State of Utah
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

YOUR COPY

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Don A. Ostler, P.E.
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Don A. Ostler, P.E.
Executive Secretary

March 29, 1997

Beaver County News
415 South Main
P. O. Box 369
Milford, UT 84751

RE: Centurian Mines Corporation; OK Mine Ground Water Quality Discharge Permit No. UGW010005

ATTN: Legal Advertising Department

This letter will confirm authorization to publish the attached NOTICE in the Beaver County News in the first available edition. Please mail the invoice and affidavit of publication to:

Division of Water Quality
Department of Environmental Quality
P. O. Box 144870
Salt Lake City UT 84114-4870

If there are any questions, please contact Dennis Frederick at 538-6146. Thank you for your assistance.

Sincerely,

Fred C. Pehrson, P.E., Manager
Permitting, Compliance & Monitoring Branch

Enclosure

FCP:DAF:wlm

File: GW Permit 010005
dfrederi\wp\centuria\beaver.nws

March 28, 1996

DIVISION OF WATER QUALITY
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

PUBLIC NOTICE FOR THE RENEWAL OF GROUND WATER DISCHARGE PERMIT No. UGW010005

PURPOSE OF PUBLIC NOTICE

THE UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY IS SOLICITING COMMENTS ON ITS PROPOSAL TO ISSUE A GROUND WATER DISCHARGE PERMIT DESCRIBED BELOW, UNDER AUTHORITY OF THE UTAH WATER QUALITY ACT, SECTION 19-5-104(1)(I) UTAH CODE ANNOTATED 1953, AS AMENDED AND UTAH ADMINISTRATIVE CODE R317-6.

PERMIT INFORMATION

PERMITTEE NAME:	Centurian Mines Corporation
MAILING ADDRESS:	P.O. Box 2365 Salt Lake City, Utah 84110
TELEPHONE NUMBER:	(801) 534-1120
FACILITY LOCATION:	Seven miles north west of Milford

Centurian Mines Corporation proposes to mine and process copper ore at a location approximately seven miles north west of Milford and 1.5 miles off state highway 21 in Beaver County. The first phase of the project involves the placement of historic waste rock piles on a plastic lined pad and the application of dilute sulfuric acid to the rock. Dissolved copper will be solvent extracted from the resulting solution and processed using electrowinning technology. The second phase of the project includes the expansion of the OK mine pit and the mining of near by areas. Facilities to be constructed that are covered by the permit include the heap leach pad, process ponds and the solvent extraction/electrowinning plant. The permit also requires selective handling of potentially acid generating waste rock and establishes a ground water monitoring network to assure protection of ground water quality.

PUBLIC COMMENTS

Public comments are invited any time prior to April 27, 1997. Comments may be directed to the Division of Water Quality, 288 North 1460 West, Salt Lake City, Utah 84114-4870. All comments received prior to April 27, 1995 will be considered in the final determinations to be imposed in the permit. A public hearing may be held if written requests are received within the first 15 days of this public comment period that demonstrates significant public interest and substantive issues exist to warrant holding a hearing.

FURTHER INFORMATION

Additional information may be obtained upon request by calling Dennis Fredericks at (801) 538-6038 or by writing the aforementioned address. Related documents are available for review at the Division of Water Quality.

GROUND WATER QUALITY DISCHARGE PERMIT
NO. UGW010005
STATEMENT OF BASIS

CENTURIAN MINES CORPORATION
OK MINE COPPER LEACH PROJECT

SITE HYDROGEOLOGY

The proposed project sits entirely a top a very thin alluvium of weathered rock (2-10 feet thick) underlain by a dioritic bedrock. Diorite is an intrusive igneous rock. Ground water occurs primarily in fracture zones and has not been found at every drilling location at the site. Ground water where found is typically 150-250 feet below the surface. The quantity of recoverable water from the monitoring wells is relatively small, less than two gallons per a minute at MW-2 and less than five gallons per a minute at MW-1. Larger diameter wells with greater screened intervals could possibly recover more water.

GROUND WATER QUALITY

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Background - Due to the limited number of samples collected from two of the compliance monitoring wells (MW-1 and MW-2), background cannot be determined at this time. Background will be determined at the end of the accelerated monitoring period.

Class - In accordance with UAC R317-6-3 ground water at the existing monitoring wells is classified as Class II, based upon total dissolved solids levels from two monitoring wells. Classification of ground water of an additional well and possible revisions to this determination will occur at the end of the accelerated monitoring period, see Part II.H.6.

Protection Limits - Protection limits will be established at the end of the accelerated monitoring period in accordance with the criteria defined in UAC R317-6-4.

FACILITY DESCRIPTION (BEST AVAILABLE TECHNOLOGY STANDARDS)

Heap Leach - Historic waste rock and mined ore will be placed on the leach pad and dilute sulfuric acid solution (0.75% sulfuric acid) will be applied to extract the copper from the ore. The copper will be extracted from the leachate in a solvent extraction process that exclusively removes copper ion. The remaining solution is reused for further leaching. The extractant is passed to an electrowinning plant which produces copper cathodes that are 99.998% pure. The pad liner will be a composite clay/HDPE with a leakage detection system. The standard design for a heap leach pad consists of a composite clay/HDPE liner above a leakage detection system (geonet or gravel). This design standard has been applied at this site due to the relatively shallow ground water depths and

the Class II ground water classification. There is no allowable leakage rate for the heap leach pad.

