GE Energy

David W. Turner, Manager
Vallecitos Nuclear Center

Thursday, March 31st, 2006

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70-754

California Regional Water Quality Control Board
San Francisco Bay Region
NPDES Division
1515 Clay Street, Suite 1400
Oakland, California 94612

Subject: **Annual Report 2005 for Effluent Monitoring and Environmental Surveillance Programs**
Reference: NPDES Permit No. CA0006246, Order Number R-2-2003-0052

Board members:

Vallecitos Nuclear Center (VNC) is a General Electric Company facility located in Sunol, California. VNC holds NPDES Permit No. CA0006246, Order Number R-2-2003-0052. In accordance with the Permit, attached to this letter is the Annual Report for 2005. This permit became effective July 1st, 2003.

The data in the report include all required parameters for the reporting period. This report also includes parameters monitored to demonstrate compliance with US NRC licenses and California Department of Health Services license and the underling regulations.

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed 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 [40CFR122.2(d)].

If there are any questions, please contact me at 925-862-4344

Sincerely,

David W. Turner 2006.03.31 10:06:25 -08'00'

David W. Turner, Manager
Vallecitos Nuclear Center

General Electric Company
GENE Vallecitos Nuclear Center
Mail Code V-18
6705 Vallecitos Rd
Sunol, CA 94586

T.925.862.4344

NMSSOI
IE17

CC:

M. Lanier
Alameda County Water District
P.O. Box 5110
43885 South Grimmer Boulevard
Fremont, CA 94537

Alameda County Environmental Health
Environmental Protection Division
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502-6577
Attn: Robert Weston

Department of Health Services
Radiologic Health Branch, MS 7610
P.O. Box 997414
Sacramento, CA 95899-7414
Attn: Steve Hsu

David W. Lunn
Chief, Water Resources Engineering
ACFC and WCD, Zone 7
5997 Parkside Drive
Pleasanton, CA 94566

Mark Poirier
American Nuclear Insurers
95 Glastonbury Boulevard
Glastonbury, CT 06033

Chief, Licensing Branch
Division of Fuel Cycle Safety and Safeguards, NMSS
US Nuclear Regulatory Commission
Washington DC 20555
ATTN: Docket 70-754

USNRC, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

Emilio M. Garcia
USNRC Region IV
1603 Westshore St.
Davis, Ca 95616-2971

D.W. Turner, VNC
J. G. Ayala, VNC
C. J. Monetta, GE Energy

GE Energy

Juan G. Ayala
Acting Mgr, VNC Reg. Compliance & EHS
Juan1.Ayala@ge.com

EFFLUENT MONITORING AND ENVIRONMENTAL SURVEILLANCE PROGRAMS

ANNUAL REPORT

2005

Prepared by: ✓ Juan G. Ayala 2006.03.31 09:47:50 -08'00'

J. G. Ayala, Acting Mgr,
Regulatory Compliance & EHS

March 31, 2006
Date

Approved by: ✓ David W. Turner 2006.03.31 10:06:51 -08'00'

D. W. Turner, Manager
Vallecitos Nuclear Center

March 31, 2006
Date

General Electric Company
GENE Vallecitos Nuclear Center
Mail Code V-18
6705 Vallecitos Rd
Sunol, CA 94586

T.925.862.4342

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ABSTRACT

Annual, 2005

This report presents the data collected for the Effluent Monitoring and Environmental Surveillance Programs at Vallecitos Nuclear Center (VNC) for the calendar year of 2005. The original copies of all laboratory and dosimetry reports are on file at VNC.

All treated sanitary and industrial wastewater was disposed of on-site by an irrigation system. No surface runoff was observed during the report period.

Based on the analytical results of non-radiological samples collected from locations on- site during the reporting period, VNC was in compliance with the limitations set in the NPDES Permit No. CA0006246, Order Number R-2-2003-0052 with the following clarifications:

1. Two samples taken in March for Sanitary System (E-001) were above the limit of 240 MPN/100ml in two consecutive samples. GE contacted the permitting engineer within 24 hours, investigated causes, undertook additional sampling and instituted corrective action to prevent reoccurrence. All subsequent samples have been below limits.

2. On November there was a Sodium hyplochlorite spill in building 109. The amount of Sodium hypoclhlorite that was spilled was approximately 25 gallons. The Sodium hypochlorite spilled from one of the tanks that we used as storage of The sodium hypochlorite that is used for disinfection of the sanitary waste water system. None of the sampling was affected by this action.

Based on the analytical results of radiological samples collected from locations on- and off-site during the reporting period, VNC was in compliance with all licenses issued by the U.S. Nuclear Regulatory Commission and California Department of Health, Radiologic Health Branch.

1.0 INTRODUCTION

This report summarizes activities performed and data collected for the Effluent Monitoring and Environmental Surveillance Programs at Vallecitos Nuclear Center (VNC). This section presents background information about the Programs. Data collected during the reporting period are presented in Sections 2.0, 3.0 and 4.0. This report has been prepared in compliance with applicable Federal and State regulations.

The VNC site is 1,594 acres in size. It is located on the northern side of Vallecitos Valley as shown in Figure 1, a topographic map of VNC and the surrounding area. The majority of the site is undeveloped with hills ranging in elevation from 1,000 to 1,300 feet above mean sea level. Approximately 135 acres in the southwest corner and situated between the 400- and 600-foot topographic contours are developed. The ground surface of this portion of the site slopes to the southwest.

VNC utilizes three drainage systems: industrial, sanitary, and storm. The industrial and sanitary systems discharge effluent into one of four 50,000-gallon retention basins located in the southwest corner of the site (Figure 2). The storm drainage system, essentially natural ditches, discharges storm water into a ditch parallel with Vallecitos Road (State Route 84). Storm drains from Buildings 103, 104 and 106 discharge to the west drainage ditch, while some storm drains in the Building 102, 105, 200 and 300 areas discharge to the east drainage ditch. As shown in Figures 2 and 3, these ditches merge prior to exiting the site.

Groundwater levels of the developed site vary from 2 to 3 feet (during winter near Retention Basins 2 and 3) to 30 to 40 feet (during the summer northwest of the road leading to the water tank). A USGS geology study shows that groundwater generally flows toward the southwest. The velocity of groundwater is estimated by USGS to be about 0.01 ft/day in clays to 8 ft/day in gravels. In areas where gravels with a considerable mixture of clay (most of developed site) are saturated close to the land surface, southwesterly movement would occur at an average rate of approximately 2 ft/day[1].

1.1 Effluent Monitoring Program

The purpose of the Effluent Monitoring Program is to ensure that VNC site release limits for effluent are not exceeded. The Program includes measuring radioactive and non-radioactive constituents in water discharged through the site sanitary and industrial wastewater systems. Measurements are determined by collecting samples of influent and effluent. The schedule of sample collection is presented in Table 1.

The California Regional Water Quality Control Board (CRWQCB) has established release limits for numerous non-radiological constituents through NPDES Permit No. CA0006246,. A copy of this permit is on file at VNC and CRWQCB. The California State Department of Health Services (CSDHS) and the United States Nuclear Regulatory Commission (NRC) have established radiological release limits. These limits are listed in 10CFR20, Appendix B.

Influent Characteristics

Influent water is comprised of potable water piped from a municipal source (ultimately, the Hetch Hetchy Reservoir) to an on-site collection tank. In order to monitor the quality of the incoming potable water, a sample from the tank is collected periodically. Samples can also be collected at the pumps which supply water from the Hetch-Hetchy system. There are no compliance limits for this sample; it is collected for background information.

Effluent Characteristics

Effluent discharge from VNC is made up of industrial wastewater and clean water. Discharges of industrial wastewater consist primarily of non-contact cooling water. The discharges are either held in one of three available 50,000-gallon retention basins or used for non-potable purposes, such as landscape watering. After July 1st, 2003 no discharges to surface waters were conducted, although that method is still permitted. Samples are collected from each basin prior to discharge into Vallecitos Creek or to on site irrigation. In

[1] A delay of over 2 years from the nearest probable spills point to the site boundary.

addition, samples from all basin discharges are accumulated and analyzed at specified intervals for a variety of constituents.

Aliquots of effluent radiological samples are combined to form the monthly composite. The monthly composite results will differ from a simple summation of daily sample analyses because:

- the monthly composite analysis is performed by a contracted laboratory with minimum sensitivities different from on-site counting equipment and methods;
- the monthly composite analysis is performed on a significantly larger sample; and
- most of the short half-life, naturally occurring radioisotopes have decayed below detectability by the time the monthly composite is analyzed.

Discharges of clean water consist of storm water runoff and small quantities of water known to contain no contaminants (such as irrigation runoff). These waters flow directly to drainage ditches that enter Vallecitos Creek.

Sanitary Waste Handling

Discharges of sanitary waste are collected in an Imhoff tank before undergoing sand filtration and chlorination (by addition of sodium hypochlorite solution). Samples of sanitary waste are collected once per discharge. Processed sanitary waste is sprayed onto VNC property by an irrigation system in a designated area (Figure 2). The procedure is monitored so that no surface runoff occurs.

1.2 Environmental Surveillance Program

The purpose of the Environmental Surveillance Program is to determine if discharges from VNC are detectable in the environment. The Program includes measuring both radioactive and non-radioactive constituents in neighboring streams, wells, and soils at locations near or beyond the site perimeter. Samples of receiving water (if discharge occurs,) groundwater, stream bottom sediments, and vegetation are collected. The schedule of sample collection is presented in Table 1.

Receiving Water Monitoring

Receiving water originates from a location upstream from the retention basin outlet where natural drainage flows from the site (see Figure 2). The location, designated as C-4, is a drainage ditch crossing the south boundary of site (see Figure 3). It is monitored on a quarterly basis by visual inspection and is typically dry. However, if water is present, a sample is collected and analyzed. Samples are not required during periods where no discharge of type E-002-SW (Surface Water Discharge) occurs.

Groundwater Monitoring

Groundwater is monitored by collecting and analyzing samples from four wells located on or near VNC. Well identification numbers, corresponding California State Well Numbers, and descriptions of locations are listed in Table 2. The locations of the on-site and nearby wells are shown in Figure 3.

Vegetation Monitoring

Vegetation is monitored by collecting and analyzing samples of vegetation at two locations designated V-2 and Val-IV. The locations are shown in Figure 3.

Stream Bottom Sediment Monitoring

Stream bottom sediment is monitored by collecting and analyzing samples at one location designated as S-4. The location is at the outfall of the retention basins at south boundary of site, which is the same as for receiving water shown in Figure 3.

Air Monitoring

There are four air monitoring stations, designated as A-1 through A-4, across the site. The stations are positioned approximately 90° apart around the operating facilities of the site. The locations of the stations are shown in Figure 4.

To collect samples, each station is equipped with a membrane filter and an activated charcoal cartridge. The filter is changed weekly[2] and counted for gross alpha and gross beta-gamma radiation. The cartridge is removed and analyzed only in the event of a suspected radioactive iodine release.

Gamma Monitoring

There are 31 monitoring stations on site for measuring gamma radiation in the environment. Each station is constructed of a steel mailbox and equipped with a dosimeter. The dosimeter is sealed in plastic. Additionally, Station 4 is equipped with a CaSO4:Dy dosimeter. The dosimeters are exchanged annually, with the exception of the CaSO4:Dy dosimeter which is exchanged quarterly. The locations of the stations are shown in Figure 4.

For reporting purposes, the dosimeters are distributed as follows:

- South Boundary - Stations 1, 2, 3, 8, 9, 31
- East Boundary - Stations 10, 11, 12, 13, 14, 15
- North Boundary - Stations 16, 17, 18, 19, 23, 24
- West Boundary - Stations 25, 26, 27, 28, 29, 30
- Centrally Located - Stations 4, 5, 6, 7, 20, 21, 22

The dosimeter vendor reports the measurements of each dosimeter and determines the background measurement. Background is determined by using a dosimeter that has been exposed to background radiation at this facility and is from the same batch of TLD material as the dosimeters exposed at VNC.

Gaseous Effluent Monitoring

Several operations at the site utilize exhaust stacks. Air is collected from single or multiple operating areas via a ventilation system. The ventilation system is generally comprised of ductwork, particulate filtration systems, blowers, and an exhaust stack. The gaseous effluent is monitored. The specifications of each stack are listed in Table 3.

The various site operating licenses (SNM-960, R-33, and State 0017-01) and federal regulations require that the gaseous effluents released to unrestricted areas be limited and controlled to maintain the concentrations of radioactive material in the unrestricted area as low as reasonably achievable but at least no greater than the values in Appendix B, Table II of 10CFR20.

