



U.S. Environmental Protection Agency Applicability Determination Index

Control Number: 0800031

Category: NSPS
 EPA Office: CAMPD
 Date: 02/28/2008
 Title: Reconstruction of a Stationary Combustion Turbine
 Recipient: Sadat, Ellen Radow
 Author: Alushin, Michael
 Comments:

Part 60, A	General Provisions K K K K	Standards of Performance for Stationary Combustion Turbines
------------	-------------------------------	---

References:	60.4
	60.15
	60.15(b)
	60.15(c)
	60.4420

Abstract:

Q: Does the replacement of the gas turbine at the Bristol-Myers Squibb facility in New Brunswick, New Jersey, constitute reconstruction under 40 CFR part 60, subpart K K K K?

A: Conditional. For the purpose of NSPS subpart K K K K, EPA finds that the affected facility is not limited to the turbine itself. It is not clear from the submittal what the fixed capital cost of the new components is as compared to a similar entirely new facility. Costs outside of the affected facility, such as the building, air pollution control, testing, and monitoring equipment, site preparation, removal of the old turbine, and contingency costs should not be included.

Letter:

DATED: FEBRUARY 28, 2008; SIGNED: M. S. ALUSHIN

Ms. Ellen Radow Sadat
 Drinker Biddle & Reath
 105 College Road East
 Suite 300
 P.O. Box 627
 Princeton, New Jersey 08542-0627

Dear Ms. Sadat:

In a July 28, 2006, letter to Stephen L. Johnson, Administrator of the United States Environmental Protection Agency (EPA or the Agency), you inquired about the applicability of the Standards of

Performance for Stationary Combustion Turbines (NSPS Subpart KKKK) to a gas turbine replacement at the Bristol-Myers Squibb (BMS) pharmaceutical research and development facility in New Brunswick, New Jersey. In response to that inquiry, we have been reviewing submittals from you and your client, BMS, which range in date from September 20, 2006 to October 25, 2007. We have been informed by our EPA Region 2 office that the turbine is currently subject to NSPS Subpart KKKK under a permit issued by the state of New Jersey.

BMS replaced a Solar Mars T-14000 gas turbine with a Solar Mars T-15000S gas turbine equipped with a SoLoNOx Dry Low NOx combustor. You have indicated that the existing heat recovery steam generator (HRSG) and duct burner were not altered in any way. To determine whether this work constitutes a reconstruction under the New Source Performance Standards (NSPS), EPA has requested detailed information on the fixed capital costs of the new gas turbine and of a comparable entirely new stationary combustion turbine, as defined in NSPS Subparts A and KKKK. The BMS submittals received to date do not provide all the specific cost data in a form that is necessary to perform a reconstruction analysis. As a result of our review of all the information that you and your client have submitted, we do not find sufficient evidence to confirm your claim that the facility is not reconstructed. Thus, we see no reason for the New Jersey Department of Environmental Protection (NJDEP) to revise their NSPS determination in the BMS permit.

This letter provides: general background on what constitutes a fixed capital cost under the reconstruction regulations; discusses the costs provided in your submittals, including costs that need clarification and costs to be excluded from the reconstruction calculation; and identifies errors or inconsistencies in the BMS data submittals. We also are taking this opportunity to remind you of the procedures to be followed in submitting requests for applicability determinations.

Submittal of Requests for Applicability Determinations

The NSPS is a delegated program. As such, your first point of contact for questions regarding the regulations is the delegated state agency where the facility is located. If the state agency needs to consult with EPA, they contact the appropriate EPA regional office. If you wish to invoke the provisions of 40 CFR Section 60.5 for a determination of construction or modification, you should direct your request to the appropriate EPA regional office (i.e., Region 2) pursuant to Section 60.4(a), and copy the appropriate state agency as listed in Section 60.4(b). EPA regional offices forward applicability determination requests to EPA Headquarters for response in limited circumstances in accordance with internal agreements on delegation of authority.

Your July 28, 2006 request to the Administrator was ultimately forwarded to our office for formal review. Hence, we are responding to your request. However, any future requests should be submitted consistent with the regulatory procedures cited above. Following this process is time efficient for both the requestor and the Agency.

Fixed Capital Costs under Reconstruction

The NSPS regulations at 40 CFR Section 60.15(b) define reconstruction, in part, as the replacement of components of an existing facility to such an extent that:

[t]he fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility . . . [Emphasis added.]

