

PD AND-408

47413

AUDIT OF
SAFAGA GRAIN SILOS COMPLEX
USAID/EGYPT PROJECT NO. 263-0165
Audit Report No. 6-263-87-1
October 27, 1986

memorandum

DATE: October 27, 1986
REPLY TO: *Joseph R. Ferri*
ATTN OF: Joseph R. Ferri, RIG/A/Cairo
SUBJECT: Audit Of Safaga Grain Silos Complex
USAID/Egypt Project No. 263-0165
TO: Mr. Arthur Handly, Director USAID/Egypt (A)

This report presents the results of audit of the Safaga Grain Silos Complex Project No. 263-0165. The audit focused on the availability of electrical power to run the completed facility. The audit showed that this \$108-million facility should be completed early next year; however, the required electrical power will not be fully available until probably sometime in 1988 or 1989. USAID/Egypt is dealing with the design problem now, but these actions will not preclude the facility's having to operate at reduced capacity for perhaps 2 years or more. USAID/Egypt's comments on this matter are included in this report as Appendix 1.

Please provide us within 30 days your written comments on actions planned or taken to implement the one recommendation in the report. We appreciate the cooperation extended to our staff during the audit.

Background

A 100,000-metric-ton grain silo complex is being constructed at Safaga, Egypt, a port on the Red Sea about 600 kilometers southeast of Cairo. The complex consists of two pneumatic ship unloaders, each with a capacity of 300 metric tons per hour; 64 concrete storage bins, each 10 meters in diameter; two truck bulk loading spouts and one rail bulk loading spout; 20 bagging stations, each containing a 47-metric-ton steel silo; and ancillary facilities including a maintenance shop, laboratory, stores, and administration building.

The basic impact of the project will be enhanced efficiency in handling grain imports. The project intent is to reduce losses of wheat in off-loading, ground storage, and hand-bagging operations; and to reduce off-loading time, effecting savings in demurrage and grain-handling costs. The expected economic benefits, according to the Project Paper, were about \$23.8 million per year.

- 1 -

USAID/Egypt obligated \$71.3 million for this project under a Grant Agreement signed September 25, 1982. The Government of Egypt (GOE) agreed to contribute \$36.7 million in local currency equivalent (LE 30.5 million). USAID/Egypt had disbursed \$49.5 million through May 29, 1986, of which \$47.3 million represented construction contract costs and \$ 2.2 million represented consulting engineer services.

The construction contractor, Harbert-Howard Companies, was awarded a 1,110-day host-country contract to build the 100,000-metric-ton silo complex at Safaga on the Red Sea for a price of \$54.8 million. Black and Veatch, International (BVI) is the U.S. consultant engineer. Construction-related engineering services by BVI are provided under a \$3.9-million amendment (No.7) to its contract, dated June 17, 1978, with the GOE.

The General Authority for Supply Commodities is the GOE contracting agency representing the Ministry of Supply, but the Mills, Silos and Baking Authority (MSBA) has the implementing responsibility for the project for the GOE.

Audit Objective And Scope

The Office of the Regional Inspector General for Audit/Cairo made a limited program results audit of the Safaga Grain Silos Complex, Project No. 263-0165. The audit objective was to review project implementation and construction progress. Specifically, the audit focused on whether the project purpose to build a 100,000-metric-ton grain silo complex was being achieved as planned.

The audit included a review of project documents and reports; discussions with USAID/Egypt, GOE, and contractor management field officials; a review of financial control records at USAID/Egypt and the consulting engineer's field office; and visits to the project site at Safaga. The audit relied on both the U.S. consulting engineer's and the GOE site engineer's certifications that construction work met specification standards.

The audit work was done in June and July 1986 and covered project activities from inception in September 1982 through July 1986, and AID disbursements of \$49.5 million through May 29, 1986. The audit was made in accordance with generally accepted government auditing standards.

Results of Audit

The project purpose to build a 100,000-metric-ton silo facility should be achieved about 3 months later than the planned completion date of January 1987. When the silo complex is completed, however, there will not be an adequate supply of electrical power to operate it as designed. This happened because USAID/Egypt and the General Authority for Supply Commodities (GASC) failed to take the necessary steps during the design and early implementation phases to provide for an adequate source of power. In order to minimize the loss of operating efficiency when the facility is completed, USAID/Egypt must take immediate, aggressive measures to accelerate procurement and installation of new generating units. An implementation schedule should be developed to secure an assured source of electrical power as expeditiously as possible.

An Adequate Supply Of Power Is Needed To Operate The Silo Complex - At the end of July 1986, with 177 days remaining to contract completion, the silo complex was 93 percent complete, slightly behind the scheduled progress. The GOE construction contractor requested a 3-month extension on July 17, 1986, to complete the facility. So, the expected completion date of the facility is April 1987.

