

~~CONTROLLED~~

FIC-5.100  
Rev. 2  
6-01-83

## QUALITY RELATED

Bechtel Power Corporation

Field Instruction

FIC-5.100 (Q)

Excavation Permit System

UNCONTROLLED  
NOT TO BE USED  
FOR CONSTRUCTION

This Supersedes FIC-5.100 dated 6/24/82

To: All Field Engineers and Superintendents

Prepared By:

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Date 5/23/83

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Date 5/26/83

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Project Management Organization

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Date 5/27/83

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Date 5/27/83

D-126-11

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## 1.0 Purpose

To provide instructions for the proper application, approval, and use of the Excavation Permit. The Permit is intended to prevent disturbance of foundation subgrade for structures, maintain the integrity of compacted backfill, protect existing buried installations, and therefore, the health and safety of personnel, and to provide notification to affected parties of planned work.



## 2.0 Scope

The Excavation Permit as delineated in this Field Instruction is required for all excavations in both Q and Non-Q soil areas.

## 3.0 References

- 3.1 Specification 7220-C-211(Q) - Technical Specification for Backfill.
- 3.2 Instruction FIC - 1.100 - Q-Listed Soils Placement Job Responsibilities Matrix.
- 3.3 Instruction FIG-1.120 - Administrative Corrections to Procedures/Instructions.
- 3.4 Project Engineering Procedure - Onsite Geotechnical Soils Engineer for Backfill and Laboratory Testing for the Midland Project.  
PEP 2.14.7
- 3.5 Project Engineering Procedure - Resident Geotechnical Engineer for Remedial Soils Activities for the Midland Project.  
PEP 2.14.8
- 3.6 Design Drawings C-45, C-109, C-111, and C-112 - Class I Fill Material Areas
- 3.7 Procedure FPG-1.000 - Field Procedures, Instructions and Administrative Guidelines and Specifications
- 3.8 Procedure FPU-2.000 - Soils Work Permit System

## 4.0 Definitions

- 4.1 Excavation - as used in this Field Instruction, exca-

vation is a general term for removal or displacement of soil by any means, to any final dimensions. Excavations covered by this Field Instruction can be categorized as one of the following three types.

- 4.1.1 Drilled holes - any circular excavation vertically or at an angle into the soil by drilling, driving, or jetting methods.
- 4.1.2 Pile Driving - as used in this Field Instruction is the mechanical insertion of sheetpiling or load-bearing piles whether of timber, concrete, steel, or composite construction.
- 4.1.3 Open Pit Excavations - all other excavations not covered by section 4.1.1 or 4.1.2. Methods of excavation include power shovel, draglines, clamshells, hoes, trenching machines, etc.

## 5.0 Responsibility

- 5.1 The Project Field Engineer is responsible for the direction and implementation of this Instruction.
- 5.2 The Lead Civil Field Engineer (LCFE) is responsible for the following:
  - 5.2.1 Maintaining the log and numbering system.
  - 5.2.2 Determining whether additional procedures are required.
  - 5.2.3 Issuing and distributing the permit application only when all appropriate signatures have been obtained.
  - 5.2.4 Maintaining a file of approved permits.
- 5.3 The Area Team Civil Field Engineer will ensure that Section 5.4.3 has been adhered to by the originator before signing off the Excavation Permit.



5.4 The originator of the excavation permit is responsible for complying with this Instruction in regard to the following:

5.4.1 Filling out the Excavation Permit.

5.4.2 Obtaining proper signatures prior to starting the work.

5.4.3 Processing a procedure/instruction change in accordance with FIG-1.120 when underground utilities for which he is filling out an Excavation Permit is shown on a drawing that is not listed in Attachment 3.

5.5 All work covered by this instruction shall be monitored by the Onsite Geotechnical Soils Engineer.

6.0 Method of Processing Permit

6.1 The originator fills in his name, the date, and the following on the attached form:

6.1.1 "Date Work to be Started" - obtained from Supervision. This is a forecast only and is dependent upon complete sign-off of the Excavation Permit prior to start of work.