The method by which releases are determined to be within these limits is to establish average release limits and control values for each stack and then measure the average releases through monitoring and/or sampling of the effluents. The control values are, in general, established as 10% of the license release limits.

Both sampling and monitoring techniques are used to determine gaseous effluent releases. Release results reported to regulatory agencies for particulates and halogens are obtained from sampling systems. Noble gas results are obtained from charts or electronic integrators on monitoring equipment.

The COMPLY computer code is run to determine the dose at the site boundary from annual airborne effluents. This evaluation was formerly required when 40CFR61 Subpart I applied to NRC licensees, which included VNC. The regulation was amended to exclude NRC licensees. However, VNC has continued to run the COMPLY code to demonstrate that operations contribute only minimal Effective Dose Equivalent to individual members of the public.

[2] During dusty conditions, the filters are changed as determined by the RMT, Facilities Protection.

1.3 Laboratory Analyses

On-site and external laboratories perform the analyses of samples collected at VNC as required for the programs. Samples analyzed by the on-site laboratory are reported as measured value or less than minimum detectable activity (MDA) values, while samples analyzed by the external laboratories are reported as actual measured values. Values within the statistical background for may be listed as zero or as a positive or negative numbers. All analyses are performed using approved USEPA methodology with minimum sensitivities equal to or less than permit limits. All records of analytical results are maintained at VNC.

On-site Laboratory Analyses

The following list of analyses are performed by the on-site laboratory:

- pH
- Dissolved Oxygen
- Temperature
- Conductivity
- Total Alpha-Emitting Radioactivity
- Total Beta-Gamma-Emitting Radioactivity

Off-site Laboratory Analyses

The two external State-certified laboratories that have been contracted to analyze samples collected for the program are Sequoia Analytical (Sequoia) and Davi Lab. Sequoia, located in Morgan Hill, California, performs fish bioassays, total coliform, and analyses of water samples as required. Davi Lab, located in Hercules, California, performs most radiological analyses on samples of water, stream bottom and vegetation.

2.0 INFLUENT AND EFFLUENT MONITORING DATA

This section presents the discharge information and analytical results for samples collected for the Effluent Monitoring Program during the reporting period.

2.1 Influent Data

A summary of data relating to influent parameters is given in Table 15.

2.2 Effluent Data

Compliance Summary

A compliance summary for the reporting period is presented in Table 4. The information indicates that all required samples were collected during the reporting period and the analytical results of tests did not exceed Permit limits. (See Abstract)

Discharge Volume Data

Daily industrial and sanitary wastewater discharge volumes are summarized in Table 5.

Non-radiological Analytical Results

Summaries of data relating to non-radioactive effluent parameters are given in Table 6 through 13. The results indicate that no constituent was released equal to or greater than regulatory limits.

Radiological Analytical Results

Radioactivity measurements for effluent waters are summarized in Table 14. The data are derived by summing data obtained from measurements of short-interval (daily) water releases. Many of these measurements were less than the detection limits of the laboratory's measurement methods. The data listed as "less than" numbers *necessarily include the summation of these detection limits (i.e., a summation of "less than" numbers) and* represent maximum possible values for the sample analyses. The results indicate that no radiological material was released equal to or greater than regulatory limits.

3.0 ENVIRONMENTAL SURVEILLANCE DATA

This section presents the analytical results for samples of receiving water, ground water, stream bottom sediments, and vegetation collected for the Environmental Surveillance Program during the reporting period.

3.1 Receiving Water

Receiving waters were not sampled since no process discharges occurred.

3.2 Groundwater

Analytical results of groundwater samples collected from the designated wells during the reporting period are listed in Table 16.

3.3 Stream Bottom Sediments

Analytical results of stream bottom sediment samples collected during the reporting period are listed in Table 17.

3.4 Vegetation

Analytical results of vegetation samples collected during the reporting period are listed in Table 18.

3.5 Gamma Monitoring

The results of gamma monitoring during the reporting period are listed in Table 19.

3.6 Ambient Air Monitoring

Analytical results of environmental air samples collected during the reporting period are graphically presented in Figure 5, data in Table 20.

3.7 Gaseous Effluent Monitoring

Stack Monitoring

Analytical results of gaseous effluent samples collected for stack monitoring during the reporting period are graphically presented in Figures 6 through 9.

Effective Dose Equivalent

The calculated Effective Dose Equivalent at Screening Level 2 resulting from the annual measured releases, as calculated by the Comply Code, are:

Property Line

- 1.0 mRem/year due to all emissions, and
- 2.6E-02 mRem/year from iodine.

Industrial Area Boundary

- 6.3 mRem/year due to all emissions, and
- 0.2 mRem/year from iodine.

These numbers are less than the EPA emission standards[3] of 10 mRem/year and 3 mRem/year, respectively.

[3] Established in 40CFR61.102

4.0 METEOROLOGY

This section presents meteorological data collected during the reporting period. Meteorological data are collected using a weather station manufactured by Davis Instruments of Hayward, California. The station is located on a knoll southeast of the main site area. A portion of the meteorological data collection system is computerized. Software provided by the manufacturer is used to build a database of meteorological data, specifically the amount of rainfall over time.

4.1 Rainfall Data

Rainfall data collected at VNC since October 1, 1996 are presented in Table 21.

5.0 SUMMARY

This section presents a summary of the results of the Effluent Monitoring and Environmental Surveillance Programs for the reporting period.

The analytical results of non-radiological samples collected during the reporting period indicate that all effluent discharges were within NPDES Permit limits.

Note: Table 4 in the report is derived from the CRWQCB provided and required Electronic Reporting System (ERS). Changes have been made to 1) remove parameters that do not apply, as discharges of E-002-SW have not been conducted, 2) tabulate requirements that are not reflected in the ERS software. There are some errors in the limits provided by the ERS, as noted on the 2005 Quarterly Reports, which have been communicated to the CRWQCB. There are also apparent software errors wherein entries in the Monthly Tables are not reflected in Table 4. We will continue to work with the board to correct errors as they are detected.

The analytical results of radiological samples collected during the reporting period indicate that all effluent discharges from VNC were in compliance with NPDES Permit limits and all airborne releases were in compliance with all licenses issued by the U.S. Nuclear Regulatory Commission.

Additionally, neither surface runoff of processed sanitary wastewater, nor industrial wastewater was observed. The Effluent Monitoring and Environmental Surveillance Programs continue to be effective.

