Remediation Policy and Procedures

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Program Description

The Remediation program directs cleanups of pesticide and fertilizer contamination that results from small releases that occur through normal handling practices. The program helps minimize contamination of surface water, groundwater and the surrounding environment by ensuring that all agricultural chemical cleanups are conducted effectively and in a timely manner.

Authority

DATCP's authority to implement and enforce the remediation program is under ch. 94.73, Wis. Stats. and ch. ATCP 35, Wis. Adm. Code. Response actions are required to be conducted in compliance with chs. NR 700, 706, 708, 712 through 726, and 140 and 141, Wis. Adm. Code, as applicable.

Mission Statement

To protect Wisconsin's environmental resources from pesticide and fertilizer contamination by restoring soil and water quality at sites with agrichemical discharges.

Objectives

To identify contaminated sites and restore environmental quality to an acceptable level by providing case oversight and technical assistance.

Terminology

Glossary

Field Staff Roles in Remediation

Case Initiation and Discovery

Cleanup cases are initiated by responsible parties (RPs), through complaints and by DNR or DATCP actions. RP initiated cases are normally the result of spill reports or site audits done for property transfers, loans or pre-construction. A few have resulted from the party's knowledge of a past spill that they would like to remedy.

Some cases are initiated by DATCP or DNR staff responding to complaints of pesticide mis-use, dead vegetation, vandalism or spills observed by a third party. Often our investigation includes collection of environmental samples and discovers violations of rules. If our samples confirm the presence of contamination, we must decide whether additional investigation is needed.

The third situation is where an investigator initiates an investigation, based on their observations. The extent to which such cases are initiated is closely related to workloads (both office and field) and to the specific circumstances. Recognizing that most commercial facilities have historical

contamination, priorities must be established. The first priority for DATCP initiated cases is where observations indicate significant recent spills or major ongoing violations of DATCP rules that may cause environmental contamination. Beyond this, annual work planning efforts will be used to estimate the number of cases that we should initiate. Field staff will be asked to identify those sites that should have highest priority, based on their knowledge of past practices, visual evidence of contamination or the environmental setting.

Remediation Initiation Investigation (RII)

The purpose of a RII is to determine if concentrations of pesticides and/or nitrogen at an agrichemical site warrant further investigation, and possibly remediation. The completed RII contains the case narrative, maps, photos, and analytical results. The users of the RII are the containment and remediation section chief, the assigned hydrogeologist and environmental enforcement specialist (EES), and in the majority of cases, the responsible party (RP) and their environmental consultant. The containment and remediation section chief uses the RII to decide if contamination is significantly above typical threshold levels of 1 part per million (ppm) total pesticides and/or 100 ppm inorganic nitrogen. If the threshold levels are exceeded, the facility will usually be required to hire a consultant to investigate the contamination, and plan a cleanup, if needed. The hydrogeologist and EES use the RII to determine the likely areas of concern. The narrative is also used as a reference for site-specific information (like addresses and phone numbers) and as the primary source of information for data entered into the case tracking system. Analytical results and a map showing the sample locations are sent to the RP with the "request for investigation" letter, and that information may be passed along to the consultant for planning additional investigation and cleanup.

Available Resources

There are many resources available for performing an RII, including:

- DATCP information, including spill records, bulk files, EES knowledge of site history, current visual observations, and interviews with current and/or former employees.
- Publications, including topographic maps, soil survey maps, plat maps, and often hydrological atlases and other reports.
- Photographic evidence, including on-site photos taken by the EES and aerial photographs.
- Laboratory results of soil samples, and in some cases groundwater and surface water samples.

RII Tasks

Ideally, the steps (and persons responsible) for the RII include:

- Prioritization of sites so the worst contamination is addressed first (Madison staff and EESs).
- Assignment of investigations on EES workplans (Madison staff and EESs).
- Discussion of schedule and responsibilities for performing the RII (EES and hydro).
- Preparation of a site-specific data package (by the hydro) that includes DATCP bulk file information and a summary of past violations.
- Review and discussion of findings and preliminary sampling plan, and scheduling the investigation (EES and hydro).
- Discussion of sampling with facility and scheduling interviews (EES).