The term "fixed capital cost" is defined in 40 CFR 60.15(c):

"Fixed capital cost" means the capital to provide all the depreciable components. [Emphasis added.]

The December 16, 1975 preamble to the reconstruction regulations explains further what constitutes a fixed capital cost:

The term "fixed capital cost" is defined as the capital needed to provide all the depreciable components and is intended to include such things as the costs of engineering, purchase, and installation of major process equipment, contractors' fees, instrumentation, auxiliary facilities, buildings, and structures. Costs associated with the purchase and installation of air pollution control equipment . . . are not considered in estimating the fixed capital cost of a comparable entirely new facility unless that control equipment is required as part of the process. . . .

Consistent with this definition, items to include or exclude from the fixed capital cost are identified in several EPA letters posted on the Applicability Determination Index (ADI). See especially the letters on this subject dated September 3, 1999 from EPA Region 1; May 11, 1998 from EPA Region 4; April 23, 1998 from EPA Region 2; June 20, 1994 from EPA Headquarters; and November 25, 1986 from EPA Headquarters. These letters confirm that we interpret the term fixed capital cost to exclude the cost of land, site preparation, and demolition. Several of these letters also emphasize that when determining the reconstruction cost, care should be exercised to include only those costs associated with the existing facility and the reconstructed affected facility. Therefore, costs associated with depreciable components that are listed in the preamble, such as buildings, should only be included in your reconstruction calculation if they are part of the existing facility (the stationary combustion turbine) as defined in 40 CFR Part 60 Subparts A and KKKK.

Fixed Capital Cost of the New Components

The fixed capital cost of new components includes the cost of the materials themselves (the new components) and the costs associated with engineering and installation of those components. The individual components to be included in this calculation are restricted to those depreciable components that are part of the affected facility as defined in the relevant subpart. For NSPS Subpart KKKK, the affected facility is each stationary combustion turbine, defined as follows: Stationary combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), heat recovery system, and any ancillary components and sub-components comprising any simple cycle stationary combustion turbine, any regenerative/recuperative cycle stationary combustion turbine, any combined cycle combustion turbine, and any combined heat and power combustion turbine based system. Stationary means that the combustion turbine is not self propelled or intended to be propelled while performing its function. It may, however, be mounted on a vehicle for portability. 40 CFR Section 60.4420.

We have reviewed the costs of the new components as provided in your submittals. To facilitate identifying and comparing the various costs you have provided, the following discussion presents your stated price of the turbine itself in bold font. The total fixed capital cost of the new components is in an underlined, bold font. The difference between the total fixed capital cost and the cost of the affected facility (turbine) alone is underlined. That underlined figure should represent the combined cost of engineering and installing the new affected facility (turbine) components.

Your July 26, 2006 letter to EPA (first submittal) specified a cost to replace the existing gas turbine of "approximately \$4.9 million." Your September 20, 2006 correspondence (second submittal) separated this figure into the cost of the turbine itself at \$2.9 million, and a balance of \$2 million. The \$2 million figure was identified as including management, engineering, demolition, contingency, and general contractor costs such as costs associated with removing the old gas turbine. However, consistent with the EPA Federal Register notices and guidance cited above, please note that demolition, site preparation, and contingency costs are not to be included in the fixed capital cost of the new components.

Your reconstruction calculation submitted by e-mail on November 9, 2006 (third submittal) used \$3.7 million as the cost of the turbine alone, and no cost for engineering or installation. That submittal did not indicate why the turbine cost \$800,000 more than was stated in the previous submittal. Also, that third submittal identified the turbine as a new Mars 100, rather than a Solar T-15000S which was previously identified by BMS as the turbine that was purchased. Upon our inquiry, BMS indicated that these terms may be used interchangeably and that these two are the same model.

On January 19, 2007 (fourth submittal), BMS reiterated that the cost of the new Solar T-15000S was approximately \$3.7 million, and clarified that the prior figure of \$2.9 million for the turbine included an \$800,000 credit which BMS had with Solar Turbines. The cost that should be used in the reconstruction analysis is the actual cost of the new turbine (\$3.7 million), not the cost as reduced by any prior credits with the seller. Therefore, as of January, 2007 it appeared that the cost of the new turbine itself was \$3.7 million.