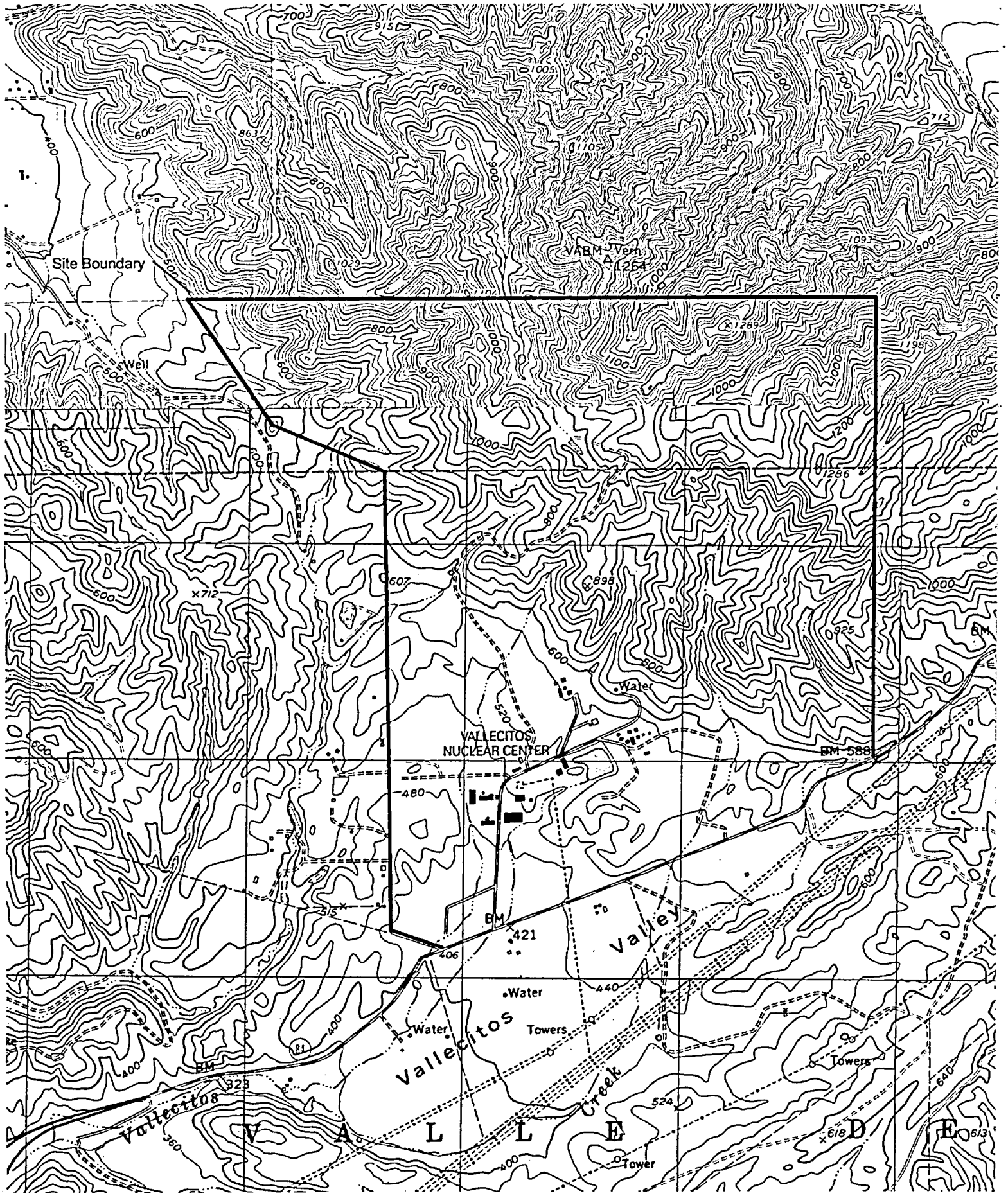


Figure 1 Topograghic Map of GE Vallecitos Nuclear Center

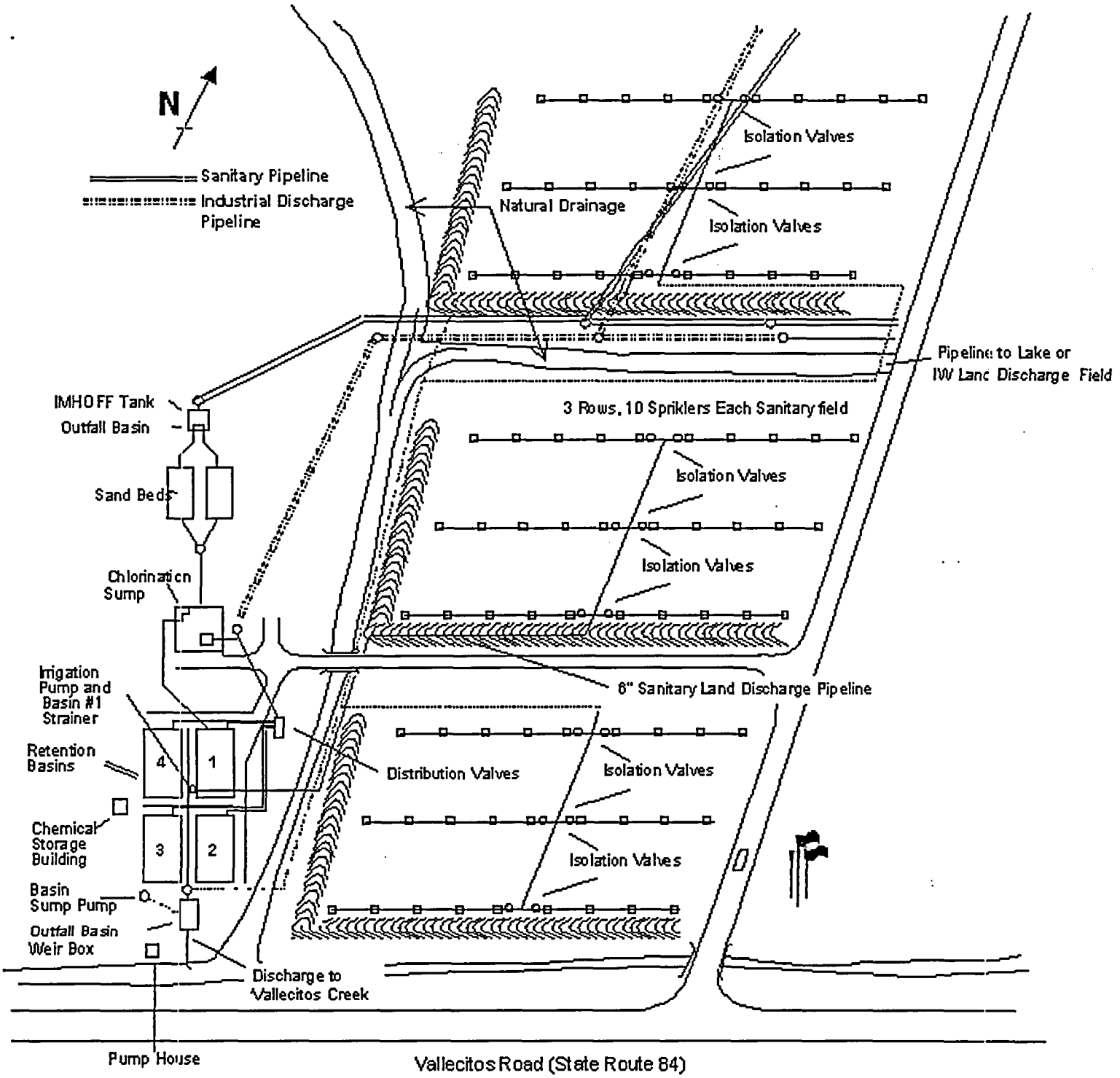


Figure 2 Sanitary and Industrial Discharge Treatment Facility

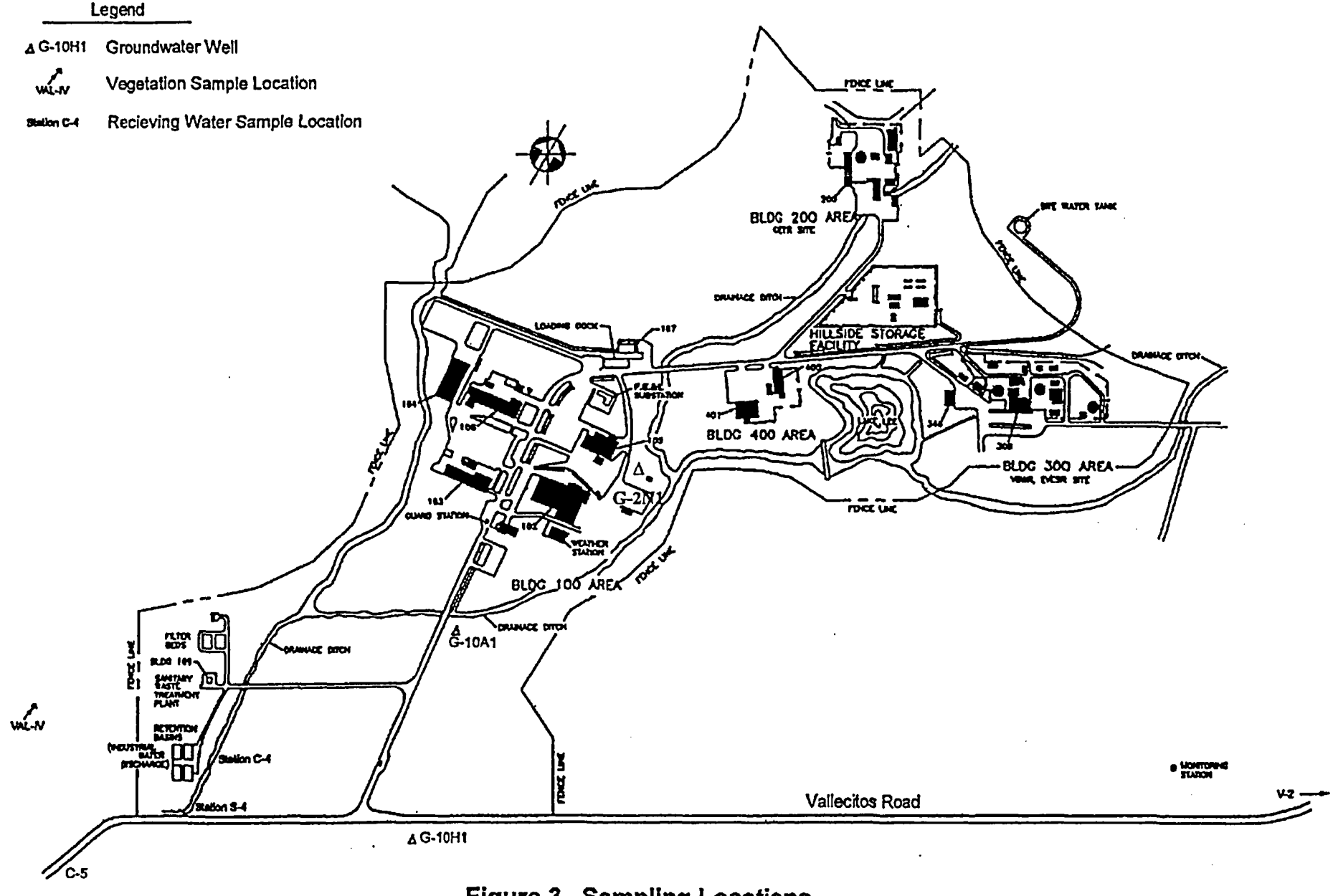


Figure 3. Sampling Locations

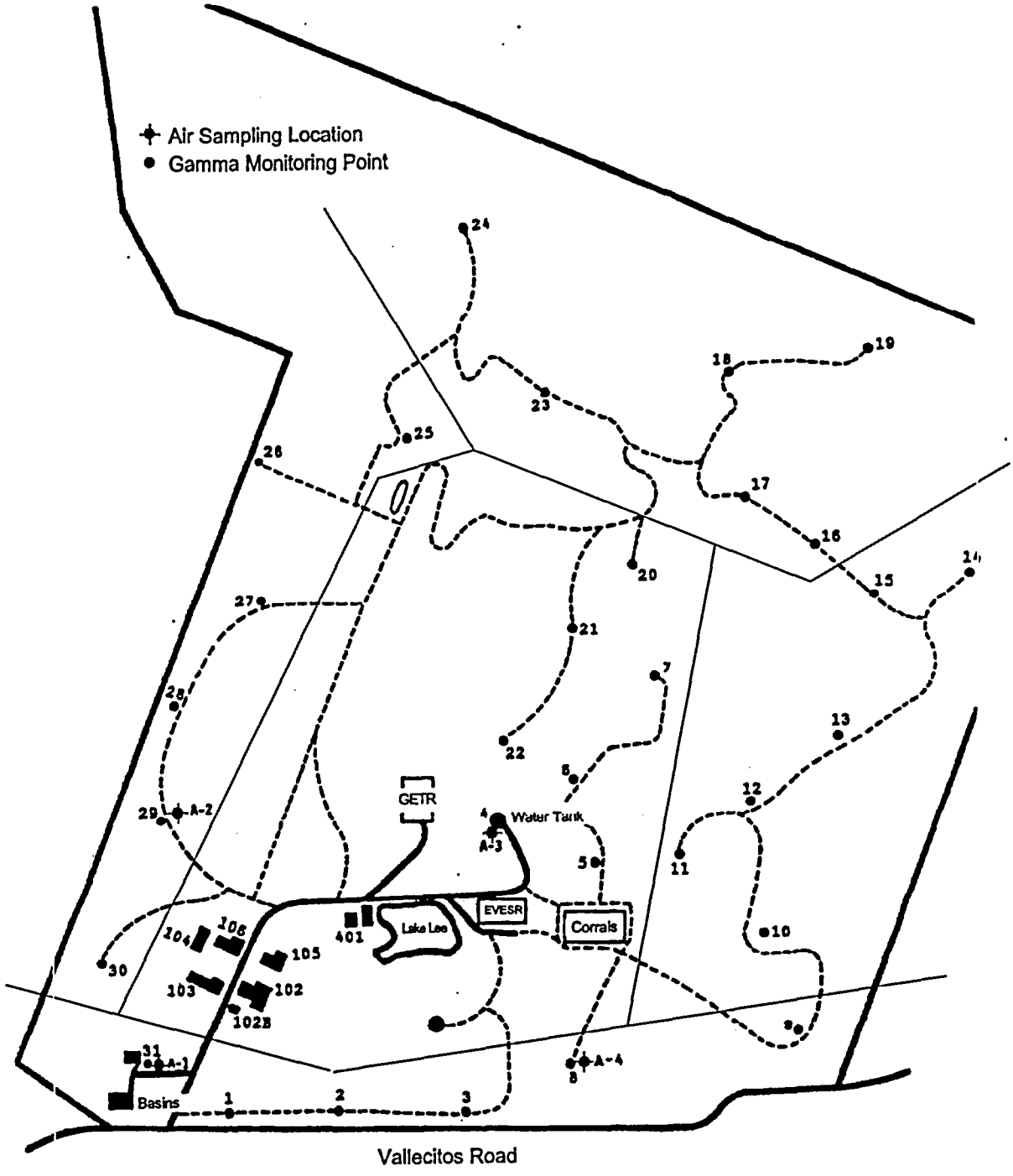


Figure 4. Air Sampling Locations and Gamma Monitoring Points

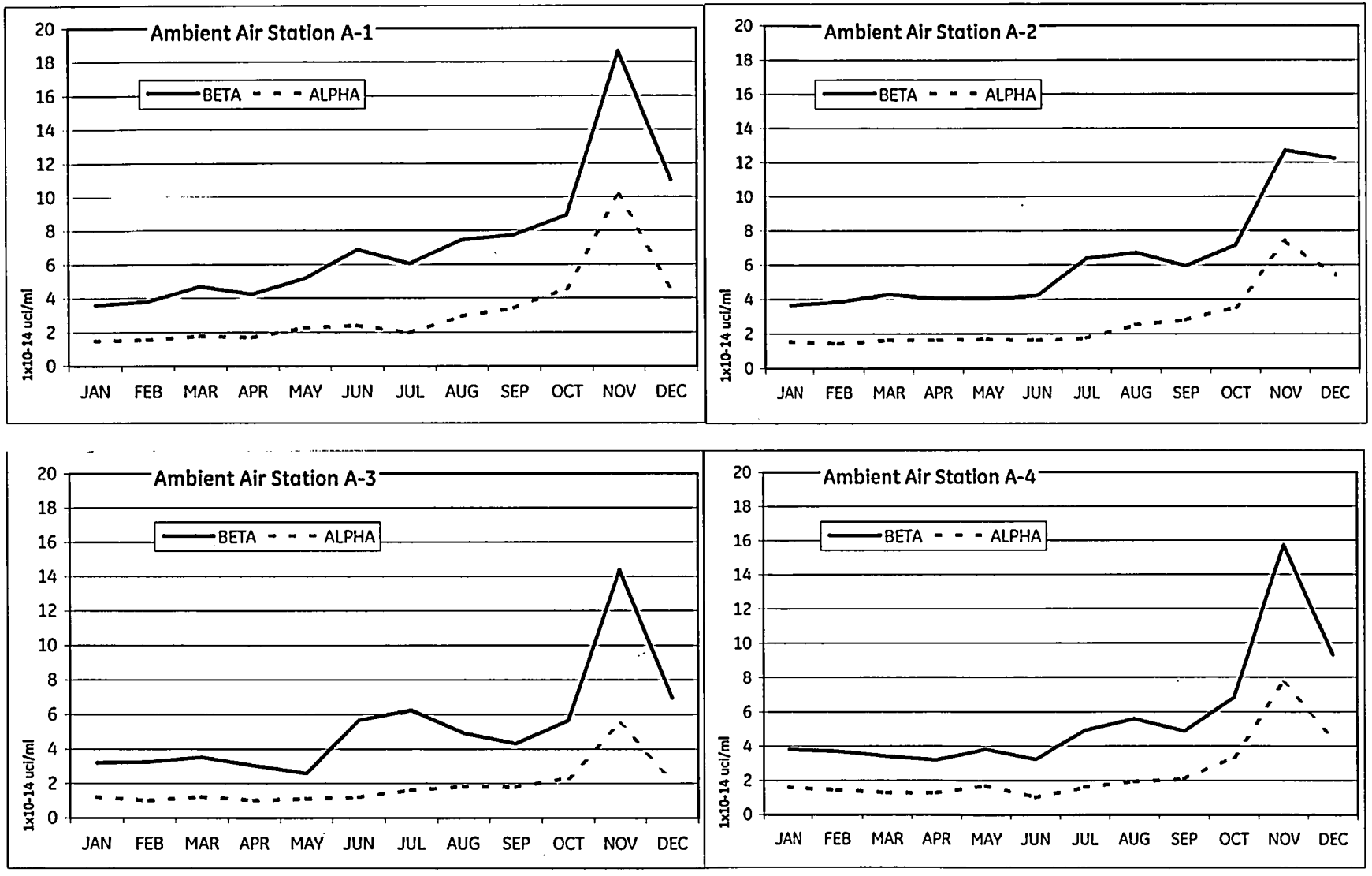
