Township of Woodbridge

JAMES E. McGREEVEY, MAYOR

Department of Health and Human Services
Division of Environmental Services
Patrick O. Hanson, M.A.
Health Officer

Woodbridge Public Health Center
2 George Frederick Plaza
Woodbridge, New Jersey 07095
(908) 855-0600

To: Patrick O. Hanson, Director of Health

From: Philip A. Bujalski, Chief Health Inspector

Date: May 8, 1997

Re: Radioactive rock discovered at Colonia High School

On Tuesday May 6, at apx. 2:45 PM, our division received a call from the B.A.'s office regarding a suspected radioactive material found at Colonia High School. I promptly met at the school with Health Inspector Valeri Morone who was also notified and was already in the process of obtaining preliminary information. Also on site were numerous Township Police, Fire (Frank Clark), Haz. Mat.(Brian Bennett) and Emergency Management (John Mitch) representatives as well as School District Administrators. We learned that one of the school's science teachers was demonstrating the use of a geiger counter (along with an accompanying sample of a low level radio active source) as part of a science class lesson earlier that day. As part of the demonstration, the teacher used the instrument to test a collection of rocks stored in the closet of the science class (room #126). While doing so, one of the rocks registered a reading of radioactivity. The Township authorities were subsequently notified and responded to the school. We also learned from school officials that the source or origin of the rock could not be confirmed. It was indicated that the rock was likely donated by a past teacher or student and may have been in the school for 20 years or more.

The Township Haz. Mat. Personnel conducted readings of the rock with their own geiger counter. The maximum reading observed was .2 mRem/hr at a distance of less than one foot away from the rock. As a precautionary measure, the Township Haz. Mat. team evacuated the school building, secured the rock in a lead box, conducted radiation readings around the box and confirmed that the levels outside the box were not in excess of "normal background" radiation levels.

Township Haz. Mat. phone contact with D.E.P. Radiation Physicist Mr. William P. Csaszar revealed that the radiation level of the rock was slightly higher than normal background and was categorized as "low level". After discussions between Township E.M., Haz. Mat., Fire, Health and School District officials, it was mutually agreed that as a precautionary measure the School District obtain the services of an appropriate consultant to:

1. Remove the rock from the school and have it transported directly to a appropriate "final" destination point a.s.a.p.

2. Examine/test room (#126) and the related closet where the rock had been stored and decontaminate any items which are found to be in excess of normal background radiation levels a.s.a.p.

3. Examine/test the entire school and decontaminate any items found to be in excess of normal background radiation levels a.s.a.p.

The School District subsequently summoned the services of PMK Group (James Johnston and Jeffery Reynolds on site) for conducting radiation level testing/monitoring and AWT Environmental Services (Paul Kosovich on site) for the rock removal and decontamination work. The School District also decided to close the school to students for Wednesday to allow for the radiation testing work throughout the school by PMK.

At apx. 11:00 PM Jerry DeMenna, PhD. of Buick Scientific (sub contracted by AWT) arrived on site to remove the rock from the school and transport it to Rutgers University's science dept. Mr. DeMenna indicated that a decision will be made as to whether it will be put in their "collection" or "storage". In any case, we would receive a certification of the rock's transport and final destination. At 11:55pm, Mr. DeMenna left the school with the rock.

On Wednesday May 7, at apx. 8:30 am I visited the school to get a status update. Mr. William P. Csaszar Radiation Physicist with the NJ D.E.P's Bureau of Environmental Radiation was already on site. After gathering data from the previous days' testing of the rock and conducting testing work of his own within room

#126, Mr. Csaszar concluded that the room was "clean" and that the rock posed no health threat to any students or faculty. Mr. Csaszar indicated that the radiation from the rock was very low level and that of a natural geological occurrence. He indicated that similar rocks of low level radiation could be commonly found within areas of the "Reading Prong" a natural geological rock formation which contains levels of uranium and which runs through parts of NJ and Penn. Mr. Csasar gave the analogy that one would get more radiation from sun bathing than from being near the rock. Before leaving the school I met with officials from the School District and confirmed PMK's precautionary testing work of the school already in progress. At 12:30pm a press conference at the school was conducted which included Mr. Csasar, Mayor, School District officials, as well as Twp. Fire, E.M. and Health dept. reps. Mr. Csasar reiterated at the press conference that there was no health hazard posed by the rock and the related circumstances. The PMK consultant completed their testing of the school and found no significant radiation levels above normal background. The school was scheduled for reopening the next day.

