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**SUPERSEDED
DOCUMENT**

**ROCKY FLATS PLANT
EMD OPERATING
PROCEDURES MANUAL
VOLUME III: GEOTECHNICAL**

Manual No.: 5-21000-OPS-GT
Procedure No.: Table of Contents, Rev 47
Page: 1 of 3
Effective Date: 09/02/93
Organization: Environmental Management

**THIS IS ONE VOLUME OF A SIX VOLUME SET
WHICH INCLUDES:**

**VOLUME I: FIELD OPERATIONS (FO)
VOLUME II: GROUNDWATER (GW)
VOLUME III: GEOTECHNICAL (GT)
VOLUME IV: SURFACE WATER (SW)
VOLUME V: ECOLOGY (EE)
VOLUME VI: AIR (AP)**

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**DOCUMENT CLASSIFICATION REVIEW WAIVER
PER R.B. HOFFMAN, CLASSIFICATION OFFICE
JUNE 11, 1991**

ADMINISTRATIVE

A-SW-001349

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GT.03	Isolating Bedrock from Alluvium with Grouted Surface Casing	2	05/12/92
DCN 92.03	EXPIRED	2	EXPIRED
DCN 93.01	Data Quality Objectives for PLF Investigations	2	02/10/93
DCN 93.02	PVC/UHSU/Grout Changes	2	05/10/93
DCN 93.03	Isolating Potentially Contaminated Groundwater	2	05/11/93
DCN 93.04	SVE Omit Centralizers	2	08/20/93
GT.04	Rotary Drilling and Rock Coring	2	05/12/92
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GT.06	Monitoring Wells and Piezometer Installation	2	05/12/92
DCN 92.05	EXPIRED	2	EXPIRED
DCN 92.06	EXPIRED (replaced with DCN 93.01)	2	EXPIRED
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DCN 93.01	Borehole Advancement	2	01/04/93
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DCN 93.06	Provide Numbers to Reference Corresponding Items	2	02/23/93
DCN 93.07	DCN 93.01 Modification	2	03/17/93
DCN 93.08	PVC Schedule Change	2	05/10/93
DCN 93.09	Change to PVC Casing Thickness	2	05/11/93
DCN 93.10	SVE Bentonite Chips	2	08/20/93
DCN 93.11	SVE Well Specifications	2	08/20/93
*DCN 93.12	Riser Installation	2	09/02/93
GT.07	Logging and Sampling of Test Pits and Trenches	2	05/12/92

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GT.08	Surface Soil Sampling	2	05/12/92
DCN 92.01	EXPIRED	2	EXPIRED
DCN 92.02	Consistency Change	2	10/12/92
DCN 93.01	Work Plan Consistency	2	01/05/93
DCN 93.02	New Section-Surficial Profiling	2	01/15/93
DCN 93.03	CDH Compliance	2	01/25/93
DCN 93.04	Site Identification	2	04/13/93
DCN 93.05	Sample Volumes	2	04/13/93
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GT.15	Geophysical Borehole Logging	2	05/12/92
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*DCN 93.01	Land Surveying Clarification	2	09/02/93
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DCN 92.02	Modification to Stacking Requirements	2	10/15/92
DCN 92.03	Modification to Method of Taking Readings	2	10/15/92
DCN 93.01	5.4 Field Procedure Revisions	2	01/25/93
GT.19	Field Gas Chromatographs	2	05/12/92
GT.20	Procedures for Soil Interstitial Water Sampling and Sampler Installation	2	05/12/92
GT.21	Cone Penetrometer Testing	1	05/12/92
DCN 93.01	CPT Rods	1	01/15/93
DCN 93.02	Offsets	1	03/17/93
GT.24	Approval Process for Construction Activities on or Near Individual Hazardous Substance Sites (IHSSs)	0	05/12/92

**ENVIRONMENTAL MANAGEMENT
DOCUMENT CHANGE NOTICE (DCN)**

Procedure Number 5-21000-OPS-GT.17 Rev 2

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Title Land Surveying	Date 9-02-93	DCN Number 93.01 dr
Expires <u>9-02-94</u> Procedure Revision Required <input type="checkbox"/> Yes <input type="checkbox"/> No		
Scope Limitation: NONE		