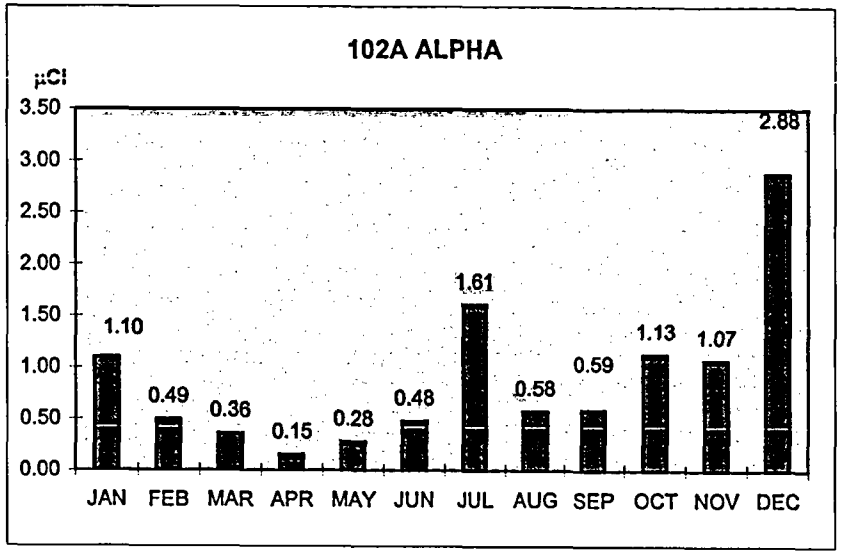
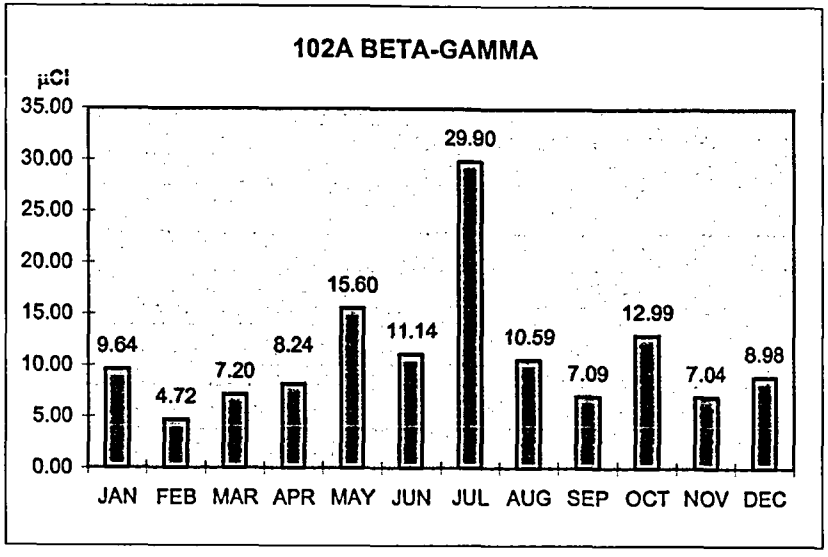
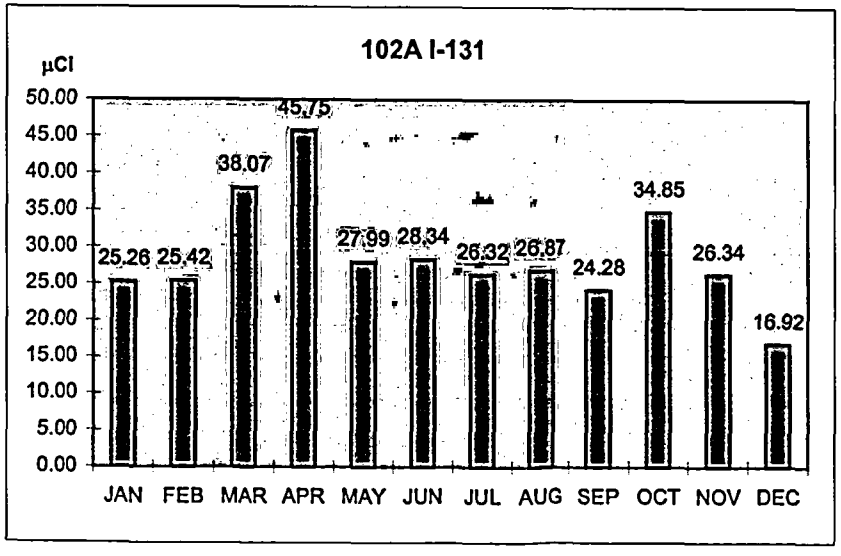


Figure 5. Analytical Results, Environmental Air Station Particulates 2005 Environmental Report







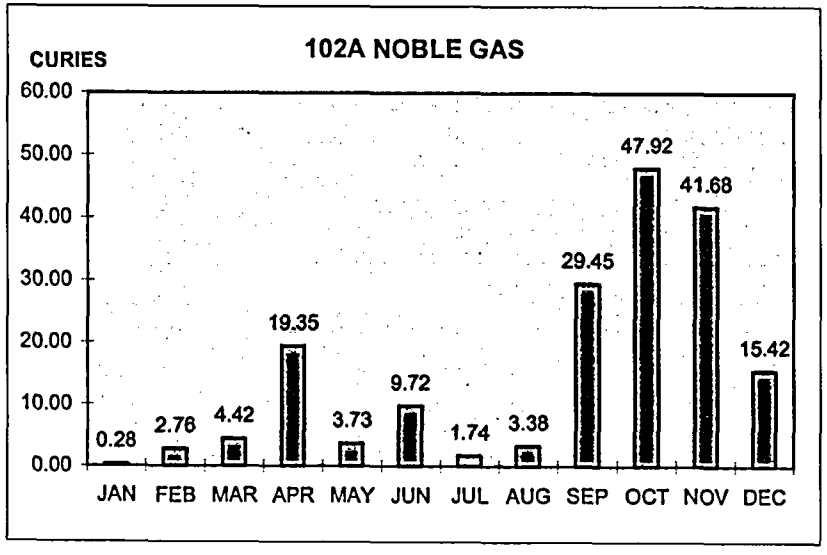


Figure 6. Analytical Results, Stack monitoring (Stack 4, Bldg. 102)

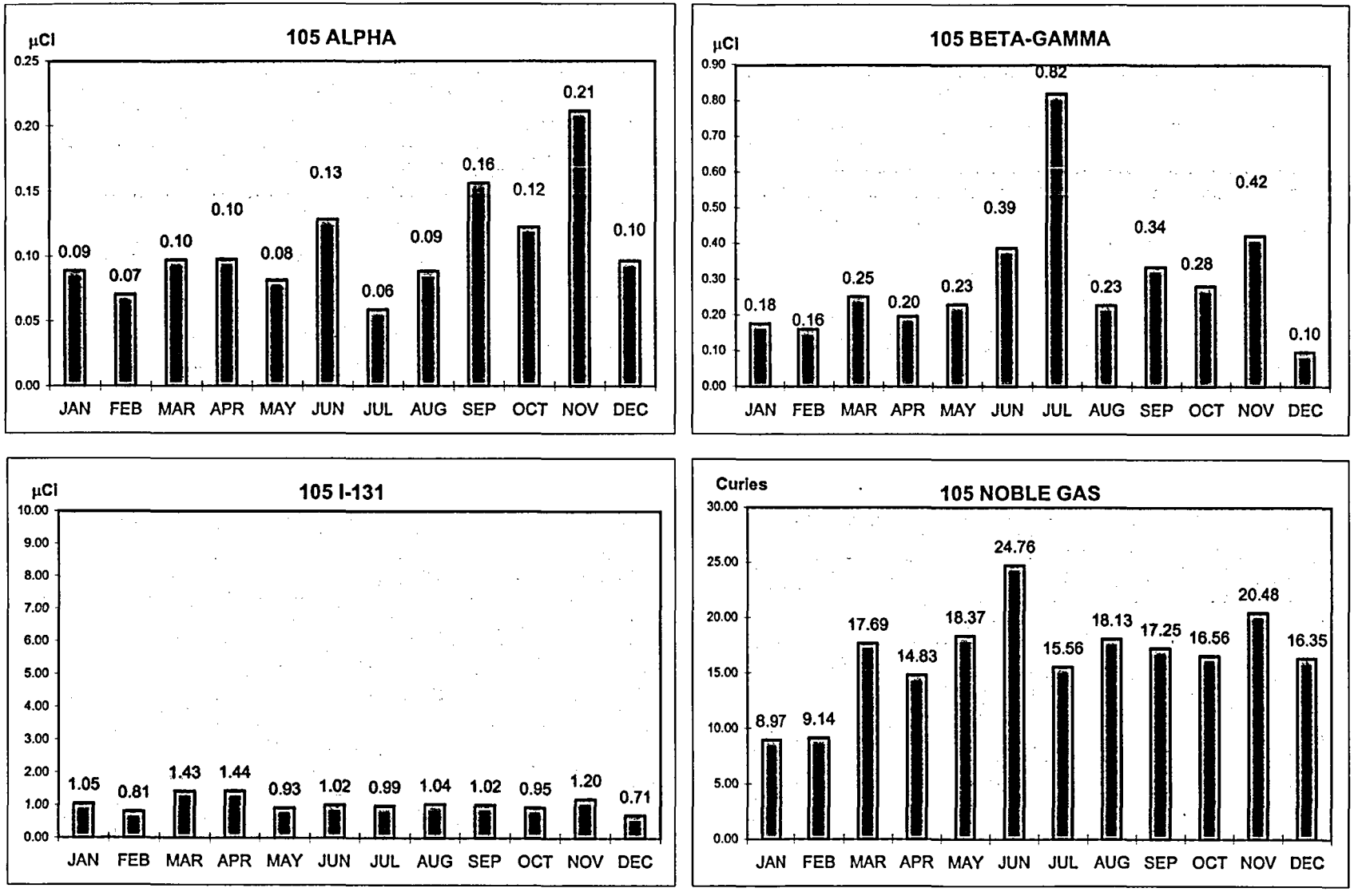
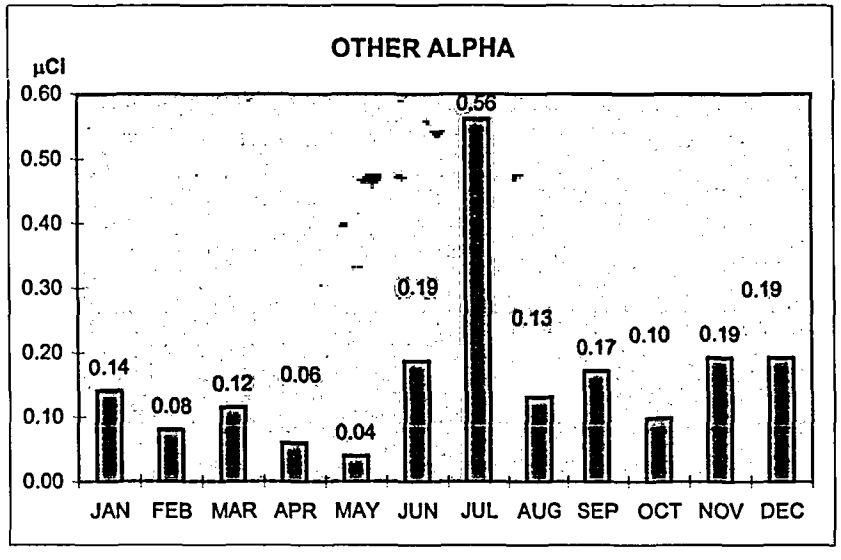
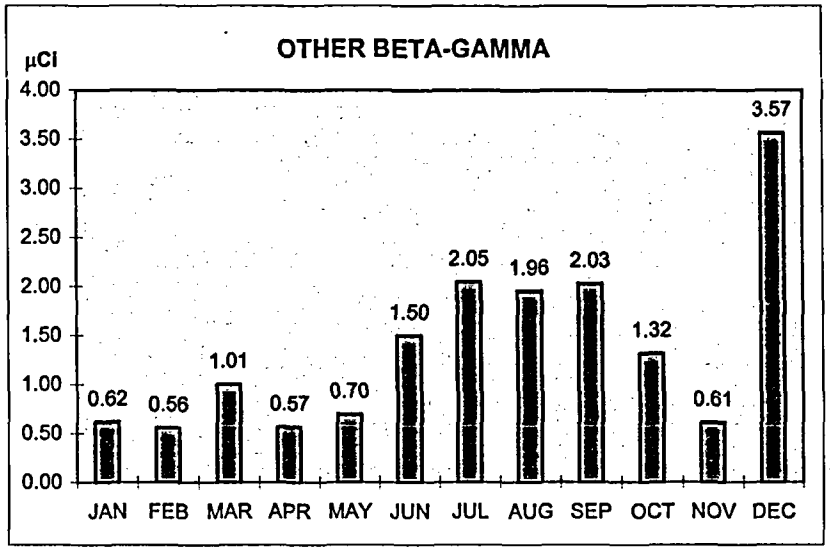