Process and Storm Water Ponds - The standard design was also applied to the Raffinate, Pre-Raffinate, Pregnant Liquor Solution (PLS) and Storm Water Ponds. This consists of a double HDPE liner with leakage collection systems. The allowable leakage rate for these pond is 200 gallons per acre per day.

Waste Rock Piles - The first phase of the project consists of the gathering of historic overburden and tailings piles and placement of these materials on the leach pad for leaching. The second phase of the project involves the actual expansion of an existing pit. Waste rock will be produced in this phase. Confirmation sampling to demonstrate the non acid generating potential of the materials will be required. Any potentially acid generating materials must be encapsulated in neutral material as prescribed in the permit.

Solvent Extraction/Electrowinning Plant - All processing tanks and chemical storage tanks are designed with secondary containment. Any spills within the process areas will gravity drain to the Pre-Raffinate pond. Spills outside the containment area must be reported in accordance with the Water Quality Act.

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Mine Pits - The mining plan calls for the expansion of an existing mine pit. The projected bottom elevation of the pit precludes the possibility of intercepting significant ground water. Since the ore body is highly oxidized significant acidification within the pit is unlikely in the post mining period.

BASIS FOR PERMIT ISSUANCE

The Executive Secretary may issue a ground water discharge permit for a new facility provided that: 1) The applicant demonstrates that ground water quality will not be significantly impacted; 2) The monitoring and sampling requirements of the permit are sufficient to determine compliance with the permit requirements; 3) The applicant utilizes best available technology to minimize pollution discharge; 4) there is no impairment of present or future beneficial use of ground water. Conditions 1, 3 and 4, above, have been met by the permittee in terms of the permit application and their commitment to abide by the terms of this permit. Condition 2 will be meet by further submittal of information as required in the compliance schedule of the permit.

POTENTIAL IMPACTS TO GROUND WATER QUALITY

Potential impacts to ground water have been minimized by the design of process facilities that under normal operating conditions will not discharge. There is also an economic incentive to prevent ground water discharge since it is the process fluids that provide revenue for the permittee. Poor construction practices and/or inadequate operation and inspection procedures would result not only in potential discharge to ground water but would also reduce the return on the permittee's investment. The Division of Water Quality will provide periodic onsite inspections during construction and operation of the above facilities. The BAT monitoring plan required to be

submitted, to the Executive Secretary, by the permittee will ensure that the facility is operated in accordance with design specifications and will also ensure that any early indications of facility problems will be addressed.

As a part of the permitting process the permittee installed two down gradient monitoring wells. These wells plus an additional down gradient well be used to measure compliance with protection limits and thus detect any potential contamination that escapes the facility. One up gradient well will also be installed to further characterize the ground water hydrology and provide a point to monitor changes in ambient ground water conditions. Both additional wells must be installed within 180 days of the issuance date of the permit.

BASIS FOR OTHER SPECIFIC PERMIT CONDITIONS

Best Available Technology Monitoring Plan - The permittee shall submit a technology monitoring plan to the Executive Secretary for approval prior to the start of construction of the facilities described in the permit. The plan will include procedures and methods sufficient to ensure compliance with the BAT performance standards of the permit. The approved document will become an enforceable Appendix B to the permit. Additional time to submit this item is justified since construction of the facility will be conditional to the receipt and approval of an appropriate BAT monitoring plan. An appropriate mechanism for demonstrating compliance with the waste rock standard for encapsulation of potentially acid generating waste rock must also be included in the BAT monitoring plan.

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Closure Plan- The information provided by the permittee to date is insufficient to determine whether or not their closure plan would be protective of ground water. The closure plan provided is also incomplete in that it does not fully address all the design, maintenance and monitoring details necessary to form a complete and approvable plan. The permittee is currently engaged in a lab scale study which will form the basis for heap leach neutralization specifications. Because of the additional time necessary to complete an environmentally protective closure plan the permittee has been allowed to delay submittal of a conceptual closure plan. The closure plan must be approved prior to construction of facilities described in the permit. Based on the agency review of that plan and the results of any ongoing studies, the permittee will provide a Final Conceptual Closure Plan at least 180 days prior to the expiration date of the permit. Because heap leach closure plans take into account local site conditions and may be based on improving neutralization technologies the closure plan may change over the life of the permit. It is important that the permittee demonstrate the feasibility of closure during the permit process and provide conceptual details as to what methods and technologies they will utilize to achieve satisfactory closure. Although this was not completed during the permitting process the Division has enough experience in these matters to believe it can help guide the permittee in the development of an appropriate plan. The Division of Water Quality will coordinate with the Division of Oil Gas and Mining to ensure that sufficient bonding is required to provide for closure of the heap leach in the event of permittee insolvency.

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DRAFT Permit No.: UGW010005

STATE OF UTAH
DIVISION OF WATER QUALITY
DEPARTMENT OF ENVIRONMENTAL QUALITY
P.O. BOX - 16690
SALT LAKE CITY, UTAH 84116-0690

Ground Water Quality Discharge Permit

In compliance with the provisions of the Utah Water Pollution Control Act, Title 19, Chapter 5, Utah Code Annotated 1953, as amended,

Centurion Mines Corporation
OK Mine Copper Leach Project
P.O. Box 2365
Salt Lake City, Utah 84110

is granted a Ground Water Quality Discharge Permit for the OK Mine Copper Leach Project located from latitude 38° 29' 32" to 38° 28' 40" North, longitude 113° 08' 04" to 113° 06' 48" West in accordance with conditions set forth herein.

