

William W. Grygar II
Director, EHS Gulf of Mexico
Anadarko Petroleum Corporation
1201 Lake Robbins Drive
The Woodlands, Texas 77380

Subject: Modification of Phoenix Prospect Drilling Project
OCS Permit OCS-EPA-R4005-M3

Dear Mr. Grygar:

This letter is in response to your request for a minor permit modification for the Anadarko Petroleum Corporation (Anadarko) Phoenix Prospect Drilling Project, which was received by the U.S. Environmental Protection Agency on April 4, 2013, and two addendums to this request, which were received on June 6, 2013, and July 3, 2013. The EPA previously issued Anadarko an Outer Continental Shelf (OCS) air quality permit on June 13, 2011, and two consecutive minor permit modifications on October 30, 2012, and December 11, 2012, to construct and operate a temporary, exploratory drilling operation in the Lloyd Ridge lease area in the Gulf of Mexico, approximately 160 miles southeast of the mouth of the Mississippi River and 200 miles southwest of Panama City, Florida. The operation is for a single exploratory well and is currently subject to the Prevention of Significant Deterioration (PSD) requirements for nitrogen oxides (NO_x).

Anadarko requests the permit be amended to include: welding operations; three well evaluation engines; an air assisted spray gun and an updated paint inventory; a revision of permit condition 6.4.1.5.1 to accurately reflect detectable monitoring parameters; and a change in the description and hours of operation for the emergency air compressor engines, DR-AC-01 and DR-AC-02. The applicant requests the description of the emergency air compressor diesel engines, DR-AC-01 and DR-AC-02, change to air compressor diesel engines since these are not emergency engines. Also, the proposed rewording of condition 6.4.1.5.1 reflects recent changes to the Transocean Diesel Emissions with Turbochargers (DEWT) monitoring system, and current detectable parameters.

The drilling activity will use the previously permitted drill ship, *Discoverer Spirit*, and associated work boats. Anadarko is not requesting any increases in NO_x emissions or changes to currently permitted emissions. The addition of three new well evaluation engines and the change in the hours of operation for the air compressor engines will not result in an increase in emissions. The applicant estimated their potential to emit (PTE) for all engines on total fuel usage. The permit limits Anadarko to 425 barrels per day and 1,081,920 gallons for the duration of the project. Anadarko requests an increase in the hours of operation for the air compressor engines to 125 hours, and the addition of three well evaluation engines on the drillship. These proposed changes will not increase the project emissions, since the fuel limit will remain unchanged.

Anadarko updated their emission calculations for the proposed painting operations adding paints to the paint inventory and the use of an air assisted spray gun. Anadarko updated these calculations to include a fall-out factor, which more accurately determined the portion of solids that would become particulate matter small enough to be of consequence. The inclusion of the fall-out factor resulted in a projected decrease, relative to the OCS-EPA-R4005-M2 permit application, of 2.75 tons of particulate matter (PM), particulate matter with an aerodynamic diameter less than 2.5 microns (PM_{2.5}), and particulate matter with an aerodynamic diameter less than 10 microns (PM₁₀). The welding activities and painting activities are projected to result in a combined project increase of approximately 0.3 tons of PM/PM₁₀/PM_{2.5}, 0.26 tons of volatile organic compounds, 0.00037 tons of lead, and 0.31 tons of hazardous air pollutants.

The applicant provided emission calculations for: the welding operations, the three well evaluation engines, and painting operations; an air quality impact screening analysis reflecting the additional welding operations; and a review of potentially applicable requirements. The application also includes a description of the changes that have been made to the DEWT system. This condition is not intended for compliance purposes, and was written to determine the long-term effectiveness of the DEWT monitoring system. The applicant provided title V part 71 permit forms as a convenience for documentation purposes, absent PSD/OCS permit application forms, but does not intend to apply for a title V permit at this time.

The EPA has reviewed the request submitted by Anadarko, and determined that these changes do not result in a major modification and do not trigger PSD review for any New Source Review (NSR) regulated pollutants. The source continues to be subject to PSD requirements only for NO_x emissions and the emissions increases of the other NSR regulated pollutants remain de minimis, i.e. below the PSD significant emission rates. The EPA has determined that the requested revisions do not constitute a significant change from the original permit nor a change in the environmental impact of the project.

After consideration of the request submitted by Anadarko and pertinent federal statutes and regulations, the EPA hereby grants these requests pursuant to the terms and conditions of the revised permit, OCS-EPA-R4005-M3, for the Phoenix Prospect Drilling Project. EPA has modified the permit to include well evaluation engines, air assisted spray guns, and changed the hours of operation and corrected the description of engines DR-AC-01 and DR-AC-02 from emergency air compressor diesel engines to air compressor diesel engines. Well evaluation engines and the correct title for DR-AC-01 and DR-AC-02 engines have been added to Table 1 of the permit for descriptive and identification purposes. The EPA updated condition no 6.4.1.5.1 to reflect the current DEWT system capabilities. In addition, the EPA has changed a small typographical error and included an additional EPA contact name and number. These changes can be identified in the enclosed mark-up version.

In accordance with the provisions of Section 328 of the Clean Air Act, 42 U.S.C. § 7627, and the implementing OCS Air Regulations at Title 40 Code of Federal Regulation (CFR) part 55, the EPA has

revised the permit to include the minor amendments. The revised permit, OCS-EPA-R4005-M3, is enclosed. If you have any questions, please contact Ms. Eva Land at 404-562-9103, or me.

Sincerely,

Heather M. Ceron
Chief
Air Permits Section

Enclosures

cc: Katie Maness, Anadarko Petroleum Corporation
Sara Carlson, Anadarko Petroleum Corporation
Rahul Pendse, Trinity Consultants