Figure 7. Analytical results, Stack Monitoring (Stack 16, NTR)





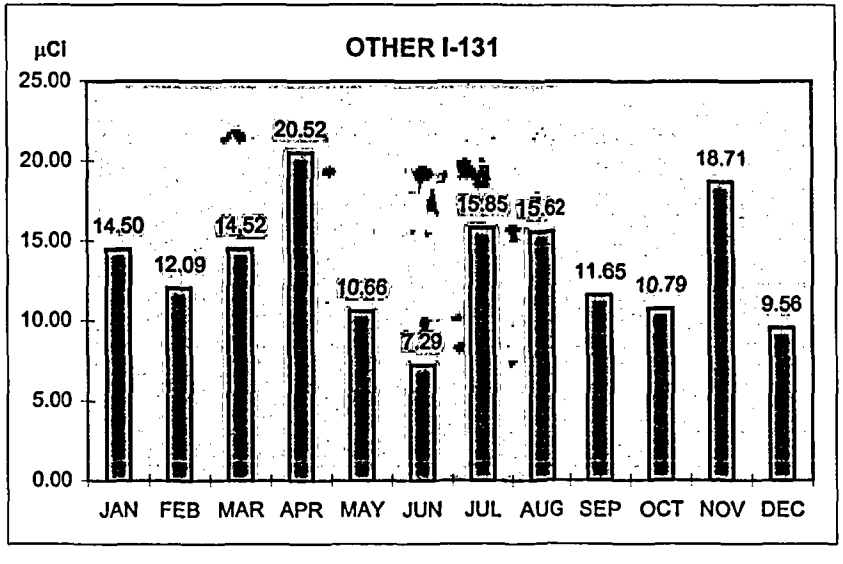


Figure 8. Analytical Results, Stack Monitoring Composite (All except Stacks 4 and 16)

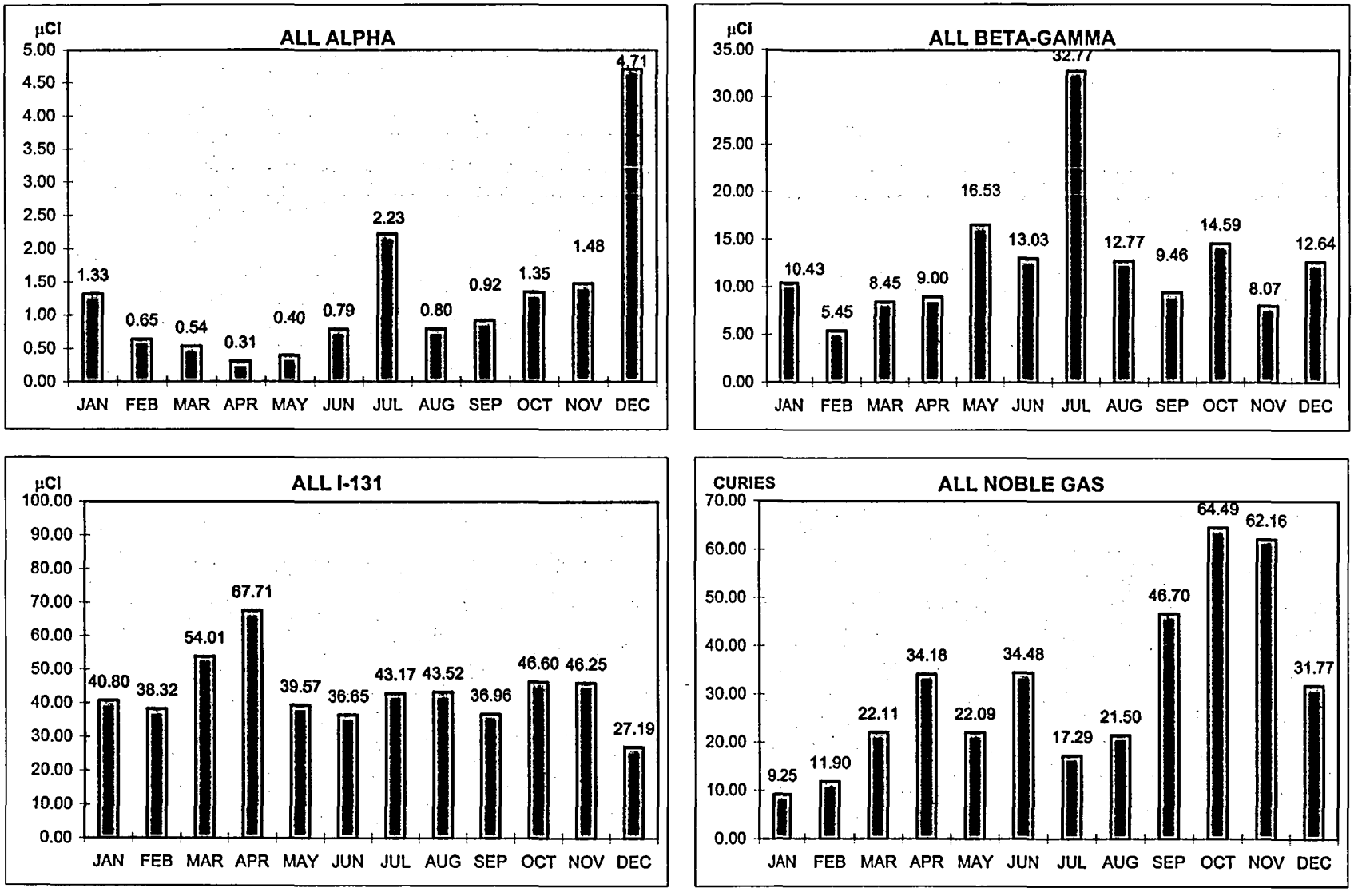


Figure 9. Analytical Results, Stack Monitoring Composite (All Stacks)

TABLE 1. SAMPLE COLLECTION SCHEDULE

Designation Location	Constituent	Sample Type	Frequency
E-001 and E-002 From Basin 1 - 4	Gross Alpha,	Grab	As Released
	Gross Beta/Gamma	Grab	As Released
	Gross Alpha,	Composite	Monthly
	Gross Beta/Gamma	Composite	Monthly
E-001 Basin 1	Flow	Measurement	Each discharge
	Total Coliform(8)	Grab	Each discharge
	PH	Grab	Each discharge
	Dissolved Oxygen	Grab	Each discharge
	Total Dissolved Solids	Grab	Each discharge
	Nitrate (as NO_3)	Grab	1st Wednesday of 2nd month of the quarter
	Total Kjeldahl Nitrogen	Grab	1st Wednesday of 2nd month of the quarter
	Standard observations		
E-002-SW Basin 2, 3 or 4 (Samples required only when discharge to surface waters occurs)	Flow	Measurement	Each discharge
	PH	Grab	Each discharge
	Temperature	Grab	Each discharge
	Dissolved Oxygen	Grab	First Wednesday of each month
	Total Dissolved Solids	Grab	First Wednesday of each month
	Chloride	Grab	First Wednesday of each month
	Settleable Solids	Grab	First Wednesday of each month
	Total Suspended Solids	Grab	First Wednesday of each month
	Oil & Grease	Grab	First Wednesday of each month
	Zinc	Grab	First Wednesday of each month
	Copper	Grab	First Wednesday of each month
	Acute Toxicity 96-hr Bioassay(3)	Grab	1st Wednesday of 2nd month of the quarter
	Standard observations		
E-002-L Basin 2, 3 or 4	Flow	Measurement	Each discharge
	PH	Grab	Each discharge
	Temperature	Grab	Each discharge
	Dissolved Oxygen	Grab	First Wednesday of each month
	Total Dissolved Solids	Grab	First Wednesday of each month
	Oil & Grease	Grab	First Wednesday of each month
	Standard observations		
Station E-003 Storm Water (Reported in Annual Stormwater Report)	Flow	Measurement	Each occurrence
	PH	Grab(5)	Each occurrence
	Total Organic Carbon	Grab(5)	Twice each wet weather season
	Oil & Grease	Grab(5)	Twice each wet weather season
	Specific Conductance	Grab(5)	Twice each wet weather season
	Total Suspended Solids	Grab	Twice each wet weather season
	Gross Alpha	Grab	Twice each wet weather season
	Gross Beta/Gamma	Grab	Twice each wet weather season
	Standard observations		

TABLE 1. SAMPLE COLLECTION SCHEDULE
(continued)

Designation Location	Constituent	Sample Type	Frequency
WT Influent	Total Coliform	Grab	None required
	Copper	Grab	
	Chromium	Grab	
	Lead	Grab	
	Zinc	Grab	
	Gross Alpha,	Grab	
	Gross Beta/Gamma	Grab	
C Receiving Waters (Samples required coincident with samples for E-002-SW)	Dissolved Oxygen	Grab	1st week of 2nd month of each quarter
	Dissolved Sulfide[7]	Grab	1st week of 2nd month of each quarter
	PH	Grab	1st week of 2nd month of each quarter
	Un-ionized Ammonia (as N)	Grab	1st week of 2nd month of each quarter
	Standard observations		1st week of 2nd month of each quarter
	Gross Alpha	Grab	1st week of 2nd month of each quarter
	Gross Beta/Gamma	Grab	1st week of 2nd month of each quarter
S-4 Stream Bottom Sediments –	Gross Alpha	Grab	First week in May
	Gross Beta/Gamma	Grab	First week in May
V-2 & VAL IV Vegetation	Gross Alpha	Grab	First week in April
	Gross Beta/Gamma	Grab	First week in April

FOOTNOTES FOR TABLE 1

[1] Flow Monitoring: The volume of each basin discharge shall be recorded. The following information shall also be recorded daily for the quarterly report:

Average Daily Flow (mgd)
Maximum Daily Flow (mgd)
Minimum Daily Flow (mgd)

[2] Grab samples of receiving water stations shall be collected on days coincident with samples collected for the analysis of regulated parameters. Sampling is required only when there is sufficient natural flow in the unnamed ditch or Vallecitos Creek to enable collection of samples.

[3] When replicate or duplicate analyses are made of a coliform sample, the reported result shall be the arithmetic mean of the analysis values.

[4] The Discharger shall monitor each "batch" of wastewater prior to discharge through Outfall 002 (E-002-SW discharges) for copper and zinc.

[5] Fish Toxicity shall be determined using test methods in accordance with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition (or Third Edition as described in Provision D.2 of this Order). Effluent used for fish bioassays must be undiluted, disinfected, dechlorinated effluent. The bioassay water shall be tested for pH, dissolved oxygen, and temperature at the start of the bioassay, and then daily for the duration of the bioassay test (i.e., at 0, 24, 48, 72, and 96 hours from the start of the bioassay test). Samples shall not be held for more than 48 hours, except if there are days when no discharge occurs during a 96-hour bioassay, then bioassay may be renewed with reserved sample from the most recent discharge. If no reserve sample is available, the bioassay may be completed as a static test or renewed with a sample from the next discharge when it becomes available.

[6] Receiving water analysis for sulfides is necessary when dissolved oxygen is less than 1.0 mg/L.

[7] For discharges to E-002-L, the Discharger is not required to monitor for settleable solids, tota suspended solids, chloride, copper, zinc, or acute toxicity.

[8] The discharge flow rate for the storm water discharge (Waste 003) shall be estimated at the time of sample collection. The Discharger shall also report the total volume of discharge for each month. The Discharger may calculate storm water volumes by using an appropriate site runoff coefficient, area of drainage, and precipitation records or measurements. *Samples are required for each constituent twice during each wet weather period* (October 1 through April 30) in accordance with Part A Section C.3 of the self-monitoring program. For safety reasons, the Discharger may choose to sample only storms occurring during daylight hours. The Discharger shall collect grab samples during the first 30 minutes of discharge unless it can explain why this was not possible. In such cases, the Discharger must collect samples within the first hour of discharge. The Discharger shall also conduct visual observations at least monthly during the wet weather period and at least twice during the dry weather period.