This permit shall become effective on April ??, 1997

This permit and the authorization to operate shall expire at midnight, April ??, 2002.

Signed this ??th day of April, 1997.

_____
Executive Secretary
Water Quality Board

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QUALITY ASSURANCE PROJECT PLAN 22

APPENDIX B - BEST AVAILABLE TECHNOLOGY MONITORING

QUALITY ASSURANCE PROJECT PLAN 23

I. CONSTRUCTION PERMIT DRAFT

The plans and specifications as submitted on July 8, 1996 and revised on December 20, 1996, comply with *the Utah Water Quality Rules, (R317-3, Utah Administrative Code).* A **Construction Permit** is hereby issued, subject to the following conditions:

1. *Any revisions or modifications to the approved plans and specifications must be submitted to the Division of Water Quality (the Division) for review and approval, before construction or implementation thereof.*

2. *The approved facilities must not be placed in service unless the Division has made a final inspection, and has authorized in writing to place the constructed facilities in service.*

3. *A quality Control/Quality Assurance plan must be submitted for review and approval prior to the beginning of construction.*

This construction permit will expire one year from the date of issuance of this permit unless substantial progress is made in constructing the approved facilities. Otherwise, the plans and specifications will have to be resubmitted and the construction permit reissued. Construction of Stages 3 and 4, of the heap leach pad will require a review and approval of updated plans and specifications. This permit does not relieve you in any way of your obligations to comply with other applicable local requirements, or those stated in permits issued under applicable water quality rules.

Project

The heap leach facility consists of a lined heap leach pad consisting of 2,375,000 square feet or 54.5 acres, to be constructed in stages, two double lined process ponds (pregnant liquor solution - 7.1 million gallon and raffinate - 1.3 million gallon), and a process facility. The facility will be operated to recover copper using 0.75% sulfuric acid solution to leach the copper from ore hauled from open pits nearby.

The ponds are designed to contain storm water runoff generated from a 100-year, 24-hour storm event included within the highest monthly total precipitation and the accumulation of the highest annual precipitation. Diversion structures are designed accommodate the 100-year, 24 hour storm event.

The pregnant liquor solution and raffinate ponds will be constructed as follows:

1. The pond bottoms will be graded at a slope of not less than 2.0 Percent.
2. The pond liner will be constructed of the following layers, from bottom to top:
   a. 12 inches of compacted soil layer with a maximum permeability of 1×10^{-6} centimeter per second,
   b. 12 inches of compacted clayey soil with a maximum permeability of 1×10^{-7} centimeter per second,
   c. a 60-mil high density polyethylene secondary liner,
   d. a geonet for leak collection layer, and,

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e. a 60-mil high density polyethylene primary liner.

The pregnant liqour solution pond will have two and the raffinate pond will have one gravel and/or sand sumps each sump will equipped with a 8-inch leak detection riser pipe and electronic leak detection sensor for monitoring and pumping of solution. An extra layer of 80-mil high density polyethylene liner will cover the 60-mil high density polyethylene liner under the sump.

Heap Leach Solution Ditches: - The liner shall be constructed of the following layers, from top to bottom:

a. 12 inches of compacted superficial soil having a maximum permeability of 1×10^{-6} centimeter per second,
b. 6-inch leak detection layer having a minimum permeability of $1x10^{-2}$ centimeters per second. 2-inch PVC (schedule 80) perforated leak detection piping, spaced at 200 feet on center, will be laid in the bottom of gravel bed wrapped with geo-textile fabric,
c. 12 inches of compacted clayey soil with a maximum permeability of 1×10^{-7} centimeter per second,
d. a 60-mil high density polyethylene primary, and,
e. a 60-mil high density polyethylene liner that will extend under the pad for a depth not less than ten feet.

Heap Leach Pad: - The liner system of the heap leach pad will consist of, from bottom to top:

a. 12 inches of compacted superficial soil having a maximum permeability of 1×10^{-6} centimeter per second,
b. 6-inch leak detection layer having a minimum permeability of $1x10^{-2}$ centimeters per second. 2-inch PVC (schedule 80) perforated leak detection piping, spaced at 200 feet on center, will be laid in the bottom of gravel bed wrapped with geo-textile fabric,
c. 12 inches of compacted clayey soil having a maximum permeability of 1×10^{-7} centimeter per second,
d. A 60-mil high density polyethylene liner,
e. A 24-inch protective cover of well graded, minus 3/4-inch crushed rock,

A set of approved plans and specifications is returned herewith bearing an imprint of our construction permit stamp. The stamped set must be kept available for examination and inspections to be conducted by the Division, or for resolution of any conflicts or discrepancies that may arise during construction or installation.

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II. SPECIFIC CONDITIONS

A. Ground Water Classification

In accordance with UAC R317-6-3 ground water at the existing monitoring wells is classified as Class II, based on reported Total Dissolved Solids levels in samples from two monitoring wells installed downgradient of the proposed leach pad. Classification of any additional well(s) installed as a condition of this permit will occur at the end of the accelerated monitoring period, see Part II.H.7.

