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How to Avoid Common Problems With Monthly Inventory Reconciliation

By: Sharon P. McLelland

Division of Responsible Party Site Remediation
Industrial Site Evaluation Element
Bureau of Underground Storage Tanks

Monthly inventory reconciliation, combined with periodic tank tightness tests, is a temporary leak detection method, which may be used to evaluate the integrity of underground storage tanks (USTs). This method requires daily measurements and monitoring, which can be extremely useful in detecting a problem early, thereby saving a tank system owner or operator significant costs in terms of product loss, environmental investigation and cleanup.

The inventory reconciliation procedure entails taking a volumetric measurement of the product from a port in the tank (a "stick reading") and comparing this volume with the expected volume, based on the prior end volume measurement, sales and deliveries (a "book reading").

The New Jersey Department of Environmental Protection (DEP) has compiled several booklets to assist the regulated community with understanding the process of monthly inventory reconciliation and the necessary steps in compiling the data. It is recommended that all owners and operators of UST systems obtain the following documents from the DEP:

- DEP, August 1996, *Doing Inventory Control Right*;
- DEP, August 1996, *Manual Tank Gauging for Smaller USTs*;
- DEP, January 1996, *Straight Talk on Tanks* and,
- DEP, January 1995, *Don't Wait Until 1998*.

The August 1996 editions are recent upgraded versions of the original EPA documents and provide tear-away master sheets for daily and monthly tabulations. Contact the Bureau of Underground Storage Tanks at (609) 292-8761 to request a copy.

The DEP reviews various forms of inventory reconciliation. Consistent problems are seen amongst the large and small UST system owners/operators. The intent of this article is to discuss what these problems are and how you,

the UST owner/operator, can avoid making similar mistakes.

Stick Readings. The data is only as good as the measurement taken. This single measurement can result in overages/shortages which may not in actuality exist. The condition of the stick is most critical. It should be notched or marked to 1/8" and not worn at the base. A varnished stick can reduce the potential for petroleum "creep" and inaccurate readings; however, all that is required is that the stick be of non-sparking material (i.e. wood) and that it is legible to 1/8" markings. Automatic Tank Gauges (ATG) within a tank provide the same reading on actual volume measurement, thus measurement with a "stick" is not always a requirement.

Daily readings are required. Opening and/or closing readings are recommended for more accurate inventory records. It is a requirement that stick readings (or ATG readings) are NOT conducted during fuel dispensing activities, thus it is recommended that readings either be taken while the pumps are shut off (i.e. before the station opens or after it closes) or during a lull in business. Stick or volume measurements are necessary prior to a delivery and following a delivery. Before product is delivered, a stick reading will correlate the book value used in determining how many gallons are needed. This action can help prevent overfilling tanks not yet upgraded. In measuring the volume following a delivery, it is important to wait a minimum of 5 minutes prior to taking a reading. This allows the temperature of the recently delivered fuel to equilibrate with the temperature of the product already in the tank.

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In collecting the stick volume readings, it is important to carry a clipboard. The measurements are to be read to the nearest 1/8". Due to time delays in taking the measurements to writing down the numbers in the office, it is best to write down the tank measurement as it is taken. This reduces the potential for confusion between different tanks' measurements when logging the data, especially where several tanks are measured in the same event.

The opportunity for the earliest numbers to be incorrectly tabulated back in the office is great when coordinating measurements of several tanks, possible interruptions with sales and time delays in taking the measurements and writing them into the log book.

Water Measurements. Measuring for water in a tank is only required to be conducted once a month. However, it may be beneficial in the overall program of evaluating the integrity of a tank to collect this measurement more often. When taking this measurement, the water paste is applied to the base of the stick. The stick should be set in the tank for a period of 10 seconds for gasoline and 30 seconds for diesel, for an accurate measurement. It is critical to remember that this stick reading should NOT be used in measuring for the product volume. The long residence time may result in "petroleum creep", a process by which the stick is wetted at a higher level than the actual product level. This can give a false volume loss (shortage). A separate measurement should be taken for product volume.

If more than one inch of water exists in a tank, the tank should be decommissioned and the water pumped from the tank. Due to this expensive and time-consuming process, more frequent measurements can be a cost-effective manner to evaluate potential causes of water accumulation. In noting the weather conditions daily, the potential for water to be infiltrating into the tank during a rain event, following a rain event due to inadequate runoff protection around the port, or for ground water entering the tank can be quickly evaluated, with minimum cost to the owner/operator. Water build-up as a result of condensation on the walls of the tank is a very slow process. If water accumulation is via ground water, daily or frequent measurements can pinpoint rapid accumulation of water in the tank. Care should be taken when measuring for water through a drop tube in the tank, due to potential condensation on the walls of the drop tube.

Petroleum Measurements. In collecting a petroleum volume measurement, care needs to be taken to avoid "petroleum creep". The problem with the creep factor is that the measurements need to be accurate to an 1/8 of an inch, thus the volumes calculated off a measurement reflecting "creep" are excessive and inaccurate. Creep may occur when the stick is left in a tank for as little as 5

seconds. The proper way to stick a tank is to gently place the stick to the base of the tank and then quickly removed the stick. Petroleum creep can be avoided by use of petroleum paste. This product is similar to the water paste used; however, it is applied along a six-inch interval where the product level is expected. The paste turns color where in contact with the petroleum. Care should be taken to allow readings to 1/8" when applying the paste to the stick. More accurate readings may occur with the use of petroleum paste, as it reduces the chance of error when reading a stick in poor lighting conditions or when volatilization is rapid. Petroleum paste also assists inexperienced workers in reading the measurement to 1/8".

Calibration Charts. Each tank should be provided with its own calibration chart. It is important to use only that chart associated with that tank, unless the tanks are all of the same volume and manufactured by the same company. Each chart is to be calibrated to 1/8 inch to gallon conversions. Often, this is not the case and extrapolation is needed. It is recommended that the tank manufacturer be contacted for a new chart, if extrapolation is currently the manner of calculating volumes. If a tank is a steel tank, the Steel Tank Association (847-438-8265) can provide a calibration chart for your size tank. The DEP's August 1996 *Doing Inventory Control Right* booklet provides for a method for extrapolating the volumes; however, this is a three step procedure and the more mathematical steps used in determining one value, the more chance for errors to make it on the tabulated sheet. If your tank(s) have been retrofitted with a striker plate, this modification will require a recalibrated chart or significant errors (1" or more) in volume measurement will occur. This can result in shortages of up to hundreds of gallons.

Manifolded Tank Systems. Tank systems which are manifolded or which have dispensers which blend fuels are to be considered one system. This requires adding all measurements as one reading. It is recommended that daily readings of the separate tanks be kept, as math errors can occur when combining several fractional readings. This will provide a double-check if the monthly tabulations indicate an overage or shortage, especially if a blending system is employed at the site. Combined readings from tanks where the fuel is blended may result in a masking effect if one of several tanks is leaking.

Combining readings from separate tanks or systems which do not blend fuel from a common inventory cannot be used for meeting the monthly inventory reconciliation records. When combined readings are provided, a statement clarifying the rationale for combined readings should be provided.

