



**Rocky Mountain
Remediation Services, L.L.C.**
... protecting the environment

Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, Colorado 80402-0464
Phone: (303) 966-7000

CORRES. CONTROL
LTR. NO.

January 25, 2000

Originator Ltr Log #
WJM-003-00
00 - RF-

John Gilmour
Manager
Engineering Programs
Kaiser-Hill Company, L.L.C.
Building 130

DIST.	LTR/ENC
CARMEAN, C. H.	
CRAWFORD, A. C.	
GUINN, L. A.	
HUGHES, F. P.	
LAW, J. E.	
KORENKO, M. K.	X X
TRICE, K. D.	
WHEELER, M.	
WOLF, K. A.	
MCANDREW, W.J.	

SUBJECT — CONSIDERATION FOR ADDING A STEP TO THE DES-210/IWCP PROCESS
WJM-003-00

Ref: Occurrence Report - RFO-KHLL-WSTMGTOPS-1998-0003

BOURGEOS, T. G.	X X
DUPRE, C. W.	X X
JENSEN, J. A.	X X
SAUER, P. M.	X X

PURPOSE

The purpose of this letter is to request an addition to the DES-210/IWCP template. The step would help with overall plant safety.

DISCUSSION

Attached is an Occurrence Report involving the operation of a crane. The report contains six corrective actions. Corrective Action number five states "Recommend that a step be added in the DES-210 IWCP planning template that all personnel have been briefed on RMRS OPS Directive 1 prior to commencing work. With the rewrite of DES-210/IWCP in progress, this would be a good time to insert this statement.

When the RMRS OPS Directive 1 is followed, it forces a consideration of unexpected conditions into the hazard identification, evaluation, and control processes of ISM. The directive then spells out what added approvals are necessary when unexpected conditions are encountered. When a condition falls within the conditions included in pre-job planning, the supervisor is authorized to direct activities to proceed within the controls specified. When a condition falls outside those postulated in pre-job planning, then the job pauses and direction to proceed requires management approval above the supervisor. In all cases, a supervisor is never authorized to direct activities that have not been subject to a hazard evaluation and the associated hazard control measures.

RESPONSE REQUIREMENTS

No response is required. Please contact me or Charles DuPre' at extension 6297, if there are any questions or concerns.

CLASSIFICATION:

UCNI	
UNCLASSIFIED	
CONFIDENTIAL	
SECRET	

AUTHORIZED CLASSIFIER
SIGNATURE:

W. J. McAndrew
Director
RMRS Engineering

CD:hed

Attachment:
As Stated

Date:
IN REPLY TO RF CC NO.:

ACTION ITEM STATUS:
 PARTIAL/OPEN
 CLOSED

LTR APPROVALS:
Vice Pres:
Director:
Manager:

ORIG. & TYPIST INITIALS:
CWD:hed

RF-46469 (Rev. 3/99)



ADMIN RECORD
SW-A-003728

1/3

Occurrence Report

RFETS Waste Management Operations

(Name of Facility)

Balance-of-Plant

(Facility Function)

Rocky Flats Env. Technology Site

Kaiser-Hill Company, L.L.C.

(Laboratory, Site, or Organization)

Name: Peter M. Sauer**Title:** Facility Manager**Telephone No.:** (303) 966-5957

(Facility Manager/Designee)

Name: JENSEN, J A**Title:** OCCURRENCE INVESTIGATOR**Telephone No.:** (303) 966-4946

(Originator/Transmitter)

Name: S. L. Cunningham**Date:** 11/20/1998

(Authorized Classifier (AC))

1. Occurrence Report Number: RFO--KHLL-WSTMGTOPS-1998-0003

Series Of Crane Occurrences Lead Contractor To Curtail Crane Operations

2. Report Type and Date: Final

	Date	Time
Notification:	11/23/1998	16:12 (MTZ)
Initial Update:	01/04/1999	09:19 (MTZ)
Latest Update:	06/10/1999	15:39 (MTZ)
Final:	06/17/1999	10:07 (MTZ)