TABLE 2 – GROUNDWATER WELL INFORMATION

Well No.	California State Well No.	Location Description
G-2N1	4S/1E-2N1 (formerly G-1)	Southeast of Building 105
G-10A1	4S/1E-10A1	South-southwest of Building 102
G-10H1	4S/1E-10H1 (formerly G-4)	South of site entrance on private property
G-10P3	4S/1E-10P3	0.6 miles southwest of site entrance on private property

TABLE 3 – STACK SPECIFICATIONS

Stack Number	Location	Components Serviced	Height (feet ags)	Diameter (inches)	Flow Rate (cfm)
4	Bldg. 102A	Remote Handling Operation, Isotope Production Facility, Radiochemistry, Remote Handling Operations Radioactive Materials Storage Room	75	66	41,429
12	Bldg 103	Metallurgy and Ceramics Laboratories, Chemistry Laboratories	48	60	33,182
16	Bldg. 105	Nuclear Test Reactor	45	13.5x13.5	1,370
26	GETR	General Electric Test Reactor	95	38	6,300
30	Waste Evaporator	Liquid Waste Evaporator	25	13x17.75	2,990
34	Waste Storage	Waste Storage Facility	25	13x17.75	2,087
37	HSF Bunker	Bunker Area of Hillside Storage Facility	40	35	21,806

Notes:
ags – above ground surface
cfm – cubic feet per minute

TABLE 4 – COMPLIANCE SUMMARY EFFLUENT SAMPLES

(violations/samples)

Parameter	Limit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monitoring Point E-001														
Dissolved Oxygen Eff Grab Minimum mg/l	Min 1	0/3	0/2	0/4	0/1	0/1	0/1	0/1	0/1	0/2	0/1	0/1	0/2	0/19
pH Eff Grab Minimum unit	Min 6	0/3	0/2	0/4	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/2	0/20
pH Eff Grab Maximum unit	Max 9	0/3	0/2	0/4	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/3	0/16
Total Coliform Eff Daily Maximum mpn/100ml	Max 240	0/3	0/2	1/7	0/2	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/2	1/23
Total Coliform Eff 7Samp Median MPN/100ml	Max 23	0/3	0/2	0/7	0/2	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/2	0/23
Nutrient Loading														
Monitoring Point E-002-SW (Industrial Wastewater)														
No Discharges, parameters omitted for simplification														
Samples taken are reported below														
Test1 Specie Eff Daily Minimum %Sur	Min 70		0/1			0/1			0/1			0/1		0/4
Test2 Specie Eff Daily Minimum %Sur	Min 70		0/1			0/1			0/1			0/1		0/4
Copper Eff Daily Maximum ug/l	Max 18		0/1			0/1			0/1			0/1		0/4
Zinc Eff Daily Maximum ug/l	Max 100		0/1			0/1			0/1			0/1		0/4
Monitoring Point Receiving Waters														
No Discharges, parameters omitted for simplification														
Monitoring Point E-002-L (Industrial Wastewater)														
Oil and Grease Eff Daily Maximum mg/l	Max 20	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/12
Oil and Grease Eff Monthly Average mg/l	Max 10													
pH Eff Grab Minimum unit	Min 6	0/8	0/11	0/17	0/12	0/13	0/14	0/11	0/14	0/15	0/12	0/9	0/10	0/146
pH Eff Grab Maximum unit	Max 9	0/8	0/11	0/17	0/12	0/13	0/14	0/11	0/14	0/15	0/12	0/9	0/10	0/146
Total Dissolved Solids Eff Daily Maximum mg/l	Max 500	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/12
Combined Land Discharge														
Total Dissolved Solids Eff Daily Maximum mg/l	Max 500	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/1	0/12

TABLE 5 – EFFLUENT VOLUMES

(gallons)

Month	Sanitary Discharge Volumes		Industrial Discharge Volumes							
			Total		Through Outfall		To Lake		To on-site Irrigation	
	Monthly Total	Daily Average	Monthly Total	Daily Average	Monthly Total	Daily Average	Monthly Total	Daily Average	Monthly Total	Daily Average
January	1.50E+05	4.84E+03	4.00E+05	1.29E+04					5.00E+05	1.61E+04
February	9.50E+04	3.28E+03	5.50E+05	1.90E+04					5.50E+05	1.90E+04
March	1.90E+05	6.13E+03	8.50E+05	2.74E+04					5.00E+05	1.61E+04
April	5.00E+04	1.67E+03	6.00E+05	2.00E+04					5.50E+05	1.83E+04
May	5.00E+04	1.61E+03	6.50E+05	2.10E+04					6.50E+05	2.10E+04
June	5.00E+04	1.67E+03	7.00E+05	2.33E+04					5.50E+05	1.83E+04
July	5.00E+04	1.61E+03	5.50E+05	1.77E+04					5.00E+05	1.61E+04
August	5.00E+04	1.61E+03	7.50E+05	2.42E+04					5.50E+05	1.77E+04
September	5.00E+04	1.67E+03	8.00E+05	2.67E+04					5.00E+05	1.67E+04
October	5.00E+04	1.61E+03	6.50E+05	2.10E+04					5.50E+05	1.77E+04
November	5.00E+04	1.67E+03	4.50E+05	1.50E+04					7.00E+05	2.33E+04
December	1.00E+05	3.23E+03	5.00E+05	1.61E+04					3.50E+05	1.13E+04
Annual Totals:	9.35E+05		7.45E+06		0		0		6.45E+06	
Daily Average		2.55E+03		2.04E+04		0		0		1.76E+04

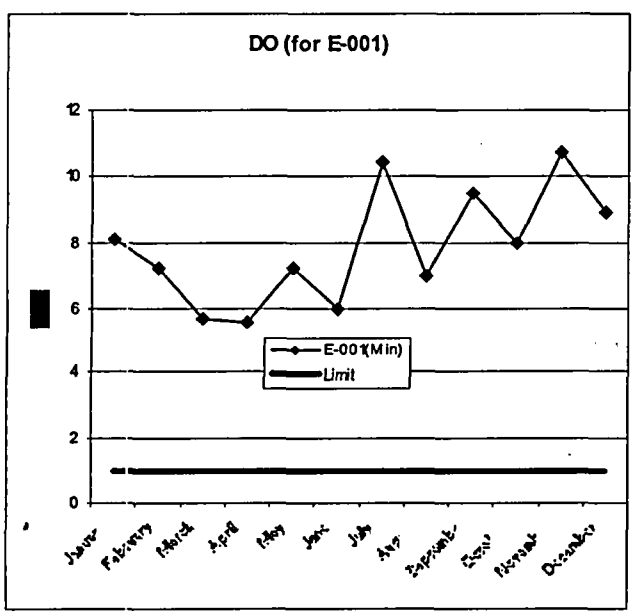
TABLE 6 – DISSOLVED OXYGEN

(E-001 [Sanitary] limit 1 mg/l)
(E-002 [Industrial] limit 7 mg/l

(mg/l)

	E-001(Min)		E-002	
Month	DO	Limit	DO	Limit*
January	8.1	1	9	7
February	7.2	1	9.2	7
March	5.7	1	9.6	7
April	5.6	1	8.4	7
May	7.2	1	9.2	7
June	6	1	8.5	7
July	10.4	1	12.3	7
August	7	1	8.4	7
September	9.5	1	7.2	7
October	8	1	7.7	7
November	10.7	1	7.5	7
December	8.9	1	8.9	7

Notes: E-002 (Industrial) Limit applies to the affect on receiving waters, not limited for discharge to land. Limit shown for information



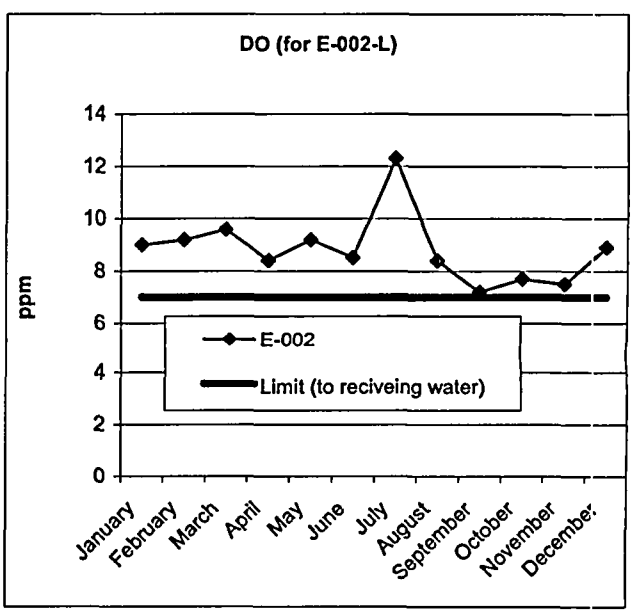
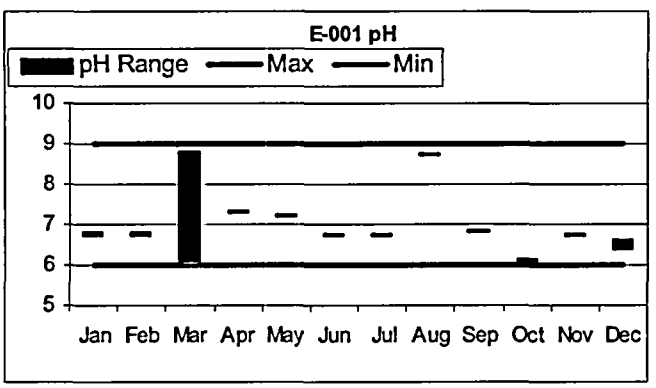
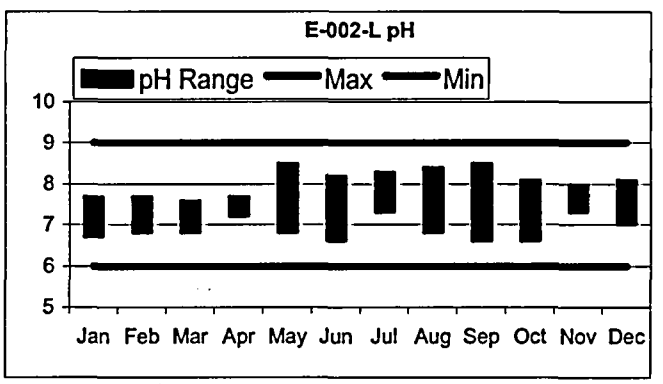


TABLE 7 – WASTEWATER pH & TEMPERATURE SAMPLES

	E-001			E-002-L			
Month	No. Samples	pH Max 9	pH Min 6	No. Samples	pH Max 9	pH Min 6	Temp F
Jan	3	6.8	6.7	8	7.7	6.7	59
Feb	2	6.8	6.7	11	7.7	6.8	70
Mar	4	8.8	6	17	7.6	6.8	75
Apr	1	7.3	7.3	12	7.7	7.2	73
May	1	7.2	7.2	13	8.5	6.8	77
Jun	1	6.7	6.7	14	8.2	6.6	82
Jul	1	6.7	6.7	11	8.3	7.3	82
Aug	1	8.7	8.7	14	8.4	6.8	88
Sep	1	6.8	6.8	15	8.5	6.6	88
Oct	1	6.1	6.1	12	8.1	6.6	79
Nov	1	6.7	6.7	9	8	7.3	68
Dec	2	6.6	6.4	10	8.1	7	61





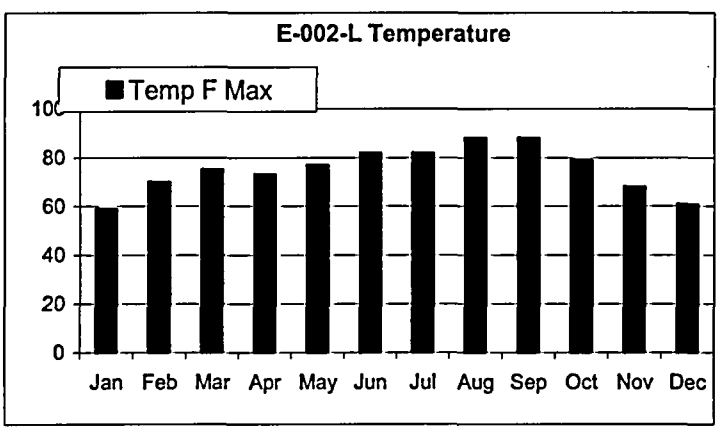


TABLE 8 – FECAL COLIFORM

(limit two consecutive samples exceed 240 mpn/100ml

or 7 sample median above 23 mpn/100ml)