The \$108-million Safaga Grain Silo complex must have an adequate supply of electricity in order to operate as designed. It will not be fully operational after completion, however, because an adequate supply of electricity was not provided for in the design or early implementation phases of the project. USAID/Egypt has taken action recently to procure diesel generators for the power supply needed. It appears, nevertheless, that for about 2 years after completion the complex will have to be operated on a reduced basis, thus mitigating to a large extent the economic benefits contemplated when the project was approved.

Discussion - In January 1985, the Ministry of Supply wrote USAID/Egypt that it had been informed by the Egyptian Electricity Authority (EEA) that insufficient capacity existed at its nearby Safaga Power Station to provide the required electricity to the silo complex. The Ministry then requested USAID/Egypt assistance in financing 10,000 to 12,500 kilowatts of generating capacity. USAID/Egypt agreed in principle in May 1985 to finance the foreign exchange costs of the power requirements. Up to that point, USAID/Egypt had not dealt with the problem of inadequate

power. Neither, the Project Authorization, Project Paper, nor the Grant Agreement specifically stipulated that sufficient power would be available for the project.

The issue, however, was well understood before that time. The consulting engineer (BVI) reported the matter to GASC/EEA as early as July 1979. In November 1982, BVI officially notified its client, the GOE, of power demands for a 100,000-metric-ton silo complex. BVI, in a letter to the GOE in December 1984, recommended the procurement of five 2,500 kilowatt (12,500kw total) generating units at an estimated cost of \$8.2 million as a means of remedying the power supply problem.

Following USAID/Egypt's agreement in principle to finance the foreign exchange costs of procuring permanent power generating units, the Mission awarded a contract, signed February 21, 1986, to a U.S. firm to study possible ways to meet the electrical power demands. The feasibility report, issued May 16, 1986, estimated that between 8,100 and 8,600 kilowatts would be needed to operate the silo facility. It recommended that 9,000 kilowatts be provided through generator units, and estimated the time required for procurement and installation of the units to be 39 months.

According to GOE electrical engineers at Safaga, operation of the silo complex will require between 3,000 and 6,000 kilowatts. While this is substantially less than the feasibility study estimate, it remains far in excess of what the Egyptian Electricity Authority has said it can supply the complex. The Authority's Safaga Power Station Manager said that the actual operating output of the two 5,000 kilowatt gas turbines in place at the Power Station is 3,500 kilowatts because one unit is always on stand-by. Of this output, only 1,000 kilowatts can be supplied to the Grain Silos Complex because the remaining 2,500 kilowatts are needed for the city of Safaga and for an aluminum plant in the area.

The EEA, acting as the procuring agency, completed a draft Invitation-for-Bid for four diesel units with a capacity of 3,000 kilowatts each. In August 1986, USAID/Egypt was in the process of contracting with a U.S. firm to assist in preparing the bids for advertisement. Consequently, no selection had yet been made of a contractor to build and install the generator units. According to the GOE Project Implementation Officer, the new power supply should be on-line at EEA's facility in Safaga by the end of 1987. The

Safaga Power Station Manager estimated that the station will then be able to provide 6,000 kilowatts as a start-up to the silos complex, and additional power on a step-by-step basis.

Considerable uncertainty exists over when the generators can be finally installed and operated. USAID/Egypt agreed to finance \$6.5 million of foreign exchange costs for the power generating units through an Action Memorandum approved July 22, 1986, and Implementation Letter (No. 23) of the same date. In the first document, USAID/Egypt project officials estimated installation would be completed in June 1988 and, accordingly, extended the Project Assistance Completion Date to December 31, 1988. The June 1988 date is about 14 months after the contractor expects to complete construction of the grain silo complex and turn it over to the GOE. The June 1988 date also is about 11 months earlier than the estimate of the feasibility study contractor.

In sum, the silo complex will be without an assured supply of sufficient power when it is completed. It is not certain just when the new generating units will be producing power for the silo complex; but it is reasonably certain that the event will take place long after completion of the silo facilities. The most optimistic forecast - by the GOE Project Implementation Officer - is the end of year 1987. But technical specifications have yet to be written and approved by USAID/Egypt and the GOE, and the project completion date has been extended to December 31, 1988, suggesting that the complex will have to operate at reduced levels because of the power supply for almost 2 years.

Meanwhile, the \$23.8-million annual benefits anticipated by project designers, such as reduced offloading time, cost savings from efficiencies, and reduced grain losses will be curtailed. Moreover, it is unlikely that the two ship unloaders can be operated in tandem until the new units are in place.

USAID/Egypt should take whatever measures are needed to accelerate procurement and installation of new generating units so that expected benefits can be realized as soon as possible. It should develop an implementation schedule with the GOE to reduce the existing uncertainty as to when adequate power will be available.