3. Occurrence Category: Off-Normal**4. Number of Occurrences:** 1 **Original OR:****5. Division or Project:** Kaiser-Hill Company, L.L.C.**6. Secretarial Office:** EM - Environmental Management**7. System, Bldg., or Equipment:** Building 788, Solar Pond Area 207C**8. UCNI?:** No

9. Plant Area: Cementation Bldg.

10. Date and Time Discovered: 11/20/1998 08:30 (MTZ)

11. Date and Time Categorized: 11/20/1998 09:30 (MTZ)

12. DOE Notification:

13. Other Notifications:

Date	Time	Person Notified	Organization
11/20/1998	16:15 (MTZ)	DOE/FACREP, J. Coaxum	DOE/RFFO
11/20/1998	19:23 (MTZ)	CDPH&E, Edd Kray	COLORADO
11/20/1998	19:29 (MTZ)	Jana Lienaman, Environment	K-HILL

14. Subject or Title of Occurrence:

Series Of Crane Occurrences Lead Contractor To Curtail Crane Operations

15. Nature of Occurrence:

10) Cross-Category Items
C. Potential Concerns/Issues

16. Description of Occurrence:

Recent trends in Project Operations at the Solar Pond Area, Resource Conservation and Recovery Act (RCRA) Unit 21, necessitated reporting under Cross Category Items in Occurrence Reporting Procedure ADM 16.01. Specifics include the following:

1. On 11/09/98, a crane outrigger lifted off the ground during lifting operations (RF Tracking #980714, Internally reportable).
2. On 11/19/98, the crane's cooling system incurred a leak. Subsequent antifreeze replacement circumvented chemical dispensary/hazardous communications processes.
3. Again on 11/19/98, it was discovered that a lifting hook was being used without a safety latch which prompted stoppage of crane operations.

17. Operating Conditions of Facility at Time of Occurrence:

Normal Operations

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

1. The crane being used was taken out of service.
2. A replacement crane has been ordered.
3. The safety latch has been replaced on the hook.
4. A Managers Fact Finding Meeting was conducted to review the events surrounding these occurrences.
5. Crews were trained on the requirements of the site chemical management program and the intent that all chemicals received or procured carry the appropriate hazard communications labeling.

20. Direct Cause:

- 6) Management Problem
 - E. Policy Not Adequately Defined, Disseminated, or Enforced

21. Contributing Cause(s):

- 1) Equipment/Material Problem
 - B. Defective or Failed Material
- 2) Procedure Problem
 - A. Defective or Inadequate Procedure
- 5) Training Deficiency
 - C. Inadequate Content

22. Root Cause:

- 6) Management Problem
 - B. Work Organization/Planning Deficiency

23. Description of Cause:

The trends identified in this occurrence are direct symptoms of an inadequate stipulation of expectations for the performing subcontractor. Existing policy adopted by Integrated Safety Management objectives requires that when an operation encounters conditions which were not anticipated or evaluated in a governing safety analysis, then the operation should be stopped to address and control any new prevailing hazards before continuing. Also, prior to continuing, management approval of the new action and safety infrastructure is required. This policy is locally established in Rocky Mountain Remediation Services, LLC "Operations Directive 1". Such policy was never formally communicated to the performing subcontractor as part of the contracted terms and conditions.

Inadequate procedures, training deficiencies, and defective equipment are cited as contributing causes for the trends identified. Crane placement procedures did not address "cross-jacking" phenomena, which after evaluation describes the outrigger lifting. Procedures also did not provide for any compensatory actions to address utilization of a lifting hook, which did not have the safety latch across the throat of the hook. Crews were not familiar with the requirements of the chemical management and associated hazard communications programs. The crane did sustain a coolant to engine leak that accounted for the need to add additional anti-freeze mixture.

Inadequate planning constitutes the root cause. Integrated Safety Management System objectives as implemented by Operations Directive 1 were not completely satisfied. Procedures and training were inadequate due to a like deficit in planning. Had a more thorough investigation into prevailing hazards and unexpected conditions been pursued, the unfavorable performance trends identified by this report would not have been encountered.

