



VGF Excellence

Approval

July 17, 1996

Mr. Robert Weston  
Senior Hazardous Materials Specialist  
Alameda County Health Agency  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, CA 94502

96 JUL 17 AM 10:16

**Re: CLOSURE OF FACILITY LOCATED AT 6785 D SIERRA COURT,  
DUBLIN, CALIFORNIA.**

Dear Mr. Weston:

Enclosed is a Closure Plan for the above mentioned site. If you have any questions regarding the closure of that facility, please contact me immediately at (510) 833-0553.

Regards,

Jeff Shapiro  
Safety and Regulatory Manager

Enclosure:

C: Russ Fulwood, Dougherty Regional Fire Authority  
Bob White, City of Dublin, Building Department  
Sherie L. Dunn, Reef Management

96 JUL 17 AM 10:16

ENVIRONMENTAL PROTECTION

**CLOSURE PLAN FOR 6785 SIERRA COURT, STE. D,  
DUBLIN CALIFORNIA**

PREPARED BY  
AMERICAN XTAL TECHNOLOGY  
JULY 1996

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## HISTORY

In November 1987, American Xtal Technology (AXT) began its lease of a 2078 square/foot suite located at 6785 Sierra Court, Ste. D, Dublin, CA. During the first year of operation, only two processes were performed: 1) gallium arsenide crystal growth and 2) quartz tube cleaning. During the second year, slicing, edge-grinding and polishing were added to the manufacturing process. By late 1990, all gallium arsenide manufacturing was moved to 6780 Sierra Court, Ste. I, Dublin, CA. From late 1990 to the present, only indium phosphide (non-hazardous material) crystal growth research and development have been performed. The photographs in Appendix A depict equipment used to grow indium phosphide crystals.

## SUSPECTED AREAS OF CONTAMINATION

The areas of possible contamination are:

1. Slicing
2. Polishing
3. Wet Process Area

## EMPLOYEE SAFETY TRAINING AND USE OF PERSONAL PROTECTION EQUIPMENT(PPE)

Demolition and closure of the above mentioned facility will be supervised by AXT's Safety Manager, Jeff Shapiro, R.E.A. Employee health and safety ( inhalation hazards) and environmental compliance (flying debris) will be primary concerns. The following training and PPE will be required before any demolition begins:

### Removal of Non-Hazardous Material — LEVEL D

1. Hard hats
2. Steel-toed work boots
3. Coveralls or other appropriate work clothes
4. Work gloves
5. Eye protection

### Removal of Suspected Hazardous Waste

1. Training on proper handling and disposal of sheet rock, ventilation ducting, and floor tile contaminated with gallium arsenide.
2. Tyvek coveralls
3. Latex gloves
4. Toxic dust respirators ✓
5. Eye protection
6. Hair netting
7. Tyvek booties

### **REMOVAL, DISPOSAL AND REPAIR**

After discussions with Reef Management (property owner), it was decided that AXT will perform the following items:

1. Removal of all interior non-bearing walls.
2. Removal and replacement of sheet rock for 70% of the northern wall .
3. Removal of all vinyl color tile from the entire suite.
4. Removal of all carpeting.
5. Removal of all sheet rock and plywood from the three small rooms which store indium phosphide pressurized vessels.
6. Removal of all plumbing (copper and PVC) except, the bathroom.
7. Removal of all electrical conduit and wiring installed by AXT.
8. Removal of all ducting.
9. Repair to the inner portion of the roof will be AXT's responsibility.  
External roof repairs will be the responsibility of Reef management.

### **DEMOLITION PROCEDURES**

Demolition of the above mentioned site will be as follows:

1. Hang 6 mil plastic sheets in warehouse doorways to prevent excessive debris from leaving the facility.
2. Removal of all non-hazardous material to dumpster and dispose of it in a class 3 landfill.
3. Disposal of hazardous waste will be as follows:

A. RCRA Hazardous Waste:

Either of the following methods is acceptable under CCR Title 22 for the disposal of RCRA arsenic waste debris.

- a. encapsulation and burial.
- b. incineration

B. Non-RCRA Hazardous Waste:

A hazardous waste dumpster will be used to dispose of all class two material. Based on availability and price of disposal, this material will be landfilled in a class 1 or class 2 TSDF.

4. Repair sheet rock and interior portion of roof.

## SAMPLING AND DECONTAMINATION PROCEDURES

Initial sampling of floor tile, metal ducting and sheet-rock was conducted on June 18th and July 2nd. These samples were analyzed for arsenic using the EPA Method TCLP-1311. Sample results from 6/18/96, indicate the arsenic from sheet rock located in the slicing area to be 11 PPM. Other samples taken were from steel ducting and floor tiles. These samples were tested using the California STLC extraction method. The results for the steel ducting were 20 PPB (0.2 PPM) and 1500 PPB (1.5 PPM) for the floor tile.

All sheet rock samples taken on July 2nd were from the wet-process and cleanroom areas (see appendix B). These samples were tested using the EPA TCLP-1311 method and were found to be non-detect for arsenic. Initial sampling shows very low levels of arsenic in the slicing area (floor and walls) and very minor arsenic levels in HVAC ducting material (see table 1).

