



# CONSTRUCTIVELY SPEAKING

US Army Corps of Engineers—Afghanistan Engineer District—North

August 15, 2010

**SPECIAL TRAINING ISSUE**

Issue No. 11

## TRAINING OUR LOCAL NATIONAL QUALITY ASSURANCE REPRESENTATIVES

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*BY: Sandy Higgins, Chief, Quality Assurance Branch*

A greater effort is in place to get our LNQARs better trained and equipped to monitor and ensure quality and compliance to construction projects across Afghanistan. This is an enormous undertaking and will be a joint effort with the Quality Assurance Branch and the field offices. We will be scheduling visits to each office to assess and evaluate the LNQARs to see what training they've had, their skill sets, and what we need to do to get them better prepared. At the time of assessment and evaluation, a short training course will be conducted that will help us determine what is missing. The first day will consist of a QAR overview of all the roles and responsibilities of a LNQAR along with some slideshow presentations of common architectural, electrical and mechanical deficiencies. The second day will consist of a site visit and hands-on quality verification techniques focusing on civil, mechanical and electrical verification based on the most common deficiencies found on our project sites. The lead in this effort is Mustafa Kanishka, a native of



Afghanistan who is an architect and professor from the University of Utah. Mustafa has added a new twist to recent training efforts. He understands them and knows how to reach them. This goes way beyond technical expertise but rather in ethics and taking ownership and pride in the work that we do. These are skills that are not taught or passed down from generations. Building for 20 to 50 years and not 1 year. These are some of the things that we will be focusing on in our future training sessions with LNQARs and our contractors. We recently returned from a training session in Feyzabad and was a very successfully trip for us, the LNQA's and the field office. I believe we all connected and got a real understanding of the issues that we're all facing from poor quality work and the many concerns of the LNQA's not realizing their lines of authority with the contractor. The Feyzabad Project is already being proactive in forming a pre-final inspection team of LNQAs that will go to different locations and provide that extra set of eyes on the sites with their specific skill sets. We believe there are many field offices already doing great things with the LNQA program and we would like to know about your success stories.

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# TRAINING OUR LOCAL NATIONAL QUALITY ASSURANCE REPRESENTATIVES

We plan to hold group training here at Qalaa House primarily focusing on electrical issues. The Quality Assurance Branch has been swamped with calls for help in this area. We've got to get everyone trained to recognize the problems and how to address them with the contractor at the beginning phases to avoid tear out and replacement which is a heavy burden on the contractor in regards to both time and money. The hands-on portion of the training is very effective because their shown what to look for where they may have otherwise not known. The ideal site for the hands-on training is a site that is complete or nearly complete. This way all disciplines can be discussed. We show the LNQAs how to take good progress photos as well as pictures depicting deficiencies. The LNQAs will be asked to take notes and asked a lot of questions. We interviewed each LNQA and got an idea of their strengths and weaknesses. This also helps the field office to place them at various sites. We are compiling a database and individual development plans



for each LNQA. The LNQAs are our co-workers and rely on us to help them perform their jobs successfully and provide a better place in which they live. The Gardez Resident Office is our next stop. They have been very proactive in getting the LNQAs there and setting this up. The field offices can assist us by starting to compile information on the LNQAs such as education background, contact information, etc....



# TRAINING BREEDS SUCCESS

By: Philip DiSalvi, Senior Scheduler, Baker Group

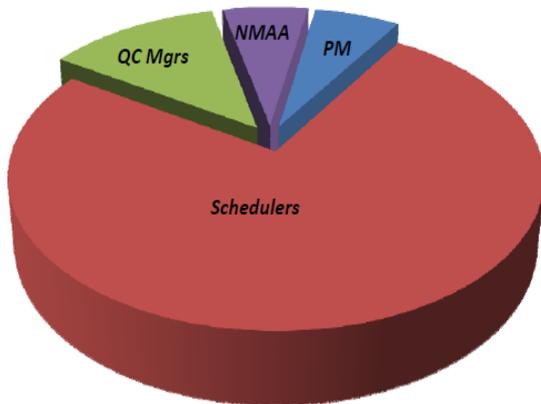
Congratulations to our graduates. Class is out and we now have 16 freshly trained schedulers heading back to their projects with an electrified sense of enthusiasm and equipped with a better understanding of project scheduling. Armed with this recent knowledge, the successful graduates are anxious to return to their various projects where they will more accurately develop and update their project schedules, and more effectively utilize those schedules as a valued project management tool.