24. Evaluation (by Facility Manager/Designee):

This occurrence reveals the benefit of the Integrated Safety Management System (ISMS). Because only a cursory investigation into all plausible unexpected conditions was completed, the project, which utilized the crane services, did not proceed smoothly, "sputtering" through separate internally reportable occurrences and ultimately suspended due to an unfavorable trend. Project planning thereby became "reactionary". Had the conditions encountered been postulated through the scoping and hazard identification phases of ISM, project planning would have captured sufficient procedural controls and training requirements necessary to preclude a cessation of activities.

While it is difficult to conceive of every possible unexpected condition, there is definite value derived from the exercise. Such an effort will only streamline the actual project execution through delivery of a better plan and schedule.

Initial corrective action planning in response to this occurrence considered an effort to delineate the authority of field safety supervision with respect to directing project operations with respect to rigging and handling (i.e. specify conditions where the supervisor could direct use of a hook that did not have a throat latch). Such a specific delineation was not considered necessary when weighing the benefit of simply training crews to the requirements of the local Operations Directive 1. When followed, this directive forces a consideration of unexpected conditions into the hazard identification, evaluation, and control processes of ISM. The directive then spells out when added approvals are necessary when unexpected conditions are encountered. When a condition falls within those already included in pre-job planning, then the supervisor is authorized to direct activities to proceed within the controls specified. When a condition falls outside those postulated in pre-job planning, then the job pauses and direction to proceed requires management approval above the supervisor. In all cases, a supervisor is never authorized to direct activities that have not been subject to a hazard evaluation and the associated hazard control measures.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1. Verify calibration of the Load Moment Indicator on the crane in use.
Task Manager: Tom Bourgeois
Target Completion Date: 12/03/1998 Completion Date: 12/03/1998
2. Verify the actual weight of the cement mixer.
Task Manager: Tom Bourgeois
Target Completion Date: 12/10/1998 Completion Date: 12/10/1998
3. Evaluate the sufficiency of the Activity Hazard Analysis and revise the Hoisting and Rigging Plan as necessary.
Task Manager: Tom Bourgeois
Target Completion Date: 12/17/1998 Completion Date: 12/10/1998
4. Train crews on the requirements of Operations Directive 1, and, the Chemical Management Program.
Task Manager: Tom Bourgeois
Target Completion Date: 12/17/1998 Completion Date: 12/17/1998
5. Recommend that a step be added in the DES-210 IWCP planning template that all personnel have been briefed on RMRS OPS Directive 1 prior to commencing work.
Task Manager:

Target Completion Date: 07/31/1999

Completion Date:

6. Develop and distribute a Lessons Learned covering the "cross jacking" phenomena described in field 30 of this report.

Task Manager: Laura Povich/Jim Jensen

Target Completion Date: 05/17/1999

Completion Date: 04/28/1999

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

Crane "cross-jacking" phenomena comprises a lesson learned by this occurrence. Namely, crane outriggers are prone to lifting on flat terrain when the largest lifting moment is generated on a diagonal formed across the fore and aft outriggers. In this case the left-rear outrigger "cross-jacked" with the right-front outrigger. The phenomena is countered by the sequence used to lower the outriggers and the disciplined use of spotters. In this case, the outrigger that lifted was the last one lowered. Since the terrain was fairly flat, the last outrigger was holding less load relative to the other three while the crane was level. As the load was swung forward from the right beam, the left-rear outrigger "floated". Had the rear outriggers, relative to the swing plane, been lowered first, the outrigger lifting may have been prevented. Regardless, of where or what is being lifted, spotters are invaluable. In this event, spotters identified a problem immediately and prevented further consequence before the onboard computer system on the crane halted further movement.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

980717

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: Peter M. Sauer, Facility Manager/Designee

Date: 06/10/1999

Telephone No.: (303) 966-5957

Approved by: COAXUM, JAMES B, Facility Representative/Designee

Date: 06/17/1999

Telephone No.: (303) 966-6248

Approved by: Approval delegated to FR

Date: 06/17/1999

Telephone No.:
