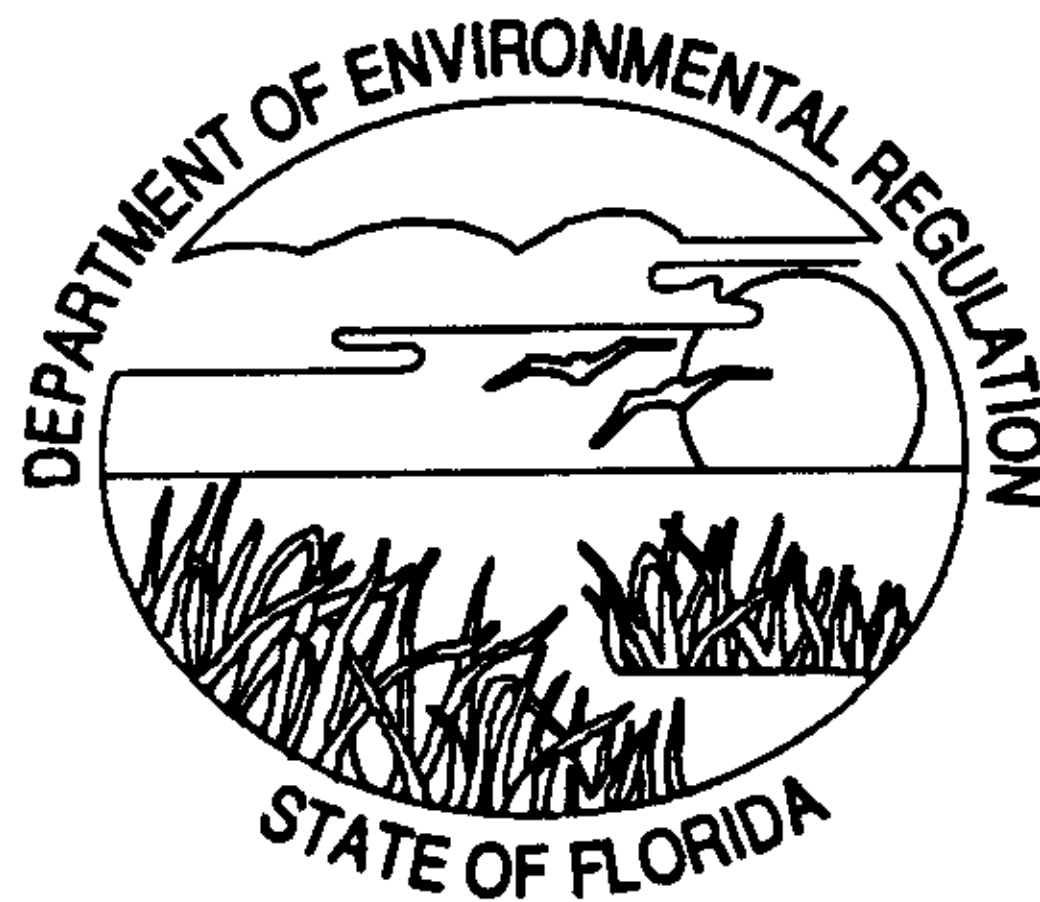




Bioassays of  
**Consolidated Minerals, Inc. - Coronet Plant**  
Plant City, Hillsborough County, Florida  
NPDES #FL0034657  
Sampled 7/27/92

September 1992

**Biology Section**  
**Division of Technical Services**

Bioassays of  
**Consolidated Minerals, Inc. - Coronet Plant**  
Plant City, Hillsborough County, Florida  
NPDES #FL0034657

**Biology Section  
Bureau of Laboratories  
September 1992**

## Introduction

Consolidated Minerals, Inc. - Coronet Plant, Plant City, Hillsborough County, Florida, NPDES #FL0034657, tests performed on 28 to 30 July, 1992.

This facility is located at Coronet Road and Cason Road in Plant City. The facility is a phosphate processing plant which produces animal feed supplements. Potassium fluoroborate and crude hydrofluoric acid are by-products of the process. Settling ponds are used for treating recycled scrubber water from the plant processes. During periods of high water levels in the ponds, the treated pond water can be discharged. Discharge is to English Creek, a tributary of the Alafia River.

The sample was collected from outfall 005 since outfall 001 was not discharging. Outfall 001 had been covered as the plant plans to go to zero discharge (personal communication, SW district staff). Both outfalls have an 800-meter mixing zone for fluoride (DER permit files).

The toxicity tests discussed in this report were performed in accordance with methods described by Weber, 1991, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th Edition, EPA/600/4-90/027.