The fourth submittal also cited a total cost to purchase the new engine and complete the necessary mechanical work to operate the new engine at \$4.9 million. Therefore, the balance of the installation and engineering work appears to have gone down \$800,000 from the \$2 million figure presented in the second submittal to \$1.2 million (\$4.9 million for the total cost minus \$3.7 million for the turbine itself). Although \$800,000 is the amount attributable to the credit with Solar Turbines, your September 2006 submittal specifically identifies the \$2 million figure as dedicated to "BMS Project Management,

Engineering, Construction Manager costs, demolition, contingency and General Contractor costs . . .” This list does not include the cost of the turbine itself, so it is unclear how \$2 million of installation costs went down by \$800,000.

In the most recent submittals dated June 29, 2007 (fifth submittal) and October 25, 2007 (sixth submittal), BMS provided a lower figure for the fixed capital cost of the new components of \$4,632,819. This is comprised of \$4,092,819 for the Solar T-15000S, with the remainder constituting engineering costs. The cost of the turbine itself in these submissions is stated to be \$3,302,858 plus a \$789,961 credit. This constitutes a rise in the price of the turbine itself of approximately \$400,000 which your submissions do not explain.

The June 2007 submittal did not use any costs of engineering/installation in the reconstruction calculation. The October 2007 submittal included \$540,000 for engineering, but it is not clear if this includes installation costs as specifically requested in our July and August 2007 correspondence. These figures for engineering and installation are substantially lower (by at least \$660,000) than the costs BMS provided in prior estimates, and the difference in the costs is not explained.

The fixed capital cost of the new components varies substantially across the submittals, ranging from \$4.24 million (the low figures provided of \$3,700,000 for the turbine plus \$540,000 for engineering) to over \$6 million (\$4.1 million for the turbine plus \$2 million for engineering and installation). We cannot accept these figures without explanation as to why the numbers vary so widely, and confirmation as to whether the engineering costs include all the appropriate installation costs.

Fixed Capital Cost of the Comparable Entirely New Facility

Consistent with the EPA regulations and guidance referenced in this letter and in our discussions with BMS, the cost of the comparable entirely new facility is to be based on the turbine that was removed and replaced, a Solar T14000, plus the other equipment included in the NSPS Subpart KKKK definition of stationary combustion turbine. EPA provided this instruction several times throughout the review and submission process, and most recently in a July 2007 conference call and an August 2007 e-mail.

In your first submittal (July 2006), you estimated a cost to construct an entirely new cogeneration facility of approximately \$18 million. We requested documentation of the estimated \$18 million figure, and in September 2006 (second submittal), you provided a total cost to build a new cogeneration plant of \$17.4 million. This figure is comprised of: \$11.7 million for a cogeneration plant with a Taurus 70 turbine; a deaerator and storage tank for the HRSG; a capacity escalation factor; an inflation markup; and contingency costs. This figure is stated to exclude the price of the building. Excluding the building costs is consistent with EPA regulations and guidance on reconstruction. You estimated the cost of a Mars 100 by escalating the price of the entire cogeneration plant using a parametric estimating factor based on the different capacities of the two turbines. This brought the cost of the cogeneration plant to \$15 million. However, the turbine which should have been used in the comparable entirely new facility analysis is the type of turbine that was actually in place, the smaller and probably less expensive Solar T14000, and its ancillary components which comprise the entire affected facility as defined in 40 CFR Subpart KKKK Section 60.4420.

The November 2006 (third) submittal, clarified that the price of the cogeneration plant in the previous analysis was marked up by 3 percent for each year of a two-year construction project, and added 10 percent contingency costs for unforeseen material equipment and management cost increases. The November 2006 submittal also provided a break down of the costs included in the \$11.7 million base plant figure. Many of these are costs that should not be included in the fixed capital cost for a stationary combustion engine. For example, emission control and monitoring, startup commissioning, warranties, trailers, telephone, faxes, road cleaners, and overtime costs should not be included. These alone account for over \$1.8 million in costs, which escalates to an even higher figure when applying your parametric estimating and markup techniques. Contingency costs generally are not included in the fixed capital cost since they do not directly provide depreciable components of the existing facility. Furthermore, it is not clear if all the equipment presented is part of the existing facility under NSPS Subpart KKKK. One example is the deaerator and storage tank at \$300,000. A detailed presentation of each of the costs, limiting the calculation to only those costs that provide components of the stationary combustion turbine as defined in the NSPS, would bring the fixed capital cost of the comparable entirely new facility closer to \$10 million, and the 50 percent reconstruction threshold.

