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United States
Department of Defense



Geothermal Energy Development Project at Naval Air
Station Fallon, Nevada, Did Not Meet
Recovery Act Requirements

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Acronyms and Abbreviations

COR	Contracting Officer's Representative
FAR	Federal Acquisition Regulation
GPO	Geothermal Program Office
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NAWCWD	Naval Air Warfare Center Weapons Division
OMB	Office of Management and Budget
PWD	Public Works Department
QASP	Quality Assurance Surveillance Plan
QMD	Quantitative Methods Division
TPOC	Technical Point of Contact



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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SEP 19 2011

MEMORANDUM FOR NAVAL INSPECTOR GENERAL
COMMANDING OFFICER, NAVAL FACILITIES
ENGINEERING COMMAND SOUTHWEST
DIRECTOR, NAVY SHORE ENERGY
PROGRAM OFFICE
COMMANDING OFFICER, NAVAL AIR SYSTEMS
COMMAND

SUBJECT: Geothermal Energy Development Project at Naval Air Station Fallon,
Nevada, Did Not Meet Recovery Act Requirements
(Report No. D-2011-108)

We are providing this report for review and comment. The Geothermal project did not meet American Recovery and Reinvestment Act of 2009 requirements. Specifically, Geothermal Program Office personnel did not adequately plan the project; the Commander, Navy Region Southwest, did not promptly distribute funds; personnel from Naval Air Weapons Center Weapons Division, China Lake, could have improved contract execution; and the Director, Navy Shore Energy Office, did not provide effective oversight. We considered management comments on a draft of this report when preparing the final report.

DoD Directive 7650.3 requires that recommendations be resolved promptly. We received comments from the Acting Assistant Secretary of the Navy (Energy, Installations & Environment) on behalf of the Director, Navy Shore Energy Office, Naval Facilities Engineering Command; and the Commander, Naval Air Systems Command. The Acting Assistant Secretary's comments to Recommendation 1.a and 1.b were responsive. However, the Acting Assistant Secretary did not comment on Recommendations 1.c and 2. Therefore, we request the Navy provide additional comments on Recommendations 1.c and 2 by October 19, 2011.

If possible, send a .pdf file containing your comments to audros@dodig.mil. Copies of your comments must have the actual signature of the authorizing official for your organization. We are unable to accept the /Signed/ symbol in place of the actual signature. If you arrange to send classified comments electronically, you must send them over the SECRET Internet Protocol Router Network (SIPRNET).

We appreciate the courtesies extended to the staff. Please direct questions to me at (703) 604-8866 (DSN 664-8866).

Alice F. Carey
for Alice F. Carey
Assistant Inspector General
Readiness, Operations, and Support

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Geothermal Energy Development Project at Naval Air Station Fallon, Nevada, Did Not Meet Recovery Act Requirements

What We Did

Our overall objective was to evaluate DoD's implementation of Public Law 111-5, "American Recovery and Reinvestment Act of 2009," (Recovery Act), February 17, 2009. Specifically, we determined whether Geothermal Program Office, Naval Facilities Engineering Command, and Naval Air Systems Command personnel appropriately used Recovery Act funds to plan, fund, and initially execute the Geothermal Energy Development project (Geothermal project) at Naval Air Station Fallon, Nevada. The Department of the Navy allocated approximately \$9.12 million in Recovery Act funds to the Geothermal project.

What We Found

The Geothermal project did not meet Recovery Act requirements. Geothermal Program Office and Naval Air Station Fallon Public Works Department personnel did not adequately plan the project. Specifically, they did not fully complete the DD Form 1391, and the Geothermal Program Office did not have a comprehensive plan in place to substantiate its three-phase approach to geothermal exploration. In addition, the Commander, Navy Region Southwest, did not promptly distribute about \$1.2 million in Recovery Act funds, and contracting personnel at Naval Air Warfare Center Weapons Division, China Lake could have improved contract execution. Lastly, the Director, Navy Shore Energy Office, did not provide effective oversight of the Geothermal project. As a result, the Geothermal Program Office's efforts to reduce exploration risks were

weakened, and DoD lacks reasonable assurance that Recovery Act funds were used appropriately.

What We Recommend

We recommend that the Director, Navy Shore Energy Office, Naval Facilities Engineering Command, provide detailed oversight to the project in accordance with Recovery Act requirements, and establish an estimated timeline to complete the Geothermal project. Additionally, we recommend that the Commander, Naval Air Systems Command, require the Naval Air Warfare Center Weapons Division, China Lake, procuring contracting officer to designate a contracting officer's representative and develop a Quality Assurance Surveillance Plan to monitor contractor progress and performance.

