GENERAL CONDITIONS

GEOTECHNICAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of EBA’s Client. EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA’s Client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA’s instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of EBA’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. EBA’s instruments of professional service will be used only and exactly as submitted by EBA.

Electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

5.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

7.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

8.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

10.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

11.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

12.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

13.0 SAMPLES

EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

14.0 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of the report, EBA may rely on information provided by persons other than the Client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

APPENDIX B

APPENDIX B WEST DAM

Geotechnical Inspection Summary

Location: Jericho Diamond Mine
Facility: West Dam
Observation Date: July 15, 2011
Inspected by: Gary Koop, P.Eng.
EBA, A Tetra Tech Company

Table B.1: Operating Condition

Minimum Crest Elevation (m)	525 (approximate – varies 525 to 527.5)
Top of Core or Liner (m)	520 (elevation varies from 520 to 524 m)
Water Levels – Upstream	516.84 (July 20,2011)
Water Levels - Downstream	514.26 (July 20, 2011)
Discharge	No discharge at time of inspection, but pumps and piping connected.

Table B.2: Observed Condition

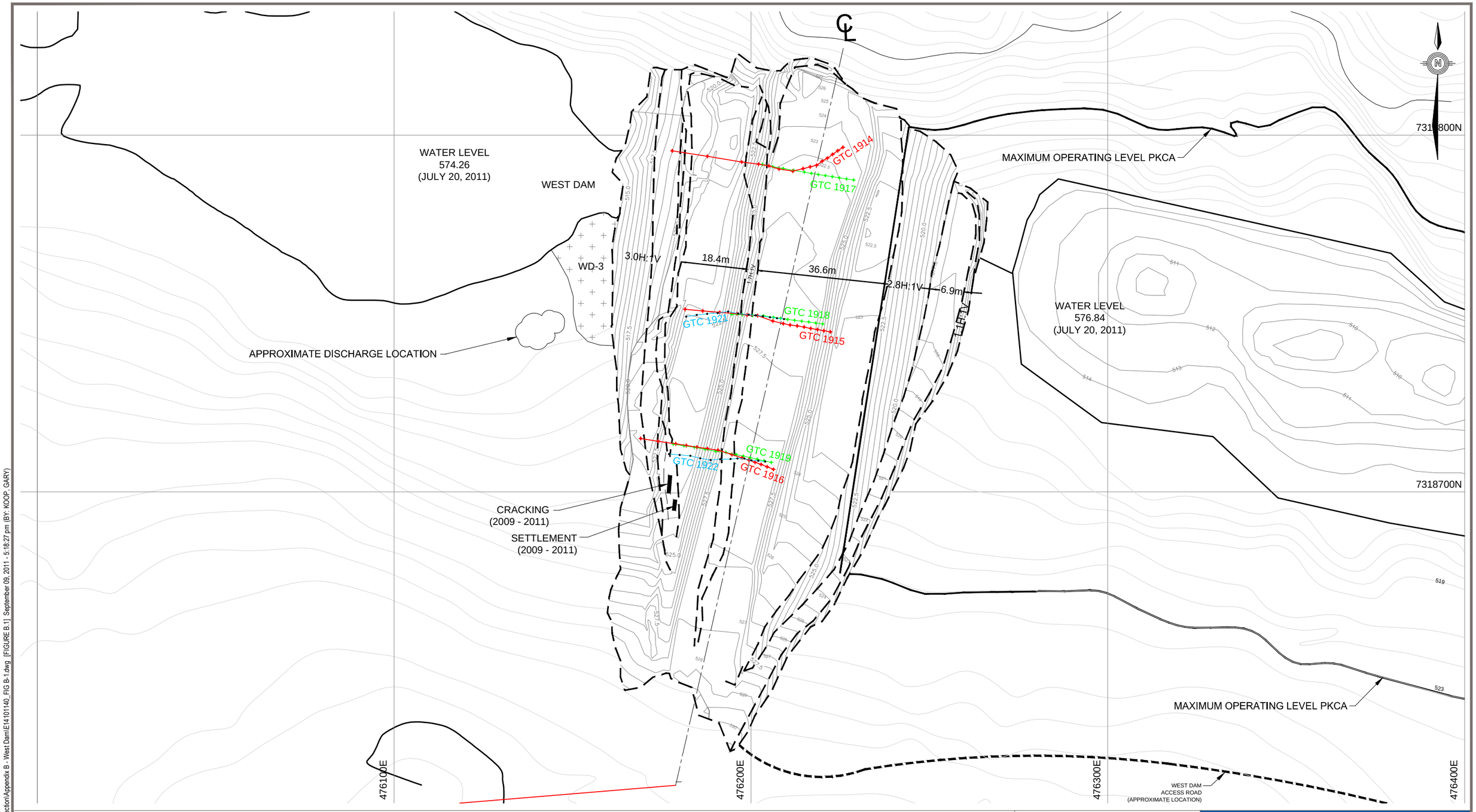
Features	Present (yes/no)	Dimensions	Extent	Description	Photographic Records
Erosion	None noted				
Cracking	Downstream slope, near south end.		Localized	Longitudinal cracking extending from settlement area. Cracking does not appear to have worsened from 2009 inspection	B.7
Settlement	Settlement near south end of dam on downstream slope		Localized	Area approximately 8 m X 5 m; 0.8 – 1.0 m deep. Condition appears similar to 2009 inpsection.	B.6
Seepage	None noted				
Other Features	Energy Dissipater			Metal sheet placed at pipe discharge to dissipate energy during dewatering	B.2

Table B.3: Thermal Summary

Dam Core Frozen – Ground temperature measurements in attached Figures B-2 to B-17. Temperature readings indicate that the base of the key trench is, in general, consistent with expectations. Core temperatures vary between -5°C and -7°C. Temperatures are reasonably consistent with 2009 measurements, particularly in key trench and central core. Any fluctuations are within 1°C of previous measurements.

Table B.4: Recommendations and Conclusions

Dam performance is satisfactory. No remedial action required.



0 50

Scale: 1: 1000 (metres)

NOTES

GROUND TEMPERATURE CABLES 1914, 1915 AND 1916 IN BASE OF CORE KEY TRENCH.
GROUND TEMPERATURE CABLES 1917, 1918 AND 1919 AT ORIGINAL GROUND LEVEL IN CORE ZONE.
GROUND TEMPERATURE CABLES 1921 AND 1922 AT ELEVATION 522 m.