Totalizer Calibration. It is important for the totalizers to be properly calibrated, as these readings are used in the comparison of tank volume inventories to what has been sold and delivered. In New Jersey, the meter calibration is

How to Avoid Common Problems With Monthly Inventory Reconciliation (continued)

regulated by the Bureau of Weights and Measures, which is under the jurisdiction of the county, for systems which sell product. Contact the county officials if your station's meters have not been inspected recently and you suspect the totalizer readings are not consistent with your records. Meters are to be inspected on an annual basis. If you are not regulated by the Bureau of Weights and Measures, an annual calibration is recommended.

The master sheets included in the August 1996 edition of the *Doing Inventory Control Right* manual includes several blanks for totalizer readings, if one tank dispenses to several totalizers. Each tank's totalizer reading(s) should be entered in the same column to ensure the correct readings are provided for that specific tank.

Deliveries. It is important to conduct a volumetric ("stick") measurement prior to receiving a delivery of product. This additional check of inventory provides an updated amount needed, as well as reduces any errors in over-deliveries (especially important for tanks which have not yet been upgraded with overfill protection devices). Following delivery, it is important to take a second volume measurement, to ensure the volumes delivered are consistent. When tallying the volume delivered, if sales occur during the delivery process, the "Gross Gallons Delivered (Receipt)" volumes should be used. If no sales occurred during the delivery process, the stick reading should be used (after volume minus the before volume). If two volumes are provided to you on the delivery ticket, the "gross" volume should be used, not the "net" volume.

To avoid common inventory reconciliation problems, it is important to be aware of what each step's procedure and purpose is relative to the end result. Careful measurements, keeping equipment in good condition, and daily review of the data will provide the tank owner with a measure of reliability in the monthly end result. It is recommended that an "overage" or "shortage" which has persisted for five or more days, be reviewed for any math errors or other problems discussed above. Daily records are supposed to be retained at the site. This allows the owner or operator to check for any errors in measurement or any anomalies in the data, as well as meet the regulatory requirements. Poor measurements can be costly as the UST Rules (N.J.A.C. 7:14B) require an investigation within 7 days of one month's exceedance of the leak rate (the federal regulations allow two consecutive months before tank system investigation).

If you are having any difficulty with the procedures or if you have any questions about monthly inventory reconciliation, the Bureau of Underground Storage Tanks (609-292-8761) can assist you.

New Discharge Notification and Prevention Rule

By: Nate Byrd

Division of Responsible Party Site Remediation
Discharge Response Element
Bureau of Field Operations

The rule for notifying the Department "Hotline" of hazardous substance discharges and discharge prevention was recently readopted with revisions and appeared in the New Jersey Register on October 7, 1996. The revised rule, entitled "Discharges of Petroleum and Other Hazardous Substances" (N.J.A.C. 7:1E), implements the requirements of the Spill Compensation and Control Act (N.J.S.A. 58:10-23.11 *et seq.*) that sets standards for discharge prevention, emergency responses, and mitigation of discharges. The old rule expired September 3, 1996.

Developed by the Department in concert with the De Minimis Task Force, a partnership of governmental agencies and the regulated community, the revisions are aimed at clarifying complex provisions of the old rule and simplifying discharge reporting procedures, while at the same time ensuring the protection of the public health and the environment. The task force was commissioned by Commissioner Robert C. Shinn, Jr., in November 1995.

Highlights of the readopted, less-burdensome rule include the following provisions:

1. While small business owners or operators and homeowners are still required to report discharges to the DEP Hotline immediately, they are not required to submit discharge confirmation (follow-up) reports to the Department. However, all records of cleanup and removal actions must be maintained on-site.
2. Releases of hazardous substances resulting from motor vehicle accidents that are contained on paved roadways, do not impact either soil or water bodies, and are cleaned up and removed would not call for Hotline notification. Notification would be required for releases that have triggered other state or federal reporting requirements.
3. Major facility (as explained below) owners and operators will keep cleanup records on site in lieu of Department notification. Discharges at these facilities that are contained on-site, have not impacted the waters of the state, or migrated off-site, and are cleaned up within 24 hours do not require notification to the Department. Although a 30-day discharge confirmation report to the Department would not be required for these discharges, facilities are required to maintain cleanup records on-site for 3 years and available for

New Discharge Notification and Prevention Rule (continued)

Department review. Again, this exclusion is not applicable if the discharge triggers other state or federal reporting requirements.

For the purposes of this summary, major facilities are defined as those facilities with approved preventive emergency response plans: the discharge prevention, containment, and countermeasure (DPCC) and discharge cleanup and removal (DCR) plans pursuant to N.J.A.C.7:1E-4; or a risk management plan pursuant to N.J.A.C. 7:31; or an emergency contingency plan pursuant to N.J.A.C. 7:26-12; or a response plan pursuant to the Code of Federal Regulations 40 CFR 112.

4. Electric utilities are relieved of the immediate notification requirement for less-than-25-gallon transformer fluid releases provided the discharges have not entered any waters of the state or any storm drains leading to state water bodies, do not contain any polychlorinated biphenyl compounds (PCBs), and are cleaned up within 24 hours of discovery. In lieu of immediate Department notification of these limited discharges, utility workers responsible for these discharges are required to document cleanup and removal actions and maintain the records for three years.

Aside from the above-noted discharge reporting revisions, another notable provision of the new rule states that the DEP will no longer maintain the Discharge Cleanup Organization list of firms that register with the DEP to conduct cleanup services in the state.

Moreover, there are several additions and deletions of hazardous substances from the rule's Appendix A list of substances subject to discharge notification. Copies of the guidance document noting these changes are available from the Bureau of Discharge Prevention by calling (609) 633-0610.

It should be noted that the task force did not establish a de minimis quantity or a concentration of hazardous material under which reporting to the Hotline would be waived. The task force did not set a gallon or concentration de minimis level primarily because of the large number of chemicals included on the hazardous substance list and their wide range of characteristics and toxicity.

Finally, the rule indicates that all cleanup and removal actions should be conducted in accordance with the Department's "Technical Requirements for Site Remediation, N.J.A.C. 7:26E *et seq.*, or any applicable federal remediation regulations.

As indicated previously, the aforementioned summary is an overview of the readopted and revised rule, "Discharges of Petroleum and Other Hazardous Substances." Details are spelled out in the October 7, 1996 and the June 3, 1996 editions of the New Jersey Register. If you have questions concerning the new rule, please contact the Bureau of Discharge Prevention by calling (609) 633-0610.

M/T Anitra Oil Spill

By: Rob Schrader
 Division of Responsible Party Site Remediation
 Discharge Response Element
 Bureau of Emergency Response

On May 9, 1996, the Motor Tanker Anitra anchored in the Big Stone anchorage with its cargo of 41.9 million gallons of Nemba and Cabinda crude oils and prepared to lighter, or pump off, part of its cargo to a barge to enable the vessel to transit the thirty-five foot channel depth of the upper Delaware River. The anchorage is located in Delaware waters approximately ten and one half miles from Cape May, New Jersey. The vessel's draft was approximately 58.7 feet and it had anchored in approximately 65 feet of water. An oil sheen was noticed around the vessel on arrival but shortly after, it disappeared. During the lightering operation, it is believed that the valves to the sea chest had been inadvertently left open or that designated ballast lines had cargo in them. When the pumps were started, an estimated 40,000 gallons of oil was pumped out of the bottom of the vessel via the sea chest.