## Results and Discussion

The FDER Biology Section performed two 48-hour static acute screening toxicity bioassays with a sample of effluent from this facility. The bioassay organisms used for these tests were the water flea, *Ceriodaphnia dubia*, and the bannerfin shiner, *Notropis leedsii*. Although the *C. dubia* test was invalidated due to excessive control mortality, no mortality occurred in the 100% effluent test concentration. No mortality occurred in the *N. leedsii* test. The test results did not indicate toxicity.

## Conclusion

The sample of effluent from this facility, which was collected on 27 July, 1992, did not show toxicity.

**Table 1. Concentration Series and Volumes Used for the 48-hour Static Acute Screening Bioassays of the Consolidated Minerals, Inc. - Coronet Plant on 28 to 30 July, 1992.**

*Ceriodaphnia dubia* (water flea)

| Concentration | Dilution Water | Sample | Total Volume |
|---------------|----------------|--------|--------------|
| Control       | 20 mL          | 0 mL   | 20 mL        |
| 100 %         | 0 mL           | 20 mL  | 20 mL        |

*Notropis leedsi* (bannerfin shiner)

| Concentration | Dilution Water | Sample | Total Volume |
|---------------|----------------|--------|--------------|
| Control       | 500 mL         | 0 mL   | 500 mL       |
| 100 %         | 0 mL           | 500 mL | 500 mL       |

**Table 2.** Data recorded during the 48-hour static acute screening bioassays of a sample of effluent from the Consolidated Minerals, Inc.- Coronet Plant, Plant City, Hillsborough County, Florida, NPDES# FL0034657, on 28 to 30 July, 1992.

|                         |                                          |                    |                     |                  |                      |
|-------------------------|------------------------------------------|--------------------|---------------------|------------------|----------------------|
| Facility:               | Consolidated Minerals Inc.-Coronet Plant | NPDES #            | FL0034657           | Facility Type:   | Phosphate processing |
| Location:               | Plant City                               | Contact/District:  | Peggy Morgan/SW     |                  |                      |
| County:                 | Hillsborough                             | Test type:         | static acute screen |                  |                      |
| Sample Collection Date: | 7/27/92                                  | # tests:           | 2                   | Receiving Water: | English Creek        |
| Test Beginning Date:    | 7/28/92                                  | Chlorination Type: | Non-chlorinated     |                  |                      |
| Test Ending Date:       | 7/30/92                                  |                    |                     |                  |                      |

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| Organism: <i>Ceriodaphnia dubia</i>                                                                                        |   |           |               |               |    |     |        |         |         | Life stage: < 24 Hrs |         |         |                  |         |         |              |         |  |  |
|----------------------------------------------------------------------------------------------------------------------------|---|-----------|---------------|---------------|----|-----|--------|---------|---------|----------------------|---------|---------|------------------|---------|---------|--------------|---------|--|--|
| * Although the test was invalidated due to excessive control mortality, no deaths occurred in the 100% test concentration. |   |           |               |               |    |     |        |         |         |                      |         |         |                  |         |         |              |         |  |  |
| Concentrations                                                                                                             |   | SURVIVAL  |               |               |    |     | pH     |         |         | Temperature          |         |         | Dissolved Oxygen |         |         | Conductivity |         |  |  |
|                                                                                                                            |   | # at 0 hr | Live at 24 hr | Live at 48 hr |    |     | 0 hour | 24 hour | 48 hour | 0 hour               | 24 hour | 48 hour | 0 hour           | 24 hour | 48 hour | 0 hour       | 48 hour |  |  |
| Control                                                                                                                    | 5 | 5         | 5             | 5             | 2* | 8.1 | -      | 8.2     | -       | 23.3                 | -       | 24.8    | -                | 8.7     | -       | 150          | 168     |  |  |
| Control                                                                                                                    | 5 | 5         | 5             | 5             | 5  | -   | -      | 8.2     | -       | -                    | -       | -       | -                | 8.7     | -       | -            | -       |  |  |
| Control                                                                                                                    | 5 | 5         | 5             | 5             | 5  | -   | -      | 8.2     | -       | -                    | -       | -       | -                | 8.7     | -       | -            | -       |  |  |
| Control                                                                                                                    | 5 | 5         | 5             | 5             | 4* | -   | -      | 8.2     | -       | -                    | -       | -       | -                | 8.7     | -       | -            | -       |  |  |
| 100%                                                                                                                       | 5 | 5         | 5             | 5             | 5  | 7.4 | -      | 7.9     | -       | 22.8                 | -       | 24.8    | -                | 8.8     | -       | 1092         | 1237    |  |  |
| 100%                                                                                                                       | 5 | 5         | 5             | 5             | 5  | -   | -      | 7.9     | -       | -                    | -       | -       | -                | 8.8     | -       | -            | -       |  |  |
| 100%                                                                                                                       | 5 | 5         | 5             | 5             | 5  | -   | -      | 7.9     | -       | -                    | -       | -       | -                | 8.8     | -       | -            | -       |  |  |
| 100%                                                                                                                       | 5 | 5         | 5             | 5             | 5  | -   | -      | 7.9     | -       | -                    | -       | -       | -                | 8.8     | -       | -            | -       |  |  |