STATUS

ISSUED FOR REVIEW

CLIENT

shear diamonds

2011 ANNUAL GEOTECHNICAL INSPECTION JERICHO DIAMOND MINE, NU

WEST DAM

eba A TETRA TECH COMPANY

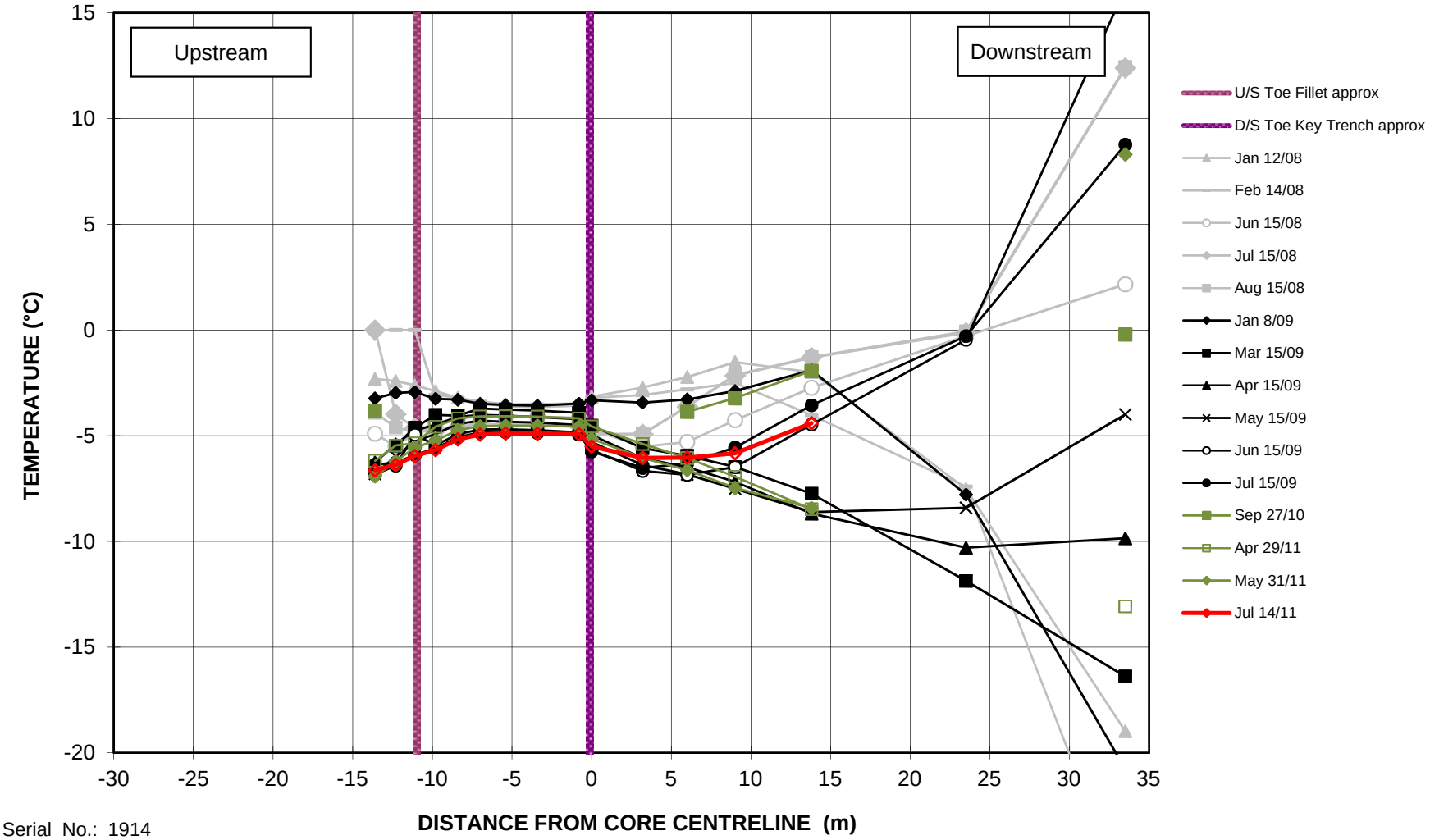
PROJECT NO.	DWN	CKD	REV
E14101140	EP	GDK	0

OFFICE: EBA-EDM

DATE: September, 2011

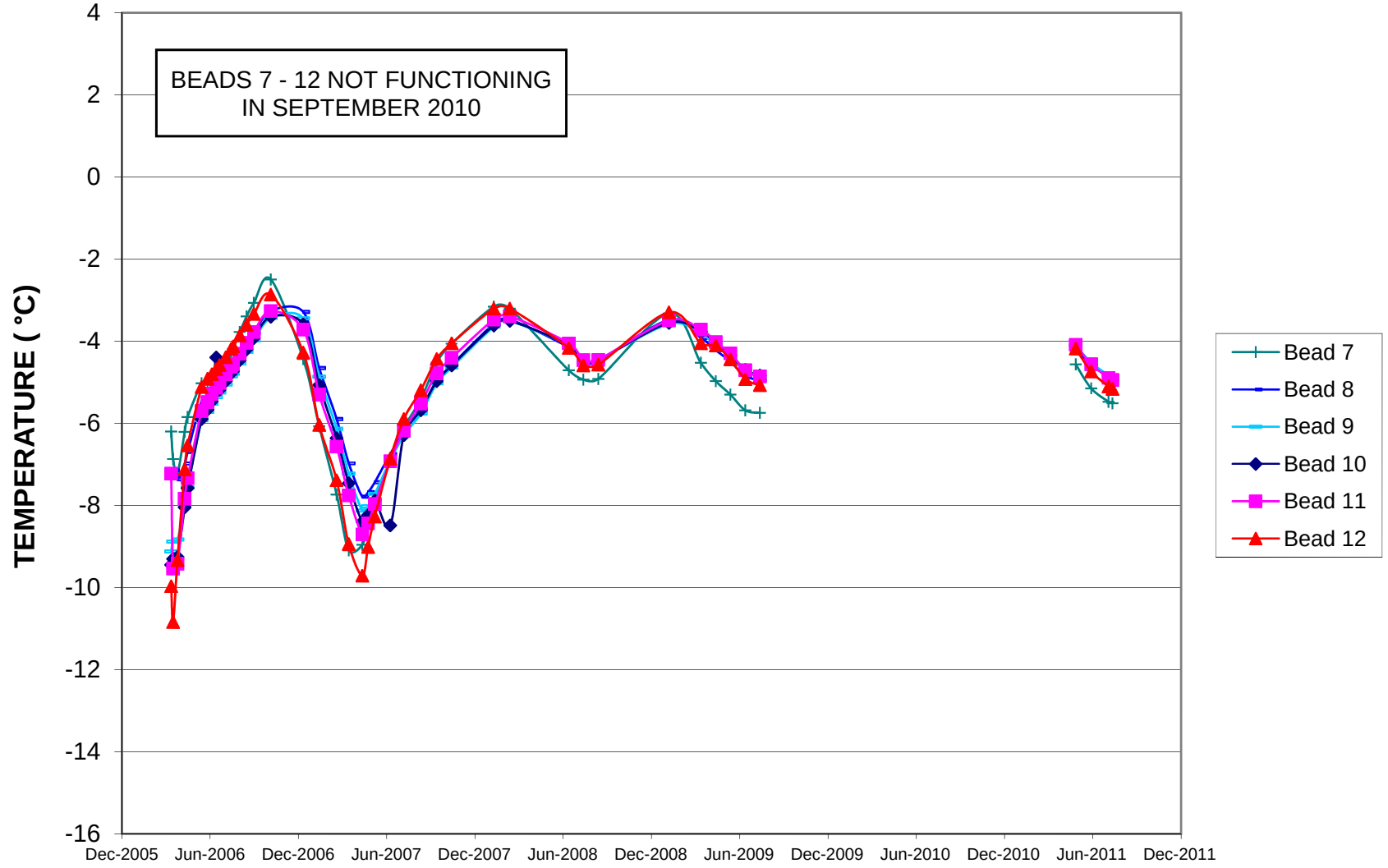
Figure B.1

Y:\E\14101140_Jericho\Annual Geotechnical Inspection\Appendix B - West Dam\E14101140_FIG B-1.dwg [FIGURE B.1] September 09, 2011 - 5:18:27 pm (BY: KOOP, GARY)