- Discussion of the need for geoprobe sampling (EES and hydro).
- Identify all underground utilities prior to sampling. After discussing the locations of underground utilities with facility manager contact Digger's Hotline (1-800-242-8511) and private utility locate firm (EES).
- Interviews with current and/or former site employees (EES)
- Collection of samples for lab testing (EES and hydro)
- Preparation of case narrative (EES).
- Review of case narrative and analytical results (CR section supervisor, and as needed EES and hydro) and determination of need for additional investigation, case closure, or additional sampling.
- Incorporation of the RII information and findings in the request for investigation letter (hydro).

Sampling Requirements

The scope of the sampling will be dictated by the fundamental question, "Does the site contain agrichemical contamination levels high enough to warrant additional investigation or cleanup?" For a typical site, the sampling should focus on four or five areas of greatest concern. The primary areas of concern and proposed sampling locations should be identified by the EES and hydro prior to the sampling effort, but the final sampling locations may be modified based on interviews with site employees or existing site conditions. Typical areas of concern that should be considered include:

- Historic and current mixing areas
- Rail and truck loading and unloading areas
- Former burn areas
- Areas of dead or stressed vegetation
- On-site monitoring and supply wells

One sampling location (boring) per area of concern is normally enough. In some areas, like mix/load pads, two sampling locations may be needed; one location on each end of the pad. Shallow and at-depth samples should be collected at each sampling location. Shallow samples should be from 0-6", 0-4", 4-8", or another similar interval that would detect recent contamination. When possible, at-depth samples should be collected from native soil or deeper fill, typically at depths between 1 to 3 feet, to detect older contamination that has migrated down or been covered by fill.

For most cases, we expect the sampling scheme discussed above will be used. However, if high levels of contaminants can be shown with just a few samples, that may be sufficient. In at least one instance, a cleanup case was initiated using just one sample (with a willing RP). If too few samples are collected to show the site is "clean", re-sampling will be needed, and that is generally unpopular with all involved parties. The decision to proceed with a reduced or modified sampling scheme will be based on the EES's professional judgement and prior discussions with Madison office staff.

Documentation

The documentation needed for the RII is listed on the RII outline (Appendix 18A). The outline should also be used as the framework for the RII narrative that is completed by the EES. Please use the same order as presented.

The expected level of detail is shown on the example narrative (Appendix 18B), which takes some liberty with previous, good RIIs.

Good photos are important. Take photos of the samples next to the sampling point and sampling equipment (include your used gloves). Also, take at least one photo of the area surrounding each sampling point. Finally, take some photos showing the overall lay-out of the site and location of pavement, buildings, and overhead utilities. These photos will be used as part of the RII determination and they will serve as a reference for the hydros when evaluating drilling and excavation locations.

Prepare a site map that shows the entire site, large-scale site features and the locations of the samples. The distances of the samples to at least two fixed benchmarks should also be indicated in enough detail so the sample points can be relocated and used in planning the remediation.

Do we need to send a responsible party (RP) letter?

Prior to sending an "RP letter", the hydro will contact the EES to discuss the case with them to assure their concurrence on the need for an RP letter. Soon after sending the RP letter, the hydro should meet with the EES and RP at the site to discuss the Agricultural Chemical Cleanup Program (ACCP), our expectations of the RP and specific needs for the site. The meeting should be at the facility to allow for a site tour involving both the EES and hydro and an evaluation of investigative and/or remedial needs. The hydro would then prepare a follow-up letter to summarize discussion at the meeting and lay out DATCP's investigative or remedial expectations, consistent with the discussions and observations. A draft will be shared and discussed with the EES. A quick turn-around is needed by both the hydro and EES.