B. Background Ground Water Quality

Background ground water quality for wells MW-1, MW-2, MW-3 and MW-4 will be defined in Table I at the conclusion of the Accelerated Monitoring period as required in Part II.H.7, below.

C. Ground Water Protection Levels

1. Protection Levels for Compliance Monitoring Wells - Ground water quality at compliance monitoring wells MW-1, MW-2, and MW-3 shall not exceed the ground water protection levels defined in Table I. These levels will be defined at the conclusion of the Accelerated Monitoring period as required in Part II.H.7, below.

2. Compliance Determination Method - Compliance with ground water protection levels shall be accomplished with the use of compliance monitoring wells. If future monitoring data indicate an exceedance of protection levels compliance status will be determined in accordance with Part II.F, below, and if necessary reference to the methods described in the EPA Interim Final Guidance Document entitled "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities", dated February, 1989. Subsequent updates of this document shall be utilized as available and appropriate.

D. Best Available Technology

Best Available Technology (BAT) construction and operation standards of this permit apply to the following facilities: 1) Heap Leach Pad; 2) Raffinate and Pregnant Liquor Solution (PLS) ponds 3) Heap Leach Solution Ditches; 5) Waste Rock Piles. All facilities shall be constructed in accordance with the approved Plans and Specifications and the conditions of the Construction Permit, above. The following paragraphs list the construction and operating standards for the specifically permitted facilities.

TABLE 1 -Compliance Monitoring Well Background and Protection Levels

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			Monitoring Well MW-01				Monitoring Well MW-02				Monitoring Well MW-03				Monitoring Well MW-04			
Parameter	method detection limit	ground water quality standard	Background Level(mg/L) mean	Background Level(mg/L) stddev	Protection Level (mg/L)	Compliance Level (mg/L)	Background Level (mg/L) mean	Background Level (mg/L) dtddev	Protection Level (mg/L)	Compliance Level (mg/L)	Background Level(mg/L) mean	Background Level(mg/L) stddev	Protection Level (mg/L)	Compliance Level (mg/L)	Background Level(mg/L) mean	Background Level(mg/L) stddev	Protection Level (mg/L)	Compliance Level (mg/L)
pH (units)	n/a	6.5-8.5																
Antimony	.002	0.006																
Arsenic	.005	0.05																
Barium	.01	2.0																
Beryllium	.001	.004																
Cadmium	.001	0.005																
Chromium	.005	0.1																
Copper	.01	1.3																
Lead	.003	0.015																
Manganese	.01	.05																
Mercury	.0002	0.002																
Nickel	.01	0.1																
Selenium	.002	0.05																
Silver	.002	0.1																
Thallium	.001	0.002																
Zinc	.05	5.0																
Fluoride	.3	4.0																
Nitrate-N	.02	10.0																
Nitrite-N	.005	1.0																
TDS	5.0	3000																

1-Background for these parameters was determined by averaging the detectable values since the background data set was greater than 50% non-detect (ND), therefore standard deviation not applicable.
a-Protection Level established based on 1.X times the mean background concentration, where X = 0.25
b-Protection Level established based on 0.X times the Ground Water Quality Standard, where X = 0.25
c-Protection Level established at the reported method minimum detection limit.

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1. BAT Construction Standards

Heap Leach Pads: The liner shall be constructed of the following layers in order from bottom to top: 12 inches of compacted superficial soil having a maximum permeability of 1×10^{-6} centimeter per second. 6-inch leak detection layer having a minimum permeability of $1x10^{-2}$ centimeters per second. 2-inch PVC perforated leak detection piping will be laid in the bottom of gravel bed wrapped with geo-textile fabric, and, 12 inches of compacted clayey soil having a maximum permeability of 1×10^{-7} centimeter per second, a 60-mil high density polyethylene liner, a 24-inch protective cover of well graded, minus 3/4-inch crushed rock.

Raffinate and PLS: The liner shall be constructed to a minimum 2.0 percent slope and be constructed of the following layers in order from bottom to top: a) 12 inches of compacted clayey soil with a maximum permeability of 1×10^{-7} cm/sec; b) a 60 mil HDPE secondary liner; c) a geonet leak detection system and; d) a 60 mil HDPE primary liner.

Heap Leach Solution Ditches: The liner shall be constructed of the following layers in order from top to bottom: a) 12 inches of compacted clayey soil with a maximum permeability of 1×10^{-7} cm/sec; b) a 60 mil HDPE secondary liner; c) a primary 60 mil HDPE liner with geonet below all pipes as protection against abrasion. The 60 mil HDPE will extend under the pad for a depth not less than 10 feet.

Waste Rock Piles: There will be 2 large waste rock repositories at the site. Potentially acid generating materials will be encapsulated within acid neutralizing material from other formations within the mine. At closure the waste rock repositories will be graded and vegetated in accordance with Division of Oil Gas and Mining rules. Encapsulation is defined as a minimum of 40 feet of neutralizing material below, above and to the sides of all acid generating materials. The maximum lift thickness for acid generating material is 50 feet.