On Thursday May 8, I received a copy of a detailed examination report on the rock from Jerry DeMenna (see attached).

cc: James E. McGreevey, Mayor
James Davy, Business Administrator
Frank Clark, Assistant Chief
John Mitch, E.M. Coordinator
Valeri Morone, Health Inspector

Turn-Key Environmental Services

P.O. Box 519
Blairstown, NJ 07825
[908] 362-1153 // Phone & FAX

TO THE FOLLOWING FACILITY/MUNICIPAL REPRESENTATIVES & ASSOCIATED CONTRACTORS:

Woodbridge Township School District	Anthony D'Orsi [908] 602-8551 // FAX x634-2189
Woodbridge Township Division of Health:	Philip Bujalski [908] 855-0600 // FAX x855-0944
PMK Industrial Hygeine Group:	Jeffrey Reynolds [908] 686-0044 // FAX x686-0715
AWT Environmental Services:	Paul Kosovich [908] 613-1660 // FAX x613-1536

FROM AGENT ON-SITE: Jerry DeMenna, Analytical & Geological Scientist

STATUS of WORK PERFORMED at COLONIA HIGH SCHOOL, Tuesday PM, 6 May 1997:
Arrived at site 10:50PM, escorted to specific building by Mr. D'Orsi. After introductions and presentation of protocol and bona fides; escorted to storage room by Mr. Reynolds. Room was opened and the specimen, shielded in a metal box, under a lead metal foil, was pointed out as the item of concern.

[1] Wearing metallized neoprene rubber gloves, the immediate area was checked by Geiger-Mueller Tube counter (GM counter) to ascertain a baseline level for the room, which was estimated at 0.01 mR/hour. The lead metal foil was removed and the lid of the box opened.

PHYSICAL: The specimen was roughly square in shape; and measured ~10cm. wide X ~8cm. thick X ~3cm. thick, with a mass of ~400 grams (slightly less than 1 pound). The visible portion of the specimen appeared to be primarily an amorphous pale gray-pink pegmatite matrix with a yellow-green surface crust covering ~35% of the specimen. Small gray crystalline masses were also seen on the specimen, indicative of a weathered (aged/exposed) pegmatite ore body.

RADIOACTIVITY: The upper surface of the specimen was examined by GM counter directly to ascertain a TOTAL radiation count, measured as TWA of 1mR/hour at the surface, 0.2 mR/hour at 15cm. (~6") from the sample and less than 0.05mR/hour at 30cm. (~12"). Using a 10mil thick square of paper, the readings were reduced to 0.4 mR/hour; indicating a rough estimate of 60% alpha-based radiation. Using an 0.5cm. thick piece of Plexiglass (Lucite) plastic, the readings were further reduced to 0.2 mR/hour, indicating a rough estimate of 20% beta-based radiation. A metallized Lead-Aluminum foil plastic laminate reduced the readings to <0.1 mR/hour, indicating the remaining 20% comprised of gamma-based radiation. Both the metal storage box and the initial cardboard storage box were found to be radiation free.

FLUORESCENCE: All surfaces of the specimen were examined with both a long-wave Ultra-Violet (UV) light (366nm. emission) and a short-wave UV light (254nm.) to identify the exact radioactive portions of the specimen and also to identify areas where any dust would have contaminated exposed surfaces. The response color is an intense vivid green-yellow. The initial cardboard storage box was found to be free of any radiological or fluorometric contamination. The metal storage box was also fully examined and found to be contamination-free.

-=> PRELIMINARY OBSERVATION: The specimen of concern appears to be a classic weathered pegmatite vein with a limited surface deposit of Autunite/meta-Autunite.

[2] The specimen was safely removed from the metal storage box and placed in a heavy-gauge plastic storage bag, over-wrapped in heavy-gauge Aluminum foil and sealed in a lead foil/plastic barrier bag. This wrapped specimen was placed in a lead-lined Tin can and sealed shut for removal & transportation.

[3] The cardboard storage box was examined by both instruments and found to be clean. It was properly disposed of by Mr. D'Orsi.

[4] The metal temporary storage box was examined by both instruments and found to be clean. To satisfy the attending representatives, the box was cleaned twice with a radiation decontamination soap solution. All wipes used and the recovered solutions were bagged for storage at our Lab facility in NJ. The metal box was left in the storage room with the lead foil. It was properly handled by Mr. D'Orsi.

[5] Room 126 was examined by GM Counter and Fluorescence to determine if any contamination exists. Three (3) floor spots, one (1) cabinet corner and seven (7) desktops were tested. No response was measured by either instrument, and a recommendation for a general soap-based cleaning be performed.