| Organism: <i>Notropis leeds</i> |           |               |               | Age: 9 days |         |             |        |                  |         |              |         |
|---------------------------------|-----------|---------------|---------------|-------------|---------|-------------|--------|------------------|---------|--------------|---------|
| SURVIVAL                        |           |               |               | pH          |         | Temperature |        | Dissolved Oxygen |         | Conductivity |         |
| Concentrations                  | # at 0 hr | Live at 24 hr | Live at 48 hr | 0 hour      | 24 hour | 48 hour     | 0 hour | 24 hour          | 48 hour | 0 hour       | 48 hour |
| Control                         | 5         | 5             | 5             | 7.7         | 8.2     | 8.4         | 24.0   | 23.7             | 23.8    | -            | -       |
| Control                         | 5         | 5             | 5             | 7.7         | 8.2     | 8.4         | -      | -                | -       | 244          | 245     |
| 100%                            | 5         | 5             | 5             | 7.4         | 7.7     | 7.8         | 22.3   | 23.3             | 23.8    | -            | -       |
| 100%                            | 5         | 5             | 5             | 7.4         | 7.7     | 7.8         | -      | -                | -       | 1125         | 1189    |

| Total Residual Cl2 | mg/l         | Method |
|--------------------|--------------|--------|
| Field:             | not measured | -      |
| Lab:               | 0.0          | Hach   |

| Ammonia               | Total (mg/l) | Un-ionized (mg/l) |
|-----------------------|--------------|-------------------|
| Control Water (fish): | 0.01         | 0.00              |
| Cond. Control         |              |                   |
| Water (daphnids):     | 0.00         | 0.00              |
| 100% Sample:          | 0.00         | 0.00              |

| Alk & Hardness        | Alkalinity (mg/l) | Hardness (mg/l) |
|-----------------------|-------------------|-----------------|
| Control Water (fish): | 121               | 128             |
| Cond. Control         |                   |                 |
| Water (daphnids):     | 65                | 79              |
| 100% Sample:          | 60                | 105             |

| Salinity (ppt)   |
|------------------|
| Control Water: 0 |
| 100% Sample: 0   |

100

<sup>mf</sup>  
~~HP~~-92-JUL-29-01 Job #  
38037

Remarks:

20% central mortality 7/30/92  
0% mortality ~ 100% test mr

**Instrument Calibrations:**

|       | pH       | DO         | Temp          | Cond                |
|-------|----------|------------|---------------|---------------------|
| 0 hr  | 7.7 @ 10 | 8.5 @ 24°C | 24.3 @ 24.4°C | 986 @ 1000 @ 24.4°C |
| 24 hr | 7.7 @ 10 | 8.5 @ 24°C | 24.0 @ 24.0°C | 984 @ 1000 @ 24.4°C |
| 48 hr | 7.7 @ 10 | 8.5 @ 24°C | 24.2 @ 24.0°C | 992 @ 1000 @ 24.4°C |

[illegible]

wrote in  
wrong place  
KP 7/28/92  
1155

### Investigators' Signatures

Marshall Fanchith  
Kim Pearce

Reviewer

### Water-quality Parameters

|                        | Well Water | Cond. Water | Sample | Method | Measured by |
|------------------------|------------|-------------|--------|--------|-------------|
| Field Tot. Resid. Clz: | 2.0        | 0.0         | 0.0    | Each   | MR          |
| Lab Tot. Resid. Clz:   |            |             | 0.0    | Each   | MR          |
| Alkalinity:            | 121        | 65          | 60     | Each   | KWD         |
| Hardness:              | 128        | 79          | 105    | Each   | KWP         |
| Total Ammonia:         | 0.008      | 0.0         | 0.0    | Ammon  | MR          |

