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palmeag@NU.COM

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To: s_larson@des.state.nh.us, Joy Hilton/R1/USEPA/US@EPA
cc: despip@NU.COM, quinnlw@NU.COM, largetj@NU.COM
Subject: Schiller Station 01/07/02 Oil Spill Report

Steph & Joy, As promised, here's a copy of the final report on the minor oil spill at Schiller Station as compiled by the Station Manager (see prior email dated 1/8/02). In short, the release exited from a stormwater drain via a roof vent associated with the turbine seal oil system. A dislodged linkage pin on a level control valve allowed oil to rise too high in an air vacuum tank. When the generating unit tripped at full load, a slug of oil entered the air vacuum pump which discharges to the roof vent. A couple quarts of oil burped onto the roof and eventually dribbled to the roof drain. The report concludes with several measures that are being enacted by station management to prevent a similar event from reoccurring. Please call me at 603-634-2439 if you have any questions. Thanks, Allan.

(See attached file: 2002 Oil Spill Incident .doc)



2002 Oil Spill Incident .doc

Schiller Station Oil Spill Incident - January 7, 2002

Event Description

At around 9:15 am on Monday, January 7, 2002, a Station Electrician notified the Shift Supervisor that he had noticed an oil sheen on the river by the north side of #2 Screenhouse. The Shift Supervisor initiated the spill response procedures. He, the Working Foreman-Operator, the Working Foreman-Chemical, and the Station Manager went to investigate the situation and determine the source. Upon arrival they saw a sheen of oil covering an area approximately 10' x 20'. It was evident that the oil was coming from the 12" roof drain pipe located in that vicinity. The Working Foreman-Chemical took a sample of the roof drain runoff and verified that oil was present. The Working Foreman-Chemical also went to the turbine roof and located the source as the Unit #5 Seal Oil System vent pipe. Less than one gallon of generator seal oil (Mobil 797 lubricating oil) had leaked out of the vent pipe and was working its way to the roof drain located about 10 feet from the pipe. No additional oil was leaking out of the pipe. An Operator was sent to the roof to absorb the oil on the roof. Additional Operations personnel were summoned to assist with the deployment of boom and oil absorbent pads at the river's edge. Once the source was located and secured, the Station Manager instructed the Shift Supervisor to conduct all the required notifications, including the NRC, USCG, USEPA, NHDES, and MeDEP. In addition, the Piscataqua River Cooperative (PRC) was paged.

The PRC Leader arrived on-site at 10:00 am. He assisted with the response and the deployment of boom. When finished they had deployed approximately 100 ft. of sausage boom in a "U" shape around the roof drain pipe. Inside of the sausage boom they also deployed approximately 50 ft. of sheen boom in a "U" shape around the discharge pipe. This boom was supplied by the PRC back up supplies. Inside the sheen boom, adsorbent pads were used to pick up oil that remained on the water surface. In addition, five "Oil Snare" pompom-type adsorbents were placed into the 12" roof drain discharge pipe to pick up oil as it traveled through the pipe. The absorbent pads and pompoms were removed and replaced periodically to insure their effectiveness.

A representative of the USCG arrived on-site at 10:00 am. The Station Manager reviewed the situation with him. After discussing some options, it was agreed that the best means to eliminate the remaining oil on the gravel roof was to flush it with warm water. The PRC Leader agreed with that assessment. By mid-afternoon, station employees had flushed the roof area with 400-500 gallons of warm water. The flushing process appeared to have been successful. The booms were monitored periodically and remained in-place through the night.

The next morning some oil sheen was still evident, mostly from washing off the rocks during the tidal changes. In the opinion of the USCG representative, the remaining oil was weathered and was no longer of concern. He stated that the

boom should remain in-place for a couple more before being removed. The Station Manager responded that the boom will likely remain in place until it is reasonably certain that no more oil remains.

Cause

On the evening of Friday, January 4, 2002, Unit #5 experienced a full load trip. It is speculated that during this unusual event, the generator seal oil system had a pressure excursion that forced oil out the vent pipe located over 75 feet above the source. The Station Operations Manager, with the assistance of the PSNH Generator Specialist, did a complete investigation of the seal oil system to determine how the oil was able to reach the outlet of the vent pipe.

During their investigation, they found that the seal oil vacuum pump was full of oil. The purpose of this vacuum pump is to evacuate air, from the vacuum tank, that accumulates in the seal oil system. The pump discharges the air through the vent that was involved in this event. As they continued, a linkage pin which attaches to the vacuum tank oil level control valve was noticed to be missing. Despite this situation, the system was able to maintain level control when the unit was on-line. However, when the unit tripped and the generator speed began to decline, the oil level control device was unable to respond to this sudden change and the oil level rose high in the vacuum tank. Under these circumstances, this would be expected. During on-line generator shaft speeds, an oil pumping action is created in the seals. As the generator shaft speed slowed after the trip, oil flow from the vacuum tank to the seals decreased. Since the oil level control device in the vacuum tank was not fully operable, it was unable to maintain the proper level in the vacuum tank and the oil level rose quickly. The level in the tank got high enough to allow oil to enter the vacuum pump suction line located near the top of the tank. The vacuum pump discharge pipe is equipped with an oil mist eliminator, however, when the vacuum pump operated, this slug of oil saturated the filtering system and the oil was able to spill out of the vent pipe onto the roof.

The oil was drained from the vacuum pump and discharge pipe. A new oil mist eliminator filter was installed. The missing linkage pin to the control valve was found on the bottom of the tank. A new linkage pin was installed with a cotter pin to prevent it from falling out.

In summary, the cause of this event was a faulty seal oil level control valve in the vacuum tank. This was due to a linkage pin that was able to dislodge itself over a period of time. A new pin was installed with a cotter pin attached to prevent a re-occurrence.

Action Items

The following actions will or have been taken to prevent oil from reaching the river:

1. Verify and/or create a PM in the Maintenance Management System to inspect and replace the oil mist eliminator filters on each unit every 12-months. (Maintenance Manager) Complete by 2-1-02.
2. Verify and/or create a PM in the Maintenance Management System to inspect the seal oil system level control valves on each unit every overhaul. (Maintenance Manager) Complete by 2-1-02.
1. Investigate oil containment options for the vent pipes on roof (Maintenance Advisor) Complete by 4-1-02.
3. Investigate feasibility of capturing roof drains into an oil separator, including checking added water loading criteria (Maintenance Advisor & WF-Chemical) Complete by 4-1-02.
4. Modify roof drains to absorb oil and establish a PM to check and clean as necessary. (Mechanical Supervisor) Completed January 2002.
5. Verify and/or create an SOP to monitor seal oil system parameters on a regular basis on each shift. (Operation Manager) Complete by 2-1-02.