Test Pit ID	Sample ID	Location	Headspace Vapour	Sample Depth (m)	Soil Description	Visual / Olfactory Observations
	SS4		148 ppmv	2.1 – 2.3	Brown medium sand	Slight odours, no staining
BH - 6	SS1	Hydrant Box 6	0 ppmv	0.2 – 0.9	Brown coarse sand	No odours, or staining
	SS2		57.2 ppmv	0.9 – 1.7	Brown coarse sand	Slight odours, no staining
	SS3		109 ppmv	1.7 – 2.1	Brown coarse sand	Slight odours, no staining
	SS4		68.2 ppmv	2.1 – 2.3	Brown coarse sand	Slight odours, no staining
BH – 7	SS1	Hydrant Box 5	0 ppmv	0.2 – 0.8	Brown medium sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown medium sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.0	Brown medium sand	No odours, or staining
BH - 8	SS1	Hydrant Box 8	0 ppmv	0.2 – 0.9	Brown medium sand	Slight odours, no staining
	SS2		22.7 ppmv	0.9 – 1.7	Brown medium sand	Slight odours, no staining
	SS3		12.5 ppmv	1.7 – 2.0	Brown medium sand	No odours, or staining
BH - 9	SS1	Hydrant Box 9	0 ppmv	0.2 – 0.9	Brown medium sand	No odours, or staining
	SS2		0 ppmv	0.9 – 1.7	Brown medium sand	No odours, or staining
	SS3		0 ppmv	1.7 – 2.1	Brown medium sand	No odours, or staining
	SS4		0 ppmv	2.1 – 2.4	Brown medium sand	No odours, or staining
BH - 10	SS1	Hydrant Box 9	0 ppmv	0.2 – 0.9	Brown medium sand	No odours, or staining
	SS2		85.2 ppmv	0.9 – 1.7	Brown fine sand	Slight odours, no staining
	SS3		0 ppmv	1.7 – 2.1	Brown coarse sand	No odours, or staining
	SS4		0 ppmv	2.1 – 2.4	Brown coarse sand	No odours, or staining
BH - 11	SS1	SW of Box 9	0 ppmv	0.2 – 0.8	Brown coarse sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown coarse sand	No odours, or staining
	SS3		27.6 ppmv	1.5 – 2.2	Brown coarse sand	Slight odours, no staining
BH - 12	SS1	SW of Box 9	0 ppmv	0.2 – 0.8	Brown coarse sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown coarse sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.3	Brown coarse sand	No odours, minor staining
BH - 13	SS1	S of Box 10	0 ppmv	0.2 – 0.8	Brown coarse sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown coarse sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.3	Brown coarse sand	No odours, or staining
BH 14	SS1	SW of Box 8	0 ppmv	0.2 – 0.8	Brown coarse sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown coarse sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.3	Brown coarse sand	No odours, or staining
BH - 15	SS1	NW of Box 6	0 ppmv	0.2 – 0.8	Brown coarse sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown coarse sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.1	Brown coarse sand	No odours, or staining
BH – 16	SS1	NW of Box 4	0 ppmv	0.2 – 0.8	Brown medium sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown medium sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.2	Brown medium sand	No odours, or staining
BH - 17	SS1	NW of Box 10	0 ppmv	0.2 – 0.8	Brown medium sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown medium sand	No odours, darker lense
	SS3		0 ppmv	1.5 – 2.3	Brown medium sand	No odours, or staining
BH - 18	SS1	SW of Box 4	0 ppmv	0.2 – 0.8	Brown medium sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown medium sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.3	Brown medium sand	No odours, or staining
BH - 19	SS1	NE of Box 4	0 ppmv	0.2 – 0.8	Brown medium sand	Slight odours, no staining
	SS2		0 ppmv	0.8 – 1.5	Brown medium sand	Slight odours, no staining
	SS3		0 ppmv	1.5 – 2.3	Brown medium sand	Slight odours, no staining
BH - 20	SS1	NW of Box 2	0 ppmv	0.2 – 0.8	Brown medium sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown medium sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.3	Brown medium sand	No odours, or staining
BH - 21	SS1	NW of Box 2	0 ppmv	0.2 – 0.8	Brown medium sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.5	Brown medium sand	No odours, or staining
	SS3		0 ppmv	1.5 – 2.3	Brown medium sand	No odours, or staining
BH - 22	SS1	W of Box 2	0 ppmv	0.2 – 0.8	Brown medium sand	No odours, or staining
	SS2		0 ppmv	0.8 – 1.2	Brown medium sand	No odours, or staining

6.2 Groundwater Program

Groundwater wells were installed at the time of borehole advancement, while monitoring well development, purging and monitored was conducted between September 25 and 27, 2004. A total of six monitoring wells were installed. However, groundwater was only identified in two wells, resulting in the collection and submission of three groundwater samples, including one duplicate sample. Monitoring wells previously installed by Biogenie in 1994, were not observed at the time of the field investigation, however, at that time it was unknown that wells were present

Monitoring wells were installed during this program next to hydrant boxes 1, 4, 6, 7, 8 and 9, as indicated on Figure 2. Only monitoring wells next to hydrant boxes 4 and 6 could be sampled for groundwater. Table G summarizes available monitoring well information.

