

Containment Coatings Long Range Plans Oconee Nuclear Station December 20 , 2005



ONS Containment Coatings Long Range Plans

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ONS Containment Coatings Introduction

Duke Participants

Mike Glover	Oconee Engineering Manager
Steven Capps	Mech/Civil Engineering Manager
Larry Nicholson	Safety Assurance Manager
Graham Davenport	Regulatory Compliance Manager
Andy Wells	Civil Engineering Supervisor
Ken Isley	Corporate Coatings Engineer
Mel Arey	Nuclear Tech Services Manager
Mike Cromer	Maintenance Coating Job Sponsor

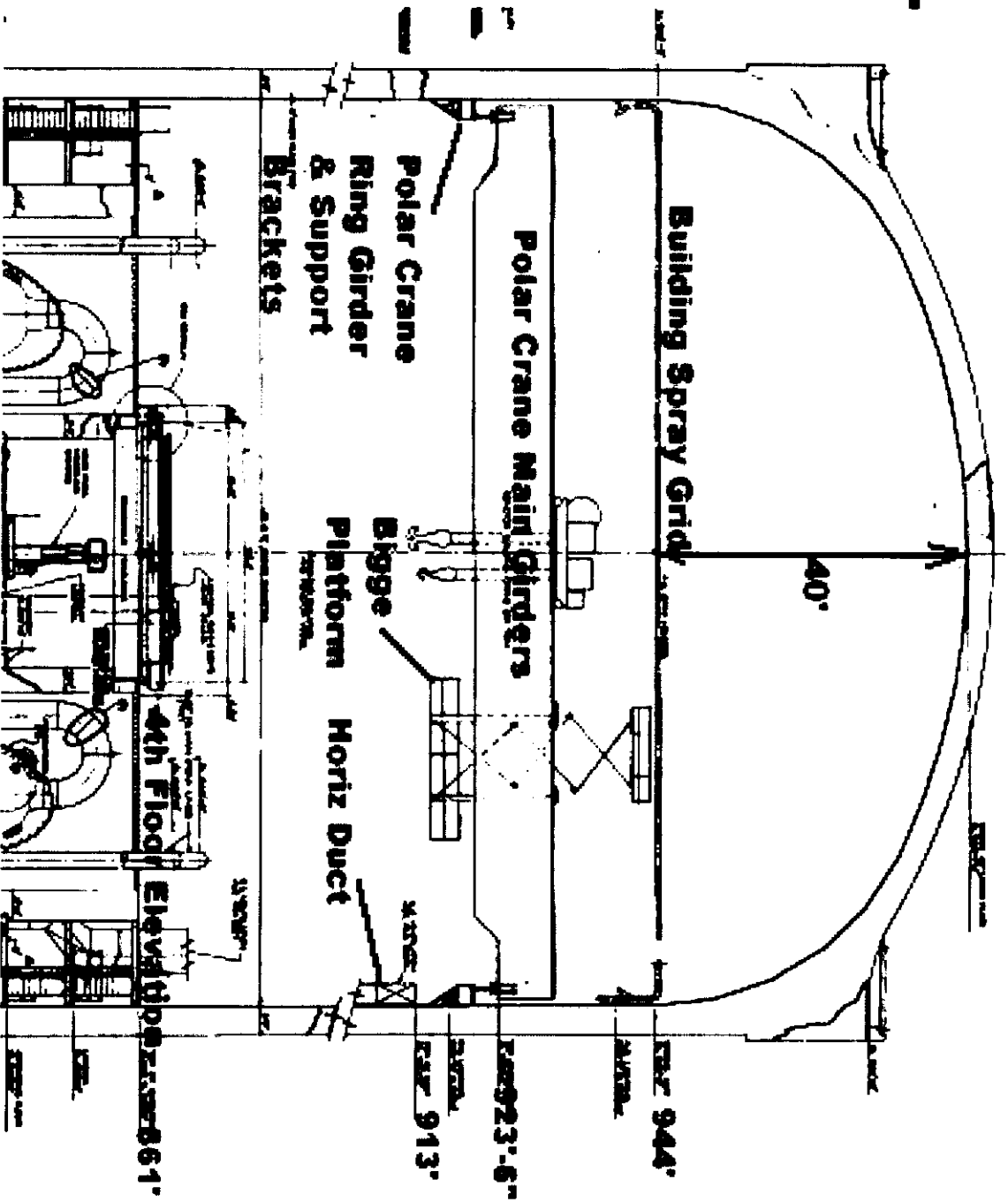


ONS Containment Coatings Objectives

- Review of containment coating related activities during most recent outage (2EOC21)
- Discussion of current status of containment coating in each Unit at Oconee.
- Discussion of long range plans to address degraded containment coatings.
- Reinforce ONS is committed to full compliance with Generic Letter 04-02 by end of 2007.
- Receive feedback / answer questions from NRC.



ONS Containment Coatings





ONS Containment Coatings Accomplishments During 2EOC21

- Collected failed coatings from various locations of containment at start of outage. Completed detailed laboratory analysis required to support failure analysis.
- Coating Manufacturer (Carboline) performed independent failure analysis which confirmed failure due to improper application during original construction.
- Failure modes identified for Unit 2 are consistent with those identified during root cause evaluation performed for failed coatings during 1EOC22.



ONS Containment Coatings Accomplishments During 2EOCC21

- Performed approximately 100 Adhesion tests using ASTM D6677 (Adhesion by Knife). Results indicated:
 - Coatings that appear to be visually sound were confirmed to be tightly adhered to the substrate.
 - In immediate vicinity of delaminated coating, test results indicate poor adhesion.
- Performed 5 MEK Rub Test (ASTM D4752) on exposed zinc primer. Results confirmed:
 - Zinc primer is well adhered to the substrate with no delamination or exposure of substrate following the test.



ONS Containment Coatings Accomplishments During 2EOCC21

- Abated and recoated reactor building emergency sump with qualified coating system (Approx 284 ft²).
- Reclaimed approximately 1,412 ft² of unqualified coatings.
 - 2B2 RCP Motor ~ 750 ft².
 - 2A Core Flood Tank ~ 662 ft² (90%)
- Abated to substrate and recoated approximately 7690 ft² of coating located primarily above the 4th floor (elevation 861). This exceeded our goal of 6000 ft².