(mpn/100ml)

	Sample	7 Sample Median	2-Sample Value
01/05/2005	2	2	2
01/11/2005	2	2	2
01/26/2005	2	2	2
02/15/2005	2	2	2
02/23/2005	2	2	2
03/03/2005	1600	2	2
03/07/2005	1600	2	1600
03/15/2005	2	2	2
03/16/2005	2	2	2
03/17/2005	2	2	2
03/23/2005	2	2	2
03/30/2005	2	2	2
04/08/2005	2	2	2
04/22/2005	88	2	2
05/04/2005	2	2	2
06/01/2005	2	2	2
07/06/2005	17	2	2
08/03/2005	2	2	2
09/07/2005	2	2	2
10/05/2005	2	2	2
11/02/2005	2	2	2
12/06/2005	51	2	2
12/19/2005	2	2	2

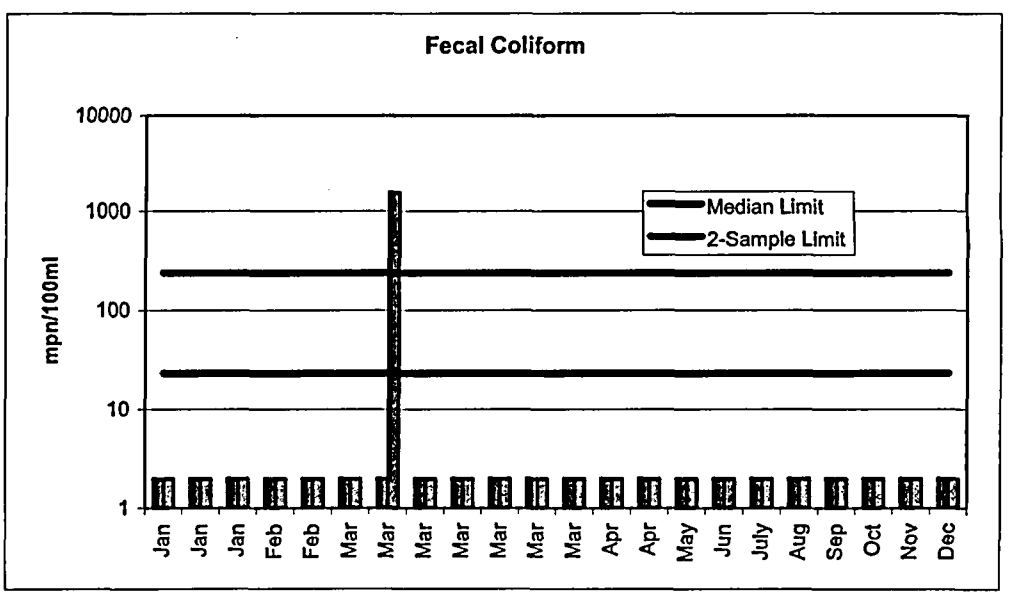


TABLE 9 – NUTRIENT LOADING

(limit 250 lb-N/acre)
(limit determined by crop demand calculation)

QTR	NO_3 ppm	TKN ppm	N ppm	Volume (gallons)				pounds N	pounds N	12-month
				month 1	month 2	month 3	total		acre	lb/acre
1	**155**	**1.4**	36.4	150,000	95,000	190,000	435,000	**132.0**	**35.3**	**86.9**
2	**160**	**0.84**	37.0	50,000	50,000	50,000	150,000	**46.2**	**12.4**	**83.3**
3	**350**	**5.6**	84.6	50,000	50,000	50,000	150,000	**105.8**	**28.3**	**89.8**
4	**280**	**0.84**	64.1	50,000	50,000	100,000	200,000	**106.8**	**28.5**	**104.5**

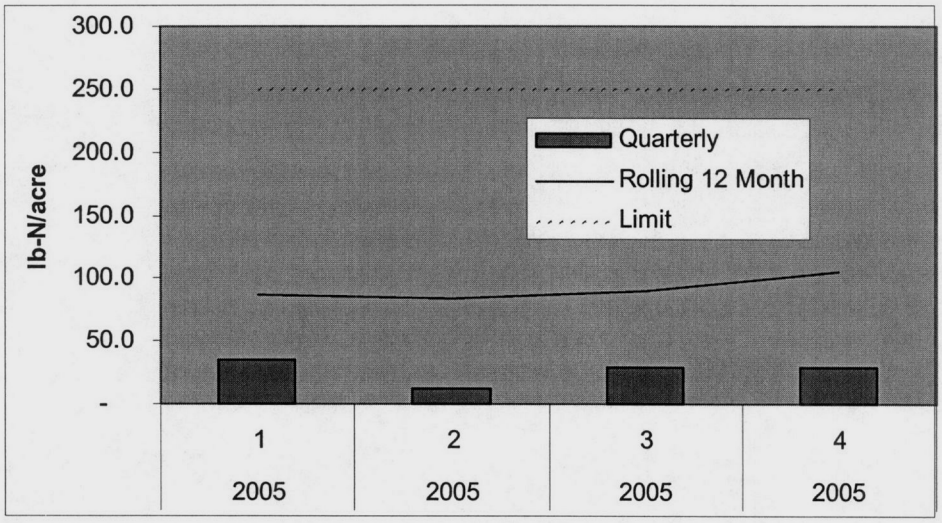


TABLE 10 – ACUTE FISH TOXICITY

(96-hr Bioassay)
(3 SAMPLE MEDIAN > 90%)

	FATHEAD MINNOW			RAINBOW TROUT		
Month	SURVIVAL UNDILUTED	CONTROL SURVIVAL	3-MONTH MEDIAN	SURVIVAL UNDILUTED	CONTROL SURVIVAL	3-MONTH MEDIAN
1st Qtr*	95	100	100	100	100	100
2nd Qtr*	100	100	100	100	100	100
3rd Qtr*	90	100	95	100	100	100
4th Qtr*	100	100	100	100	100	100

*No surface Discharge - No Samples Required, Samples for Surface Discharge Changed to Quarterly

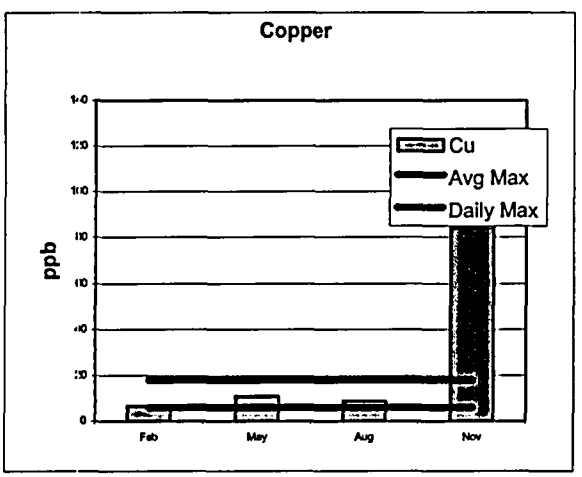
TABLE 11 –COPPER & ZINC

Copper
(Limit 6.1 ug/L Monthly Avg)
(Limit 18 ug/L Daily Max)

Zinc
(Limit 44 ug/L Monthly Avg)
(Limit 100 ug/L Daily Max)

Date	Cu	Zn
Feb	6.8	14
May	11	18
Aug	8.9	10
Nov	120	14

Note: Copper, Zinc and associated limits apply to E-002-SW. Sampled for E-002-L for information only.



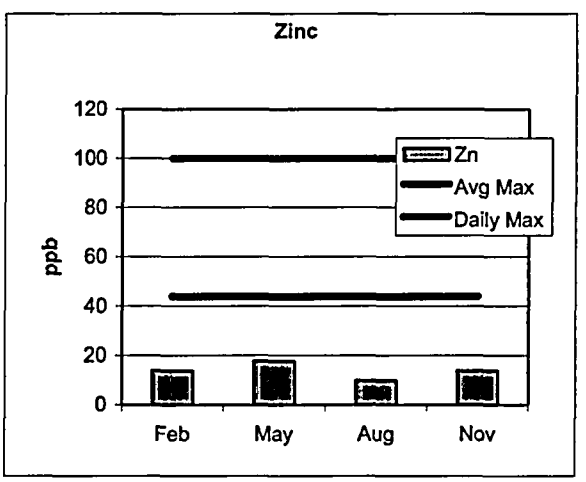


TABLE 12 – OIL & GREASE
(30 day average release limit 10 mg/l)
(Daily maximum release limit 20 mg/l)

(mg/L)

Month	E-002-L
January	< 4.9
February	< 4.7
March	< 4.7
April	< 4.7
May	< 4.7
June	< 4.8
July	< 5
August	< 4.9
September	< 5.1
October	< 5
November	< 4.8
December	< 4.7

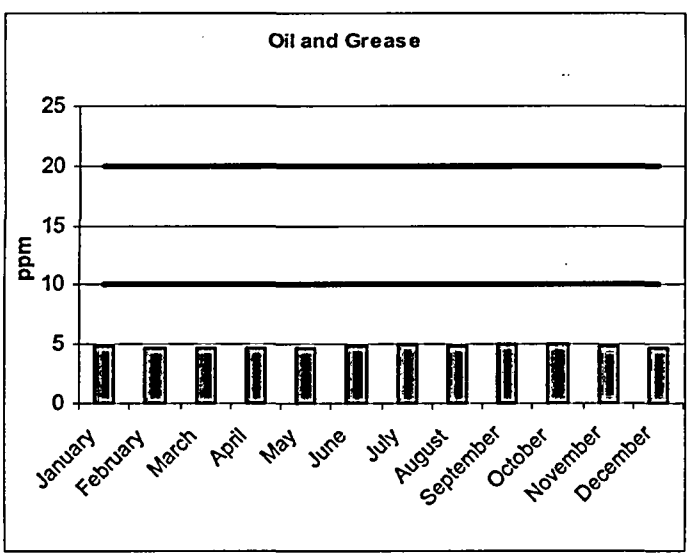


TABLE 13 – TOTAL DISSOLVED SOLIDS – COMBINED LAND DISCHARGE

(Limit 500 mg/L)

(Average weighted by volume of E-001 and E-002-L)

Month	Average TDS (ppm)
Jan-05	208.2
Feb-05	210.3
Mar-05	262.8
Apr-05	277.7
May-05	240.0
Jun-05	175.3
Jul-05	210.3
Aug-05	151.3
Sep-05	119.2
Oct-05	116.0
Nov-05	225.5
Dec-05	139.7

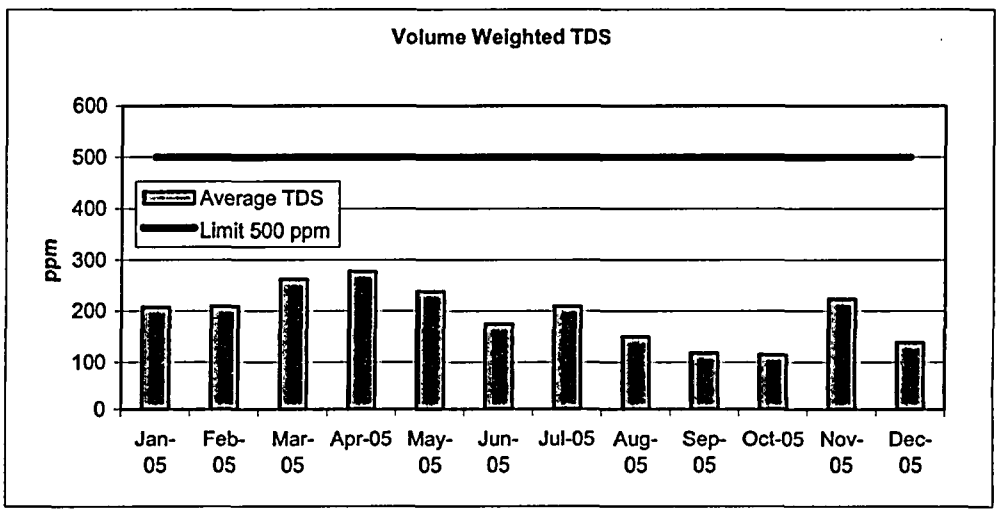


TABLE 14 – RADIOLOGICAL EFFLUENT SAMPLES, E-002-SW

	Contract Service Data			Internal Data						
	Monthly Effluent Composite Sample (pCi/L)				Daily Basin Samples (pCi/L)					
				No. of	α			β–γ		
Month	α	β–γ	Tritium	Samples	Max.	Min.	Ave.	Max.	Min.	Ave.
January	1.7	2.06	0	8	<20	<20	<20	<50	<50	<50
February	0.58	0.00	206	11	<20	<20	<20	<50	<50	<50
March	2.61	0.11	532	17	<20	<20	<20	<50	<50	<50
April	2.99	2.22	691	12	<20	<20	<20	<50	<50	<50
May	4.22	1.16	103	13	<20	<20	<20	<50	<50	<50
June	0.90	3.08	436	14	<20	<20	<20	<50	<50	<50
July	1.72	6.06	499	11	<20	<20	<20	<50	<50	<50
August	1.26	2.52	567	15	<20	<20	<20	<50	<50	<50
September	1.44	2.26	639	16	<20	<20	<20	<50	<50	<50
October	0.00	1.66	723	12	<20	<20	<20	<50	<50	<50
November	1.34	0.00	489	10	<20	<20	<20	<50	<50	<50
December	0.00	1.82	162	10	<20	<20	<20	<50	<50	<50