Table G: Summary of Monitoring Well Information

Well ID	Location	Cover Elevation (masl)	Pipe Elevation (masl)	Well Depth (from TOP) (m)	Water Table Depth (from TOP) (m)	Volume Purged (L)	Comments
MW-1	Hydrant 1	22.89	22.83	2.14	2.01	20 mL	No recovery
MW-5	Hydrant 4	22.82	22.77	2.01	1.52	25 L	Water very clear
MW-6	Hydrant 6	23.11	23.03	1.825	1.595	12 L	Minor sheen and odour
MW-8	Hydrant 8	23.32	23.23	1.905	1.60	0.5 L	No recovery
MW-9	Hydrant 7	23.64	23.58	2.21	1.91	15 L	Water very clear, no recovery
MW-10	Hydrant 9	24.00	23.95	2.16	1.57	1 L	No recovery, ,brown water

Notes:

TOP = Top of Pipe
masl = meters above sea level

Hydraulic conductivity was not measured because only two of the six wells produced sufficient volume of water for sampling, and the volume was too small to conduct hydraulic conductivity testing. The groundwater accumulated in the wells is likely transient and percolating over the permafrost layer, and is not representative of permanent groundwater conditions. For this reason, it was not possible to determine a piezometric surface. Field parameters were also not measured during this investigation due to the limited amount of available groundwater.

7.0 ANALYTICAL RESULTS

7.1 Soil Results

33 soil samples were analysed, resulting in four samples exceeding applicable CCME or CWS Tier II site-specific soil contact exposure pathway guidelines. Three samples exceeded the tin guideline while one sample exceeded the toluene guideline. All four exceedances occurred in samples collected at depths ranging from 1.5 to 2.3 m, and from boreholes advanced next to hydrant boxes. In addition, elevated concentrations of PHC fractions were observed in select samples, however, concentrations were below site-specific guidelines.

Complete analytical results are located in Tables 1 and 2, while Table H summarizes samples that exceeded applicable guidelines. Original laboratory certificates are provided in Appendix E, and select analyte concentrations, sample depth, and borehole locations are illustrated on Figure 3.

Table H: Summary of Soil Exceedances

Hydrant	Borehole	Sample	Depth (m)	Parameter	Concentration	Units	Guideline
Hydrant 1	BH2	SS3	1.7 – 2.3	Tin	374	µg/g	300
Hydrant 6	BH6	SS3	1.7 – 2.1	Tin	467	µg/g	300
Hydrant 9	BH10	SS2	0.9 – 1.7	Tin	390	µg/g	300
Hydrant 9	BH11	SS3	1.5 – 2.3	Toluene	35.6	µg/g	14

7.2 Groundwater Results

The results of the analysis of two groundwater samples collected from Apron I, are summarized in Table 3, and are presented on Figure 4.

Toluene concentrations from sample MW-5 and the duplicate sample (dup 1), exceeded applicable guidelines with concentrations of 267 µg/L and 296 µg/L. The cadmium concentration from MW-6 was 0.2 µg/L, which exceeded the CEQG Marine Aquatic Life guideline of 0.12 µg/L. Given the regular airplane de-icing activities which may have occurred on Apron I, sample MW-5 was analyzed for glycol. The concentration of glycol in this well fell below the analytical detection limit. All other analysed parameters were below applicable guidelines. In addition, results from PHC fractions in samples MW-5 and MW-6, indicate that concentration were present at elevated levels; however, there are no applicable guidelines for comparison.

Complete analytical results are located in Table 3, while Table I summarizes samples that exceeded applicable guidelines. Original laboratory certificates are provided in Appendix E, and select analyte concentrations, and borehole locations are illustrated on Figure 4.

Table I: Summary of Groundwater Exceedances

Hydrant	Well	Sample	Parameter	Concentration	Units	Guideline
Hydrant 4	MW-5	mw5	Toluene	267	µg/L	215
Hydrant 4	MW-5	dup1	Toluene	296	µg/L	215
Hydrant 6	MW-6	mw6	Cadmium	0.2	µg/L	0.12

7.3 Quality Control

7.3.1 Soil QC

As summarized in Table 4, Dillon analyzed three duplicate soil sample pairs for PHC fraction and BTEX compounds. The QC data were reviewed and compared against the acceptability criteria indicated on Table C in Section 5.8.3. The RPDs for PHC F3 (BH5-SS3/Dup1) and PHC F1 (BH6-SS4/Dup2) exceeded the set 30% RPD criteria. All other RPDs were within the acceptability criterion.

The analytical result for the PHC F3 concentration in the sample pair (BH5-SS3/Dup1) was within five times the MDL, and results less than five times the MDL are subject to increased analytical uncertainty.

PSC was contacted regarding the elevated RPDs from the both sample pairs, and reported that the difference was likely the result of non-homogenous sample pairs, but that the analyses were not performed during the same sample batch. Based on the reported information from PSC, it was determined that the results of calculations to determine potential false positives and false negatives would not be meaningful, as duplicate pair results would not be expected to directly correspond.