How Does a Spill Become a Long-Term Case ?

Typically, spills will be resolved quickly by the EES, as described in Section 16 (Spill Response). As the spill coordinator, the remediation engineer will track the EES response to spills and provide technical assistance to the EESs. Under normal circumstances the EES will guide the responsible party through containment, excavation, confirmatory sampling, stockpiling (when needed), and landspreading within days or a few weeks of the event. Analytical results for this round of sampling may allow case closeout, or may justify additional excavation. If additional excavation and sampling can occur in a reasonable timeframe, (possibly extending to a few months), closeout could occur based on the EES's report and accompanying documentation.

Where the second round of samples still shows a problem or if the second excavation cannot occur in a timely manner, the case will transition to a "long- term" case. At this point, a hydrogeologist or the remediation engineer will be assigned as the case lead, thereby taking on the responsibility for case progress and coordinating communications between the EES, responsible party and possibly DNR. The EES and remediation engineer is responsible for identifying when a case has reached this point and recommending the case become a long-term case. The recommendation will be presented to the Environmental Quality Section Chief who will decide if the change is warranted. The case transition decision should be conveyed (either verbal or written) to all parties including the

EES, the remediation engineer and the compliance supervisor. Transfer of responsibility from the EES to Containment and Remediation staff will then be confirmed in writing to the EES and the responsible party by the newly assigned staff.

Work Plan/Work Report Review

What to Review - Work plans - EES Responsibilities

Detailed review of work plans is the responsibility of the project manager (hydro). The EES's role is to provide additional input based on site familiarity and other resources more accessible from the field.

For work plans, the EES should review the proposed sampling locations for consistency with observed practices, both past and present. Any maps should be reviewed for relative accuracy and sample locations. The EES should provide input on additional locations, based on activities they have knowledge of.

Site history should be evaluated to assure it contains all relevant information. Often the text devoted to history is very brief, but additional information may be included in the sampling portion of the plan. Interviews of long-term plant employees and neighbors may be appropriate, but use these with discretion in discussion with Madison or perhaps with facility management.

Observable facility features should also be evaluated for possible past practices, such as:

- Where is outdoor water available that may once have served as mix/load sites? (hosebibs, hydrants, etc.)
- Where are former pesticide storage areas that may have been outgrown or replaced with new structures or locations?
- What buildings are less than 20 years old? What was there before construction?
- Where would fertilizer loading have occurred if the site has a rail siding or adjoins an abandoned railroad?
- Where are the old doors and loading docks on all the storage buildings?
- If the site had liquid fertilizer, where were the tanks prior to the bulk rules?
- What are the traffic patterns or holding areas for filled loads?

The EES should provide input on sampling depths. If facility modifications have resulted in fills and excavations since past activities, provide comments on what soil/gravel movement may have happened, where and to what depths, if known. For activities that happened several years ago, greater depths and perhaps wider sampling intervals (up to 2') may be more appropriate to locate contamination. For recent spills, smaller near-surface intervals may reduce the need to excavate uncontaminated soils.

The EES should also review those components of the work plan that identify surroundings, to assure the assessment of other possible sources of contamination is accurate and to identify nearby drinking water wells, monitoring wells or surface waters.

The EES often has sufficient familiarity with sites in their work areas, so that a site visit may not be needed to review the work plan. This is especially true where a responsible party meeting is held on-site at the start of the case or where the case was initiated by the EES's prior site investigation. The EES is not expected to know everything regarding the above information, but rather to provide what they know and suspect, particularly where it differs from the work plan. If the site is outside the EES's normal work area or the EES has only been responsible for the site for a short time, the EES should contact other field staff who may have greater site familiarity. The EES and hydro should jointly decide whether any particular item warrants an on-site visit and who should make this visit.

What to Review - Work Reports

Work report review by the EES should compare the work accomplished with the field observations of sampling and other investigative or remedial activities. Does the report on field activities accurately reflect when things were done, how they were done and problems encountered at the site? Review of the report probably requires that the EES either observe some of the field activities or visit the site after the field work commenced.