On Saturday, May 11, 1996, United States Coast Guard officials on the scene spotted the oil on the water surface and immediately halted the operation. Large containment booms were deployed around the vessel to contain the oil. That evening, an intense squall swept through the area and caused the oil contained in the boom to escape.

To understand the nature of this spill, you need to know the particulars of the oils involved. The Nemba and Cabinda crude oil on the vessel originally had a specific gravity less than that of water, which would cause the oil to float. One theory is that once the oil made contact with the water, it apparently started to weather and the specific gravity became greater or equal to the receiving water. Therefore, some of the oil had floated, but apparently the majority did not, buffeting the sandy bottom as it was pumped from the vessel.

We know that submerged oil can form thick, continuous deposits that are hundreds of feet long, or widely scattered small tar balls. Where there is current activity, especially generated by surf, such as along our coastal

M/T Anitra Oil Spill (continued)

beaches, the oil/sand mixture can form cigar-shaped "rollers" that can be scattered on the bottom or accumulate into mats. These rollers pick up sand and shell fragments as they move, making them heavier. Eventually they can be deposited on adjacent beaches after northeasters.

Another theory is that the oil remained liquid; initially it floated, but sank after picking up sand. In this scenario, the oil behaved very much like a conventional number 6 fuel at first, including rapid loss of the light fractions by evaporation, increase in viscosity. However, when the oil was transported into shallow water, it was more likely mixed temporarily through the water column by wave turbulence, due to its density greater than water.

On May 12, 1996, a Division of Fish, Game and Wildlife conservation officer discovered an oil fouled shoreline from Higbee Beach to just south of Sunset Beach, Cape May County. A responder was sent to Sunset Beach to make an initial assessment. After the assessment was made, the Bureau of Emergency Response and the United States Coast Guard from the Marine Safety Office in Philadelphia, along with a 70-person clean-up crew from the responsible party, converged on Sunset Beach to begin the tedious chore of cleaning up the oil. Separate staging areas were identified for both the waste and the equipment. To complicate matters, the oil had been buried in the coarse sand by the surf, and the arrival of migratory shore birds was imminent. In addition, the return of horseshoe crabs to lay their eggs on the beaches was threatened by the oil. It was imperative that the shoreline be cleaned as rapidly as possible. Because of the impending shorebird and horseshoe crab arrival, representatives from the Division of Fish, Game and Wildlife's Endangered & Nongame Species Program were requested on scene. On the afternoon of Thursday, May 16, 1996, northeast winds began to blow as the clean-up contingent began to wrap up. At this point, oil had been cleaned from Town Bank to Cape May Point. Our target date for the clean up of that shoreline had been met.

It was on the morning of Friday, May 17, 1996, as clean-up operations were winding down, when it was learned that the northeast winds brought previously undiscovered submerged oil ashore on the beaches from Cape May Point to Atlantic City. What had appeared to be a relatively small spill of limited scope, became a large spill with extensive beach impacts on over 50 miles of coastline. This clean-up would require far greater resources. At this point, a structured command or Unified Command, consisting of the Coast Guard, NJ DEP and the responsible party, was formed. With assistance from the Boroughs of Stone Harbor and Avalon, a command post was established at the Stone Harbor Fire Department.

Immediately, shoreline assessment teams consisting of federal and state response personnel were formed and sent to assess the impacted beaches. Meanwhile, the Cape May County Office of Emergency Management began to convert the fire hall into a formal command post with a vast communications network, video capability and meeting rooms. Bird rehabilitation and cleaning stations were set up by Tri-State Bird Rescue and staffed with volunteers under direction of the Division of Fish, Game and Wildlife. Staging areas for equipment, waste, and health and safety were also set up and located along the coast. By the end of Friday night, over 150 people were cleaning the beaches. In the command post, 60 people planned the clean-up strategies and coordinated resources that were arriving around the clock.

DEP personnel from the Bureau of Emergency Response, Bureau of Field Operations, the Division of Fish, Game and Wildlife, and Office of Natural Resource Damages, as well as staff from the Nature Conservancy, converged in response to the spill. Governor Whitman and Commissioner Shinn, Jr. along with Assistant Commissioner Gimello, mayors and various representatives from the local and county governments, all met with the Unified Command on the beach in Avalon. On site, a briefing took place that explained the extent of the spill and our clean-up strategies.

Over the next week, more than 500 clean-up personnel, 50 boats, and several oil skimmers, helicopters and all-terrain vehicles were mobilized. County trucks and personnel, township personnel and equipment, and federal, state, county and local agencies worked together 20 hours a day to satisfactorily clean the beaches in time. By Friday, May 24, 1996, we had met our target date for the clean-up of the beaches, the Memorial Day weekend.

On Tuesday, May 28, 1996, northeast winds again brought undiscovered submerged oil ashore from Brigantine north to Long Beach Island. This oil, although intermittent and widely scattered, also required remediation, as it threatened the Holgate Wildlife Refuge areas. Another group of 150 clean-up personnel, along with federal, state, county and local agencies, worked 18-20 hours a day to satisfactorily clean the beaches for the next major beach weekend.

On July 9, 1996, the Anitra oil spill clean-up was brought to a successful conclusion. Representatives from the NJDEP Bureau of Emergency Response, the USCG, the responsible party representative Gallager Marine, and Prime Contractor S&D Environmental Services, inspected every beach from Town Bank on the Delaware Bay, around Cape May Point and north to Island Beach State Park. During this inspection, trenches were dug at the high water

M/T Anitra Oil Spill (continued)

line and just below the tide line to ensure no oil had been buried by the tides. In the end, all agreed that the beaches were satisfactorily cleaned. The cost for the spill to date is approximately 5 million dollars. A total of 2,878 tons of waste was generated, (all) disposed at reclamation facilities.

The cooperation and assistance among the Department, federal agencies, local business, and motel and restaurant owners, was key to the successful conclusion. Without this cooperation, we could not have accomplished the process of cleaning the 90 miles of shoreline as quickly as we did.

Innovative Approaches To Site Characterization

By: John Prendergast

Division of Publicly Funded Site Remediation
Hazardous Site Science Element
Bureau of Environmental Evaluation and Risk
Assessment

As a state participant on the Interstate Technology Regulatory Cooperation (ITRC) workgroup, the Department has been active in the evaluation and approval of site characterization and cleanup technologies. The ITRC is a partnership comprised of the Department of Energy (DOE), Department of Defense (DOD), EPA, and twenty four (24) state environmental agencies and other key stakeholders.

The ITRC is exploring mechanisms which decrease the amount of time it takes for new technologies to become widely accepted. The ITRC is working on the following technology classes:

- 1) In-situ bioremediation;
- 2) real-time field characterization technologies;
- 3) low temperature thermal desorption technologies;
- 4) plasma technologies;
- 5) permeable treatment walls for ground water treatment;
- 6) technologies for treating metals in soil.

The DEP is represented on workgroups for Field Characterization Technologies (John Prendergast), Permeable Treatment Walls Technologies (Matt Turner) and Metals in Soil Technologies (Brian Sogorka). In addition

to technical areas, the ITRC is also exploring policy initiatives which may identify additional ways to facilitate new technology implementation.