PSC also conducted an internal QC program consisting of internal replicates samples. PSC calculated the RPD for three separate duplicate sets and compared them against the performance/calibration criteria. The laboratory QC data were reviewed and were found to be all within the laboratory acceptability criteria except for one sample (BH11-SS2), where PHC F2, F3 and F4 marginally exceeded the acceptability criteria. The laboratory certificate quality review section indicated:

- All instrument performance/calibration quality criteria were met;
- Extraction and analyses were performed within specified holding times;
- The hydrocarbon profile returned to baseline prior to C50 retention times; and,
- The discrepancy in the BH11-SS2 duplicate result is likely related to the non-homogeneity of the sample.

Based upon the results of the QC review, Dillon and PSC consider the data from this investigation to be reliable. The QC certificates are appended with the laboratory certificates.

7.3.2 Groundwater QC

As summarized in Table 5, Dillon analyzed one duplicate groundwater sample set for dissolved metals, total petroleum hydrocarbon fractions and BTEX. The QC data was reviewed and compared against the acceptability criterion, as indicated on Table C, in Section 5.8.3. All RPDs were within the acceptability criterion.

PSC also conducted an internal QC program consisting of internal replicates samples. PSC calculated the RPD for one duplicate pair and compared the results against the same criterion. The laboratory QC data were reviewed and were found to be within the limits set by PSC. Based upon the results of the QC review, Dillon and PSC consider the groundwater data from this investigation to be reliable. The QC certificates are appended with the laboratory certificates.

8.0 SUMMARY AND DISCUSSION

As summarized in Section 2.0, numerous investigations have been previously completed at the Iqaluit Airport. A review of several documents obtained following the field investigation indicated that, in 1994, Biogenie conducted an environmental characterization investigation of the entire Iqaluit Airport, which also included a limited investigation of the abandoned hydrant and pipeline system. Biogenie had advanced six boreholes and installed three monitoring wells in Apron I, and additional trenches and monitoring wells south of Apron I, near the former USAF ASTs.

Results from the Biogenie assessment indicated that TPH, BTEX compounds, and select metals did not exceed historical guidelines, in borehole soil samples collected beneath Apron I. An assessment of groundwater analyses from the 1994 investigation, indicated that cadmium, copper, nickel, lead and zinc exceeded historical guidelines in one monitoring well (PO-6), located up-gradient of the abandoned hydrant and pipeline system. A comparison of these analytical results indicated that only cadmium exceeds the current CCME guidelines. Figures 3 and 4 illustrate the historical results for soil and groundwater, respectively.

Dillon was not provided with a location plan indicating the exact location of the abandoned hydrant and distribution system during the site characterization portion of this investigation. Discussions with Mr. John Graham, Iqaluit Airport Manger, indicated that a site plan did not exist. Therefore, Dillon focused its effort in the area surrounding the 10 clearly recognizable hydrant boxes on the site. Consequently there may be other impacted areas, located in close proximity to the fuelling lines, that were not identified during this investigation.

The location of the underground lines, as illustrated on the report figures, relies on information obtained from the Biogenie report. Dillon has not been able to verify the distribution pipeline locations against record or as-built drawings for the site, and cannot be held responsible if the locations, as indicated, are not correct. To address this issue Transport Canada may want to perform a geophysical survey, which would highlight the exact location of the underground lines, or if in fact the apron in question is to be excavated then close attention should be paid to the soils proximal to the hydrants and distribution lines.

36 soil samples from 18 boreholes and two groundwater samples from two monitoring wells were selectively analysed for the presence of PHC, BTEX, PAH and metals parameters. Only limited soil and groundwater exceedances were identified in the samples. Elevated concentrations of toluene and tin exceeding applicable guidelines were identified in four soil samples obtained from four separate boreholes, while elevated concentrations of toluene and cadmium, exceeding applicable groundwater guidelines were identified in two separate wells. Step-out boreholes were advanced based on field HVE measurements and field observations to further investigate potential hydrocarbon impacts. However, metals impacted soils and groundwater could not be field evaluated and, as such, no attempt was made to determine the extent of metals impacted soils.

Dillon identified four discrete localized areas of environmental concern (AEC) underlying Apron I, which returned analytical soil or groundwater contaminant concentrations above the applicable guidelines. A fifth discrete AEC has been identified based on the results of the 1994 Biogenie investigation, however, it should be noted that historical results should be re-evaluated using current laboratory methodologies. The five AECs are highlighted on Figure 5, while Table J summarizes each exceedance and the associated AEC.