Item Number	Page	Step or Paragraph	Changes (Use DCN CONTINUATION SHEET for additional space)
1	5 OF 6	5.2	<p>Three elevation measurements will be made: the elevation of the base of the concrete apron (ground level) to the north side of the well casing, the elevation of the top of the (inner) well casing and the elevation of the top of the protective casing.</p> <p align="center">EG&G SUPERSEDED DOCUMENT</p> <p align="center">DOCUMENT CLASSIFICATION REVIEW WAIVER PER R.B. HOFFMAN, CLASSIFICATION OFFICE JUNE 11, 1991</p>

Justification (Reason for change - Provide numbers to reference corresponding items above.)
 1 - The base of the concrete apron (pad) also is ground level. All well construction measurements and recorded sample/core depths are referenced to ground level. The top of the concrete pad is not a reference datum.

Concurrence	Organization	Req.	Date	Concurrence	Organization	Req.	Date
<i>[Signature]</i>	QAPM K.S.	X	8.31.93	<i>[Signature]</i>	User	X	8/31/93
				<i>[Signature]</i>	User	X	8/31/93
Approval of Responsible Manager <i>[Signature]</i>		Date 8/31/93	Is Posting required? <input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, by what date?	Date posted		

5.4.2.2 Field Procedures

A standard field procedure is described below. Prior to magnetic data collection, five preliminary procedures must be conducted. These are:

- * Design the appropriate field survey parameters given the purpose of coverage, contained areas of magnetic interference, grid-traverse spacing, direction of traverse, magnetometer reading interval.
- * The surface geophysical survey grid-traverse lines will ^{be} controlled from the surveyed baseline provided by RFP plant personnel. The provided baseline will be staked each 25 feet. At these stakes grid-traverse line endpoints will be marked with flagged lath. The baseline and grid-traverse line stations of the magnetic survey will be transferred to the appropriate base map.
- * The magnetic base station location will be selected, after consulting site utility maps, to assure minimal magnetic interference due to electric power lines, railroad, fencing, vehicular traffic, subsurface utilities, and air monitoring stations, ^{or other metallic objects. The site should also be cleared with a portable magnetometer.}
- * The geophysical field instrument operator will check that personal clothing including watches, ^{and boots,} do not contain interfering ferromagnetic materials.
- * ^{belt buckles} Initiate the magnetic survey only after an in situ gamma radiation survey has been completed by RFP plant personnel at each IHSS 115 and 133 groups.
- * ^{Initiate the magnetic survey after a radiation survey has been completed in the Solar Ponds area.}

Design of appropriate field parameters must consider the following:

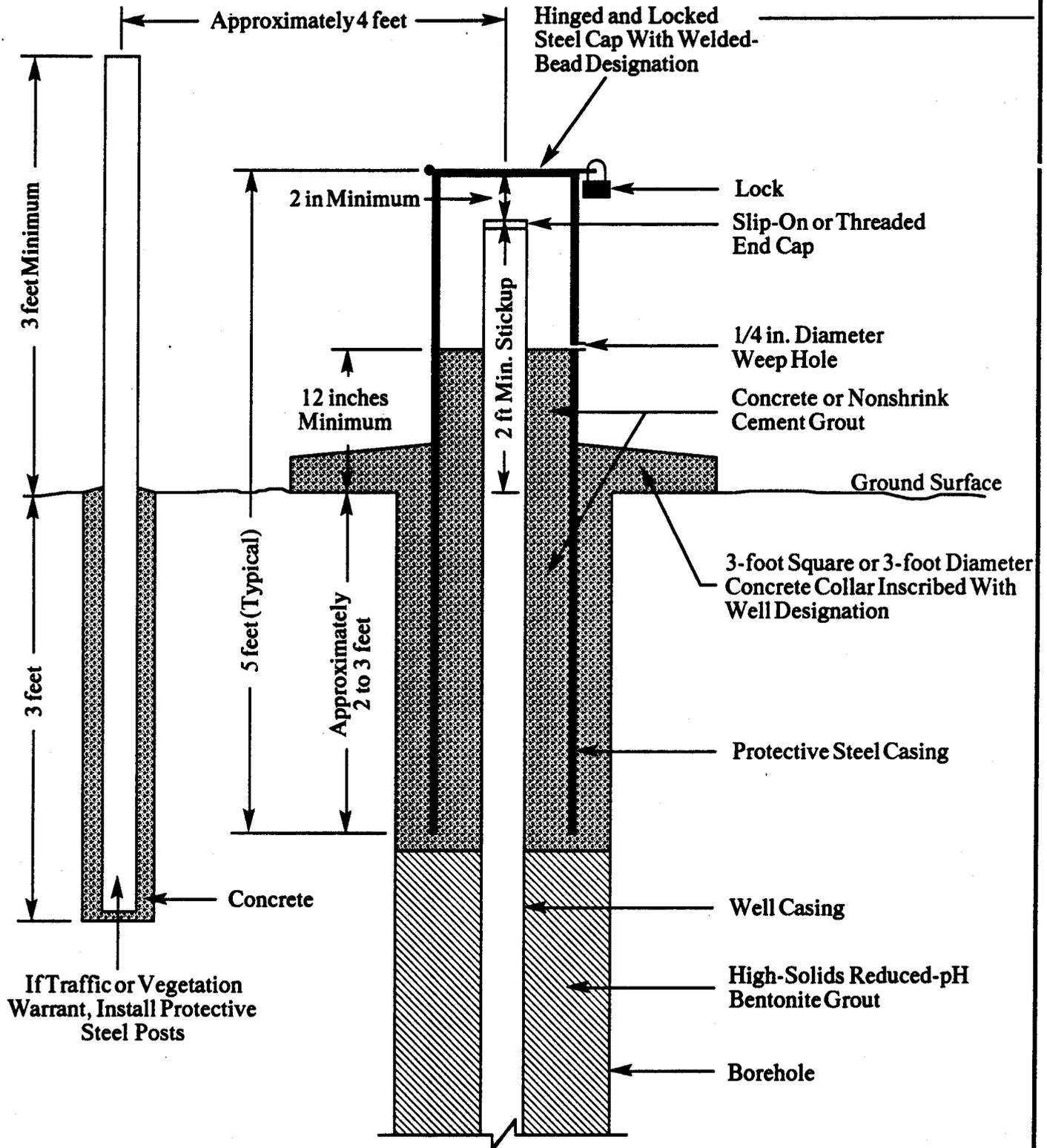
- * The roving magnetometer will be suspended on a staff 8 feet above ground surface at each station on the IHSS 115 survey area.
- * The roving magnetometer will be suspended on a staff 4 feet above ground surface at each station on the IHSS 133 group survey area ^{and in the Solar Ponds area.}
- * Spacing between stations along each grid-traverse line stations will be 10 feet.
- * Spacing between adjacent grid-traverse lines will be 25 feet at the IHSS 115 survey area.
- * Spacing between adjacent grid-traverse lines will be 12 1/2 feet at the IHSS 133 group survey area.
- * ^{Spacing between adjacent grid-traverse lines will be 10 feet in the Solar Ponds area.}
- * Grid-traverse line will be extended an additional 50 feet along significant anomaly indications. Where such anomalies are attributed directly to known pipeline, fences, or other visible and mapped anthropogenic ferromagnetic structures, the survey need not be extended.

**FIGURE GT.6-3
SCHEMATIC DIAGRAM OF WELL FEATURES AT GROUND SURFACE**

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March 1, 1992

Environmental Management



Not To Scale

**SURFACE SOIL
DATA COLLECTION FORM**

Sample Number _____
Collection Date _____
Collection Time _____
Location Code _____
Chain of Custody No. _____

Coordinates North or Y _____ East or X _____

Sample Location _____

Composite (Y/N) _____
Composite Description _____

Collection Method _____
Sample Team Leader _____
Sample Team Member _____
Sample Team Member _____
Sample Team Member _____
Container Size (Oz) _____ % Full _____

Comments _____

Completed By: _____
Print Name Signature Date

Subcontractor: _____