New Jersey was one of several states recently recognized for streamlining the approval process for environmental technologies. Due to the involvement and contributions of the ITRC member states, the ITRC received the federal government's Hammer Award, which is presented annually to groups making significant progress in cutting red tape and improving government services.

One of the technologies highlighted by the efforts of the ITRC is the Site Characterization and Analysis Penetrometer System - Laser Induced Fluorescence (SCAPS-LIF) which was evaluated by the Cone Penetrometer Site Characterization Task Group, an ITRC work group.

The SCAPS-LIF technology is a real-time in-situ subsurface field screening method for the detection of petroleum, oil and lubricants that contain polynuclear aromatic hydrocarbons (PAHs). The technology was developed by the United States Navy as part of a collaborative effort with the Army and Air Force. The system is one of a planned family of sensors collectively called the Site Characterization and Analysis Penetrometer System (SCAPS), that will combine remote sensors with a cone penetrometer platform to provide rapid, in-situ, subsurface measurements of many different contaminants and soil characteristics. The laser-induced fluorescence (LIF) method is a fiber optic-based system deployed with a standard 20 ton cone penetrometer.

The LIF sensor is capable of providing rapid, qualitative to semi-quantitative information about the distribution of subsurface petroleum contamination. The traditional approach to site characterization, which depends on collection of discrete soil and water samples followed by laboratory analyses, is usually a slow, iterative and costly process because the samples are collected with little prior knowledge as to the extent or exact location of the contaminant plume. Significant delays occur in site characterization while samples are analyzed. Subsequent borings must be drilled with no knowledge of the results from other boring locations, or the process must stop to await results from previous sampling. The LIF sensor is intended as a method to delineate the boundaries of the subsurface contaminant plume prior to installing monitoring wells or collecting soil samples. It is not intended to replace traditional soil borings and monitoring wells, but rather to maximize the effectiveness, and minimize the number of conventional borings and wells.

Through a verification process, it was concluded that, with the appropriate number and placement of confirmatory laboratory samples, the SCAPS-LIF field screening system

Innovative Approaches To Site Characterization (continued)

should produce reliable qualitative data capable of providing a detect/non-detect measurement of petroleum contamination in soil and an acceptable means of estimating the subsurface distribution of petroleum contamination. As a result of a detailed evaluation of the SCAPS-LIF and the endorsement of California EPA's certification of the SCAPS-LIF by the ITRC, formal acceptance of the technology has been obtained from 7 states including New Jersey, and is being pursued in all 24 ITRC member states.

The current efforts of the Cone Penetrometer Site Characterization Task Group will be directed to an evaluation and verification of two new SCAPS deployed volatile organic compound (VOC) sensors/samplers; the Thermal Desorption VOC Sampler and the Hydrosparge VOC Sensing System. The SCAPS Thermal Desorption VOC Sampler combines thermal desorption with the cone penetrometer technology to provide a means for real time detection and mapping of solvent and hydrocarbon contamination in the subsurface. The SCAPS Hydrosparge VOC Sensing System consists of a direct push groundwater sampling device coupled to an in-situ sparge device interfaced to an ion trap mass spectrometer. The SCAPS VOC technology is also undergoing a verification process led by the US Army Corps of Engineers Waterways Experiment Station and is under review by the State of California for acceptance into California's AB 2060 Hazardous Waste Environmental Technology Certification Program.

SRP Web Page ...

Look for it in February 1997 at
<http://www.state.nj.us/dep>

General Information:

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George H. Klein
 Program Support Element
 CN 413
 Trenton, New Jersey 08625-0413

Ecological Risk Assessment In NJDEP's Site Remediation Program: Conducting A Baseline Ecological Evaluation

By: Nancy Hamill, Research Scientist and
 Edward Demarest, Ph.D., Research Scientist
 Division of Publicly Funded Site Remediation
 Hazardous Site Science Element
 Bureau of Environmental Evaluation and Risk
 Assessment

Ecological evaluations and risk assessments are conducted at contaminated sites (1) to address actual impacts or the potential for adverse ecological effects resulting from site-related contamination, (2) to evaluate the effects of alternative remediation strategies, and (3) to establish clean-up levels for the selected remedy that protect ecological receptors.

Ecological risk assessments have been performed for National Priorities List (NPL) sites since the early 1990s pursuant to National Contingency Plan (NCP) requirements. With the passage of P.L. 1993, c.139 which includes the Industrial Site Recovery Act (ISRA) (N.J.S.A. 13:1K-6) and the Hazardous Site Remediation Act (N.J.S.A. 58:10B), ecosystem protection has been integrated with current Site Remediation Program (SRP) initiatives directed toward the protection of human health; together they form the basis of remedial decisions for all sites under its jurisdiction. P.L. 1993, c.139 established an "Environment Advisory Task Force" that will consist of scientists and others from industry, academia, public interest groups, and government. The Task Force is charged with making recommendations to the Department on the feasibility, development, and application of ecologically-based remediation standards. Until such recommendations are available, N.J.S.A. 58:10B directs that the Department shall determine the need for and application of remediation standards to protect the environment on a case-by-case basis in accordance with USEPA regulations and guidances. SRP's initiatives in ecological evaluation and risk assessment are coordinated through the Bureau of Evaluation and Risk Assessment (BEERA), Environmental Toxicology and Risk Assessment Section (ETRA).

A tiered approach for conducting of ecological evaluations and ecological risk assessments has been developed by the SRP. Tier I, the Baseline Ecological Evaluation (BEE), has proved to be an efficient and cost-effective screening process and is required for all SRP sites. A BEE assures that all sites are addressed for potential ecological effects early in the remedial process; sites

Ecological Risk Assessment In NJDEP's SRP: Conducting A Baseline Ecological Evaluation (continued)

without ecological concern are quickly eliminated from further, more rigorous site-specific investigation. Only those sites that present the potential for adverse ecological effects are retained for further investigation and/or risk assessment at the Tier II level. It is at the Tier II level that definitive estimates of risk and the basis for determining clean-up goals are provided.

While a BEE must be performed, evaluators are to use best professional judgment based on USEPA guidance. The purpose of this article is to provide further guidance on how to perform a BEE and to provide direction on the format and content of the final report delivered to the SRP.

The objective of the Baseline Ecological Evaluation is to examine the site for the co-occurrence of (1) contaminants of potential ecological concern, (2) environmentally sensitive areas, and (3) a chemical migration pathway to these sensitive areas. The intent is to use existing site documents, existing analytical data, and the results of a qualitative site visit to document these conditions in a brief report submitted as part of the Site Investigation (SI) report or as a stand-alone document if conducted outside of the SI. A work plan is not required for Tier I investigations. The BEE report should include, but is not limited to, the following information:

1. Contaminants of Potential Ecological Concern (COPEC)

Analytical data must be presented in a tabular format according to media and chemical fraction. Sample quantitative limits and data qualifiers should be included. If an adequate number of samples were taken and it is appropriate for the area of concern, the arithmetic mean, maximum concentration detected, 95 percent upper confidence limit, concentration range, and frequency of detection should be included. It is important to report measurement of parameters affecting toxicity to biota (e.g., total organic carbon, particle grain size, alkalinity, hardness) as well as standard field parameters (e.g., temperature, pH, dissolved oxygen). No potential COPEC should be excluded from consideration without proper justification pursuant to USEPA guidance.