TABLE 15 – RADIOLOGICAL INFLUENT CONSTITUENTS

Month	Gross α (pCi/l)	Gross β–γ (pCi/l)
February	3.39	0.00
May	2.59	2.17
August	3.42	6.51
November	2.04	0.79

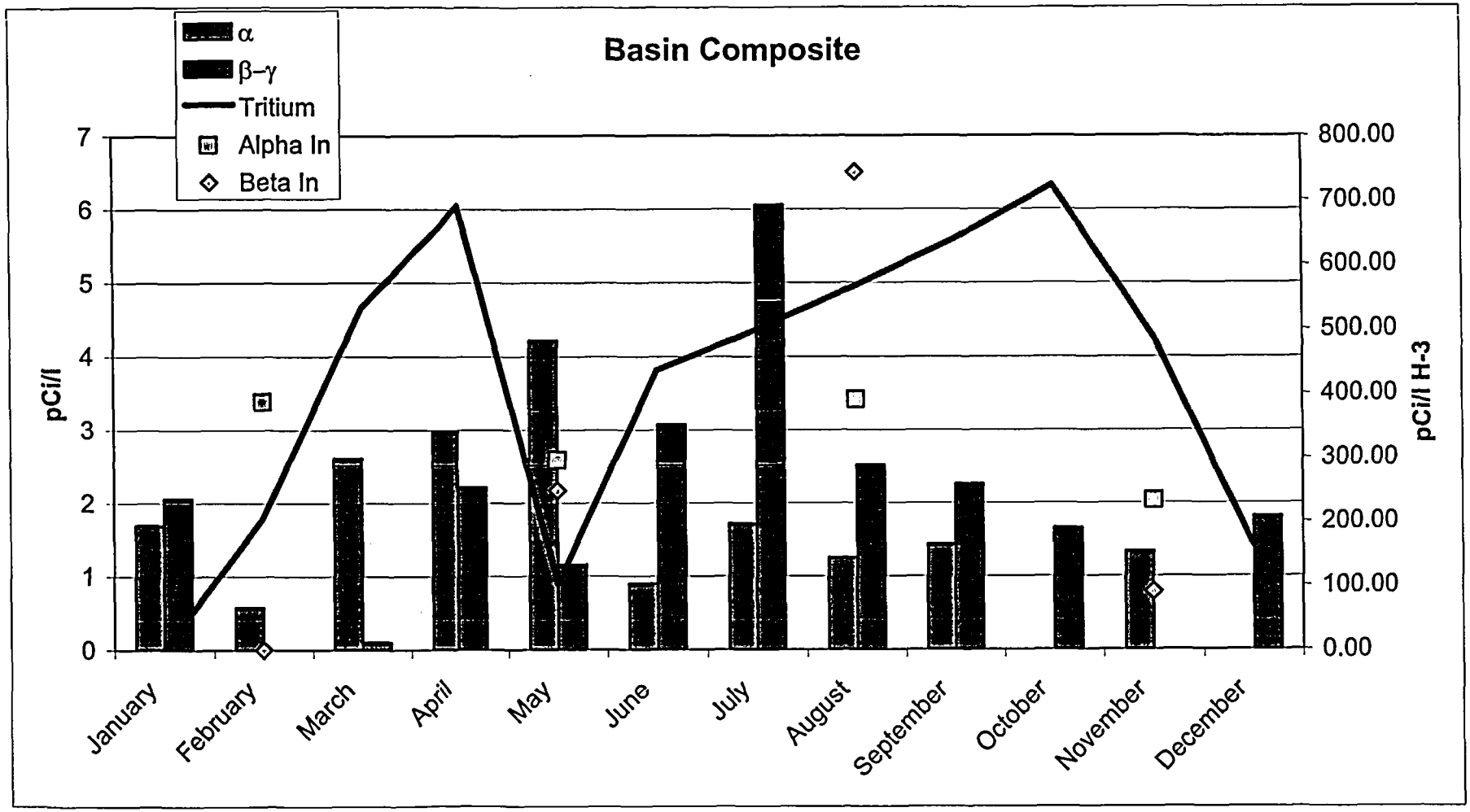

Basin Composite
α
β–γ
Tritium
Alpha In
Beta In
pCi/l
pCi/l H-3
0
1
2
3
4
5
6
7
0.00
100.00
200.00
300.00
400.00
500.00
600.00
700.00
800.00
January
February
March
April
May
June
July
August
September
October
November
December

TABLE 16 – RADIOLOGICAL GROUND WATER SAMPLES

Month	No. of Samples per Well	Well ID								
		G-2N1		G-10A1			G-10P3		G-10H1	
		α (pCi/l)	β–γ (pCi/l)	α (pCi/l)	β–γ (pCi/l)	H^3 (pCi/l)	α (pCi/l)	β–γ (pCi/l)	α (pCi/l)	β–γ (pCi/l)
February	1	4.74	0.00	2.46	1.47	208	4.52	0.54	NA**	NA**
May	1	3.98	5.1	2.55	3.42	766	6.25	2.07	NA**	NA**
August	1	5.13	0.00	7.56	0.5	466	5.11	3.78	NA**	NA**
November	1	0.00	2.97	3.18	2.07	1250	5.22	1.84	NA**	NA**
Annual Average	4	3.46	2.02	3.94	1.87	672.50	5.28	2.06		

NA – not available
MDA – Minimum Detectable Activity
** Well inoperable.

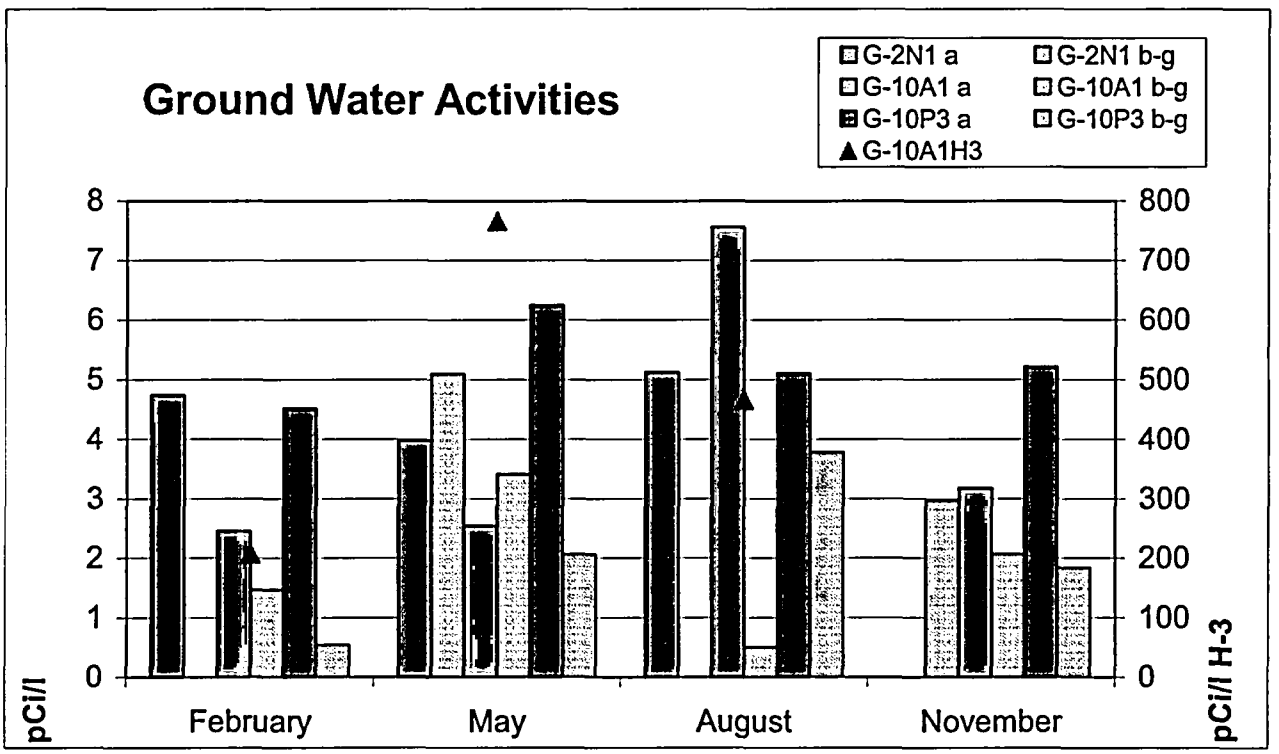


TABLE 17 – RADIOLOGICAL STREAM BOTTOM SEDIMENT SAMPLES

Sample Number	Date Collected	Gross α (pCi/g)	Gross β/γ (pCi/g)	Co-60 (pCi/g)	Cs-137 (pCi/g)
S-4	5/4/2005	13.5	11.0	0.00	0.03

TABLE 18 – RADIOLOGICAL VEGETATION SAMPLES

Sample Number	Date Collected	Gross α (pCi/g)	Gross β/γ (pCi/g)
V-2	4/22/05	0.14	5.09
Val-IV	4/22/05	0.00	3.45

TABLE 19 – DOSIMETRY RESULTS
GAMMA MONITORING

South Boundary		East Boundary		West Boundary		North Boundary		Centrally Located	
Station No.	(mRem/yr)	Station No.	(mRem/yr)	Station No.	(mRem/yr)	Station No.	(mRem/yr)	Station No.	(mRem/yr)
1	70	10	60	25	58	16	59	4	51
2	53	11	56	26	54	17	64	5	52
3	60	12	56	27	59	18	52	6	55
8	60	13	63	28	59	19	62	7	63
9	57	14	52	29	55	23	60	20	63
31	56	15	*N/A	30	58	24	67	21	58
								22	52

Notes: See Figure 4 for location, zones demarcated by red lines.
The dosimeters at each station were collected on 10/1/200.
* Dosimeter Missing

TABLE 20 – RADIOLOGICAL AMBIENT AIR MONITORING

$1x10^{-14}$ uci/ml

MONTH	STATION ONE		STATION TWO		STATION THREE		STATION FOUR	
	BETA	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA	ALPHA
JAN	3.61	1.51	3.67	1.56	3.21	1.23	3.82	1.59
FEB	3.81	1.55	3.84	1.44	3.26	1.01	3.71	1.44
MAR	4.69	1.78	4.30	1.64	3.53	1.24	3.42	1.29
APR	4.25	1.70	4.06	1.64	3.04	1.03	3.19	1.27
MAY	5.16	2.27	4.04	1.70	2.59	1.11	3.82	1.71
JUN	6.87	2.40	4.21	1.63	5.68	1.21	3.23	1.02
JUL	6.05	1.96	6.37	1.75	6.25	1.62	4.92	1.61
AUG	7.46	2.94	6.72	2.52	4.93	1.83	5.60	1.93
SEP	7.75	3.41	5.94	2.79	4.31	1.78	4.88	2.08
OCT	8.93	4.57	7.14	3.54	5.65	2.32	6.81	3.37
NOV	18.64	10.14	12.70	7.39	14.36	5.48	15.70	7.66
DEC	11.00	4.61	12.24	5.41	6.96	2.19	9.30	4.51
Average	7.35	3.24	6.27	2.75	5.31	1.84	5.70	2.46

Notes: See Figure 4 for location, zones demarcated by red lines.
See Figure 5 for graphical representation

TABLE 21 – RAINFALL DATA

Period	Rainfall Amount (Inches)
October 1996 to October 1997	14.25
October 1997 to October 1998	25.25
October 1998 to October 1999	9.75
October 1999 to October 2000	6.24
October 2000 to October 2001	7.27
October 2001 to December 2001	7.80*
January 2002 to December 2002	14.7
January 2003 to December 2003	15.3
January 2004 to December 2004	15.65
January 2005 to December 2005	26.50

* 4th quarter data reported separately to switch data reporting to calendar year.