Actual demolition will begin during the first week of August 1996. The following sampling procedures are recommendations for the closure of the above mentioned site:

1. Initial sampling on June 18th and July 2nd generated by state certified laboratories.
2. Removal of non-hazardous and hazardous waste during the first two weeks of August 1996.
3. Following demolition, decontamination of the concrete slab will be performed using an aqueous solution of ammonium hydroxide and hydrogen peroxide. During decontamination, an "arsenic quick test kit"

will be used to determine the effectiveness of the decontamination. After all field tests for arsenic are non-detect, wipe samples will be taken from the concrete slab within the slicing, wet-processing polishing and cleanroom areas at a frequency of 1 sample/200 sq./ft. and analyzed for total arsenic using the CCR Title 22 extraction method STLC. All testing is to be performed by a state certified laboratory.

Table 1:

	<u>AREA</u>	<u>MATERIAL</u>	<u>LEVEL</u>	<u>METHOD OF DETECTION</u>
1.	Slicing	Sheet rock	11.0 PPM	TCLP-1311 ]
2.	Slicing	Floor tile	1.5 PPM	STLC
3.	Slicing	Ducting	0.2 PPM	STLC
4.	Wet-P (1m)	Sheet rock	non-detect	TCLP-1311
5.	Cleanroom ®	Sheet rock	non-detect	TCLP-1311
6.	Cleanroom (rm)	Sheet rock	non-detect	TCLP-1311



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ALL OFFICE CARPETING WILL BE REMOVED.



GALLIUM ARSENIDE CRYSTAL GROWTH





GALLIUM ARSENIDE SLICING



ALL INTERIOR WALLS WILL BE REMOVED.



GALLIUM ARSENIDE CRYSTAL GROWTH



WET PROCESSING AREA



ALL DUCTING WILL BE REMOVED



FACILITY LAYOUT 6785 D SIERRA COURT, DUBLIN CA 94568

SLICING

STORAGE

WET  
PROCESSING

POLISHING

CLEAN ROOM

GALLIUM ARSENIDE CRYSTAL GROWTH

OFFICE



North State Environmental  
Chemical Waste Disposal · Trucking · Consulting

C E R T I F I C A T E O F A N A L Y S I S

JOB NO: 96-410  
CLIENT: AXT

DATE SAMPLED: 06-18-96  
DATE EXTRACTED: 06-27-96  
DATE ANALYZED: 07-01-96

STLC ARSENIC BY ATOMIC ABSORPTION SPECTROMETRY  
SAMPLE PREPARED BY CALIFORNIA WASTE EXTRACTION  
TITLE 22 66700

SAMPLE NO.	CLIENT ID	ANALYTE/METHOD	RESULT
96-410-04	Steel	Arsenic 7061	20 ug/L
96-410-05	Floor Tile	Arsenic 7061	1500 ug/L

Quality Control Quality Assurance Summary:

Analyte	Method	Reporting limit	Blank	MS/MSD Recovery	RPD
Arsenic	7061	20 ug/L	ND	113%	10

ELAP CERTIFICATION NUMBER 1753

Reviewed and Approved by

  
John Murphy  
Laboratory Director



North State Environmental  
Chemical Waste Disposal • Trucking • Consulting

C E R T I F I C A T E O F A N A L Y S I S

JOB NO: 96-410  
CLIENT: AXT

DATE SAMPLED: 06-18-96  
DATE EXTRACTED: 06-26-96  
DATE ANALYZED: 06-27-96

ARSENIC BY ATOMIC ABSORPTION SPECTROMETRY  
SAMPLE PREPARED BY EPA METHOD TCLP-1311

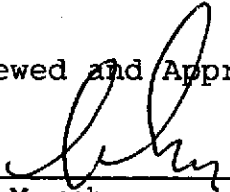
SAMPLE NO.	CLIENT ID	ANALYTE/METHOD	RESULT
96-410-06	Drywall	Arsenic 7061	11 mg/L

Quality Control Quality Assurance Summary:

Analyte	Method	Reporting limit	Blank	MS/MSD Recovery	RPD
Arsenic	7061	20 ug/L	ND	114%	10

ELAP CERTIFICATION NUMBER 1753

Reviewed and Approved by

  
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John Murphy  
Laboratory Director



# North State Environmental Analytical Laboratory

## Chain of Custody/Request for Analysis

(415) 588-9652

No 40

Client: <b>AXT</b>		Phone:	Report to:	Turnaround Time						
Mailing Address:			Billing to:	8 Hr	24 Hr					
Site Address:			PO# / Billing Reference:	40 Hr	5 Days					
Sampler: <b>T. Hooping</b>		Date: <b>6/18</b>	Other <input checked="" type="checkbox"/>							
Sample ID:	Sample Description	Container # / type	Sampling Time/Date	ANALYSIS REQUESTED						Remarks
				TPH-D	TPH-G	BTEX	O+G	TCLP A	TTC A	
A	Filter cake	1/G	6:30 AM					X		
B	"	1/G	"					X		
C	"	1/G	"					X		
	soil	1/P	"						X	
	floor tile	1/P	"						X	
	dry wall	1/P	"						X	
Relinquished by:		Date: <b>6/18/96</b>	Time: <b>NOON</b>	Received by:		Yes	No			
Relinquished by:		Date:	Time:	Received by:		Were samples Preserved ?				
Relinquished by:		Date:	Time:	Received in lab by:		In good condition ?				