Maximum measured contaminant concentrations are to be compared to ecotoxicologically-based benchmarks, or screening values, using a "weight of evidence" approach. If the measured concentration exceeds the benchmark, further assessment may be warranted since the potential for adverse ecological effects is indicated. For contaminants typically considered to biomagnify,

concentrations below the screening values do not necessarily negate the potential for adverse effects; these should be evaluated on a case-by-case basis. SRP currently recommends the media-specific screening values from the following references:

a. Surface Water

- New Jersey Surface Water Quality Standards, N.J.A.C.7:9B
- Federal Ambient Water Quality Criteria for Acute/Chronic Aquatic Life Protection, 40 CFR Part 131

b. Sediment

- "Guidelines for the protection and management of aquatic sediment quality in Ontario," Ontario Ministry of the Environment, ISBN 0-7729-9248-7, 1993, Persaud, D., R. Jaagumagi, and A. Hayton. (Fresh water sediments)
- "Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments," Environmental Management 19:81-97, 1995, Long, E.R., D.D. MacDonald, S.I. Smith, and F.D. Calder. (Estuarine and marine sediments)
- Briefing Report to the EPA Science Advisory Board on the Equilibrium Partitioning Approach to Generate Sediment Quality Criteria," EPA 440/5-89-002.

c. Soil

The scientific literature and various ecotoxicological databases should be consulted. Suggested references include:

- "Contaminant Hazard Reviews," Fish and Wildlife Service, U.S. Department of the Interior, various publication dates, Eisler, R.
- "Toxicological Benchmarks for Wildlife: 1994," Oak Ridge National Laboratory, Oak Ridge, TN, Opresko, D.M., B.E. Sample, and G.W. Suter.
- "Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants: 1994 Revision," Oak Ridge National Laboratory, Oak Ridge, TN, Will, M.E., and G.W. Suter.

Note that all benchmark values are intended to be used for screening purposes only and must not be considered as regulatory criteria or site-specific cleanup numbers. Any screening values used should be presented alongside analytical summary data in tabular format.

Ecological Risk Assessment In NJDEP's SRP: Conducting A Baseline Ecological Evaluation (continued)

2. Environmentally Sensitive Areas

Environmentally sensitive areas are thoroughly described in N.J.A.C. 7:1E-4.10. If present on-site, adjacent to the site, or under the influence of the site in any manner, these areas should be briefly described in the BEE report. Included should be a qualitative description of land use and major ecological habitat types, including natural and manmade areas (e.g., forested wetland, old field, waste lagoons, wildlife refuge). A map indicating sensitive area boundaries and an estimation of area covered by these habitat types, etc., should be provided. More comprehensive habitat and wildlife (plant and animal) surveys are usually reserved for the Tier II process.

3. Contaminant Migration Pathways to Environmentally Sensitive Areas

The potential for contaminants to migrate from the source to receptors must be evaluated during a site visit and documented in the BEE report. The text should include a description of potential chemical migration pathways. For example, surface impoundments may affect a receptor via direct exposure, they may contaminate groundwater that then discharges to a surface water body, and they may contaminate surrounding soil or surface water bodies via overflow and overland transport. It is appropriate to include a qualitative comparison of contaminants in various media with known site-related contamination.

A "Results and Discussion" section should summarize and interpret findings of the evaluation and present a reasonable decision regarding the need for further studies, based on technical information and best professional judgment. For example, a slight exceedance of a conservative screening value for one compound in one media would likely not warrant further investigation.

In summary, the BEE is a streamlined evaluation conducted with limited data using conservative assumptions for parameters where site-specific data are lacking. While the results of the BEE may overestimate actual risk, a "no further action" decision can be supported without additional investigation. If the results of the BEE indicate the realistic potential for ecological risk at the site, the appropriate conclusion will be that further site-specific investigation is needed at the Tier II level, which must be conducted in strict accordance with USEPA guidance ("Risk Assessment Guidance for Superfund, Volume II, Environmental

Evaluation Manual," EPA/540/1-89/001, and the associated supplementary guidance "Ecological Update Series").

For further information, please contact the Bureau of Environmental Evaluation and Risk Assessment, Environmental Toxicology and Risk Assessment Unit, at 609-633-1348.

Division of Responsible Party Site Remediation Oversees A Cleaner New Jersey

By: Michael Tompkins

Division of Responsible Party Site Remediation
Bureau of Field Operation

The mission of the Division of Responsible Party Site Remediation (DRPSR) is to remediate contaminated sites by maximizing the privately funded, contaminated site cleanup activities within the State. This mission supports that of the Department of Environmental Protection by requiring those responsible for contamination to conduct and fund the cleanup, thereby minimizing the expenditure of public funds.

In most cases, cleanups overseen by the DRPSR are first reported to the Department's 24 hour hotline. Last Fiscal Year, the hotline, which resides in the DRPSR's Discharge Response Element, received almost 21,000 environmental incidents/complaints, of which over 12,500 were further investigated by the Division. The balance (approximately 8,500) was handled by the other programs within the Department. Twenty percent of the Division's 12,500 incidents were actual emergencies or situations that could become emergencies and were handled by the Discharge Response Element's Bureau of Emergency Response (BER). Among the more dramatic emergencies BER responded to included the Shell Oil fire in Middlesex County and the Anitra oil spill impacting the southern New Jersey coast just prior to Memorial Day. Of the remaining 10,000 non-emergency incidents/complaints received by the DRPSR, approximately 3,700 were referred to either local or county health agencies. The remaining cases were either from regulated underground storage tank (UST) facilities and industrial establishments, or were spills/releases from other sources (i.e., homeowner oil tanks, drums, etc.). Those parties responsible for spills, in which the discharge did not result in an emergency or immediate threat to public health (and were not currently under the Division's oversight), were offered Division oversight via the Voluntary Cleanup Program. Parties willing to take part in this program, do so by signing a Memorandum of Agreement

DRPSR Oversees A Cleaner New Jersey (continued)

(MOA) with the Division. The MOA is a contract whereby a party agrees to investigate and cleanup a discharge in accordance with the Technical Requirements for Site Remediation (Tech Rules, N.J.A.C. 7:26E) and reimburse the Division for the time and material it expends. The Division, in turn, agrees to dedicate its resources to provide oversight and technical guidance to those conducting the remediation. During Fiscal Year 1996 (FY96), a record 1,436 MOAs were entered into by parties wishing to voluntarily clean-up their sites, and nearly 1,200 MOAs were closed, with sites, or contaminated portions of sites cleaned up.

Regulated UST facilities in New Jersey reported approximately 600 releases from leaking tanks or their piping systems during FY96. Of these, as well as ongoing cleanups reported during prior fiscal years, 620 releases were cleaned-up and 2,880 cleanups of UST related contamination are currently underway.