[6] In room 126, five (5) boxes of small (1"-3") mineral specimens, located on the central benchtop in the front of the room, were bulk-checked for any indications of radioactivity or fluorescence. A reading slightly above the background level, primarily non-hazardous alpha-radiation, was found to be present in a golden "Twix" box marked "S" in the upper left corner. The level was below 0.2 mR/hour and did not constitute an action item. The custodian representative on site, Mr. Meyler, replaced the boxes in the wooden wall cabinet after the examination.

[7] In the wooden wall cabinet on the left wall of room 126, nine (9) additional boxes and five (5) egg cartons of assorted mineral samples were tested for any indications of radioactivity or fluorescence. No response was measured by either instrument, and no action was recommended.

Collection materials, instruments and safety gear was packed up by this agent and removed from the building at 11:55PM, 6 May 1997; for transport to CHEM-CHEK Laboratories, 44 Stelton Road, #325, Piscataway, NJ 08854; for analysis and confirmational identification. As a trained and licensed professional, Jerry DeMenna accepted custody of the specimen, relieving Woodbridge Township of its responsibility from that point. On Wednesday, 7 May 1997; the following physical, optical and chemical tests were performed on the specimen and microscopic parts of the specimen to confirm the observed identification:

MATRIX MINERAL =
PHYSICAL: Specific Gravity: 2.4, Mohs Hardness: 6, Color: pale pink-gray, Fracture: conchoidal, Cleavage: prismatic, Luster: greasy, Appearance: primarily amorphous with isolated gray prismatic masses.
CHEMICAL: ~63% SiO_2, ~15% Al_2O_3, ~12% K_2O, ~3% Na_2O, ~2.5% PO_4, ~1.5% CaO, ~1% MgO, ~0.5% Fe_2O_3, ~0.1% MnO, ~0.05% REO (total), LOI: ~1% H_2O; 99.65% material accountability.
Done by Microwave Digestion preparation and D-C Plasma Emission / Graphite Furnace Atomic Absorption assay.
OPTICAL: No measurable Fluorescence or Phosphorescence by Spectrophotofluorometry, Fourier-Transform Infra-Red scan exhibits primary peaks for Orthoclase (Pegmatite/Feldspar).

ISOLATED SURFACE COATING = (NOTE: Some examinations done by video-microscopy)
PHYSICAL: Specific Gravity: 2.9, Mohs Hardness: ~3, Color: lemon-yellow, Fracture: hackly, Cleavage: tabular, Luster: pearlescent, Appearance: microcrystalline, effloresced (dehydrated) coating.
CHEMICAL: ~55% UO_3, ~16% PO_4, ~5% CaO, ~4% SiO_2, ~3% K_2O, ~1.5% MgO, ~1% Al_2O_3, ~0.5% Na_2O, ~0.15% REO (total), LOI: ~10% H_2O; ~95% material accountability due to limited sample size.
Done by Microwave Digestion preparation and D-C Plasma Emission / Graphite Furnace Atomic Absorption assay.
OPTICAL: Primary "uranyl" emission peaks at 530nm. and 670nm. by 254nm. Excitation Spectrophotofluorometry, Fourier-Transform Infra-Red scan exhibits primary peaks for Apatite (binary Phosphate).
ISOTOPIC [relative percentages of radioactive species]: U238: 98.1%, Th232: 1.1%, U235: 0.6%, U234: <0.005%
Done by D-C Plasma / Echelle Spectrometry with primary emission lines.
RADIO-ASSAY: Requires extended time study for half-life decay evaluation.

FINDINGS: Specimen confirmed as a pegmatite/Feldspar-type matrix with a trace amount of Autunite on the upper surface. Radiation activity level is not hazardous, sample is intact and non-friable, and presents no particulate or dust hazard. ACTION: Pack for safe storage or place in a museum or collection for display.