2. BAT Performance Standards

a) Heap Leach Pads: Due to the design of the leakage detection system that allows small leaks in the primary liner to go undetected the allowable leakage rate from any of the leakage detection ports is zero gallons per acre per day.

b) Raffinate and PLS and Ponds: The allowable leakage rate for these ponds is 200 gallons per acre per day.

c) Heap Leach Solution Ditches: The allowable leakage rate is 200 gallons per acre per day.

d) Waste Rock Piles: Encapsulation of potentially acid generating material within the waste rock repositories.

3. Leakage Detection Fluids - any fluid collected in any of the leakage detection

systems shall be contained and pumped to one of the double lined process or storm water ponds. Any fluid collected shall be monitored in accordance with Part II.E.2, below.

4. Spill Containment - The permittee shall design, maintain and construct all pipelines, storage tanks, and milling facilities with a spill containment system that shall:

   a) Prevent any spills or leakage from any contact with the ground surface or ground water.

   b) Convey all spills or leakage to the double lined process or storm water ponds.

   Any spill that does come into contact with the ground surface or ground water shall be reported in accordance with Part III.I.

5. Future Construction - New construction of the heap leach pad shall be according to the design and methods approved in this Permit.

   a) Authorized Construction - The heap leach pad is authorized to be constructed in 2 phases for a total surface area of 54.5 acres. Expansion of the pad by more than 10% of the acreage stated above will require ground water permit modification and may be subject additional ground water monitoring requirements.

   b) Advance Notification of Seasonal Construction - The permittee shall submit a facility construction plan on an annual basis that outlines the planned construction for the year. This will enable division staff to appropriately schedule inspections during key activities. The plan shall be submitted in accordance with Part II.G.4. Expansion of the heap leach pad for stages 3 and 4 will require a construction permit. Each pad expansion will meet current Division of Water Quality Best Available Technology requirements.

   c) Monitoring Well Construction - Monitoring well construction shall conform to A Guide to the Selection of Materials for Monitoring Well Construction (1983) and RCRA Groundwater Monitoring Technical Enforcement Guidance Manual (1986) Steel casing or other suitable material when approved by the Executive Secretary shall be required on all new wells constructed for the purposes of this permit.

E. Compliance Monitoring Requirements

1. Ground Water Monitoring Requirements

a) Water Quality Monitoring QA\QC Plan - All water quality monitoring to be conducted under this permit shall be conducted in accordance with the general requirements of this permit, and the specific requirements of the Water Quality Monitoring QA\QC Plan. This plan is designated as Appendix A and is hereby incorporated by reference as an enforceable appendix to this permit.

b) Monitoring Wells - For the purposes of this permit the permittee shall monitor the following wells at the locations described below.

i. Compliance Monitoring Well MW-1 - Latitude 38°28'41 " N, Longitude 113° 07' 46".

ii. Compliance Monitoring Well MW-2 - Latitude 38° 28' 43" N, Longitude 113° 07' 57".

iii. Compliance Monitoring Well MW-3 - to be constructed see Part II.H.2.

iv. Ambient Monitoring Well MW-4 - to be constructed see Part II.H.2.

c) Protection of Monitoring Well Network - All compliance monitoring wells must be protected from damage due to surface vehicular traffic or contamination due to surface spills. They shall be maintained in full operational condition for the life of this permit. Any well that becomes damaged beyond repair or is rendered unusable for any reason will be replaced by the permittee within 90 days or as directed by the Executive Secretary.

d) Ground Water Sampling\Frequency Requirements

I. Ground Water Level Measurements - Ground water level measurements shall be made quarterly in each monitoring well prior to any collection of ground water samples. These measurements will be made from a permanent single reference point clearly demarcated on the top of the well or surface casing. Measurements will be made to the nearest 0.1 foot.

ii. Ground Water Quality Sampling - grab samples of ground water from all compliance monitoring wells will be collected for chemical analysis on a quarterly basis, in conformance with the Quality Assurance Project Plan that has been approved by the Executive Secretary, Appendix A.

e) Ground Water Analysis Requirements

I. Analysis by Certified Laboratories - analysis of any ground water sample shall be performed by laboratories certified by the State Health Laboratory.

ii. Ground Water Analytical Methods - methods used to analyze ground water samples must comply with the following:

A) Are Methods cited in UAC R317-6-6.3A(13), and
B) Have detection limits which are less than or equal to the method detection limits found in Part I.C, Table 1.

iii. Analysis Parameters - the following analyses will be conducted on all ground water samples collected:

A) Field Parameters - pH, temperature, and specific conductance

B) Laboratory Parameters - including:

- Major Anions and Cations: including chloride, sulfate, carbonate, bicarbonate, sodium, potassium, magnesium and calcium.
- Protection Level Parameters - found in Table 1 of Part I C, above.

2. Best Available Technology Monitoring Requirements - The permittee shall monitor all leakage detection and collection systems and settlement monitoring devices in accordance with the Best Available Technology Monitoring Plan submitted as required in Part II.H.3 and incorporated by reference as Appendix B to this permit.