Recommendation No. 1

We recommend that USAID/Egypt, in coordination with the Government of Egypt, develop and implement a plan for securing a permanent power supply for the Safaga grain silo complex as expeditiously as possible.

Management Comments - The comments provided did not specifically address the audit report recommendation. The Mission said that several important matters had to be kept in mind when discussing electrical needs of the grain silos project. It said that: (a) present generating facilities should be sufficient for off-peak periods (18 hours) and a substantial part of peak-load periods (6 hours) through 1988; (b) Egyptian Electricity Authority management had the option to operate a standby turbine to meet any capacity shortfalls; and (c) the Ministry of Supply could schedule all ship unloadings around the late evening peak period, thereby permitting full utilization of the grain storage facility and avoiding curtailment of power to other customers. The complete text of USAID/Egypt's comments is included as Appendix 1.

Office Of The Inspector General Comments - No documentation was provided that indicated the Mission had a definitive plan for securing a source of supply as expeditiously as possible as recommended. As of October 1986, about 17 months had transpired since agreement in principle was reached to finance the needed generators, and problems were continuing in the contracting process. Past performance suggests that the electrical supply problems will not be solved shortly without a definitive plan for doing so. With respect to the mode of operation that USAID/Egypt suggested could be used to accommodate the current supply situation, prudent management of an investment of \$108 million demands a secure source of electrical power. Under the terms of the agreement for the project, the Egyptian Electricity Authority agreed to supply the needed power. This did not happen. The grain silos complex with its expected economic benefits to Egypt should not be left to the vagaries of the Egyptian electrical supply system with its uncertainties of availability and demand. Moreover, operation of the complex should not be predicated upon having to schedule ship unloadings around off-peak demand periods. For these

reasons, the generating units should be specifically for the silos complex and not for the Egyptian Electricity Authority to use in its overall power grid in the Safaga area. In sum, an implementation plan for securing adequate power is vitally needed.



UNITED STATES AGENCY for INTERNATIONAL DEVELOPMENT

CAIRO, EGYPT

October 26, 1986

MEMORANDUM

TO: Joseph Ferri, RIG/A/Cairo
FROM: *for* William Miller, AD/FM *Hanni Jamshed.*
SUBJECT: Draft Audit Report
Safaga Grain Silos Project 263-0165

Attached is the project officer's response to recommendation no. 1 of subject report. Please close this recommendation.

Clearance: HJamshed, DC-FM/FA: *HJ*

memorandum

DATE:

October 15, 1986

REPLY TO
ATTN OF:

Joseph J. Pastic, ID

THRU:

Fred A. Zobrist, AD/DR

SUBJECT:

Response to Draft Audit Report
Safaga Grain Silos Project 263-0165

APPENDIX 1

Page 2 of 5

TO:

William Miller, AD/FM

1. The original premise reflected in the Project Paper was that the power supply in Safaga would be adequate to fully operate the grain silo facilities. References to electric power in the Project Paper include:
 - A. Section 3.02 Project Related Investments at Safaga: "Other GOE investments include a 10 MW gas turbine power facility which is in operation."
 - B. Section 4.01 of Technical Analysis, Site Access and Utilities: "Electricity for construction will be supplied by a new 10 megawatt power facility which is presently in operation". (Note, this facility consists of 2-5 MW gas turbines each with an effective rating of 3.364 MW).

When officially requesting USAID project financing in August 1982 the Ministry of Planning and International Cooperation (MPIC) stated "The Government of Egypt is prepared to commit the necessary funds of local currency, towards the Safaga Silo Complex to be included in the budgets of the coming financial years. This commitment is in addition to other capital contributions already being provided by our Government, such as land; electricity and water, and rail and road systems" (underline added), further underscoring the understanding that the GOE would provide any and all power facilities, including additional generation if such were required.

2. After the "whole-of-the-works" construction contract was awarded to Harbert-Howard Company (HHC) in 1983 at \$13.2 million less than estimated and budgeted for in the project, the MOS Mills, Silos and Bakeries Authority (MSBA) began to informally press USAID to finance additional activities under the project. One of the items on the resulting "want list" was additional power generation; other items included explosion-suppression equipment, spare parts, and the cost of the contractor's letter

- 2 -

of credit guarantee. The push and pull continued until September 1985 at which time USAID and MPIC agreed to deobligate \$8.69 million amid cries from MSBA that the monies should be spent as it sees fit rather than being deobligated. USAID suggests that this significant unexpected saving was in large part the reason that MSBA and MCS pressed USAID for financing additional generation.

3. When the Ministry of Supply (MOS) formally requested USAID financing of additional power facilities (in January 1985) it brought to a head an issue which had been brewing for some time.