Management Comments and Our Response

The Acting Assistant Secretary of the Navy (Energy, Installations & Environment), responded on behalf of the Director, Navy Shore Energy Office, Naval Facilities Engineering Command, and the Commander, Naval Air Systems Command, to a draft of this report issued on August 4, 2011. The Acting Assistant Secretary's comments to Recommendation 1.a and 1.b were responsive. However, the Acting Assistant Secretary did not comment on Recommendations 1.c and 2. We request that the Navy provide additional comments by October 19, 2011. Please see the recommendations table on the back of this page.

Recommendations Table

Management	Recommendations Requiring Comment	No Additional Comments Required
Commander, Naval Air Systems Command	2	
Director, Navy Shore Energy Office, Naval Facilities Engineering Command	1.c	1.a, 1.b

Please provide comments by October 19, 2011.

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Introduction

Objective

Our overall objective was to evaluate DoD's implementation of Public Law 111-5, "American Recovery and Reinvestment Act of 2009," (Recovery Act), February 17, 2009. Specifically, we determined whether personnel at the Geothermal Program Office (GPO), Naval Facilities Engineering Command (NAVFAC), and Naval Air Systems Command appropriately used Recovery Act funds to adequately plan, fund, and initially execute Project RM-09-1441, Geothermal Energy Development (Geothermal project) at Naval Air Station (NAS) Fallon, Nevada. See Appendix A for a discussion of our scope and methodology.

Background

In passing the Recovery Act, Congress provided supplemental appropriations to preserve and create jobs; promote economic recovery; assist those most impacted by the recession; provide investments needed to increase economic efficiency by spurring technological advances in science and health; and invest in transportation, environmental protection, and other infrastructure. The Recovery Act also established unprecedented efforts to ensure the responsible distribution of funds for its purposes and to provide transparency and accountability of expenditures by informing the public of how, when, and where tax dollars were being spent.

DoD received approximately \$7.16 billion¹ in Recovery Act funds for projects that support the Act's purposes. In March 2009, DoD released expenditure plans for the Recovery Act, which lists DoD projects that receive Recovery Act funds. The Department of the Navy received \$1.17 billion in Recovery Act funds for Operations and Maintenance; Military Construction; and Research, Development, Test, and Evaluation. Of the \$1.17 billion appropriated, the Department of the Navy allocated approximately \$9.12 million (Operations & Maintenance) to support geothermal energy development at NAS Fallon, Nevada.

Recovery Act Requirements

On April 3, 2009, the Office of Management and Budget (OMB) issued Memorandum M-09-15, "Updated Implementing Guidance for the American Recovery and Reinvestment Act of 2009," to provide Government-wide guidance and requirements for the implementation of the Recovery Act. The guidance and requirements are intended to meet accountability goals: (1) funds are awarded and distributed in a prompt, fair, and reasonable manner; (2) the recipients and uses of all funds are transparent to the public, and the public benefits of these funds are reported clearly, accurately, and in a timely

¹DoD originally received \$7.4 billion; however, Public Law 111-226, Title III, "Rescissions," rescinded \$260.5 million on August 10, 2010. The \$7.16 billion does not include \$4.6 billion for U.S. Army Corps of Engineers civil works projects.

manner; (3) funds are used for authorized purposes and potential for fraud, waste, error, and abuse are mitigated; (4) projects funded under the Recovery Act avoid unnecessary delays and cost overruns; and (5) program goals are achieved, including specific program outcomes and improved results on broader economic indicators.

Geothermal Program Office

The GPO is a NAVFAC Component and is located at Naval Air Weapons Station China Lake, California. GPO personnel are responsible for managing and developing geothermal resources on all military lands throughout the world. The Navy Shore Energy Office located at NAVFAC Headquarters provides oversight to GPO. On March 10, 2009, NAS Fallon Public Works Department (PWD)² personnel developed a DD Form 1391 for geothermal energy development at NAS Fallon, Nevada.³

Geothermal Energy Development

Geothermal energy development involves drilling wells to capture geothermal resources and bring those resources to the surface as hot water or steam to drive turbines that generate electricity. The process begins with exploration to identify a likely source of geothermal energy. To be considered a successful prospect for development, a geothermal resource must possess three qualities: heat, fluids, and permeability. Although experts can use research to identify an area likely to contain a geothermal resource, they must drill in that area to confirm that a viable resource exists. Drilling is both costly and a challenge because if the well is not positioned within a precise vicinity of the targeted resource, drilling results in a dry hole.

To reduce the risks associated with exploration, GPO personnel intended to implement a three-phase approach for the Geothermal project consisting of research, shallow-hole drilling, and deep-hole drilling. At the end of each phase, GPO planned to assess the results and determine whether to move forward to the next phase.