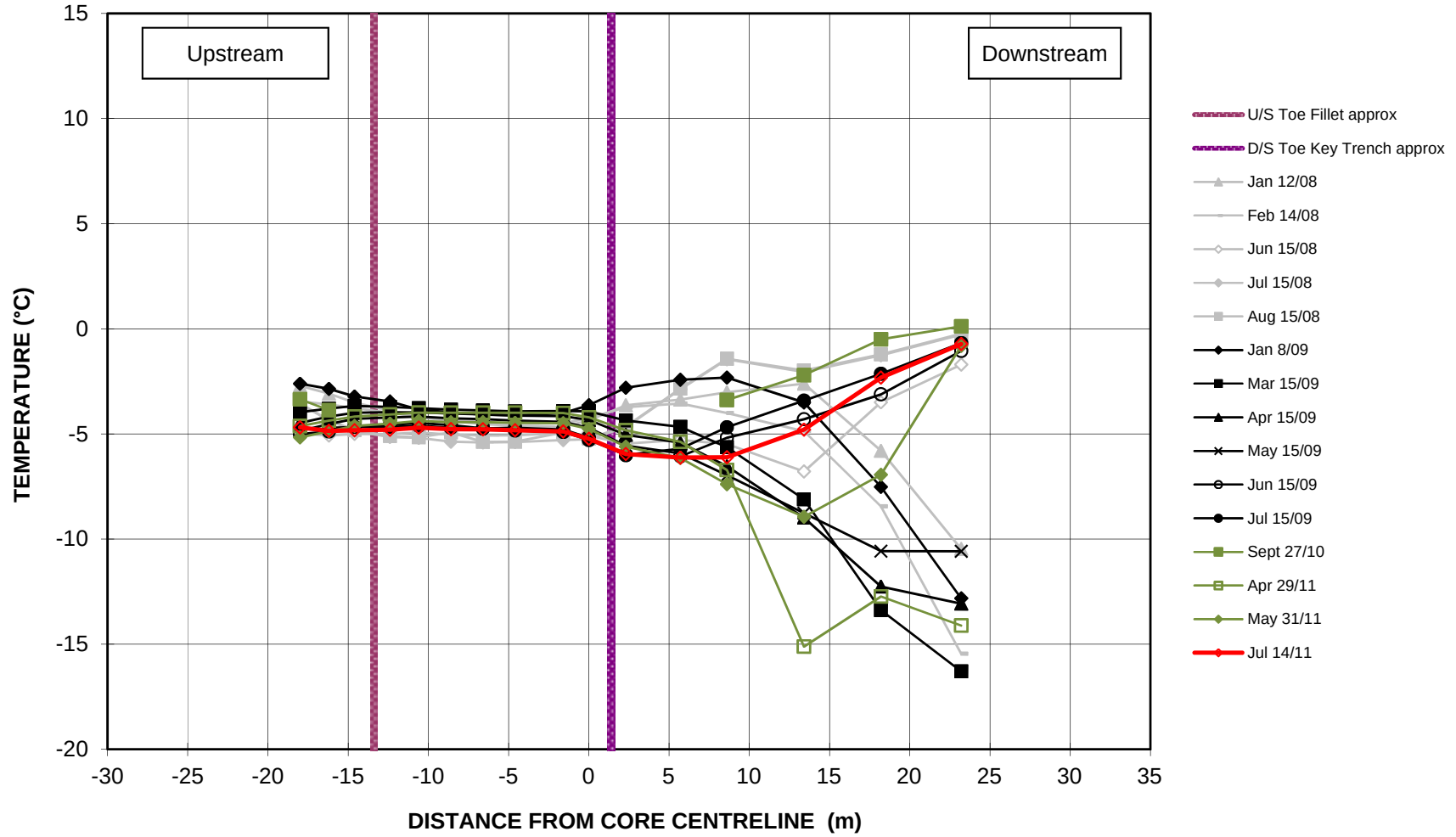
Serial No.: 1914
Date Installed: 2006.1.21

Figure B-2
Horizontal Ground Temperature Distribution
West Dam
Station 0+035, Trench Elevation 513 m



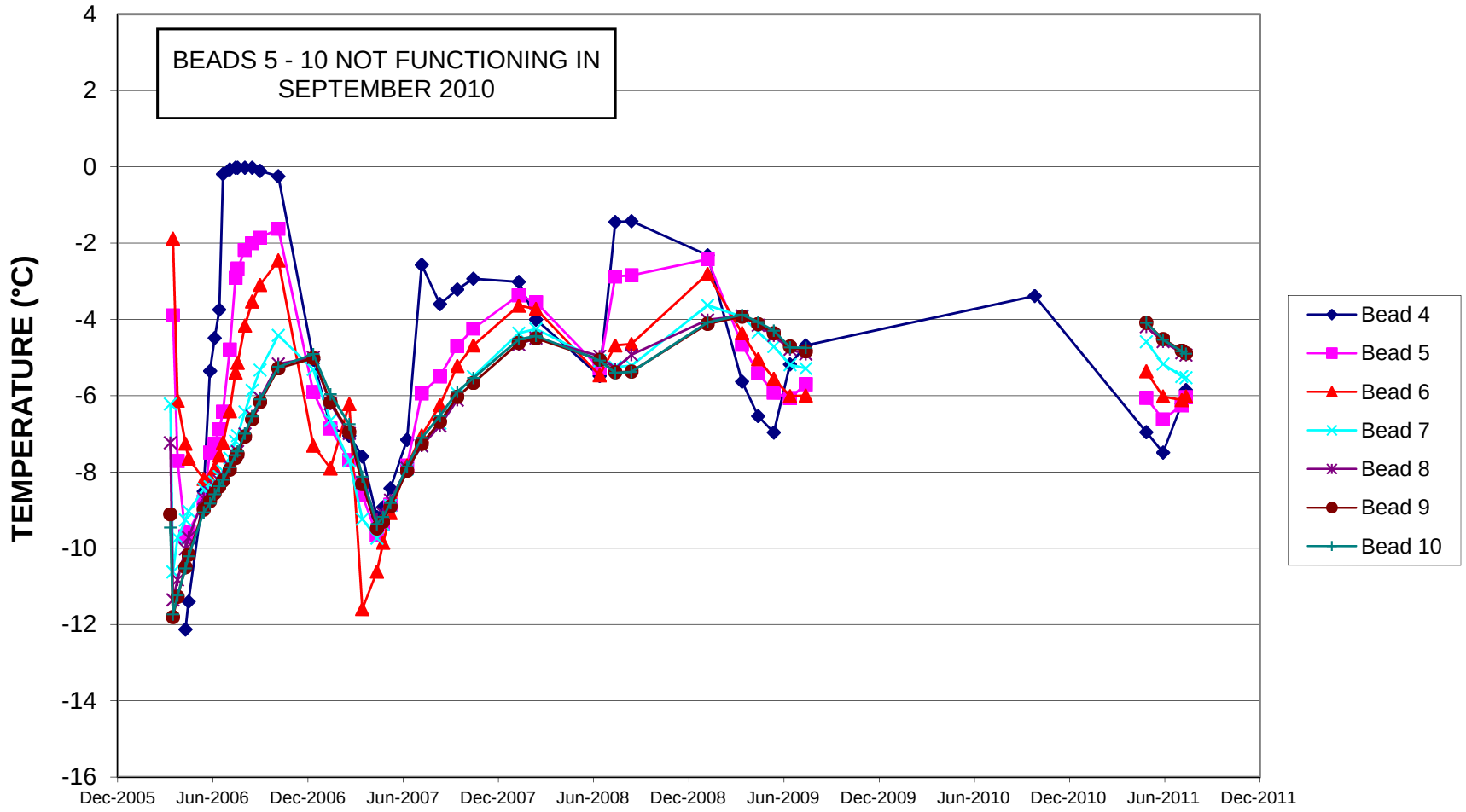
Serial No.: 1914
Date Installed: 2006.1.21

Figure B-3
Horizontal Ground Temperature Distribution
West Dam
Station 0+035, Trench Elevation 513 m