Table J: Areas of Environmental Concern

BH /MW	Location	Parameter	Matrix	Max Impact Depth (m)	Comments	AEC
BH-11	Hydrant 9	Toluene	Soil	2.3	Permafrost encountered below sample, while clean analytical results obtained from sample above.	AEC 1
BH-6 MW-6	Hydrant 6	Tin Cadmium	Soil GW	2.1 NA	No vertical or horizontal delineation of soil. Marginal cadmium exceedance	AEC 2
BH-2	Off-Site, SW Hydrant 1	Tin	Soil	2.3	Clean analytical results from samples collected beneath.	AEC 3
MW-5	Hydrant 4	Toluene	GW	NA	Toluene not present in MW-6, located at hydrant 6, no other proximal groundwater data.	AEC 4
PO-6	Hydrant 10	Cadmium	GW	NA	Historical cadmium concentration exceeded current guideline.	AEC 5

Notes:

NA = Not Applicable
AEC = Area of Environmental Concern

Based on the assessment of site-specific conditions and exposure pathways, the impacted soil and groundwater identified during this investigation are estimated to posses a low level of ecological risk to off-site receptors. The following summarizes the site conditions supporting this assessment:

- Apron I is completely covered by asphalt;
- The apron is in a restricted access area, where the public and especially children are not permitted to enter;
- Site use is not expected to change following any Airport upgrades;
- There appears to be no sensitive down gradient receptors should the contaminants migrate;
- The limited presence of groundwater between the asphalt apron and the permafrost layer, suggests the potential for contaminant migration to be minimal;
- The presence of elevated tin concentrations exceeding applicable soil quality guidelines, and dissolved tin groundwater analytical concentrations present below detection limits, suggests the tin is bound to soil/rock matrix;
- The cause of the cadmium concentrations in groundwater that marginally exceed the selected assessment criteria are unknown, however, it should be noted there is only a limited presence of groundwater at the site;
- The hydrant and pipeline system has not been in use for an extended period of time;

- It is believed the pipeline distribution system would have been purged of remaining fuel at the time of decommissioning;
- "Step out" sampling did not identify the presence of contaminants of concern outside the initial location;
- Contamination appears to be very localized, and not wide-spread throughout the apron area;

Results from this investigation indicate that both soil and groundwater exceedances could be considered as marginal. Elevated toluene concentrations in soil, above applicable guidelines, were identified in only one of 36 samples. While elevated, tin concentrations identified in three soil samples may reflect background concentrations in the native soil/rocks. Alternatively, the tin may be originating from anthropogenic sources such as the existing pipeline infrastructure. However, based on the low solubility of tin in naturally occurring pH conditions, it is expected that the mobility is very low, as indicated by the below detection limit concentrations in available dissolved metals groundwater samples.

9.0 MANAGEMENT OPTIONS

Based on the results of this investigation, hydrocarbon and metals impacts to soil and groundwater appear to be limited and the potential for contaminant migration appears to be low. However, the extent of the soil and groundwater impacts have not been fully delineated. The choice of a remedial approach generally requires that the extent of contamination be delineated. If not, the chosen remedial approach may not be appropriate for certain areas of contamination or may not be suitable for what might be a large and previously unknown area of contamination. As such, given the state of knowledge for this Site and the nature of the contaminants, various management approaches can be adopted with corresponding levels of risk. The choice of the management approach will ultimately depend on the level of risk that TC is willing to accept.

The first management approach would accept the level of information that is currently available for the Site, complete a risk assessment and develop risk management strategies. The currently available information would suggest that risk management strategies would likely involve in-situ management with ongoing monitoring. Monitoring would be used to assess the potential for movement of the COCs from the Site onto adjacent sites. If the monitoring indicates that the contaminants are migrating or the land use had changed such that the risk scenario had changed for sensitive receptors, then the risk management approach might need to be modified to include active remediation of some or all areas or more aggressive risk management mechanisms may need to be put in place. The advantages of this approach are relatively low cost and minimal disturbance to Site infrastructure. The disadvantage of this approach is the requirement for long-term testing and management and potentially, limits to potential future Site development and use and the persistence of an environmental liability.

The second approach would be to complete delineation of the extent of soil and groundwater contamination and assess remedial options following this delineation. The advantage of this approach is that it provides for a more solid foundation upon which to base decisions about remedial options, which would likely allow for a more accurate estimate of costs. The disadvantages of this approach is increased costs to complete another round of field work, testing and reporting and the time required to do this work. Delineation of this area would require another field season to complete

Should TC adopt the second approach, which entails the advancement of additional step-out boreholes and monitoring wells, the complete delineation of the extent of impacted soil and groundwater would subsequently permit TC to assess their long-term strategy for the Site. Risk management of the contamination, which may or may not include active remediation components and/or the installation of engineered controls, could be a cost-effective option if TC is willing to assume the long-term liability for the Site. If TC would like to resolve the liability issues associated with this Site, then remedial options would involve active remediation of the Site. Given the nature of the COCs known to date, active remediation of these COCs generally involves excavation and off-site disposal. Disposal of petroleum hydrocarbon contaminated soil can be done at a private bioremediation facility located in Iqaluit. Alternatively, TC might choose to construct a Land Treatment Unit (LTU) on airport property. Disposal of metals contaminated soil would either require shipment to a landfill in Quebec, or the encapsulation of impacted soil using Portland cement. It is anticipated that the shipping costs for transporting the material to Quebec would be considerable.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

The assessment of the abandoned underground hydrant and distribution system located beneath the eastern portion of Apron I, was undertaken to investigate the presence/absence of contaminants of concern in soil and groundwater resulting from historical activities. At the time of the field investigation, the location of the underground system was unknown, and the existence of a previous environmental investigation relating to the study area was also not known. A report detailing a previous investigation completed by Biogenie in 1994 was identified after completion of the field program.

