay, Water, drilling solids (sand and clay), and Barite. Barite (Barium Sulfate) is the compound that poses the greatest toxicity concern. Research done by UCSB scientists has indicated some toxicity to marine organisms as a result of experiments performed with Barium Cloride.

Barium Cloride was used in the University's studies because it is much more soluable than Barium Sulfate. Still the research results were applicable, because the exposure to Barium was the important factor in the research.

These studies indicate that concentrations far lower than those permitted under Regional Water Quality Control Board Discharge Requirements have sub-lethal effects on many marine organisms. These effects are especially destructive to larval forms and could lead to a reduction in the population of the organisms. These significant impacts and potential mitigation were described in the EIR/EIS. The most effective mitigation is a prohibition against the discharge of any muds and cuttings.

II. Physical Smothering Hard Bottom Habitat

The seafloor off Coal Oil Point is composed of areas of boulders, rocks and cobbles. These hard bottom reef areas have biological significance since they are relatively uncommon in the Santa Barbara Channel and provide a substrate for organisms which would not be associated with the soft clayey or turf substrate.

The proposed project could also affect Naples Reef which is a hard bottom habitat area located on PRC 208.

The discharge of muds and cuttings from the platform to the seafloor would bury the hard bottom habitat directly underlying the proposed Heron site. However, ARCO in testimony on January 28, 1987 before the State Lands Commission has amended their project description to provide for the hauling of muds and cuttings away from the Heron site.

However, the EIR/EIS also indicates that the discharge of muds and cuttings at the other platform sites could also influence hard bottom locations. The zone of sediment characteristic change from the discharge of muds and cuttings has been measured to be 3000 meters. While Naples Reef is more distant than this, resuspension of muds could have an adverse effect on this Reef.

The EIR discussed these impacts and found them to be significant. Again, the most effective mitigation is a prohibition against the ocean disposal of the muds and cuttings at each platform location.

III. University Research and Teaching

The University of California at Santa Barbara has many research and teaching functions which use the marine environment offshore the Campus. The discharge and muds and cuttings could affect these functions. The University has a sea water intake which supplies sea water to the Marine Science Institute, Biology Department, and other facilities on the campus. The university also uses the Naples Reef and other offshore areas for teaching and research.

UCSB has testified about two possible sources of contamination that it fears could damage their research facilities if the contaminants are drawn into the intake: muds and cuttings and oil spills. Oil spills are discussed in a section entitled System Safety and Reliability.

The Marine Water Quality analyses in the EIR/EIS evaluated impacts to the Sea Water Intake. Modelling of the muds discharge and the resuspension analysis indicated that contaminants from the discharge could reach the intake. The EIR/EIS reported the impact as significant and mitigable as previously described.