Ammonia - Ammonia Salinity  
Meter Slope: -54.9 Blank: 0.0 Sample: \_\_\_\_\_ ppt

## DER Biology Section — Acute Bioassay Bench Sheet

Sample Source: Consolidated Minerals (Coronet Phos) Sample Collection: Date 7/27/92 Time 1045  
Address/City: \_\_\_\_\_ Test Beginning: Date 7/28/92 Time 1300  
County: Hillsborough Test Ending: Date 7/30/92 Time 1330  
Contact/District: Peggy Morgan SW Tampa Test Organism: Notropis kribia  
NPDES Permit #: FL00 Outfall #: 005 Life Stage/Age: 9 days

Test Number: 2 of 2      Test Type: Screening | Definitive  
Static | Static Renewal | Flow-through

92-Jul-28-01 Job #  
38037

Remarks:

**Instrument Calibrations:**

|       | pH      | DO        | Temp         | Cond                         |
|-------|---------|-----------|--------------|------------------------------|
| 0 hr  | 7.10/10 | 8.50 24°C | 24.30 24.9°C | 986 e1K @ 24.1<br>9850 e10K  |
| 24 hr | 7.12/10 | 8.50 24°C | 24.00 24.0°C | 984 e1K @ 23.95<br>9810 e10K |
| 48 hr | 7.10/10 | 8.50 24°C | 24.20 24.0°C | 992<br>9920 e10K @ 24.4      |

[illegible]

### Investigators' Signatures

Marshall Handoth  
Kim Pearce

Reviewer

## Water-quality Parameters

|                           | Well Water             | Cond. Water | Sample            | Method | Measured by |
|---------------------------|------------------------|-------------|-------------------|--------|-------------|
| Field Tot. Resid. Clz:    | Total Hard 0.0 Hard mp |             |                   |        |             |
| Lab Tot. Resid. Clz:      |                        |             | 0.0               | Hard   | MF          |
| Alkalinity:               | 121                    | 65          | 60                | Hard   | KWP         |
| Hardness:                 | 128                    | 79          | 105               | Hard   | KWP         |
| Total Ammonia:            | 0.008                  | 0.0         | 0.0               | Color  | MF          |
| Ammonia                   | Ammonia                |             | Salinity          |        |             |
| Meter Slope: <u>-54.9</u> | Blank: <u>0.0</u>      |             | Sample: _____ ppt |        |             |

Fill Out This Section For All Surface Water Discharger Inspections (CEI, CSI, CBI, PAI, XSI - RI Optional)

| Transaction Code |   |   | NPDES NUMBER |   |    |    |   | YR/MO/DA |   |   |   |    | Insp Type | Inspector | Fac Type |   |   |   |   |    |    |   |    |   |    |   |  |
|------------------|---|---|--------------|---|----|----|---|----------|---|---|---|----|-----------|-----------|----------|---|---|---|---|----|----|---|----|---|----|---|--|
| 1                | N | 2 | 5            | 3 | FL | 00 | 3 | 4        | 6 | 5 | 7 | 11 | 12        | 9         | 2        | 0 | 7 | 2 | 7 | 17 | 18 | B | 19 | S | 20 | 3 |  |
| Remarks          |   |   |              |   |    |    |   |          |   |   |   |    |           |           |          |   |   |   |   |    |    |   |    |   |    |   |  |
| NOT TOXIC        |   |   |              |   |    |    |   |          |   |   |   |    |           |           |          |   |   |   |   |    |    |   |    |   |    |   |  |

Fill Out This Section For All Surface Water Discharger Inspections (CEI, CSI, CBI, PAI, XSI - RI Optional)

| Transaction Code |   |   | NPDES NUMBER |   |    |    |   | YR/MO/DA |   |   |   |    | Insp Type | Inspector | Fac Type |   |   |   |   |    |    |   |    |   |    |   |  |
|------------------|---|---|--------------|---|----|----|---|----------|---|---|---|----|-----------|-----------|----------|---|---|---|---|----|----|---|----|---|----|---|--|
| 1                | N | 2 | 5            | 3 | FL | 00 | 3 | 4        | 6 | 5 | 7 | 11 | 12        | 9         | 2        | 0 | 7 | 2 | 7 | 17 | 18 | X | 19 | S | 20 | 3 |  |
| Remarks          |   |   |              |   |    |    |   |          |   |   |   |    |           |           |          |   |   |   |   |    |    |   |    |   |    |   |  |
|                  |   |   |              |   |    |    |   |          |   |   |   |    |           |           |          |   |   |   |   |    |    |   |    |   |    |   |  |