July 26<sup>th</sup> was the last day of this intense training class which was conducted by the Baker Group each afternoon over a six day period. As an advanced schedule training class, only schedulers with at least one year of experience were invited to attend. Though many applicants applied, only sixteen enthusiastic candidates were selected to receive the enhanced scheduling training.

Providing the local construction community with advanced schedule training has long term benefits. Initially, it endows local contractors with qualified schedulers intent on improving the quality of their schedules which will in turn support increased profit margins for their representative firms. The benefit does not stop there. This effort will further lead to improving the community and in the big picture, their country.



July 2010 - Class



At the same time, providing advanced schedule training classes will result in increased contractor awareness of project specific schedule requirements, and lead to the more timely submission of improved quality baseline and update project specific schedules.

By augmenting the USACE staff, Baker continues to add technical support for a variety of on-going projects throughout the region. Construction management and support services in addition to a systematic training program are key components of Baker’s services. Baker also offers advanced instruction on scheduling principles and the use of scheduling software to contractors and USACE staff.

Baker provides training and orientation on scheduling for incoming COR’s and has also provided one-on-one training prior to transition on to the field offices. And because we work with many of the COR’s individually, the sessions are modeled specifically to their experience level. This has helped many CORs and Project Engineers understand how to read and interpret contractor schedules, and to further identify what to look for in terms of float, delays, logic, work sequence, etc.



April 2010 - Class

# TRAINING BREEDS SUCCESS

In addition, at your request, Baker will send a senior scheduler to your project site or field office where your team will be coached in the merits of utilizing the project schedule as an integral component of your management suite. The discussion will focus on subjects such as critical items to look for in the schedule, how to interpret float, and how to use of the various reports available through the scheduling software. In addition, time will be spent on describing the basics of schedule analysis and the schedule review process.

In reviewing a contractor's schedule, Baker utilizes a standardized schedule review form that, once populated, is provided to the COR / Project Engineer in response to each request for schedule evaluation. Results of each schedule analysis are entered into the form along with a recommendation for acceptance or rejection. Following review of the schedule, whether baseline or update, the schedule review form and PDF copies of schedule reports, such as longest path and a three-week schedule, are then forwarded to the appropriate USACE office for review and distribution to the contractor.

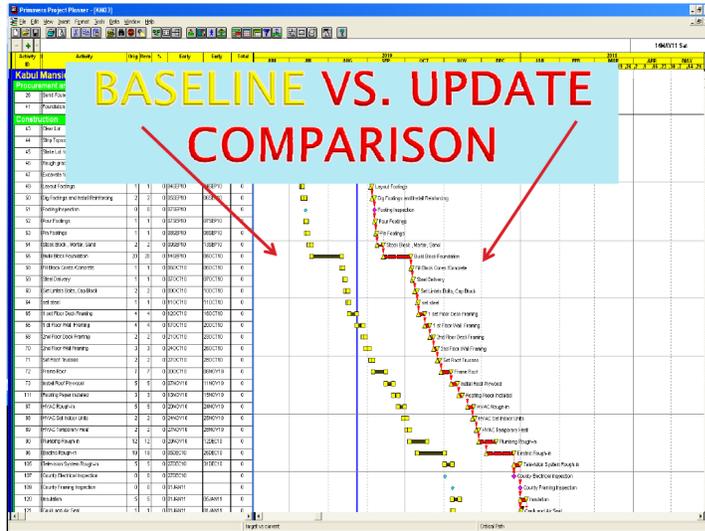
Instruction offered by Baker Group to the field offices also includes how to interpret the review comments contained in the schedule review form and how each comment relates to the specific schedule. In addition, the COR / Project Engineer are briefed on the various schedule reports that are provided each time a schedule is reviewed by Baker.