In addition to reviewing for consistency with field observations, the EES should establish general familiarity with the findings. The EES should note how the results compared with their expectations, based on site familiarity. The EES should discuss these findings with the case manager (hydro). While experience and training vary among staff, the EESs should consider:

- What areas were contaminated and to what general levels (high, medium, low)?
- Where did they find substantially less or more contamination than expected?
- Where does the EES think the consultant missed the target area?
- When reporting on excavations or soil descriptions, how does the information compare with the EES's observations?
- What soil and subsurface features were encountered? Is this representative of the area?
- What groundwater flow direction was established? Is this consistent with the observable land features, such as topography and nearby surface waters?

These later considerations should be used as a tool to direct future work at the site, particularly for identification of where additional investigation or clarification may be needed from the consultant. The hydros and EESs should discuss these observations to share knowledge that may be applicable to other sites.

What Not to Review - Work plans and Reports

In general, those areas not identified above are the responsibility of the hydro case manager. EES review of quality control information, lab data, boring logs and other raw data appendices is not expected, but an EES may sometimes wish to review portions of these components. When the hydro and EES are discussing apparent discrepancies between observations and the report, the hydro is responsible for checking back to the data and either clarifying the issue with the EES or questioning the consultant.

With remedial plans and reports, the EES's primary responsibility is to assure the work reported is consistent with that performed. The EES should be conceptually familiar with the remediation plan to allow for an evaluation of work done at the site. The hydro or remediation engineer is expected to understand why this remedy was chosen and the design specifications. Those specifications or features that should be monitored in the field needs to be discussed between the hydro and EES. The most common remedial tasks and the associated EES roles are:

1. Soil excavation with landspreading or landfilling. The EES should understand what is planned for excavation and how this relates to the soil concentrations at the site and to existing structures at the site. On the spreading/disposal side, the EES should know what is planned, for which sites and using what equipment. Landspreading is further discussed below.

2. Soil treatment. The EES should discuss the basic concepts behind the remedial design with the hydro and get specific direction from the hydro on areas where the hydro needs field input.

3. Groundwater remediation. (see soil treatment)

Field staff sometimes wish to increase their understanding of this program beyond their review roles as defined above. While additional work plan/report review can contribute to this effort, the additional review will normally be a duplication of effort with the hydro. Other educational avenues may be more efficient. Staff are encouraged to pursue such training. However, work efforts should be consistent with work assignments and training plans established through the performance evaluation process, to assure that assigned work is completed.

<u>Reporting by EES</u>

DATCP has 30 days to approve, deny or modify work plans. Each hydro/EES team will need to discuss in advance how the review should occur, but all the following are routinely expected:

1. The EES should receive the work plan within one week of when DATCP gets it.

2. The hydro should provide a draft work plan approval/denial/ approve-with-modification letter to the EES, providing the EES with one week turn-around time for review.

3. The hydro and EES should discuss the draft letter and resolve differences in what work is needed.

The EES can provide comments either before or after the hydro drafts the letter. Likewise, the need for documenting comments in writing is also a case-by-case decision, and should not be viewed as the "norm" by either the EES or hydro.

The EES should receive work reports within one week of when DATCP receives them. Often these reports are linked to a work plan or are followed by a DATCP request for a work plan. If the former is true, the process above applies. If the agency must request a work plan, the request should take the form of a scope of work, prepared by the hydro in communication with the EES. The review

process above still applies. For work reports, a fourth step is needed to address how reported work differs from field observations:

4. The EES will summarize in writing any significant discrepancies between the work report and their field observations. This summary should be in the form of a memo to the hydro case manager, and submitted to the case manager before a response to the consultant/responsible party is finalized. The EES and hydro will discuss how to address each discrepancy, involving others within the Environmental Quality or Compliance Section as appropriate.