Serial No.: 1915
Date Installed: 2006.1.20

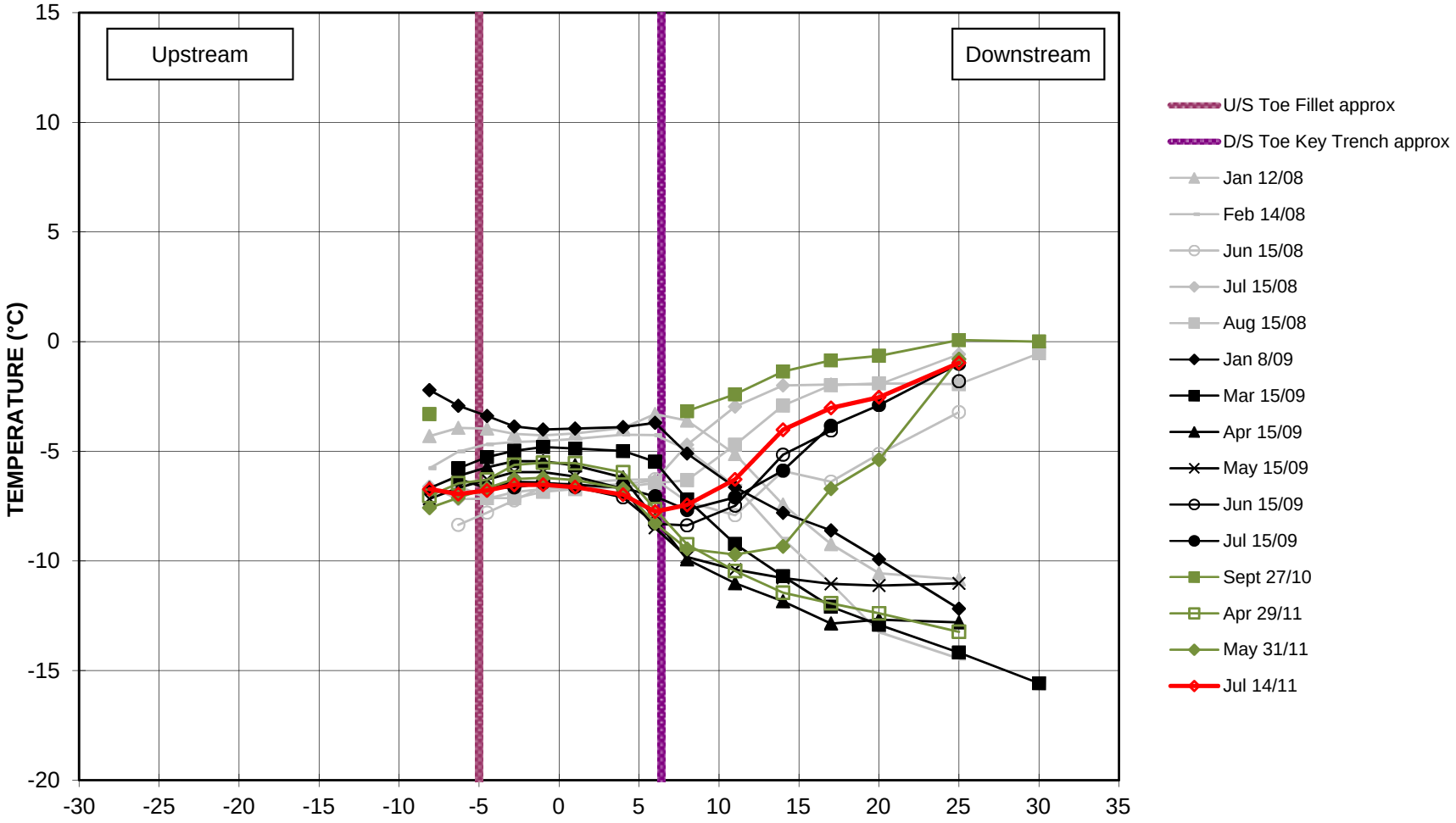
Figure B-4
Horizontal Ground Temperature Distribution
West Dam
Station 0+080, Trench Elevation 514 m



Serial No.: 1915
Date Installed: 2006.1.20

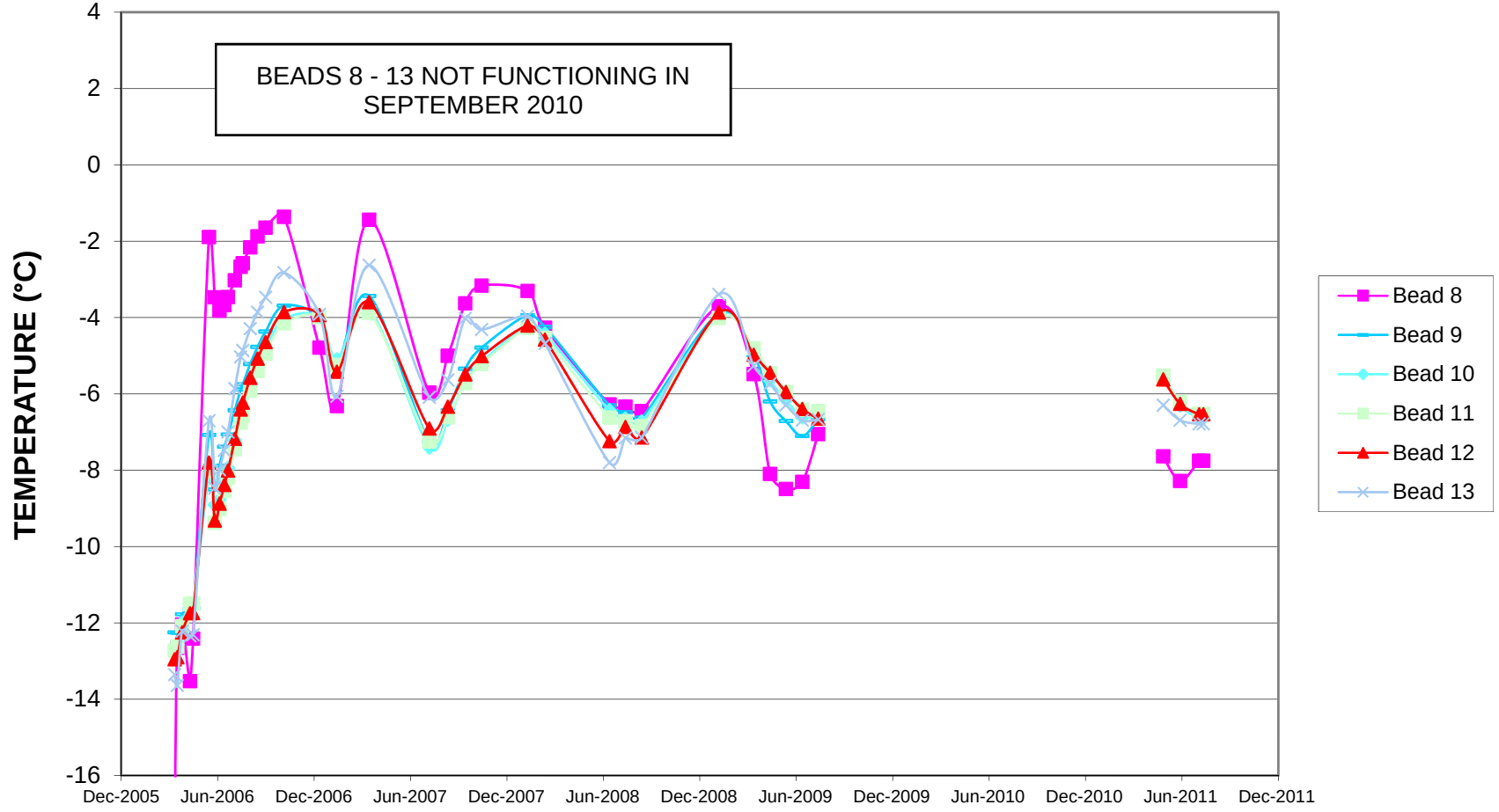
Figure B-5
Horizontal Ground Temperature Distribution
West Dam