- **Phase 1: Research** – Involves reviewing evidence from literature and fieldwork to identify a likely geothermal resource. Planners use the information to identify specific areas to drill that present the greatest potential for a geothermal resource. Typically, the research phase can take about 12 months to complete.
- **Phase 2: Shallow-Hole Drilling** – Performed once research confirms that a potential geothermal resource may exist. Shallow-hole drilling involves drilling up to 500 feet deep and collecting temperature gradient measurements. This process takes approximately 4 to 5 days to drill each hole and an additional 1 to 3 months for the sites to achieve temperature equilibration.⁴

²NAS Fallon PWD provides planning support to GPO for all projects at NAS Fallon.

³Consists of approximately 243,000 acres.

⁴Occurs when, over time, the well and surrounding reservoir becomes the same temperature.

- **Phase 3: Deep-Hole Drilling⁵** – GPO personnel will initiate deep-hole drilling to further identify geological and physical conditions. Deep holes can reach depths of 1,500 to 5,000 feet. This process takes approximately 45 to 90 days for drilling and an additional 1 to 3 months for the sites to achieve temperature equilibration.

Review of Internal Controls

DoD Instruction 5010.40, “Managers’ Internal Control Program (MICP) Procedures,” July 29, 2010, requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance programs are operating as intended and to evaluate the effectiveness of the controls. We identified internal control weaknesses regarding inadequate project planning and inadequate contract oversight. Specifically, the DD Form 1391 was incomplete; GPO personnel lacked a comprehensive plan for implementing the three-phase exploration approach; Naval Air Warfare Center Weapons Division (NAWCWD), China Lake contracting personnel lacked a plan for contract oversight; and drilling contracts omitted a Federal Acquisition Regulation (FAR) clause. Further, the Director, Navy Shore Energy Office, did not provide effective oversight. We will provide a copy of the report to the senior official(s) responsible for internal controls at NAVFAC headquarters and Naval Air Systems Command headquarters.

⁵Includes intermediate-hole drilling.

Finding. The Geothermal Project Did Not Meet Recovery Act Requirements

The Geothermal project did not meet Recovery Act requirements. Specifically,

- GPO and NAS Fallon PWD personnel did not adequately plan the project to support the need for drilling at the sites selected;
- Commander, Navy Region Southwest, did not promptly distribute approximately \$1.2 million in Recovery Act funds for the research phase;
- NAWCWD, China Lake, awarded drilling contracts prematurely and could have improved contract oversight; and
- Director, Navy Shore Energy Office, did not provide effective oversight of the Geothermal project.

As a result, DoD lacks reasonable assurance that exploration risks were mitigated and Recovery Act funds were used appropriately.

Project Not Adequately Planned

GPO and NAS Fallon PWD planning for the Geothermal project was inadequate. According to OMB Memorandum M-09-15, heightened management attention to acquisition planning is required to mitigate project risks relating to schedule, cost, and performance. In addition, Naval Operations Instruction 11010.20G, “Facilities Projects Instruction,” October 14, 2005, requires special projects to have documentation that provides a clear methodology for addressing all aspects of requirements, including operational, technical, financial, legal, environmental, and social aspects. The DD Form 1391 is the primary format of project documentation. It provides a record of actions taken to address each requirement and how those actions were funded. PWD personnel did not fully complete the DD Form 1391, and GPO personnel did not have a comprehensive plan in place to substantiate its three-phase approach to geothermal exploration.

Incomplete DD Form 1391

NAS Fallon PWD personnel did not fully complete the DD Form 1391. On this form, personnel identified six sites where exploration work would occur.⁶ See Appendix B for a map of these sites.

⁶Sites include Dixie Valley, Fallon NAS (Mainside) and four bombing ranges (B-16, B-17, B-19, and B-20).

The DD Form 1391 described the exploration process⁷ as:

- using a Broad Agency Announcement,⁸ valued at \$1.2 million, to support the research phase;
- drilling 20 shallow holes, valued at \$1.2 million; and
- drilling three intermediate/deep holes, valued at \$5.6 million.

However, the DD Form 1391 lacked a clear methodology for addressing the geothermal exploration process. Specifically, the DD Form 1391 did not:

- describe all aspects of the project's requirements (for example, the scope of the project);
- address the exploration process and current status at each site; and
- cite source documents that supported the need to conduct exploration at each site.

Additionally, the DD Form 1391 provided no timeline for project completion, although DoD expenditure plans showed that the project would take approximately 6 months to complete (June to December 2010). GPO personnel stated that completion of the project could take 21 to 30 months because the research phase alone could take about 12 months.⁹

GPO Needs a Plan for Identifying Geothermal Resources

GPO personnel did not provide planning documents that fully justify the Geothermal project. GPO personnel lacked a comprehensive plan for implementing the three-phase exploration approach that would both support the DD Form 1391 and ensure a high probability of identifying a geothermal resource.

However, the source documents provided to us by GPO personnel did not support the project requirements.