Other items discussed include how to interpret project float, analysis of the critical path and activities lining the data date, review of cost loading and front end loading, understanding activity logic and out of sequence work, review of the auto-cost rules, schedule calendars, use of milestone activities, etc.; and how these items affect the schedule and use of the schedule as a management tool.

A project schedule that meets both contract requirements and industry standards provides a valued tool by which the project can be planned and monitored. Conversely, a schedule containing activities with incorrect or missing logic relationships will corrupt the logic path and potentially the project's critical path. The schedule is then rendered ineffective as a reliable tool by which the contractor and USACE can manage the project.

In addition to the above described training efforts, the Baker Group has been contributing to the New Arrivals program by offering an hour of introduction to the various services offered in support of the USACE effort in Afghanistan. Held in the Loma Linda training room, the briefing touches on topics such the value of schedule and cost management, the need for reliable contractor schedules, schedule analysis, change order support, delay analysis, and assistance with preparation of recovery plans.

The short class also exposes new arrivals to the range of services Baker offers in support of the field office including;



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## TRAINING BREEDS SUCCESS

- >Participation in the preconstruction meeting in order to introduce contractor representatives to the USACE scheduling requirements;
- >Analysis of both baseline and monthly update schedules;
- >Meeting with contractors to assist with development of schedules and recovery plans;
- >Schedule software training for both USACE and contractor personnel.

New arrivals are additionally coached in the value of using the cost loaded schedule as an effective management tool; one element of which is to ensure accurate quantifying of work in place in order to determine activity status from which the monthly payment application is calculated. Moreover, the new arrivals are briefed on how the required SDEF coding is used to electronically enter the cost loaded schedule into QCS and also used for migration into RMS.

In addition, examples of various schedule layouts, such as a cost report and a three week schedule, are provided to new arrivals at the briefing.

Among the many services offered by the Baker Group, schedule training remains one of the more frequently requested modules by USACE staff.

Currently we have four offices scheduled for remote training including Jalalabad, Gardez, Wardack, and Kabul. If you would like your office added to the list, please contact the Baker Group at [TAN.Baker.Group@usace.army.mil](mailto:TAN.Baker.Group@usace.army.mil) to schedule a visit.

If you have any questions regarding this topic, please contact the Baker Group via email [TAN.BAKER.GROUP@USACE.ARMY.MIL](mailto:TAN.BAKER.GROUP@USACE.ARMY.MIL), or stop by the Azadi Office. With a team of in-country professionals experienced in a broad range of construction specialties, Baker provides construction management support services to the Corps of Engineers, including analysis of contractor schedules (baseline and update), BCOE recommendations and claims evaluations. The Baker group also provides scheduling assistance to contractors, in addition to offering formal schedule training classes. Other services include: RMS support; database development and support; PASS and P2 support; and custom reports from Primavera, RMS, and PASS.

### HOW WE CAN HELP YOU BAKER GROUP

- EVALUATE CONTRACTOR SCHEDULES*
- *BASELINE & MONTHLY UPDATES*
- ANALYZE REA'S & CONTRACT MODIFICATIONS*
- ANALYZE DELAY ISSUES & CLAIMS / SUPPORT*
- MITIGATION PLANS*
- WE PROVIDE RECOMMENDATIONS FOR GOV'T*
- APPROVAL*
- PROVIDE WRITTEN ANALYSIS & REPORTS*
- *3 WEEK LOOK AHEAD*
- *TOTAL FLOAT*
- *CRITICAL PATH*
- *UPDATE VS. BASELINE COMPARISON*

## NEW ADDITION TO QUALITY ASSURANCE BRANCH



The Quality Assurance Branch is pleased to announce Mohammad Feroz Norzai to the QA Electrical Team. Feroz has been promoted from Facilities Maintenance to become an electrician in QAB. Feroz is very knowledgeable of all the electrical layout throughout the compound. He will be monitoring the electrical work on all Qalaa House construction projects and assisting the Small Projects Office. He will also be assisting with training efforts of the LNQRs in electrical Quality Verification. When you see Feroz, please congratulate him on his well-deserved promotion.