Station 0+080, Trench Elevation 514 m



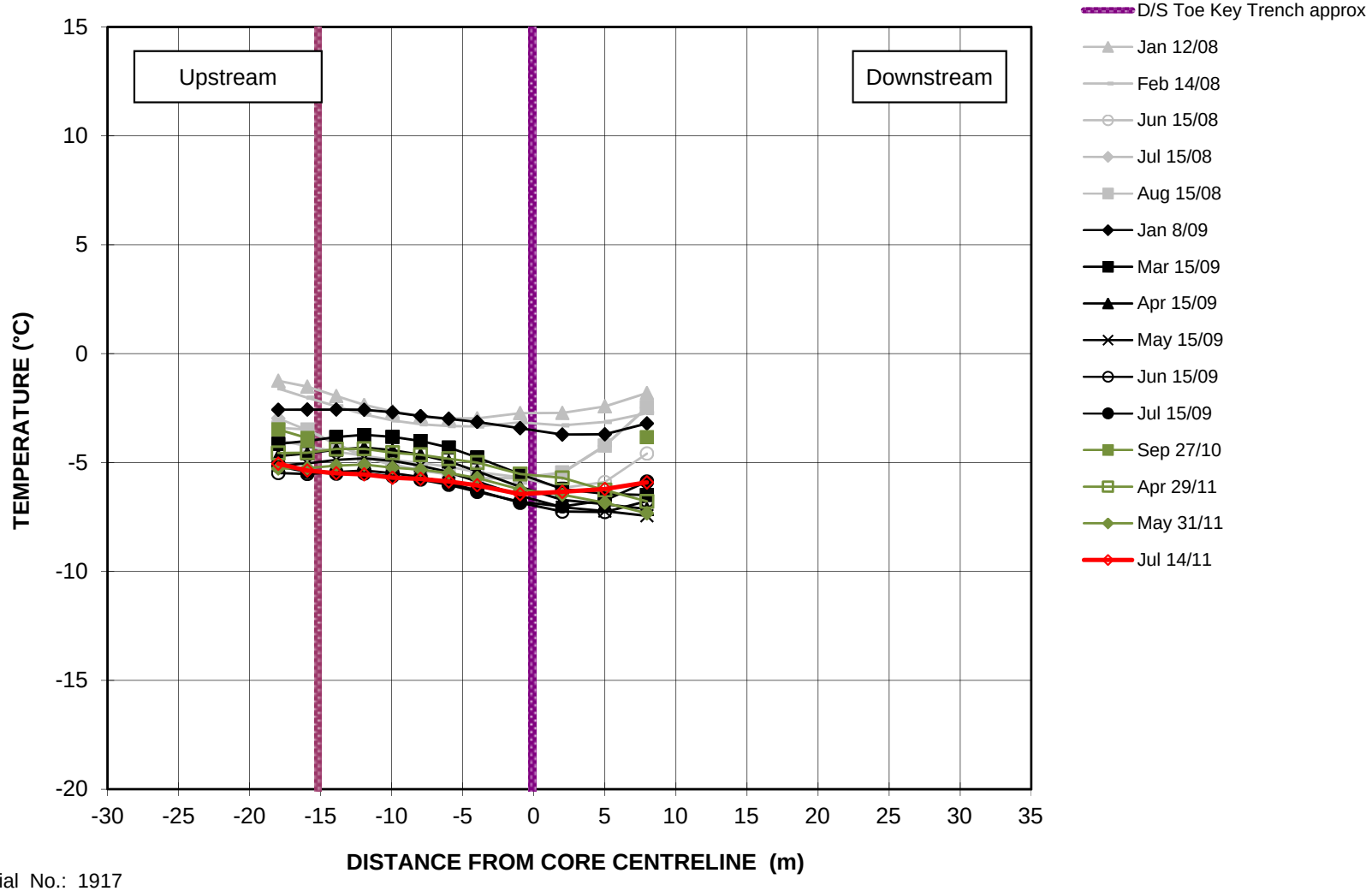
Serial No.: 1916
Date Installed: 2006.1.20

Figure B-6
Horizontal Ground Temperature Distribution
West Dam
Station 0+120, Trench Elevation 518 m



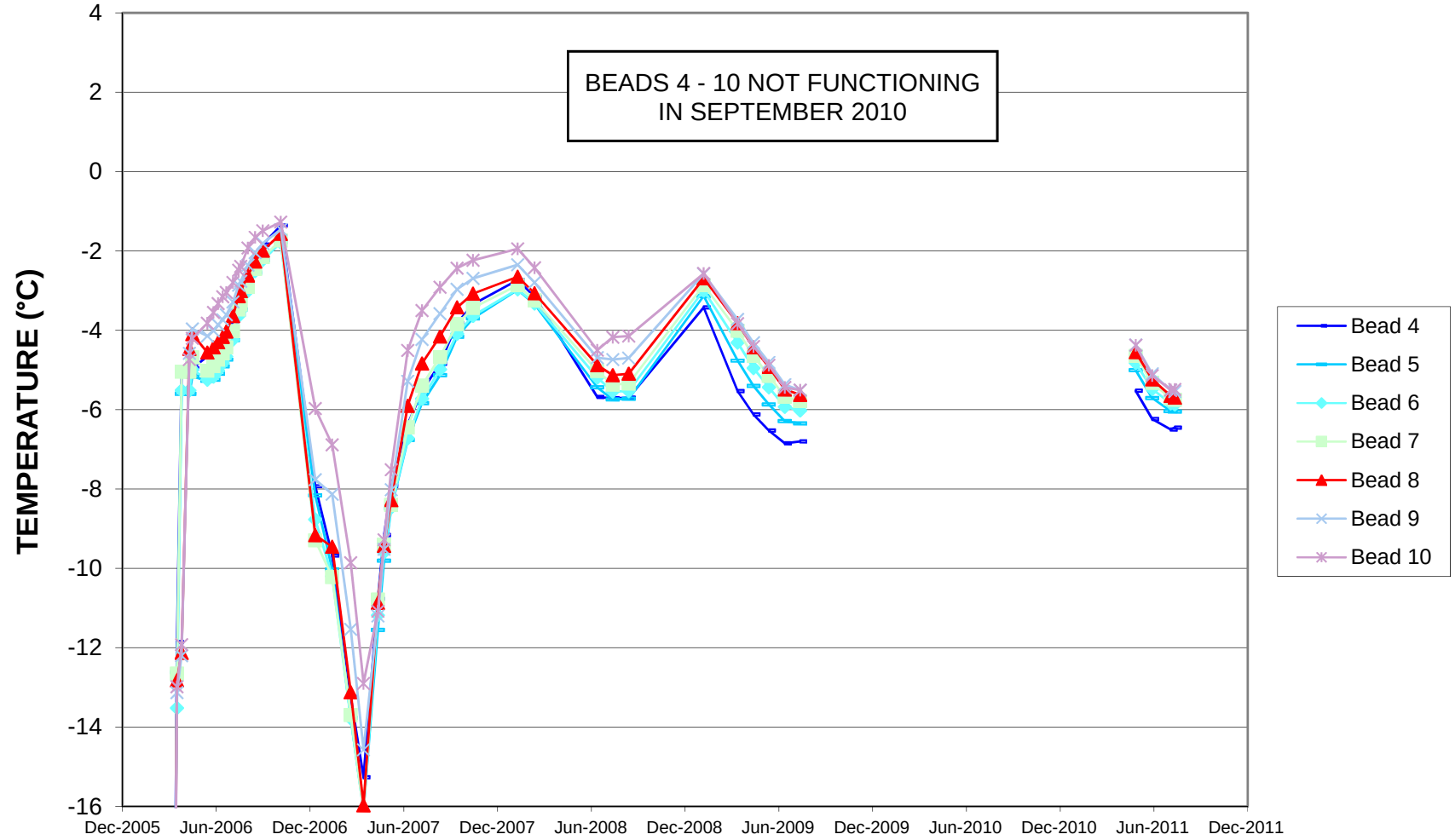
Serial No.: 1916
Date Installed: 2006.1.20

Figure B-7
Horizontal Ground Temperature Distribution
West Dam
Station 0+120, Trench Elevation 518 m