6.1.2 "Purpose of Excavation" - the reason for the excavation including drawing references, if applicable, must be stated here. If the drawings referenced show underground utilities and are not listed in Attachment 3 they should be added to Attachment 3 of this procedure.

This is to be accomplished by the originator processing a procedure/instruction change sheet in accordance with FIG-1.120. This requirement includes, but is not limited to all new designs for underground utilities whether issued by Project Engineering or the field.

The work item which is to be placed within

the excavation is to be noted on the Excavation Permit under this section.

- 6.1.3 "Location and Limits of Excavation" - this description shall give the limits of excavation in terms of yard coordinates. Depth shall also be specified. A sketch will be used if a written description cannot be made clear. Any structures or known utilities in the proximity of the proposed excavation shall be noted. Variations in these limits are per section 7.3.
- 6.1.4 "Method of Excavation" - such as power shovel, dragline, clamshell, hoe, trenching machine, auger drilling, rotary drilling, jetting, etc. If sheetpiling or any other method of slope control is to be utilized, it should be noted here.
- 6.1.5 "Q-List" - Yes or No. This refers to the soil. Civil design drawing C-45 should be consulted for limits of Q-listed soil. If any portion of the excavation falls within the limits of the Q-listed soil, this will be marked "Yes".
- 6.1.6 If the excavation is a drilled hole, page 2 of the Permit shall be completed.



- 6.2 The form is then routed by the originator for signatures by Supervision, Field Engineering, and the Resident Geotechnical Soils Engineer (OGSE). The OGSE will obtain the signature of the Resident Geotechnical Engineer (RGE) where appropriate.
- 6.3 As noted on the form, the signatures by Bechtel Supervision, (i.e. Superintendents) and Bechtel Field Engineering signify a review of existing underground installations and appropriate action taken to protect them. Any structures or utilities which will be encountered within the confines of the excavation or in the proximity of the excavation will be noted and initialed under the "Remarks" section and the appropriate drawing numbers noted therein. Any appropriate



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action to be taken should be noted under the "Remarks" section also (attach additional sheets if necessary). The list of drawings in Attachment 3 shall be utilized by each Discipline Field Engineer in this sign-off process.

- 6.4 It is the responsibility of the LCFE before he signs to review for the need of additional procedures. These may be beyond design requirements. Of particular concern is deep drilled holes by Subcontractors. Also, the LCFE is to ensure that Sections 5.4.3 and 6.1.2 concerning updating Attachment 3 have been adhered to by the originator before signing off the Excavation Permit.
- 6.5a. The OGSE (or RGE) reviews the permit for the possibility of influence of the proposed work on adjacent structures or utilities. He also determines whether the geotechnical aspects of the proposed action to be taken have been adequately considered.
- 6.5b. The signoff by the OGSE (or RGE) indicates an awareness of the work and that the review in 6.5a was performed.
- 6.6 The sign-off by CPCo Construction is for verification that the excavation and all work associated with the excavation through completion of backfill is within the scope authorized by the NRC at the time of initial sign-off only. Any subsequent changes to the status of NRC authorizations will be controlled by the Work Permit System.
- 6.7 When the Q-listed section is checked yes, a signature by MPQAD is required. This sign-off indicates an awareness of work and that appropriate plans to provide QA/QC coverage will be available.
- 6.8 After all signatures have been obtained, copies must be distributed as noted on the permit, prior to start of work.
- 6.9 All excavation and backfill operations are monitored by the OGSE (or RGE) to verify that work is performed in accordance with approved permit and References 3.1 through 3.3. Field Engineering will verify that the excavation and backfill operations are performed

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in accordance with the approved Excavation Permit and applicable drawings, specifications and procedures. For Q-listed soils the FSO Field Engineer will verify the work and for Non Q-listed soils the Area Team Field Engineer will verify the work.