Dispute Resolution (between EES and hydros)

The EES should recognize that the hydro is the project manager and is responsible for most technical decisions. In this role, the hydro must recognize input from the field and balance this with other case decisions. If a recommendation from an EES is not addressed, the hydro will explain the decision to the EES. The EES must recognize that their request may have significant policy impacts beyond the specific case and should consider the hydro's decision in this light. Likewise, the hydro should consider the broad enforcement and field experience of the EES.

Recognizing the above, some differences of opinion will result. Such disputes will be resolved, if necessary, through the normal chain of command:

The first step is the Environmental Quality Section Chief and field staff supervisor.
The second step is the Environmental Quality Section Chief and Compliance Section Chief.
The third step involves the bureau director as the final decision maker.

Given the time limitations imposed by staff workloads and response deadlines, the dispute resolution process must be quick and efficient. Verbal initiation and resolution is preferred, with written follow-up where needed.

Field Observation of Investigations and Remediations

What to Observe

There are three objectives for field monitoring of investigative work:

1. To assure the work being performed is consistent with the approved work plan; and

2. To assure the subsequent work report reflects in-field conditions and observations; and

3. Monitoring for the ACCP reimbursements that will be addressed later.

The degree of field observation should be sufficient to gain comfort with the work being conducted. (The EES work plan estimates about 5 hours, including reporting and travel.) Time should be greater where substantial problems are observed, either in methods or sample locations. Time could be less where we have established confidence in the firm and individuals doing the work.

The primary observations should include the following:

Investigation

- How do the sample sites selected compare to the work plan sites and to past activities on the site?
- Are sampling methods, depths and general observations on materials consistent with what was encountered? (colors, odors, texture, etc.)
- Are equipment cleaning and contamination prevention procedures appropriate?
- Are there possible contamination or compliance problems that were not included in the work plan that are now apparent?

Landspreading

- Do materials being removed match the description of what was anticipated by the work plan? - locations and physical properties (sand, clay, gravel, etc).
- If screening is done, are the fine materials being adequately separated?
- Do fill materials appear of equal or lesser particle size (less permeable) than what is removed?
- Are stockpiles adequately protected from weather?
- Is the spreading relatively uniform? Do the rates appear consistent with the approval?
- Are mixing efforts sufficient if mixing of high and low concentration areas is required?
- Is landspreading limited to approved areas, including crops, slopes and setbacks?

All field activity monitoring

- Was the overall work plan followed? What was not done? What additional work was done?
- Are there other issues to address ACCP documentation needs?
- Are continuing practices causing further contamination?
- Are there safety issues, such as questions regarding safety of consultant procedures or site safety during remediation?

<u>When is it Necessary vs. Optional vs. Unnecessary</u>

Investigate: Monitoring of investigations cannot be done for all investigations, nor is it needed. Emphasis should be placed in four areas:

- Initial investigations;
- Consulting firms we have not previously monitored;
- Responsible persons doing their own work; and
- Sites or firms where past investigations have identified problems.

Investigate: Typically field visits are not needed at follow-up investigations unless the investigator is needed to specifically identify activity areas or other items. Field visits may be appropriate even for follow-ups when we are experiencing problems with the consultant or responsible party.

Remedy: We have noted inconsistencies between what is approved and what occurs. Observation of landspreading activities, both at the excavation site and spreading site should be conducted whenever possible, for every case where significant quantities must be spread. It is less important to follow-up on subsequent stages when work at a site is done in more than one stage, particularly if the same equipment will be used and it worked sufficiently during the prior round.

Remedy: Field visits on remedial activities other than excavation and landspreading need to be discussed individually between the EES and the assigned hydro or engineer.

All field activities: Once a comfort level has been established with the investigative techniques or landspreading skills of the consultant, field visits may be shortened, to establishing a presence and confirming sample locations.