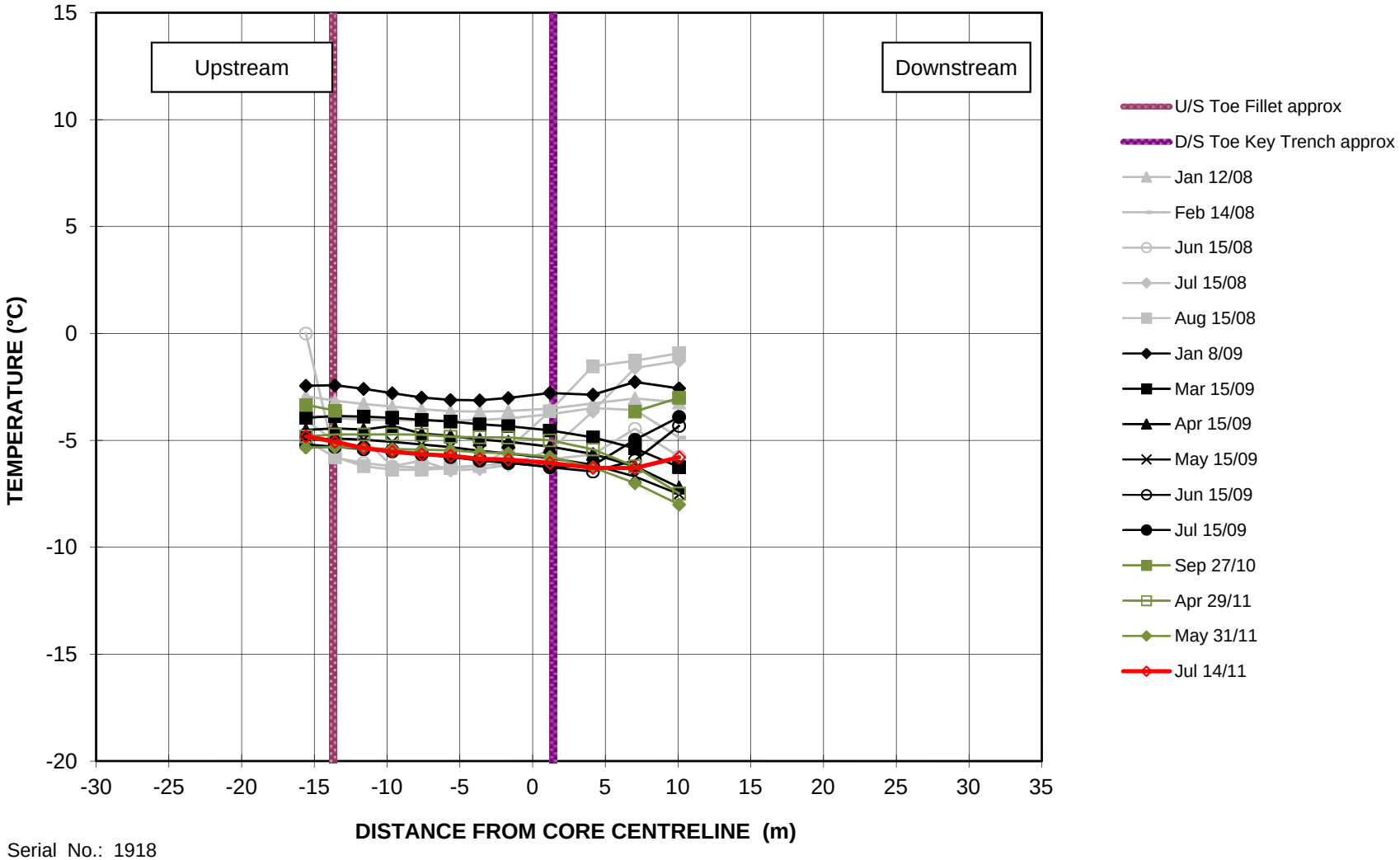
Serial No.: 1917
Date Installed: 2006

Figure B-8
Horizontal Ground Temperature Distribution
West Dam
Station 0+035, Trench Elevation 516 m



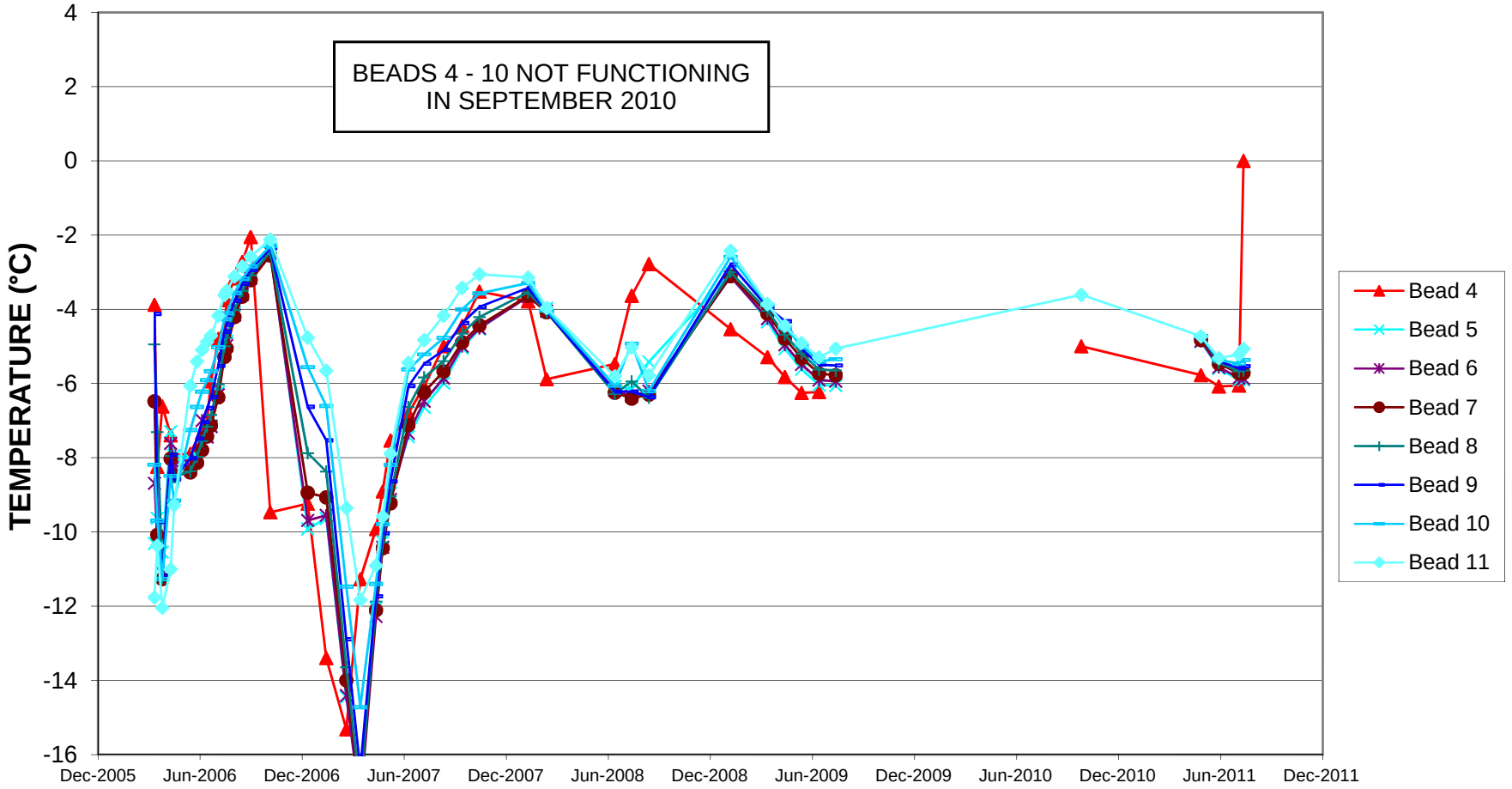
Serial No.: 1917
Date Installed: 2006

Figure B-9
Horizontal Ground Temperature Distribution
West Dam
Station 0+035, Trench Elevation 516 m