7.0 Additional Requirements

- 7.1 The LCFE or his designee shall maintain a log (see Attachment 2), a corresponding permit file, and unique numbering system for all approved Excavation Permits.
- 7.2 Structure foundations and exposed utilities shall be protected from the effects of frost while an excavation remains open.
- 7.3 Variations in excavation limits and construction methods must be approved by the LCFE and OGSE (or RGE). Such approvals are documented by the OGSE or RGE's daily report and the appropriate project procedure when applicable.
- 7.4 The OGSE or RGE, LCFE or designee, and MPQAD (Soils) will be notified:
- 7.4.1 If during open-pit excavation, an unidentified (not listed in remarks section on form) permanent utility is encountered.
- 7.4.2 If during drilling or pile-driving operations any obstruction is encountered.



Concurrence to proceed or other disposition will be documented on a Field Engineer's report form, signed by OGSE, LCFE or designee, and MPQAD (SOILS).

- 7.5 If an unaccountable loss of drilling fluid (water, bentonite slurry, revert, etc.) occurs during drilling, all work on that hole shall stop and the OGSE (or RGE) and Project Field Engineer are to be notified immediately.





8.0 Attachments

- 8.1 Attachment 1 Excavation Permit (Page 1 and 2)
- 8.2 Attachment 2 Excavation Permit Log
- 8.3 Attachment 3 List of Reference Drawings for Underground Utilities (Page 1 - 8)
- 8.4 Flow Diagram MFD - C13

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EXCAVATION PERMIT

Permit # \_\_\_\_\_  
(To be completed prior to Start of Work)

Originator: \_\_\_\_\_ Date: \_\_\_\_\_  
Date Work to be Started: \_\_\_\_\_  
Purpose of Excavation: \_\_\_\_\_

Location and Limits of Excavation: \_\_\_\_\_

Method of Excavation: \_\_\_\_\_  
Q-List: YES \_\_\_\_\_ NO \_\_\_\_\_

NOTE: Page 2 of the excavation permit must be completed for drilled holes only.

Signatures below signify review of existing underground and appropriate action taken to protect existing installation.

Area Team Civil FE	_____	Date	_____
Chief Surveyor	_____	Date	_____
Staff Mechanical FE	_____	Date	_____
Staff Electrical FE	_____	Date	_____
Security System FE	_____	Date	_____
Civil Support Services Supt	_____	Date	_____
Mechanical Support Services Supt	_____	Date	_____
Electrical Support Services Supt	_____	Date	_____
Lead Civil Field Engineer	_____	Date	_____
Onsite Geotechnical Soils Engineer (or Resident Geotechnical Engineer)	_____	Date	_____

FSO FE (Q-ONLY) \_\_\_\_\_ Date \_\_\_\_\_

CPCo Construction \_\_\_\_\_ Date \_\_\_\_\_

MPQAD (Q-only) \_\_\_\_\_ Date \_\_\_\_\_

Remarks or Special Instructions: \_\_\_\_\_

cc: Lead Civil QC Engineer (Q-only)  
MPQAD Section Head (Q-only)  
Onsite Geotechnical Soils Engineer  
(or Resident Geotechnical Engineer)

CPCo Construction  
Lead Civil Field Engineer

Excavation Permit

(To be completed prior to start of work)

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NOTE: This page must be completed for drilled holes only. See Page 1 for general information.

Method of Advancing Hole: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Method of Stabilizing Hole: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Method of Backfilling the Hole: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Time restraints to backfill (or install equipment) after drilling is completed. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Specific steps to be taken if an obstruction is encountered \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTE: If an unaccountable loss of drilling fluid (water, bentonite slurry, revert, etc.) occurs during drilling, all work on that hole shall stop and the Onsite Geotechnical Soils Engineer (or Resident Geotechnical Engineer) and Project Field Engineer are to be notified immediately.