GPO had an extensive library of source documents addressing geothermal energy throughout the world. However, the source documents provided to us by GPO personnel did not support the project requirements. Specifically, the documents did not support the high potential for geothermal resources at

each of the six sites selected for exploration. GPO personnel stated the sites were selected based on technical papers, literature, and fieldwork completed over the last 40 years. Table 1 summarizes the conclusions from technical papers written in the 1980s.

⁷About \$1.1 million of contingency, supervision, and administration expenses budgeted for managing the project are included in the total project cost of \$9.12 million but not identified in the requirements listed in this report.

⁸A Broad Agency Announcement is a general announcement of an agency's research interest, including criteria for selecting proposals and soliciting the participation of all offerors capable of satisfying the Government's needs.

⁹GPO personnel stated that, as of July 29, 2011, they had completed work on the three phases (research, shallow-hole drilling, deep-hole drilling) at sites B-16 and B-17, had terminated work at site B-20, and were still working at sites B-19 and Dixie Valley.

Table 1. Summary of Technical Papers—Geothermal Potential at Fallon, Nevada

Sites	Geothermal Resource Potential
B-16	Possible ¹⁰
B-17	Low
B-19	Probable
B-20	Inconclusive
Dixie Valley	High
NAS Fallon*	High

*Also referred to as “Main Site” or “Mainside.”

GPO personnel stated they were confident that the geothermal potential was high at each of the sites. However, as Table 1 shows, the technical papers identified only two of the six sites as having “high” geothermal resource potential. For the remaining four sites, the technical papers did not support GPO’s position that the potential for geothermal resources in the entire Fallon, Nevada, region was high.

GPO personnel provided the “Geothermal Energy Resource Assessment on Military Lands,” October 2003, which they stated supported their selection of the six sites. However, the assessment addressed only two of the six sites and drew conclusions similar to those in the technical papers. Specifically, the assessment concluded that an unexploited resource is located along the southern margin of the NAS Fallon Main Site, and Dixie Valley has a high potential for utility grade geothermal resources. The assessment recommended additional mapping, surveys, and studies in those areas to determine the potential for high temperature resources and identify possible drilling targets.

We do not doubt GPO’s assertion that information supporting exploration at the sites exists. However, because of the volume of source documentation available to GPO and the vast area covered by the six sites, personnel should have consolidated prior assessments and conclusions into a comprehensive plan. The plan should have summarized conclusions drawn from work previously performed at each site, demonstrated the potential for a geothermal resource at each site, and prioritized sites for exploration given a lower or inconclusive potential for geothermal energy. The plan would have served as supporting documentation to justify the project, and therefore, provide reasonable assurance that Recovery Act funds are being used appropriately. Because the Geothermal project is beyond the planning phase, we are not making any recommendations concerning the need to develop a comprehensive plan.

¹⁰A 1982 technical publication concluded that B-16 had “better than average” resource potential; however, a 1987 technical publication stated that B-16 had “marginal” potential.

Recovery Act Funds Not Promptly Distributed

In March 2009, Commander, Naval Installations Command, allocated \$9.12 million in Recovery Act funds to the Commander, Navy Region Southwest. However, Commander, Navy Region Southwest, did not promptly distribute \$1.2 million of the \$9.12 million in Recovery Act funds to the Geothermal project. Table 2 summarizes the Commander, Navy Region Southwest's distribution of the Recovery Act funds for the Geothermal project.

Table 2. Summary of Commander, Navy Region Southwest's Distribution of Recovery Act Funds for the Geothermal Project

Funds Transferred To	Amount (millions)	Date Funds Transferred	Purpose of Funds
NAWCWD China Lake	\$1.4	12/29/2009	Shallow-hole Drilling
NAWCWD China Lake	\$6.0	4/6/2010	Intermediate/deep-hole Drilling
NAVFAC ¹	\$1.2	5/21/2010	Research
Total	\$8.6²		

¹ NAVFAC Expeditionary Logistics Center, Port Hueneme, California.

² Approximately \$520,000 is still available for the existing contracts for the Geothermal project.

The Commander, Navy Region Southwest, transferred approximately \$1.2 million to NAVFAC Expeditionary Logistics Center in support of research on May 21, 2010. Specialty Center Acquisition NAVFAC¹¹ awarded a technical validation contract on July 27, 2010; 16 months after Navy Region Southwest received the funds. According to GPO personnel, the Navy Region Southwest's delay in transferring the funds was caused in part by NAVFAC headquarters personnel wanting to ensure the correct type of contract was awarded. The delay in distributing the funds impacted the first phase (research) in the GPO's exploration approach, delaying the project by at least 7 months.

Contract Execution Could Have Been Improved

NAWCWD China Lake contracting personnel awarded drilling contracts for Phases II and III before Phase I (the research phase) had begun and before making the decision to go forward with the project. In addition, contracting personnel did not appoint a contracting officer's representative (COR), lacked a Quality Assurance Surveillance Plan (QASP), and omitted a Recovery Act FAR clause.