F. Non-Compliance Status

1. Probable Out-of-Compliance Based on Exceedance of Ground Water Protection Limits

The permittee shall evaluate the results of each round of ground water sampling and analysis to determine any exceedance of the ground water protection levels found in Table 1 . Upon determination by the permittee that the data indicate a ground water protection level may have been exceeded at any downgradient compliance monitoring well, the permittee shall:

a) Immediately resample the monitoring well(s) found to be in probable out-of-compliance, for the protection level parameters that have been exceeded. Submit the analytical results thereof, and notify the Executive Secretary of the probable out-of-compliance status within 30 days of the initial detection.

b) Immediately implement an accelerated schedule of monthly ground water sampling and analysis, consistent with the requirements of Part II.E.1, above. This monthly sampling will continue for at least two months or until the compliance status can be determined by the Executive Secretary. Reports of the results of this sampling will be submitted to the Executive Secretary as soon as they are available, but not later than 30 days from each date of sampling.

2. Out-of-Compliance Status Based on Confirmed Exceedance of Permit Ground Water Protection Limits

a) Out of Compliance Status shall be defined as follows:

1) For parameters that have been defined as detectable in the background and for which protection levels have been established based on 1.5 times the mean background concentration, out-of-compliance shall be defined as two consecutive samples exceeding the protection level and the mean background concentration by two standard deviations.

2) For parameters that have been defined as detectable in the background and for which protection levels have been established based on 0.5 times the ground water quality standard, out-of-compliance shall be defined as 2 consecutive samples exceeding the protection level and the mean background concentration by two

standard deviations.

3) For parameters that have background data sets between 50-85% non-detectable analyses, out-of-compliance shall be defined as 2 consecutive samples from a compliance monitoring point exceeding the established protection level.

4) For parameters that have been defined non-detectable in the background and for which protection limits have been determined based on 0.5 times the ground water quality standard or the limit of detection out-of-compliance shall be defined as 2 consecutive samples from a compliance monitoring point exceeding the established protection limit.

b) Notification and Accelerated Monitoring - upon determination by the permittee or the Executive Secretary, in accordance with UAC R317-6-6.17, that an out-of-compliance status exists, the permittee shall:

1) Verbally notify the Executive Secretary of the out-of-compliance status or acknowledge Executive Secretary notice that such a status exists within 24 hours, and

2) Provide written notice within 5 days of the determination, and

3) Continue an accelerated schedule of <u>monthly</u> ground water monitoring for at least two months and continue monthly monitoring until the facility is brought into compliance.

c) Source and Contamination Assessment Study Plan - within 30 days of the written notice to the Executive Secretary required in Part I F 2(b), above, the permittee shall submit an assessment study plan and compliance schedule for:

1) Assessment of the source or cause of the contamination, and determination of steps necessary to correct the source.

2) Assessment of the extent of the ground water contamination and any potential dispersion.

3) Evaluation of potential remedial actions to restore and maintain ground water quality, and ensure that the ground water standards will not be exceeded at the compliance monitoring wells.

3. Out-of-Compliance Status Based Upon Failure To Maintain Best Available Technology

In the event that BAT monitoring indicates violation of any of the construction or performance standards outlined in Part II.D, of this permit, the permittee shall submit to the Executive Secretary a notification and description of the violation in accordance with Part III.I.1 and Part III.I.2.

G. Reporting Requirements

1. Ground Water Monitoring Report:

a) Schedule - The sampling and analysis required in Part II.E.1, above, shall be reported according to the schedule of Table 2, below.

Table 2 Compliance Monitoring Reporting Schedule

Quarter		Report Due On
1st	(Jan., Feb., March)	April 30
2nd	(April, May, June)	July 30
3rd	(July, Aug., Sept.)	October 30
4th	(Oct., Nov., Dec.)	January 30

b). Sampling and Analysis Report - will include:

1) Field Data Sheets - or copies thereof, including the field measurements, required in Part I.E.1.e.iii.A, above, and other pertinent field data, such as: well name/number, date and time, names of sampling crew, type of sampling pump or bail, measured casing volume, volume of water purged before sampling.

2) Results of Ground Water Analysis - laboratory analysis result forms that include date sampled, date received, ion balance; and the results of analysis for each parameter, including: value or concentration, units of measurement, reporting limit (minimum detection limit for the examination), analytical method, and the date of the analysis.

3). Quarterly Ground Water Level Measurements - water level measurements from ground water monitoring wells will be reported in both measured depth to ground water and ground water elevation

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above mean sea level.

4) Electronic Filing Requirements - In addition to submittal of the hard copy data, above, the permittee will electronically submit the required ground water monitoring data in the electronic format specified by the Executive Secretary. The data may be sent by e-mail, floppy disc, modem or other approved transmittal mechanism.

c) In the event that any of the protection limits of Part II.C are exceeded, the permittee shall notify the Executive Secretary in accordance with Part II.F.1 and Part II.F.2.

2. Best Available Technology Report:

a) Routine Schedule - The Best Available Technology (BAT) monitoring, sampling and analysis required under Part I.E.2 shall be summarized on a monthly basis and reported to the Executive Secretary in accordance with the Compliance Monitoring Schedule of Table 2.

b) In the event that any of the performance standards of Part II.D.2 are exceeded the permittee shall notify the Executive Secretary in accordance with Part II.F.3.

c) Electronic Filing Requirements - In addition to submittal of the hard copy data, the permittee shall electronically submit the required water quality monitoring data in the electronic format specified by the Executive Secretary. The data may be sent by e-mail, floppy disc, modem or other approved transmittal mechanism.