In fact, in your June 2007 (fifth) submittal, the estimated cost of the Mars 100 cogeneration plant

(exclusive of the building) was reduced to \$14.2 million based in part on removing costs associated with the pollution control device. This estimate still used the escalated price of a different turbine, rather than supplying the cost of the Solar T14000 turbine in the existing facility, and still included all the other items (e.g., monitoring equipment, warranties, start up commissioning, overtime) which are clearly outside of the fixed capital cost of the affected facility and should not be included in the calculation.

The most recent BMS submittal, dated October 25, 2007, provides a figure of over \$30 million for the comparable entirely new facility. This submission includes costs that EPA has previously established, in discussions with BMS and/or in regulations and guidance as cited above, that are outside the affected facility. The building is not part of the stationary combustion turbine, nor are many of the line item costs including but not limited to: concrete curbs, telephone system, intercom system, fire protection system, HVAC system, vertical blinds, lighting, site grading, paving, sidewalks, landscaping, pc server, doors, and hardware. The cost sheet also inappropriately adds in engineering costs for air testing, which similar to air pollution control and monitoring equipment, should not be included in the fixed capital cost.

Line items in the October 2007 submittal that may legitimately include costs of the comparable entirely new facility are not presented in sufficient detail to determine to what extent they should be included. For example, it is not clear if the \$884,788 listed as "piping" is for piping which is part of the stationary combustion turbine, or part of something else. The submittal subtracts 12 percent of the cost of the piping, assuming that 12 percent is attributable to other facilities (boilers) since those facilities take up 12 percent of the floor space in the building. However, we do not believe that prorating costs based on floor space is an appropriate means to identify the scope of the affected facility. It is not clear that the remaining 88 percent of the building is filled exclusively with components of the stationary combustion turbine, and the piping is probably not evenly distributed throughout the building. Furthermore, the building is not part of the affected facility.

In looking at the cost updating methodology in your October 2007 submittal, it appears you have treated the entire total of approximately \$23 million as 1992 dollars, whereas the cost sheet indicates many of the costs were incurred in 1994 and 1995. When updating costs to 2006 dollars (the year that the new turbine was installed), it is important to recognize that not all the expenses date back to 1992. Our e-mail to you of August 15, 2007, does not request the data in 1997 dollars as your October 2007 submittal implies. Also, it is not clear if you used the actual cost of the T14000 turbine incurred in 1997 and simply updated those costs to 2006, or if you used a T12000 as the basis for the turbine costs.

At this time, you have not submitted data consistent with the definition of fixed capital cost that allows us to perform a reconstruction analysis. Based on the costs you have submitted, it is apparent that the fixed capital cost comparison is much closer to 50 percent than your submissions conclude, and it is possible that the 50 percent reconstruction cost threshold was exceeded. Therefore, we do not believe it is appropriate to revise the State operating permit condition that requires compliance with NSPS Subpart KKKK.

If you have general questions on the NSPS General Provisions, the NSPS for Stationary Combustion Turbines, or this letter, you may contact Sally Harmon of my staff at (202) 564-7012. If you wish to pursue another request for an applicability determination, please submit a written request including cost information consistent with this letter and the referenced EPA guidance and regulations to the Director of the Division of Enforcement and Compliance Assistance in EPA Region 2. Please copy the New Jersey DEP and Ms. Harmon on future inquiries regarding reconstruction at this facility. This response has been coordinated with the appropriate offices in EPA Headquarters and EPA Region 2.

Very truly yours,

s / M. S. ALUSHIN

Michael S. Alushin, Director
Compliance Assessment and Media Programs Division Office of Compliance

cc: Mark Caine, Bristol-Myers Squibb
J. Richard Pooler, Esquire, Bristol-Myers Squibb Mary Beth Koza, Bristol-Myers Squibb
Richard Langbein, NJDEP

bcc: Michael Alushin, CAMPD

Mamie Miller, CAMPD

Sally Harmon, CAMPD

Gregory Fried, ORE

Rick Vetter, OGC

Christian Fellner, OAQPS

Karl Mangels, Region 2

Ken Eng, Region 2