¹¹ Specialty Center Acquisition NAVFAC, located in Port Hueneme, California, provides procurement services for NAVFAC Expeditionary Logistics Center.

Drilling Contracts Awarded Early

NAWCWD China Lake contracting personnel awarded the contracts for shallow-hole and deep-hole drilling before the GPO initiated its research phase. On December 31, 2009, the NAWCWD China Lake procuring contracting officer awarded contract N68936-10-D-0001 (delivery order 0002) in the amount of \$1.4 million for shallow-hole drilling (a total of 20 holes) and on June 22, 2010, awarded contract N68936-10-D-0021 (Delivery Order 0003) in the amount of \$5.9 million for deep-hole drilling (a total of 3 holes). At the time of those contract awards, GPO had neither determined the specific areas that presented the greatest potential for geothermal resources nor reached a decision that drilling was needed at any of the sites. According to the procuring contracting officer, the drilling contracts were awarded at the GPO project manager's direction. Awarding the drilling contracts before the research phase conclusion is contrary to the project manager's own three-phase approach, eliminating the ability to review the results of the research and determine the next course of action.

At the time of those contract awards, GPO had neither determined the specific areas that presented the greatest potential for geothermal resources nor reached a decision that drilling was needed at any of the sites.

Contract Oversight Could Be Improved

Contracting Officer's Representative. DFARS Procedures, Guidance, and Information Subpart 201.6, "Contracting Authority and Responsibilities," requires contracting officers to designate a properly trained COR to assist in the technical monitoring or administration of a contract when contracting for services. A COR must be a Government employee, designated in writing. DFARS Subpart 201.602-2, "Responsibilities," requires that the written designation specify the extent of the authority to act on behalf of the contracting officer, identify the limitations on the COR authority, specify the period covered by the designation, state that the authority cannot be delegated, and state that the COR may be held personally liable for unauthorized acts.

The procuring contracting officer stated the drilling contracts were for supplies and not services; therefore, she did not designate a COR. Instead, the procuring contracting officer designated a technical point of contact (TPOC) to provide oversight of the drilling contracts without writing a designation letter or ensuring that the TPOC was properly trained. According to the drilling contracts, the TPOC will provide "technical direction and discussion, as relating, but not limited to the specification and/or statement of work, and will monitor the progress and quality of contractor performance." The procuring contracting officer should have assigned a COR with the appropriate duties and responsibilities when the contract was awarded. Without someone to perform the duties of a COR, the Government has no guarantee that the progress and quality of contractor performance is properly monitored.

Quality Assurance Surveillance Plan. FAR Subpart 46.4, "Government Contract Quality Assurance," states the Government should conduct contract quality assurance at times and places necessary to determine that the supplies or services conform to contract

requirements. The QASP allows the Government to determine whether supplies and services provided by the contractor conform to contract requirements. The QASP identifies all of the work requiring surveillance and designates how the surveillance will be performed. In addition, OMB Memorandum M-09-15 states that agencies must provide appropriate oversight of contracts to ensure outcomes consistent with and measurable against agency plans and goals under the Recovery Act. Specifically, agencies should actively monitor contracts to ensure that goals for performance, cost, and schedule are met by establishing, implementing, and documenting contractor performance evaluations.

The procuring contracting officer did not prepare a QASP for monitoring contractor progress and performance. According to the contracting officer, contractor performance would be monitored by collecting the contractor's daily reports and by the TPOC conducting daily site visits. However, without a QASP describing what the TPOC must do to monitor the contractors' progress and performance, the Government does not have reasonable assurance that the person responsible for surveillance is aware of his or her responsibilities and is carrying out necessary surveillance. Therefore, the NAWCWD China Lake procuring contracting officer should provide the TPOC with an appropriate, detailed QASP for monitoring the progress and performance of contractors to ensure outcomes are consistent with the contracts' statements of work.

FAR Clauses

Initially, NAWCWD China Lake contracting personnel omitted a FAR clause required by Recovery Act guidance in the contract for shallow-hole drilling. The missing clause was FAR 52.203-15 – "Whistleblower Protection Under the ARRA of 2009." OMB Memorandum M-09-15 states agencies are required to include specific FAR clauses in contracts funded in whole or in part by Recovery Act funds. After we informed NAWCWD China Lake contracting personnel of the missing FAR clause, they modified the contract to include the clause.

NAVFAC Headquarters Oversight Was Ineffective

The Director, Navy Shore Energy Office, did not provide effective oversight to the Geothermal project. The Navy Shore Energy Office, located at NAVFAC headquarters, is the budget-submitting office for geothermal energy funds and was responsible for providing oversight to the GPO. The Recovery Act and OMB Memorandum M-09-15 require projects to be monitored and reviewed. OMB guidance also calls for Recovery Act projects to avoid unnecessary delays; for program goals to be achieved; and for the public benefits of these funds to be reported clearly, accurately, and in a timely manner.