Findings from the Biogenie (1994) investigation are summarized as follows:

- Analytical results for borehole soil samples collected from beneath the apron did not identify the presence of contaminants at concentrations exceeding historical guidelines. TPH concentrations exceeding historical guidelines were identified off-site to the south of the apron, in the location of the former USAF ASTs; and
- The analysis of one groundwater sample from a monitoring well near hydrant 10, indicated the presence of cadmium, copper, nickel, lead and zinc at concentrations exceeding historical guidelines.

Available standards and guidelines for assessing contamination in soils and groundwater were reviewed to identify assessment values applicable to the site. The results of this review concluded the following:

- For PHC fractions in soil, a *CWS* Tier II adjusted site-specific guidelines, and specifically the Eco Soil Contact exposure pathway, is best suited for this site, while provisional environmental health soil contact guidelines for Industrial Land Use were deemed applicable for BTEX and metals compounds; and
- Groundwater results should be compared against *CCME* guidelines for the protection of marine aquatic life.

The following conclusions are derived from the results of the intrusive investigation program:

- This investigation identified four AECs located at or near hydrants 1, 4, 6, and 9. Samples collected from these locations returned soil or groundwater concentrations above the applicable guidelines for selected parameters. A fifth AEC was identified based on the results of the 1994 Biogenie investigation;
- Elevated tin concentration in three soil samples are likely representative of naturally occurring background concentrations, although this conclusion remains to be substantiated;

- Because of the low solubility of tin at natural occurring pH conditions, it is expected that the mobility is very low, as indicated by the below detection limit concentrations in available dissolved metals groundwater samples;
- The hydrogeological regime in permafrost terrain suggests that groundwater flow is only occurring during periods when the active layer has thawed. As such, transportation of contaminants by advective flow would occur only during short periods in the summer. As such, the flux of dissolved contaminants off-Site is not anticipated to be large, although this remains to be tested during periods of active groundwater flow in the summer; and
- Based on the assessment of site-specific conditions and exposure pathways, it is estimated that the impacted soil and groundwater identified during this investigation poses a low level of ecological risk to off-site receptors. The completion of a Site-specific risk assessment will aid in the determination of environmental risks associated with this Site.

10.2 Recommendations

Based on the findings of this investigation, Dillon recommends that TC determine whether they are willing to assume long-term liability for this Site. If so, then a management approach that involves no further investigation, the completion of a risk assessment and the development of risk management protocols may be a cost-effective approach for TC. If TC is not willing to assume long-term liability for this Site, then further delineation of the extent of soil and groundwater impact and the development of remedial action plans which involve active remediation of contaminated areas might be better suited to TC's needs.

Alternatively, if at some point in the future there are any resurfacing or reconstruction projects, it could present an opportunity to remove any remaining in ground fuel distribution lines and address the residual impacted soils at that time. The affected areas could be managed in-place until such time as a remediation program is considered.

11.0 CLOSURE

This report was prepared exclusively for the purposes, project, and site location outlined in the report. The report is based on information provided to, or obtained by, Dillon as indicated in the report and applies solely to site conditions existing at the time of the site investigation. Although Dillon conducted a reasonable investigation, Dillon's investigation was by no means exhaustive and cannot be construed as a certification of the absence of any contaminants from the site. Rather, Dillon's report represents a reasonable review of available information within an agreed work scope, schedule, and budget. It is therefore possible that currently unrecognized contamination or potentially hazardous materials may exist at the site, and that the levels of contamination or hazardous materials may vary across the site. Further review and updating of the report may be required as local and site conditions, and the regulatory and planning frameworks, change over time.

This report was prepared by Dillon for the sole benefit of Transport Canada, and is not to be relied upon by any other party without Dillon's express written consent. The material in it reflects Dillon's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the sole responsibilities of such third parties. Dillon accepts no responsibilities for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust the information presented meets your current needs. If you have any questions or concerns regarding our findings please do not hesitate to call.