End Site Evaluation & Sample Report / gjdm

cc: Bob Greco / Turn-Key Environmental Administration
Peter Postorino / AWT Environmental Administration

Code: X | On Call: | Date: May 6, 1997

Inspector: MORONE | Citation Date:

Compliance Date:

Establishment: COLONIA HIGH SCHOOL

Street: EAST STREET

Town: COLONIA | Source Name: COLONIA FIRE DEPT

Zip Code: 07067 | Source Address:

Phone: | Source Town:

Owner or Mgr: | Source Phone:

Block:

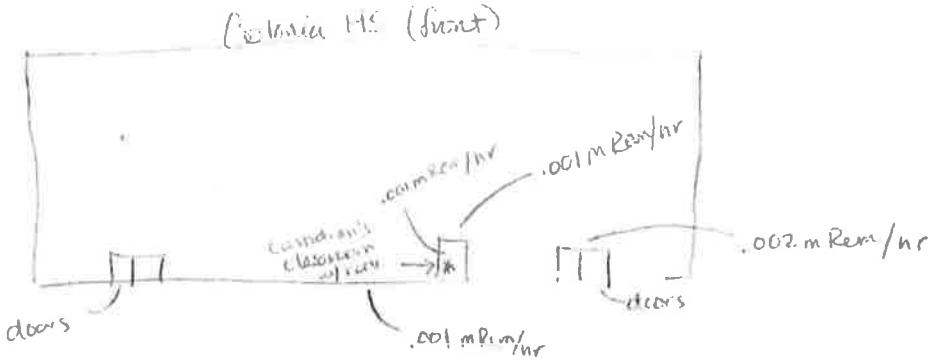
Lot:

Condition: DISPATCHER CALLED AND INFORMED HEALTH DEPARTMENT, SOMEONE FOUND A QUESTIONABLE ROCK IN THE REAR OF THE BUILDING.

On site at time of arrival Colonia FD, Frank Clark, Chief
Woodbridge Police Dept, F. Beagle
Woodbridge Emergency Management, John Muten, Brian Bennet
Colonia HS Principal John Belz
Science Staff/Teacher Steven Pachuk

History: Rocks are kept in Room 126 for earth science classes. No one remembers where specific rocks have come from; CHS principal says that students bring them in and they have collected over the years. Mrs Rita English, Science Teacher, brought in a geiger counter and a sample of radioactive ore to demonstrate to her students how a geiger counter works. A random sample of rocks in the room revealed one rock that the geiger counter reacted to. Details on "readings" of this reaction are not available. Mrs English brought this experiment to the attention of Mr Pachuk, who notified Mr. Belz, who called School St Administration & Anthony D'Orsi, RTK coordinator.

Action: Brian Bennet of HazMat is in the process of obtaining a calibrated geiger Counter, lead aprons, and a means of disposal for this rock (has contacted DOT & DEP).
3:50 pm: Haz Mat Team are suiting up and then begin to take readings. See reverse for diagram of readings. Brian Bennet advises that .2m Rem/hr is the TLV for radiation.



background reading in parking lot: 0.00 mRem/hr.

Inside custodian's room:

	inside box containing rock	.1 mRem/hr
12"	beneath box " "	.001 "
12"	left side of box " "	.002 "
12"	right " " " " "	.001 "

Maximum reading observed while in room was .2 mRem/hr while rock was being removed from box. After rock is removed from box, reading inside box is .001 mRem/hr.

Room 126 reading shows .005 outside of door. Bench in room 126 reading is .02 mRem/hr.

Haz Mat team leaves building at 4:40pm. Both Haz Mat members read 0 mRem/hr before removing gear.

Thursday
MAY 8, 1997
STORE PRICE 35 CENTS ♦
ON THE INTERNET:
www.thnt.com

DICK COSTELLO/Staff photographer

● William Csaszar holds a clock as John Ferguson checks its radiation level — above the Colonia rock's.

Radioactive rock was safe

By STACIE SERVETAH
STAFF WRITER

The radioactive rock discovered Tuesday during a science experiment at Woodbridge's Colonia High School would not have harmed students or teachers, several scientists said yesterday.

Even so, school and township officials said they are glad they were "ultraconservative" in their response.

WOODBRIDGE

They evacuated the building late Tuesday afternoon; called in fire, hazardous-waste and other emergency-management officials; hired a private contractor to remove the rock; tested all three of the district's high schools for radioactivity, and kept Colonia High School closed yesterday.

"We didn't know what he had," Schools Superintendent Lee Seitz said yesterday afternoon during a news conference at the school.

Please see **Rock,** page **A2**

ROCK: Discovery at school no more harmful than su

■ Continued from page A1

"We believe we were acting in a prudent manner."

Jerry Demenna, an analytic chemist hired to remove the rock, said the rock's radiation level was "about one-tenth of what is even considered dangerous."

"It's almost ridiculous the amount of effort they went through," said Demenna, who is storing the rock in his Piscataway laboratory, Chem-Chek Laboratories.

William Csaszar, a radiation physicist for the state Department of Environmental Protection, said students could get as much exposure to radioactivity by standing in sunlight.

But he said the precautions "were in the best interest of the students."