We are not sure when the issue of sufficient power arose. Our records do not support that it may have been "as early as July 1979" as claimed in the audit report; we think that the issue surfaced much later, late in summer of 1984.

The record shows that it was not until January 1985 that the Ministry of Supply officially requested USAID financing of additional electric generation. At that time it was not yet clear how much additional power, or if indeed any, might be required. In general there appeared to be merit to the argument that growth (and consequent electricity demand) in the Safaga area has exceeded earlier estimates and thus additional generation is justified.

In light of paragraph 2 above, USAID believed that more investigation was required. After considering the information on the record and then meeting with the Egyptian Electricity Authority (EEA), USAID agreed in principle to finance the additional generation. The conditions of approval provided that, among other things, a feasibility study be conducted to determine the magnitude and best type of additional generation.

4. Several months were required to reach agreement with EEA and MSBA on the scope of services for the feasibility study and follow-up efforts; and then still more time was required to negotiate a contract. The consultant Laramore, Douglass and Popham (LDP) submitted the draft study in April 1986.
5. Consultant services are required to finalize the revise the draft IFB documents which were prepared by EEA in May 1986. USAID would not be able to finance a contract based on these documents in their present condition; it is even doubtful that any U.S. firms would respond to the IFB in its present form.

- 3 -

We were not able to negotiate a scope of work with the consultant acceptable to USAID for the "review-and-revise" services which were planned to be obtained after completion of the feasibility study. Consequently, several months were lost in the process of negotiation. We now are in the process of engaging another firm capable of performing the work.

6. An important element in determining the additional generation required is the estimate of the load for the grain silos and the other customer loads. The study consultant met with EEA and the Canal Zone representatives, visited the site, and reviewed previous demands and estimates of future load growth.

The consultant concluded that, based on EEA's load estimates, the existing plant requires expansion in 1986 in order to fully meet the projected loads, and that 8,000 KW (site rated) of capacity additions will be required to meet long term needs.

However, several important considerations need to be kept in mind.

First, it must be noted that the Safaga load peaks for two hours during the evening but during the daytime off peak period of 18 hours the load is only about 40 percent of the peak load. Present generation facilities should be sufficient to supply the grain silo requirements for the off-peak 18 hour period each day and for a substantial portion of the six hour peak load period. This condition should exist through 1988.

Second, EEA management has the option to operate the standby turbine to meet any capacity shortfalls. We would expect that in actual operation EEA would be willing, as the load required, to operate the presently available reserve capacity.

Third, MOS could safely schedule all ship unloading around the peak period (late evening) and thereby permit an effective and full utilization of the grain storage facility and at the same time avoid any curtailment of power to other customers. The probability of the grain silos operating at peak load coincident with the evening peak load is low and subject to management control through proper scheduling. Should a capacity shortage occur, either the silo would be required to partly curtail operations, or EEA would have to shed other loads. In

- 4 -

either case, adequate power can be provided to the silos and any capacity shortages would not significantly reduce project benefits through underutilized equipment.

In other words, there is sufficient generation to operate the silo facilities until 1988. EEA will have to manage its program more flexibly than at present and MOS may have to develop plans for grain offloading outside the peak usage period.

attach: Background memo

ID:JJPastic:st:10/15/86 (ID 1648D)
Clearance:ID:TAKamal (draft)
A/OD/ID:THammann (draft)
ID:JPHunt (draft)
ID:RCJohnson (subs)
D/DIR:AHandly (info)

12

REPORT DISTRIBUTION

	<u>No. of Copies</u>
Mission Director, USAID/Egypt	10
Assistant Administrator, Bureau For Asia And Near East (ANE)	5
Office Of Egypt Affairs (ANE/E)	1
Audit Liaison Office (ANE/DP)	1
Assistant Administrator, Bureau For External Affairs (XA)	2
Office Of Press Relations (XA/PR)	1
Office Of Legislative Affairs (LEG)	1
Office Of The General Counsel (GC)	1
Assistant To The Administrator For Management (AA/M)	2
Office Of Financial Management (M/FM/ASD)	2
Senior Assistant Administrator For Bureau For Science And Technology (SAA/S&T)	1
Center For Development Information And Evaluation (PPC/CDIE)	3
Inspector General	1
Deputy Inspector General	1
Office Of Policy, Plans And Oversight (IG/PPC)	2
Office Of Programs And Systems Audit (IG/PSA)	1
Office Of Legal Counsel (IG/LC)	1
Executive Management Staff (IG/EMS)	12
Assistant Inspector General For Investigations (IG/I)	1
Regional Inspector General For Investigations/Cairo (RIG/IC)	1
RIG/A/Dakar	1
RIG/A/Manila	1
RIG/A/Nairobi	1
RIG/A/Singapore	1
RIG/A/Tegucigalpa	1
RIG/A/Washington	1