3. Seasonal Construction Notification Report:

a) Schedule - The advance notification of the seasonal construction activities required in part II.E.5.b, above, shall be submitted to the Executive Secretary by January 30 of each year starting in 1998. The permittee shall resubmit the report within 30 days of receipt of written notice, from the Executive Secretary, detailing any deficiencies or omissions.

H. Compliance Schedule

1. Water Quality Monitoring QA\QC Plan - The water quality sampling, handling and analysis plan, Appendix A of the permit, shall be updated and/or modified as required by the Executive Secretary. The revised plan will be submitted for Executive Secretary approval, within 60 days following receipt of notice from the Executive Secretary, that updates or revisions to the plan are required. The revised

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document will replace the current Appendix A and is hereby incorporated by reference.

2. Compliance Monitoring Well Requirements

   a. Location and Reporting Requirements - Within 120 days of the issuance of this permit the permittee shall install an additional compliance monitoring well and an upgradient ambient monitoring well. Prior to drilling of the wells the permittee shall submit a well drilling plan that describes the proposed latitude and longitude, the proposed depth and the geologic formation the wells will be completed in. The new wells will be subject to the accelerated monitoring requirements of Part II.H.6, below.

   b. Monitoring Well As-Built Report - For each well constructed the permittee shall submit diagrams and descriptions of the final completion of the monitoring wells. The report is due within 60 days of the date of well completion. The report shall include:

      1) Casing: depth, diameter, type of material.
      2) Screen: length, depth interval, diameter, material type, slot size.
      3) Sand Pack: depth interval, material type and grain size.
      4) Annular Seals: depth interval, material type.
      5) Surface Casing and Cap: depth, diameter, material type, protection measures constructed.
      6) Elevation and Location: ground surface elevation, elevation of water level measuring point, latitude and longitude in hours, minutes and seconds.
      7) Well construction description, well completion description, results of pumping or aquifer tests.

3. Best Available Technology (BAT) Monitoring Plan - The permittee shall submit a BAT monitoring plan to the Executive Secretary and secure approval of the plan prior to construction of any facilities described in this permit. The plan will include all procedures and methods sufficient to ensure compliance with the BAT performance standards of Part II.D.2, including the criteria for encapsulation of potentially acid generating waste rock. The approved document will become an enforceable Appendix B to this permit and is hereby incorporated by reference.

4. Interim Conceptual Closure Plan - The permittee shall submit a conceptual closure plan and secure approval of the plan prior to construction of any facilities described in this permit. The interim conceptual closure plan must specifically address neutralization, cover design, fluid disposal and long term fluid management. The permittee will modify the plan in accordance with agency review comments and the results of any ongoing studies to form the basis for the Final Conceptual Closure Plan required in Part II.H.6, below.

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5. Notice of Phase I Heap Leach Construction and Commencement of Operation - At least 30 days prior to the final completion of Phase I of the heap leach and associated facilities the permittee shall notify the Executive Secretary in writing that construction is nearly complete and provide a proposed date for initiation of operations.

6. Final Conceptual Closure Plan - The permittee shall submit a Final Conceptual Closure Plan within 18 months from the approval date of the Interim Conceptual Closure Plan described in Part II.H.4, above. The Final Conceptual Closure Plan must be based on the study requirements identified in the Interim Conceptual Closure Plan and must provide specific proposals that address neutralization, cover design, fluid disposal and long term fluid management. The permittee will modify the plan in accordance with agency review comments and the resubmit the plan within 60 days of receipt of written notice detailing any deficiencies therein.

7. Final Closure Plan - In the event that the permittee decides to discontinue its operations at the facility the permittee shall notify the Executive Secretary of such a decision and submit a Final Closure Plan within 180 days. The Final Closure Plan shall be submitted no later than 180 days prior to the closure of the facility. The permittee shall resubmit Final Closure Plans within 60 days of receipt of written notice of deficiencies therein. Any material changes made to this plan, after it receives Executive Secretary approval, shall also require approval of the Executive Secretary. Said closure plans will require a construction permit in addition to approval under this permit.

8. Accelerated Monitoring - Ground water quality samples will be collected and analyzed from all designated compliance monitoring wells in compliance with the following requirements:

   a) Samples will be collected every other month utilizing the procedures outlined in the Quality Assurance Project Plan, Appendix A.

   b) Each sampling event or episode will include independent grab samples.

   c) Sampling parameters will include those required in Table I and Part I.E.1.e.iii.B, above.

   d) Sampling will continue until at least 8 bi-monthly samples have been collected for a particular well. After Executive Secretary approval sampling will be relaxed to quarterly grab samples as per the requirements of Part II.E.1, above.

   e) The results of this sampling will be reported to the Executive Secretary as the data becomes available as per the schedule of Table 2, above. Reporting requirements thereof shall comply with Part II.G.1.

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III. MONITORING, RECORDING AND REPORTING REQUIREMENTS

A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under Part I shall be representative of the monitored activity.

B. Analytical Procedures. Water sample analysis must be conducted according to test procedures specified under UAC R317-6.3.A.13, unless other test procedures have been specified in this permit.