[illegible]

List of Reference Drawings For Underground Utilities

Multi-Discipline

FSK-CY-52, Sheet 1  
FSK-CY-52, Sheet 2  
FSK-CY-52, Sheet 3  
FSK-CY-52, Sheet 4  
FSK-CY-52, Sheet 5  
FSK-CY-52, Sheet 6  
FSK-CY-250  
FSK-CY-251  
FSK-CY-252  
FSK-CY-253  
FSK-CY-254  
FSK-CY-255  
FSK-CY-256  
FSK-CY-257  
FSK-CY-258  
FSK-CY-259  
FSK-CY-260  
FSK-CY-261  
FSK-CY-262  
FSK-CY-263  
FSK-CY-264  
FSK-CY-265  
FSK-CY-266  
FSK-CY-267  
FSK-CY-268  
FSK-CY-269  
FSK-CY-270  
FSK-CY-271  
FSK-CY-272  
FSK-CY-273  
FSK-CY-274

List of Reference Drawings For Underground Utilities

Civil



C-3  
C-4  
C-5  
C-6  
C-7  
C-8  
C-42  
C-43  
C-46  
C-51  
C-52  
C-57  
C-71  
C-82  
C-83  
C-91  
C-92, Sheet 1  
C-92, Sheet 2  
C-92, Sheet 3  
C-93  
C-109  
C-111  
C-112  
C-127  
C-128  
C-131  
C-132  
C-133  
C-134  
C-135  
C-699  
C-987  
C-992  
C-993, Sheet 1  
C-998  
C-1190  
C-1310  
C-1311  
C-1312  
C-1313



List of Reference Drawings For Underground Utilities

Civil

C-1314  
C-1315  
C-1316  
C-2016  
C-2017  
C-2018  
C-2019  
7220-C-195-36

List of Reference Drawings For Underground Utilities

Electrical

E-500, Sheet 2A  
E-500, Sheet 2B  
E-500, Sheet 2C  
E-500, Sheet 2D  
E-500, Sheet 2E  
E-500, Sheet 3A  
E-500, Sheet 3B  
E-500, Sheet 3C  
E-500, Sheet 4A  
E-500, Sheet 4B  
E-500, Sheet 4C  
E-500, Sheet 4D  
E-500, Sheet 5A  
E-500, Sheet 5B  
E-500, Sheet 5C  
E-500, Sheet 5D  
E-500, Sheet 5E  
E-500, Sheet 12  
E-501, Sheet 1  
E-501, Sheet 2  
E-502, Sheet 1  
E-504, Sheet 1  
E-505, Sheet 1  
E-506, Sheet 1  
E-508  
E-509, Sheet 1  
E-510, Sheet 1  
E-511  
E-512, Sheet 1  
E-513, Sheet 1  
E-520  
E-521, Sheet 1  
E-522, Sheet 1A  
E-522, Sheet 1B  
E-522, Sheet 1C  
E-522, Sheet 1D  
E-522, Sheet 2A  
E-522, Sheet 2B  
E-522, Sheet 2C  
E-522, Sheet 3

List of Reference Drawings For Underground Utilities

Electrical

E-523, Sheet 1  
E-523, Sheet 3  
E-526, Sheet 1  
E-526, Sheet 2  
E-526, Sheet 3  
E-526, Sheet 4  
E-526, Sheet 5  
E-526, Sheet 6  
E-526, Sheet 7  
E-527, Sheet 1  
E-527, Sheet 2  
E-528, Sheet 3  
E-529, Sheet 1  
E-529, Sheet 2  
E-530, Sheet 1  
E-530, Sheet 2  
E-531, Sheet 1A  
E-531, Sheet 1B  
E-531, Sheet 1C  
E-531, Sheet 1D  
E-531, Sheet 2  
E-532, Sheet 1  
E-543, Sheet 1  
E-547, Sheet 1  
E-594, Sheet 1  
E-595, Sheet 1  
E-596, Sheet 1  
E-600, Sheet 1  
E-601, Sheet 1  
E-698, Sheet 1  
E-698, Sheet 2  
E-698, Sheet 3  
E-698, Sheet 4  
E-699, Sheet 1  
E-699, Sheet 2  
FSK-EY-3  
FSK-EY-9  
FSK-EY-17  
FSK-EY-38, Sheet 1  
FSK-EY-45