According to Rutgers University mineralogist Andreas Vassiliou, a material is radioactive if it spontaneously releases particles or rays. He said the potential for a radioactive material to cause harm depends on what kind of radiation — alpha or beta particles or gamma rays — it mostly gives off.

Frank Clark, assistant chief of the Colonia Fire Department, said he told school officials to evacuate.

"When you're dealing with 1,200 students in this kind of situation, you want to get them out and get them out quick," Clark said. "You can't take anything for granted."

Students already had been dismissed for the day, and only about two dozen students remained for after-school activities.

John Mitch, township emergency management coordinator, said, "We took an ultraconservative position."

The rock, which weighs about 1 to 2 pounds and measures between 5 and 7 centimeters, had been in a locked cabinet and could have been there for as long as 20 years, Seitz said.

"The levels are so low, according to the DEP, that you're more likely to get more radiation from your smoke detector in your house than you would from this rock," Seitz said.

About 25 students were in the class at the time of the discovery, and about 80 students had instruction in that room during the day, Seitz said.

Seitz said that as a precaution, parents of those 80
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(5/7/97 TRIB.)

REAL-LIFE SCIENCE

Radioactive rock found in school

by STACIE SERVETAH
STAFF WRITER

Woodbridge students in a science class at Colonia High School yesterday afternoon got a real-life lesson in radioactivity that they probably won't forget.

Their teacher had been demonstrating how to use a Geiger counter — an instrument that detects and measures radioactivity — when she realized the device was responding to a chunk of rock in the classroom.

"She touched some small rocks and (the instrument) made little click, click noises," said Tyrona Timmons, 15.

WOODBRIDGE

"Then she brought out this big rock, and when she touched it, it started beeping real loud."

Superintendent of Schools Lee Seitz said last night he has no idea how the rock — believed by hazardous-materials management officials to contain uranium — got into the building.

Seitz said the 1,200-student school would be closed today and a private contractor would be brought in to decontaminate the building. He also said parents of the students who had been in the classroom were called last night and told about the situation.

"We are instructing them to have the students bathe thoroughly, wash their clothes separately, and wipe their shoes with a paper towel," Seitz said.

All Colonia High School athletic events, including baseball, softball, tennis and track, have been postponed.

Seitz said that no students had touched the rock and that uranium only poses a danger if a person has direct contact with it.

"With what we're talking about,

Please see **Rock,** page **A2**

JASON TOV

● Wearing lead shields borrowed from a local dentist, Middlesex County Hazardous Mate Unit workers leave Colonia High School yesterday after testing the air for radioactivity.

:OCK: Radioactive material found in Woodbridge classroom

Continued from page A1

ply bathing would take care of it," z said.

eitz said the only person who had hed the rock was the teacher, Rita lish, who washed her hands right r she realized the rock was radio-ve.

he superintendent said he sus-s that either a teacher or students ght the rock into the science s and "just left it there."

My guess is, it's been there for s," Seitz said. "But it has been in cked cabinet. And without direct act, the chances of contamination ery slim."

Students said the science class was during the school's sixth period, about 1 p.m. School officials called for help at around 2:30 p.m., about the same time that classes let out. The building was evacuated about 10 minutes later, officials said.

• Shortly after members of the Woodbridge Hazardous Materials Unit arrived on scene, they sent in two members to secure the rock.

The men were draped in lead aprons donated by Woodbridge dentist John Novak. The aprons, one of them decorated with a large "smiley" face, were used to protect the men from radiation.

In the classroom, the men placed he rock into a lead b in the janitor's closet and left it there, officials said. They then tested the air in the building.

Once they were convinced the rock no longer posed a hazard, students were escorted in, a few at a time, to retrieve their things.

About two dozen students had been in the building after school at the time of evacuation, most for a meeting of the African-American History Club.

Seitz said last night school officials were awaiting the results of further radioactive meter readings before deciding what to do with the rock.

"We are making arrangements to have it removed," Seitz said at about 9 p.m. "As soon as we know what it is, we'll make that decision."

Hazardous Management Chi Brian Bennett said the material, a to 2-pound rock about the size of clenched fist, was releasing an u known amount of gamma radiatio which "depending on the duration exposure and the intensity, coul cause some damage to some organs."

Shakka Elliott, 15, who was also the class, said the teacher had to them before the experiment that e posure to certain radioactive materia could cause cancer. But the girl sa she wasn't worried.

"It didn't really bother me. I don' think a rock can do anything to me, Elliott said. "But if I happen to g something, I'm suing the school."