Based on the project deficiencies, the Director, Navy Shore Energy Office, neither provided the necessary oversight required by the Recovery Act, nor followed OMB guidance and requirements for meeting the Recovery Act accountability goals. Navy Shore Energy Office personnel informed us that their office was responsible for ensuring the Recovery Act projects were adequately planned and executed, although their involvement in the Geothermal project focused on ensuring the contracts were appropriate. The Director, Navy Shore Energy Office, stated that because of the project's

technical aspects, with which he was unfamiliar, as well as the technical expertise of GPO personnel, he allowed GPO to manage the project on their own.

Despite the Director's lack of familiarity with geothermal exploration, his oversight was needed to ensure the complete implementation of Recovery Act requirements. The Director should take steps to ensure GPO fully implements Recovery Act requirements.

Conclusion

The Geothermal project at NAS Fallon was inadequately planned, funds to support the research were not distributed in a timely manner, and contract execution was not always sufficient. GPO personnel should have developed a comprehensive exploration plan to support its three-phase site exploration approach. Without a comprehensive exploration plan, the Government lacked assurance that the risks associated with geothermal exploration were mitigated and that the GPO would use Recovery Act funds in an effective, economical, and timely manner. Further, NAWCWD China Lake contracting personnel did not designate a COR or establish a QASP. Overall, the Director, Navy Shore Energy, provided ineffective oversight to the Geothermal project to ensure the meeting of Recovery Act goals. As a result, the internal control weaknesses identified in this report weaken GPO's efforts to mitigate the risk of drilling dry holes and provide little assurance that GPO appropriately used Recovery Act funds.

Management Comments on the Finding and Our Response

Management Comments on Drilling Contracts Awarded Early

The Acting Assistant Secretary of the Navy (Energy, Installations & Environment) (Acting Assistant Secretary), provided comments on behalf of the Director, Navy Shore Energy Office, Naval Facilities Engineering Command; and the Commander, Naval Air Systems Command. The Acting Assistant Secretary disagreed with the finding pertaining to the contract being awarded prematurely. He stated that the objective in awarding the contract was to locate developable resources of geothermal activity.

Our Response

We believe that awarding the shallow-hole and deep-hole drilling contracts up to seven months before awarding the research contract is not consistent with the Geothermal Project Manager's three-phase exploration approach, which was used to reduce the risks associated with exploration. Further, awarding the drilling contracts before determining the potential for geothermal resources increases the risk of inappropriately using Recovery Act funds.

Management Comments on Contract Oversight

The Acting Assistant Secretary disagreed that effective contract oversight was not provided. He stated that the contract deliverables were confirmed and sufficient contract oversight was provided.

Our Response

Although the Acting Assistant Secretary stated that contract oversight was provided, the contracting officer did not have a QASP, which identifies the work requiring surveillance and how the surveillance will be performed. Because contracting officials did not have a QASP, they were not able to provide evidence that the contract deliverables conform to contract requirements.

Recommendations, Management Comments, and Our Response

1. We recommend that the Director, Navy Shore Energy Office, Naval Facilities Engineering Command:

a. Provide detailed oversight of Geothermal Program Office efforts to complete the Geothermal project in accordance with the Recovery Act and subsequent guidance as they relate to monitoring and reviewing the project and meeting its goal of accountability.

Department of the Navy Comments

The Acting Assistant Secretary generally agreed with the recommendation to provide detailed oversight of Geothermal Program Office efforts in accordance with the Recovery Act requirements. He stated that to further monitor and review the project and ensure accountability, Naval Facilities Engineering Command created a separate energy office and designated a Geothermal program director.

Our Response

The Acting Assistant Secretary's comments were responsive, and no further comments are required.

b. Require the Project Manager, Geothermal Program Office to establish a timeline for project completion. Based on the timeline, the Director should then determine if the project is still a valid use of Recovery Act funds.

Department of the Navy Comments

The Acting Assistant Secretary generally agreed with the recommendation to establish a timeline for completion of the Geothermal project and based on the timeline, determine if the project is still a valid use of Recovery Act funds. He stated that the Naval Facilities Engineering Command is reviewing the business processes and is developing a timeline for project completion. Upon completion, a determination will be made on the valid use of Recovery Act funds and any appropriate corrective actions. Completion of the review and timeline is scheduled for February 15, 2012.

Our Response

The Acting Assistant Secretary's comments were responsive, and no further comments are required.

c. Review the performance of the officials responsible for awarding the drilling contracts prior to completing research and for not assigning a contracting officer's representative to provide proper oversight. Based on the results, consider any corrective actions, as appropriate.

Department of the Navy Comments

The Acting Assistant Secretary did not comment on the recommendation. We request the Navy provide comments in response to the final report.