While discussing the work plan approval letter, the hydro and EES should discuss the need for field work observation. Language may be inserted in the approval letter requesting advanced notice of the field activities. The hydro should notify the EES of all field activities that the hydro is informed about. Unless clearly essential, no field monitoring of consultant work will be done by DATCP staff other than the assigned EES or hydro.

Observing vs. Directing the Consultant/RP - Non-Spills

Field observation should normally be limited to collecting the information listed above. We expect that the presence of a DATCP field person may provoke questions or requests to alter the work plan. The EES should explain that their presence is to assure the work plan is carried out, not to debate the merits of the work plan, nor to promote field modification of the work plan.

Typically the consultant's field team differs from those that sign the work plans, but often there is some overlap. Sometimes the purpose for some work may not be understood by the consultant's field team. Under the following conditions, the EES should provide direction or advice to the consultant:

- Work beyond the work plan. If sampling, excavation or other work is being conducted that is not specified in the work plan, the EES should inquire as to its purpose and whether the consultant believes it is part of the approved work plan. Such work may or may not be reimbursable, depending upon the purpose and our subsequent decision on appropriateness. In some cases the work plan may indicate some discretion for additional samples, extending an excavation or other activities, based on site conditions.

The EES should not indicate whether the work beyond an approved work plan is reimbursable, but should explain the following:

- Procedures in violation of DATCP rules, NR 700, NR 141 or other laws or rules, or in violation of the Landspreading Authorization (s.94.73(2)(d), Stats). Where the EES has a clear understanding of what regulations require and the on-site procedures violate these requirements, the EES should inform the person doing the work of the apparent violation and advise them to discontinue and/or correct the situation. If the EES is uncertain about the requirements, call the

hydro or a supervisor. As with our other regulations, we do not have the authority to make anyone stop violating laws or rules. The EES should issue a written warning in the name of the violator and the violator's employer, with a copy also provided to the responsible party for the cleanup. If the violation substantially affects the consultant's ability to complete their scheduled work, the EES should also call the hydro or a supervisor as soon as possible.

- Field conditions warrant changes. In some situations the observations made by the EES or reported by the consultant warrant field modifications of the approved work plan. If the EES does not concur with the need for a change in the work plan, the EES should state this and explain their presence is to assure the work plan is carried out, not to promote field modification of the work plan. If the EES concurs with a need to change the plan because of field conditions, the EES should explain they do not have the authority to modify the work plan for that site, but can try to contact the case manager or Environmental Quality Section Chief to seek approval. The EES should then contact the hydro or the Environmental Quality Section Chief and explain what planned work cannot be done (or what additional work is needed), what field conditions warrant the change and what alternatives exist. Requests and decisions reached should be documented in writing by the EES.

Observing vs. Directing the Consultant/RP - Spills

For immediate spill response the EES has greater responsibility to field direct work. Here the EES's first role is to gain an understanding of who is responsible and assist the responsible person in understanding the need to respond. Some of this process will involve explaining what may need to be done. The explanation should be honest, but also clear on the consequences of not reacting quickly, including legal, environmental and cost consequences.

The Spill Response in Section 16 should provide further information on the EES's role in spill response, including issues related to observing vs. directing spill response activities.

Reporting by the EES

Reports by the EES should be completed and sent to the hydro in a timely manner, to allow the hydro to compare this report with comments or submittals from the consultant. The activity report should address the topics under "What to Observe". (The full case narrative format is not needed.)

If the field work is consistent with the work plan and no particular problems are noted with its quality, the report can be very brief. Simply noting the work followed the work plan, was of acceptable quality, and any supplemental information that may be needed for ACCP evaluations (when drafted). A facility inspection coversheet noting this information may suffice in such cases.

Any deviations from the work plan or any issues regarding the work quality should be fully explained. This explanation will form the basis of future dealings with the consultant and potential deductions on ACCP requests. Promptness in reporting will contribute to our ability to intercede prior to the responsible person paying for "poor" work before it becomes an ACCP issue.