# CONSTRUCTION QUALITY MANAGEMENT TRAINING

Construction Quality Management training was held July 26-28 at Qalaa House. Those attending the class were contractors currently working on Corps projects across AEN. We had 59 registered and 37 that showed up. Special thanks to all those who help make these classes successful including the J-3, J-6, Facilities Maintenance, and the DFAC. The instructors for the class were Mustafa Kaniska, Sandy Higgins, Daniel Keenum, Linda Lopez, John Lindsay, Glen Stinn, Braven Dyer, and Mike Wiese from Baker. Natasha Priddle did an outstanding job of coordinating the training.



US Army Corps of Engineers  
Construction Quality Management Class  
26-28 July 2010

## SAFETY TRAINING

On Thursday August 12, 2010 the Safety Office sponsored a Safety Training session that included Fall Protection, Scaffolding, and Ex-

cavation topics. The training was attended by 64 Contractors, Corps personnel, and Local National Quality Assurance and Safety Personnel. The training instructors were Safety Manager John Lindsay, and Safety Specialists Clint Henker and Theresa Duvall. Additional training sessions on the same and other topics are planned for the near future.

## SAFETY TRAINING TRAIN THE TRAINER

Clint Henker and myself conducted 3 classes on the 9th and 10th of August for the purpose of train the trainer for construction safety courses at the Afghanistan Builders Association (ABA). The first day was comprised of teaching three courses (Fall Protection, Scaffolding, and Excavation/Trenching).



The second day consisted of having the students (12) teach the three classes and were evaluated for their instructing abilities and knowledge of the course material.

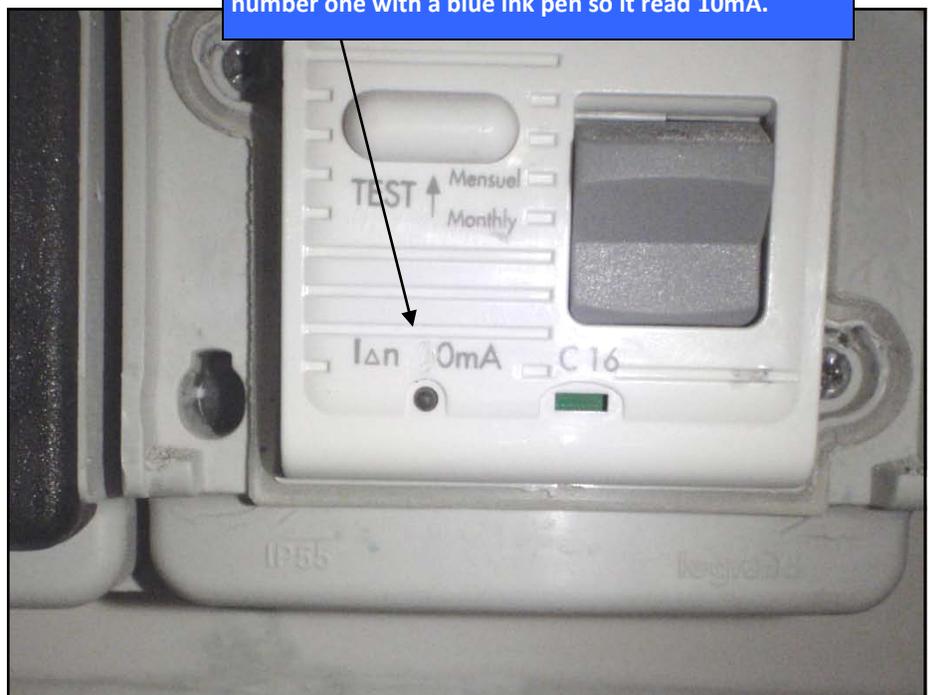


# ELECTRICAL INSPECTION—CODE VIOLATIONS

By: Jason Hasenoehrl, Quality Assurance Branch

1. The use of improper connectors for a specific conduit.
  - a) For example a contractor using a PVC connector on an EMT or flexible conduit.
2. The lack of lock rings on the connectors used to terminate a conduit into a box.
3. The use of black electrical tape in place of a proper wire connector (wire nut)
4. The over filling of a conduit with conductors and not derating the conductors.
  - a) The contractors will install as many wires into a conduit as possible, if this happens then the wires will heat up and the resistance will increase causing the rated ampacity of the wire to drop then the wire will burn up.
5. The grounding of metal boxes with a proper ground screw and wire connection is usually not done.
  - a) A contractor will install a ground wire to a device and not ground the metal box at the same time. This can cause a shock because the ground is relying on the screws holding the device to the box.
6. The improper burial of direct burial conductors.
  - a) The contractor will dig the ditch and then back fill with the same material and not bother to remove the rocks from the dirt. This can cause a rock to cut the conductors and then having to dig up the conductors and replace them.
  - b) The conductors should be bedded with sand or another soft material.
7. The improper burial of underground conduit.
  - a) The conduits should be buried according to their locations at the site.
  - b) They should be at least 18" (450mm) deep to the top of the conduit in general areas and 24" (600mm) deep under streets, highways, roads, alleys and parking lots.
8. The lack of building bonding and grounding
  - a) Metal building need to have a bonding jumper from the ground bar in the main panel to the building structure.
9. Improper use of neutral to the ground bonding jumper.
  - a) They are only installed in the main panel and now where else
10. No equipment grounds pulled in conduits with the phase and neutral conductors
11. No GFCI's installed in areas where required or the wrong mA rated GFCI's
  - a) GFCI's need to be rated at 4-6mA for NEC installations or 10mA for IEC installations for personnel protection.
  - b) GFCI's can be rated at 30mA for equipment protection.
12. A lot of the flexible conduit that is used above a ceiling is not supported at the proper intervals.

Here a contractor has installed a GFCI receptacle and then scratched out the number for the milliamp rating. On a few other the contractor even drew in a number one with a blue ink pen so it read 10mA.



# ELECTRICAL INSPECTION—CODE VIOLATIONS

13. There are also instances where the conductors will not be sized correctly for the over current protection they are being fed by.

a) This is also a problem when the conductors are sized too big for the over current protection as they will not fit in the space provided in the over current protection.

14. There are a few types of conductors out there from certain countries that are not approved for use. The conductors that are approved need to be marked with a UL or CE stamp on the conductor.

a) There are counterfeit conductors out there with UL or CE marks also so beware.



Here the contractor has used a grey pvc connector to connect plastic coated metal flexible conduit to a junction box instead of the proper flex connector.



In this picture the contractor has used black electrical tape instead of wire nuts to connect the wire splices.



Here the contractor has installed so many wires in this Panduit that they are only able to withstand 45% of their original rated amperage. Of the 20 Amps these conductors were rated for now they can only hold around 8 Amps.

# MECHANICAL DEFICIENCIES – MOST COMMONLY NOTED

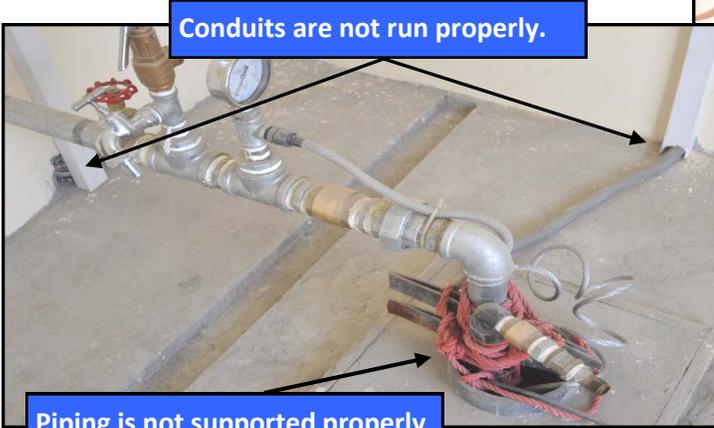


Motor frames do not appear to be grounded.

Well pump motor conduits are not connected properly.



Pump frame is not mounted to the well house floor.