Respectfully submitted,

Dillon Consulting Limited

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Mar 7/05
D.D. BELL
LICENSEE
NWT/NU

12.0 LIST OF ACRONYMS

APEC - Area of Potential Environmental Concern
AEC - Area of Environmental Concern
AST - Aboveground Storage Tank
CCME - Canadian Council of Ministers of the Environment
CEQG - Canadian Environmental Quality Guidelines
CSQG - Canadian Soil Quality Guidelines
COC - Contaminants of Concern
CSP - Corrugated Steel Pipe
CWS - Canada Wide Standards
EC - Environment Canada
TVH - Total Volatile Hydrocarbons
TEH - Total Extractable Hydrocarbon
TPH - Total Petroleum Hydrocarbon
ESA - Environmental Site Assessment
PAH - polycyclic aromatic hydrocarbon
TC - Transport Canada
TOP - Top of Pipe
TSS - total suspended solid
GNWT - Government of Northwest Territories
RWED - Resources, Wildlife, and Economic Development
GN - Government of Nunavut
GSC - Geological Survey of Canada
PHC - Petroleum Hydrocarbons
RPD - Relative Percentage Difference
LTU - Land Treatment Unit

13.0 REFERENCES AND SUPPORTING DOCUMENTS

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LEGEND

HYDRANT LINES

HYDRANT BOXES

SURFACE DRAINAGE

0 100
SCALE IN METRES

DILLON CONSULTING	CLIENT: TRANSPORT CANADA	PROJECT: ENVIRONMENTAL SITE ASSESSMENT IQALUIT AIRPORT APRON I	DILLON PROJECT NUMBER: 04-3730
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FINAL			DATE: FEB 2005
REVISION			

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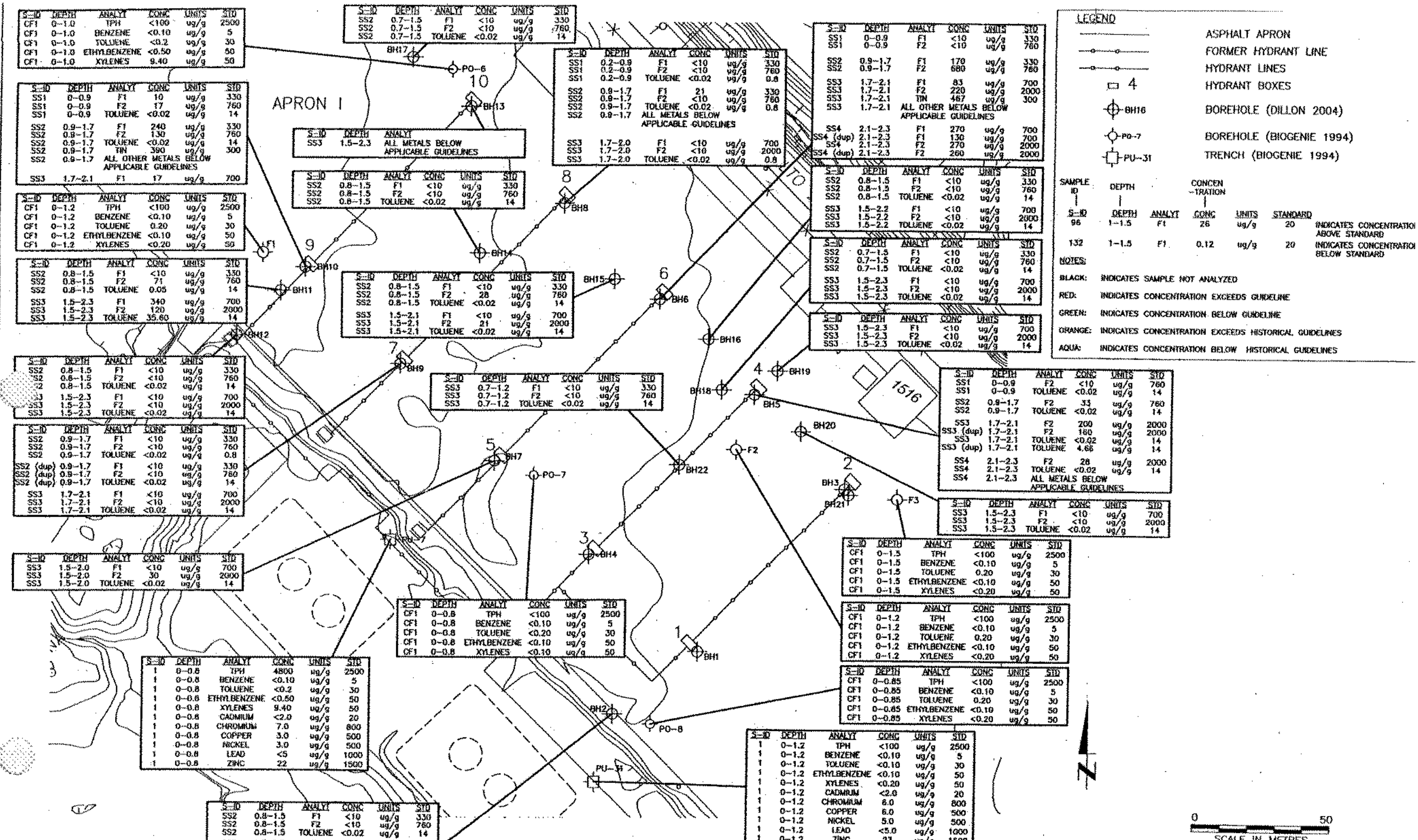