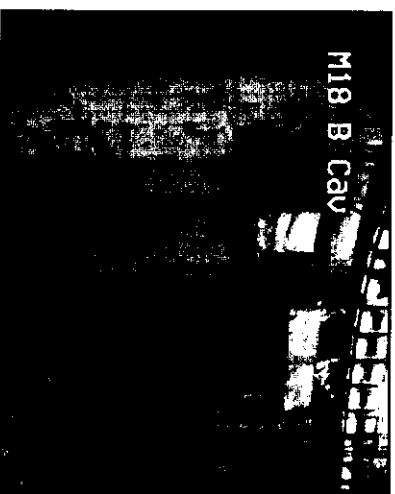


ONS Containment Coatings Accomplishments During 2EOCC21

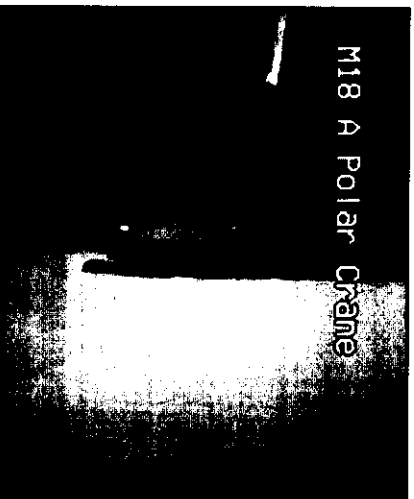
Old Coating Removal in Process



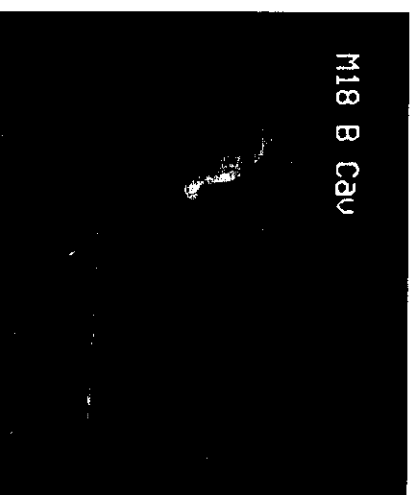
Old Coating Removal in Process



Old Coating Removal in Process

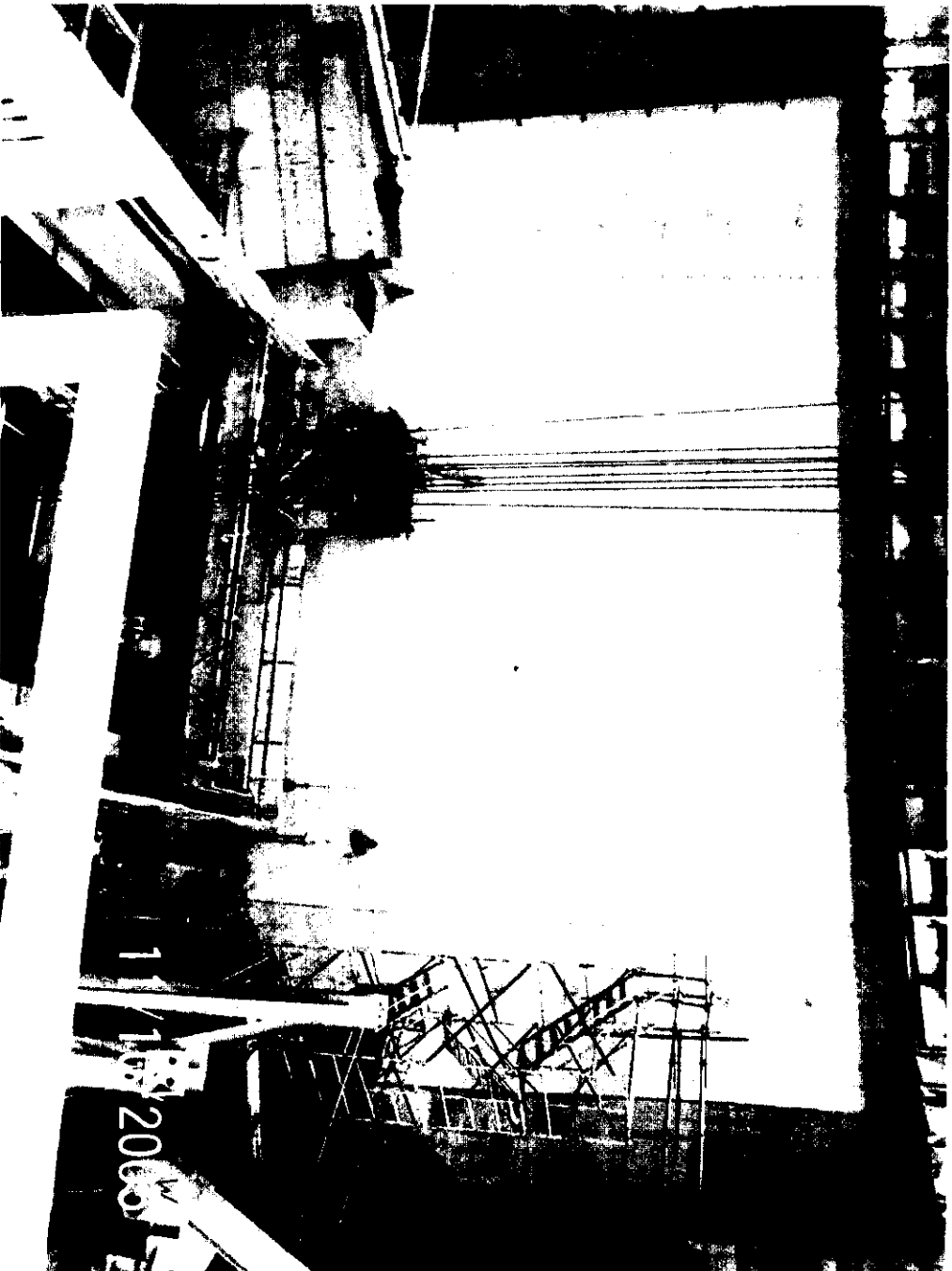


New Coating Installation





ONS Containment Coatings Accomplishments During 2EOCC21





ONS Containment Coatings Current State of Unit 2 Containment Coatings

Area	Total Surface area (ft ²)	Current Condition - Approximate Area of Degraded Coating – Unit 2 (2EOC21)
Liner Plate Below 4th Floor	31,000	
Liner Plate Above 4th Floor to Dome Line	29,340	
Polar Crane Main Girders and Trolley	6,850	
Polar Crane Ring Girder and Support Braces	6,000	
Building Spray Support Steel	8,230	
Reactor Building Dome	16,320	
Total		