C. Penalties for Tampering. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

D. Reporting of Monitoring Results. Monitoring results obtained during each reporting period specified in the permit, shall be submitted to the Executive Secretary, Utah Division of Water Quality at the following address no later than the 30th day of the month following the completed reporting period:

State of Utah
Division of Water Quality
Department of Environmental Quality
Salt Lake City, Utah 84114-4810
Attention: Ground Water Protection Section

E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using approved test procedures as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted. Such increased frequency shall also be indicated.

G. Records Contents. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements:
2. The individual(s) who performed the sampling or measurements;
3. The date(s) and time(s) analyses were performed;
4. The individual(s) who performed the analyses;
5. The analytical techniques or methods used; and,
6. The results of such analyses.

H. Retention of Records. The permittee shall retain records of all monitoring information,

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including all calibration and maintenance records and copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Executive Secretary at any time.

I. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall verbally report any noncompliance with permit conditions or limits as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the Utah Department of Environmental Quality 24 hour number, (801) 538-6333, or to the Division of Water Quality, Ground Water Protection Section at (801) 538-6146, during normal business hours (8:00 am - 5:00 pm Mountain Time).

2. A written submission of any noncompliance with permit conditions or limits shall be provided to the Executive Secretary within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:

   a. A description of the noncompliance and its cause;

   b. The period of noncompliance, including exact dates and times;

   c. The estimated time noncompliance is expected to continue if it has not been corrected; and,

   d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

   e. When applicable, either an estimation of the quantity of material discharged or an estimation of the quantity of material released outside containment structures.

3. Written reports shall be submitted to the addresses in Part III.D, Reporting of Monitoring Results.

J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours, shall be reported at the time that monitoring reports for Part III D are submitted.

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K. Inspection and Entry. The permittee shall allow the Executive Secretary, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

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IV. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Executive Secretary of the Utah Water Quality Board of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

B. Penalties for Violations of Permit Conditions. The Act provides that any person who violates a permit condition implementing provisions of the Act is subject to a civil penalty not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions is subject to a fine not exceeding $25,000 per day of violation. Any person convicted under Section 19-5-115(2) of the Act a second time shall be punished by a fine not exceeding $50,000 per day. Nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Affirmative Defense

In the event that a compliance action is initiated against the permittee for violation of permit conditions relating to best available technology, the permittee may affirmatively defend against that action by demonstrating the following:

1. The permittee submitted notification according to Part II.F.3 and Part III.I.1 and 2;
2. The failure was not intentional or caused by the permittee's negligence, either in action or in failure to act;
3. The permittee has taken adequate measures to meet permit conditions in a timely manner or has submitted to the Executive Secretary, for the Executive Secretary's approval, an adequate plan and schedule for meeting permit conditions; and
4. The provisions of 19-5-107 have not been violated.

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V. GENERAL REQUIREMENTS

A. Planned Changes. The permittee shall give notice to the Executive Secretary as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required when the alteration or addition could significantly change the nature of the facility or increase the quantity of pollutants discharged.

B. Anticipated Noncompliance. The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

C. Spill Reporting - The Permittee shall immediately report as per UCA 19-5-114 of the Utah Water Quality Act any spill or leakage which is not totally contained by a collection system. This report shall be made to the phone numbers given in Part III.I.1. A written report will be required within 5 days of the occurrence and should address the requirements of UCA 19-5-114 and Parts III.I.2 and 3 of this permit.

D. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

E. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a permit renewal or extension. The application should be submitted at least 180 days before the expiration date of this permit.

F. Duty to Provide Information. The permittee shall furnish to the Executive Secretary, within a reasonable time, any information which the Executive Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Executive Secretary, upon request, copies of records required to be kept by this permit.

G. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Executive Secretary, it shall promptly submit such facts or information.

H. Signatory Requirements. All applications, reports or information submitted to the Executive Secretary shall be signed and certified.

1. All permit applications shall be signed as follows:

   a. For a corporation: by a responsible corporate officer;

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.

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c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Executive Secretary shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above and submitted to the Executive Secretary, and,

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to Authorization. If an authorization under Part V.H.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part V.H.2. must be submitted to the Executive Secretary prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I. Penalties for Falsification of Reports. The Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

J. Availability of Reports. Except for data determined to be confidential by the permittee, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Executive Secretary. As required by the Act, permit applications, permits, effluent data, and ground water quality data shall not be considered confidential.

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K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers. This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Executive Secretary at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,

3. The Executive Secretary does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement as described in Part V.M.2, above.

N. State Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, penalties established pursuant to any applicable state law or regulation under authority preserved by Section 19-5-117 of the Act.

O. Reopener Provisions. This permit may be reopened and modified pursuant to R317-6-6.6.B or R317-6-6.10.C to include the appropriate limitations and compliance schedule, if necessary, if one or more of the following events occurs:

1. If new ground water standards are adopted by the Board, the permit may be reopened and modified to extend the terms of the permit or to include pollutants covered by new standards. The permittee may apply for a variance under the conditions outlined in R317-6-6.4.D.

2. Changes have been determined in background ground water quality.

3. When at the end of the accelerated monitoring period, protection levels for the new wells are established.

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APPENDIX A - WATER QUALITY MONITORING

QUALITY ASSURANCE PROJECT PLAN

Dated ??, 1997

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APPENDIX B - BEST AVAILABLE TECHNOLOGY MONITORING

QUALITY ASSURANCE PROJECT PLAN

Dated ??, 1997