Serial No.: 1918
Date Installed: 2006

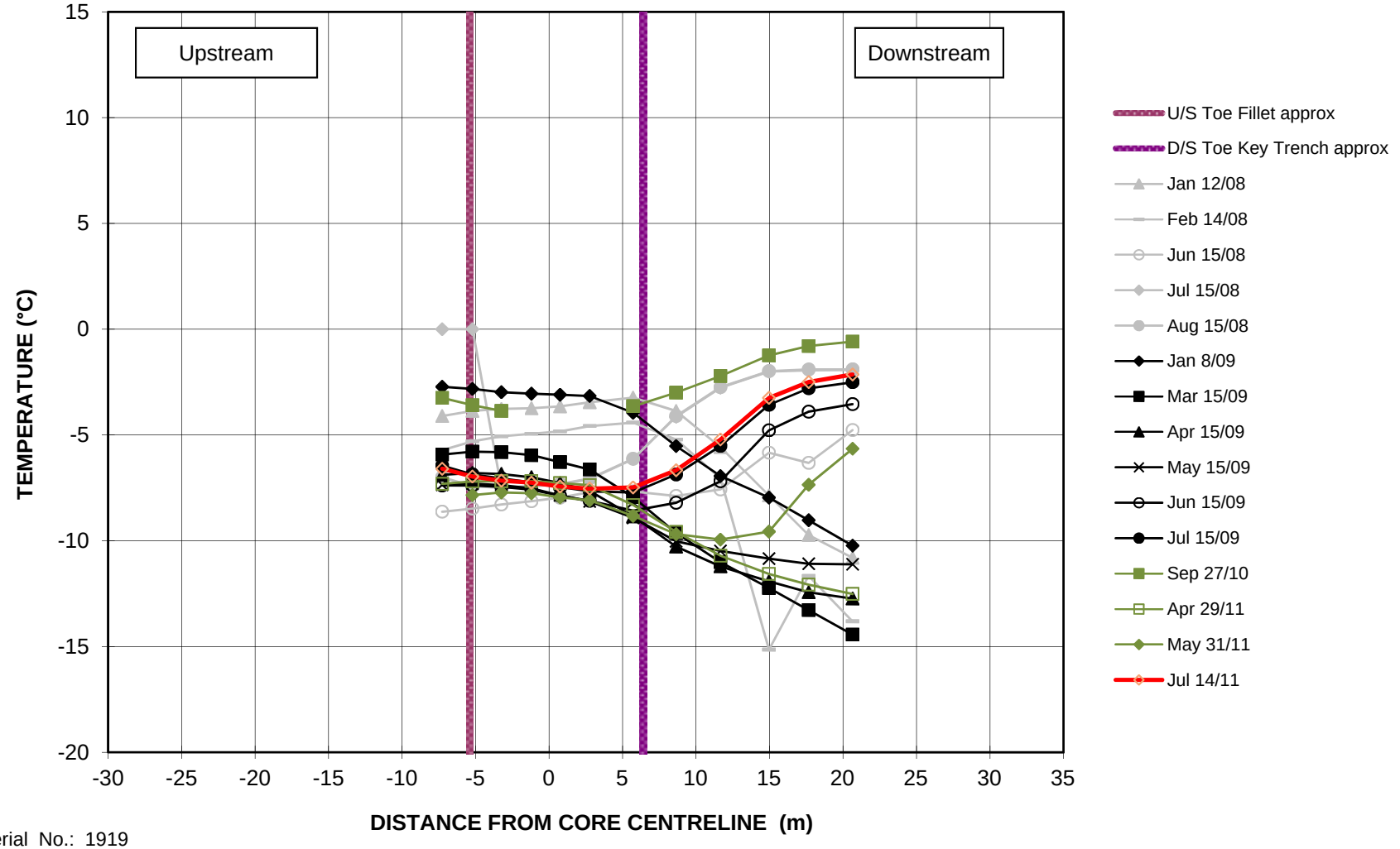
Figure B-10
Horizontal Ground Temperature Distribution
West Dam
Station 0+080, Trench Elevation 518 m



Serial No.: 1918
Date Installed: 2006

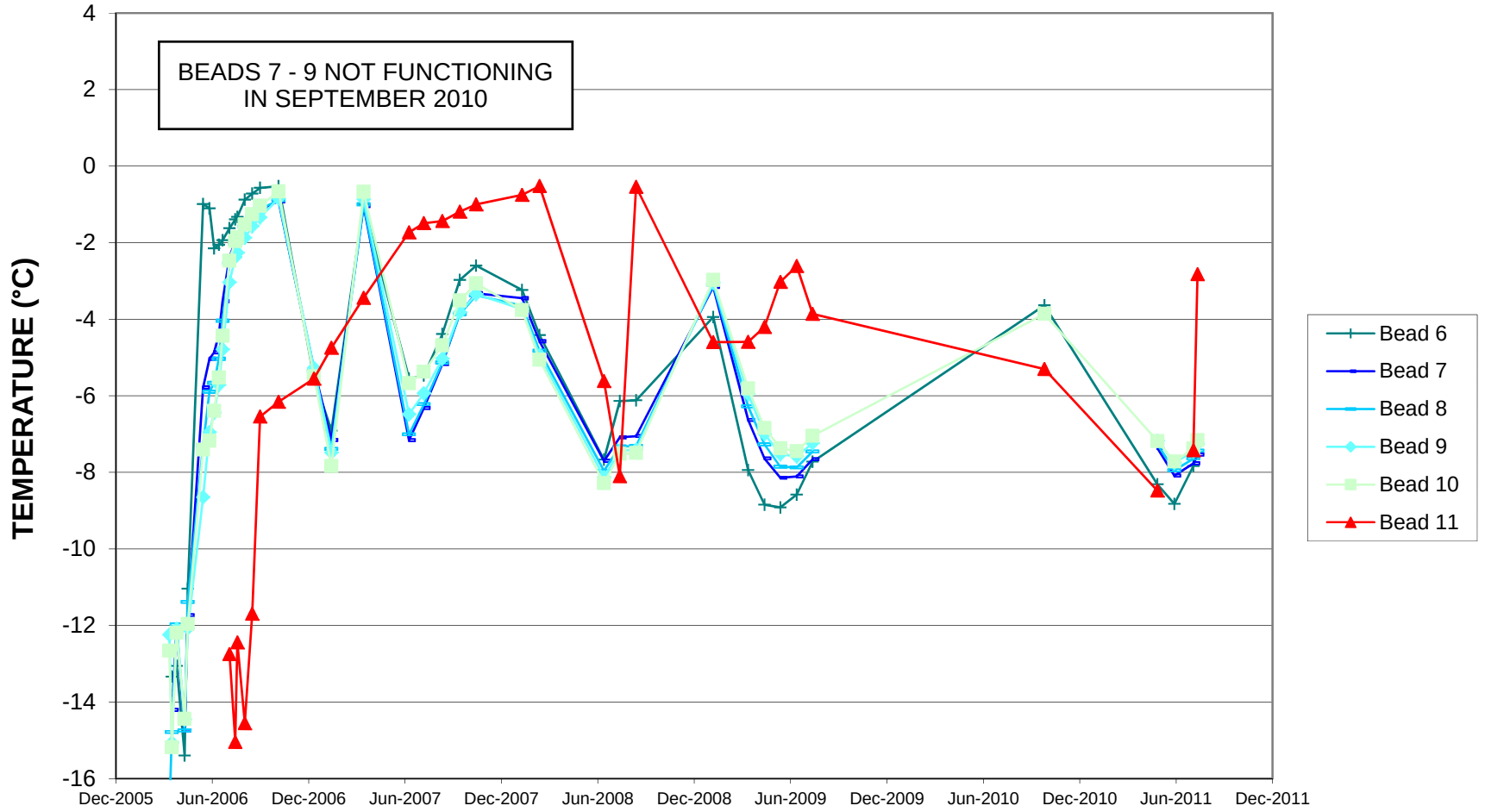
Figure B-11
Horizontal Ground Temperature Distribution
West Dam