2. We recommend that the Commander, Naval Air Systems Command, require the procuring contracting officer at Naval Air Warfare Center Weapons Division China Lake to designate a COR for contract number N68936-10-D-0001 (Delivery Order 0002) and contract number N68936-10-D-0021 (Delivery Order 0003) and develop a Quality Assurance Surveillance Plan for the COR to monitor contractor progress and performance relating to the shallow-hole and deep-hole drilling contracts.

Department of the Navy Comments

The Acting Assistant Secretary did not comment on the recommendation. We request the Navy provide comments in response to the final report.

Appendix A. Scope and Methodology

We conducted this audit from February 2010 through August 2011 in accordance with generally accepted government auditing standards. Generally accepted government auditing standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence provides a reasonable basis for our findings and conclusions based on our audit objectives.

Of the \$1.17 billion provided for Navy projects, we focused our efforts on \$9.12 million in operations and maintenance funds appropriated to the Geothermal Energy Development project at NAS Fallon, Nevada. The project entails conducting initial research involving reviewing literature and fieldwork to identify a likely geothermal resource and shallow-hole and deep-hole drilling to identify geological and physical conditions that define geothermal resource potential.

To review DoD's implementation of plans for the Recovery Act, we audited the planning, funding, and initial project execution of the Geothermal Energy Development project at NAS Fallon, Nevada. Specifically, we determined whether:

- the project was adequately planned to ensure the appropriate use of Recovery Act funds (Planning);
- funds were awarded and distributed in a prompt, fair, and reasonable manner (Funding);
- contracts contained required Recovery Act FAR clauses (Project Execution); and
- the project avoided unnecessary delays and cost overruns (Project Execution).

We obtained and examined Government solicitations and contracts, funding documents, DD Form 1391s, cost estimates, technical papers, and other assessments. We compared the documents and information with relevant criteria to determine whether they were properly prepared, met Recovery Act project planning requirements, and were properly and promptly funded. We also interviewed appropriate Government personnel from the GPO, Navy Region Southwest, and NAVFAC headquarters to obtain an understanding of how projects were validated and selected for Recovery Act funding. We interviewed GPO and PWD personnel about the planning of the project, and we interviewed NAWCWD China Lake contracting personnel regarding contract execution.

Use of Computer-Processed Data

We relied on computer-processed data from the Federal Business Opportunities (FBO) Web site and Federal Procurement Data System – Next Generation. Federal Business Opportunities is a single, Government-wide point-of-entry for Federal Government procurement opportunities. The Federal Procurement Data System – Next Generation is a dynamic, real-time database in which contracting officers can update data to include new actions, modifications, and corrections. We compared data generated by each system with the DoD expenditure plans, funding authorization documents, and contracting documentation to support the audit conclusions. We determined that the data were sufficiently reliable for the purposes of our audit.