Note: There are approximately 250,000 ft² of Service Level I Coating in Containment



ONS Containment Coatings Current State of Containment Coatings

Unit 2 's final estimate of degraded coating factors in the numerous adhesion test results conducted per ASTM-D6677 throughout containment .

Estimates were conservatively increased to bound areas in the vicinity of delaminated topcoat.



ONS Containment Coatings Current State of Unit 1 & 3 Containment Coatings

Area	Total Surface area (ft ²)	Current Condition - Approximate Degraded Coating Area (Based on Most Recent Outage Inspection Report)	
		Unit 1 (IEOC22)	
Liner Plate Below 4th Floor	31,000	Negligible	
Liner Plate Above 4th Floor to Dome Line	29,340	Negligible	
Polar Crane Main Girders and Trolley	6,850	190	
Polar Crane Ring Girder and Support Braces	6,000	Negligible	
Building Spray Support Steel	8,230	300	
Reactor Building Dome	16,320	Negligible	
Total		490	

Note: There are approximately 250,000 ft² of Service Level I Coating in Containment



ONS Containment Coatings

Current State of Containment Coatings

The estimates of degraded coating for Units 1 and 3 were determined prior to the findings of the ASTM D6677 (Adhesion by Knife) tests.

The estimated amount of degraded coating will likely increase during the next outage in Units 1 and 3 based on conservative application of adhesion test results.



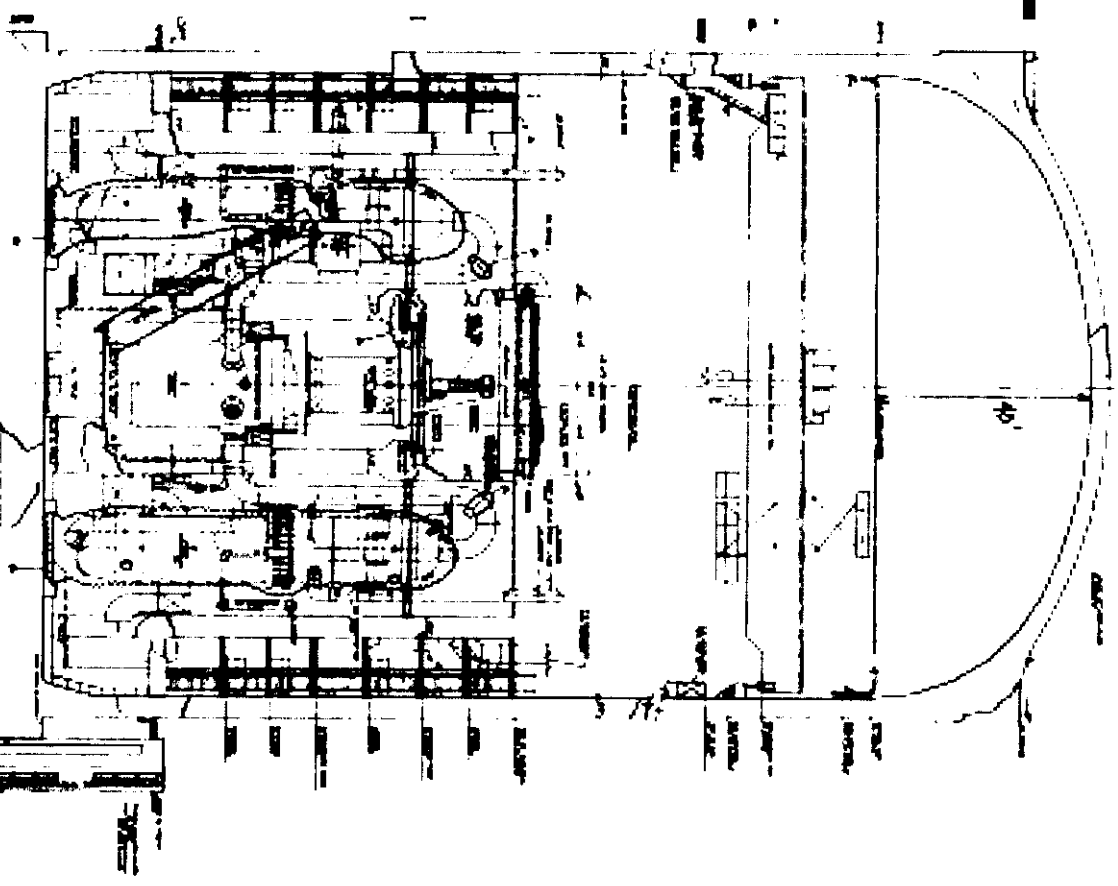
ONS Containment Coatings Long Range Plan Review