Not all of the sites at which the DRPSR oversees cleanups come in to the Department through the hotline. Pursuant to the Industrial Site Recovery Act (ISRA), many industries in New Jersey are required to evaluate their property prior to sale, cessation of operations, etc. During FY96, approximately 620 industrial establishments performed this evaluation. Of these establishments, approximately 75 discovered they had areas in which a cleanup was necessary. Of these, as well as establishments that had entered the ISRA process prior to FY96, 65 sites had completed cleanups, with approximately 935 remediations currently under way.

During Fiscal Year 1996 (July 1995 - June 1996), the DRPSR fulfilled this mission utilizing a staff of 317. As of the end of FY96, the DRPSR was providing oversight for approximately 6,000 cases in New Jersey requiring cleanup. Over the years, DRPSR has had to initiate innovative approaches to provide oversight for so many cases. These include delegation of case-specific decision-making down to the case manager and supervisor level. The Bureau of Underground Storage Tanks has developed the "Cooperative Venture Program" in which the responsible parties of one or many sites can prioritize their sites with the Bureau and develop mutual schedules based on risk (see the Summer 1995 *SRP Newsletter* for a full description of this initiative). The result has been more expedient cleanups that are protective of the environment and public health. The Division has also worked hard to continue providing outreach in the form of informational speeches and training, further educating both the regulated community and the consulting firms that are conducting the clean-ups in this state. As a result of this outreach, the DRPSR has seen

closer adherence to the technical requirements for the Site Remediation Program (7:26E), resulting in improved submittals of site evaluations, remediation plans, and remedial action reports. Overall, these improvements have resulted in fewer multiple reviews by the Division, a reduced need in having to go back and perform additional work, and a resultant cost savings to those conducting cleanups. The Division has also developed a closer working relationship with the U.S. Environmental Protection Agency (EPA), resulting in a greater number of cases being overseen utilizing federal resources. For example, 39 emergency cases which met the criteria of the joint EPA-DEP Memorandum of Understanding were referred for EPA cleanup or oversight, saving the N.J. Spill Fund more than \$2.3 million and countless DRPSR staff hours.

Assistance to parties responsible for cleanups that continued in FY96 included disbursement of low interest loans and grants, overseen by the Department of Commerce's Economic Development Authority. During FY96, 145 loans and grants were approved, with a total of \$18,076,000 disbursed. Additionally, a refocus on intended land use has been undertaken (Brownfields Initiative), which has allowed for, among other things, capping of contamination where it could be shown that such a cap would be protective of human health and where groundwater would not be impacted. A prime example of this is the Mercer Waterfront Stadium, home of the Trenton Thunder AA professional baseball team.

For Fiscal Year 1997, we expect an increase in oversight work for the Division. This will require an even better prepared and educated staff, and a need for even better submittals from consultants servicing both the regulated community and residents of this State. Still, we remain optimistic that all priority sites will be remediated effectively and in a timely manner. As contaminated sites in New Jersey continue to be cleaned, as parties responsible for cleanups voluntarily come forward and do so, and as long as the DRPSR can continue to provide oversight, we will continue to see a cleaner New Jersey well into the future.

General Information:

Please be sure to include the box number on all mail addressed to the Industrial Site Evaluation Element. Some mail has been received by the element many weeks past the date on the correspondence due to the omission of the box number. The proper way to address mail to the element is:

Section Name or Case Manager's Name
Industrial Site Evaluation Element
CN 028
Trenton, New Jersey 08625-0028

List of SRP Publications

General Information

Document Name	Published	Description	Contact	Price
Site Remediation Program Report	Annual Report	Legislative and program report updates	Bureau of Planning & Systems CN413 Trenton, NJ 08625-0413 (609) 292-9418	No Charge
Site Remediation Newsletter	Quarterly Newsletter	Remedial programs and progress	Program Support Element CN 413 Trenton, NJ 08625-0413 (609) 633-1373	No Charge
Known Contaminated Sites in New Jersey (KCS NJ)	Semi-Annual Report	Comprehensive listing of approximately 7,000 known contaminated sites	Maps & Publications CN 417 Trenton, NJ 08625-0417 (609) 777-1038 or 1039	\$15.00
Publicly Funded Cleanups Site Status Report	Annual Report	Listing and summary descriptions of approximately 300 publicly funded sites undergoing remedial action	Bureau of Community Relations CN 413 Trenton, NJ 08625-0413 (609) 984-3081	No Charge
NJ Superfund Sites on the National Priorities List	8/96 Fact Sheet	List of Superfund sites in NJ, including county and municipality in which each site is located	Bureau of Community Relations CN 413 Trenton, NJ 08625-0413 (609) 984-3081	No Charge
Site Information Program	1996 Flier	Description of SRP program for information on known contaminated sites	Bureau of Community Relations CN 413 Trenton, NJ 08625-0413 (609) 984-3081	No Charge
Revitalizing New Jersey's Brownfields – Industrial/Commercial Contaminated Site Reuse	8/96 Booklet	Summary of issues and programs related to remediation of Brownfield sites	Bureau of Community Relations CN 413 Trenton, NJ 08625-0413 (609) 984-3081	No Charge
Homeowner Assistance Guideline	12/96 Fact Sheet	Provides guidance concerning remediation of releases of #2 fuel oil (home heating fuel) at residential properties	Bureau of Field Operations Case Assignment Section CN 028 Trenton, NJ 08625-0028 (609) 633-1421	No Charge
Choosing an Environmental Consultant for Site Remediation	9/96 Brochure	Informational brochure on selecting a consultant for cleaning up a contaminated site	Discharge Response Element CN 028 Trenton, NJ 08625-0028 (609) 633-1421	No Charge

Please Note: Items with an asterisk (*) can also be obtained from the Site Remediation Program on the BBS, phone 609-292-2006.

List of SRP Publications (continued)

Document Name	Published	Description	Contact	Price
Voluntary Cleanup Program's Information Package	9/96	Description of the Voluntary Cleanup Program & MOA Residential and Non Residential Applications, as well as common questions and answers	Bureau of Field Operations Case Assignment Section CN 434 Trenton, NJ 08625-0434 (609) 292-2943	No Charge
Billing Brochure	9/93	Information on the NJDEP Responsible Party Site Remediation Program Oversight Costs	Bureau of State Case Management Environmental Claims CN 028 Trenton, NJ 08625-0028 (609) 633-0701	No Charge
Spill Fund Compensation/Sanitary Landfill Contingency Fund	Brochure (Updated as necessary)	Outlines the two funds administered by the Environmental Claims Administration	Bureau of State Case Management Environmental Claims CN 028 Trenton, NJ 08625-0028 (609) 633-2947	No Charge
Environmental Claims Application Spill Compensation and Control Act Sanitary Landfill Facility Closure and Contingency Fund Act	8/94 Application Forms & Instruction	Application for Damage Claim	Bureau of State Case Management Environmental Claims CN 028 Trenton, NJ 08625-0028 (609) 633-2947	No Charge
Spill Fund Annual Report	Annual	Summary of Fiscal Year events for Spill Fund	Bureau of State Case Management Environmental Claims CN 028 Trenton, NJ 08625-0028 (609) 633-2947	No Charge
Hazardous Discharge Site Remediation Fund Proposal	4/94	Guidelines for submitting a loan or grant application from the Hazardous Discharge Site Remediation Fund	Bureau of State Case Management Environmental Claims CN 028 Trenton, NJ 08625-0028 (609) 633-2947	No Charge

Technical Guidance

Field Sampling Procedures Manual	1992	Sampling procedures	Maps & Publications CN 417 Trenton, NJ 08625-0417 (609) 777-1038 or 1039	\$25.00
Alternative Ground Water Sampling Techniques Guide	1994	Guidance	Maps & Publications CN 417 Trenton, NJ 08625-0417 (609) 777-1038 or 1039	\$5.00

Please Note: Items with an asterisk (*) can also be obtained from the Site Remediation Program on the BBS, phone 609-292-2006.