Station 0+080, Trench Elevation 518 m



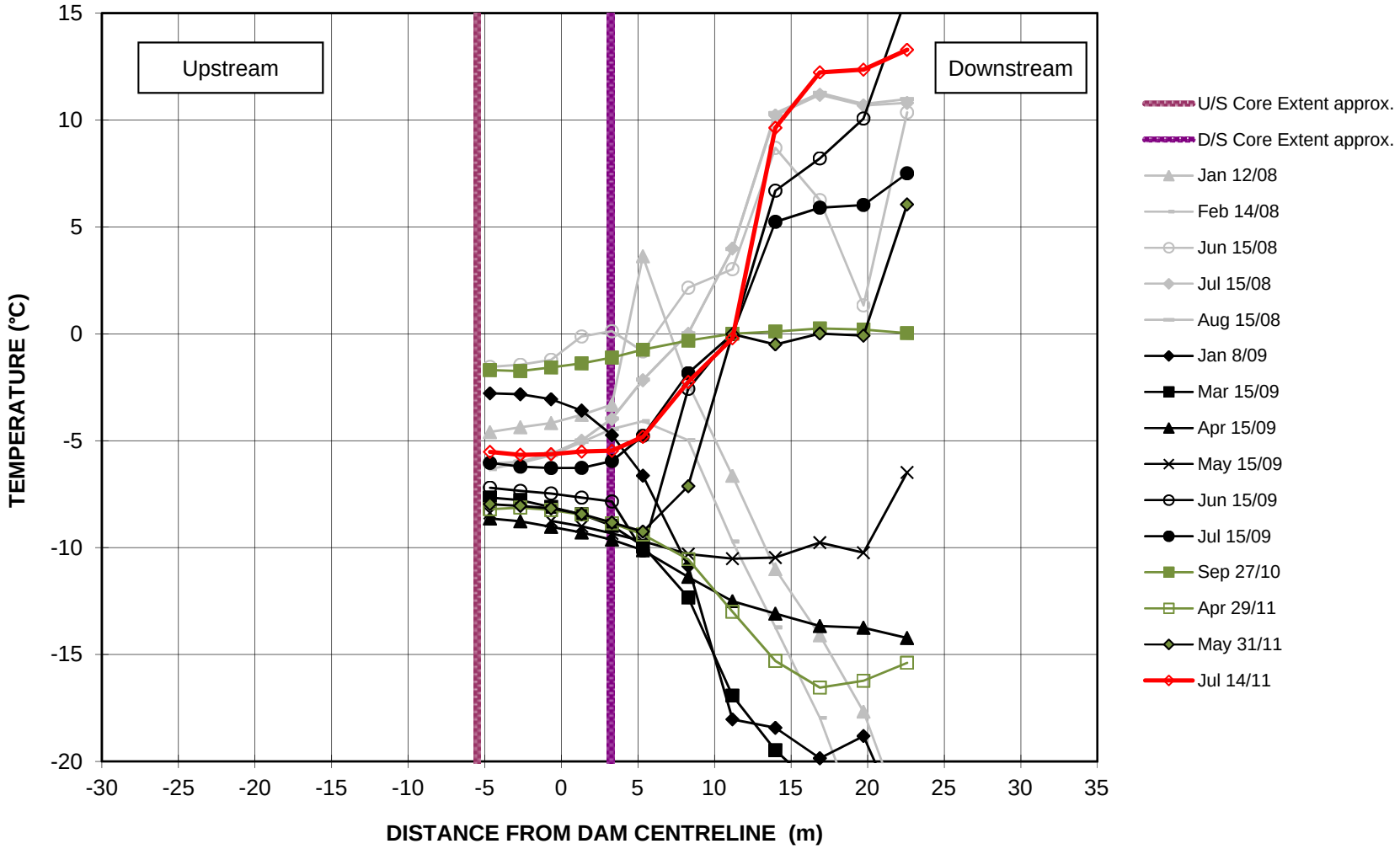
Serial No.: 1919
Date Installed: 2006

Figure B-12
Horizontal Ground Temperature Distribution
West Dam
Station 0+120, Trench Elevation 520 m



Serial No.: 1919
Date Installed: 2006

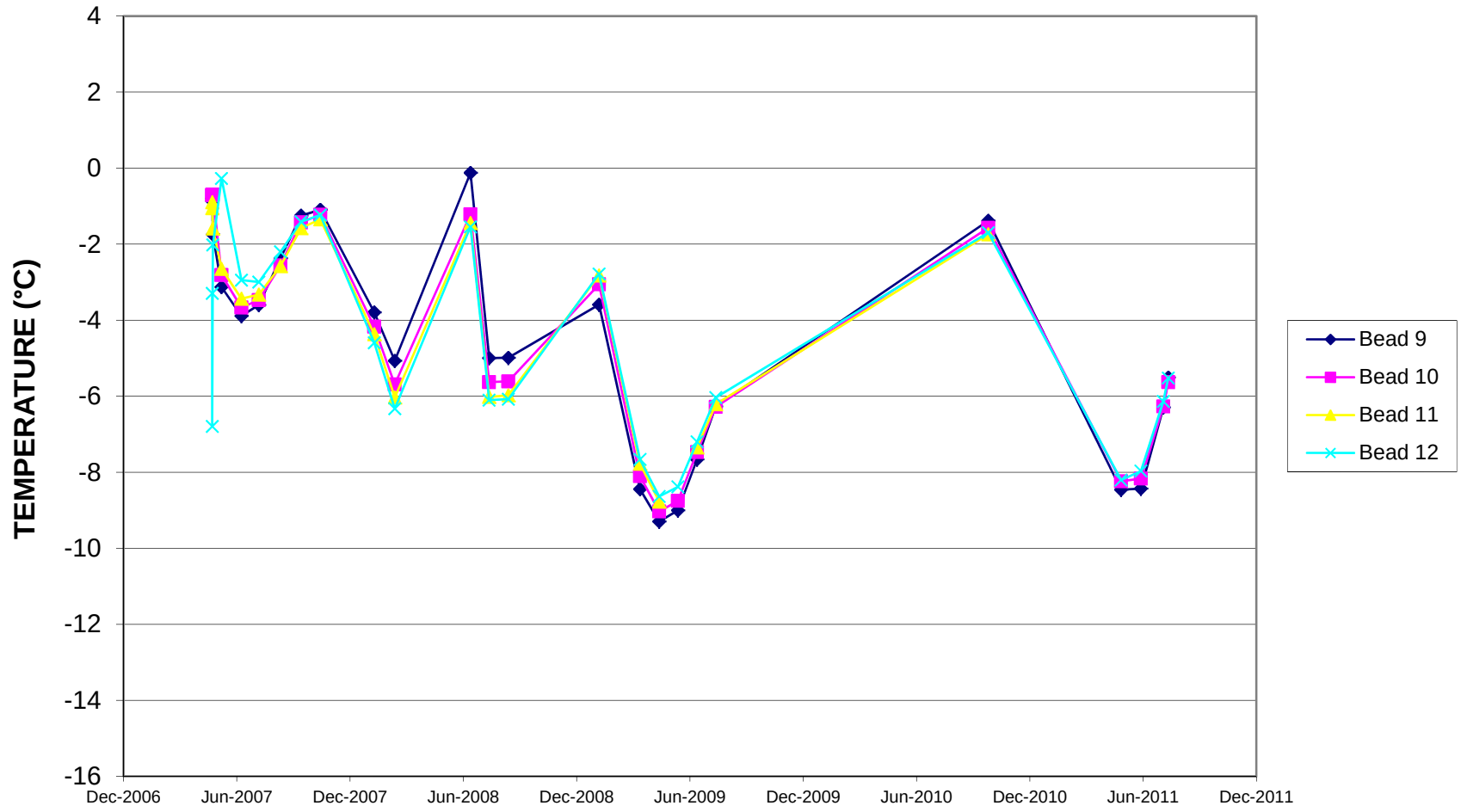
Figure B-13
Horizontal Ground Temperature Distribution
West Dam
Station 0+120, Trench Elevation 520 m



Serial No.: 1921
Date Installed: 04/01/2007

EBA File No: 1100060.007

Figure B-14
Horizontal Ground Temperature Distribution
West Dam
Station 0+080, Average Elevation 522 m



Serial No.: 1921
Date Installed: 04/01/2007

Figure B-15
Horizontal Ground Temperature Distribution
West Dam
Station 0+080, Average Elevation 522 m