DILLON CONSULTING

CLIENT: TRANSPORT CANADA

PROJECT: ENVIRONMENTAL SITE ASSESSMENT IQALUIT AIRPORT APRON I

TITLE: 1994/2004 SOIL ASSESSMENT PROGRAMS

DILLON PROJECT NUMBER: 04-3730

DILLON FIGURE NUMBER: 3

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DATE: FEBRUARY 2005

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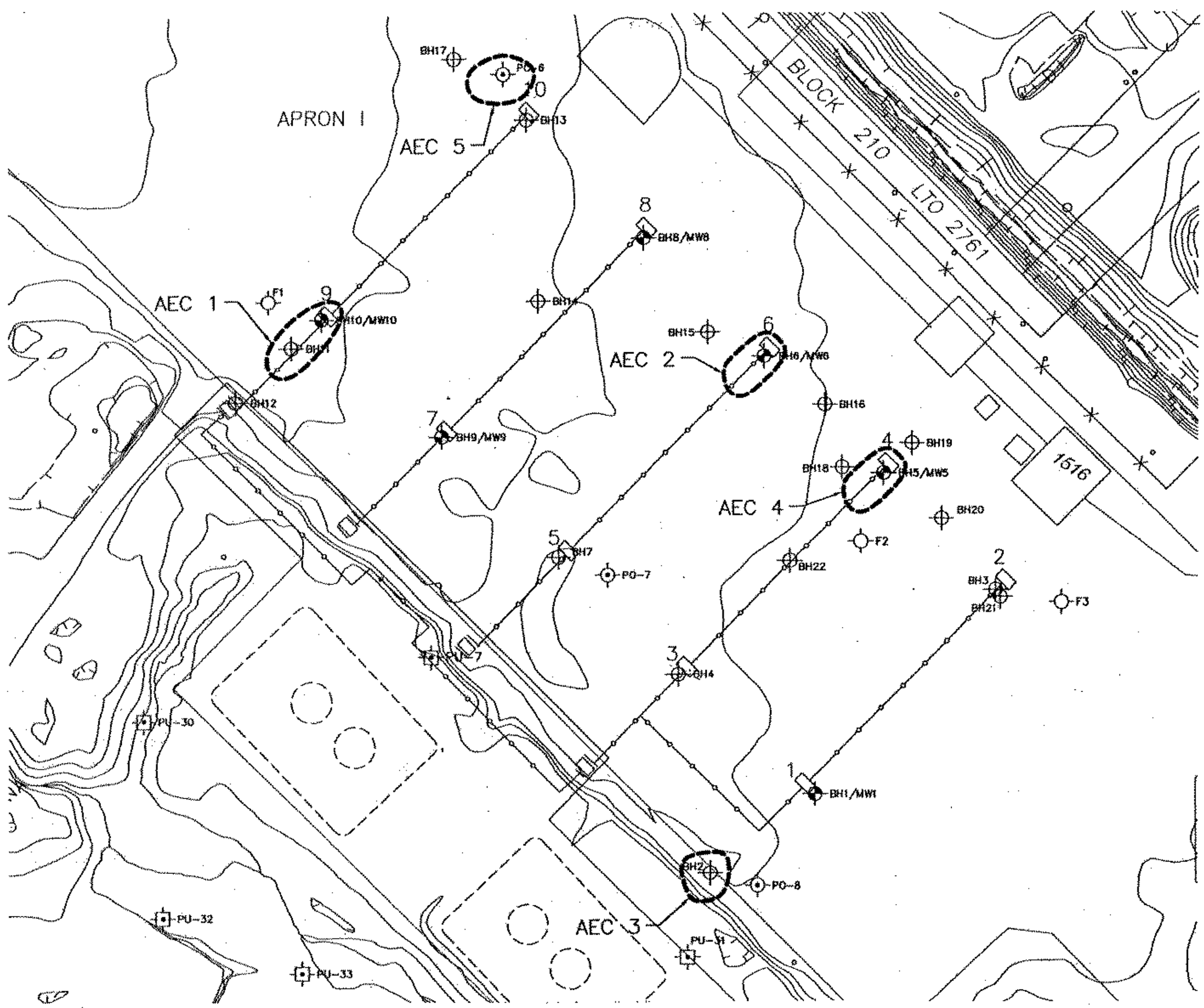


LEGEND

- ASPHALT APRON
- FORMER HYDRANT LINE
- HYDRANT LINES
- 4 — HYDRANT BOXES
- BH16 — BOREHOLE (DILLON 2004)
- BOREHOLE/MONITORING WELL (DILLON 2004)
- PO-7 — BOREHOLE (BIOGENIE 1994)
- PO-7 — BOREHOLE/MONITORING WELL (BIOGENIE 1994)
- PU-31 — TRENCH (BIOGENIE 1994)
- PU-31 — TRENCH/MONITORING WELL (BIOGENIE 1994)
- AREA OF ENVIRONMENTAL CONCERN

NOTES:

BLACK: INDICATES SAMPLE NOT ANALYZED

RED: INDICATES ONE OR MORE SOIL OR GROUNDWATER CONCENTRATION EXCEEDS GUIDELINES

GREEN: INDICATES ALL SOIL AND GROUNDWATER CONCENTRATION BELOW GUIDELINES

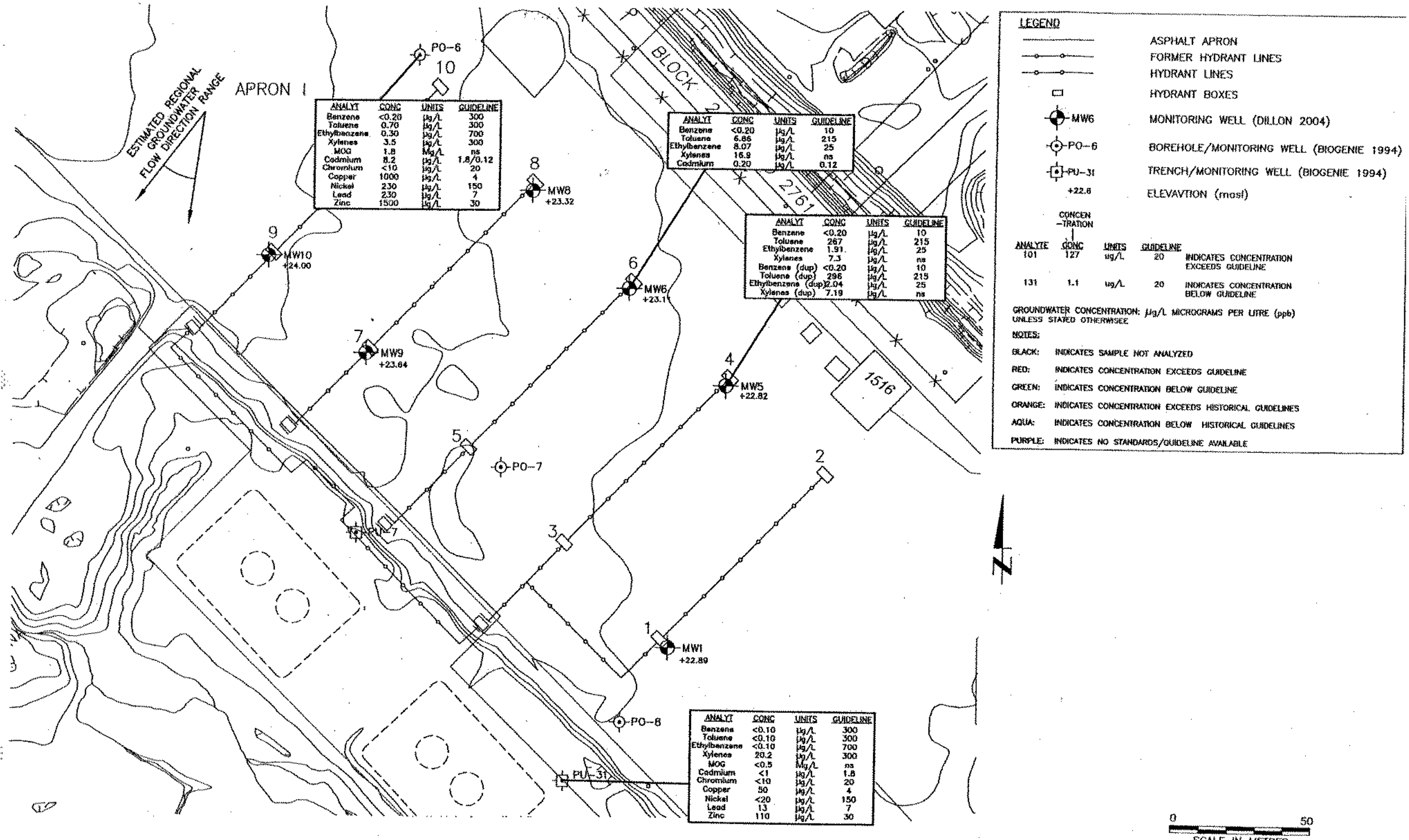
ORANGE: INDICATES ONE OR MORE SOIL OR GROUNDWATER CONCENTRATIONS EXCEEDS HISTORICAL GUIDELINES

AQUA: INDICATES ALL SOIL AND GROUNDWATER CONCENTRATIONS BELOW HISTORICAL GUIDELINES

N

0 — 50
SCALE IN METRES

DILLON CONSULTING	CLIENT: TRANSPORT CANADA	PROJECT: ENVIRONMENTAL SITE ASSESSMENT IQALUIT AIRPORT APRON I	DILLON PROJECT NUMBER: 04-3730	FINAL
		TITLE: AREAS OF ENVIRONMENTAL CONCERN	DILLON FIGURE NUMBER: 5	
			SCALE: 1:1250	DATE: FEBRUARY 2005 REVISION: -



DILLON CONSULTING

CLIENT: TRANSPORT CANADA

PROJECT: ENVIRONMENTAL SITE ASSESSMENT
IQALUIT AIRPORT
APRON I

TITLE: 1994/2004 GROUNDWATER ASSESSMENT PROGRAMS

DILLON PROJECT NUMBER: 04-3730

DILLON FIGURE NUMBER: 4

SCALE: 1:1250

FINAL

DATE: FEBRUARY 2005

REVISION: --