List of SRP Publications (continued)

Document Name	Published	Description	Contact	Price
*Field Analysis Manual	1994	Sampling procedures	Maps & Publications CN 417 Trenton, NJ 08625-0417 (609) 777-1038 or 1039	\$7.00
Guidance Document for the Remediation of Contaminated Soils	Revised 6/96	Mandated by Section 38 of P.L. 1993, Chp. 139, this guidance document describes remedial actions pertaining to soils	Maps & Publications CN 417 Trenton, NJ 08625-0417 (609) 777-1038 or 1039	\$5.25
*Declaration of Environmental Restrictions Guidance Document (DER)	8/93	Legal Document that restricts the use of contaminated property; holds owner(s) to the regulatory/statutory requirements for cleanup	Industrial Site Evaluation Element CN 028 Trenton, NJ 08625-0028 (609) 984-1351	No Charge
Classification Exception Areas Final Guidance	4/95	Explains the standards used to protect the State's ambient ground water from pollution and how exception areas are identified	Bureau of Ground Water Pollution Abatement CN 413 Trenton, NJ 08625-0413 (609) 292-5262	No Charge
Revised Soil Cleanup Criteria	Revised 7/96	Provides risk-based soil cleanup criteria based on land use evaluating two pathways: direct contact and impact to ground water	Bureau of Environmental Evaluation & Risk Assessment CN 413 Trenton, NJ 08625-0413 (609) 633-7413	No Charge
*NJPDES - DGW Technical Manual		Explains the application process for permits issued by the Site Remediation Program for the New Jersey Pollutant Discharge Elimination System-Discharge to Ground Water. Includes application.	Maps & Publications CN 417 Trenton, NJ 08625-0417 (609) 777-1038 or 1039	\$5.00

Underground Storage Tank Information

Straight Talk on Tanks	1/96 Booklet	Leak detection methods for petroleum underground storage tanks and piping regulated in New Jersey	Bureau of Underground Storage Tanks CN 028 Trenton, NJ 08625-0028 (609) 292-8761	No Charge
Guide for the Submission of Remedial Action Workplans	3/95 Booklet	Guidance to assist responsible parties who are required to prepare a Remedial Action Workplan for remediating a contaminated site	Bureau of Underground Storage Tanks CN 028 Trenton, NJ 08625-0028 (609) 292-8761	No Charge
Don't Wait Until 1998 - Spill, Overfill, and Corrosion Protection for USTs Regulated in NJ	1/95 Booklet	Meeting the 12/22/98 deadline for upgrade of regulated underground storage tanks	Bureau of Underground Storage Tanks CN 028 Trenton, NJ 08625-0028 (609) 292-8761	No Charge

Please Note: Items with an asterisk (*) can also be obtained from the Site Remediation Program on the BBS, phone 609-292-2006.

List of SRP Publications (continued)

Document Name	Published	Description	Contact	Price
Permit Application Instructions	1995	Covers information for new, existing and upgrading storage tanks, as well as Construction and Discharge Related Permits, Application to Install or Substantially Modify an Underground Storage Tank System	Bureau of Field Operations CN 028 Trenton, NJ 08625-0028 (609) 633-0708	No Charge
Tank Contractors Certification Package	1/95	Helps a candidate prepare for initial certification tests or renewal of certification	Bureau of Underground Storage Tanks CN 028 Trenton, NJ 08625-0028 (609) 292-8761	No Charge
Underground Storage Tank Closure Plan Approval Application	9/90 2/94	Covers proposed activities, UST removal or abandonment, required certifications and more	Bureau of Field Operations CN 435 Trenton, NJ 08625-0435 (609) 633-0708	No Charge

Industrial Site Recovery Act Information

*Industrial Site Recovery Act Limited Site Review Application N.J.S.A. 13:1K-11.3	1/95 Application Package	Simplifies the procedures to apply for and obtain an approval for a Limited Site Review	Bureau of Field Operations CN 435 Trenton, NJ 08625-0435 (609) 633-0708	No Charge
*Industrial Site Recovery Act Areas of Concern Waiver Application N.J.S.A. 13:1K-11.4	Application Package	Simplifies the procedures to apply for and obtain an approval for an Area of Concern Waiver	Bureau of Field Operations CN 435 Trenton, NJ 08625-0435 (609) 633-0708	No Charge
*Industrial Site Recovery Act Regulated Underground Storage Tank Waiver N.J.S.A. 13:1K-11.6	1/95 Application Package	Simplifies procedures to apply for and obtain an approval for a Regulated Underground Storage Tank Waiver	Bureau of Field Operations CN 435 Trenton, NJ 08625-0435 (609) 633-0708	No Charge
Consolidated Permit Application Form for Construction and Discharge Related Permits	11/92 Fact Sheet	Informative Fact Sheet and consolidated application form pertaining to construction and discharge related permits	Bureau of Underground Storage Tanks CN 028 Trenton, NJ 08625-0028 (609) 292-8761	No Charge
*Application for ISRA Applicability Determination	5/95	Form used to obtain an Applicability/Non-applicability Determination from NJDEP pursuant to the Industrial Site Recovery Act	Bureau of Environmental Evaluation, Cleanup & Responsibility Assessment CN 432 Trenton, NJ 08625-0028 (609) 777-0899	No Charge

Please Note: Items with an asterisk (*) can also be obtained from the Site Remediation Program on the BBS, phone 609-292-2006.

List of SRP Publications (continued)

Document Name	Published	Description	Contact	Price
*Expedited Review Application N.J.S.A. 13:1K-11.2	1/95	Simplifies procedures for the application process when applying for and receiving an Expedited Review	Bureau of Field Operations Initial Notice Section CN 435 Trenton, NJ 08625-0435 (609) 633-0708	No Charge
*Industrial Site Recovery Act Remediation in Progress Application N.J.S.A. 13:1K-11.5	5/95	Simplifies procedures to apply for and obtain approval for a waiver from further compliance with Industrial Site Recovery Act	Bureau of Field Operations Initial Notice Section CN 435 Trenton, NJ 08625-0435 (609) 633-0708	No Charge
*General Information Notice (GIN) and Fee Submittal Forms	1994 Fact Sheet & Form	Application Form for ISRA review	Bureau of Field Operations Initial Notice Section CN 435 Trenton, NJ 08625-0435 (609) 633-0708	No Charge
*ISRA Preliminary Assessment Report (PAR) Form	7/95 Form & Report	Form used as a foundation for completing a preliminary assessment report	Bureau of Field Operations Initial Notice Section CN 435 Trenton, NJ 08625-0435 (609) 633-0708	No Charge
Application for ISRA Remediation Agreement	4/94 Application	Used when requesting a Remediation Agreement from NJDEP	Bureau of Federal Case Management CN 028 Trenton, NJ 08625-0028 (609) 633-1455	No Charge
Application for ISRA DeMinimus Quantity Exemption	12/87 Affidavit	Allows the owner/operator of an industrial establishment to receive a De Minimus Quantity exemption	Bureau of Environmental Evaluation, Cleanup & Responsibility Assessment CN 432 Trenton, NJ 08625-0432 (609) 777-0899	No Charge
*Application for ISRA Certificate of Limited Conveyance	12/87	Allows the applicant to transfer up to one third the value of an Industrial Establishment without having to remediate the entire Industrial Establishment	Bureau of Environmental Evaluation, Cleanup & Responsibility Assessment CN 432 Trenton, NJ 08625-0432 (609) 777-0899	No Charge
*Negative Declaration Affidavit	1/94 Affidavit	Declares there have been no discharges or any discharges have been remediated	Bureau of Environmental Evaluation, Cleanup & Responsibility Assessment CN 432 Trenton, NJ 08625-0432 (609) 777-0899	No Charge
Self-Guarantee Guidelines	4/94 Fact Sheet	Provides guidance for completing an application for Self-Guarantee	Bureau of Federal Case Management CN 028 Trenton, NJ 08625-0028 (609) 633-1480	No Charge

Please Note: Items with an asterisk (*) can also be obtained from the Site Remediation Program on the BBS, phone 609-292-2006.

List of SRP Publications (continued)

Document Name	Published	Description	Contact	Price
Site Safety & Health				
E-Z HASP	Document or Diskette	Shell document HASP Health and Safety Plan available on diskette in WP/QA format	Office of Site Safety & Health CN 413 Trenton, NJ 08625-0413 (609) 984-9779	\$5.00
HASP Minimum Requirements for Contractors	Document	OSHA 1910 Requirements to be completed by Contractors at Hazardous Waste Sites	Office of Site Safety & Health CN 413 Trenton, NJ 08625-0413 (609) 984-9779	No Charge
Student Manual for 8 Hour OSHA Refresher Course	Document	The manual given to each attendee of the OSSH provided program; OSHA 1910.120 annual 8 hour refresher course for Hazardous Waste	Office of Site Safety & Health CN 413 Trenton, NJ 08625-0413 (609) 984-9779	\$2.50
Regulations				
*Technical Requirements for Site Remediation (7:26E)	Published NJ Register Effective 6/7/93	Provides the department's minimum technical requirements for remediating a contaminated site	Office of Administrative Law CN 049 Trenton, NJ 08625-0049 (609) 588-6606	\$30.75
Proposed Readoption with Amendments Technical Requirements for Site Remediation	Scheduled Publication NJ Register 3/17/97 Issue	Technical requirements for the remediation of contaminated sites throughout the state 1-800-328-4480 ext. 76707	Copies of the New Jersey Register may be obtained from: West Publishing	
Department Oversight of the Remediation of Contaminated Sites (N.J.A.C. 7:26C)	Adopted 5/17/93	Sets forth how any person may obtain the department's oversight to participate in the remediation of contaminated sites	Office of Administrative Law CN 049 Trenton, NJ 08625-0049 (609) 588-6606	\$24.50
*Ground Water Quality Standards (N.J.A.C. 7:9-6)	Published New Jersey Register Feb.'93	Rules which explain the ground water standards that must be met for acceptable cleanup	Office of Administrative Law CN 049 Trenton, NJ 08625-0049 (609) 588-6606	\$16.50
Regulations Implementing the NJ Underground Storage of Hazardous Substances Act (7:14B-1-13 & 15)	Effective Date 11/18/92	Provides the regulating program for the prevention and remediation of unauthorized discharges of hazardous substances caused by releases from underground storage tanks (UST) systems	Office of Administrative Law CN 049 Trenton, NJ 08625-0049 (609) 588-6606	\$21.50
Remedial Priority System Regulations (N.J.A.C. 7:26F)	Published NJ Register 12/16/96 Issue	Rule that provides a relative ranking system for contaminated sites	Copies of the New Jersey Register may be obtained from: West Publishing 1-800-328-4480 ext. 76707	

Please Note: Items with an asteriak (*) can also be obtained from the Site Remediation Program on the BBS, phone 609-292-2006.

Summer 1996 Edition of "Known Contaminated Sites In New Jersey" (KCS NJ)...

is available for purchase through the department's Maps and Publications Sales Office. The KCS NJ lists sites in the state which have confirmed contamination present at levels greater than the applicable cleanup criteria for soil and/or ground water contamination and includes a separate list of sites with unknown sources of contamination.

The cost of the printed edition or a diskette format (ASCII or as a printable report) is \$15.00 for each option selected. Please direct all purchase requests to: NJDEP Maps and Publications Sales Office, CN417, Trenton, New Jersey 08625-0417. For more information, Maps and Publications can be reached at (609)777-1038 or 1039.

SITE REMEDIATION NEWS

State of New Jersey
Department of Environmental Protection
Division of Responsible Party Site Remediation
CN 413
Trenton, New Jersey 08625-0413

Senior Editor Donna Marie Zalis

Editorial Review Board Ron Corcorry, Barry Frasco, Linda Grayson, Wayne Howitz, George King, George Klein, Kevin Kratina, Ed Putnam, Dave Sweeney, and Bob Van Fossen.

Graphics Support Kathy DiGregorio

Contributing Writers Sharon McLelland, Nate Byrd, Rob Schrader, John Prendergast, Nancy Hamill, Edward Demarest, and Michael Tompkins.

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Site Remediation News Alphabetical Index

By: Kenneth F. Smith, Industrial Site Evaluation Element
Included with this edition of the Site Remediation News (SRN) is the annual update of the alphabetical index of articles found in the SRN (called ECRA UPDATE from Oct '89-Oct '91). The index is arranged using a key word or words from the title of the article. In some cases, an article title appears more than once. For example, an article dealing with soil cleanup was included under "Cleanup" and "Soil."

The index is updated once a year and included as an attachment to the edition published after the new year. If you have any suggestions for changes, please send them to Kenneth F. Smith, Industrial Site Evaluation Element, CN-028, Trenton, NJ 08625. If you would like to receive one or more back issues of the SRN or ECRA UPDATE, an order form has been included after the index. Although the most current issue of the SRN is distributed free of charge, a charge of \$5.00 per back issue is being instituted for this special service.

Please send your order form, with a check made payable to "Treasurer, State of New Jersey", to George H. Klein, Assistant Director, Program Support Element, Attn: Site Remediation News, CN413, Trenton, NJ 08625-0413.

We regret that we cannot make copies of individual articles.

State of New Jersey
Department of Environmental Protection
Site Remediation Program
CN 028
Trenton, New Jersey 08625-0028
(609) 292-9120

Christine Todd Whitman, Governor
Robert C. Shinn, Jr., Commissioner

Site Remediation News
Alphabetical Index
(October 1989 – August 1996)

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NOTE: From October 1989 – October 1991, *Site Remediation News* was named *ECRA Update*.

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