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- SR is Complete on 2/18/00
- 2/8/00 – Acting Building Manager began asking question about the Facility Use Agreement (FUA) because it was up for revision. During the week, he contacted previous Building Managers Diane Faulk, Art Bruce, and started to query the web information on the Math bldg.
- 2/15/00 – SR S423929 was prepared by Anita Phillips to replace Task 2 under SR S423435. The SR described the work as modifying and cutting computer room floor in Math 1316.
- The SR was to cut square holes in pedestal floor tiles from Math 1316 as marked @ North Wall.
  - The EMSL Building Manager (BM) triaged S 423929 as Dispatch Work – based on paper information for job/past practice/knew of Good Faith Inspection (GFI) in '90,
  - Building Engineer (BE) evaluated the SR and issued stop for work above ceiling.
  - BE scheduled time with the Industrial Hygienist (IH) to walk down Math Building.
- 2/16/00 - Carpenter and Facility Project Manager (FPM) met A. Phillips at Math 1316 to walk down the penetration locations (marked on floor by Phone Company Staff)
- 2/16/00 – 2/17/00 Carpenter cut the Math 1316 floor tiles in the EMSL carpenter shop (EMSL 1248)
- Used a hand held power jig saw
  - Used no respirator
  - Tiles are a metal structure with vinyl tiles glued to the top surface
  - Cuts were made at about 1.5 inches per minute
  - Debris was granular, mostly metal – no visible dust
  - About 1/2 liter of debris was swept and put into the trash can
- 2/18/00 – Floor Tiles are returned to Math 1316  
- Timely Order TO-00-05 – Unanticipated Hazards Awareness is issued by Manager, Facility Operations
- 2/22/00 – Facility Management Services (FMS) – Trained staff to TO-00-05 during staff meeting
- 2/25/00 – IH, BE & FPM conducted a worker exposure assessment for identifying asbestos and other hazards associated with the job.
- Actions were documented: IH asked for samples of floor & ceiling tiles in 1316 for asbestos
  - Only floor tile samples taken. Ceiling tiles sample will be taken after radiological surveys are completed.
- 3/10/00 -
- 13:24 hrs, Analysis results received by IH of floor tiles: 100% Homogenous material, 5% Crysotile in floor tiles
  - Building Manager reviewed results – put results of the floor tile analysis with job on floor tile cutting work 2/17/00.
  - 14:40 hrs. – BM made a call to 375-2400 to report the potential exposure of the carpenter to asbestos
  - BM called BE & FPM – directed them to seal off EMSL1248
  - 14:45 hrs. Classifier was called

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- 15:00 hrs. – BE & FPM sealed EMSL 1248 – Limited access by BM approval only
- 15:30 hrs. - Classified as reportable 10 C ONO 2 (Roll up)
- Set up 2 staff for monitoring at Hanford Environmental Health Foundation (HEHF)
- 16:00 hrs. – Posted Math 1316 – no construction or maintenance without BM approval
- Set up critique for 3/13/00
- Set up to sample EMSL 1248 for asbestos

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## ANALYSIS OF RELEVANT FACTS AND DATA:

### Probable Cause Factors

#### **Direct Cause:**

##### 2. Procedure Problem

- b. Lack of Procedure – The work was triaged by the Core Team and performed as “Dispatch Work” which did not require a Job Planning Package to be prepared. Process for identification, evaluation and control of asbestos hazards under the old Maintenance Work Control Procedure was not adequate: Asbestos hazards were identified in the Good Faith Inspections, but the information was not used.

#### **Contributing Causes:**

##### 3. Personal Error

- a. Communication Problem – ONO RL—PNNL-PNNLBOPER-1998-0001 corrective action required that Good Faith Information would be provided to appropriate staff like the Building Manager. The Building Manager for EMSL and Math did not have the Good Faith Inspection information. The corrective action was not effective.

##### 2. Procedure Problem

- b. Defective or Inadequate Procedure – Work Control Procedure does not include criteria to control asbestos containing material consistent with the worker’s level of training. Handling asbestos containing material (ACM) quantities that exceed 1 linear foot or 1 square foot of intact asbestos (non-friable) or any quantity of ACM that is not intact (friable) is prohibited without additional training.

##### 5. Training Deficiency

- c. Insufficient Refresher Training – Some staff involved were not aware of potential for asbestos containing material in the floor tiles. Not all workers who could encounter asbestos containing material in the workplace were current with their asbestos awareness training.

##### 6. Management Problem

- a. Inadequate Administrative Control – A process is not established to insure that materials used in certain applications like ceiling tiles, insulation and flooring installed before 1980 should be treated as potentially asbestos containing material.
- e. Policy not Adequately Defined, Disseminated or Enforced – There are several different forms of hazard information (documents, databases, and files) that are not effectively disseminated to staff in a form that is readily usable. Workers who may encounter asbestos containing material in the work place are not aware of the existence of the information

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sources like the Good Faith Inspections.

## Root Cause:

### 4. Design Problem

- a. Inadequate Work Environment – The existing hazard information is not readily available to staff. Existing asbestos hazard information from Good Faith Inspections was not readily available to staff.

## Recommended Corrective Actions:

1. Look at the SR Trail between S423435 to S423929. [REDACTED] – 3/13/00
2. Need actual date that cutting was done. [REDACTED] – 3/13/00
3. Verify date of Walk Down by DynCorp. FPM & Customer at Math 1316. [REDACTED] 3/13/00
4. Look at good faith inspection for Math 1316 statements. [REDACTED] 3/13/00
5. Clerk Training Records for Asbestos Awareness – When last taken. [REDACTED] 3/14/00. BE, FPM, WCS, BM, Project Manager (PM), Construction Manager (CM), Project Engineer (PE).
6. Sample analysis records – [REDACTED]
7. 3 staff to go to HEHF – [REDACTED] 3/13/00
8. Sweepings – notify Environmental Management Services (EMS). [REDACTED] 5% @ ½ liter.
9. Post the three rooms in Math to get Building Manager approval prior to performing construction activities – [REDACTED] – 3/14/00

## Recommended Lessons Learned:

Good Faith Inspection Information should be available to staff to identify potential asbestos containing material that may be encountered by workers. Workers who may come in contact, but do not disturb asbestos containing material in the work place should have current asbestos awareness training. Hazard information should be readily available to workers who will perform work where asbestos containing material is present.

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**Signatures:**

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Critique Leader			Date
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