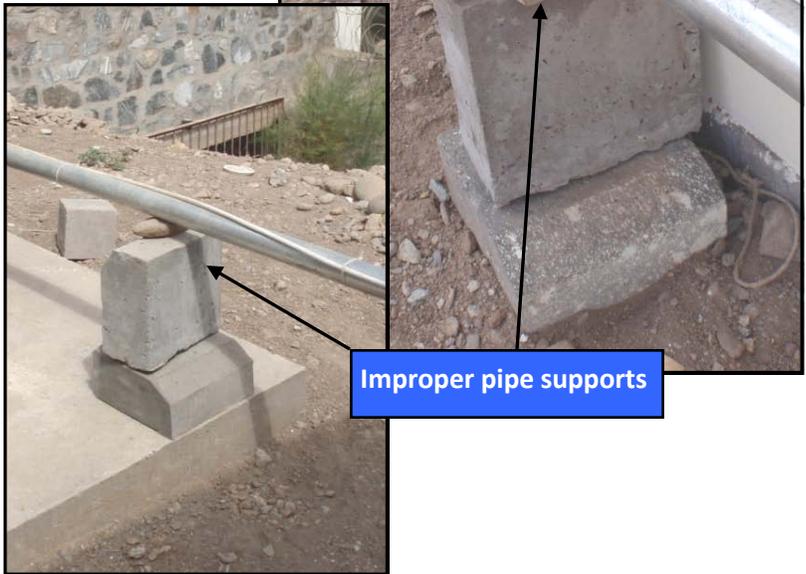
Conduits are not run properly.

Piping is not supported properly in this location.

Wiring should be in conduit and conduit supported independently of the piping.



No P-Traps



Improper pipe supports



## John C. Lindsay, Chief, Safety & Occupational Health Office

Did you know that on Non-Corps construction sites, 5/100 workers will be seriously injured? However, on Corps construction sites, only 1/200 will be seriously injured. There is a reason for this. There are rules that have to be followed on Corps sites and one of them is proper training.

In the first 3 quarters of FY 2010, we have had 3 fatalities. One of these fatalities was a direct result of an employee which fell from a roof to his death. There are several reasons how this tragic accident could have been prevented, but it all comes down to training and the proper selection and use of fall protection systems. Let's discuss training first: OSHA and the US Army Corps of Engineers Safety and Health Requirements Manual (EM 385 -1-1) both require specific training by a competent person for workers that are exposed to fall hazards. There must be a written certification record available with the worker trained, the dates of the training, and the signature of the trainer and trainee.

During these investigations, the one common thread found was the lack of proof that the deceased had received the proper training. This is a managerial problem which needs to be addressed before the commencement of work. During the pre-construction conference and Mutual Understanding Conference, the contractor's Activity Hazard Analysis (AHA) and Fall Protection Plan should address this issue.

The second part of this discussion is the proper selection of fall protection systems. There are several types: Guard rails, safety nets, Personal fall arrest systems (PFAS), warning lines, Ladder climbing devices, just to name a few. All of these are designed to protect our workers under certain circumstances, but unless they are used properly, none of these are going to keep you safe. You have heard the saying: "You can't fix stupid", well this is true especially when it comes to fall related accidents. I really hate to use the word accidents, because all accidents can be prevented. It takes training, proper supervision, oversight, and a willingness to follow the rules. These rules are all written in blood. If they are not followed, it can cost you your life. Our safety staff wants to ensure that all of our construction workers have the opportunity to go home to their families every night. It is our responsibility to provide a safe place to work, not only for our Corps employees, but to our many contractors who are helping to rebuild Afghanistan. Please, ensure compliance to these rules, and none of us will end up like the three guys in this picture.



## CONSTRUCTION QUOTE

*I am an enthusiast, but not a crank in the sense that I have some pet theories as to the proper construction of a flying machine. I wish to avail myself of all that is already known and then, if possible, add my mite to help on the future worker who will attain final success.*

*Wilbur Wright*



## CONSTRUCTION TERMS

**Flashing-** Sheet metal or other material used in roof and wall construction to protect a building from water seepage.

**Short circuit-** A situation that occurs when hot and neutral wires come in contact with each other. Fuses and circuit breakers protect against fire that could result from a short.