- Long range plans address problematic areas and move ONS into a normal coating maintenance mode.
- Level of unqualified coatings is being reduced.
- By end of 2007, Oconee will comply with Generic Letter 2004-02. Amount of degraded coatings will be maintained within the design requirements of the Emergency Sump.
- Long range plans may change as new information is obtained and specific details are developed to implement these plans. Compliance with Generic Letter 2004-02 will be maintained.
- Any significant changes to these long range plans will be communicated to the NRC.

ONS Containment Coatings Long Range Plan Review

Bigge Platform provides access to:

1. Polar Crane Ring Girder (inside face) and support brackets.
 2. Inside webs of Polar Crane Main Girders.
 3. Majority of Building Spray Support Steel.
- Platform does NOT provide access to any areas above the spray grid nor liner plate above the polar crane ring girder.





ONS Containment Coatings Unit 1 Long Range Plan Review

Outage

Work Scope

1EOC23
Fall 06

Strip & recoat majority of Polar Crane main girders & portions of the trolley.

Strip & recoat majority of Ring Girder interior face and scrape loose topcoat on Ring Girder support braces.

Scrape majority of loose topcoat remaining on Spray Header support steel .

Strip & recoat remaining Core Flood Tank and refurbished RCPM (ongoing).

Strip & recoat Emergency Sump pit and install new strainer

Perform adhesion testing in random locations throughout Containment.

Revise estimate of degraded coatings based on insights from adhesion testing

Harvest section of Spray Header steel for DBA testing.

1EOC24
Spring 08

Normal coating maintenance



ONS Containment Coatings Unit 2 Long Range Plan Review

Outage	Work Scope
2EOC22 Spring 07	Strip & recoat majority of degraded coating remaining on 4 th floor Liner plate area (below horizontal ductwork) Strip & recoat remaining Core Flood Tank and refurbished RCPM (ongoing). Obtain needed data to plan for Dome coating removal during next outage.
2EOC23 Fall 08	Strip & recoat majority of degraded coatings on Dome Liner plate. Strip & recoat majority of degraded coatings on Liner plate section above Ring Girder
2EOC24 Spring 10	Normal coating maintenance



ONS Containment Coatings Unit 3 Long Range Plan Review

Outage

3EOC22
Spring 06

Obtain failed coating samples and perform failure analysis.

Strip & recoat remaining Core Flood Tank and refurbished RCPM (ongoing)

Strip & recoat Emergency Sump pit and install new strainer.

Perform adhesion testing in random locations throughout Containment.

Revise estimate of degraded coatings based on adhesion testing insights (including Unit 2)

Obtain needed data to plan for Dome coating removal during next outage.

Normal coating maintenance activities in the accessible areas.

3EOC23
Fall 07

Strip & recoat majority of degraded coatings on Dome Liner Plate.

3EOC24

Normal coating maintenance

Work Scope



ONS Containment Coatings Long Range Plan Conclusions

- Long range plans address problematic areas and move ONS into a normal coating maintenance mode.
- Level of unqualified coatings is being reduced.
- By end of 2007, Oconee will comply with Generic Letter 2004-02. Amount of degraded coatings will be maintained within the design requirements of the Emergency Sump.
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ONS Containment Coatings Long Range Plan Review

QUESTIONS?