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PRELIMINARY DETERMINATION DOCUMENT
PREVENTION OF SIGNIFICANT AIR QUALITY DETERIORATION

PROPOSED MODIFICATION OF THE PRUDHOE BAY OIL FIELD AT PRUDHOE BAY, ALASKA

SCOPE

This document, with the technical analysis, presents EPA's preliminary determination of approvability of the Atlantic Richfield Company/SOHIO Pertroleum Company (ARCO/SOHIO) proposal to modify the production facilities at the Prudhoe Bay oil field at Prudhoe Bay, Alaska under Title 1, Part C of the Federal Clean Air Act "Prevention of Significant Deterioration of Air Quality" (PSD).

GENERAL INFORMATION

The Federal Clean Air Act requires review and approval of the construction or modification of major sources of air pollution to assure that the air quality in areas attaining National Ambient Air Quality Standards (NAAQS) is not deteriorated beyond allowable limits for any pollutants regulated by EPA as a result of increased emissions from such new or modified facilities.

Before an application to construct a major stationary source can be approved, it must be demonstrated that the expected emissions of all applicable pollutants above the minimum level established by Section 169 of the Act will not exceed the following:

1. Emission limits achievable by the application of best available control technology (BACT).

2. National Ambient Air Quality Standards.

3. in the case of particulate matter (TSP) and sulfur dioxide (SO_2), allowable air quality increments.

USEPA REG
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CONCURENCES

SYMBOL	JOHNSTON	GEREN	REED	COATE	DUBOIS			
SURNAME								
DATE	3-19-79	3/19						

FINDINGS

ARCO/SOHIO proposes to add eleven natural gas fired turbines to increase the available power from 600,000 horsepower to approximately 1,000,000 horsepower. The additional power will supply equipment that will gather oil from the drilling sites, separate the natural gas from the oil, and compress the natural gas for reinjection into the field. The purpose of the modification is to prevent the waste of the gas and oil, to maintain the oil extraction rates and to allow for continued expansion of the field. The BACT evaluation contained in the technical analysis document identifies the nitrogen oxides (NO_x), hydrocarbons (HC) and carbon monoxide (CO) emission limits which comprise BACT for the proposed addition of the gas turbines. The following table identifies the proposed emission limits for the ARCO/SOHIO project at Prudhoe Bay.

POLLUTANT	CONCENTRATION	QUANTITY
1. NO_x	$150\left(\frac{14.4}{Y}\right)$ Parts per million (ppm) (at 15% oxygen)	0.019 tons/year/HP
2. HC	42.0 pounds per million cubic feet of gas burned ($lb/10^6CF$)	
3. CO	115.0 $lb/10^6CF$	

Y = Manufacturer's rated heat rate at peak load (Kilojoules per watt hour)

An ambient air quality analysis demonstrates that NO_x, HC and CO emissions, as limited above, are not expected to cause or contribute to violations of any National Ambient Air Quality Standard (NAAQS). There are presently no increments for the subject pollutants. Table 4 in the technical analysis document identifies the specific impact of the proposal on the appropriate standards.

RECOMMENDATION

Based upon a review of the application, EPA finds that the proposed modification will not cause violations of any NAAQS. Furthermore, the emission limits required above for NO_x, CO, and HC represent the best available control technology. Therefore, EPA proposes to approve ARCO/SOHIO's request to add eleven natural gas fired turbines to the oil field complex at Prudhoe Bay, Alaska. Comments are requested from interested parties and will be carefully considered when the final determination is made.