Use of Technical Assistance

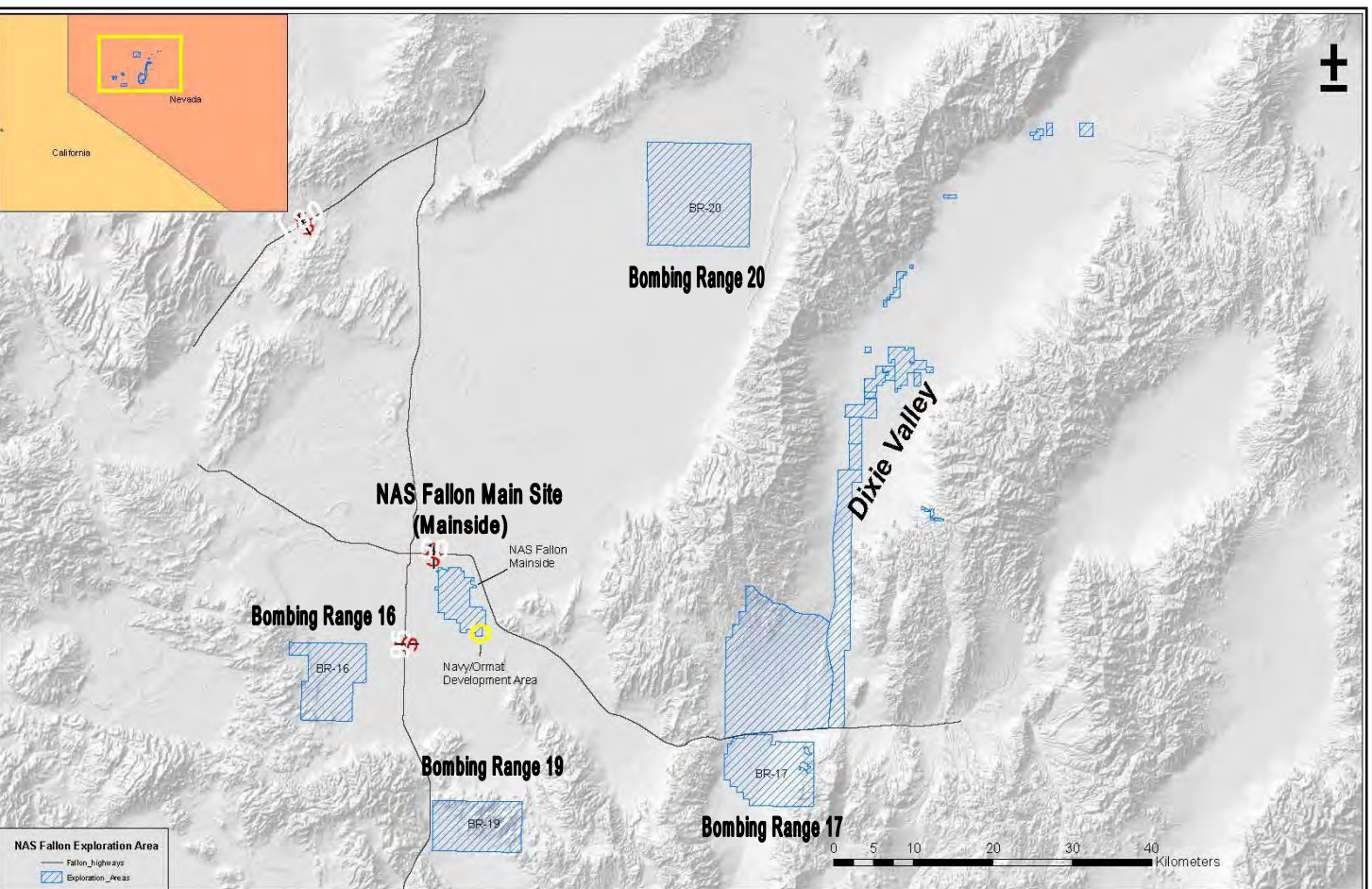
Before selecting DoD Recovery Act projects for audit, the Quantitative Methods Division (QMD) of the DoD Office of Inspector General analyzed all DoD agency-funded projects, locations, and contracting oversight organizations to assess the risk of waste, fraud, and abuse associated with each. QMD personnel selected most audit projects and locations using a modified Delphi technique, which allowed us to quantify the risk based on expert auditor judgment and other quantitatively developed risk indicators. QMD personnel used information collected from all projects to update and improve the risk assessment model. QMD personnel selected 83 projects with the highest risk rankings; auditors chose some additional projects at the selected locations.

QMD personnel did not use classical statistical sampling techniques that would permit generalizing results to the total population because there were too many potential variables with unknown parameters at the beginning of this analysis. The predictive analytic techniques employed provided a basis for logical coverage not only of Recovery Act dollars being expended, but also of types of projects and types of locations across the Military Services, Defense agencies, State National Guard units, and public works projects managed by the United States Army Corps of Engineers.

Prior Audit Coverage

The Government Accountability Office, the Department of Defense Inspector General, and the Military Departments have issued reports and memoranda discussing DoD projects funded by the Recovery Act. You can access unrestricted reports at <http://www.recovery.gov/accountability>.

Appendix B. Map of Exploration Area at Naval Air Station Fallon



Source: Geothermal Program Office, Naval Air Weapons Station, China Lake, California

Department of the Navy Comments



DEPARTMENT OF THE NAVY
THE ASSISTANT SECRETARY OF THE NAVY
(ENERGY, INSTALLATIONS & ENVIRONMENT)
1000 NAVY PENTAGON
WASHINGTON DC 20350-1000

AUG 31 2011

MEMORANDUM FOR THE INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

SUBJ: Geothermal Energy Development Project at Naval Air Station Fallon, Nevada,
Did Not Meet Recovery Act Requirements (Project No. D2010-D000LH-
0170.000)

This is in response to your memorandum dated August 4, 2011 requesting comments on the subject draft report.

Although we agree with most of the report's recommendations, we disagree with the statements that the contract was awarded prematurely and that effective oversight was not provided. The objective in awarding the contract was to locate developable resources of geothermal activity, and based on the results to date, the contract deliverables were confirmed and sufficient contract oversight was provided. To further monitor and review the project and ensure accountability, Naval Facilities Engineering Command (NAVFAC) has created a separate energy office and specifically designated a Geothermal Program Director. Additionally, NAVFAC is reviewing the business processes and is developing a timeline for project completion. Upon completion, a determination on the valid use of Recovery Act funds and any appropriate corrective action will be made. Completion of the review and timeline is scheduled for February 15, 2012.

Thank you for the opportunity to comment on the subject draft report. My point of contact is [REDACTED], [REDACTED], [REDACTED].

Sincerely,

A handwritten signature in blue ink, appearing to read "Roger M. Natsuhara", is written over a horizontal line.

Roger M. Natsuhara
Acting



Inspector General Department of Defense