List of Reference Drawings For Underground Utilities

Electrical

FSK-EY-64  
FSK-EY-66  
FSK-EY-69, Sheet 1  
FSK-EY-69, Sheet 2  
FSK-EY-74  
FSK-EY-79  
FSK-EY-93  
FSK-EY-94  
FSK-EY-104  
FSK-EY-106  
FSK-EY-108  
FSK-EY-111  
FSK-EY-150, Sheet 1  
FSK-EY-150, Sheet 2  
FSK-EY-151, Sheet 1  
FSK-EY-151, Sheet 2  
FSK-EY-151, Sheet 3  
FSK-EY-151, Sheet 4  
FSK-EY-152  
FSK-EY-153  
FSK-EY-154  
FSK-EY-155  
FSK-EY-156  
FSK-EY-157  
FSK-EY-158  
FSK-EY-159  
FSK-EY-160  
FSK-EY-161  
FSK-EY-162  
FSK-EY-163  
FSK-EY-164  
FSK-EY-165  
FSK-EY-166  
FSK-EY-167  
FSK-EY-168  
FSK-EY-169  
FSK-EY-170  
FSK-EY-171  
FSK-EY-172  
FSK-ET-2-4



List of Reference Drawings For Underground Utilities

Mechanical

M-58, Sheet 1  
M-58, Sheet 2  
M-152  
M-165  
M-166  
M-167  
M-168  
M-169  
M-170, Sheet 1  
M-170, Sheet 2  
M-607, Sheet 16  
M-612, Sheet 7  
M-612, Sheet 8  
M-613, Sheet 7  
M-613, Sheet 8  
M-649, Sheet 1  
M-649, Sheet 2  
M-649, Sheet 3  
M-665, Sheet 1  
FSK-MPY-16, Sheet 1  
FSK-MPY-16, Sheet 2  
FSK-MPY-18  
FSK-MPY-24  
FSK-MPY-29  
FSK-MPY-32  
FSK-MPY-33  
FSK-MPY-45  
FSK-MPY-46  
FSK-MPY-72  
FSK-MPY-98  
FSK-MPY-108  
FSK-MPY-165  
FSK-MPY-166  
FSK-MPY-167  
FSK-MPY-168  
FSK-MPY-170  
FSK-MPT-1-1  
FSK-MPT-1-2, Sheet 1  
FSK-MPT-1-2, Sheet 2  
FSK-MPT-1-2, Sheet 3  
FSK-MPT-1-2, Sheet 4

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List of Reference Drawings For Underground Utilities

Mechanical

FSK-MPT-1-35  
FSK-MPT-2-1  
FSK-MPT-2-2  
FSK-MPT-2-4  
FSK-MPT-2-44, Sheet 1  
FSK-MPT-2-44, Sheet 2  
FSK-SP-561, Sheet 3  
FSK-M-OCCC-1-1  
FSK-M-OJBD-217-1  
FSK-M-1CCB-45-4  
FSK-M-1HBC-3-2  
FSK-M-1HBC-3-3  
FSK-M-1HBC-3-4  
FSK-M-1HBC-4-1  
FSK-M-1HBC-4-2  
FSK-M-1HBC-4-3  
FSK-M-1HBC-4-4  
FSK-M-1HBC-4-5  
FSK-M-1HBC-497-1  
FSK-M-1HBC-497-2  
FSK-M-1HBC-497-3  
FSK-M-1HBC-498-1  
FSK-M-1HBC-498-2  
FSK-M-1HBC-498-3  
FSK-M-1HBC-498-6  
FSK-M-2HBC-3-1  
FSK-M-2HBC-3-2  
FSK-M-2HBC-3-3  
FSK-M-2HBC-3-4  
FSK-M-2HBC-4-1  
FSK-M-2HBC-4-2  
FSK-M-2HBC-4-3  
FSK-M-2HBC-4-4  
FSK-M-2HBC-497-1  
FSK-M-2HBC-497-3  
FSK-M-2HBC-498-1  
FSK-M-2HBC-498-2  
FSK-M-2HBC-498-3  
FSK-M-2CCB-45-4

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